Driving future chassis solutions

1. **Pinion gear**
   Uses a NORGLIDE® Bearing to directly replace the needle bearings within the pinion gear.

2. **Steering yoke**
   Uses a NORGLIDE® Bearing as a liner on the inside of the steering yoke to give the driver a smoother feel of the steering system.

3. **Steering height adjustment**
   Uses a NORGLIDE® Bearing to provide a low friction surface in which column height adjustment can occur.

4. **Steering column**
   Uses a NORGLIDE® Bearing to directly replace the rolling element bearings within the steering column.

5. **Worm gear**
   Uses a NORGLIDE® Bearing to directly replace the needle bearings within the worm drive.

6. **Bulkhead**
   Uses a NORGLIDE® Bearing to directly replace a rolling element bearing.

7. **Anti-theft**
   Uses a RENCOL® Tolerance Ring to provide overload protection to the lock collar in the case of a vehicle theft - meets current EU legislation.

8. **Collapse**
   Uses a RENCOL® Tolerance Ring to provide axial resistance in the steering column during a vehicle collision.

9. **Bearing mount**
   Uses a RENCOL® Tolerance Ring to mount a bearing to the column whilst adjusting the NVH properties of the column.

10. **Gear mount**
    Uses a RENCOL® Tolerance Ring to control the torque of the drive gear (acts as a simple fuse) in a column-mounted Electric Power Steering system.

11. **Sensor mount**
    Uses a RENCOL® Tolerance Ring to simply fix the magnet sensor to the Electric Power Steering motor.

12. **Stator mount**
    Uses a RENCOL® Tolerance Ring to simply fix the stator to the shaft/housing.

13. **Pulley mount**
    Uses a RENCOL® Tolerance Ring to simply fix the drive pulley to the shaft in a rack drive Electric Power Steering system.
Design & Development

We have extensive in-house design, test and R&D capabilities and using our international technical centres for local customer support we are able to rapidly develop RENCOL® Tolerance Rings and NORGLIDE® Bearings to meet individual customer requirements around the world.

This enables us to offer the following benefits:

- Customised solutions to solve your design engineering problems
- In-house design and development department allows for rapid prototyping
- Comprehensive testing equipment allowing for early stage validation of designs in customer components

What is a RENCOL® Tolerance Ring?

A RENCOL® Tolerance Ring is a radial spring ring that is press-fitted between two mating components, generating a retention force that fixes those components together, whilst also satisfying other functional requirements such as compensating for thermal expansion, reducing noise and vibration, predictable and repeatable slip, avoiding resonance frequencies and overload protection.

What is a NORGLIDE® Bearing?

A NORGLIDE® Bearing is a metal-reinforced, self-lubricated plain bearing with a layer of low friction PTFE. It can be used in applications where plain and conventional rolling element bearings are used. It offers space savings, noise and vibration reduction, low friction, high load capacity and long life.

Steering yoke test equipment  Spring rate test equipment  Anti-theft torque test equipment

Test time (s) Tool separation (mm) Standard force (N)

Compression Tests

Friction Force (N) Stroke (mm) Time (s)

Standard torque, torsion (Nm) Test time (s)
Contact us

To discuss your challenges or find out more about us, please call the relevant number below.
Or email us at makingabigdifference@saint-gobain.com

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