TRIG-O-MATIC LITE
MECHANICAL OVERLOAD CLUTCHES

LOR SERIES

SECTION CONTENTS

TRIG-O-MATIC LITE OVERLOAD CLUTCHES
LOR SERIES

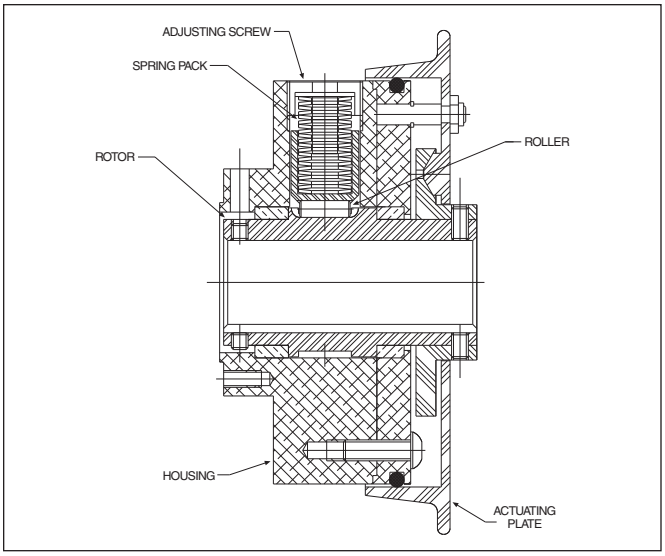
FEATURES

- Simple cost-effective design
- Bi-directional operation
- Single position reset
- Reliable limit switch actuating plate
- Easy torque adjustment
- Maximum torque limit stop
- Through shaft or end shaft mounting
- Large bore capacity
- Bored to size on request
- Torq/Gard interchange

OPERATING PRINCIPLES

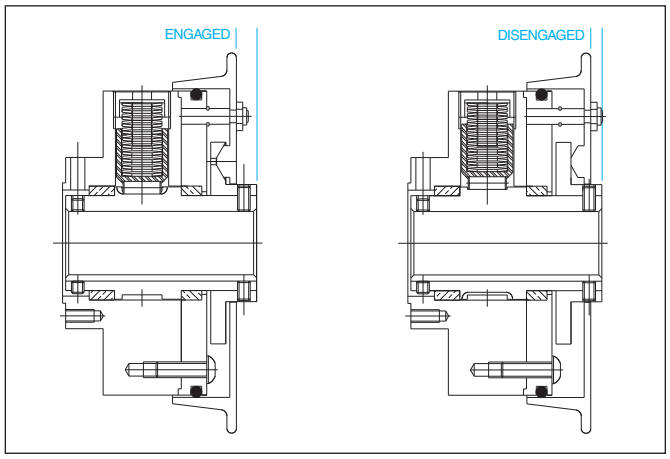
The LOR Series Trig-O-Matic Lite is an automatic reset, roller detent style clutch. It was designed to be cost-effective without sacrifice to accurate and dependable disconnect protection for mechanical equipment. Refer to Figure 1.

FIGURE 1



Torque transmission between the roller and the rotor is the key to the disengagement of the clutch. The roller is held in the detent of the rotor by the radial load generated by compressing the spring pack. This load determines the torque capacity of the clutch. Increasing or decreasing the spring compression provides an adjustment to the torque capacity. When a torque overload condition occurs, the roller moves out of the detent and free-wheels much like a needle bearing. This rolling action increases the efficiency in which the clutch operates and reduces any fluctuation of the torque setting caused by frictional changes. Refer to Figure 2.

FIGURE 2



The movement of the actuating plate during disengagement can be used to trip a limit switch or sensor and signal a torque overload condition. The drive should be shut down immediately and the source of the overload detected and cleared. The automatic reset feature of the clutch allows it to re-engage in its single position without manual assistance. Simply restart the drive and the clutch is again ready to provide accurate and dependable disconnect protection for your equipment.

FLANGE WITH PROXIMITY PLATE

As the Trig-O-Matic Lite overload clutch is disengaged, the flange (Actuating Plate) moves 0.18 inches. This movement can be used to trip a mechanical limit switch and signal a torque overload condition. Many applications require that a proximity sensor be used in place of the mechanical limit switch which necessitates the addition of a metallic plate to the nonmetallic flange. This flange can be ordered on the Trig-O-Matic Lite overload clutch by indicating a letter P in the catalog number after the size (e.g., LOR-060P-AP16).

For application assistance call 704-688-7324 or visit us at www.centricclutch.com

SELECTION

1. Determine overload release torque by one of these methods:
   a. Use the torque formula with horsepower and RPM specific to the selected clutch location. A service factor may be required for high inertia starts, reversing or peak load conditions, (refer to Page 86 for service factor information. For average applications, a service factor "SF" of 1.25 is recommended):

$$\text{Torque (Lb. In.)} = \frac{\text{HP x 63025}}{\text{RPM}} \text{ X SF}$$

   b. Determine the "weak link" in the drive train, (i.e. chain, reducer, belt or shaft). Select an overload release torque that is below the "weak link's" maximum torque rating.
   c. Physically measure the drive torque with a torque wrench and size accordingly.
2. Determine the bore size, keyway, and taper bore or straight bore bushing model.
3. Refer to the Basic Selection Chart for the appropriate clutch size.
4. Refer to Page 10 for ratings and dimensions.
5. Refer to Page 85 for recommended mounting locations.

BASIC SELECTION CHART

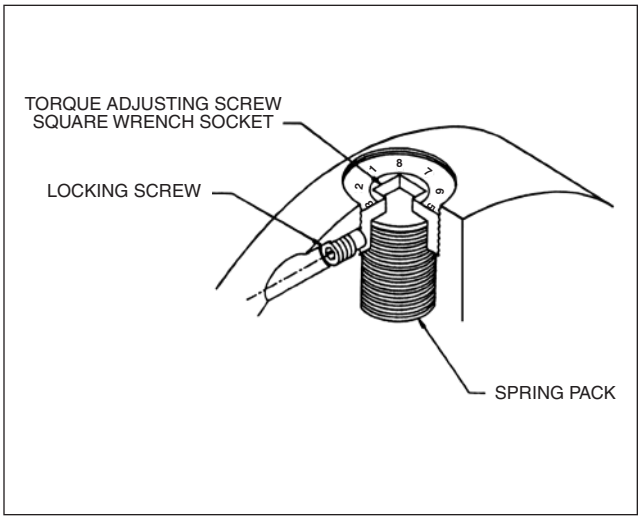
Clutch Size	Bore		Torque Range (Lb. In.)	Maximum RPM
	Min	Max*		
060	.500	1.4375	200-700	1,000
200	1.000	2.1250	600-2,000	1,000
400	1.125	2.7500	2,000-5,000	600

*Max bores will require flat keys (supplied with unit).

TORQUE ADJUSTMENT

Each clutch is tested throughout the torque range then set at the minimum torque range value at the factory. The torque dial label is indexed to a match mark on the clutch at the number "1" location. The torque dial label has eight hash marks evenly spaced at 45 degrees. To increase the torque, loosen the locking screw and turn the adjusting screw clockwise. When the desired torque value is achieved, secure the torque adjustment screw by tightening the locking screw.

TORQUE ADJUSTMENT



LOR SERIES PART NUMBERING SYSTEM

LOR — **Series**
Light Duty Overload Release Clutch

060 — **Size**
060
200
400

S — **Type**
S = Standard Proximity Plate
P = Proximity Plate with Metallic Flange

-

A — **Torque Range**
A = Adjustable

P16 — **Unit Bore**
P = Bored to Size (in 1/16")
M = Metric Bored to Size (mm)

HOW TO ORDER

When ordering a Trig-O-Matic Lite LOR Series Overload Clutch, please include code letters/numbers for series, size, type, torque range, and unit bore. Not all combinations are possible. Please refer to Page 10 for details.

Example:
Required Size 060 Trig-O-Matic Lite Overload Clutch, standard flange, adjustable torque range, with a one inch bore:

LOR	060	S	—	A	P16

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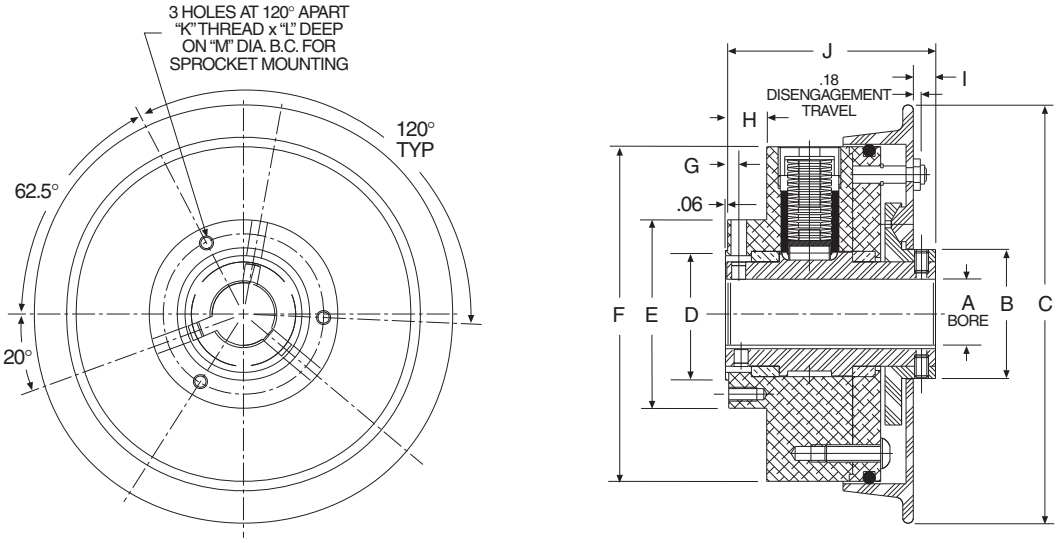
TRIG-O-MATIC LITE OVERLOAD CLUTCHES LOR SERIES

STRAIGHT BORE



ALL DIMENSIONS IN INCHES

Clutch Size	A* +.001/-.000	B	C	D +.002/-.004	E	F	G	H	I	J	K	L	M
060	1.2500	2.25	7.50	2.375	3.38	6.00	.24	.74	.40	3.77	1/4-20	0.56	2.875
200	1.9375	2.98	9.50	3.250	5.25	8.00	.22	.94	.59	4.91	3/8-16	0.75	4.500
400	2.4375	4.00	11.50	4.500	7.50	10.00	.38	1.31	.82	6.29	1/2-13	1.12	6.500

*Standard bore, refer to table below for other sizes.

RATINGS

Clutch Size	Bores (inch)				Torque Range (Lb.-In.)	Max. RPM*	WR^2 (Lb.-$In.^2$)	Weight (Lbs.)
	Min	Standard	Max. (1)	Max (2)				
060	.5000	1.2500	1.3750	1.4375	200-700	1,000	39	7.5
200	1.0000	1.9375	2.0000	2.1250	600-2,000	1,000	181	19
400	1.1250	2.4375	2.6250	2.7500	2,000-5,000	600	559	39

*Maximum RPM dependent on operation of clutch with limit switch and immediate shut down.
(1) Square Key
(2) Flat Key

BORE TOLERANCES

Bores	Tolerance
0" to 1"	+.0005/-.0000
1" to 3"	+.0010/-.0000

STANDARD KEYWAYS

Bore Range	Square
Over – To	W x D
5/16 – 7/16	3/32 x 3/64
7/16 – 9/16	1/8 x 1/16
9/16 – 7/8	3/16 x 3/32
7/8 – 1-1/4	1/4 x 1/8
1-1/4 – 1-3/8	5/16 x 5/32
1-3/8 – 1-3/4	3/8 x 3/16
1-3/4 – 2-1/4	1/2 x 1/4
2-1/4 – 2-3/4	5/8 x 5/16

Clutches are shipped set for the minimum torque value unless specified.

Refer to Page 9 for ordering information.

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SUGGESTED MOUNTING ARRANGEMENTS

Boston Gear can provide assistance for virtually any drive layout. Plate sprockets, timing belt pulleys, gears, and couplings can be provided upon request.

PLATE SPROCKET MOUNT WITH THROUGH SHAFT

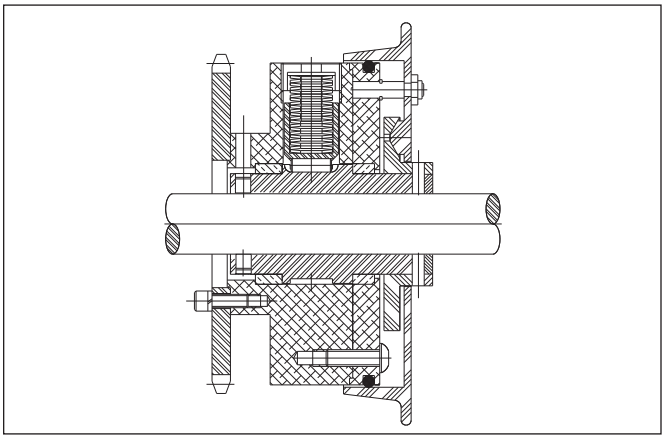
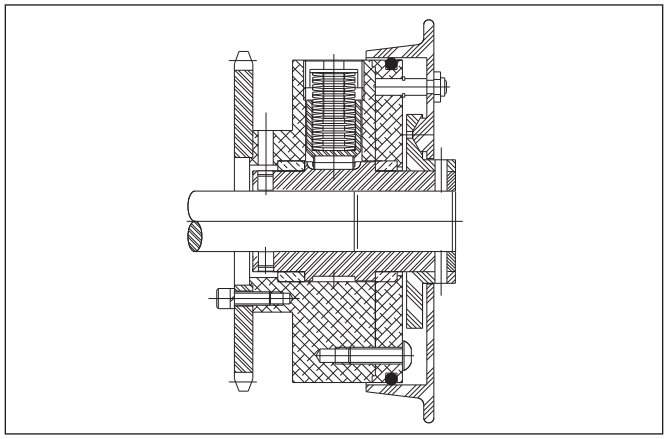
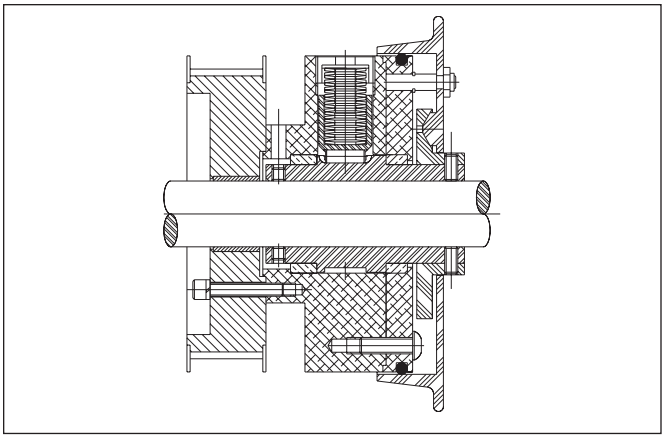


PLATE SPROCKET MOUNT WITH END SHAFT



TIMING BELT PULLEY MOUNT WITH THROUGH SHAFT



MINIMUM ACCEPTABLE PLATE SPROCKET MOUNTS*

Clutch Size	Minimum Number of Teeth per Pitch Size						
	#25 1/4 Pitch	#35 3/8 Pitch	#40 1/2 Pitch	#50 5/8 Pitch	#60 3/4 Pitch	#80 1 Pitch	#100 1-1/4 Pitch
060	47	32	25	21	18	—	—
200	—	48	37	30	26	20	—
400	—	—	51	42	35	27	23

*Please contact Boston Gear for Sprocket Clutch Assemblies.

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TORQUE LIMITER APPLICATION DATA

FAX TO 704-688-7403

Please select your product intent below and provide as much application information as possible.

1. Application:

- ☐ New
- ☐ Existing
  - – Replacement Model # _____

2. Power transmission requirements at clutch location:

- ☐ Horsepower
- ☐ RPM
- ☐ Limiting Torque Level

3. Type:

- ☐ Mechanical
- ☐ Pneumatic

4. Type:

- ☐ Fully Automatic
- ☐ Manual
- ☐ Semi Automatic (ORC model only)

5. Method of Torque Transmission:

- ☐ Flexible Coupling
- ☐ Rigid Coupling
- ☐ Sprocket Mount
- ☐ Other : _____

6. Shut Down Method:

- ☐ Prox Plate
- ☐ Pin Style (ORC only)

Use the space below to note any relevant application data or to detail your question.

_____

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