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

### 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

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.

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.
## Tension Release & Torque Limiting Backstops

For Sprag Clutch Sizes above 1051 please consult Renold.

<table>
<thead>
<tr>
<th>Renold Sprag Clutch Size</th>
<th>Torque Capacity NM</th>
<th>Max Bore mm</th>
<th>Max Bore in</th>
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<tbody>
<tr>
<td>300</td>
<td>379 275</td>
<td>20 0.75</td>
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<tr>
<td>400</td>
<td>407 300</td>
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<td>1585 1168</td>
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</tr>
<tr>
<td>1051</td>
<td>61000 45000</td>
<td>180 7</td>
<td></td>
</tr>
</tbody>
</table>
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 wreaking 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 instantly 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 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.

**Renold Torque Limiting Backstops**

- 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

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

**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.