

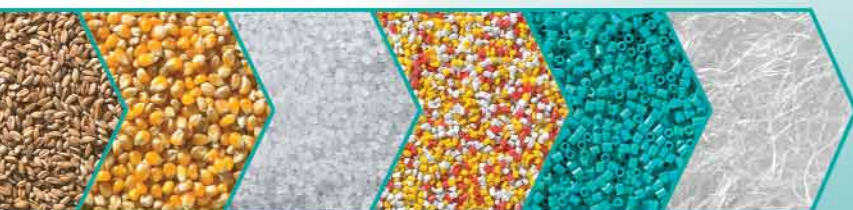
DYNAguard



TRANSPERANCY IN BULK SOLIDS PROCESSES

- Flow monitoring
- Dust measurement
- Level detection

25
Years



DYNA Instruments

Instrumentation for Powder and Bulk Industries

DYNAguard Series

EASY MONITORING OF YOUR BULK SOLIDS PROCESS

- Blockage alarm
- Filter monitoring
- Dust measurement
- Bridging
- Flow monitoring of additives
- Empty hopper alarm
- Leakage monitoring
- Sieve breakage alert
- Sieve overflow alert
- Cyclone monitoring
- Screen monitoring
- Level detection

With the various instruments of the **DYNAguard Series**, there is a solution for almost every task when monitoring of transport processes for bulk solids is needed.

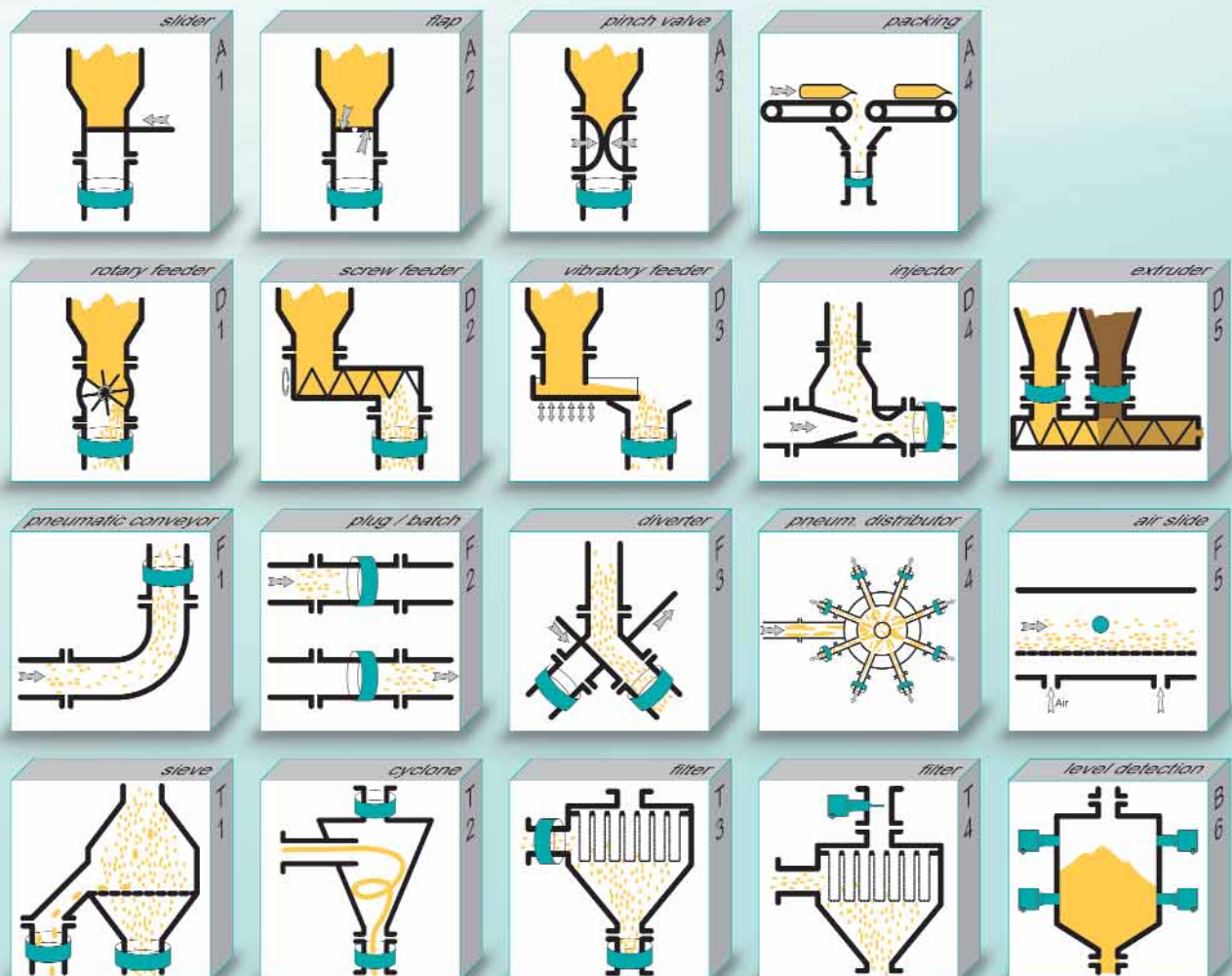
Disturbances in transport systems for powder, granulates, pellets and other bulk solids are detected early and severe subsequent damages can be avoided.

Because of the non-contact measurement, transport processes remain undisturbed. With the use of different measurement principles, the best possible choice for the individual application can be made.

From mass flow rates of several t/h to the lowest concentrations of 0,1 mg/m³, dust or any bulk material is reliably detected. The adjustment of the devices to the process and the setting of the thresholds are made with the self-explanatory control elements in the IP67 electronics housing.

We will also be glad to offer you customized versions and individual solutions.

APPLICATIONS



DYNAguard GM

FILTER LEAK MONITOR / DUST MONITOR

- Electrostatic measurement principle (modified triboelectric principle)
- Adjustable signal damping
- Relay or analog output (4...20 mA)
- ATEX zone 2/20

The dust monitor **DYNAguard GM** is used to detect malfunctions in dedusting plants, which can be caused by damaged or incorrectly installed filtration media.

The used electrostatic measurement principle is based on a modified triboelectric principle. Not only particles which hit the measuring rod are detected, but also those passing by. Deposits on the sensor rod do not influence the measurement, since only moving particles are detected.

Because signal damping is adjustable, short peaks do not cause a false alarm. The signal gain can be adjusted easily according to the individual process.

With the analog output version (in connection with a PLC) it is possible to monitor more than one threshold and to plan filter maintenance by monitoring the cleaning cycles.



DYNAairguard

DUST SENSOR FOR MONITORING THE AMBIENT AIR

- Continuous dust measurement of the ambient air
- Recognise dust formation immediately
- Monitor dust concentration at workplaces
- Monitor production halls
- Prevent dust explosions

The **DYNAairguard** is a measuring instrument for monitoring the concentration of dust in the ambient air. The device is used e.g. in industrial production halls and detects if there are leaks in machines or conveying pipelines and dust escapes.

The use of the **DYNAairguard** effectively protects the health of employees. In the case of explosive dusts, the danger of dust explosions is detected and intervention is possible.



DYNAguard K

FLOW SWITCH FOR SMALL PIPE DIAMETERS

- Flow trend measurement possible
- Easy installation between DIN-/ ANSI flanges up to 40 bar (570 lbs)
- Relay or analog output (4...20 mA)
- EX zone 2/20

The flow switch **DYNAguard K** is used to monitor the flow of bulk solids in pipelines between DN10 to DN100 (0,5" to 4"), in pneumatic conveying systems or in free fall applications. The device covers a very wide range of throughput from a few grams to many tons per hour. With the analog output version (4... 20 mA), several thresholds can be monitored and a flow trend can be output if connected with a PLC.

The instrument has also proven itself in harsh environments e.g. at blast furnaces in steelworks. For very abrasive products a wear protection inlet is available.



DYNAguard S

FLOW SWITCH FOR FLEXIBLE HOSES

- Flow trend measurement possible
- For conductive and non-conductive hoses
- Relay or analog output (4...20 mA)
- ATEX zone 2/20

When granulates, powders, blasting material, dust or other solids are transported in flexible hoses, clogging, an empty hopper or a product-bridge at the bottom of a storage tank can be detected immediately and securely by the **DYNAguard S**.

The hose (outer diameter 4... 45 mm) is either fed through the sensor and fixed (version T), or it is cut and inserted into the hose fittings at the device (version E), or it is pushed on the pipe (version W). For conductive hoses the version E and W can be used.



DYNAguard V

FLOW SWITCH FOR LARGE PIPE DIAMETERS AND SPECIAL PRODUCTS

- Flow trend measurement possible
- Relay or analog output (4...20 mA)
- EX zone 2/20

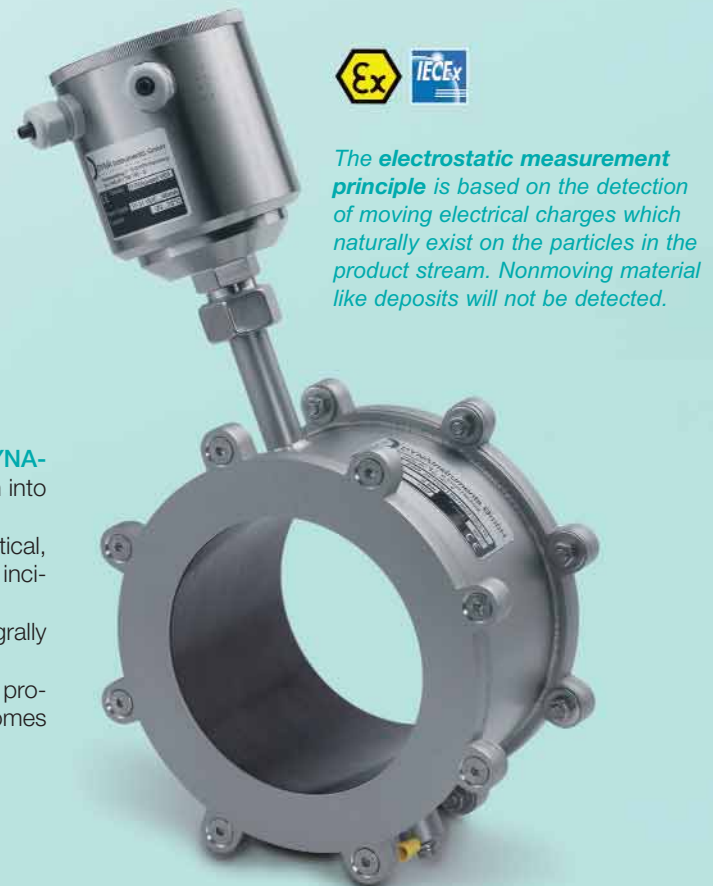
In combination with a number of different process couplings, the **DYNAguard V** is the most variable flow switch and allows an easy integration into the process — also in existing plants.

Solutions for very diverse tasks in various industries from pharmaceutical, chemical via building materials, animal feed and food industry to waste incineration plants have been realized.

The flow switch can monitor high tonnages or a few milligrams, integrally over the whole pipe cross-section.

The measuring system has a modular design. Sensor electronics and process coupling are separate components, which is beneficial when it comes to replacement or expansion.

We will be glad to also offer customized versions.



The electrostatic measurement principle is based on the detection of moving electrical charges which naturally exist on the particles in the product stream. Nonmoving material like deposits will not be detected.

DYNAguard P

FLOW SWITCH WITH SMALL DETECTION AREA

- For pipe diameters up to DN250/10"
- Relay or analog output (4...20 mA)
- ATEX zone 2/20

The flow switch **DYNAguard P** is designed to monitor moving bulk material in pipelines such as in pneumatic conveying systems, free fall applications, chutes, angled pipelines or also as an empty indicator underneath silos and hoppers for a large throughput range from a few g/h to many t/h. The detection area is 15 cm in front of the sensor surface, so that it **also can be used very close to moving components like flaps, rotary valves or slide valves.**

If the pipeline is made of non-conductive material, the device can be installed without opening the pipeline. Because of the special measurement principle also movements of plain sheets, boards or bars can be detected.



DYNAguard M

FLOW SWITCH WITH LARGE DETECTION AREA

- Microwave measurement principle
- Relay output

The flow switch **DYNAguard M** detects moving bulk solids in open and closed conveying systems in which also larger distances to the conveyed material are possible.

Solids which move through the detection area with a minimum velocity of 0,1 m/s are detected independently from the direction of movement.

The **DYNAguard M** is installed at an angle of 45° to 90° of the flow direction. Moving mechanical components like rotary valves, flaps or the like should not be located in the detection area, because they could be interpreted as moving bulk solids. If such a »disturbance source« cannot be blinded out by signal damping or shielding, a **DYNAguard** using the electrostatic measurement principle, e.g. the **DYNAguard P**, will be a solution.

*The measurement principle of the **DYNAguard M** is based on the physical principle of the Doppler effect. The sensor sends out a microwave field which is reflected if solids are moving through the detection area. The sensor evaluates the received microwaves and converts the signal into a switching operation. Nonmoving material like deposits will not be detected.*



DYNAguard L

LEVEL DETECTION OF BULK SOLIDS

- Reliable level detection
- Contactless measurement
- Minimum / maximum detection

The **DYNAguard L** is a microwave barrier with separate transmitter and receiver unit. It is used for level detection of bulk material e.g. in silos, pipelines, chutes, containers, feeding- / receiving vessels and hoppers. Bulk material that is conveyed e.g. into a silo is piling up slowly between transmitter and receiver and attenuates the signal.



This initiates a switching operation which indicates, that a certain level in the hopper is reached. The **DYNAguard L** can also measure through electrical insulators.

Technical Data DYNAguard

	DYNAguard P	DYNAguard M	DYNAguard L	DYNAguard K	DYNAguard V	DYNAguard S	DYNAguard GM	DYNA airguard
measurement principle	electrostatic	microwave	microwave	electrostatic	electrostatic	electrostatic	electrostatic <i>(modified tribo - electric principle)</i>	electrostatic <i>(modified tribo - electric principle)</i>
detection area	app. 150 mm	1 m	max. 25 m	integral	integral	integral	40 - 800 mm <i>(sensor rod length)</i>	ambient air
process temperature	max. +90°C <i>(optional 130°C/ 200°C)</i>	max. +90°C	max. +85°C	max. +90°C	max. +130°C	max. +70°C	max. +90°C/+130°C +200°C/+290°C	max. +50°C
process pressure	6 bar <i>(optional 40 bar)</i>	2 bar <i>(optional 25 bar)</i>	2 bar <i>(optional 25 bar)</i>	40 bar	6 - 40 bar	10 bar	6 bar	—
process connection	G 1 1/2"	G 1 1/2"	G 1 1/2"	DN 10 - DN 100	DN 10 - DN 400	flexible hose ø 4-45 mm	G 1/2" or G 1 1/2"	wall fastening
output	relay transistor analog 4 -20mA	relay	relay	relay transistor analog 4 -20mA	relay transistor analog 4 -20mA	relay transistor analog 4 -20mA	relay transistor analog 4 -20mA	relay analog 4 -20mA
EX zone	zone 2 zone 22 zone 20	—	—	zone 2 zone 22 zone 20	zone 2 zone 22 zone 20	zone 2 zone 22 zone 20	zone 2 zone 22 zone 20	zone 2 zone 22

DYNA Instruments

- Mass flow rate measurement
- Flow monitoring
- Dust monitoring
- Velocity measurement
- Level detection
- Tests with customer products possible
- In-house development & production
- Made in Germany

ISO 9001
BUREAU VERITAS
Certification



INNOVATIVE SOLUTIONS · PROVEN TECHNOLOGY
FOR MORE THAN 25 YEARS



Contact your local DYNA Instruments agent:

DYNA Instruments GmbH
Tempowerkring 7
D-21079 Hamburg, Germany

Telephone: + 49 (0)40 79 01 85-0
Telefax: + 49 (0)40 79 01 85-18

info@dynainstruments.com
www.dynainstruments.com