

# 7700 VR 10 Contour Milling Cutter



Weldon Shank

## 7700 VR 10 Weldon Shank

EDP #	Part Number	Dimensions (mm)								No. of Inserts	Spares		
		D <sub>1</sub>	D <sub>2</sub>	L/H	l <sub>2</sub>	l <sub>3</sub>	d <sub>1</sub>	a <sub>max.</sub>	EDP#		EDP#	EDP#	
021737	7700VR 10 WA032R070	32	22	130	70	-	32	5	3	015260	D4008T	015240	T15
021738	7700VR 10 WA032R140	32	22	200	140	-	32	5	3	015260	D4008T	015240	T15
021739	7700VR 10 WA032R190	32	22	250	190	-	32	5	3	015260	D4008T	015240	T15

## 7700 VR 10 Morse Taper Shank

EDP #	Part Number	Dimensions (mm)								No. of Inserts	Spares		
		D <sub>1</sub>	D <sub>2</sub>	L/H	l <sub>2</sub>	l <sub>3</sub>	d <sub>1</sub>	a <sub>max.</sub>	EDP#		EDP#	EDP#	
021735	7700VR 10 M032R070	32	22	179	70	76,5	MT4	5	3	015260	D4008T	015240	T15
021736	7700VR 10 M032R140	32	22	249	140	146,5	MT4	5	3	015260	D4008T	015240	T15



## 7700 VR 10 Technical Advice

Milling Cutter Order Example: **7700VR10M032R140**  
 Milling Insert Order Example: **RPHT10T3M0E-421 X500**  
 For complete cutting conditions refer to page: **264**



Morse Taper Shank



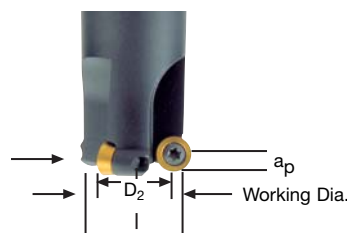
Depth of Cut (a)

### Working Diameter:

$$DW = D_2 + 2 \times \sqrt{r^2 - (r - a_p)^2}$$

where:

- DW = Working Diameter
- D<sub>2</sub> = Diameter of cutter insert centre to centre
- r = Insert radius
- a<sub>p</sub> = Axial Depth of Cut



### To find programmed feedrate:

$$f_z = h_m \times \sqrt{\frac{D}{a_p}} \times \sqrt{\frac{D_w}{a_e}}$$

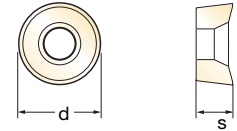
where:

- f<sub>z</sub> = Feed per tooth
- h<sub>m</sub> = Average chip thickness
- D = Cutter diameter (outside)
- a<sub>e</sub> = Radial Depth of Cut
- D<sub>w</sub> = Working Diameter
- a<sub>p</sub> = Axial Depth of Cut

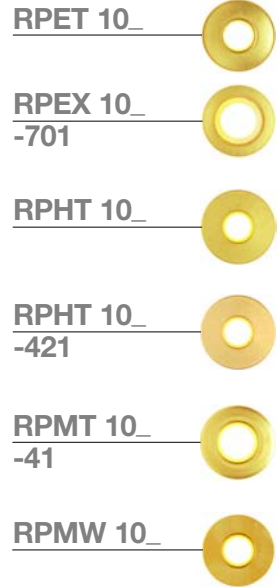
### Average chip thickness:

$$h_m = \frac{f_z}{\sqrt{\frac{D}{a_p}} \times \sqrt{\frac{D_w}{a_e}}}$$

## Inserts for 7700 VR 10



EDP#	Part Number	Grade	Application & Material			Dimensions (mm)				
			Roughing ▼	Semi-Finishing ▼▼	Finishing ▼▼▼	d	l	s	r	h <sub>m</sub> min
017679	RPET 10 T3M0E	SFZ			◆	10,0	-	3,97	5,0	0,03
017678	RPET 10 T3M0E	X44			◆	10,0	-	3,97	5,0	0,03
015215	RPEX 10 T3M0E-701	PFZ			◆	10,0	-	3,97	5,0	0,02
017688	RPEX 10 T3M0F-701	GH1	◆	◆	◆	10,0	-	3,97	5,0	0,02
023317	RPEX 10 T3M0F-701	SFZ			◆	10,0	-	3,97	5,0	0,02
024082	RPHT 10 T3M0T	PFZ				10,0	-	3,97	5,0	0,075
017690	RPHT 10 T3M0T	X500				10,0	-	3,97	5,0	0,075
027726	RPHT 10 T3M0T	SP6564		◆◆◆		10,0	-	3,97	5,0	0,075
023320	RPHT 10 T3M0E-421	MP91M		◆◆	◆◆	10,0	-	3,97	5,0	0,04
015145	RPHT 10 T3M0E-421	X500		◆◆	◆◆	10,0	-	3,97	5,0	0,04
027725	RPHT 10 T3M0E-421	SP6564		◆◆	◆◆	10,0	-	3,97	5,0	0,04
023329	RPMT 10 T3M0E-41	MP91M	◆◆			10,0	-	3,97	5,0	0,04
015221	RPMT 10 T3M0E-41	X500	◆◆			10,0	-	3,97	5,0	0,04
027729	RPMT 10 T3M0E-41	SP6564	◆◆			10,0	-	3,97	5,0	0,04
025839	RPMW 10 T3M0T	X500				10,0	-	3,97	5,0	0,13



## RP\_10 Recommended Cutting Conditions

Material	▼ Roughing			▼▼ Semi-Finishing			▼▼▼ Finishing		
	Speed V <sub>C</sub> (m/min)	Feed h <sub>m</sub> (mm)	D.O.C. a <sub>p</sub> (mm)	Speed V <sub>C</sub> (m/min)	Feed h <sub>m</sub> (mm)	D.O.C. a <sub>p</sub> (mm)	Speed V <sub>C</sub> (m/min)	Feed h <sub>m</sub> (mm)	D.O.C. a <sub>p</sub> (mm)
◆ Unalloyed Steels	180 - 220	0,15 - 0,28	2,5 - 5,0	220 - 260	0,12 - 0,20	1,0 - 2,5	220 - 300	0,10 - 0,18	0,1 - 1,0
◆ Alloyed Steels	70 - 110	0,12 - 0,24	2,5 - 4,0	100 - 150	0,10 - 0,18	1,0 - 2,5	100 - 195	0,08 - 0,14	0,1 - 1,0
◆ Stainless Steels	120 - 140	0,10 - 0,16	2,5 - 4,0	140 - 180	0,08 - 0,14	1,0 - 2,5	180 - 230	0,08 - 0,10	0,1 - 1,0
◆ PH Stainless	55 - 70	0,08 - 0,14	2,5 - 4,0	70 - 85	0,08 - 0,12	1,0 - 2,5	80 - 100	0,08 - 0,10	0,1 - 1,0
◆ Cast Irons	140 - 280	0,12 - 0,24	2,5 - 4,0	180 - 300	0,10 - 0,18	1,0 - 2,5	200 - 350	0,08 - 0,14	0,1 - 1,0
◆ Aluminium & Alloys	275 - 450	0,06 - 0,12	2,5 - 5,0	400 - 750	0,06 - 0,10	1,0 - 2,5	700 - 1000	0,04 - 0,08	0,1 - 1,0
◆ High Temp. Alloys	25 - 40	0,08 - 0,14	2,5 - 4,0	35 - 50	0,08 - 0,12	1,0 - 2,5	45 - 60	0,08 - 0,10	0,1 - 1,0
◆ Hard Steels (52-56 HRC)	-	-	-	-	-	-	50 - 100	0,03 - 0,06	0,1 - 0,5

h<sub>m</sub> = average chip thickness

### Star Guide Key to Recommended Tools

Material Designations								
◆	P	◆ Unalloyed Steels	M	◆ Stainless Steels	K	◆ Cast Irons	S	◆ High Temp. Alloys
◆	P	◆ Alloyed Steels	M	◆ PH Stainless	N	◆ Aluminium & Alloys	H	◆ Hard Materials