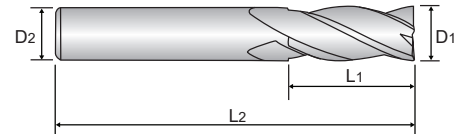
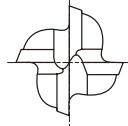


END MILLS for GENERAL



CARBIDE, 4 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.
- ▶ 4 flute design enables improved finishes on workpieces.



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

G9F42 SERIES

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
G9F42010N	1.0	4	3	50
G9F42999N	1.5	4	4	50
G9F42020N	2.0	4	6	50
G9F42998N	2.5	4	8	50
G9F42030N	3.0	4	8	50
G9F42997N	3.5	4	10	50
G9F42040N	4.0	4	11	50
G9F42996N	4.5	4.5	12	50
G9F42050N	5.0	6	13	50
G9F42060N	6.0	6	16	50
G9F42995N	7.0	7	20	60
G9F42080N	8.0	8	20	60
G9F42994N	9.0	9	20	60
G9F42100N	10.0	10	25	75
G9F42120N	12.0	12	32	75
G9F42140N	14.0	14	32	75
G9F42160N	16.0	16	32	75
G9F42200N	20.0	20	32	100

SUPER HARDENED HSS END MILL

COATED CARBIDE END MILL FOR GENERAL

COATED CARBIDE END MILL FOR HEAVY CUTTING

COATED CARBIDE END MILL FOR HARDENED MATERIAL

COATED CARBIDE DRILL FOR GENERAL

RECOMMENDED CUTTING CONDITIONS

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

G9F42 / G9J55 SERIES

4 FLUTE - SIDE CUTTING

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	6.0	7.0	8.0	9.0	10.0	12.0	14.0	16.0	20.0
P	1-4	Non-alloy steel	0.1D	1D	Vc	60	60	67	72	77	82	87	89	91	96	96	97	96	93	96	99	101	97
					fz	0.002	0.005	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.030	0.037	0.043	0.045	0.047	0.047	0.047	0.048	0.047
	RPM				19000	12750	10650	9165	8200	7460	6950	6295	5800	5100	4365	3850	3395	2950	2550	2250	2000	1550	
	FEED				160	230	260	255	290	420	525	530	550	605	645	655	611	560	475	425	380	290	
	Vc				35	36	44	46	49	51	53	53	54	58	58	58	58	58	58	62	63	60	
	fz				0.002	0.004	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.031	0.035	0.038	0.037	0.037	0.037	0.037	0.038	0.037	
	RPM	11050	7600	6950	5855	5150	4640	4250	3750	3450	3100	2640	2300	2050	1850	1550	1400	1250	950				
	FEED	90	125	155	165	185	260	325	315	330	380	370	350	305	275	230	210	185	145				
	5	Low alloy steel	0.1D	1D	Vc	60	60	67	72	77	82	87	89	91	96	96	97	96	93	96	99	101	97
					fz	0.002	0.005	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.030	0.037	0.043	0.045	0.047	0.047	0.047	0.048	0.047
	RPM				19000	12750	10650	9165	8200	7460	6950	6295	5800	5100	4365	3850	3395	2950	2550	2250	2000	1550	
	FEED				160	230	260	255	290	420	525	530	550	605	645	655	611	560	475	425	380	290	
Vc	35				36	44	46	49	51	53	53	54	58	58	58	58	58	58	62	63	60		
fz	0.002				0.004	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.031	0.035	0.038	0.037	0.037	0.037	0.037	0.038	0.037		
6-7	High alloyed steel, and tool steel	0.1D	1D	Vc	60	60	67	72	77	82	87	89	91	96	96	97	96	93	96	99	101	97	
				fz	0.002	0.005	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.030	0.037	0.043	0.045	0.047	0.047	0.047	0.048	0.047	
RPM				19000	12750	10650	9165	8200	7460	6950	6295	5800	5100	4365	3850	3395	2950	2550	2250	2000	1550		
FEED				160	230	260	255	290	420	525	530	550	605	645	655	611	560	475	425	380	290		
Vc				35	36	44	46	49	51	53	53	54	58	58	58	58	58	58	62	63	60		
fz				0.002	0.004	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.031	0.035	0.038	0.037	0.037	0.037	0.037	0.038	0.037		
8-9	Stainless steel	0.1D	1D	Vc	60	60	67	72	77	82	87	89	91	96	96	97	96	93	96	99	101	97	
				fz	0.002	0.005	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.030	0.037	0.043	0.045	0.047	0.047	0.047	0.048	0.047	
RPM				19000	12750	10650	9165	8200	7460	6950	6295	5800	5100	4365	3850	3395	2950	2550	2250	2000	1550		
FEED				160	230	260	255	290	420	525	530	550	605	645	655	611	560	475	425	380	290		
Vc				35	36	44	46	49	51	53	53	54	58	58	58	58	58	58	62	63	60		
fz				0.002	0.004	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.031	0.035	0.038	0.037	0.037	0.037	0.037	0.038	0.037		
10	Grey cast iron	0.1D	1D	Vc	60	60	67	72	77	82	87	89	91	96	96	97	96	93	96	99	101	97	
				fz	0.002	0.005	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.030	0.037	0.043	0.045	0.047	0.047	0.047	0.048	0.047	
RPM				19000	12750	10650	9165	8200	7460	6950	6295	5800	5100	4365	3850	3395	2950	2550	2250	2000	1550		
FEED				160	230	260	255	290	420	525	530	550	605	645	655	611	560	475	425	380	290		
Vc				35	36	44	46	49	51	53	53	54	58	58	58	58	58	58	62	63	60		
fz				0.002	0.004	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.031	0.035	0.038	0.037	0.037	0.037	0.037	0.038	0.037		
11.1 11.2	Nodular cast iron	0.1D	1D	Vc	60	60	67	72	77	82	87	89	91	96	96	97	96	93	96	99	101	97	
				fz	0.002	0.005	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.030	0.037	0.043	0.045	0.047	0.047	0.047	0.048	0.047	
RPM				19000	12750	10650	9165	8200	7460	6950	6295	5800	5100	4365	3850	3395	2950	2550	2250	2000	1550		
FEED				160	230	260	255	290	420	525	530	550	605	645	655	611	560	475	425	380	290		
Vc				35	36	44	46	49	51	53	53	54	58	58	58	58	58	58	62	63	60		
fz				0.002	0.004	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.031	0.035	0.038	0.037	0.037	0.037	0.037	0.038	0.037		
M	Malleable cast iron	0.1D	1D	Vc	60	60	67	72	77	82	87	89	91	96	96	97	96	93	96	99	101	97	
				fz	0.002	0.005	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.030	0.037	0.043	0.045	0.047	0.047	0.047	0.048	0.047	
RPM				19000	12750	10650	9165	8200	7460	6950	6295	5800	5100	4365	3850	3395	2950	2550	2250	2000	1550		
FEED				160	230	260	255	290	420	525	530	550	605	645	655	611	560	475	425	380	290		
Vc				35	36	44	46	49	51	53	53	54	58	58	58	58	58	58	62	63	60		
fz				0.002	0.004	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.031	0.035	0.038	0.037	0.037	0.037	0.037	0.038	0.037		
K	Hardened steel	0.1D	1D	Vc	29	36	36	38	40	42	45	45	46	49	49	49	48	47	47	51	53	47	
				fz	0.002	0.004	0.006	0.007	0.009	0.013	0.018	0.021	0.024	0.029	0.035	0.042	0.044	0.046	0.044	0.045	0.044	0.047	
RPM				9350	7600	5800	4840	4250	3820	3550	3185	2900	2600	2230	1950	1700	1500	1250	1150	1050	750		
FEED				80	130	130	135	155	200	260	270	275	300	315	325	300	275	230	210	185	145		
Vc				63	61	63	62	62	62	62	62	62	60	60	60	62	63	58	62	60	60		
fz				0.008	0.013	0.017	0.022	0.026	0.031	0.035	0.040	0.044	0.065	0.079	0.092	0.104	0.116	0.156	0.182	0.219	0.295		
15-16	Nodular cast iron	0.1D	1.5D	Vc	20200	13050	10100	4895	6550	5640	4950	4385	3950	3200	2730	2400	2195	2000	1550	1400	1200	950	
				fz	0.008	0.013	0.017	0.022	0.026	0.031	0.035	0.040	0.044	0.065	0.079	0.092	0.104	0.116	0.156	0.182	0.219	0.295	
RPM				20200	13050	10100	4895	6550	5640	4950	4385	3950	3200	2730	2400	2195	2000	1550	1400	1200	950		
FEED				670	670	690	695	690	700	690	700	690	830	865	880	915	930	970	1020	1050	1120		
Vc				63	61	63	62	62	62	62	62	62	60	60	60	62	63	58	62	60	60		
fz				0.008	0.013	0.017	0.022	0.026	0.031	0.035	0.040	0.044	0.065	0.079	0.092	0.104	0.116	0.156	0.182	0.219	0.295		
17-18	Malleable cast iron	0.1D	1.5D	Vc	63	61	63	62	62	62	62	62	62	60	60	60	62	63	58	62	60	60	
				fz	0.008	0.013	0.017	0.022	0.026	0.031	0.035	0.040	0.044	0.065	0.079	0.092	0.104	0.116	0.156	0.182	0.219	0.295	
RPM				20200	13050	10100	4895	6550	5640	4950	4385	3950	3200	2730	2400	2195	2000	1550	1400	1200	950		
FEED				670	670	690	695	690	700	690	700	690	830	865	880	915	930	970	1020	1050	1120		
Vc				63	61	63	62	62	62	62	62	62	60	60	60	62	63	58	62	60	60		
fz				0.008	0.013	0.017	0.022	0.026	0.031	0.035	0.040	0.044	0.065	0.079	0.092	0.104	0.116	0.156	0.182	0.219	0.295		
19-20	Hardened steel	0.1D	1D	Vc	35	36	44	46	49	51	53	53	54	58	58	58	58	58	62	63	60		
				fz	0.002	0.004	0.006	0.007	0.009	0.014	0.019	0.021	0.024	0.031	0.035	0.038	0.037	0.037	0.037	0.038	0.037		
RPM				11050	7600	6950	5855	5150	4640	4250	3750	3450	3100	2640	2300	2050	1850	1550	1400	1250	950		
FEED				90	125	155	165	185	260	325	315	330	380	370	350	305	275	230	210	185	145		
Vc				35	36	44	46	49	51	53	53	54	58	58	58	58	58	58	62	63	60		
fz				0.002	0.004	0.006</																	

SOLID CARBIDE, END MILLS for General

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

◎ : Excellent ○ : Good

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		Duroplastic, Fiber Reinforced Plastic						
	30	Non Metallic Materials	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		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

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



SUPER HARDENED HSS END MILL

COATED CARBIDE END MILL FOR GENERAL

COATED CARBIDE END MILL FOR HEAVY CUTTING

COATED CARBIDE END MILL FOR HARDENED MATERIAL

COATED CARBIDE DRILL FOR GENERAL

