

Industrial supply Tools catalogue

English | Catalogue no. 19

A Company of the SWAROVSKI Group
www.tyrolit.com

TYROLIT

Editorial

Dear Customers,

With our new Specialist Industry Catalogue No. 19, we present you the entire TYROLIT industrial range at a glance. In addition to numerous product innovations and expansions to the range, a comprehensive standard range for precision grinding has been included for the first time. This significantly further extends the TYROLIT product range available to you.

Sorted according to the steps in the machining process and clearly arranged with the most important parameters such as efficiency, material suitability and dimensions, you will reliably find the appropriate tool for each of your applications easily and intuitively.

With an almost 100-year tradition in the cutting and grinding industry, TYROLIT stands for products of the highest quality and outstanding performance. We continuously renew our commitment to these high demands. As one of the leading

manufacturers of grinding solutions, we are constantly striving to offer you the best products, optimally tailored to the relevant application and achieving the highest economic efficiency. With a special focus on the development of new product generations, our aim to ensure the competitiveness of our customers through productivity and cost benefits in their manufacturing processes.

As an innovation leader, the professional support of our customers in the optimisation of their applications is of great importance to us, in addition to supplying an excellent product. A globally active team of application engineers is available for this purpose.

Furthermore, a worldwide Customer Service in cooperation with Logistics ensures timely provision of the required abrasives, problem-free processing and the shortest delivery times.

No matter what your application, a TYROLIT product is definitely a first-class choice. Please also visit our website at www.tyrolit.com and find out about current innovations. We wish you much success.

Yours faithfully,
Your TYROLIT Team



A handwritten signature in dark ink, appearing to read 'D. Ehmans'.

Daniel Ehmans

Four steps to the right product

1. Select the application
 e.g. cutting, grinding, etc.

2. Select the machine
 e.g. angle grinder, straight grinder, etc.



3. Which material is being machined?
 Each performance level is further subdivided into different materials, such as stainless steel, steel, etc.

Items with grey lettering are only available on request.

4. Performance level
 We offer 3 different performance levels: Premium, Standard and Basic



Other search options

Product finder P.478ff

Index pages P.486ff



TYROLIT Group

A global company

As one of the world's leading manufacturers of bonded grinding, cutting, sawing, drilling and dressing tools and a system supplier of tools and machines for the construction industry, the family-run TYROLIT company has been synonymous with superior quality, innovative spirit and outstanding service since 1919.

Day in, day out the experts at TYROLIT are busy working on solutions that accommodate the individual requirements of customers around the world; thus contributing to their business success. Some 80,000 available products set the standard in various industrial sectors.



Business units

TYROLIT offers its customers cost-efficient and "green" solutions in four business units. Moreover, with its global sales network and a team of experienced application engineers, TYROLIT provides top-quality service.



Trade

Thanks to its global sales network, in addition to premium product solutions in the three core areas of cutting, grinding and finishing, TYROLIT's Trade business unit guarantees truly customer-focused marketing support.



Construction

In the Construction business unit TYROLIT is a leading system supplier of sophisticated drilling systems, wall and wire saws, floor saws and for grinding uneven surfaces such as motorways made of concrete.



Stone – Ceramics – Glass

Our customised diamond tools and grinding solutions in the Stone – Ceramics – Glass business unit cannot fail to impress through their exceptional performance and quality.



Metal / Precision

From precision machining in the engine and gear industry to the production of cut-off wheels with diameters up to 2,000 mm for the steel industry – the TYROLIT product range in the Metal & Precision business unit includes high-tech tools for a huge variety of applications.

Quality and Innovation

TYROLIT is one of the world's market leaders in this sector. For us, maximum precision is paramount – both in the quality of the manufactured products and where innovation is concerned. Continuous further development and improvement of products in all business units is one of our primary corporate objectives.

Expertise for our customers

TYROLIT offers its customers a first-class service in the form of ongoing advice and support. In each of our business units a team of specialists with years of experience in the industry assists and supports our customers worldwide with individual on-site expertise.

Customised products

TYROLIT has a huge and varied product range for numerous fields of application. These include both standard products for everyday use and individually adapted, made-to-order products for customer-specific processes. Together with our customers, we find the most cost-effective solution for the task with which we are entrusted.

International production and sales locations

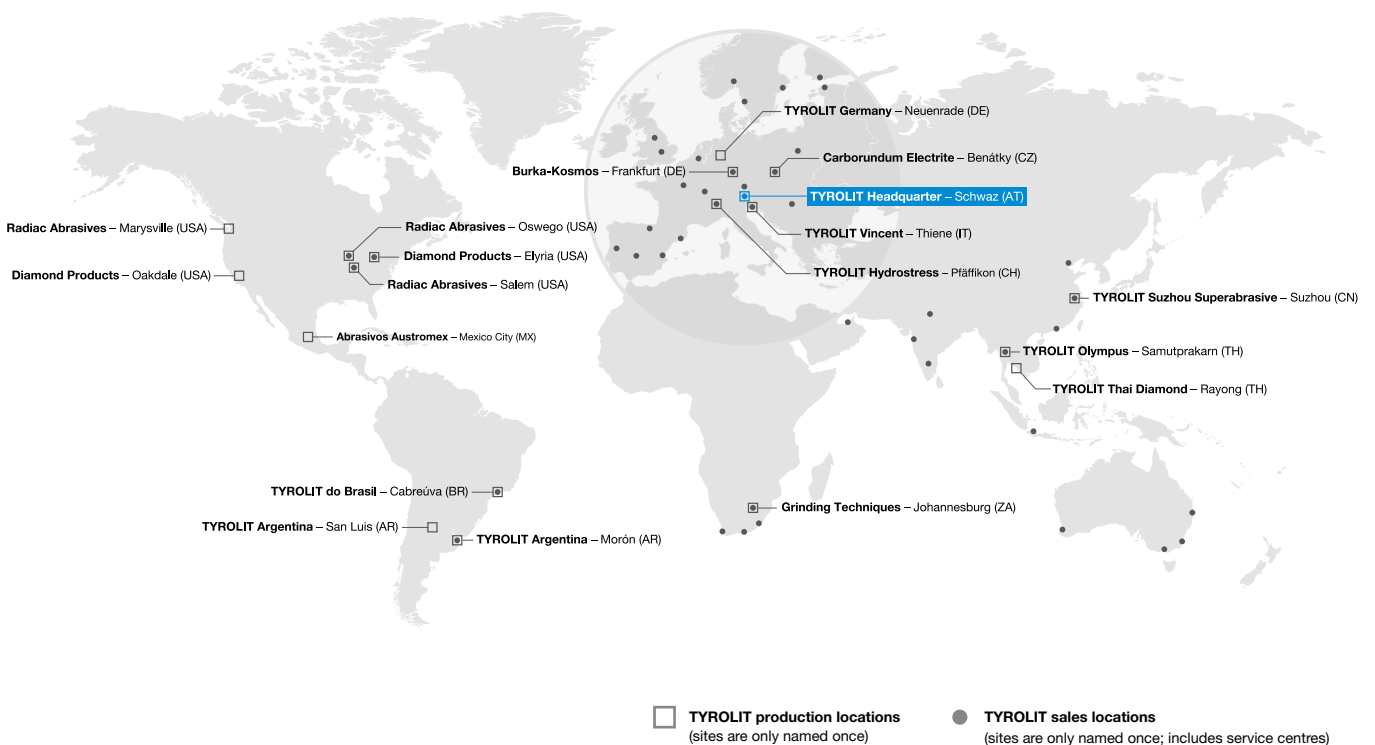
TYROLIT is represented in 29 countries through its own production and sales companies and cooperates in a further 65 countries with local partners.

Everyday our several hundred field service colleagues are working hard in the market alongside our end customers, in order to be able to provide them with advice and support whenever they need it. Of course, with these countless visits we constantly witness new challenges for application technology, which we view as opportunities for new products.



Sales companies in Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, India, Indonesia, Italy, Netherlands, Norway, Poland, Portugal, South Africa, Spain, Sweden, Switzerland, Thailand, UK, UAE and the USA.

Distributors in more than 65 countries across the globe





Global focus

TYROLIT believes in thinking and acting globally. With a worldwide sales network currently in 65 countries and with production plants in 12 countries, we offer our customers all the advantages of a globally active company.



Local availability

Think globally, act locally – in your local language and right on your premises. This is the principle we follow as we grow hand-in-hand with our customers. Local contacts and technical distribution in numerous countries guarantee you the best possible customer support.



Customer service

A coordinated supply chain – from production to delivery – guarantees on-time delivery for customers. Moreover, the use of modern planning systems and a team of specialised customer service employees ensures orders are processed quickly and smoothly.

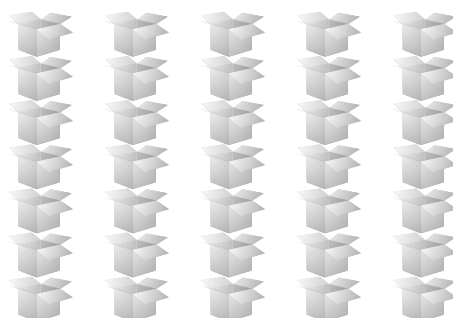


Global logistics

With 10 warehouses around the world, we ensure the best possible product availability for customers 365 days a year.

TYROLIT warehouses

- | | |
|-------------|------------------|
| — Argentina | — Czech Republic |
| — Brazil | — Great Britain |
| — France | — USA |
| — Spain | — Austria |
| — Thailand | — South Africa |



3.300.000

consignments leave the Benatky site every year.

7.700.000

consignments leave the Schwaz site every year.

From a good idea to an excellent product

What happens at TYROLIT when we get a good idea for a new product?

First of all, our product management team gets to grips with it. We have to find out precisely what is involved. Once our product managers have analysed all aspects and consider them to be good enough, a well-established process is initiated in which they take a leading role.



Of course, we do not leave our product managers to deal with this mammoth task on their own. To assist them, there are no fewer than 100 colleagues on hand in Research & Development. From fundamental research in the chemistry lab to questions pertaining to physics, whether theoretical or in the form of actual tests in the workshop, our employees in this department are constantly looking for new solutions.

Thus there are over 400 different abrasive types and combinations available to our product managers, which we can integrate in several hundred different bond systems.

From this unimaginable wealth of possibilities, the first test wheels are then produced. We prefer to try out many variations so that we can work on a solution in a truly comprehensive way.

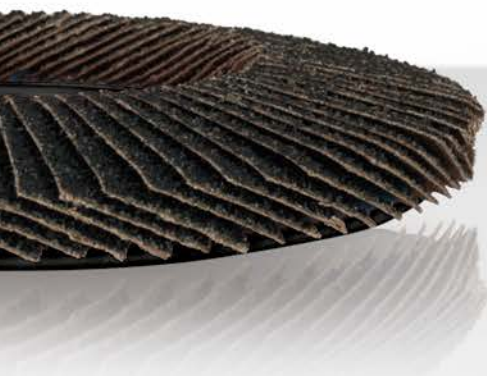
Then testing begins. Not only is the work result tested, but also whether the relevant solution can later be produced in larger quantities. We test whether the prospective products can be produced to a consistently high level of quality, as well as important aspects such as imbalance, lateral load and bursting speed values, to ensure we produce products for our customers that not only demonstrate high quality, but are also safe.

And finally it comes to the material. But not just any material. Here too we are very precise, in order to achieve reliable and above all comparable results. Every test material therefore needs a test certificate.

Once comprehensive testing both off-hand and also with stationary machines has been completed, and the best abrasive grain and bond system have been found, we can start with production.

It is not enough for us to simply start well with a new product, we want to guarantee a consistently high level of quality. We owe that to our name and to our customers. For this reason, we continue to take and test samples from every production batch in order to guarantee our high quality standards.

Ultimately it is our most important promise to our customers that we can regularly offer new and excellent innovations at the highest quality level, because that is what the name TYROLIT represents.



Quality lines

TYROLIT has been one of the leading manufacturers of tools for every professional and application for almost 100 years.

To make your search for the ideal tool easier, we have divided our range into three performance levels. This enables us to offer the perfect solution for every application!



PREMIUM★★★

- Maximum cutting ability and stock removal rate
- Above-average lifetime
- The best work results
- Maximum economic efficiency
- Extensive product range - the perfect product for every application
- Use of the most innovative technology and the best raw materials
- Maximum comfort for the user thanks to low vibration and noise levels

STANDARD★★

- Excellent cutting ability and stock removal rate
- Excellent service life
- Exceptional work results
- High level of economic efficiency
- Large product range - for the most important applications

BASIC★

- Good cutting ability and stock removal rate
- Good service life
- Good work results

Symbols

SAFETY



Wear gloves



Wear a mask



Only permitted for wet grinding



Not permitted for side grinding



Wear eye protection



Wear protective clothing



Not permitted for wet grinding



Off-hand and hand-guided grinding not permitted



Wear ear protection



Observe the instructions



Do not use damaged wheels



Free from Fe, S, Cl

MATERIAL



Steel



2in1 steel/stainless steel



High-speed steel



Universal



Abrasive materials



2in1 aluminium/stone



Rails



All in One



Asphalt



3in1 cast iron/steel/stainless steel



Tiles



Stainless steel



2in1 aluminium/stainless steel



Carbide metal



Concrete



Paint/lacquer



Gel coat



Plastic



Marble



Wood



Cast iron



Stone



Titanium



Hard stone



Composites



Nonferrous metals

MACHINES



Dry core drill



Angle grinder with brush



Pneumatic angle grinder



Stationary cutting machine



Wet core drill



Angle grinder



Petrol cutting saw



Table saw



Belt grinder



Joint cutter



Mini belt grinder



Burnishing machine



Floorstand grinder



Dual action sander



Hand-guided grinding



Angle grinder with cup wheel



Portable belt grinder



Straight grinder



CUTTING

Cutting information
Angle grinders
Straight grinders

Petrol cutting saws
Stationary cutting machines

Cutting

GRINDING

Grinding information
Angle grinders

Straight grinders
Pedestal and pendular grinding

Grinding

BRUSHES

Brushes information
Angle grinder
Straight grinder

Floorstanding grinder
Hand-guided grinding

Brushes

PRECISION GRINDING

Precision grinding information
External cylindrical grinding
Reciprocating surface grinding
Surface grinding

Internal cylindrical grinding
Hand-guided grinding
Saw sharpening
Tool grinding

Precision grinding

COATED ABRASIVES

Grinding information
Angle grinder
Straight grinder
Belt grinder

Hand sanding and super finishing
Dual action sander
Burnishing machine
Floorstanding grinder

Coated abrasives

NOTES

Safety
Quick product search
General

Notes

SYMBOLS

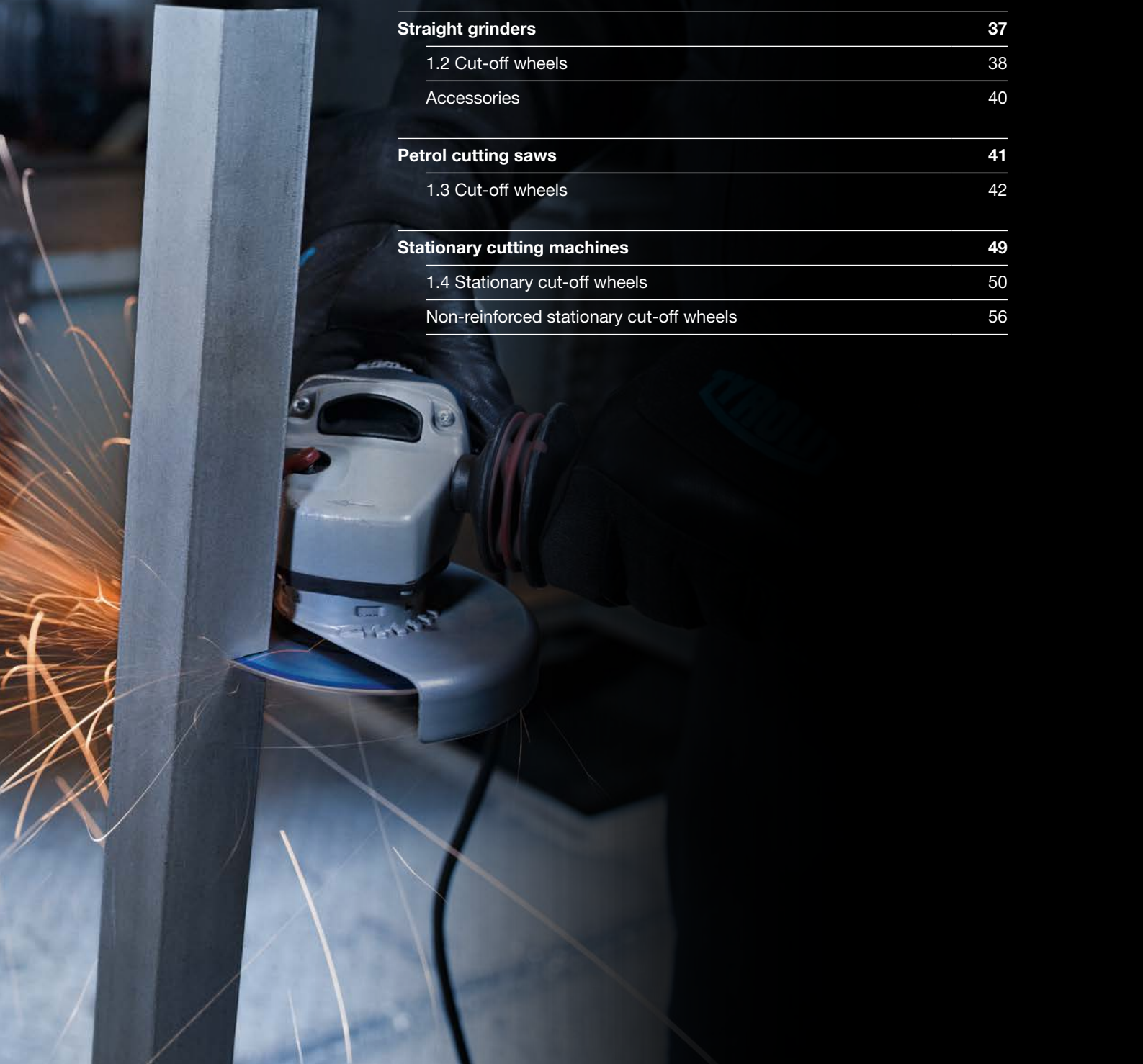
Safety
Material
Machines



CATALOGUE 19

CUTTING

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SPECIFIC INFORMATION

RESIN-BONDED CUT-OFF WHEELS

Cut-off wheels product label



Colour codes

Label	Steel	2in1/3in1	INOX	Nonferrous metals	Cast iron	Stone
Colour code	Blue	Blue	Red	Orange	Purple	Green
Material	Steel	2in1 = Steel and stainless steel, 3in1 = Steel, stainless steel and cast iron	Stainless steel	Aluminium, copper, zinc, brass, bronze, stone	Cast materials	Stone

Cut-off wheels specification

A46N-BFXA

A	External reinforcement: with external reinforcement										
X	TYROLIT internal designation										
F	Fibre-reinforced: Fibre glass (safety, lateral load, operating speed)										
B	Bond: V = vitrified bonded, B = resin bonded, E = elastic bonded, G = galvanic bonded										
N	Designation of hardness: N = soft – T = hard										
46	<table border="0"> <tr> <td style="border: none;">Grit size indication in mesh (sieve size per inch)</td> <td style="border: none;">Grit size in mesh</td> </tr> <tr> <td style="border: none;">14 - 36</td> <td style="border: none;">coarse</td> </tr> <tr> <td style="border: none;">46 - 60</td> <td style="border: none;">medium</td> </tr> <tr> <td style="border: none;">80 - 220</td> <td style="border: none;">fine</td> </tr> <tr> <td style="border: none;">800 - 1200</td> <td style="border: none;">very fine</td> </tr> </table>	Grit size indication in mesh (sieve size per inch)	Grit size in mesh	14 - 36	coarse	46 - 60	medium	80 - 220	fine	800 - 1200	very fine
Grit size indication in mesh (sieve size per inch)	Grit size in mesh										
14 - 36	coarse										
46 - 60	medium										
80 - 220	fine										
800 - 1200	very fine										
A	Abrasive: A ... Regular aluminium oxide, C ... Silicon carbide, ZA ... Zirconia alumina, CA ... Ceramic										

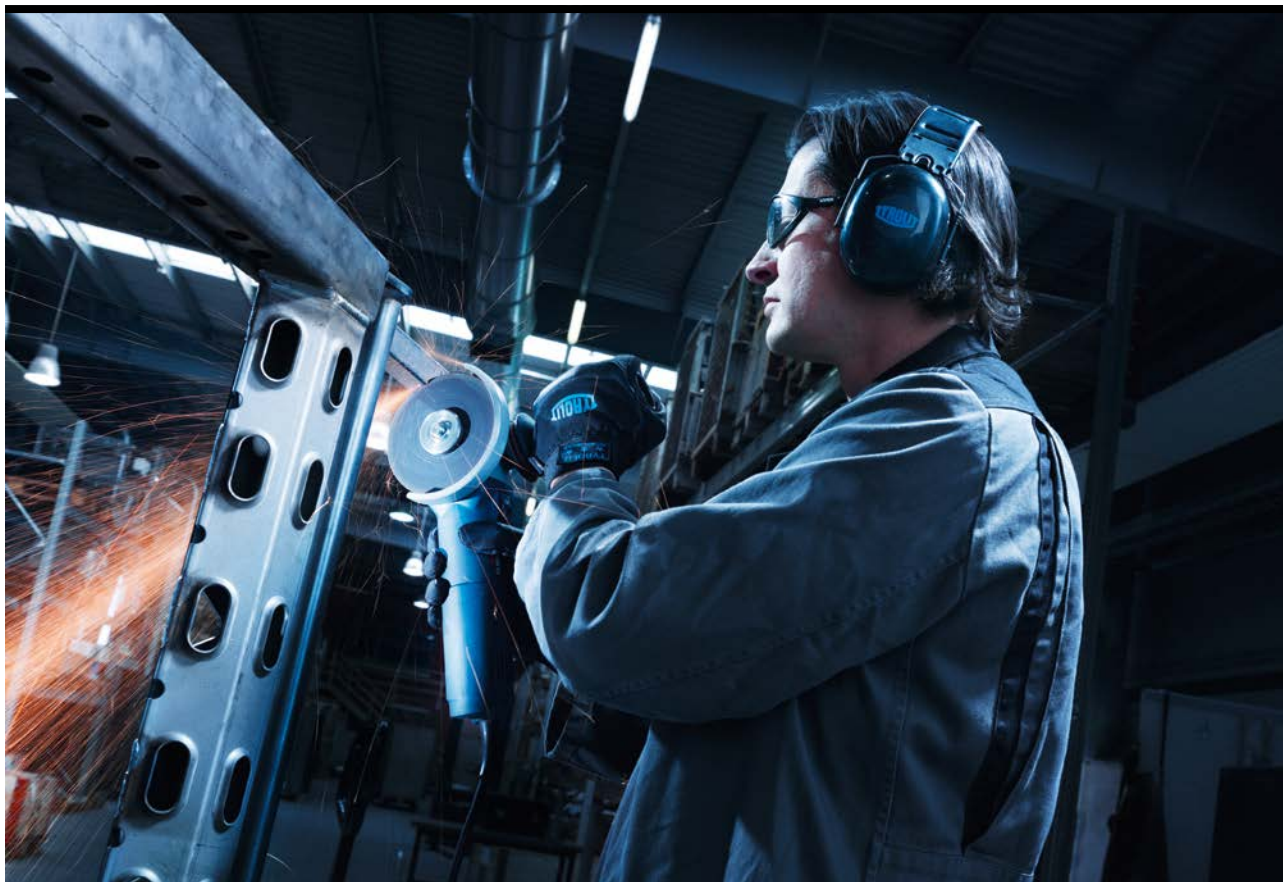
Pictograms for machines





1.1 ANGLE GRINDER CUT-OFF WHEELS





CUT-OFF WHEELS FOR ANGLE GRINDERS

Working with an angle grinder is one of the most important processes in the handicraft and industrial sectors for machining all types of metals. TYROLIT offers the ideal cut-off wheels for convenient and quick use with small and large angle grinders.

The benefits of our cut-off wheels in terms of innovation and economy can be clearly seen when it comes to cutting thin metal sheets and profiles. Our PREMIUM products in particular offer you the ultimate performance and lifetime, very clean cutting areas and low thermal load. This means there is only a limited


amount of rework required, saving you time and money.

However, the highest priority here at TYROLIT is the health of our customers. TYROLIT cut-off wheels therefore meet the highest safety standards and contribute significantly to improving your working conditions. Reduced

vibration and noise considerably improve your level of comfort while working.

On the following pages you will find the perfect tool for your requirements thanks to the uniform colour code for all materials.


Shapes



41 Cut-off wheels
(straight design)



42 Cut-off wheel
(depressed-centre design)






27 EC und 27CC
CUT and GRIND
(depressed-centre design)




Application recommendation



Performance level	Specification	Page	Steel	Stainless steel	2in1	NF metals	Cast iron	NF metals/stone
PREMIUM ★★★	A60S-BFKA	LONGLIFE	21	●				
	A46S-BFKA	LONGLIFE	21	●				
	A46S-BFXA	LONGLIFE	21	●				
	A30S-BFKA		22	●				
	A30S-BFXA	LONGLIFE	22	●				
	TA60P-BFXA	2in1	23, 27			●		
	A60Q-BFKA	2in1	23, 24, 28			●		
	A46Q-BFKA	2in1	23, 24			●		
	A46Q-BFXA	2in1	23, 24, 28			●		
	A60Q-BFXA		24			●		
	A30Q-BFKA	2in1	24			●		
	A30Q-BFXA	2in1	24, 28			●		
	CA60Q-BFKA	2in1	25, 26			●		
	CA46Q-BFKA	2in1	25, 26			●		
	CA30Q-BFKA	2in1	25, 26			●		
	A60R-BFKA		30, 31		●			
	A46R-BFKA		30, 31		●			
	A60R-BFXA		30, 31		●			
	A30R-BFKA		31		●			
	A46R-BFXA		31		●			
	A30R-BFXA		31		●			
	A60N-BFXA		33				●	
	A46N-BFXA		33				●	
	A30N-BFXA		34				●	
	C46S-BFXA		34					●
	ZA30R-BFXA		36					●
	ZA30P-BFXA		36					●
	DC CI		36					●

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Performance level	Specification	Page			
			Steel	Stainless steel	Stone
STANDARD**	A60R-BFINOX	32	●		
	A46R-BFINOX	32		●	
	A30R-BFINOX	32		●	
	A30S-BF	31		●	
	C30S-BF	32, 33			●

Performance level	Specification	Page			
			Stainless steel	2in1	Stone
BASIC*	A60R-BFINOX	34		●	
	A60Q-BF	2in1 33		●	
	A46Q-BF	2in1 33, 34		●	
	A30Q-BF	2in1 33, 34	●		
	C30S-BF	35			●

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PREMIUM*** CUT-OFF WHEELS

SUPER-THIN LONGLIFE CUT-OFF WHEELS FOR STEEL

+ Enhanced economic efficiency
 Significant increase in lifetime and cutting ability, which is particularly evident in their first-cut performance. The wheel delivers the best results with shorter cutting times right from the very first cut.

+ Reduced working times
 A low load on the workpiece and short cutting times allow you to quickly achieve the best result. No supplementary reworking, such as cleaning or deburring.



+ Maximum comfort while working
 The tool operates consistently and without a jamming tendency, producing 30% less cutting dust. Additional sound and vibration damping are features that make the super-thin TYROLIT cut-off wheels a safe and convenient tool.

TYROLIT Film



The product film can be found on YouTube at www.youtube.com/TYROLITgroup

The next generation of TYROLIT PREMIUM*** cut-off wheels achieves a better performance than other PREMIUM wheels, and with considerably reduced tool wear. In



thicknesses of 1.0 to 1.6 mm, these super-thin cut-off wheels are suitable for all types of steel and impress with exceptional results without compromise.

As well as a clear improvement in productivity, these cut-off wheels also promote environmentally friendly use thanks to reduced waste production.

PREMIUM*** CUT-OFF WHEELS

Super-thin LONGLIFE cut-off wheels for steel



	Shape	Type no.	Dimension	Specification	PU	
		41	16118	115x1.0x22.23	A60S-BFKA	25
		51825	115x1.6x22.23	A46S-BFKA	25	
		16121	125x1.0x22.23	A60S-BFKA	25	
		51838	125x1.6x22.23	A46S-BFKA	25	
		34194857	150x1.2x22.23	A46S-BFKA	25	
		34194859	178x1.6x22.23	A46S-BFKA	25	
		183113	230x1.9x22.23	A46S-BFXA	25	




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PREMIUM★★★ CUT-OFF WHEELS
 LONGLIFE for steel



In standard widths, this high-performance tool not only offers a cost-efficient solution, but also the highest safety standards. This is provided by the longest lifetime and stability of the PREMIUM*** LONGLIFE. The tool is suitable for cutting metal sheets, profiles, pipes, rods and solid material.

The assortment of LONGLIFE cut-off wheels ranges from 1.6 to 1.9 mm for quick and convenient operation with the longest lifetime, and from 2.5 to 3.0 mm for the longest lifetime and stability.




	Shape	Type no.	Dimension	Specification	PU		
		41	637066	115x2.0x22.23	A30S-BFXA	25	
		637067	125x2.0x22.23	A30S-BFXA	25		
		637068	150x2.0x22.23	A30S-BFXA	25		
		785339	178x2.0x22.23	A30S-BFXA	25		
		637069	178x2.5x22.23	A30S-BFXA	25		
		34194860	230x2.0x22.23	A30S-BFKA	25		
		637070	230x2.5x22.23	A30S-BFXA	25		
			42	637071	115x2.5x22.23	A30S-BFXA	25
			637072	125x2.5x22.23	A30S-BFXA	25	
			637073	178x3.0x22.23	A30S-BFXA	25	
637074	230x3.0x22.23		A30S-BFXA	25			

STANDARD★★ CUT-OFF WHEELS
 For steel



This tool not only offers a cost-efficient solution for your everyday work, but also the safety standards customers have come to expect from Tyrolit. This is provided by the excellent lifetime and stability of the STANDARD** cut-off wheel. The tool is particularly suitable for cutting solid material.

The assortment of STANDARD** cut-off wheels for steel ranges from 2.5 to 3.0 mm. It offers a long lifetime and is suitable for universal use.

	Shape	Type no.	Dimension	Specification	PU		
		41	368009	100x2.5x16	A30S-BF	25	
		367565	115x2.5x22.23	A30S-BF	25		
		367569	125x2.5x22.23	A30S-BF	25		
		552399	125x3.0x22.23	A30S-BF	25		
		367574	150x2.5x22.23	A30S-BF	25		
		367578	178x3.0x22.23	A30S-BF	25		
		367583	230x3.0x22.23	A30S-BF	25		
			42	368010	100x2.5x16	A30S-BF	25
			367781	115x2.5x22.23	A30S-BF	25	
			367785	115x3.0x22.23	A30S-BF	25	
367786	125x2.5x22.23		A30S-BF	25			
367789	125x3.0x22.23		A30S-BF	25			
367800	178x3.0x22.23		A30S-BF	25			
367803	230x3.0x22.23		A30S-BF	25			

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PREMIUM*** CUT-OFF WHEELS

SUPER-THIN 2IN1 CUT-OFF WHEELS FOR STEEL AND STAINLESS STEEL

+ Enhanced economic efficiency
 Significant increase in lifetime and cutting ability, which is particularly evident in their first-cut performance. The wheel delivers the best results with shorter cutting times right from the very first cut.

+ Reduced working times
 A low load on the workpiece and short cutting times allow you to quickly achieve the best result. No supplementary reworking, such as cleaning or deburring.



+ Maximum comfort while working
 The tool operates consistently and without a jamming tendency, producing 30% less cutting dust. Additional sound and vibration damping are features that make the super-thin TYROLIT cut-off wheels a safe and convenient tool.

With the next generation PREMIUM*** 2in1 cut-off wheels you can enhance performance while significantly reducing tool wear. In thicknesses of 1.0 to 1.6 mm, these super-thin 2in1 cut-off wheels have


been developed for machining steel and stainless steel. The chemical purity makes this tool ideal for machining stainless steel. In this way, impairments to the material, such as corrosion, pitting corrosion

or a reduction in the fatigue strength, can be avoided. As well as a clear improvement in productivity, these cut-off wheels also promote environmentally friendly use thanks to reduced waste production.

PREMIUM*** CUT-OFF WHEELS

Super-thin 2in1 cut-off wheels for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU
	—	41 34040608	115x1.0x22.23	A60Q-BFKA	10 Dose
		34040609	125x1.0x22.23	A60Q-BFKA	10 Dose
		773268	115x1.0x22.23	A60Q-BFKA	25
		384142	115x1.2x22.23	TA60P-BFXA	25
		14082	115x1.6x22.23	A60Q-BFKA	25
		773269	125x1.0x22.23	A60Q-BFKA	25
		384143	125x1.2x22.23	TA60P-BFXA	25

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PREMIUM* CUT-OFF WHEELS**

Super-thin 2in1 cut-off wheels for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU	
		41	14085	125x1.6x22.23	A46Q-BFKA	25
			401205	150x1.2x22.23	TA60P-BFXA	25
			34165055	150x1.2x22.23	A46Q-BFKA	25
			920351	150x1.6x22.23	A46Q-BFXA	25
			34165056	178x1.6x22.23	A46Q-BFKA	25
			920353	230x1.9x22.23	A46Q-BFXA	25
		42	87215	115x1.0x22.23	A60Q-BFXA	25
			87216	125x1.0x22.23	A60Q-BFXA	25

PREMIUM* CUT-OFF WHEELS**

2in1 for steel and stainless steel



This high-performance tool has been designed to be used on both steel and stainless steel and its standard widths offer a cost-efficient solution. This is provided by the longest lifetime and stability of the PREMIUM*** 2in1. The tool is suitable for cutting metal sheets, profiles, pipes, rods and solid material.

The assortment of 2in1 PREMIUM*** cut-off wheels ranges from 1.6 to 1.9 mm for quick and convenient operation with the longest lifetime, and from 2.5 to 3.0 mm for the longest lifetime and stability.

	Shape	Type no.	Dimension	Specification	PU		
		41	872338	115x2.5x22.23	A30Q-BFXA	25	
			872339	125x2.5x22.23	A30Q-BFXA	25	
			872340	150x2.5x22.23	A30Q-BFXA	25	
			872341	178x2.5x22.23	A30Q-BFXA	25	
			872342	178x3.0x22.23	A30Q-BFXA	25	
			34165057	230x2.0x22.23	A30Q-BFKA	25	
			872343	230x2.5x22.23	A30Q-BFXA	25	
			872344	230x3.0x22.23	A30Q-BFXA	25	
			42	872346	115x2.5x22.23	A30Q-BFXA	25
				912603	115x3.0x22.23	A30Q-BFXA	25
				872347	125x2.5x22.23	A30Q-BFXA	25
				872348	125x3.0x22.23	A30Q-BFXA	25
			907800	125x3.5x22.23	A30Q-BFXA	25	
			872349	150x3.0x22.23	A30Q-BFXA	25	
		872350	178x3.0x22.23	A30Q-BFXA	25		
		121878	230x2.5x22.23	A30Q-BFXA	25		
		872351	230x3.0x22.23	A30Q-BFXA	25		
		872352	230x3.5x22.23	A30Q-BFXA	25		

Items with grey lettering are only available on request.

PREMIUM★★★ CERABOND

2IN1 FOR STEEL AND STAINLESS STEEL

+ **Shorter work processes**
Working times are substantially reduced through improved abrasiveness.

+ **Improved productivity**
A special structural composition offers maximum system performance.



+ **Lower production costs**
The unique bond technology, optimised for ceramic grain, prevents the break out of the grain and leads to a longer lifetime for the tool.

The TYROLIT CERABOND system brings almost 100 years of experience to a new generation of highest performance tools. With the cut-off wheels from the CERABOND family, we have succeeded in achieving an optimal


combination of specially treated ceramic grain and bond structure. Thus it is possible to retain the abrasiveness and the lifetime of the cut-off wheel at the highest level. The unique bond system prevents

premature grain break-out and guarantees the full grinding power of the individual grains.

PREMIUM★★★ CERABOND

2in1 for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU	
	—	41	34241344	115x1,0x22,23	CA60Q-BFKA	15
			34059903	115x1.3x22.23	CA60Q-BFKA	15
			34019872	115x1.6x22.23	CA46Q-BFKA	15
			34241345	125x1,0x22,23	CA46Q-BFKA	15
			34059904	125x1.3x22.23	CA60Q-BFKA	15
			34019880	125x1.6x22.23	CA46Q-BFKA	15
			34059905	150x1.3x22.23	CA60Q-BFKA	15
			34019881	150x1.6x22.23	CA46Q-BFKA	15
			34059906	178x1.6x22.23	CA46Q-BFKA	15
			34059907	230x2.0x22.23	CA30Q-BFKA	15
		34208157	115x2.0x22.23	CA30Q-BFKA	15	
		34208159	115x2.5x22.23	CA30Q-BFKA	15	
		34208158	125x2.0x22.23	CA30Q-BFKA	15	
		34208160	125x2.5x22.23	CA30Q-BFKA	15	

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PREMIUM* CERABOND**
2in1 for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU
		34059908	115x1.3x22.23	CA60Q-BFKA	15
		34019882	115x1.6x22.23	CA46Q-BFKA	15
		34059909	125x1.3x22.23	CA60Q-BFKA	15
		34019883	125x1.6x22.23	CA46Q-BFKA	15
		34059910	150x1.3x22.23	CA60Q-BFKA	15
		34019884	150x1.6x22.23	CA46Q-BFKA	15
		34209151	115x2.0x22.23	CA30Q-BFKA	15
		34209152	115x2.5x22.23	CA30Q-BFKA	15
		34209153	125x2.0x22.23	CA30Q-BFKA	15
		34209154	125x2.5x22.23	CA30Q-BFKA	15

PREMIUM*** CUT-OFF WHEELS

2IN1 WITH DEEP CUT PROTECTION FOR STEEL AND STAINLESS STEEL

+ Enhanced safety

The DEEP Cut protection metal bushing we have developed prevents the crown being removed from the wheel and thus a break out of the bore.

+ Greater economic efficiency

The longer range of application means that wheel changes are reduced.



+ Versatile application options

It is ideal for small sheet metal, profile and pipe cross-sections. Rods and metal reinforcements can also be cut effortlessly.

Using newly developed technology and new materials we have succeeded in taking another step towards improved user safety. The

PREMIUM*** cut-off wheel with DEEP CUT PROTECTION enables the user to achieve maximum insertion depths into the workpiece without damaging

the wheel.

There is no risk of sharp workpiece edges removing the crown.

Items with grey lettering are only available on request.

PREMIUM* CUT-OFF WHEELS**

2in1 with DEEP CUT PROTECTION for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU
		34042238	115x1.2x22.23	TA60P-BFXA	25
		34042239	125x1.2x22.23	TA60P-BFXA	25
		34042240	150x1.2x22.23	TA60P-BFXA	25

PREMIUM*** CUT-OFF WHEELS

ACCU 2IN1 FOR STEEL AND STAINLESS STEEL

+ Universal application options

With the PREMIUM*** ACCU you obtain a tool that can be used for a range of applications on steel and stainless steel.

+ Reduced downtimes

Thanks to the short-term and efficient application options, downtimes for the operator can be significantly reduced.



+ Cordless work

Using this cut-off wheel you can work on smaller tasks in hard-to-reach application areas, benefiting from the usual Tyrolit quality but without requiring a power source.

The super-thin PREMIUM*** cut-off wheel has been specially designed for battery-powered angle grinders and enables smaller repairs to be carried out without requiring a power source. This therefore makes it con-

siderably easier to use on scaffolding, in difficult-to-reach terrain or workplaces. These products have been optimised for battery-powered angle grinders and are ideal for cutting thin-walled

metal sheets, profiles and pipes. They also make light work of machining small cross-sections, rods and reinforced steel.



Items with grey lettering are only available on request.





PREMIUM* CUT-OFF WHEELS**
 ACCU 2in1 for steel and stainless steel





	Shape	Type no.	Dimension	Specification	PU	
		41	34022958	115x1.0x22.23	A60Q-BFKA	25
			34022959	125x1.0x22.23	A60Q-BFKA	25

PREMIUM* CUT AND GRIND**
 With DEEP Cut Protection for steel and stainless steel



With the introduction of the PREMIUM*** CUT AND GRIND it has become possible to perform applications such as grinding, deburring and shaping as well as cutting and plunging with only one tool. TYROLIT has now refined this technology. The wheels now have a thinner width of 2.0 mm and offer additional safety for the user with the new DEEP Cut Protection.

The risk of sharp workpiece edges removing the crown from the wheel and the consequent break out of the bore is prevented.



	Shape	Type no.	Dimension	Specification	PU	
		27EC	34042756	115x2.0x22.23	A46Q-BFXA	25
			34042757	125x2.0x22.23	A46Q-BFXA	25

PREMIUM* CUT AND GRIND**
 2in1 for steel and stainless steel



With the introduction of the PREMIUM*** CUT AND GRIND it has become possible to perform applications such as grinding, deburring and shaping as well as cutting and plunging with only one tool. The design of the wheel guarantees the highest performance right from the start without compromising on safety.

While it provides versatile application options, the CUT AND GRIND complies with the highest safety standards.

	Shape	Type no.	Dimension	Specification	PU	
		27EC	743946	150x3.0x22.23	A30Q-BFXA	25
			743947	178x3.5x22.23	A30Q-BFXA	25



Items with grey lettering are only available on request.

BASIC★ CUT AND GRIND
2in1 for steel and stainless steel



The BASIC* CUT AND GRIND makes it possible to perform applications, such as grinding, deburring and shaping as well as cutting and plunging, with only one tool. The design of the wheel guarantees good performance right from the start without compromising on safety.

While it provides versatile application options, the CUT AND GRIND complies with the highest safety standards




	Shape	Type no.	Dimension	Specification	PU	
		27CC	743938	100x2.5x16	A30Q-BF	25
		743942	115x2.5x22.23	A30Q-BF	25	
		757089	125x2.8x22.23	A30Q-BF	25	
		743944	178x3.5x22.23	A30Q-BF	25	

BASIC★ CUT-OFF WHEELS
2in1 for steel and stainless steel



This tool is designed for use on both steel and stainless steel. Our BASIC* cut-off wheel 2in1 has an excellent lifetime and stability. The tool is suitable for cutting metal sheets, profiles, pipes, rods and solid material. The 1.6 mm cut-off wheel available in the BASIC* assortment is particularly

suitable for fast, convenient and low-burr work. The stable cut-off wheels in thicknesses between 2.0 and 3.0 mm have a very long lifetime and are suitable for universal use.

	Shape	Type no.	Dimension	Specification	PU	
		41	222996	100x2.5x16	A30Q-BF	25
		34051373*	115x1.0x22.23	A60Q-BF	25	
		222899*	115x1.6x22.23	A46Q-BF	25	
		222997	115x2.5x22.23	A30Q-BF	25	
		34051374*	125x1.0x22.23	A60Q-BF	25	
		222900*	125x1.6x22.23	A46Q-BF	25	
		222998	125x2.5x22.23	A30Q-BF	25	
		34051375*	150x1.6x22.23	A46Q-BF	25	
		222999	150x2.5x22.23	A30Q-BF	25	
		633506*	178x1.6x22.23	A46Q-BF	25	
		250165	178x2.5x22.23	A30Q-BF	25	
		223000	178x3.0x22.23	A30Q-BF	25	
		633509*	230x1.9x22.23	A46Q-BF	25	
		291949	230x2.0x22.23	A30Q-BF	25	
		250169	230x2.5x22.23	A30Q-BF	25	
		223002	230x3.0x22.23	A30Q-BF	25	
			42	223020	100x2.5x16	A30Q-BF
223021	115x2.5x22.23			A30Q-BF	25	
223022	125x2.5x22.23			A30Q-BF	25	
291948	125x3.0x22.23			A30Q-BF	25	
223023	178x3.0x22.23			A30Q-BF	25	
222044	230x3.0x22.23			A30Q-BF	25	
291947	230x3.5x22.23			A30Q-BF	25	

* Super-thin cut-off wheels

Items with grey lettering are only available on request.

PREMIUM*** CUT-OFF WHEELS

SUPER-THIN CUT-OFF WHEELS FOR STAINLESS STEEL

+ **Enhanced economic efficiency**
 Significant increase in lifetime and cutting ability, which is particularly evident in their first-cut performance. The wheel delivers the best results with shorter cutting times right from the very first cut.

+ **Reduced working times**
 A low load on the workpiece and short cutting times allow you to quickly achieve the best result. No supplementary reworking, such as cleaning or deburring.



+ **Maximum comfort while working**
 The tool operates consistently and without a jamming tendency, producing 30% less cutting dust. Additional sound and vibration damping are features that make the super-thin TYROLIT cut-off wheels a safe and convenient tool.

With the next generation PREMIUM*** cut-off wheels for stainless steel you can enhance performance while significantly reducing tool wear. Super-thin cut-off wheels can be obtained from TYROLIT in thicknesses from 0.75 to 1.6 mm. They are


particularly suitable for thin-walled metal sheets, profiles and pipes, as well as reinforced steel. Even for small stainless steel cross-sections and rods, and corrosion-resistant or acid-resistant stainless steel these cut-off wheels offer

effortless machining. The chemical purity of this tool is a requirement of machining stainless steel in order to avoid impairments to the material, such as corrosion, pitting corrosion or a reduction in the fatigue strength.

PREMIUM*** CUT-OFF WHEELS




Super-thin cut-off wheels for stainless steel



Shape	Type no.	Dimension	Specification	PU	
	41	34040606	115x1.0x22.23	A60R-BFKA	10 Tin
		34040607	125x1.0x22.23	A60R-BFKA	10 Tin
		651998	100x1.0x16	A60R-BFXA	25
		610935	115x0.75x22.23	A60R-BFXA	25
		674471	115x1.0x22.23	A60R-BFKA	25
		51841	115x1.6x22.23	A46R-BFKA	25
		610937	125x0.75x22.23	A60R-BFXA	25
		674473	125x1.0x22.23	A60R-BFKA	25

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	Shape	Type no.	Dimension	Specification	PU	
		41	51844	125x1.6x22.23	A46R-BFKA	25
			34060382	150x1.2x22.23	A46R-BFKA	25
			291583	150x1.6x22.23	A46R-BFXA	25
			34059901	178x1.6x22.23	A46R-BFKA	25
		42	282149	115x0.75x22.23	A60R-BFXA	25
			282150	125x0.75x22.23	A60R-BFXA	25
			291587	150x1.6x22.23	A46R-BFXA	25
			291588	178x1.6x22.23	A46R-BFXA	25




PREMIUM★★★ CUT-OFF WHEELS

For stainless steel



The chemical purity of this tool is a requirement of machining stainless steel in order to avoid impairments to the material, such as corrosion, pitting corrosion or a reduction in the fatigue strength. The tool is suitable for cutting metal sheets, profiles, pipes, rods and solid material.

The assortment of these cut-off wheels ranges from 1.6 to 1.9 mm for quick and convenient operation with the longest lifetime, and from 2.5 to 3.0 mm for the longest lifetime and stability.

	Form	Typennummer	Abmessung	Spezifikation	VP	
		41	41489	115x2.0x22.23	A30R-BFXA	25
			41491	115x2.5x22.23	A30R-BFXA	25
			41492	125x2.0x22.23	A30R-BFXA	25
			41493	125x2.5x22.23	A30R-BFXA	25
			41494	125x3.0x22.23	A30R-BFXA	25
			41495	150x2.0x22.23	A30R-BFXA	25
			41499	178x2.0x22.23	A30R-BFXA	25
			35946	178x2.5x22.23	A30R-BFXA	25
			34059902	230x2.0x22.23	A30R-BFKA	25
			35950	230x2.5x22.23	A30R-BFXA	25
		42	41501	230x3.0x22.23	A30R-BFXA	25
			35937	115x2.0x22.23	A30R-BFXA	25
			41504	115x2.5x22.23	A30R-BFXA	25
			35944	125x2.0x22.23	A30R-BFXA	25
			41505	125x2.5x22.23	A30R-BFXA	25
			41506	125x3.0x22.23	A30R-BFXA	25
			41507	150x2.0x22.23	A30R-BFXA	25
			41508	150x3.0x22.23	A30R-BFXA	25
			41509	178x2.5x22.23	A30R-BFXA	25
			41510	178x3.0x22.23	A30R-BFXA	25
	41511	230x2.5x22.23	A30R-BFXA	25		
	41513	230x3.5x22.23	A30R-BFXA	25		

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STANDARD★ CUT-OFF WHEELS

For stainless steel



The chemical purity of this tool is a requirement of machining stainless steel in order to avoid impairments to the material, such as corrosion, pitting corrosion or a reduction in the fatigue strength. The tool is suitable for cutting metal sheets, profiles, pipes, rods and solid material.

The assortment of these cut-off wheels ranges from thicknesses of 1.0 to 1.9 mm for fast, convenient and low-burr cutting. The stable cut-off wheels in thicknesses between 2.0 and 2.5 mm have a very long lifetime and are suitable for universal use.

	Shape	Type no.	Dimension	Specification	PU		
		41	368016*	100x1.6x16	A46R-BFINOX	25	
		367562*	115x1.0x22.23	A60R-BFINOX	25		
		367561*	115x1.6x22.23	A46R-BFINOX	25		
		367568*	125x1.0x22.23	A60R-BFINOX	25		
		367567*	125x1.6x22.23	A30R-BFINOX	25		
		408496	125x2.0x22.23	A46R-BFINOX	25		
		367776	150x2.0x22.23	A30R-BFINOX	25		
		367575	150x2.5x22.23	A30R-BFINOX	25		
		367576*	178x1.6x22.23	A46R-BFINOX	25		
		367777	178x2.0x22.23	A30R-BFINOX	25		
		367577	178x2.5x22.23	A30R-BFINOX	25		
		367581*	230x1.9x22.23	A46R-BFINOX	25		
		367780	230x2.0x22.23	A30R-BFINOX	25		
		367582	230x2.5x22.23	A30R-BFINOX	25		
			42	368017	100x2.0x16	A30R-BFINOX	25
			367783	115x2.0x22.23	A30R-BFINOX	25	
367788	125x2.0x22.23		A30R-BFINOX	25			
367791	178x2.5x22.23		A30R-BFINOX	25			
367802	230x2.5x22.23		A30R-BFINOX	25			

*Super-thin cut-off wheels

BASIC★ CUT-OFF WHEELS

For stainless steel



The BASIC* cut-off wheel for stainless steel can be used to cut metal sheets, profiles, pipes, rods with small diameters and solid material. The chemical purity of this tool is a requirement of machining stainless steel in order to avoid impairments to the material, such as corrosion, pitting corrosion or a reduction in the fatigue strength.

The 1.0 mm thick cut-off wheels are particularly suitable for quick, comfortable and low-burr cutting.

	Shape	Type no.	Dimension	Specification	PU	
		41	456491*	100x1.0x10	A60R-BFINOX	25
		222893*	100x1.0x16	A60R-BFINOX	25	
		222894*	115x1.0x22.23	A60R-BFINOX	25	
		222896*	125x1.0x22.23	A60R-BFINOX	25	

*Super-thin cut-off wheels

Items with grey lettering are only available on request.

PREMIUM*** CUT-OFF WHEELS

SUPER-THIN CUT-OFF WHEELS FOR NONFERROUS METALS

+ Enhanced economic efficiency
 Significant increase in lifetime and cutting ability, which is particularly evident in their first-cut performance. The wheel delivers the best results with shorter cutting times right from the very first cut.

+ Reduced working times
 Cutting times are reduced when used on aluminium, aluminium bronze, aluminium base alloys, copper, bronze, brass, nickel silver and titanium.



+ Maximum comfort while working
 The tool operates consistently and without a jamming tendency, producing 30% less cutting dust. Additional sound and vibration damping are features that make the super-thin TYROLIT cut-off wheels a safe and convenient tool.

The next generation of TYROLIT PREMIUM*** cut-off wheels achieves a better performance than other PREMIUM wheels, and with considerably reduced tool wear. In order to cut

nonferrous metals, the tool must have a high cutting ability. To this end, TYROLIT has developed a special formula and production method in order to achieve short cutting times

with NF metals too. New specifications prevent the clogging and dulling of the grinding wheel which used to be a common result of material abrasion.

PREMIUM*** CUT-OFF WHEELS

Super-thin cut-off wheels for nonferrous metals



	Shape	Type no.	Dimension	Specification	PU
		41 840247	115x1.0x22.23	A60N-BFXA	25
		170530	115x1.2x22.23	A46N-BFXA	25
		623553	115x1.6x22.23	A46N-BFXA	25
		257533	125x1.0x22.23	A60N-BFXA	25
		170542	125x1.2x22.23	A46N-BFXA	25
		739982	125x1.6x22.23	A46N-BFXA	25
		170567	150x1.2x22.23	A46N-BFXA	25
			42	170580	115x1.2x22.23
170586	125x1.2x22.23			A46N-BFXA	25
170587	150x1.2x22.23			A46N-BFXA	25

Items with grey lettering are only available on request.

PREMIUM* CUT-OFF WHEELS**
For nonferrous metals



In order to cut nonferrous metals, the tool must have a high cutting ability. To this end, TYROLIT has developed a special formula and production method in order to achieve short cutting times with NF metals too.

New specifications prevent the clogging and dulling of the grinding wheel which used to be a common result of material abrasion.

	Shape	Type no.	Dimension	Specification	PU	
		41	39624	115x2.5x22.23	A30N-BFXA	25
		39321	125x2.5x22.23	A30N-BFXA	25	
		62726	150x2.5x22.23	A30N-BFXA	25	
		525355	178x2.0x22.23	A30N-BFXA	25	
		32141	178x2.5x22.23	A30N-BFXA	25	
		32142	230x2.5x22.23	A30N-BFXA	25	
			42	82646	115x2.5x22.23	A30N-BFXA
366888	125x2.5x22.23			A30N-BFXA	25	
468182	150x2.5x22.23			A30N-BFXA	25	
5485	178x3.0x22.23			A30N-BFXA	25	
651544	178x3.5x22.23			A30N-BFXA	25	
30741	230x3.0x22.23			A30N-BFXA	25	

PREMIUM* CUT-OFF WHEELS**
For nonferrous metals and stone



This PREMIUM*** cut-off wheel reduces the work of the operator due to its excellent cutting ability. When used on tiles, ceramics, clinker and nonferrous metals, the wheel impresses by achieving clean cutting edges and excellent cutting quality. Machine wear is significantly reduced by low wheel thicknesses.

The advantages are topped off by its environmentally-friendly operation, thanks to the reduction in cutting waste.

	Shape	Type no.	Dimension	Specification	PU	
		41	337383	115x1.0x22.23	C46S-BFXA	25
		342978	125x1.0x22.23	C46S-BFXA	25	
		320335	178x1.6x22.23	C46S-BFXA	25	

Items with grey lettering are only available on request.




STANDARD** CUT-OFF WHEELS

For stone



This STANDARD** cut-off wheel reduces the work of the operator due to its excellent cutting ability. When used on stone materials, the wheel impresses by achieving clean cutting edges and good cutting quality.

Reworking is no longer required.

	Shape	Type no.	Dimension	Specification	PU	
		41	367566	115x2.5x22.23	C30S-BF	25
			367572	125x2.5x22.23	C30S-BF	25
			367580	178x3.0x22.23	C30S-BF	25
			367585	230x3.0x22.23	C30S-BF	25
			367585	230x3.0x22.23	C30S-BF	25
		42	368012	100x2.5x16	C30S-BF	25
			367782	115x2.5x22.23	C30S-BF	25
			367787	125x2.5x22.23	C30S-BF	25
			367801	178x3.0x22.23	C30S-BF	25
			367804	230x3.0x22.23	C30S-BF	25




BASIC* CUT-OFF WHEELS

For stone



The BASIC* cut-off wheel reduces the work of the operator due to its good cutting ability. When used on common building materials, the wheel impresses by achieving clean cutting edges and good cutting quality. The BASIC version of the 2.5 to 3.0 mm thick wheels offer a long lifetime and can be used for universal applications.

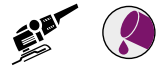
The advantages are topped off by its environmentally-friendly operation, thanks to the reduction in cutting waste.

	Shape	Type no.	Dimension	Specification	PU	
		41	223010	100x2.5x16	C30S-BF	25
			223012	115x2.5x22.23	C30S-BF	25
			223015	125x2.5x22.23	C30S-BF	25
			223016	150x2.5x22.23	C30S-BF	25
			222042	178x3.0x22.23	C30S-BF	25
			223019	230x3.0x22.23	C30S-BF	25
		42	223024	100x2.5x16	C30S-BF	25
			223025	115x2.5x22.23	C30S-BF	25
			223027	125x2.5x22.23	C30S-BF	25
			223029	178x3.0x22.23	C30S-BF	25
	223031	230x3.0x22.23	C30S-BF	25		



Items with grey lettering are only available on request.

FOCUR SA

Diamond cut-off wheel for grey and spheroidal cast iron



FOCUR SA diamond cut-off wheels from TYROLIT are the optimum tool for machining grey and spheroidal cast iron. These products combine a long lifetime with maximum economic efficiency. FOCUR SA cut-off wheels are available in diameters from 115 to 230 mm.

	Shape	Type no.	Dimension	Specification	PU	
		UC3	34213575	115x2.8x22.23	DC CI	1
			34192268	125x3.0x22.23	DC CI	1
			102811	180x3.0x22.23	DC CI	1
			102813	230x3.0x22.23	DC CI	1



PREMIUM*** CUT-OFF WHEELS

FOCUR Extra for cast iron



The PREMIUM*** FOCUR Extra cut-off wheel offers maximum abrasiveness coupled with the best cutting ability. Innovative production technology combined with high-quality zirconium aluminium oxide makes this possible. The assortment of these cut-off wheels ranges from 2.5 to 3.5 mm.

This high-performance tool has been developed for use on all cast materials.


	Shape	Type no.	Dimension	Specification	PU	
		42	929885	115x2.5x22.23	ZA30R-BFXA	25
			929886	125x2.5x22.23	ZA30R-BFXA	25
			929887	178x3.5x22.23	ZA30R-BFXA	25
			929889	230x3.5x22.23	ZA30R-BFXA	25
			904019	178x3.5x22.23	ZA30P-BFXA*	25
			635268	230x3.0x22.23	ZA30P-BFXA*	25
			855818	230x3.5x22.23	ZA30P-BFXA*	25

*Fe, S, Cl free

ACCESSORIES

For cut-off wheels

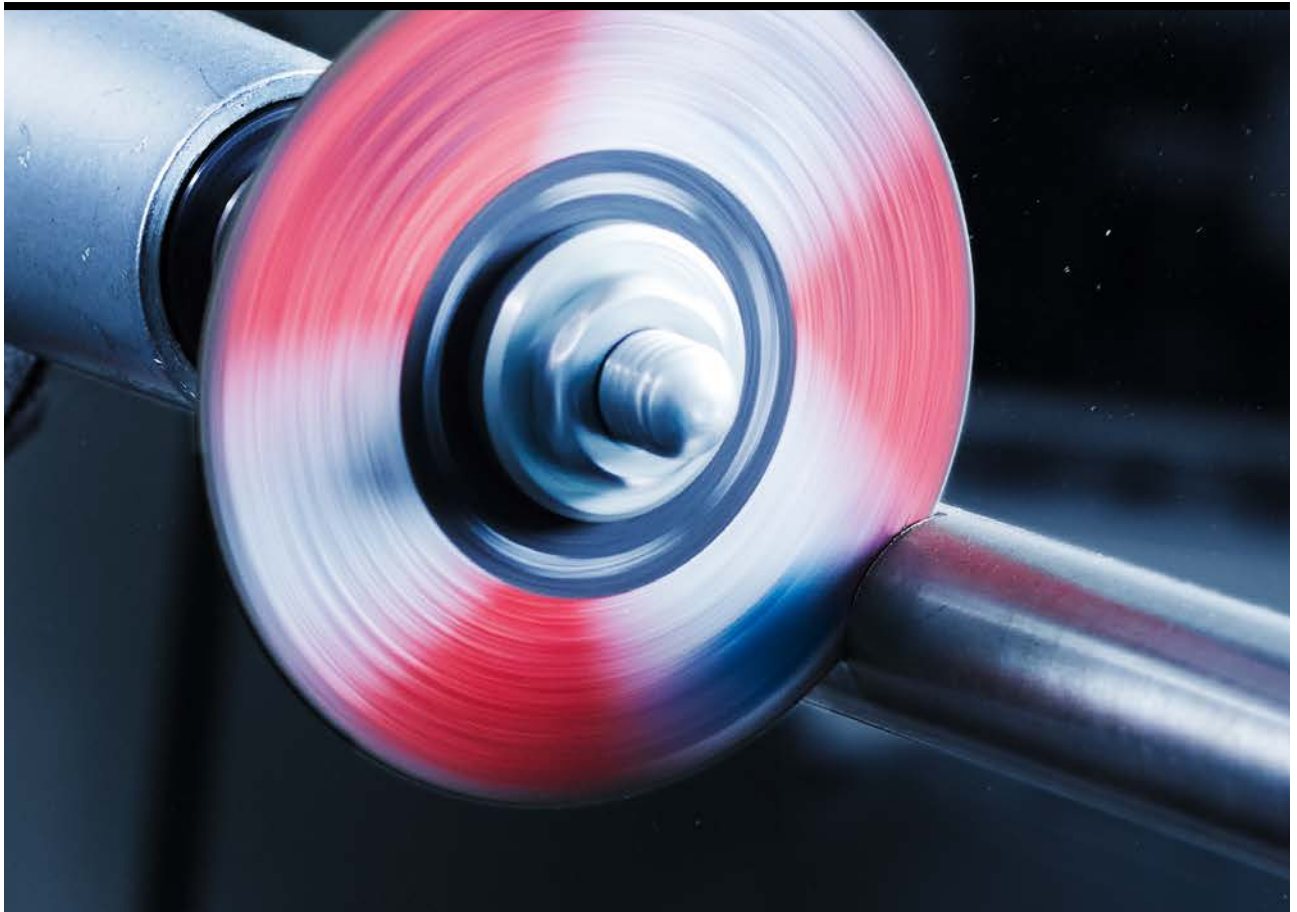
Using these accessories you can significantly increase lateral stability. This means more precise cutting and enhanced first-cut performance are achieved. These special accessories are made of tempered tool steel and are suitable for angle grinders with an M14 drive screw. It is recommended for super-thin cut-off wheels in a straight design and a diameter of 178 and 230 mm in particular.

	Shape	Type no.	Dimension	PU
	100SFL	614644	76 mm	1

Items with grey lettering are only available on request.

1.2 CUT-OFF WHEELS FOR STRAIGHT GRINDERS





CUT-OFF WHEELS FOR STRAIGHT GRINDERS

Straight grinders are always in high demand when precise results are required on difficult-to-access areas. Their versatile application options make straight grinders a popular tool.

In order to fulfil the high standards it sets for itself, TYROLIT has developed wheels for particularly quick low-burr cutting with maximum lifetimes. These high-performance tools are perfect for cutting metal sheets, profiles, pipes and rods even

in difficult-to access locations. For TYROLIT, the most stringent safety standards for our cut-off wheels - as with all of our products - are of the highest priority. Reduced vibration and noise considerably improve your level of comfort while working.

On the following pages you will find the perfect tool for your requirements thanks to the uniform colour code for all materials.

Shapes

41 Cut-off wheels
(straight design)

Application recommendation



Performanceline	Specification	Pages	Steel	Stainless steel
PREMIUM***	A100-BFM	40	●	
	A60R-BFXA	40		●
	A46R-BFXA	40		●

Items with grey lettering are only available on request.

PREMIUM* CUT-OFF WHEELS**

For steel



The quality of the PREMIUM*** cut-off wheel ensures the longest lifetime and cost-effective operation. By using the grit size 100, a particularly low burr result is achieved. The cut-off wheel in small diameters is designed for use on straight grinders.

This tool is suitable for cutting metal sheets, profiles, pipes, rods and solid material.

	Shape	Type no.	Dimension	Specification	PU
	41	699330	63x1.0x10	A100-BFM	100
		704198	63x2.0x10	A100-BFM	100
		325212	75x1.0x10	A100-BFM	100

PREMIUM* CUT-OFF WHEELS**

For stainless steel



The chemical purity of this tool is a requirement of machining stainless steel in order to avoid impairments to the material, such as corrosion, pitting corrosion or a reduction in the fatigue strength. The PREMIUM*** cut-off wheel in small diameters is designed for use on straight grinders.

This tool is suitable for cutting metal sheets, profiles, pipes, rods and solid material.

	Shape	Type no.	Dimension	Specification	PU
	41	323978	50x1.0x10	A60R-BFXA	100
		323970	50x2.0x6	A46R-BFXA	100
		299269	63x1.0x10	A60R-BFXA	100
		324404	63x1.6x10	A46R-BFXA	100
		711834	63x1.6x10	A60R-BFXA	100
		324402	63x2.0x6	A46R-BFXA	100
		324303	63x2.0x10	A46R-BFXA	100
		325228	75x1.0x8	A60R-BFXA	100
		299270	75x1.0x10	A60R-BFXA	100
		325222	75x1.6x10	A46R-BFXA	100
		331314	75x1.6x10	A60R-BFXA	100
		325224	75x2.0x8	A46R-BFXA	100
		325219	75x2.0x10	A46R-BFXA	100

ACCESSORIES

For cut-off wheels with a small diameter



These accessories enable cut-off wheels with small diameters to be clamped onto straight grinders. Easy handling and the highest possible

levels of safety are guaranteed for the operator. Please observe the maximum permissible speed.

	Shape	Type no.	Dimension	Specification	PU
		803404	S6/H10/M10	SS171	1
		846441	S10/H10/M10	SS173	1
		846442	S6/H6/M6	SS174	1

Items with grey lettering are only available on request.

1.3 CUT-OFF WHEELS FOR PETROL CUTTING SAWS





CUT-OFF WHEELS FOR PETROL CUTTING SAWS

Cutting materials on building sites with no electricity or limited infrastructure is a common challenge. Whether the material is reinforced steel, pipes or rails, a petrol-powered cut-off grinder provides a quick and efficient solution. Petrol cutting saws are particularly popular machines for cutting large cross-sections and are frequently used tools.

TYROLIT offers the perfect tools for these varied cutting tasks. Whether for use on steel, stainless steel, stone or rails, thanks to the clear colour coding and application tips, you will always be able to find the

right product for your application and the material to be cut. TYROLIT guarantees optimum cutting results and maximum levels of safety in all situations.

Formen

41H Cut-off wheels
(straight design)

Application recommendation



Performance level	Specification	Page	Steel	Rails	Stone
PREMIUM***	A300-BF02A2	44	●		
	A30P5BF71A2	44	●		
	A30Q-BF02A2	44	●		
	A30Q4BF71A2	44	●		
	M85A30P4BF91A2	44	●		
	A30N-BF02A2	44	●		
	MA30Q4BF97M2	44	●		
	A24Q-BF	45		●	
	A24Q-BF100	45		●	
	ZZA24R-BF 100	46		●	
	C24O-BF02A2	47			●
	C30P4BF71A2	47			●
	1C24R6BF38A2	47			●
	C247O4BF33A2	47			●



Performance level	Specification	Page	Steel	Rails	Stone
STANDARD**	A30S-BF	44	●		
	A30S-BF100	44	●		
	A30S-BF RAIL	47		●	
	A30S-BF RAIL100	47		●	
	C30S-BF	48			●
	C30S-BF100	48			●



Performance level	Specification	Page	Steel	Stone
BASIC*	A30S-BF	45	●	
	A30S-BF100	45	●	
	C30S-BF	48		●
	C30S-BF100	48		●

Items with grey lettering are only available on request.

PREMIUM★★★ CUT-OFF WHEELS
For steel



TYROLIT provides the optimal tools for use on large cut-off machines in trade and industry. These include the PREMIUM*** cut-off wheel for steel in large diameters. This special tool is ideal for cutting workpieces with large cross-sections. As with all TYROLIT PREMIUM*** cut-off wheels, this tool has been optimised to achieve the best possible cutting ability and lifetime.

Developed for use on manual cut-off machines with electric or petrol engines. Suitable for pure off-hand and guided off-hand applications.

	Shape	Type no.	Dimension	Specification	PU	
		41H	255451	300x3.5x20	A30O-BF02A2	10
		75020	300x3.5x20	A30P5BF71A2	10	
		307876	300x3.5x20	A30Q-BF02A2	10	
		181071	300x3.5x22.23	A30O-BF02A2	10	
		141512	300x3.5x22.23	A30Q-BF02A2	10	
		83618	300x3.5x22.23	A30Q4BF71A2	10	
		514745	300x3.5x22.23	M85A30P4BF91A2	10	
		363478	300x3.5x25.4	A30O-BF02A2	10	
		366794	300x3.5x30	A30Q-BF02A2	10	
		419688	350x4.0x30	A30N-BF02A2	10	
		623097	400x4.5x40	MA30Q4BF97M2	10	

STANDARD★★ CUT-OFF WHEELS
For steel



TYROLIT provides the optimal tools for use on large cut-off machines in trade and industry. These include the STANDARD** cut-off wheel for steel in large diameters. This special tool is ideal for cutting workpieces with large cross-sections.

Developed for use on manual cut-off machines with electric or petrol engines. Suitable for pure off-hand and guided off-hand applications.

	Shape	Type no.	Dimension	Specification	PU	
		41H	384753	300x3.5x20	A30S-BF	10
		384754	300x3.5x22.23	A30S-BF	10	
		384755	300x3.5x25.4	A30S-BF	10	
		384756	350x4.0x20	A30S-BF100	10	
		384757	350x4.0x22.23	A30S-BF100	10	
		384758	350x4.0x25.4	A30S-BF100	10	
		386002	400x4.5x20	A30S-BF100	10	



Items with grey lettering are only available on request.

BASIC★ CUT-OFF WHEELS
For steel



The BASIC* cut-off wheel for steel is suitable for cutting profiles, solid material and large cross-sections due to its design with two external reinforcements. With the BASIC* wheel, you can achieve reduced cutting times coupled with minimal effort.

Developed for use on manual cut-off machines with electric or petrol engines. Suitable for pure off-hand and guided off-hand applications.



	Shape	Type no.	Dimension	Specification	PU
		41H 223035	300x3.5x20	A30S-BF	10
		223037	300x3.5x22.23	A30S-BF	10
		223039	300x3.5x25.4	A30S-BF	10
		223040	300x3.5x32	A30S-BF	10
		223042	350x4.0x20	A30S-BF100	10
		223043	350x4.0x22.23	A30S-BF100	10
		222045	350x4.0x25.4	A30S-BF100	10

PREMIUM★★★ CUT-OFF WHEELS
For rails



This wheel has been developed specially based on specifications for cutting rails. Despite extreme application conditions, such as humidity, cold and temperature fluctuations, the rail cut-off wheel from TYROLIT offers short cutting times coupled with minimal effort. Exceptionally clean, non-discoloured surfaces reduce reworking tasks and working times.

Developed for use on manual cut-off machines with electric or petrol engines. Suitable for pure off-hand and guided off-hand applications.

	Shape	Type no.	Dimension	Specification	PU
		41H 665900	300x3.2x22.23	A24Q-BF	10
		676423	300x3.5x22.23	A24Q-BF100	10
		671093	350x3.8x22.23	A24Q-BF100	10
		671108	350x3.8x25.4	A24Q-BF100	10
		671090	400x4.3x22.23	A24Q-BF100	10
		676428	400x4.3x25.4	A24Q-BF100	10

Items with grey lettering are only available on request.

PREMIUM*** CUT-OFF WHEELS FOR RAILS FOR GUIDED OFF-HAND CUTTING

+ High abrasiveness

The zirconium aluminium oxide grain in a rigid bond system enables an aggressive cutting performance.

+ Reduced load

Thanks to its abrasiveness and short cutting times, this PREMIUM*** wheel reduces the strain on the operator.



+ Long lifetime

This innovative rail cut-off wheel enables you to perform more cuts than ever before.

The newly developed rail cut-off wheel has been designed to be durable and abrasive. The zirconium aluminium oxide grain enables easy

cutting and improves performance for the operator.



These special rail cut-off wheels must only be fixed to the rail using a

suitable clamping device for guided off-hand cutting. Never use in pure off-hand applications.

PREMIUM*** CUT-OFF WHEELS

For rails for guided off-hand cutting



	Shape	Type no.	Dimension	Specification	PU
	 41	34202533	300x3.5x20	ZZA24R-BF 100	10
		34202534	350x3.8x20	ZZA24R-BF 100	10
		34202538	400x4.3x20	ZZA24R-BF 100	10
		34200374	300x3.5x22.23	ZZA24R-BF 100	10
		34176155	350x3.8x22.23	ZZA24R-BF 100	10
		34200375	400x4.3x22.23	ZZA24R-BF 100	10
		34202549	300x3.5x25.4	ZZA24R-BF 100	10
		34202550	350x3.8x25.4	ZZA24R-BF 100	10
		34202561	400x4.3x25.4	ZZA24R-BF 100	10

Items with grey lettering are only available on request.



STANDARD★★ CUT-OFF WHEELS

For rails



Despite extreme application conditions, such as humidity, cold and temperature fluctuations, the stone cut-off wheel from TYROLIT offers reduced cutting times coupled with minimal effort. Clean, non-discoloured surfaces reduce reworking tasks and working times.

Developed for use on manual cut-off machines with electric or petrol engines. Suitable for pure off-hand and guided off-hand applications.

	Shape		Type no.	Dimension	Specification	PU
		41H	75937	300x3.5x20	A30S-BFRAIL	10
			75938	300x3.5x22.23	A30S-BFRAIL	10
			75939	300x3.5x25.4	A30S-BFRAIL	10
			75934	350x4.0x20	A30S-BFRAIL100	10
			75935	350x4.0x22.23	A30S-BFRAIL100	10
			75936	350x4.0x25.4	A30S-BFRAIL100	10
			355251	400x4.3x25.4	A30S-BFRAIL100	10



PREMIUM★★★ CUT-OFF WHEELS

For stone



This PREMIUM*** cut-off wheel achieves the best results due to its excellent cutting ability that reduces the work of the operator. The cut-off wheel delivers the optimum cutting performance on solid material and large

cross-sections. Developed for use on manual cut-off machines with electric or petrol engines. Suitable for pure off-hand and guided off-hand applications.

	Shape		Type no.	Dimension	Specification	PU
		41H	255450	300x3.5x20	C24O-BF02A2	10
			183592	300x3.5x22.23	C24O-BF02A2	10
			9292	300x4.0x20	C30P4BF71A2	10
			410277	300x4.0x22.23	1C24R6BF38A2	10
			732088	300x4.0x25.4	C247O4BF33A2	10
			668570	350x4.0x20	C24O-BF02A2	10
			548170	350x4.0x25.4	C24O-BF02A2	10

Items with grey lettering are only available on request.



STANDARD CUT-OFF WHEELS**

For stone



The technology from TYROLIT makes it possible to use two external reinforcements for cutting solid material and large cross-sections. This STANDARD** cut-off wheel achieves the best results due to its excellent cutting ability that reduces the work of the operator.

Developed for use on manual cut-off machines with electric or petrol engines. Suitable for pure off-hand and guided off-hand applications.

	Shape	Type no.	Dimension	Specification	PU	
		41H				
			384759	300x3.5x20	C30S-BF	10
			384760	300x3.5x22.23	C30S-BF	10
			384761	300x3.5x25.4	C30S-BF	10
			384762	350x4.0x20	C30S-BF100	10
			384763	350x4.0x22.23	C30S-BF100	10
			384764	350x4.0x25.4	C30S-BF100	10
	386001	400x4.5x20	C30S-BF100	10		



BASIC* CUT-OFF WHEELS

For stone



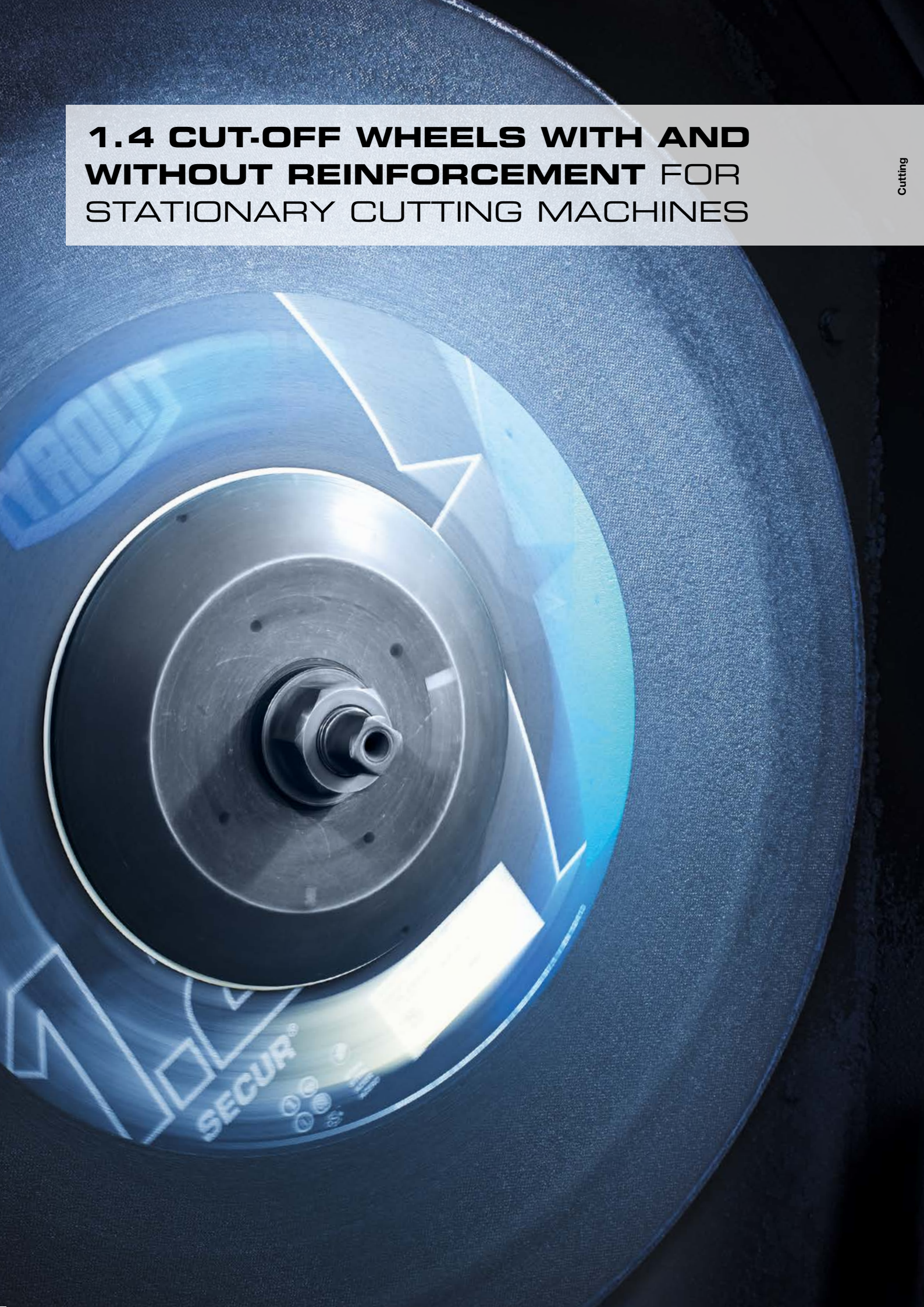
The technology from TYROLIT makes it possible to use two external reinforcements for cutting solid material and large cross-sections. The BASIC* cut-off wheel therefore offers good stability and cutting ability, reducing the work of the operator.

Developed for use on manual cut-off machines with electric or petrol engines. Suitable for pure off-hand and guided off-hand applications.

	Shape	Type no.	Dimension	Specification	PU	
		41H				
			223129	300x3.5x20	C30S-BF	10
			223131	300x3.5x22.23	C30S-BF	10
			223132	300x3.5x25.4	C30S-BF	10
			223134	350x4.0x20	C30S-BF100	10
			223135	350x4.0x22.23	C30S-BF100	10
			223136	350x4.0x25.4	C30S-BF100	10

Items with grey lettering are only available on request.

1.4 CUT-OFF WHEELS WITH AND WITHOUT REINFORCEMENT FOR STATIONARY CUTTING MACHINES





CUT-OFF WHEELS FOR STATIONARY CUTTING MACHINES

Stationary cutting machines are most commonly used in workshops. They ensure precision cutting of all materials, regardless of diameter.


TYROLIT offers two types of cut-off wheel for this application. Firstly, cut-off wheels with reinforcement that can be used to cut profiles, pipes and solid material. Secondly, non-reinforced cut-off wheels for laboratory

cutting, for cutting and saw sharpening, and for cutting high speed steel.

Whether for use on steel, stainless steel, stone or rails, thanks to the clear colour coding and application

tips, you will always be able to find the right product for your application and the material to be cut. TYROLIT guarantees optimum cutting results and maximum levels of safety in all situations.


Shape




41H Cut-off wheels
(straight design)




42 Cut-off wheel
(depressed-centre design)



1 Saw sharpening



1A1R Cut-off wheels
with continuous rim



41N non-reinforced cut-off
wheel

Application recommendation



Performance level	Specification	Page	Steel	Stainless steel	NF metals	Stone	Cast iron
PREMIUM***	... BF71 ...	52, 53	●				
	... BF02 ...	52	●				
	... BF97 ...	54		●			
	... BF68 ...	54		●			
	... BFXM ...	54		●			
	... BF98 ...	54		●			
	... BF59 ...	54			●		
	... BF33 ...	55				●	
	C...BF71...	55				●	
	...BF97...	54			●		
	...BF14...	53			●		
	DC CI	55					●



Performance level	Specification	Page	Steel
STANDARD**	A46S-BF	53	●



Performance level	Specification	Page	Steel
BASIC*	A46S-BF	53	●

Items with grey lettering are only available on request.



PREMIUM* CUT-OFF WHEELS**

For steel



TYROLIT provides the optimal tools for use on stationary cutting machines in chop cut. These include the PREMIUM*** cut-off wheel for steel in diameters from 300 to 500 mm. This special tool is ideal for cutting workpieces with large cross-sections, as well as solid material and profiles.

As with all TYROLIT PREMIUM*** cut-off wheels, this tool has been optimised to achieve the best possible cutting ability and lifetime.

	Shape	Type no.	Dimension	Specification	PU	
		41	779426	300x2.5x25.4	A36N4BF71A2	10
		641977	300x3.0x22.23	A30P4BF71M100	10	
		630117	300x3.5x22.23	A30P4BF71M100	10	
		636399	300x3.5x25.4	A30P4BF71M100	10	
		643371	300x3.5x25.4	A30N-BF02M	10	
		630116	300x3.5x32	A30P4BF71M100	10	
		140022	300x3.5x30	A30Q-BF02M	10	
		151301	300x3.5x32	A30Q-BF02M	10	
		598487	300x3.2x22.23	A36N5BF71M	10	
		615549	350x2.5x25.4	A46N4BF71M	10	
		779428	350x2.5x25.4	A36N4BF71A2	10	
		780935	350x3.5x25.4	A36N5BF71M	10	
		408229	350x3.5x25.4	A30N-BF02M	10	
		309469	350x3.5x25.4	A24P-BF02M	10	
		84363	350x3.5x25.4	A30O4BF71M	10	
		633286	350x4.0x25.4	A30N-BF02M	10	
		780938	400x3.5x25.4	A36N5BF71M	10	
		639076	400x4.0x25.4	A30N-BF02M	10	
		396678	400x4.0x40	A30N-BF02M	10	
		196324	400x4.0x32	A30Q-BF02M	10	
		136777	400x4.0x40	A30Q-BF02M	10	
		272894	400x4.0x40	A24P-BF02M	10	
		37348	400x4.0x25.4	A24Q4BF71M	10	
		829562	400x4.0x51	A30N4BF71A2100	10	
		630537	400x4.0x51	A30P5BF71M100	10	
		514338	500x5.5x40	A24O4BF71M100	10	
		722981	500x5.0x25.4	A24Q4BF71M	10	
647252*	250x2.5x25.4	M102A24P3BF14A2	10			
647256*	350x3.5x40	M102A24P4BF71M	10			
647258*	400x4.0x40	M102A24P4BF71M	10			
647259*	500x5.0x40	M101A24O4BF71M	10			
647260*	600x6.0x60	M101A24O4BF71M2	10			
		42	647685*	400x5.0x60	M102A24P4BF71M	10

Items with grey lettering are only available on request.

* Also for inox and cast iron



STANDARD** CUT-OFF WHEELS

For steel



TYROLIT provides the optimal tools for use on stationary cutting machines in chop cut. This special tool is ideal for cutting workpieces with large cross-sections, as well as solid material and profiles. The internal reinforcement and rough side surfaces enable low burr cutting of workpieces.

As with all TYROLIT STANDARD** cut-off wheels, this tool has been optimised to achieve excellent cutting ability and lifetime.

	Shape		Type no.	Dimension	Specification	PU
		41	390531	300x2.5x25.4	A46S-BF	10
			390532	350x2.8x25.4	A46S-BF	10



BASIC* CUT-OFF WHEELS

For steel



This special tool is ideal for cutting workpieces with large cross-sections, as well as solid material and profiles. The internal reinforcement and rough side surfaces enable low burr cutting of workpieces.

As with all TYROLIT BASIC* cut-off wheels, this tool has been optimised to achieve excellent cutting ability and lifetime.

	Shape		Type no.	Dimension	Specification	PU
		41	223032	300x2.5x25.4	A46S-BF	10
			223033	350x2.8x25.4	A46S-BF	10

Items with grey lettering are only available on request.




PREMIUM* CUT-OFF WHEELS**

For stainless steel



TYROLIT provides the optimal tools for use on stationary cutting machines in chop cut. The tool is suitable for cutting metal sheets, profiles, pipes, rods and solid material. Despite its versatile use, the tool offers maximum cutting ability and the longest lifetime.

The chemical purity of this tool is a requirement of machining stainless steel in order to avoid impairments to the material, such as corrosion, pitting or a reduction in the fatigue strength.

	Shape	Type no.	Dimension	Specification	PU		
		41	647224*	250x2.5x25.4	A24Q4-BF97A2	10	
		559743	300x2.5x25.4	A46N4BF68M	10		
		66490	300x3x25.4	A24O-BFXM	10		
		647229*	300x3.5x32	A24Q4-BF97M	10		
		519232	350x2.5x25.4	A46N4BF68M	10		
		66491	350x3.5x25.4	A24O-BFXM	10		
		94110	350x3.5x32	A24O-BFXM	10		
		647216*	350x3.5x40	A24Q4-BF97M	10		
		538503	400x2.5x25.4	A46N4BF68M	10		
		551616	400x3.0x25.4	A46N4BF68M	10		
		66493	400x4.0x40	A24O-BFXM	10		
		647218*	400x4.0x40	A24Q4-BF97M	10		
		460744*	500x5.0x40	A24P4-BF97M	10		
		793077*	500x5.5x25.4	A241P4-BF98M	10		
		647232*	600x6.0x60	A24O4-BF97M2	10		
			42	647684*	400x5.0x60	A24Q4-BF97M	10
			647389*	500x6.0x60	A24P4-BF97M	10	
			647377*	600x7.0x60	A24O4-BF97M2	10	



PREMIUM* CUT-OFF WHEELS**

For nonferrous metals



In order to cut nonferrous metals, the tool must have a high cutting ability. To this end, TYROLIT has developed a special formula and production method in order to be able to perform stationary cutting on NF metals too. New specifications prevent the clogging and dulling of the grinding wheel which used to be a common result of material abrasion.

As with all TYROLIT PREMIUM*** cut-off wheels, this tool has been optimised to achieve the best possible cutting ability and lifetime.

	Shape	Type no.	Dimension	Specification	PU	
		41	58157	300x3.5x25.4	A30P4BF59M	10
		309471	350x3.5x25.4	A30O4BF59M	10	
		800035	400x4.0x40	A30O4BF59M	10	
		56918	500x5.0x25.4	A30P4BF59M100	10	
		422374	500x5.5x40	A24N5BF59M2	10	

Items with grey lettering are only available on request.



PREMIUM* CUT-OFF WHEELS**

For stone



With this tool you obtain the ideal solution for stationary cutting of common building materials. This PREMIUM*** cut-off wheel achieves the best results for large cross-sections due to its excellent cutting ability that reduces the work of the operator.

As with all TYROLIT PREMIUM*** cut-off wheels, this tool has been optimised to achieve the best possible cutting ability and lifetime.



	Shape	Type no.	Dimension	Specification	PU
		41 1649	350x4.0x25.4	C20O4BF33M	10
		28692	400x4.0x30	C20O4BF33M	10
		639799	500x5.0x25.4	C20P4BF71M	10

FOCUR SA

Diamond cut-off wheel for grey and spheroidal cast iron




FOCUR SA diamond cut-off wheels from TYROLIT are the optimum tool for machining grey and spheroidal cast iron. These products combine a long lifetime with maximum economic efficiency. FOCUR SA cut-off wheels are available in diameters from 178 to 600 mm.

	Shape	Type no.	Dimension	Specification	PU
		UC3 102814	300x3.0x40	DC CI	1
		102831	350x3.5x40	DC CI	1
		102850	400x4.0x60	DC CI	1
		102855	450x4.0x60	DC CI	1
		102856	500x5.0x60	DC CI	1
		102859	600x5.0x60	DC CI	1

ACCESSORIES FOR STATIONARY CUTTING

Reduction bushes


Reduction bushes minimise tool diversity and save on storage space. Bushes for stationary cut-off wheels are supplied to our customers on request. Always observe the recommended safety instructions during use.

	Shape	Type no.	Dimension	Specification	PU
		100RR 332480	40x3.0x32	1	10
		332479	40x3.2x25.4	1	10
		332459	60x6.0x40	1	10

Items with grey lettering are only available on request.

ORDERING EXAMPLE

Dimensions of the cut-off wheel: 250 x 1.5 x 32 mm
 Material to be cut: Tool steel workpiece Wst.nr. 1,2312 (40CrmmoS8-6)
 Hardness: 440 hV / 44.5 HRC
 Result: Type 167205

	Hardness		Recommended specification		
	Vickers hardness	Rockwell	Hard	Medium	Soft
	1000 HV	72.3 HRC			
	700 HV	60.5 HRC			
	500 HV	49.1 HRC			
	350 HV	35.5 HRC			
	250 HV	22.0 HRC			
	150 HV				
	120 HV				
	80 HV				
	50 HV				
	30 HV				
	Dimension		Type No.	Type No.	Type No.
	432x3.0x32		167352	167351	167344
	400x3.0x32		167340	167339	167338
	350x2.5x32		169477	167334	167333
	300x2.0x32		169479	167226	167225
	250x1.5x32		167207	167205	165940
	230x1.5x32		167219	167215	167214
	Specification		A80-BH	A80-BM	A80-BS


PREMIUM* LAB**

Laboratory for nonferrous metals, plastics and titanium

Application guidelines

- Use sufficient coolant with 2 - 3 % anti-corrosion additive
- Avoid applying too much pressure to prevent any cut deviation

- For larger workpiece dimensions, we recommend using the next softest specification

	Dimension	Type No.		
		NF metals	plastics	Titanium
	432x3.0x32	167354	167351	
	400x3.0x32	167432	167354	
	350x2.5x32	167335	167335	167336
	300x2.0x32	167229	167229	
	250x1.5x32	167210	167210	167211
	230x1.5x32	167220	167220	167221
	Specification	C80-BN	C80-BN	C80-BT

vs < 50 m/sec (higher speed on request)

PREMIUM★★★ LAB



For steel and stainless steel



The workpiece must be fixed during machining and the wheel must not be exposed to lateral load. Laboratory cut-off wheels are available in various specifications: soft for 60.5-72.3 HRC, medium for 22.0-60.5 HRC, hard for less than 22.0 HRC

Details: For use on stationary machines without reinforcement, so not suitable for hand held applications; workpiece must be fixed, do not expose to lateral load.

- Specification soft for 60.5 – 72.3 HRC
- Specification medium for 22.0 – 60.5 HRC
- Specification hard up to 22.0 HRC

	Shape	Type no.	Dimension	Specification	Classification	PU	
		41N	167219	230x1.5x32	A80-BH50	hard	10
		167215	230x1.5x32	A80-BM50	medium	10	
		167214	230x1.5x32	A80-BS50	soft	10	
		167207	250x1.5x32	A80-BH50	hard	10	
		167205	250x1.5x32	A80-BM50	medium	10	
		165940	250x1.5x32	A80-BS50	soft	10	
		596848	250x1.8x32	89A60L5B17/50	very easy cutting	10	
		169479	300x2.0x32	A80-BH50	hard	10	
		167226	300x2.0x32	A80-BM50	medium	10	
		167225	300x2.0x32	A80-BS50	soft	10	
		597041	300x2.0x32	89A60L5B17/50	very easy cutting	10	
		169477	350x2.5x32	A80-BH50	hard	10	
		167334	350x2.5x32	A80-BM50	medium	10	
		167333	350x2.5x32	A80-BS50	soft	10	
		597383	350x2.5x32	89A60J5B17/50	very easy cutting	10	
		167340	400x3.0x32	A80-BH50	hard	10	
		167339	400x3.0x32	A80-BM50	medium	10	
167338	400x3.0x32	A80-BS50	soft	10			
167352	432x3.0x32	A80-BH50	hard	10			
167351	432x3.0x32	A80-BM50	medium	10			
167344	432x3.0x32	A80-BS50	soft	10			

PREMIUM★★★ LAB

For titanium, nonferrous metals and plastic





Construction/materials able to be machined: High performance cut-off wheels without reinforcement for nonferrous metals, plastics and titanium

- Sufficient lubricant with 2 – 3% anti-corrosion additive
- Avoid applying too much pressure to prevent any cut deviation.

Details: For use on stationary machines, so not suitable for hand held applications; workpiece must be fixed, do not expose to lateral load.

For larger workpiece dimensions, we recommend using the next softest specification.

	Shape	Type no.	Dimension	Specification	Classification	PU	
		41N	167220	230x1.5x32	C80-BN50	Nonferrous / Plastic	10
		167221	230x1.5x32	C80-BT50	Titanium	10	
		167210	250x1.5x32	C80-BN50	Nonferrous / Plastic	10	
		167211	250x1.5x32	C80-BT50	Titanium	10	

Items with grey lettering are only available on request.

**PREMIUM*** LAB**

For titanium, nonferrous metals and plastic



	Shape	Type no.	Dimension	Specification	Classification	PU	
		41N	167229	300x2.0x32	C80-BN50	Nonferrous / Plastique	10
		167335	350x2.5x32	C80-BN50	Nonferrous / Plastique	10	
		167336	350x2.5x32	C80-BT50 A2	Titanium	10	
		167342	400x3.0x32	C80-BN50	Nonferrous / Plastique	10	
		167354	432x3.0x32	C80-BN50	Nonferrous / Plastique	10	

PREMIUM* CUT-OFF WHEELS FOR CUTTING AND SAW SHARPENING**

For steel und HSS



This PREMIUM*** wheel is a non-reinforced high-performance cut-off wheel for stationary machines and automatic saw sharpening machines. As these cut-off wheels are manufactured without reinforcement, they are only suitable for wet cutting on stationary machines.



The workpiece must be fixed during machining and the wheel must not be exposed to lateral load.

	Shape	Type no.	Dimension	Specification	PU	
		1	591080*	150x3.0x20	A60O5B68	10
		655529*	200x2.0x25	89A60M5B0	10	
		41N	529392	100x1.0x20	A80N4B2	10
		202159	100x1.0x20	A80N4B68	10	
		46633	100x1.0x20	A80O4B43	10	
		722408	100x1.5x20	A80N4B2	10	
		6673	100x2.0x20	A80N4B2	10	
		88461**	120x2.0x51	A60N4B2	10	
		282077	120x2.0x51	A60N5B68	10	
		608409	120x2.0x51	A60P4B68	10	
		1197	120x2.0x51	A60O5B43	10	
		596269	125x1.0x16	A60O5B68	10	
		25590	125x1.0x20	A60O5B43	10	
		282079	125x1.0x20	A60N5B68	10	
		35917	125x1.0x20	A80O5B43	10	
		282080	125x1.0x20	A80N5B68	10	
		282078	125x1.5x20	A60N5B68	10	
		614686	150x1.0x16	A60P5B68	10	
		282110	150x1.0x20	A60N5B68	10	
		1211	150x1.0x20	A60O5B43	10	
591103	150x1.0x20	A60O5B68	10			
282111	150x1.0x20	A80N5B68	10			

* For saw sharpening only. ** Also suitable for saw sharpening.

Items with grey lettering are only available on request.



	Shape	Type no.	Dimension	Specification	PU	
		41N	13695	150x1.0x20	A80O5B43	10
		594360	150x1.0x20	A80O5B68	10	
		75306	150x1.0x30	97A54P5B71	10	
		39110	150x1.0x32	A80O5B43	10	
		8833	150x1.5x20	A60O5B43	10	
		282085	150x1.5x20	A60N5B68	10	
		591104	150x1.5x20	A60O5B68	10	
		282105	150x1.5x20	A80N5B68	10	
		79957	150x1.5x20	A80O5B43	10	
		73385	150x1.5x20	97A54Q5B43	10	
		662430	150x1.5x32	A80N5B68	10	
		42808	150x1.6x20	A60P4B43	10	
		227165	150x1.6x32	A60O5B43	10	
		58158	150x1.6x32	A60P4B43	10	
		15685	150x2.0x20	A60O5B43	10	
		32023	150x2.0x20	A60N4B2	10	
		282112	150x2.0x20	A60N5B68	10	
		594362	150x2.0x20	A60O5B68	10	
		594356	150x2.0x30	A60O5B68	10	
		33436	150x2.0x30	A60N4B2	10	
		594357	150x2.0x30	A60Q5B68	10	
		39594	150x2.0x30	97A54P5B71	10	
		648577	150x2.0x32	A60O4B68	10	
		80143	150x2.0x32	A80N4B2	10	
		223516**	150x2.5x20	A60N4B2	10	
		598971	150x2.5x20	A60O5B68	10	
		591680	150x2.5x30	A60Q5B68	10	
		47636	175x1.7x16	A60Q5B43	10	
		596520	175x2.0x51	A60P4B68	10	
		607744	175x3.0x51	A60P4B68	10	
		675283	180x1.0x32	A60O5B43	10	
		493199	180x1.6x32	A60O5B68	10	
		282113	200x1.5x20	A60N5B68	10	
		1254	200x1.5x20	A60O5B43	10	
282114	200x1.5x32	A60N5B68	10			
6718	200x1.5x32	A60O4B43	10			
42809	200x1.6x25.4	A60P4B43	10			
230691	200x1.6x32	A60M4B43	10			

* For saw sharpening only. ** Also suitable for saw sharpening.

Items with grey lettering are only available on request.



PREMIUM*** CUT-OFF WHEELS FOR CUTTING AND SAW SHARPENING

For steel und HSS



	Shape	Type no.	Dimension	Specification	PU	
		41N	205822	200x1.6x32	A60P4B43	10
		6710**	200x2.0x20	A60N4B2	10	
		96205**	200x2.0x32	A60N4B2	10	
		62874	200x2.0x32	A60N4B43	10	
		97442	200x2.5x32	A60N4B2	10	
		12970**	200x3.0x32	A60N4B2	10	
		863284	200x3.0x32	A60P4B68	10	
		599666	230x1.5x22.2	89A60N4B68	10	
		373520	250x1.5x25.4	A60O5B71	10	
		834839	250x1.6x32	89A80L4B43	10	
		549002	300x2.0x31.75	89A80L4B43	10	
		60572	300x2.0x32	A80O5B71	10	
		220394	400x2.8x25.4	89A60L4B59	10	

* For saw sharpening only. ** Also suitable for saw sharpening.

CUTTING ROTATING TOOLS

For HSS



The high-performance cut-off wheel for HSS achieves a perfect cutting performance thanks to its innovative bond system and tailored grain quality. Avoid feed values that are too high during machining, to prevent a cut deviation.

Assembly is usually carried out on wet cutting systems with a manual or automatic feed, at a maximum operating speed of 50 m/s.

	Shape	Type no.	Dimension	V-X	PU	VP	
		1A1R	788700	125x1.0x20	1-5	B126 C75 B	1
		164485	125x1.0x20	1-5	B151 C100 B	1	
		494701	150x1.0x20	1-5	B151 C100 B	1	

Items with grey lettering are only available on request.



CUTTING ROTATING TOOLS

For tungsten carbide

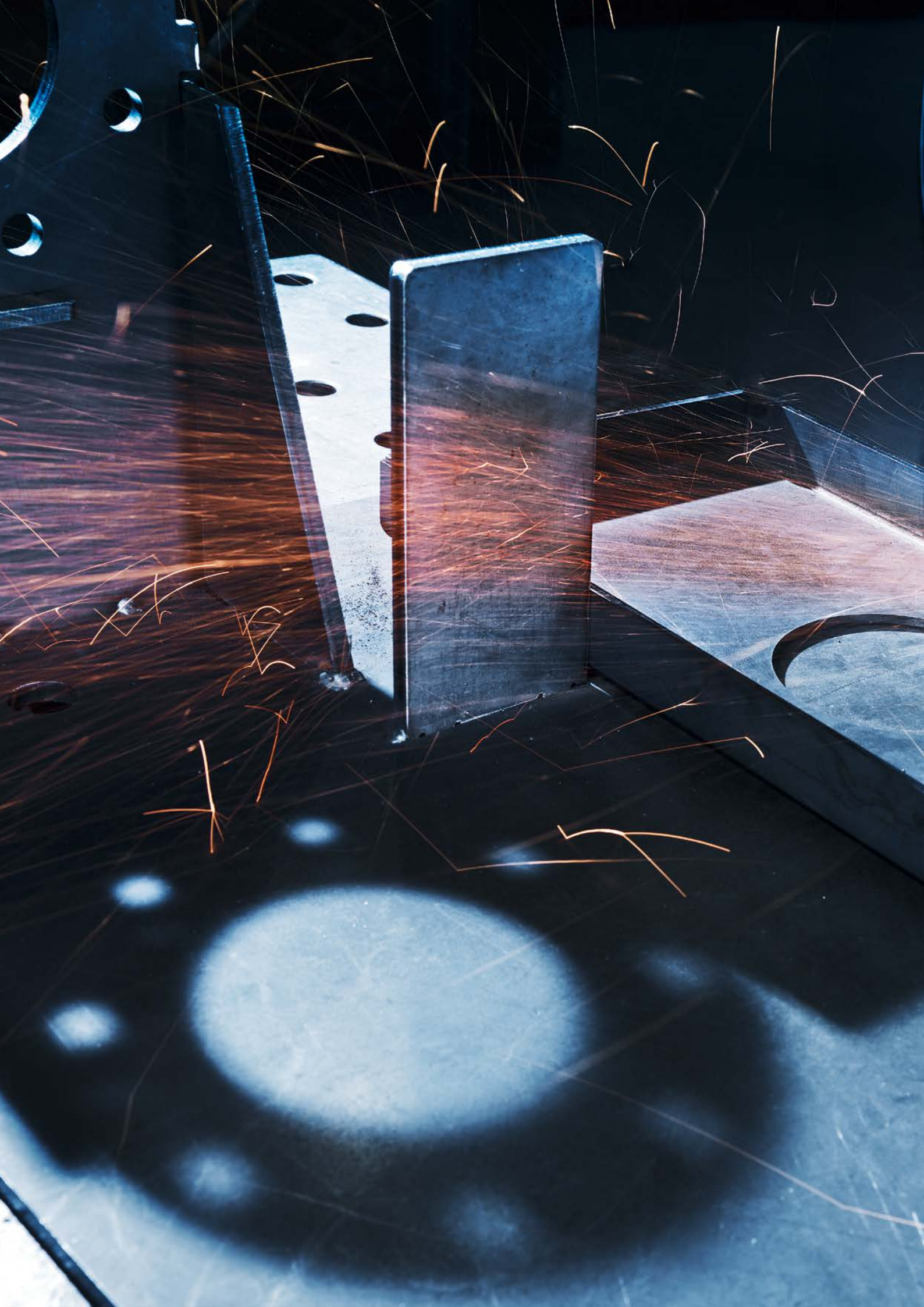


The high-performance cut-off wheel for tungsten carbide achieves a perfect cutting performance thanks to its innovative bond system and tailored grain quality. Avoid feed values that are too high during machining, to prevent a cut deviation.

Assembly is usually carried out on wet cutting systems with a manual or automatic feed, at a maximum operating speed of 50 m/s.

	Shape	Type no.	Dimension	V-X	PU	VP	
		1A1R	299109	75x1.0x20	0.8-5	D151 C75 B	1
			157800	75x0.8x20	0.8-5	D126 C75 B	1
			119395	100x0.8x20	0.8-5	D126 C100 B	1
			100660	100x1.0x20	41030	D126 C100 B	1
			108728	100x1.5x20	1.5-5	D126 C75 B	1
			101000	125x1.0x20	41030	D126 C100 B	1
			148132	150x1.0x20	41030	D126 C100 B	1
			317532	150x1.0x20	41030	D126 C75 B	1
			278979	150x1.0x20	41030	D151 C100 B	1
			667995	200x1.0x22	41030	D126 C100 B	1
			858531	200x1.2x20	1.2-7	D126 C100 B	1
			603284	200x1.2x30	1.2-7	D151 C100 B	1

Items with grey lettering are only available on request.





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SPECIFIC INFORMATION

RESIN-BONDED GRINDING WHEELS

Cut-off wheels product label



Colour codes

Label:	Steel	2in1/3in1	INOX	Nonferrous metals	Cast iron	Stone
Colour code:	Blue	Blue	Red	Orange	Purple	Green
Material:	Steel	2in1 = Steel and stainless steel, 3in1 = Steel, stainless steel and cast iron	Stainless steel	Aluminium, copper, zinc, brass, bronze, stone	Cast materials	Stone

Specification

A24Q-BFX

	X	TYROLIT internal designation
	F	Fibre-reinforced: Fibre glass (safety, lateral load, operating speed)
	B	Bond: V = vitrified bonded, B = resin bonded, E = elastic bonded, G = galvanic bonded
	Q	Designation of hardness: N = soft, O, P, Q, R, S, T = hard
24		Grit size indication Grit size indication in mesh (sieve size per inch) 14 - 36 coarse 46 - 60 medium 80 - 220 fine 800 - 1200 very fine
A		Abrasive: A ... Regular aluminium oxide, C ... Silicon carbide, ZA ... Zirconia alumina, CA ... Ceramic

Grinding

Pictograms for machines

- 
 Angle grinder
- 
 Pneumatic angle grinder
- 
 Angle grinder with cup wheels
- 
 Straight grinder
- 
 Pedestal/pendular grinding





2.1 ROUGH GRINDING WHEELS FOR ANGLE GRINDERS



ROUGH GRINDING WHEELS FOR ANGLE GRINDERS

Working with an angle grinder is one of the most important processes in the handicraft and industrial sectors for machining all types of metals. TYROLIT offers the perfect rough grinding wheels for convenient and quick use with small and large angle grinders.

The TYROLIT range of rough grinding wheels meets the most stringent demands for cost-effective working, high stock removal rates, simple handling and above-average lifetimes. Our high-performance rough grinding wheels deliver the best results in both standard and special applications.

Continuous developments, such as the introduction of the „Comfort Start“ edge, with which every user

can achieve optimum results right from the start, make our rough grinding wheels one of the most advanced tools in the sector.

Working safety and comfort, provided for example by the vibration-damped VIBSTAR rough grinding wheel and the noise reducing SILENTIO, are also of great importance to us.

All TYROLIT rough grinding wheels are manufactured and tested in accordance with EN12413. Uniform colour coding helps you to find the appropriate product for your application.

Shapes



27 rough grinding wheel



27V rough grinding wheel (VIBSTAR vibration-damped)



27SI rough grinding wheel (SILENTIO noise-reduced)



28CON rough grinding wheel (CONFLX)

Application recommendation



Performance Level	Specification	Pages	Steel	Stainless steel	2in1	NF metals	Cast iron	3in1	Stone
PREMIUM***	A30S-BFX	LONGLIFE	70	●					
	CA24Q-BFK	2in1	71		●				
	A...Q-BFX	2in1	72, 73, 74		●				
	A24Q-BFX	2in1	72,73		●				
	A24O-BFX	2in1	73		●				
	ZA30Q-BFR	3in1	75					●	
	A30R-BFX		76, 77, 78		●				
	A36N-BFX		78,79				●		
	A36L-BFX		79				●		
	ZZA24T-BFK	T-GRIND	80	●				●	
	DCCI	FOCUR SA	80	●				●	
	ZA24N-BFX	FOCUR Extra	81					●	
	ZA24P-BFX	FOCUR Extra	81					●	
	ZZA24R-BFX	FOCUR Extra	81					●	
	ZZA24S-BFX	FOCUR Extra	81, 82					●	
	C30S-BFX		82						●



Performance Level	Specification	Pages	Steel	Stainless steel	Cast iron	Stone
STANDARD**	A24S-BF	70	●			
	A30R-BFINOX	78		●		
	ZA30O-BF	FOCUR	82			●
	C30S-BF	83				●



Performance Level	Specification	Pages	2in1	Cast iron	Stone	Stainless steel/ NF metals
BASIC*	A30Q-BF	74, 75	●			
	A30P-BF	75	●			
	AC30N-BF	82		●		
	C30S-BF	83			●	
	WA46R-BF	TOUCH	83			

Items with grey lettering are only available on request.



PREMIUM*** ROUGH GRINDING WHEEL

LONGLIFE for steel



The PREMIUM*** LONGLIFE is a high-performance rough grinding wheel for surface and edge grinding. The 4 mm thick rough grinding wheel achieves the highest stock removal rates, such as in pipeline construction applications.

The 7, 8 and 10 mm thick LONGLIFE rough grinding wheels offer enhanced dimensional stability for welding and root welding.

	Shape		Type no.	Dimension	Specification	PU
		27	5279	100x6.0x16	A30S-BFX	10
			5288	115x4.0x22.23	A30S-BFX	10
			5294	115x7.0x22.23	A30S-BFX	10
			5306	125x4.0x22.23	A30S-BFX	10
			5314	125x7.0x22.23	A30S-BFX	10
			843037	150x4.0x22.23	A30S-BFX	10
			5331	150x7.0x22.23	A30S-BFX	10
			5350	178x4.0x22.23	A30S-BFX	10
			5363	178x7.0x22.23	A30S-BFX	10
			5384	178x8.0x22.23	A30S-BFX	10
			5396	178x10.0x22.23	A30S-BFX	10
			5407	230x4.0x22.23	A30S-BFX	10
			5413	230x7.0x22.23	A30S-BFX	10
			5429	230x8.0x22.23	A30S-BFX	10



STANDARD** ROUGH GRINDING WHEEL

For steel



The STANDARD** rough grinding wheel is a powerful rough grinding wheel for surface and edge grinding. The tool boasts optimised cutting ability and a long lifetime.

Even with low pressure, the wheel is abrasive and easy to handle.

	Shape		Type no.	Dimension	Specification	PU
		27	368002	100x6.0x16	A24S-BF	10
			367377	115x6.0x22.23	A24S-BF	10
			367771	125x6.0x22.23	A24S-BF	10
			367772	150x6.0x22.23	A24S-BF	10
			367773	178x6.0x22.23	A24S-BF	10
			367775	230x6.0x22.23	A24S-BF	10

Items with grey lettering are only available on request.

PREMIUM★★★ ROUGH GRINDING WHEEL CERABOND 2IN1 FOR STEEL AND STAINLESS STEEL

+ Improved productivity
A special structural composition offers maximum system performance.

+ Shorter work processes
Working times are substantially reduced through improved abrasiveness.



Rough grinding wheel with and without „Comfort Start“.

+ Lower production costs
The unique bond technology, optimised for ceramic grain, prevents the grain break-out and leads to a longer lifetime for the tool.

The TYROLIT CERABOND system brings almost 100 years of experience to a new generation of highest performance tools. With the rough grinding wheels from the CERABOND family, we have succeeded in achieving an ideal combi-

nation of specially treated ceramic grain and bond structure.

Thus it is possible to keep the abrasiveness and the lifetime of the wheel at the highest level. The unique bond system prevents premature grain

break-out in order to guarantee the full grinding power of the individual grains. This rough grinding wheel is particularly suitable for steel and stainless steel applications.

PREMIUM★★★ ROUGH GRINDING WHEEL CERABOND 2in1 for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU	
		27	34060373	115x4.0x22.23	CA24Q-BFK	5
			34019874*	115x7.0x22.23	CA24Q-BFK	5
			34060374	125x4.0x22.23	CA24Q-BFK	5
			34019876*	125x7.0x22.23	CA24Q-BFK	5
			34060375	150x4.0x22.23	CA24Q-BFK	5
			34019877*	150x7.0x22.23	CA24Q-BFK	5
			34060376	178x4.0x22.23	CA24Q-BFK	5
			34019878*	178x7.0x22.23	CA24Q-BFK	5
			34060377	230x4.0x22.23	CA24Q-BFK	5
			34019879*	230x7.0x22.23	CA24Q-BFK	5

* With Comfort Start edge

Items with grey lettering are only available on request.

PREMIUM*** ROUGH GRINDING WHEEL 2IN1 FOR STEEL AND STAINLESS STEEL

+ **Enhanced economic efficiency**
High abrasiveness coupled with a significantly longer lifetime.

+ **Less work required**
The destruction of the workpiece as a result of plunging with the tool is prevented, thus avoiding rework.



Rough grinding wheel with and without „Comfort Start“.

+ **Enhanced comfort while working**
With the „Comfort Start“ function, plunging into the workpiece is prevented, thus making the start of the process simpler and more convenient.

TYROLIT Film



The product film can be found on YouTube at www.youtube.com/TYROLITgroup

This rough grinding wheel is particularly suitable for steel and stainless steel applications. Due to its softer design, the PREMIUM*** 2in1 is quick and convenient to use and requires minimal effort. This is made possible

by a new bond with coarser grain and a new layer composition.

What makes our 2in1 rough grinding wheel so unique is the bevelled and defined edge of the tool. With the

“Comfort Start” edge, the user can achieve a pleasant start to grinding and the level of comfort while working is increased many times over.

PREMIUM*** ROUGH GRINDING WHEEL


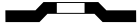
2in1 for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU	
		27	5270	75x6.0x9.5	A30Q-BFX	10
			23875	100x4.0x16	A30Q-BFX	10
			34046119*	100x6.0x16	A24Q-BFX	10
			5287	115x4.0x22.23	A30Q-BFX	10
			34046120*	115x7.0x22.23	A24Q-BFX	10
			5308	125x4.0x22.23	A30Q-BFX	10
			34046131*	125x7.0x22.23	A24Q-BFX	10
			734378	150x4.0x22.23	A30Q-BFX	10
			34046132*	150x7.0x22.23	A24Q-BFX	10

* With Comfort Start edge

Items with grey lettering are only available on request.

	Shape	Type no.	Dimension	Specification	PU
		27			
		5349	178x4.0x22.23	A30Q-BFX	10
		34046133*	178x7.0x22.23	A24Q-BFX	10
		34046135*	178x8.0x22.23	A24Q-BFX	10
		5406	230x4.0x22.23	A30Q-BFX	10
		34046134*	230x7.0x22.23	A24Q-BFX	10
		34046136*	230x8.0x22.23	A24Q-BFX	10
		34046137*	230x10.0x22.23	A24Q-BFX	10
		545254**	178x7.0x22.23	A24O-BFX	10
		545255**	230x7.0x22.23	A24O-BFX	10
545256**	230x10.0x22.23	A24O-BFX	10		

* With Comfort Start edge
 ** For very hard materials

PREMIUM★★★ ROUGH GRINDING WHEEL SILENTIO 2IN1 FOR STEEL AND STAINLESS STEEL

- + **Enhanced economic efficiency**
 Maximum stock removal rate and a long lifetime for stainless steel applications.
- + **Enhanced work safety**
 The sound insulation reduces lasting physical strain.



- + **Universal use**
 The PREMIUM*** Silentio rough grinding wheel is equally suitable for surface and edge grinding on steel and stainless steel.

The PREMIUM*** Silentio sets new milestones in terms of noise reduction. With a reduction of 10 decibels, noise perception is minimised by 50%.

This increases the user's level of comfort while working, avoiding lasting physical harm. This rough grinding wheel has been developed



for stainless steel applications and is suitable for use with both steel and stainless steel.

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PREMIUM* ROUGH GRINDING WHEEL**
Silentio 2in1 for steel and stainless steel




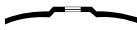
	Shape	Type no.	Dimension	Specification	PU	
		27SI	285439	230x8.0x22.23	A30Q-BFX	10

PREMIUM* ROUGH GRINDING WHEEL**
CONFLEX for steel and stainless steel



With the PREMIUM*** CONFLEX the optimum grinding angle is already preset due to the wheel shape. This makes horizontal machine guiding possible, facilitating the user's work.

Using the optimal angle makes it possible to achieve consistent wear of the tool and an even surface. This rough grinding wheel is particularly suitable for steel and stainless steel applications.



	Shape	Type no.	Dimension	Specification	PU	
		28CON	5267	178x7.0x22.23	A30Q-BFX	10

BASIC★ ROUGH GRINDING WHEEL
2in1 for steel and stainless steel



This rough grinding wheel is particularly suitable for steel and stainless steel applications due to its softer design. In addition, the BASIC★ 2in1 is quick and convenient to use and requires minimal effort.

This tool can be used universally and is equally suitable for surface and edge grinding applications.

	Shape	Type no.	Dimension	Specification	PU	
		27	222854	100x6.0x16	A30Q-BF	10
			222858	115x6.0x22.23	A30Q-BF	10
			222860	125x6.0x22.23	A30Q-BF	10
			222861	150x6.0x22.23	A30Q-BF	10
			222863	178x6.0x22.23	A30Q-BF	10
			222868	178x8.0x22.23	A30Q-BF	10
			222865	230x6.0x22.23	A30Q-BF	10
			222870	230x8.0x22.23	A30Q-BF	10

Items with grey lettering are only available on request.

BASIC★ ROUGH GRINDING WHEEL
FASTCUT 2in1 for steel and stainless steel



This rough grinding wheel is particularly suitable for steel and stainless steel applications. Due to its soft design, the BASIC★ FASTCUT 2in1 is optimised in its cutting ability in order to achieve high stock removal rates in the shortest possible time.

This tool can be used universally and is equally suitable for surface and edge grinding applications.

	Shape	Type no.	Dimension	Specification	PU	
		27	297324	100x6.0x16	A30P-BF	10
			297325	115x6.0x22.23	A30P-BF	10
			297327	125x6.0x22.23	A30P-BF	10
			297329	150x6.0x22.23	A30P-BF	10
			297331	178x6.0x22.23	A30P-BF	10
			718030	178x8.0x22.23	A30P-BF	10
			297333	230x6.0x22.23	A30P-BF	10

BASIC★ ROUGH GRINDING WHEEL
PIPELINER 2in1 for steel and stainless steel



The Basic★ PIPELINER has been developed for V-groove applications. Specifically in pipeline construction, it is necessary to chamfer the pipe ends in order to subsequently weld them together. As they only comprise one grain layer, they provide for even wear on the workpiece.

The PIPELINER is a 2in1 rough grinding wheel and is therefore equally suitable for steel and stainless steel.

	Shape	Type no.	Dimension	Specification	PU	
		27	734693	178x7,0x22,23	A30Q-BF PIPE	10

PREMIUM★★★ ROUGH GRINDING WHEEL
3in1 for steel, stainless steel and cast iron



With the PREMIUM★★★ 3in1 rough grinding wheel with zirconium aluminium oxide you can impress on three levels. High performance on steel, stainless steel and cast materials, as well as chemical purity distinguish the product. This tool does not contain iron, sulphur, chlorine and fluorine, and leaves workpiece surfaces in a neutral condition.

The abrasiveness and long lifetime enable high stock removal rates within the shortest possible time. Thanks to its chemical purity; free of iron, sulphur, chlorine and fluorine, the wheel is particularly suited to special application areas such as nuclear power stations.

	Shape	Type no.	Dimension	Specification	PU	
		27	466744	115x7.0x22.23	ZA30Q-BFR	10
			466749	125x7.0x22.23	ZA30Q-BFR	10
			466754	178x7.0x22.23	ZA30Q-BFR	10
			466762	230x7.0x22.23	ZA30Q-BFR	10



Items with grey lettering are only available on request.

PREMIUM★★★ ROUGH GRINDING WHEEL
For stainless steel



The high-performance rough grinding wheel has been specially designed for stainless steel applications. The PREMIUM★★★ INOX rough grinding wheel combines a long lifetime and the best cutting ability.

To achieve this a special mixture of regular aluminium oxide and zirconium aluminium oxide is used. This rough grinding wheel is specially designed for stainless steel applications.

Shape	Type no.	Dimension	Specification	PU	
 	27	117058*	100x6.0x16	A30R-BFX	10
	117064	115x4.0x22.23	A30R-BFX	10	
	117065*	115x7.0x22.23	A30R-BFX	10	
	117068	125x4.0x22.23	A30R-BFX	10	
	117070*	125x7.0x22.23	A30R-BFX	10	
	34042874	150x4.0x22.23	A30R-BFX	10	
	34042875*	150x7.0x22.23	A30R-BFX	10	
	117071	178x4.0x22.23	A30R-BFX	10	
	117072*	178x7.0x22.23	A30R-BFX	10	
	117073	230x4.0x22.23	A30R-BFX	10	
	117074*	230x7.0x22.23	A30R-BFX	10	

* With Comfort Start edge

PREMIUM★★★ ROUGH GRINDING WHEEL VIBSTAR FOR STAINLESS STEEL

+ **More even surfaces**
Vibrations from the tool can also impair the surface finish; the PREMIUM VIBSTAR helps to prevent this.

+ **Enhanced work safety**
A significant reduction in the vibrational load prevents occupational illnesses.



+ **Reduced costs**
Vibration damping also increases the lifetime of the machine.

The vibration damping developed and patented by TYROLIT allows professional users to achieve exceptionally gentle grinding. The multi-layer structure and the perma-

nently attached plastic flange reduce vibrations by up to 50%. The PREMIUM★★★ Vibstar technology helps to prevent occupational illnesses, such as muscular and skeletal

damage, and neurological illnesses and circulatory problems, such as vibration white finger. This rough grinding wheel is specially designed for stainless steel applications.



Items with grey lettering are only available on request.





PREMIUM* ROUGH GRINDING WHEEL**
VIBSTAR for stainless steel



	Shape	Type no.	Dimension	Specification	PU	
		27V	474524	178x7.0x22.23	A30R-BFX	10
			474526	230x7.0x22.23	A30R-BFX	10

PREMIUM*** ROUGH GRINDING WHEEL SILENTIO FOR STAINLESS STEEL

+ **Enhanced economic efficiency**
Maximum stock removal rate and a long lifetime for stainless steel applications.

+ **Enhanced work safety**
The sound insulation reduces lasting physical strain.



+ **Universal use**
The PREMIUM*** Silentio rough grinding wheel is equally suitable for surface and edge grinding on stainless steel.


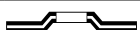
The PREMIUM*** Silentio sets new milestones in terms of noise reduction. With a reduction of 10 decibels, noise perception is minimised by 50%.

This increases the user's level of comfort while working, avoiding lasting physical harm. This rough grinding wheel with a unique wheel

shape has been specially designed for stainless steel applications.

PREMIUM* ROUGH GRINDING WHEEL**
SILENTIO for stainless steel



	Shape	Type no.	Dimension	Specification	PU	
		27SI	515988	178x7.0x22.23	A30R-BFX	10
			515989	230x8.0x22.23	A30R-BFX	10



Items with grey lettering are only available on request.

PREMIUM* ROUGH GRINDING WHEEL**
CONFLEX for stainless steel



With the PREMIUM*** CONFLEX the optimum grinding angle is already preset due to the wheel shape. This makes horizontal machine guiding possible, facilitating the user's work.

Using the optimal angle makes it possible to achieve consistent wear of the tool and an even surface. This rough grinding wheel is specially designed for stainless steel applications.


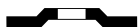
	Shape	Type no.	Dimension	Specification	PU
		28CON 13616	230x7.0x22.23	A30R-BFX	10

STANDARD ROUGH GRINDING WHEEL**
For stainless steel



The powerful rough grinding wheel has been specially designed for stainless steel applications. The STANDARD** INOX rough grinding wheel combines a long lifetime and the best cutting ability.

This is achieved through the use of regular aluminium oxide. This rough grinding wheel is specially designed for stainless steel applications.


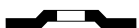
	Shape	Type no.	Dimension	Specification	PU
		27 368014	100x6.0x16	A30R-BFINOX	10
		367545	115x6.0x22.23	A30R-BFINOX	10
		367548	125x6.0x22.23	A30R-BFINOX	10
		367550	150x6.0x22.23	A30R-BFINOX	10
		367551	178x6.0x22.23	A30R-BFINOX	10
		367553	178x8.0x22.23	A30R-BFINOX	10
		367554	230x6.0x22.23	A30R-BFINOX	10
		367556	230x8.0x22.23	A30R-BFINOX	10

PREMIUM* ROUGH GRINDING WHEEL**
For nonferrous metals





The PREMIUM*** rough grinding wheel developed specifically for non-ferrous metals prevents clogging of the tool in order to reduce loading or dulling. Even at very low pressure, the wheel achieves extremely high abrasiveness.

TYROLIT's formula and production methods enable exceptionally high stock removal rates to be obtained for nonferrous metal applications. These rough grinding wheels are available in the hard N grade for surface and edge grinding, or in the softer cutting L grade for surface grinding.

	Shape	Type no.	Dimension	Specification	PU
		27 45919*	100x6.0x16	A36N-BFX	10
		5289	115x4.0x22.23	A36N-BFX	10
		5295*	115x7.0x22.23	A36N-BFX	10
		636789	125x4.0x22.23	A36N-BFX	10
		5316*	125x7.0x22.23	A36N-BFX	10

Items with grey lettering are only available on request.

	Shape	Type no.	Dimension	Specification	PU	
		27	913338	150x4.0x22.23	A36N-BFX	10
		47763*	150x7.0x22.23	A36N-BFX	10	
		5351	178x4.0x22.23	A36N-BFX	10	
		5365*	178x7.0x22.23	A36N-BFX	10	
		46586	230x4.0x22.23	A36N-BFX	10	
		5416*	230x7.0x22.23	A36N-BFX	10	
		576049*	115x7.0x22.23	A36L-BFX	10	
		647549*	125x7.0x22.23	A36L-BFX	10	
		576050*	178x7.0x22.23	A36L-BFX	10	
		647550*	230x7.0x22.23	A36L-BFX	10	

* With Comfort Start edge

PREMIUM★★★ ROUGH GRINDING WHEEL T-GRIND FOR STEEL AND CAST IRON

+ High productivity

The combination of a long lifetime and high abrasiveness significantly increases the productivity of this rough grinding wheel.

+ Cost-effective

Due to the above-average lifetime of the T-GRIND, purchase and disposal costs are reduced.



+ Highest demands

Meets the highest demands of powerful pneumatic angle grinders.

The PREMIUM*** T-GRIND has been developed for the high demands exerted when using turbine and vane-type pneumatic grinders. The long

lifetime ensures this rough grinding wheel provides a vast reduction in abrasive waste, making it an environmentally-friendly product.



At the same time, the aggressive stock removal rate ensures more comfort and relief for the user while working.

Items with grey lettering are only available on request.



PREMIUM★★★ ROUGH GRINDING WHEEL
T-GRIND for steel and cast iron



	Shape		Type no.	Dimension	Specification	PU
		27	701518	125x7x22.23	ZZA24T-BFK	10
			701439	178x7x22.23	ZZA24T-BFK	10
			701515	230x7x22.23	ZZA24T-BFK	10

PREMIUM★★★ FOCUR SA

DIAMOND ROUGH GRINDING WHEEL FOR GREY AND SPHEROIDAL CAST IRON

+ Enhanced safety

The use of a steel core minimises the potential risk of wheel breakage.

+ Long tool lifetimes

The reduced number of wheel changes makes this tool the more economical option.



+ Enhanced user comfort

Fewer wheel changes make this tool the more economical option.

+ Low risk to health

Less dust generation when using this diamond rough grinding wheel lowers the health risk to the user.

FOCUR SA rough grinding wheels from TYROLIT are the optimum tool for machining grey and spheroidal cast iron components. This product



combines a long tool life with maximum economic efficiency. A low level of dust formation significantly increases user comfort

compared to conventional rough grinding wheels.

PREMIUM★★★ FOCUR SA

Diamond rough grinding wheel for grey and spheroidal cast iron



	Shape		Type no.	Dimension	Specification	PU
		4S2	34213572	115x2x22.23	DCCI	1
			34200772	125x2x22.23	DCCI	1
			34200773	180x2x22.23	DCCI	1
			34200775	230x2.5x22.23	DCCI	1


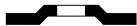
Items with grey lettering are only available on request.

PREMIUM* ROUGH GRINDING WHEEL**
FOCUR Extra for cast iron



The PREMIUM*** FOCUR Extra offers maximum stock removal rates coupled with the longest lifetime. Innovative production technology combined with high-quality zirconium aluminium oxide makes this possible. This high-performance tool has been developed for application on all cast

materials and can be used for surface grinding, deburring work and rendering. ZA24N-BFX: particularly for surface grinding, ZA24P-BFX: universal type, ZZA24R-BFX: the deburring specialist and ZZA24S-BFX: for long lifetimes.

	Shape		Type no.	Dimension	Specification	PU
		27	233756	125x7.0x22.23	ZA24N-BFX	10
			233757	178x4.0x22.23	ZA24N-BFX	10
			233759	178x7.0x22.23	ZA24N-BFX	10
			233760	230x4.0x22.23	ZA24N-BFX	10
			233762	230x7.0x22.23	ZA24N-BFX	10
			233765	125x7.0x22.23	ZA24P-BFX	10
			233768	178x7.0x22.23	ZA24P-BFX	10
			233771	230x7.0x22.23	ZA24P-BFX	10
			233773	125x7.0x22.23	ZZA24R-BFX	10
			233774	178x4.0x22.23	ZZA24R-BFX	10
			233776	178x7.0x22.23	ZZA24R-BFX	10
			233777	230x4.0x22.23	ZZA24R-BFX	10
			233778	230x7.0x22.23	ZZA24R-BFX	10
			929017	178x4.0x22.23	ZZA24S-BFX	10
			929018	178x7.0x22.23	ZZA24S-BFX	10
			929019	230x4.0x22.23	ZZA24S-BFX	10
			929020	230x7.0x22.23	ZZA24S-BFX	10



PREMIUM* ROUGH GRINDING WHEEL**
FOCUR Extra Vibstar for cast iron



The vibration damping developed and patented by TYROLIT allows professional users to achieve exceptionally gentle grinding. The multi-layer structure and the permanently attached plastic flange reduce vibrations by up to 50%.

The PREMIUM*** Vibstar technology helps to prevent occupational illnesses, such as muscular and skeletal damage, and neurological illnesses

and circulatory problems, such as vibration white finger. ZA24N-BFX: particularly for surface grinding, ZA24P-BFX: universal type, ZZA24R-BFX: the deburring specialist and ZZA24S-BFX: for long lifetimes.



	Shape		Type no.	Dimension	Specification	PU
		27V	474527	178x7.0x22.23	ZA24N-BFX	10
			474532	230x7.0x22.23	ZA24N-BFX	10
			474528	178x7.0x22.23	ZA24P-BFX	10
			474533	230x7.0x22.23	ZA24P-BFX	10
			474529	178x7.0x22.23	ZZA24R-BFX	10
			474534	230x7.0x22.23	ZZA24R-BFX	10

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PREMIUM* ROUGH GRINDING WHEEL**
FOCUR Extra Vibstar for cast iron





	Shape		Type no.	Dimension	Specification	PU
		27V	474531	178x7.0x22.23	ZZA24S-BFX	10
			474535	230x7.0x22.23	ZZA24S-BFX	10

STANDARD ROUGH GRINDING WHEEL**
FOCUR for cast iron



With the STANDARD** FOCUR rough grinding wheel you will obtain a tool that has been optimised in terms of its cutting ability and offers a high level of dimensional stability. Even with low pressure, the tool is abrasive and durable.

This powerful tool has been developed for application on all cast materials and can be used for surface grinding, deburring work and rendering.



	Shape		Type no.	Dimension	Specification	PU
		27	154544	178x7.0x22.23	ZA300-BF	10
			154545	230x7.0x22.23	ZA300-BF	10

BASIC* ROUGH GRINDING WHEEL
For cast iron



With the BASIC* rough grinding wheel for cast iron you will obtain a tool that has been specially designed for rendering and offers a high level of dimensional stability. Even with low pressure, the tool is easy cutting and durable.

This tool has been developed for application on all cast materials and is particularly suitable for smoothing cast materials.



	Shape		Type no.	Dimension	Specification	PU
		27	567352	178x8.0x22.23	AC30N-BF	10
			567353	230x8.0x22.23	AC30N-BF	10

PREMIUM* ROUGH GRINDING WHEEL**
For stone



The abrasive PREMIUM*** rough grinding wheel for stone is quick and convenient to use and requires minimal exertion. It is ideal for soft to hard stone, natural and artificial stone and concrete.

This rough grinding wheel with silicon carbide is specifically for stone and short-chipping materials.

	Shape		Type no.	Dimension	Specification	PU
		27	5368	178x7x22.23	C30S-BFX	10
			5425	230x7x22.23	C30S-BFX	10

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STANDARD ROUGH GRINDING WHEEL**

For stone



The abrasive STANDARD** rough grinding wheel for stone is quick and convenient to use and requires minimal exertion. It is ideal for soft to hard stone, natural and artificial stone and concrete.

This rough grinding wheel with silicon carbide is specifically for stone and short-chipping materials.

	Shape		Type no.	Dimension	Specification	PU
		27	368008	100x6.0x16	C30S-BF	10
			367546	115x6.0x22.23	C30S-BF	10
			367549	125x6.0x22.23	C30S-BF	10
			367552	178x6.0x22.23	C30S-BF	10
			367557	230x6.0x22.23	C30S-BF	10

BASIC* ROUGH GRINDING WHEEL

For stone



The abrasive BASIC* rough grinding wheel for stone is quick and convenient to use and requires minimal exertion. It is ideal for soft to hard stone, natural and artificial stone and concrete.

This rough grinding wheel with silicon carbide is specifically for stone and short-chipping materials.

	Shape		Type no.	Dimension	Specification	PU
		27	222872	100x6.0x16	C30S-BF	10
			222873	115x6.0x22.23	C30S-BF	10
			222889	125x6.0x22.23	C30S-BF	10
			222892	150x6.0x22.23	C30S-BF	10
			222043	178x6.0x22.23	C30S-BF	10
			222898	230x6.0x22.23	C30S-BF	10

BASIC* ROUGH GRINDING WHEEL

TOUCH for stainless steel and nonferrous metals



The semi-flexible BASIC* TOUCH combines the advantages of various products in one tool. The "waffle" structure enables cool grinding with good chip transport. In addition, the risk of material discolouration is reduced. The unique structure and low weight of the TOUCH suppresses vibrations, ensuring quiet operation and sound reduction.

The wheel also facilitates ideal adaptation to workpieces for grinding, deburring and shaping work. It is also possible to cut nonferrous metals.

	Shape		Type no.	Dimension	Specification	PU
		29T	236317	100x16	WA46R-BF	25
			236318	115x22.23	WA46R-BF	25
			236319	125x22.23	WA46R-BF	25
			236320	178x22.23	WA46R-BF	25

Items with grey lettering are only available on request.



TYROLIT

A close-up, low-angle shot of a person's arm and shoulder as they use a 2.2 Rondeller angle grinder on a dark metal beam. The beam has the number '0795' written on it in white. The background is a blurred industrial workshop with skylights and other equipment. A semi-transparent white banner is overlaid on the image, containing the product name and description.

2.2 RONDELLER®
FOR ANGLE GRINDERS



RONDELLER® FOR ANGLE GRINDERS

Working with an angle grinder is one of the most important processes in the handicraft and industrial sectors for machining all types of metals. TYROLIT has developed a special tool for use on an angle grinder that combines the product advantages of different grinding tools. It is not necessary to use any special accessories with the Rondeller®, so simple handling is guaranteed.

Its unique geometry and stud pattern enable outstanding stock removal, cool, material-protecting grinding and ergonomic working.

Vibration-free working and perfect adaptation to the workpiece is guaranteed when grinding, deburring and shaping curved surfaces.

Shapes



29 RON
Rondeller®

Application recommendation



Performance Level	Specification	Pages	2in1	Stone	Plastic
PREMIUM ★★★	A...Q-BF	87	●		
	C...S-BF	88		●	●

Items with grey lettering are only available on request.

PREMIUM★★★ RONDELLER®

2IN1 FOR STEEL AND STAINLESS STEEL

- + **High level of comfort while working**
These tools make vibration-free, ergonomic use possible and protect both user and machine.
- + **Universal use**
Ideal for use on steel and stainless steel, as well as for all grinding, deburring and shaping applications on curved surfaces.



- + **Simple handling**
Easy assembly - no need to use special accessories, such as back up pads and clamping nuts.

The TYROLIT PREMIUM★★★ Rondeller® combines the product advantages of different grinding tools with the easiest handling. The unique

geometry of the Rondeller® enables cool, ergonomic grinding that is kind to materials. Absolutely vibration-free use and op-

timal adaptation to the workpiece for all grinding, deburring and shaping applications means that curved surfaces can be perfectly machined.

PREMIUM★★★ RONDELLER®

2in1 for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU	
		29RON	57004	115x22.23	A24Q-BF	25
		908225	115x22.23	A36Q-BF	25	
		908226	115x22.23	A60Q-BF	25	
		57005	125x22.23	A24Q-BF	25	
		908227	125x22.23	A36Q-BF	25	
		908229	125x22.23	A60Q-BF	25	
		33199	125x22.23	A80Q-BF	25	
		170599	150x22.23	A36Q-BF	25	
		57006	178x22.23	A24Q-BF	25	
		908230	178x22.23	A36Q-BF	25	
		908231	178x22.23	A60Q-BF	25	

Items with grey lettering are only available on request.

PREMIUM* RONDELLER®**
For stone



The TYROLIT PREMIUM*** Ronderller® combines the product advantages of different grinding tools with the easiest handling. The unique geometry and stud pattern of the Ronderller® enables ergonomic grinding that protects materials.

Absolutely vibration-free use and optimal adaptation to the workpiece for all grinding jobs means that curved surfaces can be perfectly machined.

	Shape		Type no.	Dimension	Specification	PU
		29RON	908233	115x22.23	C36S-BF	25
			948218	115x22.23	C60S-BF	25
			908220	178x22.23	C36S-BF	25
			908221	178x22.23	C60S-BF	25
			908223	178x22.23	C100S-BF	25
			908224	178x22.23	C180S-BF	25

Items with grey lettering are only available on request.



2.3 CUP WHEELS FOR ANGLE GRINDERS



CUP WHEELS FOR ANGLE GRINDERS

Working with an angle grinder is one of the most important processes in the handicraft and industrial sectors for machining all types of metals. The use of cup wheels is recommended when grinding large and heavy components in particular, as they are exceptionally robust and durable.

It is particularly important to ensure that cup wheels are only used on angle grinders for 178 mm diameters. Smaller machines rotate too quickly, while larger ones rotate too slowly. In addition, a special protection cover is required to ensure sufficient levels of working safety.

With cup wheels from TYROLIT you can achieve high stock removal rates and long lifetime. The composition of the cup wheels makes them suitable for large-area machining of welding seams or for grinding imperfections on concrete surfaces. TYROLIT cup wheels can not only be used for metal

machining, but also on marble, slate and granite. Uniform colour coding helps you to find the appropriate product for your application.

Shapes



11BT Cup wheel



11ZB Cup wheel



11ZT Cup wheel



6ZB Cup wheel

Application recommendation



Performance Level	Specification	Pages	Steel	Stainless steel	Stone
PREMIUM***	A... B84	92	•		
	A... B2	92		•	
	1C... B0	93			•
	1C... B2	93			•



Performance Level	Specification	Pages	Steel	Stone
STANDARD**	A... B	92	•	
	C... B	93		•

Items with grey lettering are only available on request.

PREMIUM* RESIN CUP WHEEL**

For steel



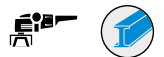
Cup wheels achieve maximum stock removal rates and lifetime for grinding jobs on large areas. The PREMIUM*** cup wheel for steel is ideal for edge grinding, bevelling and grinding welding seams.

There is a choice of bore design 22.23 and thread design M14 for fitting to the tool. Observe operating speed: max. 50 m/s

	Shape	Type no.	Dimension	Specification	PU	Max. speed	
		11BT	310183	110/90x55x22.23	A16P4B84	2	8,680
			311096	110/90x55x22.23	A36O4B84	2	8,680
		351386	130/90x55x22.23	A16P4B84	2	7,340	
		310997	130/90x55x22.23	A36O4B84	2	7,340	
		11ZB	321395	110/90x55xM14	A16P4B84	2	8,680
			310184	110/90x55xM14	A36O4B84	2	8,680
			377664	130/90x55xM14	A36O4B84	2	7,340
		11ZT	241413	102/76x51x5/8"	A16P4B84	2	9,360
23525			152/120x51x5/8"	A16P4B84	2	6,280	

STANDARD RESIN CUP WHEEL**

For steel



Cup wheels achieve excellent stock removal rates and lifetime for grinding jobs on large areas. The STANDARD** cup wheel for steel is ideal for edge grinding, bevelling and grinding welding seams.

There is a choice of bore design 22.23 and thread design M14 for fitting to the tool. Observe operating speed: max. 50 m/s

	Shape	Type no.	Dimension	Specification	PU	Max. speed	
		11BT	895678	110/90x55x22.23	A16P-B	2	8,680
			895669	110/90x55x22.23	A36P-B	2	8,680

PREMIUM* RESIN CUP WHEEL**

For stainless steel



Cup wheels achieve maximum stock removal rates and lifetime for grinding jobs on large areas. The PREMIUM*** cup wheel specially designed for stainless steel is also ideal for edge grinding, bevelling and grinding welding seams.

There is a choice of bore design 22.23 and thread design M14 for fitting to the tool. Observe operating speed: max. 50 m/s

	Shape	Type no.	Dimension	Specification	PU	Max. speed	
		11ZT	23509	127/94x51x5/8"	A20M4B2	2	7,510
			275634	152/120x51x5/8"	A20M4B2	2	6,280

Items with grey lettering are only available on request.

PREMIUM* RESIN CUP WHEEL**

For stone



Cup wheels achieve maximum stock removal rates and lifetime for grinding jobs on large areas. The stone cup wheel is particularly suitable for pre-grinding imperfections on concrete surfaces, bevelling and pre-grinding artificial stone and patio slabs, surface grinding on marble, slate and granite.

There is a choice of bore design 22.23 and thread design M14 for fitting to the tool. Observe operating speed: max. 50 m/s

	Shape	Type no.	Dimension	Specification	PU	Max. speed	
		11BT	310980	110/90x55x22.23	1C16L4B2	2	8,680
			318070	110/90x55x22.23	1C24L4B2	2	8,680
			342583	110/90x55x22.23	1C46K4B2	2	8,680
			314463	110/90x55x22.23	1C60J4B2	2	8,680
			317307	110/90x55x22.23	1C120J4B0	2	8,680
		6ZB	89383	100x45xM14	1C24L4B2	2	9,540
			83585	100x45xM14	1C60J4B2	2	9,540
			56895	100x45xM14	1C120J4B2	2	9,540
			553403	100x45xM14	1C220J4B0	2	9,540
		11ZB	310992	110/90x55xM14	1C16L4B2	2	8,680
			310993	110/90x55xM14	1C24L4B2	2	8,680
			321211	110/90x55xM14	1C60J4B2	2	8,680
			320074	110/90x55xM14	1C120J4B0	2	8,680
			326214	110/90x55xM14	1C220J4B0	2	8,680
			310994	130/90x55xM14	1C16L4B2	2	7,340
310995			130/90x55xM14	1C24L4B2	2	7,340	
320075			130/90x55xM14	1C60J4B2	2	7,340	
424846			130/90x55xM14	1C120J4B0	2	7,340	
336499			130/90x55xM14	1C220J4B0	2	7,340	

STANDARD RESIN CUP WHEEL**

For stone



Cup wheels achieve excellent stock removal rates and lifetime for grinding jobs on large areas. The stone cup wheel is particularly suitable for pre-grinding imperfections on concrete surfaces, bevelling and pre-grinding artificial stone and patio slabs, surface grinding on marble, slate and granite.

There is a choice of bore design 22.23 and thread design M14 for fitting to the tool. Observe operating speed: max. 50 m/s

	Shape	Type no.	Dimension	Specification	PU	Max. speed	
		11BT	895679	110/90x55x22.23	C16J-B	2	8,680
			895670	110/90x55x22.23	C36J-B	2	8,680
			895671	110/90x55x22.23	C60J-B	2	8,680
		11ZB	895676	110/90x55xM14	C16J-B	2	8,680
			895677	110/90x55xM14	C60J-B	2	8,680

Items with grey lettering are only available on request.





2.4 GRINDING WHEELS FOR STRAIGHT GRINDERS



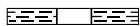
GRINDING WHEELS FOR STRAIGHT GRINDERS

Straight grinders are always in high demand when precise results are required on difficult-to-access areas. Their versatile application options make them a popular tool. In order to fulfil the high standards TYROLIT sets for itself, great importance was attached to the low-vibration grinding properties of the products during their design.

The range easily meets the general demands of economic efficiency, high stock removal rates, simple handling and above-average lifetimes. All TYROLIT rough grinding wheels are manufactured and tested in accord-

ance with EN12413. Uniform colour coding helps you to find the appropriate product for your application.

Shapes



1F80

Rough grinding
wheel

Application recommendation

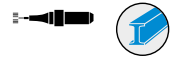


Performance Level	Specification	Pages	Steel	Stainless	NF metals	Cast iron
PREMIUM ★★★	A30S-BFX80	98	•			
	A30R-BFX80	98		•		
	A36N-BFX80	99			•	
	ZA24P-BFX80	99				•

Items with grey lettering are only available on request.


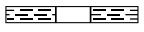
PREMIUM*** GRINDING WHEELS

1F80 for steel



The PREMIUM*** 1F80 high-performance rough grinding wheel is particularly suitable for universal grinding tasks on hard-to-reach areas. Using the wheel, flutes and notches can be added, and gears can be deburred.

In addition, the wheel makes light work of maintaining turbine blades, and rough grinding curved surfaces in cavities and ridges. For diameters above 80 mm, we recommend using a protection cover.

	Shape		Type no.	Dimension	Specification	PU
		1F80	439061	50x6.0x6	A30S-BFX80	100
			441231	50x10.0x6	A30S-BFX80	100
			441207	50x10.0x10	A30S-BFX80	100
			441226	60x6.0x10	A30S-BFX80	100
			441219	60x10.0x10	A30S-BFX80	100
			441233	70x10.0x10	A30S-BFX80	100
			441223	75x6.0x10	A30S-BFX80	100
			441227	75x25.0x13	A30S-BFX80	100
			441238	100x6.0x8	A30S-BFX80	25
			441239	175x25.0x16	A30S-BFX80	20


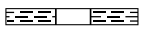
PREMIUM*** GRINDING WHEELS

1F80 for stainless steel



The PREMIUM*** 1F80 high-performance rough grinding wheel is particularly suitable for universal grinding tasks on hard-to-reach areas. Using the wheel, flutes and notches can be added, and gears can be deburred.

In addition, the wheel makes light work of maintaining turbine blades, and rough grinding curved surfaces in cavities and ridges. For diameters above 80 mm, we recommend using a protection cover.

	Shape		Type no.	Dimension	Specification	PU
		1F80	439059	50x6.0x6	A30R-BFX80	100
			441206	50x10.0x10	A30R-BFX80	100
			441245	50x19.0x10	A30R-BFX80	100
			441243	75x4.0x10	A30R-BFX80	100
			441224	75x15.0x10	A30R-BFX80	100
			441203	100x25.0x25	A30R-BFX80	25
			441204	125x25.0x25	A30R-BFX80	20
			441241	150x25.0x25	A30R-BFX80	20

Items with grey lettering are only available on request.

PREMIUM*** GRINDING WHEELS

1F80 for nonferrous metals



The PREMIUM*** 1F80 high-performance rough grinding wheel is particularly suitable for universal grinding tasks on hard-to-reach areas. This product has been specially developed for nonferrous metals and is ideal for adding flutes and notches, as well as deburring gears.

In addition, the wheel makes light work of maintaining turbine blades, and rough grinding curved surfaces in cavities and ridges. For diameters above 80 mm, we recommend using a protection cover.

	Shape	Type no.	Dimension	Specification	PU	
		1F80	441247	50x10.0x10	A36N-BFX80	100
		441248	75x6.0x10	A36N-BFX80	100	
		441246	75x25.0x20	A36N-BFX80	100	
		441230	100x12.0x22.2	A36N-BFX80	25	
		441250	100x20.0x20	A36N-BFX80	25	

PREMIUM*** GRINDING WHEELS

1F80 for cast iron



The PREMIUM*** 1F80 high-performance rough grinding wheel is particularly suitable for universal grinding tasks on hard-to-reach areas. This product has been specially developed for cast iron and is ideal for adding flutes and notches.

In addition, the wheel makes light work of rough grinding curved surfaces in cavities and ridges. For diameters above 80 mm, we recommend using a protection cover.

	Shape	Type no.	Dimension	Specification	PU	
		1F80	441353	150x25.0x25	ZA24P-BFX80	20

ACCESSORIES

For 1F80 rough grinding wheels



These accessories are suitable for clamping all rough grinding wheels available in the TYROLIT assortment for straight grinders. Please observe the maximum permissible speed.

	Type no.	Dimension	Specification	PU	
	100SS	803404	S6/H10/M10	SS171	1
	846441	S10/H10/M10	SS173	1	
	846442	S6/H6/M6	SS174	1	

Items with grey lettering are only available on request.





2.5 MOUNTED POINTS FOR STRAIGHT GRINDERS



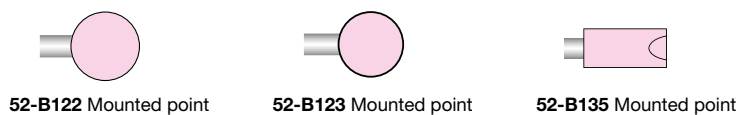
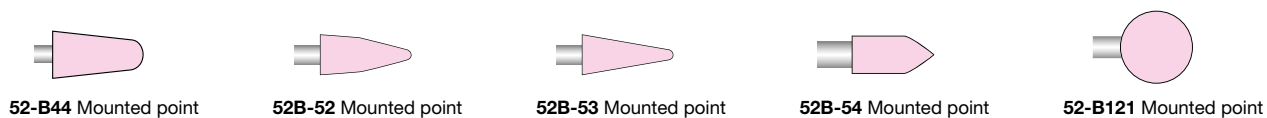
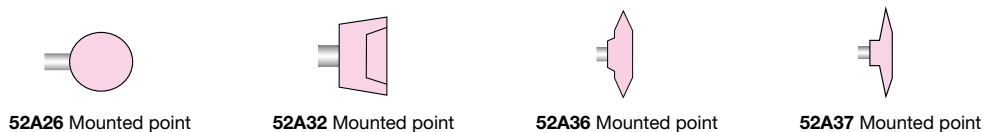
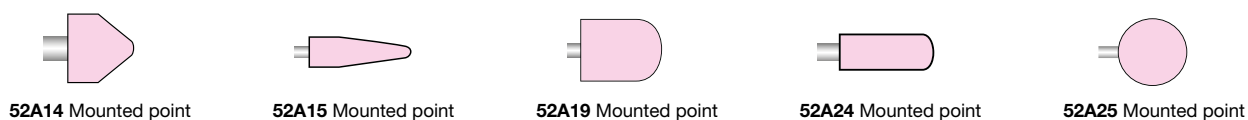
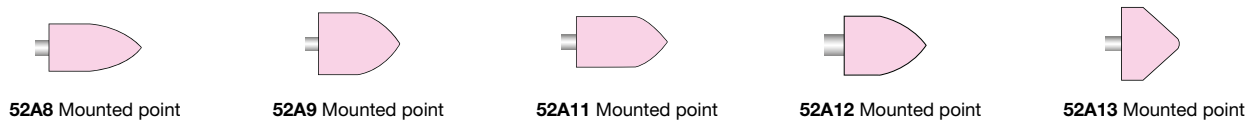
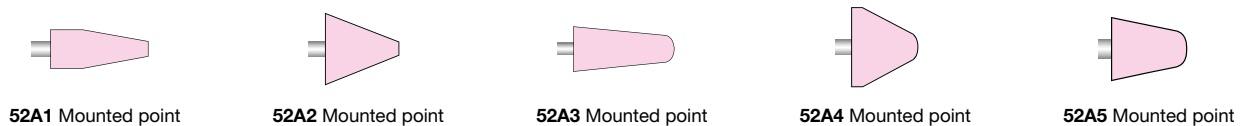
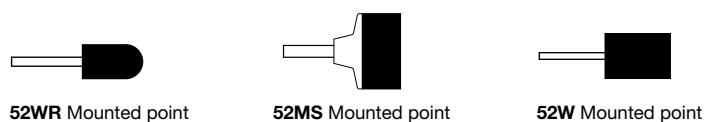
MOUNTED POINTS FOR STRAIGHT GRINDERS

Straight grinders are always in high demand when precise results are required on difficult-to-access areas. Their versatile application options make straight grinders a popular tool. In order that there is always a solution at hand for the numerous applications, TYROLIT offers a wide range of mounted point shapes.

Our resin-bonded points offer you vibration-reducing solutions for the highest quality requirements. The wide range of applications also requires ceramic points that strike a perfect balance in terms of chip per-

formance, surface finish and lifetime. Ceramic points are often used in foundries and in mould making. For fine machining, our range also includes elastic and polishing points tailored to your needs.

Shapes



Anwendungsempfehlung

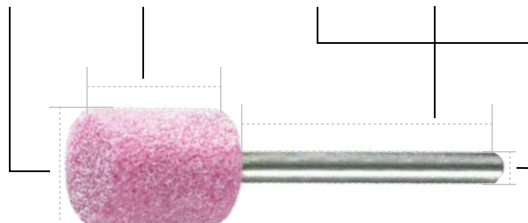


Performance Level	Specification	Pages	Steel	Stainless	NF metals	Cast iron	HSS	Plastic
PREMIUM★★★	Resin points	105, 106						
	... B0	105		•				
	... B84	105, 106				•		
	Ceramic points	106, 107, 108, 109, 110, 111						
	88A ...	106, 107, 108, 109, 110	•					
	89A ...	109, 111					•	
	Elastic mounted points	111, 112						
	... BE13	112	•	•	•			•
	... BE15	111, 112	•	•	•			•
	... BE16	111	•	•	•			•
	... BE24	111, 112	•	•	•			•

Items with grey lettering are only available on request.

Mounted point dimensions

16 x 20 – 6 x 40




PREMIUM* RESIN BONDED MOUNTED POINTS**

For stainless steel



The PREMIUM*** resin mounted points have a vibration reducing effect due to their composition and therefore boast low impact sensitivity. Due to their special quality, these points are best suited to deburring, bevelling and edge breaking on stainless steel.

Due to their bond, they are specially suited to INOX materials. Maximum operating speed: 50 m/s

Shape	Type no.	Dimension	Specification	PU	
	52ZY	682101	8x16-6x40	A36Q4B0	25
	682103	10x20-6x40	A36Q4B0	25	
	34053928	10x32-6x40	A36Q4B0	25	
	682104	13x25-6x40	A36Q4B0	25	
	682105	16x32-6x40	A36Q4B0	25	
	682106	20x32-6x40	A36Q4B0	25	
	682107	20x40-6x40	A36Q4B0	25	
	34053929	25x13-6x40	A36Q4B0	25	
	682110	25x32-6x40	A36Q4B0	25	
	34053930	32x16-6x40	A36Q4B0	25	
	104962	32x40-6x40	A36Q4B0	25	
	104968	40x10-6x40	A36Q4B0	25	
	682111	40x20-6x40	A36Q4B0	25	
	34053942	50x13-6x40	A36Q4B0	25	
	682112	50x25-6x40	A36Q4B0	25	


PREMIUM* RESIN BONDED MOUNTED POINTS**

For cast iron



The PREMIUM*** resin mounted points (dark brown) have a vibration reducing effect due to their composition and therefore boast low impact sensitivity. Due to their special quality, these points are best suited to deburring, bevelling and edge breaking on cast iron materials.

Due to their bond, they are specially suited to casting. Maximum operating speed: 50 m/s






Shape	Type no.	Dimension	Specification	PU	
	52ZY	108261	10x25-6x40	A36Q4B84	25
	2111	13x25-6x40	A36Q4B84	25	
	108262	15x25-6x40	A36Q4B84	25	
	104604	16x32-6x40	A36Q4B84	25	
	105367	20x25-6x40	A36Q4B84	25	
	2211	25x32-6x40	A36Q4B84	25	
	379653	32x25-6x40	A46S4B84	25	
	2249	32x40-6x40	A36Q4B84	25	
	415841	40x4-6x40	A60S3B84	25	
	45362	40x16-8x50	A24Q4B84	25	
	2258	40x20-6x40	A36Q4B84	25	

Items with grey lettering are only available on request.

**PREMIUM*** RESIN BONDED MOUNTED POINTS**

For cast iron



Shape	Type no.	Dimension	Specification	PU	
	52ZY	123696	40x25-6x40	A36Q4B84	25
		2284	50x25-6x40	A36Q4B84	25
	52W	21094	10x32-6x40	A46S4B84	25
		21125	13x40-6x40	A46S4B84	25
		21137	16x25-6x40	A46S4B84	25
		310504	16x50-6x40	A46S4B84	25
		21160	20x25-6x40	A46S4B84	25
		21166	20x40-6x40	A46S4B84	25
		21192	25x25-6x40	A46S4B84	25
		21202	25x40-6x40	A46S4B84	25
		169543	32x20-6x40	A46P4B84	25
		123644	32x32-6x40	A46P4B84	25
		21232	32x64-8x40	A20Q4B84	25
		21233	40x6-6x40	A46S4B84	25
		21239	40x13-6x40	A46S4B84	25
		52A-1	803833	20x63-6x40	A46P4B84
	52A-11	126460	22x50-6x40	A46P4B84	25
	52A-11	20026	22x50-6x40	A46S4B84	25
	52A-3	129260	25x70-6x40	A46P4B84	25


PREMIUM* CERAMIC POINTS**

For steel



In foundries and mould making, using ceramic mounted points is often the only method of achieving improved surface results on hard-to-reach parts. TYROLIT PREMIUM*** mounted points offer the highest possible lifetime even for hardened steels.


These tools also strike a perfect balance in terms of chip performance and the intended surface finish. Maximum operating speed: 50 m/s

Shape	Type no.	Dimension	Specification	PU	
	52ZY	2010	3x6-3x30	88A90O5V38	25
		100757	3x6-6x40	88A90O5V38	25
		169096	3x9-3x30	88A90O5V38	25
		2017	4x8-3x30	88A90O5V38	25
		100758	4x8-6x40	88A60P5V38	25
		2021	4x8-6x40	88A90O5V38	25
		2026	5x10-3x30	88A60P5V38	25
		2027	5x10-3x30	88A90O5V38	25
		2031	5x10-6x40	88A60P5V38	25
		11362	6x10-3x30	88A60P5V38	25

Items with grey lettering are only available on request.





Shape	Type no.	Dimension	Specification	PU	
	52ZY	2039	6x10-6x40	88A60P5V38	25
		2046	6x13-3x30	88A60P5V38	25
		485338	6x13-3x30	88A90O5V38	25
		2048	6x13-6x40	88A60P5V38	25
		227450	6x20-3x30	88A60P5V38	25
		116725	6x20-6x40	88A60P5V38	25
		2055	8x10-3x30	88A60P5V38	25
		2058	8x10-6x40	88A60P5V38	25
		2060	8x16-3x30	88A60P5V38	25
		2062	8x16-6x40	88A60P5V38	25
		16044	10x2-3x30	88A90O5V38	25
		120033	10x10-3x30	88A60P5V38	25
		6879	10x10-6x40	88A60P5V38	25
		88905	10x13-3x30	88A60P5V38	25
		2072	10x13-6x40	88A60P5V38	25
		2078	10x20-3x30	88A60P5V38	25
		2081	10x20-6x40	88A60P5V38	25
		14364	10x25-6x40	88A60P5V38	25
		2090	10x32-6x40	88A60P5V38	25
		26567	13x3-3x30	88A90O5V38	25
		128618	13x10-6x40	88A60P5V38	25
		6896	13x16-6x40	88A60P5V38	25
		6898	13x20-6x40	88A60P5V38	25
		6899	13x25-6x40	88A60P5V38	25
		112542	13x40-6x40	88A60P5V38	25
		2117	16x4-6x40	88A60P5V38	25
		6920	16x20-6x40	88A60P5V38	25
		2125	16x25-6x40	88A60P5V38	25
		2133	16x32-6x40	88A36P5V38	25
		2134	16x32-6x40	88A60P5V38	25
		6928	16x50-6x40	88A60P5V38	25
		127347	20x6-6x40	88A60P5V38	25
	2145	20x10-6x40	88A60P5V38	25	
	2148	20x20-6x40	88A60P5V38	25	
	140351	20x25-6x40	88A24P5V38	25	
	2163	20x25-6x40	88A36P5V38	25	
	6932	20x25-6x40	88A46P5V38	25	
	2165	20x25-6x40	88A60P5V38	25	
	105009	20x32-6x40	88A60P5V38	25	
	667629	20x40-6x40	88A24P5V38	25	







Items with grey lettering are only available on request.

**PREMIUM★★★ CERAMIC POINTS**

















For steel



Shape	Type no.	Dimension	Specification	PU	
	52ZY	12836	20x40-6x40	88A36P5V38	25
		2189	20x40-6x40	88A60P5V38	25
		6941	25x6-6x40	88A60P5V38	25
		122868	25x10-6x40	88A60P5V38	25
		6943	25x13-6x40	88A60P5V38	25
		130009	25x25-6x40	88A36P5V38	25
		2201	25x25-6x40	88A46P5V38	25
		2202	25x25-6x40	88A60P5V38	25
		142682	25x32-6x40	88A24P5V38	25
		2209	25x32-6x40	88A46P5V38	25
		2204	25x32-6x40	88A60P5V38	25
		548169	25x40-6x40	88A36P5V38	25
		2238	32x8-6x40	88A60P5V38	25
		131231	32x10-6x40	88A60P5V38	25
		6959	32x16-6x40	88A46P5V38	25
		6961	32x20-6x40	88A46P5V38	25
		242270	32x20-6x40	88A60P5V38	25
		116973	32x32-6x40	88A36P5V38	25
		103394	32x32-6x40	88A46P5V38	25
		2248	32x40-6x40	88A46P5V38	25
		101508	40x6-6x40	88A60P5V38	25
		667632	40x10-6x40	88A24P5V38	25
		2256	40x10-6x40	88A60P5V38	25
		941497	40x13-6x40	88A30P5V38	25
		734828	40x13-6x40	88A36P5V38	25
		273756	40x20-6x40	88A24P5V38	25
		6967	40x20-6x40	88A46P5V38	25
	15383	40x20-6x40	88A60P5V38	25	
	150085	40x25-6x40	88A46P5V38	25	
	828192	40x40-6x40	88A36P5V38	25	
	2276	50x13-6x40	88A60P5V38	25	
	6974	50x25-6x40	88A46P5V38	25	
	52B-44	169	6x10-3x30	88A60P5V38	25
	52B-53	39128	8x16-3x30	88A90O5V38	25
	52KE	6400	13x13-6x40. R=2	88A60P5V38	25
	52KE	6401	16x16-6x40. R=2.5	88A60P5V38	25
	52KE	6402	20x20-6x40. R=3	88A60P5V38	25

Items with grey lettering are only available on request.














	Shape	Type no.	Dimension	Specification	PU	
		52A-5 11481	20x29-6x40	88A36P5V38	25	
		52A-5 116	20x29-6x40	88A46P5V38	25	
		52A-5 20023	20x29-6x40	88A60P5V38	25	
		52KE 330772	20x32-6x40. R=3	88A60P5V38	25	
		52KE 892	25x25-6x40. R=4	88A60P5V38	25	
		52A-2 88504	25x32-6x40	88A46P5V38	25	
		52A-3 11480	25x70-6x40	88A36P5V38	25	
		52A-3 6207	25x70-6x40	88A46P5V38	25	
		52A-3 104894	25x70-6x40	88A60P5V38	25	
		52KE 441033	30x40-6x40. R=5	89A60M5V38	25	
	52A-4 113	32x32-6x40	88A46P5V38	25		
	52A-4 20020	32x32-6x40	88A60P5V38	25		
		52B-135 151928	6x13-3x30	88A60P5V38	25	
		52A-32 131	25x16-6x40	88A60P5V38	25	
		52TO 1175	32x25-6x40	88A60P5V38	25	
		52SP 1119	5x10-6x40	88A60P5V38	25	
		52B-54 132438	6x13-3x30	88A60P5V38	25	
		52A-15 97785	6x27-6x40	88A60P5V38	25	
		52A-15 89504	6x27-6x40	88A90O5V38	25	
		52B-52 174	10x20-3x30	88A60P5V38	25	
		52B-52 75647	10x20-6x40	88A60P5V38	25	
		52SP 6660	13x20-6x40. R=22	88A60P5V38	25	
		52A-14 45422	18x22-6x40	88A60P5V38	25	
		52A-12 121	18x32-6x40	88A46P5V38	25	
		52A-12 20037	18x32-6x40	88A60P5V38	25	
		52SP 6661	20x32-6x40. R=36	88A60P5V38	25	
		52A-8 146601	20x51-6x40	88A36P5V38	25	
		52A-1 106372	20x63-6x40	88A36P5V38	25	
		52A-1 108	20x63-6x40	88A46P5V38	25	
		52A-1 109	20x63-6x40	88A60P5V38	25	
			52A-11 148517	22x50-6x40	88A36P5V38	25
			52A-11 118	22x50-6x40	88A46P5V38	25
		52A-11 20031	22x50-6x40	88A60P5V38	25	
		52A-13 45421	32x32-6x40	88A60P5V38	25	
		52A-9 127775	32x51-6x40	88A36P5V38	25	

Items with grey lettering are only available on request.

**PREMIUM*** CERAMIC POINTS**

For steel

	Shape	Type no.	Dimension	Specification	PU
		52KU 907	3-3x30	88A90O5V38	25
		52KU 6404	5-3x30	88A90O5V38	25
		52KU 910	8-3x30	88A60P5V38	25
		52KU 6405	8-6x30	88A60P5V38	25
		52B-122 191	10-3x30	88A60P5V38	25
		52B-121 62694	13-6x40	88A60P5V38	25
		52B-121 190	13-3x30	88A60P5V38	25
		52A-26 130	16-6x40	88A60P5V38	25
		52KU 917	20-6x40	88A60P5V38	25
		52A-25 20047	25-6x40	88A60P5V38	25
		52KU 921	32-6x40	88A46P5V38	25
		52WR 1999	6x16-6x40	88A60P5V38	25
	52A-24 128	6x20-6x40	88A60P5V38	25	
	52A-19 135853	32x51-6x40	88A36P5V38	25	
		52A-37 139	32x6-6x40	88A60P5V38	25
		52A-36 138	40x10-6x40	88A60P5V38	25

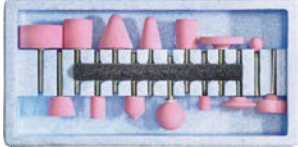
PREMIUM* SET CERAMIC POINTS**

For Steel



The PREMIUM*** ceramic mounted point set contains all the common mounted points for working on steel, including a roughing stone. The points provide the longest possible lifetime for deburring, bevelling and edging work.

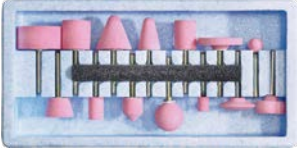
These tools also strike a perfect balance in terms of chip performance and the intended surface finish.

SET	Type no.	Shape	Type no.	Dimension	PU
	74499	52ZY-W228	6961	32x20-6x40	1
		52ZY-W220	2201	25x25-6x40	1
		52A-4	113	32x32-6x40	1
		52A-5	20023	20x29-6x40	1
		52ZY-W205	2165	20x25-6x40	1
		52ZY-W236	101508	40x6-6x40	1
		52B-121	62694	13x6-6x40	1
		52A-32	131	25x16-6x40	1
		52ZY-W186	6898	13x20-6x40	1

Items with grey lettering are only available on request.





SET	Type no.	Shape	Type no.	Dimension	PU
	74499	52A-14	45422	18x22-6x40	1
		52A-25	20047	25x6-6x40	1
		52ZY-W176	2072	10x13-6x40	1
		52A-37	139	32x6-6x40	1
		52ZY-W217	122868	25x10-6x40	1
		9011	54222	16x150-6x40	1


PREMIUM*** PREMIUM*** CERAMIC POINTS

For HSS



Tool steels display exceptional hardness and strength depending on their intended purpose. The PREMIUM*** mounted points for HSS offer the best prerequisites for machining workpieces up to the lowest tolerance ranges.

These tools also strike a perfect balance in terms of chip performance and the intended surface finish. Maximum operating speed: 35 m/s

Shape	Type no.	Dimension	Specification	PU	
	52ZY	2011	3x6-3x30	89A120M5V38	25
	2020	4x8-3x30	89A120M5V38	25	
	2030	5x10-3x30	89A80M5V38	25	
	29238	6x13-3x30	89A80M5V38	25	
	13529	6x13-6x40	89A80M5V38	25	
	2057	8x10-3x30	89A80M5V38	25	
	6874	8x10-6x40	89A80M5V38	25	
	113299	8x16-3x30	89A80M5V38	25	
	120093	8x16-6x40	89A60M5V38	25	
	6881	10x13-6x40	89A80M5V38	25	
	15892	10x20-6x40	89A60M5V38	25	
	6886	10x20-6x40	89A80M5V38	25	
	6910	15x40-6x40	89A46L5V38	25	
	36663	16x20-6x40	89A60M5V38	25	
	121385	20x25-6x40	89A60M5V38	25	
	2180	20x40-6x40	89A46L5V38	25	
124549	40x10-6x40	89A60M5V38	25		

Items with grey lettering are only available on request.

PREMIUM* MOUNTED POINTS**
ELASTIC for nonferrous metals, PVC, steel and stainless steel



Coordinated light grey bond systems enable the ELASTIC mounted points to be put to both universal use and use tailored to the application. The assortment includes soft elastic points for curved surfaces and medium elastic points for straight surfaces.

Our range also includes fewer elastic points for working at higher speeds and mottling points for mottling surfaces. Maximum operating speed: BE13: 16 m/s; BE15: 20 m/s; BE16: 32 m/s.

	Shape	Type no.	Dimension	Specification	PU	
		52ZY	938999	10x20-6x40	C240-BE16	10
		6884	10x20-6x40	C240-BE15	10	
		267341	10x20-6x40	C240-BE24	10	
		891126	16x20-6x40	C150-BE16	10	
		54072	16x30-6x40	C80-BE16	10	
		891126	16x20-6x40	C150-BE16	10	
		54072	16x30-6x40	C80-BE16	10	
		582369	20x20-6x40	C46-BE16	10	
		274654	16x30-6x40	C80-BE24	10	
		2155	20x20-6x40	C150-BE15	10	
		2152	20x20-6x40	C46-BE15	10	
		123432	20x30-6x40	A150-BE24	10	
		6949	25x20-6x40	C80-BE15	10	
		2224	30x30-6x40	C150-BE15	10	
		2226	30x30-6x40	C240-BE15	10	
		2221	30x30-6x40	C46-BE15	10	
		162390	30x30-6x40	C46-BE24	10	
		2222	30x30-6x40	C80-BE15	10	
		13068	30x30-6x40	C80-BE24	10	
		52MS	6411	30x30-6x40	C46-BE13	1
		923	30x30-6x40	C46-BE15	1	
		6413	40x30-6x40	C46-BE13	1	
		925	40x30-6x40	C46-BE15	1	
		929	50x30-6x40	C46-BE15	1	

Items with grey lettering are only available on request.

2.6 TUNGSTEN CARBIDE BURRS FOR STRAIGHT GRINDERS





TUNGSTEN CARBIDE BURRS FOR STRAIGHT GRINDERS

Straight grinders are always in high demand when precise results are required on difficult-to-access areas. Their versatile application options make straight grinders a popular tool. In order that there is always a solution at hand for the full spectrum of applications, TYROLIT offers a wide range of PREMIUM quality tungsten carbide burr shapes.

TYROLIT burrs are made from tried-and-tested, high-quality cemented carbide types on the most modern CNC grinding machines. Our tungsten carbide burrs are then used on

a wide range of handheld, pneumatic and electronic machines, as well as on industrial robots. Thanks to their versatility, the cutters can be used on a variety of materials.

Application recommendation



Performance Level	Specification	Pages	Steel	Stainless steel	NF metals	Cast iron	HSS	Tooth shape
PREMIUM ★★★	MY	118, 119, 120, 121, 125	●	●		●	●	
	MX	118, 119, 120, 121	●	●		●	●	
	MXX	118, 119, 120	●	●		●	●	
	MXC	119, 120	●	●		●	●	
	ALU	125			●			
	SC	123	●					
	IC	124		●				

Items with grey lettering are only available on request.

Segmentations:

ALU: For aluminium machining (standard with 8 cutting edges)

ALU6: For aluminium machining (especially coarse with 6 cutting edges)

MXC: For cast steel, welding seams, hardened and cured steels (chip breaker)

MX: For high-alloyed steels, rust, acid and heat-resistant cast metals and plastics (diamond)

MXX: For high-alloyed steels, rust, acid and heat-resistant cast metals and plastics (fine diamond)

MY: For cast steel, welding seams, high-strength hardened and unhardened steels (standard)

SC: For cast steel, welding seams, high-strength hardened and unhardened steels (standard)

IC: For stainless steel

Shapes



52FLH Flame



52TRE Drop



52KEL Rounded cone



52WRC Ball cylinder



52KSK Conical countersink



52ZYA Cylinder



52KUD Ball



52ZYA-S Cylinder with face toothwork



52RBF Tree



52ZYA-R Cylinder with corner radius



52SKM Pointed cone



52SKM-N



52SPG Bullet



52WKN Cone

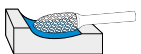


52RND Grooves



52KUD-N
Angled milling point/bal

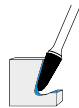
Areas of application



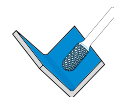
52FLH Flame



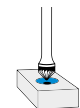
52TRE Drop



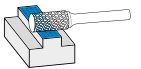
52KEL Rounded cone



52WRC Ball cylinder



52KSK Conical countersink



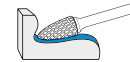
52ZYA Cylinder



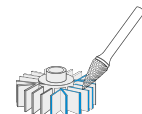
52KUD Ball



52ZYA-S Cylinder with face toothwork or as



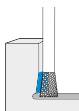
52RBF Tree



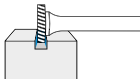
52SKM Pointed cone
Combined cone and ball cutter



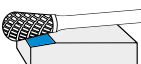
52SPG Bullet



52WKN Cone



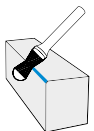
52RND Grooves



52KUD-N
Angled milling point/bal



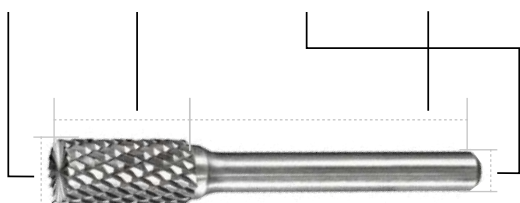
52ZYA-R Cylinder with corner radius



52SKM-N Pointed cone
Combined angled milling point and pointed cone

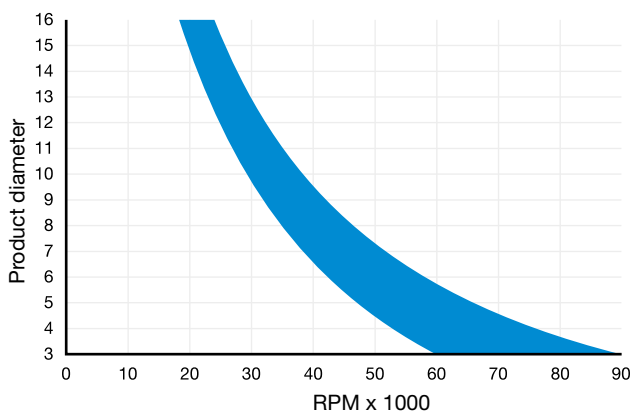
Tungsten carbide burr dimensions

16 x 20 - 6 x 40

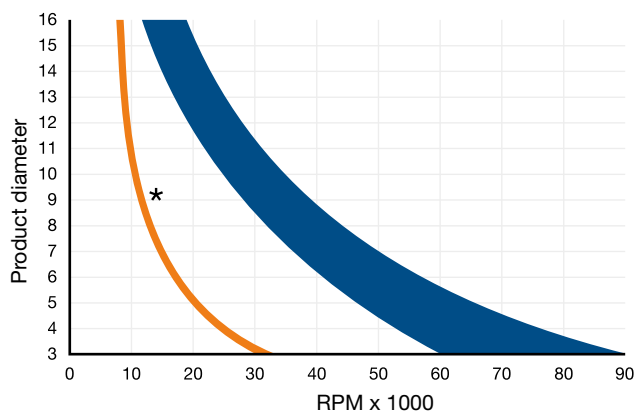


Recommended speeds

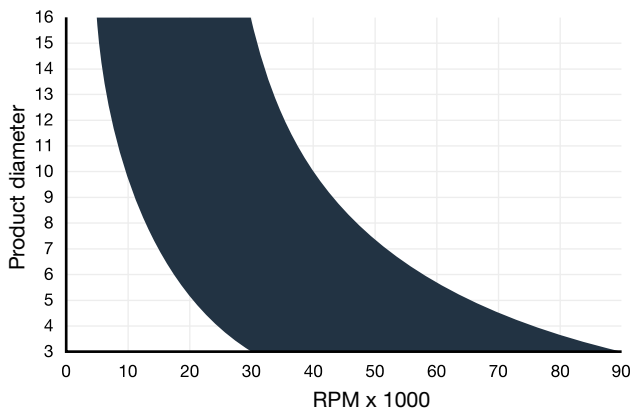
Unhardened steel



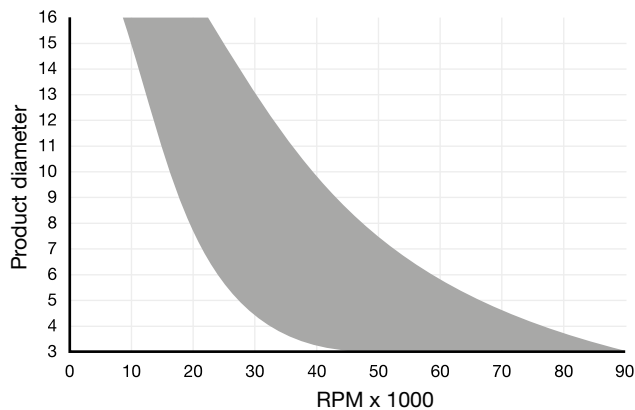
Ceramics, hardened steels, stainless steels, nickel-based alloy, titanium



Soft long-chipping materials, aluminium, fibre-glass-reinforced plastic, plastics, zinc-based alloy



Brass, cast iron, copper, bronze










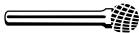


PREMIUM★★★ TUNGSTEN CARBIDE BURRS

For cast iron, steel and stainless steel












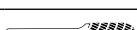
Production of the TYROLIT PREMIUM*** burrs is performed on modern CNC grinding machines. The result is a highly efficient precision tool that achieves optimum grinding results. With this tungsten carbide burr you can achieve the longest lifetimes when used on practically any material.

By choosing the right machine, the correct revolutions per minute and operating speed, and the appropriate cutting and tooth profile, you will pave the way for PREMIUM results.

	Shape	Type no.	Dimension	Specification	PU	
		52FLH	765657	3x8-3x38	MX	1
		801351	6x14-6x50	MX	1	
		765996	8x19-6x65	MX	1	
		768898	12x32-6x77	MX	1	
		766046	12x32-8x77	MX	1	
		52KEL	766932	3x8-3x38	MX	1
		801354	6x13-3x45	MX	1	
		766934	6x16-6x50	MX	1	
		902732	8x22-6x69	MX	1	
		766068	10x19-6x65	MX	1	
		766936	10x27-6x75	MX	1	
		768894	12x30-6x75	MX	1	
		766072	12x30-8x75	MX	1	
		837619	12x30-8x75	MXX	1	
801355	16x33-8x78	MXX	1			
		52KSK	769680	10x5-6x55	MY	1
		769683	16x8-6x60	MY	1	
		52KUD	766050	3x2.7-3x38	MX	1
		766927	4x3.6-3x45	MX	1	
		766051	6x5.4-3x38	MX	1	
		768821	6x5.4-6x50	MX	1	
		768824	8x7.2-6x52	MX	1	
		768828	10x9-6x53	MX	1	
		768832	12x10.8-6x55	MX	1	
		768833	13x11.7-6x55	MXX	1	
		768835	16x14.4-6x60	MX	1	
		768834	16x14.4-6x60	MY	1	
		768838	16x14.4-8x60	MX	1	
766062	19x17.1-8x63	MX	1			
		52RBF	766155	3x13-3x38	MX	1
		766156	6x13-3x45	MX	1	
		768841	6x16-6x50	MX	1	
		902700	8x22-6x67	MX	1	

Items with grey lettering are only available on request.



	Shape	Type no.	Dimension	Specification	PU			
		52RBF	768843	10x19-6x65	MX	1		
			768846	12x25-6x70	MX	1		
			768847	12x25-6x70	MXX	1		
			766160	12x25-8x70	MX	1		
			766929	16x25-8x70	MX	1		
		52SKM	801365	3x11-3x38	MX	1		
			902747	3x11-6x38	MXC	1		
			766091	3x13-3x38	MX	1		
			766092	6x13-3x45	MX	1		
			902737	6x13-3x45	MY	1		
			768913	6x19-6x50	MX	1		
			768912	6x19-6x50	MY	1		
			768916	10x16-6x65	MX	1		
			910834	10x16-6x65	MXC	1		
			766937	12x19-6x65	MX	1		
			768919	12x22-6x70	MX	1		
			768918	12x22-6x70	MY	1		
				52SPG	766139	3x13-3x38	MX	1
					766140	6x13-3x45	MX	1
	768941			6x16-6x50	MX	1		
	768942			6x16-6x50	MXX	1		
	768944			10x19-6x65	MX	1		
	766942			12x19-6x65	MX	1		
	768948			12x25-6x70	MX	1		
	902724			12x25-6x70	MXC	1		
	768949			12x25-6x70	MXX	1		
	766145			13x25-8x70	MX	1		
	768951			16x25-6x70	MX	1		
	766147			16x25-8x70	MX	1		
				52TRE	766939	3x6-3x38	MX	1
					766150	6x10-3x42	MX	1
			768924	8x13-6x58	MX	1		
			768926	10x16-6x60	MX	1		
			768929	12x22-6x67	MX	1		
			766154	16x25-6x70	MX	1		
		52WRC	766126	3x13-3x38	MX	1		
			766127	6x13-3x45	MX	1		
			768874	6x19-6x50	MX	1		
			910766	6x19-6x50	MXC	1		
			768873	6x19-6x50	MY	1		

Items with grey lettering are only available on request.

**PREMIUM★★★ TUNGSTEN CARBIDE BURRS**











For cast iron, steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU	
		52WRC	768878	8x19-6x65	MX	1
			768880	8x19-6x65	MXX	1
			768877	8x19-6x65	MY	1
			768881	10x19-6x65	MX	1
			766130	10x19-6x65	MY	1
			766930	12x25-6x70	MX	1
			766133	12x25-6x70	MXX	1
			766131	12x25-6x70	MY	1
			768887	12x25-8x70	MX	1
			768888	12x25-8x70	MXX	1
			801349	13x19-6x65	MX	1
			768891	16x25-6x70	MX	1
			766134	16x25-8x70	MX	1
					52ZYA	766099
766944	4x13-4x50	MX				1
766100	6x13-3x45	MX				1
768747	6x19-6x50	MX				1
768750	8x19-6x65	MX				1
766108	10x19-6x65	MX				1
768752	10x19-6x65	MXX				1
766945	12x25-6x70	MX				1
801348	13x19-6x65	MX				1
768754	16x25-6x70	MX				1
766111	16x25-8x70	MX				1
		52ZYA-S	766112	3x13-3x38	MX	1
			902665	3x13-3x38	MY	1
			766113	6x13-3x45	MX	1
			768710	6x19-6x50	MX	1
			902668	6x19-6x50	MXC	1
			768712	8x19-6x65	MX	1
			766115	8x19-6x65	MY	1
			766116	10x19-6x65	MX	1
			766120	10x19-6x65	MY	1
			766949	12x19-6x65	MX	1



Items with grey lettering are only available on request.

	Shape	Type no.	Dimension	Specification	PU
		52ZYA-S 766121	12x25-6x70	MX	1
		766117	12x25-6x70	MXX	1
		768718	12x25-8x70	MX	1
		768721	16x25-6x70	MX	1
		766119	16x25-8x70	MX	1
		52RND 801529	10x1.6-3x34	MY	1
		801530	12x2.6-6x48	MY	1
		801531	25x5.2-8x50	MY	1
		52SKM-N 20487	12x25-6x70	MY	1
		52KUD-N 34022392	12x20-6x63	MX	1
		52ZYA-R 20553	3x13-3x38	MX	1
		20555	6x16-6x50	MX	1
		20557	8x19-6x65	MX	1
		20565	10x19-6x65	MX	1
		20587	12x25-6x70	MX	1
		20590	16x25-6x70	MX	1


PREMIUM* TUNGSTEN CARBIDE BURR SET**

For cast iron, steel and stainless steel



The PREMIUM*** tungsten carbide burr set contains common burrs for machining cast iron, steel and stainless steel materials. Production on CNC machines results in a highly efficient precision tool that achieves optimum grinding results. With this tungsten carbide burr you can achieve the longest lifetimes when used on practically any material.

By choosing the right machine, the correct revolutions per minute and operating speed, and the appropriate cutting and tooth profile, you will pave the way for PREMIUM results.

	Type no.	Shape	Dimension	Specification	PU
	822725	52WRC	12x25	Cemented carbide milling point set: 5 parts with shaft S6 x 40	1
		52KEL	12x30		1
		52RBF	12x25		1
		52SPG	12x25		1
		52KUD	12x11.7		1

Items with grey lettering are only available on request.



PREMIUM★★★ TUNGSTEN CARBIDE BURR SET

For cast iron, steel and stainless steel



Type no.	Shape	Dimension	Specification	PU
845416	52FLH	8x19		1
	52KEL	10x19		1
	52SPG	6x16		1
	52SPG	10x19		1
	52TRE	8x13	Cemented carbide	1
	52WRC	6x19	milling point set: 5 parts	1
	52WRC	8x19	with shaft S6 x 40	1
	52WRC	10x19		1
	52ZYA	8x19		1
	52ZYA-S	10x19		1
822718	52KEL	12x30		1
	52WRC	12x25		1
	52SPG	12x25		1
	52SKM	12x22		1
	52KUD	12x11.7	Cemented carbide	1
	52ZYA-S	10x19	milling point set: 5 parts	1
	52WRC	8x19	with shaft S6 x 40	1
	52RBF	10x19		1
	52SPG	6x16		1
	52KUD	8x7.2		1
34022430	52SKM-N	12x25		1
	52KUD-N	12x20	Cemented carbide	1
	52ZYA-R	12x25	milling point set: 5 parts	1
	52ZYA-R	10x19	with shaft S6 x 40	1
	52ZYA-R	6x16		1

Items with grey lettering are only available on request.



PREMIUM★★★ TUNGSTEN CARBIDE BURRS FOR STEEL

+ Increased lifetime
Long tool lifetimes are achieved thanks to the specially developed geometry of the milling cutter.

+ High abrasiveness
The milling cutter is especially long-chipping during machining and delivers a higher stock removal rate in a shorter period of time.



+ Universal use
TYROLIT tungsten carbide burrs are used on a wide range of hand-operated pneumatic or electric machines and industrial robots.

TYROLIT tungsten carbide burrs are produced on modern CNC grinding machines. The result is a highly efficient precision tool that achieves optimum grinding results. The







specially developed wheel geometry ensures the longest lifetime and the best results on all types of steel. The abrasive cutter profile is especially long-chipping and ensures a

high stock removal volume. Reduced generation of heat protects the milling cutter and the workpiece.

PREMIUM★★★ TUNGSTEN CARBIDE BURRS

For steel



	Shape	Type no.	Type no.	Dimension	Specification	VP
		52ZYAS	34213557	6x18-6x50	SC	1
			34213558	8x19-6x64	SC	1
			34213559	10x19-6x64	SC	1
			34213560	13x25-6x70	SC	1
		52WRC	34213581	6x18-6x50	SC	1
			34213583	8x19-6x64	SC	1
			34213584	10x19-6x64	SC	1
			34213585	13x25-6x70	SC	1
		52RBF	34213588	6x18-6x50	SC	1
			34213589	8x19-6x64	SC	1
			34213590	10x19-6x64	SC	1
			34213601	13x25-6x70	SC	1

Items with grey lettering are only available on request.

PREMIUM★★★ TUNGSTEN CARBIDE BURRS FOR STAINLESS STEEL

+ Increased lifetime

Long tool lifetimes are achieved thanks to the specially developed geometry of the milling cutter.

+ Maximum stock removal

The removal of especially long slivers enables results to be obtained quickly and easily.



+ Universal use

TYROLIT tungsten carbide burrs are used on a wide range of hand-operated pneumatic or electric machines and industrial robots.

These tungsten carbide burrs have been specially developed for use on stainless steel and produced on the most modern CNC grinding machines. The newly developed geom-







etry enables cool grinding with the longest tool lifetimes on hand-operated, pneumatic and electric machines. The abrasive cutter profile is especially long-chipping and ensures a

high stock removal volume. Reduced generation of heat protects the milling cutter and the workpiece.

PREMIUM★★★ TUNGSTEN CARBIDE BURRS

For stainless steel



	Shape	Type no.	Type no.	Dimension	Specification	PU
		52ZYA	34213606	6x18-6x50	IC	1
			34213607	8x19-6x64	IC	1
			34213608	10x19-6x64	IC	1
			34213609	13x25-6x70	IC	1
		52WRC	34213610	6x18-6x50	IC	1
			34213621	8x19-6x64	IC	1
			34213622	10x19-6x64	IC	1
			34213623	13x25-6x70	IC	1
		52RBF	34213624	6x18-6x50	IC	1
			34213625	8x19-6x64	IC	1
			34213626	10x19-6x64	IC	1
			34213627	13x25-6x70	IC	1

Items with grey lettering are only available on request.











PREMIUM*** TUNGSTEN CARBIDE BURRS

For nonferrous metals



Production of the TYROLIT PREMIUM*** burrs is performed on modern CNC grinding machines. The result is a highly efficient precision tool that has been specially developed for use on nonferrous metals. With these products you can achieve the longest lifetimes.

By choosing the right machine, the correct revolutions per minute and operating speed, and the appropriate cutting and tooth profile, you will pave the way for PREMIUM results.

	Shape	Type no.	Dimension	Specification	PU
		52KEL 766935	10x27-6x75	ALU	1
		768896	12x30-6x75	ALU	1
		801527	16x33-8x78	ALU	1
		52RBF 768845	10x19-6x65	ALU	1
		768848	12x25-6x70	ALU	1
		801524	16x25-8x70	ALU	1
		52WRC 768884	10x19-6x65	ALU	1
		768885	12x25-6x70	ALU	1
		801528	16x25-8x70	ALU	1
		52ZYA 806824	10x19-6x65	ALU	1
		806826	12x25-6x70	ALU	1
		52ZYA-S 768715	10x19-6x65	ALU	1
		768717	12x25-6x70	ALU	1


PREMIUM*** TUNGSTEN CARBIDE BURR SET

For nonferrous metals



The PREMIUM*** tungsten carbide burr set contains common burrs for nonferrous metal applications. Production on CNC machines results in a highly efficient precision tool that achieves optimum grinding results. With this tungsten carbide burr you can achieve the longest lifetimes when used on practically any material.

By choosing the right machine, the correct revolutions per minute and operating speed, and the appropriate cutting and tooth profile, you will pave the way for PREMIUM results.

	Type no.	Shape	Dimension	Specification	PU
	822728	52WRC	10x19	Cemented carbide milling point set: 5 parts with shaft S6 x 40	1
		52WRC	12x25		1
		52RBF	10x19		1
		52RBF	12x25		1
		52KEL	12x30		1

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2.7 RECIPROCATING SURFACE GRINDING TOOL PEDESTAL AND PENDULAR GRINDING



PEDESTAL AND PENDULAR GRINDING

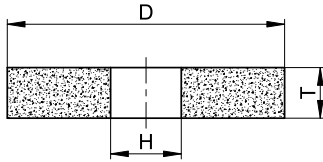
TYROLIT tools for pedestal and pendular grinding impress with their high performance and economic efficiency.

Due to their high cutting ability, the exertion on the part of the user is considerably reduced. Furthermore, they offer the highest safety stand-

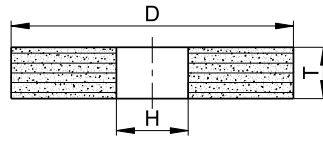
ards for manual grinding applications. By choosing the appropriate specification, you can either deburr or machine large feeder cross sections

and hard cast materials. We offer you individual applications engineering support in this regard.

Shapes



Shape 1 (without reinforcement)



Shape 1F63 (with reinforcement)

Application recommendation



Specification	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
M112A 16 Q4 B26/63, M202 A16 P5 BF83/63	130		●		●	●	●				●	●	

BREADTH OF PRODUCT RANGE*

	Standard recommendation			Long life	
	Shape 1 63 m/s without reinforcement	Shape 1F63 63 m/s	Shape 1F80 80 m/s	Shape 1F63 63 m/s	Shape 1F80 80 m/s
Nonferrous metals	M52A20M5B59	M52A20M5B59	M52A20M5BF88		
Cast steel	M52A165O5B83	M52A165O5B83	M52A165P5BF88	M202A165P5BF83	M52A165P5BF88
Grey cast iron, spheroidal cast iron	M202A165O5B83	M202A165O5B83	M202A165P5BF88	M205A165P5BF83	M205A165P5BF88
Mineralised cast iron	M80AC145O5B83	M80AC145O5B83	M80AC145P5BF88		

*Delivery time: 5 - 6 weeks; for production reasons, the minimum order quantity may differ from non-stock types.

● Extremely suitable ● Limited suitability

PREMIUM★★★ FOCUR-EXTRA FOR PEDESTAL AND PENDULAR GRINDING FOR CAST IRON

+ **Less exertion**
The high cutting ability of the wheel reduces physical exertion.

+ **Maximum safety**
Our pendular wheels offer the highest safety standards for manual applications.



+ **Selection based on individual requirements**
The wheel is tailored to your specific grinding applications and is available in all common diameters.

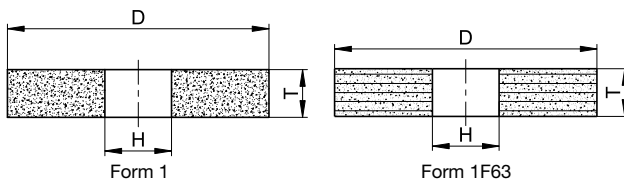
Pendular grinding is primarily used for heavy, bulky cast parts. TYROLIT wheels ensure operation with less exertion and a higher stock removal rate.


In most abrasive mixtures, zirconium aluminium oxide is used for grinding cast materials, enabling much shorter grinding times, higher stock removal

rates and longer tool lifetimes to be achieved.

PREMIUM★★★ FOCUR-EXTRA FOR PEDESTAL AND PENDULAR GRINDING

For cast iron



	Shape	Type no.	Dimension	Specification	PU
	1	339583	500x60x127	M112A 16 Q4 B26/63	1
	1F63	662442	600x60x203.2	M202 A16 P5 BF83/63	1

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CATALOGUE 19

BRUSHES

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SPECIFIC INFORMATION



TOOL BRUSHES

Brushes product label



Wire types

	Abbreviation	Description	Application
	DW	Knotted wire	Suitable for soft materials such as nonferrous metals, sensitive surfaces and slight impurities
	DZ	Twisted wire	Suitable for heavy work, severe dirt and removing layers of paint or varnish
	DK	Wire with grain	Suitable for deburring gears, valve parts, cutting edges of aluminium profiles and pipes

	Abbreviation	Description	Application
	DG	Straight wire	For cleaning workpieces with hand tools
	DE	Wire with plastic	Suitable for accurate work as splaying of wire is prevented; particularly helpful in automotive repairs

Pictograms Machines



Angle grinder



Straight grinder



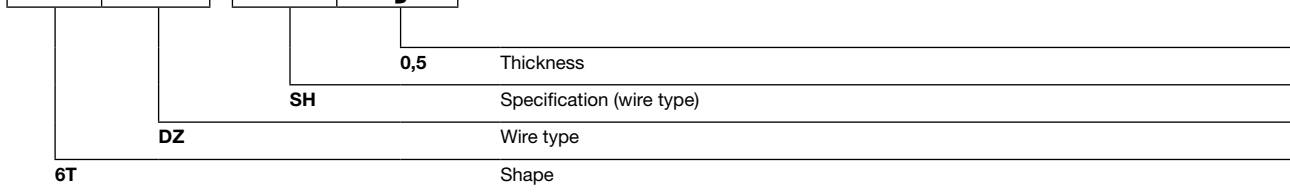
Floorstanding grinder



Hand-guided grinding

Specification

6T DZ SH 0,5



S Steel wire



E Stainless steel wire



M Brass wire



PP Synthetic bristles

SH Hardened steel wire

EA Stainless, acid-resistant steel wire

A Wire with aluminium oxide grain

PA Plastic wire with abrasive grain

SZ Hardened and tough steel wire

C Wire with silicon carbide grain

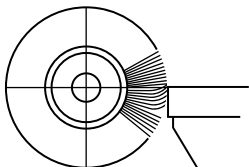
C Wire with silicon carbide grain

SM Brassed steel wire

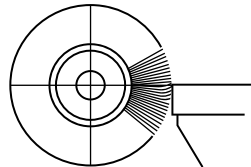
Pressure

Brushes need only light pressure, as the wire tips do all the work. Heavy pressure does not improve the brushing result. Heavy pressure shortens the lifetime and requires more force.

Excessive pressure



Correct pressure







3.1 BRUSHES
ANGLE GRINDER



BRUSHES FOR ANGLE GRINDERS

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT offers a comprehensive assortment of brushes for angle grinders.

Brushes are generally very versatile and can be used for a wide range of applications such as deburring,

cleaning welding seams or the surfaces of virtually any material. The wide assortment of TYROLIT tool

brushes has the right shape, wire type and specification for every job.

Application recommendations

Performance level	Specification	Pages			
			Steel	Stainless steel	NF-metals
PREMIUM★★★	S...	141, 142, 145, 146, 148	●		
	SH...	142, 146, 148	●		
	SZ...	142	●		
	E... INOX	143, 144, 147, 148		●	
	M...	144			●
	SM..	141, 145	●		

Items with grey lettering are only available on request.

Shapes



11TDW/6TDW cup brush

For removing rust, paint and dirt and for smooth finishing



11TDZ cup brush

Ideal for preparing surfaces before painting, removing slag, rust, scale and concrete residues



6TDZ cup brush

For heavy work and removal of rust, paint, dirt or scale



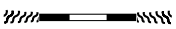
28KDW Tapered brush

For hard-to-reach areas, for removal of rust, paint, dirt and for smooth finishing



28KDZ Tapered brush

For hard-to-reach areas, for removal of slag, rust and scale



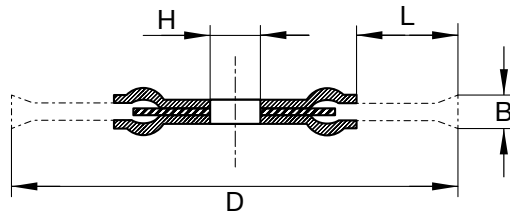
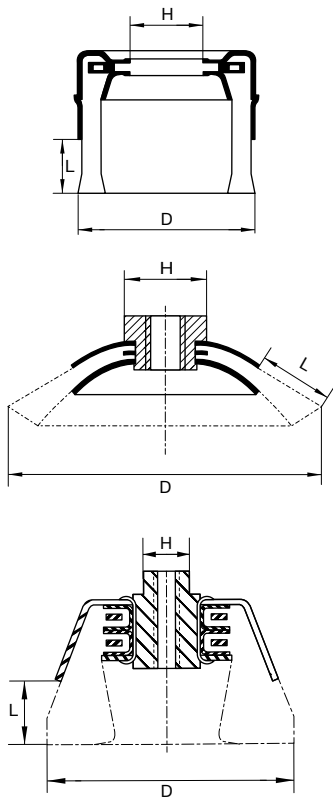
1RDZ Round brush

For welding and for removal of scale and paint

Dimensions

Cup and tapered brushes

Round brushes



Maximum speeds

The max. rpm is the speed at which the brushes can be safely used. This must not be exceeded. In most cases it is advantageous to use a lower speed in order to achieve better results.

Caution: Before each use, compare the speeds of the tool and of the machine.

Ø	60	65	75	80	90	100	115	125	150	178	200
Round brush, twisted						11,000	11,000	9,000	9,000	8,500	6,500
Cup brush, knotted	11,000		11,000	9,000				6,500	6,500		
Cup brush, twisted, shape 11		11,000	11,000	11,000	11,000	6-8,500		6,500			
Cup brush, twisted, shape 6				6-8,500		6-8,500		6,500			
Tapered brush, knotted						11,000					
Tapered brush, twisted						11,000	11,000				

Optimum peripheral speed

Application	Peripheral speed in m/s							
	5	15	20	25	30	35	40	45
Deburring								
Processing of welding seams								
Descaling								
Polishing								
Processing of plastic								
Cleaning								
Rust removal								

PREMIUM★★★ SHIELD CUP BRUSHES FOR STEEL

+ Enhanced user safety

The protective plastic flaps provide protection from undesired wire breakages and dust.

+ Broad assortment

SHIELD cup brushes from TYROLIT are available in various shapes and wire types.



+ No restriction

The protection is transparent and therefore makes it easier to have a clear view of the surface being worked on. Even difficult-to-access areas are no longer a challenge thanks to the flexibility and pliability of the plastic.

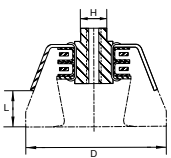
With SHIELD cup brushes, TYROLIT offers a protective coating against dust and wire breakages combined with user-friendly use. The transparent protection allows the operator an unrestricted view of the workpiece

even when performing edge and corner grinding. In addition, the plastic flaps offer a high level of flexibility, making it possible to machine difficult-to-reach places. SHIELD brushes are available in

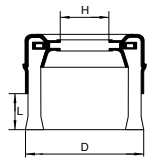
various designs and wire types, and offer the highest safety levels when working on steel. Applications. Our products are also frequently used to clean welding seams.

PREMIUM★★★ SHIELD CUP BRUSHES

For steel



Shape 11TDW



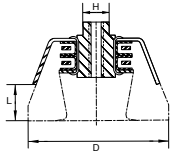
Shape 6TDW, 6TDZ

	Shape	Type no.	Dimension	Specification	PU	Max. RPM	
		11TDW	34023780	75x20xM14-2	SM0,3	1	13,000
			34023778	65x20xM14-2	S0,5	1	15,000
		6TDW	34023827	80x30xM14-2	SM0,3	1	8,500
			34023828	100x30xM14-2	SM0,3	1	8,500
		6TDZ	34023823	80x25xM14-2	S0,5	1	8,500
			34023824	100x25xM14-2	S0,5	1	8,500

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PREMIUM* CUP BRUSHES**

For steel



Shape 11TDW, 11TDZ

Wire brushes are universal tools for all applications. Cup brushes in particular are among the most commonly-used brush tools. TYROLIT will provide you with the appropriate wire brush for your application depending on the wire type. Twisted wire brushes are used for preparing surfaces and removing rust, scales and concrete residue.

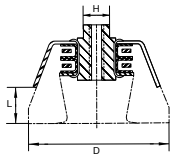
Wire brushes with knotted wire can also be used to remove rust and paint, as well as for fine grinding. Our products are also frequently used to clean welding seams.

	Shape	Type no.	DxLxH	Specification	PU	Max. RPM	
		11TDW	896157	60x16xM14	S0,3	1	11,000
			896158	60x16xM14	S0,5	1	11,000
			896160	75x20xM14	S0,3	1	9,000
			896161	75x20xM14	S0,5	1	9,000
			896162	100x30x22.2	S0,3	1	8,500
			896163	100x30x22.2	S0,5	1	8,500
			896164	100x30xM14	S0,3	1	8,500
			896165	100x30xM14	S0,5	1	8,500
			896250	125x35xM14	S0,3	1	6,500
			896252	125x35xM14	S0,5	1	6,500
		11TDZ	829292	80x35xM14	SH0,5	1	7,500
			829293	100x35xM14	SH0,5	1	7,500
			890868	100x45xM14	SZ0,35	1	7,500
		6TDZ	890860	65x20xM14	SH0,35	1	12,000
			890862	65x20xM14	SH0,5	1	12,000
			890863	80x25xM14	SH0,35	1	8,500
			890864	80x25xM14	SH0,5	1	8,500
			890865	100x25x22.2	SH0,35	1	8,500
			34042518	100x25x22.2	SH0,5	1	8,500
			890866	100x25xM14	SH0,35	1	8,500
			896289	100x25xM14	SH0,5	1	8,500
			896291	120x25xM14	SH0,35	1	6,500
			896290	120x25xM14	SH0,5	1	6,500
896293	140x25xM14	SH0,35	1	5,500			
896292	140x25xM14	SH0,5	1	5,500			

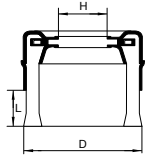
Items with grey lettering are only available on request.

PREMIUM★★★ SHIELD CUP BRUSHES

For stainless steel



Shape 11TDW, 11TDZ



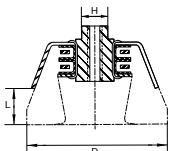
Shape 6TDW, 6TDZ

With SHIELD cup brushes, TYROLIT offers a protective coating against dust and wire breakages combined with user-friendly use. SHIELD brushes are available in various designs and wire types, and offer the highest safety levels when working on steel. Applications. Our products are also frequently used to clean welding seams. The transparent protection allows the operator an unrestricted view of the workpiece even when performing edge and corner grinding. In addition, the plastic flaps offer a high level of flexibility, making it possible to machine difficult-to-reach places.

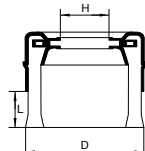
	Shape	Type no.	DxLxH	Specification	PU	Max. RPM	
		11TDW	34023812	75x20xM14-2	E0,3INOX	1	13,000
		11TDZ	34023813	65x20xM14-2	E0,5INOX	1	15,000
		6TDW	34023829	80x30xM14-2	E0,3INOX	1	8,500
			34023830	100x30xM14-2	E0,3INOX	1	8,500
		6TDZ	34023825	80x25xM14-2	E0,5INOX	1	8,500
			34023826	100x25xM14-2	E0,5INOX	1	8,500

PREMIUM★★★ CUP BRUSHES

For stainless steel



Shape 11TDW





Shape 6TDZ

Wire brushes are universal tools for all applications. Cup brushes in particular are among the most commonly-used brush tools. TYROLIT will provide you with the appropriate wire brush for your application depending on the wire type. Twisted wire brushes are used for preparing surfaces and removing rust, scales and concrete residue. Wire brushes with knotted wire can also be used to remove rust and paint, as well as for fine grinding. Our products are also frequently used to clean welding seams.

	Shape	Type no.	DxLxH	Specification	PU	Max. RPM	
		11TDW	896167	60x16xM14	E0,3INOX	1	11,000
			896169	60x16xM14	E0,5INOX	1	11,000
		896170	75x20xM14	E0,3INOX	1	9,000	
		896171	75x20xM14	E0,5INOX	1	9,000	
		896172	100x30x22,2	E0,3INOX	1	8,500	
		896173	100x30x22,2	E0,5INOX	1	8,500	
		896174	100x30xM14	E0,3INOX	1	8,500	
		896175	100x30xM14	E0,5INOX	1	8,500	

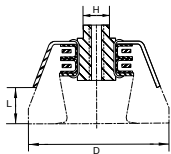
Items with grey lettering are only available on request.



	Shape	Type no.	DxLxH	Specification	PU	Max. RPM	
		6TDZ	890851	65x20xM14	E0,35INOX	1	12,000
		890852	65x20xM14	E0,5INOX	1	12,000	
		34042519	80x25xM14	E0,35INOX	1	8,500	
		890853	80x25x22.2	E0,5INOX	1	8,500	
		890854	80x25xM14	E0,5INOX	1	8,500	
		890855	100x25x22.2	E0,35INOX	1	8,500	
		890856	100x25x22.2	E0,5INOX	1	8,500	
		890858	100x25xM14	E0,35INOX	1	8,500	
		890859	100x25xM14	E0,5INOX	1	8,500	

PREMIUM*** CUP BRUSHES FOR NONFERROUS METALS



For nonferrous metals



Shape 11TDW

PREMIUM*** cup brushes with brass wire are ideal for machining nonferrous metals. Due to its hardness, the brass wire achieves the best results on the brass workpiece. Their knotted wire design enables them to easily remove paint, dirt and varnish.

They are ideal for fine work and thus make working on nonferrous metals easier.

	Shape	Type no.	DxLxH	Specification	PU	Max. RPM	
		11TDW	896943	60x16xM14	M0,3	1	11,000
		34042515	80x25xM14	M0,3	1	8,500	
		34042517	100x30xM14	M0,3	1	8,500	

PREMIUM★★★ SHIELD TAPERED BRUSHES FOR STEEL

+ Enhanced work safety

The protective plastic flaps provide protection from undesired wire breakages and dust.

+ Broad assortment

Depending on the application, our brushes are available with twisted and knotted wire.



+ No restriction

The transparent protection enhances work safety whilst allowing the operator to work without restrictions. Difficult-to-reach places are no longer an issue thanks to the soft plastic flaps.

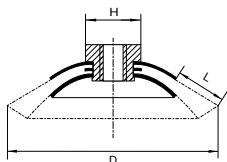
SHIELD tapered brushes offer a protective coating against dust and wire breakages due to their shape, combined with user-friendly use. The transparent protective coating also

allows an unrestricted view of the workpiece. In addition, the plastic flaps offer a high level of flexibility, making it possible to machine edges and corners.




SHIELD brushes are available in various designs and wire types, and offer the highest safety levels when working on steel. This tool is also frequently used to clean welding seams.

PREMIUM★★★ SHIELD TAPERED BRUSHES

For steel



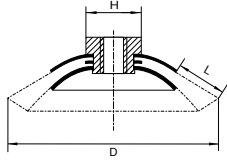
Shape 28KDW, 28KDZ

	Shape	Type no.	DxLxH	Specification	PU	Max. RPM	
		28KDW	34023819	100x20xM14-2	SM0,3	1	13,000
		28KDZ	34023817	100x20xM14-2	S0,5	1	15,000

Items with grey lettering are only available on request.

PREMIUM* TAPERED BRUSHES**

For steel



Shape 28KDW, 28KDZ, 28KDZR

These PREMIUM*** wire brushes are particularly suitable for machining hard-to-reach parts due to their shape. TYROLIT will provide you with the appropriate wire brush for your application depending on the wire type. Twisted wire brushes are used for preparing surfaces and removing rust, scales and concrete residue.

Wire brushes with knotted wire can also be used to remove rust and paint, as well as for fine grinding. Our products are also frequently used to clean welding seams.

	Shape	Type no.	DxLxH	Specification	PU	Max. RPM	
		28KDW	829306	100x20xM14	S0,3	1	12,500
		28KDZR	896294	100x20xM14	SH0,35	1	12,500
			894595	100x20xM14	SH0,5	1	12,500
			34042520	115x27.5xM14	SH0,35	1	12,500
			894598	115x27.5xM14	SH0,5	1	12,500

PREMIUM*** SHIELD TAPERED BRUSHES FOR STAINLESS STEEL

+ Enhanced work safety

The protective plastic flaps provide protection from undesired wire breakages and dust.

+ Broad assortment

Depending on the application, our brushes are available with twisted and knotted wire.



+ No restriction

The transparent protection enhances work safety whilst allowing the operator to work without restrictions. Difficult-to-reach places are no longer an issue thanks to the soft plastic flaps.

With SHIELD tapered brushes, TYROLIT offers a protective plastic coating against undesired dust and wire breakages, combined with user-friendly use. The transparent

protective coating also allows an unrestricted view of the workpiece. This tool is also frequently used to clean welding seams and for light deburring. The tool shape enables easy machin-

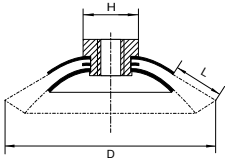
ing of corners and edges. SHIELD brushes are available in various designs and wire types, and offer the highest safety levels when working on stainless steel.

Items with grey lettering are only available on request.



PREMIUM*** SHIELD TAPERED BRUSHES

For stainless steel

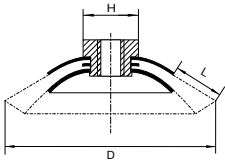


Shape 28KDW, 28KDZ, 28KDZR

	Shape	Type no.	DxLxH	Specification	PU	Max. RPM	
		28KDW	34023822	100x20xM14-2	E0,3INOX	1	13,000
		28KDZ	34023818	100x20xM14-2	E0,5INOX	1	15,000

PREMIUM*** TAPERED BRUSHES

For stainless steel



Shape 28KDW, 28KDZ, 28KDZR

These PREMIUM*** wire brushes are particularly suitable for machining hard-to-reach parts due to their shape. TYROLIT will provide you with the appropriate wire brush for your application depending on the wire type. Twisted wire brushes are used for preparing surfaces and removing rust, scales and concrete residue.

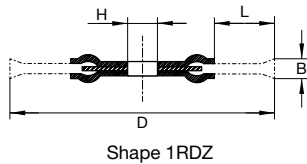
Wire brushes with knotted wire can also be used to remove rust and paint, as well as for fine grinding. Our products are also frequently used to clean welding seams.

	Shape	Type no.	DxLxH	Specification	PU	Max. RPM	
		28KDW	896260	100x20xM14	E0,3INOX	1	12,500
		28KDZR	829330	100x20xM14	E0,35INOX	1	12,500
			894602	100x20xM14	E0,5INOX	1	12,500
			938642	115x27.5xM14	E0,35INOX	1	12,500
			938646	115x27.5xM14	E0,5INOX	1	12,500

Items with grey lettering are only available on request.

PREMIUM* ROUND BRUSHES**

For steel



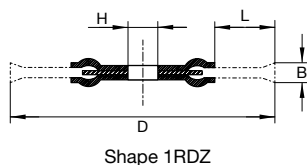
The PREMIUM*** round brushes are ideal for welding. TYROLIT will provide you with the appropriate wire brush for your application depending on the wire type. Twisted wire brushes are used for preparing surfaces and removing rust, scales and concrete residue.

Wire brushes with knotted wire can also be used to remove rust and paint, as well as for fine grinding. Our products are also frequently used to clean welding seams.

Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
	943976	100x11x22x22.2	SH0,5	1	11,000
	890618	100x11x22xM14	SH0,5	1	11,000
	310303	115x11x23x22.2	SH0,35	1	11,000
	894085	115x11x23x22.2	SH0,5	1	11,000
	960324	115x11x23xM14	S0,35	1	11,000
	938680	115x11x23xM14	SH0,5	1	11,000
	34202827	125x6x21x22.2	SH0,5 PIPE	1	12,000
	903406	125x12x25x22.2	SH0,35	1	12,000
	947205	125x12x25x22.2	SH0,5	1	12,000
	34042522	125x12x25xM14	SH0,35	1	12,000
	603818	125x12x25xM14	SH0,5	1	12,000
	34042525	178x15x44xM14	SH0,35	1	9,000
	34042524	178x15x44xM14	SH0,5	1	9,000
	829026	178x13x38x22.2	SH0,5	1	9,000

PREMIUM* ROUND BRUSHES**

For stainless steel



The PREMIUM*** round brushes are ideal for welding. TYROLIT will provide you with the appropriate wire brush for your application depending on the wire type. Twisted wire brushes are used for preparing surfaces and removing rust, scales and concrete residue.

Wire brushes with knotted wire can also be used to remove rust and paint, as well as for fine grinding. Our products are also frequently used to clean welding seams.

Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
	890623	100x11x22xM14	E0,5INOX	1	11,000
	310305	115x11x23x22.2	E0,35INOX	1	11,000
	890608	115x11x23x22.2	E0,5INOX	1	11,000
	16422	115x11x23xM14	E0,35INOX	1	11,000
	890626	115x11x23xM14	E0,5INOX	1	11,000
	34202829	125x6x21x22.2	E0,5INOX PIPE	1	12,000
	890635	125x12x25x22.2	E0,35INOX	1	12,000
	34042526	125x12x25x22.2	E0,5INOX	1	12,000
	34042528	125x12x25xM14	E0,35INOX	1	12,000
	34042527	125x12x25xM14	E0,5INOX	1	12,000
	16425	178x15x44xM14	E0,35INOX	1	9,000
	942005	178x15x35x22.2	E0,5INOX	1	9,000
	16427	178x15x44xM14	E0,5INOX	1	9,000

Items with grey lettering are only available on request.



3.2 BRUSHES

STRAIGHT GRINDER



BRUSHES STRAIGHT GRINDER

Straight grinders are needed when precise results are required in hard-to-reach areas such as the inside of pipes. Their versatility makes them a popular tool.

That's why TYROLIT offers a comprehensive assortment of cup, round and wire brushes which can also be used on other machines, such as

drilling machines. The range of applications is very wide. Shaft mounted brushes are used for surface treatment such as cleaning

rust, deburring, texturing and removing layers such as paint or rubber.

Application recommendations



Performance level	Specification	Pages	Steel	Stainless steel	NF-metals	All in one
PREMIUM***	S...	153, 155, 157	●			
	SH...	157	●			
	SZ...	153	●			
	E... INOX	154, 156, 158		●		
	EA... INOX	158		●		
	M...	154, 156, 158				●
	SM...	153	●			
	C...	155, 157, 159				

Items with grey lettering are only available on request.

Shapes



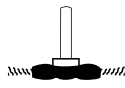
52TDW Cup brushes

Suitable for cleaning work, such as removing paint or rust or for deburring



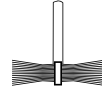
52RDW Round brushes

For removing rust, cleaning, smoothing, polishing, matting and roughening



52RDZ Round brushes

Designed for welding and removing scale and paint



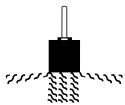
52RDK Round brushes

For matting and glazing, coated with grain



52PDE Wire brushes

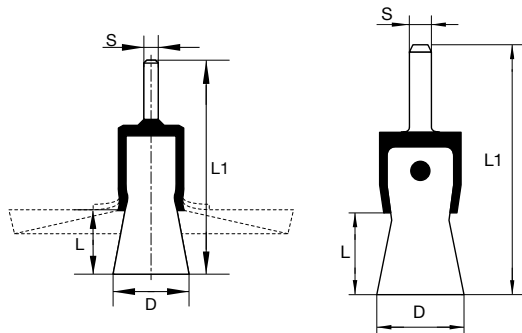
Suitable for roughening, deburring, descaling and cleaning. The plastic coating ensures a long tool life



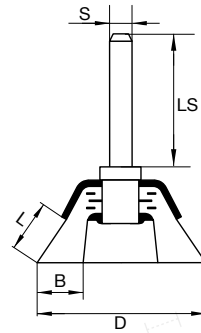
52PDZ Wire brushes

Suitable for roughening, deburring, descaling, matting and cleaning. These wire brushes are characterised by their high level of flexibility. The wire brush opens due to centrifugal force. They are also particularly suitable for cleaning the inside of pipes.

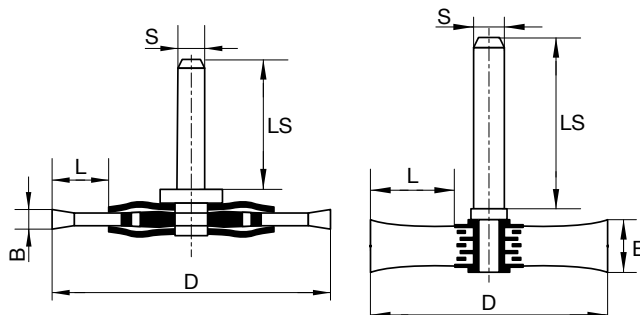
Dimensions Wire brushes



Shaft mounted cup brushes



Shaft mounted round brushes

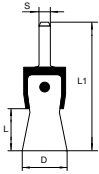


Optimum peripheral speed

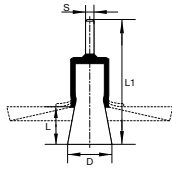
Application	Peripheral speed in m/s							
	5	15	20	25	30	35	40	45
Deburring								
Processing of welding seams								
Descaling								
Polishing								
Processing of plastic								
Cleaning								
Rust removal								

PREMIUM* WIRE BRUSHES**

For steel



Shape 52PDW, 52PDE



Shape 52PDZ

Wire brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines. Twisted wire brushes are suitable for roughening, deburring, descaling, matting and cleaning. These wire brushes are characterised by their high level of flexibility. The wire brush opens due to centrifugal force.

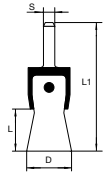
They are also particularly suitable for cleaning the inside of pipes. Knotted wire brushes are suitable for roughening, deburring, descaling, matting and cleaning. Also to remove burr, rust, rubber and other impurities in difficult-to-reach areas. Wire brushes with plastic achieve a longer lifetime.

	Shape	Type no.	DxL-SxL1	Specification	PU	Max. RPM
		52PDW	903431	12x20-6x60	S0,2	25 20,000
		890719	12x20-6x60	S0,3	25 20,000	
		903432	12x20-6x60	S0,5	25 20,000	
		34043179	17x22-6x65	S0,2	25 18,000	
		890721	17x22-6x65	S0,3	25 18,000	
		52679	17x22-6x65	S0,5	25 18,000	
		903429	24x25-6x68	S0,2	25 18,000	
		903430	24x25-6x68	S0,3	25 18,000	
		890722	24x25-6x68	S0,5	25 18,000	
		58293	30x25-6x68	S0,2	25 15,000	
19012	30x25-6x68	S0,3	25 15,000			
890723	30x25-6x68	S0,5	25 15,000			
		52PDZ	34043520	19x28-6x68	SZ0,25	25 20,000
		903357	19x28-6x68	SZ0,35	25 20,000	
		34043541	19x28-6x68	SZ0,5	25 20,000	
		34043542	22x28-6x68	SZ0,25	25 20,000	
		34043543	22x28-6x68	SZ0,35	25 20,000	
		34043544	22x28-6x68	SZ0,5	25 20,000	
		939968	28x28-6x68	SZ0,25	25 20,000	
		34043545	28x28-6x68	SZ0,35	25 20,000	
936422	28x28-6x68	SZ0,5	25 20,000			
		52PDE	890649	10x25-6x60	SM0,3	25 20,000
		34043180	15x25-6x65	SM0,3	25 15,000	
		890650	22x25-6x68	SM0,3	25 13,000	
		34043181	28x25-6x68	SM0,3	25 13,000	

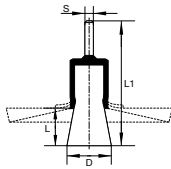
Items with grey lettering are only available on request.

PREMIUM★★★ WIRE BRUSHES

For stainless steel



Shape 52PDW



Shape 52PDZ

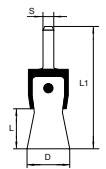
Wire brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines. Twisted wire brushes are suitable for roughening, deburring, descaling, matting and cleaning. These wire brushes are characterised by their high level of flexibility. The wire brush opens due to centrifugal force.

They are also particularly suitable for cleaning the inside of pipes. Knotted wire brushes are suitable for roughening, deburring, descaling, matting and cleaning. Also to remove burr, rust, rubber and other impurities in difficult-to-reach areas.

	Shape	Type no.	DxL-SxL1	Specification	PU	Max. RPM	
		52PDW	897357	12x20-6x60	E0,3INOX	25	20,000
			890707	17x22-6x65	E0,3INOX	25	18,000
			890709	24x25-6x68	E0,3INOX	25	18,000
			903340	30x25-6x68	E0,3INOX	25	15,000
		52PDZ	890652	19x28-6x68	E0,25INOX	25	20,000
			890654	19x28-6x68	E0,35INOX	25	20,000
			890653	22x28-6x68	E0,25INOX	25	20,000
			890655	22x28-6x68	E0,35INOX	25	20,000
			934433	28x28-6x68	E0,25INOX	25	20,000
			16746	28x28-6x68	E0,35INOX	25	20,000

PREMIUM★★★ WIRE BRUSHES

For nonferrous metals



Shape 52PDW

Wire brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines. They are also particularly suitable for cleaning the inside of pipes.

Knotted wire brushes are suitable for roughening, deburring, descaling, matting and cleaning. Also to remove burr, rust, rubber and other impurities in difficult-to-reach areas.

	Shape	Type no.	DxL-SxL1	Specification	PU	Max. RPM	
		52PDW	890658	12x20-6x60	M0,2	25	20,000
			903343	12x20-6x60	M0,3	25	20,000
			890708	17x22-6x65	M0,2	25	18,000
			903350	17x22-6x65	M0,3	25	18,000
			890717	24x25-6x68	M0,3	25	18,000
			890718	30x25-6x68	M0,3	25	15,000

Items with grey lettering are only available on request.

PREMIUM★★★ WIRE BRUSHES

For universal use



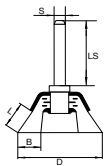
Wire brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines. They are also particularly suitable for cleaning the inside of pipes. Wire brushes with silicon carbide are very hard and thus enable very high stock removal rates. Their use includes deburring work on various

workpieces made of practically any material, such as steel, aluminium, stainless steel, copper, brass, etc. In addition, silicon carbide is used for wood structuring.

	Shape	Type no.	Dimension	Specification	PU	Max. RPM	
		52PDK	34043547	17x22-6x65	C180	25	18,000
			34043548	24x25-6x68	C120	25	18,000
			34043549	24x25-6x68	C180	25	18,000
			34043550	24x25-6x68	C320	25	18,000
			34043552	30x25-6x68	C180	25	15,000

PREMIUM★★★ SHAFT MOUNTED CUP BRUSHES

For steel



Shape 52TDW

Shaft mounted cup brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines.

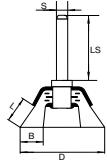
Knotted shaft mounted cup brushes are suitable for cleaning work, such as removing paint, rust, scale, crust, or deburring.

	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM	
		52TDW	890753	40x10x15-6x30	S0,2	25	10,500
			890756	40x10x15-6x30	S0,3	25	10,500
			34043171	50x10x20-6x30	S0,2	25	10,500
			903359	50x10x20-6x30	S0,3	25	10,500
			903427	50x50x20-6x30	S0,2	25	10,500
			903428	50x50x20-6x30	S0,3	25	10,500
			890764	60x15x20-6x30	S0,2	25	4,500
			890763	60x15x20-6x30	S0,3	25	4,500
			890765	60x60x20-6x30	S0,2	25	4,500
			890766	60x60x20-6x30	S0,3	25	4,500
			890776	70x15x25-6x30	S0,2	25	4,500
			890774	70x15x25-6x30	S0,3	25	4,500
			890777	70x70x25-6x30	S0,2	25	4,500
			890778	70x70x25-6x30	S0,3	25	4,500

Items with grey lettering are only available on request.

PREMIUM★★★ SHAFT MOUNTED CUP BRUSHES

For stainless steel



Shape 52TDW

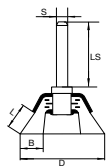
Shaft mounted cup brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines.

Knotted shaft mounted cup brushes are suitable for cleaning work, such as removing paint, rust, scale, crust, or deburring.

	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52TDW				
		890757	40x10x15-6x30	E0,2INOX	25	10,500
		890758	40x10x15-6x30	E0,3INOX	25	10,500
		34038259	50x10x20-6x30	E0,2INOX	25	10,500
		903877	50x10x20-6x30	E0,3INOX	25	10,500
		34038260	50x50x20-6x30	E0,2INOX	25	10,500
		903878	50x50x20-6x30	E0,3INOX	25	10,500
		890762	60x15x20-6x30	E0,2INOX	25	4,500
		890761	60x15x20-6x30	E0,3INOX	25	4,500
		890768	60x60x20-6x30	E0,2INOX	25	4,500
		890769	60x60x20-6x30	E0,3INOX	25	4,500
		890772	70x15x25-6x30	E0,2INOX	25	4,500
		890771	70x15x25-6x30	E0,3INOX	25	4,500
890779	70x70x25-6x30	E0,2INOX	25	4,500		
890780	70x70x25-6x30	E0,3INOX	25	4,500		

PREMIUM★★★ SHAFT MOUNTED CUP BRUSHES

For nonferrous metals



Shape 52TDW

Shaft mounted cup brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines.

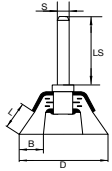
Knotted shaft mounted cup brushes are suitable for cleaning work, such as removing paint, rust, scale, crust, or deburring.

	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52TDW				
		34043172	40x10x15-6x30	M0,3	25	10,500
		199649	50x10x20-6x30	M0,2	25	10,500
		23470	50x10x20-6x30	M0,3	25	10,500
		34043173	50x50x20-6x30	M0,3	25	10,500
		23469	60x15x20-6x30	M0,3	25	4,500
		34043174	60x60x20-6x30	M0,3	25	4,500
		23471	70x15x25-6x30	M0,3	25	4,500
		34043175	70x70x25-6x30	M0,3	25	4,500

Items with grey lettering are only available on request.

PREMIUM* SHAFT MOUNTED CUP BRUSHES**



For universal use



Shape 52TDK

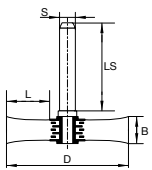
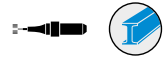
Shaft mounted cup brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines. Shaft mounted cup brushes with silicon carbide are very hard and thus enable very high stock removal rates. Their

use includes deburring work on various workpieces made of practically any material, such as steel, aluminium, stainless steel, copper, brass, etc. In addition, silicon carbide is used for wood structuring.

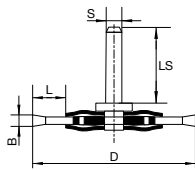
	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM	
		52TDK	34043177	50x10x20-6x30	C180	25	10,500
			34043178	60x15x20-6x30	C180	25	4,500
			34043546	70x15x25-6x30	C180	25	4,500

PREMIUM* SHAFT MOUNTED ROUND BRUSHES**

For steel





Shape 52RDW



Shape 52RDZ

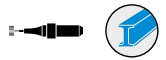
Shaft mounted round brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines. Knotted wire brushes are suitable for removing rust, cleaning, smoothing, polishing, matting and roughening. Twisted shaft mounted round brushes are designed for welding and removing scale and paint.



	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM	
		52RDW	890840	20x4x3-6x30	S0,2	25	20,000
			890841	30x6x6.5-6x30	S0,2	25	20,000
			890842	40x9x9-6x30	S0,2	25	18,000
			890843	40x9x9-6x30	S0,3	25	18,000
			903421	50x15x12.5-6x30	S0,15	25	15,000
			890844	50x15x12.5-6x30	S0,2	25	15,000
			890845	50x15x12.5-6x30	S0,3	25	15,000
			34043554	50x15x12.5-6x30	S0,5	25	15,000
			890846	60x10x17.5-6x30	S0,3	25	15,000
			903422	60x15x17.5-6x30	S0,15	25	15,000
			890847	60x15x17.5-6x30	S0,2	25	15,000
			903423	60x15x17.5-6x30	S0,3	25	15,000
			903424	70x15x19-6x30	S0,15	25	15,000
			34043555	70x15x19-6x30	S0,2	25	15,000
			890848	70x15x19-6x30	S0,3	25	15,000
			34043557	70x15x19-6x30	S0,5	25	15,000
			903425	80x15x19-6x30	S0,15	25	12,000
	890849	80x15x19-6x30	S0,3	25	12,000		

Items with grey lettering are only available on request.

PREMIUM* SHAFT MOUNTED ROUND BRUSHES**

For steel

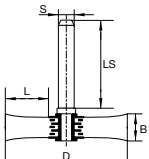
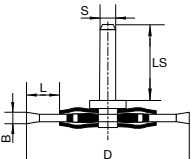






	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		890810	70x6x15-6x30	SH0,3	25	20.000
		34042794	80x10x15-6x30	SH0,35	25	20.000

PREMIUM* SHAFT MOUNTED ROUND BRUSHES**

For stainless steel

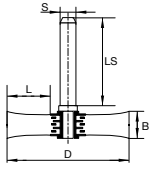


	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		<p>Shaft mounted round brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines. Knotted wire brushes are suitable for removing rust, cleaning, smoothing, polishing, matting and roughening. Twisted shaft mounted round brushes are designed for welding and removing scale and paint.</p>				
		890812	20x4x3-6x30	E0,2INOX	25	20,000
		890813	30x6x6.5-6x30	E0,2INOX	25	20,000
		890814	40x9x9-6x30	E0,2INOX	25	18,000
		890815	40x9x9-6x30	E0,3INOX	25	18,000
		890817	40x13.5x9-6x30	E0,3INOX	25	18,000
		34043559	50x10x12.5-6x30	E0,2INOX	25	15,000
		890819	50x10x12.5-6x30	E0,3INOX	25	15,000
		890820	50x15x12.5-6x30	E0,2INOX	25	15,000
		890821	50x15x12.5-6x30	E0,3INOX	25	15,000
		890822	60x10x17.5-6x30	E0,2INOX	25	15,000
		890823	60x10x17.5-6x30	E0,3INOX	25	15,000
		890827	60x15x17.5-6x30	E0,2INOX	25	15,000
		890828	60x15x17.5-6x30	E0,3INOX	25	15,000
		895521	70x15x19-6x30	E0,2INOX	25	15,000
		890831	70x15x19-6x30	E0,3INOX	25	15,000
		890832	80x10x19-6x30	E0,3INOX	25	12,000
		890835	80x15x19-6x30	E0,3INOX	25	12,000
		917186	50x15x12.5-6x30	EA0,3INOX	25	15,000
		917189	70x15x19-6x30	EA0,3INOX	25	15,000
				890811	70x6x15-6x30	E0,35INOX

Items with grey lettering are only available on request.

PREMIUM★★★ SHAFT MOUNTED ROUND BRUSHES

For nonferrous metals



Shape 52RDW

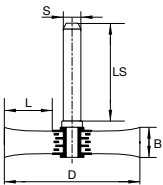
Shaft mounted round brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines.

Knotted shaft mounted round brushes are suitable for removing rust, cleaning, smoothing, polishing, matting and roughening.

	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52RDW				
		23472	40x9x9-6x30	M0.3	25	18,000
		23473	50x10x12.5-6x30	M0.3	25	15,000
		903337	50x15x12.5-6x30	M0.2	25	15,000
		34043560	50x15x12.5-6x30	M0.3	25	15,000
		23474	60x10x17.5-6x30	M0.3	25	15,000
		199648	70x15x19-6x30	M0.2	25	15,000
903339	70x15x19-6x30	M0.3	25	15,000		

PREMIUM★★★ SHAFT MOUNTED ROUND BRUSHES

For universal use



Shape 52RDK

Shaft mounted round brushes are ideal for machining hard-to-reach parts. With this product you will obtain a tool that can be used on both straight grinders and drilling machines.

Shaft mounted round brushes with silicon carbide are

very hard and thus enable very high stock removal rates. Their use includes deburring work on various workpieces made of practically any material, such as steel, aluminium, stainless steel, copper, brass, etc. In addition, silicon carbide is used for wood structuring.

	Shape	Type no.	DxBxL-SxLS	Specification	PU	Max. RPM
		52RDK				
		34043572	50x20x12.5-6x30	C180	25	15,000
		903363	63x10x18-6x30	C320	25	15,000
		908265	70x20x19-6x30	C120	25	15,000
		908264	70x20x19-6x30	C180	25	15,000
908263	70x20x19-6x30	C320	25	15,000		

Items with grey lettering are only available on request.



A close-up, low-angle shot of a floor-standing grinder. The central focus is a large, circular, blue brush wheel with a textured surface. The wheel is mounted on a metal frame. To the left, a metal arm or handle is visible, secured with a screw. The background is blurred, showing industrial structures. The overall color palette is dominated by blues and greys.

3.3 BRUSHES

FLOORSTANDING GRINDER



BRUSHES FOR FLOORSTANDING GRINDERS

A floorstanding grinder is a versatile machine used in many workshops to work on different materials. The wide assortment of TYROLIT tool brushes therefore has the right shape, wire type and specification for every application.

Knotted round brushes, with and without grain, are ideal for removing rust, cleaning, smoothing, polishing, matting and roughening. Twisted round brushes, on the other hand, are suitable for rough work such as welding and removing scale and paint.

Shapes



1RDW Round brushes

For removing rust, cleaning, smoothing, polishing, matting and roughening



1RDK Round brushes

For matting and glazing, coated with grain



1RDZ Round brushes

For welding and for removal of scale and paint

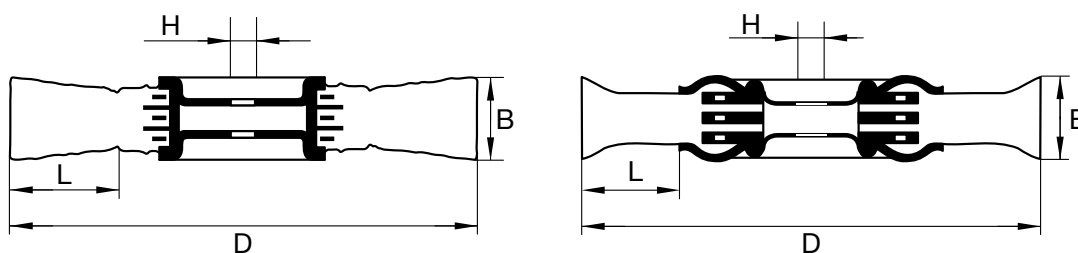
Application recommendations



Performance level	Specification	Pages	Steel	Stainless steel	All in one steel
PREMIUM***	S...	164	•		
	SH...	164	•		
	SZ...	164	•		
	E... INOX	165		•	
	C...	165			•
	A...	165			•

Items with grey lettering are only available on request.

Dimensions round brushes

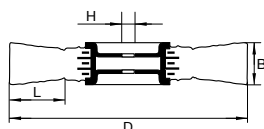


Optimum peripheral speed

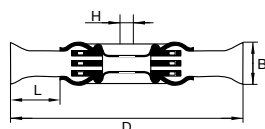
Application	Peripheral speed in m/s							
	5	15	20	25	30	35	40	45
Deburring								
Processing of welding seams								
Descaling								
Polishing								
Processing of plastic								
Cleaning								
Rust removal								

PREMIUM* ROUND BRUSHES**

For steel



Shape 1RDW



Shape 1RDZ

Round brushes for floorstanding grinders. TYROLIT will provide you with the appropriate wire brush for your application depending on the wire type. Twisted wire brushes are used for preparing surfaces and removing rust, scales and concrete residue.

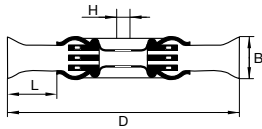
Wire brushes with knotted wire can also be used to remove rust and paint, as well as for fine grinding. Our products are also frequently used to clean welding seams.

	Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM	
		1RDW	896630	80x22x20x12.5	S0,3	1	10,000
		896109	100x20x24x20	S0,3	1	6,000	
		896237	100x20x24x20	S0,5	1	6,000	
		896111	125x24x36x20	S0,3	1	6,000	
		896238	125x24x36x20	S0,5	1	6,000	
		896115	150x18x27x32	S0,3	1	6,000	
		896239	150x18x27x32	S0,5	1	6,000	
		896241	180x22x42x32	S0,3	1	6,000	
		896243	180x22x42x32	S0,5	1	6,000	
		927369	200x26x40x20	S0,3	1	4,500	
		894770	200x26x40x32	S0,3	1	4,500	
		896244	200x26x40x32	S0,5	1	4,500	
		896121	200x36x40x32	S0,3	1	4,500	
		896245	200x36x40x32	S0,5	1	4,500	
		896123	200x45x40x32	S0,3	1	4,500	
		896246	250x38x50x32	S0,3	1	3,600	
		896247	250x38x50x32	S0,5	1	3,600	
		943863	250x38x50x100	S0,5	1	3,600	
		920436	250x42x50x100	S0,3	1	3,600	
		938384	300x38x60x25.4	S0,3	1	3,000	
920824	300x38x60x100	S0,3	1	3,000			
923064	300x48x60x100	S0,3	1	3,000			
		1RDZ	903404	100x18x22x16	SH0,35	1	11,000
		903409	100x18x22x16	SH0,5	1	11,000	
		903407	180x18x34x22.2	SH0,35	1	9,000	
		903411	180x18x34x22.2	SH0,5	1	9,000	
		903408	200x22x44x40	SH0,35	1	8,500	
		903413	200x22x44x40	SH0,5	1	8,500	
		915557	300x10x65x25.4	SZ0,5	1	4,500	
		915555	300x8x65x25.4	SZ0,5	1	4,500	

Items with grey lettering are only available on request.

PREMIUM* ROUND BRUSHES**

For stainless steel



Shape 1RDW

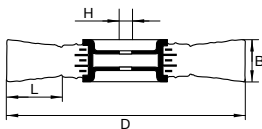
The versatile round brushes for floorstanding grinders are used in a variety of industries. These wire brushes with knotted wire can be used to remove rust and paint, as well as for fine grinding. They also come in useful for polishing and matting stainless steel workpieces.

TYROLIT wire brushes are manufactured to the highest standards to make work for the operator easier and safer.

	Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
	1RDW	929849	100x20x24x10	E0,1INOX	1	6,000
		896110	100x20x24x20	E0,3INOX	1	6,000
		896113	125x24x36x20	E0,3INOX	1	6,000
		896116	150x18x27x32	E0,3INOX	1	6,000
		128345	180x22x42x32	E0,3INOX	1	6,000
		935157	200x26x40x20	E0,3INOX	1	4,500
		896119	200x26x40x32	E0,3INOX	1	4,500
		896122	200x36x40x32	E0,3INOX	1	4,500
		896124	200x45x40x32	E0,3INOX	1	4,500
		939696	250x60x50x50.8	E0,4INOX	1	3,600
		939697	300x60x60x50.8	E0,4INOX	1	3,600

PREMIUM* ROUND BRUSHES**

For universal use



Shape 1RDK

The versatile round brushes for floorstanding grinders are used in a variety of industries. Wire brushes with silicon carbide are very hard and thus enable very high stock removal rates. Their use includes deburring work on various workpieces made of practically any material, such as steel, aluminium, stainless steel, copper, brass, etc. In addition, silicon carbide is used for wood structuring.

Round brushes with aluminium oxide are somewhat softer and therefore less abrasive. They are primarily used in wood structuring, but also for light deburring if very small rounded edges are desired. TYROLIT wire brushes are manufactured to the highest standards to make work for the operator easier and safer.

	Shape	Type no.	DxBxLxH	Specification	PU	Max. RPM
	1RDK	34043575	100x11x22x20	C120	1	12,000
		34043576	100x11x22x20	C320	1	12,000
		34043577	125x13x22x20	C320	1	10,000
		34043578	150x13x34x32	C320	1	8,000
		916720	150x15x29x40	C320	1	8,000
		34043579	180x15x44x40	C320	1	6,000
		227435	200x13x43x50.8	C320	1	6,000
		898839	300x19x30x50.8	C120	1	3,000
		7213	300x19x30x50.8	A120	1	3,000

Items with grey lettering are only available on request.





3.4 BRUSHES

HAND-GUIDED GRINDING



HAND-OPERATED TOOL BRUSHES

Brushes are suitable for universal use and can be employed in a very wide range of applications: deburring, cleaning welding seams or the surfaces of virtually any material.

With a large selection of shapes, it is possible to clean and work on hard-to-reach areas. Our range even

includes a suitable hand brush for cleaning spark plugs. The TYROLIT range of brushes offers

the right wire type and specification for every application.

Application recommendations



Performance level	Specification	Pages	Steel	Stainless steel	Aluminum	All in one
PREMIUM***	S...	170, 171, 172, 173, 174, 176, 177	●			
	E... INOX	170, 171, 172, 174, 175		●		
	M...	170, 173, 174, 175, 176			●	
	PP...	175				●
	PA...	177				●
	C...	177				●

Items with grey lettering are only available on request.

Shapes



90HDG Hand brush

Hand brush for universal use



90SDW Hand brush

For smooth finishing of profiled surfaces



90ZKDW Hand brush

Specially for cleaning spark plugs



90HKDG Hand brush

V-shaped, for cleaning hard-to-reach welding seams and fillet welds



90HFDW Hand brush

File brush for cleaning sensitive surfaces



90FDG Hand brush

File brush for cleaning metal and wood files.



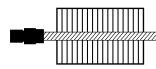
90HBSDG Hand brush

Brushes for cleaning brake calipers



90HBDG Duster

For easy cleaning of all surfaces



18ROGDG Tube brush

Tube brush with drilling machine attachment



18ROODW/18ROODG
Cylindrical tube brush

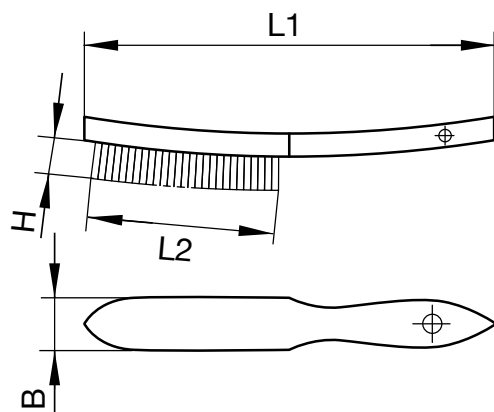
For the manual cleaning of pipes and bores



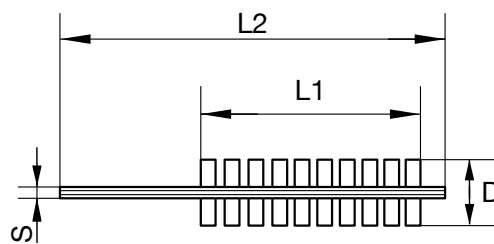
18RODK
Cylindrical tube brush

Tube brush with abrasive grain for cleaning bores

Dimensions Hand brushes

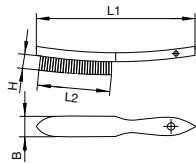


Dimensions Tube brushes



PREMIUM* UNIVERSAL HAND BRUSHES**

For steel



TYROLIT hand brushes are suitable for practically any application. This tool enables the deburring and cleaning of welding seams and surfaces. The assortment consists of wire brushes with a varying

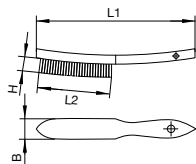
number of wire sequences that can be used depending on the application. These products are equipped with a high-quality beech wood handle.

90HDG-90HKDG-90HDW-90HSDG

Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
	90HDG	895498	290x22x25x140	S0,3	12 2
		895576	290x28x25x140	S0,3	12 3
		895577	290x32x25x140	S0,3	12 4
		895578	290x38x25x140	S0,3	12 5
		199657	290x42x25x140	S0,35	12 6

PREMIUM* UNIVERSAL HAND BRUSHES**

For stainless steel



These brushes are stainless steel specialists when it comes to deburring and cleaning welding seams and surfaces. The assortment consists of wire brushes with a varying

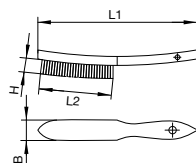
number of wire sequences that can be used depending on the application. These products are equipped with a high-quality beech wood handle.

90HDG-90HKDG-90HDW-90HSDG

Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
	90HDG	895579	290x22x25x140	E0,3INOX	12 2
		895580	290x28x25x140	E0,3INOX	12 3
		896207	290x32x25x140	E0,3INOX	12 4
		896209	290x38x25x140	E0,3INOX	12 5

PREMIUM* UNIVERSAL HAND BRUSHES**

For nonferrous metals



Shape 90HDG

TYROLIT hand brushes are suitable for practically any application. This tool enables the deburring and cleaning of welding seams and surfaces. The assortment consists of wire brushes with a varying

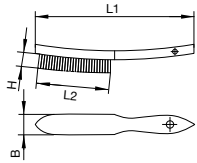
number of wire sequences that can be used depending on the application. These products are equipped with a high-quality beech wood handle.

Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
	90HDG	896217	290x22x25x140	M0,3	12 2
		895581	290x28x25x140	M0,3	12 3
		896219	290x32x25x140	M0,3	12 4
		896220	290x38x25x140	M0,3	12 5

Items with grey lettering are only available on request.

PREMIUM* HAND-OPERATED WIRE BRUSHES WITH SCRAPER**



For steel



Shape 90HSDG

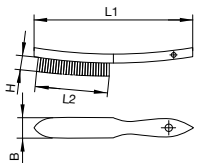
Hand brushes are a popular tool and are often used in the metal machining sector and on construction sites. The hand-operated wire brush with scraper is often used for brushing and scraping off heavy impurities.

For example, they are often used for the removal of cement spatter on construction sites - an application that can be performed quickly with this tool.

	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HSDG 34203491	290X32X25X140	S0,35	12	4

PREMIUM* FILLET WELD BRUSH**



For steel



Shape 90HKDG

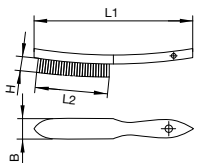
Hand brushes are a popular tool and are often used in the metal machining sector and on construction sites. TYROLIT fillet weld brush filaments are V-shaped to facilitate the removal of slag and scale from difficult-to-reach places. This tool is particularly suited to

the cleaning of fillet welds. This fillet weld brush is specially designed for use on steel and has a robust construction for heavy work

	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HKDG 199682	290x35x35x135	S0,35	12	3

PREMIUM* FILLET WELD BRUSH**



For stainless steel



Shape 90HKDG

Hand brushes are a popular tool and are often used in the metal machining sector and on construction sites. This fillet weld brush is specially designed for use on stainless steel and has a robust construction for heavy work. The V-shaped filaments facilitate the removal of

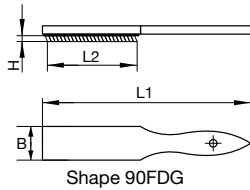
slag and scale from very difficult-to-reach places. This tool is particularly suited to the cleaning of fillet welds.

	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HKDG 199689	290x35x35x135	E0,35INOX	12	3

Items with grey lettering are only available on request.

PREMIUM* FILE BRUSH**


For steel



TYROLIT file brushes are particularly suited to the cleaning of metal and wood files. The wire filaments are firmly adhered to the robust

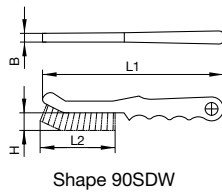
wooden body and are able to cope with challenging requirements.



Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
 90FDG	899851	300X30X25X135	S0,3	10	-

PREMIUM* ALL-PURPOSE WIRE BRUSH**


For steel



TYROLIT hand brushes are suitable for practically any application. This tool enables the deburring and cleaning of welding seams and surfaces.

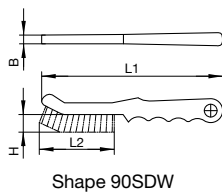
These products are equipped with an ergonomic plastic handle.



Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
 90SDW	896223	260x10x28x135	S0,3	12	1

PREMIUM* ALL-PURPOSE WIRE BRUSH**


For stainless steel



These brushes are stainless steel specialists when it comes to deburring and cleaning welding seams and surfaces.

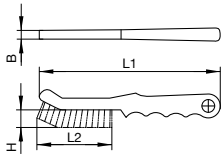
These products are equipped with an ergonomic plastic handle.



Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
 90SDW	896224	260x10x28x135	E0,3INOX	12	1

Items with grey lettering are only available on request.

PREMIUM* ALL-PURPOSE WIRE BRUSH**
For nonferrous metals



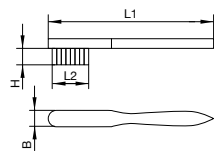
Shape 90SDW

TYROLIT hand brushes are suitable for practically any application. This tool enables the deburring and cleaning of welding seams and surfaces.

These products are equipped with an ergonomic plastic handle.

	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90SDW 199678	260x10x28x135	M0,3	12	1

PREMIUM* SPARK BRUSH**
For steel



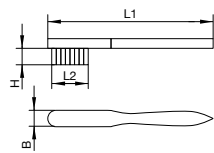
Shape 90ZKDW

Spark brushes are frequently used for precision work requiring a thin wire.

This spark brush has been specially designed for use on steel.

	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90ZKDW 903435	145x18x15x35	S0,15	12	3

PREMIUM* SPARK BRUSH**
For nonferrous metals



Shape 90ZKDW

Spark brushes are frequently used for precision work requiring a thin wire. Cleaning of contact points; the soft brass filaments do not scratch the surface.

This spark brush has been specially designed for cleaning contact points.

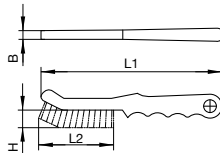
	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90ZKDW 903434	145x18x15x35	M0,15	12	3

Items with grey lettering are only available on request.

Brushes

PREMIUM★★★ BRAKE CALIPER BRUSH



For stainless steel



Shape 90HBSDG

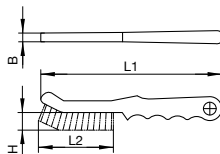
The TYROLIT brake caliper brush has been developed in cooperation with the industry for the thorough removal of brake dust. The two-component handle makes this wire brush even easier to use for the operator. Despite its narrow filaments, it is an extremely

powerful cleaning tool. However, at the same time it does not damage the brake calipers during machining. These wire brushes have been specially developed for machining stainless steel.

	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HBSDG 34203496	225x12x22x90	E0,35INOX	10	2

PREMIUM★★★ BRAKE CALIPER BRUSH



For steel



Shape 90HBSDG

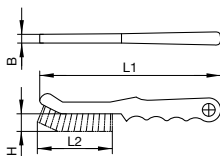
This brake caliper brush has been developed in cooperation with the automotive industry for the thorough removal of brake dust. The two-component handle makes this wire brush even easier to use for the operator. These wire brushes have been specially developed for machining steel.

Despite its narrow filaments, it is an extremely powerful cleaning tool. However, at the same time it does not damage the brake calipers during machining.

	Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
		90HBSDG 34203494	225x12x22x90	S0,35	10	2

PREMIUM★★★ BRAKE CALIPER BRUSH



For nonferrous metals



Shape 90HBSDG

This brake caliper brush has been developed in cooperation with the automotive industry for the thorough removal of brake dust. These wire brushes have been specially developed for machining all types of nonferrous metal. Despite its narrow filaments, it is an

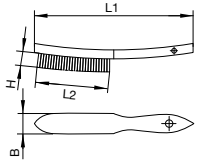
extremely powerful cleaning tool. However, at the same time it does not damage the brake calipers during machining. The two-component handle makes this wire brush even easier to use for the operator.

	Shape	Type no.	Dimension	Specification	PU	Wire sequence
		90HBSDG 34203497	225x12x22x90	M0,25	10	2

Items with grey lettering are only available on request.

PREMIUM* FILE BRUSHES**


For stainless steel



Shape 90HFDW

These wire brushes are also known as watchmakers' or goldsmiths' brushes and feature a large number of wire filaments.

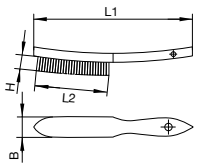
They are particularly well suited to machining stainless steel workpieces and are often used for the application of solvents and cleaning agents.

Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
	90HFDW 34203500	225x20x20x110	E0,15INOX	12	4



PREMIUM* FILE BRUSHES**


For nonferrous metals



Shape 90HFDW

These wire brushes are also known as watchmakers' or goldsmiths' brushes and feature a large number of wire filaments.

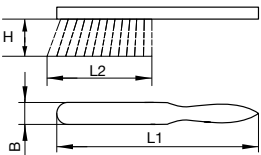
They are particularly well suited to machining nonferrous metals and are often used for the application of solvents and cleaning agents.

Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
	90HFDW 34203498	225x20x20x110	M0,15	12	4



PREMIUM* DUSTER**


For universal use



Shape 90HBDG

Dusters of this quality are ideally suited to the removal of coarse and slightly stubborn dirt. The smooth synthetic fibre filaments can be easily cleaned and so do not contaminate other surfaces.

The bristles do not absorb much water, and are therefore well suited to use in wet environments.

Shape	Type no.	L1xBxHxL2	Specification	PU	Wire sequence
	90HBDG 34203514	320x35x70x175	PP0,4	12	4

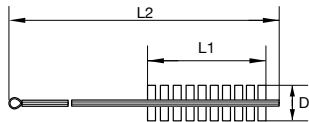


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Brushes

PREMIUM* CYLINDRICAL TUBE BRUSH**

For steel



Shape 18ROODW

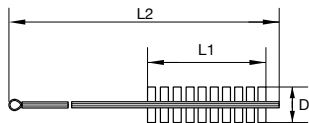
Tube brushes can adapt to the workpiece surface due to their flexibility. For example, the interior cleaning of bore holes and other difficult-to-reach places is no longer an issue.

They are composed of twisted-in galvanised wire and a simple filament spiral for easy handling.

Shape	Type no.	DxL1xL2	Specification	PU	
	18ROODW	34203516	4x100-300	S0,1	10
		34203518	6x100-300	S0,1	10
		34203520	8x100-300	S0,1	10
		34203522	10x100-300	S0,15	10
		34203524	15x100-300	S0,15	10
		34203527	20x100-300	S0,15	10

PREMIUM* CYLINDRICAL TUBE BRUSH**

For nonferrous metals



Shape 18ROODW

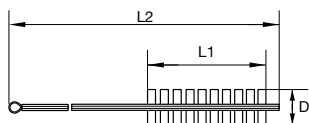
Tube brushes can adapt to the workpiece surface due to their flexibility. For example, the interior cleaning of bore holes and other difficult-to-reach places is no longer an issue. The cylindrical tube brush can be used to machine all types of nonferrous metal.

They are composed of twisted-in galvanised wire and a simple filament spiral for easy handling.

Shape	Type no.	DxL1xL2	Specification	PU	
	18ROODW	34203529	4x100-300	M0,06	10
		34203530	6x100-300	M0,1	10
		34203541	8x100-300	M0,12	10
		34203542	10x100-300	M0,15	10
		34203543	15x100-300	M0,15	10
		34203544	20x100-300	M0,15	10

PREMIUM* CYLINDRICAL TUBE BRUSH**

For universal use




Shape 18ROODG

Used to clean workpieces. Tube brushes can adapt to the workpiece surface due to their flexibility. For example, the interior cleaning of bore holes and other difficult-to-reach places is no longer an issue.

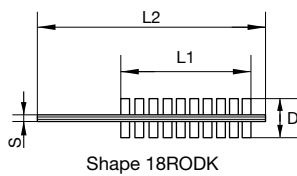
They are composed of twisted-in galvanised wire and a simple filament spiral for easy handling.

Items with grey lettering are only available on request.

Shape	Type no.	DxL1xL2	Specification	PU	
	18ROODG	34203556	4x100-300	PA0,2	10
		34203557	6x100-300	PA0,2	10
		34203571	8x100-300	PA0,2	10
		34203572	10x100-300	PA0,25	10
		34203573	15x100-300	PA0,3	10
		34203575	20x100-300	PA0,3	10


PREMIUM★★★ TUBE BRUSH

For universal use



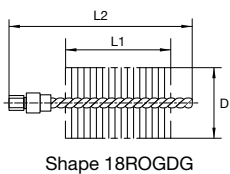
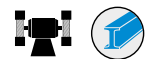
Interior brushes with abrasive grain filaments are especially suited to the deburring of bores or O-ring grooves. The polishing or cleaning of complex workpieces such as nozzles can also be carried out using this tool. Clamping in the drilling machine is only possible under consideration of the max. permissible speed. The wire brush must be clamped at a minimum

of 10 mm and turned clockwise. They are composed of twisted-in galvanised wire for easy handling. The sides of the abrasive bristles are also effective in rounding edges at bore interfaces.

Shape	Type no.	DxL1-SxL2	Specification	PU	
	18RODK	34203595	10x65-3.7x125	C120	10
		34203596	16x65-5.2x125	C120	10
		34203597	20x65-5.7x125	C120	10
		34203598	25x65-5.7x125	C120	10


PREMIUM★★★ TUBE BRUSH WITH EXTERNAL THREAD

For steel



These wire brushes are very popular for numerous applications. Its main tasks include the cleaning of tubes, gratings, sleeves and cylinders. It can also be used for the deburring of horizontal bore holes and regulation of flow velocities in tubing systems.

Thanks to their external thread, these brushes are extremely light and can be fixed to adapters and machines. Please observe the maximum permissible speed.

Shape	Type no.	DxL2-L2 W1/2	Specification	PU	Max. RPM	
	18ROGDG	34203600	20x100-150 W1/2	S0,2	10	2,500
		34203601	25x100-150 W1/2	S0,25	10	2,500
		34203602	30x100-160 W1/2	S0,3	10	1,000
		34203603	40x100-160 W1/2	S0,35	10	1,000
		34203604	44x100-160 W1/2	S0,35	5	1,000
		34203605	50x100-160 W1/2	S0,35	5	1,000
		34203606	63x100-160 W1/2	S0,4	5	1,000
		34203607	75x100-160 W1/2	S0,4	5	1,000
		34203608	101x100-160 W1/2	S0,48	5	1,000

Items with grey lettering are only available on request.



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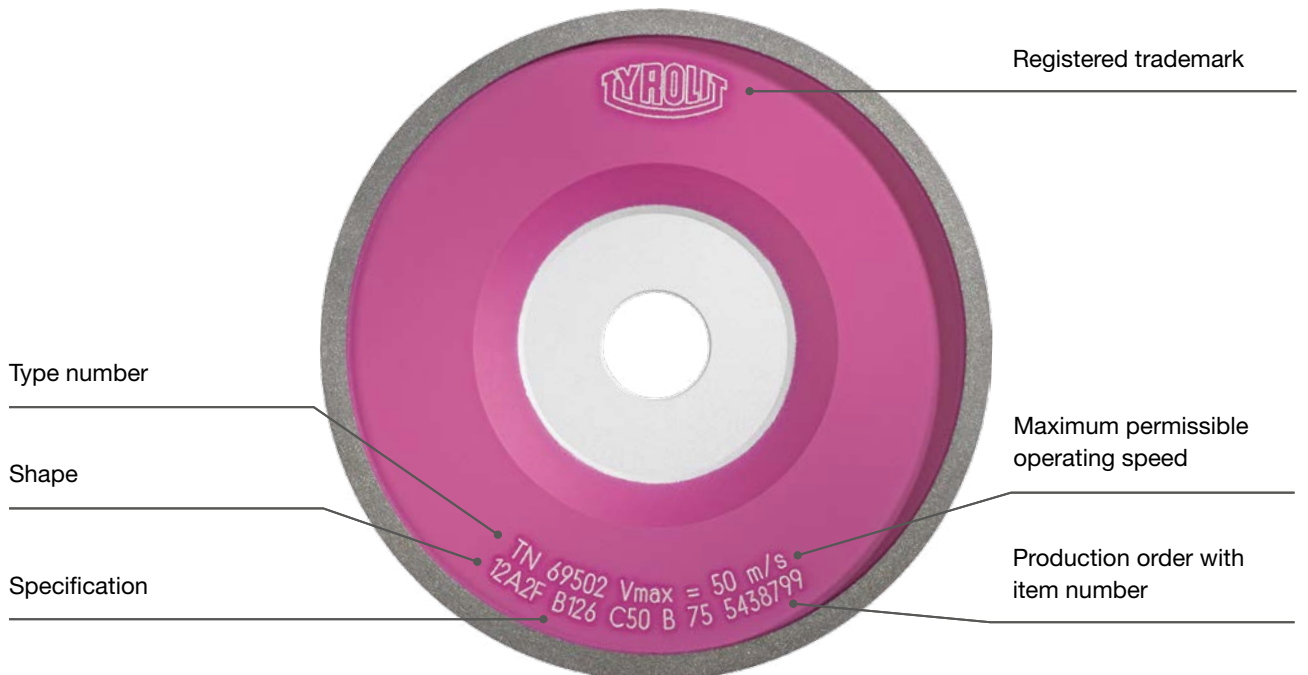
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PRECISION TOOL SPECIFIC INFORMATION PRODUCT LABEL



Precision grinding

PRECISION TOOL SPECIFICATION

CONVENTIONAL CERAMIC

89A60M5V217

					Bond designation Internal code, which defines bond type.
				Bond	
				V	vitriified bonded
				B	resin bonded
				E	elastic bonded
				G	galvanic bonded
				Structure	The higher the number, the more open the wheel
				Hardness	Hardness ascends alphabetically e.g.
				G	soft
				R	hard
				Grit size description	Grit size indication in mesh (sieve size per inch)
				14 – 36	coarse
				46 – 60	medium
				80 – 220	fine
				800 – 1200	very fine

Abrasive description

10A	Regular aluminium oxide
50A	Mixture of 89A and 10A
52A	Semi-friable aluminium oxide
80A	Mixture of 88A and special aluminium oxide
87A	Mixture of 89A and 88A
88A	Pink aluminium oxide
89A	White aluminium oxide
91A	Red aluminium oxide
92A	Mixture of 89A and special aluminium oxide
93A	Mixture of 89A and 91A
97A	Special aluminium oxide
454A	Mixture of sintered aluminium oxide and 89A
455A	Mixture of sintered aluminium oxide and 89A
C	Green silicon carbide
1C	Black silicon carbide
50C	Silicon carbide mixture Green/black

PRECISION TOOL SPECIFICATION

CBN RESIN / DIAMOND

B126C50B54

Bond designation		Internal code, which defines bond type.
Bond		
B	resin bonded	
M	metal bonded	
Concentration		The grain concentration shows the grain volume in carat per unit volume of the grinding layer.
Grit size description		Grit size indication in μm (average grit diameter according to FEPA)
35 – 181 μm		
Abrasive description		
B	CBN	
D	Diamond	

Precision grinding

Pictograms



External-cylindrical grinding



Internal-cylindrical grinding



Surface grinding



Bench grinders



Hand-guided grinding



Tool grinding



Saw sharpening



Dressing and Sharpening

Delivery time

EXPLANATION OF TERMS	DELIVERY TIMES
<p>Stock type:</p> <p>All products in the chapter "Precision grinding" that are listed with type numbers are in stock.</p>	
<p>Recommended stock type:</p> <p>A standard range created by a collaboration between our application engineers and marketing managers, which guarantees optimum grinding results for various grinding applications and the materials to be processed.</p>	<p>Delivery 7 to 10 working days.</p>
<p>Alternative stock type:</p> <p>Existing stock products, which – based on our global market and product experience – also guarantee good grinding results, but which are replaced in the short to medium term by recommended stock types.</p>	
<p>Breadth of product range:</p> <p>Precision is our business! However, if the specifications available in stock do not provide you with the perfect solution, modifications to the recommended product range (dimensions) can also be made, i.e. grit size, hardness and structure.</p>	<p>The corresponding delivery times can be found in the relevant chapters, or in our quote or order confirmation documentation.</p>

Precision grinding

Example for breadth of product range

C	60	H	5	Stock type	→	Recommended standard specification
C	46-180	F-I	5-8	5 - 6 weeks DT	→	Possible range of modifications for grit sizes, hardness and structure
C	80	F	8		→	Example of a possible modification

Modification on request

To ensure quicker delivery times in urgent cases, existing stock types (recommended stock types) can be modified to suit customer requirements. The current delivery time and price will be provided according to the enquiry.



Precision data sheet			Recorded by: on:	
Customer	ATDB no.		Country:	
	Target group:		Product family:	
	Item requirements:			
	Customer: *		Classification:	
	Department:		Customer no.	
	Contact:		Tel. / fax	
Customer	Shape: *		1 set = item.:	
	Dimensions (mm): *			
	Dimensions (mm):		Tolerance:	
	Specifications:			
	Manufacturer:		Current price:	
	Vs max. (m/s) *		Order quantity:	
Customer	Grinding process:			
	Machine manufacturer:			
	Vs (m/s):			
	Coolant / lubricant:			
	Dressing tool:			
	Dressing cycle:		Dressing amount:	
Workpiece	Workpiece: *		Dimensions (mm): *	
	Material group: *		Stock (mm):	
	Condition: *		Hardness: *	
Aim	Surface roughness:		Contact time:	
	Lifetime:			
	Addition:			
Probe	Specification:			
	Specification:			
	Specification:			
Info			Drawing:	
Distributor:				

* COMPULSORY fields are marked in grey

Precision grinding



4.1 EXTERNAL CYLINDRICAL GRINDING EXTERNAL CYLINDRICAL GRINDING TOOLS



EXTERNAL CYLINDRICAL GRINDING

External cylindrical grinding is one of the most frequently used grinding processes, for example, in the automotive industry. In keeping with the requirements of our customers, we always offer the right tool.

The high-precision external cylindrical grinding tools from TYROLIT underlie an optimal quality assurance system and are produced using the most modern manufacturing technology and production facilities. We are therefore always able to comply with the requirements of our customers.

The decisive factor in the selection of the right product is the adaptation of the grinding wheel in the overall process to the specific requirements of the grinding application. Workpiece, tool, machine, parameters, cooling lubricant and the applied dressing technology contribute to the perfect

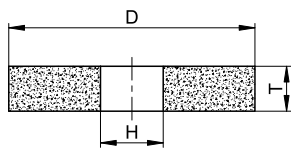
grinding result. The choice of the correct specification, as well as adaptation of the process parameters, can be optimised by TYROLIT to suit customer requirements.

Application recommendation

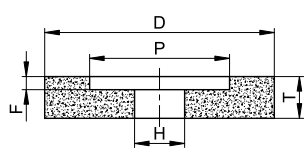


Specifica- tion	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
89A	186, 187			●	●	●	●				●		●
97A, 454A	187, 188			●		●	●	●					●
C	189					●	●	●	●		●		●
B	190			●		●	●	●					●
D	191								●	●			●

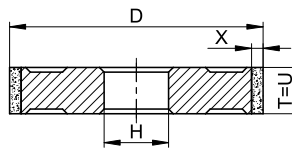
Shapes



Shape 1



Shape 5

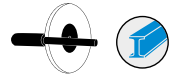


Shape 1A1

● Extremely suitable ● Limited suitability

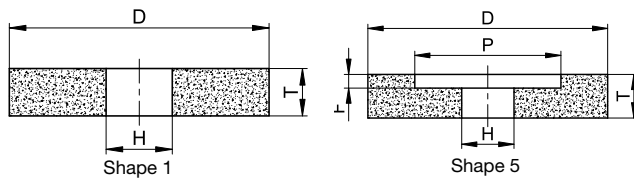
EXTERNAL CYLINDRICAL GRINDING CONVENTIONAL CERAMIC

For non and low-alloyed steels



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A			●	●	●	●				●		●

Recommended stock type



In many industries, external cylindrical grinding is one of the most frequently used grinding processes. In the automotive industry, for example, camshafts, crankshafts and gear shafts designed to meet the most stringent demands and requirements are produced. Use of aluminium oxide especially for non and low-alloyed steels.

The grade and structure of the wheel affect the grinding result and are tailored perfectly to use on non and low-alloyed steels. Our assortment also includes wheels for angled flute grinding.

	Type no.	DxTxH	PxF	Specification	Vmax m/s	Comments		
	1	690785	300x40x76.2	89A 802 J5A V217 50	50			
		889228	400x20x127		89A 802 J5A V217 50	50		
		881114	400x25x127		89A 802 J5A V217 50	50		
		39869	400x30x127		89A 802 J5A V217 50	50		
		620118	400x40x127		89A 802 J5A V217 50	50		
		71665	400x50x127		89A 802 J5A V217 50	50		
		70954	400x60x127		89A 802 J5A V217 50	50	Grit size 80 Ra approx. 0.20- 0.35 µm	
		655864	400x80x127		89A 802 J5A V217 50	50		
		713537	500x40x203.2		89A 802 J5A V217 50	50		
		655869	500x50x203.2		89A 802 J5A V217 50	50		
		39867	500x60x203.2		89A 802 J5A V217 50	50		
		655875	500x80x203.2		89A 802 J5A V217 50	50		
		655876	600x80x305		89A 802 J5A V217 50	50		
			119385	400x40x127		89A 120 K11 V3 50	50	Universal/angled flute grinding
			119392	500x50x203.2		89A 120 K11 V3 50	50	
			5	34172112	400x80x127	200x30	89A 802 J5A V217 50	50
34172113	400x60x127			200x10	89A 802 J5A V217 50	50		

Breadth of product range

89A	80	J	5	Stock type
89A	46 - 120	I-K	5-8	5 - 6 weeks DT

* For production reasons, the minimum quantity ordered may differ from non-stock types.



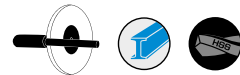


Alternative stock type

	Type no.	DxTxH	Specification	Vperm. m/s	Comments
1	44866	300x25x127	89A 602 K5A V217 50	50	Grit size 60 Ra approx. 0.35 - 0.50 µm
	66141	300x40x127	89A 602 K5A V217 50	50	
	690784	300x40x76.2	89A 602 K5A V217 50	50	
	34172115	300x30x127	89A 602 K5A V217 50	50	
	42216	350x40x127	89A 602 K5A V217 50	50	
	293034	356x50x127	89A 46 J6A V217 50	50	
	485430	356x50x127	89A 60 K5A V217 50	50	
	170606	350x32x127	89A 602 K5A V217 50	50	
	25473	400x40x127	89A 602 K5A V217 50	50	
	170608	400x32x127	89A 602 K5A V217 50	50	
	523430	450x50x203.2	89A 601 K5A V217 50	50	
	523437	450x25x203.2	89A 601 K5A V217 50	50	
	202294	500x60x203.2	89A 602 K5A V217 50	50	
	523435	610x50x304.8	89A 601 K5A V217 50	50	

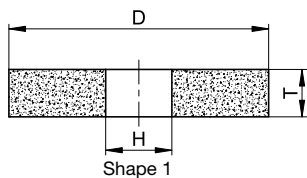
**EXTERNAL CYLINDRICAL GRINDING
CONVENTIONAL CERAMIC**

For high-alloyed steels and HSS



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
97A, 454A			●		●	●	●					●

Recommended stock type



With this wheel we guarantee a tailored selection of high-performance aluminium oxides together with special bond systems. This ensures universal use on all high-alloyed steels and HSS.
With a sintered aluminium oxide mixture, for example



454A, it is possible to achieve the maximum stock removal rate for vitrified bonded grinding wheels. Improved performance can be achieved by resin-bonded CBN tools, such as the VIB STAR.

	Type no.	DxTxH	Specification	Vperm. m/s	Comments
	1	664561	400x20x127	454A 802 J10 V3 50	50
		655916	400x25x127	454A 802 J10 V3 50	50
		655918	400x30x127	454A 802 J10 V3 50	50
		655919	400x40x127	454A 802 J10 V3 50	50
		216066	400x50x127	454A 802 J10 V3 50	50

Grit size 80
Ra approx. 0.20 - 0.35 µm





	Type no.	DxTxH	Specification	Vperm. m/s	Comments	
	1	655921	400x60x127	454A 802 J10 V3 50	50	
		655927	500x40x203.2	454A 802 J10 V3 50	50	
		655929	500x50x203.2	454A 802 J10 V3 50	50	
		216068	500x60x203.2	454A 802 J10 V3 50	50	
		655935	500x80x203.2	454A 802 J10 V3 50	50	
		655938	600x80x305	454A 802 J10 V3 50	50	
		664564	400x20x127	97A 802 J5A V237 50	50	
		664571	400x25x127	97A 802 J5A V237 50	50	
		664573	400x30x127	97A 802 J5A V237 50	50	
		664575	400x40x127	97A 802 J5A V237 50	50	
		664578	400x50x127	97A 802 J5A V237 50	50	
		664583	500x40x203.2	97A 802 J5A V237 50	50	
		664585	500x50x203.2	97A 802 J5A V237 50	50	
		664587	500x60x203.2	97A 802 J5A V237 50	50	
		664588	500x80x203.2	97A 802 J5A V237 50	50	
						Grit size 80 Ra approx. 0.20 - 0.35 μm

Breadth of product range

454A	80	J	10	Stock type	97A	80	J	5	Stock type
454A	80-120	I-K	6-10	5 - 6 weeks DT	97A	46-120	I-K	5-8	5 - 6 weeks DT

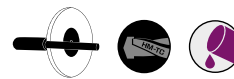
* For production reasons, the minimum quantity ordered may differ from non-stock types.

Alternative stock type

	Type no.	DxTxH	Specification	Vperm. m/s
20	36576	400/220x50/5x127	454A 701 J5 V3 50	50
	290670	400/220x40/5x127	89A 60 K5A V217 50	50
1	690233	400x40x127	92A 602 I5A V217 50	50
	293789	500x50x203.2	92A 60 I5A V217 50	50
	494259	250x13x76.2	454A 601 L7G V3 50	50
	494271	355x25x127	454A 601 L7G V3 50	50

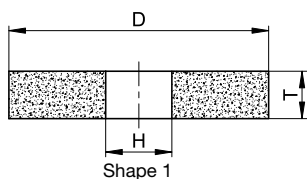
EXTERNAL CYLINDRICAL GRINDING CONVENTIONAL CERAMIC

For tungsten carbide and grey cast iron




C	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							

Recommended stock type



This silicon carbide wheel is a cost-effective variant for machining tungsten carbide for secondary applications. It is primarily used for working on castings and nonferrous metals.

This wheel is a good alternative for working on nitrified workpieces and wear-resistant thermal sprayed alloys in particular. Profiling is possible using Standard diamond dressing tools.

	Type no.	DxTxH	Specification	Vperm. m/s	
	1	655957	400x40x127	C 60 H5A V18 50	50
		655958	400x50x127	C 60 H5A V18 50	50
		656023	400x40x127	C 100 H5A V18 50	50
		656025	400x50x127	C 100 H5A V18 50	50

Breadth of product range

C	60/100	H	5	Stock type
C	60-120	H-J	5-8	5 - 6 weeks DT

* For production reasons, the minimum quantity ordered may differ from non-stock types.

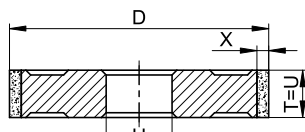
VIB STAR EXTERNAL CYLINDRICAL GRINDING WITH CBN RESIN

For high-alloyed steels and HSS



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
B			●		●	●	●					●

Recommended stock type



Shape 1A1

The VIB STAR external grinding wheel is made with a vibration-reducing core. This enables a consistent and quiet grinding process. A constant self-sharpening effect also guarantees consistent power consumption and therefore high economic efficiency of the tool.

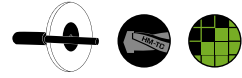
Low wear results in a high level of dimensional accuracy on the workpiece, thereby reducing dimensional inspections to a minimum.

	Type no.	DxTxH	U-X	Specification	Vperm. m/s	
	1A1	914301	200x15x51	15-3	51B 126 C50 B VIB-STAR	63
		485142	250x15x51	15-3	51B 126 C50 B VIB-STAR	63
		394560	300x20x76.2	20-5	51B 126 C50 B VIB-STAR	63
		877158	300x20x76.2	20-3	51B 126 C50 B VIB-STAR	63
		885972	300x20x127	20-3	51B 126 C50 B VIB-STAR	63
		365327	350x20x127	20-5	51B 126 C50 B VIB-STAR	63
		366816	350x20x127	20-3	51B 126 C50 B VIB-STAR	63
		874510	350x20x127	20-3	51B 126 C75 B VIB-STAR	63
		473086	400x30x127	30-3	51B 126 C50 B VIB-STAR	63
		508495	400x20x127	20-5	51B 126 C50 B VIB-STAR	63
		872688	400x20x127	20-3	51B 126 C50 B VIB-STAR	63

* Please find information on dressing and sharpening from page 302.

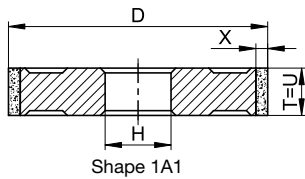
VIB STAR EXTERNAL CYLINDRICAL GRINDING WITH DIAMOND RESIN

For tungsten carbide and industrial ceramics



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
D								●	●			●

Recommended stock type



The resin-bonded diamond wheel with VIB STAR core is a particularly cost-effective solution for machining tungsten carbide. Low wear and a high level of dimensional accuracy are achieved by a constant self-sharpening effect.

A high stock removal rate due to synthetic diamonds in resinoid bonds provides a significant advantage over less expensive silicon carbide wheels.

	Type no.	DxTxH	U-X	Specification	Vperm. m/s	
	1A1	914284	200x10x51	10-3	11D 126 C75 B VIB-STAR	63
		872702	250x15x51	15-3	11D 126 C75 B VIB-STAR	63
		897485	300x20x76.2	20-3	11D 126 C75 B VIB-STAR	63
		907436	300x15x127	15-3	11D 126 C75 B VIB-STAR	63
		914288	300x20x127	20-3	11D 126 C75 B VIB-STAR	63
		924298	350x20x127	20-3	11D 126 C75 B VIB-STAR	63
		914293	400x20x127	20-3	11D 126 C75 B VIB-STAR	63

* Please find information on dressing and sharpening from page 302.





**4.2 RECIPROCATING SURFACE
GRINDING** RECIPROCATING SURFACE
GRINDING TOOL



RECIPROCATING SURFACE GRINDING

Reciprocating surface grinding is the most frequently used surface grinding process. Here, a high stock removal rate with an adequate surface finish is required. Due to the relatively large contact area between the grinding wheel and the workpiece, a special grinding wheel composition is necessary

The high-precision reciprocating surface grinding tools from TYROLIT underlie an optimal quality assurance system and are produced using the most modern manufacturing technology and production facilities. We are therefore always able to comply with

the requirements of our customers. The decisive factor in the selection of the right product is the adaptation of the grinding wheel in the overall process to the specific requirements of the grinding application. Workpiece, tool, machine, parameters, cooling

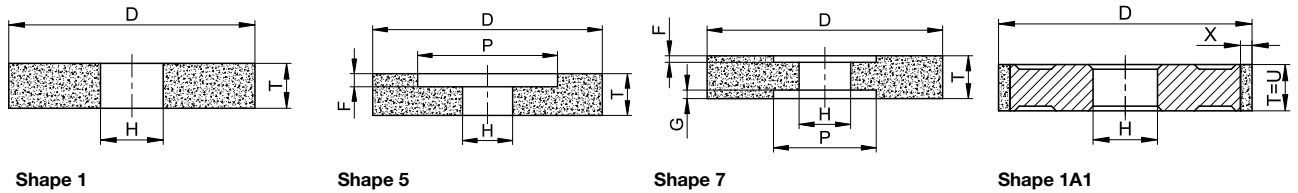
lubricant and the applied dressing technology contribute to the perfect grinding result. The choice of the correct specification, as well as adaptation of the process parameters, can be optimised by TYROLIT to suit customer requirements.

Application recommendation



Specification	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
89A	194, 195, 196, 197, 200		●	●	●	●	●						●
93A	195, 196, 197			●		●	●						●
F13A	195, 196			●	●	●	●						●
454A, 97A	198, 199, 200, 201,			●		●	●	●					●
80A	202		●	●	●	●		●					●
454A	202				●	●	●	●					●
C	203	●				●	●	●	●	●	●		●
B	208			●		●	●	●					●
D	209								●	●			●

Shapes



● Extremely suitable ● Limited suitability

Precision grinding

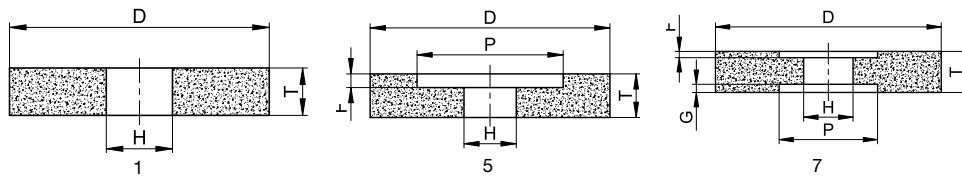
RECIPROCATING SURFACE GRINDING CONVENTIONAL CERAMIC

For non and low-alloyed steels



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A		●	●	●	●	●						●
93A			●		●	●						●
F13A			●	●	●	●						●

Recommended stock type








Reciprocating grinding wheels are primarily used for rough and fine grinding in machine construction and mould making. The aim is to achieve even and straight workpiece surfaces. Using highly porous grinding wheels and special aluminium oxides leads to an optimum surface result and a high stock removal rate.

Exceptional grinding results are achieved thanks to grade and structure specifications tailored to non and low-alloyed steels.

	Type no.	DxTxH	PxF	Specification	Comments	
	1	566308	205x13x31.75	89A 46 I8A V217	For rough grinding operations	
		498701	225x25x51	89A 46 I8A V217		
		331692	250x25x76.2	89A 46 I8A V217		
		351901	300x30x76.2	89A 46 I8A V217		
		936929	300x50x127	89A 46 I8A V217		
		56484	350x50x127	89A 46 I8A V217		
		215986	350x40x127	89A 46 I8A V217		
		302416	355x50x127	89A 46 I8A V217		
		64598	400x50x127	89A 46 I8A V217		
		140088	400x60x127	89A 46 I8A V217		
		295600	400x80x127	89A 46 I8A V217		
		803992	400x40x127	89A 46 I8A V217		
		664544	205x13x31.75	89A 802 J8A V217		For finer surface finishes
		664545	225x25x51	89A 802 J8A V217		
		664546	250x25x51	89A 802 J8A V217		
664548	250x25x76.2	89A 802 J8A V217				
664549	300x30x76.2	89A 802 J8A V217				
664552	300x50x76.2	89A 802 J8A V217				
666533	350x40x127	89A 802 J8A V217				
664558	350x50x127	89A 802 J8A V217				







Precision grinding

	Type no.	DxTxH	PxF	Specification	Comments	
	1	666529	400x60x127	89A 802 J8A V217	For finer surface finishes	
		666530	400x40x127	89A 802 J8A V217		
		666532	400x50x127	89A 802 J8A V217		
	1	441403	200x20x51	F13A 46 HH11 V	For rough grinding operations	
		441401	225x25x51	F13A 46 HH11 V		
		441399	250x25x51	F13A 46 HH11 V		
		469827	250x25x76.2	F13A 46 HH11 V		
		365997	300x30x76.2	F13A 46 HH11 V		
		665267	300x50x76.2	F13A 46 HH11 V		
		665269	300x50x127	F13A 46 HH11 V		
		665282	350x40x127	F13A 46 HH11 V		
		665294	350x50x127	F13A 46 HH11 V		
		665295	400x40x127	F13A 46 HH11 V		
	1	664563	225x25x51	93A 46 H8A V217		
		664566	250x25x76.2	93A 46 H8A V217		
		498402	250x25x51	93A 46 H8A V217		
		849597	300x30x76.2	93A 46 H8A V217		
		524016	350x40x127	93A 46 H8A V217		
		357751	355x50x127	93A 46 H8A V217		
		793338	400x60x127	93A 46 H8A V217		
		117241	400x50x127	93A 46 H8A V217		
	5	260141	300x50x76.2	155x10	89A 46 I8A V217	For rough grinding operations
		467466	350x50x127	200x10	89A 46 I8A V217	
		548613	400x50x127	200x10	89A 46 I8A V217	
		664574	300x50x127	190x10	89A 46 I8A V217	For finer surface finishes
		664584	300x50x76.2	155x10	89A 802 J8A V217	
		664626	300x50x127	190x10	89A 802 J8A V217	
		664632	400x60x127	200x10	89A 802 J8A V217	
	5	664478	300x50x76.2	155x10	F13A 46 HH11 V	For rough grinding operations
		593712	400x50x127	200x10	F13A 46 HH11 V	
		665297	350x50x127	200x10	F13A 46 HH11 V	

Precision grinding



Recommended stock type

	Type no.	DxTxH	PxF	Specification	Comments
	5	664642	300x50x127	190x10	93A 46 H8A V217
		231513	350x50x127	200x10	93A 46 H8A V217
		557153	400x50x127	200x10	93A 46 H8A V217
		664643	400x60x127	200x10	93A 46 H8A V217
					For rough grinding operations
	Type no.	DxTxH	PxF/G	Specification	Comments
	7	665281	300x50x76.2	155x10/10	89A 46 I8A V217
		665287	350x50x127	200x10/10	89A 46 I8A V217
		664646	400x80x127	190x15/15	89A 46 I8A V217
		664647	400x100x127	200x20/30	89A 46 I8A V217
		664645	400x60x127	200x10/10	89A 46 I8A V217 50
		664648	300x50x76.2	155x10/10	89A 802 J8A V217
		664656	400x80x127	190x15/15	89A 802 J8A V217
					For rough grinding operations
					For finer surface finishes
	Type no.	DxTxH	PxF/G	Specification	Comments
	7	664506	300x50x76.2	155x10/10	F13A 46 HH11 V
		665285	350x50x127	200x10/10	F13A 46 HH11 V
		665278	400x80x127	190x15/15	F13A 46 HH11 V
					For rough grinding operations
	Type no.	DxTxH	PxF/G	Specification	Comments
	7	109336	300x50x76.2	155x10/10	93A 46 H8A V217
		664657	400x60x127	200x10/10	93A 46 H8A V217
		664658	400x80x127	190x15/15	93A 46 H8A V217

Breadth of product rang

89A	46	I	8	Stock type	89	80	J	8	Stock type
89A	46-100	H-J	5-9	5 - 6 weeks DT	89A	46-100	H-J	5-9	5 - 6 weeks DT
93A	46	H	8	Stock type	F13A	46	HH	11	Stock type
93A	46-100	H-J	5-9	5 - 6 weeks DT	F13A	46-120	FF-HH	11-12	5 - 6 weeks DT
89A	46	I	8	Stock type	89A	80	J	8	Stock type
89A	46-60	H-J	5-9	5 - 6 weeks DT	89A	70-100	H-J	5-9	5 - 6 weeks DT

* For production reasons, the minimum quantity ordered may differ from non-stock types.



Precision grinding



Alternative stock type

	Type no.	DxTxH	PxF	Specification
1	45701	300x30x76.2		87A 36 J7A V217
	96235	350x40x127		87A 36 J7A V217
	12950	400x50x127		87A 36 J7A V217
	33502	250x40x76.2		88A 46 J7A V217
	61571	350x50x127		88A 46 J7 V217
	32963	125x10x25		89A 46 I7 V217
	32965	150x13x32		89A 60 J7 V217
	228819	250x40x76.2		89A 46 J7A V217
	850504	180x13x31.75		89A 60 K5A V217
5	235262	350x50x127	190x10	87A 36 J8A V217
	235264	400x50x127	200x10	87A 36 J8A V217
	123064	400x50x127	200x10	89A 461 I8A V237 P22
	369514	350x50x127	190x10	89A 461 I8A V237 P22
	658122	400x50x127	190x10	93A 46 I8A V217

Alternative stock type

	Type no.	DxTxH	PxF/G	Specification
7	8749	300x50x76.2	155x10/10	50A 36 J8A V217
	265130	300x50x76.2	154x11/18	88A 36 J7 V217
	641286	300x50x76.2	155x10/10	89A 601 I10A V217
	493780	400x63x127	200x10/10	89A 461 I10A V237
	67472	400x100x127	200x20/35	89A 46 H8A V217
	122991	400x75x127	200x10/20	89A 46 H8A V227
	235260	400x75x127	200x10/20	89A 461 I8A V237 P22
	63824	400x100x152.4	220x15/15	89A 461 I8A V237 P22
	235261	400x75x127	200x10/20	93A 46 I8A V217

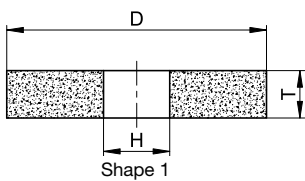
RECIPROCATING SURFACE GRINDING CONVENTIONAL CERAMIC

For high-alloyed steels and HSS



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
454A, 97A			●		●	●	●					●

Recommended stock type



This reciprocating grinding wheel can be used universally on all high-alloyed steels and HSS. This is achieved by using special aluminium oxides and mixtures with sintered aluminium oxides combined with special bond systems.


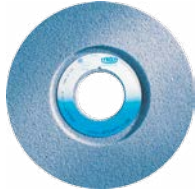

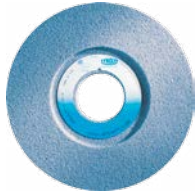

Maximum stock removal rates can be achieved with sintered aluminium oxide mixtures such as 454A. The next highest quality line is the resin-bonded VIB STAR CBN wheel from TYROLIT.

	Type no.	DxTxH	PxF	Specification
	1	34074250	200x13x32	454A 601 J10 V3
		306283	200x20x32	454A 601 J10 V3
		34074562	200x20x51	454A 601 J10 V3
		162057	200x25x76.2	454A 601 J10 V3
		664623	205x13x31.75	454A 602 J10 V3
		487597	225x20x51	454A 601 J10 V3
		664383	225x25x51	454A 602 J10 V3
		664384	250x25x51	454A 602 J10 V3
		664389	250x25x76.2	454A 602 J10 V3
		664390	300x30x76.2	454A 602 J10 V3
		664393	300x50x127	454A 602 J10 V3
		664391	300x50x76.2	454A 602 J10 V3
		494874	350x40x127	454A 602 J10 V3
		664394	350x50x127	454A 602 J10 V3
		664396	400x40x127	454A 602 J10 V3
		664397	400x50x127	454A 602 J10 V3
333396	400x60x127	454A 602 J10 V3		
664398	400x80x127	454A 602 J10 V3		
	1	85536	250x25x51	97A 462 H8A V237
		441342	200x20x51	97A 462 H8A V237
		664401	205x13x31.75	97A 462 H8A V237
		664405	205x13x31.75	97A 801 H8A V237
		228481	225x25x51	97A 462 H8A V237
		664406	225x25x51	97A 801 H8A V237
		664407	250x25x51	97A 801 H8A V237
		248826	250x25x76.2	97A 462 H8A V237



Precision grinding



	Type no.	DxTxH	PxF	Specification	
	1	664409	250x25x76.2	97A 801 H8A V237	
		664402	300x30x76.2	97A 462 H8A V237	
		664410	300x30x76.2	97A 801 H8A V237	
		441348	300x50x127	97A 462 H8A V237	
		664412	300x50x127	97A 801 H8A V237	
		635305	300x50x76.2	97A 462 H8A V237	
		311791	300x50x76.2	97A 801 H8A V237	
		441350	350x40x127	97A 462 H8A V237	
		664419	350x40x127	97A 801 H8A V237	
		441351	350x50x127	97A 462 H8A V237	
		664420	350x50x127	97A 801 H8A V237	
		524159	400x40x127	97A 462 H8A V237	
		664423	400x40x127	97A 801 H8A V237	
		630054	400x50x127	97A 462 H8A V237	
		664426	400x50x127	97A 801 H8A V237	
		476380	400x80x127	97A 462 H8A V237	
	5	664451	300x50x127	190x10	454A 602 J10 V3
		664452	350x50x127	200x10	454A 602 J10 V3
		664453	400x50x127	200x10	454A 602 J10 V3
		664455	400x60x127	200x10	454A 602 J10 V3
	5	664459	300x50x127	190x10	97A 462 H8A V237
		664456	300x50x76.2	155x10	97A 462 H8A V237
		664465	300x50x76.2	155x10	97A 801 H8A V237
		441352	350x50x127	200x10	97A 462 H8A V237
		664474	350x50x127	200x10	97A 801 H8A V237
		593711	400x50x127	200x10	97A 462 H8A V237
		664476	400x50x127	200x10	97A 801 H8A V237
		664463	400x60x127	200x10	97A 462 H8A V237
		664477	400x60x127	200x10	97A 801 H8A V237
 	7	664485	300x50x76.2	155x10/10	454A 602 J10 V3
		664490	400x60x127	200x10/10	454A 602 J10 V3
		664493	400x80x127	190x15/15	454A 602 J10 V3
		359403	300x50x76.2	155x10/10	97A 462 H8A V237
		664498	300x50x76.2	155x10/10	97A 801 H8A V237
		566387	350x50x127	200x10/10	97A 462 H8A V237
		512393	400x80x127	190x15/15	97A 462 H8A V237
		664497	400x60x127	200x10/10	97A 462 H8A V237
		664504	400x80x127	190x15/15	97A 801 H8A V237





Breadth of product range

454A	60	J	10	Stock type	97A	46	H	8	Stock type
454A	46-80	I-K	8-11	5 - 6 weeks DT	97A	46-100	H-J	5-9	5 - 6 weeks DT

97A	80	H	8	Stock type
97A	46-100	H-J	5-9	5 - 6 weeks DT

* For production reasons, the minimum quantity ordered may differ from non-stock types.

Alternative stock type

	Type no.	DxTxH	PxF	Specification
1	305234	180x13x32		454A 120 I5 V3
	34074549	180x13x32		454A 601 J10 V3
	34074261	180x16x32		454A 601 J10 V3
	34074262	180x20x32		454A 601 J10 V3
	180994	200x10x51		454A 601 L5 V3
	494254	200x20x31.75		454A 601 L7G V3
	305260	200x20x32		454A 461 L7G V3
	294602	200x20x51		454A 462 J10 V3
	34162515	200x20x51		454A 462 K12 V3 P2 40
	30271	250x25x76		454A 601 L5 V3 40
	311922	250x25x76		454A 462 J10 V3
	34162514	250x25x76		454A 462 K12 V3 P2 40
	34062640	250x25x76.2		454A 601 K10 V3
	212627	250x25x76.2		454A 601 L7G V3
	305269	300x32x127		454A 462 H5 V3
	305279	350x40x127		454A 462 H5 V3
	305281	350x50x127		454A 462 H5 V3
	305285	400x50x127		454A 462 H5 V3
	314990	180x13x32		89A 60 I7A V237
	344194	180x16x32		89A 46 I7A V237
	344195	180x20x32		89A 46 I7A V237
	307001	400x50x127		89A 461 H8A V237 P25
	361668	500x80x203.2		89A 54 H10A V2
	749042	180x16x32		92A 602 H23 V237 W4 32
	749043	200x20x32		92A 602 H23 V237 W4
	713071	250x25x76.2		97A 462 H8A V217



Precision grinding



	Type no.	DxTxH	PxF	Specification	
1	590725	300x50x127		92A 462 H23 V237 W2	
	577274	300x50x76.2		92A 462 H8A V217	
	359223	350x50x127		92A 462 H8A V217	
	57038	350x50x127		97A 462 I8A V217	
	259325	400x50x127		92A 462 H8A V217	
	733646	400x50x127		97A 462 H8A V217	
	554635	400x50x127		97A 462 J9A V217 P3	
5	494274	180x25x31.75	105x12	454A 601 L7G V3	
	197044	350x50x127	200x10	454A 541 J10 V3 P23	
	293802	400x50x127	190x10	454A 462 J10 V3	
	36579	400x50x127	200x10	454A 601 J10 V3	
	657669	400x50x127	190x10	92A 462 H8A V217	
	280358	300x50x127	190x10	F16A 60 HH11 V	
	12696	350x50x127	190x10	F16A 60 HH12 V	
	110964	350x50x127	190x10	F18A 80 GG11 V	
	12695	400x50x127	200x10	F16A 60 HH12 V	
	92284	400x50x127	200x10	F18A 80 GG11 V	
		Type no.	DxTxH	PxF/G	Specification
	7	176979	300x50x76.2	160x10/10	454A 461 K8 V3
		293865	300x50x76.2	155x10/10	454A 462 J10 V3
232678		400x75x127	215x10/20	454A 541 K13 V3 P23	
657667		300x50x76.2	155x10/10	92A 462 H8A V217	
293867		300x50x76.2	155x10/10	F18A 46 HH12 V	
232665		400x100x152.4	220x15/10	F18A 70 GG11 V	
94720		400x75x127	200x10/20	F16A 60 HH12 V	
114648		450x76x203.2	280x10/20	F16A 60 HH12 V 45 A	

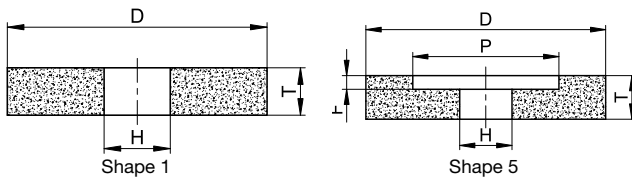
**RECIPROCATING SURFACE GRINDING
CONVENTIONAL CERAMIC**

For stainless steel



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
80A		●	●	●	●		●					●
454A				●	●	●	●					●

Recommended stock type



Special aluminium oxide and sintered aluminium oxide mixtures are a cost-effective solution for the reciprocating surface grinding of stainless steel/Inox. They offer cool grinding and excellent cutting ability thanks to a special grain shape. A variety of shapes and dimensions mean they can cover the majority of applications.

	Type no.	DxTxH	PxF/G	Specification
	1	664383	225x25x51	454A 602 J10 V3
		664384	250x25x51	454A 602 J10 V3
		664397	400x50x127	454A 602 J10 V3
	1	27420	400x50x127	80A 54 I9A V217 P23
	5	664447	300x50x76.2	454A 602 J10 V3
		36579	400x50x127	454A 601 J10 V3
		657665	400x50x127	80A 54 I9A V217 P23
	7	10845	300x50x76.2	80A 54 I9A V217 P23

Precision grinding

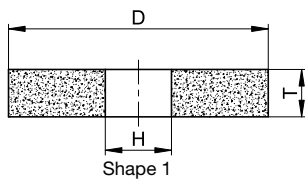
**RECIPROCATING SURFACE GRINDING
CONVENTIONAL CERAMIC**

For tungsten carbide and cast iron




Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C		●			●	●	●	●	●	●		●

Recommended stock type



The silicon carbide wheel is a cost-effective variant for machining tungsten carbide for secondary applications. It really comes into its own when machining castings and nonferrous metals.

This silicon carbide wheel is a good alternative for working on nitrified workpieces with simple profiles or wear-resistant thermal sprayed alloys, as it can be profiled with Standard diamond dressing tools.

	Type no.	DxTxH	PxF	Specification	Vperm. m/s
	1	664530	300x40x127	C 801 H8A V18 50	50
		664531	300x50x127	C 801 H8A V18 50	50
		664535	400x40x127	C 801 H8A V18 50 A	50
		664536	400x50x127	C 801 H8A V18 50 A	50

Breadth of product range

C	80	H	8	Lagerartikel
C	46-180	F-I	5-8	5-6 Wochen LZ

* For production reasons, the minimum quantity ordered may differ from non-stock types.

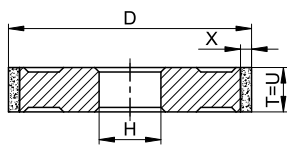
VIB STAR RECIPROCATING SURFACE GRINDING CBN RESIN

For high-alloyed steels and HSS



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
B			●		●	●	●					●

Recommended stock type



Shape 1A1

The VIB STAR reciprocating grinding wheel is equipped with a vibration-reducing core that ensures a consistent and quiet grinding process. The constant self-sharpening effect guarantees consistent power consumption and therefore high economic efficiency.

Low wear results in a high level of dimensional accuracy on the workpiece, thereby reducing dimensional inspections to a minimum.

	Type no.	DxTxH	PxF	Specification	Vperm. m/s	
	1A1	914301	200x15x51	15-3	51B 126 C50 B VIB-STAR	63
		485142	250x15x51	15-3	51B 126 C50 B VIB-STAR	63
		885972	300x20x127	20-3	51B 126 C50 B VIB-STAR	63
		394560	300x20x76.2	20-5	51B 126 C50 B VIB-STAR	63
		877158	300x20x76.2	20-3	51B 126 C50 B VIB-STAR	63
		365327	350x20x127	20-5	51B 126 C50 B VIB-STAR	63
		366816	350x20x127	20-3	51B 126 C50 B VIB-STAR	63
		874510	350x20x127	20-3	51B 126 C75 B VIB-STAR	63
		508495	400x20x127	20-5	51B 126 C50 B VIB-STAR	63
		872688	400x20x127	20-3	51B 126 C50 B VIB-STAR	63
		473086	400x30x127	30-3	51B 126 C50 B VIB-STAR	63

* Please find information on dressing and sharpening from page 302.

Precision grinding

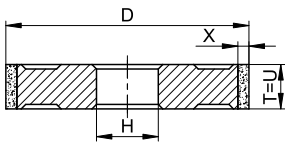
VIB STAR RECIPROCATING SURFACE GRINDING DIAMOND RESIN

For tungsten carbide and industrial ceramics



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
D								●	●			●

Recommended stock type



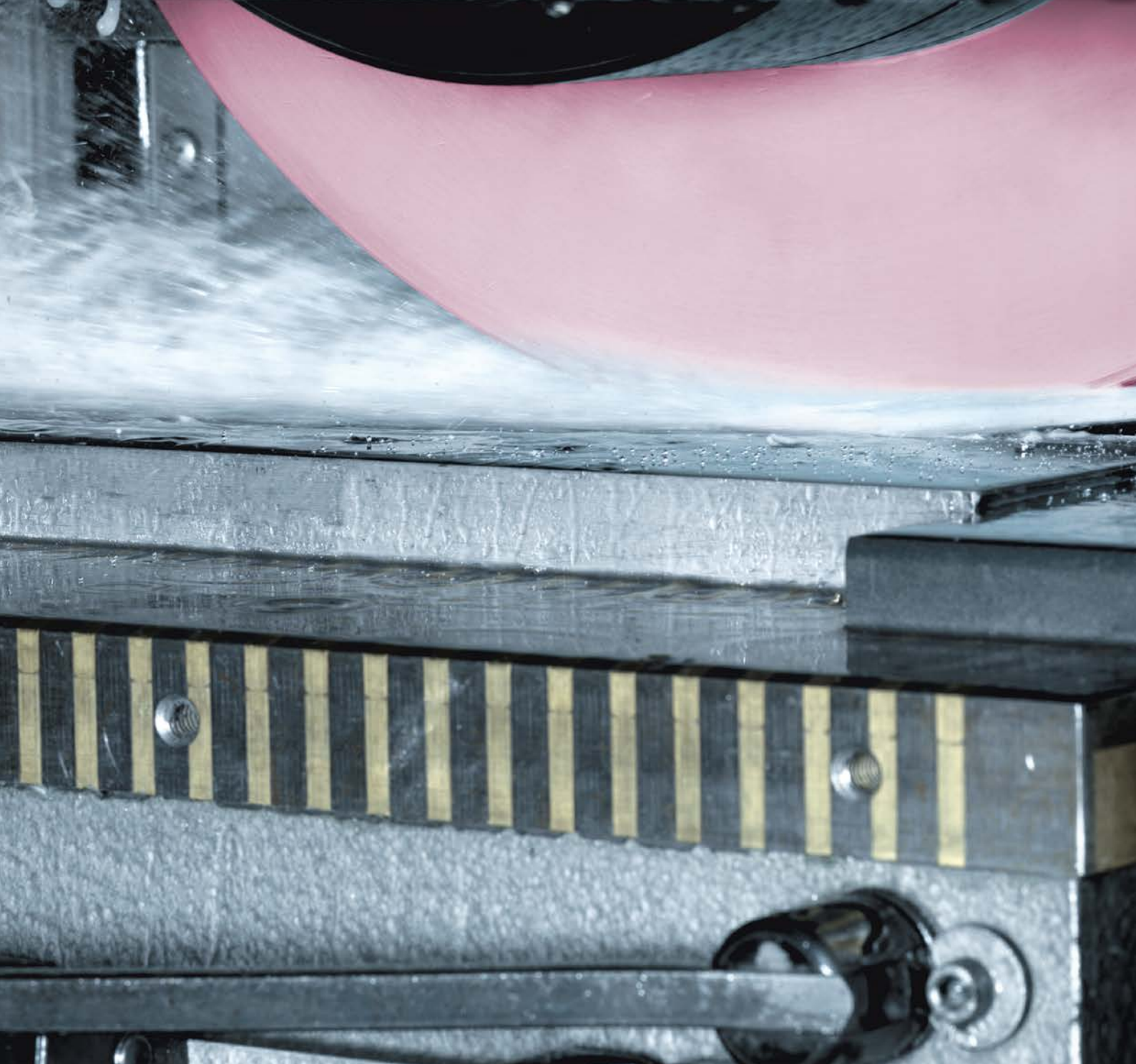
Shape 1A1

The resin-bonded diamond wheel with VIB STAR core is a particularly cost-effective solution for machining tungsten carbide. Low wear and a high level of dimensional accuracy are achieved by a constant self-sharpening effect.

The high stock removal rate of synthetic diamond in resinoid bonds provides a significant advantage over less expensive silicon carbide grinding wheels.

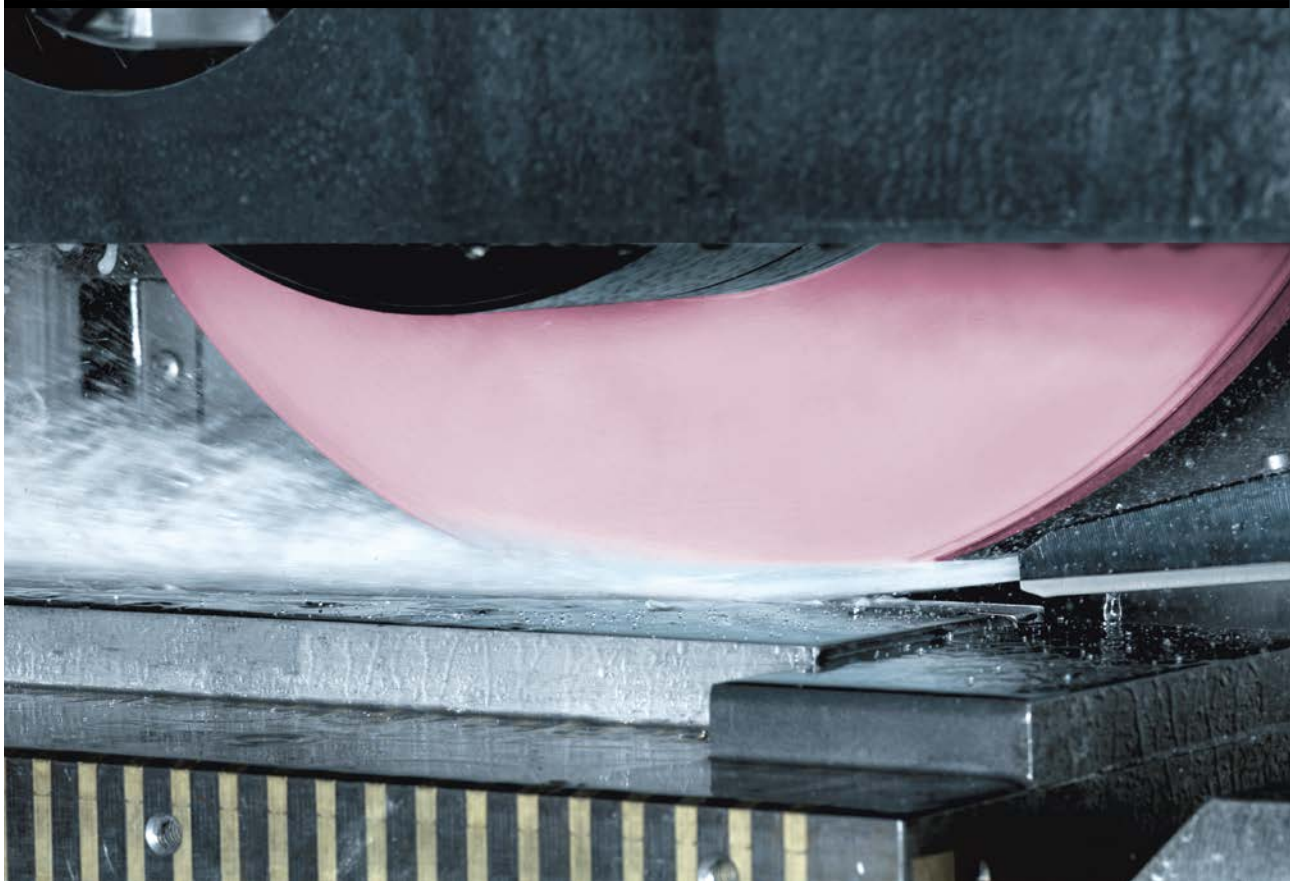
	Type no.	DxTxH	PxF	Specification	Vperm. m/s	
	1A1	914284	200x10x51	10-3	11D 126 C75 B VIB-STAR	63
		872702	250x15x51	15-3	11D 126 C75 B VIB-STAR	63
		907436	300x15x127	15-3	11D 126 C75 B VIB-STAR	63
		914288	300x20x127	20-3	11D 126 C75 B VIB-STAR	63
		897485	300x20x76.2	20-3	11D 126 C75 B VIB-STAR	63
		924298	350x20x127	20-3	11D 126 C75 B VIB-STAR	63
		914293	400x20x127	20-3	11D 126 C75 B VIB-STAR	63

* Please find information on dressing and sharpening from page 302.





4.3 PROFILE SURFACE GRINDING
PROFILE SURFACE GRINDING TOOL



PROFILE SURFACE GRINDING

In the profile surface grinding process, pre-defined profiles are ground into the material. In order to achieve this, it is important to apply a "negative profile" through dressing of the wheel. As a system supplier, TYROLIT offers not only suitable grinding wheels, but also an appropriate dresser for this purpose.

The precise profile surface grinding tools underlie an optimal quality assurance system and are produced using the most modern manufacturing technology and production facil-

ities. We are therefore always able to comply with the requirements of our customers.

TYROLIT produces this tool with a highly porous structure and special

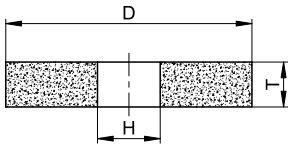
aluminium oxides. This enables us to offer you optimum profile retention with minimum dressing diamond wear.

Application recommendation



Specifica- tion	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
80A	210, 211		●	●	●	●		●					●
C (nitriding steel)	210					●	●	●	●	●			●

Shapes



Shape 1

● Extremely suitable

● Limited suitability

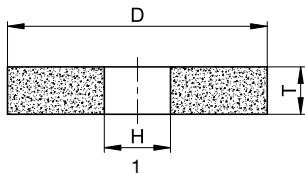
PROFILE SURFACE GRINDING CONVENTIONAL CERAMIC

For high-alloyed steels





Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
80A		●	●	●	●		●					●
C (nitriding steel)					●	●	●	●	●			●

Recommended stock type



For conventional ceramic profile surface grinding applications we offer wheels with special aluminium oxides and a highly porous structure. They are available in grit sizes 80 and 120 for pendulum grinding and in silicon carbide in grit size C180 for creep feed grinding.

Aluminium oxide wheels in shape 9 are primarily available in standard profiles. Shape 7 offers optimum edge retention due to a durable bond.

	Type no.	DxTxH	Specification
	148656	250x20x51	80A 1202 J9A V17 P8
	163110	225x25x51	80A 802 J9A V17 P25
	337183*	250x20x51	C 180 F8A V18 P8

* For nitriding steel.

Breadth of product range

C	180	F	8	Lagerartikel
C	120-180	F	8	5-6 Wochen LZ

* For production reasons, the minimum quantity ordered may differ from non-stock types.



Precision grinding



Alternative stock type

	Type no.	DxTxH	Specification
1	876590	180x10x32	80A 1209 I7G V112
	876610	180x13x32	80A 1209 I7G V112
	876616	180x6x32	80A 1209 I7G V112
	876613	180x8x32	80A 1209 I7G V112
	876619	200x10x32	80A 1209 I7G V112
	876611	200x13x32	80A 1209 I7G V112
	876618	180x10x32	80A 809 J7G V111
	876591	180x13x32	80A 809 J7G V111
	688752	200x10x32	80A 809 J7G V111





4.4 SURFACE GRINDING WITH RINGS AND SEGMENTS



SURFACE GRINDING WITH RINGS AND SEGMENTS

In contrast to peripheral surface grinding, grinding is performed on the side when using rings and segments. This is often necessary because of the machine construction and workpiece dimensions and requires a reduction in the permissible operating speed.

This process offers a particularly high grinding performance due to the coarse grit sizes used. Because breaks in the segments often occur during grinding, this also benefits the

coolant supply. However, not only particularly cool grinding, but also the self-sharpening effect of these tools make them extremely popular, especially for the grinding of planer knives.

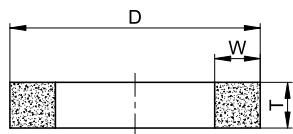
Here too, coarse and extremely porous tools with low hardness are used.

Application recommendation

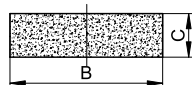


Specification	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
50A	219		●	●									●
89A keramisch	218			●	●	●	●						●
89A Bakelit	219			●		●	●						●
454A, 97A	219			●		●	●	●					●
91A, 92A	218			●		●	●						●

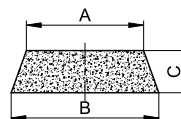
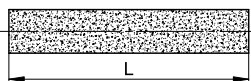
Shapes



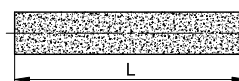
Shape 2



Shape 3101



Shape 3109



● Extremely suitable

● Limited suitability

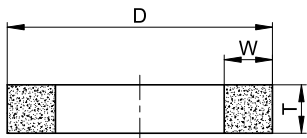
SURFACE GRINDING WITH RINGS CERAMIC/CONVENTIONAL RESIN

For high-alloyed steels and HSS



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
50A		●	●									●
89A Keramisch			●	●	●	●						●
89 A Kunsthartz			●		●	●						●
97A, 454A			●		●	●	●					●
91A, 92A			●		●	●						●

Recommended stock type



Shape 2

Rings for surface grinding are made of a highly porous vitrified bond in grit size 46 or resinoid bond in grit size 60. They are ideally suited to high-alloyed steels and HSS, and meet the most exacting surface quality requirements.

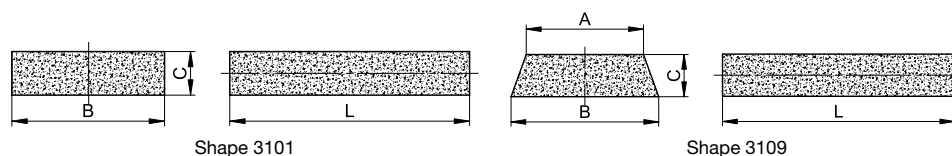
Ring wheels with a high stock removal rate are required above all for paper and planer knives. Please be aware that resin-bonded ring wheels only exhibit limited coolant resistance.

	Type no.	DxT-W	Specification	Comments	
	2	468751	200x100-W=20	89A 46 G10A V217 B3	
		469614	200x100-W=20	89A 602 G4 B22 W4E	
		469619	250x100-W=25	89A 602 G4 B22 W4E	
		461733	200x90-W=20	91A 461 G9A V217 B3	
		664621	200x90-W=20	92A 461 H10A V237	Glöckel, Reform (Planer and chopper knives)
		664622	200x100-W=20	92A 461 H10A V237	
103	709899		103K02	Accessories: Vinapas adhesive 0.5 kg	

Precision grinding



SURFACE GRINDING WITH SEGMENTS CONVENTIONAL CERAMIC

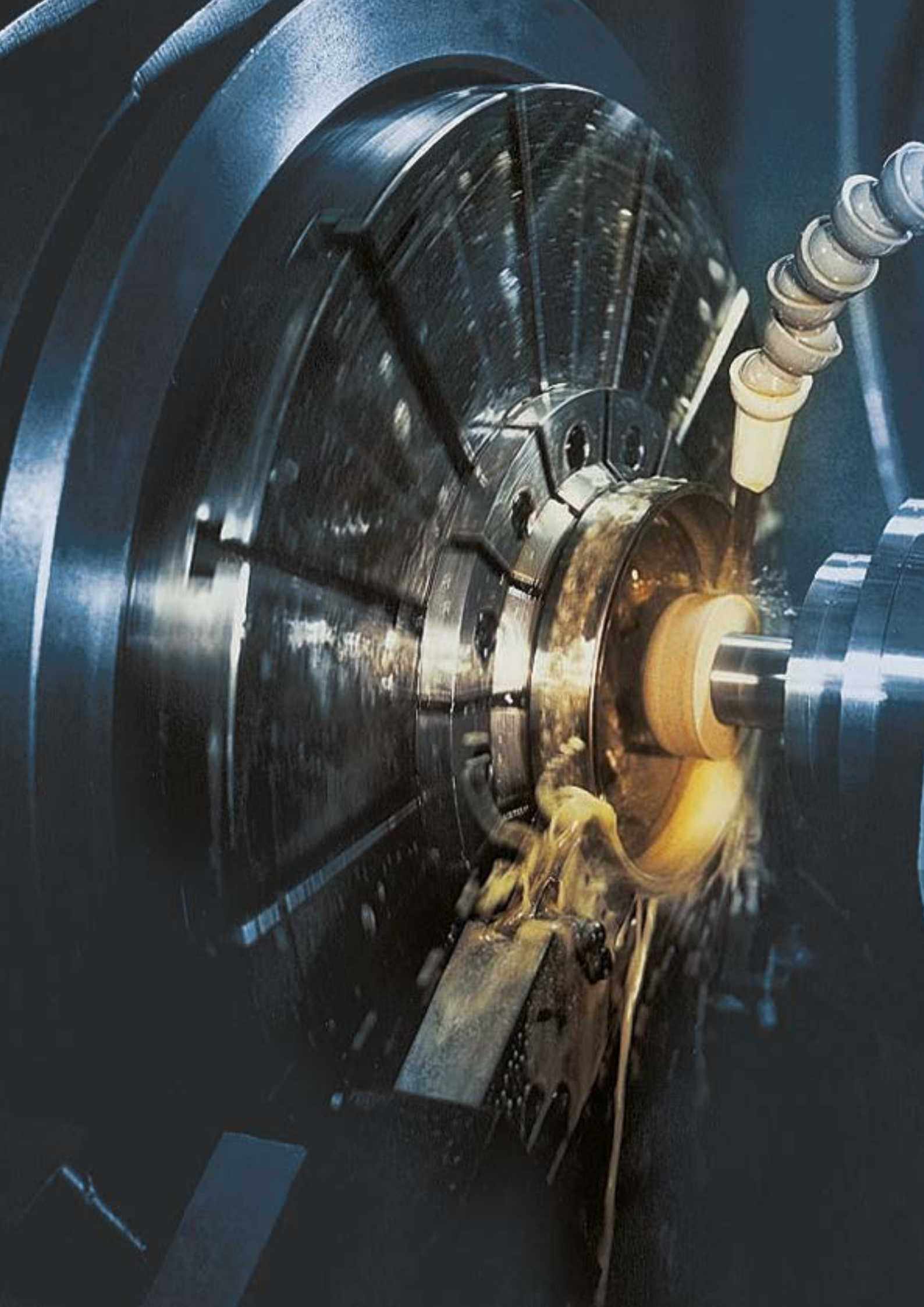
For high-alloyed steels and HSS



Segments for surface grinding are made of sintered aluminium oxide mixtures such as 454A for high-alloyed steels and HSS, or 50A and 89A for soft and low-alloyed steels.

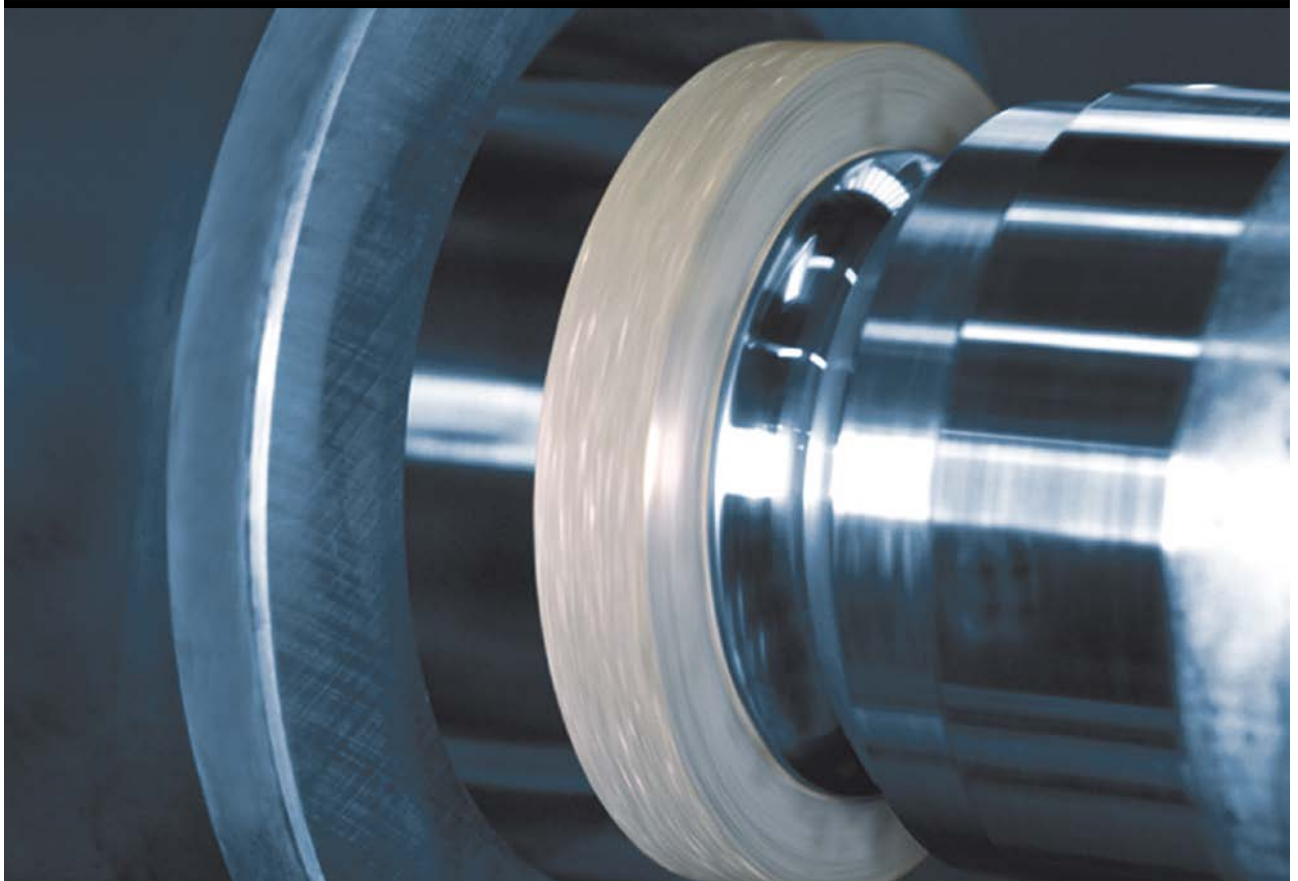
They offer a high stock removal rate and a self-sharpening effect.

	Type no.	BxCxL	Spezifikation
	3101	B/AxCxL	454A 361 I12 V3 P2
	664628	120x40x200	454A 461 K13 V3
	664633	120x40x200	50A 362 I8A V2
	664640	120x40x200	97A 461 G10A V237
	3109	103/94x38x200	454A 461 K13 V3
	664654	103/94x38x200	89A 362 I8A V2
	664655	103/94x38x200	97A 461 G10A V237





**4.5 INTERNAL CYLINDRICAL
GRINDING** INTERNAL CYLINDRICAL
GRINDING TOOLS

Precision
grinding

INTERNAL CYLINDRICAL GRINDING

The internal cylindrical grinding process is mainly used for the finishing of internal functional surfaces. The process is especially often used for the connection with an axle or shaft. For example, gears, steering systems, injection systems or hollow shafts can be machined.

With vitrified-bonded tools, TYROLIT offers you optimum profile retention and, through cool grinding, a particularly low thermal load.

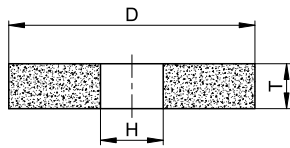
Depending on the application, we recommend our diamond and CBN wheels instead of conventional grinding tools.

Application recommendation

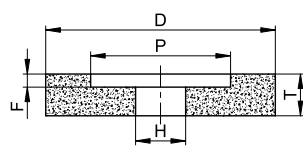


Specification	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
89A	222, 223		●	●	●	●	●				●		●
97A, AT	223, 224			●		●	●	●					●
B	225, 226			●		●	●	●				●	●
D	226, 227								●	●		●	●

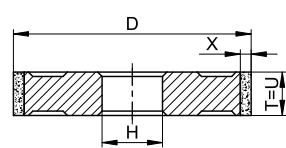
Shapes



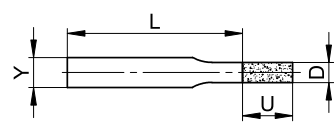
Shape 1



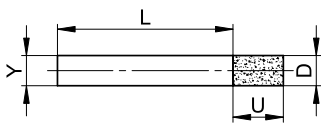
Shape 5



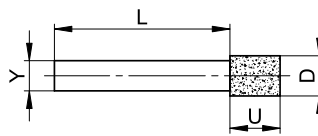
Shape 1A1



Shape 1A1W



Shape 1A1W 2



Shape 1A1W 3

● Extremely suitable

● Limited suitability

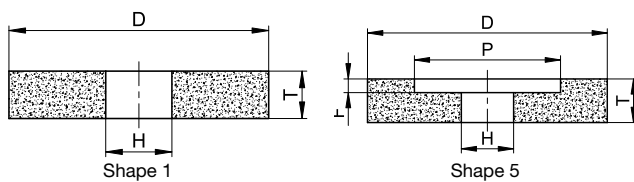
INTERNAL CYLINDRICAL GRINDING CONVENTIONAL CERAMIC

For non and low-alloyed steels



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A		●	●	●	●	●				●		●


Recommended stock type



These universal internal cylindrical grinding wheels made from special aluminium oxide are used for the grinding of through-holes and alignment holes. They offer high stock removal rates and excellent shape retention. Specification 89A60 is used primarily for soft steels and 89A80 for hardened steels

	Type no.	DxTxH	PxF	Specification	Vperm. m/s	
	1	234391	15x15x6	89A 602 J5 V111 50	50	
		807005	15x15x6	89A 802 I5 V111 50	50	
		234390	20x20x6	89A 602 J5 V111 50	50	
		664711	20x20x6	89A 802 I5 V111 50	50	
		664716	25x25x10	89A 802 I5 V111 50	50	
		795621	25x25x10	89A 602 J5 V111 50	50	
		664699	25x25x6	89A 602 J5 V111 50	50	
		664712	25x25x6	89A 802 I5 V111 50	50	
		664715	25x25x8	89A 802 I5 V111 50	50	
		807013	25x25x8	89A 602 J5 V111 50	50	
		664717	30x30x10	89A 802 I5 V111 50	50	
		445055	32x25x10	89A 602 J5 V111 50	50	
		563191	32x32x10	89A 802 I5 V111 50	50	
		664704	32x32x10	89A 602 J5 V111 50	50	
		664706	40x40x13	89A 602 J5 V111 50	50	
		664719	40x40x13	89A 802 I5 V111 50	50	
		234387	50x40x16	89A 602 J5 V111 50	50	
		664721	50x40x16	89A 802 I5 V111 50	50	
		664708	50x50x16	89A 602 J5 V111 50	50	
		664722	50x50x16	89A 802 I5 V111 50	50	
	5	664768	20x20x6	13x7	89A 602 J5 V111 50	50
		664787	20x20x6	13x7	89A 802 I5 V111 50	50
		664772	25x25x10	16x10	89A 602 J5 V111 50	50
		664792	25x25x10	16x10	89A 802 I5 V111 50	50
		664771	25x25x6	12x13	89A 602 J5 V111 50	50



	Type no.	DxTxH	PxF	Specification	Vperm. m/s	
	5	664791	25x25x6	12x13	89A 802 I5 V111 50	50
		664777	32x32x10	18x16	89A 602 J5 V111 50	50
		664793	32x32x10	18x16	89A 802 I5 V111 50	50
		664780	40x40x13	20x20	89A 602 J5 V111 50	50
		664794	40x40x13	20x20	89A 802 I5 V111 50	50
		664783	50x40x16	30x13	89A 602 J5 V111 50	50
		664795	50x40x16	30x13	89A 802 I5 V111 50	50
		664785	50x50x16	25x25	89A 602 J5 V111 50	50
		664796	50x50x16	25x25	89A 802 I5 V111 50	50

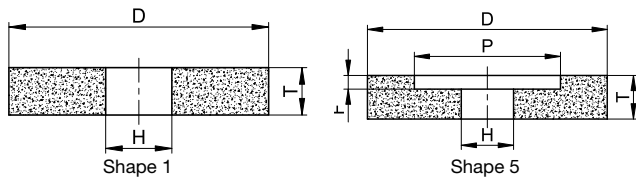
**INTERNAL CYLINDRICAL GRINDING
CONVENTIONAL CERAMIC**

For high-alloyed steels and HSS




Specification	Alumin-ium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
97A, AT			●		●	●	●					●

Recommended stock type






This vitrified internal cylindrical grinding tool offers a cost effective alternative to CBN tools with good stock removal. The specification AT60 can be used universally. Our wide range means you can choose exactly the right tool for the application.

	Type no.	DxTxH	PxF	Specification	Vperm. m/s
	1	781647	15x15x6	97A 802 I5 V112 80	80
		781649	20x20x6	97A 802 I5 V112 80	80
		664669	25x25x10	97A 802 I5 V112 80	80
		664666	25x25x6	97A 802 I5 V112 80	80
		664668	25x25x8	97A 802 I5 V112 80	80
		664670	30x30x10	97A 802 I5 V112 80	80
		664672	32x25x10	97A 802 I5 V112 80	80
		747519	32x32x10	97A 602 K6 V112 80	80
		664673	32x32x10	97A 802 I5 V112 80	80
		747522	40x25x10	97A 602 K6 V112 80	80
		664675	40x40x13	97A 802 I5 V112 80	80
		664677	50x40x16	97A 802 I5 V112 80	80
		664679	50x50x16	97A 802 I5 V112 80	80



Recommended stock type

	Type no.	DxTxH	PxF	Specification	Vperm. m/s	
	1	664683	15x15x6	AT 60 J6 VCOL 80	80	
		664684	20x20x6	AT 60 J6 VCOL 80	80	
		664689	25x25x10	AT 60 J6 VCOL 80	80	
		664685	25x25x6	AT 60 J6 VCOL 80	80	
		664686	25x25x8	AT 60 J6 VCOL 80	80	
		664692	30x30x10	AT 60 J6 VCOL 80	80	
		664693	32x25x10	AT 60 J6 VCOL 80	80	
		664694	32x32x10	AT 60 J6 VCOL 80	80	
		664695	40x40x13	AT 60 J6 VCOL 80	80	
		664696	50x40x16	AT 60 J6 VCOL 80	80	
	664697	50x50x16	AT 60 J6 VCOL 80	80		
	5	664728	20x20x6	13x7	97A 802 I5 V112 80	80
		664738	25x25x10	16x10	97A 802 I5 V112 80	80
		664737	25x25x6	12x13	97A 802 I5 V112 80	80
		664742	32x32x10	18x16	97A 802 I5 V112 80	80
		664744	40x40x13	20x20	97A 802 I5 V112 80	80
		664746	50x40x16	30x13	97A 802 I5 V112 80	80
		664749	50x50x16	25x25	97A 802 I5 V112 80	80
	5	664757	20x20x6	13x7	AT 60 J6 VCOL 80	80
		664760	25x25x10	16x10	AT 60 J6 VCOL 80	80
		664759	25x25x6	12x13	AT 60 J6 VCOL 80	80
		664761	32x32x10	18x16	AT 60 J6 VCOL 80	80
		664764	40x40x13	20x20	AT 60 J6 VCOL 80	80
		664766	50x40x16	30x13	AT 60 J6 VCOL 80	80
		664767	50x50x16	25x25	AT 60 J6 VCOL 80	80

Alternative stock type

	Type no.	DxTxH	PxF	Specification	Vperm. m/s
5	293798	25x25x10	16x10	454A 1002 K9 V3 80	80
	232811	40x40x10	16x20	455A 801 L6 V3 80	80
	747511	20x20x6	13x7	97A 602 K6 V112 80	80
	747516	25x25x10	16x10	97A 602 K6 V112 80	80
	747526	40x32x16	25x13	97A 602 K6 V112 80	80
	747530	50x40x16	30x13	97A 602 K6 V112 80	80

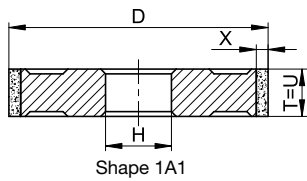
**INTERNAL CYLINDRICAL GRINDING
CBN RESIN-BONDED**

For high-alloyed steels and HSS



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
B			●		●	●	●				●	●

Recommended stock type



Compared to conventional ceramic grinding tools, CBN tools are characterised by a long lifetime and much shorter grinding times. They also offer a high level of dimensional accuracy.

This resin-bonded tool is primarily used for machining high-alloyed steels and HSS, but it can also be used for machining INOX.

	Type no.	DxTxH	UxX	Specification	
	1A1	384481	12x10x6	10-2	51B 126 C75 B 54 AL
		34937	15x10x6	10-2	51B 126 C75 B 54 AL
		127356	20x10x6	10-2	51B 126 C75 B 54 AL
		55282	25x10x8	10-3	51B 126 C75 B 54 AL
		43017	30x10x10	10-3	51B 126 C75 B 54 AL
		467422	40x10x10	10-3	51B 126 C75 B 54 AL

Precision grinding

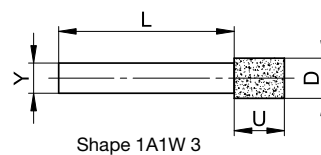
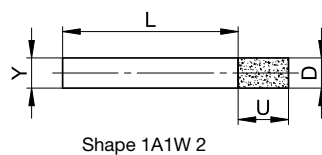
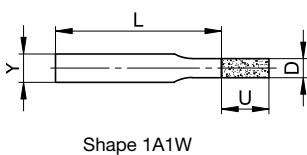
**INTERNAL CYLINDRICAL GRINDING
CBN ELECTROPLATED**

For high-alloyed steels and HSS



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
B			●		●	●	●				●	●

Recommended stock type






Recommended stock type

Compared to conventional ceramic grinding tools, CBN tools are characterised by a long lifetime and much shorter grinding times. They also offer a high level of dimensional accuracy.

This electroplated tool is primarily used for machining high-alloyed steels and HSS, but it can also be used for machining INOX.

	Type no.	DxTxH	YxL	Specification	PU	Comments	
	1A1W	477403	1,5x4	4xS3	B 91 GST	5	
		477406	2x4	4xS3	B 91 GST	5	
		477407	2,5x4	4xS3	B 91 GST	5	
		477409	3x5	5xS3	B 91 GST	5	
		477411	4x5	5xS3	B 126 GST	5	CBN, single layer
		477412	5x7	7xS3	B 126 GST	5	
		477413	6x7	7xS6	B 126 GST	5	
		477414	7x8	8xS6	B 126 GST	5	
		477416	8x10	10xS6	B 126 GST	5	
		477418	12x10	10xS6	B 151 GST	5	

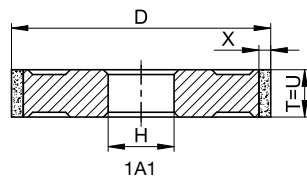
INTERNAL CYLINDRICAL GRINDING DIAMOND RESIN-BONDED

For tungsten carbide and industrial ceramics




Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
D								●	●		●	●

Recommended stock type



Compared to conventional ceramic grinding tools, diamond tools are characterised by a long lifetime and much shorter grinding times. They also offer a high level of dimensional accuracy.

This resin-bonded tool is primarily used for the machining of tungsten carbide and industrial ceramics.

	Type no.	DxTxH	PxF	Specification	
	1A1	786986	12x10x6	10-2	11D 91 C75 B 52 AL
		786952	15x10x6	10-2	11D 91 C75 B 52 AL
		786953	20x10x6	10-2	11D 91 C75 B 52 AL
		665019	25x10x8	10-3	11D 91 C75 B 52 AL
		319980	30x10x10	10-3	11D 91 C75 B 52 AL
		34172349	40x10x10	10-3	11D 91 C75 B 52 AL

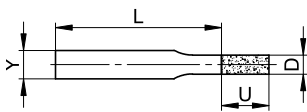
**INTERNAL CYLINDRICAL GRINDING
DIAMOND ELECTROPLATED**

For tungsten carbide and industrial ceramics

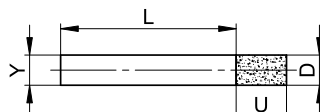


Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
D								●	●		●	●

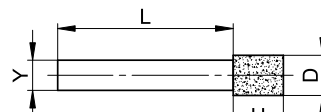
Recommended stock type



Shape 1A1W



Shape 1A1W 2



Shape 1A1W 3

This electroplated tool is primarily used for the machining of tungsten carbide and industrial ceramics. Compared to conventional ceramic grinding tools, diamond tools are characterised by a long lifetime and much shorter grinding times.

They also offer a high level of dimensional accuracy and exert a low grinding pressure. They are therefore ideally suited to machining small diameters.

	Type no.	DxTxH	PxF	Specification	PU	Comments
	1A1W	477335	1x4	4xS3x51	D 91 X GST	5
		477342	2x4	4xS3x51	D 91 X GST	5
		477346	3x5	5xS3x50	D 91 X GST	5
		477349	4x5	5xS3x50	D 126 X GST	5
		477352	6x7	7xS6x53	D 126 X GST	5
		477356	8x10	10xS6x50	D 126 X GST	5
		477358	10x10	10xS6x50	D 151 X GST	5
		477360	15x10	10xS6x50	D 151 X GST	5

Diamond layer, single

Precision grinding



PRYBAR
FA 9228339
89AFEIN

A close-up photograph of a hand wearing a black nitrile glove, holding a grinding stone against a metal surface. The background is a dark blue, textured fabric. The lighting is dramatic, highlighting the texture of the glove and the metal.

4.6 HAND-GUIDED GRINDING

FILES AND STONES



HAND-GUIDED GRINDING

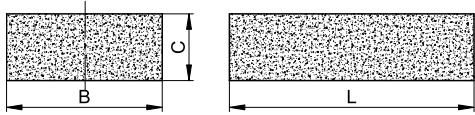
In the area of hand-guided tools, TYROLIT offers a wide selection of files, stones and hand rubbing bricks. We offer these tools in both aluminium oxide as well as silicon carbide.

Our files, bench stones, knife blade files and hollow chisel stones are available in different grit sizes from

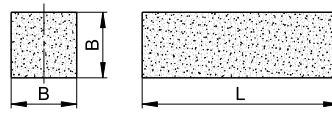
coarse to "Super", depending on your intended area of application. A tool that is a must for every workshop is

the TYFIX hand rubbing brick. This enables easy removal of dirt, rust and paint from your surfaces.

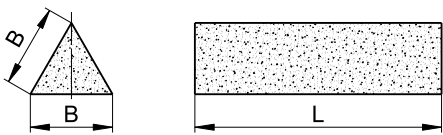
Shapes



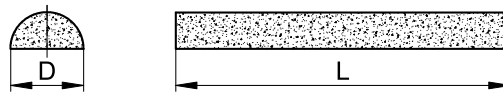
Shape 9010



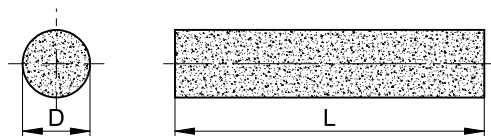
Shape 9011



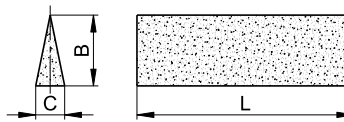
Shape 9020



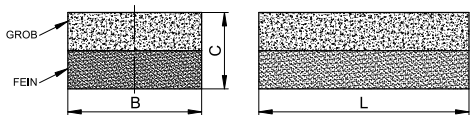
Shape 9040



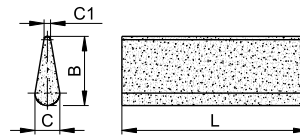
Shape 9030



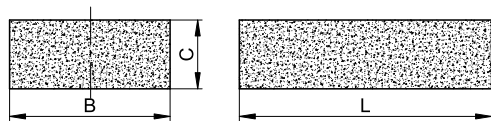
Shape 90FMK



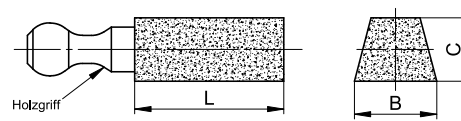
Shape 90K



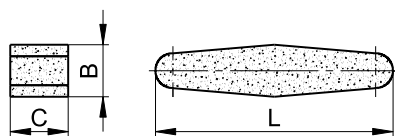
Shape 90HM



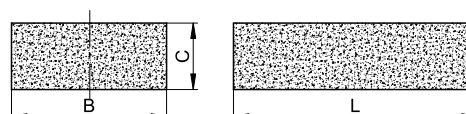
Shape 90B



Shape 90FHG



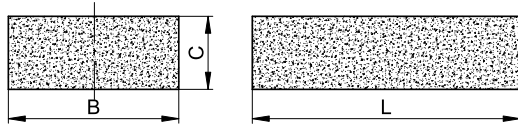
Shape 90W



Shape 90TY

FLAT STICK

Vitrified-bonded



Shape 9010

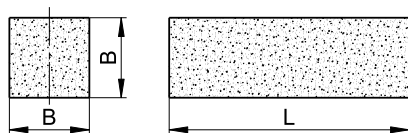
These files are used in particular for machining tools in the wood and machine construction industries. Thanks to the varying grit sizes you can select the perfect tool for your application.

Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are grey-green in colour. Orange is used primarily for all types of steels and stainless steel.

	Type no.	BxCxL	Specification	Grit size	PU	
	9010	557	6x3x100	C MEDIUM	240	10
		556	6x3x100	C COARSE	120	10
		555	6x3x100	C FINE	400	10
		548	6x3x100	89A MEDIUM	240	10
		547	6x3x100	89A FINE	400	10
		566	30x13x200	C MEDIUM	240	10
		564	30x13x200	C FINE	400	10
		554	30x13x200	89A MEDIUM	240	10
		563	13x6x150	C MEDIUM	240	10
		562	13x6x150	C COARSE	120	10
		561	13x6x150	C FINE	400	10
		552	13x6x150	89A MEDIUM	240	10
		551	13x6x150	89A FINE	400	10
		560	10x5x100	C MEDIUM	240	10
		559	10x5x100	C COARSE	120	10
		558	10x5x100	C FINE	400	10
550	10x5x100	89A MEDIUM	240	10		
549	10x5x100	89A FINE	400	10		

SQUARE FILE

Vitrified-bonded



Shape 9011


The square files are used primarily for efficient machining of tools in the wood and machine construction industries. Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are grey-green in

colour. Orange is used primarily for all types of steels and stainless steel. Thanks to the varying grit sizes you can select the perfect tool for your application.

	Type no.	BxL	Specification	Grit size	PU	
	9011	728	6x100	89A FINE	400	10
		729	6x100	89A MEDIUM	240	10
		747	6x100	C FINE	400	10
		749	6x100	C MEDIUM	240	10
		732	10x100	89A MEDIUM	240	10
		733	10x100	89A FINE	400	10
		752	10x100	C FINE	400	10

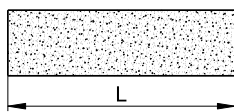
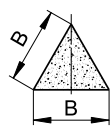


Precision grinding

	Type no.	BxL	Specification	Grit size	PU	
	9011	754	10x100	C MEDIUM	240	10
		738	13x150	89A FINE	400	10
		739	13x150	89A MEDIUM	240	10
		758	13x150	C FINE	400	10
		760	13x150	C MEDIUM	240	10
		741	16x150	89A FINE	400	10
		742	16x150	89A MEDIUM	240	10
		761	16x150	C FINE	400	10
		763	16x150	C MEDIUM	240	10
		746	20x200	89A MEDIUM	240	10
		767	20x200	C FINE	400	10
		768	20x200	C COARSE	120	10
		769	20x200	C MEDIUM	240	10
		6341	20x200	89A FINE	400	10

TRIANGULAR FILE


Vitrified-bonded



Shape 9020

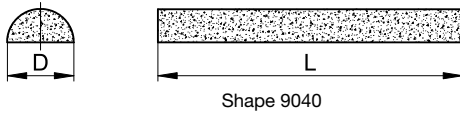
These files are used in particular for machining tools in the wood and machine construction industries. Thanks to the varying grit sizes you can select the perfect tool for your application.

Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are grey-green in colour. Orange is used primarily for all types of steels and stainless steel.

	Type no.	Type no.	BxLBxL	Specification	Grit size	PUPU
	9020	501	6x100	89A MEDIUM	240	10
		518	6x100	C FINE	400	10
		519	6x100	C MEDIUM	240	10
		505	10x100	89A FINE	400	10
		504	10x100	89A MEDIUM	240	10
		523	10x100	C FINE	400	10
		525	10x100	C MEDIUM	240	10
		511	13x150	89A FINE	400	10
		510	13x150	89A MEDIUM	240	10
		531	13x150	C FINE	400	10
		533	13x150	C MEDIUM	240	10
		8807	16x150	89A FINE	400	10
		512	16x150	89A MEDIUM	240	10
		534	16x150	C FINE	400	10
		536	16x150	C MEDIUM	240	10
		8808	20x200	89A FINE	400	10
		516	20x200	89A MEDIUM	240	10
		540	20x200	C FINE	400	10
		542	20x200	C MEDIUM	240	10

HALF ROUND FILE

Vitrified-bonded



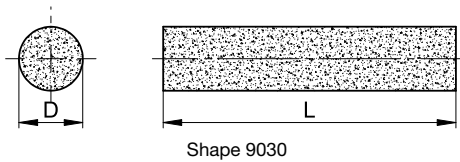
The half round files are used primarily for efficient machining of tools in the wood and machine construction industries. Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are

grey-green in colour. Orange is used primarily for all types of steels and stainless steel. Thanks to the varying grit sizes you can select your tool based on the application.

	Type no.	DxL	Specification	Grit size	PU	
	9040	6313	6x100	89A MEDIUM	240	10
		603	10x100	89A MEDIUM	240	10
		607	13x150	89A MEDIUM	240	10
		629	13x150	C FINE	400	10
		610	16x150	89A MEDIUM	240	10
		632	16x150	C FINE	400	10
		633	16x150	C MEDIUM	240	10
		637	20x200	C MEDIUM	240	10

ROUND FILE

Vitrified-bonded



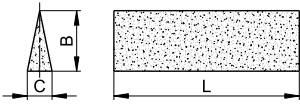
These files are used in particular for machining tools in the wood and machine construction industries. Thanks to the varying grit sizes you can select the perfect tool for your application.

Silicon carbide files are primarily used for tungsten carbide or tungsten carbide tipped tools and are grey-green in colour. Orange is used primarily for all types of steels and stainless steel.

	Type no.	DxL	Specification	Grit size	PU	
	9030	614	6x100	C FINE	400	10
		616	6x100	C MEDIUM	240	10
		660	6x100	89A FINE	400	10
		656	10x100	C FINE	400	10
		664	10x100	89A FINE	400	10
		666	10x100	89A MEDIUM	240	10
		657	13x150	89A FINE	400	10
		671	13x150	89A MEDIUM	240	10
		691	13x150	C FINE	400	10
		693	13x150	C MEDIUM	240	10
		674	16x150	89A MEDIUM	240	10
		696	16x150	C FINE	400	10
		698	16x150	C MEDIUM	240	10

KNIFE BLADE FILE

Vitrified-bonded



90FMK

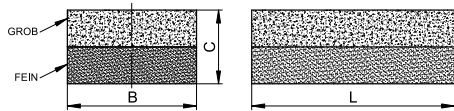
The ceramic knife blade file is used for grinding and whetting knife blades. It is ideally suited to machining blades made of HSS and high-alloyed steels.

Thanks to the varying grit sizes you can select your tool based on the application.

	Type no.	BxCxL	Specification	Grit size	PU
	90FMK 6321	25x3x100	89A FINE	400	10
	6322	25x3x100	89A MEDIUM	240	10
	6324	25x3x100	C MEDIUM	240	10

COMBINATION STONE

Vitrified-bonded



Shape 90K

You can use the TYROLIT combination stone for deburring various workpieces. Due to its two different grit sizes, you will always be equipped for the respective application.

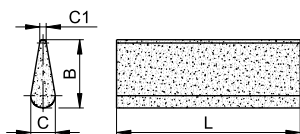
This product can also be used for whetting magnetic tables.

	Type no.	BxCxL	Specification	Grit size	PU
	90K 185988	18x10x75	89A COMBI	120/240	10
	186109	18x10x75	C COMBI	120/240	10
	642	25x13x100	C COMBI	120/240	10
	6314	25x13x100	89A COMBI	120/240	10
	6317	40x20x125	C COMBI	120/240	10
	640	40x20x125	89A COMBI	120/240	10
	644	50x25x150	C COMBI	120/240	10
	645	50x25x200	C COMBI	120/240	10
	6315	50x25x150	89A COMBI	120/240	10
	6316	50x25x200	89A COMBI	120/240	10
	90SK 6318	25x20x100	C COMBI	120/240	10

Precision grinding

HOLLOW CHISEL STONE

Vitrified-bonded



Shape 90HM

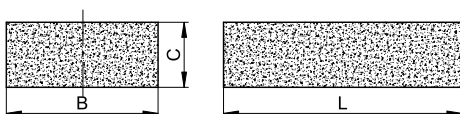
The ceramic hollow chisel stones are ideally suited to whetting narrow-toothed tools. Thanks to the varying grit sizes you can select your tool based on the individual application.

Due to the conical shape it is possible for you to grind and deburr right down to the tooth base.

	Type no.	BxC/C1L	Specification	Grit size	PU	
	90HM	576	25x6/1x100	89A FINE	400	10
	577	25x6/1x100	89A MEDIUM	240	10	
	583	25x6/1x100	C FINE	400	10	
	584	25x6/1x100	CMEDEL	240	10	
	579	45x6/2x115	89A MEDIUM	240	10	
	587	45x6/2x115	C MEDIUM	240	10	
	9017	45x6/2x115	C FINE	400	10	
	15885	45x6/2x115	89A FINE	400	10	
	578	45x10/3x100	89A FINE	400	10	
	586	45x10/3x100	C MEDIUM	240	10	
	6309	45x10/3x100	89A MEDIUM	240	10	
	6310	45x10/3x100	C FINE	400	10	
	28465	45x10/3x100	89A SUPER T3	1200	10	
	20332	50x16/5x150	C FINE	400	10	

BENCH STONE

Vitrified-bonded



90B

The TYROLIT bench stones are primarily used for sharpening and whetting knives and blades. They are therefore perfectly suited for all gardening and woodwork tools.

Thanks to the varying grit sizes you can select your tool based on the individual application.

	Type no.	BxCxL	Specification	Grit size	PU	
	90B	469	25x13x100	C MEDIUM	240	10
	8804	25x13x100	89A MEDIUM	240	10	
	20313	25x13x100	C FINE	400	10	
	20311	25x6x100	C FINE	400	10	
	28466	45x13x100	89A SUPER T3	1200	10	
	456	50x25x150	89A MEDIUM	240	10	
	457	50x25x150	89A FINE	400	10	
	479	50x25x150	C FINE	400	10	
	481	50x25x150	C MEDIUM	240	10	

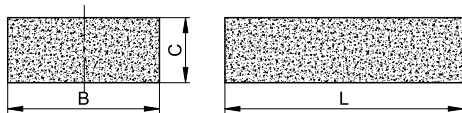




	Type no.	BxCxL	Specification	Grit size	PU	
	90B	28467	50x25x150	89A SUPER T3	1200	10
		461	50x25x200	89A FINE	400	10
		462	50x25x200	89A MEDIUM	240	10
		485	50x25x200	C MEDIUM	240	10
		486	50x25x200	C FINE	400	10

COARSE BENCH STONE

Vitrified-bonded



Shape 90B

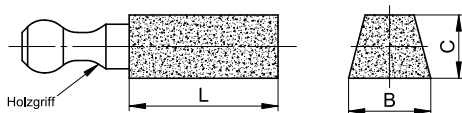
Coarse bench stones from TYROLIT can be used to deburr large workpieces that have no surface quality requirements.

For example, these bench stones are used for pre-grinding large woodwork tools such as wood splitters.

	Type no.	BxCxL	Specification	Grit size	PU	
	90B	29382	50x25x200	1C 24 M5 V15	24	10
		103622	50x25x200	1C 36 L5 V15	36	10
		28869	50x50x200	1C 24 M5 V15	24	10

FILE WITH HANDLE

Vitrified-bonded



Shape 90FHG

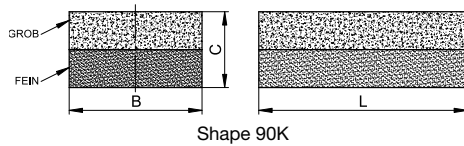
The file with handle from TYROLIT can be used to deburr large workpieces that have no surface quality requirements.

For example, these bench stones are used for pre-grinding large woodwork tools such as wood splitters.

	Type no.	BxCxL	Specification	
	90FHG	79664	40x30x230	C 70 O5 V18



COMBINED RUBBING BRICK FOR TILES

Vitrified-bonded



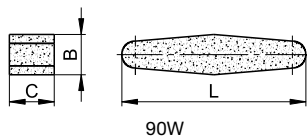
The rubbing brick for tiles in shape 90K facilitates deburring and creating a bevelled edge on flags and tiles. Using the rubbing brick in shape 90RH you can machine and smooth floor screeds, concrete and plaster mixtures with ease.

You can achieve even surfaces when smoothing window and door lintels before coating them. It is also possible to work difficult-to-reach places with ease.


	Type no.	BxCxL	Specification	
	90K	175220	80x30x160	C 24 M5 V15/C 70 L5 V15
		146640	120x30x200	C 24 M5 V15/C 70 L5 V15
	90RH	20450	90x40x205	1C 24 L5 V15

WHETSTONE

Vitrified-bonded

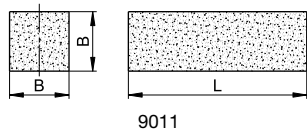


Our whetstones are used for re-sharpening scythes and sickles. This tool is only available in a silicon carbide design.

	Type no.	BxCxL	Specification	
	90W	362775	35x13x230	AC-V


SQUARE FILE

Elastic-bonded



The elastic-bonded square file can be used to lightly deburr and polish workpieces. Due to its composition it can be used on the widest variety of materials.

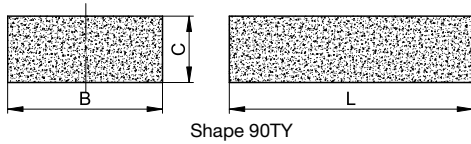
Select coarse grain for light deburring or fine grain for polishing depending on the application.

	Type no.	BxL	Specification	PU	Comments	
	9011	35677	15x100	C 80 - BE15	10	Deburring (coarse)
		6335	20x100	C 400 - BE15	10	Polishing (fine)

Precision grinding

ELASTIC-BONDED TYFIX HAND RUBBING BRICK

Elastic-bonded



The TYFIX hand rubbing brick is an eraser used to improve surfaces. Its main tasks include deburring, polishing, and removing rust, dirt and paint.

The TYFIX is especially suited for use in the home to clean domestic appliances, pans, etc. made of stainless steel and aluminium. It can also be used to clean tile joints.

	Type no.	BxCxL	Specification	Grit size	Colour
	90TY 1870	40x20x50	C 100 - BE5	100	GREEN
	501861	40x20x80	C MEDIUM	100	GREY
	1872	50x20x80	C 60 - BE5	60	GREEN
	1873	50x20x80	C 100 - BE5	100	GREEN
	1874	50x20x80	C 240 - BE5	240	GREEN
	502437	55x30x110	C MEDIUM	100	DARK BLUE
	502457	55x30x110	C FINE	240	LIGHT BLUE

LAPPERS

Resin-bonded



The resin-bonded lappers are primarily used for deburring and lapping extremely hard materials. They are therefore the common choice for whetting tungsten carbide cutting edges.

This product is only available in a diamond grain design with a grit size of D35.

	Type no.	L	L2-W-X	Specification
	90H 91963	150	40-10-2	11D 35 C50 B 52 AL
	95717	150	25-10-2	11D 35 C50 B 52 AL

DIAMOND FILES

Galvanic-bonded



These galvanic-bonded diamond files are primarily used for machining hardened steels and tungsten carbide. However, they are also suitable for glass, ceramics and materials above 40 HRC.

This product is only available in a diamond grain design with a grit size of D35 and is standard equipment for every toolmaker. Fine grit sizes are available on request.

	Type no.	L	L2-W-XxY/AUFN	Specification	File shape
	90N 136535	140	70-3.6-1.5x2.92X70	D 126 GST	Square
	477283	140	70-2.4x3X70	D 126 GST	Half round
	477289	140	70-5-1.5x3X70	D 126 GST	Flat point
	477422	140	70-5-1.5x3X70	D 126 GST	Triangular
	477430	140	70-5-2x3X70	D 126 GST	Flat





CYRILLIT

4.7 BENCH GRINDING WHEELS

BENCH GRINDERS



Precision grinding

BENCH GRINDING WHEELS

The bench grinder is a versatile machine used in many workshops for machining various materials. The TYROLIT range of bench grinding wheels therefore contains the right wheel for every material.

The wheels with the universal application specification impress in particular through their smooth running

and easy handling. A reduction bush set is included in each package for proper assembly. The packaging itself

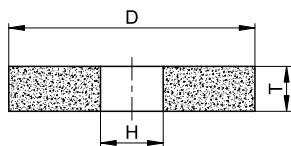
is suitable for stacking on racks and thus saves space and storage costs.

Application recommendation



Specification	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
10A	246, 247		●	●							●	●	
89A	248, 249			●	●	●	●				●	●	
C	250, 251					●	●	●	●		●	●	

Shapes



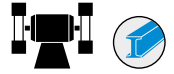
Shape 1

● Extremely suitable

● Limited suitability

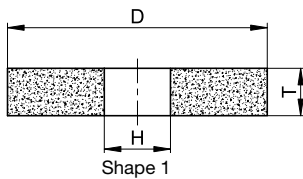
BENCH GRINDING WHEELS CONVENTIONAL CERAMIC

For non and low-alloyed steels



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
10A		●	●							●	●	

Recommended stock type



Vitrified bonded bench grinding wheels are primarily used in workshops and repair companies. They can be used universally for grinding and sharpening various components. The tailored specifications enable them to be used for a wide range of applications, from coarse to fine grinding.

These wheels are supplied in packaging suitable for retailers so that they take up minimum space in storage. A reduction bush set is included in the packaging or can be reordered.

	Type no.	DxTxH	Specification	Vperm. m/s	
	1	7205	150x20x32	10A 46 N5A V217	40
		2693	150x20x32	10A 60 M5A V217	40
		52223	150x25x32	10A 46 N5A V217	40
		2758	150x25x32	10A 60 M5A V217	40
		2962	175x25x32	10A 60 M5A V217	40
		68134	175x25x51	10A 60 M5A V217	40
		548815	175x32x32	10A 60 M5A V217	40
		600134	200x20x32	10A 36 N5A V217	40
		15842	200x20x32	10A 46 N5A V217	40
		15839	200x20x32	10A 60 M5A V217	40
		781702	200x20x51	10A 60 M5A V217	40
		31694	200x25x32	10A 46 N5A V217	40
		9572	200x25x32	10A 60 M5A V217	40
		3217	200x25x32	10A 80 M5A V217	40
		116708	200x25x51	10A 46 N5A V217	40
		718361	200x25x51	10A 60 M5A V217	40
		664256	200x32x51	10A 36 N5A V217	40
		675264	200x32x51	10A 46 N5A V217	40
		516594	200x32x51	10A 60 M5A V217	40
		3474	250x25x32	10A 60 M5A V217	40
		664261	250x32x32	10A 36 N5A V217	40
		3538	250x32x32	10A 60 M5A V217	40
		737812	250x32x51	10A 60 M5A V217	40
		110032	300x40x51	10A 60 M5A V217	40
		34983	300x40x76	10A 60 M5A V217	40



Precision grinding



Alternative stock type

	Type no.	DxTxH	Specification	Vperm. m/s
1	34046758	125x15x32	10A 36 M5A V17	40
	34046770	125x15x32	10A 60 M5A V17	40
	147626	125x20x32	10A 60 M5A V17	40
	147698	125x20x32	10A 36 M5A V17	40
	34046759	150x15x32	10A 36 M5A V17	40
	34046772	150x15x32	10A 60 M5A V17	40
	146965	150x20x32	10A 601 M5A V217	40
	147574	150x20x32	10A 36 P5A V17	40
	147601	150x25x32	10A 36 P5A V17	40
	16577	175x20x32	10A 36 P5A V17	40
	147600	175x25x32	10A 36 P5A V17	40
	147656	200x20x40	10A 36 P5A V17	40
	146910	200x25x32	10A 361 P5A V17	40
	147652	200x25x51	10A 36 P5A V17	40
	34046763	200x32x40	10A 36 P5A V17	40
	34046781	200x32x40	10A 60 M5A V17	40
	34046764	250x25x40	10A 36 P5A V17	40
	34046765	250x32x40	10A 36 P5A V17	40
	147701	250x32x51	10A 36 P5A V17	40
	34046785	300x40x40	10A 60 M5A V17	40
	32981	350x50x127	10A 24 Q5A V17	40

Precision grinding

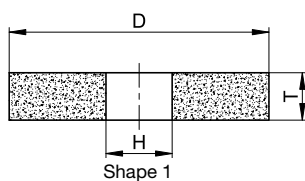
**BENCH GRINDING WHEELS
CONVENTIONAL CERAMIC**

For high-alloyed steels and HSS



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A			●		●	●					●	●

Recommended stock type



This wheel is preferable for grinding and sharpening temperature-sensitive steels and HSS tools. The use of aluminium oxide results in particularly cool grinding so that the workpiece is not subjected to additional thermal load.

We offer a wide spectrum of dimensions to cover the most common applications. A reduction bush set is included in the packaging or can be reordered.






Recommended stock type

	Type no.	DxTxH	Specification	Vperm. m/s
	34046786	125x15x32	89A 60 L5A V217	40
	2536	125x20x32	89A 60 M5A V217	40
	281719	125x20x32	89A 80 M5A V217	40
	449559	125x20x32	89A 46 M5A V217	40
	664052	150x13x25	89A 80 M5A V217	40
	34046788	150x15x32	89A 60 L5A V217	40
	2697	150x20x32	89A 46 M5A V217	40
	2699	150x20x32	89A 60 M5A V217	40
	764468	150x20x32	89A 80 M5A V217	40
	2762	150x25x32	89A 60 M5A V217	40
	147614	150x25x32	89A 80 L5A V217	40
	853353	150x25x32	89A 46 M5A V217	40
	2916	175x20x32	89A 60 M5A V217	40
	543615	175x20x32	89A 80 M5A V217	40
	2973	175x25x32	89A 80 L5A V217	40
	16022	175x25x32	89A 60 M5A V217	40
	377415	175x25x51	89A 80 M5A V217	40
	723118	175x25x51	89A 60 M5A V217	40
	3020	175x32x32	89A 60 M5A V217	40
	918448	175x32x32	89A 80 M5A V217	40
	471114	200x20x31,75	89A 60 M5A V217	40
	3142	200x20x32	89A 46 M5A V217	40
	3145	200x20x32	89A 60 M5A V217	40
	820958	200x20x32	89A 80 M5A V217	40
	664048	200x20x51	89A 46 M5A V217	40
	826839	200x20x51	89A 80 M5A V217	40
	841086	200x20x51	89A 60 M5A V217	40
	3220	200x25x32	89A 46 M5A V217	40
	39540	200x25x32	89A 60 M5A V217	40
	129550	200x25x32	89A 80 M5A V217	40
	33435	200x25x51	89A 80 L5A V217	40
	50184	200x25x51	89A 46 M5A V217	40
	534539	200x25x51	89A 60 M5A V217	40
	34046791	200x32x40	89A 60 L5A V217	40
	78379	200x32x51	89A 80 M5A V217	40
	99864	200x32x51	89A 46 M5A V217	40
	723117	200x32x51	89A 60 M5A V217	40
	831179	250x25x32	89A 60 M5A V217	40
	3545	250x32x32	89A 60 M5A V217	40
	126665	250x32x32	89A 80 M5A V217	40



	Type no.	DxTxH	Specification	Vperm. m/s	
	1	111799	250x32x51	89A 60 M5A V217	40
		34046794	300x40x40	89A 60 L5A V217	40
		867598	300x40x51	89A 60 M5A V217	40
		30840	300x40x76	89A 60 M5A V217	40

Alternative stock type

	Type no.	DxTxH	Specification	Vperm. m/s
1	73667	150x10x20	89A 80 L5A V55	40
	103872	150x20x16	89A 60 M5A V55	40
	413774	150x20x20	89A 60 L5A V217	40
	7210	150x20x32	89A 60 K5A V217	40
	122996	200x20x20	89A 60 L5A V217	40
	184247	200x20x20	89A 60 M5A V55	40
	3144	200x20x32	89A 60 K5A V217	40
	16615	200x20x32	89A 46 K5A V217	40
	68340	200x25x20	89A 60 M5A V55	40
	122997	200x25x20	89A 60 L5A V217	40
	3222	200x25x32	89A 60 K5A V217	40
	7374	200x25x32	89A 80 L5A V217	40
	146630	200x25x32	89A 461 K5A V217	40
	407610	250x10x32	89A 60 K5A V217	40
	127554	300x32x127	89A 602 K5A V217	40

Precision grinding

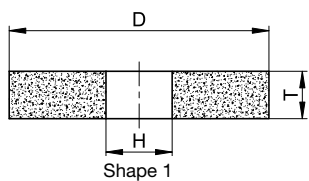
**BENCH GRINDING WHEELS
CONVENTIONAL CERAMIC**

For tungsten carbide and cast iron



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C						●	●	●		●	●	

Recommended stock type



When sharpening solid carbide or tungsten carbide tipped tools, only wheels with silicon carbide specifications should be used. Due to their special grain shape you can achieve good results even on extremely hard workpieces.

This wheel can also be used for cast iron. A reduction bush set is included in the packaging or can be reordered.





Recommended stock type

	Type no.	DxTxH	Specification	Vperm. m/s	
	1	706631	125x15x32	C 602 J5 V15	40
		2529	125x20x32	C 80 J5 V15	40
		664185	150x13x25	C 80 J5 V15	40
		56155	150x16x32	C 80 J5 V15	40
		2658	150x20x20	C 80 J5 V15	40
		2680	150x20x32	C 46 K5 V15	40
		123633	150x20x32	C 80 J5 V15	40
		861009	150x20x32	C 60 K5 V15	40
		2751	150x25x32	C 46 K5 V15	40
		2753	150x25x32	C 80 J5 V15	40
		333180	150x25x32	C 60 K5 V15	40
		34165304	150x32x32	C 602 J5 V15	40
		2905	175x20x32	C 80 J5 V15	40
		2956	175x25x32	C 80 J5 V15	40
		9653	175x25x51	C 80 J5 V15	40
		7348	200x20x20	C 80 J5 V15	40
		154428	200x20x31.75	C 80 J5 V15	40
		848657	200x20x31.75	C 46 K5 V15	40
		3132	200x20x32	C 46 K5 V15	40
		3135	200x20x32	C 80 J5 V15	40
		596597	200x20x32	C 60 K5 V15	40
		837436	200x20x51	C 46 K5 V15	40
		872497	200x20x51	C 80 J5 V15	40
		3186	200x25x20	C 80 J5 V15	40
		3206	200x25x32	C 46 K5 V15	40
		3210	200x25x32	C 80 J5 V15	40
		819893	200x25x32	C 60 K5 V15	40
		263506	200x25x51	C 60 K5 V15	40
		822622	200x25x51	C 80 J5 V15	40
		103851	200x25x76.2	C 80 J5 V15	40
		34165307	200x32x40	C 602 J5 V15	40
		9651	200x32x51	C 80 J5 V15	40
		879608	200x32x51	C 46 K5 V15	40
		75079	250x25x32	C 80 J5 V15	40
		49680	250x25x76	C 80 J5 V15	40
		58964	250x32x32	C 80 J5 V15	40
		822623	250x32x51	C 80 J5 V15	40
		822624	300x40x51	C 80 J5 V15	40
		9652	300x40x76	C 80 J5 V15	40



Precision grinding




Alternative stock type

	Type no.	DxTxH	Specification	Vperm. m/s
1	11182	150x20x32	C 120 J5 V15	40
	146906	150x20x32	C 801 J5 V15	40
	450328	150x20x32	C 60 J5A V15	40
	146644	150x25x32	C 801 J5 V15	40
	3208	200x25x32	C 60 J5 V15	40
	72045	203x20x32	C 120 J5 V15	40
	59861	203x25x32	C 120 J5 V15	40
	28584	350x32x127	C 60 J5 V15	40

FLOORSTAND GRINDER ACCESSORIES

Reduction bushes

The enclosed reduction bush set minimises the range of tools required and saves on storage space. Reduction bushes are available free of charge to be used with all bench grinding wheels, see table.

	Type no.	DxTxH
	100RR	
	111434	32x19x16
	667841	51x10x31.75
	911408	51x9x32
	111436	76x9x40





4.8 SHARPENING AND POLISHING WHEELS

BENCH GRINDERS



SHARPENING AND POLISHING WHEELS

The bench grinder is a versatile machine used in many workshops for machining various materials. The TYROLIT range of bench grinding wheels therefore contains the right wheel for every material.

TYROLIT sharpening and polishing wheels are particularly supple and provide for easy profiling. On the basis of their structure, they can quickly create the finest surfaces. When used

at the recommended speed, they provide for a long tool life and particularly cool grinding. Through their use, you improve the cutting ability of your cutting tools and benefit from

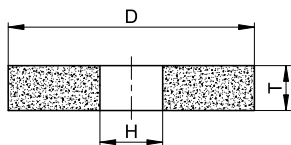
the easiest handling. In this way, your tool cutting edges are quickly resharpened.

Application recommendation



Specifica- tion	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
C	256		●	●	●	●	●	●	●			●	
C	257	●	●	●	●	●	●	●	●	●	●	●	●

Shapes



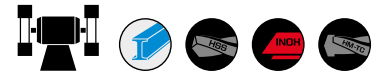
Shape 1

● Extremely suitable

● Limited suitability

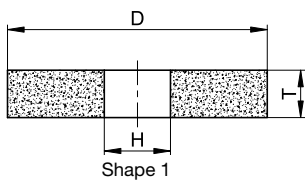
SHARPENING WHEEL FOR CUTTING TOOL

For steel, HSS, stainless steel and Tungsten carbide



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C		●	●	●	●	●	●	●			●	

Recommended stock type



This product was specially developed for sharpening whittlers. Its grit size and tailored bond system enable you to achieve particularly cool grinding. Its fine surface improves the cutting ability and lifetime of the cutting tools.

Ensure that you pay attention to the direction of rotation of the wheel when in use. **The sharpening wheel must always move away from the cutting edge. In addition, the wheel flange diameter must be at least two thirds of the wheel diameter.**

	Type no.	DxTxH	Specification	Vperm. m/s	Degree of hardness	Comments	
	1	10016	125x20x32	C 800 - BE11	25	MEDIUM	
		7133	125x25x20	C 800 - BE11	25	MEDIUM	
		2540	125x25x32	C 800 - BE11	25	MEDIUM	Sharpening of whittlers
		669110	150x20x20	C 800 - BE11	25	MEDIUM	
		7204	150x20x32	C 800 - BE11	25	MEDIUM	
		669109	175x20x32	C 800 - BE11	25	MEDIUM	

Precision grinding

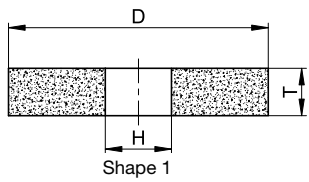
FINE GRINDING AND POLISHING WHEELS

For steel, HSS, stainless steel, tungsten carbide and cast iron



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C	●	●	●	●	●	●	●	●	●	●	●	●

Recommended stock type

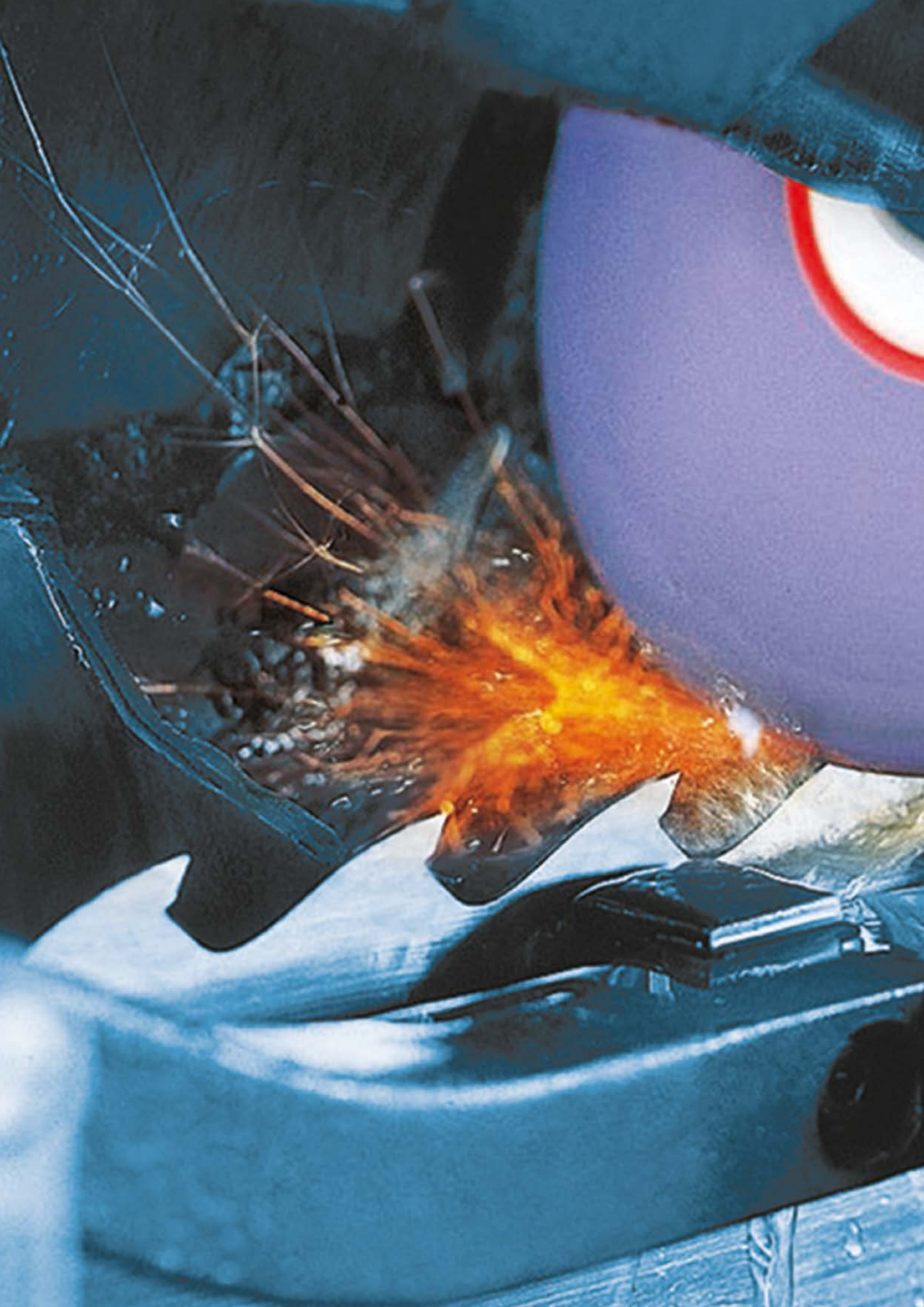


The soft elastic specification of this wheel means it perfectly follows the contours of the workpiece and does not alter the surface geometry. It can be used for polishing, fine grinding, effect grinding, deburring, matting and whetting.

However, it is not suitable for large burrs or high stock removal rates.

	Type no.	DxTxH	Specification	Vperm. m/s	Degree of hardness	PU	Comments
	1	19435	125x20x20	C 400 - BE15	20	MEDIUM	Sharpening of kitchen knives
	7203	150x20x32	C 400 - BE15	20	MEDIUM	1	
	22411	200x25x32	C 400 - BE15	20	MEDIUM	1	
	802276	150x10x25	C 150 - BE13	16	SOFT	5	Surface improvement on pre-ground workpieces (low stock removal)
	2661	150x20x20	C 150 - BE15	20	MEDIUM	1	
	71212	150x20x20	C 400 - BE16	32	HARD	1	
	7186	150x20x20	C 80 - BE15	20	MEDIUM	1	
	22257	150x20x32	C 150 - BE16	32	SOFT	1	
	320369	200x25x20	C 240 - BE15	20	MEDIUM	1	
	7362	200x25x20	C 80 - BE15	20	MEDIUM	1	
	32765	200x25x32	C 150 - BE15	20	MEDIUM	1	

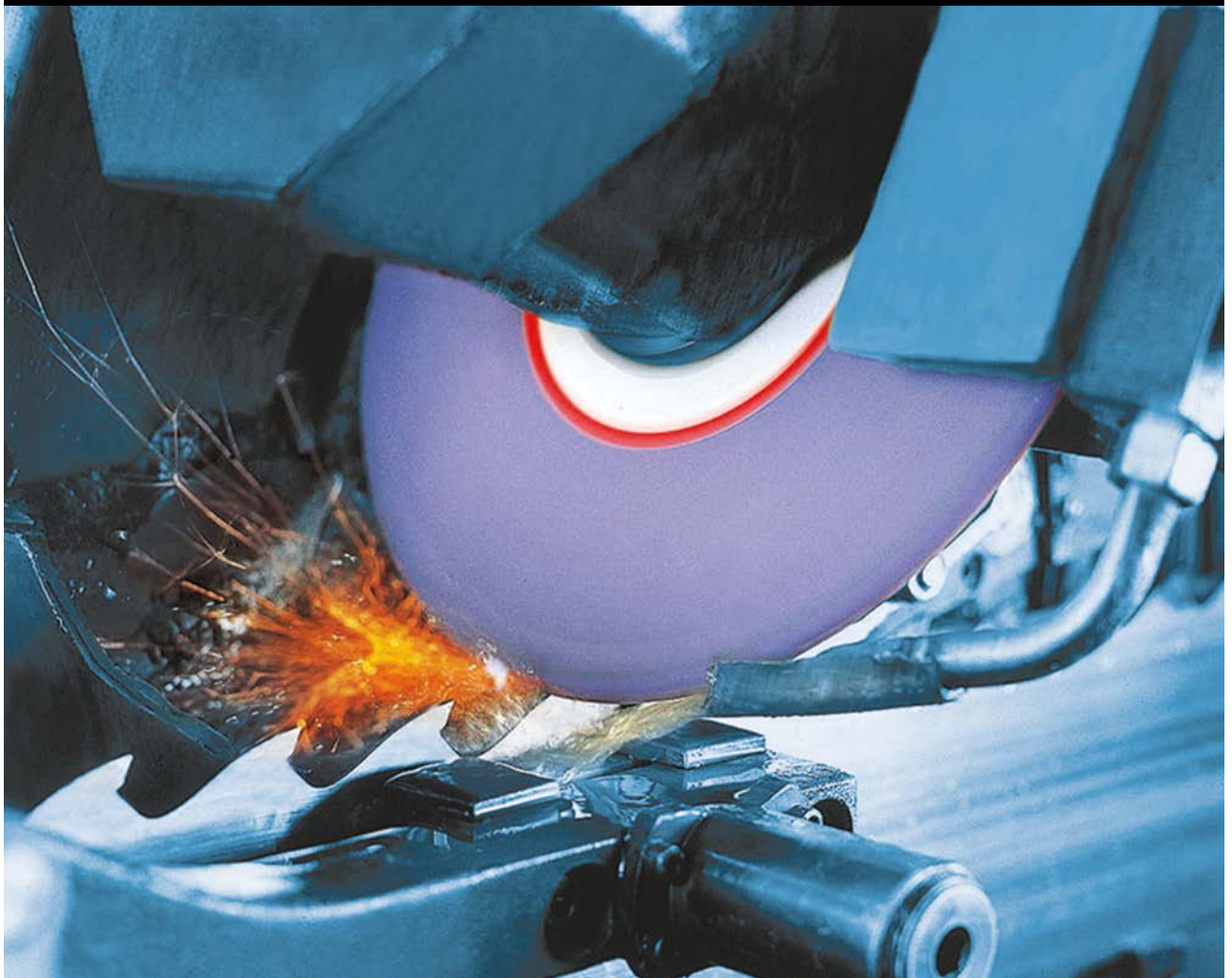
Precision grinding





4.9 SAW SHARPENING TOOLS

SAW SHARPENING

Precision
grinding

SAW SHARPENING

Only a sharp tool is a good tool. For this reason, TYROLIT produces an extensive range of grinding wheels for sharpening saws.

This spans everything from conventional grinding wheels through to diamond and CBN grinding tools. In conjunction with its proven application engineering service, TYROLIT

provides specific solutions that ensure maximum customer benefit. Specially selected grain qualities and innovative bond systems with efficient grinding wheel design guarantee

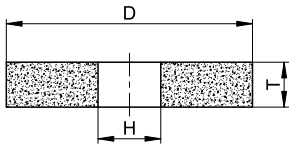
optimum quality at the cutting edges. TYROLIT is therefore your competent partner in the saw industry.

Application recommendation

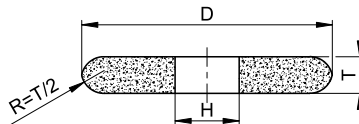


Specification	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
SA	264, 265				●	●						●	●
A	265, 266		●	●								●	●
88A, 89A	263, 264, 265, 266			●		●	●					●	●
455A	265, 271					●							●
52A	265		●									●	●
D	267, 269, 270, 272								●				●
B	270, 271, 272					●	●						●
89A, 454A	271						●						●
55AC, 454A	273						●						●
C	272, 273						●		●				

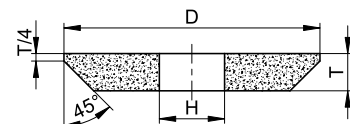
Shapes



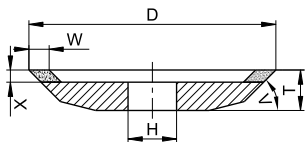
Shape 1



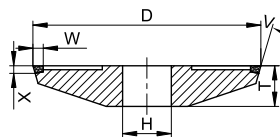
Shape 1F



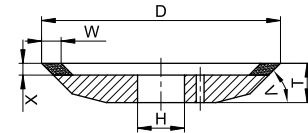
Shape 1C



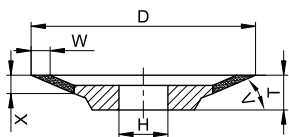
Shape 4V2



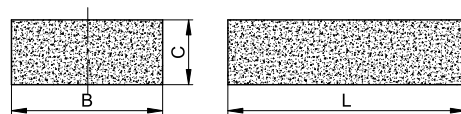
Shape 4B9



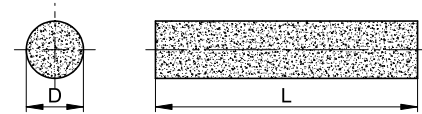
Shape 4V2H



Shape 3V9



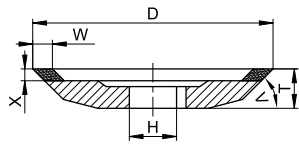
Shape 54SHP / 90B



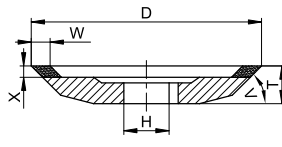
Shape 9030

● Extremely suitable

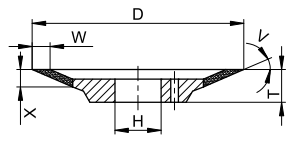
● Limited suitability



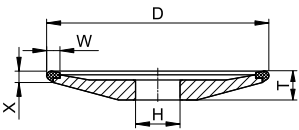
Shape 12V2



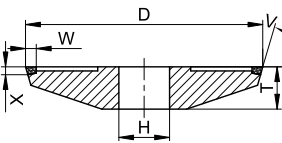
Shape 12V2N



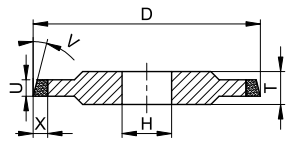
Shape 3V9H



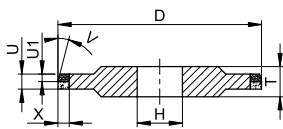
Shape 4C2



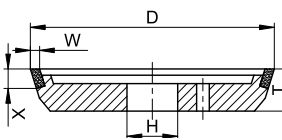
Shape 4B9N



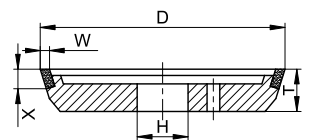
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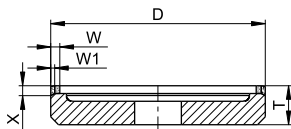
Shape 14M1Z



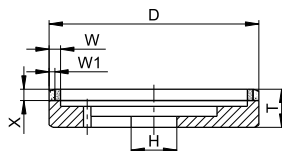
Shape 11B9H



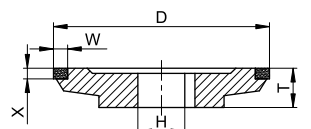
Shape 12A9Z (H)



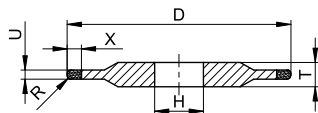
Shape 6A9Z



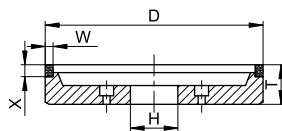
Shape 6A2ZH



Shape 12B9N



Shape 14F1



Shape 6A2B

Precision grinding

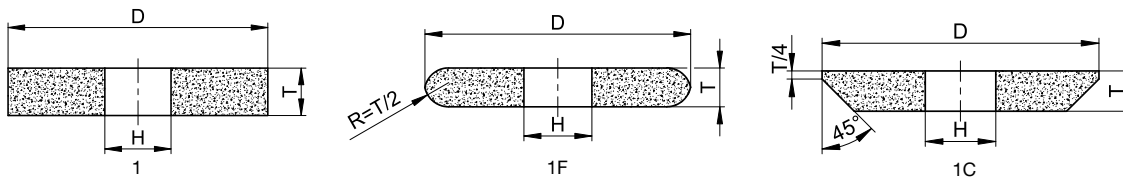
GRINDING TOOLS FOR AUTOMATIC SAW SHARPENING MACHINES

For circular saws and stellite band and gang saws



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
SA						●	●				●	●
A		●	●								●	●
88A, 89A			●			●	●				●	●
455A						●						●
52A		●									●	●

Recommended stock type



TYROLIT sells a wide assortment of tools tailored to various grinding machines and tooth pitches. They are suitable for dry and wet grinding for HSS, chrome vanadium and stellite saws.

The products are available with different edge profiles; shape 1, 1F, 1C, in diameters ranging from 150 to 350 mm.

	Type no.	DxTxH	Specification	Vperm. m/s	Comments
	1	18825	150x3x30 88A 80 M5A V217	63	
		55375	150x3x32 88A 80 M5A V217	63	
		9293	150x4x20 88A 80 M5A V217	63	
		291120	150x4x32 88A 80 M5A V217	63	
		719904	150x6x38 88A 60 K5A V217	63	
		490222	150x6x38 88A 80 K5A V217	63	
	1	10265	150x10x32 89A 60 M5A V217	63	
		455124	150x8x32 89A 60 M5A V217	63	
		719906	175x3x51 89A 60 M5A V217	63	
		123222	175x6x51 89A 60 M5A V217	63	
		50845	175x8x51 89A 60 M5A V217	63	
		3085	200x10x20 89A 60 M5A V217	63	
		3091	200x10x32 89A 60 K5A V217	63	
		3092	200x10x32 89A 60 M5 V217	63	
		608080	200x10x32 89A 60 M5A V217	63	
		762445	200x10x32 89A 60 M5A V217 E5	63	Lateral face impregnation
		51494	200x13x32 89A 60 M5A V217	63	
		448603	200x2x32 88A 80 M5A V217	63	
		7318	200x3x32 88A 80 M5 V217	63	









Recommended stock type

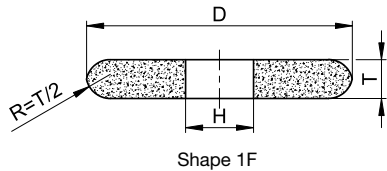
	Type no.	DxTxH	Specification	Vperm. m/s	Comments	
	1	3070	200x6x20	89A 60 M5A V217	63	
		110554	200x6x32	89A 60 K5A V217	63	
		7328	200x6x32	89A 60 M5 V217	63	
		107050	200x6x32	89A 60 M5 V227	63	
		3077	200x8x20	89A 60 M5A V217	63	
		525686	200x8x32	89A 60 M5A V217	63	
		3424	250x10x20	89A 60 M5A V217	63	
		461239	250x10x32	89A 60 M5A V217 E5	63	Lateral face impregnation
		33249	250x13x20	89A 60 M5A V217	63	
		719922	250x13x32	89A 60 M5A V217	63	
	1	292129	150x1.5x32	SA 80 L4 VN-M OD	63	
		441301	150x10x32	SA 60 L5 VN-M OD	63	
		123688	150x2.5x32	SA 80 L4 VN-M OD	63	
		935730	150x2x32	SA 80 L4 VN-M OD	63	
		47009	150x3x32	SA 80 L4 VN-M OD	63	
		226295	150x3x32	SA 80 L5 VN-M OD	63	
		47010	150x4x32	SA 80 L4 VN-M OD	63	
		159000	150x4x32	SA 80 L5 VN-M OD	63	
		667182	150x5x32	SA 80 L5 VN-M OD	63	
		946904	150x6x32	SA 60 L5 VN-M OD	63	
		47005	150x6x32	SA 80 L4 VN-M OD	63	
		17256	150x6x38	SA 60 K5 VN-M OD	63	
		441302	150x8x32	SA 60 L5 VN-M OD	63	
		922647	200x1.5x32	SA 80 L4 VN-M OD	63	
		804963	200x1.75x32	SA 80 L4 VN-M OD	63	
		804979	200x10x32	SA 60 L5 VN-M OD	63	
		867603	200x2.5x32	SA 80 L4 VN-M OD	63	
		804964	200x2x32	SA 80 L4 VN-M OD	63	
		922857	200x2x32	SA 80 L4 VN-M OD	63	
		804957	200x3.5x32	SA 80 L5 VN-M OD	63	
		922860	200x3x32	SA 80 L5 VN-M OD	63	
		804945	200x4x32	SA 80 L5 VN-M OD	63	
		804993	200x5x32	SA 60 L5 VN-M OD	63	
		805000	200x6x32	SA 60 L5 VN-M OD	63	
		804976	200x8x32	SA 60 L5 VN-M OD	63	
		901252	250x3x32	SA 80 L4 VN-M OD	63	
		901254	250x4x32	SA 80 L4 VN-M OD	63	



	Type no.	DxTxH	Specification	Vperm. m/s	Comments	
	1	901256	250x5x32	SA 60 L5 VN-M OD	63	
		901258	250x6x32	SA 60 L5 VN-M OD	63	
		437634	250x10x32	52A 54 M5A V217 E5	63	Lateral face impregnation
		19117	150x4x20	A 60 N4 B2	63	
	1	237227	250x10x32	M455A 609 M7 B82	63	
		226682	300x10x30	M455A 802 M6 B22	63	
		527875	300x10x32	M455A 609 L7 B82	63	
		241857	300x10x32	M455A 809 K6 B22	63	
		313636	300x10x40	M455A 609 M7 B82	63	
		179959	300x10x40	M455A 80 M6 B22	63	
		223733	300x12x40	M455A 609 M7 B82	63	For stellite band and gang saws
		471747	300x12x40	M455A 802 M6 B22	63	
		267138	300x12x40	M455A 809 M6 B22	63	
		485953	300x8x32	M455A 80 M6 B22	63	
		487467	350x10x127	M455A 80 M6 B22	63	
		226679	350x10x127	M455A 802 M6 B22	63	
		226680	350x13x127	M455A 802 M6 B22	63	
		1F	150403	200x10x32	M455A 609 M7 B82	63
476545	250x12x32		M455A 609 M7 B82	63		
150402	300x10x32		M455A 609 L7 B82	63		
	1F	805007	200x8x32	SA 60 K5 VN-M OD	63	
		805008	200x10x32	SA 60 K5 VN-M OD	63	
		805015	250x13x32	SA 60 K5 VN-M OD	63	
		805017	250x8x32	SA 60 K5 VN-M OD	63	
		805018	250x10x32	SA 60 K5 VN-M OD	63	
		805019	250x12x32	SA 60 K5 VN-M OD	63	
		804983	200x10x32	SA 60 L5 VN-M OD	63	
		804986	200x8x32	SA 60 L5 VN-M OD	63	
	1C	28549	200x10x32	89A 60 M5A V217	63	
		161678	250x10x20	88A 60 N4A V217/89A 60 M5A V217	63	
		162874	200x12x20	88A 60 N4A V217/89A 60 M5A V217	63	
		172352	175x8x20	88A 60 N4A V217/89A 60 M5A V217	63	Two-layer wheels
		719918	200x10x20	88A 60 N4A V217/89A 60 M5A V217	63	
		720012	200x10x32	88A 60 N4A V217/89A 60 M5A V217	63	

GRINDING TOOL FOR CHAIN SAW SHARPENING MACHINES

For steel



With this wheel you receive a precise product that will significantly increase the lifetimes of your chain saws. The profile radius of this product corresponds to half the wheel width and is optimally tailored to the tooth base radius.

This tool is suited to dry grinding with edge profile shape 1F and a 140 mm diameter.

	Type no.	DxTxH	Specification	Vperm. m/s	
	1F	740908	140x3.2x12	88A 54 K5A V217	63
		244477	140x4.5x12	88A 54 K5A V217	63
		123716	140x3.8x12	50A 541 K5A V217	63

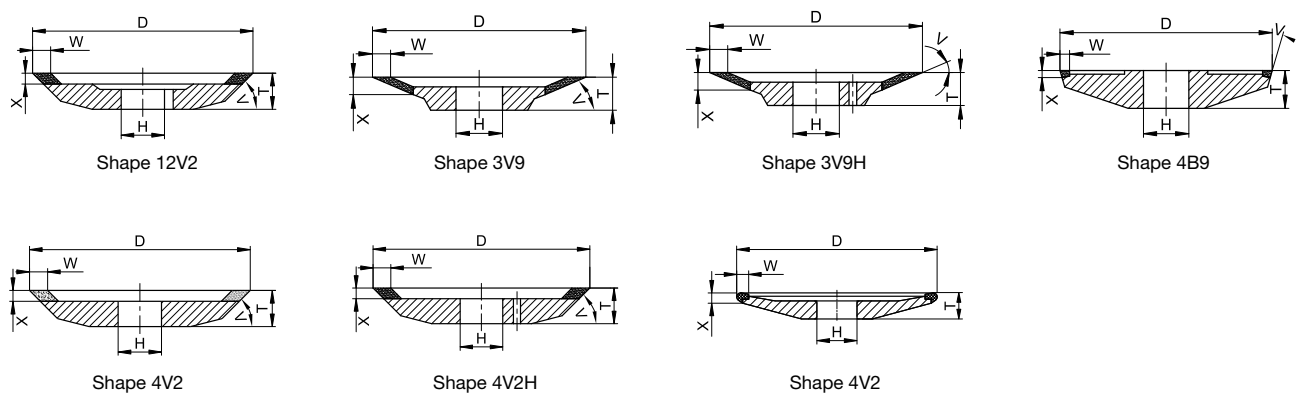
RESIN-BONDED DIAMOND GRINDING WHEELS FOR CHIP SURFACE GRINDING (TOOTH-FACE GRINDING)

For tungsten carbide



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
D								●				●






Recommended stock type



Precision grinding

TYROLIT offers a wide assortment of tools tailored to various grinding machines for narrow and wide tooth pitches due to their adapted diamond section thicknesses and core shapes. This enables you to achieve perfect surface geometries.

This product is available for all standard sharpening machines in 100 - 200 mm diameters.

	Type no.	DxTxH	W-X V	Specification	Comments
	12V2 462766	200x13x32	4-2 V30	11D 46 C125 B 48 AL	e.g. Vollmer, Biberach
	12V2N 463026	100x10x25	4-2 V30	11D 46 C100 B 48 AL	e.g. Vollmer, Dornhan, Widma
	462654	200x14x32	4-2 V30	11D 46 C125 B 48 AL	e.g. Akemat
	3V9 563857	125x13x32	2.5-5.5 V70	11D 46 C100 B 48 AL	e.g. Vollmer, Biberach
	578936	150x13x32	2.5-5.5 V70	11D 46 C100 B 48 AL	e.g. Akemat
	3V9H 580905	200x13x32	2.5-4.4 V70	11D 46 C125 B 250 AL	Narrow tooth pitch
	4B9 369110	125x11.5x32	2.5-1.2 V15	11D 54 C75 B 74 AL	e.g. Vollmer, Biberach
	462788	125x12x32	3-3.8 V15	11D 54 C125 B 48 AL	e.g. Vollmer, Biberach, large tooth pitch
	820013	125x12x32	3-1.8 V15	11D 126 C75 B 70 AL	e.g. Vollmer, Biberach
	34015955	125x12x32	3-2 V15	11D 76 C125 B 250 AL	e.g. Vollmer, Biberach
665040	125x14x32	3-3.8 V15	11D 54 C75 B 70 AL	e.g. Vollmer, Biberach, large tooth pitch	
	4V2 462630	150x12x32	4-2 V30	11D 76 C125 B 48 AL	e.g. Vollmer, Biberach
	462631	150x12x32	4-2 V30	11D 46 C125 B 48 AL	e.g. Vollmer, Biberach
	462630	150x12x32	4-2 V30	11D 76 C125 B 48 AL	e.g. Vollmer, Biberach
	462631	150x12x32	4-2 V30	11D 46 C125 B 48 AL	e.g. Akemat
	4V2H 462898	160x13x32	4-2 V30	11D 76 C125 B 48 AL	e.g. Walter
	379577	200x13x32	4-2 V30	11D 46 C125 B 48 AL	e.g. Vollmer, Biberach, Walter
	462760	200x13x32	4-2 V30	11D 76 C125 B 48 AL	e.g. Vollmer, Biberach
	379577	200x13x32	4-2 V30	11D 46 C125 B 48 AL	e.g. Vollmer, Biberach
	Type no.	DxTxH	W-X	Specification	Comments
	4B9H 405549	175x12x50,8	4-2	11D 76 C125 B 48 AL	e.g. Vollmer, Dornhan (in set with TN 462829)
	4B9N 632932	100x8x25	3-1.8	11D 54 C75 B 70 AL	e.g. Vollmer, Dornhan, Widma
	Type no.	DxTxH	W-X	Specification	
	4C2 482702	150x10x32	2.5/3-1.5	11D 64 C100 B 70 ST	

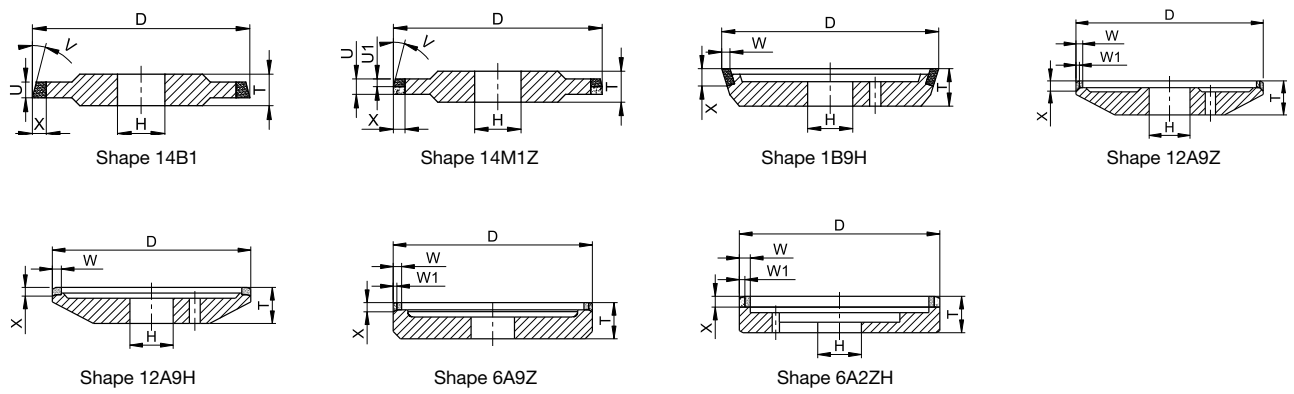
RESIN-BONDED DIAMOND GRINDING WHEELS FOR CLEARANCE GRINDING (BACK GRINDING)

For tungsten carbide



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
D								●				●

Recommended stock type





This resin-bonded diamond wheel is available as a cup wheel or peripheral wheel. It is also available as a single or D126/D46 double layer. Double layer wheels achieve an excellent level of cutting quality due to a combination of two grit sizes in a high concentration.

This product is available for all standard sharpening machines in 100 - 125 mm diameters.

	Type no.	DxTxH	U-U1-X V	Specification	Comments
	14B1	462503	127x95x8x32	5-8 V15	DE544BS STARTEC-BASIC e.g. Akemat
	14M1Z	462514	127x8x32	2.5-2.5-6 V15	11D 126 C125 B 48 AL/11D 54 100 B48 e.g. Akemat, two-layer wheels
		462889	150x8x32	2.5-2.5-8 V8	11D 126 C100 B 48 AL/11D 76 75 B48 e.g. Walter, two-layer wheels
		462891	200x8x32	2.5-2.5-8 V8	11D 126 C100 B 48 AL/11D 46 75 B48 e.g. Walter, two-layer wheels
	Type no.	DxTxH	W-X	Specification	Comments
	11B9H	462756	125x18x32	3-6.5	11D 54 C100 B 48 AL e.g. Vollmer Biberach, driving pin hole



Precision grinding

	Type no.	DxTxH	W-W1-X	Specification	Comments
	12A9Z 286864	125x18x32	5-2,5-6	11D 126 C125 B 65 AL/11D 46 100 B65	e.g. Vollmer Biberach, double layer
	390582	125x18x32	5-2,5-6	11D 126 C100 B 65 AL/11D 46 75 B65	e.g. Vollmer Biberach, double layer
	387531	125x22x32	5-2,5-6	11D 126 C100 B 65 AL/11D 46 75 B65	e.g. Vollmer Biberach, double layer
	12A9H 462757	125x18x32	5-6	DE913BS STARTEC-BA-SIC	e.g. Vollmer Biberach
	6A9Z 389569	100x20x25	5-2,5-6	11D 126 C100 B 42 AL/11D 46 75 B42	e.g. Vollmer Dornhan, double layer
	6A2ZH 462829	125x20x50,8	5-2,5-10	11D 126 C100 B 65 AL/11D 46 75 B65	e.g. Vollmer Dornhan, double layer (in set with TN 405549)

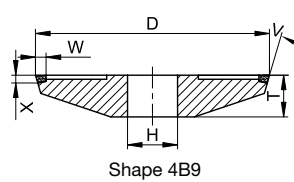
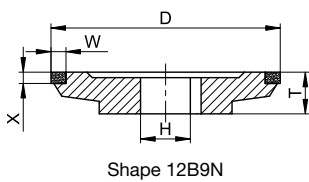
RESIN-BONDED DIAMOND GRINDING WHEELS FOR FLANK MACHINING

For tungsten carbide




Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
D								●				●

Recommended stock type



This TYROLIT product is suitable both for repair and production grinding and offers high stock removal rates on tungsten carbide. This is primarily achieved due to a reduced concentration and tailored bond system.

The diamond wheels are available for all standard sharpening machines in 76 - 100 mm diameters. It is important to note that diameters of 76 - 80 mm should be used especially for narrow tooth pitches.


	Type no.	DxTxH	W-X	Specification	Comments
	12B9N 462658	76x14x20	4.5-4	11D 91 C50 B 52 AL	e.g. Akemat, Vollmer
	331135	100x14x32	4.5-4	11D 64 C75 B 74 AL	e.g. Vollmer
	474564	100x14x20	4.5-4	11D 91 C50 B 53 AL	e.g. Vollmer



RESIN-BONDED DIAMOND GRINDING WHEELS FOR FLANK MACHINING

For tungsten carbide



	Type no.	DxTxH	W-X	Specification	Comments
	4B9	462794	80x10x32	4-5	11D 107 C75 B 53 AL e.g. Vollmer
		328027	100x10x32	5-4	14D 91 C50 B 42 AL e.g. Vollmer

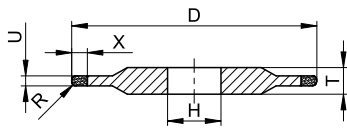
CBN RESIN TOOLS FOR TOOTH PROFILE GRINDING

For HSS



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
B						●	●					●



Recommended stock type



Shape 14F1

This TYROLIT product is suitable both for repair and production grinding and offers high stock removal rates on HSS. The CBN tool for tooth profile grinding has been specially designed for wet grinding with emulsion and oil.

The CBN tools are available for all standard sharpening machines in 150 - 200 mm diameters.

	Type no.	DxTxH	U-X R	Specification	Comments
	14F1	462911	150x20x20	1.3-8.4 R0.65	44B 126 C125 B 87 ST e.g. Schmidt-Tempo ECE
		462914	150x20x20	2-8.4 R1	44B 126 C125 B 87 ST
		462916	150x20x20	2.5-8.4 R1.25	44B 151 C125 B 87 ST
		462918	150x20x20	3-8.4 R1.5	44B 151 C125 B 87 ST
	14F1	454693	200x8x32	1.6-8.4 R0.8	44B 126 C125 B 87 ST e.g. Loroch, Rekord, Schmidt-Tempo
		462924	200x8x32	1.3-8.4 R0.65	44B 126 C125 B 87 ST
		462928	200x8x32	2-8.4 R1	44B 126 C125 B 87 ST
		462932	200x8x32	2.5-8.4 R1.25	44B 151 C125 B 87 ST
		462937	200x8x32	3-12.5 R1.5	44B 151 C125 B 87 ST

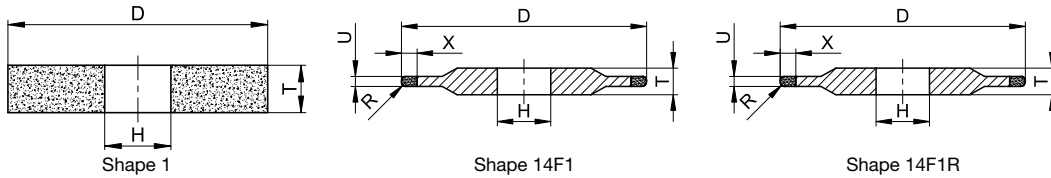
VITRIFIED-BONDED AND CBN RESIN-BONDED PROFILE GRINDING WHEELS

For tungsten carbide and HSS



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A, 455A						●						●
D								●				●
B						●					●	●

Recommended stock type



For profile grinding of HSS you can use aluminium oxide or CBN wheels. Tungsten carbide should however only be ground using diamond. For pre-grinding we recommend using grit size 54 in aluminium oxide and sintered aluminium oxide mixture.

Grit size 100 should be used for finish grinding and fine profiles, or alternatively B151 in CBN. Finer grit sizes are usually used for tungsten carbide.

	Type no.	DxTxH	U-X R	Specification	Comments	
	1	30806	225x5x60	89A 54 I5A V53		
		102804	225x5x60	89A 100 H5 V111		
	1	619872	225x5x60	455A 541 L6 V3 50	Weinig Rondamat for HSS tools	
	14F1	463137	200x10x31.75	4-7 R2	Universal	
		665983	200x10x20	4-7 R2		DE913BS STARTEC-BASIC
	14F1R	462926	200x10x60	3-5 R1.5	DE643BS STARTEC-BASIC	Weinig Rondamat for HM tools
		462939	200x5x60	4-7 R2	DE913BS STARTEC-BASIC	
	462943	200x5x60	2-7 R1	DE463BS STARTEC-BASIC		

Precision grinding

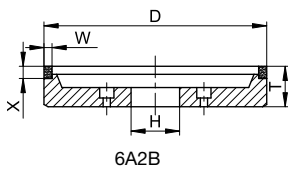
RESIN TOOL FOR REGRINDING PLANER KNIVES

Für Hartmetall und HSS




Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
D								●				●
B						●					●	●

Recommended stock type



These resin tools are cup wheels with special mounting holes for Weing Rundamats. Planer knives can be reground using wet or dry grinding.

To achieve the required cutting quality, grain B107 is used for HSS and grain D76 for tungsten carbide.

	Type no.	DxTxH	WxX	Specification	Comments
	6A2B	34480	125x18x20	3-4	51B 107 C50 B 74 AL
		590433	125x18x20	3-4	11D 76 C75 B 52 AL

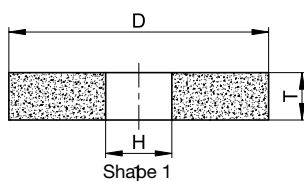
ELASTIC TOOL FOR EFFECT GRINDING

For steel



Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C		●	●	●	●	●						●

Recommended stock type




The TYROLIT elastic tool has been specially developed for effect grinding in production or repair. When soldering on tungsten carbide teeth, discolouration to the workpiece occurs; this can be removed quickly.

Elastic wheels with silicon carbide are also used for cleaning and touching up used saw blades. Effect grinding is also frequently used on saw blades.



Precision grinding

	Type no.	DxTxH	Specification	
	1	401616	250x25x32	C 46 - BE19 F
		491888	250x25x32	C 46 - BE16

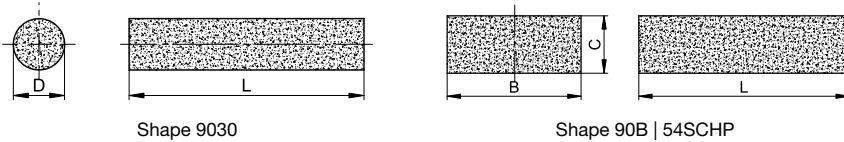
VITRIFIED-BONDED AND RESIN-BONDED JOINTING STONES

For tungsten carbide and HSS




Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
55AC, 454A						●						
C						●		●				

Recommended stock type



To achieve the highest planing quality, micro-size planer heads are levelled with jointing stones. Products from TYROLIT achieve optimum dressing effects.

It is possible to level HSS and tungsten carbide planer knives with this product.

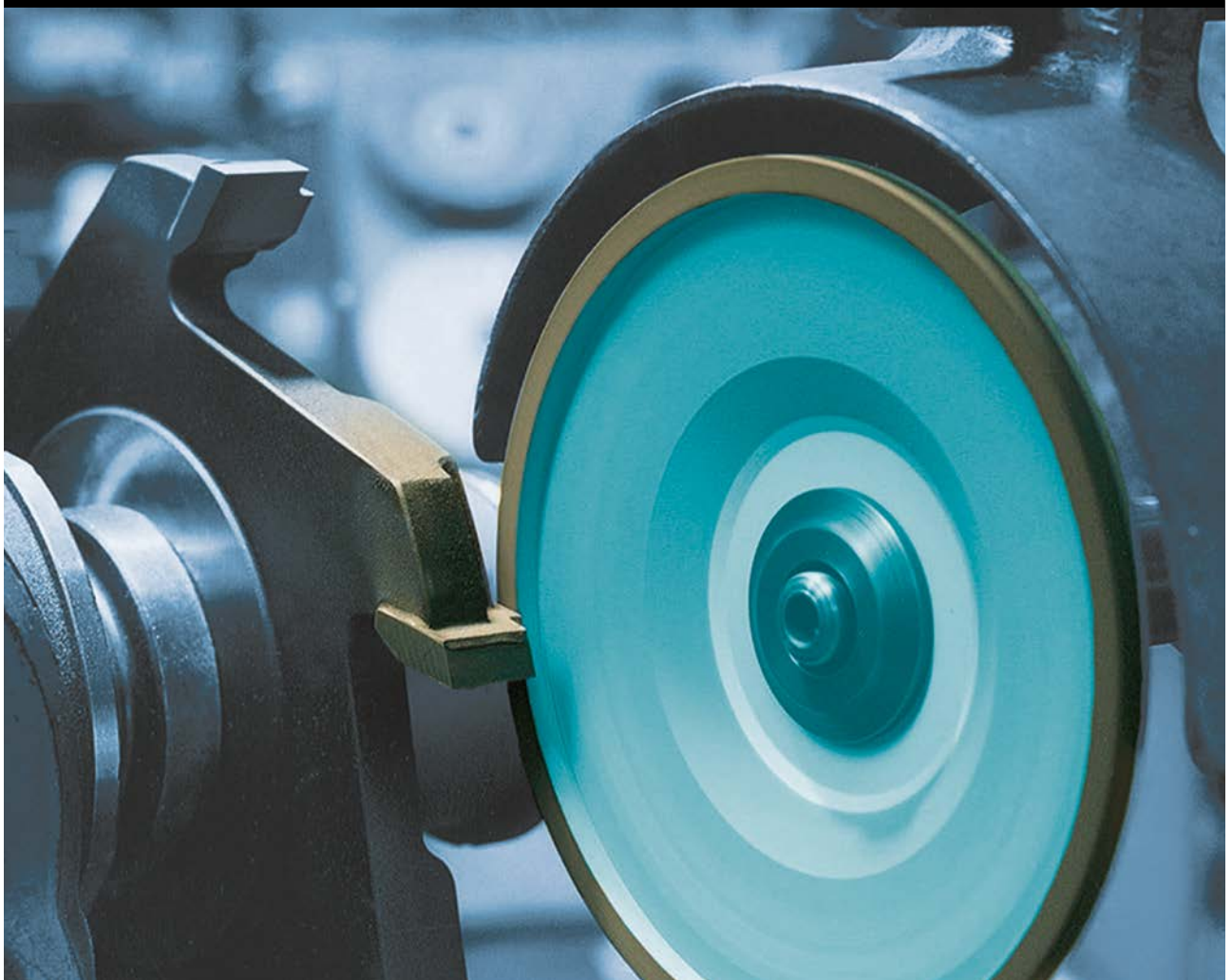
	Type no.	BxCxL	Specification	
	54SCH	351654	20x15x60	C 320 -55 V18
	9030	775476	12x32	C 280 J5 V18
	54SCHP	917288	60x15x160	454A 500 D2 B22
	90B	34020398	60x15x160	55AC 500 D4 B22





4.10 TOOLS

UNIVERSAL TOOL GRINDING



Precision grinding

UNIVERSAL TOOL GRINDING

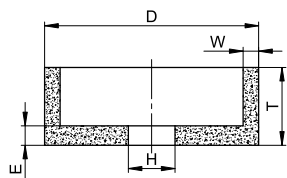
TYROLIT offers a comprehensive range of grinding tools for tool grinding. This makes a high-quality range available for tool production as well as tool regrinding.

It includes conventional grinding wheels as well as diamond and CBN grinding tools for wet and dry

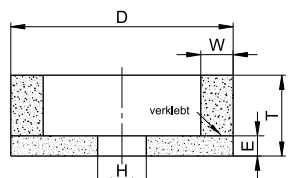
grinding. Grain qualities adapted to the grinding process and innovative bond systems combined with efficient

grinding wheel design always guarantee optimum quality of your tools.

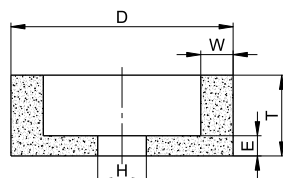
Shapes



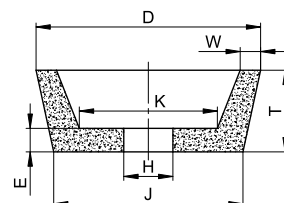
Shape 6



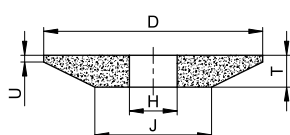
Shape 6BS



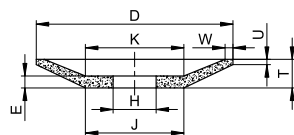
Shape 6BB



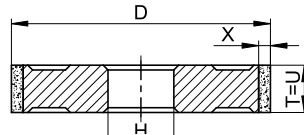
Shape 11



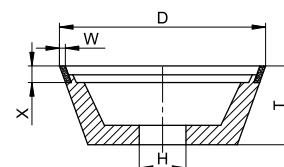
Shape 3



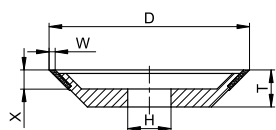
Shape 12



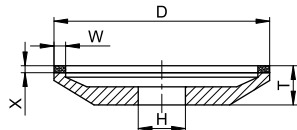
Shape 1A1



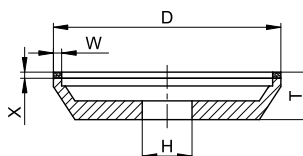
Shape 11V9



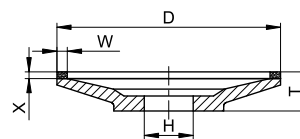
Shape 12V9



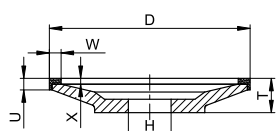
Shape 12A2



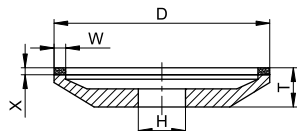
Shape 12A2D



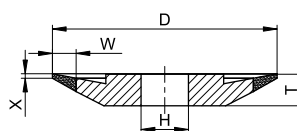
Shape 12A2F



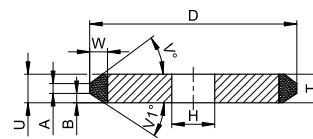
Shape 12C2F



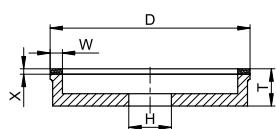
Shape 4C2



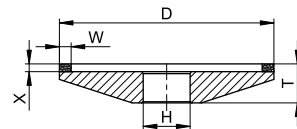
Shape 4BT9



Shape 1BM1



Shape 6A2



Shape 4A2

Application recommendation



Specifica- tion	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
89A	279, 280, 281			●		●	●					●	
91A	280						●					●	
454A	279					●	●					●	
C	281								●			●	
AMIGO, B	282, 283, 284			●		●	●					●	
DIAGO, D	285, 286								●			●	

● Extremely suitable

CONVENTIONAL CERAMIC FOR DRY GRINDING

For non and low-alloyed steels, high-alloyed steels and HSS.



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
89A			●		●	●					●	
91A						●					●	
454A					●	●					●	

Recommended stock type

Shape 6

Shape 6BS

Shape 11

Shape 3

Shape 12



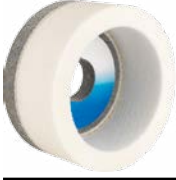

With this tool you can grind all cutting tools for the wood and metal industry and a range of shear blades. These products are disc and cup wheels with fused white aluminium oxide or sintered aluminium oxide mixtures that are used in dry grinding. The tailored specification of this tool prevents discolouration on the workpieces.

	Type no.	DxTxH	W/E	Specification	Comments	
	6	34048152	80x40x20	W6/E10	454A 801 N5 V3 U5	
		455038	80x40x20	W6/E8	454A 901 M5 V3 U5	
		34048027	100x50x20	W10/E10	454A 801 K5 V3 U5	
	6	34924	100x50x20	W10/E10	89A 462 K5A V53	
		19040	100x50x20	W8/E10	89A 542 I5A V53	
		5886	100x50x20	W10/E10	89A 60 J5A V53	
		5887	100x50x20	W10/E10	89A 60 K5A V53	
		49273	100x50x20	W10/E10	89A 60 M5A V53	
		9627	100x50x20	W10/E10	89A 80 I7A V53	
		568265	100x50x20	W10/E10	89A 80 I7A V53 U5	With peripheral impregnation
		5889	100x50x20	W10/E10	89A 80 J5A V53	
		8641	100x50x20	W10/E10	89A 80 K5A V53	
		54820	100x50x20	W10/E10	89A 80 L5 V55	
		131991	125x50x32	W13/E13	89A 60 K5 V53	

Precision grinding







		Type no.	DxTxH	W/E	Specification	Comments
	6	451151	125x63x20	W8/E13	89A 542 I5A V53	
		78847	150x50x32	W12/E15	89A 60 K5 V53	
		77824	150x60x50	W15/E15	89A 36 H7 V217	
		84809	150x70x28	W17/E16	89A 36 H8 V217	
		91350	150x76x28	W17.5/E16	89A 46 J8 V217	
		186445	150x80x32	W10/E16	89A 60 J5A V217	
		365824	150x80x50	W10/E16	89A 461 H7A V53	
		54119	175x75x76.2	W17.5/E17	89A 36 J8 V217	
		126245	175x75x78	W15/E18	89A 36 H7A V217	
		712490	175x75x78	W15/E18	89A 36 J10A V237 P22	
		91441	175x75x78	W15/E18	89A 46 H7 V217	
		587026	175x80x32	W13/E20	89A 46 G10A V217	
		210314	200x80x35	W20/E20	89A 46 J8A V53	
		70128	200x80x78	W20/E20	89A 36 H7 V217	
		798715	200x80x78	W20/E20	89A 36 J10A V237 P22	
		5843	80x40x20	W6/E10	89A 60 K5A V53	
	6	122989	100x50x20	W10/E10	91A 80 L5A V217	
		438088	150x63x32	W15/E16	91A 46 G9A V217 P3	
		75803	165x60x32	W15/E15	91A 46 G9A V217 P3	
	6BS	70092	200x100x51	W25/E25	89A 36 I8A V217	
	11	334166	80/57x32x20	W6/E8/K46	89A 1002 H5A V53	
		338237	80/57x32x20	W6/E8/K46	89A 601 K5A V53	
		4917	100/71x40x20	W8/E10/K56	89A 462 J5A V53	
		4924	100/71x40x20	W8/E10/K56	89A 601 K5A V53	
		631057	100/71x40x32	W8/E10/K56	89A 601 J5A V53	
		63195	100/80x50x32	W9/E13/K67	89A 60 K5 V53	
		31675	125/96x40x20	W8/E10/K81	89A 462 K5A V53	
		331500	125/96x40x32	W8/E10/K81	89A 601 J5A V53	
		203176	150/114x50x32	W10/E13/K96	89A 462 I5A V53	
		498229	150/114x50x32	W10/E13/K96	89A 601 J5A V53	



Precision grinding

	Type no.	D/JxTxH	W/E/K	Specification	
	3	31009	150/75x8/2x20	89A 601 J5A V53	
	12	9398	150/75x16/3x20	W10/E10/K85	89A 601 J5A V53
		19659	100/50x13/3x20	W5/E7/K50	89A 601 K5A V53
		216789	125/63x13.3/3x20	W6/E7/K63	89A 461 J5A V53
		364685	125/63x13/3x20	W6/E7/K63	89A 601 I5A V53
		9833	175/85x18/3x20	W10/E10/K85	89A 601 I5A V53

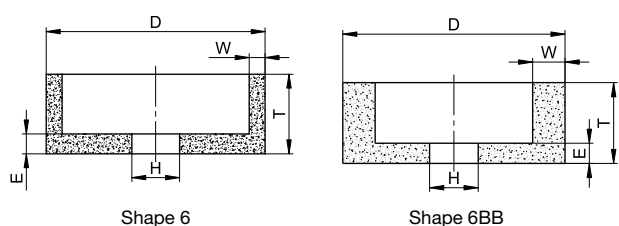
CONVENTIONAL CERAMIC FOR DRY GRINDING

For tungsten carbide





Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
C								●			●	

Recommended stock type



This silicon carbide wheel is a cost-effective variant for machining tungsten carbide for secondary applications. It is primarily used for working on castings and nonferrous metals.

It is ideally suited to grinding mining drills and re-sharpening tools in stone-masons' workshops.

	Type no.	DxTxH	W/E	Specification	Comments
	6	139155	100x50x20	W10/E10 C 80 I5 V15	For HM and coated tools
	6BB	24299	127x63x32	W22.5/E13 C 46 J5 V15	For mining drill grinding machines
		108479	200x100x32	W25.5/E20 C 46 J5 V15	

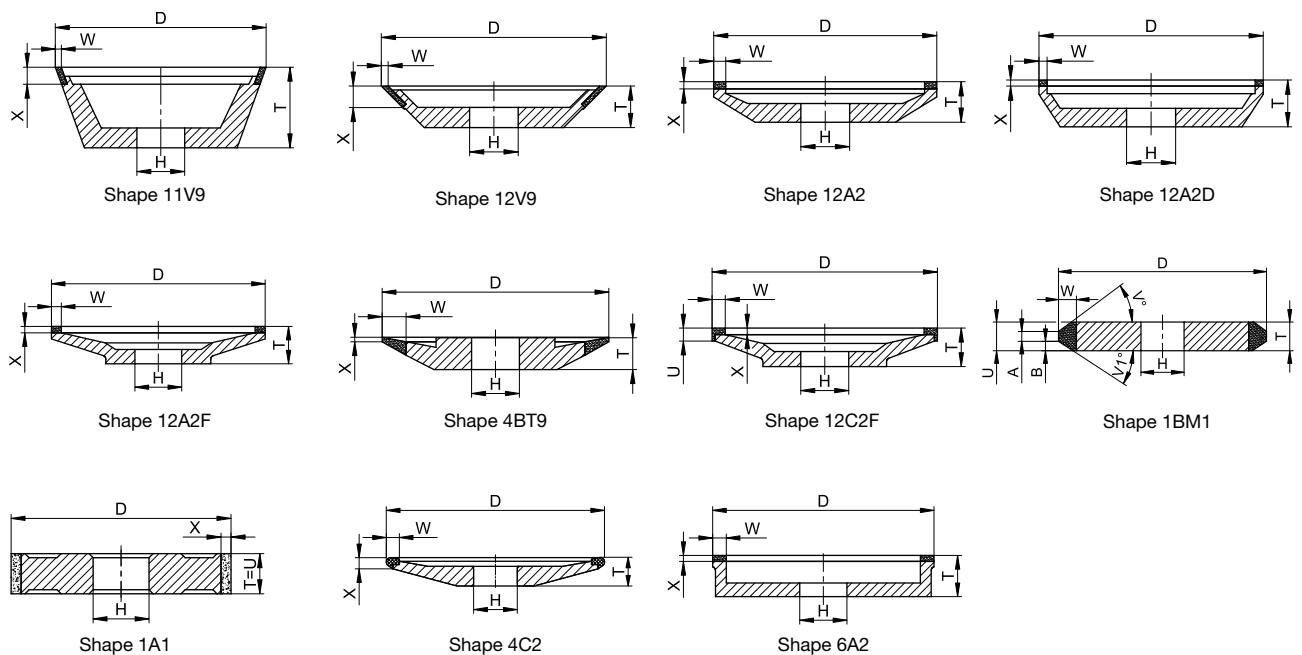
CBN RESIN-BONDED FOR DRY GRINDING

For non and low-alloyed steels, high-alloyed steels and HSS



Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
AMIGO, B			●		●	●					●	

Recommended stock type



With this tool you can grind all cutting tools for the wood and metal industry and a range of shear blades. These products are disc and cup wheels in the CBN grit size range B181 - B91.

Compared to conventional aluminium oxide wheels, CBN wheels exhibit significantly less wear and higher dimensional accuracy.



	Type no.	DxTxH	W-X	Specification	Comments
	11V9	640777	75x30x20	2-10	51B 126 C75 B AMIGO
		644532	125x40x20	2-10	51B 91 C75 B AMIGO
		641854	125x40x20	2-10	51B 126 C75 B AMIGO
		649723	100x35x32	2-10	51B 126 C75 B AMIGO
		666288	100x35x20	2-10	51B 181 C75 B AMIGO
		644514	100x35x20	2-10	51B 91 C75 B AMIGO
		617388	100x35x20	2-10	51B 126 C75 B AMIGO
		636398	100x35x20	3-10	51B 126 C75 B AMIGO
		561391	100x35x20	2-10	51B 151 C75 B 53 BG



Precision grinding






Recommended stock type

		Type no.	DxTxH	W-X	Specification	Comments
	12V9	703242	75x20x20	2-6	51B 126 C75 B AMIGO	
		636658	100x20x20	2-10	51B 126 C75 B AMIGO	
		840506	125x25x20	2-10	51B 126 C75 B AMIGO	
	12A2	124644	150x18x20	5-3	51B 126 C50 B 75 AL	
		436484	150x18x20	5-2	51B 126 C50 B 75 AL	
		337051	150x18x20	4-3	51B 126 C75 B 54 AL	
		649692	175x20x20	6-2	51B 151 C75 B 45 AL	
	12A2D	217976	100x25x20	6-2	51B 126 C50 B 54 AL	
		666137	100x25x20	6-3	51B 126 C50 B 54 AL	
	12A2F	69502	125x23x20	5-4	51B 126 C50 B 75 AL	
	4BT9	119325	100x10x20	10-1	51B 126 C75 B 75 AL	
		Type no.	DxTxH	W/U-X	Specification	
	12C2F	646778	125x23x20	5/5-4	51B 91 C75 B AMIGO	
		641839	125x23x20	5/5-4	51B 151 C75 B AMIGO	
		641842	150x23x20	5/5-4	51B 151 C75 B AMIGO	
		Type no.	DxTxH	W/U-X	Specification	Comments
	1BM1	463068	75x4x20	4-8	51B 91 C75 B 54 AL	Drill bit diameter 4 mm

Precision grinding





	Type no.	DxTxH	W/U-X	Specification	Comments
	1A1	620464	100x10x20	10-6	51B 126 C50 B 54 BA
	Type no.	DxTxExH	W-X	Specification	
	4C2	83827	100x13x20	5,1/6 R2	51B 126 C75 B 75 AL
	Type no.	DxTxExH	W-X	Specification	
	6A2	735896	100x30x12x20	3-6	51B 126 C75 B 74 AL

Precision grinding

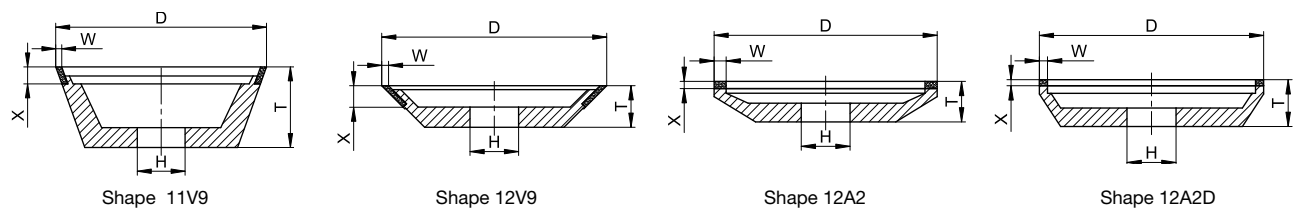
DIAMOND RESIN-BONDED FOR DRY GRINDING

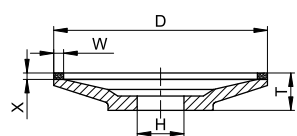
For tungsten carbide



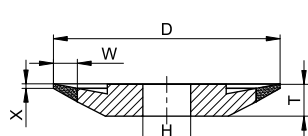
Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
AMIGO, B								●			●	

Recommended stock type

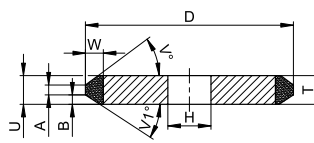




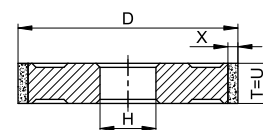
Shape 12A2F



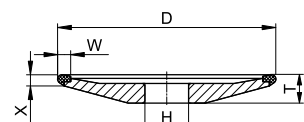
Shape 4BT9



Shape 1BM1



Shape 1A1



Shape 4A2







With this tool you can grind all tungsten carbide cutting tools for the wood and metal industry and a variety of shear blades. These products are disc and cup wheels in the diamond grain size range D181 - D64.

Compared to conventional silicon carbide wheels, diamond wheels exhibit significantly less wear and higher dimensional accuracy.

		Type no.	DxTxH	W-X	Specification	Comments
	11V9	249717	75x30x20	2-6	11D 126 C75 B 52 BG	Long-life B52
		679634	75x30x20	2-10	11D 126 C75 B DIAGO	
		721301	75x30x20	2-10	11D 64 C50 B DIAGO	
		679946	125x40x20	3-10	11D 126 C75 B DIAGO	
		335803	100x35x31.75	2-10	D126B DIAGO	
		5028	100x35x20	3-10	11D 126 C75 B 52 BG	Long-life B52
		561390	100x35x20	3-10	11D 126 C75 B 53 BG	Long-life B53
		576021	100x35x20	2-10	11D 126 C75 B 74 BG	Long-life B74
		675309	100x35x20	2-10	11D 126 C75 B DIAGO	
		675318	100x35x20	3-10	11D 126 C75 B DIAGO	
		46198	100x35x20	3-10	11D 181 C75 B DIAGO	
		676589	100x35x20	2-10	11D 181 C75 B DIAGO	
		675272	100x35x20	2-10	11D 64 C50 B DIAGO	
		721303	100x35x20	3-10	11D 64 C50 B DIAGO	
681915	100x35x20	2-10	11D 91 C75 B DIAGO			
	12V9	696324	75x20x20	2-6	11D 126 C75 B DIAGO	
		721319	75x20x20	2-6	11D 64 C50 B DIAGO	
		311250	125x25x20	2-10	D126B DIAGO	Long-life B73
		90998	125x25x20	2-6	12D 54 C65 B 73 BA	
		689930	100x20x20	2-10	11D 126 C75 B DIAGO	
		194540	100x20x20	2-10	D91B DIAGO	
		43588	100x20x20	2-10	12D 91 C75 B 52 BG	
	12A2	19220	125x16x20	6-2	11D 126 C75 B 52 AL	
		291603	150x18x20	5-3	11D 91 C75 B 52 AL	





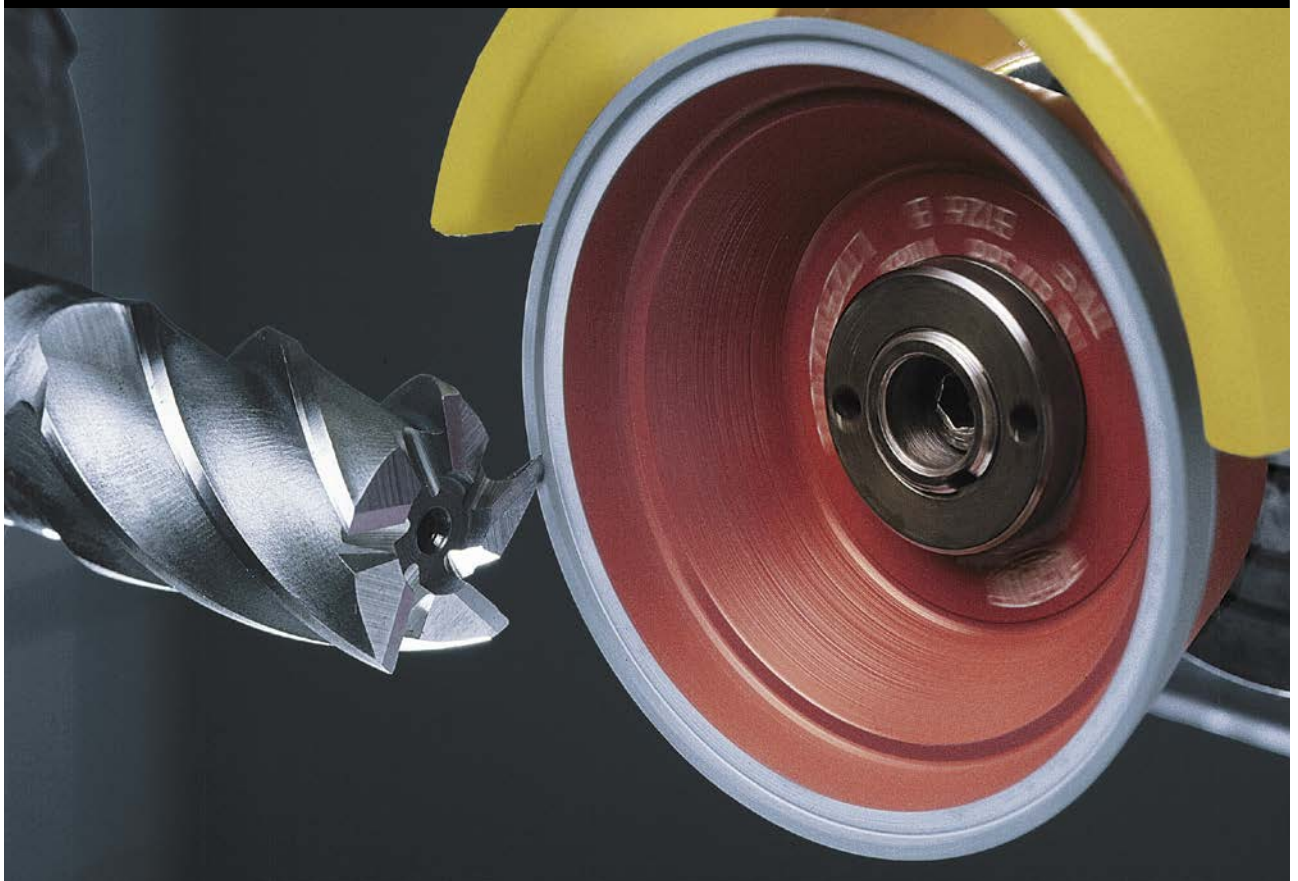
		Type no.	DxTxH	W-X	Specification	Comments
	12A2D	28162	100x25x20	6-2	11D 126 C75 B 52 AL	
		38012	100x25x20	6-2	11D 64 C50 B 52 AL	
		104376	100x25x20	5-3	12D 91 C75 B 52 AL	
		779789	100x25x20	10-3	11D 91 C75 B 52 AL	
		462949	100x27x20	6-4	11D 64 C50 B 52 AL	
	12A2F	97868	125x23x20	5-4	D64B DIAGO	Long-life B73
		102902	125x23x20	5-4	D126B DIAGO	
		731387	125x23x20	5-4	11D 64 C50 B DIAGO	
		731399	125x23x20	5-4	11D 151 C75 B DIAGO	
		842923	125x23x20	5-4	11D 151 C75 B 53 AL	Long-life B53
		416671	150x22x20	4-3	11D 64 C50 B 52 AL	
		679671	150x23x20	5-4	11D 126 C75 B 60 AL	
		Type no.	DxTxH	U-X	Specification	Comments
	4BT9	255835	100x10x20	10-1	11D 91 C75 B 73 AL	
	1BM1	790783	75x4x20	4-8	11D 64 C75 B 52 AL	Drill bit diameter 4 mm
		848480	75x4.5x20	4.5-7	11D 64 C75 B 52 AL	Drill bit diameter 8 mm
		790784	75x5x20	5-6.5	11D 64 C75 B 52 AL	Drill bit diameter 5 and 6 mm
		867805	75x6x20	6-6	11D 64 C75 B 52 AL	Drill bit diameter 10 mm
	1A1	640978	100x10x20	10-6	11D 64 C50 B 52 BA	
	4A2	480500	125x10x20	5-2	11D 126 C75 B 52 AL	
		86734	125x10x20	5-2	11D 64 C50 B 73 AL	
		215813	150x12x20	5-2	11D 126 C50 B 73 AL	
		436472	150x12x20	5-2	11D 64 C50 B 73 AL	

Precision grinding

A close-up photograph of a man with dark hair, wearing a grey long-sleeved shirt, looking intently at a metal drill bit he is holding in his hands. He is positioned in front of a precision grinding machine. The machine's grinding wheel is visible, with the brand name 'MYROW' and 'STARTER VP-P' printed on it. The background shows various mechanical components of the machine, including hoses and metal parts. The lighting is focused on the man and the tool, creating a professional and technical atmosphere.

4.11 TOOLS

CNC TOOL GRINDING



CNC TOOL GRINDING

Productivity demands are constantly growing for applications that involve machining an extremely wide range of different materials. At the same time, quality requirements are also increasing. Both of these requirements demand perfectly ground cutting tools that have been manufactured on the most modern CNC tool grinding machines.

For this purpose, TYROLIT provides you with a perfectly tailored range of products. This ensures that you fully exploit the advantages of the CNC machines used in the manufactur-

ing of cutting tools. You therefore increase your productivity and, at the same time, fulfil the high quality requirements.

In the following, you can find grinding

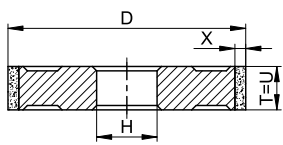
tools that fulfil the requirements of the tool manufacturer just as well as those of the tool regrinder.

Application recommendation

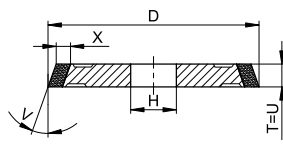


Specification	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
STARTEC-BASIC, B	290, 291				●		●						●
STARTEC-BASIC, D	292, 293								●				●
STARTEC-XP-P, B STARTEC-HP, B	294, 295				●		●						●
STARTEC-XP-P, D STARTEC-HP, D	295, 296, 297								●				●

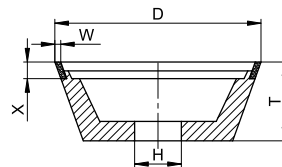
Shapes



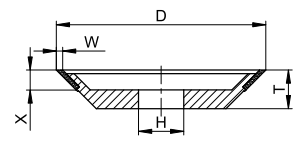
Shape 1A1



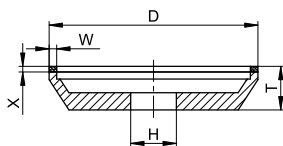
Shape 1V1



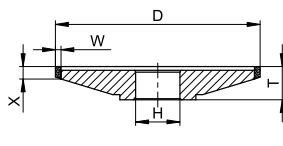
11V9



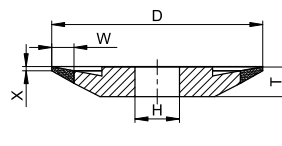
Shape 12V9



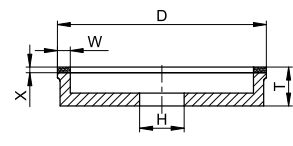
Shape 12A2D



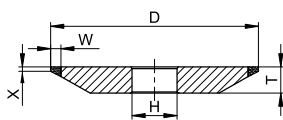
Shape 4B2



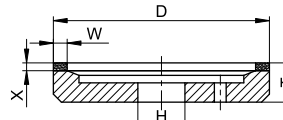
Shape 4BT9



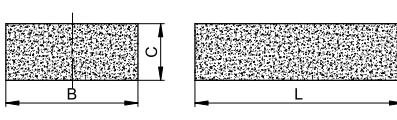
Shape 6A2



Shape 4ET9



Shape 6A2H



Shape 90AS

● Extremely suitable

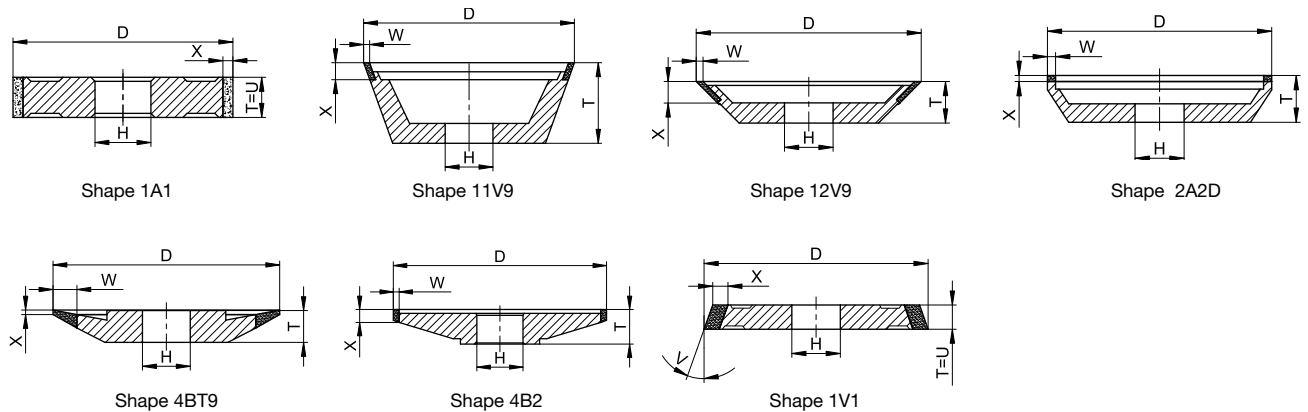
CNC TOOL GRINDING WITH RESIN-BONDED CBN FOR WET GRINDING

For non and low-alloyed steels, high-alloyed steels and HSS.





Specification	Aluminium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
STARTEC-BASIC, B						●	●					●

Recommended stock type



With this tool you can grind all cutting tools for the wood and metal industry and a variety of shear blades.

The wear-resistant bond and a high grain concentration significantly increase lifetimes compared to dry-grinding wheels.

	Type no.	DxTxH	U-X	Specification	Vc m/s	
	1A1	906950	100x6x20	6-6	BL1263PD STARTEC-BASIC	20-25
		906951	100x10x20	10-6	BL1263PD STARTEC-BASIC	20-25
		906954	125x10x20	10-6	BL1263PD STARTEC-BASIC	20-25
	11V9	75669	75x30x20	2-10	BL1263PD STARTEC-BASIC	25-30
		494983	75x30x20	2-10	BL763PD STARTEC-BASIC	25-30
		494985	100x35x20	2-10	BL763PD STARTEC-BASIC	25-30
		532564	100x35x20	3-10	BL763PD STARTEC-BASIC	25-30



Precision grinding



		Type no.	DxTxH	U-X	Specification	Vc m/s	
	12V9	75679	100x20x20	2-10	BL1263PD STARTEC-BASIC	25-30	
		532571	100x20x20	2-10	BL763PD STARTEC-BASIC	25-30	
		75685	125x25x20	2-10	BL1263PD STARTEC-BASIC	25-30	
		495027	125x25x20	2-10	BL763PD STARTEC-BASIC	25-30	
	12A2D	495046	100x25x20	5-3	51B 91 C100 B 42 AL		
		173085	125x25x20	15-3	51B 91 C100 B 42 AL		
	4BT9	495058	125x10x20	10-1	BL1263PD STARTEC-BASIC		
		Type no.	DxTxH	U-X V	Specification	Vc m/s	Comments
	1V1	906946	125x12x20	12-6 V45	BL1263PD STARTEC-BASIC	20-25	
		906947	150x6x20	6-6 V15	BL1263PD STARTEC-BASIC	20-25	
	4B2	667930	150x18x20	2-2xV20	51B 126 C100 B 53 AL		Chip surface, hob

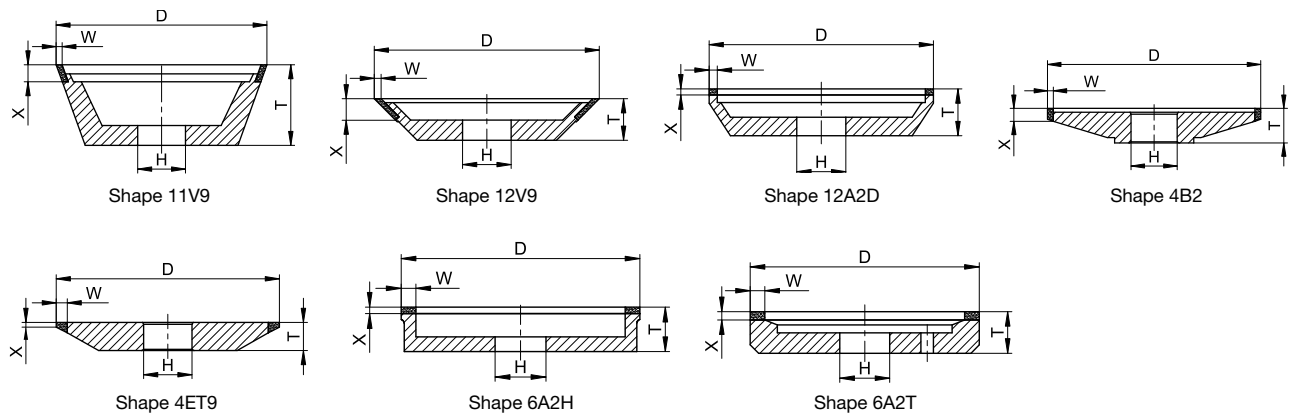
CNC TOOL GRINDING WITH RESIN-BONDED DIAMOND FOR WET GRINDING

For tungsten carbide






Specification	Aluminum	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
STARTEC-BASIC, D								●				●

Recommended stock type



With this diamond wheel you can grind all tungsten carbide cutting tools for the wood and metal industry and a variety of shear blades. Grinding wheel sets for complete machining in the diamond grain size range D126 - D54.





The wear-resistant bond and a high grain concentration significantly increase lifetimes compared to dry-grinding wheels.

	Type no.	DxTxH	W-X	Specification	Vc m/s	Comments
	11V9	390970	75x30x20	2-10	DE643BS STARTEC-BASIC	18-25
		357223	100x35x20	2-10	DE643BS STARTEC-BASIC	18-26
		532514	100x35x20	3-10	DE643BS STARTEC-BASIC	18-27
	12V9	495020	75x20x20	2-6	DE643BS STARTEC-BASIC	18-28
		532510	100x20x20	2-10	DE643BS STARTEC-BASIC	18-29
		532529	100x20x20	3-10	DE643BS STARTEC-BASIC	18-30
		363993	125x25x20	2-10	DE643BS STARTEC-BASIC	18-31
		532540	125x25x20	3-10	DE643BS STARTEC-BASIC	18-32
	12A2D	495044	125x25x20	15-3	11D 54 C75 B 48 AL	



Precision grinding



	Type no.	DxTxH	W-X	Specification	Vc m/s	Comments
	4B2 665141	150x18x20	2-2	DE643BX STARTEC-BASIC		Chip surface, hob
	4ET9 897024	150x14x32	10-1	18D 126 C100 B 53 AL		
	6A2H 462673	200x30x50	8-4	DE1263BP STARTEC-BASIC		For planer and paper knives; e.g. Glöckel, Reform
	665142	200x30x50	8-4	11D 64 C75 B 52 AL		
	6A2T 470272	200x35x75	8-4	11D 126 C100 B 52 AL		
	665143	200x35x75	8-4	11D 64 C75 B 52 AL		

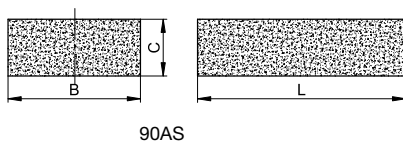
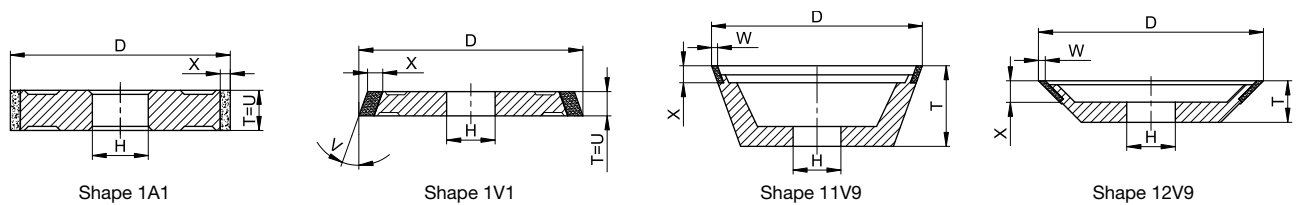
CNC TOOL GRINDING WITH METAL-BONDED CBN FOR WET GRINDING

For high-alloyed steels and HSS



Specification	Alu- minium	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
		Unhardened	Hardened	Unhardened	Hardened							
STATEC- XP-P						●	●					●

Recommended stock type





This metal-bonded CBN wheel grinds all cutting tools for the wood and metal industry. Grinding wheel sets for complete machining are available in the CBN grit size range B126 - B76. It is important that this wheel is only used for deep grinding.


The perfect combination of grit size, concentration and bond delivers exceptionally long tool lifetimes and a high level of profile accuracy.

	Type no.	DxTxH	U-X	Specification	Vc m/s	
	1A1	759826	75x6x20	6-10	B126MXPP STARTEC-XP-P	20-25
		740383	75x10x20	10-10	B126MXPP STARTEC-XP-P	20-25
		751424	100x6x20	6-10	B126MXPP STARTEC-XP-P	20-25
		763854	100x15x20	15-10	B126MXPP STARTEC-XP-P	20-25
		772440	100x12x20	12-10	B126MXPP STARTEC-XP-P	20-25
		740382	100x10x20	10-10	B126MXPP STARTEC-XP-P	20-25
		772442	125x6x20	6-10	B126MXPP STARTEC-XP-P	20-25
		772446	125x15x20	15-10	B126MXPP STARTEC-XP-P	20-25
		772444	125x12x20	12-10	B126MXPP STARTEC-XP-P	20-25
		772443	125x10x20	10-10	B126MXPP STARTEC-XP-P	20-25
		772447	150x8x20	8-10	B126MXPP STARTEC-XP-P	20-25
		772448	150x12x20	12-10	B126MXPP STARTEC-XP-P	20-25
	Type no.	DxTxH	U-X V	Specification	Vc m/s	
	1V1	772453	75x10x20	10-10 V15	B126MXPP STARTEC-XP-P	20-25
		772455	100x12x20	12-10 V45	B126MXPP STARTEC-XP-P	20-25
		772462	125x15x20	15-10 V15	B126MXPP STARTEC-XP-P	20-25
		772458	125x10x20	10-10 V15	B126MXPP STARTEC-XP-P	20-25
		772461	125x10x20	10-10 V45	B126MXPP STARTEC-XP-P	20-25
		772465	150x12x20	12-10 V10	B126MXPP STARTEC-XP-P	20-25



Precision grinding

	Type no.	DxTxH	W-X	Specification	Vc m/s	
	11V9	34211869	75x30x20	3-10	B107BXP-P STARTEC-XP-P	20-30
		34205432	100x35x20	3-10	B107BXP-P STARTEC-XP-P	20-30
		34184813	125x40x20	3-10	B107BXP-P STARTEC-XP-P	20-30
	12V9	34207564	100x20x20	2-10	B107BXP-P STARTEC-XP-P	20-30
		34163105	125x25x20	3-10	B107BXP-P STARTEC-XP-P	20-30

	Type no.	BxCxL	Specification	PU	Comments
	90AS	678953	24x13x200	89A 240 H5A V83	10 Sharpening stick for STARTEC XP-P and HP

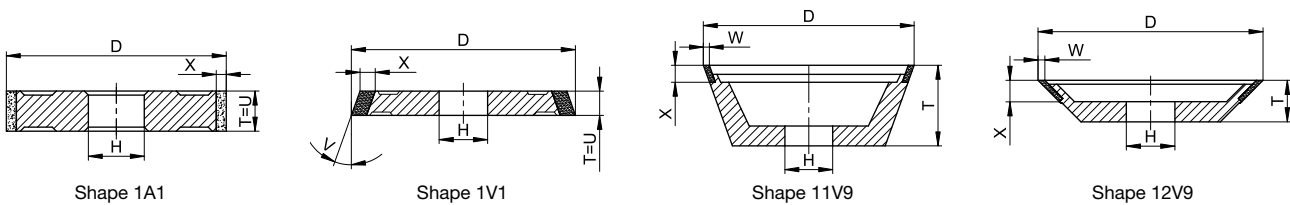
CNC TOOL GRINDING WITH METAL-BONDED DIAMOND FOR WET GRINDING

For tungsten carbide



Specification	Aluminum	Non and low-alloyed steels Unhardened Hardened	High-alloyed steels Unhardened Hardened	HSS	INOX	Carbide metal	Industrial ceramics	Castiron	Dry grinding	Wet grinding
STARTEC-XP-P; D STARTEC-HP, D						●				●



Recommended stock type



With this diamond wheel you can grind all tungsten carbide cutting tools for the wood and metal industry and a variety of shear blades. Grinding wheel sets for complete machining in the diamond grain size range D64 - D46. It is important that this wheel is only used for deep grinding.

The perfect combination of grit size, concentration and bond delivers exceptionally long tool lifetimes and a high level of profile accuracy.



		Type no.	DxTxH	U-X	Specification	Vc m/s
	1A1	662236	75x6x20	6-10	D54MXPP STARTEC-XP-P	16-18
		679931	75x6x20	6-6	D54MXPP STARTEC-XP-P	16-18
		679936	75x10x20	10-6	D54MXPP STARTEC-XP-P	16-18
		742939	75x10x20	10-10	D54MXPP STARTEC-XP-P	16-18
		679938	100x6x20	6-6	D54MXPP STARTEC-XP-P	16-18
		695084	100x6x20	6-10	D54MXPP STARTEC-XP-P	16-18
		675436	100x15x20	15-10	D54MXPP STARTEC-XP-P	16-18
		679942	100x15x20	15-6	D54MXPP STARTEC-XP-P	16-18
		685346	100x12x31.75	12-6	D54MXPP STARTEC-XP-P	16-18
		724476	100x12x31.75	12-10	D54MXPP STARTEC-XP-P	16-18
		679940	100x12x20	12-6	D54MXPP STARTEC-XP-P	16-18
		700297	100x12x20	12-10	D54MXPP STARTEC-XP-P	16-18
		694995	100x10x31.75	10-6	D54MXPP STARTEC-XP-P	16-18
		711619	100x10x31.75	10-10	D54MXPP STARTEC-XP-P	16-18
		679939	100x10x20	10-6	D54MXPP STARTEC-XP-P	16-18
		682530	100x10x20	10-10	D54MXPP STARTEC-XP-P	16-18
		679945	125x6x20	6-6	D54MXPP STARTEC-XP-P	16-18
		686906	125x6x20	6-10	D54MXPP STARTEC-XP-P	16-18
		679949	125x15x20	15-6	D54MXPP STARTEC-XP-P	16-18
		683963	125x15x20	15-10	D54MXPP STARTEC-XP-P	16-18
		711866	125x12x31.75	12-10	D54MXPP STARTEC-XP-P	16-18
		712482	125x12x31.75	12-6	D54MXPP STARTEC-XP-P	16-18
		679948	125x12x20	12-6	D54MXPP STARTEC-XP-P	16-18
		682529	125x12x20	12-10	D54MXPP STARTEC-XP-P	16-18
		685975	125x10x31.75	10-10	D54MXPP STARTEC-XP-P	16-18
		702678	125x10x31.75	10-6	D54MXPP STARTEC-XP-P	16-18
		679947	125x10x20	10-6	D54MXPP STARTEC-XP-P	16-18
		682527	125x10x20	10-10	D54MXPP STARTEC-XP-P	16-18
		684827	150x8x20	8-10	D54MXPP STARTEC-XP-P	16-18
		679953	150x15x20	15-10	D54MXPP STARTEC-XP-P	16-18
		679952	150x12x20	12-10	D54MXPP STARTEC-XP-P	16-18
		679951	150x10x20	10-10	D54MXPP STARTEC-XP-P	16-18
	1A1	572731	75x6x20	6-6	DN543MH STARTEC-HP	16-18
		474444	100x6x20	6-6	DN543MH STARTEC-HP	16-18
		490259	100x15x20	15-6	DN543MH STARTEC-HP	16-18
		556715	100x12x20	12-6	DN543MH STARTEC-HP	16-18
		408972	100x10x20	10-6	DN543MH STARTEC-HP	16-18
		572741	125x10x20	10-6	DN543MH STARTEC-HP	16-18



Precision grinding



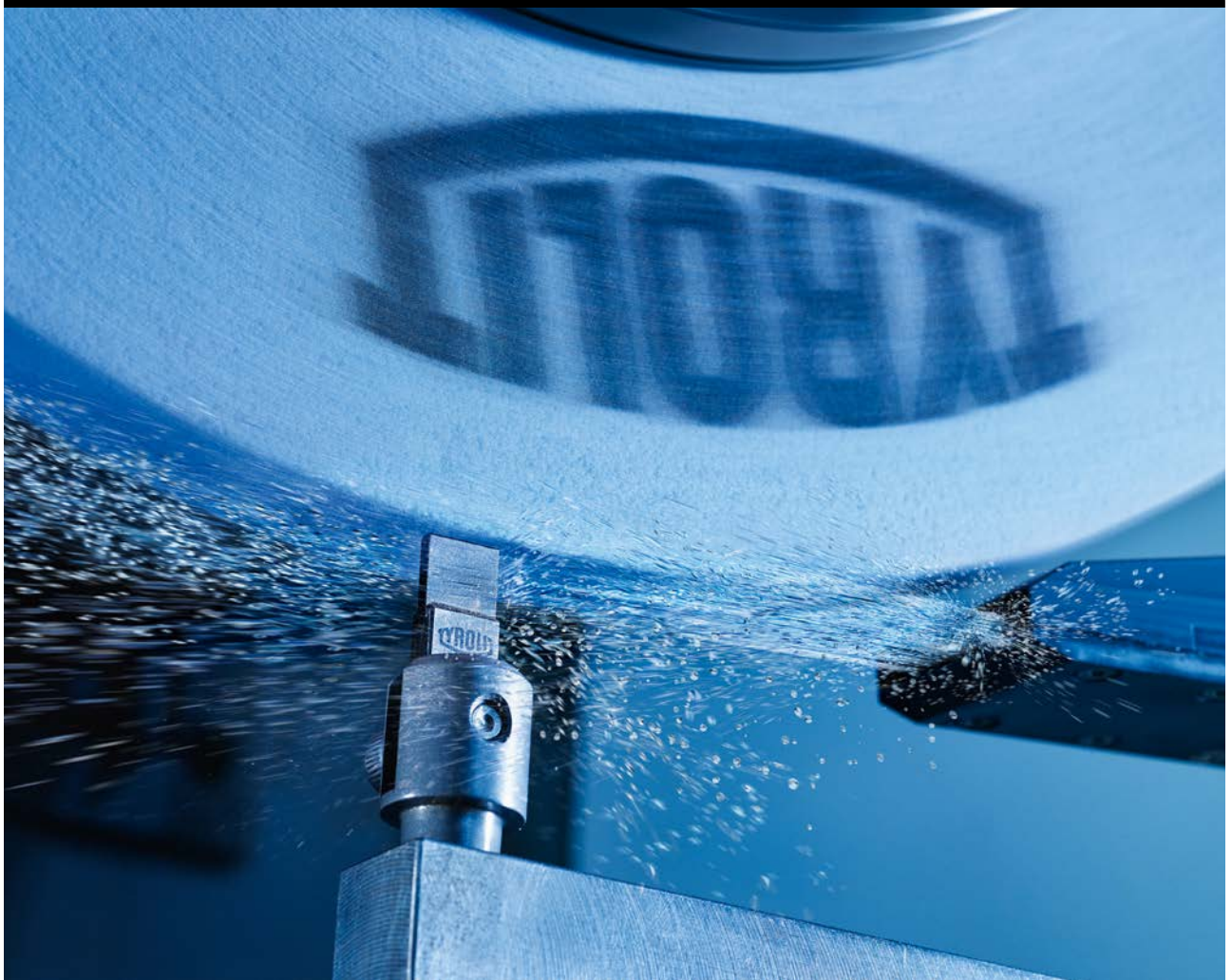
		Type no.	DxTxH	U-X V	Specification	Vc m/s
	1V1	680097	75x6x20	6-6 V15	D54MXPP STARTEC-XP-P	16-18
		680098	75x8x20	8-10 V15	D54MXPP STARTEC-XP-P	16-18
		680099	75x10x20	10-10 V15	D54MXPP STARTEC-XP-P	16-18
		680100	100x6x20	6-10 V15	D54MXPP STARTEC-XP-P	16-18
		680102	100x10x20	10-10 V15	D54MXPP STARTEC-XP-P	16-18
		680104	100x12x20	12-10 V15	D54MXPP STARTEC-XP-P	16-18
		680107	100x12x20	12-10 V45	D54MXPP STARTEC-XP-P	16-18
		680110	100x15x20	15-10 V15	D54MXPP STARTEC-XP-P	16-18
		680112	125x6x20	6-10 V15	D54MXPP STARTEC-XP-P	16-18
		680114	125x10x20	10-10 V15	D54MXPP STARTEC-XP-P	16-18
		680115	125x10x20	10-10 V45	D54MXPP STARTEC-XP-P	16-18
		680116	125x12x20	12-10 V15	D54MXPP STARTEC-XP-P	16-18
		680118	125x12x20	12-10 V45	D54MXPP STARTEC-XP-P	16-18
		680120	125x15x20	15-10 V15	D54MXPP STARTEC-XP-P	16-18
		680123	150x10x20	10-10 V10	D54MXPP STARTEC-XP-P	16-18
680124	150x12x20	12-10 V10	D54MXPP STARTEC-XP-P	16-18		
		Type no.	DxTxH	W-X	Specification	Vc m/s
	11V9	34039198	75x30x20	3-10	D64BXPP STARTEC-XP-P	18-24
		34065405	75x30x20	3-10	D46BXPP STARTEC-XP-P	18-24
		34039199	100x35x20	3-10	D64BXPP STARTEC-XP-P	18-24
		34065402	100x35x20	3-10	D46BXPP STARTEC-XP-P	18-24
		34065409	125x40x20	3-10	D46BXPP STARTEC-XP-P	18-24
		34065410	125x40x20	3-10	D64BXPP STARTEC-XP-P	18-24
	12V9	34044248	100x20x20	3-10	D64BXPP STARTEC-XP-P	18-24
		34065415	125x25x20	3-10	D46BXPP STARTEC-XP-P	18-24
		34056064	125x25x20	3-10	D64BXPP STARTEC-XP-P	18-24





4.12 TOOLS

DRESSING AND SHARPENING



Precision grinding

DRESSING AND SHARPENING








As a result of changes in the bond, the abrasive grain and the shape of the grinding wheel caused by wear to the wheel, grinding is an ever-changing process.

The changes affect grinding forces, workpiece surfaces and geometric accuracy. To ensure the grinding wheel is always able to provide optimum grinding results, a periodic

conditioning cycle must be maintained. This cycle enables the grinding capability of the grinding body to be reproduced. By "conditioning" a grinding wheel correctly, the sub-

sequent grinding process can be optimised in terms of performance, efficiency and surface finish.

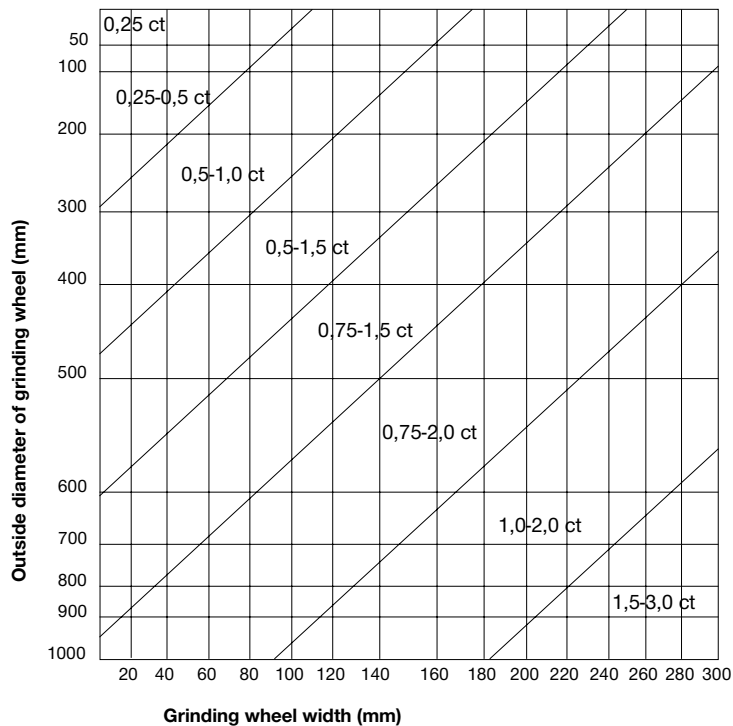
Choosing the right dresser

Dressing tool		Grinding wheel profile	Grinding process/production type
Photo	Detailed description		
single-edge	Single-grain dresser 	Linear (cylindrical, conical) Single-profile (convex, concave radii)	External cylindrical, surface, internal cylindrical and centreless grinding Single and small-lot production
	Profile diamond 	Multi-profile (complex profiles with steep flanks and narrow radii)	Axternal cylindrical, surface and centreless grinding Single and small-lot production
	Multi-set diamond dresser 	Linear (cylindrical, conical)	Surface and external cylindrical grinding Single and small-lot production
	Multi-grain diamond dresser 	Linear (cylindrical, conical)	Surface and external cylindrical grinding Single and small-lot production
multi-edge	Diamond grain dressing plate 	Linear (cylindrical, conical) Single-profile (convex, concave radii)	External cylindrical, surface and centreless grinding Single to large-scale production
	Needle dressing plates 	Linear (cylindrical, conical) Single-profile (convex, concave radii)	External cylindrical, surface and centreless grinding Single to large-scale production
	Dressing plates with MCD rods 	Linear (cylindrical, conical) Single-profile (convex, concave radii)	External cylindrical, internal cylindrical, surface and centreless grinding Single to large-scale production

Prevention of common errors when dressing

- + Return strokes with the dressing tool smooth the grinding wheel surface and reduce the cutting ability.
- + The free clamping length of the dresser is too large. Vibrations arise and the grinding wheel surface becomes irregular. This topography is reproduced on the workpiece in the subsequent grinding process.
- + The dressing infeed selected ($a_e > 0.03 \text{ mm}$) is too high. This results in fracture of the bond bridges in the grinding wheel and the grains break out prematurely. The consequences are: a rough workpiece surface and increased dressing tool wear.
- + The cooling system is switched on too late: high temperatures lead to thermal deterioration and high wear. Remedy: the cooling system must be switched on before the first contact with the dressing tool.
- + Strongly rounded single-grain diamonds permanently alter the dressing results and the cutting ability of the wheel is consequently reduced.

Diamond size (carat) in relation to grinding wheel dimensions



Interrelationship of profile radius | grit size

The table below provides an overview of which grit size can achieve a minimum profile radius. As a standard value, it can be assumed that three abrasive grains are required to maintain a minimum profile radius. To achieve a profile radius of 0.3 mm, an approximate grit size diameter of 0.1 mm is required.

Grit size		36	46	60	80	100	120	150	180	220
Min. profile radius	mm	1	0.80	0.60	0.45	0.30	0.20	0.15	0.12	0.10
	Inches	0.04	0.03	0.03	0.02	0.10	0.01	0.01	0.01	0.00

Interrelationship of surface roughness | grit size

The table below will help you select the right grit size to achieve the required surface roughness result. Variable process parameters (e.g. the dressing method) have a significant effect as to which surface roughness can be achieved with a certain grit size. For this reason, the following table also lists the surface areas/grit size.

You should take into account that large grit sizes facilitate the removal of chips (material). It is not necessary to select the finest grain for each initial selection of the grit size.

Surface		Grit size								
micro inch CLA	µm Ra	36	46	60	80	100	120	150	180	220
42	1.10	●								
32	0.80	●	●							
26	0.70		●							
21	0.50		●	●						
16	0.40			●						
14	0.35			●	●					
11	0.25				●					
8	0.20				●	●				
7	0.17					●				
6	0.14					●	●			
5	0.12						●	●		
4	0.10							●	●	
3	0.08								●	●
2	0.05									●

Precision grinding

Application tips

- + Ensuring sufficient coolant supply while dressing increases lifetime (to prevent thermal overload of dressing diamonds)
- + The active width (bd) describes the effective diamond width of the dressing tool for a certain infeed depth when dressing.
- + With the overlap rate (Ud), surfaces and stock removal rates can be significantly influenced.
- + The overlap rate (Ud) defines the number of grinding wheel rotations during which the dressing tool has deployed to its active width.
- + An increased overlap rate makes the grinding wheel surface smoother and, as a consequence, the actual surface roughness lower.





Standard values for the overlap rate:

- Roughing 2 - 3
- Standard grinding 4 - 6
- Fine grinding ≥ 7

+ The formulas specified only apply to dressers with defined effective widths b_d (single-grain dresser, dressing plate)

$$+ U_d = \frac{\text{Diamond effective width}}{\text{Tool feed}} = \frac{b_d \cdot n_s}{v_d}$$

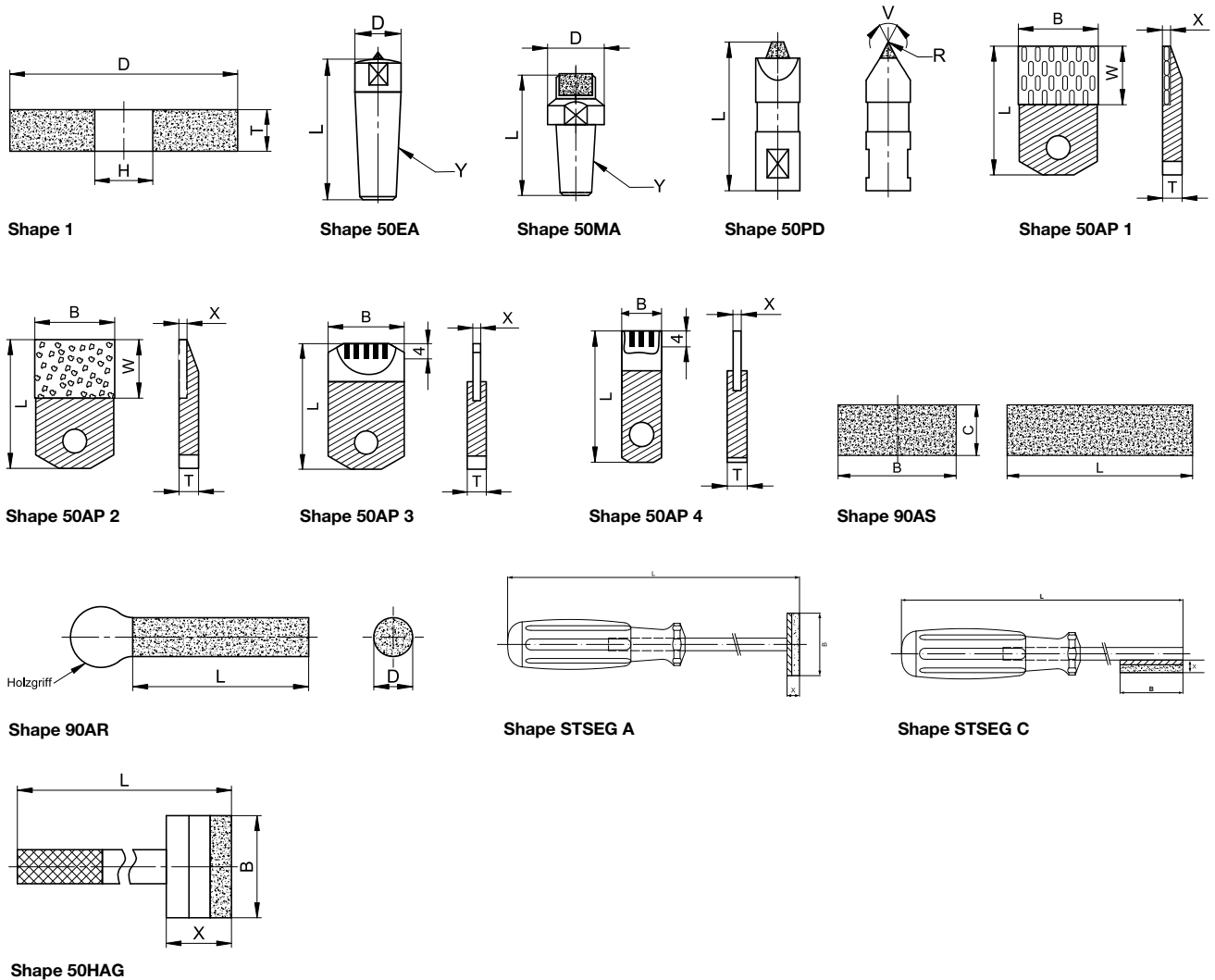
$$v_d = \frac{n_s \cdot b_d}{U_d}$$

b_d = dressing tool effective width

n_s = wheel speed

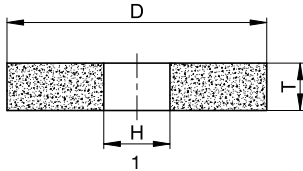
v_d = feed speed of dresser

Shapes




BRAKE DRESSING

Dressing wheels for diamond and CBN grinding wheels



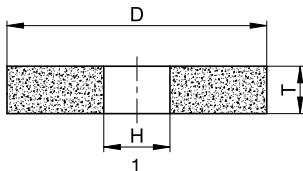
These dressing wheels are used for dressing all types of diamond and CBN grinding wheels, regardless of their bond systems. Sensitive layers can also be dressed with minimal grinding pressure.

Please be aware that electroplated wheels cannot be dressed with them. The silicon carbide wheels are available in 200 - 250 mm diameters.

Type no.	DxTxH	Specification	PU	Comments
	786852	200x12x76.2	C 120 K5 V15	1 For grit sizes <= D91
	34163206	200x20x20	C 120 J5 V15	1 For grit sizes <= D91
	413027	250x12x51	C 120 H5A V18	1 For grit sizes <= D91
	250491	250x12x51	C 80 H8 V15	1 Standard hardness, for grain sizes D151-D64
	619701	250x12x51	C 80 J5 V15	1 Harder than standard, for grit sizes D151-D64


DRESSING DEVICE FOR BRAKE DRESSING


Dressing wheels for diamond and CBN grinding wheels



These dressing wheels are used for dressing all types of diamond and CBN grinding wheels, regardless of their bond systems. The AV500 dressing device is ideally suited to dressing resin and metal-bonded wheels during dry grinding.

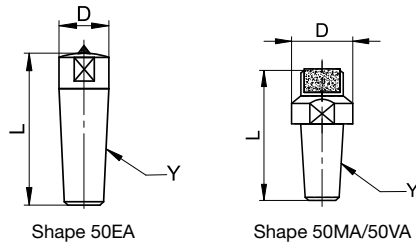
The silicon carbide wheels are available in a 75 mm diameter. Use the 1C70M5V15 specification for robust layers only.

Type no.	Description	PU	Comments
	96 96821 AV500		For concentrically truing resin and metal-bonded diamond and CBN grinding wheels. Optimum results up to grinding wheel diameter of 250 mm
	34045604 AVB	3	Replacement brake pads

Type no.	DxTxH	Specification	PU	Comments
	1 473304	75x20x12.7	C 120 J5 V15	10 Agathon
	7035	75x25x12.7	1C 70 M5 V15	10 Long life, for wider layers, D151-D64
	443944	75x25x12.7	1C 80 G7 V15	10 Standard hardness, for grain sizes D151-D64
	448482	75x25x12.7	C 80 J5 V18	10 Harder than standard, for grit sizes D151-D64

STATIONARY DRESSING

Single-grain dresser, multi-grain dresser, multi-grain diamond dresser



Shape 50EA

Shape 50MA/50VA

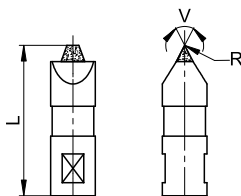
The TYROLIT single-grain, multi-grain and multi-grain diamond dressers are ideal for dressing all aluminium oxide and silicon carbide wheels. Multi-grain and multi-grain diamond dressers are often used for surface and external cylindrical grinding wheels. Large and wide wheels require a higher carat number to reduce diamond wear.

Single-grain dressers are graded according to diamond size. Multi-grain and multi-grain diamond dressers therefore have a higher carat content.

	Type no.	DxL	Y / ADAP	Specification	Comments	
	50EA	856232	9.3x31.5x8	MK0	DD 10 ST	
		331997	14x57x12	MK1	ED 15 ST	
		313466	12.4x49x10	MK1	BD 5 ST	For conventional tools; single dressers for cylindrical and surface grinding machines.
		316272	12.4x49x10	MK1	BD 10	
		313127	8x90	8ZYL	BD 5 ST	Wrench width for MK0 and MK1 only
		363249	10x90	10ZYL	ED 5 ST	
		611499	10x90	10ZYL	ED 10 ST	
	50MA	446432	12x50	10x10x37	M65	
		446453	12x90	10x10x77	M65	Diamond grains set in layers
		315877	14x57x12	10xMK1	M65	
		316286	14x57x12	10xMK1	M125	
	50VA	34173161	10x60	10ZYL	V800-8X11	
		34172978	14x42x12	11xMK0	V800-8X11	Irregular distribution of diamond grains
		34172980	14x57x12	11xMK1	V800-8X11	

STATIONARY DRESSING

Profile diamonds



Shape 50PD

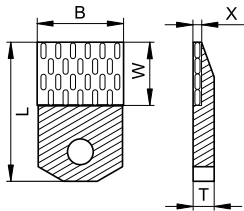
Profile diamonds are used for dressing all conventional profile grinding wheels made of aluminium oxide or silicon carbide. The huge advantage of profile diamonds is that they can be reground using a special process.

They are frequently used with Diaform and CNC-controlled grinding machines.

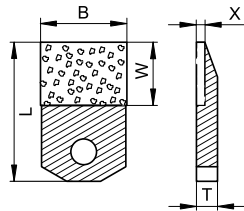
	Type no.	B/L2xY/AUFN/V/R	Specification	
	50PD	475960	44.5xDF/V40/R250	D 0.4 ST
		477837	44.5xDF/V60/R750	D 0.4 ST

STATIONARY DRESSING

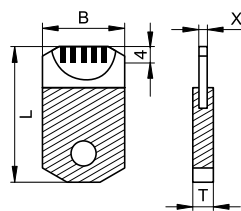
Diamond dressing plates/CSS dressing plates



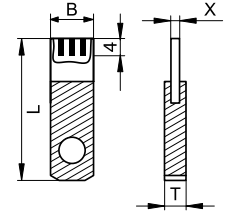
Shape 50AP 1



Shape 50AP 2



Shape 50AP 3



Shape 50AP 4

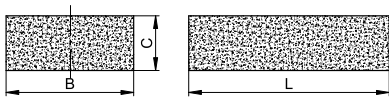
The dressing plates are a high-quality alternative to conventional single-grain diamonds. They are ideal for dressing all aluminium oxide and silicon carbide wheels. They are primarily used for dressing wide wheels and profile wheels with a shallow edge.

By using dressing plates it is possible to achieve maximum precision in the dressing process.

	Type no.	D/BxTxH/L	W-X	Specification	Comments
	50AP 2 477753	10.5x33x5	15-1.15	B115	sintered on sides; for cylindrical and surface grinding machines, for straight and simple profile
	477746	20.5x33x5	15-1.4	A140	
	476859	20.5x33x5	15-1.15	A115	
	50AP 1 477755	10.5x33x5	15-1.8	B180	Needle dressing plates
	477760	20.5x28x5	10-1.8	C180	
	477749	20.5x33x5	15-1.8	A185	
	50AP 3 853704	10x33x5	10-2	W3R071004	For aluminium oxide wheels; long life; 3 dia rods
	50AP 4 853680	20x33x5	10-2	W5R071004	For aluminium oxide wheels; long life; 5 dia rods

HAND-OPERATED DRESSING

Dressing sticks for aluminium oxide and Silicon carbide grinding wheels



Shape 90AS

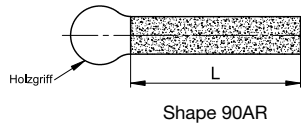
Dressing sticks are ideal for dressing all aluminium oxide and silicon carbide wheels. They can be used as an inexpensive dressing tool for vitrified-bonded bench grinding wheels.

Dressing sticks are only available in black silicon carbide.

	Type no.	BxCxL	Specification
	90AS 43311	25x25x150	C COARSE
	9009	50x20x150	C COARSE
	153	50x25x200	C MEDIUM
	6216	50x25x200	C COARSE


HAND-OPERATED DRESSING

Dressing tubes



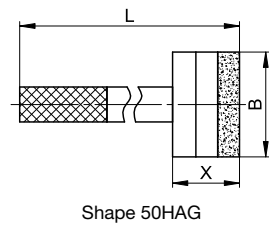
The dressing tubes are ideal for dressing all aluminium oxide and silicon carbide wheels. They can be used as an inexpensive dressing tool for vitrified-bonded bench grinding wheels.

Dressing tubes are only available in black silicon carbide.

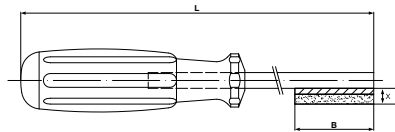
	Type no.	DxL	Specification	
	90AR	351767	17x290	C 16 - B

HAND-OPERATED DRESSING

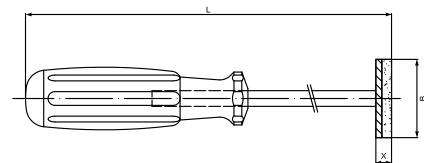
Diamond dresser



Shape 50HAG





Shape STSEG C



Shape STSEG A

This diamond dresser provides you with a high-quality dressing tool for bench grinding wheels in the precision machining sector. Depending on their design they can be used for peripheral or lateral face machining.

The diamond dressers therefore have either a diamond segment soldered on the face or longitudinally.

	Type no.	LxBxX	Specification	Comments	
	50HAG	477724	185x20x8	D 30 ST	
		477726	185x30x10	D 26 ST	Steel shaft, diamond segment face
		477254	250x40x10	D 35 ST	
	STSEG	195112	185x40x8	HA_DIA	Plastic handle, diamond segment face
		34057995	185x40x8	HA_DIA	Plastic handle, diamond segment longitudinally

HAND-OPERATED DRESSING

Grinding wheel dresser set





This dresser set is used primarily for large resin-bonded bench grinding wheels and above all in the foundry industry. Steel rollers enable you to achieve efficient dressing and sharpening of the wheel.


The huge advantage of this dressing tool is that it can be quickly and easily re-equipped with replacement rollers.



Precision grinding

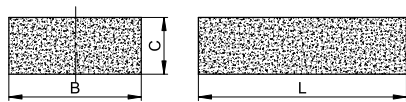
	Type no.	Specification	D	T max	Grit size	Hardness	
	100AKO	15321	S3610	120-250	40	24-80	H-Q
		74497	S3611	300-600	63	16-60	H-Q
		117871	S3612	300-600	63	16-60	H-Q
	100AKO	126781	S3613	300-600	70	16-60	H-Q

REPLACEMENT PARTS

	Type no.	BxLxT	Specification	PU	Comments	
	100ARO	74492	36x21x8	S3610	1	
		74493	55x39x12	S3611	1	
		75915	55x65x12	S3612	1	Replacement rollers
		886902	40x2x10	S3613	250	
		132297		S3613		Replacement part set

HAND-OPERATED DRESSING


Sharpening sticks for diamond and CBN grinding wheels



Shape 90AS

The TYROLIT sharpening sticks sharpen and clean all CBN and diamond grinding wheels, and are used in production and re-sharpening applications. The sticks are made of aluminium oxide and are available in grit sizes 120 - 600.

They can be used for hand-operated and mechanical applications.

	Type no.	BxCxL	Specification	Grit size	PU	
	90AS	845593	24x13x100	89A 120 H7A V17	> = 126	10
		845594	24x13x100	89A 120 J7A V17	> = 126	10
		845595	24x13x100	89A 240 J7A V17	> 46 and < 126	10
		577953	24x13x200	89A 600 J5A V83	< = 46	10
		678953	24x13x200	A 240 STARTEC	STARTEC XP-P and HP	10
		33531	25x13x100	89A 600 -25 V83	< = 46	10
		932780	25x13x200	89A 240 H5A V83	> 46 and < 126	10
		112055	50x25x200	50C 2208 C4 B22	> 46 and < 126	1
		251584	50x25x200	89A 600 -25 V83	< = 46	1
		391718	50x25x200	89A 240 -35 V83	> 46 and < 126	1
		395773	50x25x200	89A 120 H7A V17	> = 126	1
		460976	50x25x200	89A 120 J7A V17	> = 126	1
		464290	50x25x200	89A 240 J7A V17	> 46 and < 126	1



CATALOGUE 19

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SPECIFIC INFORMATION

SPECIFICATION

ZA-P43N

	N	Underlay made of natural fibres
	V	Underlay made of vulcanised fibres
	A/B/C/F	Weight of paper
	C J	Cloth – flexible
	C JJ	Cloth – very flexible
	C JX	Cloth – semi-flexible
	PC-X	Polycotton – rigid
	PC-Y	Polycotton – very rigid
	PE-Y	Polyester – very rigid
	FI	Film
	01	Structural steel, carbon steel, aluminium, nonferrous metals etc.
	02	Structural steel, carbon steel, aluminium, nonferrous metals etc.; with active additives
	03	Stainless steel, steel and soft metals; with active additives; wet and dry
	06	Structural steel, carbon steel, aluminium, nonferrous metals, wood etc.; with active additives
	07	All metals; wet and dry
	21	Paint, lacquers, composite materials, gel coat; for universal use; light with stearate layer
	22	Paint, lacquers, composites, gel coat; for universal use; aggressive with stearate layer
	35	Wood, lacquers, paint, for universal use
	41	Structural steel, carbon steel, aluminium etc.; low to medium pressure, active additives
	43	Steel, carbon steel, aluminium etc.; medium to high pressure; active additives
	45	Steel, carbon steel, stainless steel etc.; low pressure; active additives
	47	Stainless steel, high-alloy steel, hardened steel; medium to high pressure; active additives and Topsize
	48	Stainless steel, high-alloy steel, hardened steel; medium to high pressure; active additives and Topsize
	65	Stone, tiles, composites, gel coat, epoxies, glass etc.
	68	Stone; wet and dry
	93	Stainless steel, high-alloy steel, hardened steel; medium to high pressure; active additives and Topsize
	P	PREMIUM***
	B	BASIC*
ZA		Zirconium
A		Aluminium oxide
CA		Sintered aluminium oxide
C		Silicium carbide

Active additives: for cooler grinding

Topsize: for cooler grinding on stainless steel and high-alloy steel

Stearate layer: reduces loading and smearing

Coated
abrasives

Flap discs product label



Registered trademark

Performance level

EAN code

Max. RPM

Application and safety pictograms

Material suitability

Special application (not available everywhere)

Shape and specification

Dimensions, external x bore diameter metric and inches

Type number

Machine pictograms



Angle grinder



Mini belt grinder



Straight grinder



Portable belt grinder



Dual action sander



Contact grinder



Hand sanding and superfinishing



Burnishing machine



Floorstanding grinder

Colour codes



Label	Steel	2in1	INOX	Nonferrous metals
Colour code	Blue	Blue	Red	Orange
Material	Steel	steel and stainless steel	Stainless steel	Aluminium, copper, zinc, brass, bronze, stone





5.1 FLAP DISCS ANGLE GRINDER



FLAP DISCS FOR ANGLE GRINDERS

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT offers a comprehensive assortment of flap discs for this purpose.

Whatever the application and whichever shape you prefer: we have the right product for you.

Since TYROLIT always puts your health first, we offer flap discs with a core made from natural fibres, which can even be trimmed. Innovative and

precisely adapted to the application. That's TYROLIT for you!

On the following pages you will find the perfect tool for your requirements thanks to the uniform colour code for all materials.

Application recommendations



Performance level	Specification	Pages	Steel	Stainless steel	2in1	NF metals
PREMIUM***	ZA...-B	320, 321	●			
	A...-B	321	●			
	ZA...-B	323, 324, 325, 326			●	
	CA...-B	331, 332		●		
	CA...-B	333				●
	120-M	325			●	



Performance level	Specification	Pages	2in1
STANDARD**	ZA...-B	327	●



Performance level	Specification	Pages	Steel	2in1
BASIC*	A...-B	322	●	
	ZA...-B	328		●

Items with grey lettering are only available on request.

Shapes



27A Flap disc

Depressed-centre design with fibreglass core. This shape creates the perfect angle of 15° - 20°.



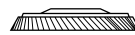
28A Flap disc

Straight design with fibreglass core. This shape ensures optimum use of the abrasive cloth with a grinding angle of 0-15°.



28NF Flap disc

Core made from natural fibres for easy trimming - straight.



28S SOFTJOB Flap disc

The arrangement of the flaps differs from conventional flap discs, making it even more flexible in use.



28N Flap disc

Straight design with plastic core. This shape ensures optimum use of the abrasive cloth with a grinding angle of 0-15°. The core can also be reset in order to use up the abrasive cloth completely.

Coated abrasives

PREMIUM*** FLAP DISC LONGLIFE FOR STEEL

+ **Great savings potential**
100% use of the disc is guaranteed through simple trimming.

+ **Unparalleled performance**
The newly developed high-tech zircon fabric enables outstanding removal results with the longest lifetime.



+ **Environmentally-friendly**
The innovative natural fibre core is completely free of fibre glass and therefore reduces the environmental load.

The PREMIUM*** LONGLIFE is a high-performance flap disc for steel and boasts an excellent stock removal rate and the longest lifetime.

A stock removal rate of more than 4,000g opens up a completely new dimension.
A natural fibre core gives the tool

additional flexibility, meaning that the PREMIUM*** LONGLIFE fits the work-piece surface perfectly and creates clean grinding transitions.

PREMIUM*** FLAP DISC LONGLIFE for steel





	Shape	Type no.	Dimension	Specification	PU
	28NF	34063393	115x22.23	ZA40-B	10
		34063394	115x22.23	ZA60-B	10
		34063396	115x22.23	ZA80-B	10
		34063397	115x22.23	ZA120-B	10
		34063388	125x22.23	ZA40-B	10
		34063389	125x22.23	ZA60-B	10
		34063390	125x22.23	ZA80-B	10
		34063391	125x22.23	ZA120-B	10
		34063398	150x22.23	ZA40-B	10
		34063399	150x22.23	ZA60-B	10
		34063400	150x22.23	ZA80-B	10

Items with grey lettering are only available on request.



Coated abrasives

	Shape	Type no.	Dimension	Specification	PU
	 28NF	34063401	150x22.23	ZA120-B	10
		34063402	178x22.23	ZA40-B	10
		34063403	178x22.23	ZA60-B	10
		34063404	178x22.23	ZA80-B	10
		34063406	178x22.23	ZA120-B	10


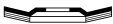
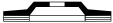
PREMIUM* FLAP DISC**

For steel



The PREMIUM*** flap disc for steel is a versatile professional tool suitable for universal grinding tasks. With this disc, users will achieve perfect surfaces on steel, as well as the best results for surface or edge grinding and deburring work.

The supporting disc is made of rigid fibre glass and is therefore ideally suited to use on powerful angle grinders.

	Shape	Type no.	Dimension	Specification	PU	
	 27A	668630	115x22.23	A40-B	10	
		668631	115x22.23	A60-B	10	
		668632	115x22.23	A80-B	10	
		668633	115x22.23	A120-B	10	
		668634	125x22.23	A40-B	10	
		668635	125x22.23	A60-B	10	
		668637	125x22.23	A80-B	10	
		896379	125x22.23	A120-B	10	
		668638	178x22.23	A40-B	10	
		668640	178x22.23	A60-B	10	
		668641	178x22.23	A80-B	10	
		75193	178x22.23	A120-B	10	
		 28A	668679	115x22.23	A40-B	10
			795077	115x22.23	A60-B	10
699984	115x22.23		A80-B	10		
642626	115x22.23		A120-B	10		
668681	125x22.23		A40-B	10		
728528	125x22.23		A60-B	10		
817672	125x22.23		A80-B	10		
817935	125x22.23		A120-B	10		
668683	178x22.23		A40-B	10		
886353	178x22.23		A60-B	10		
642627	178x22.23	A80-B	10			
642628	178x22.23	A120-B	10			

Items with grey lettering are only available on request.

Coated abrasives

BASIC★ FLAP DISC
For steel



The Basic* flap disc for steel is a versatile professional tool suitable for universal grinding tasks. With this disc, users will achieve perfect surfaces on steel, as well as the best results for surface or edge grinding and deburring work.

Using aluminium oxide abrasive grain produces a fine surface structure.

	Shape	Type no.	Dimension	Specification	PU			
		27A	34207200	100x16	A40-B	10		
		34207211	100x16	A60-B	10			
		34207213	100x16	A80-B	10			
		34207214	100x16	A120-B	10			
		34207216	115x22.23	A40-B	10			
		34207217	115x22.23	A60-B	10			
		34207231	115x22.23	A80-B	10			
		34207233	115x22.23	A120-B	10			
		34207235	125x22.23	A40-B	10			
		34207236	125x22.23	A60-B	10			
		34207237	125x22.23	A80-B	10			
		34207238	125x22.23	A120-B	10			
		34207244	178x22.23	A40-B	10			
		34207245	178x22.23	A60-B	10			
		34207247	178x22.23	A80-B	10			
		34207248	178x22.23	A120-B	10			
				28A	34206836	100x16	A40-B	10
				34206837	100x16	A60-B	10	
34206838	100x16			A80-B	10			
34206839	100x16			A120-B	10			
34206840	115x22.23			A40-B	10			
34206851	115x22.23			A60-B	10			
34206854	115x22.23			A80-B	10			
34206857	115x22.23			A120-B	10			
34206858	125x22.23			A40-B	10			
34206860	125x22.23			A60-B	10			
34206891	125x22.23			A80-B	10			
34206892	125x22.23			A120-B	10			
34206927	178x22.23			A40-B	10			
34206928	178x22.23			A60-B	10			
34206929	178x22.23			A80-B	10			
34206930	178x22.23			A120-B	10			

Items with grey lettering are only available on request.

Coated abrasives

PREMIUM*** FLAP DISC LONGLIFE FOR STEEL AND STAINLESS STEEL

+ Excellent overall abrasion

Offers not only a long service life, but also exceptional results in terms of abrasiveness.

+ Robust construction

Through the increased number of closely spaced flaps, this disc can withstand even the highest loads.



+ Longest lifetime

The PREMIUM*** LONGLIFE offers an even longer service life with consistent grinding results.

The PREMIUM*** LONGLIFE flap disc offers the longest lifetime and an excellent stock removal rate. This flap disc is used both on high alloyed

steels and stainless steel, as well as on unalloyed and low alloyed steels. Problem-free welding as well as edge and surface grinding, particu-

larly when used on powerful angle grinders.

PREMIUM* FLAP DISC**
 LONGLIFE for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU
	28N	34239191	115x22.23	ZA40-B	10
		34239192	115x22.23	ZA60-B	10
		34239193	115x22.23	ZA80-B	10
		34239194	115x22.23	ZA120-B	10
		34239195	125x22.23	ZA40-B	10
		34239196	125x22.23	ZA60-B	10
		34239197	125x22.23	ZA80-B	10
		34239198	125x22.23	ZA120-B	10
		34239199	178x22.23	ZA40-B	10
		34239200	178x22.23	ZA60-B	10
		34239221	178x22.23	ZA80-B	10
		34239222	178x22.23	ZA120-B	10

Items with grey lettering are only available on request.

Coated abrasives

PREMIUM* FLAP DISC**
FASTCUT for steel and stainless steel



The PREMIUM*** FASTCUT is synonymous with excellent, specific abrasion of material. As a result, you will achieve your goal faster, and the disc will remain easy cutting and abrasive over its entire lifetime. The TYROLIT FASTCUT flap disc is the perfect tool for demanding grinding jobs, such as edge grinding and welding. It is used both on high alloyed

steels and stainless steel, as well as on unalloyed and low alloyed steels. The additional TOP SIZE coating provides cool grinding. It is also possible to use it on aluminium, to a limited extent.

	Shape	Type no.	Dimension	Specification	PU		
		27A					
		528580	100x16	ZA40-B	10		
		643845	100x16	ZA60-B	10		
		643846	100x16	ZA80-B	10		
		160229	115x22.23	ZA40-B	10		
		160230	115x22.23	ZA60-B	10		
		160235	115x22.23	ZA80-B	10		
		160240	125x22.23	ZA40-B	10		
		160242	125x22.23	ZA60-B	10		
		160244	125x22.23	ZA80-B	10		
		34166360	150x22.23	ZA40-B	10		
		34166362	150x22.23	ZA60-B	10		
		34166363	150x22.23	ZA80-B	10		
		160245	178x22.23	ZA40-B	10		
		160246	178x22.23	ZA60-B	10		
160247	178x22.23	ZA80-B	10				
		28A					
		160249	115x22.23	ZA40-B	10		
		160251	115x22.23	ZA60-B	10		
		160252	115x22.23	ZA80-B	10		
		160254	125x22.23	ZA40-B	10		
		160255	125x22.23	ZA60-B	10		
		160256	125x22.23	ZA80-B	10		
		34166364	150x22.23	ZA40-B	10		
		34166365	150x22.23	ZA60-B	10		
		34166366	150x22.23	ZA80-B	10		
		160257	178x22.23	ZA40-B	10		
		160258	178x22.23	ZA60-B	10		
		160260	178x22.23	ZA80-B	10		
				28N			
				458028	115x22.23	ZA40-B	10
458029	115x22.23			ZA60-B	10		
458030	115x22.23			ZA80-B	10		
458034	125x22.23			ZA40-B	10		
458033	125x22.23			ZA60-B	10		
458031	125x22.23			ZA80-B	10		
458035	178x22.23			ZA40-B	10		
458038	178x22.23			ZA60-B	10		
458040	178x22.23			ZA80-B	10		

Items with grey lettering are only available on request.

Coated abrasives

PREMIUM* FLAP DISC**
OVERLAP for steel and stainless steel



The PREMIUM*** OVERLAP is the right tool to effortlessly access hard-to-reach areas. Its flaps overlap by about 10 mm and make light work of the finishing of fillet welds, grooves and flutes.

The OVERLAP flaps also impress in terms of stock removal rate and life-time when used on steel and stainless steel.

	Shape	Type no.	Dimension	Specification	PU
	27A	34206408	115x22.23	ZA40-B	10
		34206409	115x22.23	ZA60-B	10
		540688	125x22.23	ZA40-B	10
		540689	125x22.23	ZA60-B	10

PREMIUM* FLAP DISC**
COMBI for steel and stainless steel



The PREMIUM*** COMBI combines abrasive cloth and fabric in one tool. This enables two work steps to be performed in one. Material removal and simultaneous finishing of surfaces produce an optimal result. The long lifetime of the PREMIUM*** COMBI dramatically increases

economic efficiency in comparison to conventional "surface conditioning" discs. The disc has also been specially developed to achieve good results at high speeds on non-adjustable angle grinders (max. 80 m/s).

	Shape	Type no.	Dimension	Specification	Rec. speed	PU
	27PLCA	742167	115x22.23	120-M	4,000	5
		742168	125x22.23	120-M	3,600	5

PREMIUM* FLAP DISC**
2in1 for steel and stainless steel



The PREMIUM*** 2in1 flap disc combines an excellent lifetime with very high specific abrasion. The TYROLIT 2in1 flap disc is used both on high alloyed steels and stain-

less steel, as well as on unalloyed and low alloyed steels. Problem-free welding as well as edge and surface grinding, particularly when used on powerful angle grinders.

	Shape	Type no.	Dimension	Specification	PU
	27N	34043471	115x22.23	ZA40-B	10
		34043472	115x22.23	ZA60-B	10
		34043473	115x22.23	ZA80-B	10
		34043474	115x22.23	ZA120-B	10
		34043475	125x22.23	ZA40-B	10
		34043476	125x22.23	ZA60-B	10
		34043477	125x22.23	ZA80-B	10
		34043478	125x22.23	ZA120-B	10
		34043479	150x22.23	ZA40-B	10
		34043480	150x22.23	ZA60-B	10
		34043481	150x22.23	ZA80-B	10
		34043482	150x22.23	ZA120-B	10



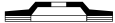
Items with grey lettering are only available on request.

Coated abrasives



PREMIUM★★★ FLAP DISC
2in1 for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU
	 27A	729764	100x16	ZA40-B	10
		730559	100x16	ZA60-B	10
		730560	100x16	ZA80-B	10
		78049	100x16	ZA120-B	10
		668642	115x22.23	ZA40-B	10
		668644	115x22.23	ZA60-B	10
		668649	115x22.23	ZA80-B	10
		643803	115x22.23	ZA120-B	10
		668663	125x22.23	ZA40-B	10
		668664	125x22.23	ZA60-B	10
		668665	125x22.23	ZA80-B	10
		643805	125x22.23	ZA120-B	10
		519212	150x22.23	ZA40-B	10
		519213	150x22.23	ZA60-B	10
		519214	150x22.23	ZA80-B	10
		519215	150x22.23	ZA120-B	10
		668670	178x22.23	ZA40-B	10
		668672	178x22.23	ZA60-B	10
668673	178x22.23	ZA80-B	10		
	 28A	643807	178x22.23	ZA120-B	10
		34166327	100x16	ZA40-B	10
		34166328	100x16	ZA60-B	10
		34166331	100x16	ZA80-B	10
		34166333	100x16	ZA120-B	10
		668686	115x22.23	ZA40-B	10
		668687	115x22.23	ZA60-B	10
		668691	115x22.23	ZA80-B	10
		846344	115x22.23	ZA120-B	10
		668692	125x22.23	ZA40-B	10
		668693	125x22.23	ZA60-B	10
		668694	125x22.23	ZA80-B	10
		645145	125x22.23	ZA120-B	10
		668696	178x22.23	ZA40-B	10
	668697	178x22.23	ZA60-B	10	
	668698	178x22.23	ZA80-B	10	
	643823	178x22.23	ZA120-B	10	

Items with grey lettering are only available on request.

Coated abrasives

STANDARD FLAP DISC**
2in1 for steel and stainless steel



The STANDARD** 2in1 flap disc offers two advantages. On one hand it offers the user very long lifetime, on the other it guarantees very good specific abrasion.

The TYROLIT 2in1 flap disc is used both on high alloyed steels and stainless steel, as well as on unalloyed and low alloyed steels.

	Shape	Type no.	Dimension	Specification	PU		
		27A	843806	100x16	ZA40-B	10	
		455324	100x16	ZA60-B	10		
		455318	100x16	ZA80-B	10		
		257768	100x16	ZA120-B	10		
		572473	115x22.23	ZA40-B	10		
		454393	115x22.23	ZA60-B	10		
		455312	115x22.23	ZA80-B	10		
		50801	115x22.23	ZA120-B	10		
		824385	125x22.23	ZA40-B	10		
		455303	125x22.23	ZA60-B	10		
		458587	125x22.23	ZA80-B	10		
		243069	125x22.23	ZA120-B	10		
		139648	150x22.23	ZA40-B	10		
		139651	150x22.23	ZA60-B	10		
		139653	150x22.23	ZA80-B	10		
		575635	150x22.23	ZA120-B	10		
		580650	178x22.23	ZA40-B	10		
		454396	178x22.23	ZA60-B	10		
		455314	178x22.23	ZA80-B	10		
		243071	178x22.23	ZA120-B	10		
	28A	537021	115x22.23	ZA40-B	10		
	537084	115x22.23	ZA60-B	10			
	537089	115x22.23	ZA80-B	10			
	537093	115x22.23	ZA120-B	10			
	537095	125x22.23	ZA40-B	10			
	537097	125x22.23	ZA60-B	10			
	537110	125x22.23	ZA80-B	10			
	537111	125x22.23	ZA120-B	10			
	537112	178x22.23	ZA40-B	10			
	537113	178x22.23	ZA60-B	10			
	537114	178x22.23	ZA80-B	10			
	537115	178x22.23	ZA120-B	10			
			28N	847917	115x22.23	ZA40-B	10
			847924	115x22.23	ZA60-B	10	
			847927	115x22.23	ZA80-B	10	
247165			115x22.23	ZA120-B	10		

Items with grey lettering are only available on request.

Coated abrasives



STANDARD FLAP DISC**
2in1 for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU	
		28N	847921	125x22.23	ZA40-B	10
		847925	125x22.23	ZA60-B	10	
		847928	125x22.23	ZA80-B	10	
		247366	125x22.23	ZA120-B	10	
		847923	178x22.23	ZA40-B	10	
		847926	178x22.23	ZA60-B	10	
		847929	178x22.23	ZA80-B	10	
		247175	178x22.23	ZA120-B	10	

STANDARD SOFTJOB**
2in1 for steel and stainless steel



For us, the STANDARD** Softjob flap disc represents maximum flexibility for machining difficult to access areas. It has a broad application area, comprising: Surface preparation and improvement, preparation of welding work and cleaning of weld seams.

Processing of contours and profiled surfaces, processing of handrails and pipes, cleaning of surfaces, removal of rust and paint residues.

	Shape	Type no.	Dimension	Specification	PU	
		28S	246987	115x22.23	ZA40-B	10
		246988	115x22.23	ZA60-B	10	
		246990	115x22.23	ZA80-B	10	
		246994	115x22.23	ZA120-B	10	
		246995	125x22.23	ZA40-B	10	
		246996	125x22.23	ZA60-B	10	
		246998	125x22.23	ZA80-B	10	
		247001	125x22.23	ZA120-B	10	

BASIC* FLAP DISC
2in1 for steel and stainless steel



The BASIC* 2in1 flap disc offers two advantages. On one hand, it offers the user long lifetime, on the other it guarantees good specific abrasion.







The TYROLIT 2in1 flap disc is used both on high alloyed steels and stainless steel, as well as on unalloyed and low alloyed steels.

	Shape	Type no.	Dimension	Specification	PU	
		27A	474872	100x16	ZA40-B	10
		474874	100x16	ZA60-B	10	
		474875	100x16	ZA80-B	10	
		474877	100x16	ZA120-B	10	



Items with grey lettering are only available on request.

Coated abrasives



	Shape	Type no.	Dimension	Specification	PU	
		27A	273884	115x22.23	ZA40-B	10
		273810	115x22.23	ZA60-B	10	
		273871	115x22.23	ZA80-B	10	
		719788	115x22.23	ZA120-B	10	
		273872	125x22.23	ZA40-B	10	
		273873	125x22.23	ZA60-B	10	
		273874	125x22.23	ZA80-B	10	
		719793	125x22.23	ZA120-B	10	
		34206788	150x22.23	ZA40-B	10	
		34206789	150x22.23	ZA60-B	10	
		34206790	150x22.23	ZA80-B	10	
		34206831	150x22.23	ZA120-B	10	
		34166866	178x22.23	ZA40-B	10	
		34166867	178x22.23	ZA60-B	10	
		34166869	178x22.23	ZA80-B	10	
		34166870	178x22.23	ZA120-B	10	
		28A	34023527	100x16	ZA40-B	10
		34023528	100x16	ZA60-B	10	
		34023529	100x16	ZA80-B	10	
		34023530	100x16	ZA120-B	10	
		320318	115x22.23	ZA40-B	10	
		320320	115x22.23	ZA60-B	10	
		320322	115x22.23	ZA80-B	10	
		719794	115x22.23	ZA120-B	10	
		320319	125x22.23	ZA40-B	10	
		320321	125x22.23	ZA60-B	10	
		320323	125x22.23	ZA80-B	10	
		719796	125x22.23	ZA120-B	10	
		34206832	150x22.23	ZA40-B	10	
		34206833	150x22.23	ZA60-B	10	
		34206834	150x22.23	ZA80-B	10	
		34206835	150x22.23	ZA120-B	10	
34166901	178x22.23	ZA40-B	10			
34166902	178x22.23	ZA60-B	10			
34166903	178x22.23	ZA80-B	10			
34166904	178x22.23	ZA120-B	10			
		28N	246870	115x22.23	ZA40-B	10
		246871	115x22.23	ZA60-B	10	
		246872	115x22.23	ZA80-B	10	
		728649	115x22.23	ZA120-B	10	

Items with grey lettering are only available on request.



BASIC★ FLAP DISC
2in1 for steel and stainless steel



	Shape	Type no.	Dimension	Specification	PU	
		28N	728650	125x22.23	ZA40-B	10
		728657	125x22.23	ZA60-B	10	
		728659	125x22.23	ZA80-B	10	
		728661	125x22.23	ZA120-B	10	
		34166905	178x22.23	ZA40-B	10	
		34166906	178x22.23	ZA60-B	10	
		34166907	178x22.23	ZA80-B	10	
		34166908	178x22.23	ZA120-B	10	

PREMIUM★★★ FLAP DISC

CERABOND FLAP DISC FOR STAINLESS STEEL

+ **Enhanced abrasiveness**

A new, wider PREMIUM cloth and the CERABOND bond system offer high stock removal on the workpiece.

+ **Longer lifetime**

The unique bond system prevents premature grain break-out and leads to a long lifetime for the product.



+ **Enhanced economic efficiency**

Thanks to the self-sharpening ceramic grain, the CERABOND flap disc is also ideal for demanding grinding jobs.

We at TYROLIT always endeavour to bring our customers innovative products and a comprehensive assortment. For this reason, TYROLIT has now extended the CERABOND family to include the new CERAMIC flap discs.

A unique bond system combined with a high-performance PREMIUM cloth offers the user greater abrasiveness. This flap disc is particularly suitable for stainless steels and demanding grinding applications. In addition, the unique bond system prevents pre-

ature grain break-out and leads to a long product lifetime. The additional TOP SIZE coating ensures cooler grinding, allowing a longer lifetime and reducing discoloration on the workpiece surface.

Items with grey lettering are only available on request.



Coated abrasives



PREMIUM* FLAP DISC**
CERABOND flap disc for stainless steel



	Shape	Type no.	Dimension	Specification	PU	
	27A	34166139	100x16	CA40-B	10	
		34166140	100x16	CA60-B	10	
		34166161	100x16	CA80-B	10	
		34043514	115x22.23	CA40-B	5	
		34043515	115x22.23	CA60-B	5	
		34165680	115x22.23	CA80-B	5	
		34043516	125x22.23	CA40-B	5	
		34043517	125x22.23	CA60-B	5	
		34165681	125x22.23	CA80-B	5	
		34166162	150x22.23	CA40-B	10	
		34166163	150x22.23	CA60-B	10	
		34166164	150x22.23	CA80-B	10	
		34166166	178x22.23	CA40-B	5	
		34166167	178x22.23	CA60-B	5	
		34166168	178x22.23	CA80-B	5	
		28A	34166169	100x16	CA40-B	10
			34166170	100x16	CA60-B	10
			34166171	100x16	CA80-B	10
34166172	115x22.23		CA40-B	5		
34166173	115x22.23		CA60-B	5		
34166174	115x22.23		CA80-B	5		
34166175	125x22.23		CA40-B	5		
34166176	125x22.23		CA60-B	5		
34166177	125x22.23		CA80-B	5		
34166178	150x22.23		CA40-B	10		
34166179	150x22.23		CA60-B	10		
34166180	150x22.23		CA80-B	10		
34166181	178x22.23		CA40-B	5		
34166182	178x22.23		CA60-B	5		
34166184	178x22.23		CA80-B	5		
27N	34057966		115x22.23	CA40-B	5	
	34057967		115x22.23	CA60-B	5	
	34165677		115x22.23	CA80-B	5	
	34057968	125x22.23	CA40-B	5		
	34057969	125x22.23	CA60-B	5		
	34165679	125x22.23	CA80-B	5		

Items with grey lettering are only available on request.

PREMIUM* FLAP DISC**
CERAMIC for Inox



Thanks to the self-sharpening ceramic abrasive grain, the PREMIUM*** CERAMIC flap disc is particularly suitable for stainless steels and demanding grinding applications. The additional TOP SIZE coating ensures cool grinding, allowing a longer tool lifetime and reducing discolouration

on the workpiece surface. Thanks to the self-sharpening characteristic of the abrasive grain, a more even surface quality is achieved over the entire lifetime of the disc.

	Shape	Type no.	Dimension	Specification	PU
		27A			
		645130	115x22.23	CA40-B	10
		645132	115x22.23	CA60-B	10
		34166620	115x22.23	CA80-B	10
		645135	125x22.23	CA40-B	10
		645137	125x22.23	CA60-B	10
		34166671	125x22.23	CA80-B	10
		34166673	150x22.23	CA40-B	10
		34166678	150x22.23	CA60-B	10
		34166680	150x22.23	CA80-B	10
		34166681	178x22.23	CA40-B	10
		34166685	178x22.23	CA60-B	10
		34166686	178x22.23	CA80-B	10
		28A			
		719797	115x22.23	CA40-B	10
		719798	115x22.23	CA60-B	10
		34166687	115x22.23	CA80-B	10
		719799	125x22.23	CA40-B	10
		719800	125x22.23	CA60-B	10
		34166688	125x22.23	CA80-B	10
		34166855	150x22.23	CA40-B	10
		34166857	150x22.23	CA60-B	10
		34166858	150x22.23	CA80-B	10
		34166859	178x22.23	CA40-B	10
		34166860	178x22.23	CA60-B	10
		34166861	178x22.23	CA80-B	10
		28N			
		719840	115x22.23	CA40-B	10
		719841	115x22.23	CA60-B	10
		34166863	115x22.23	CA80-B	10
		719846	125x22.23	CA40-B	10
		719847	125x22.23	CA60-B	10
34166865	125x22.23	CA80-B	10		

Items with grey lettering are only available on request.

Coated abrasives

PREMIUM★★★ FLAP DISC
For nonferrous metals



With the specification developed specifically for nonferrous metals, smearing and dulling of the flap disc is prevented. The ceramic grain promotes self-cleaning and sharpening of the disc during material abrasion. This tool offers convenient and high-performance results on diffi-

cult-to-grind materials such as aluminium, aluminium bronze, aluminium base alloy, copper, bronze, brass and nickel silver.

	Shape	Type no.	Dimension	Specification	PU		
		27A	707005	115x22.23	CA40-B	10	
		707007	115x22.23	CA60-B	10		
		707008	115x22.23	CA80-B	10		
		707010	115x22.23	CA120-B	10		
		707011	125x22.23	CA40-B	10		
		707012	125x22.23	CA60-B	10		
		707013	125x22.23	CA80-B	10		
		707014	125x22.23	CA120-B	10		
		707015	178x22.23	CA40-B	10		
		707016	178x22.23	CA60-B	10		
		707017	178x22.23	CA80-B	10		
		707018	178x22.23	CA120-B	10		
			28A	707153	115x22.23	CA40-B	10
			707155	115x22.23	CA60-B	10	
			707156	115x22.23	CA80-B	10	
			707158	115x22.23	CA120-B	10	
			707159	125x22.23	CA40-B	10	
			707160	125x22.23	CA60-B	10	
707161	125x22.23		CA80-B	10			
707163	125x22.23		CA120-B	10			
707165	178x22.23		CA40-B	10			
707166	178x22.23		CA60-B	10			
707167	178x22.23	CA80-B	10				
707168	178x22.23	CA120-B	10				

Items with grey lettering are only available on request.

Coated abrasives





5.2 FIBRE DISCS
ANGLE GRINDER



FIBRE DISCS ANGLE GRINDER

For quite a number of years, in the 'coated abrasives' range, TYROLIT has offered fibre discs and back up pads for all common and not-so-common grinding jobs.




Fibre discs are used when it is necessary to carry out rough grinding or derust or deburr surfaces. TYROLIT believes in the importance of flexibility and ease of use, and offers a very wide assortment for every conceivable application. Naturally the discs




come with all accessories needed for assembly.





TYROLIT has also developed a more environment-friendly version. Our JUTE DISC, made from eco-friendly jute fibre, is used without any

additional core and, being trimmable, offers maximum stock removal right to the very end. Try it for yourself!

Application recommendations

Performance Level	Specification	Pages			
			Steel	Stainless steel	NF metals
PREMIUM***	CA-P93 N	338	•	•	
	ZA-P43 N	339	•		•
	ZA-P48 N	339	•	•	
	ZA-P43 V	340	•		
	ZA-P48 V	341, 342	•	•	
	CA-P93 V	343, 344	•	•	
	A-P02 V	344, 345	•		•

Performance Level	Specification	Pages			
			Steel	NF metals	Wood
BASIC*	A-B02 V	345, 346	•	•	•

Performance Level	Specification	Pages				
			Steel	NF metals	Composites	Gel coat
TFC	ZA-P45 V	347	•	•	•	•
PREMIUM***	ZA-P45 P F	347	•	•	•	•

Items with grey lettering are only available on request.

Formen



N JUTE disc



V Disc 4S
Vulcanised fibre disc



TYROLIT
Fast Change disc



PAD UNI back up pads



PAD INOX back up pads



PAD TFC back up pads
for TYROLIT Fast Change



PAD BASIC
back up pads

Coated abrasives

PREMIUM★★★ CA-PA93 N JUTE DISC FOR STEEL AND STAINLESS STEEL

+ **Longest lifetime**

Ceramic aluminium oxide and an additional coolant layer deliver maximum removal rates and the longest lifetime possible.

+ **Extremely high stock removal rate**

The high abrasiveness of the JUTE DISC means it achieves the highest stock removal rates.



+ **Environmentally-friendly**

The jute fibre core not only protects the environment, but also enables the disc to be trimmed.

TYROLIT Film



The product film can be found on YouTube at www.youtube.com/TYROLITgroup

The TYROLIT JUTE disc is a new, unique grinding wheel that combines abrasiveness with a high level of comfort while working thanks to a ceramic grain. The longest lifetime



and an environmentally friendly jute fibre core deliver the best performance. An additional back up pad is not required, as there is already one integrated in the product.

The natural fibre core can be trimmed, giving it the edge over other discs in terms of its lifetime. This saves the user time and great expense.

PREMIUM★★★ CA-P93 N JUTE DISC

For steel and stainless steel



	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		N Disc	712259	115x22	36	13,300	10
			712268	125x22	36	12,250	10
			712269	180x22	36	8,600	10

Items with grey lettering are only available on request.

Coated abrasives

PREMIUM★★★ ZA-P43 N JUTE DISC
For steel and nonferrous metals



The TYROLIT JUTE disc is a new, unique grinding wheel that combines abrasiveness with a high level of comfort while working. It achieves excellent results on both steel and nonferrous metals. The longest lifetime and an environmentally friendly jute fibre core deliver the best performance.

An additional back up pad is not required, as there is already one integrated in the product. The natural fibre core can be trimmed, giving it the edge over other discs in terms of its lifetime. This saves the user time and great expense.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		N Disc	706125	115x22	36	13,300	10
			706126	125x22	36	12,250	10
			706127	180x22	36	8,600	10

PREMIUM★★★ ZA-P48 N JUTE DISC
For steel and stainless steel



The TYROLIT JUTE disc is a new, unique grinding wheel that combines abrasiveness with a high level of comfort while working. This tool can be used on both steel and stainless steel. The longest lifetime and an environmentally friendly jute fibre core deliver the best performance.

An additional back up pad is not required, as there is already one integrated in the product. The natural fibre core can be trimmed, giving it the edge over other discs in terms of its lifetime. This saves the user time and great expense.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		N Disc	706128	115x22	36	13,300	10
			205056	115x22	60	13,300	10
			706129	125x22	36	12,250	10
			205058	125x22	60	12,250	10
			706130	180x22	36	8,600	10
			205060	180x22	60	8,600	10

Items with grey lettering are only available on request.



PREMIUM★★★ ZA-P43 V VULCANISED FIBRE DISCS

For steel



Using fibre discs is a very simple and quick solution for removing material. A low level of vibration means the tools are convenient to use. This fibre disc has been designed for use on steel and is made of a zirconium aluminium oxide mix.

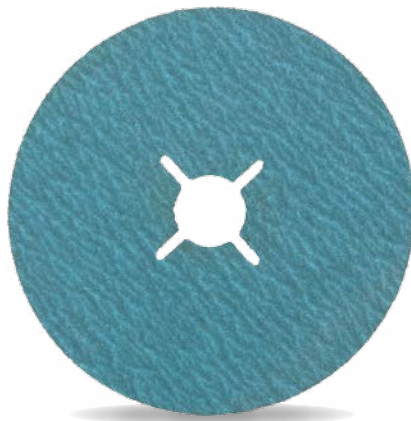
This fibre disc is available from our assortment in grit sizes 24 to 120.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		V Disc	706068	115x22	24	13,300	25
		706069	115x22	36	13,300	25	
		706071	115x22	40	13,300	25	
		706072	115x22	60	13,300	25	
		706073	115x22	80	13,300	25	
		706074	115x22	120	13,300	25	
		706075	125x22	24	12,300	25	
		706076	125x22	36	12,300	25	
		706077	125x22	40	12,300	25	
		706078	125x22	60	12,300	25	
		706079	125x22	80	12,300	25	
		706082	125x22	120	12,300	25	
		706084	180x22	24	8,600	25	
		706088	180x22	36	8,600	25	
		706089	180x22	40	8,600	25	
		706090	180x22	60	8,600	25	
		706091	180x22	80	8,600	25	
		706092	180x22	120	8,600	25	

PREMIUM★★★ ZA-P48 V VULCANISED FIBRE DISCS FOR STEEL AND STAINLESS STEEL

+ **Longest lifetime**
Resistant zirconium aluminium oxide and a coolant layer deliver maximum removal rates and the longest lifetime.

+ **Maximum economic efficiency**
Excellent price-performance ratio



+ **Maximum stock removal**
The optimised backing and zirconium aluminium oxide result in an abrasive product with a maximum stock removal rate.



Using fibre discs is a very simple and quick solution for removing material. A low level of vibration means the

tools are convenient to use. This fibre disc has been designed for use on steel and stainless steel, and is made

of a zirconium aluminium oxide mix. This fibre disc is available from our assortment in grit sizes 24 to 120.

PREMIUM★★★ ZA-P48 V VULCANISED FIBRE DISCS For steel and stainless steel



	Shape	Type no.	Diameter	Grain	Max, RPM	PU	
		V Disc	34162979	115x22	24	13,300	25
		34162980	115x22	36	13,300	25	
		34162981	115x22	40	13,300	25	
		34162982	115x22	60	13,300	25	
		34162983	115x22	80	13,300	25	
		34162985	115x22	120	13,300	25	
		34162987	125x22	24	12,300	25	
		34162988	125x22	36	12,300	25	
		34162989	125x22	40	12,300	25	
		34162990	125x22	60	12,300	25	
		34163011	125x22	80	12,300	25	
		34163012	125x22	120	12,300	25	




Items with grey lettering are only available on request.



PREMIUM★★★ ZA-P48 V VULCANISED FIBRE DISCS

For steel and stainless steel



	Shape	Type no.	Diameter	Grain	Max. RPM	PU
	 V Disc	34163013	180x22	24	8,600	25
		34163014	180x22	36	8,600	25
		34163015	180x22	40	8,600	25
		34163020	180x22	60	8,600	25
		34163021	180x22	80	8,600	25
		34163022	180x22	120	8,600	25
		34163024	115x22	24	13,300	50
		34163025	115x22	36	13,300	50
		34163026	115x22	40	13,300	50
		34163888	115x22	60	13,300	50
		34163889	115x22	80	13,300	50
		34163890	115x22	120	13,300	50
		34163902	125x22	24	12,300	50
		34163903	125x22	36	12,300	50
		34163905	125x22	40	12,300	50
		34163906	125x22	60	12,300	50
		34163908	125x22	80	12,300	50
		34163910	125x22	120	12,300	50
		34163911	180x22	24	8,600	50
		34163912	180x22	36	8,600	50
		34163913	180x22	40	8,600	50
	34163914	180x22	60	8,600	50	
	34163915	180x22	80	8,600	50	
	34163917	180x22	120	8,600	50	

Coated abrasives

Items with grey lettering are only available on request.

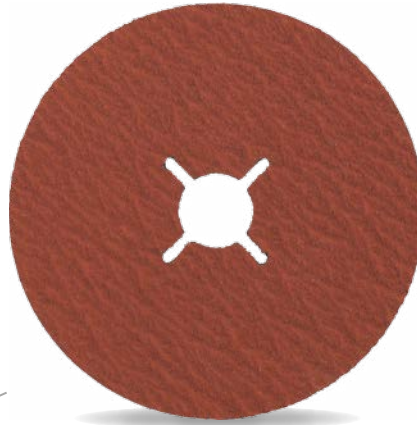
PREMIUM★★★ CA-P93 V VULCANISED FIBRE DISCS FOR STEEL AND STAINLESS STEEL

+ Maximum abrasiveness

Ceramic aluminium oxide delivers maximum removal rates and the longest lifetime.

+ Longest lifetime

An additional layer of active coolants increases the lifetime and reduces heat build-up while grinding is performed on different materials.



+ Strong backing

The 0.80 mm thick backing holds the grain in place, thus ensuring maximum abrasiveness.

Using fibre discs is a very simple and quick solution for removing material. A low level of vibration means the



tools are convenient to use. This fibre disc has been designed for use on steel and stainless steel, and is made

of a ceramic aluminium oxide mix. This fibre disc is available from our assortment in grit sizes 24 to 120.

PREMIUM★★★ CA-P93 V VULCANISED FIBRE DISCS

For steel and stainless steel



	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		V Disc	34163955	115x22	24	13,300	25
		706107	115x22	36	13,300	25	
		34163957	115x22	40	13,300	25	
		706108	115x22	60	13,300	25	
		706109	115x22	80	13,300	25	
		706110	115x22	120	13,300	25	
		34163958	125x22	24	12,300	25	
		706111	125x22	36	12,300	25	
		34163959	125x22	40	12,300	25	
		706114	125x22	60	12,300	25	
		706116	125x22	80	12,300	25	
		706117	125x22	120	12,300	25	

Items with grey lettering are only available on request.

Coated abrasives



PREMIUM★★★ CA-P93 V VULCANISED FIBRE DISCS
For steel and stainless steel



	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		V Disc	34164002	180x22	24	8,600	25
		706119	180x22	36	8,600	25	
		34164004	180x22	40	8,600	25	
		706120	180x22	60	8,600	25	
		706123	180x22	80	8,600	25	
		706124	180x22	120	8,600	25	
			34163992	115x22	24	13,300	50
			34163993	115x22	36	13,300	50
			34163994	115x22	40	13,300	50
			34163995	115x22	60	13,300	50
			34163997	115x22	80	13,300	50
			34163998	115x22	120	13,300	50
			34163999	125x22	24	12,300	50
			34164000	125x22	36	12,300	50
			34164011	125x22	40	12,300	50
			34164012	125x22	60	12,300	50
			34164013	125x22	80	12,300	50
			34164014	125x22	120	12,300	50
			34164015	180x22	24	8,600	50
			34164017	180x22	36	8,600	50
			34164018	180x22	40	8,600	50
			34164019	180x22	60	8,600	50
			34164020	180x22	80	8,600	50
			34164031	180x22	120	8,600	50

PREMIUM★★★ A-P02 V VULCANISED FIBRE DISCS
For steel and aluminium



Using fibre discs is a very simple and quick solution for removing material. A low level of vibration means the tools are convenient to use. This fibre disc has been designed for general use and is made of an aluminium oxide



mix. It can be used for outstanding results on steel and nonferrous metals. This fibre disc is available from our assortment in grit sizes 24 to 120.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		V Disc	706049	115x22	24	13,300	25
		706050	115x22	36	13,300	25	
		706051	115x22	40	13,300	25	
		706052	115x22	60	13,300	25	
		706053	115x22	80	13,300	25	

Items with grey lettering are only available on request.



Coated abrasives



	Shape	Type no.	Diameter	Grain	Max. RPM	PU
	 V Disc	706054	115x22	120	13,300	25
		706055	125x22	24	12,300	25
		706056	125x22	36	12,300	25
		706057	125x22	40	12,300	25
		706058	125x22	60	12,300	25
		706059	125x22	80	12,300	25
		706060	125x22	120	12,300	25
		706061	180x22	24	8,600	25
		706063	180x22	36	8,600	25
		706064	180x22	40	8,600	25
		706065	180x22	60	8,600	25
		706066	180x22	80	8,600	25
		706067	180x22	120	8,600	25

BASIC★ A-B02 V VULCANISED FIBRE DISCS
For steel, aluminium and wood



Using fibre discs is a very simple and quick solution for removing material. A low level of vibration means the tools are convenient to use. This fibre disc has been designed for universal use and is made of an aluminium oxide mix.

This fibre disc is available from our assortment in grit sizes 16 to 120.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU
	 V Disc	150465	115x22	16	13,300	25
		706024	115x22	24	13,300	25
		706025	115x22	36	13,300	25
		706026	115x22	40	13,300	25
		706027	115x22	60	13,300	25
		706028	115x22	80	13,300	25
		150467	115x22	100	13,300	25
		706029	115x22	120	13,300	25
		150468	125x22	16	12,300	25
		706030	125x22	24	12,300	25
		706031	125x22	36	12,300	25
		706032	125x22	40	12,300	25
		706033	125x22	60	12,300	25
		706034	125x22	80	12,300	25
		150469	125x22	100	12,300	25
		706035	125x22	120	12,300	25
		150473	180x22	16	8,600	25
		706036	180x22	24	8,600	25
		706037	180x22	36	8,600	25

Items with grey lettering are only available on request.

Coated abrasives



BASIC★ A-B02 V VULCANISED FIBRE DISCS

For steel, aluminium and wood



	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		V Disc	706038	180x22	40	8,600	25
			706039	180x22	60	8,600	25
			706047	180x22	80	8,600	25
			706048	180x22	120	8,600	25

PREMIUM★★★ ACCESSORIES

For FIBRE DISC



With our PREMIUM*** back up pads you will obtain the best support for the highest demands. Regardless of whether you choose a hard or very hard backing, you can influence the stock removal rate on the workpiece.

Thanks to the special design, you will benefit from constant air circulation, preventing heat build-up on the workpiece and the tool.

	Shape	Type no.	Diameter	Mounting	Grade	Max. RPM	PU	
		PAD INOX	709989	115x22	M14	VERY HARD	13,300	5
			709991	125x22	M14	VERY HARD	12,300	5
		PAD UNI	709992	115x22	M14	HARD	13,300	5
			709993	125x22	M14	HARD	12,300	5
			709994	180X22	M14	HARD	8,600	5

BASIC★ ACCESSORIES

For FIBRE DISC



The BASIC* back up pad is a good supplement to all our fibre discs. The accessories offer good support in achieving the best results for the surface finish.

	Shape	Type no.	Diameter	Mounting	Grade	Max. RPM	PU	
		PAD BASIC	709995	115x22	M14	HARD	13,300	5
			709997	125x22	M14	HARD	12,300	5
			709998	180X22	M14	HARD	8,600	5
			709999	115x22	5/8"	HARD	13,300	5
			710002	125x22	5/8"	HARD	12,300	5
			710005	180X22	5/8"	HARD	8,600	5

Items with grey lettering are only available on request.

Coated abrasives



PREMIUM★★★ ZA-P45 V* | ZA-P45 P F TFC
TYROLIT FAST CHANGE

For steel, nonferrous metals, composites and gel coat



TYROLIT FAST CHANGE enables you to change a disc very quickly thanks to the Velcro fastening. The TFC grinding wheel, developed for steel and other material grinding and finishing, is made of zirconium with active coolants. This enables cool, clean grinding to be performed on the workpiece.

Thanks to the thin fibre backing with grit 40 and strong paper backing the TFC is the optimal tool for removing smaller welding and spot weld seams.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		Disc	706135*	115	40	12,300	50
		706136	115	60	12,300	50	
		706137	115	80	12,300	50	
		706138	115	120	12,300	50	
		706139*	125	40	10,500	50	
		706141	125	60	10,500	50	
		706142	125	80	10,500	50	
		706143	125	120	10,500	50	

*Fibre backing



PREMIUM★★★ ACCESSORIES

For TYROLIT FAST CHANGE



Our back up pads can be used on most dual action sanders and their medium density provides the ideal support for finishing and preparing surfaces. The specially developed product design delivers outstanding

dust extraction. You can use practically any disc with our back up pads. They fit discs with 0, 6, 7, 9 and 15 holes.

	Shape	Type no.	Diameter	Mounting	Grade	Max. RPM	PU	
		PAD TFC	710006	115	M14	HARD	13,300	5
		710007	125	M14	HARD	12,300	5	

Items with grey lettering are only available on request.

Coated abrasives





5.3 ROUGH CLEANING WHEEL
ANGLE GRINDER

Coated
abrasives



ROUGH CLEANING WHEEL ANGLE GRINDER

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. Would you like to remove rust, paint and varnish with a minimum of effort? Or do you need to prepare surfaces for welding, soldering or anodising?

The highly porous nylon fibres are evenly treated with aggressive abrasives and are able to meet any

challenge.

All of our rough cleaning discs resist loading or smearing and offer long

life with an even grinding pattern, but also low heat generation and quiet, stress-free working.

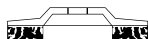
Application recommendations



Performance Level	Specification	Pages	All in One
PREMIUM★★★	C COARSE, A EX. COARSE	351	●

Items with grey lettering are only available on request.

Shapes



27GR Rough cleaning wheel
(sound insulated)


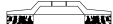

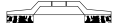
PREMIUM★★★ ROUGH CLEANING WHEEL

Universal use



With the TYROLIT rough cleaning wheel you can effortlessly remove rust, paint, lacquer and underbody sealant from your workpiece. The porous nylon fibres, treated with aggressive abrasives, meet any challenge. At the same time, they prevent clogging or loading of the wheel.

This wheel offers the user quiet, non-strenuous grinding combined with low generation of heat.

Shape	Type no.	Dimension	Specification	Colour	PU	Max. RPM	Rec. speed
 	28 VL GR 898012	100x22.23	C COARSE	BLACK	5	12,400	9,900
	898014	115x22.23	C COARSE	BLACK	5	11,000	8,600
	898017	125x22.23	C COARSE	BLACK	5	9,800	7,800
	898018	178x22.23	C COARSE	BLACK	5	7,000	6,600
 	34206236	115x22.2	A EX. COARSE	BLUE	5	11,000	8,600
	34206237	125x22.2	A EX. COARSE	BLUE	5	9,800	7,800
	34206238	178x22.2	A EX. COARSE	BLUE	5	7,000	6,600

Items with grey lettering are only available on request.

Coated abrasives





**5.4 SCM - SURFACE
CONDITIONING MATERIAL
ANGLE GRINDER**



SCM DISCS FOR ANGLE GRINDERS

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT now offers the SCM product assortment for use with angle grinders as well.

Surface Conditioning Material discs combine excellent cutting ability with long tool life, so that you can achieve optimum surface quality. This saves you two or three work steps. From simple deburring work without workpiece deformation to perfect

surface finishing, SCM can be used universally.

With a wide range of grain sizes, from extra coarse to very fine, TYROLIT products are suitable for many different applications. Our discs offer

another special feature: thanks to the removable centre hole, our discs can be mounted on the three most popular back up pads. Try it for yourself!

Application recommendations



Performance level	Specification	Pages	All in One
PREMIUM***	EXTRA COARSE, COARSE, EXTRA MEDIUM, MEDIUM, VERY FINE	356, 357	●

Items with grey lettering are only available on request.

SCM disc assembly

SCM discs are designed for use on an angle grinder and are available in the popular diameters 115 – 178 mm, from extra coarse to very fine.

Cleverly designed: Thanks to the removable centre hole, each of these discs can be used on all three of the supporting discs in our range.



Colours

	EXTRA COARSE	COARSE	EXTRA MEDIUM	MEDIUM	VERY FINE
Front					
Back					

Shapes



DISC SCM disc

Coated abrasives

PREMIUM★★★ SCM

UNIVERSAL USE

+ Reduces working times

The working time is significantly reduced through the long lifetime and the saving of one to three work steps.

+ Noticeable cost reduction

Fewer work steps also means reduced tool costs.



+ One disc, three options

Thanks to the removable centre hole, this disc can also be mounted on three different back up pads.

With the new TYROLIT SCM program, we are now taking a further step towards economic efficiency. With SCM, the machining time of the workpiece can now be greatly reduced. A saving of one to three work steps is thus the key benefit.

Thanks to the quick and high stock removal rate, applications such as the reduction of surface roughness, removal of discolouration, smoothing of surfaces and the cleaning and removal of weld seams can be realised. Another advantage of SCM lies in the

deburring of tool edges without additional stock removal. Furthermore, the TYROLIT SCM program is yielding the best results in terms of lifetime, which in turn is evidence of the economic efficiency of these products.

PREMIUM★★★ SCM

Universal use





Shape	Type no.	Dimension	Design	Colour	Max. RPM	Rec. speed	PU	
	Disc	34047714	115x22	EXTRA COARSE	DARK BROWN / PURPLE	13,000	8-9.000	20
		34047715	115x22	COARSE	BROWN	13,000	8-9.000	20
		34047716	115x22	EXTRA MEDIUM	DARK BROWN / PURPLE	13,000	8-9.000	20
		34047720	115x22	MEDIUM	RED	13,000	8-9.000	20
		34047722	115x22	VERY FINE	BLUE	13,000	8-9.000	20
		34047724	125x22	EXTRA COARSE	DARK BROWN / PURPLE	12,000	7-8.500	20
		34047727	125x22	COARSE	BROWN	12,000	7-8.500	20
		34047730	125x22	EXTRA MEDIUM	DARK BROWN / PURPLE	12,000	7-8.500	20
		34047732	125x22	MEDIUM	RED	12,000	7-8.500	20
		34047733	125x22	VERY FINE	BLUE	12,000	7-8.500	20

Items with grey lettering are only available on request.





	Shape	Type no.	Dimension	Design	Colour	Max. RPM	Rec. speed	PU	
		Disc	34047734	178x22	EXTRA COARSE	DARK BROWN / PURPLE	8,500	5-6,000	20
		34047735	178x22	COARSE	BROWN	8,500	5-6,000	20	
		34047736	178x22	EXTRA MEDIUM	DARK BROWN / PURPLE	8,500	5-6,000	20	
		34047755	178x22	MEDIUM	RED	8,500	5-6,000	20	
		34047757	178x22	VERY FINE	BLUE	8,500	5-6,000	20	



PREMIUM★★★ ACCESSORIES

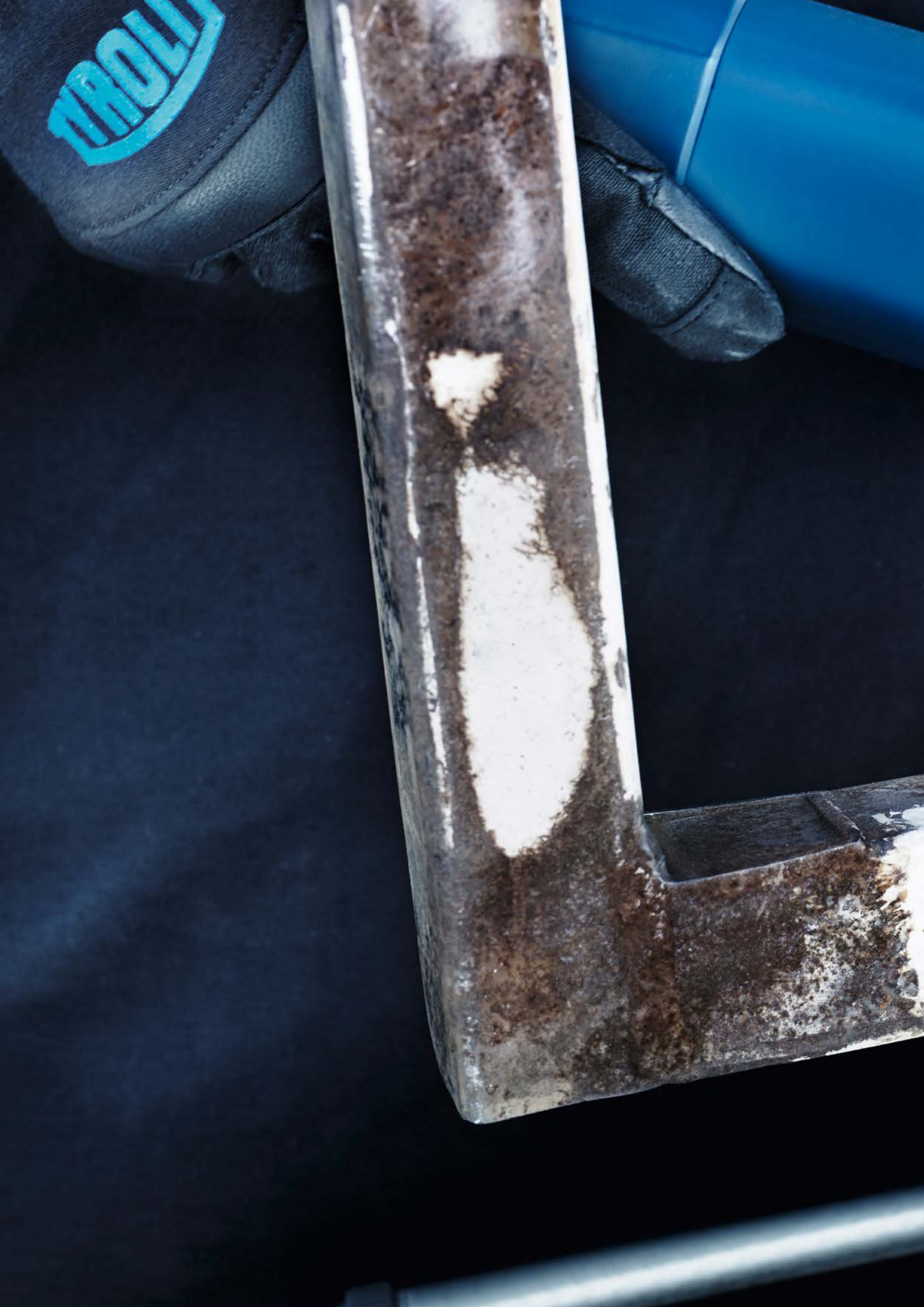
For SCM discs



The intelligent design of our SCM discs enables them to be used on all the back up pads available in our assortment. The removable centre hole of the SCM disc enables the disc to be fitted to the back up pad in a self-centring position.

The discs and back up pads are designed for use on the angle grinder in all common diameters from 115 to 178 mm.

	Shape	Type no.	Diameter	Mounting	Grade	Max. RPM	PU	
		PAD SCM	34050524	115x22	M14	MEDIUM	13,000	1
		34050525	125x22	M14	MEDIUM	12,000	1	
		34050358	115	M14	MEDIUM	13,000	1	
		34050359	125	M14	MEDIUM	12,000	1	
		34050509	178	M14	MEDIUM	8,500	1	





5.5 COMPACT WHEELS
ANGLE GRINDERS



COMPACT WHEELS FOR ANGLE GRINDERS

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT offers a comprehensive assortment of products for this purpose.

With the compact wheel range, TYROLIT offers you an ideal tool for the machining of surfaces without changing the surface geometry, particu-

larly for the removal of rust and dirt. Compact wheels consist of multilayer unitised fleece and are available in coarse to fine specifications depend-

ing on the number of layers. On the following pages, you will find our range of unitised compact wheels for angle grinders.

Application recommendations



Performance level	Specification	Pages	All in One
PREMIUM ★★★	8 A COARSE, 6 A MEDIUM, 6 C FINE, 3 C FINE, 2 C FINE	362, 363	<input type="checkbox"/>

Items with grey lettering are only available on request.

Shapes



1UW Unitised wheel

PREMIUM★★★ UNITISED WHEELS UNIVERSAL USE

+ **High flexibility**
Particularly well suited to the time-saving machining of difficult-to-reach places.

+ **High economic efficiency**
Cool grinding and low clogging of the wheel result in a long lifetime for the product.



+ **Versatile**
This product is extremely versatile and can be used for deburring, removal of scratches, fading, glazing, finishing and machining of welding seams.

With unitised wheels from TYROLIT, especially difficult-to-reach places and corners can be reached on every workpiece. These flexible products do not alter the surface geometry of your workpiece in any way and always

achieve the desired surface structure. The cool grinding, low clogging and regular surface results give them the edge over conventional tools. Application areas are primarily the deburring, cleaning, fading, finishing

and machining of welding seams. Material can be easily machined and structured using unitised wheels.

PREMIUM★★★ UNITISED WHEELS Universal use





Shape	Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU	
	1UW	34190121	127x3x22.2	3 C FINE	10,000	6,000	16
		34190122	127x3x22.2	6 A MEDIUM	10,000	6,000	16
		34190123	127x6x22.2	3 C FINE	10,000	6,000	8
		34190124	127x6x22.2	6 A MEDIUM	10,000	6,000	8
		34190125	152x3x25.4	2 A MEDIUM	5,000	3,000	16
		34190206	152x3x25.4	2 C FINE	5,000	3,000	16
		34190207	152x3x25.4	3 C FINE	5,000	3,000	16
		34190209	152x3x25.4	6 A MEDIUM	7,500	4,500	16

Items with grey lettering are only available on request.



Coated abrasives



Shape	Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU	
 	1UW	34190210	152x3x25.4	6 C FINE	7,500	4,500	16
		34190231	152x3x25.4	8 A COARSE	7,500	4,500	16
		34190274	152x6x25.4	2 A MEDIUM	5,000	3,000	8
		34190275	152x6x25.4	2 C FINE	5,000	3,000	8
		34190276	152x6x25.4	3 C FINE	5,000	3,000	8
		34190277	152x6x25.4	6 A MEDIUM	7,500	4,500	8
		34190278	152x6x25.4	6 C FINE	7,500	4,500	8
		34190279	152x6x25.4	8 A COARSE	7,500	4,500	8

Coated abrasives

Items with grey lettering are only available on request.



TYROLIT

KICK
BACK

KICK
BACK WEAR



5.6 POLISHING PROGRAM ANGLE GRINDER



POLISHING PROGRAM FOR ANGLE GRINDERS

Working with an angle grinder is one of the most important processes in the trade and industrial sectors for processing all types of metals. TYROLIT offers an optimally tailored package for polishing metal.

There are many suppliers of polishing accessories. But anyone who has ever polished knows how important it is that all components should be perfectly matched to one another.

With TYROLIT you can get everything you need from one source. You can tell how perfectly our products are matched from the fact that you can get a mirror finish in only three steps

– without unwanted discolouration due to overheating.

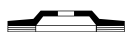
Shapes



28PCA CONDITIONING



28 PUA PRE-POLISH



28 PWA POLISH



29EL
ELASTIC RONDELLER®



Disc Polistar

Recommended speeds

PREMIUM*** CONDITIONING	PREMIUM*** PRE-POLISH	PREMIUM*** POLISH	PREMIUM*** COMBI
115 mm – 3,500 rpm	115 mm – 4,000 rpm	115 mm – 1,800 rpm	115 mm – 4,000 rpm
125 mm – 3,000 rpm	125 mm – 3,600 rpm	125 mm – 1,500 rpm	125 mm – 3,600 rpm

Polishing pastes:

- White – high gloss pre-polish (POLISH)
- Blue – high gloss polish (S-POLISH)
- Brown - special polish for nonferrous metals (POLISH-NE)

TYROLIT PREMIUM*** POLISHING PROGRAM THREE STEPS TO A PERFECT MIRROR FINISH

+ Preparation

Preparing the untreated workpiece

To prepare the untreated material and get a mirror finish, you need:

PREMIUM*** fibre discs ZA-P48 Page 341

PREMIUM*** 2in1 flap discs Page 325

STANDARD** SOFTJOB Page 328

Our recommendation: grit size 120 or 80 depending on the material

+ Step 1

Remove rough scratch marks using the PREMIUM*** CONDITIONING disc.

It removes all rough scratch marks from the surfaces to be machined.

A multi-dimensional flap design reduces clogging and prevents unwanted material discolouration.

Recommendation: "MEDIUM" grain

+ Step 2

Prepare for polishing with the PREMIUM*** PRE-POLISH disc

This provides optimum polishing preparation. The disc adapts flexibly to the material surface.

Recommendation: "FINE-P" grain

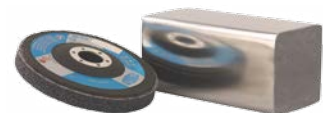
+ Step 3

Polish with the PREMIUM*** POLISH disc

This allows you finally to achieve a perfect mirror finish.

Different grinding pastes enable processing of different materials, such as steel, stainless steel and nonferrous metals.

Recommendation: SHF with "S-POLISH" polishing paste



PREMIUM* CONDITIONING**

For steel and stainless steel



With the PREMIUM*** CONDITIONING wheel you can remove all rough scratch marks from the surface before commencing the polishing process. The three-dimensional flap design reduces clogging of the wheel to a minimum. Using the wheel also prevents discolouration on the workpiece caused by high heat build-up.

The tool has been specially developed to achieve the best results even on non-adjustable angle grinders.

	Shape	Type no.	Dimension	Specification	PU	Max. RPM	
		28PCA	742155	115x22,23	COARSE	5	12,000
			742157	115x22,23	MEDIUM	5	12,000
			742158	115x22,23	VERY FINE	5	12,000
			742148	125x22,23	MEDIUM	5	11,000
			742153	125x22,23	MEDIUM	5	11,000
			742154	125x22,23	VERY FINE	5	11,000

PREMIUM* PRE-POLISH**

For steel and stainless steel



To prepare surfaces for polishing, you require a sturdy, high-quality tool. The PREMIUM*** PRE-POLISH comprises several layers of abrasive fabric to achieve a long lifetime and sturdiness. This allows the tool to be used for smaller deburring jobs as well.

The tool has been specially developed to achieve the best results even on non-adjustable angle grinders.

	Shape	Type no.	Dimension	Specification	PU	Max. RPM	
		28PUA	742379	115x22,23	MEDIUM-Q	5	12,000
			742380	115x22,23	FINE-P	5	12,000
			742381	115x22,23	VERY FINE-P	5	12,000
			742382	125x22,23	MEDIUM-Q	5	11,000
			742384	125x22,23	FINE-P	5	11,000
			742385	125x22,23	VERY FINE-P	5	11,000

PREMIUM* POLISH**

Universal use



Compared to conventional felt wheels, this product uses highly flexible flaps for optimum heat distribution and cool grinding. In doing so, the PREMIUM*** POLISH avoids undesired discolouration. Used in combination with the TYROLIT grinding paste, a perfect mirror finish is achieved on your workpiece.

The tool has been specially developed to achieve the best results even on non-adjustable angle grinders.

	Shape	Type no.	Dimension	Specification	PU	Max. RPM	
		28PWA	742378	115x22,23	SHF	3	9,200
			742375	125x22,23	SHF	3	7,700


Items with grey lettering are only available on request.

PREMIUM* POLISHING PASTES**
For steel, stainless steel and nonferrous metals



With the TYROLIT PREMIUM*** polishing paste in different specifications you will achieve the final mirror finish. They can be used to perform precision machining work depending on the desired surface finish. Polishing pastes are available in three specifications. Using the POLISH

(white), you will achieve a perfectly smooth finish. A achieve a high-gloss finish we recommend S-POLISH (blue) while the POLISH-NE paste is perfect for nonferrous metals.

	Type no.	Dimension	Specification	Colour	PU	
	90PP	741230	30x20x90	POLISH	WHITE	2
		741285	30x20x90	POLISH-NE	BROWN	2
		741291	30x20x90	S-POLISH	BLUE	2
		741347	60x45x160	POLISH	WHITE	1
		741348	60x45x160	POLISH-NE	BROWN	1
		741349	60x45x160	S-POLISH	BLUE	1

PREMIUM*** POLISHING PROGRAM

THREE STEPS TO A MIRROR FINISH

+ Step 1

Remove rough scratch marks using the PREMIUM*** CONDITIONING disc. A multi-dimensional flap design reduces clogging and prevents unwanted material discolouration.

+ Step 2

Prepare the surface for polishing using the PREMIUM*** PRE-POLISH. The disc adapts to the material surface, providing the perfect basis for polishing.



+ Step 3

Using PREMIUM*** POLISH during the last step creates the perfect mirror finish. Different grinding pastes enable the machining of different materials.

TYROLIT Film



The product film can be found on YouTube at www.youtube.com/TYROLITgroup

With the TYROLIT POLISHING PROGRAM you can achieve the perfect high gloss surface in just a few steps. Preventing clogging of the wheels

provides an above-average lifetime. Exceptionally cool grinding due to special flaps ensures outstanding surface finishes.


Exceptionally high levels of work safety due to low heat build-up, minimal formation of dust and quiet operation.

Items with grey lettering are only available on request.

**PREMIUM★★★ POLISHING PROGRAM**

Three steps to a mirror finish



	Type no.	Shape	Dimension	Specification	Type no.	PU
	21262	28PCA	115x22.23	MEDIUM	742157	1
		28PUA	115x22.23	FINE-P	742380	1
		28PWA	115x22.23	SHF	742378	1
		90 PP	30x20x90	S-POLISH	741291	2
	52433	28PCA	125x22.23	MEDIUM	742153	1
		28PUA	125x22.23	FINE-P	742384	1
		28PWA	125x22.23	SHF	742375	1
		90 PP	30x20x90	S-POLISH	741291	2



STANDARD★★ ELASTIC RONDELLER®

For steel and stainless steel



With the ELASTIC RONDELLER® TYROLIT provides an ideal tool for polishing and finishing. Thanks to the highly elastic grinding layer a surface improvement is achieved while protecting the material. Using a fibre glass core means it can be used on speed-controlled angle grinders.

Ideally suited to work on vehicles, containers and aeroplanes.

	Shape	Type no.	Dimension	Specification	PU	Max. RPM
	 29EL	10055	115x9.0x22.23	A80-COARSE	5	5,000
		10056	115x9.0x22.23	A150-MEDIUM	5	5,000
		10058	115x9.0x22.23	A240-FINE	5	5,000



STANDARD★★ ELASTIC RONDELLER®

For lacquers, paints and plastics



Thanks to the highly elastic grinding layer the TYROLIT ELASTIC RONDELLER® delivers a surface improvement while protecting the material. This tool is therefore ideal for polishing and finishing. The specially developed specification delivers the best results on lacquers, paints and plastics.

Using a fibre glass core means it can be used on speed-controlled angle grinders. Ideally suited to work on vehicles, containers and aeroplanes.

	Shape	Type no.	Dimension	Specification	PU	Max. RPM
	 29EL	8434	115x9.0x22.23	C80-COARSE	5	5,000
		10051	115x9.0x22.23	C150-MEDIUM	5	5,000
		10054	115x9.0x22.23	C240-FINE	5	5,000

Items with grey lettering are only available on request.


PREMIUM* POLISTAR**

For stone



These Velcro fastenable ceramic polishing pads are ideal for polishing stone surfaces. The grit sizes available in the assortment, from 50 to 3,000, ensure a perfect surface finish on the material.

With the PREMIUM*** POLISTAR pads, you can achieve the best results on granite, marble and terrazzo.

	Type no.	Dimension	Specification	Colour	PU	
	65A	293641	100x3	D50-B	BLACK	5
		293643	100x3	D150-B	GREEN	5
		293644	100x3	D300-B	RED	5
		293645	100x3	D500-B	BLUE	5
		293737	100x3	D1000-B	YELLOW	5
		293738	100x3	D2000-B	BEIGE	5
		293739	100x3	D3000-B	WHITE	5
	ELKUPS	293790	100x3xM14			1


PREMIUM* POLISTAR-SET**

For stone



These Velcro fastenable ceramic polishing pads are ideal for polishing stone surfaces. The grit sizes available in the assortment, from 50 to 3,000, ensure a perfect surface finish on the material.

With the PREMIUM*** POLISTAR pads, you can achieve the best results on granite, marble and terrazzo.

	Type no.	Contents	Dimension	PU
	293740	293641	100x3	1
		293643	100x3	1
		293644	100x3	1
		293645	100x3	1
		293737	100x3	1
		293738	100x3	1
		293739	100x3	1
		293790	100x3xM14	1

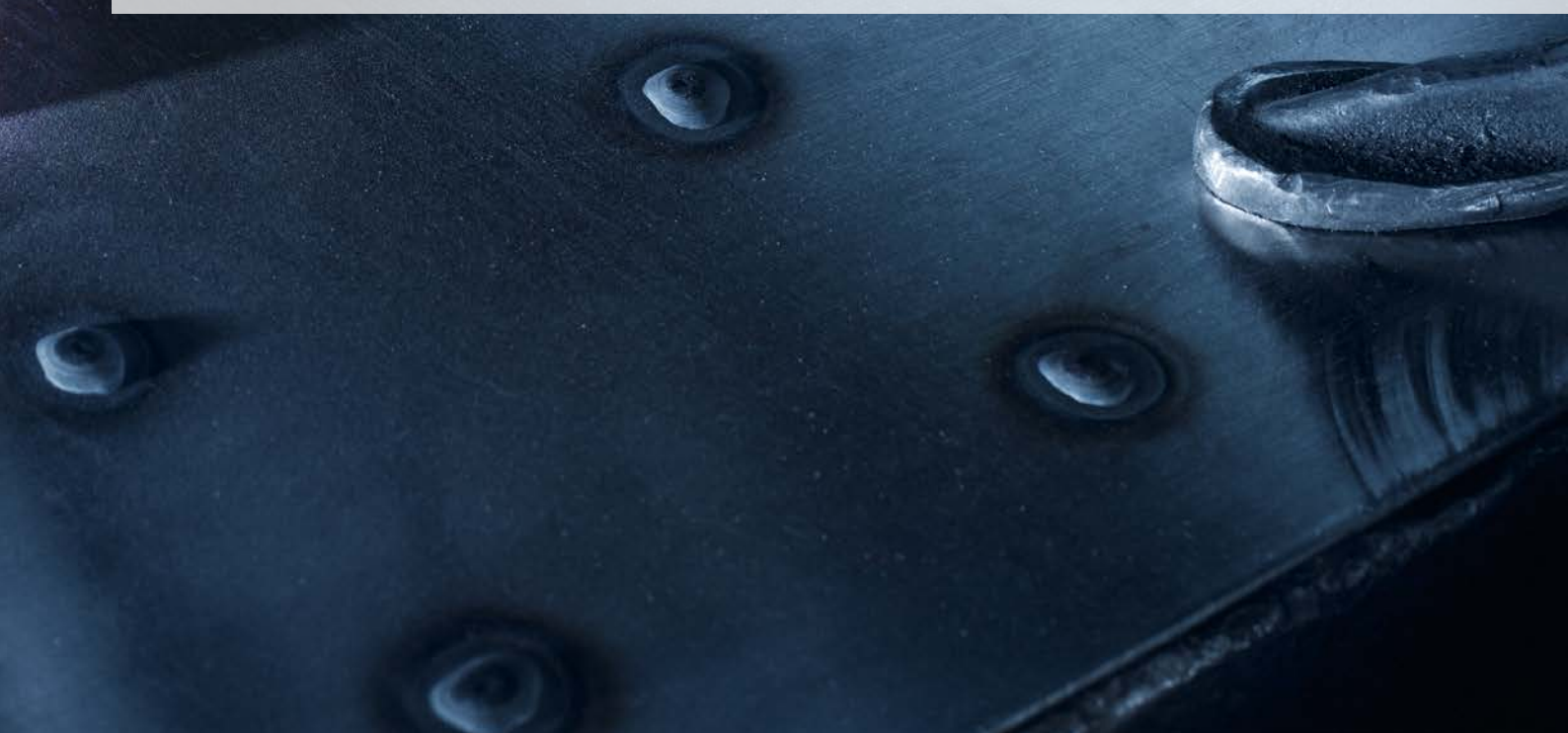
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5.7 QUICK-CHANGE DISCS
MINI ANGLE GRINDER

Coated
abrasives





QUICK CHANGE DISCS MINI ANGLE GRINDER

Quick Change Discs are easy to use, without assembly tools being required. Easy handling on the mini angle grinder saves you a lot of time in your day-to-day work and increases your productivity.

A comprehensive assortment offers high-quality products for general grinding work, including fine surface finishing.

Two different mountings cover the main fixing systems. Type R can be used for Lockit, PowerLock III and

Roloc TR mountings, type S for SocAtt, PowerLock II and Roloc TSM.

Another special feature of the S type mounting is that it is made from nylon, making it immune to rust and other types of contamination.

TYROLIT offers Quick Change Discs in a wide range of grit sizes for different materials. Take a look at our wide-ranging assortment and see for yourself.

Application recommendations



Performance Line	Specification	Pages	Steel	Stainless steel	NF metals	Plastic	Wood
QUICK-CHANGE DISCS PREMIUM***	A-P01 PE Y	380, 381	●		●	●	●
	ZA-P43 PC X	376, 377	●				
	ZA-P48 PE Y	378	●	●			
	CA-P93 PE Y	379, 380	●	●			

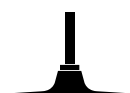


Performance Line	Specification	Pages	Steel	Stainless steel	NF metals	Plastic	Wood
SCM QUICK-CHANGE DISCS PREMIUM***	EXTRA COARSE, COARSE, EXTRA MEDIUM, MEDIUM, VERY FINE	382	●	●	●	●	●



Performance Line	Specification	Pages	All in One
ROUGH GRINDING WHEEL QUICK-CHANGE DISCS PREMIUM***	C COARSE, A EX COARSE	382	●
COMPACT WHEELS PREMIUM***	2 A MEDIUM, 2 C FINE, 3 C FINE, 6 A MEDIUM, 6 C FINE, 8 A COARSE, 8 A MEDIUM	383	●
COMPACT WHEELS PREMIUM***	FINE, MEDIUM, COARSE	383	●

Items with grey lettering are only available on request.



STANDARD** QUICK-CHANGE MINIDISC

2in1 for steel and stainless steel



The STANDARD** Minidisc was specially developed for machining and refining difficult to access places. Every disc is fitted with a quick fixing system which enables fast and convenient tool changes.

The MINIDISC is also a 2in1 rough grinding wheel and is therefore equally suitable for steel and stainless steel.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		QDisc-R	679662	50	40	30,000	10
		666221	50	60	30,000	10	
		679663	50	80	30,000	10	
		679664	50	120	30,000	10	
		666276	75	40	20,000	10	
		666279	75	60	20,000	10	
		666280	75	80	20,000	10	
		666421	75	120	20,000	10	

STANDARD** SOFTJOB

2in1 for steel and stainless steel



For us, the STANDARD** SOFTJOB Q-Disc represents maximum flexibility for machining difficult to access areas. It has a broad application area, comprising: Surface preparation and improvement, preparation of welding work and cleaning of weld seams, processing of contours and profiled

surfaces, processing of handrails and pipes, cleaning of surfaces, removal of rust and paint residues.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		QDisc-R	246982	50	40	30,000	10
		246984	50	60	30,000	10	
		246985	50	80	30,000	10	
		246986	50	120	30,000	10	
		289327	75	40	20,000	10	
		289329	75	60	20,000	10	
		289330	75	80	20,000	10	



Items with grey lettering are only available on request.

PREMIUM★★★ ZA-P43 PC X QUICK-CHANGE DISC
For steel



With TYROLIT QUICK CHANGE DISCS you can save time and thus increase productivity. They provide easy handling and can be used without the need for any additional mounting tools. These QUICK CHANGE DISCS

are specially designed for general grinding tasks on steel. Our two different types cover the main mounting systems.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU
		QDisc-R 116061	50	36	25,000	50
		116065	50	40	25,000	50
		116097	50	60	25,000	50
		116111	50	80	25,000	50
		116115	50	120	25,000	50
		116127	75	36	20,000	25
		116130	75	40	20,000	25
		116143	75	60	20,000	25
		116152	75	80	20,000	25
		116156	75	120	20,000	25

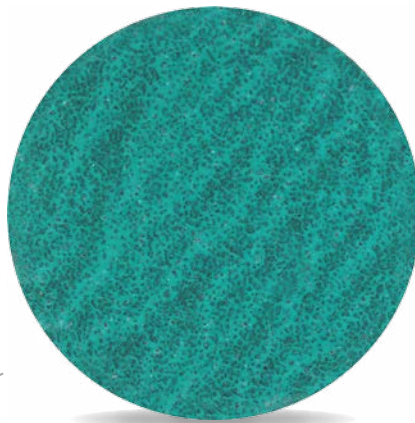
PREMIUM★★★ ZA-P48 PE Y QUICK-CHANGE DISC FOR STEEL AND STAINLESS STEEL

+ Maximum stock removal rates

Thanks to its high level of abrasiveness, you can achieve high stock removal on the workpiece..

+ Longest lifetime

The robust three-layer design and reduced grain break-out make this a durable and efficient tool.



+ Broad assortment

The discs are available in two diameters with different mounting types. Grit sizes 36 to 120 are suitable for all grinding tasks.

With TYROLIT QUICK CHANGE DISCS you can save a considerable amount of time. This specification delivers maximum stock removal rates

at the same time as a long lifetime. This is achieved by combining the zirconium and ceramic aluminium oxide with a three-layer product structure.

In addition, this product also delivers a high level of stability, low grain break-out and enhanced edge stability.




Items with grey lettering are only available on request.



**PREMIUM*** ZA-P48 PE Y QUICK-CHANGE DISC**

For steel and stainless steel



	Shape	Type no.	Diameter	Grain	Max. RPM	PU
	 QDisc-R	112398	50	24	25,000	50
		112401	50	36	25,000	50
		112406	50	40	25,000	50
		112411	50	60	25,000	50
		112413	50	80	25,000	50
		112418	50	120	25,000	50
		112432	75	24	20,000	25
		112438	75	36	20,000	25
		112440	75	40	20,000	25
		112447	75	60	20,000	25
		112449	75	80	20,000	25
		112452	75	120	20,000	25
			 QDisc-S	112455	50	24
112469	50			36	25,000	50
112471	50			40	25,000	50
112486	50			60	25,000	50
112493	50			80	25,000	50
112494	50			120	25,000	50
112505	75			24	20,000	25
112510	75			36	20,000	25
112514	75			40	20,000	25
112527	75			60	20,000	25
112532	75			80	20,000	25
112536	75			120	20,000	25

Coated abrasives

Items with grey lettering are only available on request.

PREMIUM★★★ CA-P93 PE Y QUICK-CHANGE DISC FOR STEEL AND STAINLESS STEEL

+ Maximum stock removal rates

Thanks to its high level of abrasiveness, you can achieve high stock removal on the workpiece.

+ Longest lifetime

The robust three-layer design and reduced grain break-out make this a durable and efficient tool.



+ Broad assortment

The discs are available in two diameters with different mounting types. Grit sizes 36 to 120 are suitable for all grinding tasks.

With TYROLIT QUICK CHANGE DISCS you can save a considerable amount of time. This specification delivers maximum stock removal rates

at the same time as a long lifetime. This is achieved by combining the zirconium and ceramic aluminium oxide with a three-layer product structure.

In addition, this product also delivers a high level of stability, low grain break-out and enhanced edge stability.

PREMIUM★★★ CA-P93 PE Y QUICK-CHANGE DISC
For steel and stainless steel





	Shape	Type no.	Diameter	Grain	Max. RPM	PU
		112917	50	36	25,000	50
		112918	50	40	25,000	50
		112923	50	60	25,000	50
		112924	50	80	25,000	50
		112928	50	120	25,000	50
		112934	75	36	20,000	25
		112935	75	40	20,000	25
		112937	75	60	20,000	25
		112947	75	80	20,000	25
		112948	75	120	20,000	25

Items with grey lettering are only available on request.

**PREMIUM*** CA-P93 PE Y QUICK-CHANGE DISC**

For steel and stainless steel



	Shape	Type no.	Diameter	Grain	Max. RPM	PU
	 QDisc-S	112950	50	36	25,000	50
		112961	50	40	25,000	50
		112988	50	60	25,000	50
		113007	50	80	25,000	50
		113023	50	120	25,000	50
		113026	75	36	20,000	25
		113027	75	40	20,000	25
		113031	75	60	20,000	25
		113057	75	80	20,000	25
		113059	75	120	20,000	25




PREMIUM* A-PO1 PE Y QUICK-CHANGE DISC**

For steel, nonferrous metals, plastic and wood





With TYROLIT QUICK CHANGE DISCS you can save time and increase productivity. They provide easy handling and can be used without the need for any additional mounting tools. Our QUICK CHANGE DISC assortment includes discs for general grinding tasks on any material.

Our two different types cover the main mounting systems.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
	 QDisc-R	111562	50	24	25,000	50	
		111567	50	36	25,000	50	
		111570	50	40	25,000	50	
		111577	50	60	25,000	50	
		111584	50	80	25,000	50	
		111585	50	120	25,000	50	
		111611	75	24	20,000	25	
		111631	75	36	20,000	25	
		112203	75	40	20,000	25	
		112204	75	60	20,000	25	
		112205	75	80	20,000	25	
		112242	75	120	20,000	25	
		 QDisc-S	112253	50	24	25,000	50
			112254	50	36	25,000	50
			112268	50	40	25,000	50
112273	50		50	25,000	50		
112279	50		60	25,000	50		
112283	50		80	25,000	50		



Items with grey lettering are only available on request.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU	
		QDisc-S	112298	50	120	25,000	50
		112308	50	180	25,000	50	
		112309	75	24	20,000	25	
		112312	75	36	20,000	25	
		112320	75	40	20,000	25	
		112322	75	50	20,000	25	
		112337	75	60	20,000	25	
		112339	75	80	20,000	25	
		112359	75	120	20,000	25	

PREMIUM*** SCM QUICK-CHANGE DISC

FOR STEEL, STAINLESS STEEL, NONFERROUS METALS, PLASTIC AND WOOD

+ Reduces working times
The working time is significantly reduced through the long lifetime and the saving of one to three work steps.

+ Noticeable cost reduction
Fewer work steps also means reduced tool costs.



+ Comprehensive assortment
The SCM range currently includes discs in the most varied of sizes and specifications.

With the new TYROLIT SCM program, we are now taking a further step towards economic efficiency. Simple handling and mounting save you time. With SCM, the machining

time of the workpiece can now be greatly reduced. A saving of one to three work steps is thus the key benefit. Thanks to the quick and high stock





removal rate, applications such as the reduction of surface roughness, removal of discolouration, smoothing of surfaces and the cleaning and removal of weld seams can be realised.

Items with grey lettering are only available on request.

Coated abrasives

PREMIUM★★★ SCM QUICK-CHANGE DISC
For steel, stainless steel, nonferrous metals, plastic and wood





Shape	Type no.	Diameter	Design	Colour	Max. RPM	Rec. speed	PU		
	 QDisc-R	34072695	50	EXTRA COARSE	DARK BROWN / PURPLE	25,000	16,000	50	
		112543	50	COARSE	BROWN	25,000	16,000	50	
		34072696	50	EXTRA MEDIUM	DARK RED / PURPLE	25,000	16,000	50	
		112546	50	MEDIUM	RED	25,000	16,000	50	
		112550	50	VERY FINE	BLUE	25,000	16,000	50	
		34072700	75	EXTRA COARSE	DARK BROWN / PURPLE	20,000	13,000	25	
		112551	75	COARSE	BROWN	20,000	13,000	25	
		34072701	75	EXTRA MEDIUM	DARK RED / PURPLE	25,000	13,000	25	
		112581	75	MEDIUM	RED	20,000	13,000	25	
		112588	75	VERY FINE	BLUE	20,000	13,000	25	
		 QDisc-S	112589	50	COARSE	BROWN	25,000	16,000	50
			112590	50	MEDIUM	RED	25,000	16,000	50
			112591	50	VERY FINE	BLUE	25,000	16,000	50
			112592	75	COARSE	BROWN	20,000	13,000	25
		112593	75	MEDIUM	RED	20,000	13,000	25	
		112599	75	VERY FINE	BLUE	20,000	13,000	25	

PREMIUM★★★ ROUGH CLEANING WHEEL
QUICK-CHANGE DISCS
For steel, stainless steel and PVC



With the TYROLIT rough cleaning wheel for mini angle grinders you can effortlessly remove rust, paint, lacquer and underbody sealant. The porous nylon fibres, treated with aggressive abrasives, meet any challenge. At the same time, it prevents smearing and loading of the disc.

This wheel offers the user quiet, non-strenuous grinding coupled with low generation of heat.

Shape	Type no.	Diameter	Design	Colour	Max. Drehzahl	Rec. speed	PU	
	 QDisc-R	112602	50	C COARSE	BLACK	10,500	6,300	20
		112603	75	C COARSE	BLACK	7,000	4,200	10
		34206231	50	A EX. COARSE	BLUE	10,500	7,000	20
		34206232	75	A EX. COARSE	BLUE	7,000	4,200	10

Items with grey lettering are only available on request.

Coated abrasives

PREMIUM★★★ UNITISED WHEELS QUICK CHANGE DISC UNIVERSAL USE

+ **High flexibility**
Particularly well suited to the time-saving machining of difficult-to-reach places.

+ **High economic efficiency**
Cool grinding and low clogging of the wheel result in a long lifetime for the product.



+ **Versatile**
This product is extremely versatile and can be used for deburring, removal of scratches, fading, glazing, finishing and machining of welding seams.



The unitised wheels from TYROLIT are ideally suited to the machining of small surfaces and corners. The soft surface of the product does not alter the surface geometry of your work-

piece in any way and always achieves the desired structure. Application areas are primarily the deburring, cleaning, fading, finishing and machining of welding seams.

Compact wheels offer increased safety and especially cool grinding compared to other deburring tools.

PREMIUM★★★ UNITISED WHEELS QUICK CHANGE DISC Universal use



Shape	Type no.	Diameter	Specification	Max. RPM	Rec. speed	PU	
	 QDisc-R	34190106	51	2 A MEDIUM	22,000	13,000	20
		34190107	51	2 C FINE	22,000	13,000	20
		34190108	51	3 C FINE	22,000	13,000	20
		34190110	51	6 A MEDIUM	22,000	13,000	20
		34190133	51	6 C FINE	22,000	13,000	20
		34190134	51	8 A COARSE	22,000	13,000	20
		34201556	51	8 A MEDIUM	22,000	13,000	20
		34190135	76	2 A MEDIUM	15,000	9,000	10
		34190137	76	2 C FINE	15,000	9,000	10
		34190138	76	3 C FINE	15,000	9,000	10
		34190139	76	6 A MEDIUM	15,000	9,000	10
		34190140	76	6 C FINE	15,000	9,000	10
		34190142	76	8 A COARSE	15,000	9,000	10
		34201558	76	8 A MEDIUM	15,000	9,000	10

Items with grey lettering are only available on request.



Coated abrasives

PREMIUM★★★ ACCESSORIES

For QUICK-CHANGE DISCS




These accessories enable QUICK CHANGE DISCS to be easily and safely mounted on your mini angle grinder. The accessories are available in the common sizes of 50 and 75 mm diameter.

	Shape	Type no.	Dimension	Grade	Mounting	Max. RPM	PU
		PAD Q-DISC					
		131779	50-6x40	MEDIUM	R	25,000	1
		131783	75-6x40	MEDIUM	R	20,000	1
		131784	50-6x40	MEDIUM	S	25,000	1
		131786	75-6x40	MEDIUM	S	20,000	1

ACCESSORIES

For Q-Disc compact wheels

These accessories enable the Pad Q-Disc adapter to be easily mounted on your angle grinder. To do this, remove the adapter shaft and instead mount the M14 adapter.

	Shape	Type no.	Mounting	Specification	Max. RPM	PU
		34214177	R	P ADAPTER	22,000	1



5.8 SPIRAL BELTS
STRAIGHT GRINDER

Coated
abrasives



SPIRAL BELTS STRAIGHT GRINDER

Straight grinders are used when you need to work precisely in hard-to-reach locations. TYROLIT spiral belts provide the help you need for every task. They're precise, yet flexible.

Our spiral belts allow you to work quickly and neatly on every type of metal, both ferrous and nonferrous. Applications range from simple deburring, to precision work, to the shaping of complex workpieces.

With many different grit sizes available, a wide range of possibilities is open to you. Naturally TYROLIT also offers suitable accessories for easy assembly on straight grinders.

Application recommendations



Performance Level	Specification	Pages	Steel	Stainless steel	NF metals
PREMIUM ★★★	ZA-P43 PC X	388, 389	●	●	●

Items with grey lettering are only available on request.

Shapes



Spiral Spiral belt



SBH Accessories



PREMIUM★★★ ZA-P43 PC X SPIRAL BELTS

For steel, stainless steel and aluminium



TYROLIT spiral belts are used for fine grinding and deburring work, as well as shaping complex workpieces. The combination of zirconium and an additional coolant enables them to be used on many different materials. The variety of grit sizes available means they can be used for very high stock removal or fine grinding.



The spiral belts can easily be mounted on an axle or an expandable mandrel. Accessories also form part of our assortment.

	Shape	Type no.	Dimension	Grain	Max. RPM	PU	
		Spiral	706514	10x20	50	36,000	50
		706515	10x20	60	36,000	50	
		706516	10x20	80	36,000	50	
		706517	10x20	120	36,000	50	
		706519	13x25	50	36,000	50	
		706520	13x25	60	36,000	50	
		706521	13x25	80	36,000	50	
		706523	13x25	120	36,000	50	
		706524	15x30	36	36,000	50	
		706525	15x30	50	36,000	50	
		706526	15x30	60	36,000	50	
		706527	15x30	80	36,000	50	
		706528	15x30	120	36,000	50	
		706529	19x25	36	30,000	50	
		706530	19x25	50	30,000	50	
		706531	19x25	60	30,000	50	
		706533	19x25	80	30,000	50	
		706534	19x25	120	30,000	50	
		706535	22x20	36	26,000	50	
		706536	22x20	50	26,000	50	
		706537	22x20	60	26,000	50	
		706538	22x20	80	26,000	50	
		706539	22x20	120	26,000	50	
		706540	25x25	36	24,000	50	
		706541	25x25	50	24,000	50	
		706542	25x25	60	24,000	50	
		706543	25x25	80	24,000	50	
		706544	25x25	120	24,000	50	
		706545	30x30	36	19,100	50	
		706546	30x30	50	19,100	50	
706547	30x30	60	19,100	50			
706548	30x30	80	19,100	50			
706550	30x30	120	19,100	50			
706551	38x25	36	15,000	50			
706552	38x25	50	15,000	50			
706553	38x25	60	15,000	50			

Items with grey lettering are only available on request.





	Shape	Type no.	Dimension	Grain	Max. RPM	PU
	 Spiral	706555	38x25	80	15,000	50
		706557	38x25	120	15,000	50
		706558	45x30	36	12,700	50
		706559	45x30	50	12,700	50
		706560	45x30	60	12,700	50
		706561	45x30	80	12,700	50
		706562	45x30	120	12,700	50
		706563	51x25	36	11,200	50
		706564	51x25	50	11,200	50
		706565	51x25	60	11,200	50
		706566	51x25	80	11,200	50
		706567	51x25	120	11,200	50
		706568	60x30	36	9,500	50
		706569	60x30	50	9,500	50
		706570	60x30	60	9,500	50
		706571	60x30	80	9,500	50
		706573	60x30	120	9,500	50
		706574	75x30	36	7,600	50
		706575	75x30	50	7,600	50
		706576	75x30	60	7,600	50
706577	75x30	80	7,600	50		
706578	75x30	120	7,600	50		



PREMIUM★★★ ACCESSORIES

For spiral belts



This expandable rubber support has been specially designed for use with spiral belts. Expanding the flaps on the support enables the spiral belt to be fixed, ensuring it is safe and easy to mount.

These accessories are suitable for all spiral belts in our assortment.

	Shape	Type no.	Dimension	Max. RPM	PU
	 SBH	710011	10x20-6x40	44,000	5
		710012	13x25-6x40	44,000	5
		710013	15x30-6x40	36,000	5
		710014	19x25-6x40	30,000	5
		710015	22x20-6x40	26,000	5
		710016	25x25-6x40	24,000	5
		710017	30x30-6x40	19,100	5
		710018	38x25-6x40	15,000	5
		710022	45x30-6x40	12,700	5
		710023	51x25-6x40	11,200	5
		710025	60x30-6x40	9,500	5
		710026	75x30-6x40	7,600	5

Items with grey lettering are only available on request.

Coated abrasives





**5.9 SPINDLE-MOUNTED FLEECE
FLAP WHEELS AND MOUNTED FLAP
WHEELS STRAIGHT GRINDER**






SPINDLE-MOUNTED FLEECE FLAP WHEELS AND MOUNTED FLAP WHEELS FOR STRAIGHT GRINDERS

Straight grinders are used when you need to work precisely in hard-to-reach locations. Especially when used in conjunction with TYROLIT spindle-mounted fleece flap wheels and mounted flap wheels, they are a flexible tool for producing optimum workpiece contours.

The fan-shaped, abrasive grain flaps of the mounted flap wheels allow precise work on all surfaces. They can be used not only on electrical but also on pneumatic straight grinders. The TYROLIT assortment also includes a large number of spin-

dle-mounted fleece flap wheels in different shapes and designs. They are highly adaptable and ensure that no changes occur to the surface integrity. Spindle-mounted fleece flap wheels are available with or without embedded abrasive.

Application recommendations

Performance Level	Pages	 Steel	 Stainless steel	 NF metals
SPINDLE-MOUNTED FLEECE FLAP WHEELS PREMIUM***	394, 395	•	•	•
MOUNTED FLAP WHEELS PREMIUM***	396, 397, 398, 399	•	•	•
MOUNTED FLAP WHEELS BASIC*	399, 400	•	•	•

Items with grey lettering are only available on request.

Shapes



52 VL Spindle-mounted fleece flap wheels



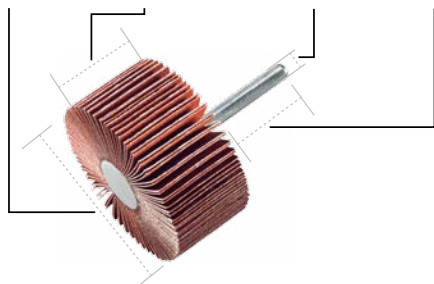
52 LAVL Spindle-mounted fleece flap wheels



552 LA Mounted flap wheels

Dimensions

50 x 30 – 6 x 40







PREMIUM* FLEECE FLAP WHEELS SPINDLE MOUNTED**

For steel, stainless steel and nonferrous metals





TYROLIT spindle-mounted fleece flap wheels are highly adaptable and ensure that no changes occur to the surface integrity. The TYROLIT Premium*** assortment has now been extended by 29 types in order to be able to offer you different grains and new dimensions.

Different surface structures and roughnesses can be achieved through the variety of grain gradings. TYROLIT spindle-mounted fleece flap wheels are also available with inlaid coated abrasive, so that higher stock removal can be achieved and a coarser surface integrity created.

Shape	Type no.	Dimension	Grain	Design	Max. RPM	Rec. speed	PU
  52 LA VL	570473	40x20-6x40		A COARSE	9,000	7,500	10
	908708	40x20-6x40		A MEDIUM	9,000	7,500	10
	908712	40x20-6x40		A FINE	9,000	7,500	10
	388126	40x20-6x40		A VERY FINE	9,000	7,500	10
	136087	50x30-6x40		A MEDIUM	8,000	6,000	10
	136090	50x30-6x40		A VERY FINE	8,000	6,000	10
	908854	50x50-6x40		A MEDIUM	8,000	6,000	10
	570485	60x30-6x40		A COARSE	7,000	5,000	10
	908784	60x30-6x40		A MEDIUM	7,000	5,000	10
	908794	60x30-6x40		A FINE	7,000	5,000	10
	908795	60x30-6x40		A VERY FINE	7,000	5,000	10
	34054620	60x50-6x40		A COARSE	7,000	5,000	10
	908710	60x50-6x40		A MEDIUM	7,000	5,000	10
	908715	60x50-6x40		A FINE	7,000	5,000	10
	34054651	60x50-6x40		A VERY FINE	7,000	5,000	10
	908862	80x50-6x40		A COARSE	6,000	4,000	10
	372339	80x50-6x40		C MEDIUM	6,000	4,000	10
	908711	80x50-6x40		A MEDIUM	6,000	4,000	10
	908717	80x50-6x40		A FINE	6,000	4,000	10
	908796	80x50-6x40		A VERY FINE	6,000	4,000	10
  52LA VL-C	34053446	40x20-6x40	60	A COARSE	9,000	7,500	10
	908775	40x20-6x40	100	A MEDIUM	9,000	7,500	10
	908779	40x20-6x40	150	A FINE	9,000	7,500	10
	34053447	50x30-6x40	60	A COARSE	8,000	6,000	10
	136161	50x30-6x40	80	A MEDIUM	8,000	6,000	10
	457370	50x30-6x40	150	A FINE	8,000	6,000	10
	136164	50x30-6x40	240	A VERY FINE	8,000	6,000	10
	148718	50x50-6x40	120	A MEDIUM	8,000	6,000	10
	148722	50x50-6x40	240	A VERY FINE	8,000	6,000	10
	263249	60x30-6x40	60	A COARSE	7,000	5,000	10
	910902	60x30-6x40	80	A MEDIUM	7,000	5,000	10
	908780	60x30-6x40	150	A FINE	7,000	5,000	10
	908821	60x30-6x40	240	A VERY FINE	7,000	5,000	10
	136168	60x40-6x40	80	A MEDIUM	7,000	5,000	10
	136173	60x40-6x40	240	A VERY FINE	7,000	5,000	10

Items with grey lettering are only available on request.



Shape	Type no.	Dimension	Grain	Design	Max. RPM	Rec. speed	PU	
	 52LA VL-C	34054652	60x50-6x40	60	A COARSE	7,000	5,000	10
		34054655	60x50-6x40	80	A MEDIUM	7,000	5,000	10
		34054658	60x50-6x40	150	A FINE	7,000	5,000	10
		239448	80x30-6x40	240	A VERY FINE	6,000	4,000	10
		908871	80x50-6x40	60	A COARSE	6,000	4,000	10
		910864	80x50-6x40	80	A MEDIUM	6,000	4,000	10
		136193	80x50-6x40	120	A MEDIUM	6,000	4,000	10
		910853	80x50-6x40	150	A FINE	6,000	4,000	10
		908823	80x50-6x40	240	A VERY FINE	6,000	4,000	10
		908872	100x50-6x40	60	A COARSE	4,000	3,000	10
		910890	100x50-6x40	80	A MEDIUM	4,000	3,000	10
		908826	100x50-6x40	150	A FINE	4,000	3,000	10
		908825	100x50-6x40	240	A VERY FINE	4,000	3,000	10

PREMIUM★★★ MOUNTED FLAP WHEELS FOR STEEL, STAINLESS STEEL AND NONFERROUS METALS

+ High flexibility

Greater precision is made possible as the flaps adjust flexibly to the contours of each workpiece.

+ Universal use

TYROLIT mounted flap wheels can be used on both pneumatic and electric machines for different materials.



+ Less work required

The grinding of small and difficult-to-reach areas, for example in container construction and apparatus engineering, is not a problem for TYROLIT mounted flap wheels.

These tools adapt optimally to every workpiece contour thanks to their flexibility. The radially arranged flaps of the mounted flap wheels can be



used on various materials and permit precise work for different applications, such as matting, pre-polishing and the cleaning of surfaces.

The highly flexible flaps also make light work of machining hard-to-reach areas.

PREMIUM* MOUNTED FLAP WHEELS**

For steel, stainless steel and nonferrous metals



Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU
  52LA-C	909383	10x10-3x40	80	35,000	26,000	10
	909385	10x10-3x40	120	35,000	26,000	10
	661085	10x10-3x40	150	35,000	26,000	10
	49856	20x10-6x40	60	30,000	20,000	10
	816831	20x10-6x40	80	30,000	20,000	10
	816833	20x10-6x40	120	30,000	20,000	10
	619800	20x10-6x40	150	30,000	20,000	10
	816843	20x10-6x40	180	30,000	20,000	10
	886805	25x15-6x40	60	26,000	18,000	10
	816846	25x15-6x40	80	26,000	18,000	10
	816847	25x15-6x40	120	26,000	18,000	10
	909388	30x5-6x40	60	26,000	16,000	10
	909390	30x5-6x40	80	26,000	16,000	10
	909393	30x5-6x40	120	26,000	16,000	10
	909396	30x10-3x40	60	26,000	16,000	10
	909397	30x10-3x40	80	26,000	16,000	10
	909398	30x10-3x40	120	26,000	16,000	10
	816854	30x10-3x40	150	26,000	16,000	10
	909400	30x10-3x40	240	26,000	16,000	10
	959241	30x10-6x40	40	26,000	16,000	10
	816855	30x10-6x40	60	26,000	16,000	10
	816871	30x10-6x40	80	26,000	16,000	10
	816872	30x10-6x40	120	26,000	16,000	10
	816873	30x10-6x40	150	26,000	16,000	10
	909405	30x10-6x40	180	26,000	16,000	10
	816874	30x10-6x40	240	26,000	16,000	10
	816875	30x10-6x40	320	26,000	16,000	10
	939107	30x15-6x40	40	26,000	16,000	10
	816880	30x15-6x40	60	26,000	16,000	10
	816893	30x15-6x40	80	26,000	16,000	10
	816905	30x15-6x40	120	26,000	16,000	10
	816906	30x15-6x40	150	26,000	16,000	10
	667198	30x15-6x40	180	26,000	16,000	10
909404	30x15-6x40	240	26,000	16,000	10	
432975	30x15-6x40	320	26,000	16,000	10	
82070	40x10-6x40	40	20,000	13,000	10	
648425	40x10-6x40	60	20,000	13,000	10	

Items with grey lettering are only available on request.




	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU	
		52LA-C	82078	40x10-6x40	80	20,000	13,000	10
			82079	40x10-6x40	120	20,000	13,000	10
			910558	40x15-6x40	40	20,000	13,000	10
			816907	40x15-6x40	60	20,000	13,000	10
			816908	40x15-6x40	80	20,000	13,000	10
			816909	40x15-6x40	120	20,000	13,000	10
			816911	40x15-6x40	150	20,000	13,000	10
			678198	40x15-6x40	180	20,000	13,000	10
			816912	40x15-6x40	240	20,000	13,000	10
			816913	40x15-6x40	320	20,000	13,000	10
			816914	40x20-6x40	40	20,000	13,000	10
			816915	40x20-6x40	60	20,000	13,000	10
			816916	40x20-6x40	80	20,000	13,000	10
			816918	40x20-6x40	120	20,000	13,000	10
			816919	40x20-6x40	150	20,000	13,000	10
			897078	40x20-6x40	180	20,000	13,000	10
			816920	40x20-6x40	240	20,000	13,000	10
			816921	40x20-6x40	320	20,000	13,000	10
			82117	50x10-6x40	60	16,000	11,000	10
			909362	50x10-6x40	80	16,000	11,000	10
			82125	50x10-6x40	120	16,000	11,000	10
			34053444	50x10-6x40	240	16,000	11,000	10
			82127	50x15-6x40	40	16,000	11,000	10
			816922	50x15-6x40	60	16,000	11,000	10
			816923	50x15-6x40	80	16,000	11,000	10
			816924	50x15-6x40	120	16,000	11,000	10
			816925	50x15-6x40	150	16,000	11,000	10
			816926	50x15-6x40	240	16,000	11,000	10
			816927	50x15-6x40	320	16,000	11,000	10
			816928	50x20-6x40	40	16,000	11,000	10
			816931	50x20-6x40	60	16,000	11,000	10
			816933	50x20-6x40	80	16,000	11,000	10
			816934	50x20-6x40	120	16,000	11,000	10
			848563	50x20-6x40	180	16,000	11,000	10
	816939	50x20-6x40	320	16,000	11,000	10		
	910574	50x30-6x40	40	16,000	11,000	10		
	816940	50x30-6x40	60	16,000	11,000	10		
	816941	50x30-6x40	80	16,000	11,000	10		
	816942	50x30-6x40	120	16,000	11,000	10		

Items with grey lettering are only available on request.

PREMIUM* MOUNTED FLAP WHEELS**



For steel, stainless steel and nonferrous metals



Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU	
	52LA-C	816943	50x30-6x40	150	16,000	11,000	10
		433019	50x30-6x40	180	16,000	11,000	10
		433020	50x30-6x40	240	16,000	11,000	10
		910572	50x30-6x40	320	16,000	11,000	10
		910587	60x15-6x40	40	13,500	9,000	10
		816949	60x15-6x40	60	13,500	9,000	10
		816950	60x15-6x40	80	13,500	9,000	10
		816951	60x15-6x40	120	13,500	9,000	10
		816952	60x15-6x40	150	13,500	9,000	10
		910579	60x15-6x40	240	13,500	9,000	10
		910707	60x20-6x40	40	13,500	9,000	10
		816953	60x20-6x40	60	13,500	9,000	10
		816954	60x20-6x40	80	13,500	9,000	10
		816955	60x20-6x40	120	13,500	9,000	10
		816956	60x20-6x40	150	13,500	9,000	10
		433039	60x20-6x40	180	13,500	9,000	10
		816957	60x20-6x40	240	13,500	9,000	10
		816958	60x20-6x40	320	13,500	9,000	10
		817011	60x30-6x40	40	13,500	9,000	10
		816959	60x30-6x40	60	13,500	9,000	10
		816960	60x30-6x40	80	13,500	9,000	10
		816961	60x30-6x40	120	13,500	9,000	10
		816962	60x30-6x40	150	13,500	9,000	10
		909368	60x30-6x40	180	13,500	9,000	10
		816963	60x30-6x40	240	13,500	9,000	10
		816964	60x30-6x40	320	13,500	9,000	10
		817012	60x40-6x40	40	13,500	9,000	10
		816965	60x40-6x40	60	13,500	9,000	10
		816966	60x40-6x40	80	13,500	9,000	10
		816967	60x40-6x40	120	13,500	9,000	10
		816968	60x40-6x40	150	13,500	9,000	10
		816969	60x40-6x40	240	13,500	9,000	10
	816971	60x50-6x40	40	13,500	9,000	10	
	816972	60x50-6x40	60	13,500	9,000	10	
	816973	60x50-6x40	80	13,500	9,000	10	
	816974	60x50-6x40	120	13,500	9,000	10	
	910718	80x15-6x40	60	10,000	6,000	10	
	82256	80x15-6x40	80	10,000	6,000	10	

Items with grey lettering are only available on request.



	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU	
		52LA-C	82257	80x15-6x40	120	10,000	6,000	10
		816976	80x20-6x40	60	10,000	6,000	10	
		816977	80x20-6x40	80	10,000	6,000	10	
		816978	80x20-6x40	120	10,000	6,000	10	
		910722	80x30-6x40	40	10,000	6,000	10	
		816981	80x30-6x40	60	10,000	6,000	10	
		816982	80x30-6x40	80	10,000	6,000	10	
		816983	80x30-6x40	120	10,000	6,000	10	
		816984	80x30-6x40	150	10,000	6,000	10	
		433068	80x30-6x40	180	10,000	6,000	10	
		915573	80x30-6x40	240	10,000	6,000	10	
		910720	80x30-6x40	320	10,000	6,000	10	
		816985	80x40-6x40	60	10,000	6,000	10	
		816986	80x40-6x40	80	10,000	6,000	10	
		816987	80x40-6x40	120	10,000	6,000	10	
		816989	80x40-6x40	240	10,000	6,000	10	
		87910	80x50-6x40	40	10,000	6,000	10	
		816990	80x50-6x40	60	10,000	6,000	10	
		816991	80x50-6x40	80	10,000	6,000	10	
		816992	80x50-6x40	120	10,000	6,000	10	
816993	80x50-6x40	150	10,000	6,000	10			
817001	80x50-6x40	240	10,000	6,000	10			
817003	80x50-6x40	320	10,000	6,000	10			



BASIC★ MOUNTED FLAP WHEELS

For steel, stainless steel and nonferrous metals



The BASIC★ mounted flap wheels adapt well to every workpiece contour thanks to their flexibility. The radially arranged flaps of the mounted flap wheels can be used on various materials and permit precise work for different applications, such as matting, pre-polishing and the cleaning of surfaces.

The highly flexible flaps also make light work of machining hard-to-reach areas.



	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU	
		52LA-C	34054618	30x10-6x40	40	26,000	16,000	10
		34054619	30x10-6x40	60	26,000	16,000	10	
		34054737	30x10-6x40	80	26,000	16,000	10	
		34054660	30x10-6x40	120	26,000	16,000	10	
		34054738	30x10-6x40	180	26,000	16,000	10	
		34054739	40x15-6x40	40	20,000	13,000	10	
		34054751	40x15-6x40	60	20,000	13,000	10	

Items with grey lettering are only available on request.

**BASIC★ MOUNTED FLAP WHEELS**

For steel, stainless steel and nonferrous metals



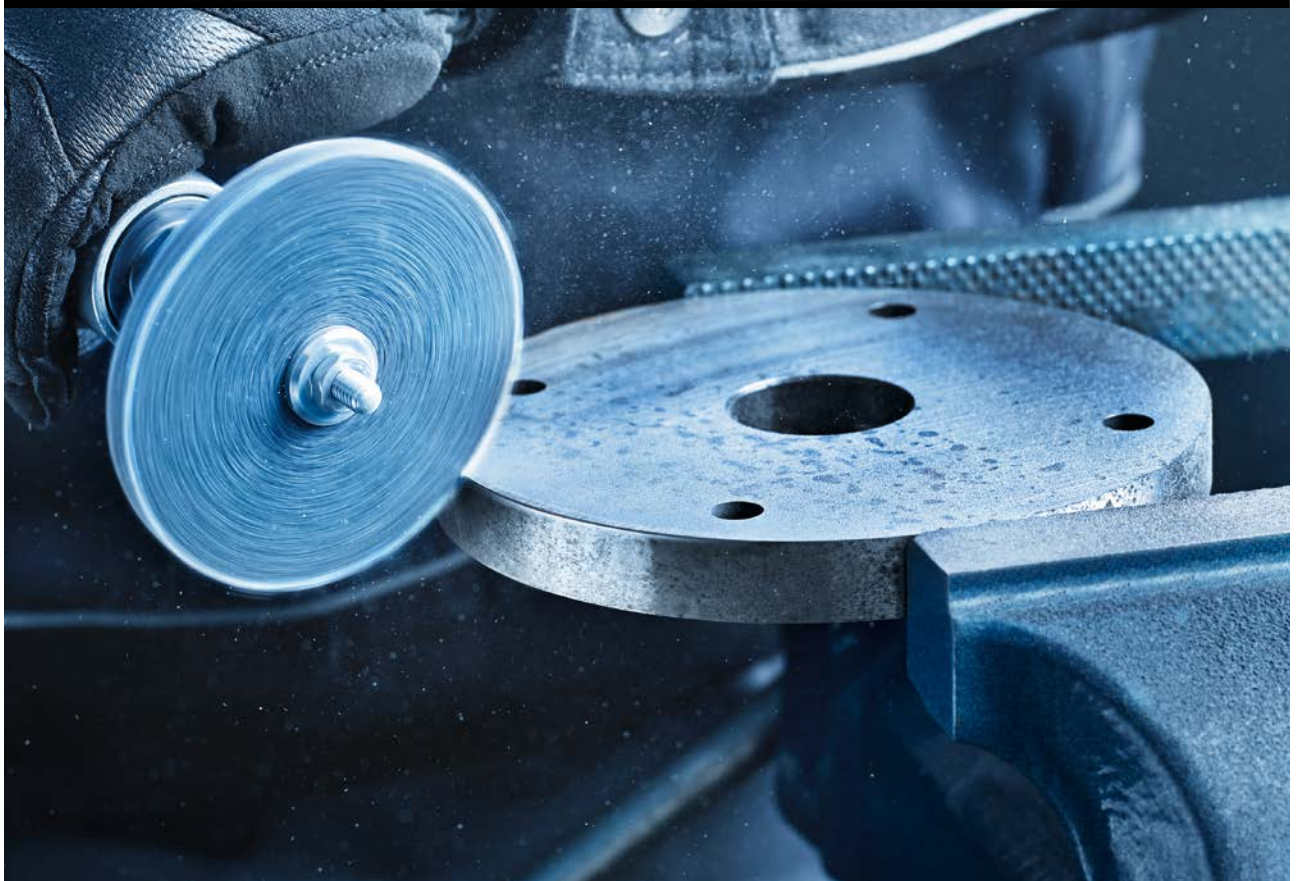
	Shape	Type no.	Dimension	Grain	Max. RPM	Rec. speed	PU
		52LA-C					
		34054753	40x15-6x40	80	20,000	13,000	10
		34054754	40x15-6x40	120	20,000	13,000	10
		34054758	40x15-6x40	180	20,000	13,000	10
		34054759	40x20-6x40	40	20,000	13,000	10
		34054760	40x20-6x40	60	20,000	13,000	10
		34054783	40x20-6x40	80	20,000	13,000	10
		34054784	40x20-6x40	120	20,000	13,000	10
		34054785	40x20-6x40	180	20,000	13,000	10
		34054786	50x15-6x40	40	16,000	11,000	10
		34054787	50x15-6x40	60	16,000	11,000	10
		34054788	50x15-6x40	80	16,000	11,000	10
		34054789	50x15-6x40	120	16,000	11,000	10
		34054801	50x20-6x40	40	16,000	11,000	10
		34054805	50x20-6x40	60	16,000	11,000	10
		34054809	50x20-6x40	80	16,000	11,000	10
		34054812	50x20-6x40	120	16,000	11,000	10
		34054813	50x20-6x40	180	16,000	11,000	10
		34054814	50x30-6x40	40	16,000	11,000	10
		34054817	50x30-6x40	60	16,000	11,000	10
		34054820	50x30-6x40	80	16,000	11,000	10
		34054831	50x30-6x40	120	16,000	11,000	10
		34054832	50x30-6x40	180	16,000	11,000	10
		34054834	60x20-6x40	40	13,500	9,000	10
		34054836	60x20-6x40	60	13,500	9,000	10
		34054837	60x20-6x40	80	13,500	9,000	10
		34054839	60x20-6x40	120	13,500	9,000	10
		34054840	60x20-6x40	180	13,500	9,000	10
		34054852	60x30-6x40	40	13,500	9,000	10
		34054854	60x30-6x40	60	13,500	9,000	10
		34054855	60x30-6x40	80	13,500	9,000	10
		34054856	60x30-6x40	120	13,500	9,000	10
		34054857	60x30-6x40	180	13,500	9,000	10
		34054858	80x30-6x40	40	10,000	6,000	10
34054860	80x30-6x40	60	10,000	6,000	10		
34054861	80x30-6x40	80	10,000	6,000	10		
34054862	80x30-6x40	120	10,000	6,000	10		
34054863	80x30-6x40	180	10,000	6,000	10		

Items with grey lettering are only available on request.



5.10 COMPACT WHEELS
STRAIGHT GRINDERS

Coated
abrasives



COMPACT WHEELS FOR STRAIGHT GRINDERS

Straight grinders are always used where precision is required in hard-to-reach locations. TYROLIT offers a comprehensive assortment of unitised and convolute compact wheels.

With the compact wheel range, TYROLIT offers you an ideal tool for the machining of surfaces without changing the surface geometry, particularly for the removal of rust and dirt. Compact wheels consist of multilayer unitised fleece and are

available in coarse to fine specifications depending on the number of layers. Due to their soft structure, MMF (multi metal finishing) compact wheels are especially suitable for the fine machining of all metal surfaces, whereas DB (deburring) compact

wheels are particularly hard due to several layers and high pressure and are therefore suitable for deburring work.

On the following pages, you will find our range of unitised and convolute compact wheels for straight grinders.

Application recommendations



Performance Level	Specification	Pages	All in One
PREMIUM ★★★	2 A MEDIUM, 2 A COARSE, 2 C COARSE, 2 C MEDIUM, 2 C FINE, 3 C FINE, 5 A MEDIUM, 6 A MEDIUM, 6 C FINE, 8 A COARSE	404, 405, 406	<input checked="" type="checkbox"/>

Items with grey lettering are only available on request.

Shapes



1UW Unitized wheel
(unitised wheel)



1CW Convolute wheel
(convolute wheel)

PREMIUM★★★ UNITISED WHEELS

UNIVERSAL USE

+ **Broad assortment**

Depending on the surface finish, they are available in our assortment from hard to very flexible.

+ **High economic efficiency**

Cool grinding and low clogging of the wheel result in a long lifetime for the product.



+ **Versatile**

This product is extremely versatile and can be used for deburring, removal of scratches, fading, glazing, finishing and machining of welding seams.

The assortment of unitised wheels ranges from abrasive, rigid deburring tools to tools for a soft, perfect surface finish. These are used primarily in difficult-to-reach places and do

not alter the surface geometry of the workpiece in any way. Application areas are primarily the deburring, cleaning, fading, finishing and machining of welding seams.

Compact wheels offer increased safety and especially cool grinding compared to other deburring tools.

PREMIUM★★★ UNITISED WHEELS

Universal use





	Shape	Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU
		1UW					
		34201993	25x25x4.8	2 A MEDIUM	30,000	18,000	25
		34201994	25x25x4.8	2 C FINE	30,000	18,000	25
		34201995	25x25x4.8	3 C FINE	30,000	18,000	25
		34201996	25x25x4.8	6 A MEDIUM	35,000	21,000	25
		34201997	25x25x4.8	6 C FINE	35,000	21,000	25
34201998	25x25x4.8	8 A COARSE	35,000	21,000	25		

Items with grey lettering are only available on request.



Coated abrasives

	Shape	Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU	
		1UW	34189233	51x6x6.3	2 A MEDIUM	16,000	9,600	25
		34189994	51x6x6.3	2 C FINE	16,000	9,600	25	
		34189995	51x6x6.3	3 C FINE	16,000	9,600	25	
		34189996	51x6x6.3	6 A MEDIUM	22,000	13,200	25	
		34189997	51x6x6.3	6 C FINE	22,000	13,200	25	
		34189999	51x6x6.3	8 A COARSE	22,000	13,200	25	
		34204206	76x3x6.3	6 A MEDIUM	18,000	10,800	50	
		34189552	76x6x6.3	2 A MEDIUM	15,000	9,000	25	
		34189553	76x6x6.3	2 C FINE	15,000	9,000	25	
		34189557	76x6x6.3	3 C FINE	15,000	9,000	25	
		34189554	76x6x6.3	6 A MEDIUM	18,000	10,800	25	
		34189555	76x6x6.3	6 C FINE	18,000	10,800	25	
		34189556	76x6x6.3	8 A COARSE	18,000	10,800	25	
		34190233	152x6x12.7	2 A MEDIUM	5,000	3,000	8	
		34190235	152x6x12.7	2 C FINE	5,000	3,000	8	
		34190236	152x6x12.7	3 C FINE	5,000	3,000	8	
		34190237	152x6x12.7	6 A MEDIUM	7,500	4,500	8	
		34190238	152x6x12.7	6 C FINE	7,500	4,500	8	
		34190239	152x6x12.7	8 A COARSE	7,500	4,500	8	
		34190280	152x13x12.7	2 A MEDIUM	5,000	3,000	4	
		34190291	152x13x12.7	2 C FINE	5,000	3,000	4	
		34190292	152x13x12.7	3 C FINE	5,000	3,000	4	
		34190293	152x13x12.7	6 A MEDIUM	7,500	4,500	4	
		34190294	152x13x12.7	6 C FINE	7,500	4,500	4	
		34190295	152x13x12.7	8 A COARSE	7,500	4,500	4	
		34190297	152x25x12.7	2 A MEDIUM	5,000	3,000	2	
		34190298	152x25x12.7	2 C FINE	5,000	3,000	2	
34190299	152x25x12.7	3 C FINE	5,000	3,000	2			
34190301	152x25x12.7	6 A MEDIUM	7,500	4,500	2			
34190302	152x25x12.7	6 C FINE	7,500	4,500	2			
34190303	152x25x12.7	8 A COARSE	7,500	4,500	2			

Coated abrasives

Items with grey lettering are only available on request.

PREMIUM* MMF CONVOLUTE WHEELS**

Universal use



This MMF product is mainly used on floorstand grinders or polishing machines. The machining of surfaces can deliver a very fine finish. The surface geometry is not altered during machining and the edges are not chamfered.

However, at the same time the burr is completely removed.

	Shape	Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU	
		1CW	34200686	152x25x25.4	2 C COARSE	6,000	3,600	2
			34200687	152x25x25.4	2 C MEDIUM	6,000	3,600	2
			34200688	152x25x25.4	5 A MEDIUM	6,000	3,600	2
			34200689	152x50x25.4	2 C COARSE	6,000	3,600	1
			34200690	152x50x25.4	2 C MEDIUM	6,000	3,600	1
			34200712	152x50x25.4	5 A MEDIUM	6,000	3,600	1

ACCESSORIES

For unitised wheels



These accessories enable compact wheels with small diameters to be clamped onto straight grinders. Easy handling and the highest possible

levels of safety are guaranteed for the operator. Please observe the maximum permissible speed.

	Type no.	Dimension	Specification	PU
	34214172	25x25x4.8	UW	1

ACCESSORY SET

For compact wheels



These accessories enable compact wheels with small diameters to be clamped onto straight grinders. Easy handling and the highest possible

levels of safety are guaranteed for the operator. Please observe the maximum permissible speed.

	Type no.	Dimension	Specification	PU
	846442	S6/H6/M6	SS174	1
	905336	S6/H13/L52	SS597	1

Items with grey lettering are only available on request.



5.11 ROUGH CLEANING WHEELS STRAIGHT GRINDER



ROUGH CLEANING WHEELS STRAIGHT GRINDER

Straight grinders are used when you need to work precisely in hard-to-reach locations. Would you like to remove rust, paint and varnish with a minimum of effort? Or do you need to prepare surfaces for welding, soldering or anodising?

The highly porous nylon fibres are evenly treated with aggressive abrasives and are able to meet any challenge.

All of our rough cleaning discs resist loading or

smearing and offer long life with an even grinding pattern, but also low heat generation and quiet, stress-free working.

Shapes



1GR Rough cleaning wheel

Application recommendations



Performance Line Specification Pages

All in one

PREMIUM*** C COARSE, 409
A EX. COARSE



Items with grey lettering are only available on request.


PREMIUM* ROUGH CLEANING WHEEL**

Universal use



With the TYROLIT rough cleaning wheel you can effortlessly remove rust, paint, lacquer and underbody sealant from your workpiece. The porous nylon fibres, treated with aggressive abrasives, meet any challenge. At the same time, they prevent clogging or loading of the wheel.

This wheel offers the user quiet, non-strenuous grinding combined with low generation of heat. When using the longer clamping spike, two 1GR can be clamped providing a greater contact area and faster progress.

Shape	Type no.	Dimension	Specification	Colour	Max. RPM	Rec. speed	PU	
	1GR	898048	75x13x8	C COARSE	BLACK	10,500	8,000	5
		898044	100x13x13	C COARSE	BLACK	8,000	6,000	5
		898051	150x13x13	C COARSE	BLACK	5,300	4,100	5
		943167	178x13x13	C COARSE	BLACK	4,500	3,400	5
		943168	200x13x13	C COARSE	BLACK	4,000	3,000	5
		34206234	100x13x13	A EX. COARSE	BLUE	8,000	6,000	5
		34206235	150x13x13	A EX. COARSE	BLUE	5,300	4,100	5

ACCESSORIES

For rough cleaning wheel



These accessories enable the 1GR rough cleaning wheel to be clamped onto straight grinders. Easy handling and the highest possible levels of safety are guaranteed for the operator. Please observe the maximum permissible speed of your tool.

Type no.	Dimension	Specification	PU	
100SS	905335	S6/H8/L67	SS596	1
	905336	S6/H13/L52	SS597	1
	905337	S8/H13/L67	SS598	1



Items with grey lettering are only available on request.





5.12 BELTS
BELT GRINDER



BELTS

FOR MINI BELT GRINDERS, PORTABLE BELT GRINDERS AND CONTACT GRINDERS

In this chapter you will find belts for metal and wood processing in different sizes for mini belt grinders, portable belt grinders and large, stationary contact grinders.

Depending on the application, we have the right belt for an optimum result, whether you need long life, maximum stock removal or a perfect surface finish. With their high stock removal rate, belts with embedded ceramic grain offer a quick and easy

way of grinding metal. We also offer products with a range of flexible underlays and additional coatings. These allow you to work on harder materials, such as stainless steel, alloys, structural steel and non-ferrous metals. They can also be used

with woods, paints and lacquers. TYROLIT coated abrasives have been developed with particular applications in mind and thus achieve the best possible results in day-to-day use.

Shapes



Belt 1
For mini belt grinders



Belt 2
For portable belt grinders



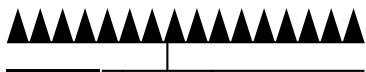
Belt 3
For contact grinders

Belt joints




TYROLIT belts are available with two different belt joints.




JTS (Joint Tape Straight) mainly for metal processing


JOT (Joint Overlap Top) mainly for wood processing



Application recommendations

Performance Level	Specification	Pages	 Steel	 Stainless steel	 NF metals
PREMIUM***	ZA-P48 PE YF	414, 415	•	•	•
	ZA-P41 PC X	415, 421	•		•
	ZA-P48 PE Y	420	•	•	
	ZA-P43 PE Y	421, 422	•		•

Performance	Specification	Pages	 Steel	 Plastic	 Wood
BASIC*	A-B06 PC X	416, 417, 418	•	•	•

Performance	Specification	Pages	 All in One
SCM BELTS PREMIUM***	FLEX	415, 416	•
	COARSE, MEDIUM, VERY FINE	419, 422	•

Items with grey lettering are only available on request.



PREMIUM*** ZA-P48 PE Y F / ZA-P41 PC X MINI BELTS

For steel, stainless steel and aluminium





The Premium*** belts have been specially designed for the mini belt grinder and prevent grain break outs on the tool due to their special curvature. A good stock removal rate and long lifetime allow consistent results to be delivered in shorter working hours. Our belts are easy to handle and mount.

TYROLIT mini belts can be used on all steel, stainless steel and nonferrous metals.

Shape	Type no.	Dimension	Grain	Connection	PU
  Belt 1	706281	6x533	40	JTS	50
	706282	6x533	60	JTS	50
	706283	6x533	80	JTS	50
	706284	6x533	120	JTS	50
	706285	6x610	40	JTS	50
	706286	6x610	60	JTS	20
	706290	6x610	80	JTS	20
	706291	6x610	120	JTS	20
	706292	9x533	40	JTS	33
	706293	9x533	60	JTS	33
	706295	9x533	80	JTS	33
	706299	9x533	120	JTS	33
	706300	10x330	40	JTS	20
	706301	10x330	60	JTS	20
	706302	10x330	80	JTS	20
	706303	10x330	120	JTS	20
	706305	12x330	40	JTS	20
	706306	12x330	60	JTS	20
	706307	12x330	80	JTS	20
	706308	12x330	120	JTS	20
	706309	12x457	40	JTS	20
	706310	12x457	60	JTS	20
	706311	12x457	80	JTS	20
	706312	12x457	120	JTS	20
	706313	12x533	40	JTS	20
706314	12x533	60	JTS	20	
706315	12x533	80	JTS	20	
706316	12x533	120	JTS	20	
706317	13x455	40	JTS	20	
706318	13x455	60	JTS	20	
706320	13x455	80	JTS	20	
706323	13x455	120	JTS	20	
706324	13x610	40	JTS	20	
706325	13x610	60	JTS	20	

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Shape	Type no.	Dimension	Grain	Connection	PU
  Belt 1	706327	13x610	80	JTS	20
	706328	13x610	120	JTS	20
	706329	15x475	40	JTS	20
	706330	15x475	60	JTS	20
	706331	15x475	80	JTS	20
	706333	15x475	120	JTS	20
	706336*	20x480	40	JTS	20
	706337*	20x480	60	JTS	20
	706338*	20x480	80	JTS	20
	706340*	20x480	120	JTS	20
	706341*	20x520	40	JTS	20
	706342*	20x520	60	JTS	20
	706343*	20x520	80	JTS	20
	706344*	20x520	120	JTS	20
	706345*	29x533	40	JTS	20
	706346*	29x533	60	JTS	20
	706347*	29x533	80	JTS	20
	706348*	29x533	120	JTS	20

* ZA-P41 PC X

PREMIUM* SCM BELTS**



Universal use



With belts from the TYROLIT SCM range, TYROLIT is taking another step towards economic efficiency. The machining time of the workpiece can now be greatly reduced. A saving of one to three work steps is thus the key benefit.

Thanks to the quick and high stock removal rate, applications such as the

reduction of surface roughness, removal of discolouration, smoothing of surfaces and the cleaning and removal of weld seams can be realised. In addition, the TYROLIT SCM range boasts the best results in terms of lifetime.

Shape	Type no.	Dimension	Design	Specification	Colour	PU
  Belt 1	34206164	6x457	COARSE	FLEX	BROWN/LIGHT GREEN	20
	34206165	6x457	MEDIUM	FLEX	RED/LIGHT GREEN	20
	34206166	6x457	VERY FINE	FLEX	BLUE/LIGHT GREEN	20
	34183498	6x520	MEDIUM	FLEX	RED/LIGHT GREEN	20
	34206167	6x610	COARSE	FLEX	BROWN/LIGHT GREEN	20
	34206168	6x610	MEDIUM	FLEX	RED/LIGHT GREEN	20
	34206169	6x610	VERY FINE	FLEX	BLUE/LIGHT GREEN	20
	34206170	12x520	COARSE	FLEX	BROWN/LIGHT GREEN	10
	34206171	12x520	MEDIUM	FLEX	RED/LIGHT GREEN	10
	34206172	12x520	VERY FINE	FLEX	BLUE/LIGHT GREEN	10
	34206173	13x457	COARSE	FLEX	BROWN/LIGHT GREEN	10

Items with grey lettering are only available on request.



PREMIUM★★★ SCM BELTS

Universal use



Shape	Type no.	Dimension	Design	Specification	Colour	PU	
	Belt 1	34206174	13x457	MEDIUM	FLEX	RED/LIGHT GREEN	10
	34206175	13x457	VERY FINE	FLEX	BLUE/LIGHT GREEN	10	
	34206176	13x533	COARSE	FLEX	BROWN/LIGHT GREEN	10	
	34206177	13x533	MEDIUM	FLEX	RED/LIGHT GREEN	10	
	34206178	13x533	VERY FINE	FLEX	BLUE/LIGHT GREEN	10	
	34206179	13x610	COARSE	FLEX	BROWN/LIGHT GREEN	10	
	34206180	13x610	MEDIUM	FLEX	RED/LIGHT GREEN	10	
	34206191	13x610	VERY FINE	FLEX	BLUE/LIGHT GREEN	10	
	34206192	19x457	COARSE	FLEX	BROWN/LIGHT GREEN	10	
	34206193	19x457	MEDIUM	FLEX	RED/LIGHT GREEN	10	
	34206194	19x457	VERY FINE	FLEX	BLUE/LIGHT GREEN	10	
	34206195	19x520	COARSE	FLEX	BROWN/LIGHT GREEN	10	
	34206196	19x520	MEDIUM	FLEX	RED/LIGHT GREEN	10	
	34206197	19x520	VERY FINE	FLEX	BLUE/LIGHT GREEN	10	
	34206198	20x815	COARSE	FLEX	BROWN/LIGHT GREEN	10	
	34206199	20x815	MEDIUM	FLEX	RED/LIGHT GREEN	10	
	34206200	20x815	VERY FINE	FLEX	BLUE/LIGHT GREEN	10	
	34071718	30x520	MEDIUM	FLEX	RED/LIGHT GREEN	10	
	34206201	30x533	COARSE	FLEX	BROWN/LIGHT GREEN	10	
	34206202	30x533	MEDIUM	FLEX	RED/LIGHT GREEN	10	
34206203	30x533	VERY FINE	FLEX	BLUE/LIGHT GREEN	10		

BASIC★ A-B06 PC X BELTS

Universal use





The BASIC* belts for the portable belt grinder can be used universally, but are most commonly used on wood. They are suited to this use as they comprise aluminium oxide and polycotton backing. A special grain coating prevents loading of the belts when grinding soft materials, such as wood and paints.

This delivers a good grinding power and long lifetime. Simple handling and mounting save extra working time.

Shape	Type no.	Dimension	Grain	Connection	PU	
	Belt 2	706349	40x305	40	JOT	14
	706350	40x305	60	JOT	14	
	706351	40x305	80	JOT	14	
	706352	40x305	120	JOT	14	
	706353	60x400	40	JOT	10	
	706354	60x400	60	JOT	10	
	706356	60x400	80	JOT	10	

Items with grey lettering are only available on request.



	Shape	Type no.	Dimension	Grain	Connection	PU
	 Belt 2	706361	60x400	100	JOT	10
		706362	60x400	120	JOT	10
		706363	65x410	40	JOT	10
		706364	65x410	60	JOT	10
		706365	65x410	80	JOT	10
		706366	65x410	100	JOT	10
		706367	65x410	120	JOT	10
		706368	75x457	40	JOT	10
		706369	75x457	60	JOT	10
		706370	75x457	80	JOT	10
		706371	75x457	100	JOT	10
		706372	75x457	120	JOT	10
		706375	75x480	40	JOT	10
		706376	75x480	60	JOT	10
		706377	75x480	80	JOT	10
		706380	75x480	100	JOT	10
		706381	75x480	120	JOT	10
		706383	75x533	40	JOT	10
		706384	75x533	60	JOT	10
		706385	75x533	80	JOT	10
		706386	75x533	100	JOT	10
		706387	75x533	120	JOT	10
		706388	100x552	40	JOT	10
		706393	100x552	60	JOT	10
		706394	100x552	80	JOT	10
		706395	100x552	100	JOT	10
		706397	100x552	120	JOT	10
		706398	100x560	40	JOT	10
		706399	100x560	60	JOT	10
		706401	100x560	80	JOT	10
		706402	100x560	100	JOT	10
		706403	100x560	120	JOT	10
		706404	100x610	40	JOT	10
		706405	100x610	60	JOT	10
		706406	100x610	80	JOT	10
		706407	100x610	100	JOT	10
		706408	100x610	120	JOT	10
		706409	100x620	40	JOT	10
		706410	100x620	60	JOT	10
		706411	100x620	80	JOT	10

Coated abrasives

Items with grey lettering are only available on request.



BASIC★ A-B06 PC X BELTS

Universal use



	Shape	Type no.	Dimension	Grain	Connection	PU
		706413	100x620	100	JOT	10
		706414	100x620	120	JOT	10
		741455	100x690	40	JOT	10
		741460	100x690	60	JOT	10
		741464	100x690	80	JOT	10
		741471	100x690	100	JOT	10
		741474	100x690	120	JOT	10
		706415	110x620	40	JOT	10
		706416	110x620	60	JOT	10
		706417	110x620	80	JOT	10
		706418	110x620	100	JOT	10
		706419	110x620	120	JOT	10

PREMIUM★★★ SCM BELTS

UNIVERSAL USE

+ Reduces working hours

The working hours are significantly reduced through the long lifetime and the saving of one to three work steps.

+ Noticeable cost reduction

Fewer work steps also means reduced tool costs.



+ Comprehensive assortment

The SCM program currently includes belts in the most varied of sizes and specifications.

With the belts from the TYROLIT SCM range, TYROLIT is taking another step towards economic efficiency. The machining time of the workpiece can now be greatly reduced. A saving of one to three work steps is thus the

main argument. Thanks to the quick and high stock removal rate, applications such as the reduction of surface roughness, removal of discolouration, smoothing of surfaces and the cleaning and

removal of welding seams can be realised. In addition, the TYROLIT SCM range boasts the best results in terms of lifetime.


Items with grey lettering are only available on request.





PREMIUM* SCM BELTS**
Universal use



Shape	Type no.	Dimension	Design	Specification	Colour	PU
	Belt 2 34206204	90x395	COARSE	FLEX	BROWN/LIGHT GREEN	5
	34206205	90x395	MEDIUM	FLEX	RED/LIGHT GREEN	5
	34206206	90x395	VERY FINE	FLEX	BLUE/LIGHT GREEN	5
	34206828	100x287	COARSE	FLEX	BROWN/LIGHT GREEN	5
	34170120	100x287	MEDIUM	FLEX	RED/LIGHT GREEN	5
	34206829	100x287	VERY FINE	FLEX	BLUE/LIGHT GREEN	5

PREMIUM*** CA-P93 PE Y BELTS FOR STEEL AND STAINLESS STEEL

+ **Reduced load**
The high abrasiveness of the belts means that the operator can apply less pressure.

+ **Consistent surface result**
Even grinding surface pattern thanks to uniform easy-cutting ceramic grain.



+ **Maximum abrasiveness**
The ceramic PREMIUM*** belts achieve the highest values in terms of abrasiveness and therefore offer the greatest possible stock removal rate.


Belts with self-sharpening ceramic grain offer a high stock removal rate on steel and stainless steel. Thanks

to this self-sharpening effect, an even surface quality is achieved over the entire lifetime of the abrasive belts.

Moreover, the composition of the abrasive belt reduces effort for the operator as less pressure is required.

PREMIUM* CA-P93 PE Y BELTS**
For steel und Edelstahl



Shape	Type no.	Dimension	Grain	Connection	VE
	Belt 3 34168478	75x2,000	24	JTS	10
	34168479	75x2,000	36	JTS	10
	34168480	75x2,000	40	JTS	10
	34168481	75x2,000	60	JTS	10
	34168482	75x2,000	80	JTS	10
	34168483	75x2,000	120	JTS	10

Items with grey lettering are only available on request.

Coated abrasives

PREMIUM* ZA-P48 PE Y BELTS**

For steel and stainless steel



Due to the hard zirconium used in these PREMIUM*** belts they are ideal for very high pressure and deliver above-average stock removal rates. Active coolants reduce the generation of heat while grinding. This high-performance product equipped with durable polyester backing has been

developed for demanding steel and stainless steel applications. These products are mainly used for dry applications.

	Shape	Type no.	Dimension	Grain	Connection	PU
		706437	50x2,000	36	JTS	10
		706438	50x2,000	60	JTS	10
		706441	50x2,000	80	JTS	10
		706442	50x2,000	120	JTS	10
		706473	75x2,000	36	JTS	10
		706474	75x2,000	60	JTS	10
		706475	75x2,000	80	JTS	10
		706477	75x2,000	120	JTS	10

PREMIUM* ZA-P41 PC X BELTS**

For steel and nonferrous metals



This high-performance product equipped with durable polycotton has been developed for demanding steel and nonferrous metal applications. Combined with hard zirconium, these belts are ideal for very high pressure and deliver above-average stock removal rates. Active coolants reduce the generation of heat while grinding.



Another special feature: the product can also be used wet with oil, emulsion or water and still delivers optimal results.

	Shape	Type no.	Dimension	Grain	Connection	PU
		706420	50x1,000	40	JTS	12
		706421	50x1,000	60	JTS	12
		706422	50x1,000	80	JTS	12
		706424	50x1,000	120	JTS	12
		706426	50x2,000	40	JTS	10
		706428	50x2,000	60	JTS	10
		706429	50x2,000	80	JTS	10
		706430	50x2,000	120	JTS	10
		706443	50x2,500	40	JTS	12
		706444	50x2,500	60	JTS	12
		706446	50x2,500	80	JTS	12
		706447	50x2,500	120	JTS	12
		706449	50x3,000	40	JTS	12
		706450	50x3,000	60	JTS	12
		706451	50x3,000	80	JTS	12
		706452	50x3,000	120	JTS	12
		706453	50x3,500	40	JTS	12

Items with grey lettering are only available on request.



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	Shape	Type no.	Dimension	Grain	Connection	PU
	 Belt 3	706454	50x3,500	60	JTS	12
		706455	50x3,500	80	JTS	12
		706456	50x3,500	120	JTS	12
		706457	50x4,000	40	JTS	12
		706459	50x4,000	60	JTS	12
		706460	50x4,000	80	JTS	12
		706461	50x4,000	120	JTS	12
		706463	75x2,000	40	JTS	10
		706464	75x2,000	60	JTS	10
		706465	75x2,000	80	JTS	10
		706466	75x2,000	120	JTS	10
		706478	75x2,250	40	JTS	12
		706480	75x2,250	60	JTS	10
		706481	75x2,250	80	JTS	12
		706482	75x2,250	120	JTS	12
		706483	75x2,500	40	JTS	12
		706484	75x2,500	60	JTS	12
		706489	75x2,500	80	JTS	12
		706492	75x2,500	120	JTS	12
		706493	100x915	40	JTS	10
		706494	100x915	60	JTS	10
		706497	100x915	80	JTS	10
		706499	100x915	120	JTS	10
		706500	100x1,000	40	JTS	12
		706501	100x1,000	60	JTS	12
		706502	100x1,000	80	JTS	12
		706503	100x1,000	120	JTS	10



Coated abrasives

PREMIUM* ZA-P43 PE Y BELTS**

For steel and nonferrous metals



This PREMIUM*** product equipped with polyester has been developed for steel and nonferrous metal applications. Combined with hard zirconium, these belts are ideal for low to medium pressure and deliver a good stock removal rate. Active coolants reduce the generation of heat while grinding.

	Shape	Type no.	Dimension	Grain	Connection	PU
	 Belt 3	706432	50x2,000	36	JTS	12
		706433	50x2,000	40	JTS	10
		706434	50x2,000	60	JTS	10
		706435	50x2,000	80	JTS	10
		706436	50x2,000	120	JTS	10

Items with grey lettering are only available on request.







PREMIUM*** ZA-P43 PE Y BELTS

For steel and nonferrous metals



	Shape	Type no.	Dimension	Grain	Connection	PU
	 Belt 3	706467	75x2,000	36	JTS	10
		706469	75x2,000	40	JTS	10
		706470	75x2,000	60	JTS	10
		706471	75x2,000	80	JTS	10
		706472	75x2,000	120	JTS	10

PREMIUM*** SCM BELTS



Universal use



With belts from the TYROLIT SCM range, TYROLIT is taking another step towards economic efficiency. The machining time of the workpiece can now be greatly reduced. A saving of one to three work steps is thus the key benefit.

Thanks to the quick and high stock removal rate, applications such as the

reduction of surface roughness, removal of discolouration, smoothing of surfaces and the cleaning and removal of weld seams can be realised. In addition, the TYROLIT SCM range boasts the best results in terms of lifetime.

	Shape	Type no.	Dimension	Design	Connection	Colour	PU
	 Belt 3	34049705	50x2,000	COARSE	JTS	BROWN	6
		34049706	50x2,000	MEDIUM	JTS	RED	6
		34049709	50x2,000	VERY FINE	JTS	BLUE	6
		34049731	75x2,000	COARSE	JTS	BROWN	4
		34049732	75x2,000	MEDIUM	JTS	RED	4
		34049734	75x2,000	VERY FINE	JTS	BLUE	4
		34049736	150x2,000	COARSE	JTS	BROWN	2
		34049737	150x2,000	MEDIUM	JTS	RED	2
		34049738	150x2,000	VERY FINE	JTS	BLUE	2

Items with grey lettering are only available on request.



5.13 ROLLS

HAND SANDING AND SUPERFINISHING



ROLLS

FOR HAND SANDING AND SUPERFINISHING

Any kind of surface finishing requires thorough preparation. This can be done by hand or using an orbital sander.

Wood, paint or lacquer are usually abraded by hand. Deburring work can also be accomplished by hand. However, for perfect intermediate sanding, we recommend using an orbital sander. This also allows smooth finishing of coatings and smoothing of composite materials.






For jobs such as these we offer abrasive rolls in a wide range of designs, such as cloth, paper and fleece rolls. They allow easy and flexible working on virtually any material.




Shapes





Roll

Application recommendations

Performance Level	Specification	Pages	 Steel	 NF metals	 Paint / lacquer	 Wood	 Wet
PAPER ROLLS PREMIUM***	A-P07 P C	426	•	•	•	•	•

Performance Level	Specification	Pages			 Paint / lacquer	 Plastic	 Wood
PAPER ROLLS PREMIUM***	A-P21 D	426				•	•

Performance Level	Specification	Pages				 All in One
CLOTH ROLLS BASIC*	A-B01 C JX	427, 428				•
	A-B01 C JJ	428, 429				•

Performance Level	Specification	Pages				 All in One
FLEECE ROLLS PREMIUM***	A COARSE, A MEDIUM, FINE, A VERY FINE, C ULTRA FINE, A GP-GREEN	430				•

Items with grey lettering are only available on request.

PREMIUM* A-P07 P C PAPER ROLLS**

For steel, nonferrous metals, wood, paints and lacquers



The special feature of the PREMIUM*** paper rolls is a latex-finished backing, which makes them ideal for wet and dry applications. This is the perfect product for preparing and machining metal, wood, paint and lacquer.

The closed coating of the PREMIUM*** paper roll delivers an excellent surface finish.

	Shape	Type no.	Dimension	Specification	PU	
		Roll	705945	100x50M	60	1
		705946	100x50M	80	1	
		705947	100x50M	100	1	
		705948	100x50M	120	1	
		705959	100x50M	150	1	
		705960	100x50M	180	1	
		705962	100x50M	240	1	
		705965	115x50M	60	1	
		705966	115x50M	80	1	
		705967	115x50M	100	1	
		705968	115x50M	120	1	
		705969	115x50M	150	1	
		705970	115x50M	180	1	
		705972	115x50M	240	1	

PREMIUM* A-P21 D PAPER ROLLS**

For plastics, wood, paints and lacquers



With a semi-open grain distribution on a light paper backing, TYROLIT PREMIUM*** paper rolls are ideally suited to hand sanding or for use on orbital sanders.

The semi-open coating of the PREMIUM*** paper roll prevents loading of the product and delivers an excellent surface finish.

	Shape	Type no.	Dimension	Specification	PU	
			34230618	100x50M	40	1
		34230619	100x50M	60	1	
		34230620	100x50M	80	1	
		34230631	100x50M	100	1	
		34230632	100x50M	120	1	
		34230633	100x50M	150	1	
		34230634	100x50M	180	1	
		34230635	115x50M	240	1	
		34230636	115x50M	40	1	
		34230637	115x50M	60	1	
		34230638	115x50M	80	1	
		34230639	115x50M	100	1	
		34230640	115x50M	120	1	
		34230641	115x50M	150	1	
		34230642	115x50M	180	1	
		34230643	115x50M	240	1	

Items with grey lettering are only available on request.



Coated abrasives

BASIC★ A-B01 C JX CLOTH ROLLS
 Universal use



With flexible cloth rolls from TYROLIT you can machine almost any material. When finishing surfaces, preparation either by hand or using an orbital sander is required. When machining wood, paint and lacquer, TYROLIT recommends BASIC* cloth rolls for hand-guided grinding.

For finishing coatings, smoothing and cleaning composites, and for clean intermediate grinding, we recommend cloth rolls on an orbital sander.

	Shape	Type no.	Dimension	Specification	PU	
		Roll	705824	25x50M	40	1
		705825	25x50M	60	1	
		705826	25x50M	80	1	
		705828	25x50M	100	1	
		705830	25x50M	120	1	
		705831	25x50M	150	1	
		705832	25x50M	180	1	
		705833	25x50M	220	1	
		705834	25x50M	240	1	
		705836	25x50M	320	1	
		705837	25x50M	400	1	
		705839	40x25M	40	1	
		705840	40x25M	60	1	
		705841	40x25M	80	1	
		705842	40x25M	100	1	
		705843	40x25M	120	1	
		705844	40x25M	150	1	
		705845	40x25M	180	1	
		705846	40x25M	220	1	
		705850	40x25M	240	1	
		705851	40x25M	320	1	
		705852	40x25M	400	1	
		705853	40x25M	600	1	
		705854	40x50M	40	1	
		705855	40x50M	60	1	
		705856	40x50M	80	1	
		705857	40x50M	100	1	
		705858	40x50M	120	1	
		705859	40x50M	150	1	
		705860	40x50M	180	1	
		705861	40x50M	220	1	
		705862	40x50M	240	1	
		705863	40x50M	320	1	
		705864	40x50M	400	1	

Coated abrasives

Items with grey lettering are only available on request.



BASIC★ A-B01 C JX CLOTH ROLLS

Universal use



	Shape		Type no.	Dimension	Specification	PU
		Roll	705873	50x25M	40	1
			705874	50x25M	60	1
			705875	50x25M	80	1
			705876	50x25M	100	1
			705877	50x25M	120	1
			705878	50x25M	150	1
			705879	50x25M	180	1
			705880	50x25M	220	1
			705881	50x25M	240	1
			705882	50x25M	320	1
			705883	50x25M	400	1
			705884	50x25M	600	1
			705885	50x50M	40	1
			705886	50x50M	60	1
			705887	50x50M	80	1
			705888	50x50M	100	1
			705889	50x50M	120	1
			705891	50x50M	150	1
			705892	50x50M	180	1
			705894	50x50M	220	1
705895	50x50M	240	1			
705896	50x50M	320	1			
705898	50x50M	400	1			

BASIC★ A-B01 C JJ CLOTH ROLLS

Universal use





With highly flexible cloth rolls from TYROLIT you can machine almost any material. When finishing surfaces, preparation either by hand or using an orbital sander is required. When machining wood, paint and lacquer, TYROLIT recommends BASIC* cloth rolls for hand-guided grinding.

For finishing coatings, smoothing and cleaning composites, and for clean intermediate grinding, we recommend cloth rolls on an orbital sander.

	Shape		Type no.	Dimension	Specification	PU
		Roll	20781	40x50M	60	1
			20793	40x50M	80	1
			20794	40x50M	100	1
			20796	40x50M	120	1
			20797	40x50M	150	1
			20798	40x50M	180	1

Items with grey lettering are only available on request.

Coated abrasives

	Shape	Type no.	Dimension	Specification	PU	
		Roll	20799	40x50M	220	1
		20801	40x50M	240	1	
		20803	40x50M	320	1	
		20805	40x50M	400	1	
		20806	50x50M	60	1	
		20807	50x50M	80	1	
		20811	50x50M	100	1	
		20813	50x50M	120	1	
		20816	50x50M	150	1	
		20817	50x50M	180	1	
		20819	50x50M	220	1	
		20821	50x50M	240	1	
		20822	50x50M	320	1	
		20824	50x50M	400	1	
		34061912	100x50M	60	1	
		34061913	100x50M	80	1	
		34061919	100x50M	100	1	
		34061934	100x50M	120	1	
		34061938	100x50M	150	1	
		34061939	100x50M	180	1	
		34061951	100x50M	240	1	
		34061953	100x50M	320	1	
		34061954	100x50M	400	1	
		34061960	115x50M	60	1	
		34062015	115x50M	80	1	
		34062021	115x50M	100	1	
		34062022	115x50M	120	1	
		34062023	115x50M	150	1	
		34062024	115x50M	180	1	
		34062025	115x50M	240	1	
		34062026	115x50M	320	1	
		34062027	115x50M	400	1	

Coated abrasives

Items with grey lettering are only available on request.

PREMIUM★★★ FLEECE ROLLS

UNIVERSAL USE

+ Long lifetime

Thanks to 100% impregnation, the abrasive grain is not only located on the surface, but also inside the fleece.

+ Flexible use

The abrasive fabric adapts perfectly to any workpiece surface.



+ Universal use

The assortment offers a wide selection of possible uses on all common materials

TYROLIT fleece rolls are used for cleaning and processing surfaces using orbital sanders or for hand-guided grinding. A wide range of speci-



cations offer the user a variety of surface finish options. The assortment extends from coarse specifications for cleaning weld

seams through to ultra-fine and polishing fleece.

PREMIUM★★★ FLEECE ROLLS

Universal use



	Shape	Type no.	Dimension	Conforms to	Design	Colour	PU
	 Roll	120653	100 x 10m	P150	A COARSE	BROWN	1
		120667	100 x 10m	P220-240	A MEDIUM	RED-BROWN	1
		120671	100 x 10m	P320	A FINE	RED-BROWN	1
		120674	100 x 10m	P400-500	A VERY FINE	RED-BROWN	1
		120676	100 x 10m	P800	C ULTRA FINE	GREY	1
		120682	100 x 10m	P400-500	A GP - GREEN	GREEN	1
		120688	115 x 10m	P150	A COARSE	BROWN	1
		120689	115 x 10m	P220-240	A MEDIUM	RED-BROWN	1
		120693	115 x 10m	P320	A FINE	RED-BROWN	1
		120694	115 x 10m	P400-500	A VERY FINE	RED-BROWN	1
		120700	115 x 10m	P800	C ULTRA FINE	GREY	1
		120716	115 x 10m	P400-500	A GP - GREEN	GREEN	1

Items with grey lettering are only available on request.

Coated abrasives



5.14 SHEETS

HAND SANDING AND SUPERFINISHING



SHEETS FOR HAND SANDING AND SUPERFINISHING

Any kind of surface finishing requires thorough preparation. This can be done by hand or using an orbital sander.

Wood, paint or lacquer are usually abraded by hand. Deburring work can also be accomplished by hand. However, for perfect intermediate sanding, we recommend using an orbital sander. This also allows smooth finishing of coatings and smoothing of composite materials.













For jobs like these we offer abrasive sheets in a wide range of designs, such as cloth, paper and fleece rolls. They allow easy and flexible working on virtually any material.

Shapes



Sheet

Application recommendations

									
Performance Level	Specification	Pages							
PAPER SHEETS PREMIUM***	A-P07 P C	434	•	•	•		•		•
	C-P68 P A	434	•	•	•		•	•	•
	C-P68 P C	434	•	•	•		•	•	•
	A-P21 PD	435			•	•	•		
									
Performance Level	Specification	Pages				Paint / lacquer	Plastic	Holz	
PAPER SHEETS BASIC*	A-B31 P C	435				•	•	•	
									
Performance Level	Specification	Pages							All in One
CLOTH SHEETS BASIC*	A-B01 C JX	436							•
	A-B01 C JJ	436							•
									
Performance Level		Pages							All in One
FLEECE ROLLS PREMIUM***		437							•

Items with grey lettering are only available on request.

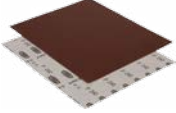
PREMIUM*** A-P07 P C PAPER SHEETS

For steel, nonferrous metals, wood, paints and lacquers



The special feature of the PREMIUM*** paper sheets is a latex-finished backing, which makes them ideal for wet and dry finishing. This is the perfect product for preparing and machining metal, wood, paint and lacquer.

The closed coating of the PREMIUM*** paper sheets delivers an excellent surface finish.

	Shape	Type no.	Dimension	Grain	PU	
	■	Sheet	706001	230x280	60	50
			706002	230x280	80	50
			706003	230x280	100	50
			706004	230x280	120	50
			706005	230x280	150	50
			706006	230x280	180	50
			706007	230x280	220	50
			706008	230x280	240	50
			706009	230x280	320	50
			706010	230x280	400	50
			706011	230x280	600	50
			706012	230x280	800	50
			706013	230x280	1000	50
			706014	230x280	1200	50

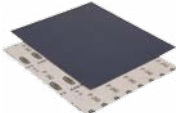
PREMIUM*** C-P68 P C | C-P68 P A PAPER SHEETS

For steel, nonferrous metals, wood, paints and lacquers



The paper sheets made of silicon carbide are the perfect product for preparing and machining metal, wood, paint and lacquer. The special feature of the PREMIUM*** sheets is a latex-finished backing, which makes them ideal for wet and dry finishing.

The closed coating of the PREMIUM*** paper sheets delivers an excellent surface finish.

	Shape	Type no.	Dimension	Grain	PU	
	■	Sheet	724257	230x280	80	50
			724264	230x280	100	50
			724267	230x280	120	50
			724268	230x280	150	50
			724271*	230x280	180	50
			724272*	230x280	220	50
			724273*	230x280	240	50
			724275*	230x280	320	50
			724276*	230x280	400	50
			724281*	230x280	600	50
			724283*	230x280	800	50
			724284*	230x280	1000	50
			724285*	230x280	1200	50

* C-P68 P A

Items with grey lettering are only available on request.

PREMIUM* A-P21 PD PAPER SHEETS**

For plastics, wood, paints and lacquers



With a semi-open grain distribution on a light paper backing, TYROLIT PREMIUM*** paper sheets are ideally suited to hand sanding or for use on orbital sanders.

The semi-open coating of the PREMIUM*** paper sheets prevents loading of the product and delivers an excellent surface finish.

	Shape	Type no.	Dimension	Grain	PU	
	■	Sheet	34230644	230x280	40	25
			34230677	230x280	60	25
			34230678	230x280	80	25
			34230679	230x280	100	50
			34230680	230x280	120	50
			34230701	230x280	150	50
			34230702	230x280	180	50
			34230703	230x280	240	50

BASIC★ A-B31 PC PAPER SHEETS

For plastics, wood, paints and lacquers



With a semi-open grain distribution on a light paper backing, TYROLIT BASIC★ paper sheets are ideally suited to hand sanding or for use on orbital sanders.

The semi-open coating of the BASIC★ paper sheets prevents loading of the product and delivers an excellent surface finish.

	Shape	Type no.	Dimension	Grain	PU	
	■	Sheet	706015	230x280	60	50
			706016	230x280	80	50
			706018	230x280	100	50
			706020	230x280	120	50
			706021	230x280	150	50
			706022	230x280	180	50
			706023	230x280	240	50

BASIC★ A-B01 C JX CLOTH SHEETS

Universal use



With the flexible cloth sheets from TYROLIT you can machine almost any material. When finishing surfaces, preparation either by hand or using an orbital sander is required. When machining wood, paint and lacquer, TYROLIT recommends BASIC* cloth sheets.

However, our products can also be used for finishing coatings, or smoothing and cleaning composites.

	Shape	Type no.	Dimension	Grain	PU	
	■	Sheet	705989	230x280	40	50
		705990	230x280	60	50	
		705991	230x280	80	50	
		705992	230x280	100	50	
		705993	230x280	120	50	
		705994	230x280	150	50	
		705995	230x280	180	50	
		705996	230x280	220	50	
		705997	230x280	240	50	
		705998	230x280	320	50	
		705999	230x280	400	50	
		706000	230x280	600	50	

BASIC★ A-B01 C JJ CLOTH SHEETS

Universal use



With highly flexible cloth sheets from TYROLIT you can machine almost any material. When finishing surfaces, preparation either by hand or using an orbital sander is required. When machining wood, paint and lacquer, TYROLIT recommends the BASIC* cloth sheets.

However, our products can also be used for finishing coatings, or smoothing and cleaning composites.

	Shape	Type no.	Dimension	Grain	PU	
	■	Sheet	20832	230x280	60	50
		20833	230x280	80	50	
		20834	230x280	100	50	
		20835	230x280	120	50	
		20836	230x280	150	50	
		20842	230x280	180	50	
		20844	230x280	220	50	
		20851	230x280	240	50	
		20860	230x280	320	50	
		20868	230x280	400	50	

Items with grey lettering are only available on request.

PREMIUM★★★ FLEECE SHEETS

UNIVERSAL USE

+ Long lifetime

Thanks to 100% impregnation, the abrasive grain is not only located on the surface, but also inside the fleece.

+ Flexible use

The abrasive fabric adapts perfectly to any workpiece surface.



+ Universal use

The assortment offers a wide selection of possible uses on all common materials

Our fleece sheets are used for cleaning and processing surfaces using orbital sanders or for hand-guided grinding. A wide range of speci-

cations offer the user a variety of surface finish options. The assortment extends from coarse specifications for cleaning weld

seams through to ultra-fine and polishing fleece.

PREMIUM★★★ FLEECE SHEETS

Universal use



	Shape	Type no.	Dimension	Conforms to	Design	Colour	PU
	Sheet	120769	152x229	P150	A COARSE	BROWN	10
		120770	152x229	P220-240	A MEDIUM	RED-BROWN	10
		120772	152x229	P320	A FINE	RED-BROWN	10
		120774	152x229	P400-500	A VERY FINE	RED-BROWN	10
		120777	152x229	P220-240	S MEDIUM	BLACK	10
		120779	152x229	P800	C ULTRA FINE	GREY	10
		120781	152x229	P400-500	A GP - GREEN	GREEN	10
		120787	152x229	-	POLISH	WHITE	10

Items with grey lettering are only available on request.



TYROLIT

BOSCH
503
50/60 Hz 1.85 A 340 W
9000 min⁻¹
and 104000021 2011
D-70745 Leinfelden-Echterdingen





5.15 TYROLIT FAST CHANGE
DUAL ACTION SANDER



TYROLIT FAST CHANGE FOR DUAL ACTION SANDERS

TYROLIT Fast Change discs offer a simple and convenient solution for surface treatment. Disc changes are quick and easy thanks to the Velcro fastening.

These tools are available with paper or film backings and can be used on nearly all materials. We offer discs with different numbers of holes for optimum material removal or extraction. They are easily applied to our back up pads.

The different grit sizes allow grinding from coarse to fine on ferrous and nonferrous metals and on wood, lacquers, paint and composites.

Application recommendations



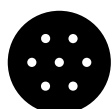
Performance level	Specification	Page	Steel	All in One	Composites	Plastic	Gel coat	Paint / lacquer	Wood	Hard Stone	Marble
PREMIUM***	ZA-P45 V	444		●							
	ZA-P45 P F	444		●							
	A-P22 FI	444, 445			●	●	●		●		
	A-P21 P C	445			●	●	●		●		
	A-P22 P E (=Grain 40)	445, 446			●	●	●	●	●		
	A-P22 P D (=Grain 60-180)	445, 446			●	●	●	●	●		
	A-P22 P C (=Grain larger than 180)	445, 446			●	●	●	●	●		
	C-P65 P E	446	●		●	●				●	●
	A-P31 P F	447, 448		●							

Items with grey lettering are only available on request.

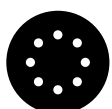
Shapes



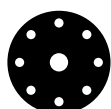
Disc



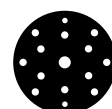
Disc 7H



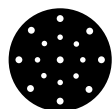
Disc 8H



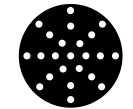
Disc 9H



Disc 15H



Disc 17H



Pad TFC 23

Coated abrasives



PREMIUM★★★ ZA-P45 V | ZA-P45 P F TFC

Universal use



TYROLIT FAST CHANGE enables you to change a disc very quickly thanks to the Velcro fastening. A unique, strong paper backing combined with zirconium makes this product extremely abrasive and durable, and active coolants enable cool, clean grinding to be performed on the workpiece.

Thanks to the thin fibre backing with grit 40 and strong paper backing the TFC is the optimal tool for removing smaller welding and spot weld seams.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU
	 Disc	706139	125	40	10,500	50
		706141*	125	60	10,500	50
		706142*	125	80	10,500	50
		706143*	125	120	10,500	50
		706144*	150	60	8,800	50
		706145*	150	80	8,800	50
		706146*	150	120	8,800	50

* ZA-P45 P F



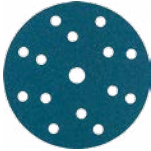

PREMIUM★★★ A-P22 FI TFC

For plastic, composites, gel coat and wood



TYROLIT FAST CHANGE enables you to change a disc very quickly thanks to the Velcro fastening. This durable and flexible product has been developed with a special film backing to achieve improved edge stability and stock removal rate.

The product delivers an exceptionally even finish on lacquers, paints and composites. Clogging and loading of the disc is reduced, thus increasing the product's lifetime.

	Shape	Type no.	Diameter	Grain	Holes	Max. RPM	PU
	 Disc 8H	706147	125	40	8	10,500	50
		706148	125	60	8	10,500	50
		706149	125	80	8	10,500	50
		706150	125	100	8	10,500	50
		706151	125	120	8	10,500	50
		706152	125	150	8	10,500	50
		706154	125	180	8	10,500	50
		706155	125	240	8	10,500	50
		706157	125	320	8	10,500	50
		706158	125	400	8	10,500	50
	 Disc 15H	34063266	150	40	15	8,800	50
		34063267	150	60	15	8,800	50
		34063292	150	80	15	8,800	50
		34063294	150	100	15	8,800	50
		34063296	150	120	15	8,800	50

Items with grey lettering are only available on request.





	Shape	Type no.	Diameter	Grain	Holes	Max. RPM	PU	
		Disc 15H	34063298	150	150	15	8,800	50
			34063299	150	180	15	8,800	50
			34063300	150	240	15	8,800	50
			34063301	150	320	15	8,800	50
			34063303	150	400	15	8,800	50
		Disc 17H	34036456	150	40	17	8,800	50
			34036457	150	60	17	8,800	50
			34036458	150	80	17	8,800	50
			34036459	150	100	17	8,800	50
			34036460	150	120	17	8,800	50
			34036501	150	150	17	8,800	50
			34036502	150	180	17	8,800	50
			34036503	150	240	17	8,800	50
			34036504	150	320	17	8,800	50
			34036505	150	400	17	8,800	50

PREMIUM★★★ A-P21 P C TFC

For plastic, composites, gel coat and wood



TYROLIT FAST CHANGE enables you to change a disc very quickly thanks to the Velcro fastening. The thin paper backing makes the disc ideal for finishing various wood surfaces and for preparing paint, lacquer or wax surfaces.

The product delivers an exceptionally even finish on lacquers, paints and composites. Clogging and loading of the disc is reduced, thus increasing the product's lifetime.

	Shape	Type no.	Diameter	Grain	Holes	Max. RPM	PU	
		Disc 8H	706219	125	40	8	10,500	50
			706221	125	60	8	10,500	50
			706222	125	80	8	10,500	50
		Disc	706244	150	40		8,800	50
			706245	150	60		8,800	50
			706246	150	80		8,800	50
		Disc 7H	706255	150	40	7	8,800	50
			706258	150	60	7	8,800	50
			706259	150	80	7	8,800	50
		Disc 9H	706268	150	40	9	8,800	50
			706269	150	60	9	8,800	50
			706270	150	80	9	8,800	50

Items with grey lettering are only available on request.

Coated abrasives



PREMIUM★★★ C-P65 P E TFC

For hard stone, steel, composites, plastics and soft stone



TYROLIT FAST CHANGE enables you to change a disc very quickly thanks to the Velcro fastening. The thin paper backing makes the disc ideal for finishing tasks. The product delivers an exceptionally even finish on metals, lacquers, composites, marble and stone.

The product delivers an exceptionally even finish on hard stone, steel and composites. Clogging and loading of the disc is reduced, thus increasing the product's lifetime.

	Shape	Type no.	Diameter	Grain	Max. RPM	PU
	 Disc	6957	125	40	10,500	50
		6958	125	60	10,500	50
		6960	125	80	10,500	50
		6964	125	120	10,500	50
		6968	125	180	10,500	50
		6969	125	220	10,500	50
		6979	125	320	10,500	50
		6991	125	400	10,500	50
		6993	125	600	10,500	50
		7007	125	800	10,500	50
		7008	180	40	7,300	50
		7030	180	60	7,300	50
		7055	180	80	7,300	50
		7058	180	120	7,300	50
		7070	180	180	7,300	50
		7072	180	220	7,300	50
		7086	180	320	7,300	50
		7087	180	400	7,300	50
		7093	180	600	7,300	50
		7100	180	800	7,300	50

Items with grey lettering are only available on request.

PREMIUM★★★ A P 22 PD TYROLIT FAST CHANGE FOR COMPOSITES, PLASTICS, GEL COAT, WOOD, PAINTS AND LACQUER

+ **Increased lifetime**
No loading or clogging of the TFC disc.

+ **Easy handling**
Disc changes are quick and easy thanks to the Velcro fastening.



+ **Great overall abrasion**
An improved backing increases abrasion on the workpiece.

TYROLIT FAST CHANGE enables you to change a disc very quickly thanks to the Velcro fastening. The sturdy paper backing enables high-speed

grinding on many surfaces. The product delivers an exceptionally even finish on lacquers, paints and composites. Clogging and loading

of the disc is reduced thanks to a special stearate layer, thus increasing the product's lifetime.

PREMIUM★★★ A-P 22 PD, PE, PC TFC
For composites, plastics, gel coat, wood, paints and lacquers



	Shape	Type no.	Diameter	Grain	Holes	Max. RPM	PU	
		Disc 8H	34230261	125	40	8	10,500	50
			34230417*	125	60	8	10,500	50
			34230419*	125	80	8	10,500	50
			34230420*	125	100	8	10,500	100
			34230422*	125	120	8	10,500	100
			34230446*	125	150	8	10,500	100
			34230447*	125	180	8	10,500	100
			34230449**	125	220	8	10,500	100

* A-P 22 PE ** A-P 22 PC

Items with grey lettering are only available on request.

**PREMIUM*** A-P 22 PD, PE, PC TFC**

For composites, plastics, gel coat, wood, paints and lacquers



	Shape	Type no.	Diameter	Grain	Holes	Max. RPM	PU
	Disc 8H	34230450**	125	240	8	10,500	100
		34230452**	125	320	8	10,500	100
		34230453**	125	400	8	8,800	100
	Disc	34230486	150	40		8,800	50
		34230487*	150	60		8,800	100
		34230488*	150	80		8,800	100
		34230490*	150	120		8,800	100
		34230531*	150	180		8,800	100
		34230532**	150	220		8,800	100
		34230533**	150	240		8,800	50
	Disc 15H	34230534	150	40	15	8,800	100
		34230535*	150	60	15	8,800	100
		34230591*	150	80	15	8,800	100
		34230592*	150	100	15	8,800	100
		34230593*	150	120	15	8,800	100
		34230595*	150	150	15	8,800	100
		34230597*	150	180	15	8,800	100
		34230598**	150	220	15	8,800	100
		34230599**	150	240	15	8,800	100
		34230600**	150	320	15	8,800	50
	Disc 17H	34230601**	150	400	15	8,800	50
		34230605	150	40	17	8,800	50
		34230606*	150	60	17	8,800	50
		34230607*	150	80	17	8,800	100
		34230608*	150	100	17	8,800	100
		34230609*	150	120	17	8,800	100
		34230610*	150	150	17	8,800	100
		34230612*	150	180	17	8,800	100
		34230613**	150	220	17	8,800	100
		34230614**	150	240	17	8,800	100
34230615**	150	320	17	8,800	100		
34230616	150	400	17	8,800	100		

* A-P 22 PE ** A-P 22 PC

Items with grey lettering are only available on request.

PREMIUM★★★ TYROLIT FAST CHANGE UNIVERSAL USE

+ Increased lifetime

Stronger backing for abrasiveness, resistivity and lifetime.

+ Easy handling

Disc changes are quick and easy thanks to the Velcro fastening.



+ Good assortment

PREMIUM*** TYROLIT FAST CHANGE discs are available in grit sizes 40 to 400.

TYROLIT FAST CHANGE enables you to change a disc very quickly thanks to the Velcro fastening. The heavy paper backing facilitates use on soft



materials such as wood or paint and on stubborn works. This product offers an especially sturdy backing that supports the

grain with a maximum stock removal rate and longest lifetime. Extremely resistant when used on edges.

PREMIUM★★★ A-P31 P F TFC

Universal use





	Shape		Type no.	Diameter	Grain	Max. RPM	PU
		Disc	34230705	115	40	12,300	50
			34230706	115	60	12,300	50
			34230707	115	80	12,300	50
			34230708	115	100	12,300	50
			34230709	115	120	12,300	50
			34230710	115	150	12,300	50
			34230711	115	180	12,300	50
			34230712	115	240	12,300	50
			34230713	125	40	10,500	50
			34230714	125	60	10,500	50
			34230715	125	80	10,500	50
			34230716	125	100	10,500	50
			34230717	125	120	10,500	50

Items with grey lettering are only available on request.

**PREMIUM★★★ A-P31 P F TFC**

Universal use



	Shape	Type no.	Diameter	Grain	Max. RPM	PU
	 Disc	34230718	125	150	10,500	50
		34230719	125	180	10,500	50
		34230720	125	240	10,500	50
		34230721	150	40	8,800	50
		34230722	150	60	8,800	50
		34230723	150	80	8,800	50
		34230724	150	120	8,800	50
		34230725	150	150	8,800	50
		34230726	150	180	8,800	50



PREMIUM★★★ ACCESSORIES

For TFC



The TFC back up pad has been developed to allow grinding wheels with Velcro fastenings to be used for grinding tougher materials and for finishing. The high-quality product design enables it to be used on different materials, including wood and paints.

The back up pad is characterised by easy handling and mounting on speed-controlled angle grinders.

	Shape	Type no.	Diameter	Design	Holes	Grade	Max. RPM	PU	
	 PAD TFC	710006	115	M14		HARD	13,300	5	
		710007	125	M14		HARD	12,300	5	
		34177464	150	5/16-M8	21	HARD	10,500	1	Suitable for discs with 0, 6, 7, 9, 15 holes
		710008	150	5/16-M8	23	HARD	10,500	1	Suitable for discs with 0, 6, 7, 9, 15 holes
		710009	150	5/16-M8	23	HARD	10,500	1	Suitable for discs with 0, 6, 7, 9, 15 holes

Items with grey lettering are only available on request.



5.16 ROLLERS
BURNISHING MACHINE



ROLLERS FOR BURNISHING MACHINES

TYROLIT rollers are used on portable equipment such as burnishing machines for general grinding jobs, cleaning, finishing and for polishing uneven or curved surfaces.



















Our products allow a consistent, high-quality surface finish throughout their lifetime. With our comprehensive assortment, we offer products for removing welding tracks, scratches or oxidation residues. These tools

are especially popular for surface pre-treatment over large areas.

The patented shape of the newly developed spiral rollers means they are extremely easy and convenient

to use without lateral deflection. You can also increase your productivity by avoiding typical roller imprinting on the workpiece. In addition, vibrations are considerably reduced and the load is minimised.

Application recommendations

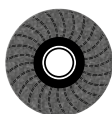
Performance line	Pages	 Steel	 Stainless steel	 NF metals
ROLLERS PREMIUM***	452			
Performance line	Pages	 Steel	 Stainless steel	 NF metals
SPIRAL ROLLERS PREMIUM***	453			
Performance line	Pages	 Steel	 Stainless steel	 Plastic
ROUGH GRINDING WHEEL PREMIUM***	454			

Items with grey lettering are only available on request.

Shapes



1LA C Flap wheel



1LA VL Fleece wheel



1LA VL-C
Fleece flap wheel





PREMIUM★★★ ROLLERS

For steel, stainless steel and nonferrous metals



PREMIUM*** rollers are used on burnishing machines for general grinding processes, cleaning, finishing and for polishing uneven or curved surfaces. As the wear pattern remains stable throughout the product lifetime, a consistent high-quality surface finish is delivered.

The comprehensive assortment offers products for removing welding tracks, scratches and oxidation residue, as well as for pre-treating surfaces.

	Shape	Type no.	Dimension	Grain	Design	Colour	Max. RPM	Rec. speed	PU	
		1LA C	62144	100x100x19.1 S4	40		6,800	3,700	1	
			62153	100x100x19.1 S4	60		6,800	3,700	1	
			62154	100x100x19.1 S4	80		6,800	3,700	1	
			62155	100x100x19.1 S4	120		6,800	3,700	1	
			62178	100x100x19.1 S4	180		6,800	3,700	1	
		1LA VL	60159	100x100x19.1 S4		A COARSE	RED-BROWN	6,800	2,400	1
			60170	100x100x19.1 S4		A MEDIUM	RED-BROWN	6,800	2,400	1
			60184	100x100x19.1 S4		A FINE	RED-BROWN	6,800	2,400	1
			60185	100x100x19.1 S4		A VERY FINE	RED-BROWN	6,800	2,400	1
		1LA VL-C	60337	100x100x19.1 S4	60	A COARSE	GREY	6,800	2,400	1
			60351	100x100x19.1 S4	80	C MEDIUM	GREY	6,800	2,400	1
			60352	100x100x19.1 S4	120	C FINE	GREY	6,800	2,400	1
			60354	100x100x19.1 S4	180	C VERY FINE	GREY	6,800	2,400	1

Items with grey lettering are only available on request.

Coated abrasives

PREMIUM★★★ SPIRAL ROLLERS FOR STEEL, STAINLESS STEEL AND NONFERROUS METALS

+ **Reduced working times**
Work steps do not need to be repeated, as roller imprinting is avoided.

+ **Reduced load**
Significantly reduced vibrations prevent damage to health.



+ **Consistent results**
Consistent high-quality finish thanks to the stable grinding surface pattern.

The patented shape of the newly developed PREMIUM*** spiral rollers means they are extremely easy and convenient to use without lateral deflection. Using the PREMIUM*** spiral rollers significantly increases




productivity by avoiding typical roller imprinting on the workpiece. This means grinding processes do not have to be performed again. In addition, vibrations are considerably reduced and the load is mini-

mised. The convenient and intuitive operation does not require extensive training to learn, meaning convincing results are achieved immediately.

PREMIUM★★★ SPIRAL ROLLERS

For steel, stainless steel and nonferrous metals



	Shape	Type no.	Dimension	Grain	Design	Colour	Max. RPM	Rec. speed	PU
		1LA VL 94134	100x100x19.1 S4		A COARSE	RED-BROWN	6,800	2,400	1
		94204	100x100x19.1 S4		A MEDIUM	RED-BROWN	6,800	2,400	1
		94210	100x100x19.1 S4		A VERY FINE	RED-BROWN	6,800	2,400	1
		1LA VL-C 94223	100x100x19.1 S4	60	A COARSE	GREY	6,800	2,400	1
		94234	100x100x19.1 S4	80	C MEDIUM	GREY	6,800	2,400	1
		94237	100x100x19.1 S4	120	C FINE	GREY	6,800	2,400	1

Items with grey lettering are only available on request.

PREMIUM★★★ ROUGH CLEANING ROLLERS FOR STEEL, STAINLESS STEEL AND PVC

+ **Powerful**
TYROLIT rough cleaning wheels are characterised by a long lifetime and an excellent grinding surface pattern.

+ **User-friendly**
Enables the user to perform quiet, non-strenuous work.



+ **Versatile tool**
Not only for removing rust, paint, lacquer and underbody sealant, but also for preparing surfaces for welding, soldering and anodising.


With the TYROLIT rough cleaning roller for burnishing machines, you can effortlessly remove rust, paint, lacquer and underbody sealant from

your workpiece. The porous nylon fibres, treated with aggressive abrasives, meet any challenge. Particularly suitable for cleaning large, even

surfaces. At the same time, they prevent clogging or loading.

PREMIUM★★★ ROUGH CLEANING ROLLERS For steel, stainless steel and PVC



	Shape	Type no.	Dimension	Grain	Design	Colour	Max. RPM	Rec. speed	PU
	1GR	34077301	100x100x19.1 S4		C COARSE	BLACK	6,800	2,400	1

Items with grey lettering are only available on request.

Coated abrasives



5.17 ROLLERS
FLOORSTANDING GRINDER



ROLLERS FOR FLOORSTANDING GRINDERS

TYROLIT rollers are used on stationary machines such as floorstanding grinders for general grinding jobs, cleaning, finishing and for polishing uneven or curved surfaces.

Our products allow a consistent, high-quality surface finish throughout their lifetime. With our comprehensive assortment, we offer products for

removing welding tracks, scratches or oxidation residues. These tools are especially popular for surface pre-treatment over large areas.

Rollers for floorstanding grinders are available in many different grain sizes and so always produce the desired result.

Application recommendations



Performanceline	Pages	Steel	Stainless steel	NF metals
ROLLERS PREMIUM***	458, 459	•	•	•

Items with grey lettering are only available on request.

Shapes



1 LA C


PREMIUM★★★ ROLLERS

For steel, stainless steel and nonferrous metals



PREMIUM*** rollers for bench grinders can be used for general grinding processes, including cleaning, finishing and for polishing uneven or curved surfaces. As the wear pattern remains stable throughout the product life-time, a consistent high-quality surface finish is delivered.


The comprehensive assortment offers products for removing welding tracks, scratches and oxidation residue, as well as for pre-treating surfaces.

Shape	Type no.	Shape	Dimension	Grain	Max. RPM	Rec. speed	PU	
	1LA C	62180	1LA	165x25x25.4	40	5,200	3,300	2
		62181	1LA	165x25x25.4	60	5,200	3,300	2
		62190	1LA	165x25x25.4	80	5,200	3,300	2
		62194	1LA	165x25x25.4	120	5,200	3,300	2
		62197	1LA	165x25x25.4	150	5,200	3,300	2
		62202	1LA	165x25x25.4	180	5,200	3,300	2
		62212	1LA	165x25x25.4	220	5,200	3,300	2
		62239	1LA	165x25x25.4	320	5,200	3,300	2
		62258	1LA	165x30x54	40	5,200	3,300	2
		62274	1LA	165x30x54	60	5,200	3,300	2
		62277	1LA	165x30x54	80	5,200	3,300	2
		62291	1LA	165x30x54	100	5,200	3,300	2
		62298	1LA	165x30x54	120	5,200	3,300	2
		62299	1LA	165x30x54	150	5,200	3,300	2
		62304	1LA	165x30x54	180	5,200	3,300	2
		62332	1LA	165x30x54	220	5,200	3,300	2
		62334	1LA	165x30x54	240	5,200	3,300	2
		62342	1LA	165x30x54	320	5,200	3,300	2
		62353	1LA	165x50x54	40	5,200	3,300	1
		62384	1LA	165x50x54	50	5,200	3,300	1
		62409	1LA	165x50x54	60	5,200	3,300	1
		62416	1LA	165x50x54	80	5,200	3,300	1
		62419	1LA	165x50x54	100	5,200	3,300	1
		62434	1LA	165x50x54	120	5,200	3,300	1
		62436	1LA	165x50x54	150	5,200	3,300	1
		62437	1LA	165x50x54	180	5,200	3,300	1
		62448	1LA	165x50x54	220	5,200	3,300	1
		62453	1LA	165x50x54	240	5,200	3,300	1
		62471	1LA	165x50x54	320	5,200	3,300	1
		62484	1LA	200x50x54	40	3,800	2,600	1
		62491	1LA	200x50x54	60	3,800	2,600	1
		62505	1LA	200x50x54	80	3,800	2,600	1
62506	1LA	200x50x54	100	3,800	2,600	1		
62507	1LA	200x50x54	180	3,800	2,600	1		

Items with grey lettering are only available on request.



Coated abrasives


Shape	Type no.	Shape	Dimension	Grain	Max. RPM	Rec. speed	PU	
	1LA C	62516	1LA	200x50x54	320	3,800	2,600	1
		62518	1LA	250x50x100	60	3,000	2,000	1
		62521	1LA	250x50x100	80	3,000	2,000	1
		62524	1LA	250x50x100	100	3,000	2,000	1
		62547	1LA	250x50x100	120	3,000	2,000	1
		62548	1LA	250x50x100	220	3,000	2,000	1
		34053198*	1LA	115x20 M14	40	13,200		5
	34057513*	1LA	115x20 M14	60	13,200		5	
	34057514*	1LA	115x20 M14	80	13,200		5	
	34057515*	1LA	115x20 M14	120	13,200		5	
	34053201*	1LA	125x20 M14	40	12,200		5	
	34057521*	1LA	125x20 M14	60	12,200		5	
	34057522*	1LA	125x20 M14	80	12,200		5	
	34057523*	1LA	125x20 M14	120	12,200		5	

* Angle grinder

PREMIUM★★★ ACCESSORIES

For rollers

These reduction bushes can be used for bench grinder roller applications. With this set, you have the option of reducing the original bore diameter to 32, 25, 22, 20, 16 or 12 millimetres.

Shape	Type no.	Dimension	Design	PU	
	27	34024028	54x32	Reduction from 54 to 32, 25, 22, 20, 16, 12	1

Items with grey lettering are only available on request.





5.18 COMPACT WHEELS BENCH GRINDERS



COMPACT WHEELS FOR BENCH GRINDERS

Compact wheels from TYROLIT are used on stationary machines such as bench grinders for general grinding work, cleaning, finishing and polishing surfaces.

Our products enable a consistent, high-quality surface finish throughout their lifetime. With the compact wheel range, TYROLIT offers you an ideal tool for the machining of surfaces without changing the surface geometry, particularly for the removal of rust and dirt.

Compact wheels consist of multilayer unitised fleece and are available in coarse to fine specifications depending on the number of layers. Due to their soft structure, MMF (multi metal finishing) compact wheels are especially suitable for the fine machining of all metal surfaces, whereas

DB (deburring) compact wheels are particularly hard due to several layers and high pressure and are therefore suitable for deburring work. On the following pages, you will find our range of unitised and convolute compact wheels for bench grinders.

Application recommendations



Performanceline	Specification	Pages	All in One
PREMIUM***	2 A MEDIUM, 2 C MEDIUM, 2 C COARSE, 2 C FINE, 3 C FINE, 5 A MEDIUM, 6 A MEDIUM, 6 C FINE, 7 C FINE, 8 A MEDIUM, 8 A COARSE, 8 C FINE, 9 C FINE	464, 465, 466	<input checked="" type="checkbox"/>

Items with grey lettering are only available on request.

Shapes



1UW Unitized wheel



1CW Convolute wheel

PREMIUM★★★ UNITISED WHEELS

UNIVERSAL USE

+ Enhanced safety

Compact wheels offer a higher safety standard compared to other tools.

+ High economic efficiency

Cool grinding and low clogging of the wheel result in a long life-time for the product.



+ Versatile

This product is extremely versatile and can be used for deburring, removal of scratches, fading, glazing, finishing and machining of welding seams.

The assortment of unitised wheels ranges from abrasive, rigid deburring tools to tools for a soft, perfect surface finish. The softer specification does not alter the surface geometry

of the workpiece in any way. Application areas are primarily the deburring, cleaning, fading, finishing and machining of welding seams. Its long lifetime gives it the edge over

conventional tools. Material can be easily machined and structured using unitised wheels.

PREMIUM★★★ UNITISED WHEELS

Universal use





	Shape	Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU	
		1UW	34190233	152x6x12.7	2 A MEDIUM	5,000	3,000	8
		34190235	152x6x12.7	2 C FINE	5,000	3,000	8	
		34190236	152x6x12.7	3 C FINE	5,000	3,000	8	
		34190237	152x6x12.7	6 A MEDIUM	7,500	4,500	8	
		34190238	152x6x12.7	6 C FINE	7,500	4,500	8	
		34190239	152x6x12.7	8 A COARSE	7,500	4,500	8	
		34190280	152x13x12.7	2 A MEDIUM	5,000	3,000	4	
		34190291	152x13x12.7	2 C FINE	5,000	3,000	4	
		34190292	152x13x12.7	3 C FINE	5,000	3,000	4	

Items with grey lettering are only available on request.



Coated abrasives



	Shape	Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU
		1UW					
		34190293	152x13x12.7	6 A MEDIUM	7,500	4,500	4
		34190294	152x13x12.7	6 C FINE	7,500	4,500	4
		34190295	152x13x12.7	8 A COARSE	7,500	4,500	4
		34190297	152x25x12.7	2 A MEDIUM	5,000	3,000	2
		34190298	152x25x12.7	2 C FINE	5,000	3,000	2
		34190299	152x25x12.7	3 C FINE	5,000	3,000	2
		34190301	152x25x12.7	6 A MEDIUM	7,500	4,500	2
		34190302	152x25x12.7	6 C FINE	7,500	4,500	2
		34190303	152x25x12.7	8 A COARSE	7,500	4,500	2
		34190304	152x25x25.4	2 A MEDIUM	5,000	3,000	2
		34190305	152x25x25.4	2 C FINE	5,000	3,000	2
		34190306	152x25x25.4	3 C FINE	5,000	3,000	2
		34190308	152x25x25.4	6 A MEDIUM	7,500	4,500	2
		34190309	152x25x25.4	6 C FINE	7,500	4,500	2
		34190310	152x25x25.4	8 A COARSE	7,500	4,500	2
34190310	152x25x25.4	8 A COARSE	7,500	4,500	2		



PREMIUM* CONVOLUTE WHEELS**

Universal use



Convolute DB compact wheels are primarily used as deburring wheels for lasered and stamped workpieces. The surface geometry is not altered during machining and the edges are not chamfered. However, at the same

time the burr is completely removed. This product is mainly used on floorstand grinders or polishing machines. The machining of surfaces can deliver a very fine finish.



	Shape	Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU
		1CW					
		34200286	152x13x25.4	7 C FINE	6,000	3,600	4
		34200287	152x13x25.4	8 A MEDIUM	6,000	3,600	4
		34200379	152x13x25.4	8 C FINE	6,000	3,600	4
		34200380	152x13x25.4	9 C FINE	6,000	3,600	4
		34200559	152x25x25.4	7 C FINE	6,000	3,600	2
		34200611	152x25x25.4	8 A MEDIUM	6,000	3,600	2
		34200612	152x25x25.4	8 C FINE	6,000	3,600	2
		34200614	152x25x25.4	9 C FINE	6,000	3,600	2
		34200616	203x13x76.2	7 C FINE	4,500	2,700	4
		34200618	203x13x76.2	8 A MEDIUM	4,500	2,700	4
		34200619	203x13x76.2	8 C FINE	4,500	2,700	4
		34200620	203x13x76.2	9 C FINE	4,500	2,700	4
		34200621	203x25x76.2	7 C FINE	4,500	2,700	2
		34200622	203x25x76.2	8 A MEDIUM	4,500	2,700	2
		34200623	203x25x76.2	8 C FINE	4,500	2,700	2
34200624	203x25x76.2	9 C FINE	4,500	2,700	2		

Items with grey lettering are only available on request.



Coated abrasives



	Shape		Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU
		1CW	34200626	203x50x76.2	7 C FINE	4,500	2,700	1
			34200627	203x50x76.2	8 A MEDIUM	4,500	2,700	1
			34200628	203x50x76.2	8 C FINE	4,500	2,700	1
			34200630	203x50x76.2	9 C FINE	4,500	2,700	1



PREMIUM★★★ MMF CONVOLUTE WHEELS

Universal use



This MMF product is mainly used on floorstand grinders or polishing machines. The machining of surfaces can deliver a very fine finish. The surface geometry is not altered during machining and the edges are

not chamfered. However, at the same time the burr is completely removed.


	Shape		Type no.	Dimension	Specification	Max. RPM	Rec. speed	PU
		1CW	34200686	152x25x25.4	2 C COARSE	6,000	3,600	2
			34200687	152x25x25.4	2 C MEDIUM	6,000	3,600	2
			34200688	152x25x25.4	5 A MEDIUM	6,000	3,600	2
			34200689	152x50x25.4	2 C COARSE	6,000	3,600	1
			34200690	152x50x25.4	2 C MEDIUM	6,000	3,600	1
			34200712	152x50x25.4	5 A MEDIUM	6,000	3,600	1
			34200714	203x25x76.2	2 C COARSE	4,500	2,700	2
			34200716	203x25x76.2	2 C MEDIUM	4,500	2,700	2
			34200718	203x25x76.2	5 A MEDIUM	4,500	2,700	2
			34200719	203x50x76.2	2 C COARSE	4,500	2,700	1
			34200720	203x50x76.2	2 C MEDIUM	4,500	2,700	1
			34200721	203x50x76.2	5 A MEDIUM	4,500	2,700	1

ACCESSORY SET

For convolute wheels

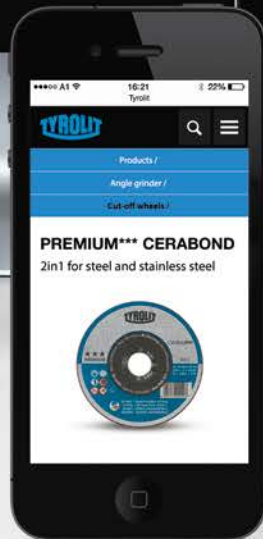
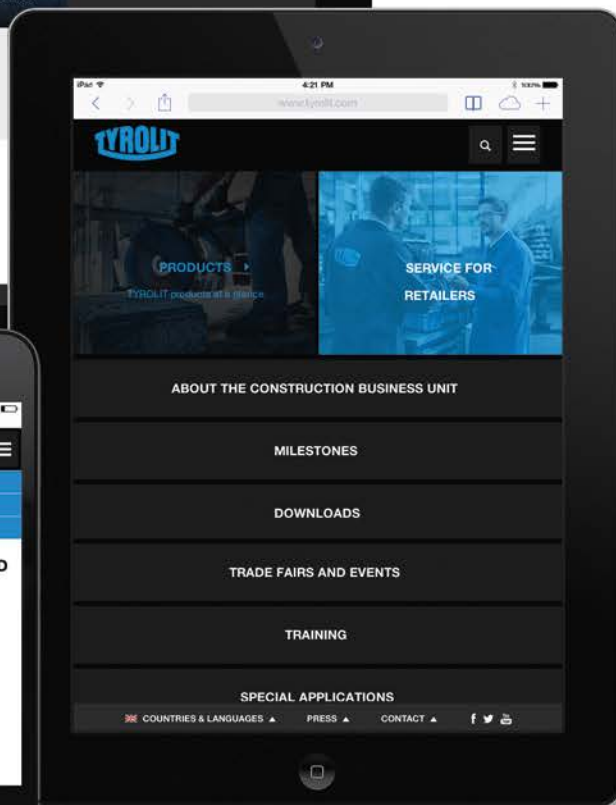
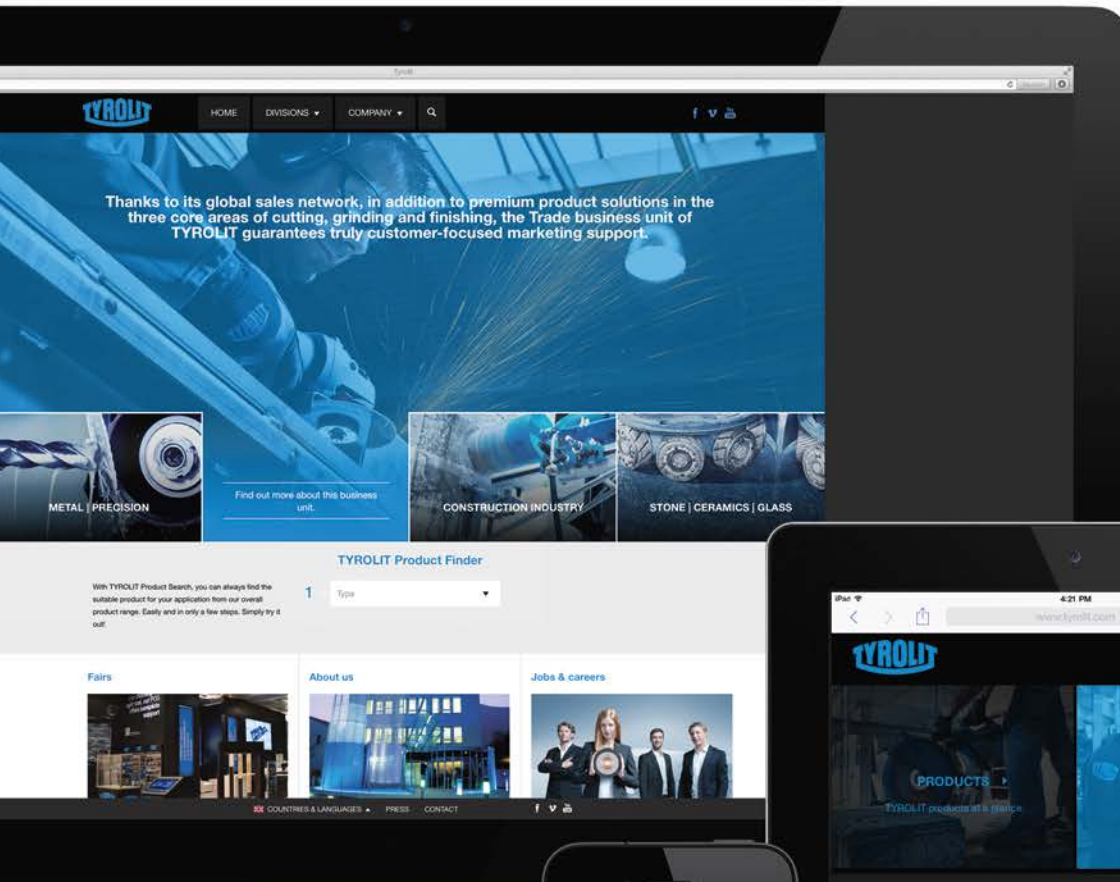


This accessory set contains two aluminium flanges for use with convolute wheels.

	Type no.	Dimension	PU
	34214174	76,2 FLANGE	1

Items with grey lettering are only available on request.

Coated abrasives



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SAFETY

SafetyBrand TYROLIT

Our aim was and is to make our products even safer for our users:

Through our work as the founder member of the “Organisation for the Safety of Abrasives (oSa®)”, through close cooperation with the safety authorities and through practical communication with our users all over the world.

aim of oSa®

The main aim of oSa® is defined in terms of absolute protection for the users of grinding tools, whereby members undertake to provide a consistently high level of quality, adopt a rigorous approach towards quality assurance and strive to develop new, improved standards of safety.



TYROLIT Quality Management System

The TYROLIT quality management system has been certified to ISO 9001:2000 by an external authorised body for the entire production area. Production is carried out in accordance with European Standards:

- EN12413 for grinding wheels made of bonded abrasives
- EN13236 for grinding wheels made of diamond or boron nitride
- EN13743 for special abrasives on an underlay such as vulcanised fibre grinding wheels,
- flap grinding wheels, flap discs and mounted points.

On account of the fact that in the approval principles (EN-Standard) very high requirements are set on the grinding tools concerning defined technical grinding parameters, TYROLIT basically delivers all grinding tools corresponding to these principles. As a result we guarantee a constantly high safety level, also in countries without compulsory approvals.

Final Inspection

TYROLIT is constantly doing final inspections concerning imbalance, bursting tests, cutting & grinding tests according to EN12413.

Resin bonded products undergo a final inspection regarding a visual and identification test, a geometry, imbalance, bursting and side load test as well as a control grinding and cutting process.

Resin and ceramic bonded products undergo a final inspection regarding a visual and identification test, a geometry, imbalance, bursting and side load test as well as a test run, a sound test.

Safety

The following plays an equal part when it comes to safety when grinding: machine manufacturer, grinding wheel producer and user.

Grinding wheels are subject to a high load during the grinding process. This is why grinding machines, grinding bodies, handling and application must be optimally harmonised to ensure safe grinding. For the grinding machines, it is generally important to observe the machine conditions and the stipulation of the protection cover.

Whereas the manufacturer implements the safety measures in line with regulations in relation to the grinding machine and grinding wheels, the user is responsible for safety when grinding through use of the grinding machine for the intended purpose, as well as through correct handling and application of the grinding wheels.

the following must be observed:

- Checking of grinding bodies on delivery
- Handling and storage of grinding bodies
- Labelling, synchronisation with machine data
- Checking of grinding wheels prior to clamping
- Clamping methods for grinding wheels
- Test run of grinding bodies prior to start-up
- Eye protection and protective clothing (see also FEPA safety code)

Storage of the grinding wheels

Grinding wheels are to be stored in suitable racks or containers so that they are not damaged and so that it is easily possible to remove wheels without disturbing the storage setup. Older stock should be used first.

During storage, the following must be noted

Store the grinding wheels in a dry, rust-free condition and do not expose grinding wheels to large temperature fluctuations.

Storage for different types of grinding bodies

- Store cut-off wheels on a level underlay without intermediate layers and weigh them down with a steel or cast iron plate
- Store large straight grinding wheels in an upright position and make sure they cannot roll away
- Stack cylinder wheels, cylindrical grinding discs and grinding plates using soft intermediate layers
- Stack grinding discs, shape 11, in each cases faces or bases together
- Store small grinding wheels in suitable containers

Checking of grinding wheels on delivery

Check packaging on delivery. If damage is visible on the packaging, the grinding wheel should be checked particularly thoroughly for any possible transport damage.

Identification of the grinding wheels

The purpose of the identification is to give people, in particular those who carry out the clamping of the grinding wheels, information for safe use and proper application.

grinding wheels may only be used if they are identified with the following minimum information

- manufacturer,
- dimensions of grinding wheel,
- material (at least the type of bond),
- maximum permissible RPM of new grinding wheel and maximum operating speed in m/s.

The user is obliged to match the machine speed to the maximum permissible speed given in the identification.

Checking of grinding wheels prior to clamping

Each time before clamping, the grinding wheels must be cleaned and checked for damage by means of visual inspection.

The sound test should be repeated. Damaged grinding wheels must not be mounted.

For the sound test, lightweight grinding wheels are pushed onto a mandrel or shaft, heavy grinding wheels are placed on a firm floor.

The grinding wheel is tapped with a non-metal object at several points.

An undamaged grinding wheel gives a clear ring, while a damaged one gives a dull or clanking sound.

All contact surfaces on grinding wheels, intermediate layers and wheel flanges must be level (flat) and be free from foreign bodies. Foreign particles between grinding wheels and wheel flanges create pressure points and stresses, which can lead to breakage of the grinding wheel.

Clamping methods for grinding wheels

Depending on the type of machine and grinding method, as well as the grinding wheel shape, a distinction can be made between the following clamping methods

- Mounting in the central bore using wheel flanges
- Mounting using embedded fixing elements
- Mounting using support plates
- Mounting using clamping head

Mounting in the central bore using wheel flanges

A distinction should be made between the following wheel flange types for central bores

- recessed wheel flange
- straight wheel flanges for portable grinding machines
- special flanges
- stepped flanges
- locating flanges and tapered wheel flanges.

The purpose of the wheel flanges is to transfer drive forces. They must therefore be in such a condition that there is no deformation of the wheel flange during clamping. The contact surfaces must be level (flat) and must not show any burring, and the run-out of the grinding wheel must be safeguarded.

Only wheel flanges that have the same external diameter and the same shape on the contact side may be used. They must be recessed so that only a ring-shaped area of the wheel flange is on the surface.

Clamping using embedded fixing elements

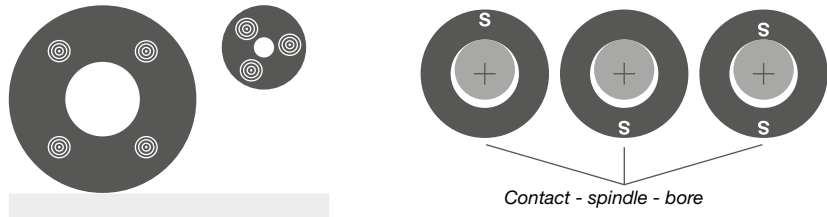
The grinding wheels are fixed using embedded fixing elements on the grinding machine. Examples of this are the clamping of cylindrical and taper cup wheels, or the fixing of mounted points with embedded steel shafts in collets on portable grinding machines.

Clamping of grinding wheels on support plates

The grinding wheels are either cemented or fixed with inserted nuts.

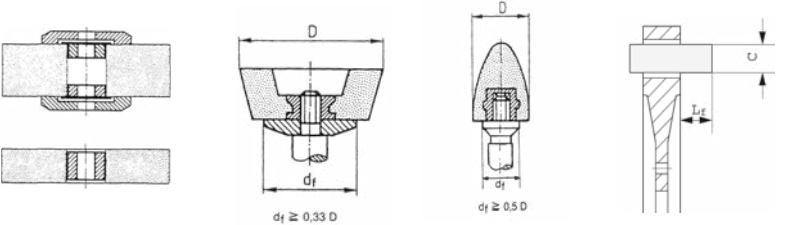
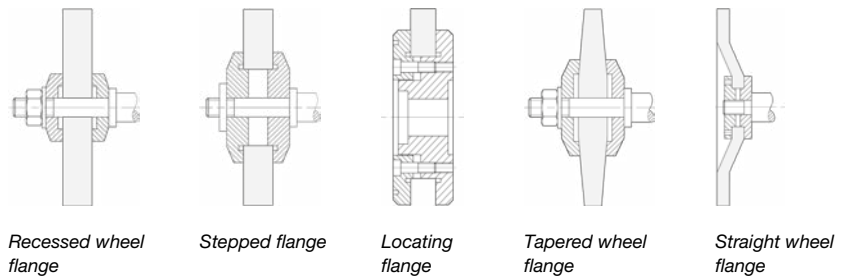
Clamping of grinding segments in clamping heads

Grinding segments are clamped to one grinding unit (segment head) in clamping heads. On the contact surfaces between the grinding segments and the clamping pieces, adhesive strips can be placed on the grinding segments to avoid stresses in the grinding segments.



⊙ Examples of tapping points during the sound test

Examples of identifying wheel orientation



Example of the correct way to use reducing rings
 Clamping of taper cup wheels with a thread insert
 Clamping of a grinding cone, shape 16, with a thread insert
 Clamping of grinding segments in clamping heads $L_f = 1,5 C$

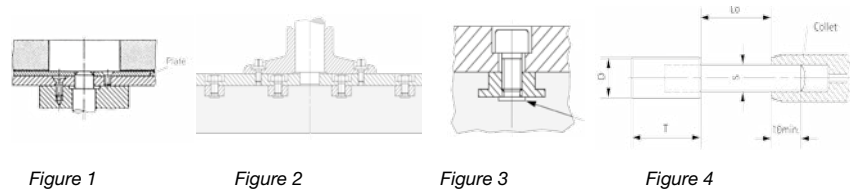


Fig. 1: Grinding wheel, cemented
 Fig. 2: Grinding wheel with inserted nuts
 Fig. 3: Correct bolt connection, bolt end must not touch the base of the grinding wheel
 Fig. 4: Clamping of mounted points

Test run prior to start-up

Every standard grinding wheel (D greater than 80mm) must undergo a test run at maximum operating speed before being used for the first time and after every re-mounting.

The duration of a test run for grinding wheels is on portable grinding machines 1/2 minute and on all other grinding machines 1 minute.

The test run may only be carried out once the danger zone has been secured and – where the grinding wheel must be used with the machine guard – this has been placed on it. The grinding wheel can only be used for the intended work once the test run has been passed without complaint.

Summary

The most important points for safe use of grinding wheels are summarised again below:

- Adjustment of the machine data to the identification data
- Checking of grinding wheels prior to mounting
- Mounting carried out by skilled people
- Checking of the functionality of the machine guard
- Test run of grinding wheels prior to grinding work
- Personal safety

Eye protection and protective clothing

All grinding tasks where people are at risk from flying particles off grinding wheels or workpieces must only be carried out using eye protection (safety glasses) and when necessary, other protective clothing (e.g. leather apron and leather gloves).

SAFETY INFORMATION



Use gloves



Use dust mask



Wet grinding



Not permitted for side grinding



Use eye protection



Personal safety



Dry grinding



No freehand work



Use ear protection



Pay attention to the safety recommendations



Do not use damaged wheels



Free from Fe, S, Cl

DO'S & DON'TS

- ✓ Handle and store grinding tools carefully; use the oldest tools first.
- ✓ Prior to mounting or use, grinding wheels must be cleaned and undergo a visual check for cracks or possible damage.
- ✓ Ceramic bonded grinding tools must undergo a sound check before mounting.
- ✓ Make sure that the speed of the machine (RPM) does not exceed the maximum operating speed specified on the packaging or on the abrasive.
- ✓ Ensure that the bore of the grinding tool – with or without thread – fits the shaft of the machine perfectly; and that the wheel flanges are clean, flat, the same size and suitable for the grinding tool to be clamped.
- ✓ As intended or supplied, use the intermediate layers between the grinding wheel and wheel flanges.
- ✓ Only use machines with protection/guards and ensure their proper condition and fixture before the machine is switched on.
- ✓ After each mounting, carry out a test run for at least one minute at the operating speed and ensure machine guard is mounted correctly. In doing so, ensure that any fragments would not be able to hit you or someone else in the event of a possible breakage.
- ✓ Eye protection is always recommended for all grinding processes. For off-hand grinding, protective goggles or a safety mask is recommended.
- ✓ When working with cut-off or roughing wheels, ensure that the air supply and protective measures sufficiently correspond with the material to be processed. Suitable extraction systems should be fitted for all dry grinding processes.
- ✓ Only use machines that are also suitable for grinding tools with hub.
- ✓ Before stopping the machine, cut off the supply of cooling lubricant and remove the excess cooling lubricant from the grinding wheel.
- × Do not use abrasives that are exposed to particularly humid/wet conditions or high temperatures prior to mounting.
- × Never use abrasives that have been dropped, damaged or that look like they would not be fit for purpose.
- × Never exceed the maximum permissible operating speed specified.
- × Do not use wheel flanges with surfaces that are not free of foreign bodies (e. g. grinding swarf), flat or burr-free.
- × Do not tighten the clamping device or wheel flange too much.
- × Do not use recessed wheel flanges or flanges with recesses for grinding discs or cones.
- × Never use force when clamping and do not make any changes to the grinding tool.
- × Only use one-way adapters (hubs) once.
- × Only switch on the machine when the protection cover is correctly and securely fixed (machine guards or covers should be set in such a way that they divert sparks and grinding particles away from the body).
- × Only start the machine if there is no contact between the workpiece and the grinding tool.
- × Never work with grinding tools without sufficient air supply (never without breathing apparatus and ear protection, particularly in enclosed spaces) and without personal safety equipment (see pictogram).
- × Use a suitable grinding tool – an unsuitable product can create excessive grinding particles and dust.
- × Avoid mechanical damage to the grinding wheel as a result of force effects, jolting or heating.
- × Never use grinding machines in an improper condition or that contain faulty components.
- × Do not use cut-off wheels for grinding work (do not exert a lateral load on any cut-off wheels of shape 41 or 42).
- × Never mount more than one grinding tool on one shaft.

SPEED RECOMMENDATIONS

Rotational speeds and peripheral speeds depending on the external diameter $\varnothing=D$ of the grinding wheels.

















































Rotations n per minute min ⁻¹ depends on external diameter D of grinding wheel and the maximum operating speed V_s											
D in mm	Maximum operating speed V_s in m/s										
	16	20	25	32	35	40	50	63	80	100	125
3											
4	75.300	95.400									
5	61.100	76.300	95.400								
6	50.900	63.600	79.500								
8	38.100	47.700	59.600	76.300	83.500	95.400					
10	30.500	38.100	47.700	61.100	66.800	76.300	95.400				
13	23.500	29.300	36.700	47.000	51.400	58.700	73.400	92.500			
16	19.000	23.800	29.800	38.100	41.700	47.700	59.600	75.200	95.400		
20	15.200	19.000	23.800	30.500	33.400	38.100	47.700	60.100	76.300	95.400	
25	12.200	15.200	19.000	24.400	26.700	30.500	38.100	48.100	61.100	76.300	95.400
32	9.540	11.900	14.900	19.000	20.800	23.800	29.800	37.600	47.700	59.600	74.600
35	8.730	10.900	13.600	17.400	19.000	21.800	27.200	34.300	43.600	54.400	68.200
40	7.630	9.540	11.900	15.200	16.700	19.000	23.800	30.000	38.100	47.700	59.600
50	6.110	7.630	9.540	12.200	13.300	15.200	19.000	24.000	30.500	38.100	47.700
63	4.850	6.060	7.570	9.700	10.600	12.100	15.100	10.000	24.200	30.300	37.800
80	3.810	4.770	5.960	7.630	8.350	9.540	11.900	15.000	19.000	23.800	29.800
100	3.050	3.810	4.770	6.110	6.680	7.630	9.540	12.000	15.200	19.000	23.800
115	2.650	3.320	4.150	5.310	5.810	6.640	8.300	10.400	13.200	16.600	20.700
125	2.440	3.050	3.810	4.880	5.340	6.110	7.630	9.620	12.200	15.200	19.000
150	2.030	2.540	3.180	4.070	4.450	5.090	6.360	8.020	10.100	12.700	15.900
175	1.740	2.180	2.720	3.490	3.810	4.360	5.450	6.870	8.730	10.900	13.600
180	1.690	2.120	2.650	3.390	3.710	4.240	5.300	6.680	8.480	10.600	13.200
200	1.520	1.900	2.380	3.050	3.340	3.810	4.770	6.010	7.630	9.540	11.900
225	1.350	1.690	2.120	2.710	2.970	3.390	4.240	5.340	6.790	8.480	10.600
230	1.320	1.660	2.070	2.650	2.900	3.320	4.150	5.230	6.640	8.300	10.300
250	1.220	1.520	1.900	2.440	2.670	3.050	3.810	4.810	6.110	7.630	9.540
300	1.010	1.270	1.590	2.030	2.220	2.540	3.180	4.010	5.090	6.360	7.950
350	870	1.090	1.360	1.740	1.900	2.180	2.720	3.430	4.360	5.450	6.820
400	760	950	1.190	1.520	1.670	1.900	2.380	3.000	3.810	4.770	5.960
450	670	840	1.060	1.350	1.480	1.690	2.120	2.670	3.390	4.240	5.300
500	610	760	950	1.220	1.330	1.520	1.900	2.400	3.050	3.810	4.770
600	500	630	790	1.010	1.110	1.270	1.590	2.000	2.540	3.180	3.970
700	430	540	680	870	950	1.090	1.360	1.710	2.180	2.720	3.410
750	400	500	630	810	890	1.010	1.270	1.600	2.030	2.540	3.180
800	380	470	590	760	830	950	1.190	1.500	1.900	2.380	2.980
900	330	420	530	670	740	840	1.060	1.330	1.690	2.120	2.650
1000	300	380	470	610	660	760	950	1.200	1.520	1.900	2.380
1060	280	360	450	570	630	720	900	1.130	1.440	1.800	2.250
1250	250	310	390	500	550	630	790	1.000	1.270	1.590	1.980
1500	200	250	310	400	440	500	630	800	1.010	1.270	1.590







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





















































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5289	9003170052894	9009010052895	78
5294	9003170052948	9009010052949	70

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5308	9003170053082	9009010053083	72
5314	9003170053143	9009010053144	70
5316	9003170053167	9009010053168	78
5331	9003170053310	9009010053311	70
5349	9003170053495	9009010053496	73
5350	9003170053501	9009010053502	70
5351	9003170053518	9009010053519	79
5363	9003170053631	9009010053632	70
5365	9003170053655	9009010053656	79
5368	9003170053686	9009010053687	82
5384	9003170053846	9009010053847	70
5396	9003170053969	9009010053960	70
5406	9003170054065	9009010054066	73
5407	9003170054072	9009010054073	70
5413	9003170054133	9009010054134	70
5416	9003170054164	9009010054165	79
5425	9003170054256	9009010054257	82
5429	9003170054294	9009010054295	70
5485	9003170054850	9009010054851	34
5843	9003170058438	9009010058439	282
5886	9003170058865	9009010058866	281
5887	9003170058872	9009010058873	281
5889	9003170058896	9009010058897	281
6207	9003170062077	9009010062078	109
6216	9003170062169	9009010062160	309
6216	9003170062169	9009010062160	309
6309	9003170063098	9009010063099	240
6310	9003170063104	9009010063105	240
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6314	9003170063142	9009010063143	239
6315	9003170063159	9009010063150	239
6316	9003170063166	9009010063167	239
6317	9003170063173	9009010063174	239
6318	9003170063180	9009010063181	239
6321	9003170063210	9009010063211	239
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6401	9003170064019	9009010064010	108
6402	9003170064026	9009010064027	108
6404	9003170064040	9009010064041	110
6405	9003170064057	9009010064058	110
6411	9003170064118	9009010064119	112
6413	9003170064132	9009010064133	112
6660	9003170066600	9009010066601	109
6661	9003170066617	9009010066618	109
6673	9003170066730	9009010066731	58
6710	9003170067102	9009010067103	60
6718	9003170067188	9009010067189	59
6874	9003170068741	9009010068742	111
6879	9003170068796	9009010068797	107
6881	9003170068819	9009010068810	111
6884	9003170068840	9009010068841	111
6886	9003170068864	9009010068865	111
6896	9003170068963	9009010068964	107
6898	9003170068987	9009010068988	107
6899	9003170068994	9009010068995	107
6910	9003170069106	9009010069107	111
6920	9003170069205	9009010069206	107
6928	9003170069281	9009010069282	107
6932	9003170069328	9009010069329	107
6941	9003170069410	9009010069411	108
6943	9003170069434	9009010069435	108
6949	9003170069496	9009010069497	112
6957	9003170069571	9009010069572	444
6958	9003170069588	9009010069589	444
6959	9003170069595	9009010069596	108
6960	9003170069601	9009010069602	444
6961	9003170069618	9009010069619	108
6964	9003170069649	9009010069640	444
6967	9003170069670	9009010069671	108
6968	9003170069687	9009010069688	444
6969	9003170069694	9009010069695	444
6974	9003170069748	9009010069749	108
6979	9003170069793	9009010069794	444
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7030	9003170070300	9009010070301	444	9653	9003170096539	9009010096530	252
7035	9003170070355	9009010070356	307	9833	9003170098335	9009010098336	283
7035	9003170070355	9009010070356	307	10016	9003170100168	9009010100169	258
7055	9003170070553	9009010070554	444	10051	9003170100519	9009010100510	370
7058	9003170070584	9009010070585	444	10054	9003170100540	9009010100541	370
7070	9003170070706	9009010070707	444	10055	9003170100557	9009010100558	370
7072	9003170070720	9009010070721	444	10056	9003170100564	9009010100565	370
7086	9003170070867	9009010070868	444	10058	9003170100588	9009010100589	370
7087	9003170070874	9009010070875	444	10265	9003170102650	9009010102651	265
7093	9003170070935	9009010070936	444	10845	9003170108454	9009010108455	206
7100	9003170071000	9009010071001	444	11182	9003170111829		253
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7186	9003170071864	9009010071865	259	11480	9003170114806	9009010114807	109
7203	9003170072038	9009010072039	259	11481	9003170114813	9009010114814	109
7204	9003170072045	9009010072046	258	12695	9003170126953		205
7205	9003170072052		248	12696	9003170126960		205
7210	9003170072106		251	12836	9003170128360	9009010128361	108
7213	9003170072137		165	12950	9003170129503		201
7318	9003170073189	9009010073180	265	12970	9003170129701	9009010129702	60
7328	9003170073288	9009010073289	266	13068	9003170130684	9009010130685	112
7348	9003170073486		252	13529	9003170135290	9009010135291	111
7362	9003170073622	9009010073623	259	13616	9003170136167	9009010136168	78
7374	9003170073745		251	13695	9003170136952	9009010136953	59
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8641	9003170086417	9009010086418	281	14085	9003170140850	9009010140851	24
8749	9003170087490		201	14364	9003170143646	9009010143647	107
8804	9003170088046	9009010088047	240	15321	9003170153218	9009010153219	311
8807	9003170088077	9009010088078	237	15321	9003170153218	9009010153219	311
8808	9003170088084	9009010088085	237	15383	9003170153836	9009010153837	108
8833	9003170088336	9009010088337	59	15685	9003170156851	9009010156852	59
9009	9003170090094	9009010090095	309	15839	9003170158398		248
9009	9003170090094	9009010090095	309	15842	9003170158428		248
9017	9003170090179	9009010090170	240	15885	9003170158855	9009010158856	240
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9293	9003170092937	9009010092938	265	16022	9003170160223	9009010160224	250
9398	9003170093989	9009010093980	283	16044	9003170160445	9009010160446	107
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19040	9003170190404	9009010190405	281
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19220	9003170192200		287
19435	9003170194358	9009010194359	259
19659	9003170196598	9009010196599	283
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20023	9003170200233	9009010200234	109
20026	9003170200264	9009010200265	106
20031	9003170200318	9009010200319	109
20037	9003170200370	9009010200371	109
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20311	9003170203111	9009010203112	240
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20555	9003170205559	9009010205550	121
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20832	9003170208321	9009010208322	436
20833	9003170208338	9009010208339	436
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20851	9003170208512	9009010208513	436
20860	9003170208604	9009010208605	436
20868	9003170208680	9009010208681	436
21094	9003170210942	9009010210943	106
21125	9003170211253	9009010211254	106
21137	9003170211376	9009010211377	106
21160	9003170211604	9009010211605	106
21166	9003170211666	9009010211667	106
21192	9003170211925	9009010211926	106
21202	9003170212021	9009010212022	106
21232	9003170212328	9009010212329	106
21233	9003170212335	9009010212336	106
21239	9003170212397	9009010212398	106
21262	9003170212625	9009010212626	370
22257	9003170222570	9009010222571	259
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24299	9003170242998	9009010242999	283
25473	9003170254731		189
25590	9003170255905	9009010255906	58
26567	9003170265676	9009010265677	107
27420	9003170274203	9009010274204	206
28162	9003170281621	9009010281622	288
28465	9003170284653	9009010284654	240
28466	9003170284660	9009010284661	240
28467	9003170284677	9009010284678	241
28549	9003170285490	9009010285491	267
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28692	9003170286923	9009010286924	55
28869	9003170288699	9009010288690	241
29238	9003170292382	9009010292383	111
29382	9003170293822	9009010293823	241
30271	9003170302715		204
30741	9003170307413	9009010307414	34
30806	9003170308069		273
30840	9003170308403		251
31009	9003170310093	9009010310094	283
31675	9003170316750	9009010316751	282
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32023	9003170320238	9009010320239	59
32141	9003170321419	9009010321410	34
32142	9003170321426	9009010321427	34
32765	9003170327657	9009010327658	259
32963	9003170329637		201
32965	9003170329651		201
32981	9003170329811		249
33199	9003170331999	9009010331990	87
33249	9003170332491	9009010332492	266
33435	9003170334358		250
33436	9003170334365	9009010334366	59
33502	9003170335027		201
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35677	9003170356770	9009010356771	242
35917	9003170359177	9009010359178	58
35937	9003170359375	9009010359376	31
35944	9003170359443	9009010359444	31
35946	9003170359467	9009010359468	31
35950	9003170359504	9009010359505	31
36576	9003170365765		190
36579	9003170365796		205
36579	9003170365796		205
36663	9003170366632	9009010366633	111
37348	9003170373487	9009010373488	52
38012	9003170380126	9009010380127	288
39110	9003170391108	9009010391109	59
39128	9003170391283	9009010391284	108
39321	9003170393218	9009010393219	34
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39624	9003170396240	9009010396241	34
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43311	9003170433112	9009010433113	309
43311	9003170433112	9009010433113	309
43588	9003170435888	9009010435889	287
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45362	9003170453622	9009010453623	105
45421	9003170454216	9009010454217	109
45422	9003170454223	9009010454224	109
45701	9003170457019		201
45919	9003170459198	9009010459199	78
46198	9003170461986		287
46586	9003170465861	9009010465862	79
46633	9003170466332	9009010466333	58
47005	9003170470056		266
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47010	9003170470100		266
47763	9003170477635	9009010477636	79
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49680	9003170496803		252
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50184	9003170501842		250
50801	9003170508018	9009010508019	327
50845	9003170508452	9009010508453	265
51494	9003170514941	9009010514942	265
51825	9003170518253	9009010518254	21
51838	9003170518383	9009010518384	21
51841	9003170518413	9009010518414	30
51844	9003170518444	9009010518445	31
52223	9003170522236		248
52433	9003170524339	9009010524330	370
52679	9003170526791	9009010526792	153
54072	9003170540728	9009010540729	111
54072	9003170540728	9009010540729	111
54119	9003170541190		282
54820	9003170548205	9009010548206	281
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57004	9003170570046	9009010570047	87
57005	9003170570053	9009010570054	87
57006	9003170570060	9009010570061	87
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58157	9003170581578	9009010581579	54
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60354		9009010603547	452
60572	9003170605724	9009010605725	60
61571	9003170615716		201
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62180	9003170621809	9009010621800	458
62181	9003170621816	9009010621817	458
62190	9003170621908	9009010621909	458
62194	9003170621946	9009010621947	458
62197	9003170621977	9009010621978	458
62202	9003170622028	9009010622029	458
62212	9003170622127	9009010622128	458
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62516		9009010625167	459
62518		9009010625181	459
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62547		9009010625471	459
62548		9009010625488	459
62694	9003170626941	9009010626942	110
62726	9003170627269	9009010627260	34
62874	9003170628747	9009010628748	60
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64598	9003170645980	9009010645981	198
66141	9003170661416		189
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68340	9003170683401		251
69502	9003170695022	9009010695023	285
70092	9003170700924	9009010700925	282
70128	9003170701280	9009010701281	282
70954	9003170709545		188
71212	9003170712125	9009010712126	259
71665	9003170716659		188
72045	9003170720458		253
73667	9003170736671		251
74492	9003170744928	9009010744929	311
74492	9003170744928	9009010744929	311
74493	9003170744935	9009010744936	311
74493	9003170744935	9009010744936	311
74497	9003170744973	9009010744974	311
74497	9003170744973	9009010744974	311
74499	9003170744997	9009010744998	110
75020	9003170750202	9009010750203	44
75079	9003170750790		252
75193	9003170751933	9009010751934	321
75647	9003170756471	9009010756472	109
75669	9003170756693		292
75679	9003170756792		293
75685	9003170756853		293
75803	9003170758031	9009010758032	282
75915	9003170759151	9009010759152	311
75915	9003170759151	9009010759152	311
75934	9003170759342	9009010759343	47
75935	9003170759359	9009010759350	47
75936	9003170759366	9009010759367	47
75937	9003170759373	9009010759374	47
75938	9003170759380	9009010759381	47
75939	9003170759397	9009010759398	47
77824	9003170778244	9009010778245	282
78049	9003170780490	9009010780491	326
78379	9003170783798	9009010783799	250
78847	9003170788472	9009010788473	282
79664	9003170796644	9009010796645	241
79957	9003170799577	9009010799578	59
80143	9003170801430	9009010801431	59
82070	9003170820707	9009010820708	396

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82079	9003170820790	9009010820791	397
82117	9003170821179	9009010821170	397
82125	9003170821254	9009010821255	397
82127	9003170821278	9009010821279	397
82256	9003170822565	9009010822566	398
82257	9003170822572	9009010822573	399
82646	9003170826464	9009010826465	34
83585	9003170835855	9009010835856	93
83618	9003170836180	9009010836181	44
83827	9003170838276	9009010838277	286
84363	9003170843638	9009010843639	52
84809	9003170848091		282
85536	9003170855365		202
86734	9003170867344	9009010867345	288
87215	9003170872157	9009010872158	24
87216	9003170872164	9009010872165	24
87910	9003170879101	9009010879102	399
88461	9003170884617	9009010884618	58
88504	9003170885041	9009010885042	109
88905	9003170889056	9009010889057	107
89383	9003170893831	9009010893832	93
89504	9003170895040	9009010895041	109
90998	9003170909983	9009010909984	287
91350	9003170913508		282
91441	9003170914413	9009010914414	282
91963	9003170919630	9009010919631	243
92284	9003170922845		205
94110	9003170941105	9009010941106	54
94134		9009010941342	453
94204		9009010942042	453
94210		9009010942103	453
94223		9009010942233	453
94234		9009010942349	453
94237		9009010942370	453
94720	9003170947206		205
95717	9003170957175	9009010957176	243
96205	9003170962056	9009010962057	60
96235	9003170962353		201
96821	9003170968218	9009010968219	307

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97442	9003170974424	9009010974425	60
97785	9003170977852	9009010977853	109
97868	9003170978682	9009010978683	288
99864	9003170998642		250
100660	9003171006605	9009011006606	61
100757	9003171007572	9009011007573	106
100758	9003171007589	9009011007580	106
101000	9003171010008	9009011010009	61
101508	9003171015089	9009011015080	108
102804	9003171028041		273
102811	9003171028119	9009011028110	36
102813	9003171028133	9009011028134	36
102814	9003171028140	9009011028141	55
102831	9003171028317	9009011028318	55
102850	9003171028508	9009011028509	55
102855	9003171028553	9009011028554	55
102856	9003171028560	9009011028561	55
102859	9003171028591	9009011028592	55
102902	9003171029024	9009011029025	288
103394	9003171033946	9009011033947	108
103622	9003171036220	9009011036221	241
103851	9003171038514		252
103872	9003171038729		251
104376	9003171043761	9009011043762	288
104604	9003171046045	9009011046046	105
104894	9003171048940	9009011048941	109
104962	9003171049626	9009011049627	105
104968	9003171049688	9009011049689	105
105009	9003171050097	9009011050098	107
105367	9003171053678	9009011053679	105
106372	9003171063721	9009011063722	109
107050	9003171070507	9009011070508	266
108261	9003171082616	9009011082617	105
108262	9003171082623	9009011082624	105
108479	9003171084795	9009011084796	283
108728	9003171087284	9009011087285	61
109336	9003171093360	9009011093361	200
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111436	9003171114362	9009011114363	253
111562	9003171115628	9009011115629	380
111567	9003171115673	9009011115674	380
111570	9003171115703	9009011115704	380
111577	9003171115772	9009011115773	380
111584	9003171115840	9009011115841	380
111585	9003171115857	9009011115858	380
111611	9003171116113	9009011116114	380
111631	9003171116311	9009011116312	380
111799	9003171117998	9009011117999	251
112055	9003171120554		311
112055	9003171120554		311
112203	9003171122039	9009011122030	380
112204	9003171122046	9009011122047	380
112205	9003171122053	9009011122054	380
112242	9003171122428	9009011122429	380
112253	9003171122534	9009011122535	380
112254	9003171122541	9009011122542	380
112268	9003171122688	9009011122689	380
112273	9003171122732	9009011122733	380
112279	9003171122794	9009011122795	380
112283	9003171122831	9009011122832	380
112298	9003171122985	9009011122986	381
112308	9003171123081	9009011123082	381
112309	9003171123098	9009011123099	381
112312	9003171123128	9009011123129	381
112320	9003171123203	9009011123204	381
112322	9003171123227	9009011123228	381
112337	9003171123371	9009011123372	381
112339	9003171123395	9009011123396	381
112359	9003171123593	9009011123594	381
112398	9003171123982	9009011123983	378
112401	9003171124019	9009011124010	378
112406	9003171124064	9009011124065	378
112411	9003171124118	9009011124119	378
112413	9003171124132	9009011124133	378
112418	9003171124187	9009011124188	378
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112455	9003171124552	9009011124553	378
112469	9003171124699	9009011124690	378
112471	9003171124712	9009011124713	378
112486	9003171124866	9009011124867	378
112493	9003171124934	9009011124935	378
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112505	9003171125054	9009011125055	378
112510	9003171125108	9009011125109	378
112514	9003171125146	9009011125147	378
112527	9003171125276	9009011125277	378
112532	9003171125320	9009011125321	378
112536	9003171125368	9009011125369	378
112542	9003171125429	9009011125420	107
112543	9003171125436	9009011125437	382
112546	9003171125467	9009011125468	382
112550	9003171125504	9009011125505	382
112551	9003171125511	9009011125512	382
112581	9003171125818	9009011125819	382
112588	9003171125887	9009011125888	382
112589	9003171125894	9009011125895	382
112590	9003171125900	9009011125901	382
112591	9003171125917	9009011125918	382
112592	9003171125924	9009011125925	382
112593	9003171125931	9009011125932	382
112599	9003171125993	9009011125994	382
112602	9003171126020	9009011126021	382
112603	9003171126037	9009011126038	382
112917	9003171129175	9009011129176	379
112918	9003171129182	9009011129183	379
112923	9003171129236	9009011129237	379
112924	9003171129243	9009011129244	379
112928	9003171129281	9009011129282	379
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112961	9003171129618	9009011129619	380
112988	9003171129885	9009011129886	380
113007	9003171130072	9009011130073	380
113023	9003171130232	9009011130233	380
113026	9003171130263	9009011130264	380
113027	9003171130270	9009011130271	380
113031	9003171130317	9009011130318	380
113057	9003171130577	9009011130578	380
113059	9003171130591	9009011130592	380
113299	9003171132991	9009011132992	111
114648	9003171146486		205
116061	9003171160611	9009011160612	377
116065	9003171160659	9009011160650	377
116097	9003171160970	9009011160971	377
116111	9003171161113	9009011161114	377
116115	9003171161151	9009011161152	377
116127	9003171161274	9009011161275	377
116130	9003171161304	9009011161305	377
116143	9003171161434	9009011161435	377
116152	9003171161526	9009011161527	377
116156	9003171161564	9009011161565	377
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116725	9003171167252	9009011167253	107
116973	9003171169737	9009011169738	108
117058	9003171170580	9009011170581	76
117064	9003171170641	9009011170642	76
117065	9003171170658	9009011170659	76
117068	9003171170689	9009011170680	76
117070	9003171170702	9009011170703	76
117071	9003171170719	9009011170710	76
117072	9003171170726	9009011170727	76
117073	9003171170733	9009011170734	76
117074	9003171170740	9009011170741	76
117241	9003171172416	9009011172417	199
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120093	9003171200935	9009011200936	111
120653		9009011206532	430
120667		9009011206679	430
120671		9009011206716	430
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120682		9009011206822	430
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120700		9009011207003	430
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120769	9003171207699	9009011207690	437
120770	9003171207705	9009011207706	437
120772	9003171207729	9009011207720	437
120774	9003171207743	9009011207744	437
120777	9003171207774	9009011207775	437
120779	9003171207798	9009011207799	437
120781	9003171207811	9009011207812	437
120787	9003171207873	9009011207874	437
121385	9003171213850	9009011213851	111
121878	9003171218787	9009011218788	24
122868	9003171228687	9009011228688	108
122989	9003171229899	9009011229890	282
122991	9003171229912		201
122996	9003171229967		251
122997	9003171229974		251
123064	9003171230642		201
123222	9003171232226	9009011232227	265
123432	9003171234329	9009011234320	112
123633	9003171236330	9009011236331	252
123644	9003171236446	9009011236447	106
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126665	9003171266658		250
126781	9003171267815		311
126781	9003171267815		311
127347	9003171273472	9009011273473	107
127356	9003171273564	9009011273565	229
127554	9003171275544		251
127775	9003171277753	9009011277754	109
128345	9003171283457		165
128618	9003171286182	9009011286183	107
129260	9003171292602	9009011292603	106
129550	9003171295504		250
130009	9003171300093	9009011300094	108
131231	9003171312317	9009011312318	108
131779		9009011317795	384
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131991	9003171319910	9009011319911	281
132297	9003171322972		311
132297	9003171322972		311
132438	9003171324389	9009011324380	109
135853	9003171358537	9009011358538	110
136087	9003171360875	9009011360876	394
136090	9003171360905	9009011360906	394
136161	9003171361612	9009011361613	394
136164	9003171361643	9009011361644	394
136168	9003171361681	9009011361682	394
136173	9003171361735	9009011361736	394
136193	9003171361933	9009011361934	395
136535	9003171365351		243
136777	9003171367775	9009011367776	52
139155	9003171391558		283
139648	9003171396485	9009011396486	327
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142682	9003171426823	9009011426824	108
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147698	9003171476989		249
147701	9003171477016		249
148132	9003171481327	9009011481328	61
148517	9003171485172	9009011485173	109
148656	9003171486568	9009011486569	214
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148722	9003171487220	9009011487221	394
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150468	9003171504682	9009011504683	345
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151928	9003171519280	9009011519281	109
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160242	9003171602425	9009011602426	324
160244	9003171602449	9009011602440	324
160245	9003171602456	9009011602457	324
160246	9003171602463	9009011602464	324
160247	9003171602470	9009011602471	324
160249	9003171602494	9009011602495	324
160251	9003171602517	9009011602518	324
160252	9003171602524	9009011602525	324
160254	9003171602548	9009011602549	324
160255	9003171602555	9009011602556	324
160256	9003171602562	9009011602563	324
160257	9003171602579	9009011602570	324
160258	9003171602586	9009011602587	324
160260	9003171602609	9009011602600	324
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162390	9003171623901	9009011623902	112
162874	9003171628746	9009011628747	267
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167226	9003171672268	9009011672269	57
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169479	9003171694796	9009011694797	57
169543	9003171695434	9009011695435	106
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170542	9003171705423	9009011705424	33
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173085	9003171730852		293
175220	9003171752205	9009011752206	242
176979	9003171769791		205
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180994	9003171809947		204
181071	9003171810714	9009011810715	44
183113	9003171831139	9009011831130	21
183592	9003171835922	9009011835923	47
184247	9003171842470		251
185988	9003171859881	9009011859882	239
186109	9003171861099	9009011861090	239
186445	9003171864458	9009011864459	282
194540	9003171945409	9009011945400	287
195112	9003171951127	9009011951128	310
195112	9003171951127	9009011951128	310
196324	9003171963243	9009011963244	52
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199682	9003171996821	9009011996822	171
199689	9003171996890	9009011996891	171
202159	9003172021591	9009012021592	58
202294	9003172022949		189
203176	9003172031767	9009012031768	282
205056	9003172050560	9009012050561	339
205058	9003172050584	9009012050585	339
205060	9003172050607	9009012050608	339
205822	9003172058221	9009012058222	60
210314	9003172103143		282
212627	9003172126272		204
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215986	9003172159867	9009012159868	198
216066	9003172160665		189
216068	9003172160689		190
216789	9003172167893	9009012167894	283
217976	9003172179766	9009012179767	285
220394	9003172203942	9009012203943	60
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222043	9003172220437	9009012220438	83
222044	9003172220444	9009012220445	29
222045	9003172220451	9009012220452	45
222854	9003172228549	9009012228540	74
222858	9003172228587	9009012228588	74
222860	9003172228600	9009012228601	74
222861	9003172228617	9009012228618	74
222863	9003172228631	9009012228632	74
222865	9003172228655	9009012228656	74
222868	9003172228686	9009012228687	74
222870	9003172228709	9009012228700	74
222872	9003172228723	9009012228724	83
222873	9003172228730	9009012228731	83
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222900	9003172229003	9009012229004	29
222996	9003172229966	9009012229967	29
222997	9003172229973	9009012229974	29
222998	9003172229980	9009012229981	29
222999	9003172229997	9009012229998	29
223000	9003172230009	9009012230000	29
223002	9003172230023	9009012230024	29
223010	9003172230108	9009012230109	35
223012	9003172230122	9009012230123	35
223015	9003172230153	9009012230154	35
223016	9003172230160	9009012230161	35
223019	9003172230191	9009012230192	35
223020	9003172230207	9009012230208	29
223021	9003172230214	9009012230215	29
223022	9003172230221	9009012230222	29
223023	9003172230238	9009012230239	29
223024	9003172230245	9009012230246	35
223025	9003172230252	9009012230253	35
223027	9003172230276	9009012230277	35
223029	9003172230290	9009012230291	35
223031	9003172230313	9009012230314	35
223032	9003172230320	9009012230321	53
223033	9003172230337	9009012230338	53
223035	9003172230351	9009012230352	45
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223039	9003172230399	9009012230390	45
223040	9003172230405	9009012230406	45
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223043	9003172230436	9009012230437	45
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228819	9003172288192		201
229899	9003172298993		221
230691	9003172306919	9009012306910	59
231513	9003172315133		200
232665	9003172326658		205
232678	9003172326788		205
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233756	9003172337562	9009012337563	81
233757	9003172337579	9009012337570	81
233759	9003172337593	9009012337594	81
233760	9003172337609	9009012337600	81
233762	9003172337623	9009012337624	81
233765	9003172337654	9009012337655	81
233768	9003172337685	9009012337686	81
233771	9003172337715	9009012337716	81
233773	9003172337739	9009012337730	81
233774	9003172337746	9009012337747	81
233776	9003172337760	9009012337761	81
233777	9003172337777	9009012337778	81
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246870	9003172468709	9009012468700	329
246871	9003172468716	9009012468717	329
246872	9003172468723	9009012468724	329
246982	9003172469829	9009012469820	376
246984	9003172469843	9009012469844	376
246985	9003172469850	9009012469851	376
246986	9003172469867	9009012469868	376
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246988	9003172469881	9009012469882	328
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246995	9003172469959	9009012469950	328
246996	9003172469966	9009012469967	328
246998	9003172469980	9009012469981	328
247001	9003172470016		328
247165	9003172471655	9009012471656	327
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251584	9003172515847	9009012515848	311
251584	9003172515847	9009012515848	311
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255451	9003172554518	9009012554519	44
255835	9003172558356	9009012558357	288
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275634	9003172756349	9009012756340	92	293740	9003172937403		371
278979	9003172789798	9009012789799	61	293789	9003172937892		190
280358	9003172803586		205	293790	9003172937908	9009012937909	371
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282077	9003172820774	9009012820775	58	293802	9003172938028		205
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282085	9003172820859	9009012820850	59	295600	9003172956008		198
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282111	9003172821115	9009012821116	58	297327	9003172973272	9009012973273	75
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282114	9003172821146	9009012821147	59	297333	9003172973333	9009012973334	75
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282150	9003172821504	9009012821505	31	299270	9003172992709	9009012992700	40
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286864	9003172868646		271	305234	9003173052341		204
289327	9003172893273	9009012893274	376	305260	9003173052600		204
289329	9003172893297	9009012893298	376	305269	9003173052693		204
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310993	9003173109939	9009013109930	93
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313127	9003173131275	9009013131276	308
313466	9003173134665	9009013134666	308
313466	9003173134665	9009013134666	308
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314463	9003173144633	9009013144634	93
314990	9003173149904		204
315877	9003173158777	9009013158778	308
315877	9003173158777	9009013158778	308
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324404	9003173244043	9009013244044	40
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325222	9003173252222	9009013252223	40
325224	9003173252246	9009013252247	40
325228	9003173252284	9009013252285	40
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330772	9003173307724	9009013307725	109
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333396	9003173333969		202
334166	9003173341667		282
335803	9003173358030		287
336499	9003173364994	9009013364995	93
337051	9003173370513	9009013370514	285
337183	9003173371831	9009013371832	214
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351654	9003173516546		275
351767	9003173517673	9009013517674	310
351767	9003173517673	9009013517674	310
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355251	9003173552513	9009013552514	47
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359223	9003173592236		205
359403	9003173594032		203
361668	9003173616680		204
362775	9003173627754	9009013627755	242
363249	9003173632499	9009013632490	308
363249	9003173632499	9009013632490	308
363478	9003173634783	9009013634784	44
363993	9003173639931		294
364685	9003173646854	9009013646855	283
365327	9003173653272		192
365327	9003173653272		192
365824	9003173658246	9009013658247	282
365997	9003173659977		199
366794	9003173667941	9009013667942	44
366816	9003173668160	9009013668161	192
366816	9003173668160	9009013668161	192
366888	9003173668887	9009013668888	34
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367548	9003173675489	9009013675480	78
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367566	9003173675663	9009013675664	35
367567	9003173675670	9009013675671	32
367568	9003173675687	9009013675688	32
367569	9003173675694	9009013675695	22
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367574	9003173675748	9009013675749	22
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367576	9003173675762	9009013675763	32
367577	9003173675779	9009013675770	32
367578	9003173675786	9009013675787	22
367580	9003173675809	9009013675800	35
367581	9003173675816	9009013675817	32
367582	9003173675823	9009013675824	32
367583	9003173675830	9009013675831	22
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367771	9003173677711	9009013677712	70
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367783	9003173677834	9009013677835	32
367785	9003173677858	9009013677859	22
367786	9003173677865	9009013677866	22
367787	9003173677872	9009013677873	35
367788	9003173677889	9009013677880	32
367789	9003173677896	9009013677897	22
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368010	9003173680100	9009013680101	22
368012	9003173680124	9009013680125	35
368014	9003173680148	9009013680149	78
368016	9003173680162	9009013680163	32
368017	9003173680179	9009013680170	32
369110	9003173691106		269
369514	9003173695142		201
372339	9003173723395	9009013723396	394
373520	9003173735206	9009013735207	60
377415	9003173774151	9009013774152	250
377664	9003173776643	9009013776644	92
379577	9003173795774		269
379577	9003173795774		269
379653	9003173796535	9009013796536	105
384142	9003173841426	9009013841427	23
384143	9003173841433	9009013841434	23
384481	9003173844816		229
384753	9003173847534	9009013847535	44
384754	9003173847541	9009013847542	44
384755	9003173847558	9009013847559	44
384756	9003173847565	9009013847566	44
384757	9003173847572	9009013847573	44
384758	9003173847589	9009013847580	44
384759	9003173847596	9009013847597	48
384760	9003173847602	9009013847603	48
384761	9003173847619	9009013847610	48
384762	9003173847626	9009013847627	48
384763	9003173847633	9009013847634	48
384764	9003173847640	9009013847641	48
386001	9003173860014	9009013860015	48
386002	9003173860021	9009013860022	44
387531	9003173875315		271
388126	9003173881262	9009013881263	394
389569	9003173895696		271
390531	9003173905319	9009013905310	53
390532	9003173905326	9009013905327	53
390582	9003173905821		271
390970	9003173909706		294

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394560	9003173945605		192
394560	9003173945605		192
395773	9003173957738	9009013957739	311
395773	9003173957738	9009013957739	311
396678	9003173966785	9009013966786	52
401205	9003174012054	9009014012055	24
401616	9003174016168	9009014016169	275
405549	9003174055495		269
407610	9003174076100		251
408229	9003174082293	9009014082294	52
408496	9003174084969	9009014084960	32
408972	9003174089728		298
410277	9003174102779	9009014102770	47
413027	9003174130277		307
413027	9003174130277		307
413774	9003174137740		251
415841	9003174158417	9009014158418	105
416671	9003174166719		288
419688	9003174196884	9009014196885	44
422374	9003174223740	9009014223741	54
424846	9003174248460	9009014248461	93
432975	9003174329756	9009014329757	396
433019	9003174330196	9009014330197	398
433020	9003174330202	9009014330203	398
433039	9003174330394	9009014330395	398
433068	9003174330684	9009014330685	399
436472	9003174364726	9009014364727	288
436484	9003174364849	9009014364840	285
437634	9003174376347	9009014376348	267
438088	9003174380887	9009014380888	282
439059	9003174390596	9009014390597	98
439061	9003174390619	9009014390610	98
441033	9003174410331	9009014410332	109
441203	9003174412038	9009014412039	98
441204	9003174412045	9009014412046	98
441206	9003174412069	9009014412060	98
441207	9003174412076	9009014412077	98
441219	9003174412199	9009014412190	98

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441226	9003174412267	9009014412268	98
441227	9003174412274	9009014412275	98
441230	9003174412304	9009014412305	99
441231	9003174412311	9009014412312	98
441233	9003174412335	9009014412336	98
441238	9003174412380	9009014412381	98
441239	9003174412397	9009014412398	98
441241	9003174412410	9009014412411	98
441243	9003174412434	9009014412435	98
441245	9003174412458	9009014412459	98
441246	9003174412465	9009014412466	99
441247	9003174412472	9009014412473	99
441248	9003174412489	9009014412480	99
441250	9003174412502	9009014412503	99
441301	9003174413011		266
441302	9003174413028		266
441342	9003174413424		202
441348	9003174413486		203
441350	9003174413509		203
441351	9003174413516		203
441352	9003174413523		203
441353	9003174413530	9009014413531	99
441399	9003174413998		199
441401	9003174414018		199
441403	9003174414032		199
443944	9003174439448	9009014439449	307
443944	9003174439448	9009014439449	307
445055	9003174450559		226
446432	9003174464327		308
446432	9003174464327		308
446453	9003174464532		308
446453	9003174464532		308
448482	9003174484820	9009014484821	307
448482	9003174484820	9009014484821	307
448603	9003174486039	9009014486030	265
449559	9003174495598		250
450328	9003174503286		253
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455124	9003174551249	9009014551240	265
455303	9003174553038	9009014553039	327
455312	9003174553120	9009014553121	327
455314	9003174553144	9009014553145	327
455318	9003174553182	9009014553183	327
455324	9003174553243	9009014553244	327
456491	9003174564911		32
457370	9003174573708	9009014573709	394
458028	9003174580287	9009014580288	324
458029	9003174580294	9009014580295	324
458030	9003174580300	9009014580301	324
458031	9003174580317	9009014580318	324
458033	9003174580331	9009014580332	324
458034	9003174580348	9009014580349	324
458035	9003174580355	9009014580356	324
458038	9003174580386	9009014580387	324
458040	9003174580409	9009014580400	324
458587	9003174585879	9009014585870	327
460744	9003174607441	9009014607442	54
460976	9003174609766	9009014609767	311
460976	9003174609766	9009014609767	311
461239	9003174612391	9009014612392	266
461733	9003174617334	9009014617335	220
462503	9003174625032		270
462514	9003174625148		270
462630	9003174626305		269
462630	9003174626305		269
462631	9003174626312		269
462631	9003174626312		269
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462889	9003174628897		270	474526	9003174745266	9009014745267	77
462891	9003174628910		270	474527	9003174745273	9009014745274	81
462898	9003174628989		269	474528	9003174745280	9009014745281	81
462911	9003174629115		272	474529	9003174745297	9009014745298	81
462914	9003174629146		272	474531	9003174745310	9009014745311	82
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462918	9003174629184		272	474533	9003174745334	9009014745335	81
462924	9003174629245		272	474534	9003174745341	9009014745342	81
462926	9003174629269		273	474535	9003174745358	9009014745359	82
462928	9003174629283		272	474564	9003174745648		271
462932	9003174629320		272	474872	9003174748724	9009014748725	328
462937	9003174629375		272	474874	9003174748748	9009014748749	328
462939	9003174629399		273	474875	9003174748755	9009014748756	328
462943	9003174629436		273	474877	9003174748779	9009014748770	328
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463026	9003174630265		269	475960	9003174759607	9009014759608	308
463068	9003174630685		285	476380	9003174763802		203
463137	9003174631378		273	476545	9003174765455		267
464290	9003174642909	9009014642900	311	476859	9003174768593	9009014768594	309
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466754	9003174667544	9009014667545	75	477283	9003174772835	9009014772836	243
466762	9003174667629	9009014667620	75	477289	9003174772897	9009014772898	243
467422	9003174674221		229	477335	9003174773351	9009014773352	231
467466	9003174674665		199	477342	9003174773429	9009014773420	231
468182	9003174681823	9009014681824	34	477346	9003174773467	9009014773468	231
468751	9003174687511	9009014687512	220	477349	9003174773498	9009014773499	231
469614	9003174696148		220	477352	9003174773528	9009014773529	231
469619	9003174696193		220	477356	9003174773566	9009014773567	231
469827	9003174698272		199	477358	9003174773580	9009014773581	231
470272	9003174702726		295	477360	9003174773603	9009014773604	231
471114	9003174711148		250	477403	9003174774037	9009014774038	230
471747	9003174717478		267	477406	9003174774068	9009014774069	230
473086	9003174730866		192	477407	9003174774075	9009014774076	230
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477418	9003174774181	9009014774182	230
477422	9003174774228		243
477430	9003174774303	9009014774304	243
477724	9003174777243	9009014777244	310
477724	9003174777243	9009014777244	310
477726	9003174777267	9009014777268	310
477726	9003174777267	9009014777268	310
477746	9003174777465	9009014777466	309
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477749	9003174777496	9009014777497	309
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477753	9003174777533	9009014777534	309
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477755	9003174777557	9009014777558	309
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477837	9003174778370	9009014778371	308
477837	9003174778370	9009014778371	308
480500	9003174805007		288
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485142	9003174851424		192
485338	9003174853381	9009014853382	107
485430	9003174854302		189
485953	9003174859536		267
487467	9003174874676		267
487597	9003174875970		202
490222	9003174902225	9009014902226	265
490259	9003174902591		298
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493199	9003174931997	9009014931998	59
493780	9003174937807		201
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495046	9003174950462		293
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498229	9003174982296	9009014982297	282
498402	9003174984023		199
498701	9003174987017		198
501861	9003175018611	9009015018612	243
502437	9003175024377	9009015024378	243
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508495	9003175084951		192
508495	9003175084951		192
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514338	9003175143382	9009015143383	52
514745	9003175147458	9009015147459	44
515988	9003175159888	9009015159889	77
515989	9003175159895	9009015159896	77
516594	9003175165940	9009015165941	248
519212	9003175192120	9009015192121	326
519213	9003175192137	9009015192138	326
519214	9003175192144	9009015192145	326
519215	9003175192151	9009015192152	326
519232	9003175192328	9009015192329	54
523430	9003175234301		189
523435	9003175234356		189
523437	9003175234370		189
524016	9003175240166		199
524159	9003175241590		203
525355	9003175253555	9009015253556	34
525686	9003175256860	9009015256861	266
527875	9003175278756		267
528580	9003175285808	9009015285809	324
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534539	9003175345397	9009015345398	250
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537093	9003175370931	9009015370932	327
537095	9003175370955	9009015370956	327
537097	9003175370979	9009015370970	327
537110	9003175371105	9009015371106	327
537111	9003175371112	9009015371113	327
537112	9003175371129	9009015371120	327
537113	9003175371136	9009015371137	327
537114	9003175371143	9009015371144	327
537115	9003175371150	9009015371151	327
538503	9003175385034	9009015385035	54
540688	9003175406883	9009015406884	325
540689	9003175406890	9009015406891	325
543615	9003175436156		250
545254	9003175452545	9009015452546	73
545255	9003175452552	9009015452553	73
545256	9003175452569	9009015452560	73
548169	9003175481699	9009015481690	108
548170	9003175481705	9009015481706	47
548613	9003175486137		199
548815	9003175488155		248
549002	9003175490028	9009015490029	60
551616	9003175516162	9009015516163	54
552399	9003175523993	9009015523994	22
553403	9003175534036	9009015534037	93
554635	9003175546350		205
556715	9003175567157		298
557153	9003175571536		200
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567353	9003175673537	9009015673538	82
568265	9003175682652	9009015682653	281
570473	8032973219075	9009015704737	394
570485	8032973219112	9009015704850	394
572473	9003175724734	9009015724735	327
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575635	9003175756353	9009015756354	327
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576049	9003175760497	9009015760498	79
576050	9003175760503	9009015760504	79
577274	9003175772742		205
577953	9003175779536		311
577953	9003175779536		311
578936	9003175789368		269
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591080	9003175910809	9009015910800	58
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591680	9003175916801	9009015916802	59
593711	9003175937110		203
593712	9003175937127		199
594356	9003175943562	9009015943563	59
594357	9003175943579	9009015943570	59
594360	9003175943609	9009015943600	59
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596269	9003175962693	9009015962694	58
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603284	9003176032845	9009016032846	61
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607744	9003176077440	9009016077441	59
608080	9003176080808	9009016080809	265
608409	9003176084097	9009016084098	58
610935	9003176109356	9009016109357	30
610937	9003176109370	9009016109371	30
611499	9003176114992	9009016114993	308
611499	9003176114992	9009016114993	308
614644	9003176146443	9009016146444	36
614686	9003176146863	9009016146864	58
615549	9003176155490	9009016155491	52
617388	9003176173883	9009016173884	284
619701	9003176197018		307
619701	9003176197018		307
619800	9003176198008	9009016198009	396
619872	9003176198725		273
620118	9003176201180	9009016201181	188
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630117	9003176301170	9009016301171	52
630537	9003176305376	9009016305377	52
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633286	9003176332860	9009016332861	52
633506	9003176335069	9009016335060	29
633509	9003176335090	9009016335091	29
635268	9003176352684	9009016352685	36
635305	9003176353056		203
636398	9003176363987	9009016363988	284
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711834	9003177118340	9009017118341	40
711866	9003177118661		298
712259	9003177122590	9009017122591	338
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712269	9003177122699	9009017122690	338
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712490	9003177124907	9009017124908	282
713071	9003177130717		204
713537	9003177135378		188
718030	9003177180309	9009017180300	75
718361	9003177183614	9009017183615	248
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719793	9003177197932	9009017197933	329
719794	9003177197949	9009017197940	329
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719800	9003177198007	9009017198008	332
719840	9003177198403	9009017198404	332
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719846	9003177198465	9009017198466	332
719847	9003177198472	9009017198473	332
719904	9003177199042	9009017199043	265
719906	9003177199066	9009017199067	265
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723118	9003177231186	9009017231187	250
724257	9003177242571	9009017242572	434
724264	9003177242649	9009017242640	434
724267	9003177242670	9009017242671	434
724268	9003177242687	9009017242688	434
724271	9003177242717	9009017242718	434
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724275	9003177242755	9009017242756	434
724276	9003177242762	9009017242763	434
724281	9003177242816	9009017242817	434
724283	9003177242830	9009017242831	434
724284	9003177242847	9009017242848	434
724285	9003177242854	9009017242855	434
724476	9003177244766		298
728528	9003177285288	9009017285289	321
728649	9003177286490	9009017286491	329
728650	9003177286506	9009017286507	330
728657	9003177286575	9009017286576	330
728659	9003177286599	9009017286590	330
728661	9003177286612	9009017286613	330
729764	9003177297649	9009017297640	326
730559	9003177305597	9009017305598	326
730560	9003177305603	9009017305604	326
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733646	9003177336461		205
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734693	9003177346934	9009017346935	75
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741348	9003177413483	9009017413484	369
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741460	9003177414602	9009017414603	418
741464	9003177414640	9009017414641	418
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742154	9003177421549	9009017421540	368
742155	9003177421556	9009017421557	368
742157	9003177421570	9009017421571	368
742158	9003177421587	9009017421588	368
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742168	9003177421686	9009017421687	325
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742378	9003177423789	9009017423780	368
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801355	9003178013552	9009018013553	118
801365	9003178013651	9009018013652	119
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803992	9003178039927		198
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805018	9003178050182	9009018050183	267
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840247	9003178402479	9009018402470	33
840506	9003178405067	9009018405068	285
841086	9003178410863		250
842923	9003178429230	9009018429231	288
843037	9003178430373	9009018430374	70
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853704	9003178537041	9009018537042	309
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855818	9003178558183	9009018558184	36
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861009	9003178610096		252
863284	9003178632845	9009018632846	60
867598	9003178675989		251
867603	9003178676030		266
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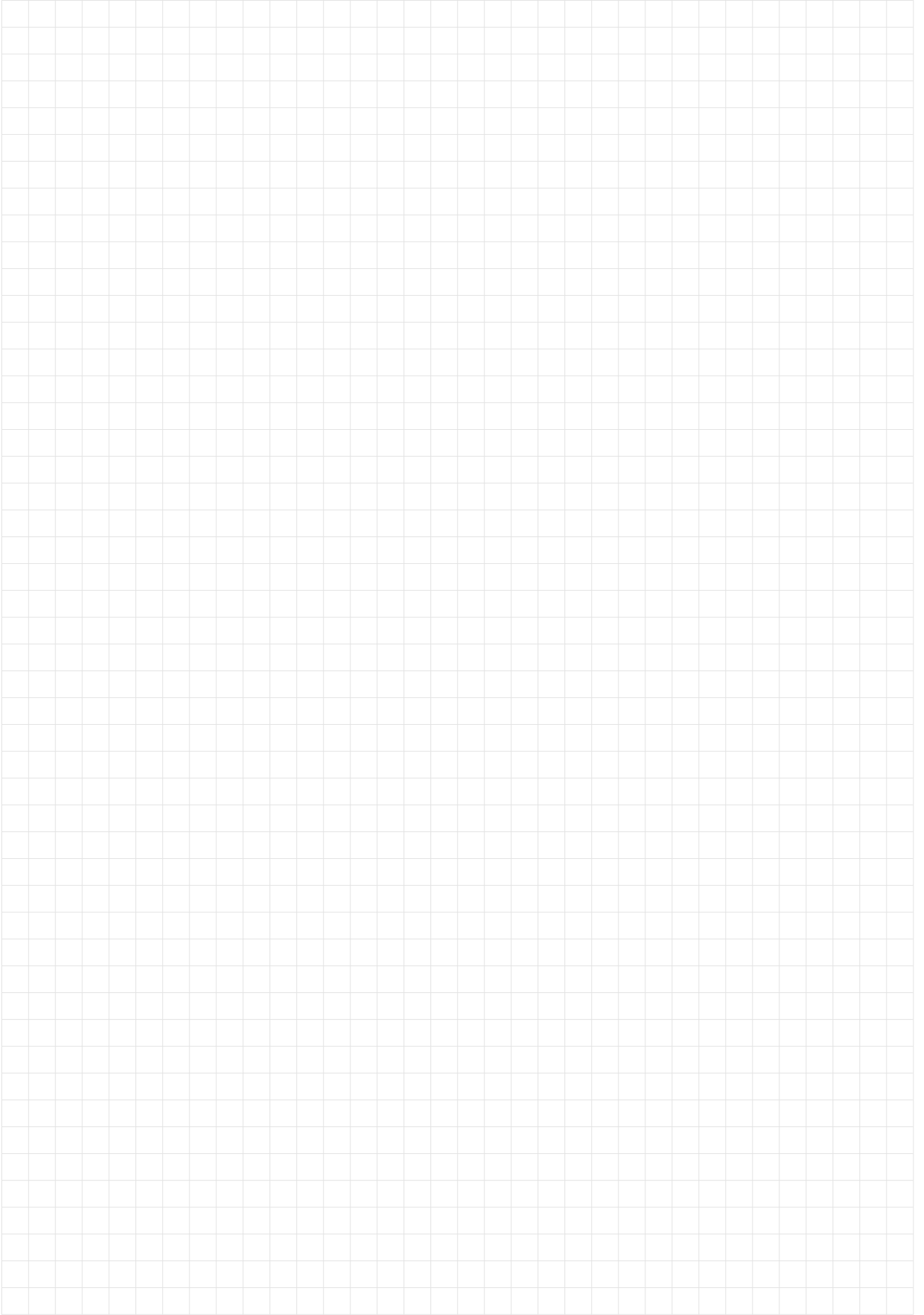
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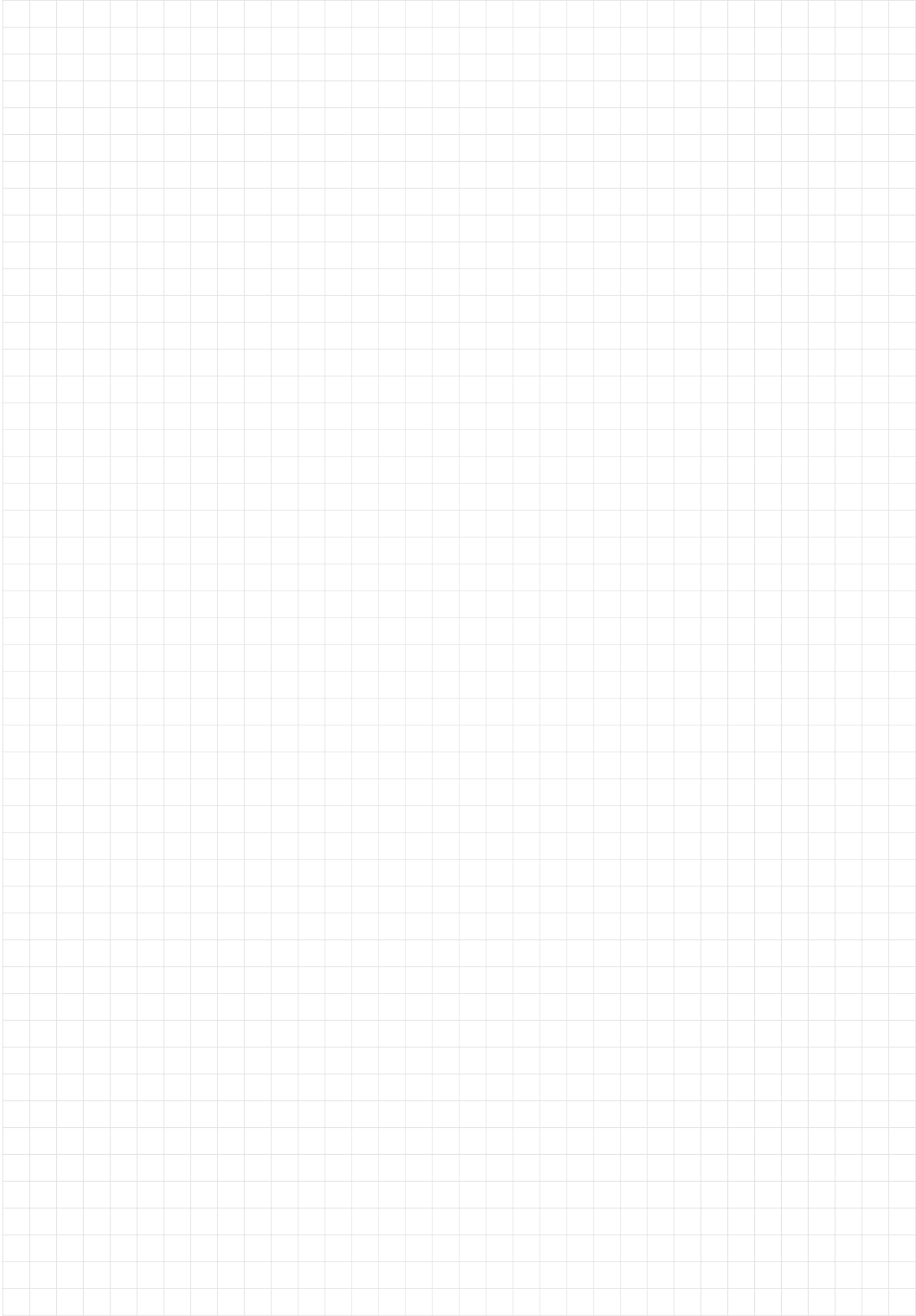
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