STELLRAM

Copy / 3D Contour Milling

BALL NOSE CONTOUR MILLING CUTTER

The 5505VX.. Ball Nose Cutters have a reinforced design feature, which delivers a high volume of chip removal.

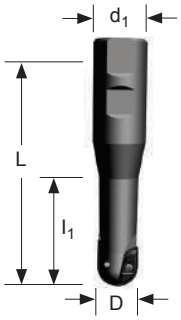
The chip breaker geometry provides excellent chip control and evacuation during machining and prevents edge build-up.

5505VX Roughing Ball Nose Cutters are ideal for roughing and semi-finishing profiles and complex contours.

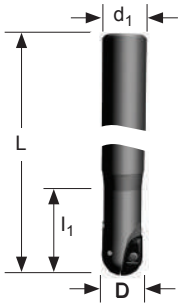
One grade and one geometry are qualified to machine Steel, Alloyed Steel, Stainless Steel, High Temperature Alloys and Cast Iron.

5505VX

5505VX:
Diameter Range = 16mm to 50mm



Weldon Shank



Cylindrical Shank

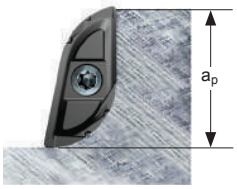
Product		Dimensions (mm)						Spares				
EDP	**Item Description**	D	L/H	l_1	d_1	ap max	No. of Teeth	*EDP*		*EDP*		Screw Tightening Nm
5505VX Weldon Shank												
032133	**5505VX20WA020R34**	20	106	34	25	20	2	*030672*	FP3007T	*031451*	TP8	1,80
030840	**5505VX25WA025R60**	25	116	60	25	25	2	*015262*	D4010T	*015240*	T15	3,10
032132	**5505VX25WA025R69**	25	150	69	32	25	2	*015262*	D4010T	*015240*	T15	3,10
030842	**5505VX32WA032R75**	32	130	75	32	32	2	*015266*	D5013T	*015241*	T20	6,00
030843	**5505VX32WA032R100**	32	160	100	32	32	2	*015266*	D5013T	*015241*	T20	6,00
030844	**5505VX40WA040R100**	40	170	100	40	40	2	*029640*	D6014T	*015241*	T20	10,50
030845	**5505VX40WA040R150**	40	220	150	40	40	2	*029640*	D6014T	*015241*	T20	10,50
030846	**5505VX50WA050R100**	50	170	100	40	50	2	*029641*	F8017S	*018288*	KH5005	24,50
030847	**5505VX50WA050R150**	50	230	150	50	50	2	*029641*	F8017S	*018288*	KH5005	24,50
5505VX Cylindrical Shank												
030982	**5505VX16CA20/016R30**	16	180	30	20	16	2	*031448*	FP3006T	*031451*	TP8	1,80
030983	**5505VX20CA25/020R40**	20	200	40	25	20	2	*030672*	FP3007T	*031451*	TP8	1,80
030984	**5505VX25CA025R55**	25	250	55	25	25	2	*015262*	D4010T	*015240*	T15	3,10
030985	**5505VX25CA32/025R55**	25	250	55	32	25	2	*015262*	D4010T	*015240*	T15	3,10
030986	**5505VX32CA032R65**	32	250	65	32	32	2	*015266*	D5013T	*015241*	T20	6,00

Modular Head

Product		Dimensions (mm)						Spares				
EDP	**Item Description**	D	L/H	M	d_1	ap max	No. of Teeth	*EDP*		*EDP*		Screw Tightening Nm
5505VX Modular Head												
030849	**5505VX16SA016R25**	16	25	M8	8.5	16	2	*031448*	FP3006T	*031451*	TP8	1,80
030850	**5505VX20SA020R35**	20	35	M10	10.5	20	2	*030672*	FP3007T	*031451*	TP8	1,80
030851	**5505VX25SA025R40**	25	40	M12	12.5	25	2	*015262*	D4010T	*015240*	T15	3,10
030852	**5505VX32SA032R50**	32	50	M16	17.0	32	2	*015266*	D5013T	*015241*	T20	6,00

Note: For cylindrical shank extensions in high density alloy with through coolant refer to page A76.

Note: Do not remove the radial screw; this is a fixed location for the insert see page A200.



Depth of Cut (ap)

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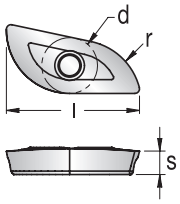
5505VX Technical Information (mm)

Product		Dimensions					
EDP	**Item Description**	Facing Pitch	Ramping Angle °	Helical Hole min. - max.		a_p max Helical / Linear	Max RPM
032133	**5505VX20WA020R34**	-	85	-	-	-	34750
030840	**5505VX25WA025R60**	-	85	-	-	-	30500
032132	**5505VX25WA025R69**	-	85	-	-	-	30500
030842	**5505VX32WA032R75**	-	85	-	-	-	23250
030843	**5505VX32WA032R100**	-	85	-	-	-	23250
030844	**5505VX40WA040R100**	-	85	-	-	-	17250
030845	**5505VX40WA040R150**	-	85	-	-	-	17250
030846	**5505VX50WA050R100**	-	85	-	-	-	17250
030847	**5505VX50WA050R150**	-	85	-	-	-	17250
030982	**5505VX16CA20/016R30**	-	85	-	-	-	54000
030983	**5505VX20CA25/020R40**	-	85	-	-	-	34750
030984	**5505VX25CA025R55**	-	85	-	-	-	30500
030985	**5505VX25CA32/025R55**	-	85	-	-	-	30500
030986	**5505VX32CA032R65**	-	85	-	-	-	23250
030849	**5505VX16SA016R25**	-	85	-	-	-	54000
030850	**5505VX20SA020R35**	-	85	-	-	-	34750
030851	**5505VX25SA025R40**	-	85	-	-	-	30500
030852	**5505VX32SA032R50**	-	85	-	-	-	23250

XPNT-F



Contour Mills

Product			Application & Material			Dimensions (mm)				
			Roughing ▼	Semi-Finishing ▼▼	Finishing ▼▼▼					
			Depth of Cut (mm)							
EDP	Item Description	Grade	a_p max.*	a_e / a_p max. 10% of the cutter diameter	a_e / a_p max. -	d (IC)	l	s	r	h_m min
030737	**XPNT16/160308.R-F**	**SP6519**	♦♦♦♦♦♦	♦♦♦♦♦♦	-	7,40	17,40	3,18	8,00	0,04
030743	**XPNT20/20T306.R-F**	**SP6519**	♦♦♦♦♦♦	♦♦♦♦♦♦	-	9,00	20,85	3,97	10,00	0,04
030746	**XPNT25/250408.R-F**	**SP6519**	♦♦♦♦♦♦	♦♦♦♦♦♦	-	11,00	26,00	4,76	12,50	0,04
030749	**XPNT32/320612.R-F**	**SP6519**	♦♦♦♦♦♦	♦♦♦♦♦♦	-	14,10	33,40	6,35	16,00	0,04
030755	**XPNT40/40T716.R-F**	**SP6519**	♦♦♦♦♦♦	♦♦♦♦♦♦	-	18,00	41,84	7,95	20,00	0,04
030758	**XPNT50/50T716.R-F**	**SP6519**	♦♦♦♦♦♦	♦♦♦♦♦♦	-	22,25	52,86	7,95	25,00	0,04

Machining Choice: ♦ 1st Choice ■ 2nd Choice ● 3rd Choice | Material Guide Key descriptions found on page A5.

* Note: a_p max. is dependent on several insert sizes, see steel cutter pages 204 for a_p max.

5505VX Feeds f_z (mm/tooth)

Tool Diameter	Geometry	Grade	Operation	Unalloyed Steel	Alloyed Steel	Stainless Steel	Stainless Steel Refractory PH	Gray Iron	Spheroidal-Ductile Iron	Malleable Iron	Aluminium & Alloys <16% Si 116 HBN	Aluminium & Silicon >16% Si 92 HBN	HTA Iron Based Alloys	HTA Cobalt Based Alloys	HTA Nickel Based Alloys	HTA Titanium Based Alloys	Hard Steel >1400 N/mm² >415 HBN	Chilled Cast Iron >1400 N/mm² >400 HBN
				Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.	Min. - Max.
16	R-F	SP6519	Contouring	0,06 - 0,15	0,06 - 0,13	0,04 - 0,11	0,04 - 0,10	0,06 - 0,15	0,06 - 0,15	0,06 - 0,15	-	-	0,04 - 0,08	0,04 - 0,08	0,04 - 0,08	0,04 - 0,10	-	-
20	R-F	SP6519	Contouring	0,06 - 0,17	0,06 - 0,15	0,04 - 0,13	0,04 - 0,12	0,06 - 0,17	0,06 - 0,17	0,06 - 0,17	-	-	0,04 - 0,10	0,04 - 0,10	0,04 - 0,10	0,04 - 0,12	-	-
25	R-F	SP6519	Contouring	0,06 - 0,20	0,06 - 0,18	0,04 - 0,16	0,04 - 0,15	0,06 - 0,20	0,06 - 0,20	0,06 - 0,20	-	-	0,04 - 0,13	0,04 - 0,13	0,04 - 0,13	0,04 - 0,15	-	-
32	R-F	SP6519	Contouring	0,06 - 0,22	0,06 - 0,20	0,04 - 0,18	0,04 - 0,17	0,06 - 0,22	0,06 - 0,22	0,06 - 0,22	-	-	0,04 - 0,15	0,04 - 0,15	0,04 - 0,15	0,04 - 0,17	-	-
40	R-F	SP6519	Contouring	0,06 - 0,24	0,06 - 0,22	0,04 - 0,20	0,04 - 0,19	0,06 - 0,24	0,06 - 0,24	0,06 - 0,24	-	-	0,04 - 0,17	0,04 - 0,17	0,04 - 0,17	0,04 - 0,19	-	-
50	R-F	SP6519	Contouring	0,06 - 0,27	0,06 - 0,25	0,04 - 0,23	0,04 - 0,22	0,06 - 0,27	0,06 - 0,27	0,06 - 0,27	-	-	0,04 - 0,20	0,04 - 0,20	0,04 - 0,20	0,04 - 0,22	-	-

Note: HTA = High Temperature Alloys

Speed recommendations can be found on page A199.

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Speed v_c (m/min)

5505VX Series					
			Speed min. - max.		
Coolant Recommendation Recommended ● Possible ⦿					PVD Standard
ISO	Materials	Rm and Hardness	💧	🚫	SP6519
P	Unalloyed Steel	<600 N/mm^2 <180 HBN	⦿	●	130 - 295
		<950 N/mm^2 <280 HBN			115 - 260
	Alloyed Steel	700-950 N/mm^2 200-280 HBN	⦿	●	100 - 230
		950-1200 N/mm^2 280-355 HBN			75 - 175
		1200-1400 N/mm^2 355-415 HBN		●	50 - 110
M	Stainless Steel	Austenitic + Ferritic 300 series	⦿	●	115 - 270
		Martensitic 400 series			105 - 235
	PH Stainless	Refractory P.H.	●		50 - 120
K	Cast Iron	Grey GG-Ft	⦿	●	140 - 295
		Spheroidal-Ductile GGG-FGS			110 - 240
		Malleable GTS - MN/MP			100 - 220
N	Aluminium & Alloys	Aluminium & Alloys < 16% Si 116 HBN			
		Aluminium + Silicon > 16% Si 92 HBN			
S	High Temperature Alloys	Iron Based	●		23 - 55
		Cobalt Based			22 - 48
		Nickel Based			25 - 55
		Titanium Based			36 - 79
H	Hard Materials	Hard Steel >1400 N/mm^2 >415 HBN			
		Chilled Cast Iron >1400 N/mm^2 > 400 HBN			

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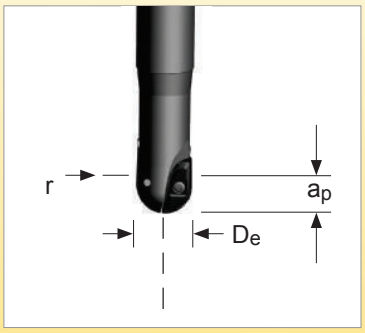
5505VX Technical Information



Working Diameter:

$$D_e = 2 \times \sqrt{r^2 - (r - a_p)^2}$$

where:
D_e = Working Diameter
r = Cutter radius
a_p = Axial Depth of Cut

5505VX Technical Information

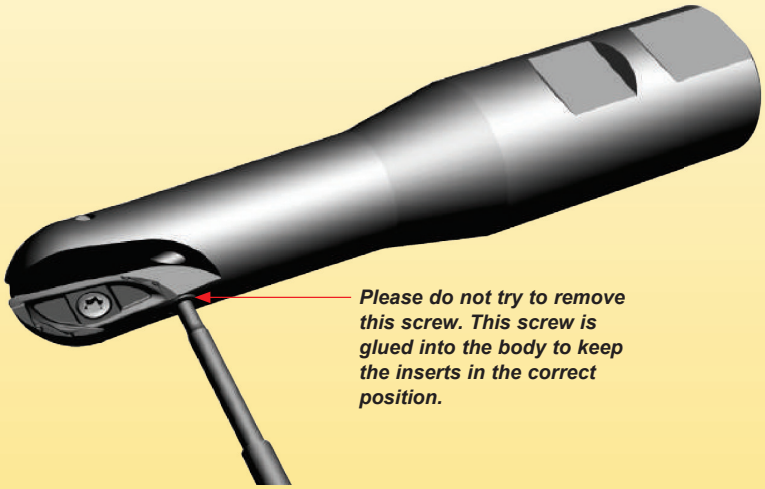
where:
f_z = Feed per tooth
h_m = Average chip thickness
r = Insert radius
a_e = Radial Depth of Cut
a_p = Axial Depth of Cut

Average chip thickness: h_m

$$h_m = f_z \times \frac{\sqrt{r^2 - (r - a_e)^2}}{r} \times \frac{\sqrt{r^2 - (r - a_p)^2}}{r}$$

To find programmed feedrate: f_z

$$f_z = \frac{h_m}{\frac{\sqrt{r^2 - (r - a_e)^2}}{r} \times \frac{\sqrt{r^2 - (r - a_p)^2}}{r}}$$



Please do not try to remove this screw. This screw is glued into the body to keep the inserts in the correct position.