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# VPX SERIES

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BOOST MILLING PERFORMANCE WITH  
A TOUGH TANGENTIAL INSERT CUTTER

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# EXTREME RIGIDITY AND FUNCTIONALITY



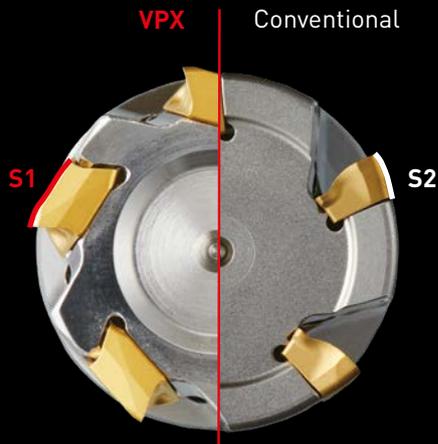
## COMMENTS FROM THE DEVELOPERS

In order to improve durability, development began by first applying ever increasing loads to the cutter until breakage occurred. The process of repeated design modification and destructive testing proceeded until a cutter with outstanding durability was produced.

Thus the target for a tool that was highly suitable for reliable, unmanned operation and high efficiency machining was achieved.

# VPX

## PURSUING THE TOUGH MACHINING CHARACTERISTICS OF TANGENTIAL INSERTS



Arranging the inserts tangentially secures high holder rigidity. The section that is subjected to the highest loads during machining is larger ( $S1 > S2$ ), therefore providing higher fracture resistance and enabling high efficiency machining.

The large insert seating surfaces provides extra secure insert clamping. This suppresses any deflection of the insert caused by vibrations during machining.

## A PROBLEM SOLVING MULTI-FUNCTIONAL CUTTER

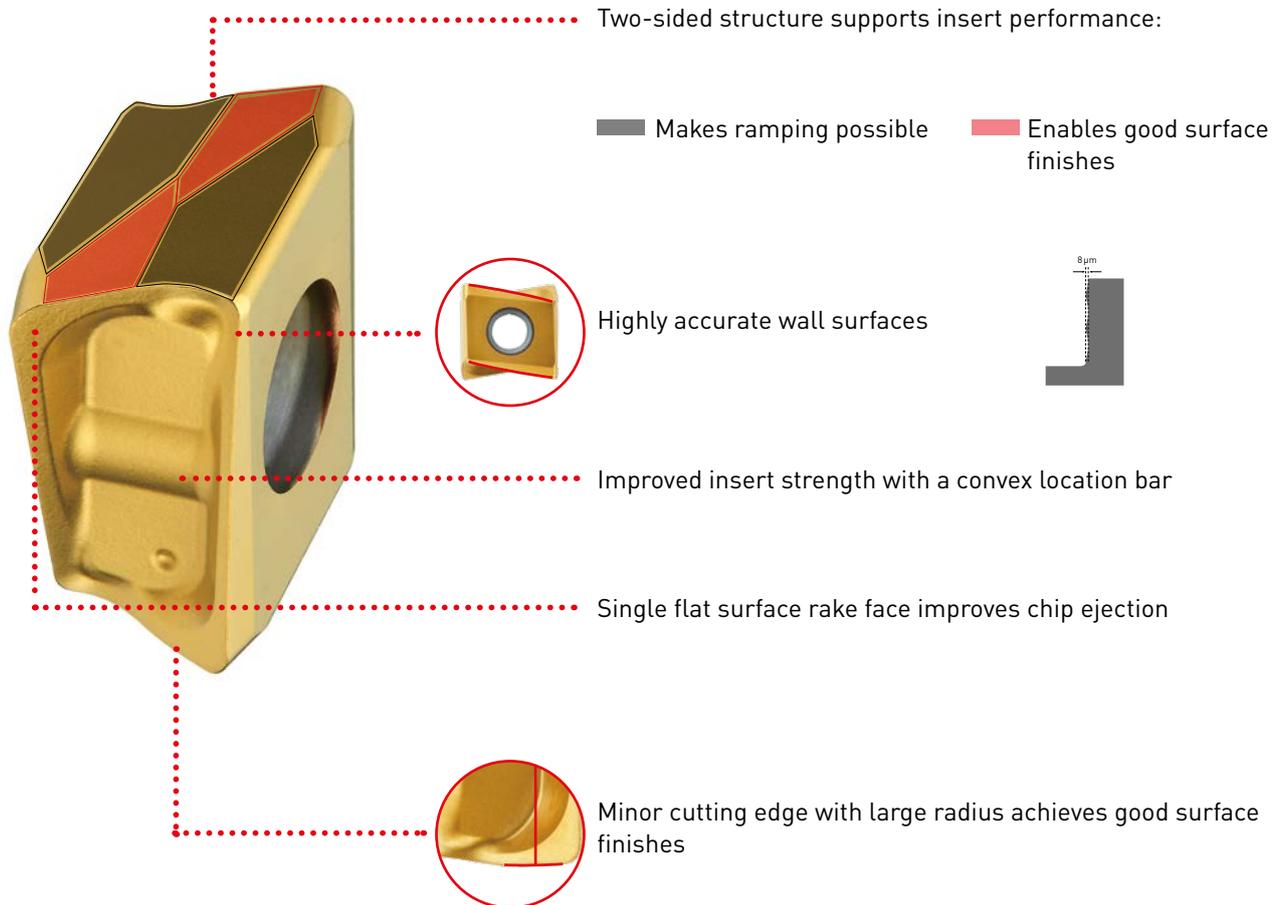
Different methods of machining covers a wide variety of applications.

- 1 Shoulder milling
- 2 Ramping
- 3 Pocketing
- 4 3D Profiling
- 5 Slotting
- 6 Helical milling
- 7 Face milling

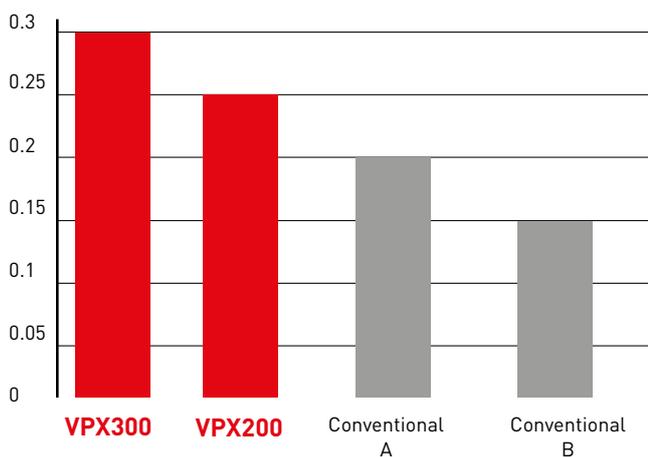


# VPX INSERTS

## DOUBLE-SIDED TANGENTIAL INSERT THAT HAS REVOLUTIONIZED MULTI-FUNCTIONAL MILLING



## POSSIBLE HIGH FEED PER TOOTH (42CRM04)



# INSERT GRADES FOR A WIDE RANGE OF MATERIALS

P	CVD	PVD	M	CVD	PVD	K	CVD	PVD	S	PVD	H	PVD
P10	MV1020	MP6120	VP15TF	M10		K10	MC5020		S10	MP9120	H10	
P20	MV1030	MP6130	VP15TF	M20	MV1030	K20	MV1020	XC5010	S20	MP9130	H20	VP15TF
P30		MP6130		M30	MP7130	K30	MV1030	VP15TF	S30	MP9130	H30	
P40			M40		MP7140	K40		VP20RT	S40		H40	

## MV1020

This grade has advanced wear and thermal shock resistance and also achieves stable cutting at unprecedented cutting speeds, especially when machining steel and ductile cast iron, thus greatly reducing work time.

## MV1030

The new Al-Rich coating also provides excellent wear resistance. An unprecedented performance against sudden breakage was also realised especially during problematic wet cutting and when machining stainless steels.

## MP6120

For general milling of steel.

## MP6130

For interrupted milling of steel.

## MP7130

For general milling of stainless steel.

## MC5020

For general milling of cast iron.

## MP9120

For general milling of HRSA and titanium alloy.

## MP9130

For interrupted and general milling of HRSA and Titanium alloy.

## TF15

For general milling of aluminium.

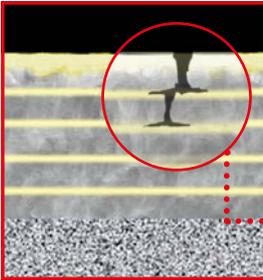
## VP15TF

For stable machining when the coating is combined with a high wear and fracture resistant carbide substrate.

## MP6100 / MP7100 / MP9100 SERIES

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### TOUGH- $\Sigma$ Technology



(Graphical representation)

#### Base layer high Al-(Al, Ti)N

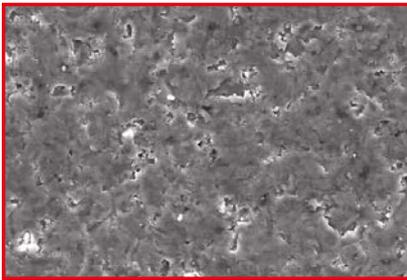
The new technology Al-(Al, Ti)N coating provides stabilisation of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.

Multi-layering of the coating prevents any cracks penetrating through to the substrate.

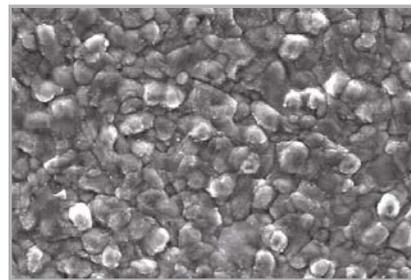
## MC5020 BLACK SUPER-SMOOTH COATING

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Black super-smooth coating prevents abnormal damage such as weld chipping.  
First recommendation for cast iron milling.

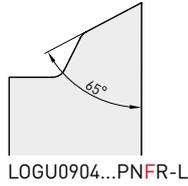
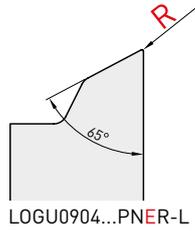


**MC5020**



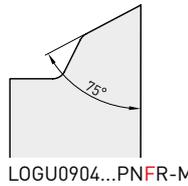
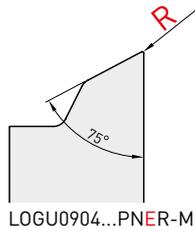
Conventional coating

# CHIPBREAKER SYSTEM



**L** Breaker

Focus on cutting edge sharpness

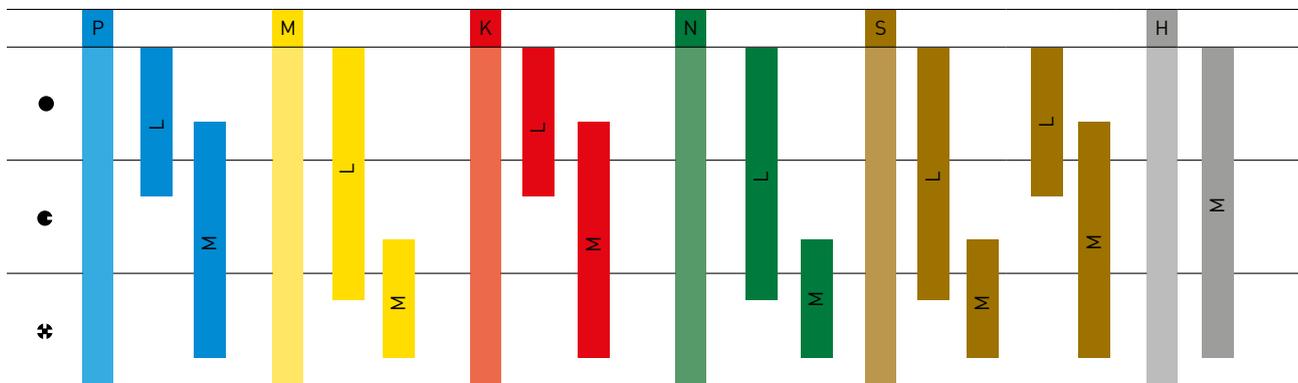


**M** Breaker

Focus on cutting edge strength

# APPLICATION OF CHIPBREAKERS

Cutting conditions: ●: Stable cutting ●: General cutting ✖: Unstable cutting



1. Refer to page 16 for chipbreaker and grade recommendations.

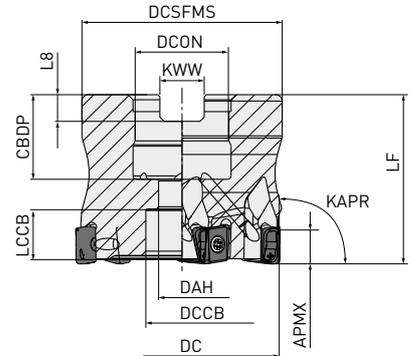
# VPX200



P M K N S H



GAMP : -6°      T : +5°  
 GAMF : -25°    I : +4°



Right hand tool holder only

DC	Set bolt	Geometry
Ø32, Ø40	HSC08025H	
Ø50, Ø63	HSC10030H	

## ARBOR TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	WT	RPMX	ZNF	
VPX200-032A03AR	●	8	32	16	35	0.71°	0.11	25100	3	LOGU09
VPX200-032A05AR	●	8	32	16	35	0.71°	0.11	25100	5	
VPX200-040A04AR	●	8	40	16	40	0.54°	0.23	22000	4	
VPX200-040A06AR	●	8	40	16	40	0.54°	0.22	22000	6	
VPX200-050A05AR	●	8	50	22	40	0.42°	0.36	19200	5	
VPX200-050A07AR	●	8	50	22	40	0.42°	0.36	19200	7	
VPX200-063A06AR	●	8	63	22	40	0.32°	0.66	16700	6	
VPX200-063A09AR	●	8	63	22	40	0.32°	0.66	16700	9	

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1. The maximum spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
3. Refer to page 16 for chipbreaker and grade recommendations.





**VPX200 – ARBOR TYPE****MOUNTING DIMENSIONS**

Order number	CBDP	DAH	DCCB	DCSFMS	KWW	LCCB	L8
VPX200-032A03AR	18	9	14	30	8.4	8	5.6
VPX200-032A05AR	18	9	14	30	8.4	8	5.6
VPX200-040A04AR	18	9	14	37	8.4	13	5.6
VPX200-040A06AR	18	9	14	37	8.4	13	5.6
VPX200-050A05AR	20	11	17	47	10.4	11	6.3
VPX200-050A07AR	20	11	17	47	10.4	11	6.3
VPX200-063A06AR	20	11	17	60	10.4	11	6.3
VPX200-063A09AR	20	11	17	60	10.4	11	6.3

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**SPARE PARTS**

Tool holder type	DC	 *		
		Clamp screw	Wrench	Anti-seize lubricant
VPX200	≤63	TPS27F2	TIP07F	MK1KS

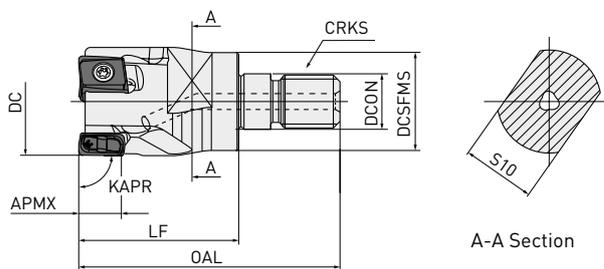
\* Clamp torque (N • m): TPS27F2 = 1.0



# VPX200



P M K N S H



Right hand tool holder only

## SCREW-IN TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	WT	ZNF	
VPX200R1602AM0830	●	8	16	8.5	30	1.85°	0.03	2	
VPX200R1802AM0830	★	8	18	8.5	30	1.56°	0.04	2	
VPX200R2002AM1030	●	8	20	10.5	30	1.35°	0.06	2	
VPX200R2003AM1030	●	8	20	10.5	30	1.35°	0.06	3	
VPX200R2202AM1030	★	8	22	10.5	30	1.16°	0.06	2	
VPX200R2203AM1030	★	8	22	10.5	30	1.16°	0.06	3	
VPX200R2503AM1235	●	8	25	12.5	35	0.97°	0.11	3	
VPX200R2504AM1235	●	8	25	12.5	35	0.97°	0.11	4	
VPX200R3203AM1640	●	8	32	17	40	0.71°	0.21	3	
VPX200R3204AM1640	●	8	32	17	40	0.71°	0.21	4	
VPX200R3205AM1640	●	8	32	17	40	0.71°	0.21	5	
VPX200R3503AM1640	★	8	35	17	40	0.63°	0.24	3	
VPX200R3505AM1640	★	8	35	17	40	0.63°	0.23	5	
VPX200R4004AM1640	●	8	40	17	40	0.54°	0.26	4	
VPX200R4006AM1640	●	8	40	17	40	0.54°	0.26	6	

LOGU09

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1. Refer to page 16 for chipbreaker and grade recommendations.



## VPX200 – SCREW-IN TYPE

## MOUNTING DIMENSIONS

Order number	CRKS	S10	DCSFMS	OAL
VPX200R1602AM0830	M08	10	14.5	48
VPX200R1802AM0830	M08	10	14.5	48
VPX200R2002AM1030	M10	14	18.5	49
VPX200R2003AM1030	M10	14	18.5	49
VPX200R2202AM1030	M10	14	18.5	49
VPX200R2203AM1030	M10	14	18.5	49
VPX200R2503AM1235	M12	19	23.5	57
VPX200R2504AM1235	M12	19	23.5	57
VPX200R3203AM1640	M16	24	28.5	63
VPX200R3204AM1640	M16	24	28.5	63
VPX200R3205AM1640	M16	24	28.5	63
VPX200R3503AM1640	M16	24	28.5	63
VPX200R3505AM1640	M16	24	28.5	63
VPX200R4004AM1640	M16	24	28.5	63
VPX200R4006AM1640	M16	24	28.5	63

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## SPARE PARTS

Tool holder type	DC	 *		
		Clamp screw	Wrench	Anti-seize lubricant
VPX200R16	≤20	TPS27F1	TIP07F	MK1KS
VPX200R22	>20	TPS27F2		

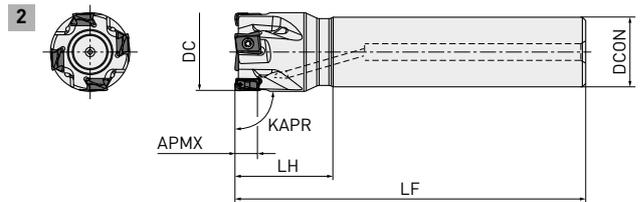
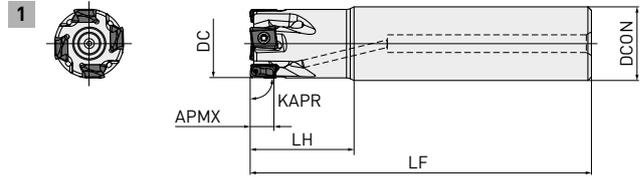
\* Clamp torque (N • m): TPS27F1 = 1.0, TPS27F2 = 1.0



# VPX200



P M K N S H



Right hand tool holder only

## CYLINDRICAL SHANK TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	RPMX	WT	LH	ZNF	Type	
<b>SHORT TYPE</b>												
VPX200R1602SA16S	●	8	16	16	85	1.85°	37900	0.11	25	2	1	
VPX200R1802SA16S	★	8	18	16	85	1.56°	35300	0.12	25	2	2	
VPX200R2002SA16S	★	8	20	16	100	1.35°	33200	0.14	25	2	2	
VPX200R2003SA16S	●	8	20	16	100	1.35°	33200	0.14	25	3	2	
VPX200R2002SA20S	●	8	20	20	100	1.35°	33200	0.21	30	2	1	
VPX200R2003SA20S	●	8	20	20	100	1.35°	33200	0.21	30	3	1	
VPX200R2202SA20S	★	8	22	20	115	1.16°	31400	0.26	30	2	2	
VPX200R2203SA20S	●	8	22	20	115	1.16°	31400	0.25	30	3	2	
VPX200R2503SA20S	●	8	25	20	115	0.97°	29000	0.26	30	3	2	
VPX200R2504SA20S	●	8	25	20	115	0.97°	29000	0.26	30	4	2	
VPX200R2503SA25S	●	8	25	25	115	0.97°	29000	0.39	35	3	1	
VPX200R2504SA25S	●	8	25	25	115	0.97°	29000	0.39	35	4	1	
VPX200R2803SA25S	★	8	28	25	115	0.84°	27200	0.41	35	3	2	
VPX200R2804SA25S	★	8	28	25	115	0.84°	27200	0.41	35	4	2	
VPX200R3003SA25S	★	8	30	25	125	0.77°	26000	0.46	35	3	2	
VPX200R3004SA25S	★	8	30	25	125	0.77°	26000	0.46	35	4	2	
VPX200R3203SA32S	★	8	32	32	125	0.71°	25100	0.70	45	3	1	
VPX200R3204SA32S	●	8	32	32	125	0.71°	25100	0.70	45	4	1	
VPX200R3205SA32S	●	8	32	32	125	0.71°	25100	0.70	45	5	1	
VPX200R4004SA32S	★	8	40	32	125	0.54°	22000	0.81	45	4	2	
VPX200R4006SA32S	★	8	40	32	125	0.54°	22000	0.80	45	6	2	
VPX200R5005SA32S	★	8	50	32	125	0.42°	19200	0.91	45	5	2	
VPX200R5007SA32S	★	8	50	32	125	0.42°	19200	0.91	45	7	2	

LOGU09

## VPX200 – CYLINDRICAL SHANK TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	RPMX	WT	LH	ZNF	Type	
<b>LONG TYPE</b>												
VPX200R1802SA16L	●	8	18	16	120	1.56°	35300	0.17	25	2	2	
VPX200R2002SA20L	●	8	20	20	150	1.35°	33200	0.32	60	2	1	
VPX200R2202SA20L	★	8	22	20	150	1.16°	31400	0.34	30	2	2	
VPX200R2503SA25L	●	8	25	25	170	0.97°	29000	0.57	70	3	1	LOGU09
VPX200R2803SA25L	★	8	28	25	170	0.84°	27200	0.61	35	3	2	
VPX200R3203SA32L	●	8	32	32	190	0.71°	25100	1.06	90	3	1	
VPX200R3503SA32L	★	8	35	32	190	0.63°	23800	1.14	45	3	2	
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1. The maximum spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
3. Refer to page 16 for chipbreaker and grade recommendations.



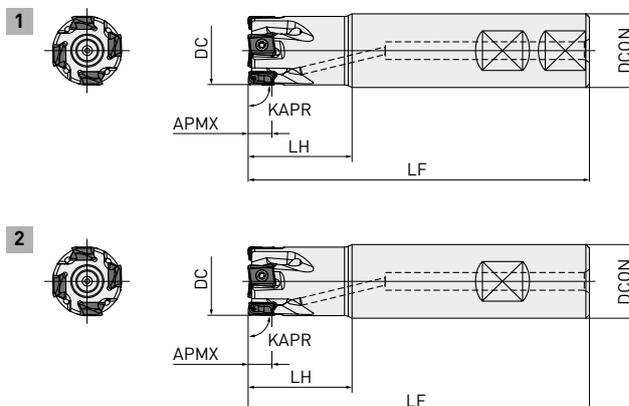
## SPARE PARTS

Tool holder type	DC			
		Clamp screw	Wrench	Anti-seize lubricant
VPX200	≤20	TPS27F1	TIP07F	MK1KS
VPX200	>20	TPS27F2		

\* Clamp torque (N • m): TPS27F1 = 1.0, TPS27F2 = 1.0



# VPX200



Right hand tool holder only

## WELDON SHANK TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	RPMX	WT	LH	ZNF	Type	
<b>SHORT TYPE</b>												
VPX200R1602WA16S	●	8	16	16	73	1.85°	37900	0.09	25	2	2	LOGU09
VPX200R2002WA20S	●	8	20	20	80	1.35°	33200	0.17	30	2	2	
VPX200R2003WA20S	●	8	20	20	80	1.35°	33200	0.16	30	3	2	
VPX200R2503WA25S	●	8	25	25	91	0.97°	29000	0.29	35	3	1	
VPX200R2504WA25S	●	8	25	25	91	0.97°	29000	0.29	35	4	1	
VPX200R3203WA32S	●	8	32	32	105	0.71°	25100	0.58	45	3	1	
VPX200R3204WA32S	●	8	32	32	105	0.71°	25100	0.57	45	4	1	
VPX200R3205WA32S	●	8	32	32	105	0.71°	25100	0.57	45	5	1	
<b>LONG TYPE</b>												
VPX200R1602WA16M	●	8	16	16	85	1.85°	37900	0.11	37	2	1	LOGU09
VPX200R2002WA20M	●	8	20	20	100	1.35°	33200	0.20	50	2	1	
VPX200R2003WA20M	●	8	20	20	100	1.35°	33200	0.20	50	3	1	
VPX200R2503WA25M	●	8	25	25	115	0.97°	29000	0.37	59	3	1	
VPX200R2504WA25M	●	8	25	25	115	0.97°	29000	0.37	59	4	1	
VPX200R3203WA32M	●	8	32	32	125	0.71°	25100	0.68	65	3	1	
VPX200R3204WA32M	●	8	32	32	125	0.71°	25100	0.68	65	4	1	
VPX200R3205WA32M	●	8	32	32	125	0.71°	25100	0.68	65	5	1	

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1. The maximum spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
3. Refer to page 16 for chipbreaker and grade recommendations.



## SPARE PARTS

Tool holder type	DC	 *		
		Clamp screw	Wrench	Anti-seize lubricant
VPX200	≤20	TPS27F1	TIP07F	MK1KS
VPX200	>20	TPS27F2		

\* Clamp torque (N • m): TPS27F1 = 1.0, TPS27F2 = 1.0



# VPX200

## CHIPBREAKER AND GRADE RECOMMENDATIONS

Material	Properties	Cutting conditions			
			1st recommendation	2nd recommendation	
P	Mild steel	≤180HB	● ●	L	M
			✚	M	L
	Carbon steel	180 – 350HB	●	L	M
	Alloy steel	≤350HB	●	M	L
	Alloy tool steel		✚	M	L
	Pre-hardened steel	35 – 45HRC	● ●	M	L
			✚	M	L
M	Austenitic stainless steel	≤280HB	● ●	L	M
			✚	M	L
		>200HB	● ●	L	M
			✚	M	L
	Duplex stainless steel	≤280HB	● ●	L	M
		✚	M	L	
	Ferritic and martensitic stainless steel	—	● ●	L	M
			✚	M	L
	Precipitation hardening stainless steel	<450HB	● ●	L	M
			✚	M	L
K	Gray cast iron	≤350MPa	● ●	M	L
			✚	M	L
	Ductile cast iron	≤800MPa	● ●	M	L
			✚	M	L
N	Aluminum alloy	Si<5 %	● ●	L	M
			✚	M	L
S	Titanium alloys (Ti-6Al-4V)	—	● ●	L	M
			✚	M	L
	Titanium alloys (Ti-5Al-5V-5Mo-3Cr)	—	● ●	L	M
			✚	M	L
	Heat resistant alloys	—	● ●	M	L
			✚	M	L
H	Hardened steel	40 – 55HRC	● ● ✚	M	—

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# VPX200

## RECOMMENDED CUTTING CONDITIONS DRY CUTTING



These cutting conditions are reference for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter the conditions accordingly.

Chattering and vibration is more likely under the following circumstances: When the tool overhang is long (using a long shank, screw-in type, etc.), the rigidity of the machine, work material or attachment of work material is low, or during the machining of corners during pocket machining. Use cutting conditions at the minimum recommendation or below.

### CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc				
				ae<0.25x DC	ae≥0.25-0.5 DC	ae≥0.5-0.75 DC	ae=1.0 DC	
P	Mild steel	≤180HB	● ● MV1020	280 (220 - 330)	270 (210 - 320)	220 (170 - 260)	220 (170 - 260)	
			● ● MV1030	230 (180 - 270)	220 (170 - 260)	180 (140 - 210)	180 (140 - 210)	
			● ● MP6120	230 (180 - 270)	220 (170 - 260)	180 (140 - 210)	180 (140 - 210)	
			● ● VP15TF	230 (180 - 270)	220 (170 - 260)	180 (140 - 210)	180 (140 - 210)	
			⚙ MP6130	200 (150 - 240)	190 (140 - 230)	150 (110 - 180)	150 (110 - 180)	
	Carbon steel Alloy steel Alloy tool steel	180 - 280HB	● ● MV1020	220 (170 - 260)	210 (160 - 240)	170 (130 - 200)	170 (130 - 200)	
			● ● MV1030	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	170 (130 - 200)	
		280 - 350HB	● ● MV1020	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
			● ● MV1030	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
		180 - 350HB ≤350HB	● ● MP6120	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
			● ● VP15TF	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
			⚙ MP6130	150 (110 - 180)	140 (100 - 170)	110 ( 80 - 130)	110 ( 80 - 130)	
Pre-hardened steel	35 - 45HRC	● ● MP6120	120 ( 90 - 140)	110 ( 80 - 130)	100 ( 70 - 120)	100 ( 70 - 120)		
		● ● VP15TF	120 ( 90 - 140)	110 ( 80 - 130)	100 ( 70 - 120)	100 ( 70 - 120)		
		⚙ MP6130	100 ( 80 - 120)	90 ( 70 - 110)	80 ( 60 - 100)	80 ( 60 - 100)		
M	Austenitic stainless steel	≤200HB	● ● MV1020	—	—	—	—	
			● ● MV1030	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
			● ● ⚙ MP7130	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
			● ● VP15TF	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
	>200HB	● ● MV1020	—	—	—	—		
		● ● MV1030	150 (110 - 180)	140 (100 - 160)	110 (80 - 130)	110 (80 - 130)		
		● ● ⚙ MP7130	150 (110 - 180)	140 (100 - 160)	110 ( 80 - 130)	110 ( 80 - 130)		
		● ● VP15TF	150 (110 - 180)	140 (100 - 160)	110 ( 80 - 130)	110 ( 80 - 130)		
	Duplex stainless steel	≤280HB	● ● ⚙ MP7130	140 (110 - 170)	130 ( 90 - 150)	100 ( 70 - 120)	100 ( 70 - 120)	
			● ● VP15TF	140 (110 - 170)	130 ( 90 - 150)	100 ( 70 - 120)	100 ( 70 - 120)	
	Ferritic and martensitic stainless steel	—	● ● ⚙ MP7130	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
			● ● VP15TF	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
Precipitation hardening stainless steel	<450HB	● ● ⚙ MP7130	130 (100 - 160)	120 ( 80 - 140)	90 ( 60 - 110)	90 ( 60 - 110)		
		● ● VP15TF	130 (100 - 160)	120 ( 80 - 140)	90 ( 60 - 110)	90 ( 60 - 110)		
K	Gray cast iron	≤350MPa	● ● MC5020	250 (200 - 300)	240 (190 - 290)	210 (160 - 260)	210 (160 - 260)	
			● ● VP15TF	200 (150 - 250)	190 (140 - 240)	160 (110 - 210)	160 (110 - 210)	
	Ductile cast iron	≤450MPa	● ● MV1020	200 (150 - 280)	190 (140 - 270)	170 (130 - 240)	170 (130 - 240)	
			● ● MV1030	150 (100 - 200)	140 (90 - 190)	125 (80 - 170)	100 (80 - 120)	
		≤800MPa	● ● MV1020	180 (140 - 250)	170 (130 - 240)	150 (120 - 210)	150 (120 - 210)	
			● ● MV1030	150 (100 - 200)	140 (90 - 190)	125 (80 - 170)	150 (120 - 210)	
			● ● MC5020	180 (150 - 200)	170 (140 - 190)	150 (120 - 170)	150 (120 - 170)	
			● ● ⚙ VP15TF	130 (100 - 150)	120 ( 90 - 140)	100 ( 80 - 120)	100 ( 80 - 120)	
	N	Aluminum alloy	Si<5 %	● ● ⚙ TF15	600 (400 - 1000)	600 (400 - 1000)	600 (400 - 1000)	600 (400 - 1000)
	H	Hardened steel	40 - 55HRC	● ● ⚙ VP15TF	90 ( 70 - 100)	85 ( 60 - 100)	70 ( 50 - 80)	70 ( 50 - 80)

**VPX200 – DEPTH OF CUT/FEED PER TOOTH**

Material	Properties	Cutting conditions	ae	DC=Ø16-Ø18		DC=Ø20-Ø25		DC=Ø28-Ø63	
				ap	fz	ap	fz	ap	fz
				ap fz		ap fz		ap fz	
P	Mild steel	≤180HB	● ● ✖ ≤0.25DC	≤6	0.1 - 0.15	≤8	0.1 - 0.2	≤8	0.1 - 0.25
			● ● ✖ 0.25 - 0.5 DC	≤5	0.08 - 0.12	≤8	0.1 - 0.15	≤8	0.1 - 0.2
			● ● ✖ 0.5 - 0.75 DC	≤4	0.08 - 0.12	≤6	0.08 - 0.12	≤6	0.1 - 0.15
			● ● ✖ 1.0 DC	≤2	0.06 - 0.1	≤4	0.06 - 0.1	≤4	0.08 - 0.12
	Carbon steel Alloy steel Alloy tool steel	180-280HB	● ● ✖ ≤0.25 DC	≤6	0.1 - 0.15	≤8	0.1 - 0.2	≤8	0.1 - 0.25
			● ● ✖ 0.25 - 0.5 DC	≤5	0.08 - 0.12	≤8	0.1 - 0.15	≤8	0.1 - 0.2
			● ● ✖ 0.5 - 0.75 DC	≤4	0.08 - 0.12	≤6	0.08 - 0.12	≤6	0.1 - 0.15
			● ● ✖ 1.0 DC	≤2	0.06 - 0.1	≤4	0.06 - 0.1	≤4	0.08 - 0.12
	Carbon steel Alloy steel Alloy tool steel	280-350HB ≤350HB (Annealing)	● ● ✖ ≤0.25 DC	≤6	0.1 - 0.15	≤8	0.1 - 0.15	≤8	0.1 - 0.2
			● ● ✖ 0.25 - 0.5 DC	≤5	0.08 - 0.12	≤8	0.08 - 0.12	≤8	0.1 - 0.15
			● ● ✖ 0.5 - 0.75 DC	≤4	0.08 - 0.12	≤6	0.06 - 0.1	≤6	0.08 - 0.12
			● ● ✖ 1.0 DC	≤2	0.06 - 0.1	≤4	0.06 - 0.1	≤4	0.05 - 0.1
Pre-hardened steel	35-45HRC	● ● ✖ ≤0.25 DC	≤6	0.1 - 0.15	≤8	0.1 - 0.15	≤8	0.1 - 0.2	
		● ● ✖ 0.25 - 0.5 DC	≤5	0.08 - 0.12	≤8	0.08 - 0.12	≤8	0.1 - 0.15	
		● ● ✖ 0.5 - 0.75 DC	≤4	0.08 - 0.12	≤6	0.06 - 0.1	≤6	0.08 - 0.12	
		● ● ✖ 1.0 DC	≤2	0.06 - 0.1	≤4	0.06 - 0.1	≤4	0.06 - 0.1	
M	Austenitic stainless steel	—	● ● ✖ ≤0.25 DC	≤6	0.1 - 0.15	≤8	0.1 - 0.2	≤8	0.1 - 0.2
			● ● ✖ ≤0.25 DC	≤6	0.08 - 0.12	≤8	0.08 - 0.15	≤8	0.08 - 0.15
			● ● ✖ 0.25 - 0.5 DC	≤5	0.08 - 0.12	≤8	0.08 - 0.15	≤8	0.08 - 0.15
			● ● ✖ 0.25 - 0.5 DC	≤5	0.06 - 0.1	≤8	0.08 - 0.12	≤8	0.08 - 0.12
			● ● ✖ 0.5 - 0.75 DC	≤4	0.06 - 0.1	≤6	0.08 - 0.12	≤6	0.08 - 0.12
			● ● ✖ 0.5 - 0.75 DC	≤4	0.06 - 0.08	≤6	0.06 - 0.1	≤6	0.06 - 0.1
			● ● ✖ 1.0 DC	≤2	0.06 - 0.1	≤4	0.06 - 0.1	≤4	0.06 - 0.1
			● ● ✖ 1.0 DC	≤2	0.06 - 0.08	≤4	0.06 - 0.08	≤4	0.06 - 0.08
	Duplex stainless steel	≤280HB	● ● ✖ ≤0.25 DC	≤6	0.1 - 0.15	≤8	0.1 - 0.2	≤8	0.1 - 0.2
			● ● ✖ ≤0.25 DC	≤6	0.08 - 0.12	≤8	0.08 - 0.15	≤8	0.08 - 0.15
			● ● ✖ 0.25 - 0.5 DC	≤5	0.08 - 0.12	≤8	0.08 - 0.15	≤8	0.08 - 0.15
			● ● ✖ 0.25 - 0.5 DC	≤5	0.06 - 0.1	≤8	0.08 - 0.12	≤8	0.08 - 0.12
● ● ✖ 0.5 - 0.75 DC			≤4	0.06 - 0.1	≤6	0.08 - 0.12	≤6	0.08 - 0.12	
● ● ✖ 0.5 - 0.75 DC			≤4	0.06 - 0.08	≤6	0.06 - 0.1	≤6	0.06 - 0.1	
Ferritic and martensitic stainless steel	—	● ● ✖ 1.0 DC	≤2	0.06 - 0.1	≤4	0.06 - 0.1	≤4	0.06 - 0.1	
		● ● ✖ 1.0 DC	≤2	0.06 - 0.08	≤4	0.06 - 0.08	≤4	0.06 - 0.08	
		● ● ✖ ≤0.25 DC	≤6	0.1 - 0.15	≤8	0.1 - 0.2	≤8	0.1 - 0.2	
		● ● ✖ ≤0.25 DC	≤6	0.08 - 0.12	≤8	0.08 - 0.15	≤8	0.08 - 0.15	
		● ● ✖ 0.25 - 0.5 DC	≤5	0.08 - 0.12	≤8	0.08 - 0.15	≤8	0.08 - 0.15	
		● ● ✖ 0.25 - 0.5 DC	≤5	0.06 - 0.1	≤8	0.08 - 0.12	≤8	0.08 - 0.12	
		● ● ✖ 0.5 - 0.75 DC	≤4	0.06 - 0.1	≤6	0.08 - 0.12	≤6	0.08 - 0.12	
		● ● ✖ 0.5 - 0.75 DC	≤4	0.06 - 0.08	≤6	0.06 - 0.1	≤6	0.06 - 0.1	
Precipitation hardening stainless steel	≤450HB	● ● ✖ 1.0 DC	≤2	0.06 - 0.1	≤4	0.06 - 0.1	≤4	0.06 - 0.1	
		● ● ✖ 1.0 DC	≤2	0.06 - 0.08	≤4	0.06 - 0.08	≤4	0.06 - 0.08	
		● ● ✖ ≤0.25 DC	≤6	0.1 - 0.15	≤8	0.1 - 0.15	≤8	0.1 - 0.15	
		● ● ✖ ≤0.25 DC	≤6	0.08 - 0.12	≤8	0.08 - 0.12	≤8	0.08 - 0.12	
		● ● ✖ 0.25 - 0.5 DC	≤5	0.08 - 0.12	≤8	0.08 - 0.12	≤8	0.08 - 0.12	
		● ● ✖ 0.25 - 0.5 DC	≤5	0.06 - 0.1	≤8	0.08 - 0.12	≤8	0.08 - 0.12	
		● ● ✖ 0.5 - 0.75 DC	≤4	0.06 - 0.1	≤6	0.06 - 0.1	≤6	0.06 - 0.1	
		● ● ✖ 0.5 - 0.75 DC	≤4	0.06 - 0.08	≤6	0.06 - 0.08	≤6	0.06 - 0.08	

**VPX200 – DEPTH OF CUT/FEED PER TOOTH**

Material	Properties	Cutting conditions	ae	DC=Ø16 – Ø18		DC=Ø20 – Ø25		DC=Ø28 – Ø63		
				ap	fz	ap	fz	ap	fz	
K Gray cast iron	≤350MPa	● ●	≤0.25DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.25	
		✚	0.25 – 0.5 DC	≤6	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.1 – 0.2	
		● ●	0.5 – 0.75 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.1 – 0.2	
		✚	1.0 DC	≤5	0.06 – 0.1	≤8	0.08 – 0.12	≤8	0.1 – 0.15	
		● ●	≤0.25 DC	≤4	0.08 – 0.12	≤6	0.08 – 0.12	≤6	0.1 – 0.15	
		✚	0.25 – 0.5 DC	≤4	0.08 – 0.12	≤6	0.06 – 0.1	≤6	0.08 – 0.12	
	Ductile cast iron	≤800MPa	● ●	0.5 – 0.75 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.08 – 0.15
			✚	1.0 DC	≤2	0.06 – 0.08	≤4	0.06 – 0.08	≤4	0.08 – 0.1
			● ●	≤0.25DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.2
			✚	0.25 – 0.5 DC	≤6	0.08 – 0.12	≤8	0.1 – 0.15	≤8	0.1 – 0.15
			● ●	0.5 – 0.75 DC	≤5	0.08 – 0.12	≤8	0.1 – 0.15	≤8	0.1 – 0.15
			✚	1.0 DC	≤5	0.06 – 0.1	≤8	0.08 – 0.12	≤8	0.08 – 0.12
N Aluminum alloy	Si<5 %	● ●	≤0.25 DC	≤4	0.08 – 0.12	≤6	0.08 – 0.12	≤6	0.08 – 0.12	
		✚	0.25 – 0.5 DC	≤4	0.06 – 0.1	≤6	0.06 – 0.15	≤6	0.08 – 0.15	
		● ●	0.5 – 0.75 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.15	≤4	0.08 – 0.15	
		✚	1.0 DC	≤2	0.06 – 0.08	≤4	0.06 – 0.12	≤4	0.08 – 0.12	
		● ●	≤0.25DC	≤6	0.1 – 0.2	≤8	0.1 – 0.25	≤8	0.1 – 0.25	
		✚	0.25 – 0.5 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.2	
		● ●	0.5 – 0.75 DC	≤5	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.2	
H Hardened steel	40 – 55HRC	● ●	≤0.25 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.08 – 0.15	
		✚	0.25 – 0.5 DC	≤4	0.08 – 0.12	≤4	0.08 – 0.12	≤4	0.08 – 0.12	
		● ●	0.5 – 0.75 DC	≤3	0.08 – 0.12	≤3	0.08 – 0.12	≤3	0.08 – 0.12	
		✚	1.0 DC	≤3	0.06 – 0.1	≤3	0.08 – 0.1	≤3	0.06 – 0.1	
		● ●	≤0.25 DC	≤2	0.06 – 0.1	≤2	0.08 – 0.1	≤2	0.06 – 0.1	
		✚	0.25 – 0.5 DC	≤2	0.06 – 0.08	≤2	0.06 – 0.08	≤2	0.06 – 0.08	
		● ●	0.5 – 0.75 DC	≤1	0.06 – 0.1	≤1	0.06 – 0.1	≤1	0.06 – 0.1	
✚	1.0 DC	≤1	0.06 – 0.08	≤1	0.06 – 0.08	≤1	0.06 – 0.08			

# VPX200

## RECOMMENDED CUTTING CONDITIONS WET CUTTING



These cutting conditions are reference for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter the conditions accordingly.

Chattering and vibration is more likely under the following circumstances: When the tool overhang is long (using a long shank, screw-in type, etc.), the rigidity of the machine, work material or attachment of work material is low, or during the machining of corners during pocket machining. Use cutting conditions at the minimum recommendation or below.

### CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc				
				ae<0.25 DC	ae≥0.25 – 0.5 DC	ae≥0.5 – 0.75 DC	ae=1.0 DC	
P Mild steel	≤180HB	● ●	MV1020	210 (150 – 290)	200 (140 – 270)	150 (110 – 180)	150 (110 – 180)	
		● ●	MV1030	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)	
		● ●	MP6120	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)	
		● ●	VP15TF	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)	
		✱	MP6130	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)	
	Carbon steel Alloy steel Alloy tool steel	180 – 280HB	● ●	MV1020	180 (140 – 210)	170 (120 – 200)	150 (110 – 180)	150 (110 – 180)
			● ●	MV1030	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	100 ( 70 – 120)
		280 – 350HB	● ●	MV1020	140 (110 – 160)	130 ( 90 – 150)	120 ( 80 – 140)	120 ( 80 – 140)
			● ●	MV1030	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	120 ( 80 – 140)
		180 – 350HB ≤350HB	● ●	MP6120	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	100 ( 70 – 120)
Pre-hardened steel	35 – 45HRC	● ●	VP15TF	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	100 ( 70 – 120)	
		● ●	MP6120	100 ( 80 – 120)	90 ( 70 – 110)	80 ( 60 – 100)	80 ( 60 – 100)	
		✱	MP6130	100 ( 80 – 120)	90 ( 70 – 110)	80 ( 60 – 100)	80 ( 60 – 100)	
M Austenitic stainless steel	≤200HB	● ● ✱	MP7130	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)	
		● ●	VP15TF	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)	
	>200HB	● ● ✱	MP7130	100 ( 80 – 130)	90 ( 70 – 110)	70 ( 50 – 100)	70 ( 50 – 100)	
		● ●	VP15TF	100 ( 80 – 130)	90 ( 70 – 110)	70 ( 50 – 100)	70 ( 50 – 100)	
	Duplex stainless steel	≤280HB	● ● ✱	MP7130	100 ( 80 – 130)	90 ( 70 – 120)	70 ( 50 – 100)	70 ( 50 – 100)
			● ●	VP15TF	100 ( 80 – 130)	90 ( 70 – 120)	70 ( 50 – 100)	70 ( 50 – 100)
Ferritic and martensitic stainless steel	—	● ● ✱	MP7130	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)	
		● ●	VP15TF	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)	
Precipitation hardening stainless steel	<450HB	● ● ✱	MP7130	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)	
		● ●	VP15TF	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)	
K Gray cast iron	≤350MPa	● ●	MC5020	180 (160 – 220)	170 (150 – 210)	150 (130 – 190)	150 (130 – 190)	
		● ● ✱	VP15TF	130 (100 – 150)	120 ( 90 – 140)	100 ( 80 – 120)	100 ( 80 – 120)	
	Ductile cast iron	≤450MPa	● ●	MV1020	180 (150 – 240)	170 (140 – 230)	150 (130 – 200)	150 (130 – 200)
			● ●	MV1030	130 ( 80 – 180)	120 ( 70 – 170)	105 ( 60 – 150)	105 ( 60 – 150)
		≤800MPa	● ●	MV1020	160 (130 – 210)	150 (120 – 200)	130 (110 – 170)	130 (110 – 170)
			● ●	MV1030	130 ( 80 – 180)	120 ( 70 – 170)	105 ( 60 – 150)	105 ( 60 – 150)
			● ●	MC5020	160 (140 – 180)	150 (130 – 170)	130 (110 – 150)	130 (110 – 150)
			● ● ✱	VP15TF	110 ( 80 – 140)	100 ( 70 – 130)	80 ( 60 – 120)	80 ( 60 – 120)
N Aluminum alloy	Si<5 %	● ● ✱	TF15	600 (400 – 1000)	600 (400 – 1000)	600 (400 – 1000)	600 (400 – 1000)	

## VPX200 – WET CUTTING – CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc			
				ae<0.25 DC	ae≥0.25–0.5 DC	ae≥0.5–0.75 DC	ae=1.0 DC
S	Titanium alloy (Ti-6Al-4V)	—	● ● MP9120	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)
			● ● VP15TF	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)
			⚙ MP9130	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)
	Titanium alloy (Ti-5Al-5V-5Mo-3Cr)	—	● ● MP9120	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)
			● ● VP15TF	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)
			⚙ MP9130	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)
	Heat resistant alloy	—	● ● MP9120	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)
			● ● VP15TF	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)
			⚙ MP9130	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)
H	Hardened steel	40 – 55HRC	● ● ⚙ VP15TF	90 ( 70 – 100)	85 ( 60 – 100)	70 ( 50 – 80)	70 ( 50 – 80)

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1. A type with fewer teeth is recommended when the depth of cut in the radial direction (ae) is 0.5 DC or more.

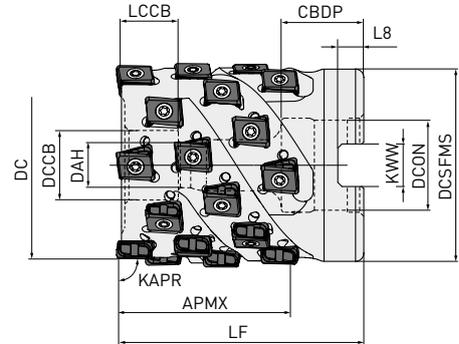
## VPX200 – DEPTH OF CUT/FEED PER TOOTH

Material	Properties	Cutting conditions	ae	DC=Ø16 – Ø18		DC=Ø20 – Ø25		DC=Ø28 – Ø63	
				ap	fz	ap	fz	ap	fz
Mild steel	≤180HB	● ● ✱	≤0.25DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.25
		● ● ✱	0.25 – 0.5 DC	≤5	0.1 – 0.15	≤8	0.1 – 0.15	≤8	0.1 – 0.2
		● ● ✱	0.5 – 0.75 DC	≤4	0.08 – 0.12	≤6	0.08 – 0.12	≤6	0.1 – 0.15
		● ● ✱	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.08 – 0.12
Carbon steel Alloy steel Alloy tool steel	180 – 280HB	● ● ✱	≤0.25 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.25
		● ● ✱	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.1 – 0.15	≤8	0.1 – 0.2
		● ● ✱	0.5 – 0.75 DC	≤4	0.08 – 0.12	≤6	0.08 – 0.12	≤6	0.1 – 0.15
		● ● ✱	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.08 – 0.12
Carbon steel Alloy steel Alloy tool steel	280 – 350HB ≤350HB (Annealing)	● ● ✱	≤0.25 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.15	≤8	0.1 – 0.2
		● ● ✱	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.12	≤8	0.1 – 0.15
		● ● ✱	0.5 – 0.75 DC	≤4	0.08 – 0.12	≤6	0.06 – 0.1	≤6	0.08 – 0.12
		● ● ✱	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.06 – 0.1
Pre-hardened steel	35 – 45HRC	● ● ✱	≤0.25 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.15	≤8	0.1 – 0.2
		● ● ✱	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.12	≤8	0.1 – 0.15
		● ● ✱	0.5 – 0.75 DC	≤4	0.08 – 0.12	≤6	0.06 – 0.1	≤6	0.08 – 0.12
		● ● ✱	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.06 – 0.1
Austenitic stainless steel	–	● ● ✱	≤0.25 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.2
		✱	≤0.25 DC	≤6	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.08 – 0.15
		● ● ✱	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.08 – 0.15
		✱	0.25 – 0.5 DC	≤5	0.06 – 0.1	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✱	0.5 – 0.75 DC	≤4	0.06 – 0.1	≤6	0.08 – 0.12	≤6	0.08 – 0.12
		✱	0.5 – 0.75 DC	≤4	0.06 – 0.08	≤6	0.06 – 0.1	≤6	0.06 – 0.1
		● ● ✱	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.06 – 0.1
		✱	1.0 DC	≤2	0.06 – 0.08	≤4	0.06 – 0.08	≤4	0.06 – 0.08
Duplex stainless steel	≤280HB	● ● ✱	≤0.25 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.2
		✱	≤0.25 DC	≤6	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.08 – 0.15
		● ● ✱	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.08 – 0.12
		✱	0.25 – 0.5 DC	≤5	0.06 – 0.1	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✱	0.5 – 0.75 DC	≤4	0.06 – 0.1	≤6	0.08 – 0.12	≤6	0.08 – 0.12
		✱	0.5 – 0.75 DC	≤4	0.06 – 0.08	≤6	0.06 – 0.1	≤6	0.06 – 0.1
		● ● ✱	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.06 – 0.1
		✱	1.0 DC	≤2	0.06 – 0.08	≤4	0.06 – 0.08	≤4	0.06 – 0.08
Ferritic and martensitic stainless steel	–	● ● ✱	≤0.25 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.2
		✱	≤0.25 DC	≤6	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.08 – 0.15
		● ● ✱	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.08 – 0.15
		✱	0.25 – 0.5 DC	≤5	0.06 – 0.1	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✱	0.5 – 0.75 DC	≤4	0.06 – 0.1	≤6	0.08 – 0.12	≤6	0.08 – 0.12
		✱	0.5 – 0.75 DC	≤4	0.06 – 0.08	≤6	0.06 – 0.1	≤6	0.05 – 0.1
		● ● ✱	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.05 – 0.1
		✱	1.0 DC	≤2	0.06 – 0.08	≤4	0.06 – 0.08	≤4	0.05 – 0.08
Precipitation hardening stainless steel	≤450HB	● ● ✱	≤0.25 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.15	≤8	0.1 – 0.15
		✱	≤0.25 DC	≤6	0.08 – 0.12	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✱	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		✱	0.25 – 0.5 DC	≤5	0.06 – 0.1	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✱	0.5 – 0.75 DC	≤4	0.06 – 0.1	≤6	0.06 – 0.1	≤6	0.05 – 0.1
		✱	0.5 – 0.75 DC	≤4	0.06 – 0.08	≤6	0.06 – 0.08	≤6	0.05 – 0.08
		● ● ✱	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.05 – 0.1
		✱	1.0 DC	≤2	0.06 – 0.08	≤4	0.06 – 0.08	≤4	0.05 – 0.08

**VPX200 – DEPTH OF CUT/FEED PER TOOTH**

Material	Properties	Cutting conditions	ae	DC=Ø16 – Ø18		DC=Ø20 – Ø25		DC=Ø28 – Ø63	
				ap	fz	ap	fz	ap	fz
K Gray cast iron	≤350MPa	● ●	≤0.25DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.25
		✦	0.25 – 0.5 DC	≤6	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.1 – 0.2
		● ●	0.5 – 0.75 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.15	≤8	0.1 – 0.2
		✦	1.0 DC	≤5	0.06 – 0.1	≤8	0.08 – 0.12	≤8	0.1 – 0.15
		● ●	≤0.25 DC	≤4	0.08 – 0.12	≤6	0.06 – 0.1	≤6	0.1 – 0.15
		✦	0.25 – 0.5 DC	≤4	0.08 – 0.12	≤6	0.06 – 0.1	≤6	0.08 – 0.12
		● ●	0.5 – 0.75 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.08 – 0.15
		✦	1.0 DC	≤2	0.06 – 0.08	≤4	0.06 – 0.08	≤4	0.06 – 0.1
		● ●	≤0.25 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.2
		✦	0.25 – 0.5 DC	≤6	0.08 – 0.12	≤8	0.1 – 0.15	≤8	0.1 – 0.15
		● ●	0.5 – 0.75 DC	≤5	0.08 – 0.12	≤8	0.1 – 0.15	≤8	0.1 – 0.15
		✦	1.0 DC	≤5	0.06 – 0.1	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ●	≤0.25 DC	≤4	0.08 – 0.12	≤6	0.08 – 0.12	≤6	0.08 – 0.12
		✦	0.25 – 0.5 DC	≤4	0.08 – 0.12	≤6	0.08 – 0.12	≤6	0.06 – 0.1
● ●	0.5 – 0.75 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.06 – 0.1		
✦	1.0 DC	≤2	0.06 – 0.08	≤4	0.06 – 0.08	≤4	0.06 – 0.08		
N Aluminum alloy	Si<5 %	● ●	≤0.25DC	≤6	0.1 – 0.2	≤8	0.1 – 0.25	≤8	0.1 – 0.25
		✦	0.25 – 0.5 DC	≤6	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.2
		● ●	0.5 – 0.75 DC	≤5	0.1 – 0.15	≤8	0.1 – 0.2	≤8	0.1 – 0.2
		✦	1.0 DC	≤5	0.08 – 0.12	≤8	0.1 – 0.15	≤8	0.1 – 0.15
		● ●	≤0.25 DC	≤4	0.08 – 0.12	≤6	0.06 – 0.15	≤6	0.08 – 0.15
		✦	0.25 – 0.5 DC	≤4	0.06 – 0.1	≤6	0.06 – 0.15	≤6	0.08 – 0.15
		● ●	0.5 – 0.75 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.15	≤4	0.08 – 0.15
		✦	1.0 DC	≤2	0.06 – 0.08	≤4	0.06 – 0.12	≤4	0.08 – 0.12
S Titanium alloy (Ti-6Al-4V)	—	● ● ✦	≤0.25DC	≤6	0.08 – 0.15	≤8	0.08 – 0.15	≤8	0.08 – 0.15
		● ● ✦	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✦	0.5 – 0.75 DC	≤4	0.06 – 0.1	≤6	0.06 – 0.1	≤6	0.06 – 0.1
		● ● ✦	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.06 – 0.1
S Titanium alloy (Ti-5Al-5V-5Mo-3Cr)	—	● ● ✦	≤0.25 DC	≤6	0.08 – 0.12	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✦	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✦	0.5 – 0.75 DC	≤4	0.06 – 0.1	≤6	0.06 – 0.1	≤6	0.06 – 0.1
		● ● ✦	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.06 – 0.1
Heat resistant alloy	—	● ● ✦	≤0.25 DC	≤6	0.08 – 0.12	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✦	0.25 – 0.5 DC	≤5	0.08 – 0.12	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		● ● ✦	0.5 – 0.75 DC	≤4	0.06 – 0.1	≤6	0.06 – 0.1	≤6	0.06 – 0.1
		● ● ✦	1.0 DC	≤2	0.06 – 0.1	≤4	0.06 – 0.1	≤4	0.06 – 0.1
H Hardened steel	40 – 55HRC	● ●	≤0.25DC	≤4	0.08 – 0.15	≤4	0.08 – 0.15	≤4	0.08 – 0.15
		✦	0.25 – 0.5 DC	≤4	0.08 – 0.12	≤4	0.08 – 0.12	≤4	0.08 – 0.12
		● ●	0.5 – 0.75 DC	≤3	0.08 – 0.12	≤3	0.08 – 0.12	≤3	0.08 – 0.12
		✦	1.0 DC	≤3	0.06 – 0.1	≤3	0.06 – 0.1	≤3	0.06 – 0.1
		● ●	≤0.25 DC	≤2	0.06 – 0.1	≤2	0.06 – 0.1	≤2	0.06 – 0.1
		✦	0.25 – 0.5 DC	≤2	0.06 – 0.1	≤2	0.06 – 0.1	≤2	0.06 – 0.1
		● ●	0.5 – 0.75 DC	≤1	0.06 – 0.1	≤1	0.06 – 0.1	≤1	0.06 – 0.1
✦	1.0 DC	≤1	0.06 – 0.1	≤1	0.06 – 0.1	≤1	0.06 – 0.1		

# VPX200



Right hand tool holder only

## LONG CUTTING EDGE

DC	Set bolt	Geometry
Ø32	HSC08045	
Ø40	HSC08050	
Ø50	HSC10045	

## SHELL TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	WT	ZNF	ZNP	 LOGU09
VPX200-032A02A035R10	★	35	32	16	55	0.71°	0.22	2	10	
VPX200-032A03A035R15	●	35	32	16	55	0.71°	0.20	3	15	
VPX200-040A03A042R18	★	42	40	16	60	0.54°	0.34	3	18	
VPX200-040A04A042R24	●	42	40	16	60	0.54°	0.33	4	24	
VPX200-050A04A042R24	★	42	50	22	60	0.42°	0.55	4	24	
VPX200-050A05A042R30	★	42	50	22	60	0.42°	0.54	5	30	

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1. The maximum spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
3. Refer to page 29 for chipbreaker and grade recommendations.





**VPX200 – LONG CUTTING EDGE – SHELL TYPE****MOUNTING DIMENSIONS**

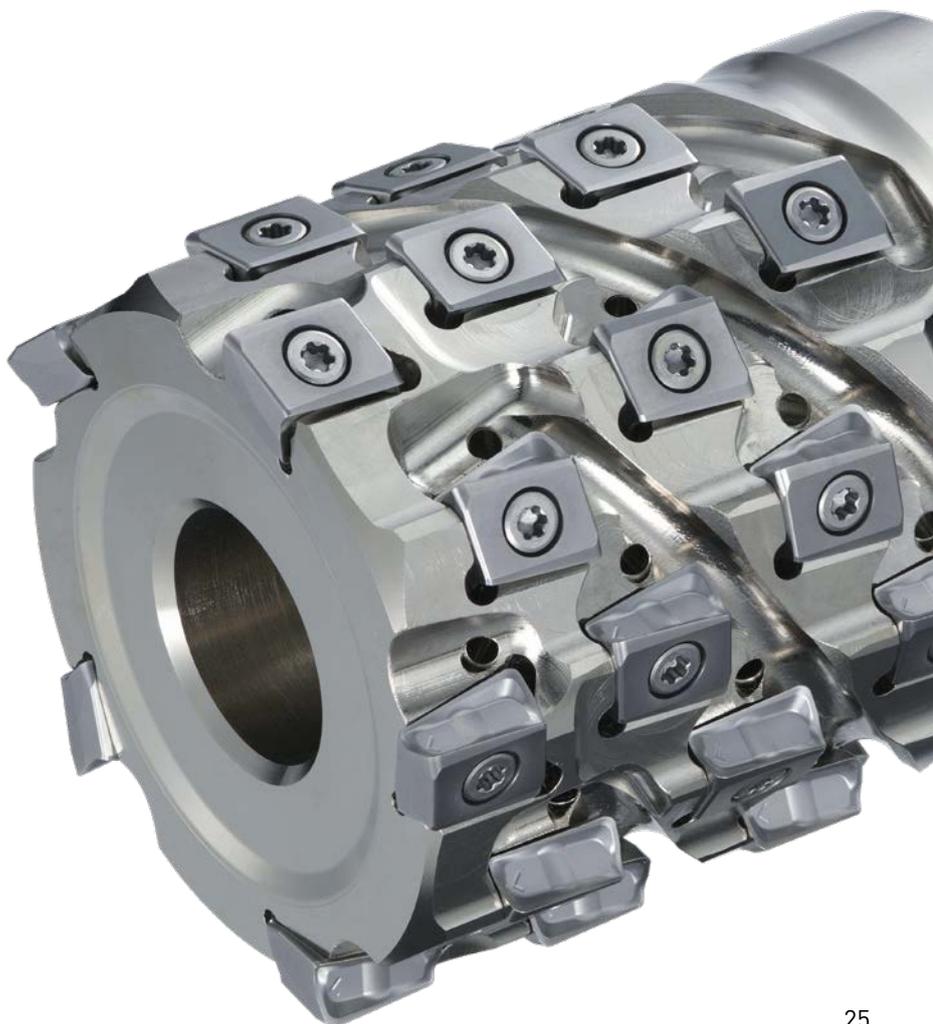
Order number	CBDP	DAH	DCCB	DCSFMS	KWW	LCCB	L8
VPX200-032A02A035R10	18	9	14	37	8.4	8	5.6
VPX200-032A03A035R15	18	9	14	37	8.4	8	5.6
VPX200-040A03A042R18	18	9	14	37	8.4	8	5.6
VPX200-040A04A042R24	18	9	14	37	8.4	8	5.6
VPX200-050A04A042R24	20	11	17	47	10.4	13	6.3
VPX200-050A05A042R30	20	11	17	47	10.4	13	6.3

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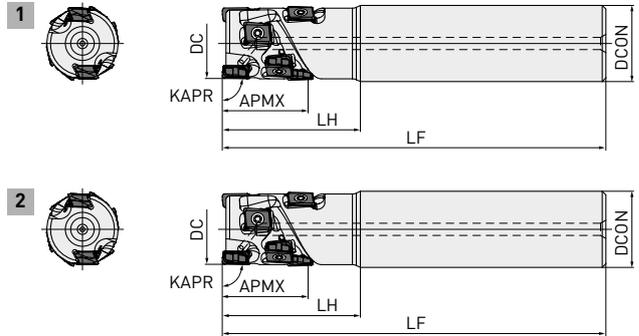
**SPARE PARTS**

Tool holder type	DC	 *		
		Clamp screw	Wrench	Anti-seize lubricant
VPX200	≤63	TPS27F2	TIP07F	MK1KS

\* Clamp torque (N • m): TPS27F2 = 1.0



# VPX200



## LONG CUTTING EDGE

Right hand tool holder only

## CYLINDRICAL SHANK TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	WT	LH	ZNF	ZNP	Type	
<b>SHORT TYPE</b>												
VPX200R202SA20S01404	●	14	20	20	100	1.35°	0.21	30	2	4	1	
VPX200R222SA20S01404	●	14	22	20	115	1.16°	0.26	30	2	4	2	
VPX200R252SA25S02106	●	21	25	25	115	0.97°	0.39	35	2	6	1	
VPX200R252SA25S02808	●	28	25	25	125	0.97°	0.41	45	2	8	1	
VPX200R282SA25S02106	★	21	28	25	115	0.84°	0.40	35	2	6	2	
VPX200R282SA25S02808	★	28	28	25	125	0.84°	0.43	45	2	8	2	
VPX200R322SA32S02808	★	28	32	32	125	0.71°	0.68	45	2	8	1	
VPX200R323SA32S02812	●	28	32	32	125	0.71°	0.67	45	3	12	1	
VPX200R322SA32S03510	★	35	32	32	130	0.71°	0.70	50	2	10	1	LOGU09
VPX200R323SA32S03515	●	35	32	32	130	0.71°	0.68	50	3	15	1	
VPX200R352SA32S02808	★	28	35	32	125	0.63°	0.72	45	2	8	2	
VPX200R353SA32S02812	★	28	35	32	125	0.63°	0.71	45	3	12	2	
VPX200R352SA32S03510	★	35	35	32	130	0.63°	0.74	50	2	10	2	
VPX200R353SA32S03515	★	35	35	32	130	0.63°	0.73	50	3	15	2	
VPX200R403SA32S03515	★	35	40	32	130	0.54°	0.81	50	3	15	2	
VPX200R404SA32S03520	●	35	40	32	130	0.54°	0.80	50	4	20	2	
VPX200R403SA32S04218	★	42	40	32	140	0.54°	0.88	60	3	18	2	
VPX200R404SA32S04224	★	42	40	32	140	0.54°	0.86	60	4	24	2	

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1. The maximum spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
3. Refer to page 29 for chipbreaker and grade recommendations.



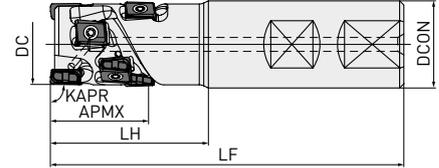
## SPARE PARTS

Tool holder type	DC	 *		
		Clamp screw	Wrench	Anti-seize lubricant
VPX200	≤20	TPS27F1		
VPX200	>20	TPS27F2	TIP07F	MK1KS

\* Clamp torque (N • m): TPS27F1 = 1.0, TPS27F2 = 1.0

● : Inventory maintained. ★ : Inventory maintained in Japan.

# VPX200



Right hand tool holder only

## LONG CUTTING EDGE

## WELDON SHANK TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	WT	Lh	ZNF	ZNP	
<b>SHORT TYPE</b>											
VPX200R202WA20S01404	●	14	20	20	80	1.35°	0.16	30	2	4	
VPX200R252WA25S02106	●	21	25	25	91	0.97°	0.29	35	2	6	
VPX200R252WA25S02808	●	28	25	25	101	0.97°	0.32	45	2	8	
VPX200R322WA32S02808	●	28	32	32	105	0.71°	0.55	45	2	8	LOGU09
VPX200R323WA32S02812	●	28	32	32	105	0.71°	0.54	45	3	12	
VPX200R322WA32S03510	●	35	32	32	110	0.71°	0.57	50	2	10	
VPX200R323WA32S03515	●	35	32	32	110	0.71°	0.55	50	3	15	

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1. The maximum spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.
3. Refer to page 29 for chipbreaker and grade recommendations.



## SPARE PARTS

Tool holder type	DC	 *		
		Clamp screw	Wrench	Anti-seize lubricant
VPX200	≤20	TPS27F1	TIP07F	MK1KS
VPX200	>20	TPS27F2		

\* Clamp torque (N • m): TPS27F1 = 1.0, TPS27F2 = 1.0



# VPX200

## CHIPBREAKER AND GRADE RECOMMENDATIONS

Material	Properties	Cutting conditions			
			1st recommendation	2nd recommendation	
P	Mild steel	≤180HB	● ●	L	M
	Carbon steel Alloy steel Alloy tool steel	180 – 350HB ≤350HB	✚	M	L
			● ●	L	M
			● ●	M	L
	Pre-hardened steel	35 – 45HRC	● ●	M	L
			✚	M	L
M	Austenitic stainless steel	≤280HB	● ●	L	M
		>200HB	✚	M	L
	Duplex stainless steel	≤280HB	● ●	L	M
			✚	M	L
	Ferritic and martensitic stainless steel	—	● ●	L	M
	Precipitation hardening stainless steel	<450HB	● ●	L	M
✚			M	L	
K	Gray cast iron	≤350MPa	● ●	M	L
	Ductile cast iron	≤800MPa	✚	M	L
N	Aluminum alloy	Si<5 %	● ●	L	M
			✚	M	L
S	Titanium alloys (Ti-6Al-4V)	—	● ●	L	M
			✚	M	L
	Titanium alloys (Ti-5Al-5V-5Mo-3Cr)	—	● ●	L	M
			✚	M	L
Heat resistant alloys	—	● ●	M	L	
		✚	M	L	
H	Hardened steel	40 – 55HRC	● ● ✚	M	—

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# VPX200

## RECOMMENDED CUTTING CONDITIONS WET CUTTING



These cutting conditions are reference for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter the conditions accordingly.

Chattering and vibration is more likely under the following circumstances: When the tool overhang is long (using a long shank, screw-in type, etc.), the rigidity of the machine, work material or attachment of work material is low, or during the machining of corners during pocket machining. Use cutting conditions at the minum recommendation or below.

### CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc				
				ae<0.25 DC	ae≥0.25 – 0.5 DC	ae≥0.5 – 0.75 DC	ae=1.0 DC	
P Mild steel	≤180HB	● ●	MV1020	210 (150 – 290)	200 (140 – 270)	150 (110 – 180)	150 (110 – 180)	
		● ●	MV1030	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)	
		● ●	MP6120	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)	
		● ●	VP15TF	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)	
		✱	MP6130	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)	
	Carbon steel Alloy steel Alloy tool steel	180 – 280HB	● ●	MV1020	180 (140 – 210)	170 (120 – 200)	150 (110 – 180)	150 (110 – 180)
			● ●	MV1030	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	100 ( 70 – 120)
		280 – 350HB	● ●	MV1020	140 (110 – 160)	130 ( 90 – 150)	120 ( 80 – 140)	120 ( 80 – 140)
			● ●	MV1030	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	120 ( 80 – 140)
		180 – 350HB ≤350HB	● ●	MP6120	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	100 ( 70 – 120)
Pre-hardened steel	35 – 45HRC	● ●	VP15TF	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	100 ( 70 – 120)	
		● ●	MP6120	100 ( 80 – 120)	90 ( 70 – 110)	80 ( 60 – 100)	80 ( 60 – 100)	
		✱	MP6130	100 ( 80 – 120)	90 ( 70 – 110)	80 ( 60 – 100)	80 ( 60 – 100)	
M Austenitic stainless steel	≤200HB	● ● ✱	MP7130	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)	
		● ●	VP15TF	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)	
	>200HB	● ● ✱	MP7130	100 ( 80 – 130)	90 ( 70 – 110)	70 ( 50 – 100)	70 ( 50 – 100)	
		● ●	VP15TF	100 ( 80 – 130)	90 ( 70 – 110)	70 ( 50 – 100)	70 ( 50 – 100)	
	Duplex stainless steel	≤280HB	● ● ✱	MP7130	100 ( 80 – 130)	90 ( 70 – 120)	70 ( 50 – 100)	70 ( 50 – 100)
			● ●	VP15TF	100 ( 80 – 130)	90 ( 70 – 120)	70 ( 50 – 100)	70 ( 50 – 100)
Ferritic and martensitic stainless steel	—	● ● ✱	MP7130	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)	
		● ●	VP15TF	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)	
Precipitation hardening stainless steel	<450HB	● ● ✱	MP7130	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)	
		● ●	VP15TF	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)	
K Gray cast iron	≤350MPa	● ●	MC5020	180 (160 – 220)	170 (150 – 210)	150 (130 – 190)	150 (130 – 190)	
		● ● ✱	VP15TF	130 (100 – 150)	120 ( 90 – 140)	100 ( 80 – 120)	100 ( 80 – 120)	
	Ductile cast iron	≤450MPa	● ●	MV1020	180 (150 – 240)	170 (140 – 230)	150 (130 – 200)	150 (130 – 200)
			● ●	MV1030	130 ( 80 – 180)	120 ( 70 – 170)	105 ( 60 – 150)	105 ( 60 – 150)
		≤800MPa	● ●	MV1020	160 (130 – 210)	150 (120 – 200)	130 (110 – 170)	130 (110 – 170)
			● ●	MV1030	130 ( 80 – 180)	120 ( 70 – 170)	105 ( 60 – 150)	105 ( 60 – 150)
			● ●	MC5020	160 (140 – 180)	150 (130 – 170)	130 (110 – 150)	130 (110 – 150)
			● ● ✱	VP15TF	110 ( 80 – 140)	100 ( 70 – 130)	80 ( 60 – 120)	80 ( 60 – 120)
N Aluminum alloy	Si<5 %	● ● ✱	TF15	600 (400 – 1000)	600 (400 – 1000)	600 (400 – 1000)	600 (400 – 1000)	

## VPX200 – WET CUTTING – CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc			
				ae<0.25 DC	ae≥0.25–0.5 DC	ae≥0.5–0.75 DC	ae=1.0 DC
S	Titanium alloy (Ti-6Al-4V)	—	● ● MP9120	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)
			● ● VP15TF	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)
			⚙ MP9130	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)
	Titanium alloy (Ti-5Al-5V-5Mo-3Cr)	—	● ● MP9120	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)
			● ● VP15TF	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)
			⚙ MP9130	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)
	Heat resistant alloy	—	● ● MP9120	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)
			● ● VP15TF	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)
			⚙ MP9130	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)
H	Hardened steel	40 – 55HRC	● ● ⚙ VP15TF	90 ( 70 – 100)	85 ( 60 – 100)	70 ( 50 – 80)	70 ( 50 – 80)

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## VPX200 – DEPTH OF CUT/FEED PER TOOTH

Material	Properties	Cutting conditions	ae	DC=Ø20 – Ø28		DC=Ø32 – Ø50	
				ap	fz	ap	fz
Mild steel	≤180HB	● ● ✖ ≤0.25 DC	≤14	0.13 (0.10 – 0.15)	≤APMX	0.15 (0.10 – 0.2)	
		● ● ✖ 0.25 – 0.5 DC	≤8	0.10 (0.08 – 0.12)	≤28	0.13 (0.10 – 0.15)	
		● ● ✖ 0.5 – 0.75 DC	≤6	0.10 (0.08 – 0.12)	≤14	0.10 (0.08 – 0.12)	
		● ● ✖ 1.0 DC	≤4	0.08 (0.06 – 0.10)	≤4	0.08 (0.06 – 0.10)	
Carbon steel Alloy steel Alloy tool steel	180 – 280HB	● ● ✖ ≤0.25 DC	≤14	0.13 (0.10 – 0.15)	≤APMX	0.15 (0.10 – 0.2 )	
		● ● ✖ 0.25 – 0.5 DC	≤8	0.10 (0.08 – 0.12)	≤28	0.13 (0.10 – 0.15)	
		● ● ✖ 0.5 – 0.75 DC	≤6	0.10 (0.08 – 0.12)	≤14	0.10 (0.08 – 0.12)	
		● ● ✖ 1.0 DC	≤4	0.08 (0.06 – 0.10)	≤4	0.08 (0.06 – 0.10)	
Carbon steel Alloy steel Alloy tool steel	280 – 350HB ≤350HB	● ● ✖ ≤0.25 DC	≤14	0.13 (0.1 – 0.15)	≤APMX	0.13 (0.10 – 0.15)	
		● ● ✖ 0.25 – 0.5 DC	≤8	0.10 (0.08 – 0.12)	≤28	0.10 (0.08 – 0.12)	
		● ● ✖ 0.5 – 0.75 DC	≤6	0.10 (0.08 – 0.12)	≤14	0.08 (0.06 – 0.10)	
		● ● ✖ 1.0 DC	≤4	0.08 (0.06 – 0.10)	≤4	0.08 (0.06 – 0.10)	
Pre-hardened steel	35 – 45HRC	● ● ✖ ≤0.25 DC	≤14	0.13 (0.10 – 0.15)	≤APMX	0.13 (0.10 – 0.15)	
		● ● ✖ 0.25 – 0.5 DC	≤8	0.10 (0.08 – 0.12)	≤28	0.10 (0.08 – 0.12)	
		● ● ✖ 0.5 – 0.75 DC	≤6	0.10 (0.08 – 0.12)	≤14	0.08 (0.06 – 0.10)	
		● ● ✖ 1.0 DC	≤4	0.08 (0.06 – 0.10)	≤4	0.08 (0.06 – 0.10)	
Austenitic stainless steel	–	● ● ✖ ≤0.25 DC	≤14	0.13 (0.10 – 0.15)	≤APMX	0.15 (0.10 – 0.2 )	
		✖ 0.25 – 0.5 DC	≤14	0.10 (0.08 – 0.12)	≤APMX	0.12 (0.08 – 0.15)	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.10 (0.08 – 0.12)	≤28	0.12 (0.08 – 0.15)	
		✖ 1.0 DC	≤8	0.08 (0.06 – 0.10)	≤28	0.10 (0.08 – 0.12)	
		● ● ✖ ≤0.25 DC	≤6	0.08 (0.06 – 0.10)	≤14	0.10 (0.08 – 0.12)	
		✖ 0.25 – 0.5 DC	≤6	0.07 (0.06 – 0.08)	≤14	0.08 (0.06 – 0.10)	
		● ● ✖ 0.5 – 0.75 DC	≤4	0.08 (0.06 – 0.10)	≤4	0.08 (0.06 – 0.10)	
		✖ 1.0 DC	≤4	0.07 (0.06 – 0.08)	≤4	0.07 (0.06 – 0.08)	
Duplex stainless steel	≤280HB	● ● ✖ ≤0.25 DC	≤14	0.13 (0.10 – 0.15)	≤APMX	0.15 (0.10 – 0.2 )	
		✖ 0.25 – 0.5 DC	≤14	0.10 (0.08 – 0.12)	≤APMX	0.12 (0.08 – 0.15)	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.10 (0.08 – 0.12)	≤28	0.12 (0.08 – 0.15)	
		✖ 1.0 DC	≤8	0.08 (0.06 – 0.10)	≤28	0.10 (0.08 – 0.12)	
		● ● ✖ ≤0.25 DC	≤6	0.08 (0.06 – 0.10)	≤14	0.10 (0.08 – 0.12)	
		✖ 0.25 – 0.5 DC	≤6	0.07 (0.06 – 0.08)	≤14	0.08 (0.06 – 0.10)	
		● ● ✖ 0.5 – 0.75 DC	≤4	0.08 (0.06 – 0.10)	≤4	0.08 (0.06 – 0.10)	
		✖ 1.0 DC	≤4	0.07 (0.06 – 0.08)	≤4	0.07 (0.06 – 0.08)	
Ferritic and martensitic stainless steel	–	● ● ✖ ≤0.25 DC	≤14	0.13 (0.10 – 0.15)	≤APMX	0.15 (0.10 – 0.20)	
		✖ 0.25 – 0.5 DC	≤14	0.10 (0.08 – 0.12)	≤APMX	0.12 (0.08 – 0.15)	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.10 (0.08 – 0.12)	≤28	0.12 (0.08 – 0.15)	
		✖ 1.0 DC	≤8	0.08 (0.06 – 0.10)	≤28	0.10 (0.08 – 0.12)	
		● ● ✖ ≤0.25 DC	≤6	0.08 (0.06 – 0.10)	≤14	0.10 (0.08 – 0.12)	
		✖ 0.25 – 0.5 DC	≤6	0.07 (0.06 – 0.08)	≤14	0.08 (0.06 – 0.10)	
		● ● ✖ 0.5 – 0.75 DC	≤4	0.08 (0.06 – 0.10)	≤4	0.08 (0.06 – 0.10)	
		✖ 1.0 DC	≤4	0.07 (0.06 – 0.08)	≤4	0.07 (0.06 – 0.08)	
Precipitation hardening stainless steel	≤450HB	● ● ✖ ≤0.25 DC	≤14	0.13 (0.10 – 0.15)	≤APMX	0.13 (0.10 – 0.15)	
		✖ 0.25 – 0.5 DC	≤14	0.10 (0.08 – 0.12)	≤APMX	0.10 (0.08 – 0.12)	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.10 (0.08 – 0.12)	≤28	0.10 (0.08 – 0.12)	
		✖ 1.0 DC	≤8	0.08 (0.06 – 0.10)	≤28	0.10 (0.08 – 0.12)	
		● ● ✖ ≤0.25 DC	≤6	0.08 (0.06 – 0.10)	≤14	0.08 (0.06 – 0.10)	
		✖ 0.25 – 0.5 DC	≤6	0.07 (0.06 – 0.08)	≤14	0.07 (0.06 – 0.08)	
		● ● ✖ 0.5 – 0.75 DC	≤4	0.08 (0.06 – 0.10)	≤4	0.08 (0.06 – 0.10)	
		✖ 1.0 DC	≤4	0.07 (0.06 – 0.08)	≤4	0.07 (0.06 – 0.08)	



**VPX200 – DEPTH OF CUT/FEED PER TOOTH**

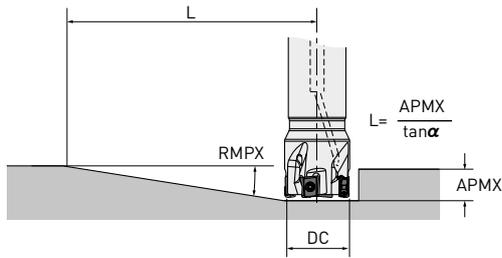
Material	Properties	Cutting conditions	ae	DC=Ø20 – Ø28		DC=Ø32 – Ø50	
				ap	fz	ap	fz
K Gray cast iron	≤350MPa	● ● ≤0.25 DC	≤14	0.13 [0.10 – 0.15]	≤APMX	0.15 [0.1 – 0.2 ]	
		✚ 0.25 – 0.5 DC	≤14	0.10 [0.08 – 0.12]	≤APMX	0.12 [0.08 – 0.15]	
		● ● 0.5 – 0.75 DC	≤8	0.10 [0.08 – 0.12]	≤28	0.12 [0.08 – 0.15]	
		✚ 1.0 DC	≤8	0.08 [0.06 – 0.10]	≤28	0.10 [0.08 – 0.12]	
		● ● ≤0.25 DC	≤6	0.10 [0.08 – 0.12]	≤14	0.10 [0.08 – 0.12]	
		✚ 0.25 – 0.5 DC	≤6	0.08 [0.06 – 0.10]	≤14	0.08 [0.06 – 0.10]	
		● ● 0.5 – 0.75 DC	≤4	0.08 [0.06 – 0.10]	≤4	0.08 [0.06 – 0.10]	
		✚ 1.0 DC	≤4	0.07 [0.06 – 0.08]	≤4	0.07 [0.06 – 0.08]	
	Ductile cast iron	≤800MPa	● ● ≤0.25 DC	≤14	0.13 [0.10 – 0.15]	≤APMX	0.15 [0.10 – 0.20]
			✚ 0.25 – 0.5 DC	≤14	0.10 [0.08 – 0.12]	≤APMX	0.13 [0.10 – 0.15]
			● ● 0.5 – 0.75 DC	≤8	0.10 [0.08 – 0.12]	≤28	0.13 [0.10 – 0.15]
			✚ 1.0 DC	≤8	0.08 [0.06 – 0.10]	≤28	0.10 [0.08 – 0.12]
			● ● ≤0.25 DC	≤6	0.10 [0.08 – 0.12]	≤14	0.10 [0.08 – 0.12]
			✚ 0.25 – 0.5 DC	≤6	0.08 [0.06 – 0.10]	≤14	0.08 [0.06 – 0.10]
N Aluminum alloy	Si<5 %	● ● ≤0.25 DC	≤14	0.15 [0.10 – 0.20]	≤APMX	0.18 [0.10 – 0.25]	
		✚ 0.25 – 0.5 DC	≤14	0.13 [0.10 – 0.15]	≤APMX	0.15 [0.10 – 0.20]	
		● ● 0.5 – 0.75 DC	≤8	0.13 [0.10 – 0.15]	≤28	0.15 [0.10 – 0.20]	
		✚ 1.0 DC	≤8	0.10 [0.08 – 0.12]	≤28	0.13 [0.10 – 0.15]	
		● ● ≤0.25 DC	≤6	0.10 [0.08 – 0.12]	≤14	0.11 [0.06 – 0.15]	
		✚ 0.25 – 0.5 DC	≤6	0.08 [0.06 – 0.10]	≤14	0.11 [0.06 – 0.15]	
		● ● 0.5 – 0.75 DC	≤4	0.08 [0.06 – 0.10]	≤4	0.11 [0.06 – 0.15]	
		✚ 1.0 DC	≤4	0.07 [0.06 – 0.08]	≤4	0.09 [0.06 – 0.12]	
	S Titanium alloy (Ti-6Al-4V)	—	● ● ✚ ≤0.25 DC	≤14	0.12 [0.08 – 0.15]	≤APMX	0.12 [0.08 – 0.15]
			● ● ✚ 0.25 – 0.5 DC	≤8	0.10 [0.08 – 0.12]	≤28	0.10 [0.08 – 0.12]
			● ● ✚ 0.5 – 0.75 DC	≤6	0.08 [0.06 – 0.10]	≤14	0.08 [0.06 – 0.10]
			● ● ✚ 1.0 DC	≤4	0.08 [0.06 – 0.10]	≤4	0.08 [0.06 – 0.10]
	Titanium alloy (Ti-5Al-5V-5Mo-3Cr)	—	● ● ✚ ≤0.25 DC	≤14	0.10 [0.08 – 0.12]	≤APMX	0.10 [0.08 – 0.12]
			● ● ✚ 0.25 – 0.5 DC	≤8	0.10 [0.08 – 0.12]	≤28	0.10 [0.08 – 0.12]
● ● ✚ 0.5 – 0.75 DC			≤6	0.08 [0.06 – 0.10]	≤14	0.08 [0.06 – 0.10]	
● ● ✚ 1.0 DC			≤4	0.08 [0.06 – 0.10]	≤4	0.08 [0.06 – 0.10]	
Heat resistant alloy	—	● ● ✚ ≤0.25 DC	≤14	0.10 [0.08 – 0.12]	≤APMX	0.10 [0.08 – 0.12]	
		● ● ✚ 0.25 – 0.5 DC	≤8	0.10 [0.08 – 0.12]	≤28	0.10 [0.08 – 0.12]	
		● ● ✚ 0.5 – 0.75 DC	≤6	0.08 [0.06 – 0.10]	≤14	0.08 [0.06 – 0.10]	
		● ● ✚ 1.0 DC	≤4	0.08 [0.06 – 0.10]	≤4	0.08 [0.06 – 0.10]	

# VPX200

## RAMPING/HELICAL MILLING

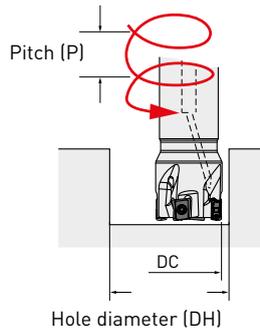
### 1 Ramping

Refer to the table below for cutting conditions. For feed per tooth and cutting speed, follow the cutting conditions for slot milling.

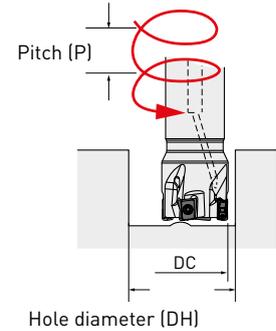


### 2 Helical milling

#### 2.1 Blind holes, flat bottom



#### 2.2 Through holes



DC	RE	1		2.1				2.2	
		RMPX	L *	DH max.	P max.	DH min	P max.	DH min	P max.
16	0.2	1.85°	248	31	1.5	27.5	1.2	24.2	0.8
	0.4	1.85°	248	30.6	1.5	27.5	1.2	24.2	0.8
	0.8	1.85°	248	29.8	1.4	27.5	1.2	24.2	0.8
	1	1.85°	248	29.4	1.4	27.5	1.2	24.2	0.8
	1.2	1.85°	248	29	1.3	27.5	1.2	24.2	0.8
	1.6	1.85°	248	28.2	1.2	27.5	1.2	24.2	0.8
18	0.2	1.56°	294	35	1.5	31.5	1.2	28.1	0.9
	0.4	1.56°	294	34.6	1.4	31.5	1.2	28.1	0.9
	0.8	1.56°	294	33.8	1.4	31.5	1.2	28.1	0.9
	1	1.56°	294	33.4	1.3	31.5	1.2	28.1	0.9
	1.2	1.56°	294	33	1.3	31.5	1.2	28.1	0.9
	1.6	1.56°	294	32.2	1.2	31.5	1.2	28.1	0.9
20	0.2	1.35°	340	39	1.4	35.5	1.1	32	0.9
	0.4	1.35°	340	38.6	1.4	35.5	1.1	32	0.9
	0.8	1.35°	340	37.8	1.3	35.5	1.1	32	0.9
	1	1.35°	340	37.4	1.3	35.5	1.1	32	0.9
	1.2	1.35°	340	37	1.3	35.5	1.1	32	0.9
	1.6	1.35°	340	36.2	1.2	35.5	1.1	32	0.9
22	0.2	1.16°	396	43	1.3	39.5	1.1	36	0.9
	0.4	1.16°	396	42.6	1.3	39.5	1.1	36	0.9
	0.8	1.16°	396	41.8	1.3	39.5	1.1	36	0.9
	1	1.16°	396	41.4	1.2	39.5	1.1	36	0.9
	1.2	1.16°	396	41	1.2	39.5	1.1	36	0.9
	1.6	1.16°	396	40.2	1.2	39.5	1.1	36	0.9
25	0.2	0.97°	473	49	1.3	45.5	1.1	42	0.9
	0.4	0.97°	473	48.6	1.3	45.5	1.1	42	0.9
	0.8	0.97°	473	47.8	1.2	45.5	1.1	42	0.9
	1	0.97°	473	47.4	1.2	45.5	1.1	42	0.9
	1.2	0.97°	473	47	1.2	45.5	1.1	42	0.9
	1.6	0.97°	473	46.2	1.1	45.5	1.1	42	0.9

## VPX200 – RAMPING/HELICAL MILLING

DC	RE	1		2.1				2.2	
		RMPX	L*	DH max.	P max.	DH min	P max.	DH min	P max.
28	0.2	0.84°	546	55	1.2	51.5	1.1	48	0.9
	0.4	0.84°	546	54.6	1.2	51.5	1.1	48	0.9
	0.8	0.84°	546	53.8	1.2	51.5	1.1	48	0.9
	1	0.84°	546	53.4	1.2	51.5	1.1	48	0.9
	1.2	0.84°	546	53	1.2	51.5	1.1	48	0.9
	1.6	0.84°	546	52.2	1.1	51.5	1.1	48	0.9
30	0.2	0.77°	596	59	1.2	55.5	1.1	52	0.9
	0.4	0.77°	596	58.6	1.2	55.5	1.1	52	0.9
	0.8	0.77°	596	57.8	1.2	55.5	1.1	52	0.9
	1	0.77°	596	57.4	1.2	55.5	1.1	52	0.9
	1.2	0.77°	596	57	1.1	55.5	1.1	52	0.9
	1.6	0.77°	596	56.2	1.1	55.5	1.1	52	0.9
32	0.2	0.71°	646	62.8	1.2	59.4	1.1	56	0.9
	0.4	0.71°	646	62.4	1.2	59.4	1.1	56	0.9
	0.8	0.71°	646	61.6	1.2	59.4	1.1	56	0.9
	1	0.71°	646	61.2	1.1	59.4	1.1	56	0.9
	1.2	0.71°	646	60.8	1.1	59.4	1.1	56	0.9
	1.6	0.71°	646	60	1.1	59.4	1.1	56	0.9
35	0.2	0.63°	728	69	1.2	65.5	1.1	62	0.9
	0.4	0.63°	728	68.6	1.2	65.5	1.1	62	0.9
	0.8	0.63°	728	67.8	1.1	65.5	1.1	62	0.9
	1	0.63°	728	67.4	1.1	65.5	1.1	62	0.9
	1.2	0.63°	728	67	1.1	65.5	1.1	62	0.9
	1.6	0.63°	728	66.2	1.1	65.5	1.1	62	0.9
40	0.2	0.54°	849	78.8	1.2	75.4	1	72	0.9
	0.4	0.54°	849	78.4	1.1	75.4	1	72	0.9
	0.8	0.54°	849	77.6	1.1	75.4	1	72	0.9
	1	0.54°	849	77.2	1.1	75.4	1	72	0.9
	1.2	0.54°	849	76.8	1.1	75.4	1	72	0.9
	1.6	0.54°	849	76	1.1	75.4	1	72	0.9
50	0.2	0.42°	1092	98.8	1.1	95.4	1	92	1
	0.4	0.42°	1092	98.4	1.1	95.4	1	92	1
	0.8	0.42°	1092	97.6	1.1	95.4	1	92	1
	1	0.42°	1092	97.2	1.1	95.4	1	92	1
	1.2	0.42°	1092	96.8	1.1	95.4	1	92	1
	1.6	0.42°	1092	96	1.1	95.4	1	92	1
63	0.2	0.32°	1433	124.8	1.1	121.4	1	118	1
	0.4	0.32°	1433	124.4	1.1	121.4	1	118	1
	0.8	0.32°	1433	123.6	1.1	121.4	1	118	1
	1	0.32°	1433	123.2	1.1	121.4	1	118	1
	1.2	0.32°	1433	122.8	1.1	121.4	1	118	1
	1.6	0.32°	1433	122	1	121.4	1	118	1

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\* Shows the distance until a maximum depth of cut of 8 mm is achieved at the maximum ramping angle  $L (= 8 / \tan \alpha)$ .  
 1. When machining a highly ductile work material with the ramping angles in the table above, chips may be elongated.

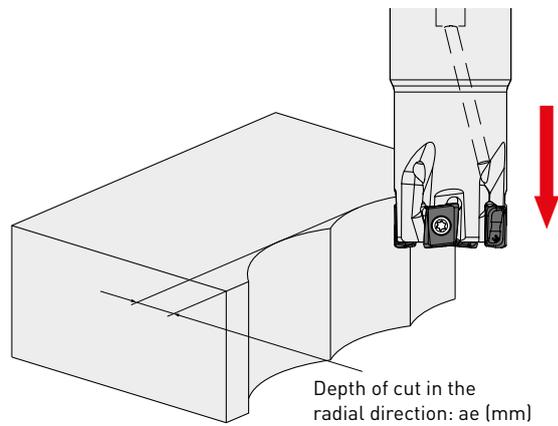
# VPX200

## RECOMMENDED CUTTING CONDITIONS FOR PLUNGING AND DRILLING

Follow the cutting conditions for slot milling for the feed per tooth and cutting speed.

### PLUNGING

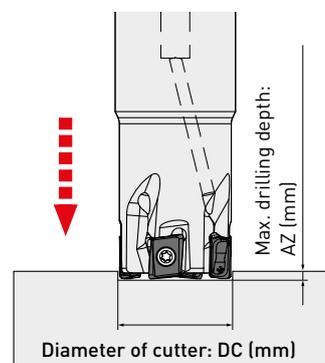
DC	ae max.
16	3.9
18	3.9
20	3.9
22	4
25	4
28	4
30	4
32	4
35	4
40	4
50	4
63	4



1. No step feed necessary.

### DRILLING

DC	AZ max.
16	0.3
18	0.3
20	0.3
22	0.3
25	0.3
28	0.3
30	0.3
32	0.3
35	0.3
40	0.3
50	0.3
63	0.3



1. Exercise due caution as chips scatter easily.
2. Use compressed air to eliminate chips (or coolant when machining aluminum alloys).

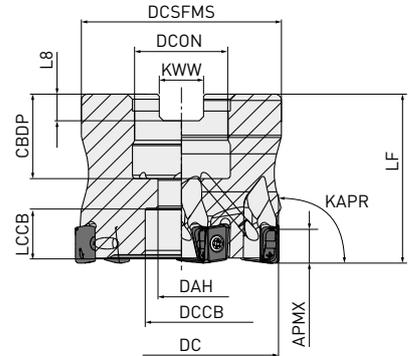
# VPX300



P M K N S H



GAMP : -6°      T : +5°  
 GAMF : -22.5°      I : +5°



Right hand tool holder only

DC	Set bolt	Geometry
Ø40	HSC08025H	
Ø50, Ø63	HSC10030H	
Ø80	HSC12035H	

## ARBOR TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	WT	RPMX	ZNF	
VPX300-040A03AR	●	11	40	16	40	1.06°	0.21	17900	3	LOGU12
VPX300-040A04AR	●	11	40	16	40	1.06°	0.21	17900	4	
VPX300-050A04AR	●	11	50	22	40	0.79°	0.34	15500	4	
VPX300-050A06AR	●	11	50	22	40	0.79°	0.33	15500	6	
VPX300-063A06AR	●	11	63	22	40	0.60°	0.61	13400	6	
VPX300-063A08AR	●	11	63	22	40	0.60°	0.62	13400	8	
VPX300-080A07AR	●	11	80	27	50	0.45°	0.99	11500	7	
VPX300-080A10AR	●	11	80	27	50	0.45°	0.99	11500	10	

1/1

1. The maximum spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.



## VPX 300 – ARBOR TYPE

## MOUNTING DIMENSIONS

Order number	CBDP	DAH	DCCB	DCSFMS	KWW	LCCB	L8
VPX300-040A03AR	18	9	14	37	8.4	12.4	5.6
VPX300-040A04AR	18	9	14	37	8.4	12.4	5.6
VPX300-050A04AR	20	11	17	47	10.4	10.4	6.3
VPX300-050A06AR	20	11	17	47	10.4	10.4	6.3
VPX300-063A06AR	20	11	17	60	10.4	10.4	6.3
VPX300-063A08AR	20	11	17	60	10.4	10.4	6.3
VPX300-080A07AR	23	13	20	56	12.4	13.4	7
VPX300-080A10AR	23	13	20	56	12.4	13.4	7

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## SPARE PARTS

Tool holder type	DC			
		Clamp screw	Wrench	Anti-seize lubricant
VPX300	≤80	TPS40F1	TIP15W	MK1KS

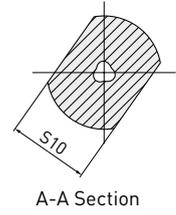
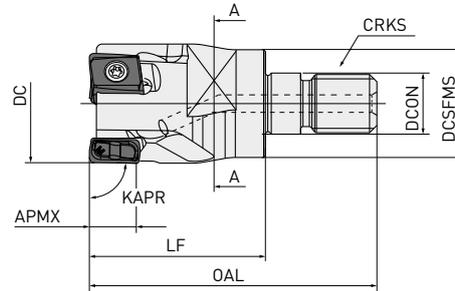
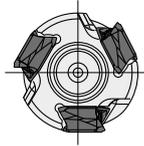
\* Clamp torque (N • m): TPS40F1 = 3.0



# VPX300



P M K N S H



Right hand tool holder only

## SCREW-IN TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	WT	ZNF	
VPX300R2502AM1235	●	11	25	12.5	35	2.13°	0.10	2	LOGU12
VPX300R2802AM1235	★	11	28	12.5	35	1.77°	0.12	2	
VPX300R3202AM1640	●	11	32	17	40	1.47°	0.20	2	
VPX300R3203AM1640	●	11	32	17	40	1.47°	0.19	3	
VPX300R3502AM1640	★	11	35	17	40	1.28°	0.22	2	
VPX300R3503AM1640	★	11	35	17	40	1.28°	0.22	3	
VPX300R4003AM1640	●	11	40	17	40	1.06°	0.26	3	
VPX300R4004AM1640	●	11	40	17	40	1.06°	0.26	4	

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## MOUNTING DIMENSIONS

Order number	CRKS	S10	DCSFMS	OAL
VPX300R2502AM1235	M12	19	23.5	57
VPX300R2802AM1235	M12	19	23.5	57
VPX300R3202AM1640	M16	24	28.5	63
VPX300R3203AM1640	M16	24	28.5	63
VPX300R3502AM1640	M16	24	28.5	63
VPX300R3503AM1640	M16	24	28.5	63
VPX300R4003AM1640	M16	24	28.5	63
VPX300R4004AM1640	M16	24	28.5	63

1/1

## SPARE PARTS

Tool holder type	DC			
		Clamp screw	Wrench	Anti-seize lubricant
VPX300R25	≤50	TPS40F1	TIP15W	MK1KS

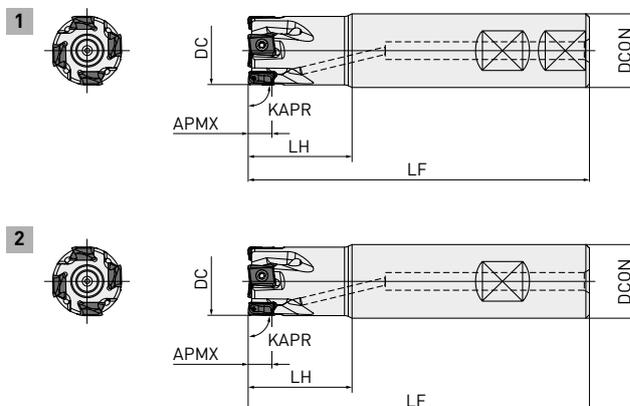
\* Clamp torque (N • m): TPS40F1 = 3.0

● : Inventory maintained. ★ : Inventory maintained in Japan.

# VPX300



P M K N S H



Right hand tool holder only

## CYLINDRICAL SHANK TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	RPMX	WT	LH	ZNF	Type	
<b>SHORT TYPE</b>												
VPX300R2502SA25S	●	11	25	25	115	2.13°	24100	0.38	35	2	1	
VPX300R2802SA25S	★	11	28	25	115	1.77°	22500	0.40	35	2	2	
VPX300R3002SA25S	★	11	30	25	125	1.61°	21500	0.45	35	2	2	
VPX300R3003SA25S	★	11	30	25	125	1.61°	21500	0.44	35	3	2	
VPX300R3202SA32S	●	11	32	32	125	1.47°	20600	0.69	45	2	1	
VPX300R3203SA32S	●	11	32	32	125	1.47°	20600	0.68	45	3	1	LOGU12
VPX300R4003SA32S	●	11	40	32	125	1.06°	17900	0.76	45	3	2	
VPX300R4004SA32S	●	11	40	32	125	1.06°	17900	0.76	45	4	2	
VPX300R5004SA32S	★	11	50	32	125	0.79°	15500	0.89	45	4	2	
VPX300R5006SA32S	★	11	50	32	125	0.79°	15500	0.88	45	6	2	
<b>LONG TYPE</b>												
VPX300R2502SA25L	●	11	25	25	170	2.13°	24100	0.56	70	2	1	
VPX300R2802SA25L	★	11	28	25	170	1.77°	22500	0.60	35	2	2	
VPX300R3203SA32L	●	11	32	32	190	1.47°	20600	1.04	90	3	1	LOGU12
VPX300R3503SA32L	★	11	35	32	190	1.28°	19500	1.10	45	3	2	

1/1

1. The maximum spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.



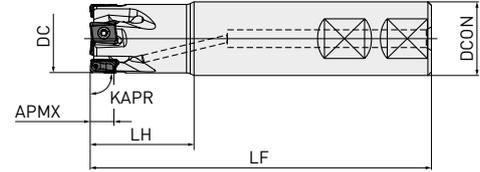
## SPARE PARTS

Tool holder type	DC			
		Clamp screw	Wrench	Anti-seize lubricant
VPX300R25	≤50	TPS40F1	TIP15W	MK1KS

\* Clamp torque (N • m): TPS40F1 = 3.0



# VPX300



Right hand tool holder only

## WELDON SHANK TYPE

Order number	Stock	APMX	DC	DCON	LF	LH	RMPX	RPMX	WT	ZNF	
<b>SHORT TYPE</b>											
VPX300R2502WA25S	●	11	25	25	91	35	2.13°	24100	0.29	2	
VPX300R3202WA32S	●	11	32	32	105	45	1.47°	20600	0.56	2	LOGU12
VPX300R3203WA32S	●	11	32	32	105	45	1.47°	20600	0.55	3	

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1. The maximum spindle speeds are set to ensure tool and insert stability.
2. When using the tool at high spindle speeds, ensure that the tool and arbor are correctly balanced.



## SPARE PARTS

Tool holder type	DC			
		Clamp screw	Wrench	Anti-seize lubricant
VPX300R25	≤50	TPS40F1	TIP15W	MK1KS

\* Clamp torque (N • m): TPS40F1 = 3.0



# VPX300

## CHIPBREAKER AND GRADE RECOMMENDATIONS

Material	Properties	Cutting conditions			
			1st recommendation	2nd recommendation	
P	Mild steel	≤180HB	● ●	L	M
	Carbon steel Alloy steel Alloy tool steel	180 – 350HB ≤350HB	✚	M	L
			● ●	L	M
			● ●	M	L
			✚	M	L
	Pre-hardened steel	35 – 45HRC	● ●	M	L
		✚	M	L	
M	Austenitic stainless steel	≤280HB	● ●	L	M
			✚	M	L
		>200HB	● ●	L	M
			✚	M	L
	Duplex stainless steel	≤280HB	● ●	L	M
			✚	M	L
Ferritic and martensitic stainless steel	—	● ●	L	M	
		✚	M	L	
Precipitation hardening stainless steel	<450HB	● ●	L	M	
		✚	M	L	
K	Gray cast iron	≤350MPa	● ●	M	L
			✚	M	L
Ductile cast iron	≤800MPa	● ●	M	L	
		✚	M	L	
N	Aluminum alloy	Si<5 %	● ●	L	M
		✚	M	L	
S	Titanium alloys (Ti-6Al-4V)	—	● ●	L	M
			✚	M	L
	Titanium alloys (Ti-5Al-5V-5Mo-3Cr)	—	● ●	L	M
		✚	M	L	
Heat resistant alloys	—	● ●	M	L	
		✚	M	L	
H	Hardened steel	40 – 55HRC	● ● ✚	M	—

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# VPX300

## RECOMMENDED CUTTING CONDITIONS DRY CUTTING



These cutting conditions are reference for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter the conditions accordingly.

Chattering and vibration is more likely under the following circumstances: When the tool overhang is long (using a long shank, screw-in type, etc.), the rigidity of the machine, work material or attachment of work material is low, or during the machining of corners during pocket machining. Use cutting conditions at the minimum recommendation or below.

### CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc				
				ae<0.25x DC	ae≥0.25-0.5 DC	ae≥0.5-0.75 DC	ae=1.0 DC	
P Mild steel	≤180HB	● ●	MV1020	280 (220 - 330)	270 (210 - 320)	220 (170 - 260)	220 (170 - 260)	
		● ●	MV1030	230 (180 - 270)	220 (170 - 260)	180 (140 - 210)	180 (140 - 210)	
		● ●	MP6120	230 (180 - 270)	220 (170 - 260)	180 (140 - 210)	180 (140 - 210)	
		● ●	VP15TF	230 (180 - 270)	220 (170 - 260)	180 (140 - 210)	180 (140 - 210)	
		● ✖	MP6130	200 (150 - 240)	190 (170 - 260)	150 (110 - 180)	150 (110 - 180)	
P Carbon steel Alloy steel Alloy tool steel	180 - 280HB	● ●	MV1020	220 (170 - 260)	210 (160 - 240)	170 (130 - 200)	170 (130 - 200)	
		● ●	MV1030	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	170 (130 - 200)	
	280 - 350HB	● ●	MV1020	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
		● ●	MV1030	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
	180 - 350HB <350HB	● ●	MP6120	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 180)	
		● ●	VP15TF	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 180)	
Pre-hardened steel	35 - 45HRC	● ●	MP6120	120 ( 90 - 140)	110 ( 80 - 130)	100 ( 70 - 120)	100 ( 70 - 120)	
		● ●	VP15TF	120 ( 90 - 140)	110 ( 80 - 130)	100 ( 70 - 120)	100 ( 70 - 120)	
		● ✖	MP6130	100 ( 80 - 120)	90 ( 70 - 110)	80 ( 60 - 100)	80 ( 60 - 100)	
M Austenitic stainless steel	≤200HB	● ●	MV1020	—	—	—	—	
		● ●	MV1030	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
		● ● ✖	MP7130	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
		● ●	VP15TF	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
	>200HB	● ●	MV1020	—	—	—	—	
		● ●	MV1030	150 (110 - 180)	140 (100 - 160)	110 ( 80 - 130)	110 ( 80 - 130)	
		● ● ✖	MP7130	150 (110 - 180)	140 (100 - 160)	110 ( 80 - 130)	110 ( 80 - 130)	
		● ●	VP15TF	150 (110 - 180)	140 (100 - 160)	110 ( 80 - 130)	110 ( 80 - 130)	
	Duplex stainless steel	≤280HB	● ● ✖	MP7130	140 (110 - 170)	130 ( 90 - 150)	100 ( 70 - 120)	100 ( 70 - 120)
			● ●	VP15TF	140 (110 - 170)	130 ( 90 - 150)	100 ( 70 - 120)	100 ( 70 - 120)
	Ferritic and martensitic stainless steel	—	● ● ✖	MP7130	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)
● ●			VP15TF	180 (140 - 210)	170 (130 - 200)	140 (110 - 160)	140 (110 - 160)	
Precipitation hardening stainless steel	<450HB	● ● ✖	MP7130	130 (100 - 160)	120 ( 80 - 140)	90 ( 60 - 110)	90 ( 60 - 110)	
		● ●	VP15TF	130 (100 - 160)	120 ( 80 - 140)	90 ( 60 - 110)	90 ( 60 - 110)	
K Gray cast iron	<350MPa	● ●	MC5020	250 (200 - 300)	240 (190 - 290)	210 (160 - 260)	140 (110 - 160)	
		● ● ✖	VP15TF	200 (150 - 250)	190 (140 - 240)	160 (110 - 210)	160 (110 - 210)	
	<450MPa	● ●	MV1020	200 (150 - 280)	190 (140 - 270)	170 (130 - 240)	170 (130 - 240)	
		● ●	MV1030	150 (100 - 200)	140 ( 90 - 190)	125 ( 80 - 170)	100 ( 80 - 120)	
		● ●	MV1020	180 (140 - 250)	170 (130 - 240)	150 (120 - 210)	150 (120 - 210)	
		● ●	MV1030	150 (100 - 200)	140 ( 90 - 190)	125 ( 80 - 170)	150 (120 - 210)	
		● ●	MC5020	180 (150 - 200)	170 (140 - 190)	150 (120 - 170)	150 (120 - 170)	
		● ● ✖	VP15TF	130 (100 - 150)	120 ( 90 - 140)	100 ( 80 - 120)	100 ( 80 - 120)	
N Aluminum alloy	Si<5 %	● ● ✖	TF15	600 (400 - 1000)	600 (400 - 1000)	600 (400 - 1000)	600 (400 - 1000)	
		● ●	VP15TF	90 ( 70 - 100)	85 ( 60 - 100)	70 ( 50 - 80)	70 ( 50 - 80)	
H Hardened steel	40 - 55HRC	● ● ✖	VP15TF	90 ( 70 - 100)	85 ( 60 - 100)	70 ( 50 - 80)	70 ( 50 - 80)	

## VPX300 – DEPTH OF CUT/FEED PER TOOTH

Material	Properties	Cutting conditions	ae	DC=Ø25		DC=Ø28-Ø80	
				ap	fz	ap	fz
Mild steel	≤180HB	● ● ✖ ≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.3	
		● ● ✖ 0.25 – 0.5 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.25	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.1 – 0.2	
		● ● ✖ 1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.15	
Carbon steel Alloy steel Alloy tool steel	180-280HB	● ● ✖ ≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.3	
		● ● ✖ 0.25 – 0.5 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.25	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.1 – 0.2	
		● ● ✖ 1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.15	
Carbon steel Alloy steel Alloy tool steel	280-350HB ≤350HB	● ● ✖ ≤0.25 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.25	
		● ● ✖ 0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.1 – 0.2	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.1 – 0.15	
		● ● ✖ 1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.12	
Pre-hardened steel	35-45HRC	● ● ✖ ≤0.25 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.25	
		● ● ✖ 0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.1 – 0.2	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.1 – 0.15	
		● ● ✖ 1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.12	
Austenitic stainless steel	—	● ● ✖ ≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2	
		✖ ≤0.25 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15	
		● ● ✖ 0.25 – 0.5 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15	
		✖ 0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.08 – 0.12	
		✖ 0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1	
Duplex stainless steel	≤280HB	● ● ✖ 1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1	
		✖ 1.0 DC	≤5	0.06 – 0.08	≤5	0.06 – 0.08	
		● ● ✖ ≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2	
		✖ ≤0.25 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15	
		● ● ✖ 0.25 – 0.5 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15	
		✖ 0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12	
Ferritic and martensitic stainless steel	—	● ● ✖ 0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.08 – 0.12	
		✖ 0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1	
		● ● ✖ 1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1	
		✖ 1.0 DC	≤5	0.06 – 0.08	≤5	0.06 – 0.08	
		● ● ✖ ≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2	
		✖ ≤0.25 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15	
Precipitation hardening stainless steel	<450HB	● ● ✖ 0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12	
		✖ 0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.06 – 0.1	
		● ● ✖ 0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1	
		✖ 0.5 – 0.75 DC	≤8	0.06 – 0.08	≤8	0.06 – 0.08	
		● ● ✖ 1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1	
		✖ 1.0 DC	≤5	0.06 – 0.08	≤5	0.06 – 0.08	

## VPX300 – DEPTH OF CUT/FEED PER TOOTH

Material	Properties	Cutting conditions	ae	DC=Ø25		DC=Ø28-Ø80			
				ap	fz	ap	fz		
K Gray cast iron	≤350MPa	● ●	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.3		
		✚	≤0.25 DC	≤11	0.08 – 0.15	≤11	0.1 – 0.25		
		● ●	0.25 – 0.5 DC	≤11	0.08 – 0.15	≤11	0.1 – 0.25		
		✚	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.1 – 0.2		
		● ●	0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.1 – 0.2		
		✚	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.08 – 0.15		
		● ●	1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.15		
		✚	1.0 DC	≤5	0.06 – 0.08	≤5	0.08 – 0.12		
		Ductile cast iron	≤800MPa	● ●	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.25
				✚	≤0.25 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.2
				● ●	0.25 – 0.5 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.2
				✚	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.1 – 0.15
				● ●	0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.1 – 0.15
				✚	0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.08 – 0.12
● ●	1.0 DC			≤5	0.06 – 0.1	≤5	0.08 – 0.12		
✚	1.0 DC			≤5	0.06 – 0.08	≤5	0.06 – 0.1		
N Aluminum alloy	Si<5 %	● ●	≤0.25 DC	≤11	0.1 – 0.25	≤11	0.1 – 0.25		
		✚	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2		
		● ●	0.25 – 0.5 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2		
		✚	0.25 – 0.5 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.15		
		● ●	0.5 – 0.75 DC	≤8	0.06 – 0.15	≤8	0.08 – 0.15		
		✚	0.5 – 0.75 DC	≤8	0.06 – 0.15	≤8	0.08 – 0.15		
		● ●	1.0 DC	≤5	0.06 – 0.15	≤5	0.08 – 0.15		
		✚	1.0 DC	≤5	0.06 – 0.15	≤5	0.08 – 0.12		
H Hardened steel	40-55HRC	● ●	≤0.25 DC	≤5	0.08 – 0.15	≤5	0.08 – 0.15		
		✚	≤0.25 DC	≤5	0.08 – 0.12	≤5	0.08 – 0.12		
		● ●	0.25 – 0.5 DC	≤4	0.08 – 0.12	≤4	0.08 – 0.12		
		✚	0.25 – 0.5 DC	≤4	0.06 – 0.1	≤4	0.06 – 0.1		
		● ●	0.5 – 0.75 DC	≤3	0.06 – 0.1	≤3	0.06 – 0.1		
		✚	0.5 – 0.75 DC	≤3	0.06 – 0.08	≤3	0.06 – 0.08		
		● ●	1.0 DC	≤2	0.06 – 0.1	≤2	0.06 – 0.1		
		✚	1.0 DC	≤2	0.06 – 0.08	≤2	0.06 – 0.08		

# VPX300

## RECOMMENDED CUTTING CONDITIONS

### WET CUTTING



These cutting conditions are reference for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter the conditions accordingly.

Chattering and vibration is more likely under the following circumstances: When the tool overhang is long (using a long shank, screw-in type, etc.), the rigidity of the machine, work material or attachment of work material is low, or during the machining of corners during pocket machining. Use cutting conditions at the minimum recommendation or below.

### CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc				
				ae<0.25 DC	ae≥0.25-0.5 DC	ae≥0.5-0.75 DC	ae=1.0 DC	
P Mild steel	≤180HB	● ●	MV1020	210 (150 - 290)	200 (140 - 270)	150 (110 - 180)	150 (110 - 180)	
		● ●	MV1030	140 (100 - 190)	130 ( 90 - 180)	100 ( 70 - 120)	100 ( 70 - 120)	
		● ●	MP6120	140 (100 - 190)	130 ( 90 - 180)	100 ( 70 - 120)	100 ( 70 - 120)	
		● ●	VP15TF	140 (100 - 190)	130 ( 90 - 180)	100 ( 70 - 120)	100 ( 70 - 120)	
		● ✖	MP6130	140 (100 - 190)	130 ( 90 - 180)	100 ( 70 - 120)	100 ( 70 - 120)	
P Carbon steel Alloy steel Alloy tool steel	180 - 280HB	● ●	MV1020	180 (140 - 210)	170 (120 - 200)	150 (110 - 180)	150 (110 - 180)	
		● ●	MV1030	120 ( 90 - 140)	110 ( 80 - 130)	100 ( 70 - 120)	100 ( 70 - 120)	
	280 - 350HB	● ●	MV1020	140 (110 - 160)	130 ( 90 - 150)	120 ( 80 - 140)	120 ( 80 - 140)	
		● ●	MV1030	120 ( 90 - 140)	110 ( 80 - 130)	100 ( 70 - 120)	120 ( 80 - 140)	
	180 - 350HB ≤350HB	● ●	MP6120	120 ( 90 - 140)	110 ( 80 - 130)	100 ( 70 - 120)	100 ( 70 - 120)	
M Pre-hardened steel	35 - 45HRC	● ●	MP6120	100 ( 80 - 120)	90 ( 70 - 110)	80 ( 60 - 100)	80 ( 60 - 100)	
		● ●	VP15TF	100 ( 80 - 120)	90 ( 70 - 110)	80 ( 60 - 100)	80 ( 60 - 100)	
		● ✖	MP6130	100 ( 80 - 120)	90 ( 70 - 110)	80 ( 60 - 100)	80 ( 60 - 100)	
		● ● ✖	MP7130	120 (100 - 150)	110 ( 90 - 140)	90 ( 70 - 120)	90 ( 70 - 120)	
		● ●	VP15TF	120 (100 - 150)	110 ( 90 - 140)	90 ( 70 - 120)	90 ( 70 - 120)	
M Austenitic stainless steel	≤200HB	● ● ✖	MP7130	100 ( 80 - 130)	90 ( 70 - 120)	70 ( 50 - 100)	70 ( 50 - 100)	
		● ●	VP15TF	100 ( 80 - 130)	90 ( 70 - 120)	70 ( 50 - 100)	70 ( 50 - 100)	
	>200HB	● ● ✖	MP7130	90 ( 70 - 120)	80 ( 60 - 110)	60 ( 40 - 90)	60 ( 40 - 90)	
		● ●	VP15TF	90 ( 70 - 120)	80 ( 60 - 110)	60 ( 40 - 90)	60 ( 40 - 90)	
	M Duplex stainless steel	≤280HB	● ● ✖	MP7130	120 (100 - 150)	110 ( 90 - 140)	90 ( 70 - 120)	90 ( 70 - 120)
● ●			VP15TF	120 (100 - 150)	110 ( 90 - 140)	90 ( 70 - 120)	90 ( 70 - 120)	
● ● ✖			MP7130	90 ( 70 - 120)	80 ( 60 - 110)	60 ( 40 - 90)	60 ( 40 - 90)	
● ●			VP15TF	90 ( 70 - 120)	80 ( 60 - 110)	60 ( 40 - 90)	60 ( 40 - 90)	
K Ferritic and martensitic stainless steel			-	● ● ✖	MP7130	120 (100 - 150)	110 ( 90 - 140)	90 ( 70 - 120)
	● ●	VP15TF		120 (100 - 150)	110 ( 90 - 140)	90 ( 70 - 120)	90 ( 70 - 120)	
K Precipitation hardening stainless steel	<450HB	● ● ✖	MP7130	90 ( 70 - 120)	80 ( 60 - 110)	60 ( 40 - 90)	60 ( 40 - 90)	
		● ●	VP15TF	90 ( 70 - 120)	80 ( 60 - 110)	60 ( 40 - 90)	60 ( 40 - 90)	
K Gray cast iron	≤350MPa	● ●	MC5020	180 (160 - 220)	170 (150 - 210)	150 (130 - 190)	150 (130 - 190)	
		● ● ✖	VP15TF	130 (100 - 150)	120 ( 90 - 140)	100 ( 80 - 120)	100 ( 80 - 120)	
	Ductile cast iron	≤450MPa	● ●	MV1020	180 (150 - 240)	170 (140 - 230)	150 (130 - 200)	150 (130 - 200)
			● ●	MV1030	130 ( 80 - 180)	120 ( 70 - 170)	105 ( 60 - 150)	105 ( 60 - 150)
		≤800MPa	● ●	MV1020	160 (130 - 210)	150 (120 - 200)	130 (110 - 170)	130 (110 - 170)
			● ●	MV1030	130 ( 80 - 180)	120 ( 70 - 170)	105 ( 60 - 150)	105 ( 60 - 150)
			● ● ✖	MC5020	160 (140 - 180)	150 (130 - 170)	130 (110 - 150)	130 (110 - 150)
N Aluminum alloy	Si<5 %	● ● ✖	TF15	600 (400 - 1000)	600 (400 - 1000)	600 (400 - 1000)	600 (400 - 1000)	

## VPX300 – WET CUTTING – CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc				
				ae<0.25 DC	ae≥0.25–0.5 DC	ae≥0.5–0.75 DC	ae=1.0 DC	
S	Titanium alloy (Ti-6Al-4V)	● ● ✘	MP9120	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	
			VP15TF	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	
		✘	MP9130	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	
	Titanium alloy (Ti-5Al-5V-5Mo-3Cr)	● ●	MP9120	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	
			VP15TF	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	
		✘	MP9130	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	
	Heat resistant alloy	● ●	MP9120	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	
			VP15TF	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	
		✘	MP9130	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	
H	Hardened steel	40 – 55HRC	● ● ✘	VP15TF	90 ( 70 – 100)	85 ( 60 – 100)	70 ( 50 – 80)	70 ( 50 – 80)

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**VPX300 – DEPTH OF CUT/FEED PER TOOTH**

Material	Properties	Cutting conditions	ae	DC=Ø25		DC=Ø28 – Ø80	
				ap	fz	ap	fz
Mild steel	≤180HB	● ● ✖	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.3
		● ● ✖	0.25 – 0.5 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.25
		● ● ✖	0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.1 – 0.2
		● ● ✖	1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.15
Carbon steel Alloy steel Alloy tool steel	180 – 280HB	● ● ✖	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.3
		● ● ✖	0.25 – 0.5 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.25
		● ● ✖	0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.1 – 0.2
		● ● ✖	1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.15
Carbon steel Alloy steel Alloy tool steel	280 – 350HB ≤350HB	● ● ✖	≤0.25 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.25
		● ● ✖	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.1 – 0.2
		● ● ✖	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.1 – 0.15
		● ● ✖	1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.12
Pre-hardened steel	35 – 45HRC	● ● ✖	≤0.25 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.25
		● ● ✖	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.1 – 0.2
		● ● ✖	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.1 – 0.15
		● ● ✖	1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.12
Austenitic stainless steel	—	● ● ✖	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2
		✖	≤0.25 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15
		● ● ✖	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.15
		✖	0.25 – 0.5 DC	≤11	0.06 – 0.1	≤11	0.08 – 0.12
		● ● ✖	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.08 – 0.12
		✖	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1
		● ● ✖	1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1
Duplex stainless steel	≤280HB	● ● ✖	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2
		✖	≤0.25 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15
		● ● ✖	0.25 – 0.5 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15
		✖	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
		● ● ✖	0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		✖	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1
		● ● ✖	1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1
Ferritic and martensitic stainless steel	—	● ● ✖	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2
		✖	≤0.25 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15
		● ● ✖	0.25 – 0.5 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15
		✖	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
		● ● ✖	0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.08 – 0.12
		✖	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1
		● ● ✖	1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1
Precipitation hardening stainless steel	<450HB	● ● ✖	≤0.25 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.15
		✖	≤0.25 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
		● ● ✖	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
		✖	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
		● ● ✖	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1
		✖	0.5 – 0.75 DC	≤8	0.06 – 0.08	≤8	0.06 – 0.08
		● ● ✖	1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1
✖	1.0 DC	≤5	0.06 – 0.08	≤5	0.06 – 0.08		

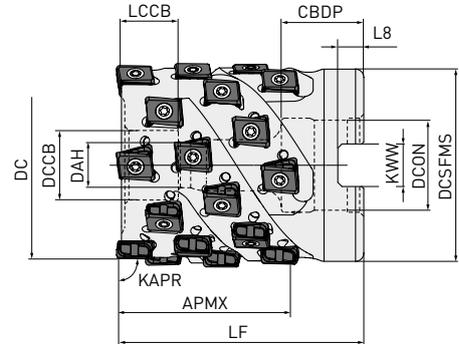
**VPX300 – DEPTH OF CUT/FEED PER TOOTH**

Material	Properties	Cutting conditions	ae	DC=Ø25		DC=Ø28 – Ø80		
				ap	fz	ap	fz	
K Gray cast iron	≤350MPa	● ●	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.3	
		✚	≤0.25 DC	≤11	0.08 – 0.15	≤11	0.1 – 0.25	
		● ●	0.25 – 0.5 DC	≤11	0.08 – 0.15	≤11	0.1 – 0.25	
		✚	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.1 – 0.2	
		● ●	0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.1 – 0.2	
		✚	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.08 – 0.15	
	● ●	1.0 DC	≤5	0.06 – 0.1	≤5	0.08 – 0.15		
	✚	1.0 DC	≤5	0.06 – 0.08	≤5	0.08 – 0.12		
	Ductile cast iron	≤800MPa	● ●	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.25
			✚	≤0.25 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.2
			● ●	0.25 – 0.5 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.2
			✚	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.1 – 0.15
● ●			0.5 – 0.75 DC	≤8	0.08 – 0.12	≤8	0.1 – 0.15	
✚			0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.08 – 0.12	
N Aluminum alloy	Si<5 %	● ●	≤0.25 DC	≤11	0.1 – 0.25	≤11	0.1 – 0.25	
		✚	≤0.25 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2	
		● ●	0.25 – 0.5 DC	≤11	0.1 – 0.2	≤11	0.1 – 0.2	
		✚	0.25 – 0.5 DC	≤11	0.1 – 0.15	≤11	0.1 – 0.15	
		● ●	0.5 – 0.75 DC	≤8	0.06 – 0.15	≤8	0.08 – 0.15	
		✚	0.5 – 0.75 DC	≤8	0.06 – 0.15	≤8	0.08 – 0.15	
	● ●	1.0 DC	≤5	0.06 – 0.15	≤5	0.08 – 0.15		
	✚	1.0 DC	≤5	0.06 – 0.15	≤5	0.08 – 0.12		
	S Titanium alloy (Ti-6Al-4V)	—	● ● ✚	≤0.25 DC	≤11	0.08 – 0.15	≤11	0.08 – 0.15
			● ● ✚	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
			● ● ✚	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1
			● ● ✚	1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1
Titanium alloy (Ti-5Al-5V-5Mo-3Cr)		—	● ● ✚	≤0.25 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
			● ● ✚	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
			● ● ✚	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1
			● ● ✚	1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1
Heat resistant alloy		—	● ● ✚	≤0.25 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
			● ● ✚	0.25 – 0.5 DC	≤11	0.08 – 0.12	≤11	0.08 – 0.12
			● ● ✚	0.5 – 0.75 DC	≤8	0.06 – 0.1	≤8	0.06 – 0.1
			● ● ✚	1.0 DC	≤5	0.06 – 0.1	≤5	0.06 – 0.1
H Hardened steel	40 – 55HRC	● ●	≤0.25 DC	≤5	0.08 – 0.15	≤5	0.08 – 0.15	
		✚	≤0.25 DC	≤5	0.08 – 0.12	≤5	0.08 – 0.12	
		● ●	0.25 – 0.5 DC	≤4	0.08 – 0.12	≤4	0.08 – 0.12	
		✚	0.25 – 0.5 DC	≤4	0.06 – 0.1	≤4	0.06 – 0.1	
		● ●	0.5 – 0.75 DC	≤3	0.06 – 0.1	≤3	0.06 – 0.1	
		✚	0.5 – 0.75 DC	≤3	0.06 – 0.1	≤3	0.06 – 0.08	
		● ●	1.0 DC	≤2	0.06 – 0.1	≤2	0.06 – 0.1	
		✚	1.0 DC	≤2	0.06 – 0.1	≤2	0.06 – 0.08	

# VPX300



P M K N S



## LONG CUTTING EDGE

Order number	Set bolt	Geometry
VPX300-040A02A031R06	HSC08040	
VPX300-040A02A042R08	HSC08050	
VPX300-050A03A031R09	HSC10040	
VPX300-050A03A042R12	HSC10050	
VPX300-050A03A052R15	HSC10060	
VPX300-063A04A042R16	HSC12050	
VPX300-063A04A052R20	HSC12060	
VPX300-080A05A052R25	HSC12060	
VPX300-080A05A063R30	HSC12070	
VPX300R08005CA05225	HSC16055	
VPX300R08005CA06330	HSC16065	

## SHELL TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	WT	ZNF	ZNP	 LOGU12
VPX300-040A02A031R06	●	31	40	16	50	1.06°	0.26	2	6	
VPX300-040A02A042R08	●	42	40	16	60	1.06°	0.31	2	8	
VPX300-050A03A031R09	●	31	50	22	55	0.79°	0.47	3	9	
VPX300-050A03A042R12	●	42	50	22	65	0.79°	0.55	3	12	
VPX300-050A03A052R15	●	52	50	22	75	0.79°	0.63	3	15	
VPX300-063A04A042R16	★	42	63	27	65	0.6°	0.92	4	16	
VPX300-063A04A052R20	★	52	63	27	75	0.6°	1.06	4	20	
VPX300-080A05A052R25	★	52	80	27	75	0.45°	1.94	5	25	
VPX300-080A05A063R30	★	63	80	27	85	0.45°	2.20	5	30	
VPX300R08005CA05225	★	52	80	31.75	75	0.45°	1.81	5	25	
VPX300R08005CA06330	★	63	80	31.75	85	0.45°	2.06	5	30	

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## VPX300 – LONG CUTTING EDGE – SHELL TYPE

### MOUNTING DIMENSIONS

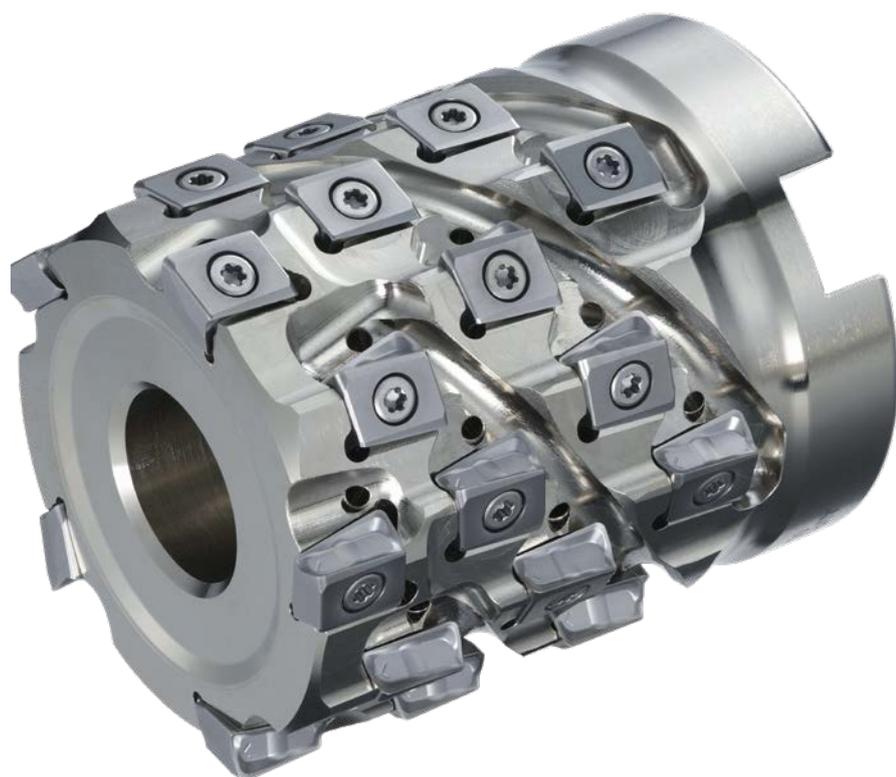
Order number	CBDP	DAH	DCCB	DCSFMS	KWW	LCCB	L8
VPX300-040A02A031R06	18	9	14	37	8.4	8.4	5.6
VPX300-040A02A042R08	18	9	14	37	8.4	8.4	5.6
VPX300-050A03A031R09	20	11	17	47	10.4	12.4	6.3
VPX300-050A03A042R12	20	11	17	47	10.4	12.4	6.3
VPX300-050A03A052R15	20	11	17	47	10.4	12.4	6.3
VPX300-063A04A042R16	23	13	20	60	12.4	12.4	7
VPX300-063A04A052R20	23	13	20	60	12.4	12.4	7
VPX300-080A05A052R25	23	13	20	76	12.4	12.4	7
VPX300-080A05A063R30	23	13	20	76	12.4	12.4	7
VPX300R08005CA05225	32	17	26	76	12.7	17.4	8
VPX300R08005CA06330	32	17	26	76	12.7	17.4	8

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## SPARE PARTS

Tool holder type	DC			
		Clamp screw	Wrench	Anti-seize lubricant
VPX300	≤80	TPS40F1	TIP15W	MK1KS

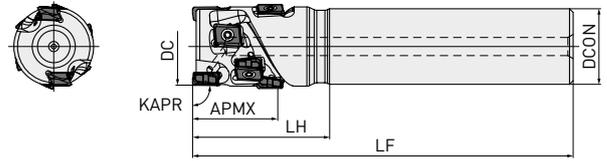
\* Clamp torque (N • m): TPS40F1 = 3.0



# VPX300



P M K N S



Right hand tool holder only

## LONG CUTTING EDGE

## CYLINDRICAL SHANK TYPE

Order number	Stock	APMX	DC	DCON	LF	RMPX	WT	LH	ZNF	ZNP	
<b>SHORT TYPE</b>											
VPX300R402SA32S02104	●	21	40	32	125	1.06°	0.78	45	2	4	LOGU12
VPX300R402SA32S03106	●	31	40	32	130	1.06°	0.79	50	2	6	
VPX300R402SA32S04208	●	42	40	32	140	1.06°	0.84	60	2	8	

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## SPARE PARTS

Tool holder type	DC			
		Clamp screw	Wrench	Anti-seize lubricant
VPX300R25	≤50	TPS40F1	TIP15W	MK1KS

\* Clamp torque (N • m): TPS40F1 = 3.0



# VPX300

## CHIPBREAKER AND GRADE RECOMMENDATIONS

Material	Properties	Cutting conditions	1st Recommend		2nd Recommend
			1st	2nd	
P	Mild steel	≤180HB	● ●	L	M
			✚	M	L
	Carbon steel	180 – 350HB	●	L	M
	Alloy steel	≤350HB	●	M	L
	Alloy tool steel		✚	M	L
	Pre-hardened steel	35 – 45HRC	● ●	M	L
		✚	M	L	
M	Austenitic stainless steel	≤280HB	● ●	L	M
			✚	M	L
		>200HB	● ●	L	M
			✚	M	L
	Duplex stainless steel	≤280HB	● ●	L	M
			✚	M	L
Ferritic and martensitic stainless steel	—	● ●	L	M	
		✚	M	L	
Precipitation hardening stainless steel	<450HB	● ●	L	M	
		✚	M	L	
K	Gray cast iron	≤350MPa	● ●	M	L
			✚	M	L
Ductile cast iron	≤800MPa	● ●	M	L	
		✚	M	L	
N	Aluminum alloy	Si<5 %	● ●	L	M
		✚	M	L	
S	Titanium alloys (Ti-6Al-4V)	—	● ●	L	M
			✚	M	L
	Titanium alloys (Ti-5Al-5V-5Mo-3Cr)	—	● ●	L	M
		✚	M	L	
Heat resistant alloys	—	● ●	M	L	
		✚	M	L	
H	Hardened steel	40 – 55HRC	● ● ✚	M	—

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# VPX300

## RECOMMENDED CUTTING CONDITIONS WET CUTTING



These cutting conditions are reference for standard shank types (last letter in designation is S) and arbor shank types. If there is chatter, insert chipping, etc. during machining, alter the conditions accordingly.

Chattering and vibration is more likely under the following circumstances: When the tool overhang is long (using a long shank, screw-in type, etc.), the rigidity of the machine, work material or attachment of work material is low, or during the machining of corners during pocket machining. Use cutting conditions at the minimum recommendation or below.

### CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc			
				ae<0.25 DC	ae≥0.25-0.5 DC	ae≥0.5-0.75 DC	ae=1.0 DC
P Mild steel	≤180HB	● ●	MV1020	210 (150 – 290)	200 (140 – 270)	150 (110 – 180)	150 (110 – 180)
		● ●	MV1030	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)
		● ●	MP6120	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)
		● ●	VP15TF	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)
		● ✖	MP6130	140 (100 – 190)	130 ( 90 – 180)	100 ( 70 – 120)	100 ( 70 – 120)
P Carbon steel Alloy steel Alloy tool steel	180 – 280HB	● ●	MV1020	180 (140 – 210)	170 (120 – 200)	150 (110 – 180)	150 (110 – 180)
		● ●	MV1030	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	100 ( 70 – 120)
	280 – 350HB	● ●	MV1020	140 (110 – 160)	130 ( 90 – 150)	120 ( 80 – 140)	120 ( 80 – 140)
		● ●	MV1030	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	120 ( 80 – 140)
	180 – 350HB ≤350HB	● ●	MP6120	120 ( 90 – 140)	110 ( 80 – 130)	100 ( 70 – 120)	100 ( 70 – 120)
P Pre-hardened steel	35 – 45HRC	● ●	MP6120	100 ( 80 – 120)	90 ( 70 – 110)	80 ( 60 – 100)	80 ( 60 – 100)
		● ●	VP15TF	100 ( 80 – 120)	90 ( 70 – 110)	80 ( 60 – 100)	80 ( 60 – 100)
		● ✖	MP6130	100 ( 80 – 120)	90 ( 70 – 110)	80 ( 60 – 100)	80 ( 60 – 100)
		● ● ✖	MP7130	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)
		● ●	VP15TF	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)
M Austenitic stainless steel	≤200HB	● ● ✖	MP7130	100 ( 80 – 130)	90 ( 70 – 120)	70 ( 50 – 100)	70 ( 50 – 100)
		● ●	VP15TF	100 ( 80 – 130)	90 ( 70 – 120)	70 ( 50 – 100)	70 ( 50 – 100)
	>200HB	● ● ✖	MP7130	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)
		● ●	VP15TF	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)
	M Duplex stainless steel	≤280HB	● ● ✖	MP7130	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)
● ●			VP15TF	120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)
● ● ✖			MP7130	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)
● ●			VP15TF	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)
M Ferritic and martensitic stainless steel			-	● ● ✖	MP7130	120 (100 – 150)	110 ( 90 – 140)
	● ●	VP15TF		120 (100 – 150)	110 ( 90 – 140)	90 ( 70 – 120)	90 ( 70 – 120)
M Precipitation hardening stainless steel	<450HB	● ● ✖	MP7130	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)
		● ●	VP15TF	90 ( 70 – 120)	80 ( 60 – 110)	60 ( 40 – 90)	60 ( 40 – 90)
K Gray cast iron	≤350MPa	● ●	MC5020	180 (160 – 220)	170 (150 – 210)	150 (130 – 190)	150 (130 – 190)
		● ● ✖	VP15TF	130 (100 – 150)	120 ( 90 – 140)	100 ( 80 – 120)	100 ( 80 – 120)
	≤450MPa	● ●	MV1020	180 (150 – 240)	170 (140 – 230)	150 (130 – 200)	150 (130 – 200)
		● ●	MV1030	130 ( 80 – 180)	120 ( 70 – 170)	105 ( 60 – 150)	105 ( 60 – 150)
	≤800MPa	● ●	MV1020	160 (130 – 210)	150 (120 – 200)	130 (110 – 170)	130 (110 – 170)
		● ●	MV1030	130 ( 80 – 180)	120 ( 70 – 170)	105 ( 60 – 150)	105 ( 60 – 150)
		● ● ✖	MC5020	160 (140 – 180)	150 (130 – 170)	130 (110 – 150)	130 (110 – 150)
K Ductile cast iron	≤800MPa	● ● ✖	VP15TF	110 ( 80 – 140)	100 ( 70 – 130)	80 ( 60 – 120)	80 ( 60 – 120)
		● ● ✖	TF15	600 (400 – 1000)	600 (400 – 1000)	600 (400 – 1000)	600 (400 – 1000)
N Aluminum alloy	Si<5 %	● ● ✖	TF15	600 (400 – 1000)	600 (400 – 1000)	600 (400 – 1000)	600 (400 – 1000)



## VPX300 – WET CUTTING – CUTTING SPEED

Material	Properties	Cutting conditions	Grade	Vc				
				ae<0.25 DC	ae≥0.25–0.5 DC	ae≥0.5–0.75 DC	ae=1.0 DC	
S	Titanium alloy (Ti-6Al-4V)	● ● ✘	MP9120	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	
			VP15TF	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	50 ( 40 – 70)	
		✘	MP9130	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	
	Titanium alloy (Ti-5Al-5V-5Mo-3Cr)	● ●	MP9120	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	
			VP15TF	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	
		✘	MP9130	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	
	Heat resistant alloy	● ●	MP9120	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	
			VP15TF	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	40 ( 30 – 60)	
		✘	MP9130	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	30 ( 20 – 40)	
H	Hardened steel	40 – 55HRC	● ● ✘	VP15TF	90 ( 70 – 100)	85 ( 60 – 100)	70 ( 50 – 80)	70 ( 50 – 80)

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**VPX300 – DEPTH OF CUT/FEED PER TOOTH**

Material	Properties	Cutting conditions	ae	DC=Ø40		DC=Ø50 – 80	
				ap	fz	ap	fz
Mild steel	≤180HB	● ● ✖	≤0.25 DC	≤APMX	0.15 (0.10 – 0.20)	≤APMX	0.18 (0.10 – 0.25)
		● ● ✖	0.25 – 0.5 DC	≤APMX	0.13 (0.10 – 0.15)	≤31	0.15 (0.10 – 0.20)
		● ● ✖	0.5 – 0.75 DC	≤21	0.10 (0.08 – 0.12)	≤21	0.13 (0.10 – 0.15)
		● ● ✖	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.10 (0.08 – 0.12)
Carbon steel Alloy steel Alloy tool steel	180 – 280HB	● ● ✖	≤0.25 DC	≤APMX	0.15 (0.10 – 0.20)	≤APMX	0.18 (0.10 – 0.25)
		● ● ✖	0.25 – 0.5 DC	≤APMX	0.13 (0.10 – 0.15)	≤31	0.15 (0.10 – 0.20)
		● ● ✖	0.5 – 0.75 DC	≤21	0.10 (0.08 – 0.12)	≤21	0.13 (0.10 – 0.15)
		● ● ✖	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.10 (0.08 – 0.12)
Carbon steel Alloy steel Alloy tool steel	280 – 350HB ≤350HB	● ● ✖	≤0.25 DC	≤APMX	0.13 (0.10 – 0.15)	≤APMX	0.15 (0.10 – 0.20)
		● ● ✖	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.13 (0.10 – 0.15)
		● ● ✖	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.10 (0.08 – 0.12)
		● ● ✖	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)
Pre-hardened steel	35 – 45HRC	● ● ✖	≤0.25 DC	≤APMX	0.13 (0.10 – 0.15)	≤APMX	0.15 (0.10 – 0.20)
		● ● ✖	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.13 (0.10 – 0.15)
		● ● ✖	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.10 (0.08 – 0.12)
		● ● ✖	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)
Austenitic stainless steel	–	● ● ✖	≤0.25 DC	≤APMX	0.15 (0.10 – 0.20)	≤APMX	0.15 (0.10 – 0.20)
		✖	≤0.25 DC	≤APMX	0.12 (0.08 – 0.15)	≤APMX	0.12 (0.08 – 0.15)
		● ● ✖	0.25 – 0.5 DC	≤APMX	0.12 (0.08 – 0.15)	≤31	0.12 (0.08 – 0.15)
		✖	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.10 (0.08 – 0.12)
		● ● ✖	0.5 – 0.75 DC	≤21	0.10 (0.08 – 0.12)	≤21	0.10 (0.08 – 0.12)
		✖	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.08 (0.06 – 0.10)
		● ● ✖	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)
		✖	1.0 DC	≤5	0.07 (0.06 – 0.08)	≤5	0.07 (0.06 – 0.08)
Duplex stainless steel	≤280HB	● ● ✖	≤0.25 DC	≤APMX	0.15 (0.10 – 0.20)	≤APMX	0.15 (0.10 – 0.20)
		✖	≤0.25 DC	≤APMX	0.12 (0.08 – 0.15)	≤APMX	0.12 (0.08 – 0.15)
		● ● ✖	0.25 – 0.5 DC	≤APMX	0.12 (0.08 – 0.15)	≤31	0.12 (0.08 – 0.15)
		✖	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.10 (0.08 – 0.12)
		● ● ✖	0.5 – 0.75 DC	≤21	0.10 (0.08 – 0.12)	≤21	0.10 (0.08 – 0.12)
		✖	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.08 (0.06 – 0.10)
		● ● ✖	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)
Ferritic and martensitic stainless steel	–	● ● ✖	≤0.25 DC	≤APMX	0.15 (0.10 – 0.20)	≤APMX	0.15 (0.10 – 0.20)
		✖	≤0.25 DC	≤APMX	0.12 (0.08 – 0.15)	≤APMX	0.12 (0.08 – 0.15)
		● ● ✖	0.25 – 0.5 DC	≤APMX	0.12 (0.08 – 0.15)	≤31	0.12 (0.08 – 0.15)
		✖	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.10 (0.08 – 0.12)
		● ● ✖	0.5 – 0.75 DC	≤21	0.10 (0.08 – 0.12)	≤21	0.10 (0.08 – 0.12)
		✖	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.08 (0.06 – 0.10)
		● ● ✖	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)
Precipitation hardening stainless steel	<450HB	● ● ✖	≤0.25 DC	≤APMX	0.13 (0.10 – 0.15)	≤APMX	0.13 (0.10 – 0.15)
		✖	≤0.25 DC	≤APMX	0.10 (0.08 – 0.12)	≤APMX	0.10 (0.08 – 0.12)
		● ● ✖	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.10 (0.08 – 0.12)
		✖	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.10 (0.08 – 0.12)
		● ● ✖	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.08 (0.06 – 0.10)
		✖	0.5 – 0.75 DC	≤21	0.07 (0.06 – 0.08)	≤21	0.07 (0.06 – 0.08)
		● ● ✖	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)
✖	1.0 DC	≤5	0.07 (0.06 – 0.08)	≤5	0.07 (0.06 – 0.08)		

**VPX300 – DEPTH OF CUT/FEED PER TOOTH**

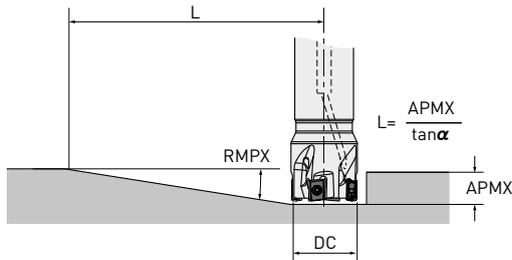
Material	Properties	Cutting conditions	ae	DC=Ø40		DC=Ø50 – 80			
				ap	fz	ap	fz		
K Gray cast iron	≤350MPa	● ● ✘	≤0.25 DC	≤APMX	0.15 (0.10 – 0.20)	≤APMX	0.18 (0.10 – 0.25)		
		● ✘	≤0.25 DC	≤APMX	0.12 (0.08 – 0.15)	≤APMX	0.15 (0.10 – 0.20)		
		● ● ✘	0.25 – 0.5 DC	≤APMX	0.12 (0.08 – 0.15)	≤31	0.15 (0.10 – 0.20)		
		● ✘	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.13 (0.10 – 0.15)		
		● ● ✘	0.5 – 0.75 DC	≤21	0.10 (0.08 – 0.12)	≤21	0.13 (0.10 – 0.15)		
		● ✘	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.10 (0.08 – 0.12)		
		● ● ✘	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.12 (0.08 – 0.15)		
		● ✘	1.0 DC	≤5	0.07 (0.06 – 0.08)	≤5	0.08 (0.06 – 0.10)		
		Ductile cast iron	≤800MPa	● ● ✘	≤0.25 DC	≤APMX	0.15 (0.10 – 0.20)	≤APMX	0.15 (0.10 – 0.20)
				● ✘	≤0.25 DC	≤APMX	0.13 (0.10 – 0.15)	≤APMX	0.13 (0.10 – 0.15)
				● ● ✘	0.25 – 0.5 DC	≤APMX	0.13 (0.10 – 0.15)	≤31	0.13 (0.10 – 0.15)
				● ✘	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.10 (0.08 – 0.12)
				● ● ✘	0.5 – 0.75 DC	≤21	0.10 (0.08 – 0.12)	≤21	0.10 (0.08 – 0.12)
				● ✘	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.08 (0.06 – 0.10)
● ● ✘	1.0 DC			≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)		
● ✘	1.0 DC			≤5	0.07 (0.06 – 0.08)	≤5	0.07 (0.06 – 0.08)		
N Aluminum alloy	Si<5 %			● ● ✘	≤0.25 DC	≤APMX	0.18 (0.10 – 0.25)	≤APMX	0.18 (0.10 – 0.25)
				● ✘	≤0.25 DC	≤APMX	0.15 (0.10 – 0.20)	≤APMX	0.15 (0.10 – 0.20)
				● ● ✘	0.25 – 0.5 DC	≤APMX	0.15 (0.10 – 0.20)	≤31	0.15 (0.10 – 0.20)
				● ✘	0.25 – 0.5 DC	≤APMX	0.13 (0.10 – 0.15)	≤31	0.13 (0.10 – 0.15)
				● ● ✘	0.5 – 0.75 DC	≤21	0.11 (0.06 – 0.15)	≤21	0.12 (0.08 – 0.15)
				● ✘	0.5 – 0.75 DC	≤21	0.11 (0.06 – 0.15)	≤21	0.12 (0.08 – 0.15)
		● ● ✘	1.0 DC	≤5	0.11 (0.06 – 0.15)	≤5	0.12 (0.08 – 0.15)		
		● ✘	1.0 DC	≤5	0.09 (0.06 – 0.12)	≤5	0.10 (0.08 – 0.12)		
S Titanium alloy (Ti-6Al-4V)	—	● ● ✘	≤0.25 DC	≤APMX	0.12 (0.08 – 0.15)	≤APMX	0.12 (0.08 – 0.15)		
		● ● ✘	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.10 (0.08 – 0.12)		
		● ● ✘	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.08 (0.06 – 0.10)		
		● ● ✘	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)		
		● ● ✘	≤0.25 DC	≤APMX	0.10 (0.08 – 0.12)	≤APMX	0.10 (0.08 – 0.12)		
		● ● ✘	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.10 (0.08 – 0.12)		
		● ● ✘	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.08 (0.06 – 0.10)		
		● ● ✘	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)		
Heat resistant alloy	—	● ● ✘	≤0.25 DC	≤APMX	0.10 (0.08 – 0.12)	≤APMX	0.10 (0.08 – 0.12)		
		● ● ✘	0.25 – 0.5 DC	≤APMX	0.10 (0.08 – 0.12)	≤31	0.10 (0.08 – 0.12)		
		● ● ✘	0.5 – 0.75 DC	≤21	0.08 (0.06 – 0.10)	≤21	0.08 (0.06 – 0.10)		
		● ● ✘	1.0 DC	≤5	0.08 (0.06 – 0.10)	≤5	0.08 (0.06 – 0.10)		

# VPX300

## RAMPING/HELICAL MILLING

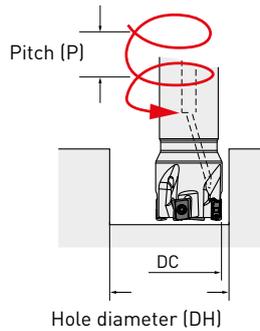
### 1 Ramping

Refer to the table below for cutting conditions. For feed per tooth and cutting speed, follow the cutting conditions for slot milling.

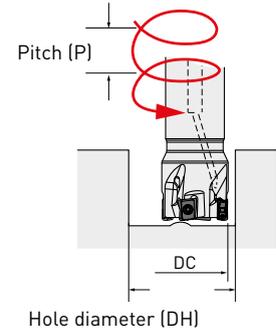


### 2 Helical milling

#### 2.1 Blind holes, flat bottom



#### 2.2 Through holes



DC	RE	1		2.1				2.2	
		RMPX	L *	DH max.	P max.	DH min	P max.	DH min	P max.
25	0.2	2.13°	296	49	2.8	42.7	2.1	36.9	1.4
	0.4	2.13°	296	48.6	2.8	42.7	2.1	36.9	1.4
	0.8	2.13°	296	47.8	2.7	42.7	2.1	36.9	1.4
	1	2.13°	296	47.4	2.6	42.7	2.1	36.9	1.4
	1.2	2.13°	296	47	2.6	42.7	2.1	36.9	1.4
	1.6	2.13°	296	46.2	2.5	42.7	2.1	36.9	1.4
	2	2.13°	296	45.4	2.4	42.7	2.1	36.9	1.4
	2.4	2.13°	296	44.6	2.3	42.7	2.1	36.9	1.4
	3	2.13°	296	43.4	2.2	42.7	2.1	36.9	1.4
	3.2	2.13°	296	43	2.1	42.7	2.1	36.9	1.4
28	0.2	1.77°	356	55	2.6	48.7	2	42.7	1.4
	0.4	1.77°	356	54.6	2.6	48.7	2	42.7	1.4
	0.8	1.77°	356	53.8	2.5	48.7	2	42.7	1.4
	1	1.77°	356	53.4	2.5	48.7	2	42.7	1.4
	1.2	1.77°	356	53	2.4	48.7	2	42.7	1.4
	1.6	1.77°	356	52.2	2.4	48.7	2	42.7	1.4
	2	1.77°	356	51.4	2.3	48.7	2	42.7	1.4
	2.4	1.77°	356	50.6	2.2	48.7	2	42.7	1.4
	3	1.77°	356	49.4	2.1	48.7	2	42.7	1.4
	3.2	1.77°	356	49	2	48.7	2	42.7	1.4
30	0.2	1.61°	392	59	2.6	52.7	2	46.6	1.5
	0.4	1.61°	392	58.6	2.5	52.7	2	46.6	1.5
	0.8	1.61°	392	57.8	2.5	52.7	2	46.6	1.5
	1	1.61°	392	57.4	2.4	52.7	2	46.6	1.5
	1.2	1.61°	392	57	2.4	52.7	2	46.6	1.5
	1.6	1.61°	392	56.2	2.3	52.7	2	46.6	1.5
	2	1.61°	392	55.4	2.2	52.7	2	46.6	1.5
	2.4	1.61°	392	54.6	2.2	52.7	2	46.6	1.5
	3	1.61°	392	53.4	2.1	52.7	2	46.6	1.5
	3.2	1.61°	392	53	2	52.7	2	46.6	1.5

## VPX300 – RAMPING/HELICAL MILLING

DC	RE	1		2.1				2.2	
		RMPX	L *	DH max.	P max.	DH min	P max.	DH min	P max.
32	0.2	1.47°	429	63	2.5	56.7	2	50.6	1.5
	0.4	1.47°	429	62.6	2.5	56.7	2	50.6	1.5
	0.8	1.47°	429	61.8	2.4	56.7	2	50.6	1.5
	1	1.47°	429	61.4	2.4	56.7	2	50.6	1.5
	1.2	1.47°	429	61	2.3	56.7	2	50.6	1.5
	1.6	1.47°	429	60.2	2.3	56.7	2	50.6	1.5
	2	1.47°	429	59.4	2.2	56.7	2	50.6	1.5
	2.4	1.47°	429	58.6	2.1	56.7	2	50.6	1.5
	3	1.47°	429	57.4	2.1	56.7	2	50.6	1.5
	3.2	1.47°	429	57	2	56.7	2	50.6	1.5
35	0.2	1.28°	493	69	2.4	62.8	1.9	56.6	1.5
	0.4	1.28°	493	68.6	2.4	62.8	1.9	56.6	1.5
	0.8	1.28°	493	67.8	2.3	62.8	1.9	56.6	1.5
	1	1.28°	493	67.4	2.3	62.8	1.9	56.6	1.5
	1.2	1.28°	493	67	2.2	62.8	1.9	56.6	1.5
	1.6	1.28°	493	66.2	2.2	62.8	1.9	56.6	1.5
	2	1.28°	493	65.4	2.1	62.8	1.9	56.6	1.5
	2.4	1.28°	493	64.6	2.1	62.8	1.9	56.6	1.5
	3	1.28°	493	63.4	2	62.8	1.9	56.6	1.5
	3.2	1.28°	493	63	2	62.8	1.9	56.6	1.5
40	0.2	1.06°	595	78.8	2.3	72.7	1.9	66.5	1.5
	0.4	1.06°	595	78.4	2.2	72.7	1.9	66.5	1.5
	0.8	1.06°	595	77.6	2.2	72.7	1.9	66.5	1.5
	1	1.06°	595	77.2	2.2	72.7	1.9	66.5	1.5
	1.2	1.06°	595	76.8	2.1	72.7	1.9	66.5	1.5
	1.6	1.06°	595	76	2.1	72.7	1.9	66.5	1.5
	2	1.06°	595	75.2	2	72.7	1.9	66.5	1.5
	2.4	1.06°	595	74.4	2	72.7	1.9	66.5	1.5
	3	1.06°	595	73.2	1.9	72.7	1.9	66.5	1.5
	3.2	1.06°	595	72.8	1.9	72.7	1.9	66.5	1.5
50	0.2	0.79°	798	98.8	2.1	92.7	1.8	86.5	1.6
	0.4	0.79°	798	98.4	2.1	92.7	1.8	86.5	1.6
	0.8	0.79°	798	97.6	2.1	92.7	1.8	86.5	1.6
	1	0.79°	798	97.2	2	92.7	1.8	86.5	1.6
	1.2	0.79°	798	96.8	2	92.7	1.8	86.5	1.6
	1.6	0.79°	798	96	2	92.7	1.8	86.5	1.6
	2	0.79°	798	95.2	2	92.7	1.8	86.5	1.6
	2.4	0.79°	798	94.4	1.9	92.7	1.8	86.5	1.6
	3	0.79°	798	93.2	1.9	92.7	1.8	86.5	1.6
	3.2	0.79°	798	92.8	1.9	92.7	1.8	86.5	1.6
63	0.2	0.6°	1051	124.8	2	118.7	1.8	112.5	1.6
	0.4	0.6°	1051	124.4	2	118.7	1.8	112.5	1.6
	0.8	0.6°	1051	123.6	2	118.7	1.8	112.5	1.6
	1	0.6°	1051	123.2	2	118.7	1.8	112.5	1.6
	1.2	0.6°	1051	122.8	2	118.7	1.8	112.5	1.6
	1.6	0.6°	1051	122	1.9	118.7	1.8	112.5	1.6
	2	0.6°	1051	121.2	1.9	118.7	1.8	112.5	1.6
	2.4	0.6°	1051	120.4	1.9	118.7	1.8	112.5	1.6
	3	0.6°	1051	119.2	1.9	118.7	1.8	112.5	1.6
	3.2	0.6°	1051	118.8	1.8	118.7	1.8	112.5	1.6

**VPX300 – RAMPING/HELICAL MILLING**

DC	RE	1		2.1				2.2	
		RMPX	L*	DH max.	P max.	DH min	P max.	DH min	P max.
80	0.2	0.45°	1401	158.8	1.9	152.6	1.8	146.5	1.6
	0.4	0.45°	1401	158.4	1.9	152.7	1.8	146.5	1.6
	0.8	0.45°	1401	157.6	1.9	152.7	1.8	146.5	1.6
	1	0.45°	1401	157.2	1.9	152.7	1.8	146.5	1.6
	1.2	0.45°	1401	156.8	1.9	152.7	1.8	146.5	1.6
	1.6	0.45°	1401	156	1.9	152.7	1.8	146.5	1.6
	2	0.45°	1401	155.2	1.9	152.7	1.8	146.5	1.6
	2.4	0.45	1401	154.4	1.8	152.7	1.8	146.5	1.6
	3	0.45	1401	153.2	1.8	152.7	1.8	146.5	1.6
	3.2	0.45	1401	152.8	1.8	152.7	1.8	146.5	1.6

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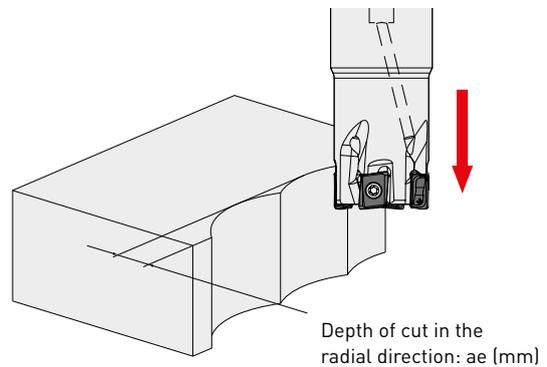
\* Shows the distance until a maximum depth of cut of 11 mm is achieved at the maximum ramping angle L (= 11/tan α).  
 1. When machining a highly ductile work material with the ramping angles in the table above, chips may be elongated.

## RECOMMENDED CUTTING CONDITIONS FOR PLUNGING AND DRILLING

Follow the cutting conditions for slot milling for the feed per tooth and cutting speed.

### PLUNGING

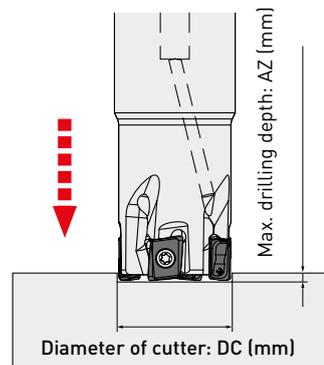
DC	ae max.
25	6.5
28	6.6
30	6.6
32	6.6
35	6.7
40	6.7
50	6.7
63	6.7
80	6.7



1. No step feed necessary.

### DRILLING

DC	AZ max.
25	0.55
28	0.55
30	0.55
32	0.55
35	0.55
40	0.55
50	0.55
63	0.55
80	0.55

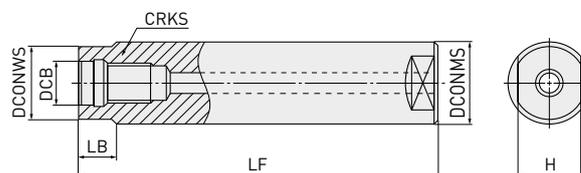


1. Exercise due caution as chips scatter easily.  
 2. Use compressed air to eliminate chips (or coolant for when machining aluminum alloys).

# ARBORS

## ARBORS FOR SCREW-IN TOOLS

### STRAIGHT SHANK ARBOR



Order number	Stock	DCB	DCNWS	DCNWS	LF	LB	H	CRKS
<b>STEEL SHANK TYPE</b>								
SC16M08S100S	★	8.5	16	14.5	100	10	10	M8
SC16M08S200L	★	8.5	16	14.5	200	10	10	M8
SC20M10S120S	★	10.5	20	18.5	120	10	14	M10
SC20M10S220L	★	10.5	20	18.5	220	10	14	M10
SC25M12S125S	★	12.5	25	23.5	125	10	19	M12
SC25M12S245L	★	12.5	25	23.5	245	10	19	M12
SC32M16S140S	★	17	32	28.5	140	15	24	M16
SC32M16S280L	★	17	32	28.5	280	15	24	M16
<b>CARBIDE SHANK TYPE</b>								
SC16M08S100SW	★	8.5	16	14.5	100	10	10	M8
SC16M08S200LW	★	8.5	16	14.5	200	10	10	M8
SC20M10S120SW	★	10.5	20	18.5	120	10	14	M10
SC20M10S220LW	★	10.5	20	18.5	220	10	14	M10
SC25M12S125SW	★	12.5	25	23.5	125	10	19	M12
SC25M12S245LW	★	12.5	25	23.5	245	10	19	M12
SC32M16S140SW	★	17	32	28.5	140	15	24	M16
SC32M16S280LW	★	17	32	28.5	280	15	24	M16

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### HOW TO INSTALL THE SCREW-IN HEAD

1. Thoroughly clean the clamping section of the head and the arbor with an air blower or brush before installation.
2. Tighten the head to the recommended torque and ensure there is no gap between the head and arbor.

Screw size	Recommended torque (N • m)	Wrench size (mm)
M8	23	10
M10	46	14
M12	80	19
M16	90	24



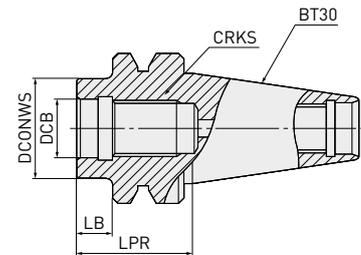
Cutting tools become extremely hot during cutting. Do not handle the cutting tools with bare hands as this may cause injuries.

# VPX300

## STRAIGHT SHANK ARBOR

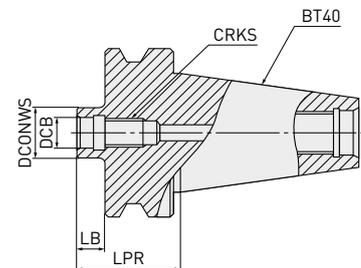
### BT30 SHANK ARBOR

Order number	Stock	DCB	DCONWS	LPR	LB	CRKS
SC16M08S10-BT30	★	8.5	14.5	32	10	M8
SC20M10S10-BT30	★	10.5	18.5	32	10	M10
SC25M12S10-BT30	★	12.5	23.5	32	10	M12
SC32M16S10-BT30	★	17.0	28.5	32	10	M16



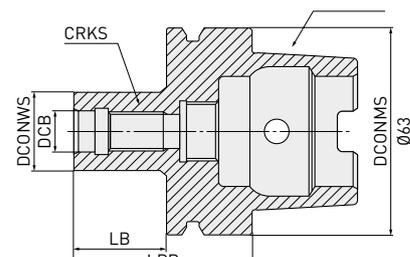
### BT40 SHANK ARBOR

Order number	Stock	DCB	DCONWS	LPR	LB	CRKS
SC16M08S10-BT40	★	8.5	14.5	37	10	M8
SC20M10S10-BT40	★	10.5	18.5	37	10	M10
SC25M12S10-BT40	★	12.5	23.5	37	10	M12
SC32M16S10-BT40	★	17.0	28.5	37	10	M16



### HSK63A SHANK ARBOR

Order number	Stock	DCB	DCONWS	LPR	LB	CRKS
SC16M08S22-HSK63A	★	8.5	14.5	48	22	M8
SC20M10S24-HSK63A	★	10.5	18.5	50	24	M10
SC25M12S27-HSK63A	★	12.5	23.5	53	27	M12
SC32M16S28-HSK63A	★	17.0	28.5	54	28	M16

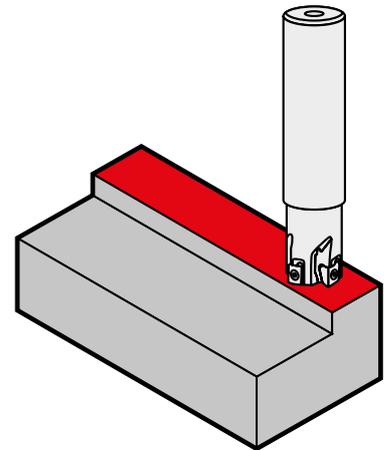




# APPLICATION EXAMPLES

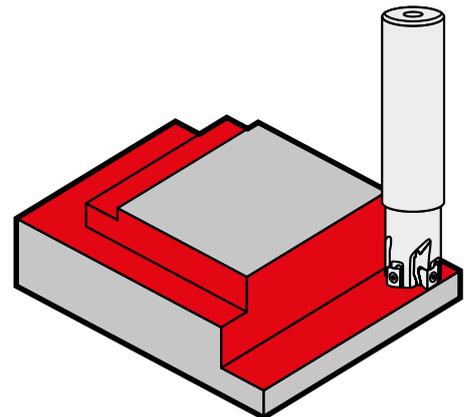
Holder	VPX200R3004SA25S
Insert (grade)	LOGU0904080PNER-M(MP9130)
Workpiece	Precipitation hardening stainless steel (38-43HRC) (PH)
Component	Block
Vc (m/min)	40
fz (mm/t.)	0.06
ap (mm)	1.8
Cutting mode	Dry cutting
Results	Good sharpness compared to conventional products allows VPX to achieve double tool life.

The examples shown are actual applications and can differ from the recommended cutting conditions.

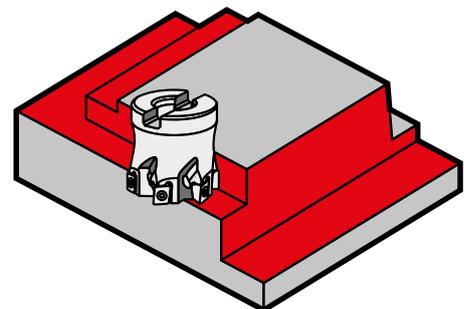


Holder	VPX200R2503SA25S
Insert (grade)	LOGU0904040PNER-M(MP7130)
Workpiece	X5CrNi18-10
Component	Location block
Vc (m/min)	180
fz (mm/t.)	0.6
ap (mm)	2.7
Cutting mode	-
Results	Reduced noise during machining than conventional products, allowing cutting conditions to be improved.

The examples shown are actual applications and can differ from the recommended cutting conditions.



Holder	VPX300-080A10AR
Insert (grade)	LOGU1207080PNER-M(MP6120)
Workpiece	Alloy tool steel
Component	Locator
Vc (m/min)	226
fz (mm/t.)	0.13
ap (mm)	5
ae (mm)	70
Cutting mode	-
Results	Achieves 2.7 times the length of machining of conventional products whilst maintaining good surface finishes.







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