

GROWER DETECTO®

LIVE BOLT MONITORING

growermetal.com

KEEP YOUR SAFETY UNDER CONTROL

TECHNOLOGY

Grower Detecto® is a **smart sensorized washer** for bolt monitoring, made of a smart sensor embedded in the washer.

This system allows a live **detection of the bolt loosening** and the **evaluation of the bolt joint connection status** through an Electrical Mechanical Impedance method.

SYSTEM ARCHITECTURE



HOW IT WORKS

Bolted connections are among the most widely used parts in mechanical applications and are usually subjected to tridimensional loading conditions which may cause joint loosening or failures.

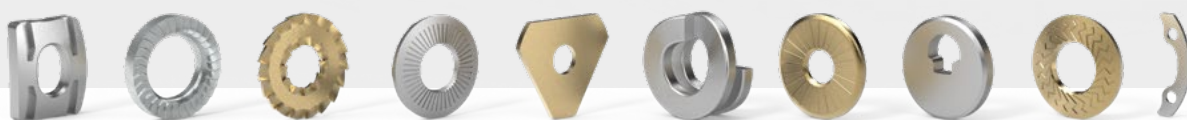
Monitoring and periodic manual inspections are essential to guarantee

safety and correct functioning, however these activities are time consuming with high costs and require the operator to check every single bolt.

Thanks to the integrated sensor technology of Grower Detecto®, the algorithm collects data, processes it and

uses the model learned during the training phase to generate alerts for the users.

The software operates with **AI-generated calculation algorithms** and the system can be customized according to customer's specific needs and applications.



GROWER DETECTO® IS ABLE TO MONITOR*

- Changes in joint condition/preload
- Baseline (state signature)
- Temperature
- Structural assessment

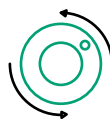
*data acquisition frequency can be adjusted.

DATALOGGER SPECIFICATIONS

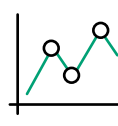
- Each datalogger can be connected to up to 4 Grower Detecto® washers
- Both wireless and wired connection
- Powered by battery or electrical grid
- Upgradeable cybersecurity levels
- Data stored on a physical server or in the cloud
- Ideal for indoor and outdoor applications (min. IP67)
- Real-time communication
- Data acquisition frequency adjustable based on customer requirements



**BOLT PRELOAD
CONTINUOUS
MONITORING**



**BOLT
LOOSENING
DETECTION**



**STATISTICS
AND
PROJECTIONS**



**LOWER
MAINTENANCE
COSTS**

AVAILABLE SIZES

Grower Detecto® washers are compatible with the following bolt sizes:

- M10
- M12
- M14
- M16
- M20
- M24
- M27
- M30
- M36
- M42
- M48
- M52

REAL-TIME MONITORING

Thanks to Grower Detecto® the status of the structure and the bolted joint connections can be easily **checked in real-time and remotely**, eliminating the need for on-site and manual inspection.

SAFETY AND EFFICIENCY

The continuous inspection enables the **identification of loose fasteners**, preventing bolt failures for safe and reliable performance even in presence of loading and vibrations.

TIME AND COST-EFFICIENT

The sensor collects and sends data to the monitoring system for **cost-effective operations**, rapid interventions and minimized maintenance downtime.



APPLICATIONS

Thanks to its strength, ease of use and efficiency, Grower Detecto® technology is indicated in **mechanical and construction engineering** and all the applications where safety is paramount.

