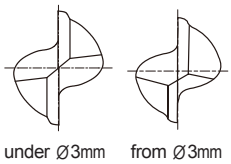
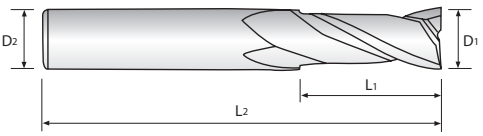
END MILLS for GENERAL

NEW CENTURY

CARBIDE, 2 FLUTE 30° HELIX SHORT LENGTH

▶ Designed for general purposes to carbon steels, tool steels, alloy steels, and stainless steels.
▶ Suitable for high speed machining in wet or dry condition.





p.51

Mill Dia.Tolerance (mm)	Shank Dia.Tolerance
0 ~ - 0.030	h6

G9F41 SERIES

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
G9F41010N	1.0	4	3	50
G9F41999N	1.5	4	4	50
G9F41020N	2.0	4	6	50
G9F41998N	2.5	4	8	50
G9F41030N	3.0	4	8	50
G9F41997N	3.5	4	10	50
G9F41040N	4.0	4	11	50
G9F41996N	4.5	4.5	12	50
G9F41050N	5.0	6	13	50
G9F41995N	5.5	5.5	15	50
G9F41060N	6.0	6	16	50
G9F41994N	7.0	7	20	60
G9F41080N	8.0	8	20	60
G9F41993N	9.0	9	20	60
G9F41100N	10.0	10	25	75
G9F41120N	12.0	12	32	75
G9F41140N	14.0	14	32	75
G9F41160N	16.0	16	32	75
G9F41200N	20.0	20	32	100

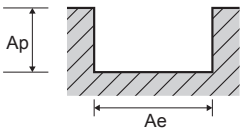
RECOMMENDED CUTTING CONDITIONS

G9F41 / G9J54 SERIES — 2 FLUTE - SLOTTING

Vc = (m/min.)
fz = (mm/tooth)
RPM = (rev./min.)
FEED = (mm/min.)

ISO	VDI 3323	Material Description	Ae(mm)	Ap(mm)	Parameter	Diameter (Ø)																	
						1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	8.0	9.0	10.0	12.0	14.0	16.0	20.0
P	1-4	Non-alloy steel	1D	0.5D (Up to Ø3 : 0.2D)	Vc	49	48	53	58	62	66	70	72	73	75	77	77	78	76	74	75	81	80	79
					fz	0.004	0.008	0.010	0.012	0.014	0.020	0.025	0.028	0.031	0.035	0.040	0.048	0.056	0.060	0.064	0.065	0.062	0.063	0.062
					RPM	15450	10100	8500	7380	6600	6000	5550	5090	4650	4340	4100	3770	3100	2690	2350	2000	1850	1600	1250
					FEED	115	160	170	180	190	240	275	285	290	305	325	360	350	325	300	260	230	200	155
	5		1D	0.5D (Up to Ø3 : 0.2D)	Vc	29	28	35	37	39	41	43	43	43	45	47	46	46	46	46	47	51	50	47
					fz	0.004	0.008	0.010	0.013	0.016	0.020	0.024	0.027	0.031	0.036	0.041	0.045	0.050	0.050	0.050	0.048	0.048	0.050	0.050
					RPM	9200	6000	5550	4710	4100	3730	3400	3040	2750	2600	2500	2250	1850	1630	1450	1250	1150	1000	750
					FEED	70	90	110	120	130	150	165	165	170	190	205	205	185	165	145	120	110	100	75
	6-7	Low alloy steel	1D	0.5D (Up to Ø3 : 0.2D)	Vc	49	48	53	58	62	66	70	72	73	75	77	77	78	76	74	75	81	80	79
					fz	0.004	0.008	0.010	0.012	0.014	0.020	0.025	0.028	0.031	0.035	0.040	0.048	0.056	0.060	0.064	0.065	0.062	0.063	0.062
					RPM	15450	10100	8500	7380	6600	6000	5550	5090	4650	4340	4100	3770	3100	2690	2350	2000	1850	1600	1250
					FEED	115	160	170	180	190	240	275	285	290	305	325	360	350	325	300	260	230	200	155
	8-9		1D	0.5D (Up to Ø3 : 0.2D)	Vc	29	28	35	37	39	41	43	43	43	45	47	46	46	46	46	47	51	50	47
					fz	0.004	0.008	0.010	0.013	0.016	0.020	0.024	0.027	0.031	0.036	0.041	0.045	0.050	0.050	0.050	0.048	0.048	0.050	0.050
					RPM	9200	6000	5550	4710	4100	3730	3400	3040	2750	2600	2500	2250	1850	1630	1450	1250	1150	1000	750
					FEED	70	90	110	120	130	150	165	165	170	190	205	205	185	165	145	120	110	100	75
	10	High alloyed steel, and tool steel	1D	0.5D (Up to Ø3 : 0.2D)	Vc	49	48	53	58	62	66	70	72	73	75	77	77	78	76	74	75	81	80	79
					fz	0.004	0.008	0.010	0.012	0.014	0.020	0.025	0.028	0.031	0.035	0.040	0.048	0.056	0.060	0.064	0.065	0.062	0.063	0.062
					RPM	15450	10100	8500	7380	6600	6000	5550	5090	4650	4340	4100	3770	3100	2690	2350	2000	1850	1600	1250
					FEED	115	160	170	180	190	240	275	285	290	305	325	360	350	325	300	260	230	200	155
	11.1 ~ 11.2		1D	0.5D (Up to Ø3 : 0.2D)	Vc	29	28	35	37	39	41	43	43	43	45	47	46	46	46	46	47	51	50	47
					fz	0.004	0.008	0.010	0.013	0.016	0.020	0.024	0.027	0.031	0.036	0.041	0.045	0.050	0.050	0.050	0.048	0.048	0.050	0.050
					RPM	9200	6000	5550	4710	4100	3730	3400	3040	2750	2600	2500	2250	1850	1630	1450	1250	1150	1000	750
					FEED	70	90	110	120	130	150	165	165	170	190	205	205	185	165	145	120	110	100	75
M	14.1	Stainless steel	1D	0.5D (Up to Ø3 : 0.2D)	Vc	24	29	29	30	32	34	36	36	36	38	40	39	39	39	39	40	40	38	38
					fz	0.004	0.007	0.009	0.012	0.016	0.020	0.025	0.028	0.032	0.036	0.039	0.046	0.053	0.055	0.058	0.057	0.061	0.067	0.063
					RPM	7700	6050	4650	3820	3400	3090	2850	2550	2300	2200	2100	1910	1550	1380	1250	1050	900	750	600
					FEED	55	85	85	90	110	125	140	140	145	160	165	175	165	150	145	120	110	100	75
K	15-16	Grey cast iron	1D	1.0D	Vc	63	61	63	62	62	62	62	62	62	61	60	60	60	62	63	58	62	60	60
					fz	0.005	0.008	0.012	0.015	0.018	0.021	0.024	0.027	0.030	0.037	0.043	0.052	0.061	0.069	0.078	0.103	0.120	0.144	0.192
					RPM	20200	13050	10100	7890	6550	5640	4950	4390	3950	3530	3200	2940	2400	2190	2000	1550	1400	1200	950
					FEED	220	220	240	235	240	240	240	240	240	260	275	305	295	305	310	320	335	345	365
	17-18	Nodular cast iron	1D	1.0D	Vc	63	61	63	62	62	62	62	62	62	61	60	60	60	62	63	58	62	60	60
					fz	0.005	0.008	0.012	0.015	0.018	0.021	0.024	0.027	0.030	0.037	0.043	0.052	0.061	0.069	0.078	0.103	0.120	0.144	0.192
					RPM	20200	13050	10100	7890	6550	5640	4950	4390	3950	3530	3200	2940	2400	2190	2000	1550	1400	1200	950
					FEED	220	220	240	235	240	240	240	240	240	260	275	305	295	305	310	320	335	345	365
	19-20	Malleable cast iron	1D	1.0D	Vc	63	61	63	62	62	62	62	62	62	61	60	60	60	62	63	58	62	60	60
					fz	0.005	0.008	0.012	0.015	0.018	0.021	0.024	0.027	0.030	0.037	0.043	0.052	0.061	0.069	0.078	0.103	0.120	0.144	0.192
					RPM	20200	13050	10100	7890	6550	5640	4950	4390	3950	3530	3200	2940	2400	2190	2000	1550	1400	1200	950
					FEED	220	220	240	235	240	240	240	240	240	260	275	305	295	305	310	320	335	345	365
H	38.1 40	Hardened steel Chilled Cast Iron	1D	0.5D (Up to Ø3 : 0.2D)	Vc	29	28	35	37	39	41	43	43	43	45	47	46	46	46	46	47	51	50	47
					fz	0.004	0.008	0.010	0.013	0.016	0.020	0.024	0.027	0.031	0.036	0.041	0.045	0.050	0.050	0.050	0.048	0.048	0.050	0.050
					RPM	9200	6000	5550	4710	4100	3730	3400	3040	2750	2600	2500	2250	1850	1630	1450	1250	1150	1000	750
					FEED	70	90	110	120	130	150	165	165	170	190	205	205	185	165	145	120	110	100	75

* The FEED, in long & extra long types, should be reduced by around 50%



SOLID CARBIDE, END MILLS for General

A highly effective solution
for enhancing productivity and efficiency when cutting various materials

◎ : Excellent ○ : Good

							SERIES	G9F44	G9J56	G9J62
							FLUTE	2	2	2
							HELIX ANGLE	30°	30°	30°
							CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE
							SIZE MIN	R1.0	R1.5	R0.25
							SIZE MAX	R6.0	R6.0	R2.0
							PAGE	34	35	36
								SHORT LENGTH	-	-
								X-Coating	X-Coating	X-Coating
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc				
P	1	Non-alloy steel	About 0.15% C	Annealed	125			◎	◎	◎
	2		About 0.45% C	Annealed	190	13		◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25		◎	◎	◎
	4		About 0.75% C	Annealed	270	28		◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	32		◎	◎	◎
	6	Low alloy steel		Annealed	180	10		◎	◎	◎
	7			Quenched & Tempered	275	29		◎	◎	◎
	8			Quenched & Tempered	300	32		◎	◎	◎
	9			Quenched & Tempered	350	38		◎	◎	◎
	10	High alloyed steel, and tool steel		Annealed	200	15		◎	◎	◎
	11			Quenched & Tempered	325	35		◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
	13		Martensitic	Quenched & Tempered	240	23				
	14		Austenitic		180	10				
K	15	Grey cast iron	Pearlitic / ferritic		180	10		○	○	
	16		Pearlitic (Martensitic)		260	26		○	○	
	17	Nodular cast iron	Ferritic		160	3		○	○	
	18		Pearlitic		250	25		○	○	
	19	Malleable cast iron	Ferritic		130			○	○	
	20		Pearlitic		230	21		○	○	
N	21	Aluminum-wrought alloy	Not Curable		60					
	22		Curable	Hardened	100					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75					
	24		≤ 12% Si, Curable	Hardened	90					
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15				
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25				
	34			Cured	350	38				
	35			Cast	320	34				
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm					
H	38.1	Hardened steel		Hardened	550	55		◎	◎	◎
	38.2			Hardened	630	60		○	○	○
	40	Chilled Cast Iron		Cast	400	42		◎	◎	◎
	41	Hardened Cast Iron		Hardened	550	55		○	○	○

Recommended cutting conditions : p.47~58

· Phone: +82-32-526-0909, www.yg1.solutions, E-mail: yg1@yg1.solutions

G9J57	G9F41	G9J54	G9J61	G9J59	G9F43	G9F42	G9J55	G9J58	G9J60	
4	2	2	2	3	3	4	4	6	4	
30°	30°	30°	30°	30°	30°	30°	30°	45°	20°	
CORNER RADIUS	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	Roughing	
D2.0	D1.0	D3.0	D0.4	D2.0	D1.0	D1.0	D3.0	D6.0	D6.0	
D12.0	D20.0	D12.0	D4.0	D12.0	D20.0	D20.0	D12.0	D16.0	D20.0	
37	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	
-	SHORT LENGTH	-	-	SHORT LENGTH	-	SHORT LENGTH	-	-	FINE	
X-Coating	X-Coating	X-Coating	X-Coating	X-Coating	X-Coating	X-Coating	X-Coating	X-Coating	X-Coating	
										
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