

**TYROLIT - YOUR PARTNER
IN THE CUTTING INSERT INDUSTRY**
TOOLS AND SYSTEM SOLUTIONS

A Company of the SWAROVSKI Group
www.tyrolit.com



TYROLIT – your partner in the cutting insert industry

TYROLIT is one of the world's leading manufacturers of bonded grinding, cutting, drilling and dressing tools as well as machines for the construction industry. The family-owned Swarovski Group company based in Schwaz in Tyrol, Austria, was founded in 1919 and currently has around 4,700 employees.

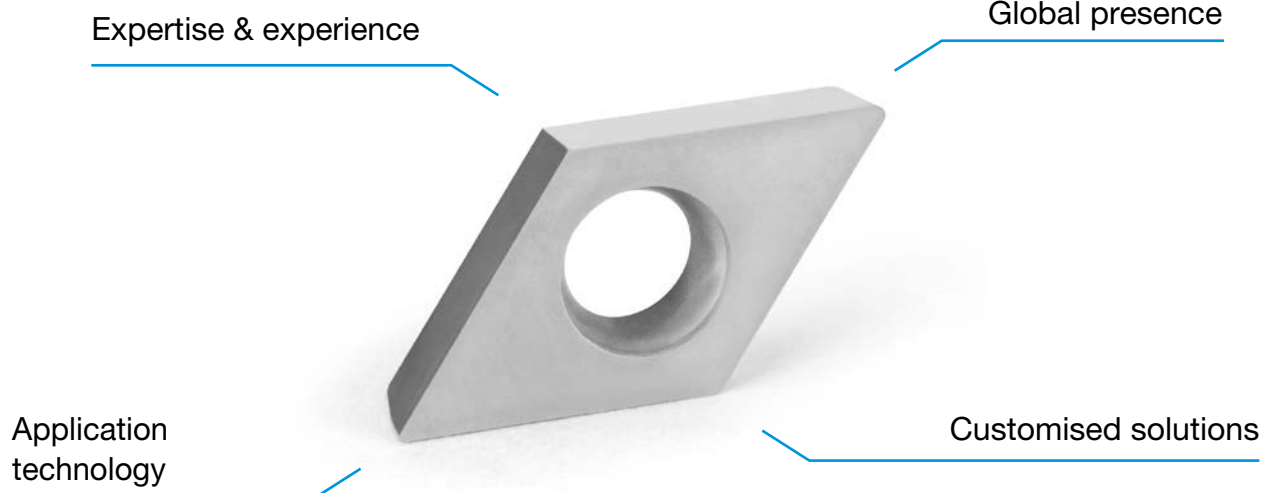
TYROLIT's Metal and Precision, Construction, Natural Stone, Ceramics, Glass and Trade divisions produce around 80,000 different products.

Our many years of experience in the cutting tool industry allow us to offer our customers high-quality products for outstanding grinding solutions in numerous fields of application.

The current TYROLIT range includes products for precision machining of cutting inserts in a variety of materials, as well as PCD and CBN guide pads. Individually adapted grinding and conditioning tools are available to suit your application for highest quality and performance.



TYROLIT company headquarters in Schwaz, Austria



International presence

At your premises

Global presence

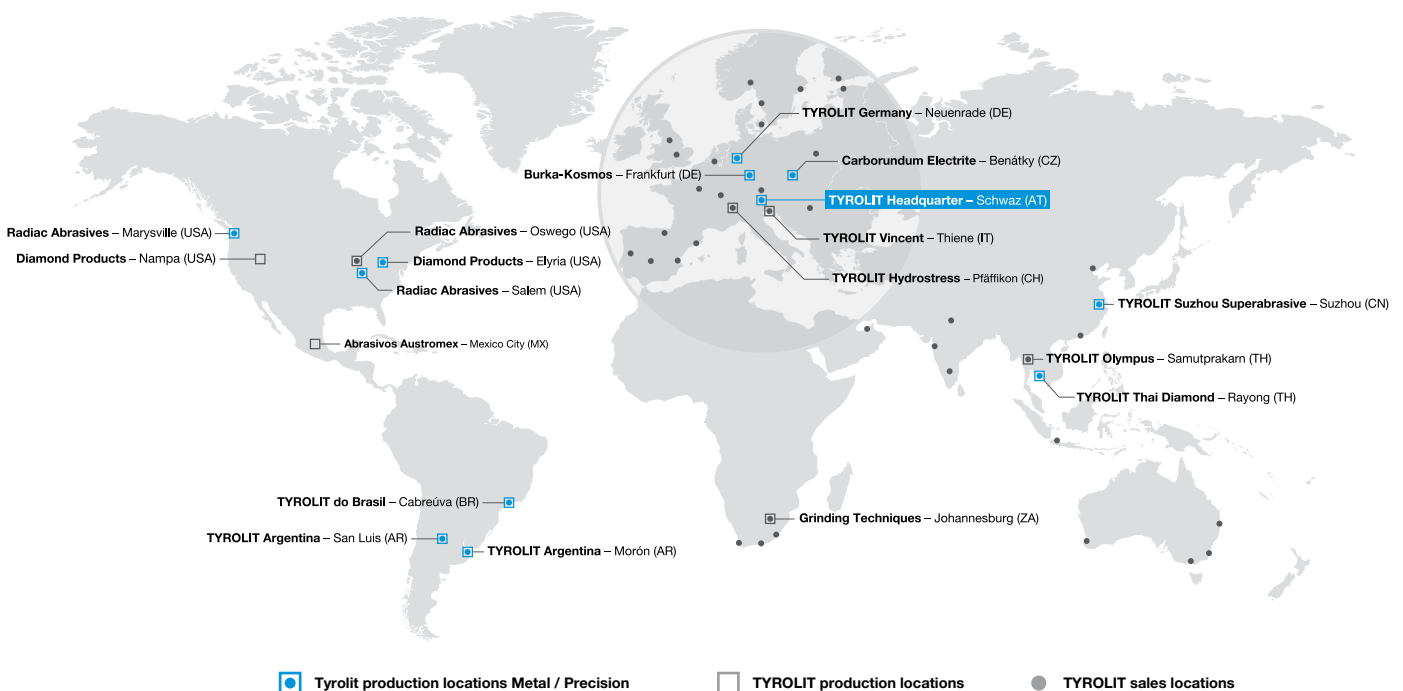
TYROLIT stands for global thinking and activities. With a worldwide sales network currently in 65 countries and with our own production plants in 12 countries on five continents, we offer our customers all the advantages of a globally operating company.

Local availability

Global thinking, local action – in your national language and in your vicinity. This is the principle we follow in dealing with our customers. Local contacts near your premises and a global team of specialist application engineers ensure optimum customer support and first-class service.

Your benefits

- + Global presence with local contacts
- + Short response and service times



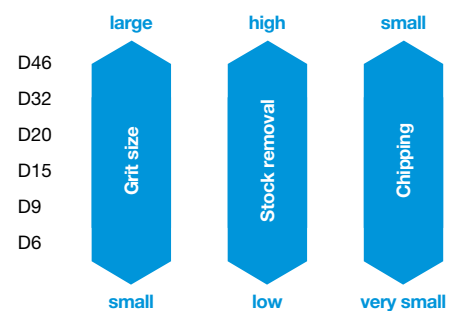
Competence & experience

Professional partner on equal terms

In all business development stages, TYROLIT always places the customer at the centre of its activities. A team of experienced marketing managers and application engineers with expertise in the cutting insert industry always put together a perfectly tailored package for customers comprising a grinding solution and attractive services.

GRINDING TOOLS

Based on individual customer requirements, extremely fine grit sizes can be selected for the grinding tools. Depending on the grit size, various stock removal rates as well as a wide variety of qualities achieved in terms of cutting-edge chipping. For the shortest possible response times, TYROLIT supplies a wide range of grinding tools ex stock.



Production location for precision tools in Stans, Tyrol



Your benefits

- + Customer-specific solutions from a single source
- + Optimum tool design for maximum economic efficiency
- + Hosting of workshops and training courses

Application technology

The best grinding solutions for your processes

Grinding expertise – this has characterised TYROLIT for nearly one hundred years. With the wealth of process expertise commanded by our specialist application engineers, we are able to provide our customers with sustained solutions in line with their demanding technical and economical expectations.

Our global team of specialist application engineers defines solution proposals individually tailored to your requirements. As a result, we guarantee our customers an adapted and cost-effective grinding process.

Your benefits

- + The global presence of our application engineers
- + Process solutions and optimisations in close consultation with the customer
- + Long-standing cooperation with machine manufacturers



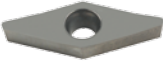
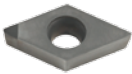
Customer-specific solutions Tailored for your industry

In the cutting materials industry, in particular for the machining of cutting inserts and guide pads, customers demand the highest standards with regard to the quality of the tools produced.

In order to ensure the best possible solution for your application, TYROLIT offers individually developed products for numerous different fields of application.

An overview of the available grinding tools for machining cutting inserts and guide pads is provided below.

Please see the following pages for detailed descriptions of these tools as well as their respective fields of application (including stock availability).

	Material to be machined	Grinding application	Our product recommendation
	Tungsten carbide	Peripheral grinding	SOLOTEC
	Ceramic materials	Peripheral grinding	SOLOTEC
	PCD	Peripheral grinding	SKYTEC XD-1 SKYTEC BASIC+
	PCBN	Peripheral grinding	SKYTEC XD-1 SKYTEC BASIC+
 Source: Preziss Diamant	PCD + PCBN	Guide pads external cylindrical grinding	SKYTEC XD-1 SKYTEC BASIC+
	Tungsten carbide, ceramic materials, PCBN	Peripheral grinding Agathon PowerGrind process	SKYTEC BOLT

A man in a workshop is shown in profile, focused on his work. He is holding a circular metal ring and grinding it on a blue machine. The machine has a blue base and a white top. The background is a workshop with large windows and various tools and equipment. The lighting is bright, and the overall tone is industrial.

Grinding tools for the machining of tungsten carbide and ceramic materials

SOLOTEC

Grinding tools for peripheral grinding of tungsten carbide and cermet cutting inserts.

The SOLOTEC product line from TYROLIT offers the perfect solution for the peripheral grinding of cutting inserts made from tungsten carbide and cermet.

A range of newly developed bond systems with optimised strength and increased brittleness are used. When combined with new diamond qualities, the result is efficient grinding tools that improve the grinding process while simultaneously improving workpiece quality.

Your benefits

- + Good stock removal rate and low cutting-edge chipping
- + Suitable for tungsten carbide, cermet and ceramic materials
- + Reduced grinding forces during machining
- + System solution: Grinding tool and corresponding dressing tool



SOLOTEC STOCK PRODUCTS

SOLOTEC GRINDING TOOLS

Shape		D x T x H [mm]	W-X [mm]	Specification	Type number
	12A2T	400 x 28 x 340	8 – 6	D32 C125 MSO	34198423
			10 – 6	D32 C125 MSO	34156191
			16 – 6	D32 C125 MSO	34156192
		350 x 29 x 300	8 – 6	D32 C125 MSO	34198424
			10 – 6	D32 C125 MSO	34198425
	2A2M	250 x 42 x 215	8 – 6	D32 C100 MSO	34225336
			10 – 6	D32 C100 MSO	34225338

Machines: Agathon 350/400

Standard Parameter

Parameter	Range
Cutting speed, grinding	18 – 26 m/s
Cutting speed, dressing	2 – 6 m/s
Dressing amount	0.03 – 0.04 mm



SOLOTEC CONDITIONING TOOLS

The TYROLIT application engineers recommend silicon carbide or aluminium oxide sharpening and conditioning tools for the SOLOTEC product lines.

Grinding tool specification	Dressing/sharpening tool specification
> D46	C180V (SiC)
> D20 – D46	A240V / C240V (SiC)
D17 – D20	A400V

STOCK PRODUCTS

Shape	Machine	D x T x H [mm]	Specification	Type number
	1 Agathon 250, Wendt Alpha/WAM	75 x 20 x 12.7	A400V	69068
		75 x 20 x 12.7	C240V (SiC)	34054190
		75 x 25 x 12.7	C240V (SiC)	92703
		75 x 25 x 12.7	A400V	92697

Shape	Machine	D x T x H [mm]	Specification	Type number
	6 Wendt	120 x 95 x 60.3	A400V	92866
		120 x 95 x 60.3	C240V (SiC)	43231
		120 x 95 x 60.3	A240V	192075
		120 x 95 x 60.3	A320V	34035883
	Agathon	150 x 80 x 32	A400V	759637
		150 x 80 x 32	C240V (SiC)	645565
		150 x 80 x 32	C180V (SiC)	592933

A close-up photograph of a grinding operation. A large, light-colored grinding wheel is on the left, with the brand name 'WOBOLIT' and model 'SKYTEC XD-1' visible. A metal workpiece is being ground against the wheel. A grinding tool, which is a conical metal piece with a hexagonal top and a small circular grinding tip, is positioned against the workpiece. The background is dark and out of focus.

Grinding tools for machining **PCD and PCBN materials**

SKYTEC XD-1

X-treme diamond content for maximum performance in PCD and PCBN machining

"In the grinding process, the entire work is performed by the abrasive grain." This central guiding principle has significantly shaped the development of the SKYTEC XD-1 product line.

The SKYTEC XD-1 product line impresses through a particularly high proportion of diamond grain, embedded in a specially developed bond. This results in outstanding grinding power and a long tool life.

Your benefits

- + Shortened grinding times thanks to high diamond concentration
- + Special adaptation of diamond and binder content for high cutting-edge quality
- + Extremely long lifetime through high adhesion strength of the diamond grain



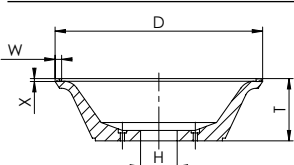
SKYTEC XD-1

STOCK PRODUCTS

GRINDING TOOLS

Shape	D x T x H [mm]	W-X [mm]	Specification	Type number
	6A2H 150 x 40 x 40	4 - 5	D9VXD	34209821
		4 - 5	D15VXD	34209822
		6 - 8	D9VXD	34209823
		6 - 8	D15VXD	34209824
		6 - 8	D20VXD	34209825
		10 - 10	D9VXD	34209827
		10 - 10	D15XD	34209828
		10 - 10	D20VXD	34209829
		20 - 10	D9VXD	34064722
		20 - 10	D15VXD	34179481
		20 - 10	D20VXD	34179483
		20 - 10	D32VXD	34209841

Machines: EWAG / Coborn

Shape	D x T x H [mm]	W-X [mm]	Specification	Type number
	11A2B 200 x 57 x 50	4 - 6	D9VXD	34209662
		4 - 6	D15VXD	34209663
		10 - 10	D9VXD	34213602
		10 - 10	D15VXD	34209658
		20 - 8	D9VXD	34209664
		20 - 8	D15VXD	34209665
	11A2B 250 x 70 x 50	5 - 6	D9VXD	34209667
		5 - 6	D15VXD	34209668
		10 - 10	D9VXD	34209669
		10 - 10	D15VXD	34209670
		20 - 8	D9VXD	34209671
		20 - 8	D15VXD	34209672

Machines: EWAG / Coborn

Standard Parameter

Parameter	Range
Cutting speed	12-24 m/s
Oscillation	40-120 passes/min
Pressure: EWAG RS09, RS12, RS15 Ewamatic Line	2.5 – 3.5 bar / position 1 - 3
Dressing speed	6-12 m/s
Dressing amount	0.03-0.05 mm

You can find the relevant conditioning tools on page 17.

SKYTEC BASIC+

Proven product line for maximum economic efficiency in the PCD/PCBN grinding process

For the economical production of PCD and CBN cutting tools, the TYROLIT range has included the successful SKYTEC BASIC+ product line.

These tried-and-tested grinding tools enable precise geometries and minimum chipping of the workpieces being produced. This also enables cool grinding. The specially developed bond system with increased porosity form the core of this product line.

Your benefits

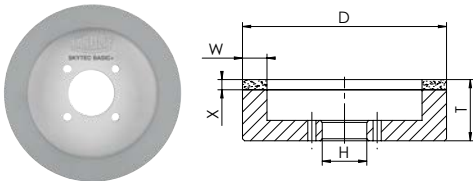
- + High cutting ability with profile retention
- + Low cutting-edge chipping and increased process reliability
- + Effective cooling and increased productivity
- + Now with higher diamond concentration - C125



SKYTEC BASIC+ STOCK PRODUCTS

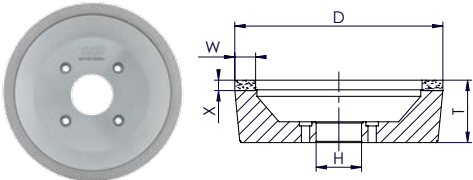
GRINDING TOOLS

NEW

Shape	D x T x H [mm]	W - X [mm]	Specification	Type number	C100	C125
	6A2H 150 x 40 x 40	4 - 5	D9VB+	735142	●	
		4 - 5	D15VB+	735143	●	
		6 - 8	D15VB+	617338	●	
		5 - 6	D64VB+	702920		●
		10 - 10	D9VB+	735144	●	
		10 - 10	D15VB+	735147	●	
		10 - 10	D46VB+	34205081		●
		20 - 10	D15VB+	617337	●	
		20 - 10	D20VB+	735148	●	
		20 - 10	D32VB+	735150	●	
		20 - 10	D46VB+	175894		●
		20 - 10	D64VB+	683341		●

Machines: EWAG / Coborn

NEW

Shape	D x T x H [mm]	W - X [mm]	Specification	Type number	C125
	11A2B 200 x 57 x 50	4 - 6	D9VB+	165927	●
		10 - 10	D9VB+	165050	●
		20 - 8	D9VB+	165055	●
		4 - 6	D15VB+	166628	●
		10 - 10	D15VB+	166631	●
		20 - 8	D15VB+	168325	●
	250 x 70 x 50	5 - 6	D9VB+	165056	●
		8 - 10	D9VB+	165093	●
		10 - 10	D9VB+	165100	●
		20 - 8	D9VB+	165105	●
		10 - 10	D15VB+	166656	●
		20 - 8	D15VB+	168327	●

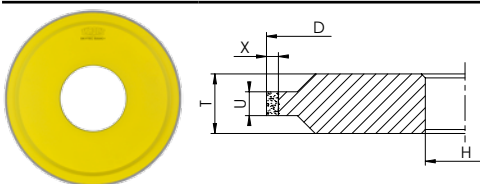
Machines: EWAG / Coborn

Standard Parameter

Parameter	Range
Cutting speed	12-24 m/s
Oscillation	40-120 passes/min
Pressure: EWAG RS09, RS12, RS15 Ewamatic Line	2.5 – 3.5 bar / position 1 - 3
Dressing speed	6-12 m/s
Dressing amount	0.03-0.05 mm

You can find the relevant conditioning tools on page 17.

GRINDING TOOLS

Shape	D x T x H [mm]	U - X [mm]	Specification	Type number
	14A1 350 x 20 x 127	4 - 5	D12VB+	735155
		6 - 10	D12VB+	735156

Standard Parameter

Parameter	Range
Cutting speed	20-30 m/s
Infeed:	4 -10 μm per pass
Feed	1/3 of the grinding wheel width
Dressing speed	6-12 m/s
Dressing amount	0.03-0.05 mm

You can find the relevant conditioning tools on page 17.



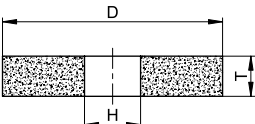
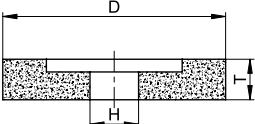
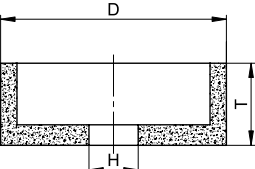
CONDITIONING TOOLS

SKYTEC XD-1 | SKYTEC BASIC+

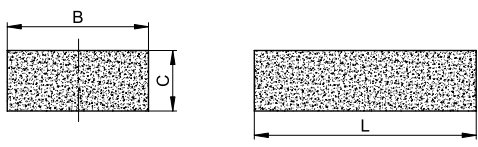
The TYROLIT application engineers recommend silicon carbide or aluminium oxide sharpening and conditioning tools for the SKYTEC XD-1 and SKYTEC Basic+ product lines.

Grinding tool grit size	Dressing tool grit size	Sharpening stick grit size
D3 – D9	A400 / C400 (SiC)	A600
D10 – D17	A320 / C320 (SiC)	A240
D20 – D32	A240 / C240 (SiC)	A240

DRESSING TOOL STOCK PRODUCTS

Machine	Shape		D x T x H [mm]	Specification	Type number
EWAG		1	75 x 20 x 12.7	C240 (SiC)	34054190
				A400	69068
			75 x 25 x 12.7	C240 (SiC)	92703
				A400	92697
EWAG Ewamatic line		5	100 x 40 x 22	A240	45561
				A320	45562
				A400	45564
EWAG Compact line		6	100 x 50 x 22	A240	773902
				A320	773903
				A400	773904

SHARPENING TOOL STOCK PRODUCTS

Shape		B x C x L [mm]	Specification	Type number
	90AS	30 x 13 x 200	A240	938038
			A600	216109
		25 x 13 x 100	A240	845595
			A600	33531
		25 x 13 x 200	A240	932780
		24 x 13 x 200	A600	577953

SKYTEC BOLT

The metal-bonded diamond grinding tool for the PowerGrind process

The innovative SKYTEC BOLT metal bond was specially developed for the patented Agathon PowerGrind process.

Spark erosion enables the grinding wheel to be continuously and simultaneously dressed, sharpened and cleaned during the grinding process. The maximum chipping space and the permanent, easy cutting grinding wheel topography of the SKYTEC BOLT enable cutting inserts to be machined with maximum economic efficiency.

Your benefits

- + Low grinding forces due to special conditioning process
- + Shorter grinding time
- + Minimal chipping thanks to the use of small grit sizes while maintaining high stock removal rate





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