

HF943

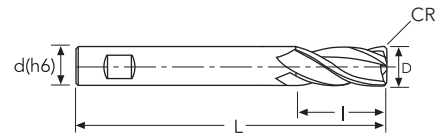
weldon shank, long cutting edge ideal for trochoidal milling, corner radius



OSAWA NORM	MG PV300	<40 HRC	VH 36°/39°	RADIUS	Z4 UP
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P	M	K	N	S	H
★	★	★		★	

★ 1st choice ☆ suitable



D	D Tol.	CR	CR Tol.	d(h6)	l	l1	L	z	EDP No.	Stock
4	0/-0.025	0.10	+/-0.010	6	19		75	4	HF9430104075	●
5	0/-0.025	0.10	+/-0.010	6	19		75	4	HF9430105075	●
6	0/-0.025	0.10	+/-0.010	6	25		75	4	HF9430106075	●
8	0/-0.030	0.20	+/-0.010	8	30		75	4	HF9430208075	●
10	0/-0.030	0.20	+/-0.010	10	40		100	4	HF94302100100	●
12	0/-0.030	0.30	+/-0.010	12	45		100	4	HF94303120100	●
16	0/-0.030	0.30	+/-0.010	16	65		125	4	HF94303160125	●
20	0/-0.030	0.30	+/-0.010	20	65		125	4	HF94303200125	●

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

HF943

	Material Group ISO 513	P1 P2 M1 K1			P3 P4 M2 K2 K3			P5 M3 M4 K4 S1 S4			S2 S3 S5		
	Hardness/Rm	≤ 700 N/mm ²			700-1000 N/mm ²			≤ 35 HRC			≤ 40 HRC		
	ap x ae	1.5D x 0.3D			1.5D x 0.3D			1.2D x 0.2D			1.2D x 0.2D		
	Vc (m/min)	110-130			70-90			50-70			30-50		
	D (mm)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)
	4	9550	0.016	620	6370	0.015	370	4780	0.013	250	3180	0.018	230
	5	7640	0.021	650	5100	0.019	390	3820	0.017	260	2550	0.023	240
	6	6370	0.026	660	4250	0.023	400	3180	0.021	260	2120	0.029	240
	8	4780	0.031	590	3180	0.028	350	2390	0.025	230	1590	0.034	210
	10	3820	0.036	560	2550	0.033	330	1910	0.029	220	1270	0.040	200
12	3180	0.041	530	2120	0.037	320	1590	0.033	210	1060	0.045	190	
16	2390	0.047	450	1590	0.042	270	1190	0.038	180	800	0.052	170	
20	1910	0.063	480	1270	0.057	290	960	0.051	190	640	0.070	180	
ap x ae	≤ D5	1.5D x 0.1D			1.5D x 0.1D			1.2D x 0.1D			1.2D x 0.1D		

	Material Group ISO 513	P1 P2 M1 K1			P3 P4 M2 K2 K3			P5 M3 M4 K4 S1 S4			S2 S3 S5		
	Hardness/Rm	≤ 700 N/mm ²			700-1000 N/mm ²			≤ 35 HRC			≤ 40 HRC		
	α° x ae	4° x 0.4D			3° x 0.4D			3° x 0.4D			2° x 0.4D		
	Vc (m/min)	90-110			60-80			40-60			20-40		
	D (mm)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)
	4	7960	0.010	325	5570	0.010	220	3980	0.008	130	2390	0.009	82
	5	6370	0.013	340	4460	0.013	225	3180	0.011	134	1910	0.011	85
	6	5310	0.016	345	3720	0.016	230	2650	0.013	137	1590	0.014	87
	8	3980	0.019	305	2790	0.018	205	1990	0.015	122	1190	0.016	77
	10	3180	0.023	290	2230	0.022	195	1590	0.018	116	960	0.019	74
12	2650	0.026	275	1860	0.025	185	1330	0.021	110	800	0.022	70	
16	1990	0.030	235	1390	0.028	155	1000	0.024	94	600	0.025	59	
20	1590	0.040	255	1110	0.038	170	800	0.032	101	480	0.033	64	
α° max	≤ D5	2°			2°			1°			1°		

- INFO
- TYPHOON TA-HTA-4HTA
- TYPHOON PU-HPU
- TYPHOON SUH
- TYPHOON ALH
- TYPHOON HRC
- TYPHOON SUH MINI
- TYPHOON HL
- C-SD-TA
- LFTA
- SUTA
- HSS-HSS/CO DRILLS
- G2
- MDTA
- HF VH/UP
- MEF
- ALU
- MEX
- UH
- HSS/CO-HSSP END MILLS
- CARBIDE BURRS

PARAMETERS SUGGESTED WITH HIGH PRECISION WELDON CHUCK AND STABLE MACHINING CONDITION. FOR APPLICATION ON HIGH POWER MILLING CHUCK, PLEASE REFER TO HF942 PARAMETERS.

HF943

	Material Group ISO 513	P1 P2 M1 K1			P3 P4 M2 K2 K3			P5 M3 M4 K4 S1 S4			S2 S3 S5		
	Hardness/Rm	≤ 700 N/mm ²			700-1000 N/mm ²			≤ 35 HRC			≤ 40 HRC		
	α° x ae	5° x 0.4D			5° x 0.4D			3° x 0.4D			3° x 0.4D		
	Vc (m/min)	80-100			50-70			35-55			20-30		
	D (mm)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)
	4	7170	0.012	340	4780	0.011	205	3580	0.010	150	1990	0.014	114
	5	5730	0.015	350	3820	0.014	210	2870	0.014	155	1590	0.019	118
	6	4780	0.019	360	3180	0.017	215	2390	0.017	159	1330	0.023	121
	8	3580	0.022	320	2390	0.020	190	1790	0.020	141	1000	0.027	108
	10	2870	0.027	305	1910	0.024	185	1430	0.023	134	800	0.032	103
12	2390	0.030	285	1590	0.027	170	1190	0.026	126	660	0.036	96	
16	1790	0.034	245	1190	0.031	145	900	0.030	108	500	0.041	83	
20	1430	0.046	265	960	0.042	160	720	0.041	117	400	0.056	89	

	Material Group ISO 513	P1 P2 M1 K1			P3 P4 M2 K2 K3			P5 M3 M4 K4 S1 S4			S2 S3 S5		
	Hardness/Rm	≤ 700 N/mm ²			700-1000 N/mm ²			≤ 35 HRC			≤ 40 HRC		
	ap x ae	D x 0.4D			D x 0.4D			D x 0.25D			D x 0.25D		
	Vc (m/min)	80-100			50-70			35-55			20-30		
	D (mm)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)
	4	7170	0.014	390	4780	0.012	230	3580	0.010	150	1990	0.010	80
	5	5730	0.018	400	3820	0.016	240	2870	0.013	150	1590	0.012	80
	6	4780	0.022	410	3180	0.019	250	2390	0.016	150	1330	0.015	80
	8	3580	0.026	370	2390	0.023	220	1790	0.019	140	1000	0.018	70
	10	2870	0.030	350	1910	0.027	210	1430	0.023	130	800	0.021	70
12	2390	0.034	330	1590	0.031	200	1190	0.026	120	660	0.024	60	
16	1790	0.039	280	1190	0.035	170	900	0.029	110	500	0.027	50	
20	1430	0.053	300	960	0.048	180	720	0.040	110	400	0.037	60	

	Material Group ISO 513	P1 P2 M1 K1			P3 P4 M2 K2 K3			P5 M3 M4 K4 S1 S4			S2 S3 S5		
	Hardness/Rm	≤ 700 N/mm ²			700-1000 N/mm ²			≤ 35 HRC			≤ 40 HRC		
	ap x ae	D x D			D x D			0.5D x D			0.5D x D		
	Vc (m/min)	70-90			50-60			35-45			20-30		
	D (mm)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)
	4	6370	0.007	170	4380	0.006	110	3180	0.005	70	1990	0.007	60
	5	5100	0.009	180	3500	0.008	110	2550	0.007	70	1590	0.010	60
	6	4250	0.011	180	2920	0.010	110	2120	0.009	70	1330	0.012	60
	8	3180	0.013	160	2190	0.012	100	1590	0.010	70	1000	0.014	60
	10	2550	0.015	160	1750	0.014	100	1270	0.012	60	800	0.017	50
12	2120	0.017	150	1460	0.015	90	1060	0.014	60	660	0.019	50	
16	1590	0.020	120	1090	0.018	80	800	0.016	50	500	0.022	40	
20	1270	0.026	130	880	0.024	80	640	0.021	50	400	0.029	50	

ap x ae	≤ D5	0.5D x D	0.5D x D	0.25D x D	0.25D x D
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PARAMETERS SUGGESTED WITH HIGH PRECISION WELDON CHUCK AND STABLE MACHINING CONDITION.
FOR APPLICATION ON HIGH POWER MILLING CHUCK, PLEASE REFER TO HF942 PARAMETERS.

CUTTING PARAMETERS

HF943

	Material Group ISO 513	P1 P2 M1 K1			P3 P4 M2 K2 K3			P5 M3 M4 K4 S1 S4				S2 S3 S5		
	Hardness/Rm	≤ 700 N/mm ²			700-1000 N/mm ²			≤ 35 HRC				≤ 40 HRC		
	ap x ae	2D x 0.1D			2D x 0.1D			1.5D x 0.1D				1.5D x 0.1D		
	Vc (m/min)	140-160			100-120			70-90				40-60		
	D (mm)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	n (rpm)	fz (mm/z)	Vf (mm/min)	
	4	11940	0.034	1620	8760	0.031	1070	6370	0.027	690	3980	0.037	600	
	5	9550	0.044	1680	7010	0.040	1110	5100	0.035	720	3180	0.048	620	
	6	7960	0.054	1720	5840	0.049	1140	4250	0.043	730	2650	0.059	630	
	8	5970	0.064	1530	4380	0.058	1010	3180	0.051	650	1990	0.070	560	
	10	4780	0.076	1450	3500	0.068	960	2550	0.061	620	1590	0.084	530	
12	3980	0.086	1370	2920	0.077	900	2120	0.069	580	1330	0.095	500		
16	2990	0.098	1170	2190	0.088	770	1590	0.078	500	1000	0.108	430		
20	2390	0.132	1260	1750	0.119	830	1270	0.106	540	800	0.145	460		
ap x ae	≤ D5	1.5D x 0.1D			1.5D x 0.1D			1.2D x 0.05D				1.2D x 0.05D		

NOTES:

Down milling CNC programming is required.

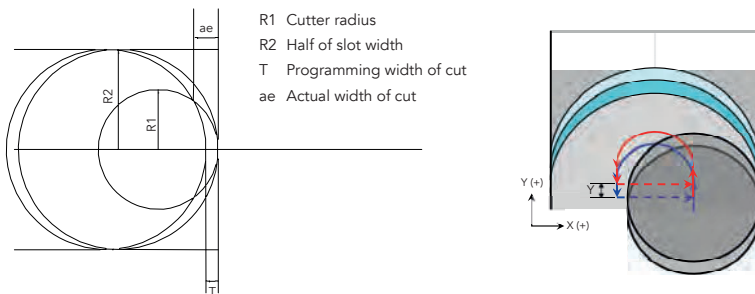
"ae" value max 0.2xD - "T" value max 0.1xD.

The use of end mill with diameter 30-40% smaller than the width of the slot is recommended.

The cutting conditions are based on CNC programming with medium dynamic speed.

With lower CNC dynamic speed, use the same cutting conditions or reduce the cutting speed Vc.

With higher CNC dynamic speed, reduce the "T" value by approximately -30 -50% and apply the maximum available cutting speed Vc.



PARAMETERS SUGGESTED WITH HIGH PRECISION WELDON CHUCK AND STABLE MACHINING CONDITION. FOR APPLICATION ON HIGH POWER MILLING CHUCK, PLEASE REFER TO HF942 PARAMETERS.

INFO
TYPHOON TA-HTA-4HTA
TYPHOON PU-HPU
TYPHOON SUH
TYPHOON ALH
TYPHOON HRC
TYPHOON SUH MINI
TYPHOON HL
C-SD-TA
LFTA
SUTA
HSS-HSS/CO DRILLS
G2
MDTA
HF VH/UP
MEF
ALU
MEX
UH
HSS/CO-HSSP END MILLS
CARBIDE BURRS