



**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

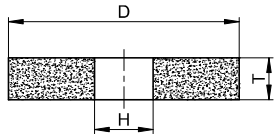
lubricant and the applied dressing technology contribute to the perfect grinding result. The choice of the correct specification, as well as adaptation of the process parameters, can be optimised by TYROLIT to suit customer requirements.

Application recommendation

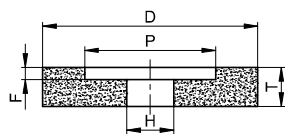


Specification	Page	Alu	Non and low-alloyed steels		High-alloyed steels		HSS	INOX	Tungsten carbide	Industrial ceramics	Cast iron	Dry grinding	Wet grinding
			Unhardened	Hardened	Unhardened	Hardened							
89A	194, 195, 196, 197, 200		●	●	●	●	●						●
93A	195, 196, 197			●		●	●						●
F13A	195, 196			●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

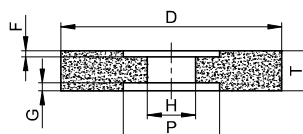
Shapes



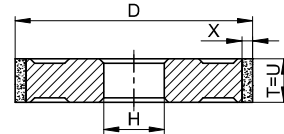
Shape 1



Shape 5



Shape 7



Shape 1A1

● Extremely suitable

● Limited suitability

Precision grinding

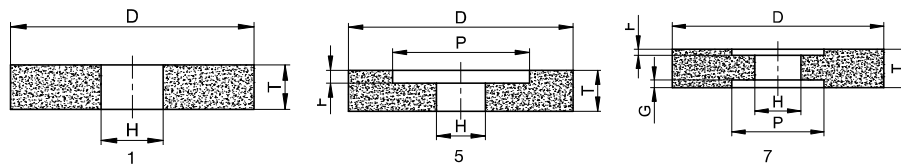
RECIPROCATING SURFACE GRINDING CONVENTIONAL CERAMIC

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.

Precision grinding

	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				









	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	
	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	For rough grinding operations
		231513	350x50x127	200x10	93A 46 H8A V217	
		557153	400x50x127	200x10	93A 46 H8A V217	
		664643	400x60x127	200x10	93A 46 H8A V217	
	7	665281	300x50x76,2	155x10/10	89A 46 I8A V217	For rough grinding operations
		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	For finer surface finishes
		664648	300x50x76,2	155x10/10	89A 802 J8A V217	
		664656	400x80x127	190x15/15	89A 802 J8A V217	
	7	664506	300x50x76,2	155x10/10	F13A 46 HH11 V	For rough grinding operations
		665285	350x50x127	200x10/10	F13A 46 HH11 V	
		665278	400x80x127	190x15/15	F13A 46 HH11 V	
	7	109336	300x50x76,2	155x10/10	93A 46 H8A V217	For rough grinding operations
		664657	400x60x127	200x10/10	93A 46 H8A V217	
		664658	400x80x127	190x15/15	93A 46 H8A V217	

Precision grinding

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.





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
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

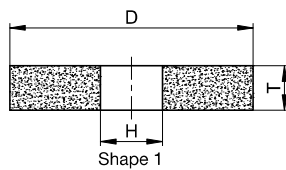
RECIPROCATING SURFACE GRINDING CONVENTIONAL CERAMIC

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.

Precision grinding

	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





	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
	Type no.	DxTxH	PxF/G	Specification
 	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

Precision grinding





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 60I J10 V3
	34074261	180x16x32		454A 60I J10 V3
	34074262	180x20x32		454A 60I J10 V3
	180994	200x10x51		454A 60I L5 V3
	494254	200x20x31,75		454A 60I L7G V3
	305260	200x20x32		454A 46I L7G V3
	294602	200x20x51		454A 46I J10 V3
	34162515	200x20x51		454A 46I K12 V3 P2 40
	30271	250x25x76		454A 60I L5 V3 40
	311922	250x25x76		454A 46I J10 V3
	34162514	250x25x76		454A 46I K12 V3 P2 40
	34062640	250x25x76,2		454A 60I K10 V3
	212627	250x25x76,2		454A 60I L7G V3
	305269	300x32x127		454A 46I H5 V3
	305279	350x40x127		454A 46I H5 V3
	305281	350x50x127		454A 46I H5 V3
	305285	400x50x127		454A 46I H5 V3
	314990	180x13x32		89A 60 I7A V237
	344194	180x16x32		89A 46 I7A V237
	344195	180x20x32		89A 46 I7A V237
	307001	400x50x127		89A 46I H8A V237 P25
	361668	500x80x203,2		89A 54 H10A V2
	749042	180x16x32		92A 60I H23 V237 W4 32
	749043	200x20x32		92A 60I H23 V237 W4
	713071	250x25x76,2		97A 46I 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	



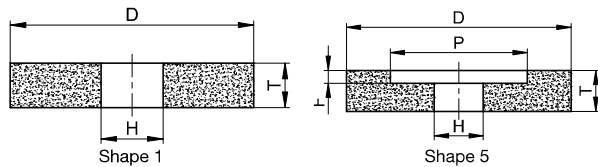
RECIPROCATING SURFACE GRINDING CONVENTIONAL CERAMIC

For stainless steel



Specification	Aluminum	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

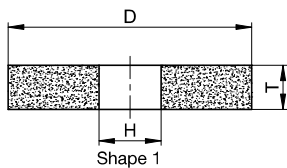
RECIPROCATING SURFACE GRINDING CONVENTIONAL CERAMIC

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.

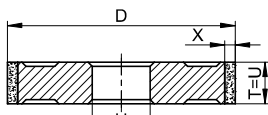
**VIB STAR RECIPROCATING SURFACE GRINDING
CBN RESIN**

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

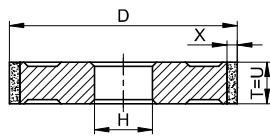
**VIB STAR RECIPROCATING SURFACE GRINDING
DIAMOND RESIN**

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.