

REELL PRECISION MANUFACTURING

Innovative Torque Solutions

Reell (ray-el)

German:

Fair, Genuine, Honest, Trustworthy

Global Operations



Saint Paul, MN USA – World Headquarters

- Established 1970
- Sales, customer service, design, manufacturing & logistics
- Production: Friction hinges, clutches, precision springs, linear locks, wrap spring devices and engineering services

Querétaro, Mexico

- Established 2022
- Sales with future manufacturing & logistics

Elsloo, Netherlands

- Established 1993
- Sales, customer service, design engineering, manufacturing & logistics
- Production: Clutches, industrial products, consumer products

Shanghai, China and Singapore

- Singapore established 1998, Shanghai entity established 2016
- Sales, application engineering, customer service
- Manufacturing through collaborative partnerships



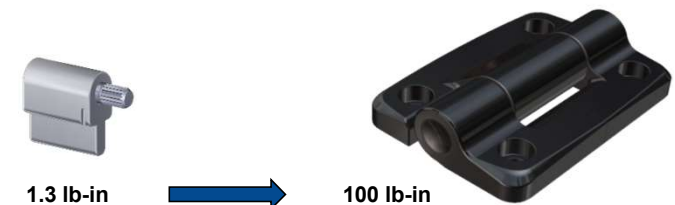
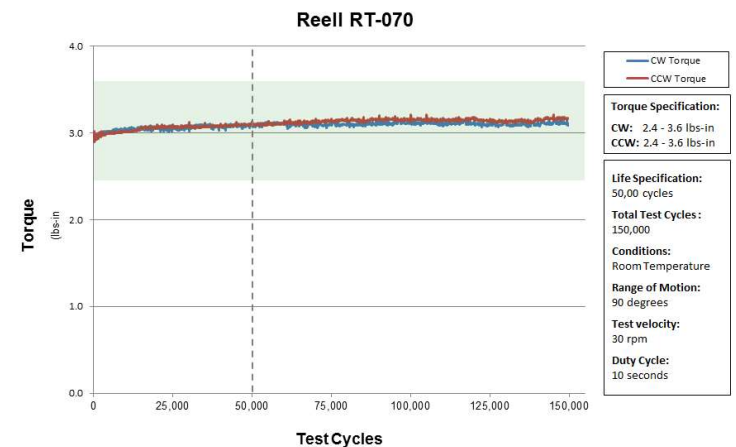
150 employees around the world, selling through a mix of independent reps and direct sales people

Reell Technology Excellence

Long life performance- Reell products have life cycle ratings up to 50k cycles that **deliver consistent torque performance over life.**

Smooth operation- With only a 10% difference between static and dynamic torque, Reell products do not exhibit the 'stick slip' of other constant torque devices, **providing the end user with a demonstrably better 'feel' when adjusting position.**

High torque density- ReellTorq® provides more torque in a smaller package than other friction technologies, **enabling engineers to design with a smaller torque element 'footprint'.**



Reell solves difficult motion control problems

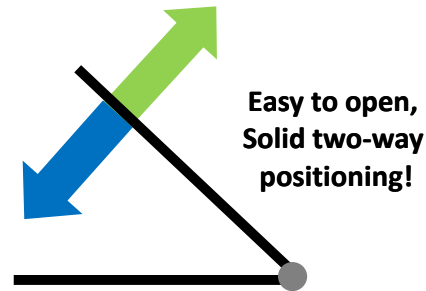
Torque Profile Options



Reell motion and position control products are available in different torque profiles

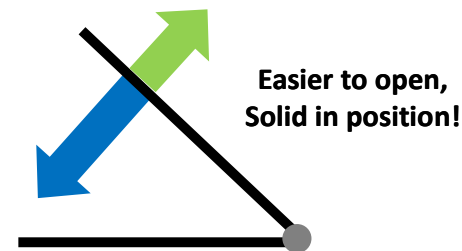
Selecting the correct torque profile is important to providing the best user experience

Reell application engineers are available to help you choose the best torque profile for your application



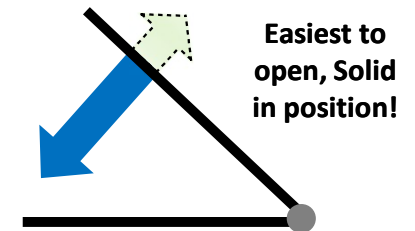
Symmetric
Same resistance in both directions

Smooth quality motion, with sure positioning in both direction.



Differential
60% resistance in opening direction

Easy to open, with the same smooth quality motion and solid positioning.



One-Way
Near zero resistance in opening direction

Very easy to open, with solid downward positioning.

Center Console Applications



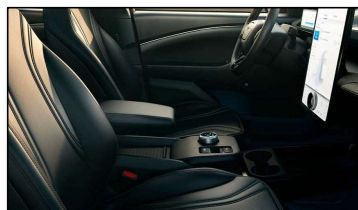
Center Console Work Surface



2021 Ford F-150

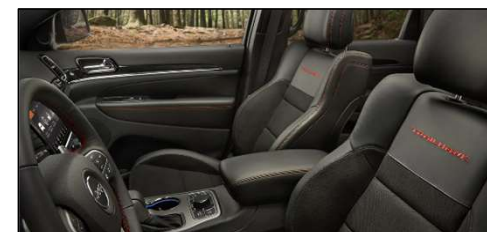


2021 Ford Mach E



Center Console Armrest

Center Console Storage Lid



2021 Jeep Grand Cherokee



Other Current Programs: Acura MDX, Ford EcoSport, Honda CR-V

Cargo Management Solutions



Under Floor Storage



Audi
e-tron



2022 Nissan
Pathfinder



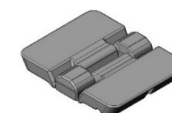
2022
Infiniti QX60



Frunk Storage

Camp Table

Dual-Axis Molded Hinge



2021 Ford
Bronco Sport



Other Current Programs: Cadillac XT6, Ford/Lincoln Expedition/Navigator, Jeep Gladiator, Jeep Grand Wagoneer, Mercedes-Benz Maybach GLS, Nissan Titan

Chrysler Stow N' Go



A Long-Term Testament to Reell Technology, Quality & Performance



4th Gen
2005 - 2007



5th Gen
2008 - 2016



7th Gen
2017 to Present

Town & Country

Pacifica / Voyager



Reell Dual Axis 180° Hinge

Dual Axis 180°

Allows Rotation w/o Hinge Barrel “Bump” On Top Surface

- Key Applications: Load Floors, Center Consoles, Parcel Shelves, Panels, Cargo Dividers & Interior Compartments

Features & Benefits

- *Applied on Systems with Moving, Fixed, Multi or Split Large/Small Panels*
- *Hinge Barrel is Recessed Into Panel Surface*
- *Friction Positioning Provides Superior User Experience*
- *Quiet Opening & Closing Operation*
- *System Aesthetic Improvements*
- *Symmetric Design – No Left + Right Required for Pairs*

▪ *Development Status*

- *In Production for F-150 Center Console Work Surface & Bronco Sport Camp Table*
- *Acura MDX Load Floor Application for Production MY 2014-2020*
- *In Development for Alternate Mounting & Torque Options*
- *Design is Available for Custom Development*



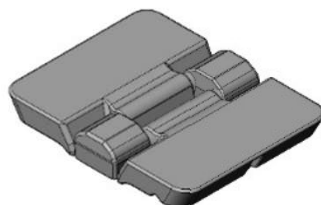
Production Application – Ford Bronco Sport



2021 Ford Bronco Sport

Torque Hinges for Rear Cargo Shelf System

- Unique design allows for fold flat positioning
- Offset torque values enable easy open / controlled close operation & panel fold sequencing



Enable Content to view video or follow this link
<https://www.youtube.com/watch?v=iUsR-sn8aMo>

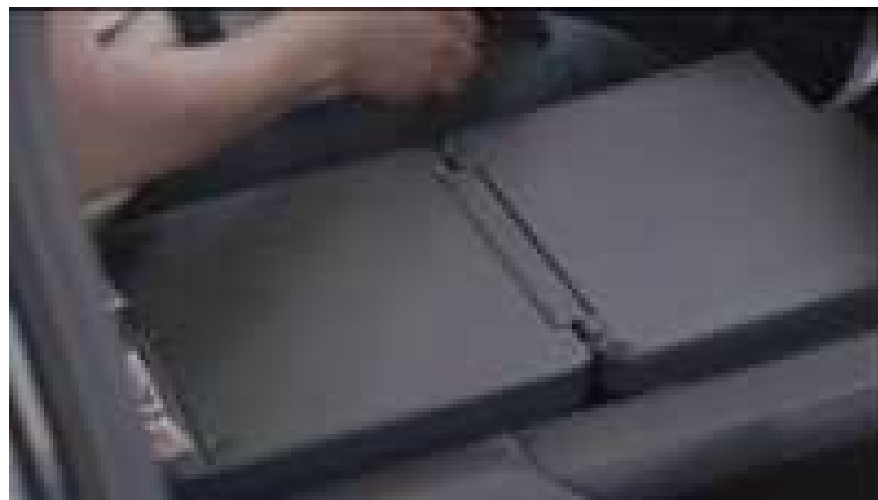
Production Application – Ford F-150



2021 Ford F-150

Torque Inserts for Center Console Work Surface

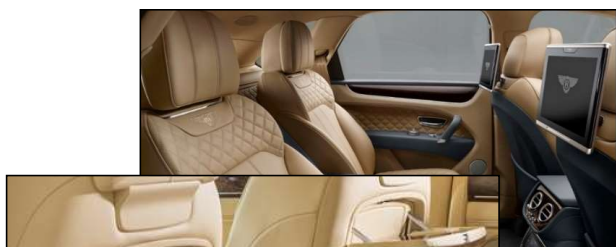
- Unique design allows for fold flat positioning
- Offset torque values enable easy open / controlled close operation & superior user experience / feel



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<https://www.youtube.com/watch?v=Dz7jdpIVn7w>

Other Interior Applications

Display Positioning & Tray Table

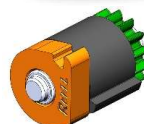


Bentley
Bentayga

RT70



Ford
Ka / Figo



Device Dock

Cinching Wrap Spring Clutch



Camera Position Control



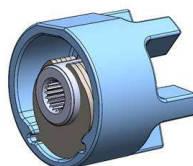
TIC5M



Overload Clutches



**Honda
Odyssey**



Acura RDX



Power Hatch – Roof Mounted Overload Clutches

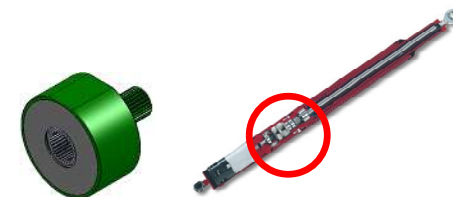
- Fully mechanical clutch transmits torque until torque limit is exceeded
- Re-engages when abuse load event ceases
- Quiet & smooth operation throughout
- No moving mechanisms



Strut Overload Clutch

Protection Torque Limiter for Spindle Drives

- Allows manual movement of door when spindle drive is powered
- Prevent damage to people, vehicle & objects
- Precise torque limiter
- Very quiet, long life



**BMW
X5 / X7**



Overload Clutches – New Applications for 2021



2021
Chevrolet
Silverado

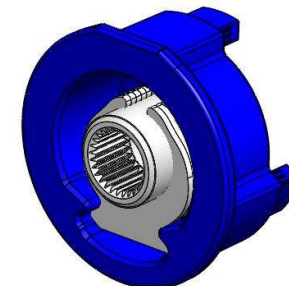


2021
Ford F-150



Power Tailgate Overload Clutches

- *Fully mechanical clutch transmits torque until torque limit is exceeded*
- *Re-engages when abuse load event ceases*
- *Quiet & smooth operation throughout*
- *No moving mechanisms*



Input Engaging Clutch



Peugeot
3008/5008



Tesla X



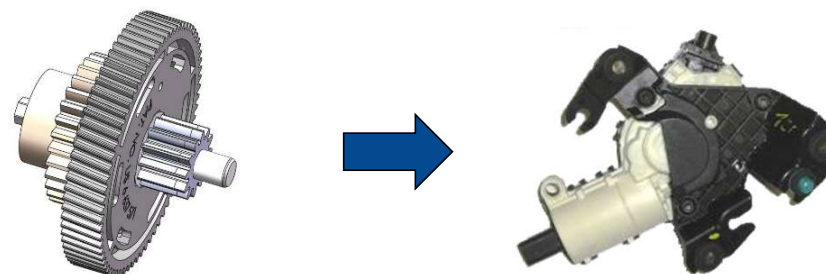
Opel
Grandland



Input Engaging Clutch

Automatic Door Closure Cinching Systems

- A fully mechanical clutch engages when cinching motor turns on
- Clutch disengages when motor is turned off
- Quietly releases under load
- Quiet opening & closing operation



Input Engaging Clutch – New Application for 2021

2021 Cadillac Escalade



Power Side Door – Input Engaging Clutch

Automatic Door Closure Cinching System

- A fully mechanical clutch engages when cinching motor turns on
- Clutch disengages when motor is turned off
- Quietly releases under load
- Quiet opening & closing operation

