

# 7700 VR 12 Contour Milling Cutter

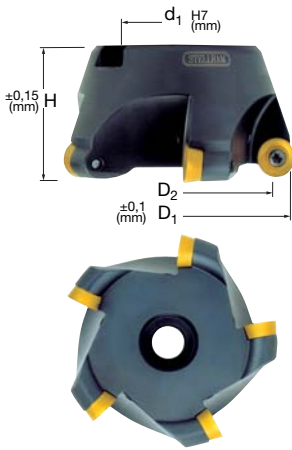


## 7700 VR 12 Shell Mill Fixation

EDP #	Part Number	Dimensions (mm)								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>	No. of Inserts	EDP#	EDP#	EDP#	
021740	7700VR 12 -A040R	52	40	32	-	-	16	6	4	015263	D4012T	015240	T15
021741	7700VR 12 -A050R	62	50	40	-	-	22	6	4	015263	D4012T	015240	T15
021742	7700VR 12 -A063R	75	63	40	-	-	22	6	5	015263	D4012T	015240	T15
021743	7700VR 12 -A080R	92	80	50	-	-	27	6	6	015263	D4012T	015240	T15
021744	7700VR 12 -A100R	112	100	50	-	-	32	6	7	015263	D4012T	015240	T15
021745	7700VR 12 -A125R	137	125	63	-	-	40	6	8	015263	D4012T	015240	T15

## 7700 VR 12 Morse Taper Shank

021746	7700VR 12 M040R110	40	28	219	110	116,5	MT4	6	4	015262	D4010T	015240	T15
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Shell Mill Fixation



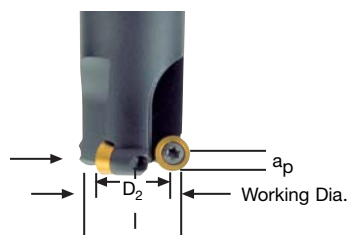
Morse Taper Shank



Depth of Cut (a)

## 7700 VR 12 Technical Advice

Milling Cutter Order Example: **7700VR12-A080R**  
 Milling Insert Order Example: **RPHT1204M0E-421 X500**  
 For complete cutting conditions refer to page: **264**



### 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:

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

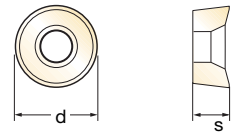
where:

**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 12



EDP#	Part Number	Grade	Application & Material			Dimensions (mm)				
			Roughing ▼	Semi-Finishing ▼▼	Finishing ▼▼▼	d	l	s	r	h <sub>m</sub> min
017681	RPET 12 04M0E	X44				12,0	-	4,76	6,0	0,03
017680	RPET 12 04M0E	SF30				12,0	-	4,76	6,0	0,03
017682	RPET 12 04M0E	SFZ				12,0	-	4,76	6,0	0,03
026963	RPET 12 04M0E	SP4036			◆	12,0	-	4,76	6,0	0,03
023318	RPEX 12 04M0E-701	PFZ				12,0	-	4,76	6,0	0,02
023319	RPEX 12 04M0F-701	GH1	◆	◆	◆	12,0	-	4,76	6,0	0,02
015218	RPEX 12 04M0F-701	SFZ				12,0	-	4,76	6,0	0,02
024936	RPHT 12 04M0T	PFZ				12,0	-	4,76	6,0	0,1
017691	RPHT 12 04M0T	X500				12,0	-	4,76	6,0	0,1
027727	RPHT 12 04M0T	SP6564		◆◆◆		12,0	-	4,76	6,0	0,1
017306	RPHT 12 04M0E-421	MP91M		◆	◆◆◆	12,0	-	4,76	6,0	0,04
023323	RPHT 12 04M0E-421	PFZ			◆◆◆	12,0	-	4,76	6,0	0,04
015146	RPHT 12 04M0E-421	X500	◆◆	◆◆	◆◆◆	12,0	-	4,76	6,0	0,04
017310	RPMT 12 04M0E-41	MP91M				12,0	-	4,76	6,0	0,05
023332	RPMT 12 04M0E-41	PFZ				12,0	-	4,76	6,0	0,05
015222	RPMT 12 04M0E-41	X500				12,0	-	4,76	6,0	0,05
027730	RPMT 12 04M0E-41	SP6564				12,0	-	4,76	6,0	0,05
024939	RPMW 12 04M0T	MP91M	◆◆			12,0	-	4,76	6,0	0,13
025841	RPMW 12 04M0T	PFZ				12,0	-	4,76	6,0	0,13
024940	RPMW 12 04M0T	X500				12,0	-	4,76	6,0	0,13
027740	RPMW 12 04M0T	SP6564	◆◆			12,0	-	4,76	6,0	0,13



## RP\_12 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	0,16 - 0,30	2,5 - 6,0	220 - 260	0,14 - 0,22	1,0 - 3,0	220 - 300	0,12 - 0,18	0,1 - 1,0
◆ Alloyed Steels	70 - 110	0,14 - 0,25	2,5 - 6,0	100 - 150	0,12 - 0,20	1,0 - 3,0	100 - 195	0,08 - 0,16	0,1 - 1,0
◆ Stainless Steels	120 - 140	0,10 - 0,18	2,5 - 4,0	140 - 180	0,08 - 0,14	1,0 - 3,0	180 - 230	0,08 - 0,12	0,1 - 1,0
◆ PH Stainless	55 - 70	0,08 - 0,14	2,5 - 4,0	70 - 85	0,08 - 0,12	1,0 - 3,0	80 - 100	0,08 - 0,10	0,1 - 1,0
◆ Cast Irons	140 - 280	0,14 - 0,25	2,5 - 6,0	180 - 300	0,12 - 0,20	1,0 - 3,0	200 - 350	0,08 - 0,16	0,1 - 1,0
◆ Aluminium & Alloys	275 - 450	0,06 - 0,12	2,5 - 6,0	400 - 750	0,06 - 0,10	1,0 - 3,0	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 - 3,0	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					
◆	◆ Unalloyed Steels	◆	◆ Stainless Steels	◆	◆ Cast Irons
◆	◆ Alloyed Steels	◆	◆ PH Stainless	◆	◆ Aluminium & Alloys
		◆		◆	◆ High Temp. Alloys
				◆	◆ Hard Materials