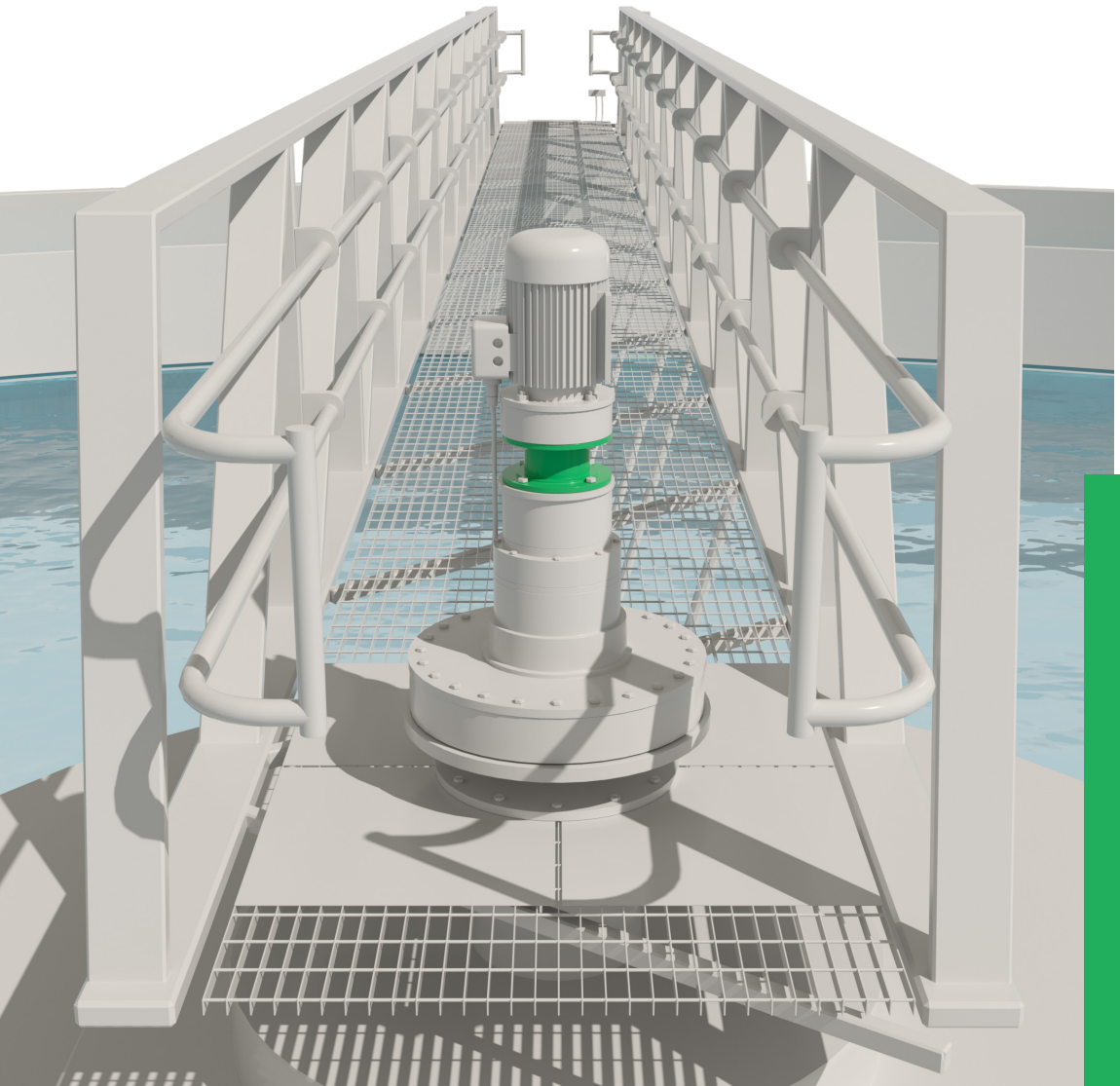
ComInTec®
North America

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PR-V TORQUE LIMITERS

PR-V torque limiters: integrated mechanical protection between motor and gearbox. Every transmission system is exposed to a risk that is often underestimated: instantaneous overload.

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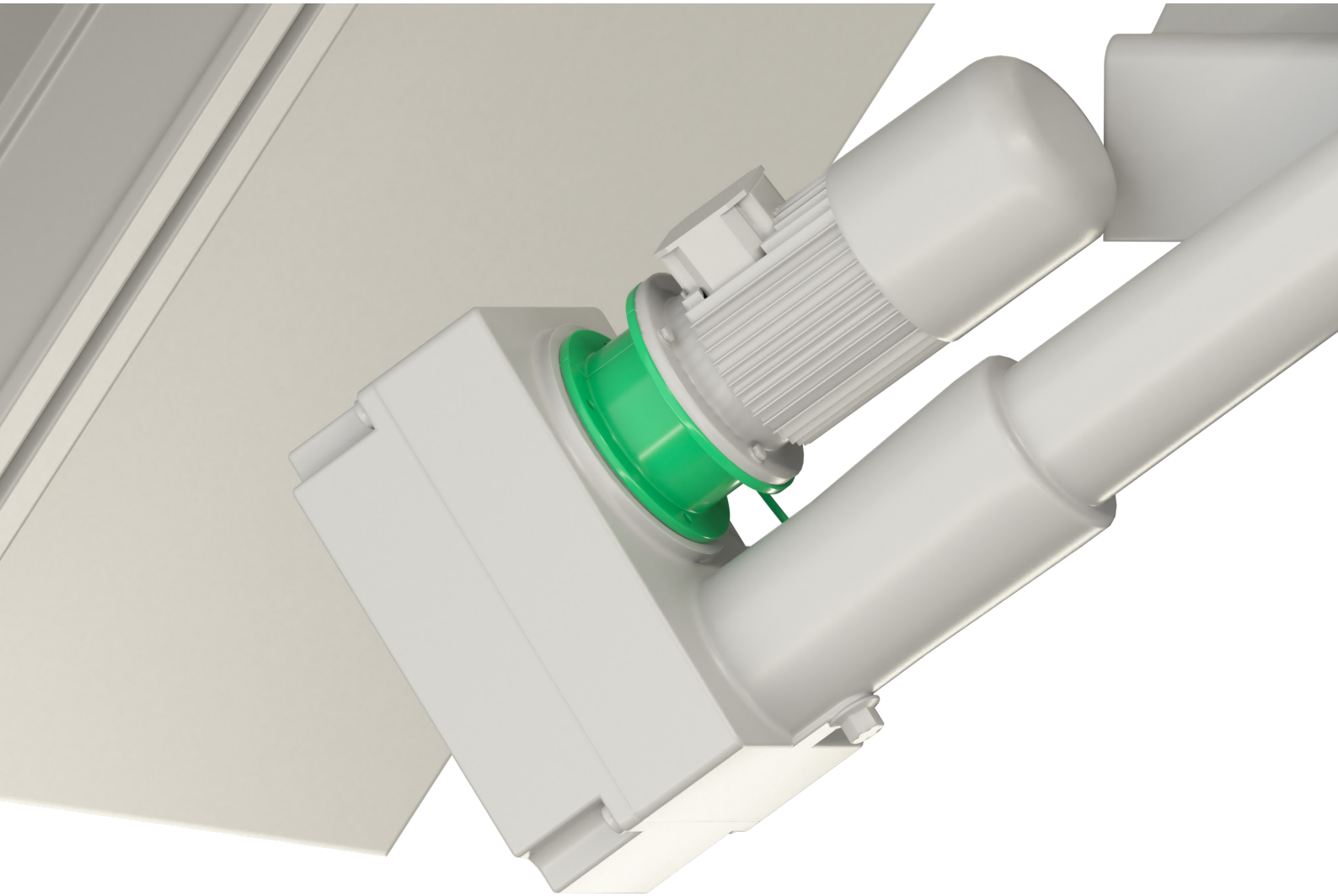
INTEGRATED MECHANICAL PROTECTION BETWEEN MOTOR AND GEARBOX

Every transmission system is exposed to a risk that is often underestimated: **instantaneous overload**.

A sudden impact or blockage can damage **gearboxes, bearings, and drive shafts** in a matter of seconds, with direct consequences for plant downtime, repair costs, and productivity.

When an overload occurs on the driven shaft, the motor receives an increasing torque demand to overcome it. This excess torque, if not controlled, can damage the most expensive and delicate components of the transmission, so **limiting it precisely and instantly** is the only effective way to protect the entire system.

ComInTec's **PR-V torque limiters** are designed precisely for this purpose and represent a purely mechanical, compact solution to be installed directly **between the motor and the gearbox**. The intervention is instantaneous and effective, and they are designed to be integrated as a structural part of the transmission with a **plug-and-play** installation.



HOW THE _/PR-V MODELS WORK

ComInTec's PR-V models are purely mechanical torque limiters that are mounted directly between the **IEC electric motor and the gearbox**, integrating into the transmission axis and becoming an integral part of the system's drive section.

ComInTec offers two technological variants of the PR-V family, each developed to meet different operational needs.

Backlash-free ball solution: DSS/SG/PR-V
This is the high-performance and robust version of the range. The internal ball mechanism transmits motion **without any torsional play** and, when the required torque exceeds the calibrated value, **instantly disengages the motor with load separation** before the excess torque reaches the driven part and damages system components. It is the ideal solution for all those dynamic applications where response times must be very short.

- Re-engagement can be **automatic at 360°** (DSS/F/SG/PR-V model) or **manual** (DSS/SG/RF/PR-V model), depending on system requirements. The latter model complies with the **ATEX Directive** for applications in potentially explosive atmospheres, both in the case of GAS and DUST in zones II 2GD.
- A **non-contact inductive proximity sensor** integrated into the spacer detects the device's intervention in the event of an overload. This signal can be used to stop the system promptly, preventing the overload from spreading and avoiding damage.
- The spacer, made of fully machined steel with a protective galvanizing treatment, guarantees protection from external agents comparable to **IP67**.

Friction solution: DF/TAC/PR-V
This is the simple and compact version, suitable when a **gradual and continuous intervention** is preferred without a clear disconnection between the driving part and the driven part. In the event of an overload, the motor slips without completely interrupting transmission: a useful feature in cases where a sudden disengagement would create problems downstream of the system.

- The intervention is **quiet and vibration-free**. The friction rings are asbestos-free and are also available in special versions for particular environments or loads.
- The aluminum spacer is made in two parts in order to allow **easy recalibration of the internal limiter** after several operations.
- This version can also be equipped with an **integrated inductive proximity sensor**, **with IP67 protection**, to monitor interventions in the event of overload, enable automatic system shutdown, and record the event for subsequent analysis.

FEATURE	DSS/SG/PR-V	DF/TAC/PR-V
Operating principle	Ball type with instantaneous disengagement	Controlled and gradual slippage
Re-engagement	Automatic or manual	Continuous, without interruption of transmission
Strengths	No torsional play, possibility of ATEX compliance	Compactness, quiet operation
IEC B5 motor flanges	Sizes 63–280	Sizes 63–200
Torque range	3–1300 Nm	1–1650 Nm
Proximity sensor	Integrated in the spacer	Available as an option

THE ADVANTAGES OF THE PR-V COMPARED TO OTHER SOLUTIONS

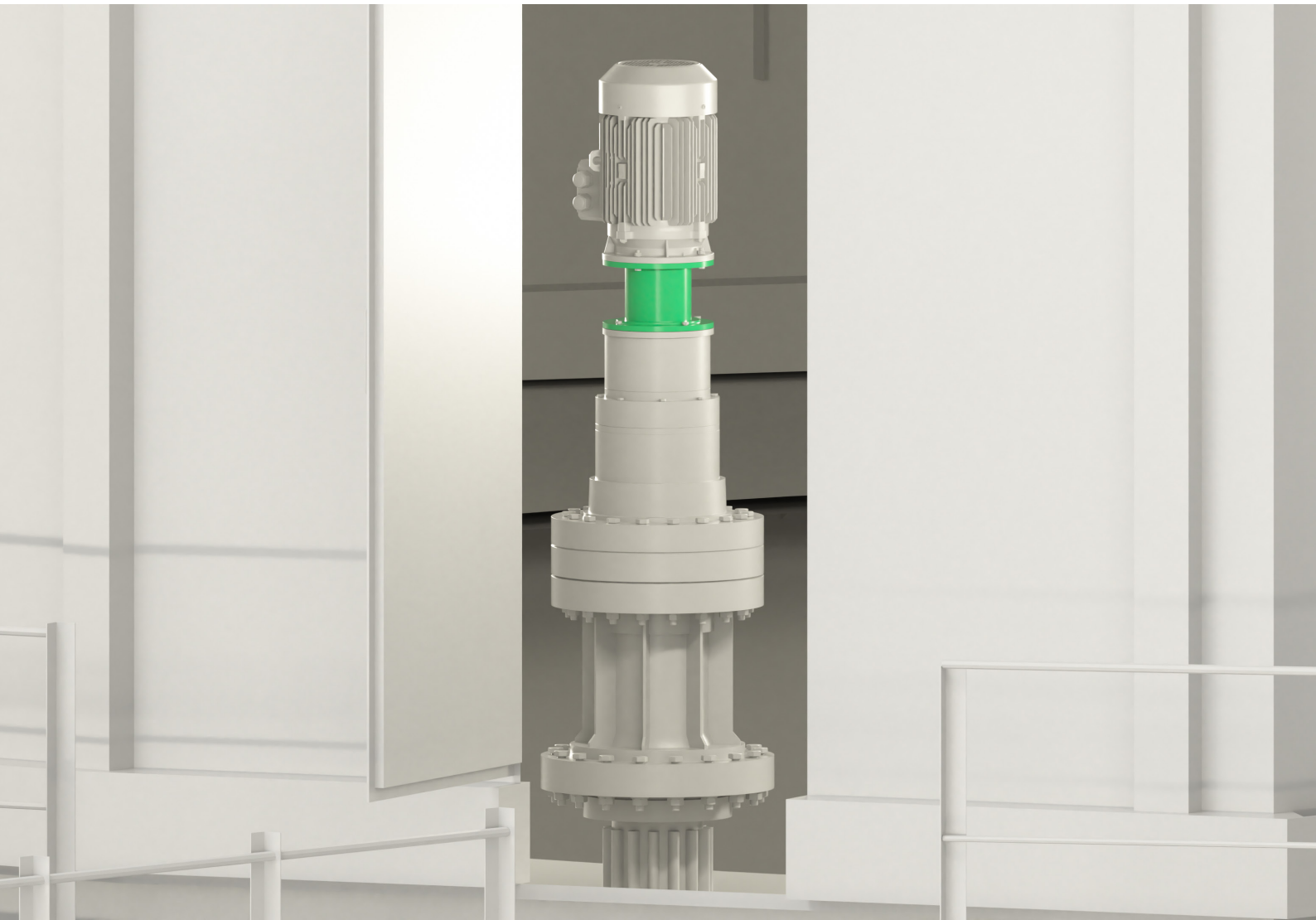
Why choose ComInTec's PR-V instead of a protection system integrated into the gearbox or an electronic current control?

Electronic management systems, often in current control, have the structural limitation of intervening late due to physical feedback in signal management. Even a delay, however minimal, can be sufficient to transmit torque peaks that are harmful to the entire kinematic system.

Protection systems integrated in gearboxes, whether internal or more generally applied to the output shaft, on the other hand, require larger device dimensions to handle high torques, with negative repercussions on overall dimensions, availability, and cost of the system.

The _/PR-V models offered by ComInTec solve both problems:

- They **intervene in a purely mechanical and instantaneous way** when an overload occurs on the driven side, immediately protecting important and expensive mechanical components, the replacement of which would result in long plant downtime, with a consequent loss of productivity.
- **Installed on the motor-gearbox drive shaft**, for the same level of performance they have to handle much lower torques than devices fitted on the gearbox output side. This allows for **more compact dimensions and, consequently, lower costs**.



APPLICATIONS

ComInTec's experience with real applications demonstrates the versatility of the PR-V in very different sectors.

Heavy industry: EXCAVATORS
- **Problem**: High-inertia shocks cause motor failures and damage to the bearings of the planetary gearbox, with long plant downtime.
- **Solution**: The DSS/SG/PR-V, mounted between the motor and the gearbox in the rotation turret, increases the mechanical safety of the movement and boosts the overall efficiency of the system.

Marine engineering: WINCHES
- **Problem**: Risk of breakage of the main drive shaft in the event of unforeseeable stresses.
- **Solution**: The DF/TAC/PR-V, with special surface treatment for the marine environment, introduces controlled slippage in the event of overload, without disengaging the transmission. The solution can also be supplied with ABS certification for naval applications, thanks to collaboration with the relevant body.

Industrial plants: WASTEWATER TREATMENT
- **Problem**: Possible breakage of the rakes on the main drive shaft.
- **Solution**: The DSS/SG/PR-V, mounted between the two reduction stages, protects the main shaft from shocks and excessive accumulation of foreign or dense material, with instantaneous disengagement.

Other typical applications:
In all those contexts where there may be unpredictable torque peaks caused by impacts, jams, or sudden load changes.

- Conveyor belts
- Industrial positioners and orientators
- Movement of motorized arms
- Wastewater treatment plants
- Food and beverage industry
- Packaging machines

MAIN FEATURES AND OPTIONS

ComInTec also designs and supplies the _/PR-V models in versions customized in size and performance for the specific needs of the application.

- Compatible solutions for **IEC 63-280 electric motors with B5 flanges** and, on request, also for **NEMA motors with TC flanges**
- Flanges with different dimensions for mounting between two different reduction stages, if the total reduction ratio is very high
- Version compliant with **ATEX Directive 2014/34/EU** (II 2G Ex h IIB T5 Gb, -15°C ≤ Ta ≤ +80°C) for environments with potentially explosive atmospheres
- Surface anti-corrosion treatment for aggressive environments (marine, chemical, food)
- Integrated, non-contact, **inductive sensor PRX M8 PNP NO** for monitoring operations
- Option of **final factory calibration**, for immediate installation without on-site calibration

FOR MORE INFORMATION

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