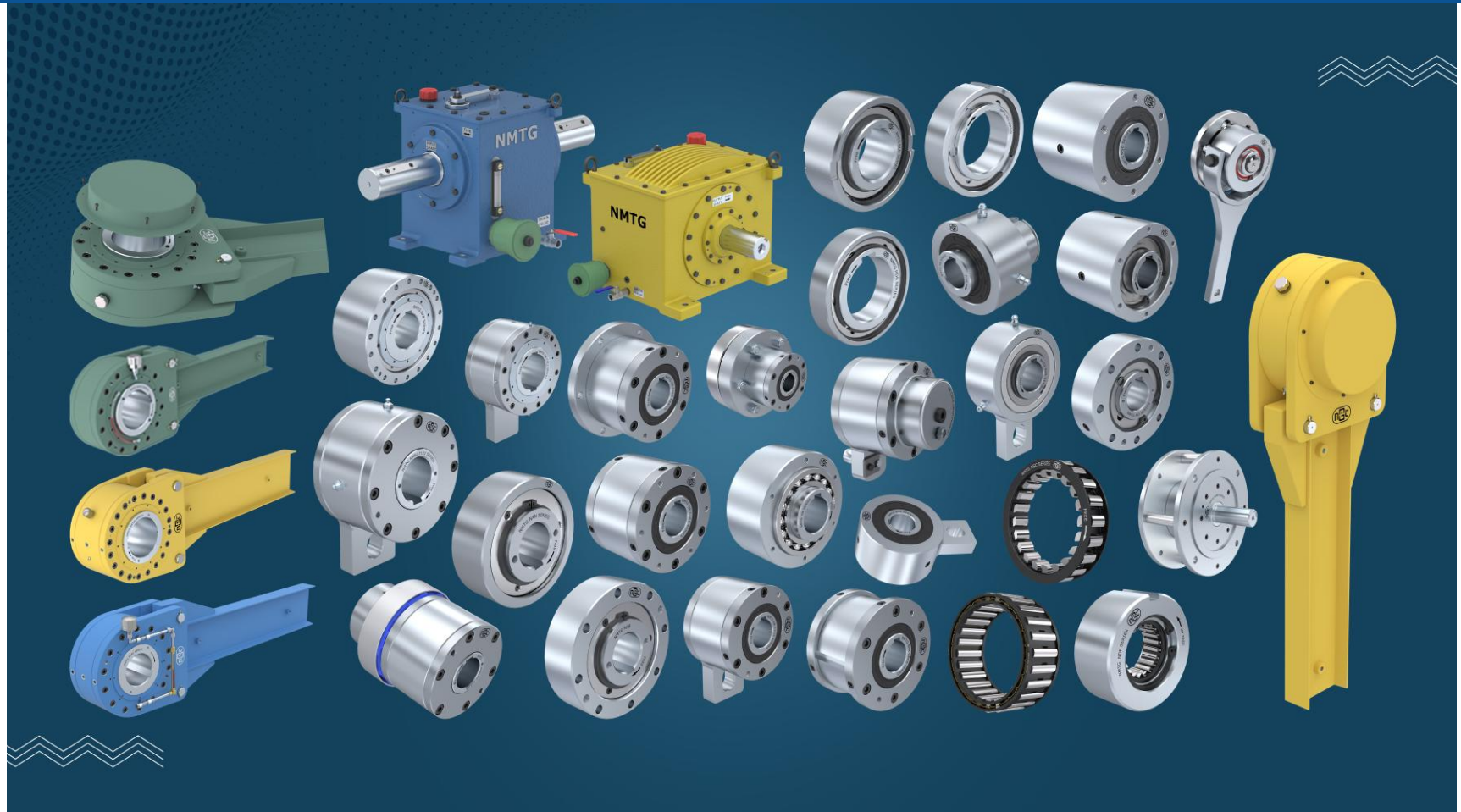
NMTG

SINCE 1975

Partners For Delivering Excellence

Key Products - Free Wheel One Way Clutch & Holdback Devices



Free Wheel One Way Clutch & Holdback Devices

❖ Working Principle

- **Based on wedge friction theory**
- Allows **free rotation (overrunning) in one direction**
- Transmits **torque in the opposite direction**
- Wedging elements (**Roller, Sprag, CLS Cam, NDC Sprag**) generate **clamping forces** during engagement

Freewheel One-way Clutches are used as:

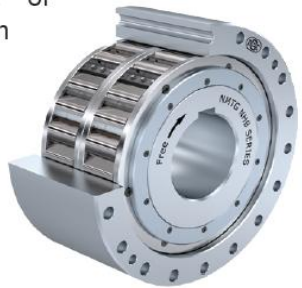
Backstop / Holdback

- Prevents **reverse rotation** during power loss or drive stoppage
- Clutch **overruns freely during normal operation**, engages instantly if reverse rotation occurs
- Achieved by anchoring one race (typically outer race) to the frame while the other (inner race) rotates freely in the required direction
- **Applications:** Conveyor, Bucket Elevator, Lifter, Motor Winch, Crane, Elevator

Free Wheel One Way Clutch & Holdback Devices

FREEWHEEL ONE-WAY CLUTCHES & HOLDBACK DEVICES

High Speed Holdback/Backstops
are located on the 2nd or 1st gearbox reduction shaft and prevent revevrse motion of conveyor belts, elevators, pumps, blowers.



External Holdbacks / Low Speed Backstops
are located on pulley or head shafts of gearboxes and prevent reverse motion of conveyor belts or bucket elevators.

Overrunning Clutches
Automatic engaging and disengaging of drives.

Indexing Freewheels
For gradual feed of materials.

Housing Type Freewheel clutches
Automatic engaging and disengaging for multi drives for installations with continuous operation.

Sprag Cage Freewheels
For installation between customer-supplied inner and outer rings.

External Holdback/Backstop Device

1. **Single Drive:**
   - Backstop for low speed application are directly mounted on extended Head or Drive pulley shaft opposite to the Drive as shown in fig.1

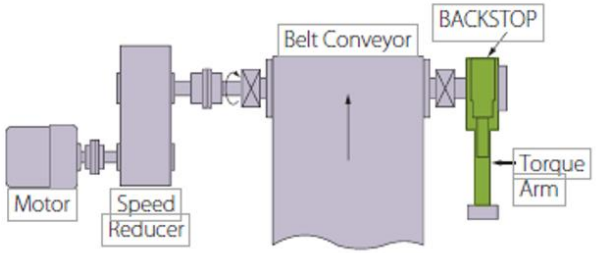


Figure 1

2. **Dual Drives with Single Backstop:**
   - Dual Drives, Single Backstop arrangements for low speed application are directly mounted on extended Head or Drive pulley shaft opposite to the Drive as shown in fig.2

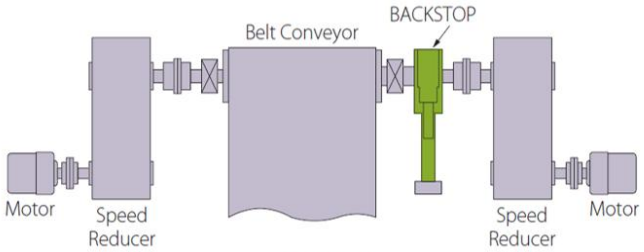
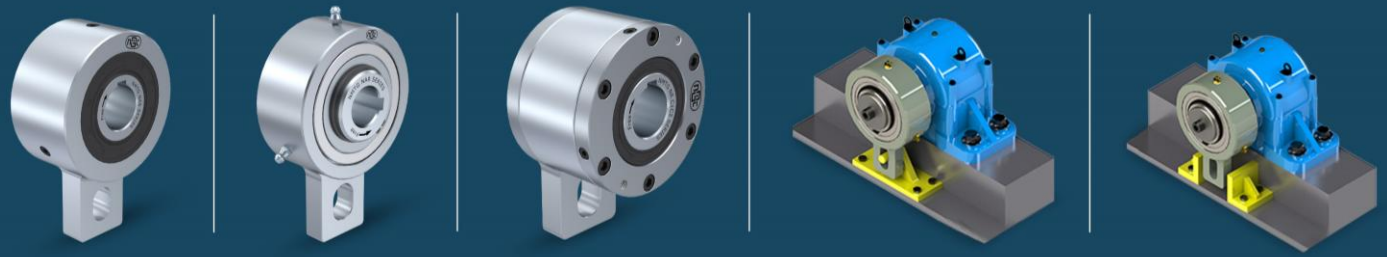


Figure 2

NMTG Provides External Holdback/Backstop with Reliable & Cost-Effective Solution In Inclined Conveyor & Bucket Elevators.



External Holdback/Backstop Device

3. Tandem Drives:

- In this type of Application, There will be two drives Primary & Secondary as shown in fig.3

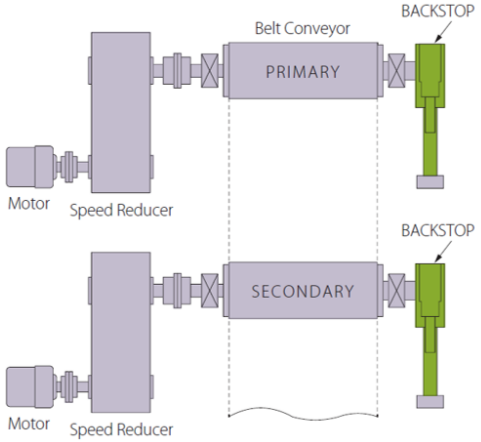


Figure 3

4. Dual Drives with Tandem Backstop:

- In this type of Application, Dual Drives with tandem backstop arrangements on single pulley arrangements as shown in fig.4.

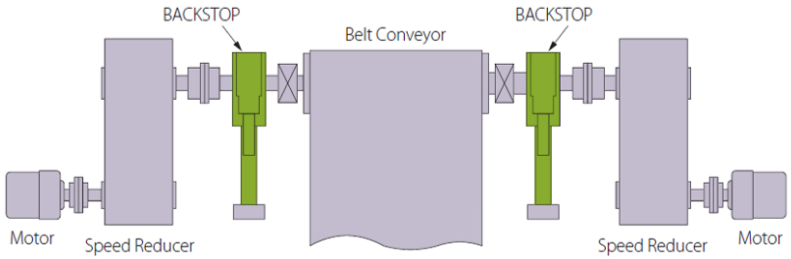
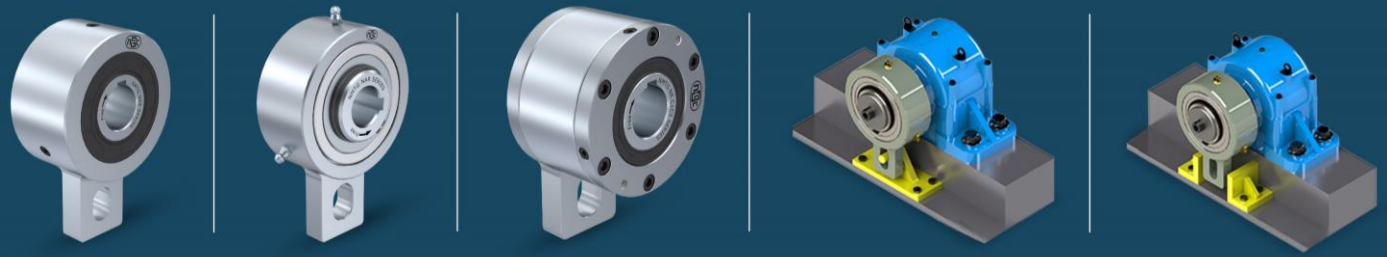


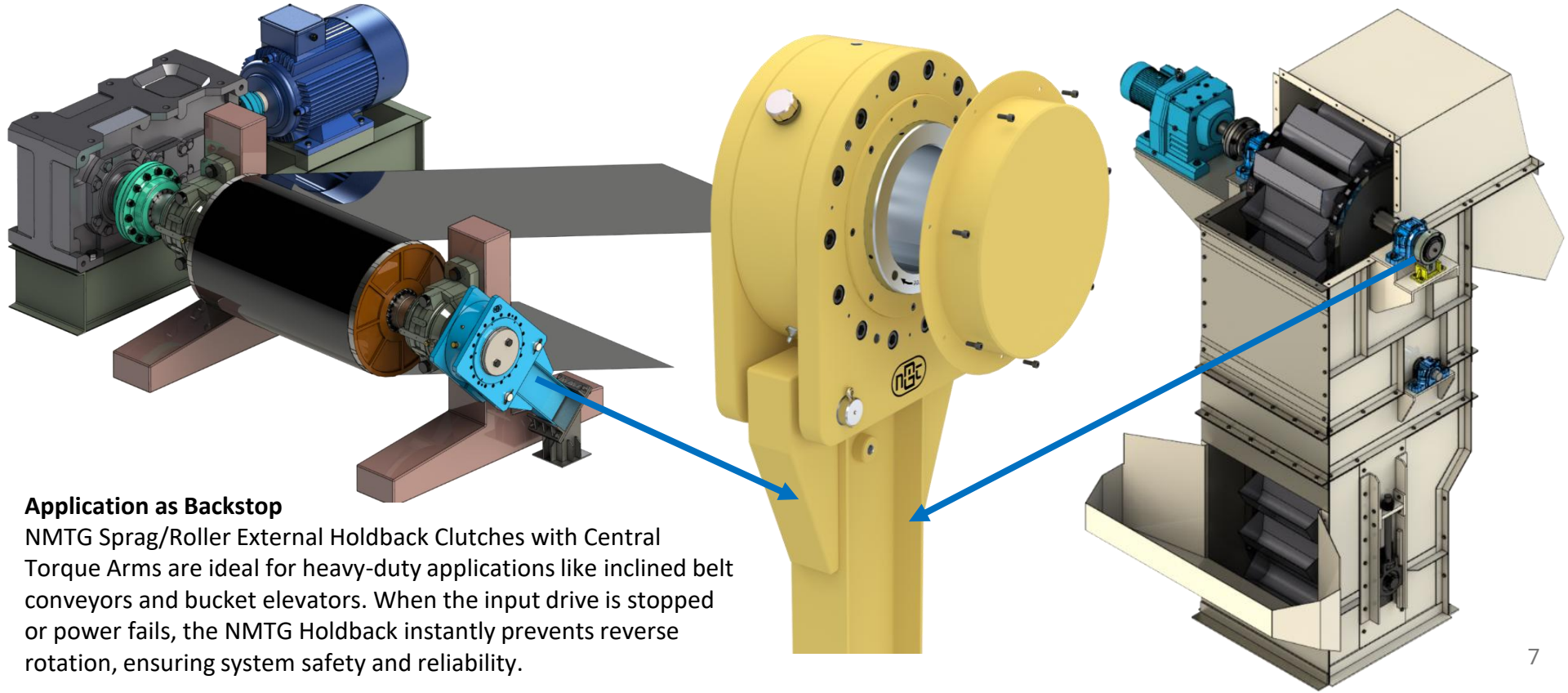
Figure 4

NMTG Provides External Holdback/Backstop with Reliable & Cost-Effective Solution In Inclined Conveyor & Bucket Elevators.



Power Transmission Components for Mining Industry

NMTG Low Speed Holdback in Belt Conveyor & Bucket Elevator



Application as Backstop

NMTG Sprag/Roller External Holdback Clutches with Central Torque Arms are ideal for heavy-duty applications like inclined belt conveyors and bucket elevators. When the input drive is stopped or power fails, the NMTG Holdback instantly prevents reverse rotation, ensuring system safety and reliability.

Power Transmission Components for Mining Industry

❖ Benefits of Low speed Backstop with Torque Arm

- **Primary Safety Function**
  Acts as the main safety device — in case of gearbox or coupling failure, it prevents conveyor runback.
- **Easy Maintenance**
  Allows servicing of the gearbox, coupling, and motor even when the conveyor is under load.

Coal Handling System & Ash Handling System

❖ Equipment: Conveyors, Crushers, Feeders, Ash slurry pumps, Ash conveyors

Our Products:

- **Freewheel One-Way Clutches / Backstops:** Prevent reverse rotation in inclined conveyors. Prevent backward movement during power failures.
- **Holdback Devices:** Safety against rollback during shutdown/maintenance.
- **Keyless Locking Assemblies:** For drive pulley locking, eliminating keyway failures.

External Holdback/Backstop Device

Low Speed External Holdbacks- NRHD Series

Features:

- This Series is used as Backstopping
- Bore range: up to **356 mm.**
- Nom. Transmitting torque: **505700 Nm.**
- This type of Freewheel Clutches is Supplied with Lever arm & Sprags with Ball bearings support.
- NRHD external holdback clutch with Central Torque Arms is the perfect solution for heavy-duty applications such as inclined belt conveyors and bucket elevators. When the input drive is discontinued or the power supply fails, then NRHD holdback instantaneously prevents reverse rotation.
- Requires Grease Lubrication.

Low Speed External Holdbacks NR C1C2 Series

Features:

- This Series is used for **Backstopping, Indexing**
- Bore range: up to **150 mm.**
- Nom. Transmitting torque: **70000 Nm.**
- Trapped rollers Freewheels **NR C1C2** model is Self-centred utilizing Oil Sealing & pairs of ball bearing supported. So, the unit is Self-sealed designed.
- Requires Oil/Grease lubrication.
- This type of Combination is used as Backstops, in which C2 covers act as Lever Arms & C1 covers are used as close units. The C2 cover also called as Torque arm has an integrated Stop bolt which must go into a slot in a fixed part of the machine.
- This type of Combination is arranged through shafts or shaft ends.

Thanks!

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