

## High Speed Shaft Gear Coupling Selections

### Introduction

Mounting dimensions and coupling selections (1000G10 or G20) are for standard Type FZ drives with standard 1500 rpm, single speed, AC, IEC motors on standard motor brackets.

Type S, M or L frame motors can be used on the slotted brackets and positioned for the shaft gaps tabulated.

Tabulations are given for drives with and without fans and with external backstops without fan (M2100-M2130FZ). Drives with external backstops have longer high speed shaft extensions.

Blank brackets will be furnished without extra charge for gear drive selections with standard couplings and external backstops as listed in Table 3. Internal backstops do not affect coupling selections or mounting dimensions.

Standard drive shaft diameters and key sizes are tabulated on Page 3.

**TABLE 1 — Without Fan – mm**

Motor kW, Frame, Shaft Dia & Key	DRIVE SIZE	G10/G20 Cplg Size	Shaft Gap	Hub Overhang	
				Drive	Motor
0,75 kW 80 19 mm 6 x 6 mm	M2040F3	1010G	3,0	12,7	19,8
	M2040F4	1010G	3,0	15,7	15,7
	M2050F3	1010G	3,0	NONE	12,7
	M2050F4	1010G	3,0	12,7	22,4
	M2060F4	1010G	3,0	12,7	22,4
	M2070F4	1010G	3,0	12,7	19,1
	M2080F4	1010G	3,0	NONE	12,7
	M2090F4	1010G	3,0	NONE	12,7
1,1/1,5 kW 90S/90L 24 mm 8 x 7 mm	M2040F3	1010G	3,0	12,7	9,7
	M2040F4	1010G	3,0	15,7	15,7
	M2050F3	1010G	3,0	NONE	3,0
	M2050F4	1010G	3,0	12,7	12,7
	M2060F3	1010G	3,0	6,4	12,7
	M2060F4	1010G	3,0	12,7	9,7
	M2070F4	1010G	3,0	9,7	12,7
	M2080F4	1010G	3,0	NONE	16,0
2,2/3 kW 100L 28 mm 8 x 7 mm	M2040F3	1010G	3,0	12,7	NONE
	M2050F3	1010G	3,0	NONE	NONE
	M2050F4	1010G	3,0	12,7	NONE
	M2060F3	1010G	3,0	9,7	NONE
	M2060F4	1010G	3,0	12,7	NONE
	M2070F3	1010G	3,0	NONE	NONE
	M2070F4	1010G	3,0	12,7	NONE
	M2080F4	1010G	3,0	NONE	6,4
4/5,5 kW 112M 28 mm 8 x 7 mm	M2040F2	1010G	3,0	NONE	NONE
	M2040F3	1010G	3,0	6,4	6,4
	M2050F2	1010G	3,0	NONE	NONE
	M2050F3	1010G	3,0	NONE	NONE
	M2060F3	1010G	3,0	NONE	NONE
	M2070F3	1010G	3,0	NONE	NONE
	M2070F4	1010G	3,0	6,4	6,4
	M2080F3	1010G	3,0	NONE	3,0
M2080F4	1010G	3,0	NONE	6,4	
M2090F4	1010G	3,0	NONE	6,4	
M2100F4	1010G	3,0	NONE	19,1	
M2110F4	1010G	3,0	NONE	3,0	
M2120F4	1010G	3,0	NONE	3,0	
M2130F4	1010G	3,0	NONE	6,4	

**TABLE 1 — Without Fan – mm (Continued)**

Motor kW, Frame, Shaft Dia & Key	DRIVE SIZE	G10/G20 Cplg Size	Shaft Gap	Hub Overhang	
				Drive	Motor
5,5/7,5/9,2 kW 132S/132M 38 mm 10 x 8 mm	M2040F2	1010G	3,0	12,7	NONE
	M2040F3	1010G	3,0	14,2	14,2
	M2050F2	1010G	3,0	NONE	NONE
	M2050F3	1010G	3,0	6,6	6,6
	M2060F2	1010G	3,0	NONE	NONE
	M2060F3	1010G	3,0	6,4	6,4
	M2070F3	1010G	3,0	NONE	NONE
	M2080F3	1010G	3,0	NONE	NONE
	M2080F4	1010G	3,0	NONE	7,9
	M2090F3	1010G	3,0	NONE	NONE
	M2090F4	1010G	3,0	7,9	NONE
	M2100F3	1015G	3,0	NONE	NONE
	M2100F4	1010G	3,0	NONE	NONE
	M2110F4	1010G	3,0	NONE	NONE
	M2120F4	1010G	3,0	NONE	NONE
M2130F4	1010G	3,0	NONE	NONE	
11/15 kW 160M/160L ▲ 42 mm 12 x 8 mm	M2040F2	1010G	3,0	12,7	NONE
	M2050F2	1010G	3,0	NONE	NONE
	M2050F3	1010G	3,0	9,7	6,6
	M2060F2	1010G	3,0	NONE	NONE
	M2060F3	1010G	3,0	6,4	6,4
	M2070F2	1015G	3,0	NONE	NONE
	M2070F3	1010G	3,0	NONE	NONE
	M2080F2	1015G	3,0	NONE	NONE
	M2080F3	1010G	3,0	NONE	NONE
	M2090F3	1010G	3,0	NONE	NONE
	M2090F4	1010G	3,0	9,4	NONE
	M2100F3	1015G	3,0	NONE	NONE
	M2100F4	1010G	3,0	NONE	NONE
	M2110F3	1015G	3,0	NONE	NONE
	M2110F4	1010G	3,0	NONE	NONE
18,5/22 kW 180M/180L ▲ 48 mm 14 x 9 mm	M2040F2	1010G	3,0	12,7	NONE
	M2050F2	1010G	3,0	NONE	NONE
	M2060F2	1010G	3,0	NONE	NONE
	M2060F3	1010G	3,0	12,7	NONE
	M2070F2	1015G	3,0	NONE	NONE
	M2070F3	1010G	3,0	NONE	NONE
	M2080F2	1015G	3,0	NONE	NONE
	M2080F3	1015G	3,0	NONE	NONE
	M2090F2	1015G	3,0	NONE	NONE
	M2090F3	1010G	3,0	NONE	NONE
30/37 kW 200L ▲ 55 mm 16 x 10 mm	M2050F2	1015G	3,0	NONE	NONE
	M2060F2	1015G	3,0	NONE	NONE
	M2070F2	1015G	3,0	NONE	NONE
	M2070F3	1015G	3,0	NONE	NONE
	M2080F2	1015G	3,0	NONE	NONE
	M2080F3	1015G	3,0	NONE	NONE
	M2090F2	1015G	3,0	NONE	NONE
	M2090F3	1015G	3,0	NONE	NONE
	M2100F2	1020G	3,0	NONE	NONE
	M2100F3	1015G	3,0	NONE	NONE
M2110F3	1015G	3,0	NONE	NONE	
M2120F3	1015G	3,0	NONE	NONE	
M2120F4	1015G	3,0	NONE	NONE	
M2130F3	1015G	3,0	NONE	NONE	
M2130F4	1015G	3,0	NONE	NONE	

▲ Motor shaft diameter varies per manufacturer for frames 160 and larger.



TABLE 1 — Without Fan – mm (Continued)

Motor kW, Frame, Shaft Dia & Key	DRIVE SIZE	G10/G20 Cplg Size	Shaft Gap	Hub Overhang	
				Drive	Motor
45/55 kW 225S/225M ▲ 60 mm 18 x 11 mm	M2060F2	1015G	3,0	NONE	NONE
	M2070F2	1020G	3,0	NONE	NONE
	M2080F2	1015G	3,0	NONE	NONE
	M2080F3	1015G	3,0	NONE	NONE
	M2090F2	1015G	3,0	NONE	NONE
	M2090F3	1015G	3,0	NONE	NONE
	M2100F2	1020G	3,0	NONE	NONE
	M2100F3	1015G	3,0	NONE	NONE
	M2110F3	1015G	3,0	NONE	NONE
	M2120F3	1015G	3,0	NONE	NONE
	M2120F4	1015G	3,0	NONE	NONE
	M2130F3	1015G	3,0	NONE	NONE
M2130F4	1015G	3,0	NONE	NONE	
75 kW 250S/250M ▲ 70 mm 20 x 12 mm	M2070F2	1015G	3,0	NONE	NONE
	M2080F2	1020G	3,0	NONE	NONE
	M2090F2	1020G	3,0	NONE	NONE
	M2090F3	1020G	3,0	NONE	NONE
	M2100F2	1020G	3,0	NONE	NONE
	M2100F3	1020G	3,0	NONE	NONE
	M2110F2	1020G	3,0	NONE	NONE
	M2110F3	1020G	3,0	NONE	NONE
	M2120F2	1025G	4,6	NONE	NONE
	M2120F3	1020G	3,0	NONE	NONE
	M2130F3	1020G	3,0	NONE	NONE
	M2130F4	1020G	3,0	NONE	NONE
90 kW 280S/280M ▲ 80 mm 22 x 14 mm	M2080F2	1025G	4,6	NONE	NONE
	M2090F2	1025G	4,6	NONE	NONE
	M2100F2	1025G	4,6	NONE	NONE
	M2100F3	1025G	4,6	NONE	NONE
	M2110F2	1025G	4,6	NONE	NONE
	M2110F3	1025G	4,6	NONE	NONE
	M2120F2	1025G	4,6	NONE	NONE
	M2120F3	1025G	4,6	NONE	NONE
	M2130F2	1025G	4,6	NONE	NONE
	M2130F3	1025G	4,6	NONE	NONE
	M2130F4	1025G	4,6	NONE	NONE

▲ Motor shaft diameter varies per manufacturer for frames 160 and larger.

TABLE 2 — With Fan – mm

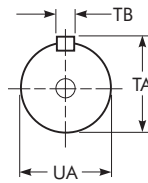
Motor kW, Frame, Shaft Dia & Key	DRIVE SIZE	G10/G20 Cplg Size	Shaft Gap	Hub Overhang	
				Drive	Motor
45/55 kW 225S/225M ▲ 60 mm 18 x 11 mm	M2060F2	1015G	3,0	NONE	NONE
	M2070F2	1015G	3,0	NONE	NONE
75 kW 250S/250M ▲ 70 mm 20 x 12 mm	M2070F2	1025G	4,6	28,4	NONE
	M2080F2	1025G	4,6	25,4	NONE
	M2090F2	1020G	3,0	9,7	NONE
90 kW 280S/280M ▲ 80 mm 22 x 14 mm	M2080F2	1025G	4,6	31,8	10,7
	M2090F2	1025G	4,6	12,7	11,2
	M2100F2	1025G	4,6	22,4	11,2
	M2110F2	1025G	4,6	19,1	19,1
	M2120F2	1025G	4,6	7,9	6,4
	M2130F3	1025G	4,6	9,7	6,4

▲ Motor shaft diameter varies per manufacturer for frames 160 and larger.

- Use a #20 backstop with Sizes M2100FZ2, ratios 17:1-31:1; and M2110FZ2, ratios 25:1-31:1. NOTE: a #20 backstop is not available with Sizes M2120 & M2130FZ2.
- Use a #60 backstop with Sizes M2100FZ2, ratios 5:1-14:1; and Size M2110FZ2, ratios 5:1-21:1; and Sizes M2120 & M2130FZ2, all ratios.

TABLE 3 — With External Backstop & Without Fan – mm

Motor kW, Frame, Shaft Dia & Key	DRIVE SIZE	Backstop Size	G10/G20 Cplg Size	Shaft Gap	Hub Overhang	
					Drive	Motor
1,1 kW 90S/90L 24 mm 8 x 7 mm	M2100F4	#20	1010G	3,0	6,4	19,1
2,2/3 kW 100L 28 mm 8 x 7 mm	M2100F4	#20	1010G	3,0	NONE	NONE
	M2100F4	#20	1010G	3,0	NONE	NONE
	M2100F4	#20	1010G	3,0	NONE	3,0
4/5,5 kW 112M 28 mm 8 x 7 mm	M2100F4	#20	1010G	3,0	NONE	19,1
	M2110F4	#20	1010G	3,0	14,2	22,4
	M2120F4	#20	1010G	3,0	NONE	NONE
	M2130F4	#20	1010G	3,0	NONE	NONE
5,5/7,5/9,2 kW 132S/132M 38 mm 10 x 8 mm	M2100F3	#20	1015G	3,0	NONE	NONE
	M2100F4	#20	1010G	3,0	NONE	NONE
	M2110F4	#20	1010G	3,0	NONE	NONE
	M2120F4	#20	1010G	3,0	NONE	NONE
	M2130F4	#20	1010G	3,0	NONE	NONE
11/15 kW 160M/160L ▲ 42 mm 12 x 8 mm	M2100F3	#20	1015G	3,0	NONE	NONE
	M2100F4	#20	1010G	3,0	NONE	NONE
	M2110F3	#20	1010G	3,0	NONE	NONE
	M2110F4	#20	1010G	3,0	22,4	NONE
	M2120F3	#20	1015G	3,0	NONE	NONE
	M2120F4	#20	1010G	3,0	NONE	NONE
18,5/22 kW 180M/180L ▲ 48 mm 14 x 9 mm	M2100F3	#20	1015G	3,0	NONE	NONE
	M2110F3	#20	1015G	3,0	NONE	NONE
	M2110F4	#20	1010G	3,0	15,7	NONE
	M2120F3	#20	1015G	3,0	NONE	NONE
	M2120F4	#20	1010G	3,0	NONE	NONE
	M2130F3	#20	1015G	3,0	NONE	NONE
	M2130F4	#20	1010G	3,0	NONE	NONE
30/37 kW 200L ▲ 55 mm 16 x 10 mm	M2100F2	#20 ■	1020G	3,0	NONE	NONE
	M2100F2	#60 ●	1020G	3,0	NONE	NONE
	M2100F3	#20	1015G	3,0	NONE	NONE
	M2110F3	#20	1015G	3,0	NONE	NONE
	M2120F3	#20	1015G	3,0	NONE	NONE
	M2120F4	#20	1015G	3,0	NONE	NONE
	M2130F3	#20	1015G	3,0	NONE	NONE
	M2130F4	#20	1015G	3,0	NONE	NONE
45/55 kW 225S/225M ▲ 60 mm 18 x 11 mm	M2100F2	#20 ■	1020G	3,0	NONE	NONE
	M2100F2	#60 ●	1020G	3,0	NONE	NONE
	M2100F3	#20	1015G	3,0	NONE	NONE
	M2110F3	#20	1015G	3,0	NONE	NONE
	M2120F3	#20	1015G	3,0	NONE	NONE
	M2120F4	#20	1015G	3,0	NONE	NONE
	M2130F3	#20	1015G	3,0	NONE	NONE
	M2130F4	#20	1015G	3,0	NONE	NONE
75 kW 250S/250M ▲ 70 mm 20 x 12 mm	M2100F2	#20 ■	1020G	3,0	NONE	NONE
	M2100F2	#60 ●	1020G	3,0	NONE	NONE
	M2100F3	#20	1020G	3,0	NONE	NONE
	M2110F2	#20 ■	1020G	3,0	NONE	NONE
	M2110F2	#60 ●	1020G	3,0	NONE	NONE
	M2110F3	#20	1020G	3,0	NONE	NONE
	M2120F2	#60	1025G	4,6	NONE	NONE
	M2120F3	#20	1020G	3,0	NONE	NONE
	M2130F3	#20	1020G	3,0	NONE	NONE
	M2130F3	#20	1020G	3,0	NONE	NONE
90 kW 280S/280M ▲ 80 mm 22 x 14 mm	M2100F2	#20 ■	1025G	4,6	NONE	NONE
	M2100F2	#60 ●	1025G	4,6	NONE	NONE
	M2100F3	#20	1025G	4,6	NONE	NONE
	M2110F2	#20 ■	1025G	4,6	NONE	NONE
	M2110F2	#60 ●	1025G	4,6	NONE	NONE
	M2110F3	#20	1025G	4,6	NONE	NONE
	M2120F2	#60	1025G	4,6	NONE	NONE
	M2120F3	#20	1025G	4,6	NONE	NONE
	M2130F2	#60	1025G	4,6	NONE	NONE
	M2130F3	#20	1025G	4,6	NONE	NONE

**H.S. SHAFT DETAIL**

**TABLE 4 — H.S. Shaft Diameter & Key Size ■**  
 (With or Without Internal Backstop – mm)

DRIVE SIZE ★	FZ2 Double Red			FZ3 Triple Red			FZ4 Quad Red		
	UA *	Key		UA *	Key		UA *	Key	
		TA	TB		TA	TB		TA	TB
M2040	35	38,0	10	28	31,0	8	24	27,0	8
M2050	40	43,0	12	38	41,0	10	28	31,0	8
M2060	48	51,5	14	38	41,0	10	28	31,0	8
M2070	55	59,0	16	42	45,0	12	28	31,0	8
M2080	55	59,0	16	48	51,5	14	38	41,0	10
M2090	65	69,0	18	48	51,5	14	38	41,0	10
M2100	70 ♦	74,5	20	55	59,0	16	48	51,5	14
M2110	75 ♦	79,5	20	55	59,0	16	48	51,5	14
M2120	85 ♦	90,0	22	60 ♦	64,0	18	48	51,5	14
M2130	85 ♦	90,0	22	60 ♦	64,0	18	48	51,5	14

- ★ Dimensions are for reference only and are subject to change without notice unless certified.
- ♦ Dimensions shown are for drives without backstop; for drives with backstop refer to Table 5.
- ISO/R773-1969 for keys and keyways. Tapped center hole to DIN 332, threads 6H.
- \* Tolerance is k6 for diameters 50 mm and less; tolerance is m6 for diameters greater than 50 mm.

**TABLE 5 — H.S. Shaft Diameter & Key Size ■**  
 (With External Backstop – mm)

DRIVE SIZE ★	Backstop Size	Ratio	UA *	Key	
				TA	TB
<b>FZ2 Double Reduction</b>					
M2100	#20	17:1-31:1	55	59,0	16
M2100	#60	5:1-14:1	70	74,5	20
M2110	#20	25:1-31:1	55	59,0	16
M2110 †	#60	5:1-20:1	75	79,5	20
M2120 ‡	#60	5:1-31:1	85	90,0	22
M2130 •	#60	5:1-31:1	85	90,0	22
<b>FZ3 Triple Reduction</b>					
M2100	#20	All Ratios	55	59,0	16
M2110	#20	All Ratios	55	59,0	16
M2120	#20	All Ratios	55	59,0	16
M2130	#20	All Ratios	55	59,0	16
<b>FZ4 Quad Reduction</b>					
M2100	#20	All Ratios	48	51,5	14
M2110	#20	All Ratios	48	51,5	14
M2120	#20	All Ratios	48	51,5	14
M2130	#20	All Ratios	48	51,5	14

- ★ Dimensions are for reference only and are subject to change without notice unless certified.
- † M2110 ratios 5:1-6:1; Gear drive maximum torque rating exceeds backstop rating. Backstop may be used if required high speed shaft torque is less than 4550 Nm.
- ‡ M2120 ratios 5:1-9:1; Gear drive maximum torque rating exceeds backstop rating. Backstop may be used if required high speed shaft torque is less than 4550 Nm.
- M2130 ratios 5:1-11:1; Gear drive maximum torque rating exceeds backstop rating. Backstop may be used if required high speed shaft torque is less than 4550 Nm.
- ISO/R773-1969 for keys and keyways. Tapped center hole to DIN 332, threads 6H.
- \* Tolerance is k6 for diameters 50 mm and less; tolerance is m6 for diameters greater than 50 mm.