

# 7700 VR 12 Contour Milling Cutter

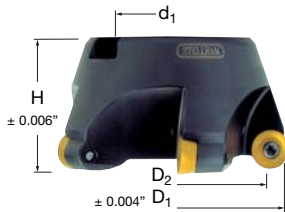


## 7700 VR 12 Shell Mill Fixation

EDP #	Part Number	Dimensions (inch)								Spares			
		D <sub>1</sub>	D <sub>2</sub>	L/H	I <sub>2</sub>	I <sub>3</sub>	d <sub>1</sub>	a	No. of Inserts	EDP#	EDP#	EDP#	
014888	<b>C7700VR12-A1.50R</b>	1.97	1.50	1.26	-	-	0.50	0.24	4	015263	D4012T	015240	T15
014889	<b>C7700VR12-A2.00R</b>	2.47	2.00	1.57	-	-	0.75	0.24	4	015263	D4012T	015240	T15
014890	<b>C7700VR12-A2.50R</b>	2.97	2.50	1.57	-	-	0.75	0.24	5	015263	D4012T	015240	T15
014891	<b>C7700VR12-A3.00R</b>	3.47	3.00	1.97	-	-	1.00	0.24	6	015263	D4012T	015240	T15
014892	<b>C7700VR12-A4.00R</b>	4.47	4.00	1.97	-	-	1.25	0.24	7	015263	D4012T	015240	T15
015420	<b>C7700VR12-A5.00R</b>	5.47	5.00	2.48	-	-	1.50	0.24	8	015263	D4012T	015240	T15

## 7700 VR 12 Morse Taper Shank

EDP #	Part Number	D <sub>1</sub>	D <sub>2</sub>	L/H	I <sub>2</sub>	I <sub>3</sub>	d <sub>1</sub>	a	No. of Inserts	EDP#	EDP#	EDP#	
021747	<b>C7700VR12M1.50R4.30</b>	1.50	1.03	8.62	4.30	4.59	MT4	0.24	4	015262	D4010T	015240	T15



Shell Mill Fixation



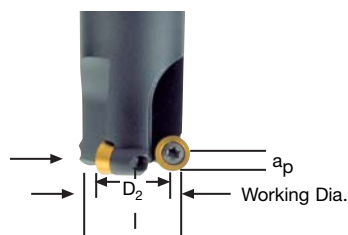
Morse Taper Shank



Depth of Cut (a)

## 7700 VR 12 Technical Advice

Milling Cutter Order Example: **C7700VR12-A2.50R**  
 Milling Insert Order Example: **RPHT1204M0E-421 X500**  
 For complete cutting conditions refer to page: 208



### 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 center to center
- r** = Insert radius
- a<sub>p</sub>** = Axial Depth of Cut

### To find programmed feedrate:

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

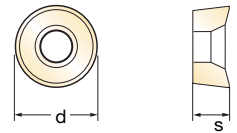
where:

- 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 (inch)				
			Roughing ▼	Semi-Finishing ▼▼	Finishing ▼▼▼	d	l	s	r	h <sub>m</sub> min
017681	RPET1204M0E	X44				0.472	-	0.187	0.236	0.0012
017680	RPET1204M0E	SF30				0.472	-	0.187	0.236	0.0012
017682	RPET1204M0E	SFZ				0.472	-	0.187	0.236	0.0012
026963	RPET1204M0E	SP4036			◆	0.472	-	0.187	0.236	0.0012
023318	RPEX1204M0E-701	PFZ				0.472	-	0.187	0.236	0.0008
023319	RPEX1204M0F-701	GH1	◆	◆	◆	0.472	-	0.187	0.236	0.0008
015218	RPEX1204M0F-701	SFZ				0.472	-	0.187	0.236	0.0008
024936	RPHT1204M0T	PFZ				0.472	-	0.187	0.236	0.0039
017691	RPHT1204M0T	X500				0.472	-	0.187	0.236	0.0039
027727	RPHT1204M0T	SP6564		◆◆◆		0.472	-	0.187	0.236	0.0039
017306	RPHT1204M0E-421	MP91M		◆	◆◆◆	0.472	-	0.187	0.236	0.0016
023323	RPHT1204M0E-421	PFZ		◆	◆◆◆	0.472	-	0.187	0.236	0.0016
015146	RPHT1204M0E-421	X500	◆◆	◆◆	◆◆◆	0.472	-	0.187	0.236	0.0016
017310	RPMT1204M0E-41	MP91M				0.472	-	0.187	0.236	0.0020
023332	RPMT1204M0E-41	PFZ				0.472	-	0.187	0.236	0.0020
015222	RPMT1204M0E-41	X500				0.472	-	0.187	0.236	0.0020
027730	RPMT1204M0E-41	SP6564				0.472	-	0.187	0.236	0.0020
024939	RPMW1204M0T	MP91M	◆◆	◆		0.472	-	0.187	0.236	0.0051
025841	RPMW1204M0T	PFZ				0.472	-	0.187	0.236	0.0051
024940	RPMW1204M0T	X500				0.472	-	0.187	0.236	0.0051
027740	RPMW1204M0T	SP6564	◆◆	◆		0.472	-	0.187	0.236	0.0051



## RP\_12 Recommended Cutting Conditions

Material	▼ Roughing			▼▼ Semi-Finishing			▼▼▼ Finishing		
	Speed V <sub>C</sub> (feet/min)	Feed h <sub>m</sub> (inch)	D.O.C. a <sub>p</sub> (inch)	Speed V <sub>C</sub> (feet/min)	Feed h <sub>m</sub> (inch)	D.O.C. a <sub>p</sub> (inch)	Speed V <sub>C</sub> (feet/min)	Feed h <sub>m</sub> (inch)	D.O.C. a <sub>p</sub> (inch)
◆ Unalloyed Steels	600 - 720	0.006 - 0.012	0.10 - 0.24	730 - 850	0.006 - 0.009	0.04 - 0.12	730 - 980	0.005 - 0.007	0.00 - 0.04
◆ Alloyed Steels	230 - 360	0.006 - 0.010	0.10 - 0.24	330 - 490	0.005 - 0.008	0.04 - 0.12	330 - 630	0.003 - 0.006	0.00 - 0.04
◆ Stainless Steels	400 - 450	0.004 - 0.007	0.10 - 0.16	460 - 590	0.003 - 0.006	0.04 - 0.12	600 - 750	0.003 - 0.005	0.00 - 0.04
◆ PH Stainless	190 - 220	0.003 - 0.006	0.10 - 0.16	230 - 270	0.003 - 0.005	0.04 - 0.12	270 - 320	0.003 - 0.004	0.00 - 0.04
◆ Cast Irons	460 - 910	0.006 - 0.010	0.10 - 0.24	600 - 980	0.005 - 0.008	0.04 - 0.12	660 - 1140	0.003 - 0.006	0.00 - 0.04
◆ Aluminum & Alloys	910 - 1470	0.002 - 0.005	0.10 - 0.24	1320 - 2460	0.002 - 0.004	0.04 - 0.12	2300 - 3280	0.002 - 0.003	0.00 - 0.04
◆ High Temp. Alloys	90 - 130	0.003 - 0.006	0.10 - 0.16	120 - 160	0.003 - 0.005	0.04 - 0.12	150 - 190	0.003 - 0.004	0.00 - 0.04
◆ Hard Steels (52-56 HRC)	-	-	-	-	-	-	170 - 320	0.001 - 0.002	0.00 - 0.02

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

### Star Guide Key to Recommended Tools

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