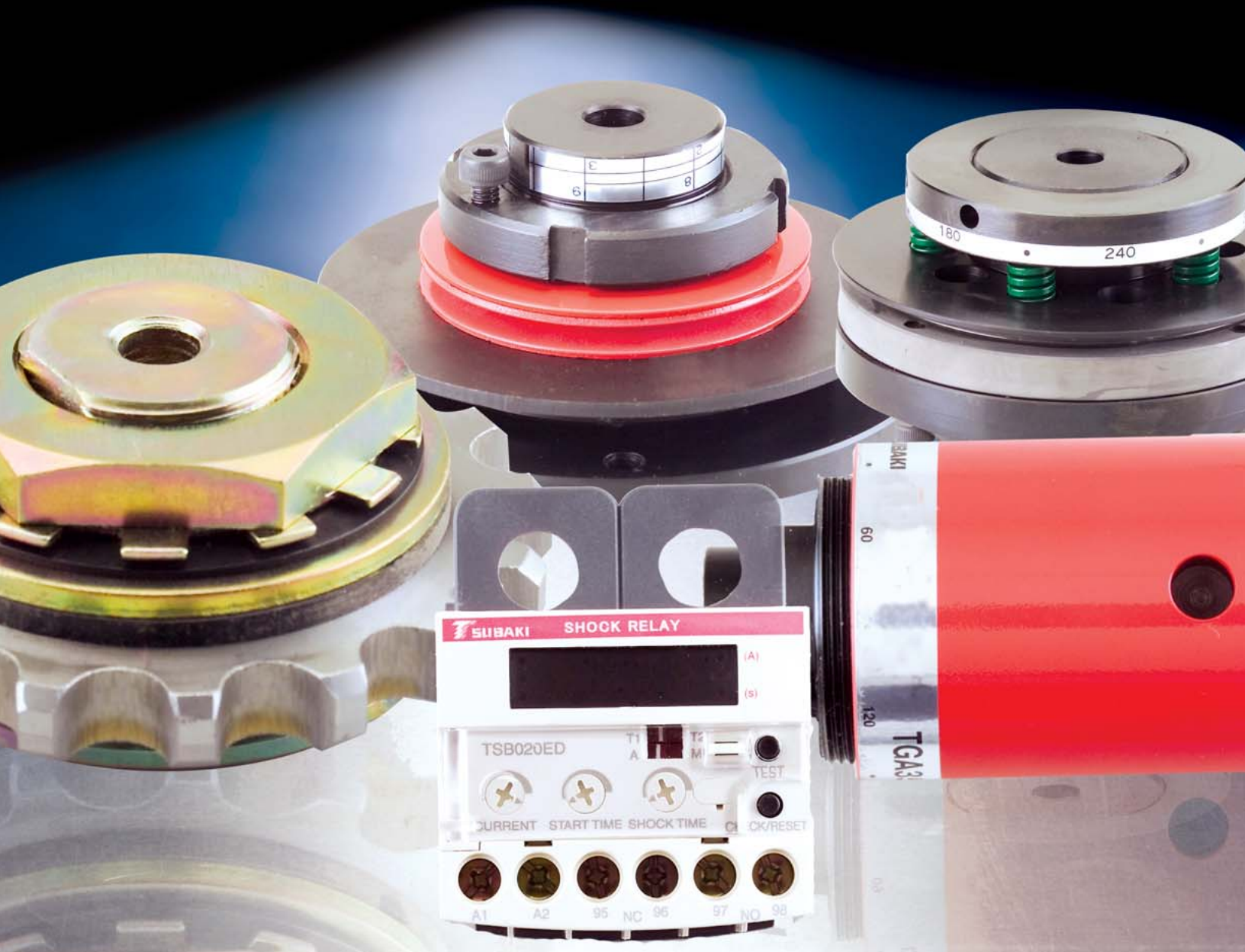
TSUBAKI

# Overload Protection and Safety Devices

## Protecting Your Equipment, Protecting Your Investment




www.ustsubaki.com

# The truth is, any machine can break.

Of this we can be sure: Eventually something always happens. And there's no predicting. It's almost a law of nature.

We often learn the hard way: Protection is smart. It saves money. It saves time. In today's environment of cost cutting and just in time delivery, being prepared is just good business sense.

Unintended load changes in the workplace can have big consequences. As equipment becomes more integrated, a shock or jam in one part of the production layout can snowball into a complete system shutdown — damaging equipment and losing product.

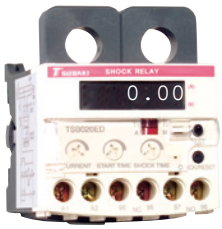
## It doesn't have to happen.

Tsubaki's SAFCON® family of overload and protection devices offer a solution to fit every need and keep you productive all day, every day, without interruption, so you can get *your* product out the door.

Tsubaki offers not only the finest parts in the industry for your equipment, it also offers protection for those parts and the machinery they belong to. Our SAFCON® family – Shock Relay, Shock Guard, Torque Limiter, and Axial Guard – covers the whole range of needs. One-stop shopping.

***You protect what you value.*** You use seat belts. You have a sump pump in your basement. You wear a helmet when you cycle. Not because things happen everyday, but because they CAN happen.

## Are you protecting your equipment?




SHOCK RELAY



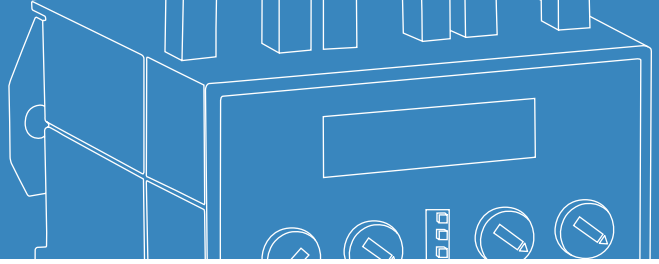
SHOCK GUARD



TORQUE LIMITER



AXIAL GUARD



# Shock Relay




UL Certification

RoHS Compliant

Shock Relay accepts single and three-phase motors up to 600 volts.

Operating Power 24-240 VAC/DC

Shock Relay selection is simple; it is based on the motor amperage of your machinery.

Shock Relay has an unlimited life - it does not wear out.

Pioneered by Tsubaki, the Shock Relay protects your equipment against unexpected shock loads, overloads, and underloads *before* damage occurs. Shock Relay protects the mechanical parts of your equipment by monitoring the current on your motor and shutting it down when the motor works too hard for too long.

## Advantages to you:

- Back to work with the press of a button
- No parts to replace
- Precision adjustment and setting
- Little potential for nuisance trips
- Monitors and protects equipment from up to 1,000 feet away

The Shock Relay adapts to virtually any kind of equipment that's driven by an electric motor and is used in applications in a broad variety of industries, including:

| INDUSTRY | APPLICATION |
|---|---|
| Material handling | Conveyors, turntables, elevators |
| Water treatment plants | Pumps, scrappers, water screens |
| Food machinery | Screw and belt conveyors, bucket elevators |
| Machine tool | Tapping machines, drill presses |
| Chemical | Pumps, agitators, filters |

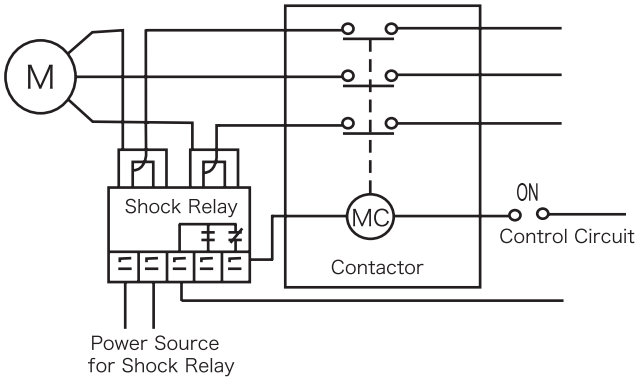
## We've thought of everything.

The Shock Relay knows when the motor driving your operation is working too hard. It's simple: you set the load current so Shock Relay knows where your motor should be operating. And it knows, too, when a surge is dangerous because you determine the time of an acceptable momentary surge, allowing Shock Relay to ignore small variations. Your adjustment of the start time setting prevents the Shock Relay from engaging during start up when the current draw of a motor is greater than the running current.

Unlike mechanical devices like the Shear Pin Sprocket, which requires downtime to fix, U.S. Tsubaki's Shock Relay resets at the press of a button. That's it.




## Sample Wiring Configuration



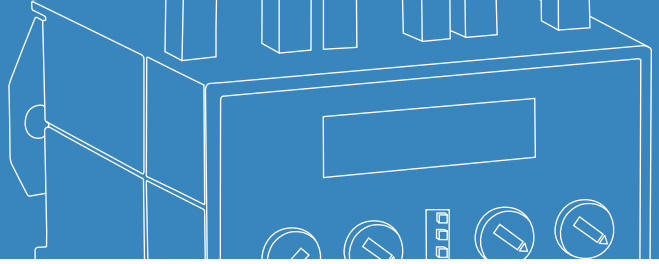

Adding the Tsubaki Shock Relay to your existing Start/Stop circuit is easy. Generally, no advanced knowledge of electronics is necessary. Just a few wires and a few adjustments quickly can result in less down time and lower maintenance costs.

The Shock Relay protects your mechanical components. Thermal relays and Inverters do not, their purpose is different, their protection is different. Using the correct tool saves time and money.

In the past, heavy loads and hard-working equipment required large shear pins and bulky safety devices. Tsubaki has changed the equation. Bigger motors do not equal a more expensive Shock Relay. Simple, reliable, user-friendly.

No advanced knowledge of electronics is necessary.

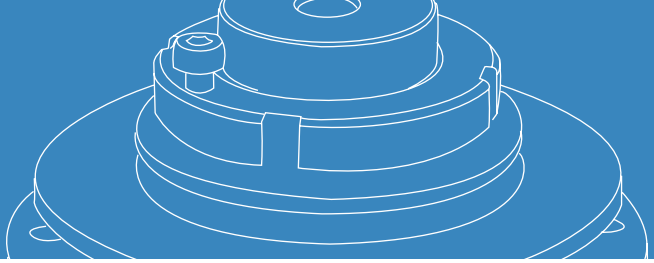
Motor size does not determine cost. Bigger motors don't require a more expensive Shock Relay.



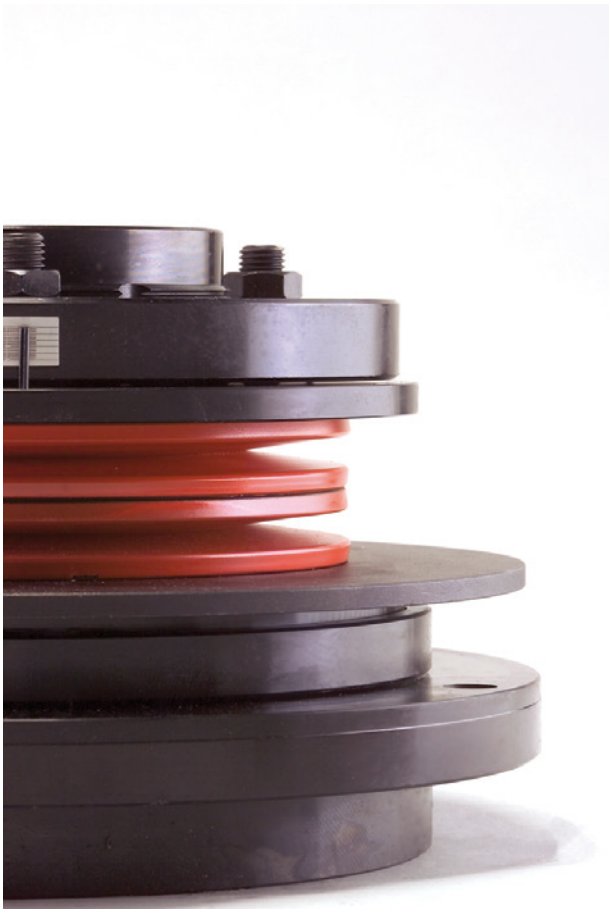
| | | |
|---|---|---|
|  | **TSBED SERIES**<br>2.77H x 2.20W x 3.04D | Designed to work with inverters. Digital display. Built-in tamper-proof cover and built-in test button. Choose between self-holding output relay and automatic reset. |
|  | **TSB150 SERIES**<br>4.5H x 4.9W x 4.33D | The original Shock Relay with self-holding circuit and analog meter. Four series available: Standard Overload, Pre-Alarm notification, Impact detection, Over and Underload protection. |
|  | **TSBSB SERIES**<br>2.44H x 2.13W x 2.60D | The most popular model for overload protection. Has a built-in reset button, test button or automatic reset. Unit has UL/cUL Certification, CE marking and is RoHS compliant. |
|  | **TSBSM SERIES**<br>2.96H x 2.16W x 3.03D | Compact, all-in-one, and economically priced. Limited features but perfect for the OEM customer. Special MTO amperages available. |
|  | **TSB50**<br>2.75H x 2.36W x 3.07D | Automatic reset with fixed start-time to accommodate motor in-rush current. Dual output contacts allow many wiring options. Two-piece construction aids fitting into crowded panels. |

| MODEL | SIZE | AMPERAGE RANGE | START TIME RANGE | SHOCK TIME RANGE | OUTPUT CONTACT RATING | MOUNTING |
|---|---|---|---|---|---|---|
| **TSBED** | 020<br>075<br>220<br>550 | 0.2 ~ 2.4A<br>1.2 ~ 5.8A<br>3.0 ~ 14A<br>6.0 ~ 34A | 0.2 ~ 10s | 0.2 ~ 5.0s | 3A, 250VAC | 35mm DIN or surface mount |
| **TSB150**<br>Std, A, M, and W styles | 151<br>152-100<br>152-200<br>152-300<br>152-400 | 0.3 ~ 16A<br>10 ~ 100A<br>60 ~ 200A<br>90 ~ 300A<br>120 ~ 400A | 0.2 ~ 20s | 0.2 ~ 3s | 0.2A, 250VAC | Two components, both surface mount |
| **TSBSB** | 05<br>10<br>30<br>60 | 0.5 ~ 6A<br>1 ~ 12A<br>3 ~ 30A<br>5 ~ 60A | 0.2 ~ 10s<br><br><br>0.2 ~ 10s | 0.2 ~ 5s<br><br><br>0.2 ~ 5s | 3A, 250VAC<br><br><br>3A, 250VAC | 35mm DIN or surface mount |
| | 100<br>200<br>300 | 10 ~ 100A<br>20 ~ 200A<br>30 ~ 300A | 0.2 ~ 10s | 0.2 ~ 5s | 3A, 250VAC | TSBSB05 plus surface mount transformer |
| **TSBSM** | 02 | 0.5 ~ 2A | 1.5s fixed | 1.0s fixed | 3A, 250VAC | Surface mount |
| **TSB50** | | 0.4 ~ 16A | 3s fixed | 0.3 ~ 3s | 0.1A, 250VAC | Two components, both surface mount |

Setup is typically easiest when the max amperage of the Shock Relay is close to the motor amperage.



# Shock Guard



Tsubaki's Shock Guard is a ball and detent mechanical device that offers enhanced precision over other mechanical devices. Bearing the brunt of the load when tripped, the Shock Guard reacts instantly to save equipment and product. The Shock Guard's one-position design allows each ball to return to its unique location when it resets so that your equipment resumes its work exactly where it was before the jam or overload.

## Advantages over other devices:

- Instant and complete disengagement
- Accurate and consistent torque setting
- Automatic re-engagement limits downtime and need for maintenance worker to switch tasks
- Externally adjustable trip torque speed installation and setup
- Backlash free operation

| INDUSTRY | APPLICATION |
|---|---|
| Transport | Conveyors, turntables, elevators |
| Pumping | Pumps, agitators, filters |
| Plastic processing | Screw and belt conveyors, bucket elevators |
| Metal working | Tapping machines, drill presses |
| Environmental | Water gate, water screen |
| Packaging | Bag making, cartoning, vacuum packing |
| Food processing | Noodle making, flour mill |

Manual disengagement feature assists with machine maintenance.

High speed or low speed service, bi-directional rotation.

Disengages at a pre-set torque rating. Protects your equipment against the unexpected.

Quick and easy reset.

The Shock Guard is ideal in a wide range of settings and is especially suited for more sophisticated applications that may be prone to jams. Users require a consistent and predictable trip point with quick resetting so that production is maintained and each line stays in sync with where it left off.

Shock Guard is easy to set and adjust with its built-in meter and indicator having distinct torque setting points for easy verification. The asymmetrical arrangement of balls and pockets allows for same-position resetting.  Once the jam or overload is removed, Shock Guard reengages automatically by jogging the outer drive hub.  Tsubaki offers a series of four categories of Shock Guard to support all your protection needs.

# Shock Guard Series

## TGB SERIES

An economical choice for general use. The TGB series can be used with almost any machine. Offers automatic resetting, easy-to-read torque indicator, and no backlash.



## TGM SERIES

The gasket and O-ring sealed construction in the TGM series is unique. Excels in wet, dusty, and oily applications. Designed for long life, tough environments.



## TGX SERIES

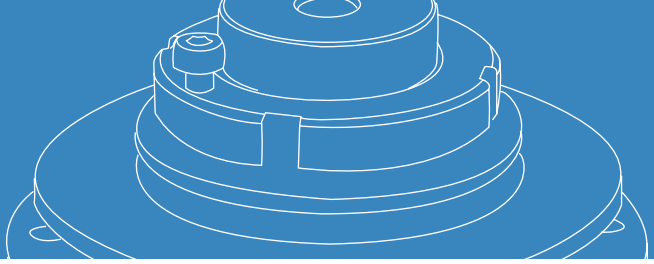
A high-precision option, the TGX series features no backlash and unsurpassed operation rigidity. Ideal for machines that require accurate positioning.




## TGZ SERIES

A release-type protection device, the TGZ series offers on-off clutch capability. Its simple and straightforward adjustments make it easy to use.





## TGB SERIES

An economical choice for general use.
The TGB series can be used with almost any machine. Offers automatic resetting, easy-to-read torque indicator, and no backlash.

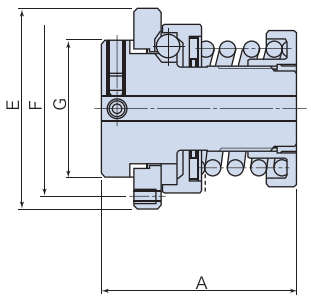


## SPECIFICATIONS

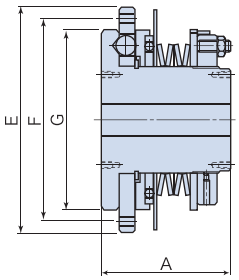
Select based on torque required, rpm, and shaft diameter:

| MODEL | TORQUE RANGE (FT. - LBS.) | MAXIMUM RPM | ROUGH STOCK BORE | MAXIMUM BORE DIAMETER | A | E | F (P.C.D.) | G | WT (LBS.) |
|---|---|---|---|---|---|---|---|---|---|
| TGB08-L | 0.2 ~ 1.1 | 1200 | 0.20 | 0.31 | 1.54 | 1.575 | 1.339 | 1.02 | 0.3 |
| TGB08-M | 0.6 ~ 1.6 | | | | | | | | |
| TGB08-H | 0.9 ~ 2.2 | | | | | | | | |
| TGB12-L | 0.5 ~ 2.2 | 1000 | 0.24 | 0.47 | 1.85 | 1.890 | 1.575 | 1.26 | 0.5 |
| TGB12-M | 1.4 ~ 3.6 | | | | | | | | |
| TGB12-H | 2.2 ~ 4.3 | | | | | | | | |
| TGB16-L | 1.1 ~ 3.6 | 900 | 0.28 | 0.63 | 2.20 | 2.283 | 1.969 | 1.54 | 1.0 |
| TGB16-M | 2.2 ~ 5.8 | | | | | | | | |
| TGB16-H | 4.3 ~ 8.7 | | | | | | | | |
| TGB20-H | 7.0 ~ 33 | 700 | 0.31 | 0.79 | 1.85 | 3.543 | 3.071 | 2.44 | 2.0 |
| TGB30-L | 14 ~ 40 | 500 | 0.47 | 1.18 | 2.36 | 4.449 | 3.937 | 3.23 | 4.4 |
| TGB30-H | 39 ~ 123 | | | | | | | | |
| TGB50-L | 50 ~ 109 | 300 | 0.87 | 1.97 | 3.19 | 6.299 | 5.591 | 4.80 | 13.0 |
| TGB50-M | 100 ~ 304 | | | | | | | | |
| TGB50-H | 144 ~ 398 | | | | | | | | |
| TGB70-H | 216 ~ 796 | 160 | 1.26 | 2.76 | 4.33 | 8.661 | 7.874 | 6.69 | 37.5 |
| TGB90-L | 325 ~ 976 | 120 | 1.65 | 3.54 | 6.18 | 11.61 | 10.433 | 9.29 | 82.7 |
| TGB90-H | 686 ~ 2,313 | | | | | | | | |
| TGB110-L | 506 ~ 1,446 | 100 | 2.05 | 4.33 | 7.68 | 13.98 | 12.795 | 11.30 | 153 |
| TGB110-H | 1,156 ~ 3,760 | | | | | | | | |
| TGB130-L | 868 ~ 2,240 | 80 | 2.36 | 5.12 | 9.06 | 15.75 | 14.173 | 12.56 | 225 |
| TGB130-H | 1,950 ~ 5,200 | | | | | | | | |

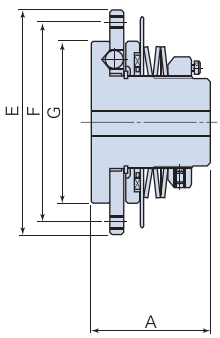
### TGB08~TGB16




### TGB20~TGB50




### TGB70~TGB130



## TGM SERIES

The gasket and O-ring sealed construction in the TGM series is unique. Excels in wet, dusty, and oily applications. Designed for long life, tough environments.

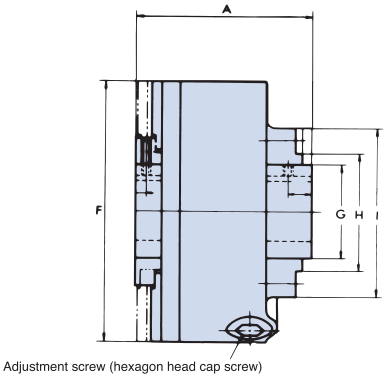


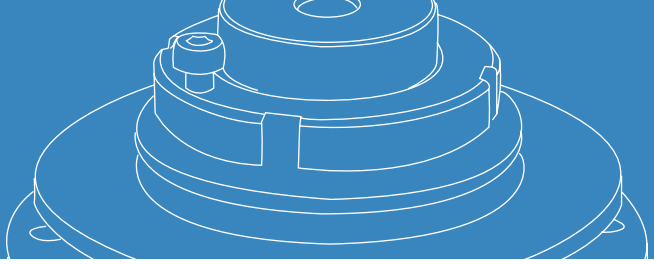


## SELECTION

Select based on torque required, rpm, and shaft diameter:

| MODEL | TORQUE RANGE (LBS. - FT.) | MAXIMUM RPM | BORE RANGE | A | F | G | H | I | WT (LBS.) |
|---|---|---|---|---|---|---|---|---|---|
| TGM3 | 1.1 ~ 2.7 | 600 | 0.39 ~ 0.55 | 2.36 | 3.15 | 0.87 | 1.181 | 1.97 | 1.3 |
| TGM6 | 1.8 ~ 4.7 | 600 | 0.39 ~ 0.55 | 2.36 | 3.15 | 0.87 | 1.181 | 1.97 | 1.3 |
| TGM20 | 4.7 ~ 14.5 | 500 | 0.55 ~ 0.79 | 2.76 | 3.94 | 1.18 | 1.575 | 2.36 | 2.4 |
| TGM60 | 14.5 ~ 50 | 300 | 0.79 ~ 1.18 | 3.50 | 5.24 | 1.87 | 2.362 | 3.39 | 5.5 |
| TGM200 | 50 ~ 166 | 200 | 1.10 ~ 1.97 | 4.33 | 7.00 | 2.75 | 3.228 | 5.24 | 11.9 |
| TGM400 | 166 ~ 333 | 150 | 1.50 ~ 2.36 | 6.18 | 10.75 | 3.50 | 4.488 | 7.48 | 37.8 |
| TGM800 | 333 ~ 665 | 150 | 1.50 ~ 2.36 | 6.18 | 10.75 | 3.50 | 4.488 | 7.48 | 37.8 |





## TGX SERIES

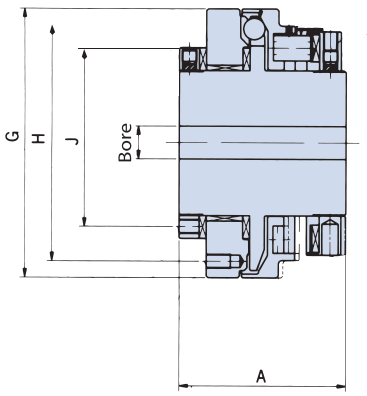
A high-precision option, the TGX series features no backlash and unsurpassed operation rigidity. Ideal for machines that require accurate positioning.




## SELECTION

Select based on torque required, rpm, and shaft diameter:

| MODEL | TORQUE RANGE (FT. - LBS.) | MAXIMUM RPM | ROUGH STOCK BORE | MAXIMUM BORE DIAMETER | A | G | H (PCD) | J (PCD) | Q (SCREW DIA. AND LENGTH) | U (SCREW DIA. AND LENGTH) | WT (LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TGX10-L | 1.2 ~ 4.7 | 1400 | 0.27 | 0.59 | 2.09 | 2.441 | 2.126 | 1.339 | M4 x 6 | M4 X 7 | 1.7 |
| TGX10-M | 4.0 ~ 10.9 | | | | | | | | | | |
| TGX10-H | 8.0 ~ 21.7 | | | | | | | | | | |
| TGX20-L | 4.8 ~ 17.4 | 1100 | 0.33 | 0.98 | 2.52 | 3.386 | 2.913 | 1.969 | M5 x 8 | M4 X 7 | 3.7 |
| TGX20-M | 9.6 ~ 25.1 | | | | | | | | | | |
| TGX20-H | 18.8 ~ 50 | | | | | | | | | | |
| TGX35-L | 17 ~ 50 | 800 | 0.47 | 1.38 | 2.68 | 4.213 | 3.465 | 2.362 | M6 x 7 | M5 X 8 | 5.5 |
| TGX35-M | 32 ~ 72 | | | | | | | | | | |
| TGX35-H | 64 ~ 145 | | | | | | | | | | |
| TGX50-L | 33 ~ 87 | 600 | 0.71 | 2.17 | 3.62 | 5.827 | 5.118 | – | M8 x 13 | – | 15 |
| TGX50-M | 66 ~ 145 | | | | | | | | | | |
| TGX50-H | 130 ~ 289 | | | | | | | | | | |
| TGX70-L | 94 ~ 268 | 480 | 0.91 | 2.76 | 3.86 | 7.283 | 6.457 | – | M10 x 13 | – | 25 |
| TGX70-M | 195 ~ 376 | | | | | | | | | | |
| TGX70-H | 289 ~ 578 | | | | | | | | | | |



## TGZ SERIES

A release-type protection device, the TGZ series offers on-off clutch capability. Its simple and straightforward adjustments make it easy to use.

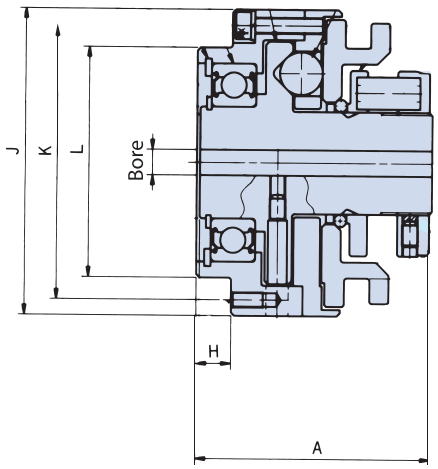


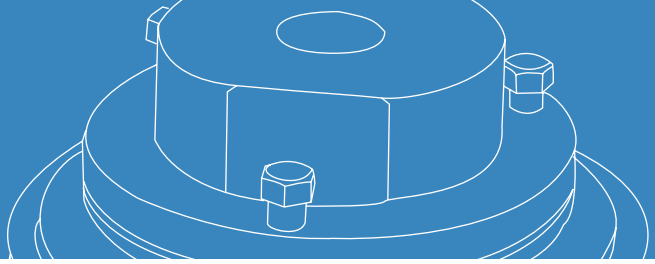


## SELECTION

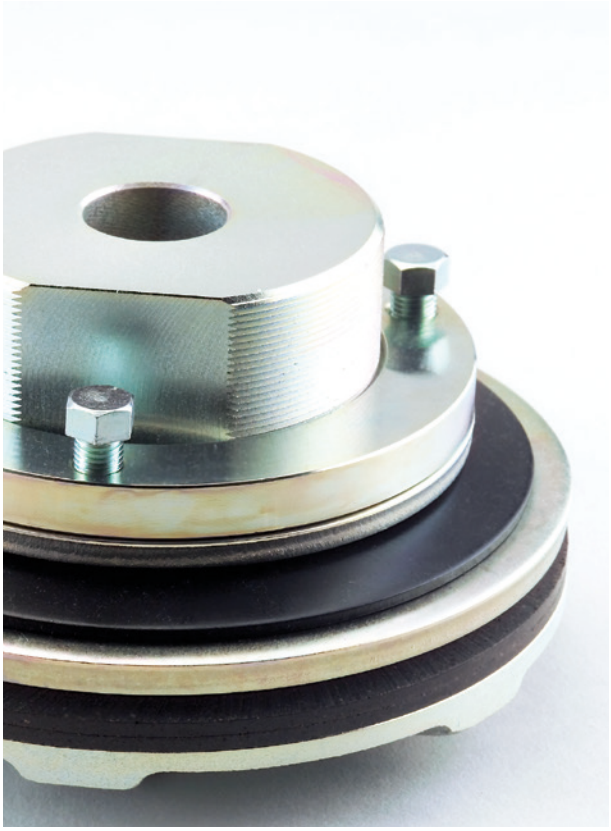
Select based on torque required, rpm, and shaft diameter:

| MODEL | TORQUE RANGE (FT. - LBS.) | MAXIMUM RPM | ROUGH STOCK BORE | MAXIMUM BORE DIAMETER | A | H | J | K (PCD) | L | U (SCREW DIA. AND LENGTH) | WT (LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TGZ20-L | 1.7 ~ 6.1 | 1800 | 0.32 | 0.79 | 2.91 | 0.43 | 3.78 | 3.386 | 2.835 | M5 X 10 | 5.7 |
| TGZ20-M | 3.0 ~ 11.6 | | | | | | | | | | |
| TGZ20-H | 6.0 ~ 23.1 | | | | | | | | | | |
| TGZ30-L | 4.3 ~ 15.2 | 1800 | 0.47 | 1.18 | 3.29 | 0.45 | 4.65 | 4.173 | 3.425 | M6 X 12 | 9.2 |
| TGZ30-M | 14.5 ~ 38.3 | | | | | | | | | | |
| TGZ30-H | 28.9 ~ 79.5 | | | | | | | | | | |
| TGZ40-L | 18 ~ 69 | 1800 | 0.67 | 1.57 | 3.98 | 0.55 | 5.98 | 5.472 | 4.488 | M6 X 12 | 19 |
| TGZ40-M | 32 ~ 94 | | | | | | | | | | |
| TGZ40-H | 65 ~ 181 | | | | | | | | | | |
| TGZ50-L | 46 ~ 116 | 1800 | 0.87 | 1.97 | 4.51 | 0.63 | 7.01 | 6.378 | 5.236 | M80 X 16 | 30 |
| TGZ50-M | 94 ~ 224 | | | | | | | | | | |
| TGZ50-H | 181 ~ 333 | | | | | | | | | | |





# Torque Limiter



Refined by Tsubakimoto in Japan for over 40 years, the Torque Limiter is a simple and inexpensive mechanical device that, true to its name, limits damage to equipment when an unexpected increase in torque occurs because of a jam or overload.

Easy to install, the Torque Limiter attaches to a shaft and holds the drive or driven sprocket, gear, or sheave. A frictional system, the Torque Limiter reacts instantly when there is a jam by slipping and absorbing the brunt of the force, preventing the increased power from damaging your equipment.

## Advantages over other devices:

- Competitively priced
- No resetting is required
- Adaptable to thousands of types of equipment configurations
- Can be used alone or in conjunction with other process controls.

| INDUSTRY | APPLICATION |
|---|---|
| Material handling | Conveyors, turntables, elevators |
| Water treatment plants | Pumps, scrappers, water screens |
| Food machinery | Screw and belt conveyors, bucket elevators |
| Machine tool | Tapping machines, drill presses |
| Chemical | Pumps, agitators, filters |

Environmentally safe, Tsubaki Torque Limiter contains no asbestos and no lead.

Torque Limiter can be used with a sprocket, sheave, or gear.

Tsubaki Torque Limiter's finer adjustment screw pitch means more precision.

Excellent for hard work and heavy use.

## Not all Torque Limiters are created equally.

Tsubaki has developed a superior Torque Limiter that allows for more precise adjustments than other products of the same name. We accomplish this by using a finer-pitch thread on the adjustment bolts enabling accurate setting of the slip-point – no longer settle for just a ballpark value. Tsubaki Torque Limiters use specially-formulated friction materials to extend time between replacement and improve repeatability of the slip-point. Tsubaki Torque Limiters provide long life, consistent performance, and the best value over years of operation.

## TL SERIES

Traditional machine protection. Friction-type construction. Slip-torque setting is done by simply tightening the adjusting nut or bolts. Competitively priced and easy to use.

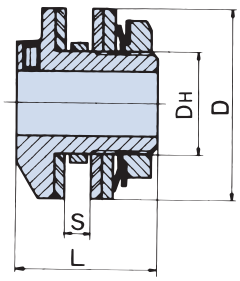


## SELECTION

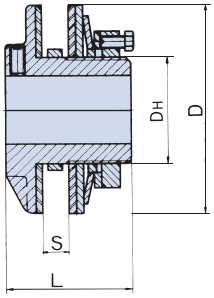
Select based on torque required, rpm, and shaft diameter. Bushing Length selection should be equal to or shorter than width of center member (sprocket, etc.):

| MODEL | TORQUE RANGE (LBS. - FT.) | MAXIMUM RPM | ROUGH STOCK BORE | MAX. BORE W.STD. KW | BUSHING LENGTHS | D | DH | L | S (MAX.) | WT (LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|
| TL200-1L | 0.7 ~ 1.5 | 1800 | 0.28 | 0.55 | 0.150, 0.236 | 2.0 | 0.95 | 1.14 | 0.276 | 0.44 |
| TL200-1 | 2.2 ~ 7.2 | | | | | | | | | |
| TL200-2 | 5.0 ~ 15 | | | | | | | | | |
| TL250-1L | 2.2 ~ 5.0 | 1800 | 0.39 | 0.88 | 0.177, 0.256 | 2.5 | 1.38 | 1.88 | 0.354 | 1.32 |
| TL250-1 | 5.0 ~ 20 | | | | | | | | | |
| TL250-2 | 10 ~ 40 | | | | | | | | | |
| TL350-1L | 7.0 ~ 15 | 1800 | 0.67 | 1.00 | 0.177, 0.256, 0.374 | 3.5 | 1.65 | 2.44 | 0.630 | 2.65 |
| TL350-1 | 15 ~ 55 | | | | | | | | | |
| TL350-2 | 25 ~ 110 | | | | | | | | | |
| TL500-1L | 15 ~ 36 | 1800 | 0.78 | 1.75 | 0.256, 0.374 | 5.0 | 2.56 | 3.0 | 0.630 | 7.72 |
| TL500-1 | 35 ~ 155 | | | | | | | | | |
| TL500-2 | 65 ~ 310 | | | | | | | | | |
| TL700-1L | 36 ~ 87 | 1800 | 1.18 | 2.63 | 0.374, 0.492 | 7.0 | 3.75 | 3.86 | 1.142 | 18.5 |
| TL700-1 | 85 ~ 420 | | | | | | | | | |
| TL700-2 | 165 ~ 800 | | | | | | | | | |
| TL10-16 | 289 ~ 940 | 1000 | 1.18 | 2.84 | 0.492, 0.610, 0.768 | 10 | 3.94 | 4.53 | 0.945 | 46.3 |
| TL10-24 | 435 ~ 1,370 | | | | | | | | | |
| TL14-10 | 651 ~ 1,960 | 500 | 1.57 | 3.94 | 0.610, 0.768, 0.925 | 14 | 5.71 | 5.91 | 1.142 | 115 |
| TL14-15 | 1,446 ~ 2,890 | | | | | | | | | |
| TL20-6 | 1,807 ~ 3,615 | 500 | 1.97 | 5.12 | 0.610, 0.768, 0.925 | 20 | 7.28 | 6.89 | 1.22 | 258 |
| TL20-12 | 3,400 ~ 6,870 | | | | | | | | | |

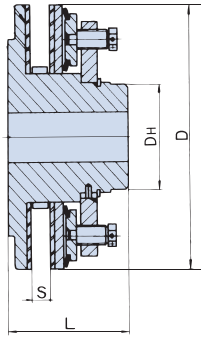
### TL200~TL350




### TL500~TL700




### TL10~TL20





# Axial Guard




Straight-line operations like pushers and cranks present unique challenges for determining and deflecting overload. Distinguished in the marketplace, U.S. Tsubaki's Axial Guard offers a new style of protection using ball and grooves that provide a consistent, repeatable, user-defined trip point.

## Advantages over other devices:

- Highly-accurate repeatable trip point
- No parts to replace
- Easy installation using tapped end caps
- Load adjustment set with a single screw
- Non-backlash design allows a "rigid" installation

Axial Guard offers overload protection where motion is back and forth rather than rotating. This new-style mechanical protection device is easy to install and to adjust.

| INDUSTRY | APPLICATION |
|---|---|
| Bulk handling | Conveyor torque arms, damper doors |
| Assembly equipment | Inserters, pick and place equipment |
| Metal-forming equipment | Extruders, formers |
| Packaging equipment | Carton sealing, labeling |

Axial Guard works in either pushing or pulling applications – and the trip point in either direction is identical. When overloads occur, the Axial Guard "trips" and eliminates the overload that can result in damage and downtime. To reset, a small pull or push in the opposite direction is all it takes to return Tsubaki's Axial Guard to operation. Downtime has been limited and production is up and going quickly.

Axial Guard is a new style of machine protection.

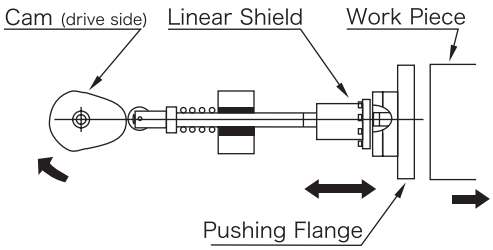
Axial Guard mounts directly to shaft.

Axial Guard provides immediate release when overload occurs.

Axial Guard addresses the difficult problem of straight-line operations.

## AXIAL GUARD

An all new mechanical-type overload device, the Axial Guard protects when the load acts linearly, as with pushers or cranks.




The cam pushes the work piece. When overload occurs due to the over-weighted work piece or jamming, the Axial Guard trips and protects the machine.

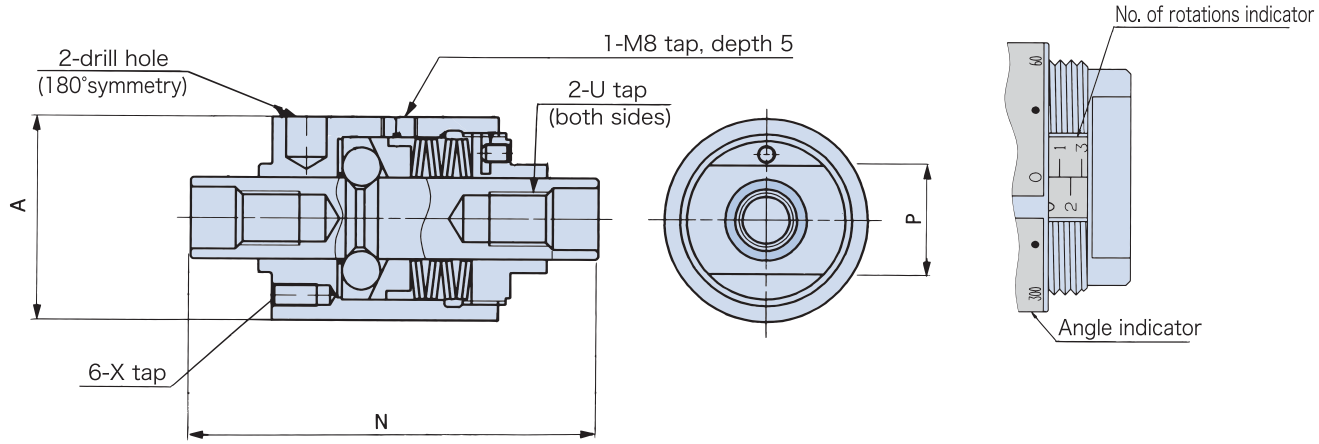


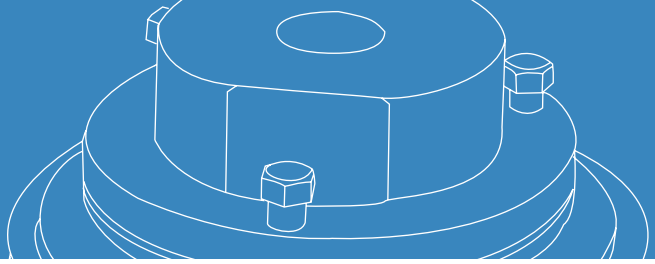

## SELECTION

Select based on thrust load:

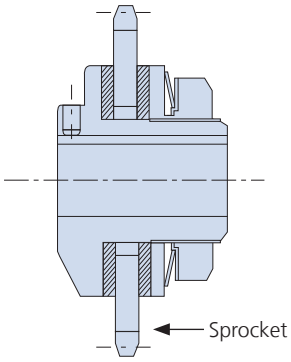
| MODEL | THRUST LOAD RANGE (LBS.) | A | N | P | U | X | WT (LBS.) |
|---|---|---|---|---|---|---|---|
| TGA65 | 33 ~ 143 | 1.3 | 2.3 | 0.6 | M6 | M3 | 0.4 |
| TGA150 | 132 ~ 330 | 1.5 | 2.8 | 0.8 | M8 | M4 | 0.9 |
| TGA250 | 165 ~ 550 | 1.8 | 3.5 | 0.9 | M12 | M5 | 1.5 |
| TGA350 | 220 ~ 770 | 2.2 | 4.3 | 1.2 | M14 | M6 | 2.6 |







## TORQUE LIMITER MACHINING GUIDELINES

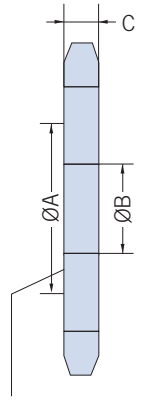



## MINIMUM ROLLER CHAIN SPROCKET SIZE AND NUMBER OF TEETH

| MODEL | RS35 | RS40 | RS50 | RS60 | RS80 | RS100 | RS120 | RS140 | RS160 |
|---|---|---|---|---|---|---|---|---|---|
| TL200 | 20 | 16 | | | | | | | |
| TL250 | | 20 | 17 | | | | | | |
| TL350 | | 26 | 21 | 18 | 15 | | | | |
| TL500 | | | 29 | 25 | 19 | | | | |
| TL700 | | | | 33 | 26 | 21 | 16 | | |
| TL10 | | | | | | 29 | 24 | 22 | |
| TL14 | | | | | | 39 | 33 | 29 | 26 |
| TL20 | | | | | | 54 | 46 | 40 | 35 |

## CENTER MEMBER MACHINING TOLERANCES

| MODEL | A MIN. DIA. | B BORE | C MAX | SURFACE FINISH- A&B |
|---|---|---|---|---|
| TL200 | 2.17 | 1.1811 ~ 1.1822 | 0.276 | 63 micro-inch finish max. |
| TL250 | 2.76 | 1.6141 ~ 1.6161 | 0.354 | |
| TL350 | 3.74 | 1.9291 ~ 1.9311 | 0.630 | |
| TL500 | 5.24 | 2.9133 ~ 2.9154 | 0.630 | |
| TL700 | 7.25 | 4.1338 ~ 4.1358 | 1.142 | |
| TL10 | 10.24 | 5.1349 ~ 5.3177 | 0.945 | |
| TL14 | 14.25 | 7.2047 ~ 7.2075 | 1.142 | |
| TL20 | 20.24 | 8.8976 ~ 8.9004 | 1.220 | |

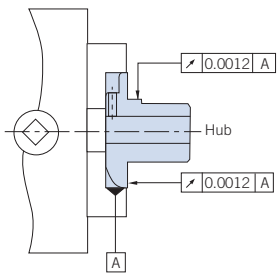



Rubbing Surface on both ends

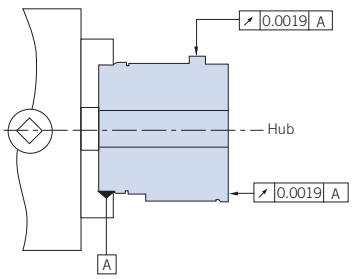
## TORQUE LIMITER HUB MACHINING

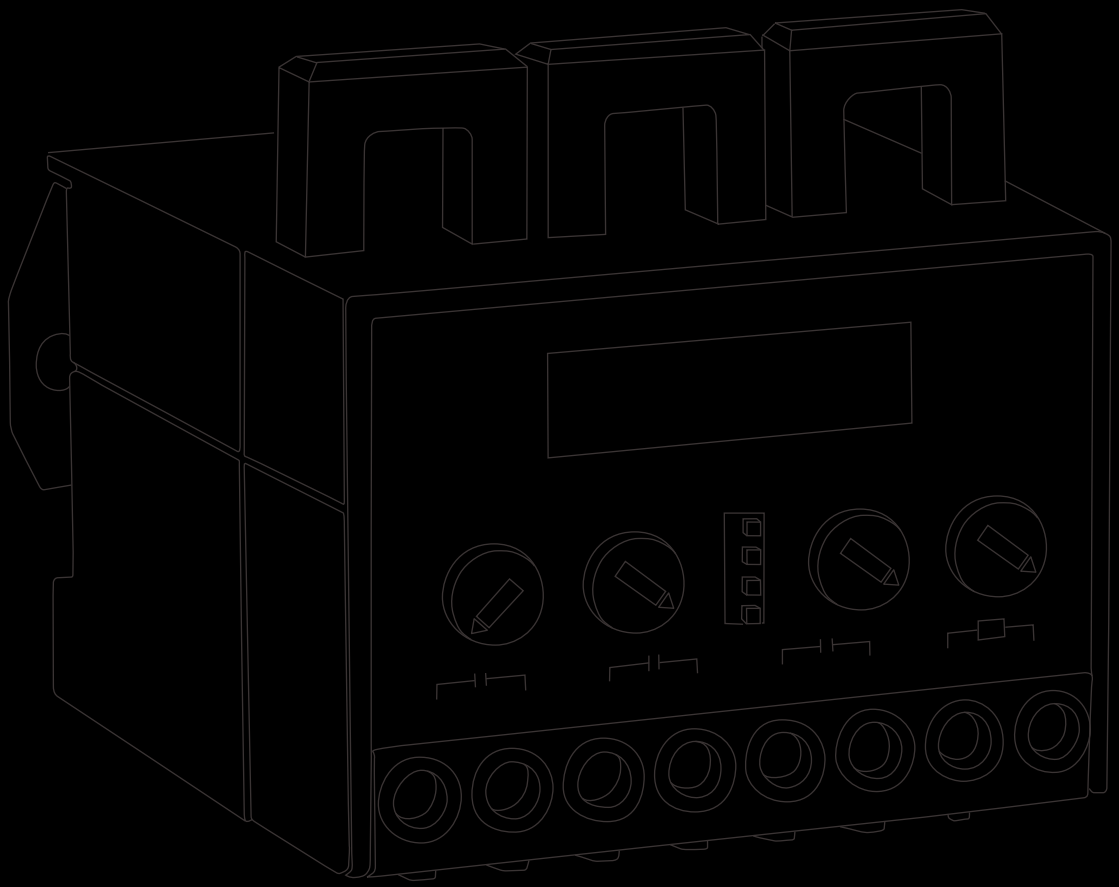
Drawing illustrates hub held in machining center. Note machining values, H7 bore tolerances recommended.

TL200~700




TL10~20





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