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**Torq/Pro® Torque Overload Device
Installation and Maintenance
Instructions for
Models TP-08 - TP130**

⚠ WARNING

- Disconnect and lock-out power before installation and maintenance. Working on or near energized equipment can result in severe injury or death.
- Do not operate equipment without guards in place. Exposed equipment can result in severe injury or death.
- Read and follow all instructions carefully.

⚠ CAUTION

- Periodic inspections should be performed. Failure to perform proper maintenance can result in premature product failure and personal injury.
- All electrical work should be performed by qualified personnel and compliant with local and national electrical codes.

Selecting Torq/Pro

Like other overload devices, it is best to position the Torq/Pro nearest the driven equipment where the overload is most likely to occur.

1. Decide the trip limit torque from the maximum torque limit, strength of the driving part and the expected overload.
2. Confirm the bore size and rpm.
3. Select a suitable size from the ratings table.

Tripping torque should be at least 25% greater than the operating torque to compensate for motor starting torque and intermittent, shock and reversing loads.

$$\text{Tripping Torque} = \text{Operating Torque} \times \text{SF}$$

$$\text{Torque (In. Lbs.)} = \frac{\text{Horsepower} \times 63025}{\text{rpm}}$$

$$\text{Horsepower} = \frac{\text{Torque (In. Lbs.)} \times \text{rpm}}{63025}$$

1. Determine the tripping torque by either the HP or torque formula shown.
2. Select the correct Torq/Pro based on this rating.
3. Check for max. rpm and confirm stock bore size.

General Installation Guidelines

(details on page 4)

1. The torque of the Torq/Pro is set at the minimum value when shipped. Please check to ensure that the indicator is pointing to zero on the torque scale.
2. Loosen the fit-drive setscrew of the adjustment nut and remove the lock plug.
3. Look at the tightening graph on page 3 that corresponds with the Torq/Pro model number to determine the angle to which the adjustment nut must be tightened to produce the trip torque determined above. The torque scale is divided into increments of 60°. First turn the adjustment nut to an angle 60° before the angle determined from the graph, install the Torq/Pro onto the machine, and do a trip test. Then gradually tighten the nut until the required torque is reached.
4. After the torque is set, insert the lock plug and tighten the screw with hole so that it holds loosely.
5. Do not turn the adjustment nut beyond the largest value on the torque scale. If this is done, the spring will not have sufficient flexible leeway and the device will lock when tripping occurs.

Torque Setting

See Torque Setting recommendations by model number on page 2.

Torque Setting

Models TP-08, 12, 16

1. Torque is set with adjustment nut.
2. Tighten the adjustment nut at the tightening angle which is equivalent to the trip torque per tightening angle – trip torque diagram.
3. At first, tighten the adjustment nut at 60 degrees smaller than the required value and test. Then gradually increase the tripping torque to the best value.

Do not turn the adjustment nut over the maximum value of the torque indicator. Otherwise there is no margin of coil spring when tripping.

Models TP-20, 30, 50

1. Torque setting is adjusted by tightening or loosening the adjustment nut. Make sure that the setscrew in the nut is loosened to prevent hub thread damage. Note: There is a brass lock plug under setscrew.
2. Refer to catalog torque to determine approximate rotation of adjustment nut to obtain desired torque. It is suggested that the nut is first tightened to a value less than desired (60 degrees) and final adjusted on the shaft after making a test run.
3. Adjust to final torque by gradually tightening adjustment nut.
4. After setting torque, tighten setscrew to prevent loosening.

Notice: Do not tighten the adjustment nut beyond maximum limit of scale because the TP unit may not trip even under overloading conditions.

Models TP-70, 90, 110 and 130

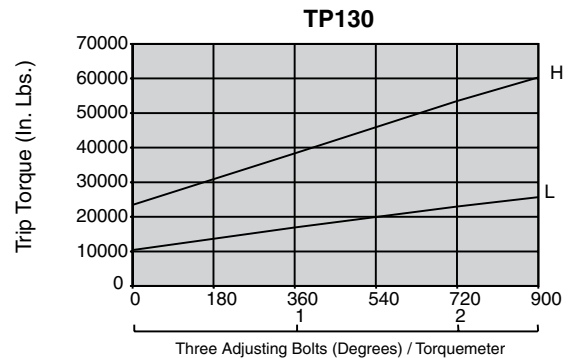
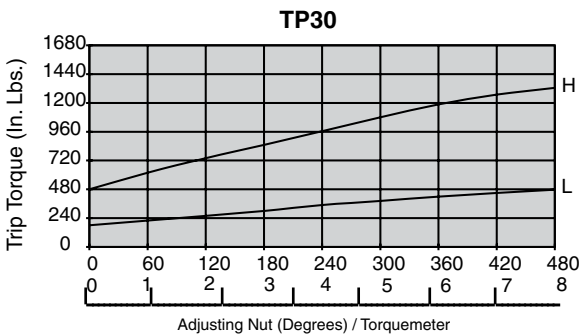
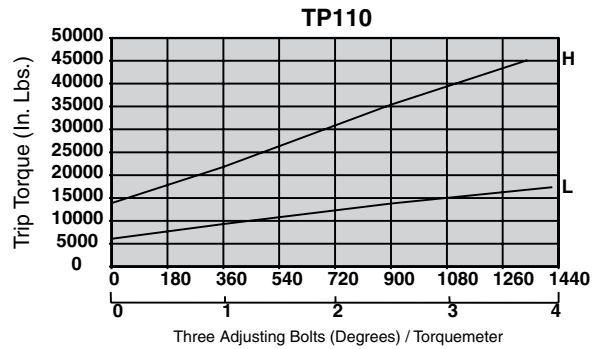
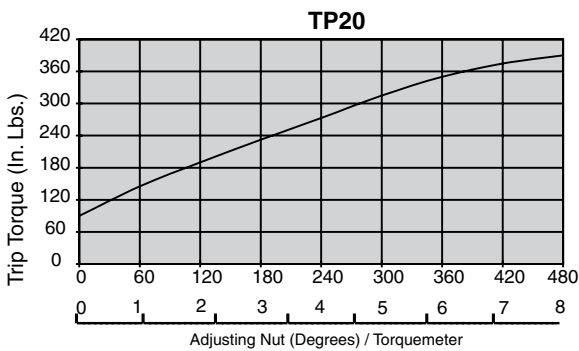
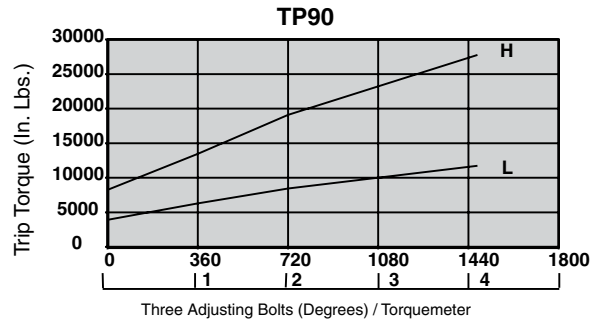
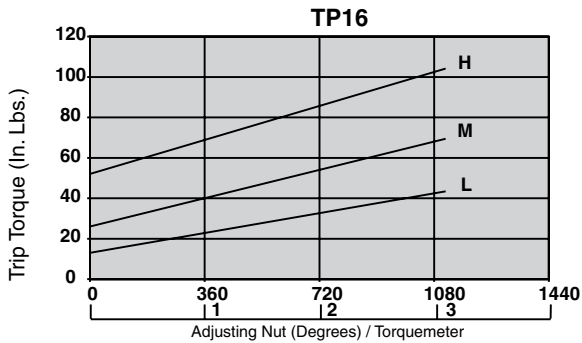
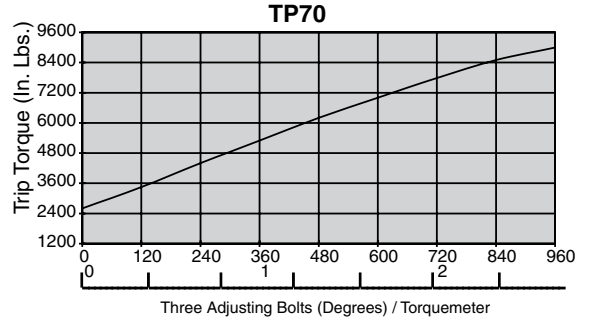
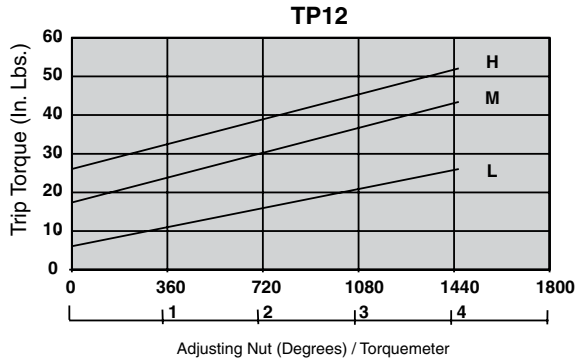
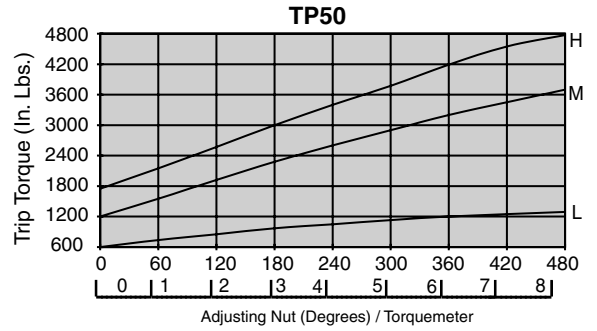
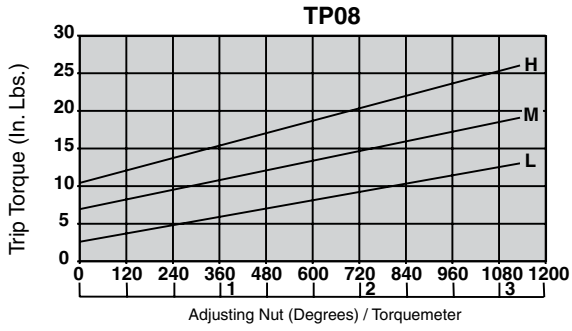
1. Torque adjustment is accomplished by the three adjustment bolts. First, loosen the lock nuts on the adjustment bolts **and remove the lock plugs (TP 70 and 90 do not have lock plugs)**. Check that the adjustment plate indicator pins line up with the sticker on the adjusting nut. Then tighten setscrew on the adjustment nut.
2. Refer to catalog torque to determine approximate rotation of the adjustment bolt to obtain desired torque. It is suggested that initially the bolt is tightened to a value less than desired (60 degrees) and final adjusted on the shaft after making a test run.
3. Adjust to final torque by gradually tightening the three adjusting bolts evenly.
4. Tighten the lock nuts to prevent the adjustment bolts from loosening.

Notice: Do not tighten the adjusting bolts beyond the maximum limit of the scale because the TP unit may not trip even under overloading conditions.

Resetting

- a. When TP trips, stop the drive and remove the source of the overload.
- b. Reset by either rotating at 50 rpm or less or by jogging the motor.
- c. When resetting, an audible sound will be heard as the ball snaps into the detent.

Torq/Pro Torque Settings



Torq/Pro Installation and Maintenance

Reboring

1. TP Torq/Pro Hub:
 - A. Disassemble all parts from hub, being careful to keep clean and free of nicks and any damage.
 - B. Chuck on flange of hub and align as illustrated (Figure 1).
 - C. Rebore to desired size within catalog bore range.
2. Coupling Sprocket:
 - A. Chuck on sprocket hub, indicate for alignment, and rebore.
 - B. Do not exceed maximum bore.

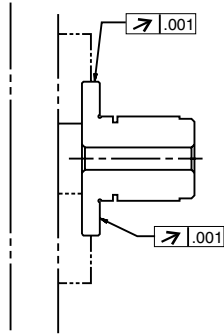


Figure 1

Browning Torq/Pro Drive Member Mounting Dimensions in Inches

Model	A	BC	C	D	N	F* (min.)
TP08	1.10	1.339	1.577-1.580	9/64	3	0.125
TP12	1.30	1.575	1.892-1.895	3/16	3	0.125
TP16	1.61	1.969	2.285-2.288	3/16	3	0.125
TP20	2.50	3.000	3.502-3.505	7/32	4	0.125
TP30	3.38	3.937	4.440-4.443	9/32	6	0.125
TP50	4.94	5.500	6.252-6.255	11/32	6	0.125
TP70	6.75	7.875	8.627-8.630	13/32	6	0.125
TP90	9.45	10.433	11.616-11.619	1/2	8	0.125
TP110	11.50	12.795	13.978-13.981	21/32	6	0.125
TP130	12.78	14.173	15.750-15.753	21/32	8	0.125

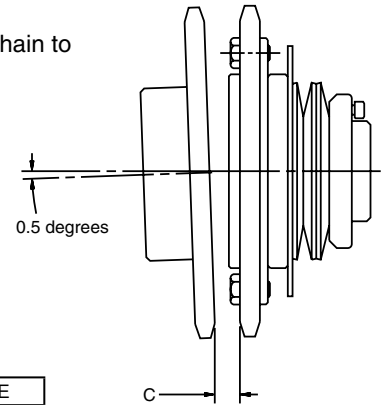
*.125" could be adjusted to a larger dimension to accommodate standard screw lengths

Mounting of TP on Shaft

Use of a parallel key is required. Tighten the setscrew to secure to the shaft. Use of lock-tite is suggested to prevent the setscrew from loosening.

Coupling

1. Alignment:
 - A. Angular misalignment should be held within 0.5 degrees. To indicate measure dimension "C" along outside edge of sprocket in at least three locations (Figure 3).
 - B. Parallel misalignment should be within limit "E" listed in table and measured with a straight edge and feeler gauges.
2. Wrap sprockets with chain to complete assembly.



Model	C	E
TP20	.291	.009
TP30	.382	.015
TP50	.382	.015
TP70	.602	.020

Figure 3

Reassemble and Minimum Torque Setting

1. Reassemble:
 - A. Assemble parts in reverse order. Refer to cross section drawing.
 - B. Apply grease to balls and needle bearing.
 - C. Be careful to orient the springs as illustrated.
2. Reset to minimum torque:
 - A. This auto-resetting type only requires re-starting of the motor, etc. at the drive side for re-engagement. Remove the cause of overload after stopping the equipment when the Torq/Pro trips. Reset TP with input rotation of 50 rpm or slower or by inching of motor. Never reset manually. If you hear the "clicks", the balls are back in the pocket holes.
 - B. TP 08, 12, 16, 20, 30, 50: Set the indicator to the "0" point on the sticker by tightening the adjustment nut.
 - C. TP 70, 90, 110, 130: Make sure that adjustment bolt and nuts are loose, lineup match mark on hub and adjustment plate. Then tighten the setscrews in the adjustment plate to lock position on the hub. For TP-110 and 130, tighten setscrew with lock plug. Tighten the three adjustment bolts equally to locate the indicator to the "0" point.

Mounting of the Drive Member

1. Drive member will pilot over center flange with a clearance fit.
2. Dimensions of drive member and mounting bolts are listed (Figure 2).

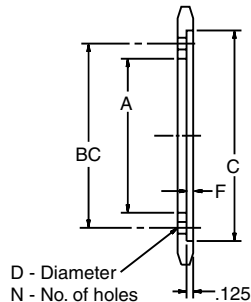


Figure 2

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Maintenance

1. Disassemble unit and apply grease on the ball and bearing once a year or 1000 trips.
2. Use NGLI 2 lithium based EP grease.

Overload Detection

With use of a proximity switch the operating system can be shut down. Whenever the TP unit trips due to an overload, the sensor plate will move a sufficient amount. Use an Omron® switch number EZE-X1R5YZ or equivalent.