VIGIL**EX**®

SAFETY PROTECTION *By* **STIF**

HAZARD MONITORING SYSTEM
&
SAFETY EQUIPMENT

STIF

components for your success

A Modern and dynamic safety monitoring system

Using our considerable expertise within the storage and bulk handling industry we have designed a complete system to ensure the safety and protection of your equipment and personnel.

Innovation is a keyword in our design policy ensuring safety in your elevators and conveyors.

Within this brochure you will discover a complete modern system dedicated to protect your bulk handling machinery at all times.

The system can be accurately set to monitor, manage and analyse all defects, facts and report on productivity of your machines.

This information can be accessed day or night across the globe directly to your laptop, tablet or mobile phone.

We offer a complete range of hazard monitoring and safety equipment to handle a plant of up to 120 conveyors giving our customers the most economical of solutions available on the market.

SUM*MARY*

JET SYSTEM® Control and configuration system

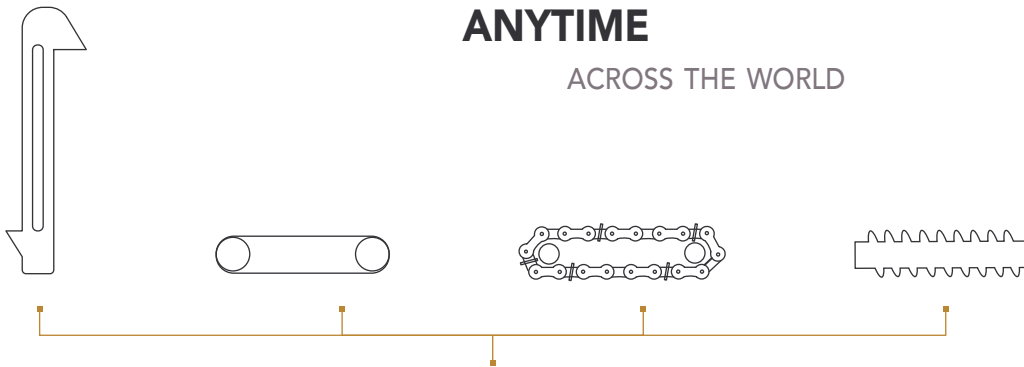## The world's most advanced hazard monitoring system

Be connected with your conveyors

ANYWHERE & ANYTIME

ACROSS THE WORLD

PLC — JET SYSTEM® — CLOUD

JET SYSTEM

The smart way to manage your safety system

This configuration of the system gives complete control and feedback of your conveyors and elevators avoiding all associated hazards associated with under speed, misalignment, level & choke control, bearing and motor temperature which are the main ignition sources in explosion risks. By notifying you directly on defects and performance via your laptop, tablet or mobile phone you can effectively manage your plant anywhere on the globe ensuring your operation remains efficient with reduced downtime.

JET SYSTEM® CONTROL AND CONFIGURATION SYSTEM

Capabilities with the JET SYSTEM and an Internet or LAN connected computer:

- Remote monitoring up to **120 conveyors** from the same display unit
- Unified viewing of data in real time
- Graphic display of historical data
- Alarm notification by sending email
- Viewing of alarms
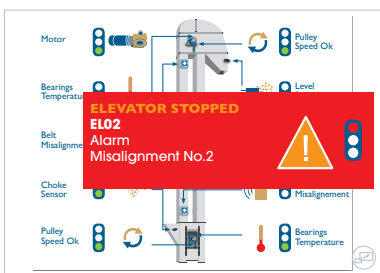- Support tools to manage preventive maintenance

Access to graphics

jetmonitoringsystem.com
is available on all your mobile devices

Run time

Temperatures

Number of alarms

Ratio of alarms by type

HISTORIC DATA ANALYSIS:

Only by computer, directly with laptop or by Network LAN

- History of defects: JET SYSTEM can save 10 000 events.
- History of setting modification: Save the **10 000 last setting modifications**.
- History of daily running time of the equipment:
  - JET SYSTEM saves production time during the last 4 000 days of use.
  - JET SYSTEM records temperatures 24 times per day during the last 365 days of use.
- All the history can be download in csv format.
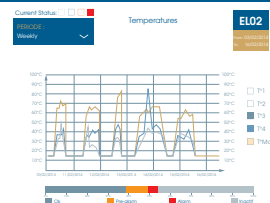
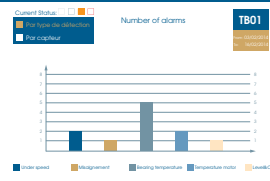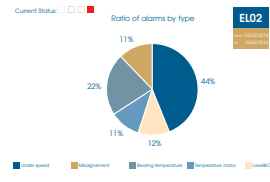# The hazard monitoring devices are able to monitor bucket elevators, belt conveyors, chain conveyors and screw conveyors.

Our hazard monitoring system analyses the data sent by the sensors installed on equipment and save the eventual defects events. According to the setting, the **M-JET+** or the **M-JET** sends alarms and commands the stopping of the conveyor.

M-JET+ or M-JET monitors the following :

- Under speed due to belt slip on the pulley. To check comparing with the nominal speed.
- Bearing temperature using sensor **PT100** or **NTC**.
- Belt misalignment using sensors with or without contact.
- Material jam in conveyor entry or exit using capacitive sensor.
- Chain elongation measured by inductive sensor and targets.
- Motor power measurement with specific electrical consumption.
- Shaft position measured by sensor 4-20mA.

The operating control of the system is realized by output relays :

- Directly on the power relay of the motor.
- By the global PLC of the facilities.

Verifying the conveyor operation can be achieved by :

- On computer screen by internal website (directly with laptop or by Network LAN).
- By message on the email box (events and maintenance operation plan).

Hazard monitoring device with display : M-JET⁺®

DESIGN FEATURES :

- Strong casing.
- **Dashboard with LED indicator.**
- **Running status indicator near the conveyor (and sound alarm).**
- Dustproof and waterproof casing.
- Work stand by the conveyor.

SENSORS SUPERVISED BY THE **M-JET+** :

- 2 belt speed sensors.
- 2 chain elongation sensors.
- 4 belt alignment sensors.
- 2 follower shaft position sensors.
- 2 choke and level sensors.
- 5 bearing temperature sensors.
- 3 analogic sensor.

ELECTRICAL SUPPLY :

- 24 V DC 350 mA.
- Option: 110-230V AC 150 mA.

STANDARDS

EN 61326 -1 CEM Electromagnetic compatibility.
EN 61010 -1 Safety electric device.
Stainless steel box for ATEX zone European regulation 2014/34UE.

Hazard monitoring device without display : M-JET®

DESIGN FEATURES :

- Strong casing.
- Dustproof and waterproof casing.
- Remote management use.

SENSORS SUPERVISED BY THE **M-JET** :

- 2 belt speed sensors.
- 2 choke and level sensors.
- 2 follower shaft position sensors.
- 5 bearing temperature sensors.
- 2 chain elongation sensors.
- 3 analogic sensor
- 4 belt alignment sensors.

ELECTRICAL SUPPLY :

- 24 V DC 350 mA.
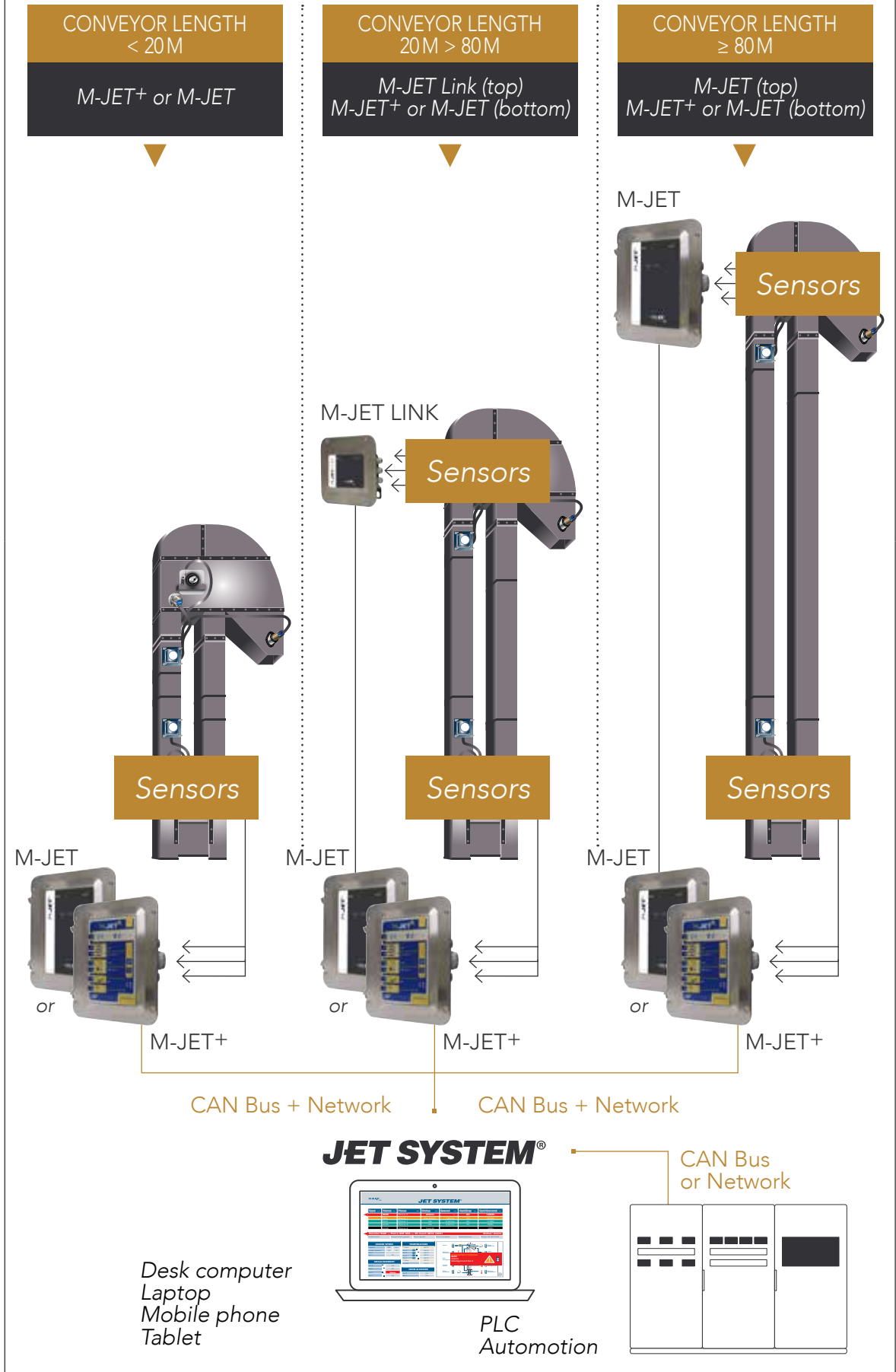- Option: 110-230V AC 150 mA.

STANDARDS

EN 61326 -1 CEM Electromagnetic compatibility.
EN 61010 -1 Safety electric device.
Stainless steel box for ATEX zone European regulation 2014/34UE.

M-JETLINK®

- Help to connect sensors on Master **M-JET+** or **M-JET** for only one conveyor, by extension wire (multicables).
- Connection box to add for conveyor length between 20 meters and 80 meters

CONNECTION DEVICES CONFIGURATION

CONVEYOR LENGTH < 20 M	CONVEYOR LENGTH 20 M > 80 M	CONVEYOR LENGTH ≥ 80 M
M-JET+ or M-JET	M-JET Link (top) M-JET+ or M-JET (bottom)	M-JET (top) M-JET+ or M-JET (bottom)

M-JET

Sensors

M-JET LINK

Sensors

Sensors

Sensors

Sensors

M-JET

or

M-JET+

M-JET

or

M-JET+

M-JET

or

M-JET+

CAN Bus + Network   CAN Bus + Network

JET SYSTEM®

CAN Bus
or Network

Desk computer
Laptop
Mobile phone
Tablet

PLC
Automotion

Selection **guide** :

M-JET LINK
Connection box

5
4
1
3
2
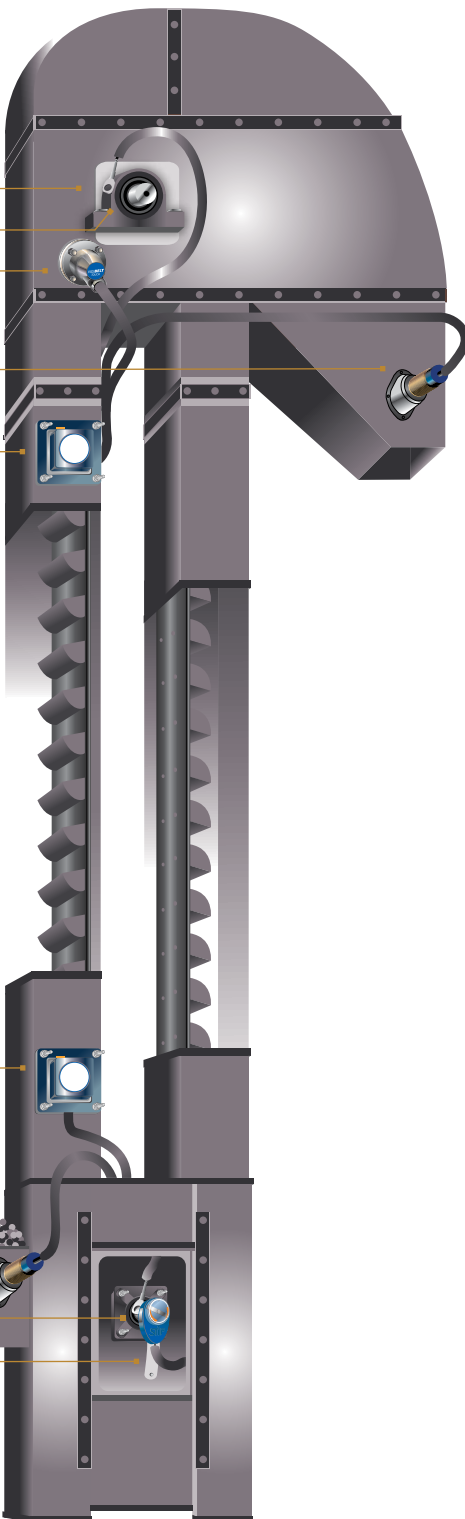
*Hazard
monitoring*

M-JET

M-JET⁺

2

3
5
4

M-JET   *or*   **M-JET⁺**
*Hazard
monitoring
without display*

*Hazard
monitoring
with display*

MISALIGNMENT   p.10

1 **Vigibelt Touch**
Belt alignment detector by contact

or

2 **Vigibelt CDM 80 C**   p.11
*Belt alignment detector
without contact*

LEVEL & CHOKE   p.13

3 **Vigimat DNC 30**
Level & choke sensor

UNDER SPEED   p.14

4 **Vigiro IP26**
Rotation under speed switch

TEMPERATURE   p.18

5 **Vigitherm GST 100**
Bearing temperature sensor

VIGI**BELT** *TOUCH*®

Belt alignment detector : ⟨Ex⟩ATEX (II 2 D) IP67 T80°C

DETECTION

Integrated inductive detector
Activated by physical belt contact with the sensor

INSTALLATION

- Installed outside the elevator leg
  per PAIR (Supplied with gasket and bolts)
- Casing opening of ø55 mm on the rising leg
- Bolt center to center : 51x51 mm
- Bolt ø : M6

STANDARDS

Eligible for the standard *2014/34/UE*
EN/IEC 60079-0
EN/IEC 60079-31
EN 60947-5-2 + A1
IP6X-IEC 60529

The **VIGIBELT TOUCH** devices can be connected directly to a central control area or to the hazard monitor **M-JET⁺**

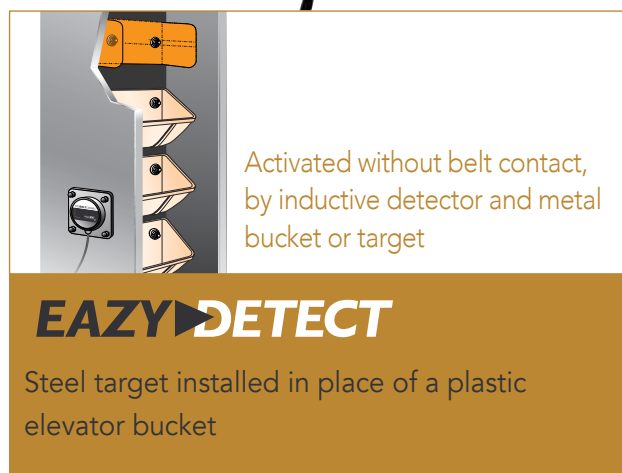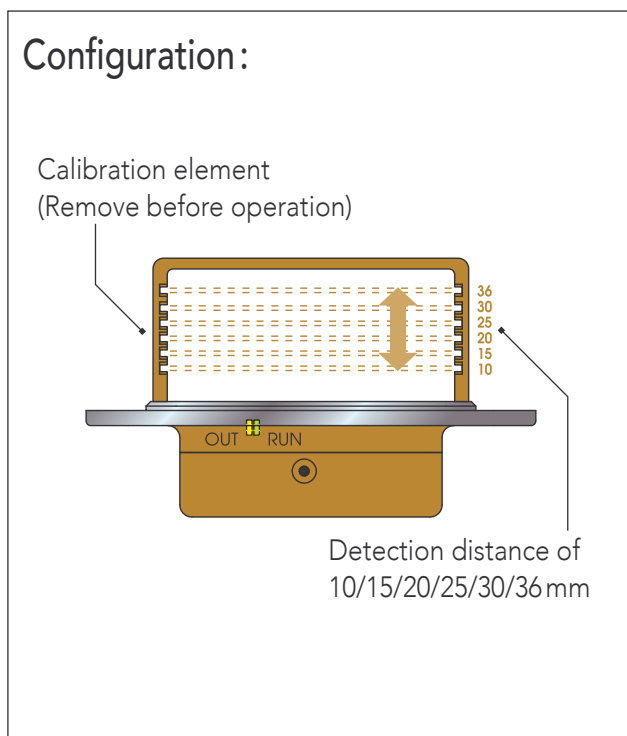| VIGIBELT TOUCH	Voltage	Connection	Non Atex	⟨Ex⟩ Atex 21
	10-36 V DC	Cable *		55 KVT 72616 TE
	20-264 V AC/DC	Cable *	55 KVT 95042 ME	

*Cable 2m - 21 : 10m

VIGI**BELT**CDM80C®

Belt alignment detector : Ⓔx ATEX (II 2 D) IP67 T 80°C

DETECTION

- Detection distance of:
  15 / 20 / 25 / 30 / 36 mm

- On request, detection distance
  can be preset at factory

INSTALLATION

- INSTALLED OUTSIDE THE ELEVATOR LEG
  PER PAIR (Supplied with gasket and bolts)

- SQUARE OPENING OF 110 mm
  ON THE RISING LEG

Configuration :

Calibration element
(Remove before operation)

36
30
25
20
15
10

OUT RUN

Detection distance of
10/15/20/25/30/36 mm

Activated without belt contact,
by inductive detector and metal
bucket or target

EAZY▶DETECT

Steel target installed in place of a plastic
elevator bucket

STANDARDS

Eligible for the standard *2014/34/UE*
EN/IEC 60079-0 / EN/IEC 60079-31
EN 60947-5-2 + A1 / IP6X-IEC 60529

The **VIGIBELT CDS 80 C** devices can be connected directly to
a central control area or to the hazard monitor **M-JET⁺**

VIGIBELT TOUCH	Voltage	Connection	Non Atex ⌧	Ⓔx Atex 21
	10-36 V DC	Cable *	55 KDM 98012 TE	55 KDM 78015 TE
	20-264 V AC/DC	Cable *	55 KDM 98032 TE	

*Cable ⌧ 2m - Ⓔx 21: 10m

VIGI**BELT** CDS 80 C®

Belt alignment detector : Ex ATEX (II 2 D) IP67 T80°C

DETECTION

Integrated inductive detector
Detection distance of : 15/20/25/30/36mm
On request, detection distance can be preset at factory

INSTALLATION

- Installed outside the elevator leg
  per PAIR (Supplied with gasket and bolts)
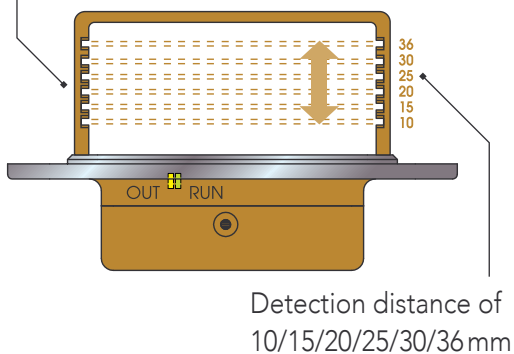- Square opening of ø110 mm on the rising leg

Activated without belt contact, by inductive detector and metal bucket or target

EAZY ▶ DETECT

Steel target installed in place of a plastic elevator bucket

Configuration :

Calibration element
(Remove before operation)

```
36
30
25
20
15
10
```

OUT   RUN

Detection distance of
10/15/20/25/30/36 mm

STANDARDS

Eligible for the standard *2014/34/UE*
EN/IEC 60079-0
EN/IEC 60079-31
EN 60947-5-2 + A1
IP6X-IEC 60529

The **VIGIBELT CDS C** devices can be connected directly to a central control area or to the hazard monitor **M-JET⁺**

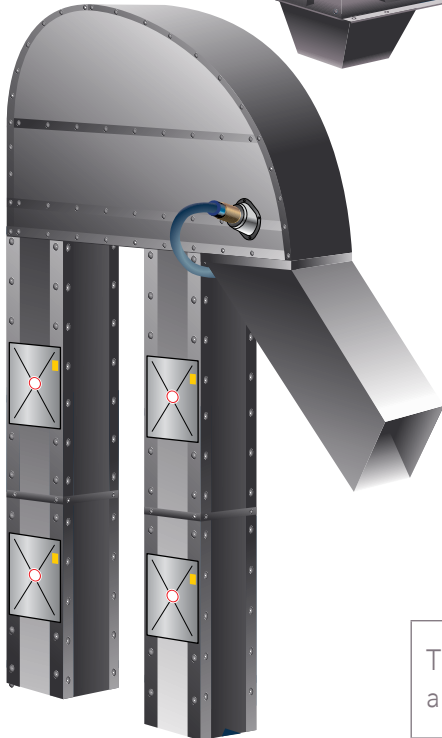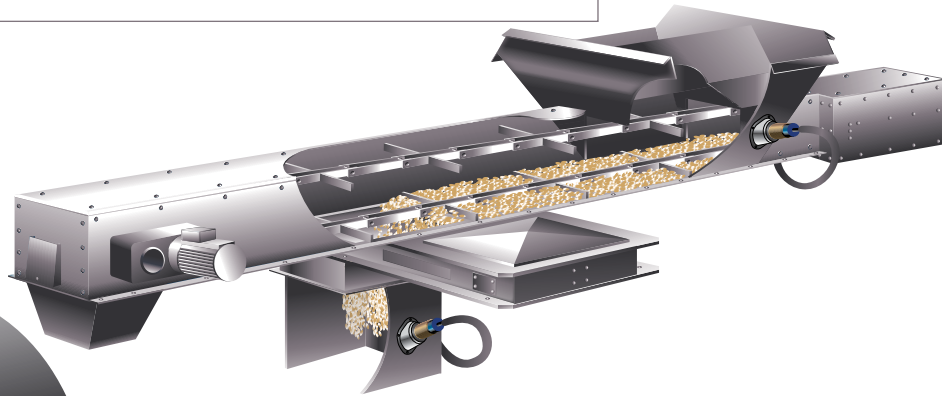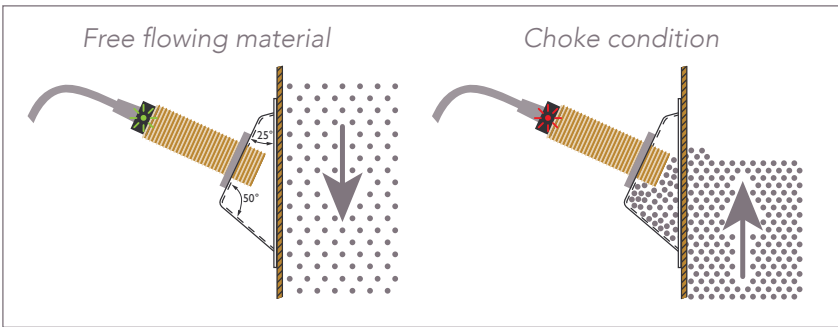| VIGIBELT CDS 80 C	Voltage	Connection	Non Atex	Ex Atex 21
	10 - 36 V DC	Cable *	55 KDS 980100	55 KDS 780100
	20 - 264 V AC/DC	Cable *	55 KDS 980110	

* Cable : 2m - Ex 21 : 10m

VIGI**MAT** *DNC 30*®

Level & choke detector: ⟨Ex⟩ ATEX IP67 T 101°C

APPLICATION

- Level indicator
- Jam capacitive detector

Free flowing material	Choke condition

Mounting support :

The **VIGIMAT DNC 30** devices can be connected directly to a central control area or to the hazard monitor **M-JET+**

DNC 30	Voltage	Connection	Non Atex ⊠	⟨Ex⟩ Atex 22	⟨Ex⟩ Atex 21
	10-30 V DC	Cable *	55 DNC 9301 ATS	55 DNC 8300 CIS	55 DNC 7300 RS
	10-250 V AC/DC	Cable *	55 DNC 9300 BIS	55 DNC 8300 DIS	

* Cable ⊠ 2m - ⟨Ex⟩ 21: 10m

LEVEL & CHOKE *DETECTOR*

Non contractual document   13

VIGIRO IP26®

Rotation speed sensor : ⟨Ex⟩ATEX (II2D) IP67 T 80°C

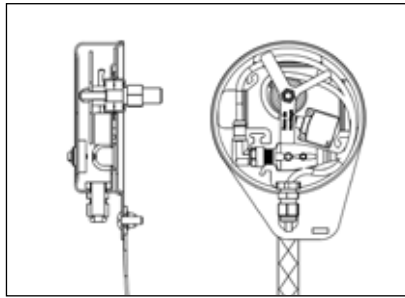### DETECTION
INTEGRATED INDUCTIVE DETECTOR
- Vmax : 500 rpm

QUICK FITTING TO SHAFT
- M12 mounting bolt
- Anti-rotation flexible strap

STANDARDS

Eligible for the standard *2014/34/UE*
EN/IEC 60079-0
EN/IEC 60079-31
EN 60947-5-2 + A1
IP6X-IEC 60529

EAZY▶◀FIX M12 (55 CRAI 44012)
Magnet adapter (to avoid tapping)

The **VIGIRO IP 26** devices can be connected directly to a central control area or to the hazard monitor **M-JET⁺**

VIGIRO IP26	Voltage	Connection	Non Atex	⟨Ex⟩ Atex 21
	10-36 V DC	Cable *	55 CRMI 91250 TE	55 CRMI 71252 TE
	20-264 V AC/DC	Cable *	55 CRMI 91253 TE	

* Cable 2m - 21: 10m

VIGIRO IP 26®

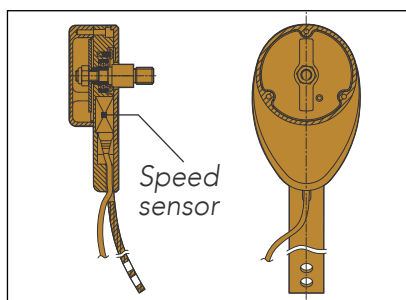## Rotation speed sensor : IP67 T 80°C

DETECTION

INTEGRATED INDUCTIVE DETECTOR

- Fmax : 500 rpm

QUICK FITTING TO SHAFT

- M12 mounting bolt (M10 optional)
- Anti-rotation flexible strap

Speed sensor

STANDARDS

Eligible for the standard *2014/34/UE*
EN/IEC 60079-0
EN/IEC 60079-31
EN 60947-5-2 + A1
IP6X-IEC 60529

EAZY FIX M12 (55 CRAI 44012)
Magnet adapter (to avoid tapping)

The **VIGIRO IP 26** devices can be connected directly to a central control area or to the hazard monitor **M-JET+**

VIGIRO IP26	Voltage	Connection	Non Atex	Atex 21
	10-36 V DC	Cable *	55 CRCI 91250 T	55 CRCI 71251 T
	20-264 V AC/DC	Cable *	55 CRCI 91253 T	
	* Cable 2m - 21 : 10m			

VI**GIRO** SV 26® *Not usable with M-JET+ Hazard monitor*

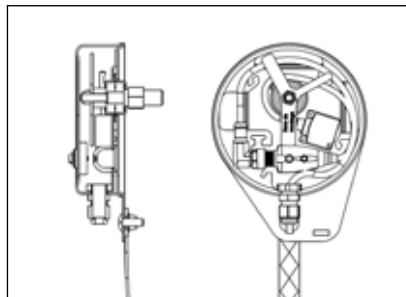## Rotation speed sensor : ⟨Ex⟩ ATEX (II2D) IP67 T 80°C

DETECTION

INTEGRATED INDUCTIVE DETECTOR

- 6 to 6000 pulses/min
- Vmax : 500 rpm
- Preset under speed setting -33/-20/-11/-6 %

QUICK FITTING TO SHAFT

- M12 mounting bolt
- Anti-rotation flexible strap

EAZY ▷◁ FIX M12 (55 CRAI 44012)

Magnet adapter (to avoid tapping)

STANDARDS

Eligible for the standard *2014/34/UE*
EN/IEC 60079-0
EN/IEC 60079-31
IP6X-IEC 60529

Autonomous operation, external monitor not required ; intuitive and easy set up.

VIGIRO SV26	Voltage	Connection	Non Atex ⟨Ex⟩	⟨Ex⟩ Atex 21
	10-36 V DC	Cable *	55 CRMV 91203 TE	55 CRMV 71204 TE
	20-264 V AC/DC	Cable *	55 CRMV 91205 TE	

* Cable ⟨Ex⟩ 2m - ⟨Ex⟩ 21 : 10m

VI**GIRO** SV 26® *Not usable with M-JET+ Hazard monitor*

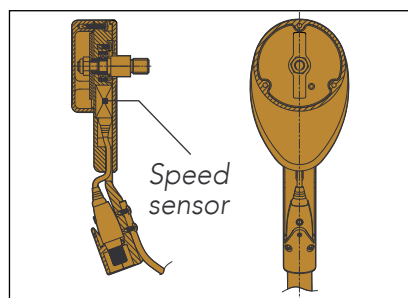# Rotation under speed switch: ⟨Ex⟩ATEX IP67 T 80°C

DETECTION

INTEGRATED INDUCTIVE DETECTOR

- 6 to 6000 pulses per minute
- Fmax : 500 rpm
- Preset under speed setting -33/-20/-11/-6 %

QUICK FITTING TO SHAFT

- M12 mounting bolt (M10 optional)
- Anti-rotation flexible strap

Speed sensor

STANDARDS

Directive ATEX 94/9/EC
EN 50014
EN 50281-1-1
IEC 61241-0
IEC 61241-1
ISO 13849-1

EAZY FIX M12 (55 CRAI 44012)
Magnet adapter (to avoid tapping)

Autonomous operation, external monitor not required;
intuitive and easy set up.

VIGIRO SV26	Voltage	Connection	Non Atex ⟨Ex⟩̸	⟨Ex⟩ Atex 21
	10-36 V DC	M12		55 CRSV 71200 T
	20-264 V AC/DC	1/2″	55 CRSV 91201 T	

*Cable ⟨Ex⟩̸ 2m - ⟨Ex⟩ 21: 10m

VIGI**THERM** GST 100® LG

Bearing temperature sensor : ⟨Ex⟩ATEX

GST 100 LG

BEARING TEMPERATURE SENSOR
PT 100 CLASS B

- Rated for ATEX Zone 21, Dust
- Requires connection through an intrinsic safety barrier for use in ATEX zones
- PT100 sensors require connection to an appropriate signal conditioning device
- ¼ inch grease fitting adapter
- Teflon coated and braided cable, 10 M
- Operating temperature : +250°C

STANDARDS

Approval type *INERIS 03 ATEX 0096 X*

Assembly certified
ATEX II 2 GD Ex iaD 21 IP6X T6,T5 or T4

The **VIGITHERM GST 100 LG** devices can be connected directly to a central control area or to the hazard monitor **M-JET⁺**

	Connection	Non Atex ⟨Ex⟩✕	⟨Ex⟩ Atex 21	⟨Ex⟩ Atex 20
GST 100 LG	Cable *		55 GST 7100 P	

*Cable ⟨Ex⟩✕ 2m - ⟨Ex⟩ 21: 10m - ⟨Ex⟩ 20: 10m

VIGI**THERM** GST 100® HX
Bearing temperature sensor : Ⓔⓧ ATEX

GST 100 HX
BEARING TEMPERATURE SENSOR
PT 100 (CLASS B)

- Rated for ATEX Zone 20, continuous dust
- PT100 sensors require connection to an appropriate signal conditioning device
- Lug style terminal for attaching to 1/8 or ¼ inch grease fitting
- Teflon coated and braided cable, 3M
- Operating temperature : 100°C ATEX / 180°C no Atex

STANDARDS

Approval type *LCIE 03 ATEX 6088 X*
Assembly certified *ATEX II1D ta IIIC Da*

The **VIGITHERM GST 100 HX** devices can be connected directly to a central control area or to the hazard monitor **M-JET+**

	Connection	Non Atex ⚠	Ⓔⓧ Atex 21	Ⓔⓧ Atex 20
GST 100 HX	Cable *	55 GST 9100 J		55 GST 7100 J

* Cable ⚠ 2m - Ⓔⓧ 21 : 10m - Ⓔⓧ 20 : 10m

VIGIL**EX**®

SAFETY PROTECTION

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Qualité
AFNOR CERTIFICATION

CQC

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