

PLAIN SHANK

**G9D77** SERIES

FLAT SHANK

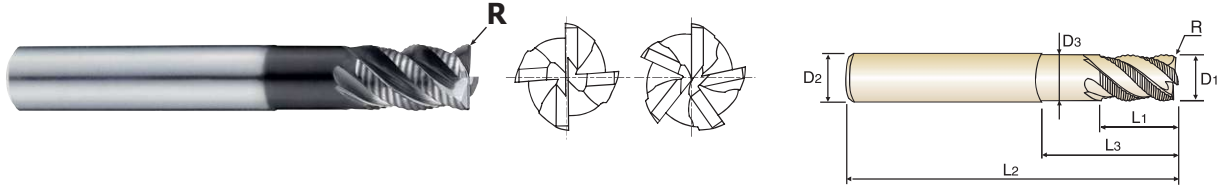
**G9D69** SERIES

**CARBIDE, 4&5 FLUTE MULTIPLE HELIX LONG REACH CORNER RADIUS**

🇩🇪 **VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL Fräser GROÙE REICHWEITE ECKENRADIUS**  
🇫🇷 **Fraise carbure, 4&5 dents, torique longue portée, hélice multiple**  
🇮🇹 **MD, 4 & 5 TAGLIENTI, TORICA, SCARICATA, SERIE LUNGS**

- ▶ Unique flute design for excellent chip evacuation and vibration reduction.
- ▶ Optimal roughing tooth profile to reduce cutting forces.
- ▶ Special tool geometry for high feed rate and heavy cutting.
- ▶ Strong end tooth design for plunge and pocket milling.
- ▶ Custom engineered coating to allow long tool life and excellent chip evacuation.

- ▶ einzigartige Nutengeometrie für hervorragenden Spántransport und Vibrationsreduzierung
- ▶ neuartiges Schruppprofil zur Reduzierung der Schnittkräfte
- ▶ Spezielle Werkzeuggeometrie für Hochvorschub- und Schwerzerspannung geeignet
- ▶ speziell entwickelte Schneidengeometrie für Tauch- und Taschenfrásen
- ▶ YG-1 eigene Beschichtung um lange Lebensdauer und sehr guten Spántransport zu gewährleisten



Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute
PLAIN	FLAT	R	D1	D2	L1	L3	L2	D3	
<b>G9D77060</b>	<b>G9D69060</b>	R0.5	<b>6.0</b>	6	9	18	57	5.50	4
<b>G9D77080</b>	<b>G9D69080</b>	R0.5	<b>8.0</b>	8	12	24	63	7.50	4
<b>G9D77100</b>	<b>G9D69100</b>	R0.5	<b>10.0</b>	10	15	30	72	9.50	4
<b>G9D77120</b>	<b>G9D69120</b>	R0.5	<b>12.0</b>	12	18	36	83	11.50	4
<b>G9D77160</b>	<b>G9D69160</b>	R1.0	<b>16.0</b>	16	24	48	100	15.50	5
<b>G9D77200</b>	<b>G9D69200</b>	R1.0	<b>20.0</b>	20	30	60	110	19.20	5

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.05	h5

⊙ : Excellent ○ : Good

ISO Material Description	P											M				K					
	Non-alloy steel					Low alloy steel						High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend	○	○	⊙	⊙	⊙	○	⊙	⊙	⊙	○	⊙	○	○	○	⊙	⊙	⊙	⊙	⊙	⊙	
ISO Material Description	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys							Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend						○	○	○													

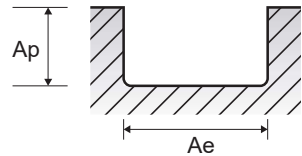
**G9D75 G9D67** **G9D76 G9D68** **G9D77 G9D69**

**4&5 FLUTE CORNER RADIUS ROUGHING**

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

**SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
<b>P</b>	1-3	Non-alloy steel	1.0D	1.0D	Vc	225	225	225	225	225	225
					fz	0.032	0.046	0.057	0.064	0.067	0.074
					RPM	11937	8952	7162	5968	4476	3581
					FEED	1528	1647	1633	1528	1500	1325
	4-5	Non-alloy steel	1.0D	0.8D	Vc	200	205	200	205	205	200
					fz	0.026	0.036	0.046	0.053	0.051	0.056
					RPM	10610	8157	6366	5438	4078	3183
					FEED	1103	1175	1171	1153	1040	891
	6	Low alloy steel	1.0D	1.0D	Vc	225	225	225	225	225	225
					fz	0.032	0.046	0.057	0.064	0.067	0.074
					RPM	11937	8952	7162	5968	4476	3581
					FEED	1528	1647	1633	1528	1500	1325
7-9	Low alloy steel	1.0D	0.8D	Vc	200	205	200	205	205	200	
				fz	0.026	0.036	0.046	0.053	0.051	0.056	
				RPM	10610	8157	6366	5438	4078	3183	
				FEED	1103	1175	1171	1153	1040	891	
10	High alloyed steel, and tool steel	1.0D	1.0D	Vc	225	225	225	225	225	225	
				fz	0.032	0.046	0.057	0.064	0.067	0.074	
				RPM	11937	8952	7162	5968	4476	3581	
				FEED	1528	1647	1633	1528	1500	1325	
11.1	High alloyed steel, and tool steel	1.0D	0.8D	Vc	200	205	200	205	205	200	
				fz	0.026	0.036	0.046	0.053	0.051	0.056	
				RPM	10610	8157	6366	5438	4078	3183	
				FEED	1103	1175	1171	1153	1040	891	
<b>K</b>	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	1.0D	Vc	225	225	225	225	225	225
fz	0.032	0.046	0.057	0.064	0.067	0.074					
RPM	11937	8952	7162	5968	4476	3581					
FEED	1528	1647	1633	1528	1500	1325					



**SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)					
						6.0	8.0	10.0	12.0	16.0	20.0
<b>P</b>	1-3	Non-alloy steel	0.5D	1.0D	Vc	300	300	300	300	300	300
					fz	0.041	0.057	0.071	0.08	0.082	0.089
					RPM	15915	11937	9549	7958	5968	4775
					FEED	2610	2722	2712	2546	2447	2125
	4-5	Non-alloy steel	0.35D	1.0D	Vc	270	270	265	270	270	270
					fz	0.032	0.046	0.057	0.065	0.065	0.07
					RPM	14324	10743	8435	7162	5371	4297
					FEED	1833	1977	1923	1862	1746	1504
	6	Low alloy steel	0.5D	1.0D	Vc	300	300	300	300	300	300
					fz	0.041	0.057	0.071	0.08	0.082	0.089
					RPM	15915	11937	9549	7958	5968	4775
					FEED	2610	2722	2712	2546	2447	2125
7-9	Low alloy steel	0.35D	1.0D	Vc	270	270	265	270	270	270	
				fz	0.032	0.046	0.057	0.065	0.065	0.07	
				RPM	14324	10743	8435	7162	5371	4297	
				FEED	1833	1977	1923	1862	1746	1504	
10	High alloyed steel, and tool steel	0.5D	1.0D	Vc	300	300	300	300	300	300	
				fz	0.041	0.057	0.071	0.08	0.082	0.089	
				RPM	15915	11937	9549	7958	5968	4775	
				FEED	2610	2722	2712	2546	2447	2125	
11.1	High alloyed steel, and tool steel	0.35D	1.0D	Vc	270	270	265	270	270	270	
				fz	0.032	0.046	0.057	0.065	0.065	0.07	
				RPM	14324	10743	8435	7162	5371	4297	
				FEED	1833	1977	1923	1862	1746	1504	
<b>K</b>	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.0D	Vc	300	300	300	300	300	300
fz	0.041	0.057	0.071	0.08	0.082	0.089					
RPM	15915	11937	9549	7958	5968	4775					
FEED	2610	2722	2712	2546	2447	2125					

