



## 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

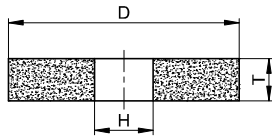
grinding result. The choice of the correct specification, as well as adaptation of the process parameters, can be optimised by TYROLIT to suit customer requirements.

# Application recommendation

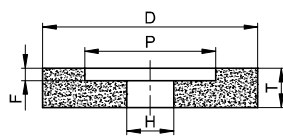


Specifica- tion	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
89A	186, 187			●	●	●	●				●		●
97A, 454A	187, 188			●		●	●	●					●
C	189					●	●	●	●		●		●
B	190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

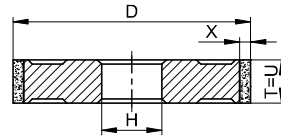
## Shapes



Shape 1



Shape 5



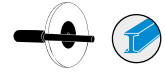
Shape 1A1

● Extremely suitable    ● Limited suitability

Precision grinding

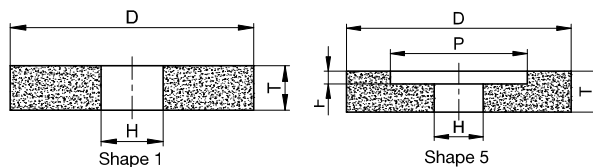
## EXTERNAL CYLINDRICAL GRINDING CONVENTIONAL CERAMIC

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
	119392	500x50x203,2	89A 120 K11 V3 50	50		
5	34172112	400x80x127	200x30	89A 802 J5A V217 50	50	Grit size 80 Ra approx. 0,20- 0,35 µm
	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	

Precision grinding

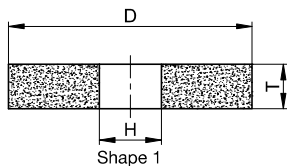
**EXTERNAL CYLINDRICAL GRINDING  
CONVENTIONAL CERAMIC**

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	Grit size 80 Ra approx. 0.20 - 0.35 µm
	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	





	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	Grit size 80 Ra approx. 0,20 - 0,35 µm
	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	

### 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

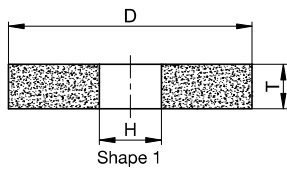
**EXTERNAL CYLINDRICAL GRINDING  
CONVENTIONAL CERAMIC**

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.

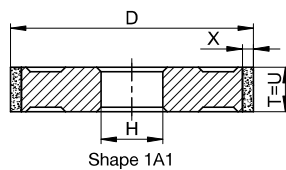
## VIB STAR EXTERNAL CYLINDRICAL GRINDING WITH CBN RESIN

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



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.

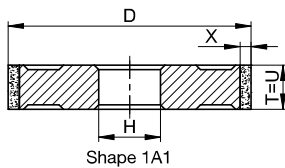
### VIB STAR EXTERNAL CYLINDRICAL GRINDING WITH DIAMOND RESIN

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.

Precision grinding