



4B GROUP



# GRAIN & FEED INDUSTRY SOLUTIONS

A Worldwide Manufacturer of  
High Quality, Technologically Advanced  
Material Handling & Electronic Components



# ELEVATOR BUCKETS



## STARCO & SUPER STARCO

INDUSTRY FAVOURITES



Steel/Stainless Steel



HDP/Nylon/Polyurethane



Steel/Stainless Steel



HDP/Nylon/Polyurethane

### STARCO™

- **Higher capacity:** up to 100% capacity increase for existing elevators
- **More flexibility:** operates effectively over a wide speed range (from 1.25 m/s to 4.55 m/s)

### SUPER STARCO™ (SPS)

- **Versatile bucket,** available in many sizes
- **Increased Volume,** with the same discharge characteristics as the Starco™ bucket
- **Less buckets required per metre**
- **Less bolts and punching required**
- **Reduced cost for belt & bucket installation**

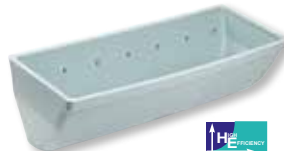
## CCS & J-CC-S



HDP/Nylon/Polyurethane

### CC-S®

- **Stackable design** saves freight and storage costs
- **Maximum impact resistance**
- **Thickest front lip in the grain industry** for no bowing and backlegging
- **“Iceberg edge”™** ensures clean and consistent discharge
- **“Engineered”** for longer life and better performance



HDP/Nylon/Polyurethane

### JCC-S (JUMBO CC-S)

The ultra heavy duty version of the CC-S heavy duty elevator bucket.

Suitable for the most severe applications, including port terminals, ethanol plants and highly abrasive materials.



### ICEBERG EDGE

Lip with maximum material thickness and a tapered leading edge for a longer wear life. The triangular rigid design prevents bowing for a consistent discharge over the life of the bucket.



## BUCKET ELEVATOR PERFORMANCE ANALYSIS

### 4B ENGINEERS CAN:

- Maximize Bucket Elevator Capacity (TPH)
- Calculate Horsepower and Shaft Diameter Requirements
- Recommend Shaft / Belt Speeds
- Troubleshoot Elevator Issues
- Provide Solutions for Hazard Monitoring Compliance



# ELEVATOR BUCKETS



## STEEL BUCKETS



Steel, Stainless Steel

### J TYPE (American Grain)

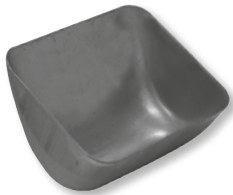
- **High capacity:** Wingless design, improves fill and allows closer spacing on belt
- **Greater strength/longer life:** Solid seamless construction with rounded corners for rigidity. No welds or joints to open up
- **Fully interchangeable** with CC style buckets



Steel, Stainless Steel

### COLUMBUS DIN15232

- Supplied complete with standard recessed holes
- **Ideal for free flowing materials** on medium speed elevators



Steel

### A TYPE

- For sticky materials at slow speeds
- For free flowing materials at higher speeds and closer spacing



Steel, Stainless Steel

### B TYPE

- Good versatile medium capacity bucket
- For sticky materials at slow speeds
- For free flowing materials at higher speeds and closer spacing



Steel

### C TYPE

- For free flowing materials
- For other materials at slower speeds



Steel, Stainless Steel

### GB SPIDEX™ - Bottomless Buckets

- Optimum possible capacity for a given elevator case
- Cost effective increase in leg capacity
- **Self-cleaning, vented system** - ideal for sticky and powdery products





## ELEVATOR BOLTS



### EURO BOLTS

- Manufactured to approx. DIN15237
- ISO grade 5.8 (exceeds DIN15237)
- Large bolt head diameter
- Fully threaded
- Available as zinc plated or stainless
- Alternative choice of packings:
  - Bolt, hex nut & domed washer boxed/100
  - Bolt only, bulk packed in bags



### FANG BOLTS

- Unique Design – fangs bite into belt, locking bolt in place while nut is tightened
- Eases fitting and removal of nut
- Large bolt head diameter = maximum resistance to pull through
- Flat bolt head – pulls fully flush into belt - reduces risk of rip out of bolt due to head protruding from back of belt
- Suitable for recessed or non recessed bolt holes
- Ideal for CC-S buckets



### REF 70

- Steel – ISO grade 5.8 (exceeds DIN 15237)
- Concave head with 4 lugs on the underside to prevent rotation when tightening
- Hexagon nut and small flat washer
- Available in Whitworth thread or metric thread
- Zinc plated



### EASIFIT BOLTS

- Supplied with small washer and nylon insert locknut
- Shank formed with hexagon tip. Special tool grips this hexagon, stopping bolt rotation while simultaneously driving the self-locking nut on (or off) in one easy operation
- Speeds fitting and removal of bolts
- Improves elevator safety
- Reduces belt damage caused by standard bolts
- UNF thread

## ELEVATOR BELT FASTENERS



### 4B SUPERGRIP SYSTEM

- Easy to fit modular system of 50mm segments
- 4 versions available for belts up to 1250 kN/m without thickness limitation
- Each assembly comprises 2 half joints, high tensile bolt & self-locking nut
- With standard nylon nuts - max temp. 80° C, for temp. 80° C+ specify Philidas nuts
- Available in stainless steel



### 4B GRIPWELL

- Light duty fastener
- For elevator belts up to 630 kN/m and up to 7.0mm max. thickness
- Vise grip between serrated jaws
- For longer joints use 2 fasteners of equal length per joint. e.g. 2 x 150mm Gripwell fasteners for a 300mm wide belt



### 4B VISE SPLICE

- For belts 1000 to 1400 kN/m tensile strength
- Use on PVC and rubber belting
- Non-sparking (non-ferrous version)
- Each splice accommodates 50mm of belt width



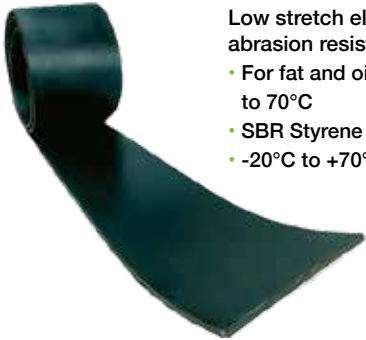
## ELEVATOR BELTING

4B elevator belting is of laminar construction, to give high impact resistance coupled with low stretch at working tension. The EP carcass comprises a woven textile construction having low stretch polyester fabric warp (along its length) and impact resistant polyamide fabric weft (across the width). The low stretch characteristics of the belt are achieved using the high strength textile fabric which is pre-tensioned during the manufacturing process. This process limits the maximum stretch in the belt, at working strength, to 1.5%.

### SBR

Low stretch elevator belting - abrasion resistant

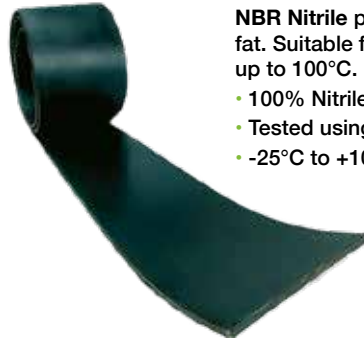
- For fat and oil free products up to 70°C
- SBR Styrene Butadiene Rubber
- -20°C to +70°C



### NBR

NBR Nitrile provides good resistance to oil and fat. Suitable for products containing oils and fat up to 100°C.

- 100% Nitrile covers with Nitrile interplies
- Tested using ASTM3 / IRM 903 Reference Oils
- -25°C to +100°C



### NBR+K

Suitable for use in ATEX applications.

Recommended for use in equipment / installations where there is a risk of fire or explosion.

- -25°C to +120°C



### FRASOR

Suitable for use in ATEX applications.

Recommended for use in equipment / installations where there is a risk of fire or explosion. Suitable for handling cereals and products with moderate levels of oil, such as soya.

- -25°C to +80°C



### FDA NBR

This belt quality has good oil and fat resistance and meets the requirements for components in contact with food stuffs.

Used widely with rice processing, flour mills, dry milk products, salt, sugar and detergents etc.

- -20°C to +100°C



### FDA FRASOR

- FDA Approved
- Flame Retardant ISO340
- Suitable for ATEX- applications
- Antistatic ISO284
- Moderately Oil Resistant (MOR) covers
- -20°C to +80°C



**BELTS SUPPLIED SLIT, CUT TO LENGTH AND PUNCHED TO REQUIREMENTS OR IN FULL COILS**





## DROP FORGED CHAIN & SPROCKETS



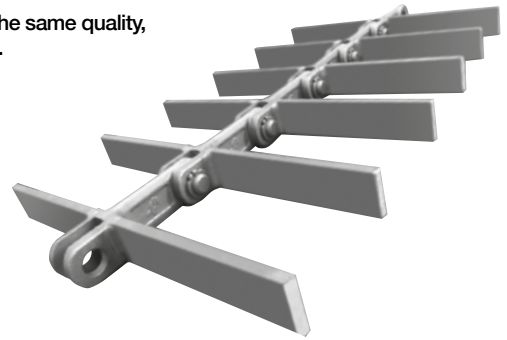
4B's drop forged chain is made of special heat treated alloy steel, case hardened to Rockwell C57 - C62 with a ductile core hardness of Rockwell C40. 4B's superior heat treatment technique provides the optimum chain link with a more resilient ductile core for shock resistance, and an extremely hard exterior surface for superior wear resistance.

4B's drop forged chain is backed by an international network of companies with over 135 years of experience, and a global team of engineers and sales professionals that can provide you with practical solutions for all your material handling applications.

4B's double and triple links are forged with the same quality, strength and durability as our standard links.

4B sprockets and trailers are manufactured from high grade heat treated steel to a minimum hardness of 57 HRC.

Segmented bolt-on design for quick and easy replacement. With solid or split hub bored as required.



## PLATE CHAINS



### Key features of a world class bush chain

**Pins** manufactured from alloy steel to AISI 4140 heat treated for a core average 40HRC, Then induction hardened to create a hardening layer HRC58-62 at typically 10% of the diameter.

**Bushings** using alloy steel AISI 5120 subject extra deep case carburizing on all wearing surfaces both internal and external to ensure the best combination of high hardness (HRC58- 62) and maximized case depth.

**Sidebars** made from alloy steel to AISI 5140. Heat treated HRC40 to offer increased tensile strength.

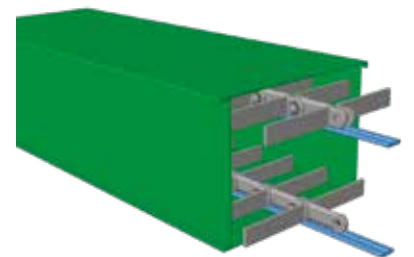
Controlled high interference fits are employed in relation to pins and bushings and relative side plates.

The chains are produced within the quality system ISO9001 to ensure a high and consistent quality standard.

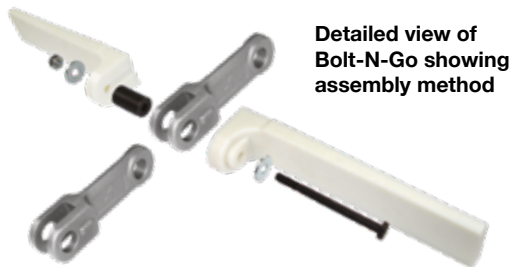
## ROUND LINK CHAINS



## MANGANESE WEAR RAILS



## BOLT-N-GO™ DRAG CHAINS



Detailed view of Bolt-N-Go showing assembly method

### PATENTED

Bolt-N-Go is the most practical drag conveyor chain solution in the Feed and Grain industry. No other conveyor chain is as easy to install, inspect and repair. Bolt-N-Go chain is constructed with high-strength, lightweight, drop forged, heat-treated links and connecting pins. It uses flexible, resilient, and wear-resistant nylon paddles that attach directly to the links with hex bolts, washers and lock nuts. No welded steel backer flights are necessary. This unique chain construction brings valuable benefits to feed and grain operations.

Bolt-N-Go Chain	Nylon Flight Maximum Width
4B102BNA	up to 390 mm
4B142BNA	up to 752 mm
4B142BHA	up to 772 mm

### BENEFITS:

- Replace paddles while the chain is tensioned
- Replace paddles with simple hand tools, no special chain breaker is required
- No need for hot work permits since no welding is required
- Paddles can bend past obstruction and return to shape
- Nylon paddles wear better than traditional UHMW
- Every link is an easily accessible disconnect point
- Lightweight for safer handling and less amps drawn
- Quickest break-down recovery

Bolt-N-Go is ideal for conveyors handling dry free-flowing product, such as animal feed, corn, soybeans, wheat, canola, rice, etc.

*"I've got to say it really has performed well, haven't had any problems at all. I was skeptical at first about using this chain because of the nylon flights, but it has really impressed me."*

– Feed Mill Plant Manager

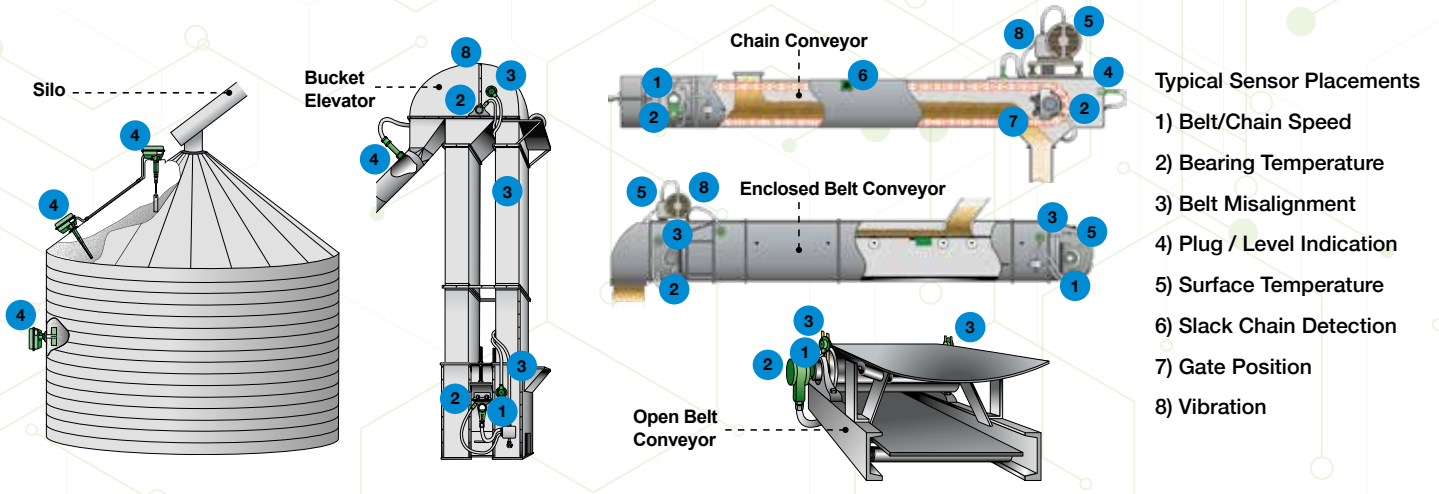
*"The inspections that we have done and the ease of install were outstanding. At this point we would definitely call you for a quote on other replacements when they come up."*

– Pellet Mill Maintenance Manager



4B offers a FREE Chain Conveyor Design Service for both new and existing chain conveyors and technical support from our team of specialised engineers.

# HAZARD MONITORING



## IE-NODE



- Sensor Interface for PLC's & Automation Systems
- Supports PROFINET, EtherNet/IP, and Modbus TCP/IP protocols
- Up to 16 Total Sensor Inputs with Available Expansion Boards
- Configurator Software for Easy Network Set Up and Visual Overview of All Devices
- Hazardmon.com cloud based monitoring compatible
- International dust hazard approved to Zone 20

## WATCHDOG SUPER ELITE



- Designed to monitor one elevator leg or conveyor
- Monitors - Belt speed/alignment, bearing temperature, pulley alignment and plug conditions
- PLC connectivity with Modbus TCP/IP
- 3.5" colour LCD displays entire system status at a glance
- HazardMon.com cloud based monitoring compatible
- International dust hazard approved to Zone 20

## T400N ELITE - HOTSWITCH



- Bearing and surface temperature monitor
- Monitors up to 8 NTC type bearing sensors
- 2 separate alarm and stop relays
- Status LED's provide quick location of hot bearing conditions Sensors replace existing grease points without loss of maintenance function
- Alarm mute function with automatic time delayed reactivation
- International dust hazard approved to Zone 20

## The brain behind a smart operation.

**The IE-Node.** *The future of hazard monitoring.*

Utilizing industrial ethernet and cloud connectivity to share real-time sensor data, alongside historical analytics, with your PLC of choice — the IE-Node is truly intelligent. You can connect your entire system and keep every component in constant communication for unprecedented hazard protection.

### HAZARDOUS AREA APPROVALS

CSA,  
ATEX, IECEx,  
CCC

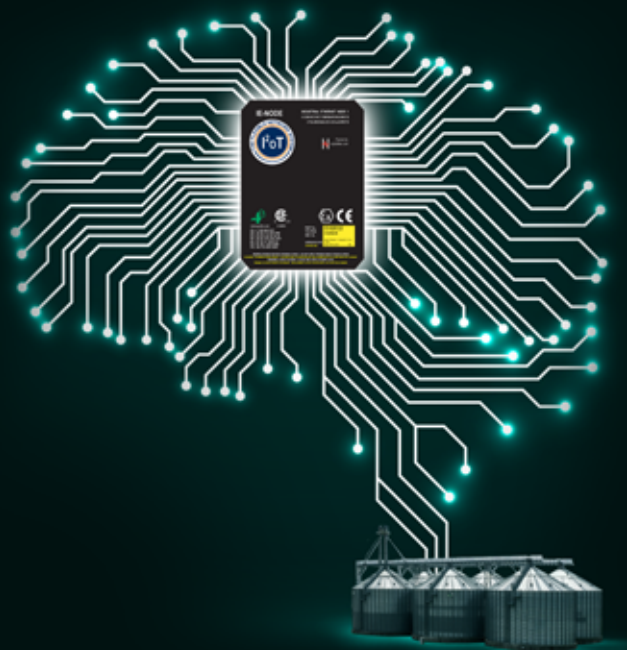
### RJ-45 SOCKETS SUPPORT

EtherNet/IP,  
PROFINET and  
Modbus TCP/IP

### 4000 SENSORS PER SYSTEM

Digital, 4-20mA,  
Temperature,  
Speed

Put the IE-Node at the centre of your operation.



Free Engineering Design Service - contact 4B or visit: [www.go4b.com](http://www.go4b.com)

# HAZARD MONITORING



## IE-GuardFlex

NEW  
PRODUCT

### Distributed Hazard Monitoring Solution

The IE-GuardFlex is the central control unit for 4B's Distributed Hazard Monitoring Solution (DHMS). Using industrial Ethernet technology, the IE-GuardFlex controller connects to, and monitors multiple machine mounted sensors via 4B's class leading IE-Nodes. The complete IE-GuardFlex system can be configured to support multiple machines, IE-Nodes and sensors, and will interface directly to the machine MCC's to perform a controlled stop in the event of the detection of a hazardous condition.

The IE-GuardFlex system is typically located within the plant MCC and dust hazard "safe area". Connection is then made, via industrial Ethernet (CAT6 cabling) to IE-Nodes distributed locally to the monitored machines in the "hazardous area".

### FEATURES:

- Robust, IP66 stainless steel enclosure
- 7" Colour touchscreen display with intuitive GUI
- Supports multiple machine configurations
- Common ALARM and STOP relay
- Can be configured for up to: 100 Machines, 64 IE-Nodes, 1024 Devices
- Remote view and control over network
- Multi-user access control
- Active alarm and alarm history
- Change log



## HAZARDMON



**HazardMon.com**® is a secure cloud based hazard monitoring solution providing status notifications and data logging for bucket elevators and conveyors. Live system status, graphs and historical data can be viewed on any web-enabled device (smartphone, tablet PC, desktop or laptop computer). Emails can be sent to notify users whenever a change in the system's health is detected. An automated maintenance feature allows site operators to verify that all sensors on the system are operational and working correctly.

**Hazardmon** enables the WDC4 and IE-Node systems to become Industry 4.0 enabled. It offers real-time visualization and notifications for connected users anywhere in the world. All the data is collected with a two second latency and everything is saved for historical analysis.

### FEATURES

- Secure Cloud Based Hazard Monitoring
- Works with IE-Node & Watchdog Super Elite
- Data Logged Automatically
- Real Time System Status & Alert Email Notifications
- Automated Maintenance
- View on Any Web-Enabled Device



Register For A Free Demo Account [www.hazardmon.com](http://www.hazardmon.com)®  
See What The Cloud Can Do For You!



## BEARING TEMPERATURE SENSORS 2



### ADB Series

- Adjustable sensor depth
- Probe lengths of 50, 100 & 200mm
- Screw in installation
- International dust hazard approved to Zone 20



### Milli-Temp Series 4-20mA

- Loop-powered analogue sensor
- Single Body Design
- Small Probe Diameter Allows Easy Grease Flow
- International dust hazard approved to Zone 20



### WDB Series

- Screw in positive mount installation
- Grease zerk for bearing lubrication
- 1/8" NPT thread
- Types: NTC, PTC, Pt100 & contact
- International dust hazard approved to Zone 20

## SURFACE TEMPERATURE SENSORS 5



### WDB7 Lug Style

- Surface mount installation
- 8mm to 13mm bolt entry
- 1/2" NPT conduit entry
- Continuous temperature monitoring
- NTC Thermistor
- Pt-100 4-wire RTD
- PTC (trip temperature selected at time of purchase)
- International dust hazard approved to Zone 20



### ADB Lug Series Surface Temperature Sensor

- Surface mount installation
- 3/8" to 1/2" bolt entry
- 1/2" NPT conduit entry
- NTC version - continuous temperature
- 4-20mA linear output version
- PT100 version - platinum RTD
- International dust hazard approved to Zone 20

## BELT MISALIGNMENT & BELT RIP SENSORS 3



### Touchswitch

- Force activated belt & pulley misalignment sensor
- Detects tracking & misalignment on bucket elevators & conveyors
- Hardened stainless steel contact face
- Instantaneous misalignment indication
- External test feature and output LED indication
- Not a rub block
- International dust hazard approved to Zone 20



### Bulldog

- Conveyor belt alignment and rip detection switch
- Easy installation
- No calibration required
- Robust design
- 20° belt misalignment alarm
- 35° belt misalignment shutdown
- Only for open belt conveyors
- ATEX & IECEx Zone 21 approved

## SLACK/BROKEN CHAIN DETECTION SENSORS 6



### WDA Motion Alignment Sensors

- Magnetic proximity sensor
- Detects moving ferrous steel targets
- Not affected by dust or material build up
- Adjustable sensing range of 25-75mm
- International dust hazard approved to Zone 20

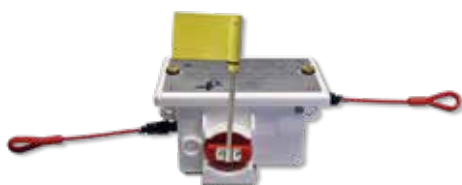
## VIBRATION SENSORS 8



### Milli-Vib

- Robust, compact, IP66 Stainless Steel enclosure
- 2-wire 4-20mA loop powered sensor
- Monitors RMS velocity in mm/s
- Measuring range 0-25 mm/s (0-50 mm/s on special request)
- Can be supplied with optional NTC or Pt100 temperature sensors
- International dust hazard approved to Zone 20

## CONVEYOR SAFETY STOP SWITCHES

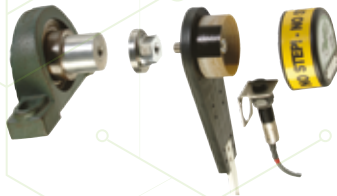


- Open conveyor emergency pull cord safety stop switch
- Unique taut wire fail-safe system - double ended snap action mechanism
- Reflector and/or flag tripped indication
- Designed for severe environments
- International dust hazard approved to Zone 20

# SENSORS



## SPEED SENSORS 1



### Whirligig

- Combination target, bracket and guard for simple sensor installation
- Suitable for all 4B sensors & other standard inductive proximity sensors
- Not affected by shaft or machine vibration
- Easy to install, safe, and reliable
- Optional magnetic Mag-Con™ simplifies mounting



### M100 Stopswitch

- Signals “stopped condition” on conveyors, rotary valves, fans and all rotating machinery
- Inductive proximity sensor detects rotating metal target
- Single trip set-point signal if no pulse within 4 seconds
- International dust hazard approved to Zone 20



### Millispeed

- Signals underspeed conditions for bucket elevators, conveyors and all rotating machinery
- 4 - 20 mA output
- Inductive proximity sensor detects a rotating metal target
- Simple magnetic calibration
- International dust hazard approved to Zone 20



### M300 Speed Switch

- Signals underspeed for bucket elevators, conveyors and all rotating machinery
- Inductive proximity sensor detects rotating metal target
- Single set-point ~ 20% underspeed
- International dust hazard approved to Zone 20

## ENCODERS 1 7



### Encoder-Flex 1024

- Rotating shaft monitor with heavy duty housing
- Provides information on shaft speed, direction, position or revolution
- For conveyors, elevators, mixers, fans, pumps, grinders & other mechanical handling systems
- Sealed stainless steel enclosure
- International dust hazard approved to Zone 20



## INDUCTIVE SENSORS 1 7



### P300 30 mm Inductive Proximity Switch

- Detects the presence of metallic objects
- Detects the position of doors, trolleys, boxes, etc.
- 2 wire multi-voltage technology, 24 - 240 VAC/VDC
- International dust hazard approved to Zone 20



### P100 18 mm Inductive Proximity Switch

- Detects the presence of metallic objects.
- May also be used to generate pulses for the detection of rotational speed
- 2 wire multi-voltage technology, 24 - 240 VAC/VDC
- International dust hazard approved to Zone 20

## PLUG & LEVEL SENSORS 4



**ATS8**  
RF capacitance  
point level  
indicator



**Remote  
Auto-Set™**



**Binswitch Elite  
Capacitive  
Sensor**



**RG Series  
Rotary Level  
Sensors**

With subsidiaries in North America, Europe, Asia, Africa and Australia along with a worldwide network of distributors, 4B can provide practical solutions for all your applications no matter the location.



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