

# MORSE<sup>®</sup>

## M SERIES CAM CLUTCHES

Models M300A - M700A  
M750 - M1000

**NOW!**

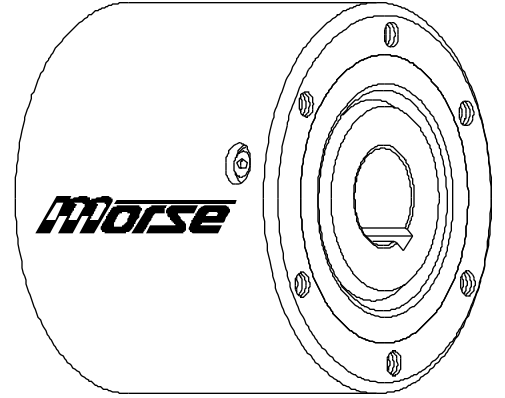
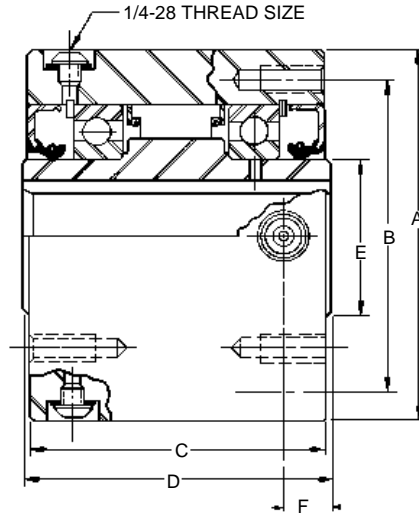
*Includes Metric Bores*



**Catalog MCC-96**

## M Series Models M300A - M700A

These are all ball bearing clutches. All models contain precision formed cams made from high quality steel, hardened then precision finished to eliminate the minor distortions caused by hardening. The unique finishing process insures a smooth cam surface resulting in a uniform contact with the races and providing even load distribution and prolonged wear life. These clutch models are designed to mount on through shafts and are secured to the shaft by a matching key provided with each stock bore clutch. Grease lubrication for each series can be provided at no additional cost.



U.S. Patent No's. 3,320,006  
3,542,442 and 4,130,191

### MG-300A-700A SERIES

Primarily used for general duty applications. Overrunning, back-stopping and light duty indexing.

### MI-300A-700A SERIES

Recommended for high performance indexing, used on applications greater than 150 strokes per minute or applications requiring high indexing accuracy. Incorporating a patented low inertia cage and heavy duty energizing spring for quick cam reaction.

### MO-300A-700A SERIES

Made with labyrinth grease seal to minimize seal drag for high speed inner race overrunning applications.

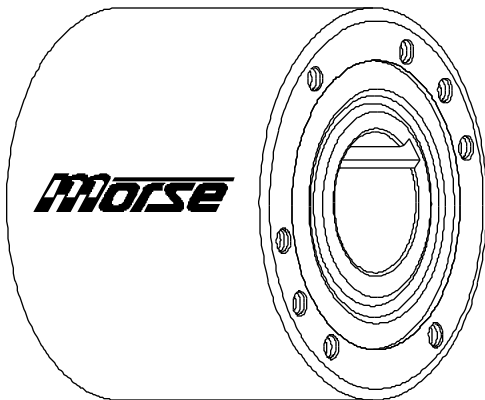
### MR-300A-700A SERIES

Intended for high speed outer race overrunning incorporating a unique cam cage construction which utilizes centrifugal force to minimize cam drag. The driving speed of clutch cannot exceed RPM shown in table for inner race.

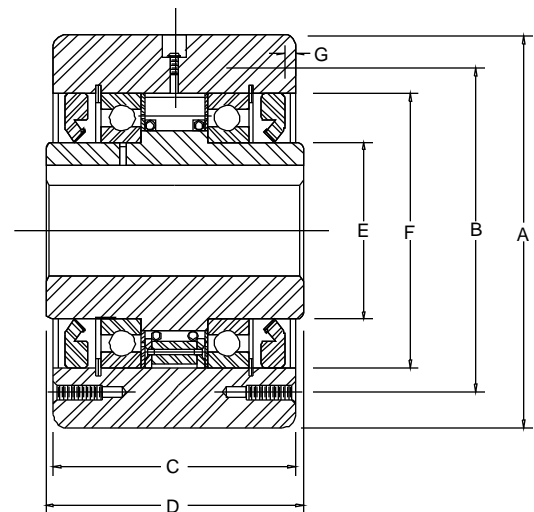
## M Series Models M750 - M1000

These are ball bearing clutches. All models contain precision ground cams and high quality - high temperature lip-type seals for greatest performance in overrunning and indexing. In clutch sizes 750-1000, the Model MG has a cam cage designed for inner race overrunning. MR Models have cam cages designed for outer race overrunning. MI Models have stronger energizing springs for greatest response in indexing. These clutch models are designed to mount to the shaft by a key.

Model Number	Mode of Operation	Std. Lubrication
MG750-1000	GENERAL BACKSTOPPING and OVERRUNNING	OIL
MR750-1000	OVERRUNNING-OUTER RACE	OIL
MI750-1000	INDEXING	OIL



U.S. Patent No's. 3,542,442



# MORSE® M Series CAM CLUTCHES

## MODELS M300A - M700A

Includes METRIC BORES

Model Number	Torque Capacity		Maximum Overrunning RPM		Nominal Over Running Drag		Stock Bores <sup>1</sup>		Keyways <sup>1</sup>		Maximum Bore (Inch & Millimeters) with Keyways
	(Lb-Ft.)	Newton Meters	Inner Race	Outer Race	(Lb-Ft.)	Newton Meters	Inch	Millimeter	Inch	Millimeter	
<b>MG-300</b> <b>MI-300A</b> <b>MO-300</b> <b>MR-300</b>	275	373NM	2900	800	.17	.23NM	.500	<b>15mm</b> <b>19mm</b>	1/8 x 1/16 3/16 x 3/32 3/16 x 3/32	<b>5 x 2.3mm</b> <b>6 x 2.8mm</b>	.750 (3/16 x 3/32) 19mm (6 x 2.8mm)
3600			800	.625							
800			2900	.750							
<b>MG-400</b> <b>MI-400A</b> <b>MO-400</b> <b>MR-400</b>	400	542NM	2700	800	.21	.28NM	.625	<b>18mm</b> <b>20mm</b>	3/16 x 3/32	<b>6 x 2.8mm</b> <b>6 x 2.8mm</b>	.875 (3/16 x 3/32) 20mm (6 x 2.8mm)
3600			800	.750							
800			2700	.875							
<b>MG-500</b> <b>MI-500A</b> <b>MO-500</b> <b>MR-500</b>	1175	1593N	2400	750	.38	.51NM	.875	<b>30mm</b>	3/16 x 3/32 3/16 x 3/32 1/4 x 1/8 1/4 x 1/8	<b>8 x 3.3mm</b>	1.312 (1/4 x 3/32) 30mm (8 x 3.3mm)
3000			750	1.000							
750			2400	1.125							
				1.250							
<b>MG-600</b> <b>MI-600A</b> <b>MO-600</b> <b>MR-600</b>	2250	3050N	1800	700	.63	.85NM	1.250	<b>40mm</b> <b>45mm</b> <b>50mm</b>	1/4 x 1/8 5/16 x 5/32 3/8 x 3/16 3/8 x 3/16 3/8 x 3/16 3/8 x 3/16 1/2 x 3/16	<b>12 x 3.3mm</b> <b>14 x 3.8mm</b> <b>14 x 3.8mm</b>	2.25 (1/2 x 1/8) 50mm (14 x 3.8mm)
-			-	1.375							
2400			700	1.500							
700			2100	1.625							
<b>MG-700</b> <b>MI-700A</b> <b>MO-700</b> <b>MR-700</b>	5000	6779N	1200	400	1.3	1.76NM	2.000	<b>55mm</b> <b>60mm</b> <b>65mm</b> <b>70mm</b>	1/2 x 1/4 1/2 x 1/4 1/2 x 1/4 5/8 x 5/16 5/8 x 1/8	<b>16 x 4.3mm</b> <b>18 x 4.4mm</b> <b>18 x 4.4mm</b> <b>20 x 4.9mm</b>	3.25 (3/4 x 1/8) 70mm (20 x 4.9mm)
-			-	2.250							
2000			400	2.437							
400			1750	2.500							

## MODELS M750 - M1000

Model Number	Torque Capacity		Maximum Overrunning RPM		Nominal Over Running Drag		Stock Bores <sup>1</sup>		Keyways <sup>1</sup>		Maximum Bore (Inch & Millimeters) with Keyways
	(Lb-Ft.)	Newton Meters	Inner Race	Outer Race	(Lb-Ft.)	Newton Meters	Inch	Millimeter	Inch	Millimeter	
<b>MG-750</b> <b>MR-750</b> <b>MI-750</b>	7000	9490NM	1800	600	2.5	3.4NM	2.437	<b>65mm</b> <b>70mm</b> <b>75mm</b> <b>80mm</b> <b>85mm</b>	5/8 x 5/16 5/8 x 5/16 5/8 x 5/16 3/4 x 3/8 3/4 x 3/8 3/4 x 1/4 3/4 x 3/16	<b>18 x 4.4mm</b> <b>20 x 4.9mm</b> <b>20 x 4.9mm</b> <b>22 x 5.4mm</b> <b>22 x 5.4mm</b>	3.437 (3/4 x 3/16) 85mm (22 x 5.4mm)
525			2600	2.750							
-			-	2.937							
				3.000							
<b>MG-800</b> <b>MR-800</b> <b>MI-800</b>	13000	17625NM	1300	475	4.0	5.4NM	3.000	<b>80mm</b> <b>90mm</b> <b>100mm</b> <b>110mm</b>	3/4 x 3/8 3/4 x 3/8 7/8 x 7/16 7/8 x 7/16 7/8 x 7/16 1 x 1/2 1 x 1/2 1 x 3/8 1 x 3/8 1 x 1/4	<b>22 x 5.4mm</b> <b>25 x 5.4mm</b> <b>28 x 6.4mm</b> <b>28 x 6.4mm</b>	4.437 (1 x 1/4) 110mm (28 x 6.4mm)
475			2100	3.250							
-			-	3.437							
				3.500							
<b>MG-900</b> <b>MR-900</b> <b>MI-900</b>	18000	24404NM	1200	400	5.0	6.8NM	4.000	<b>100mm</b> <b>110mm</b> <b>120mm</b> <b>130mm</b>	1 x 1/2 1 x 1/2 1 x 1/2 1 x 1/2 1 x 1/2 1 x 3/8 1 x 3/8 1 x 3/8 1 x 1/4 1 x 1/4	<b>28 x 6.4mm</b> <b>28 x 6.4mm</b> <b>32 x 7.4mm</b> <b>32 x 7.4mm</b>	5.437 (1 x 1/4) 130mm (32 x 7.4mm)
400			1850	4.250							
-			-	4.437							
				4.500							
<b>MG-1000</b> <b>MR-1000</b> <b>MI-1000</b>	25000	33895NM	1200	325	6.0	8.1NM	5.000	<b>130mm</b> <b>150mm</b> <b>175mm</b>	1 1/4 x 5/8 1 1/4 x 5/8 1 1/4 x 5/8 1 1/4 x 5/8 1 1/4 x 7/16 1 1/4 x 7/16 1 1/4 x 7/16 1 1/4 x 3/8 1 1/4 x 3/8	<b>32 x 7.4mm</b> <b>36 x 8.4mm</b> <b>45 x 10.4mm</b>	6.437 (1 1/4 x 3/8) 175mm (45 x 10.4mm)
325			1600	5.250							
-			-	5.437							
				5.500							

<sup>1</sup> Stock bore sizes have hardened inner races and cannot be reworked. Non-stock bores can be furnished at an additional charge. To minimize critical stresses in-keyway area of inner race, clutch Keyways have radius in corners; a matching key is furnished with each stock bore clutch.

<sup>1</sup> Mounting holes are equally spaced on all models except model 750 which has 6 equally spaced mounting holes plus two additional holes positioned 30° from the equally spaced holes and 180° apart.

Model Number	DIMENSIONS IN INCHES and MILLIMETERS												No. of Tap (Mt.) Holes	Thread Size	Usable Thd. Depth	Lube	Lube Cap. Oz.	Weight	
	A		B		C		D		E		F							(Lb.)	(Kg)
	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM							
MG-30	3.000 2.998	76.2mm	2 5/8	66.7mm	2 3/8	60.3mm	2 1/2	63.5	1 1/8	28.5mm	.35	8.9mm	4	1/4-	1/2	Oil	.85	4	1.81
MI-300																Oil	1.2		
MO-30																Grea	.5		
MR-30	Oil	.85																	
MG-40	3.500 3.498	88.9mm	2 7/8	73.0mm	2 5/8	66.7mm	2 3/4	69.9	1 1/4	31.8mm	.45	11.4mm	4	5/16	5/8	Oil	1.1	6	2.72
MI-400																Oil	1.4		
MO-40																Grea	.5		
MR-40	Oil	1.1																	
MG-50	4.250 4.248	108.0mm	3 5/8	92.1mm	3 3/8	35.7mm	3 1/2	88.9	1 3/4	44.5mm	.48	12.2mm	4	5/16	5/8	Oil	1.8	11	4.99
MI-500																Oil	3.0		
MO-50																Grea	1.0		
MR-50	Oil	1.8																	
MG-60	5.375 5.373	136.5mm	4 3/4	120.7	3 5/8	92.1mm	3 3/4	95.3	2 3/4	69.9mm	.50	12.7mm	6	5/16	5/8	Oil	2.8	19	8.61
MI-600																Oil	4.5		
MO-60																Grea	1.5		
MR-60	Oil	2.8																	
MG-70	7.125 7.123	181.0mm	6 1/4	158.8	4 7/8	123.8	5	127mm	4	123.8	.68	17.3mm	8	3/8-	3/4	Oil	4.6	43	19.5
MI-700																Oil	10.		
MO-70																Grea	2.9		
MR-70	Oil	4.6																	

Model Number	DIMENSIONS IN INCHES and MILLIMETERS														No. of Tap (Mt.) Holes	Thread Size	Usable Thd. Depth	Weight		
	A		B		C		D		E		F		G					(Lb.)	(Kg)	
	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM						
MG-750	8.750 8.748	222.3mm	7	177.8mm	5 7/16	149.2mm	6	152.4mm	4 1/4	108.0mm	6.000 6.001	152.4mm	1/4	6.3mm	8	1/2-20	1	84	38	
MR-750																				
MI-750																				
MG-800	10.000 9.998	254.0mm	8 15/16	227.0mm	5 7/8	149.2mm	6	152.4mm	5 1/2	139.7mm	7.500 7.501	190.5mm	3/16	4.8mm	8	1/2-20	1	105	48	
MR-800																				
MI-800																				
MG-900	12.000 11.997	304.8mm	9 3/4	247.7mm	6 1/4	158.8mm	6 3/8	161.9mm	6 1/2	165.1mm	8.750 8.751	222.3mm	3/16	4.8mm	10	5/8-18	1 1/4	158	72	
MR-900																				
MI-900																				
MG-1000	15.000 14.997	381.0mm	11 3/4	298.4mm	6 3/4	171.5mm	7	177.8mm	7 3/4	196.9mm	10.500 10.501	266.7mm	3/16	4.8mm	12	5/8-20	1 1/4	253	115	
MR-1000																				
MI-1000																				

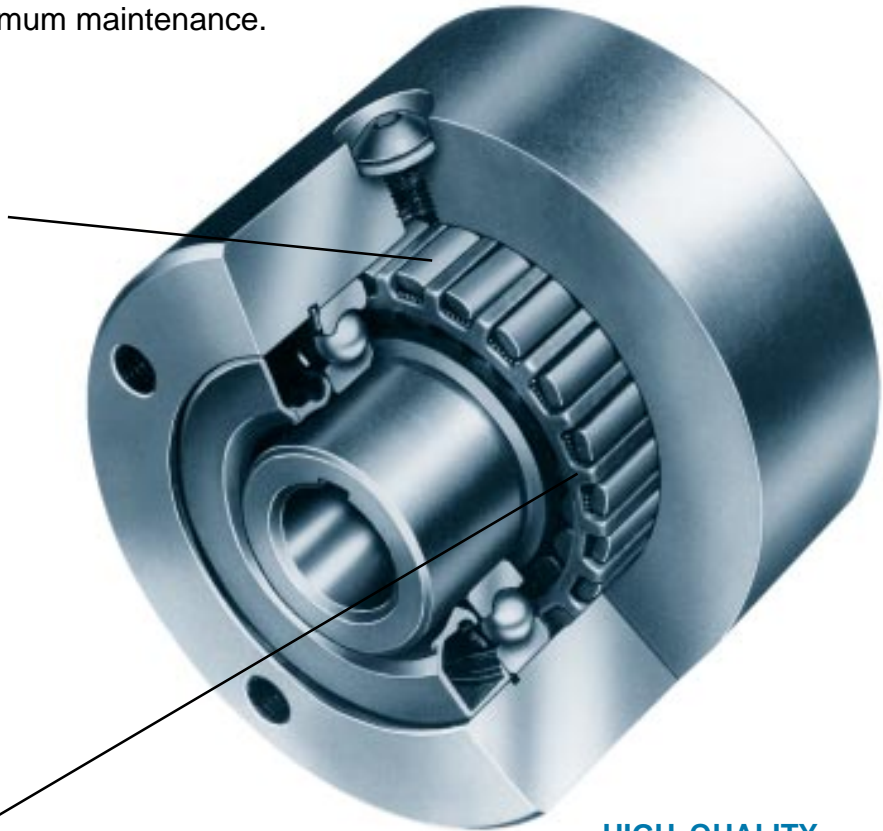
## FEATURES: MORSE M Series Cam Clutches

- Precision formed cams are utilized for maximum torque capacity and longer wear & fatigue life.
- Ground alloy steel races provide uniform distribution of load assuring smooth action and longer life.
- High quality bearings and seals are incorporated to insure long life with minimum maintenance.

### CAM DESIGN

Precision formed cams made of high-speed steel provide extra long wear and fatigue life.

M Series Models utilize precision formed cams providing uniform distribution of load between mating surfaces. This results in low contact pressure levels. Consequently, a significant portion of the contact load is supported by the clutch lubricant thereby minimizing wear and providing greater life.



### CAGED CONSTRUCTION

M Series Models 300A-700A contain a heavy duty machined cage assembly providing equal placement and exact positioning of each cam. The MI Series offers a **patented low inertial indexing cage design** allowing instantaneous engagement and disengagement of the cams. A contracting energizing spring keeps the cams in constant contact with both races providing quick cam reaction.

### OVERRUNNING PERFORMANCE

Oil lubricated M series clutches contain **exclusive patented venting method** to reduce drag resistance and permit higher overrunning speeds.

### HIGH QUALITY COMPONENTS

The clutch races are made of high quality alloy steel with high surface hardness and core toughness. The races are precision ground providing excellent concentricities and surface finish to obtain accurate cam action.

M Series Models are equipped with precision ball bearings and high quality - high temperature polyacrylic lip type seals for long life and low maintenance.

### FULL CAM COMPLEMENT

The full complement of cams provides the maximum number of load transmitting members per given diameter. Result — greater torque capacity size-for-size than other clutches.



# *A Complete Line of Accessories are Available...*

## **COUPLINGS**

The Morse Clutch Coupling are used in applications that require the coupling of two in-line shafts such as a motor shaft and generator shaft.



## **FLANGED STUB-SHAFT ADAPTERS**

The Morse Flanged Stub-Shaft Adapter 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 A-1000.



## **TORQUE ARMS**

MG clutch models can be provided with torque arms. The torque arms are fastened to the outer race by the tapped holes in the ends of the clutch. The outer ends of the torque arms should be restrained to prevent rotation of the clutch but the torque arms must never be rigidly secured.

The torque arms must be free to float to prevent any tendency toward bearing fight.

## **OIL RESERVOIRS**

An Oil Reservoir attachment is available for applications such as backstops on the high speed shaft of a reducer, backstops on the head shaft of conveyors, and applications where clutches are relatively inaccessible or where a minimum of maintenance is required.

The reservoir is designed for direct mounting on any stock M-Series clutch.



**MORSE INDUSTRIAL**  
EMERSON POWER TRANSMISSION CORP.

© 620 S AURORA ST., ITHACA, NY 14850

PH. 607-272-7220 Technical Assistance: 800-626-2093