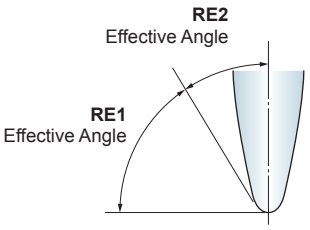
Recommended Cutting Conditions

Effective Angle

Please refer to the table below for the use of the nose radius (RE1) and tangential form radius (RE2).

(mm)

Order Number	Nose Radius		Tangential Form Radius	
	RE1	Effective Angle	**RE2**	Effective Angle
VQT6URR020R075S08	2	76.6°	75	13.4°
VQT6URR020R085S10	2	74.5°	85	15.5°
VQT6URR030R075S10	3	76.4°	75	13.6°
VQT6URR040R100S12	4	78.3°	100	11.7°



Side Milling with the Use of the Tangential Form Radius (RE2)

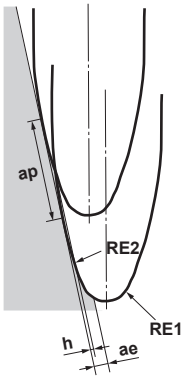
(mm)

Work Material		Mild Steels (≤180HB) Carbon Steels, Cast Irons (180−280HB)				Austenitic Stainless Steels (≤200HB) Titanium Alloys				Aluminum Alloys (Si<5%)			
DC	**RE2**	**n** (min^{-1})	**vf** (mm/min)	**ap**	**ae**	**n** (min^{-1})	**vf** (mm/min)	**ap**	**ae**	**n** (min^{-1})	**vf** (mm/min)	**ap**	**ae**
8	**75**	8000	2400	0.78	0.05−0.3	3200	770	0.78	0.05−0.3	16000	4800	0.78	0.05−0.3
10	**85**	6400	1900	0.83	0.05−0.3	2500	600	0.83	0.05−0.3	13000	3900	0.83	0.05−0.3
10	**75**	6400	1900	0.78	0.05−0.3	2500	600	0.78	0.05−0.3	13000	3900	0.78	0.05−0.3
12	**100**	5300	1600	0.89	0.05−0.3	2100	500	0.89	0.05−0.3	11000	3300	0.89	0.05−0.3

(Note 1) SMART MIRACLE coating has very low electrical conductivity; therefore, an external contact type of tool setter (electric transmitted) may not work.
When measuring the tool length, please use an internal contact type (non-electricity type) or a laser tool setter.

(Note 2) It is recommended to use this tool only for finish cutting.

(Note 3) The tool contact part differs between the nose radius and tangential form radius depending on machining geometries and tilt angles. Select suitable cutting conditions according to tool contact parts.



Depth of Cut Calculation Table Based on Tangential Form Radius (RE2) and Cusp Height (h)

(mm)

Work Material	**RE2**	Cusp Height **h**	0.0001	0.0003	0.0005	0.0008	0.001	0.003	0.005	0.008
VQT6URR020R075S08	75	Depth of Cut **ae**	0.245	0.424	0.548	0.693	0.775	1.342	1.732	2.191
VQT6URR030R075S10	75		0.245	0.424	0.548	0.693	0.775	1.342	1.732	2.191
VQT6URR020R085S10	85		0.261	0.452	0.583	0.738	0.825	1.428	1.844	2.332
VQT6URR040R100S12	100		0.283	0.49	0.632	0.8	0.894	1.549	2	2.53

Recommended Cutting Conditions

Slot Milling with the Use of the Nose Radius (RE1)

(mm)

Work Material		Mild Steels (≤180HB) Carbon Steels, Cast Irons (180−280HB)				Austenitic Stainless Steels (≤200HB) Titanium Alloys				Aluminum Alloys (Si<5%)			
DC	RE1	n (min^{-1})	vf (mm/min)	ap	ae	n (min^{-1})	vf (mm/min)	ap	ae	n (min^{-1})	vf (mm/min)	ap	ae
8	2	16000	2400	0.4	1	6400	580	0.4	1	32000	4800	0.4	1
10	2	16000	2400	0.4	1	6400	580	0.4	1	32000	4800	0.4	1
10	3	11000	1700	0.6	1.5	4200	380	0.6	1.5	21000	3200	0.6	1.5
12	4	8000	1200	0.8	2	3200	290	0.8	2	16000	2400	0.8	2

(Note 1) SMART MIRACLE coating has very low electrical conductivity; therefore, an external contact type of tool setter (electric transmitted) may not work.
When measuring the tool length, please use an internal contact type (non-electricity type) or a laser tool setter.

(Note 2) It is recommended to use this tool only for finish cutting.

(Note 3) The tool contact part differs between the nose radius and tangential form radius depending on machining geometries and tilt angles. Select suitable cutting conditions according to tool contact parts.