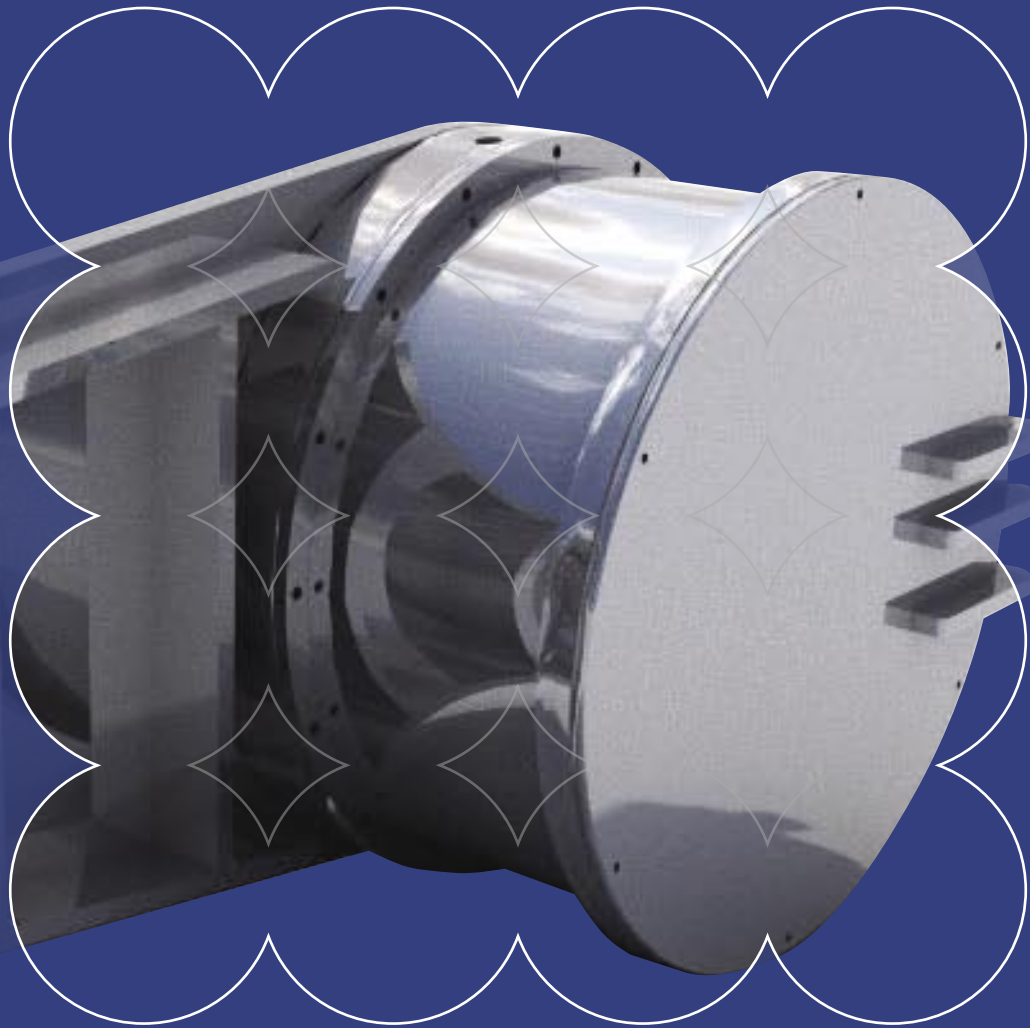


Freewheels

*Tension Release and Torque
Limiting Backstops*



RENOLD
Superior Freewheel Technology

www.renold.com

Tension Release & Torque Limiting Backstops

For many years standard sprag clutch backstops have been successfully used as safety devices to prevent inclined conveyor belts from running back when stopped in a loaded condition.

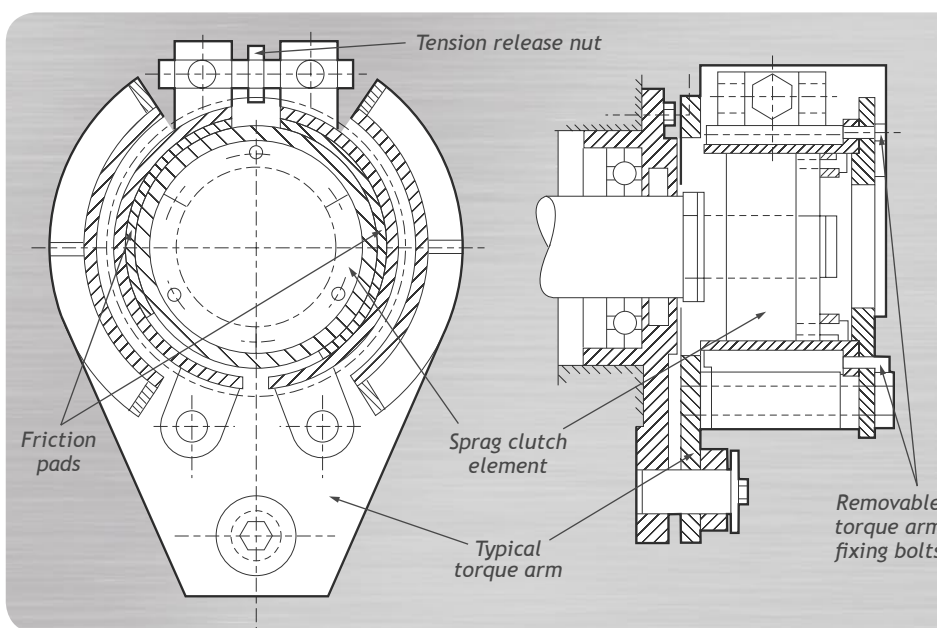
However, when conveyors stall because of an obstruction between the bottom belt and the return end drum extreme tension is caused in the top belt as standard sprag clutch holdbacks do not allow the slack bottom belt to ease through the drive.

The release of these obstructions has *caused fatal accidents*, when the uncontrolled release of tension in the top of the belt rapidly pulls the bottom of the belt around the end drum with a sudden surge of extreme force.

Renold have designed a range of Tension Release Backstops to deal with this potentially fatal force.

Fitting a Renold Tension Release Backstop to the gearbox drive shaft will ensure safe controlled release of the built up tension in the top belt. This is achieved through controlled friction slippage of the sprag clutch element of the backstop.

The Renold Tension Release and Torque Limiting Backstops are a valuable additional safety device designed, not only to increase operational safety for your workforce, but also protects expensive plant against costly repairs and production downtime.



WA Type Tension Release Backstops

Features and Benefits:

- Immediate protection or drive where needed on output gearbox shaft
- Easy to operate manual tension release mechanism
- Torque arm can be adapted to suit any gearbox design
- Sealed for life SO clutches available for zero maintenance
- WA type can be easily fitted to existing Renold SO backstop applications
- Available for use on standard SO sprag clutches for complete design flexibility

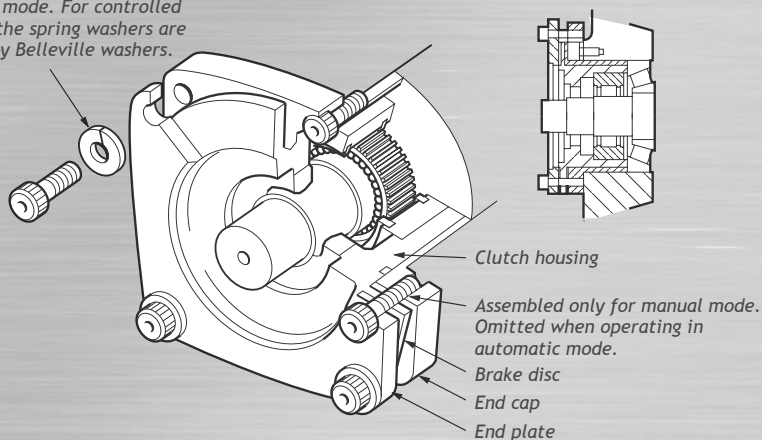
TRM-I Type Tension Release & Torque Limiting Backstops

Features and Benefits:

- Immediate protection of drive or drives where needed on output gearbox shaft
- Easy to operate manual tension release mechanism design available
- Automatic overload protection design available, instantaneously equalising the backdriving torque on multi point drives
- TRM-I type can be easily fitted to existing Renold DM backstop applications.
- No changes required to existing gearbox housing design
- Available for use on standard DM sprag clutches for complete design flexibility

They are suitable for single or multiple drive applications in the automatic mode and no lengthy preparation time is required prior to operation in the manual mode.

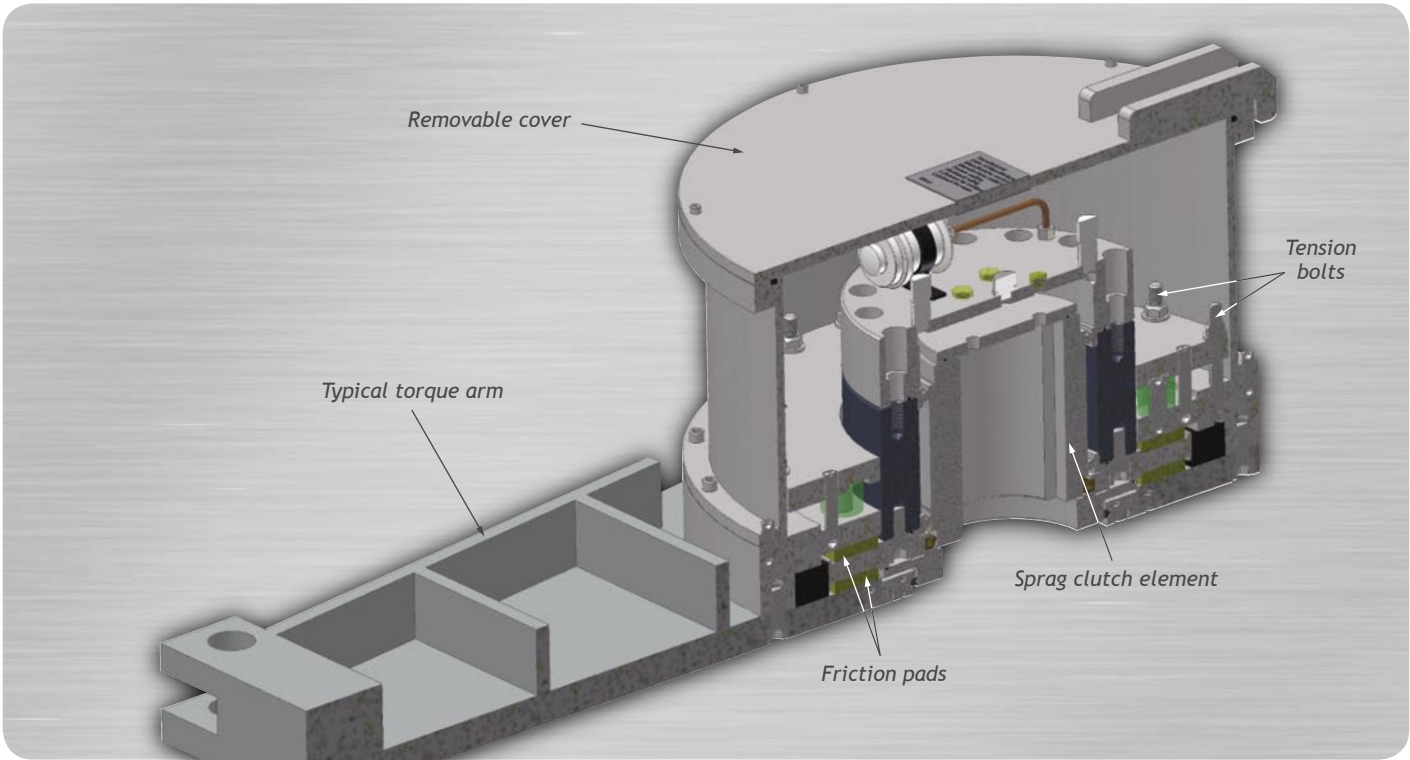
4 screws with spring washers for automatic mode. For controlled pressure, the spring washers are replaced by Belleville washers.



As an extension to our other types of Tension Release Devices and the inclusion of many Renold Direct Mounted Sprag Clutches being used in gear boxes, we designed the TRM-I Device to compliment our range. Many features of this device include automatic Torque Limiting.

Being a custom designed device there are no external dimensional changes to your gear unit. The device is also designed with no modifications necessary to the gear or worm shaft, thus existing field units can be readily converted and no special tools are required to operate them.

Tension Release & Torque Limiting Backstops

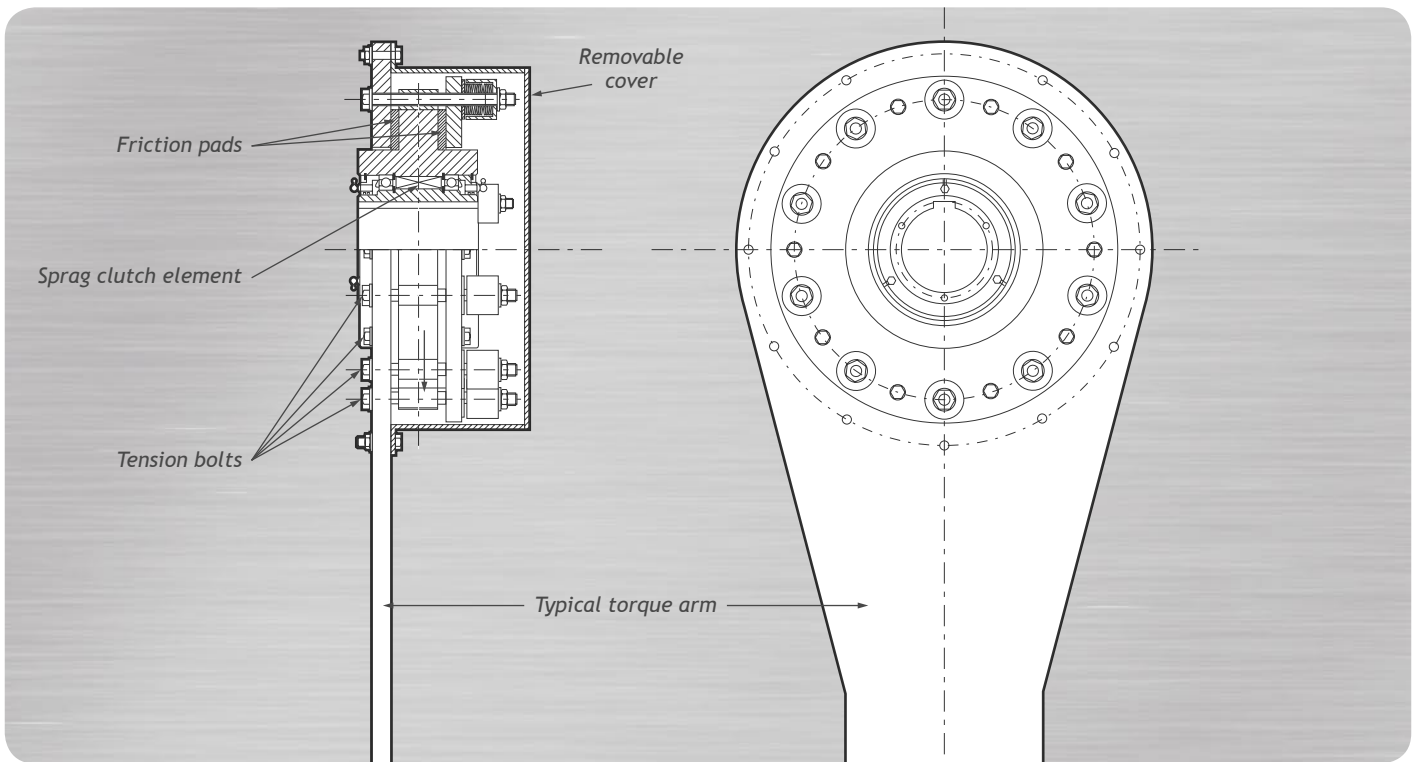


Renold Sprag Clutch Size	Torque Capacity NM lb.ft	Max Bore mm in
300	379 275	20 0.75
400	407 300	22 0.875
500	1585 1168	32 1.312
600	3100 2285	50 2
700	6900 5086	70 2.9375
750	9660 7120	85 3.437
800	17940 13223	110 4.4375
900	24400 18000	130 5.4375
1000	33900 24987	160 6.4375
1027	36000 27000	180 7
1051	61000 45000	180 7



For Sprag Clutch Sizes above 1051 please consult Renold.

Renold Torque Limiting Backstops



Renold Torque Limiting Backstops have been designed for use in dual drive or tandem drive systems traditionally used on long material handling conveyors.

On a dual or tandem drive conveyor where backstops have been fitted to each drive there is a potential problem with uneven distribution of backdriving torque between these drives when the conveyor is stopped or stalled.

Using standard sprag clutch holdbacks prevents even distribution of backdriving torque between each of the dual or tandem drives creating high peak torques potentially capable of wrecking the drive reduction gears. This leads to costly repairs and downtime as well as potential workforce safety issues.

Fitting a **Renold Torque Limiting Backstop to each of the output drive gearbox shafts** will **instantaneously balance** out the uneven backdriving torque between the drives through the use of automatically controlled friction slippage of the sprag clutch element in each of the backstops. This has the effect of equalising the load on each drive allowing load sharing on all the important transmission parts in the drive and thus **preventing premature failure**.

Renold Torque Limiting Backstops Features and Benefits

- Immediate protection of drive or drives where needed on output gearbox shaft
- Variable torque settings offer optimum sprag clutch selection
- Automatic overload protection, instantaneously equalising the backdriving torque on multi point drives
- Torque arm can be adapted to suit any gearbox design
- Sealed for life clutches for zero maintenance
- Available for use on SO sprag clutch sizes for complete design flexibility

Renold Torque Limiter and Tension Release backstops have proved to be very reliable in protecting material handling conveyors in a wide range of industries around the World.

BE SAFE — GET IT RIGHT — FIT *RENOLD* FOR LIFE



Overland Conveying

Renold Torque limiting backstops fitted to gearboxes on multi-drive overland conveyors to protect the gearbox and backstop clutch against overload and costly premature failure. SH1051 Torque limiting backstops fitted onto the Gearbox output shafts of an overland conveyor handling iron ore protect the drives against damaging overload torques. Instantaneous automatically controlled friction slippage of the sprag clutch element on the torque limiting backstops ensures total torque overload protection where it is most needed, on the gearbox output shaft of each drive.



Mining

Renold Tension Release backstops have been fitted to gearbox output shafts on conveyors in coal mines around the World. A typical example of such conveyors is shown here employing Renold WA or TRM backstop types fitted to the drive gearbox output shaft. When the conveyor stalls or jams and the Renold SO or DM backstop sprag clutch element prevents any form of runback, which results in possible extreme and damaging tension in the conveyor belt, the tension release mechanism of the backstop is employed to ease out the tension in the belt. This action safely protects both plant against damaging overloads, with resultant failures and downtime, and the workforce against possible fatal accidents.



Steel Mills

Renold Tension Release backstops have been fitted to gearboxes on inclined material handling conveyors in steel mills around the World. A typical example of such conveyors is shown here moving coking coal employing Renold WA or TRM backstop types fitted to the drive gearbox output shaft with the torque arm fitted to gearbox housing. When the conveyor stalls or jams and the SO backstop sprag clutch element prevents any form of runback, which results in possible extreme and damaging tension in the belt, the tension release mechanism of the backstop is employed to ease out the tension in the conveyor belt. This action safely protects both plant against damaging overloads, with resultant failures and downtime, and the workforce against possible fatal accidents.

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