



PROCESS MONITORING

Belt misalignment monitoring
Bearing temperature monitoring
Speed monitoring
Controllers, indicators & transmitters
Radar & level instruments
Data acquisition & SCADA systems
Explosion vent panels
& flameless vents





SOLID PARTNERS FOR POWDER & BULK HANDLING COMPONENTS

Your service and knowledge
supplier of reliable components
for the bulk handling and
process industry



HIGH QUALITY PROCESS MONITORING SYSTEMS FOR THE AGRICULTURAL AND INDUSTRIAL SECTORS



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Muller Beltex provides high quality safety monitoring systems for the bulk handling and processing industries, in the agricultural as well as mineral handling sector. With its extensive product range and comprehensive know-how Muller Beltex are able to offer the correct solution in your industry for clear and efficient safety monitoring of your installations. This not only enhances safety, but also results in fewer replacements of components and reduced maintenance cost.

Muller Beltex works according to the Total Cost of Ownership (TCO) concept. This unburdens the customer. We take responsibility for our services and products, offering a solution that can be clearly measured in terms of quality, service life and cost. Our full product range comprises:

- Belt misalignment monitoring
- **Bearing temperature monitoring**
- Speed monitoring
- **Controllers, indicators & transmitters**
- Radar & level instruments
- **Data acquisition & SCADA systems**
- Explosion vent panels & flameless vents

The information provided in this brochure may contain inaccuracies or typographical errors. The information in this brochure is changed periodically. Information may be updated or modified at any given moment. For specific questions about the information in this brochure, please contact Muller Beltex.



PREVENTION IS THE BETTER CURE

When bulk materials are processed or conveyed, horizontally or vertically, the equipment harbours a hive of activity. Some of this activity may not be immediately visible, but as operator you do wish to know exactly what goes on in your plant's equipment.

Production facilities need to be aware of the cost level of their operations and may therefore already have safety monitoring devices in place. However this could still mean that a fail-safe, up-to-date process monitoring system is lacking. In the event of a mishap people and the environment could be harmed, resulting in an increase rather than reduction in cost when replacement of vital and expensive equipment is required.

Fail-safe process monitoring equipment can prevent incidents. The European ATEX Regulations are often

not required outside the E.U., but may well be recommended. Prevention is indeed always the better cure.

With our many years of knowledge and experience with ATEX applications in production processes, we can help you avoid problems and incidents and thus reduce the need to replace components.

We offer you complete advice with a clear (problem) analysis, the right design and solution, proper installation and long term planning for maintenance.

PROCESS MONITORING SYSTEMS FOR THE IMPROVEMENT OF YOUR PRODUCTION PROCESS



Aftermath of a dust explosion and resulting fire
in the bulk and process industry

Process monitoring systems provide valuable insight into the question which factors contribute to the continuity and safety of your equipment and of the environment.

The advantages

- Protection of various processes
- The visual mapping of the infrastructure
- Prevention of the failure and shutdown of running processes
- Reduction of wear to various mechanical components
- Reduction of production losses
- Prevention of dangerous situations resulting in dust or gas explosions (ATEX)

For new or existing installations, Muller Beltex will be happy to advise you on finding the right solution for your situation. Because areas with a potential risk of explosion are subject to ATEX directives, it is important that you have up-to-date knowledge of these directives and the required maintenance.

ENSURE THE CONTINUITY OF YOUR INSTALLATION

ANALYSING THE PRODUCTION PROCESS

This display shows the areas of application for some of our monitoring systems covered by ATEX directives or otherwise. Gain valuable insight and improve the quality of your production process with less wear, fewer stoppages, fewer production losses and/or prevention of dangerous situations.



APPLICATIONS

PROCESS MONITORING SYSTEMS

- 1. Belt misalignment monitoring
- 2. Bearing temperature monitoring
- 3. Speed monitoring
- 4. Radar & level instruments
- 5. Data Acquisition & SCADA systems
- 6. Explosion vent panels & flameless vents

Can't find your application? Contact us for advice. Our team will be glad to put its knowledge and experience at your disposal.

INSIGHTFUL
MONITORING
AND PROTECTION
OF THE
INSTALLATION
AND ENVIRONMENT



THE QUALITY AND SAFETY OF PEOPLE AND THE ENVIRONMENT ARE KEY

Since 1 July 2003, the ATEX directive has been compulsory for all electrical and mechanical equipment used in potentially explosive environments. Since this date, products without ATEX certification have been banned on the European market and cannot bear the new CE mark. This directive applies to all places with a potential risk of explosion, including the bulk and process industry. Besides dust explosion risk, the directive also covers gas explosion risk.

Dust explosion

Dust explosions occur in all industrial sectors where flammable powders are processed. Some companies take insufficient or no preventive measures and only act after an incident has occurred. The safety of employees is becoming increasingly important, as is protection. It is therefore of vital importance to critically monitor for explosion safety.



With explosion safety, the emphasis lies on preventing an explosion, for example by process inerting so that no explosive mixtures are created. Then there are infrared techniques and early dust detection by means of a dust concentration or carbon monoxide monitor.





SAFETY OF
PEOPLE AND
THE ENVIRONMENT
IS KEY

Explosion control focuses on bringing a starting explosion under control as quickly as possible. This includes explosion isolation, relief and suppression. With isolation, valves and shut-off devices are used to prevent the explosion spreading and causing further damage to the installation. Explosion relief uses explosion vents, explosion panels and explosion plates to bring the explosion pressure outside to a safer area. With explosion suppression, a gas is injected into the process aimed at stopping the explosion.

A combination of factors

A dust explosion takes place when a number of factors coincide in a certain way.

- An explosive mixture of dust and air
- An actual source of ignition
- Sufficient sealing for pressure build-up to occur

THE PROTECTION OF AN ELEVATOR

Preventive measures

Prevention is the better cure. Taking preventive measures is therefore the primary concern. These measures focus on preventing the creation of an explosive mixture by eliminating as many of the elements in the fire triangle as possible. The formation of a potentially dangerous powder/air mixture can be combated with the measures mentioned hereafter:

- Mechanical conditioning of the whole installation
- Earthing the installations
- Good cleaning of the factory
- The removal of foreign objects in the installation
- Dustproof construction of equipment
- The installation of (ATEX) explosion safety systems



COMPONENTS FOR THE PROTECTION OF AN ELEVATOR

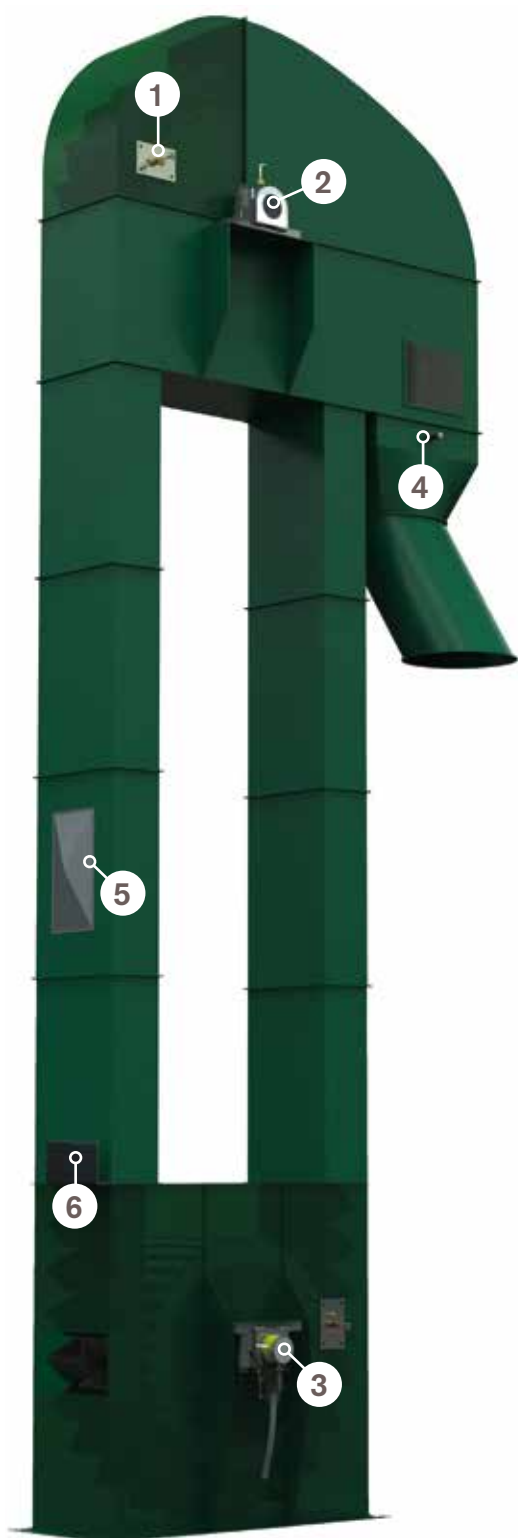
1. Rub-Block belt misalignment monitoring
2. Bearing temperature monitoring PT100
3. Speed monitoring
4. Product level sensor
5. Explosion panel
6. Junction box

Curative measures

If all preventive measures have been taken and there is still an explosion risk, curative measures must be taken. These are aimed at providing protection from the consequences of an explosion. Examples are shown hereafter:

- Explosion-proof construction
- Explosion pressure relief
- Compartmentalisation
- Explosion suppression

KNOWLEDGE
OF AND
EXPERIENCE
WITH RELIABLE
ATEX
SOLUTIONS



THE MONITORING OF PREVENTIVE MEASURES IS ESSENTIAL

The elevator is the most commonly used solution for vertical bulk transport. Statistically, the elevator is also one of the most hazardous piece of equipment because of real explosion risk. Statistics show 30-40 percent of dust explosions involve elevators.

Preventive measures such as belt slip and misalignment protection and their monitoring are crucial. An explosion caused by a misaligned belt whereby the protection was switched off at an earlier stage - because of the many interruptions it caused in the production process - is not uncommon. Users maintain that the alarm is not working properly or they find it an irritation during production. The reality is, however, that the system works perfectly, but the machinery is faulty.

Good instructions, assembly and correct maintenance are therefore essential. The combination of a fast-moving belt and a dusty product means that there is nearly always an explosive mixture present in an elevator. Measures for avoiding sources of ignition are usually not adequate and additional curative safety measures are necessary.



BELT MISALIGNMENT MONITORING

An elevator or belt conveyor offers a real risk of explosion accounting for 30 to 40% of all dust explosions. Research has shown that these can be prevented and damage can be effectively limited with various kinds of belt misalignment sensors for horizontal and vertical conveying, such as the Rub-Block.

BEARING TEMPERATURE MONITORING

60% of premature bearing failures are caused by material fatigue due to continually fluctuating loads on the bearing surface and the use of incorrect lubricants. Bearing temperature sensors can detect damage in good time, thus preventing undesired failure and the risk of a possible dust explosion.

SPEED MONITORING

We offer various speed monitoring systems to detect belt slip at an early stage. These devices monitor applications and report underspeed and overspeed. Belt slip usually occurs because a belt is insufficiently tensioned due to overloading or stretching. In most cases, slip results in belt misalignment, which in turn causes friction and the risk of a possible dust explosion as a consequence.

HIGH QUALITY PROCESS MONITORING SYSTEMS IN STOCK

Proper monitoring of production equipment is essential to reduce maintenance cost. The process monitoring systems supplied by Muller Beltex monitor the entire production process and guarantee problem-free bulk handling and optimal operating reliability. Our services aim to respond to market demand. Our stockholding strategy allows us to supply quickly anywhere in the world, while our experience in the field of logistics ensures that export, including documentation and handling, is always properly organised.

DOWNLOAD THE
TECHNICAL DATA SHEETS
FOR THESE
COMPONENTS AT
WWW.MULLERBELTEX.COM



CONTROLLERS, INDICATORS AND TRANSMITTERS

Muller Beltex can advise on selecting the right controllers, indicators and transmitters for various process monitoring sensors. For a PT100 sensor, for example, end or DIN rail transmitters are used. This transmitter converts the analogue signal into a 4-20mA signal.

RADAR & LEVEL INSTRUMENTS

Radar and level sensors are generally used to determine the level measurement of bulk goods in a cost-effective manner. The result is a continuous, reliable flow of measurement data of the level of bulk material in silos and small containers.

DATA ACQUISITION AND SCADA SYSTEMS

SCADA is the collection, forwarding, processing and visualising of measurement and control signals from different machines in large industrial systems. A SCADA system simplifies the exchange of measurement data, their visualisation for the operator and data processing or alarms. We provide a range of solutions.

EXPLOSION VENT PANELS & FLAMELESS VENTS

Explosion vent panels are the most natural variant of curative explosion safety. The overpressure is relieved to prevent damage to the volume to be protected from the pressure wave. Several options are available, depending on the situation.

MULLER BELTEX OFFERS MORE

Muller Beltex's full product and knowledge portfolio includes a comprehensive package of high-quality components for the bulk and process industry. We can supplement our high-quality (ATEX) process monitoring systems to form a total solution, to get bulk handling and processing equipment running optimally. Complementary products from Muller Beltex:

- components for elevators
- abrasion-resistant polyurethane liners
- conveyor belts and components
- parts for sifters and screens
- engineering, advice and supervision



A CUSTOMISED
SOLUTION FOR
EVERY
APPLICATION

ENGINEERING, ADVICE AND SUPERVISION

In addition to a comprehensive range of high-quality process monitoring systems, we also offer engineering, advice and supervision services. By involving Muller Beltex at an early stage in a consultancy role, we can offer you the right solution based on our broad experience and know-how.



FOR TECHNICAL DATASHEETS,
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MULLER BELTEX
VISION,
EXPERTISE
& QUALITY



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