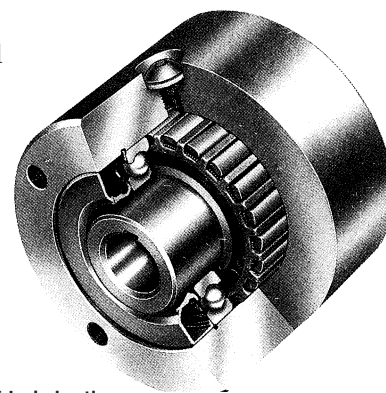


"M" Series Sprag Clutches



**Fully sealed, bearing supported, high torque
Sprag Clutch Assemblies with Metric and Imperial Bores.**

"M" series sprag clutches use precision cams made of high chrome alloy steel, hardened and honed for accurate shape. A unique finishing process ensures smooth cam surface providing uniform contact with both races for even load distribution and prolonged clutch life. High capacity bearings are used to accommodate radial and axial loads. The clutches are designed to mount directly on through shafts; the torque being transmitted by a matching key provided with each stock bore; the outer race has a precision ground diameter with tapped holes on each face to enable the fitting of gears, sprockets, pulleys, etc.



Four types of clutch are offered:

MG Series - Standard clutch for general overrunning, backstop and index applications, standard oil lubricated with option of grease.

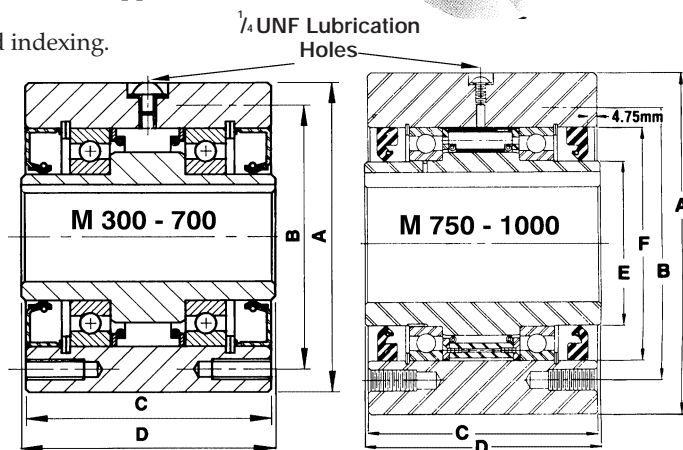
MI Series - Has special sprag assembly designed for high speed indexing. Always oil filled for optimum performance.

MO Series - Fitted with labyrinth seals for minimal drag on higher speed overrun and backstop applications. Always grease lubricated.

MR Series - Utilises a special sprag cage arrangement to allow high speed overrunning of the outer race. Oil lubricated clutch suitable as a higher torque alternative to Roller Ramp clutches.

Vertical Shafts - Clutches suitable for vertical shafting can be supplied - contact Cross & Morse sales office for technical advice.

High Speed/Temperature Operation - Clutches can be provided with a patented venting system for applications subject to high temperature variation or overrunning at high speed.



Dimensions

Clutch Model Number	Torque Capacity Nm	Max Overrun Speed RPM		Nominal Overrun Drag Nm	Std. Bore & Key Sizes (1)				Dimensions in mm						No. (2) Tapped Holes	Thread Size U.N.F.	Usable Thread Depth mm	Approx Weight kg
		Inner(4)	Outer		Imperial		Metric		A	B	C	D	E	F				
					Bore ins (3)	Key	Bore ins (3)	Key										
MG 300 MI 300 MO 300 MR 300	373	2900 3600 800	800 800 2900	.23	5/8, 3/4	3/16x3/16	15mm 5x5	76.20 76.15	66.7	60.3	63.5	28.6	-	4	1/4-28	13	1.8	
MG 400 MI 400 MO 400 MR 400	542	2700 3600 800	800 800 2700	.28	3/4, 7/8	3/16x3/16	18mm 6x6 20mm 6x6	88.90 88.85	73.0	66.7	69.9	31.7	-	4	5/16-24	16	2.7	
MG 500 MI 500 MO 500 MR 500	1592	2400 3000 750	750 750 2400	.52	1, 1 1/4	1/4x1/4	25mm 8x7 30mm 8x7	107.95 107.90	92.1	85.7	88.9	44.4	-	4	5/16-24	16	5.0	
MG 600 MI 600 MO 600 MR 600	3050	1800 2400 700	700 700 2100	.85	1 1/2, 1 3/4 2	3/8x3/8 1/2x7/16	38mm 10x8 40mm 12x8 45mm 14x9 50mm 14x9	136.53 136.47	120.7	92.9	95.3	69.8	-	6	5/16-24	16	8.6	
MG 700 MI 700 MO 700 MR 700	6780	1200 2000 400	400 400 1750	1.76	2, 2 1/4 2 1/2, 2 3/4 3, 3 1/4	1/2x1/2 5/8x5/8 5/8x7/16	60mm 18x11 65mm 18x11 70mm 20x12 75mm 20x12 80mm 22x 9	180.98 180.92	158.8	123.8	127.0	101.6	-	8	3/8-24	19	19.5	
MG 750 MI 750	9500	1800 525	600 2600	3.4	27/16, 2 1/2, 2 3/4 2 15/16, 3 3 1/4 37/16	5/8x5/8 3/4x3/4 3/4x5/8 3/4x9/16	70mm 20x12 75mm 20x12 80mm 22x14 85mm 22x14	222.25 222.20	177.8	149.2	152.4	108.0	152.4	8	1/2-20	25	38	
MG 800 MI 800	17625	1300 475	475 2100	5.4	3, 3 1/4 37/16, 3 1/2, 3 3/4 3 15/16, 4 4 1/4 47/16	3/4x3/4 7/8x7/8 1x1 1x7/8 1x3/4	85mm 22x14 90mm 25x14 100mm 28x16 110mm 28x16	254.00 253.95	227.0	149.2	152.4	139.7	190.5	8	1/2-20	25	48	
MG 900 MI 900	24400	1200 400	400 1850	6.8	4, 4 1/4, 4 7/16 4 1/2, 4 3/4 4 15/16, 5 5 1/4, 5 7/16	1x1 1x1 1x7/8 1x3/4	100mm 28x16 120mm 32x18 130mm 32x18	304.80 304.72	247.6	158.7	161.9	165.1	222.2	10	5/8-18	32	72	
MG 1000 MI 1000	33900	1200 325	325 1600	8.2	5, 5 1/4, 5 7/16, 5 1/2 5 3/4, 5 15/16, 6 6 1/4, 6 7/16	1 1/4x1 1/4 1 1/4x1 1/16 1 1/4x1	130mm 32x18 150mm 36x20 160mm 40x22	381.00 380.92	298.5	171.4	177.8	196.8	266.7	12	5/8-18	32	115	

(1) Std. bores clutches normally available 24 hour despatch. Other bore sizes can be supplied to order. Clutches shipped with key.

(2) Mounting holes equally spaced except 700 & 750 which have 6 equi-spaced plus two 30° from equi-spaced holes 180° apart.

(3) Bores to H7 tolerance except Imperial bores on MG 750-1000 which are to M7 tolerance.

(4) This also maximum drive speed MR series clutches.

Note: All oil filled clutches must be lubricated prior to operation.

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M Series Clutch Couplings and Stub Shaft Adaptors



Standard Flexible Couplings

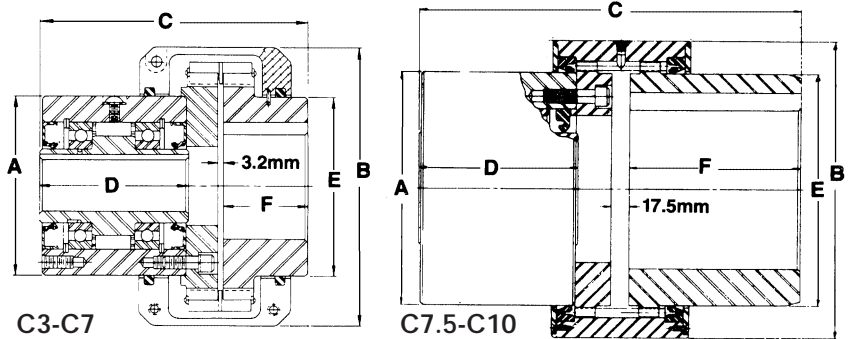
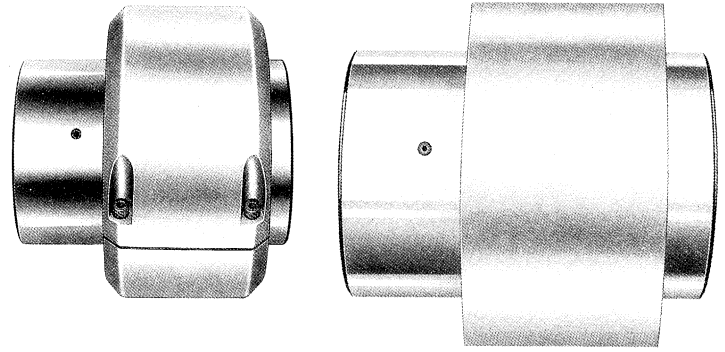
The "M" Series Clutch Couplings are for shaft to shaft connection on high speed overrunning applications, such as motor to large fan shaft.

Couplings C3 to C7 use Morse silent chain flexible couplings. Couplings C7.5 to C10 are Morse Gear Couplings. All couplings are fully sealed for grease lubrication.

It is preferred to overrun on clutch shaft, as this permits removal of driving machinery by disconnection at flexible coupling, without driven equipment being stopped. For clutch shaft overrunning select coupling with MG or MO clutch. If shaft diameters dictate that coupling will overrun select MR clutch.

Clutch Couplings accommodate up to 1/2 degree angular, and 0.25mm parallel misalignment plus end float as indicated in table.

- Specify direction of rotation of couplings as viewed from clutch end
- Left hand is inner race driving CCW
- Right Hand is inner race driving CW



Dimensions

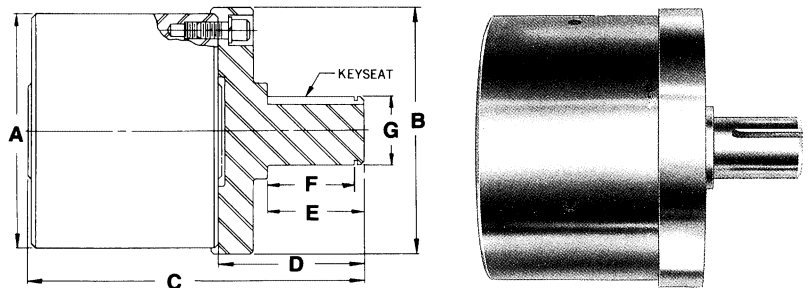
Coupling No.	Clutch Model	Torque Capacity	Max Overrun Speed		Coupling Max Bore mm	Clutch* Max Bore mm	Dimensions in mm						Max End Float mm	Approx Weight kg
			Clutch rpm	Coupling rpm			A	B	C	D	E	F		
C3	MG 300	373	2900	800	51	19	76.2	124	125	63.5	76	46.0	+2.4 -0	3.6
	MO 300		3600	800										
	MR 300		800	2900										
C4	MG 400	542	2700	800	60	22	88.9	141	141	69.9	89	50.8	+4.8 -0	5.4
	MO 400		3600	800										
	MR 400		800	2700										
C5	MG 500	1590	2400	750	64	32	107.9	169	160	88.9	108	50.8	+4.8 -0	8.6
	MO 500		3000	750										
	MR 500		750	2400										
C6	MG 600	3050	1800	700	89	55	136.5	214	198	95.3	137	76.2	+6.3 -0	15.4
	MO 600		2400	700										
	MR 600		700	2100										
C7	MG 700	6780	1200	400	102	80	181.0	248	237	127.0	181	82.6	+6.3 -0	23.6
	MO 700		2000	400										
	MR 700		400	1750										
C7.5	MG 750	9500	1800	600	152	85	222.2	286	365	152.4	222	163.5	+6.3 -15.9	68
	MR 750		525	2600										
C8	MG 800	17625	1300	475	165	110	254.0	318	365	152.4	254	163.5	+6.3 -15.9	77
	MR 800		475	2100										
C9	MG 900	24400	1200	400	203	140	304.8	378	379	161.9	305	168.3	+6.3 -15.9	113
	MR 900		400	1850										
C10	MG 1000	33900	1200	325	203	160	381.0	448	410	177.8	305	184.1	+6.3 -15.9	136
	MR 1000		325	1600										

*Refer to clutch tables for standard bore sizes. Coupling halves can be supplied to any recognised std bore up to max. indicated.

Stub Shaft Adaptor

The Morse flanged sub-shaft adaptor is used when it is impractical to mount a sprocket, gear, sheave or other mechanical device directly to the mounting holes of the Morse cam clutch Models 300-1000.

The stub shaft diameter is designed to take full advantage of the clutch-torque capacity, but may be turned to smaller diameter to special order, including metric shaft sizes.



Adaptor No.	Clutch Model	Dimensions mm						Shaft Dia. G ins	Keyway ins	Weight kg
		A	B	C	D	E	F			
A3	300	76.2	82.6	122.9	61.1	38.1	33.4	.751/.750	1/4x1/8	0.62
A4	400	88.9	95.3	129.4	61.1	38.1	33.4	.751/.750	1/4x1/8	0.72
A5	500	107.9	114.3	157.2	69.9	44.5	39.0	1.251/1.250	5/16x5/32	1.42
A6	600	136.5	142.9	171.5	77.8	50.8	45.2	1.751/1.750	3/8x3/16	2.60
A7	700	181.0	187.3	214.3	88.9	63.5	56.6	2.752/2.750	5/8x5/16	5.60
A7.5	750	222.2	211.1	266.7	115.9	76.2	68.6	3.252/3.250	3/4x3/8	10.60
A8	800	254.0	260.3	282.6	131.8	95.2	87.5	4.252/4.250	1x1/2	18.00
A9	900	304.8	292.1	311.1	150.8	114.3	106.1	5.252/5.250	1 1/4x5/8	27.90
A10	1000	381.0	355.6	352.4	177.8	139.7	128.2	6.252/6.250	1 1/4x5/8	46.00