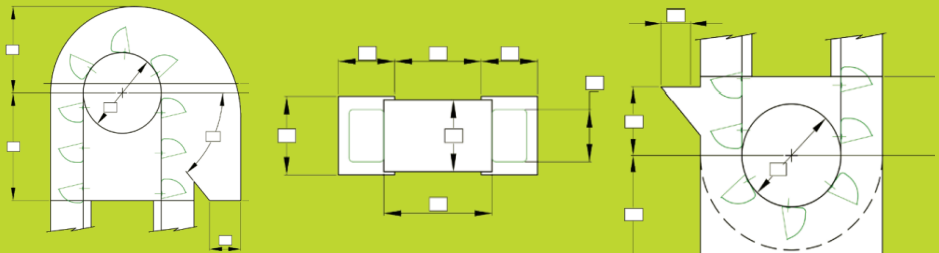


## ELEVATOR BUCKETS

<p><b>SUPER STARCO™</b> Steel</p>	<p><b>SUPER STARCO™</b> HDP/Nylon/Polyurethane</p>	<p><b>STARCO™</b> Steel</p>	<p><b>STARCO™</b> HDP/Nylon/Polyurethane</p>	<p><b>STARCO JUMBO™</b> Steel</p>
<p><b>GB SPIDEX™</b> (Bottomless) Steel</p>	<p><b>CC-S® (Stackable)</b> HDP/Nylon/Polyurethane</p>	<p><b>CC-S JUMBO</b> HDP/Nylon/Polyurethane</p>	<p><b>J TYPE</b> Steel</p>	<p><b>COLUMBUS DIN 15232</b> Steel</p>
<p><b>CONTINENTAL DIN 15233</b> Steel</p>	<p><b>A TYPE</b> Shallow Pattern</p>	<p><b>B TYPE</b> Medium Pattern</p>	<p><b>C TYPE</b> Medium Deep Pattern</p>	<p><b>D TYPE</b> Deep Pattern</p>
<p><b>ATLAS AA</b> Nylon Zytel</p>	<p><b>ATLAS MF</b> Nylon Zytel</p>	<p><b>ATLAS AD DIN 15234</b> Nyrin</p>	<p><b>ATLAS AM</b> Nyrin</p>	<p><b>POLYPENCO NBA &amp; DIN 15234</b> Nylon</p>

### PRODUCT SUITABILITY KEY

- |                  |                              |
|------------------|------------------------------|
| Cereals          | Cement                       |
| Heavy Industrial | Pellets & Light Agricultural |
| Light Industrial | Sticky Materials             |



### OPTIONS

All our buckets can be punched to the customers own specification. The following options may be applied to any of our buckets.

<p><b>Front only</b></p>	<p><b>Front and part sides</b></p>	<p><b>Front and full sides</b></p>	<p><b>Rear reinforcing plate</b></p>	<p><b>Bottom drain holes</b></p>	<p><b>Side drain holes</b></p>
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# BUCKET SELECTION GUIDE

PROPERTY	MILD STEEL	STAINLESS 304	STAINLESS 316	HDP	NYLON 6	REINFORCED NYLON	POLY-URETHANE	NYRIM
Cost	1	3	4	1	2	3	4	4
Wear Resistance	3	4	4	1	2	3	3	4
Impact Resistance	2	2	2	1	2	3	2	4
Non-Stick	1	3	3	2	3	3	4	3
FDA Food Approved	✗	✓	✓	✓	✓	✓	✗	✗
Max Temp °C Continuous <sup>#</sup>	180+	250+	250+	70	100	150	60	110
Max Temp °C Peak <sup>#</sup>	200	400	400	80	120	170	70	130
Colour	Grey	Silver	Silver	White	Cream	Beige / Green	Green*	Dark Grey

Code: 1 = Low 4 = High / \* Other colours on request / # Refer to our technical department

MATERIAL / APPLICATIONS			
<b>Mild Steel</b> General purpose, long life, cereals and industrial products	<b>Stainless 316</b> Food, highly corrosive and high temperature products	<b>Nylon 6</b> Hot, abrasive and sticky products (FDA approved)	<b>Polyurethane</b> Sharp, cutting and sticky products
<b>Stainless 304</b> Food, corrosive and high temperature products	<b>HDP</b> Cereals and food products	<b>Reinforced Nylon</b> Hot, highly abrasive and sticky industrial products (FDA on request)	<b>Nyrim</b> Extremely abrasive, high impact industrial products

## HOW TO MEASURE A BUCKET

<p>With elevator bucket back laid flat, measure overall length</p>	<p>With elevator bucket back laid flat, measure the horizontal projection</p>	<p>With elevator bucket back laid flat, measure the back depth</p>	<p>With elevator bucket back held vertical, measure front depth to front lip</p>	<p>Using a caliper, measure the thickness of the bucket</p>

# ELEVATOR BOLTS



**4B EURO BOLT**

For steel buckets with recessed holes use: Bolt, hexagon nut and large domed washer.



**4B EURO BOLT**

For steel buckets with plain holes use: Bolt, hexagon nut, small flat washer.



**4B EURO BOLT**

For plastic buckets you must use: Bolt, hexagon nut and large flat washer.



**4B REF 70**



**4B LARGE OVAL WASHER**



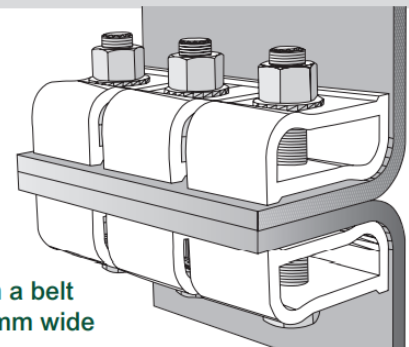
**4B FANG**



**4B EASIFIT**

## SUPERGRIP BELT FASTENERS

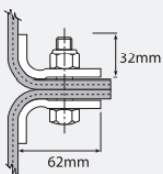
- > Easy to fit modular system of 50mm segments
- > 4 versions available for belts up to 1250 kN/m without thickness limitation
- > Each assembly comprises 2 half joints, high tensile bolt & self-locking nut
- > With standard nylon nuts - max temp. 80° C, for temp. 80° C+ specify Philidas nuts
- > Available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



Example of joint using 3 Supergrips on a belt of 150 to 195mm wide

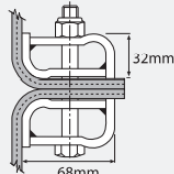
See Belt Catalogue for **Steel Web Belt Clamps**

## SPECIFICATIONS



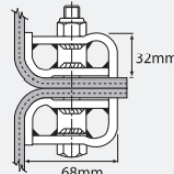
**Supergrip No.1**

- > Belt Strength - 500kN/m max.
- > Weight - 0.5Kgs
- > M14 Bolts



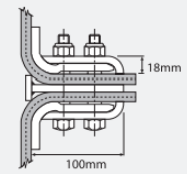
**Supergrip No.2**

- > Belt Strength - 630kN/m max.
- > Weight - 0.8Kgs
- > M14 Bolts



**Supergrip No.3**

- > Belt Strength - 800kN/m max.
- > Weight - 0.85Kgs
- > M14 Bolts



**Supergrip No.4**

- > Belt Strength - 1250kN/m max.
- > Weight - 1.83Kgs
- > M16 Bolts



Preventative maintenance can help reduce the risk of equipment failure and consequent downtimes. When it comes to monitoring your bucket elevators and belt conveyors, 4B can recommend you the ideal combination of sensors and monitoring systems to suit your requirements and budget.

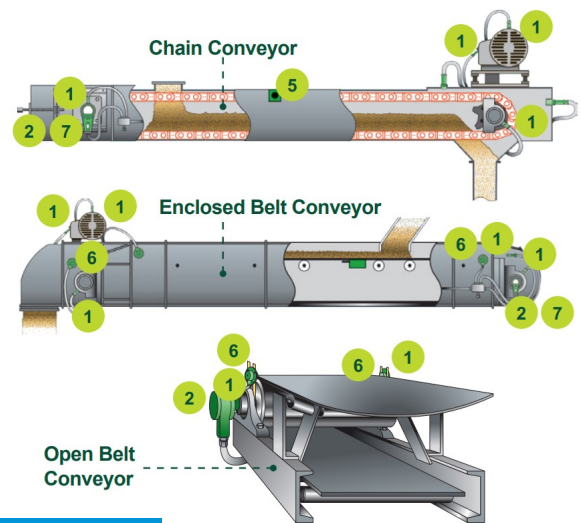
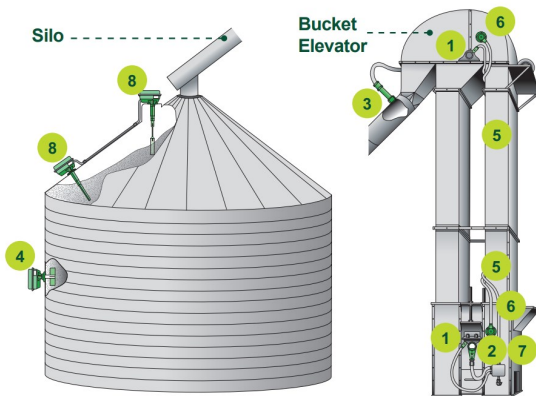
4B provides an extensive range of their own ATEX / IECEx / CSA approved hazard monitoring systems, misalignment switches and bearing temperature monitors and level controls. We can offer you anything from a replacement sensor to a fully integrated hazard monitoring system which can be operated either as a stand-alone system or connected to your PLC.

We can offer you a scalable solution starting with correctly chosen equipment and systems that can be expanded at a later date to encompass other machines in the plant.

4B provides installation service and after-sales technical support to help you overcome any technical problems with your monitoring equipment.



These illustrations show typical sensor placements for monitoring: speed, motion, bearing & surface temperature, belt alignment, level / plug indication and slack chain detection.



## 1 BEARING TEMPERATURE SENSORS

The ADB, MDB, and WDB Series bearing temperature sensors are designed to screw directly into an existing grease zerk fitting on a bearing housing. Each sensor is fitted with a grease nipple to allow lubrication of the bearing without the need for removal of the sensor. Most series are available with either a PTC thermistor with various factory set trip points, or a NTC thermistor with a user adjustable trip point, or as a Pt100 RTD version.

## 2 SPEED SWITCHES

Monitors rotating machinery for dangerous underspeed conditions. An inductive sensing device located in the nose of the enclosure will detect a metal target. Set to the normal machine RPM, 4B Speedswitches provide alarm and shutdown signals underspeed and stopped motion.

## 3 BINSWITCH

The Binswitch detects level or plug conditions for bulk granular solids in tanks, bins, or silos and can be used as a plug or choke detector in chutes, conveyors and elevator legs.

## 4 ROTO LEVEL SERIES

The Roto Level Series are rotary paddle switches designed to detect high and low levels of bulk granular solids in bins, tanks, silos, and as blockage detectors in spouts.

## 5 WDA 3

The WDA Series are non-contacting extended range magnetic sensors used to detect ferrous targets at a distance of up to 75mm from the sensor. They can be used on chain conveyors to detect slack or broken chain. They can also be used on bucket elevators where they can detect bucket bolts and steel buckets to monitor belt misalignment.

## 6 TOUCHSWITCH

The Touchswitch is an electro-mechanical limit-switch style sensor with no moving parts. It is designed to detect belt tracking and misalignment problems on bucket elevators and conveyors. Unlike a rub block that utilises friction (heat) to activate, the Touchswitch is pressure sensitive for safer and more reliable monitoring.

## 7 INDUCTIVE SENSORS

4B inductive proximity sensors are designed to detect shaft speed, shaft position, gate position, or object presence. No contact is made between the sensor and the target being monitored.

## 8 AUTOSSET SERIES

The Autosset Series are self-contained point level monitors with digital displays for high, intermediate, or low-level detection of liquids, powders or free-flowing granular solids. The Autosset Series incorporates simple push-button calibration with microprocessor enable/disable switch for total protection of stored values. Once the unit is calibrated for a specific application, it never has to be re-calibrated.





**COMBINED HAZARD MONITORING SYSTEMS**  
Watchdog Super Elite, T500 Elite



**BEARING TEMPERATURE MONITORS**  
T400 Elite, T400N Elite



**BELT ALIGNMENT MONITORS**  
B400 Elite, A400 Elite



**MISALIGNMENT SENSORS FOR BUCKET ELEVATORS**  
Touchswitch, WDA, BAP



**MISALIGNMENT SENSORS & SAFETY SWITCHES FOR BELT CONVEYORS**  
Bulldog, Pullswitch



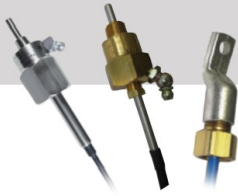
**SPEED SWITCHES**  
M100, M300, M800, Millispeed



**INDUCTIVE SENSORS**  
P100, P300, Whirligig



**ENCODERS**  
Shaft Encoders, Wheel Encoder



**BEARING TEMPERATURE SENSORS**  
ADB, Millitemp, WDB8, MDB, WDB7



**LEVEL INDICATORS**  
Auto-Set, Binswitch, RLI, RLI Shaker





**JUNCTION BOXES**

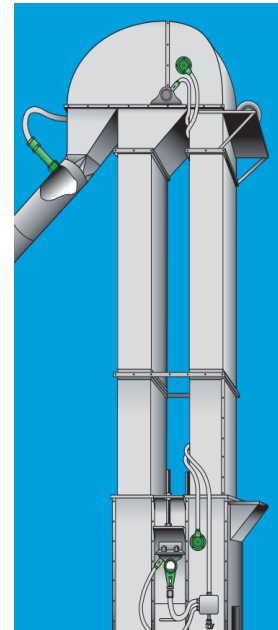


**BROKEN OR SLACK CHAIN DETECTION**

## ELEVATOR / CONVEYOR MONITORING SYSTEMS

### COMBINED MONITORING SYSTEMS

PRODUCT	WATCHDOG SUPER ELITE™	T500 ELITE - HOTBUS™
	 <a href="#">Page 5</a>	 <a href="#">Page 6</a>
<b>Bearing temperature</b>	(continuous) max. 6 sensors + 2 ambient temp. sensors	(continuous) max. 256 inputs*
<b>Belt speed</b>	(continuous) max. 2 inputs – Differential speed monitoring	(continuous) max. 256 inputs*
<b>Belt alignment</b>	Pulses / Contact / Rub* Blocks 4 inputs	max. 256 sensors*
<b>Plugged condition</b>	✓	✓
<b>Pulley alignment</b>	✓	✓
<b>Communication interfaces</b>	Ethernet with Modbus TCP protocol	All major industrial protocols supported via F500 Gateway
<b>Test function</b>	✓	✓
<b>Alarm &amp; shutdown function</b>	✓	✓
<b>Applications</b>	Single elevator or conveyor	Multiple elevators & conveyors; remote monitoring across site
<b>Hazardmon.com (Cloud based hazard monitoring)</b>	✓ (Ethernet onboard)	✓ (via F500)
<b>Certifications</b>	ATEX / CSA / IECEx / InMetro / Nepsi	ATEX / CSA / IECEx / InMetro / Nepsi



\* total number of inputs / sensors, all sensors combined.

## SPECIALISED MONITORING SYSTEMS

PRODUCT	T400N ELITE	T400 ELITE	A400 ELITE	B400 ELITE
Bearing temperature	✓ (continuous) max. 8 sensors	✓ (discreet PTC) max. 16 sensors	✗	✗
Belt speed	✗	✗	✓	✗
Belt alignment	✗	✗	✓	✓
Plugged condition	✗	✗	✗	✓
Pulley alignment	✗	✗	✗	✓
Communication interfaces	Modbus RTU (RS-485)	✗	✗	✗
Test function	✓	✓	✓	✓
Alarm & shutdown function	✓	✓	✓	✓
Applications	Elevator & conveyors	Elevator & conveyors	Elevators	Elevator & conveyors
Hazardmon.com (Cloud based hazard monitoring)	✗	✗	✗	✗
Certifications	ATEX / CSA / IECEx / InMetro / Nepsi	ATEX / CSA / IECEx / InMetro / Nepsi	ATEX / CSA / IECEx / InMetro / Nepsi	ATEX / CSA / IECEx / InMetro / Nepsi

## HAZARD MONITORING SYSTEMS

### COMBINED MONITORING SYSTEMS

#### WATCHDOG SUPER ELITE™

##### Features

- › Belt speed monitoring (single and differential speed)
- › Belt alignment monitoring (contact, pulsed and rub blocks)
- › Bearing temperature monitoring
- › Pulley alignment monitoring
- › Plug condition monitoring
- › Acceleration monitoring
- › Jog prevention
- › 3.5" Colour graphics LCD display
- › SD card for settings save / restore and firmware updates
- › Ethernet RJ45 port
- › Multi-lingual display
- › Hazardmon.com support for real-time remote monitoring and historical analysis

##### Input supply voltage

- › 100 to 240 VAC
- › 24 VDC (universal supply)

##### Sensor supply

- › 24 VDC

##### Sensor options

- › ADB, MDB, and WDB: bearing temperature
- › WDA Series: motion alignment
- › Touchswitch: belt alignment
- › Inductive Proximity Sensors: speed (P1003V34AI / P3003V34AI)
- › Binswitch: plugswitch

##### Approvals

- › Europe – ATEX
- › USA, Canada – CSA
- › Brazil - InMetro
- › China - Nepsi
- › Worldwide – IECEx

##### H x W x D

- › 308 x 241 x 137mm

##### Applications

- › Bucket elevators and conveyors



Combined belt speed, belt alignment, continuous bearing temperature, pulley alignment and plugged condition monitoring system

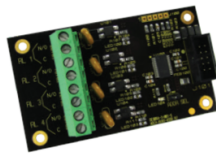
The Watchdog Super Elite™ is a complete elevator and conveyor monitoring system with inputs for most of the types of sensors standard in the industry. Offers top-of-the-class flexibility and approvals. Unprecedented user friendliness via a 3.5" full colour bespoke design graphics screen. Controller settings can be set up either directly on the unit or via a PC application and transferred between the WDC4s and PC via a SD card. In-built Ethernet port with full support for the Hazardmon.com cloud based monitoring service. WDC4 has multi-lingual support. MODBUS/TCP Support with the application notes for Rockwell, Siemens and Mitsubishi PLCs is available.



## WATCHDOG EXPANSION CARDS

The **Watchdog Super Elite** comes with standard 15 sensor inputs. However, it can be extended to up to 27 via the use of expansion cards. Cards can be pre-installed at the factory when ordering a new Watchdog WDC4, or installed into existing control units already in the field.

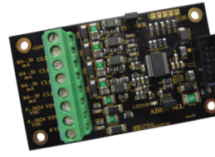
### WDC4-AUXO-SSR



4 x solid state alarm relay outputs for the following conditions:

- > Speed
- > Temperature
- > Misalignment
- > Auxiliary Inputs

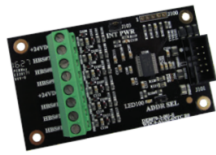
### WDC4-AUXI-6AN



Additional analogue inputs:

- > 4 x 4-20mA current loop inputs (0-20mA range supported)
- > 2 x 0-10VDC analogue inputs
- > Individually enabled and configured in WDC4

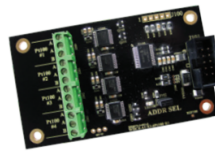
### WDC4-AUXI-6NTC



Additional NTC type temperature inputs:

- > 6 x NTC inputs
- > 2 x Sensor power supply (+24VDC)
- > Individually enabled and configured in WDC4

### WDC4-AUXI-4PT100



Additional Pt-100 type temperature inputs:

- > 4 x Pt-100 inputs
- > Temperature range: -200 to 535 degrees C
- > Three-wire configuration
- > Individually enabled and configured in WDC

## COMBINED MONITORING SYSTEMS

### T500 ELITE - HOTBUS



*Serial network system for continuous monitoring of bearing temperature, belt misalignment, and more*

The **T500 Elite - Hotbus™** is a serial communication system specially designed to monitor up to 256 sensors, including continuous bearing temperature and belt misalignment. With automatic machine shutdown capability and PLC/PC compatibility this advanced microprocessor based system offers low cost installation, versatility and easy system expansion.

#### Features

- > Continuous bearing temperature monitoring with user adjustable trip points
- > RS485 serial communication
- > Monitors up to 256 sensors
- > 4 second scan time with 256 sensors installed
- > Works with many types of sensors
- > Enter your own sensor/location names for easy identification
- > Alarm and shutdown features
- > Gateways available for various PLC connections
- > HazardMon.com® cloud based hazard monitoring compatible

#### Sensor options

- > ADB, MDB, and WDB: bearing temperature
- > Touchswitch: belt alignment
- > P3003V34AI + SN2 Node: speed
- > Autotest Series: level indicator
- > Roto-Level Series: level indicator
- > Binswitch: level and plug indicator

#### Input supply voltage

- > 100 to 240 VAC
- > 24 VDC (universal supply)

#### Sensor supply

- > Use external 24 VDC supply

#### Approvals

- > Europe – ATEX
- > USA, Canada – CSA
- > Brazil - InMetro
- > China - Nepsi
- > Worldwide – IECEx

#### H x W x D

- > 246 x 188 x 102mm

#### Applications

- > Bucket elevators and conveyors

## ACCESSORIES

### HazardMon.com®

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.



### F500 Elite Fieldbus Gateway

The F500 is a communications gateway that allows for single point access to a maximum of four T500 Elite Hotbus™ systems via Fieldbus protocol. Fieldbus communication protocols supported include: Ethernet IP, Modbus TCP, Modbus RTU, DeviceNet, Profibus and others.



### R500 Elite Alarm Relay Interface

The R500 is a microprocessor-controlled unit, which accepts signals from the T500 Elite Hotbus™ monitor, and is able to cause alarm or shutdown of equipment when a sensor exceeds its programmed alarm tolerance.



### Hotbus Node – TN4 (Input Node)

The TN4 is a four input sensor node, powered by 24 VDC. Each input can be an NTC thermistor, PTC thermistor or Volt-Free Contact input; the types may be interchanged on a single node. The Node has a unique 4 digit address which is used to communicate to the T500 via a two wire serial RS485 connection. The TN4 Node processes information from electrical inputs into network data inputs for ADB, WDB, Binswitch or Touchswitch.



### Hotbus Node – SN2 (Speed Node)

The SN2 is a two input speed node, powered by 24 VDC. The node is able to monitor two independent pulse (speed) sources for dangerous under speed conditions. The SN2 will support pulses which are PNP or sourced. The Node has a unique 4 digit address which is used to communicate to the T500 via a two wire RS485 connection. The SN2 processes information from electrical inputs into network data.



### Hotbus™ Node Tester

The Hotbus Node Tester is a portable testing unit that can be used in the field to determine the operational status of any Hotbus communications node and network to quickly identify wiring or node issues.

Simply plug the network connection cable directly to the node. A digital display on the tester will show the status of the node which can determine if the node is operating correctly.





## BELT MISALIGNMENT MONITORS

### TOUCHSWITCH



Touchswitch  
Belt/pulley  
misalignment  
sensor

The **Touchswitch** is an electro-mechanical limit switch with no moving parts, that detects the misalignment of both pulleys and belts in conveyors and bucket elevators. The sensor detects the lateral force of the belt or pulley and activates a volt-free solid state relay. Sensor output can be used to activate an alarm or shutdown the machine. The sensors are normally installed in pairs on opposite sides of the belt/pulley.

#### Features

- > Hardened stainless steel face
- > External test wheel for quick and simple sensor/system testing
- > Not affected by dust or material build up
- > No calibration or sensitivity adjustment needed
- > No calibration needed
- > No moving parts

#### Supply voltage

- > 12-24 VDC

#### Compatible 4B control unit

- > Watchdog
- > T500
- > B400

#### Approvals

- > Europe – ATEX
- > USA, Canada – CSA
- > Brazil - InMetro
- > China - Nepsi
- > Worldwide – IECEx

#### Applications

- > Belt/pulley misalignment on elevators and conveyors

### WDA HIGH POWER SENSOR



WDA  
Belt alignment/  
speed and chain  
break monitor.

High temperature  
version



The **WDA** sensor detects moving ferrous material and is designed for use with bucket elevators to detect buckets, for measurement of speed and alignment. WDA is a non-contact sensor, detecting metallic targets at up to 100mm range. It can also detect ferrous bolts where plastic or 316 stainless buckets are used. The sensor is used in conjunction with a PLC or with a Watchdog or A400 Elite control unit.

#### > Features

- > Long range magnetic sensor unaffected by material build up
- > Continuously monitors the moving elevator, with visual indication by an LED
- > 25-75mm range depending on the size of the target, easily adjusted from the sensor itself or from the optional independent control unit
- > Mounting bracket included
- > Stainless steel construction
- > High temperature version available

#### Supply voltage

- > 24 VDC

#### Compatible 4B control unit

- > Watchdog

#### Approvals

- > Europe – ATEX
- > USA, Canada – CSA
- > Brazil - InMetro
- > China - Nepsi
- > Worldwide – IECEx

#### Applications

- > Belt alignment
- > Belt speed (when used with Watchdog)
- > Chain slack / break monitor (page 21)

### BAP



BAP  
Belt alignment/  
speed monitor

The **BAP** detects moving ferrous material and is designed for use with bucket elevators to detect belt misalignment condition. It can also detect ferrous bolts where plastic or 316 stainless buckets are used. The sensor is used in conjunction with a PLC or with a Watchdog or A400 Elite control unit.

#### > Features

- > Magnetic sensor unaffected by material build up
- > Continuously monitors the moving elevator, with visual indication by an LED
- > 12-50mm range depending on the size of the target, easily adjusted from the sensor itself or from the optional independent control unit

#### Supply voltage

- > 12/24 VDC

#### Compatible 4B control unit

- > Watchdog

#### Approvals

- > Europe – ATEX
- > USA, Canada – CSA
- > Brazil - InMetro
- > China - Nepsi
- > Worldwide – IECEx

#### Applications

- > Belt alignment sensor

## BELT ALIGNMENT & RIP DETECTORS

### BULLDOG



**Bulldog**  
Belt Alignment  
& Rip Detection  
Switch

The **Bulldog** alignment and rip detection switch is an electro-mechanical system designed to detect dangerous belt misalignment and belt tear damage on open belt conveyors. The switch will detect misalignment of belts when contact is made with the roller; the roller arm will be forced to pivot by the belt activating a switch at 20° to trigger an alarm, and 35° to trigger a shut down. The sensors are usually installed in pairs on opposite sides of the belt. A flexible wire is set below the running conveyor belt attached by a rare earth magnet at each end. If the belt is ripped or damaged the wire is pulled away releasing the magnet connection which in turn will activate a switch to trigger an alarm or shut down.

#### Features

- > Easy installation without calibration
- > Solid construction
- > Triggers an alarm at 20° and a shutdown of the machine at 35°
- > Wire rope for optional belt rip detection

#### Approvals

- > Europe – ATEX
- > Worldwide – IECEx

#### Applications

- > Open belt conveyor alignment monitoring
- > Belt rip detection

#### Supply voltage

- > 110-240 VAC

#### Compatible 4B control unit

- > Watchdog
- > T500
- > B400

## CONVEYOR SAFETY STOP SWITCH

### PULLSWITCH



**Pullswitch**  
Conveyor Safety Stop  
Switch

The **Pullswitch** is a failsafe taut wire emergency pull cord stop switch for open conveyors. PVC coated steel pull wires and pigtailed connect between the switches to provide easy installation and continuous emergency stop access along the length of the entire conveyor. Pullswitches can be installed at 60m intervals, reducing overall system cost. Quick location of a tripped switch is provided by a flag marker or optional reflector, and the tripped signal can be wired back to a PLC or one of 4B's controllers.

#### Features

- > Pullwire safety switch provides a safe and reliable means of stopping conveyors
- > Double ended pull mechanism as standard
- > Slack or taut wire operation
- > Tough UV stabilised lightweight polycarbonate enclosure
- > Designed for arduous environments e.g. quarries, open cast mines

#### Approvals

- > Europe – ATEX
- > USA, Canada – CSA

#### Applications

- > Safety stop switch for open belt conveyors



Pullswitch installed on open belt conveyor



## SPEED SWITCHES

### M100 STOPSWITCH



#### Stopped motion monitor

The **Stopswitch** is a straightforward shaft speed monitoring device. The 2-wire technology saves you time and makes installation hassle-free. If the shaft stops rotating, the Stopswitch will provide an output. It requires no calibration to operate and is a great tool for process control, motion verification and stopped shaft indication.

#### Features

- > Small 18mm diameter
- > Totally sealed
- > 3m cable
- > Status LED's

#### Style

- > 18mm cylindrical

#### Supply voltage

- > 24 to 240 VAC/VDC

#### Output

- > Stopped motion detection

#### Approvals

- > Europe - ATEX
- > Brazil - InMetro
- > China - Nepsi
- > Worldwide – IECEx

#### Applications

- > Process control
- > Provides a signal when the shaft has stopped rotating

### M300 SLIPSWITCH 2 OR 5-WIRE



#### Intelligent underspeed switch 2 or 5-wire version available

User friendly and easy to install, the **Slipswitch** is a simple shaft speed monitoring device. Available in 2-wire and 5-wire models, the Slipswitch is self-calibrating and provides a 20% underspeed output to protect against dangerous belt slip and underspeed conditions.

#### Features

- > Totally sealed
- > Auto calibration
- > 2 or 5-wire connection
- > 3m cable
- > Status LED's

#### Style

- > 30mm cylindrical

#### Supply voltage

- > 24 to 240 VAC/VDC

#### Output

- > 20% underspeed detection

#### Approvals

- > Europe - ATEX
- > Brazil - InMetro
- > China - Nepsi
- > Worldwide – IECEx

#### Applications

- > Conveyors, bucket elevators, any speed sensitive shaft for automatic 20% underspeed detection

### M800 SPEEDSWITCH



#### Intelligent underspeed switch with three outputs

A solid state unit with no moving parts, the **M800** is maintenance free. The unit operates using an inductive sensing device and requires no contact with the monitored machine. The M800 is calibrated to the machine's normal RPM. If the shaft speed falls by 10%, the M800 will alarm, and by 20% it will shut the machine down.

#### Features

- > Totally sealed
- > Auto calibration
- > 1/2-inch conduit entry with 2m cable
- > Status LED's

#### Style

- > DIN (40mm x 40mm)

#### Supply voltage

- > 24 - 240 VAC/VDC

#### Output

- > 1 x 10% underspeed relay
- > 1 x 20% underspeed relay
- > 1 x opto-isolated pulse (All 3 outputs in 1 unit)

#### Approvals

- > USA, Canada - CSA

#### Applications

- > Conveyors, bucket elevators, any speed sensitive shaft for automatic underspeed detection with 10% alarm and 20% shutdown and pulsed output.



All 4B speed and inductive sensors are compatible with the Whirligig universal shaft sensor mount.



## MILLISPEED - EU



*Intelligent underspeed switch with three outputs*

The **Milli-Speed Switch** with 4 - 20 mA output is designed to detect belt slip, belt underspeed, stop motion, and zero speed on bucket elevators, conveyors, airlocks, mixers, fans, grinders and many other rotating machines. Totally sealed and simple to calibrate.

### Features

- > 4 - 20 mA output
- > Normalised output
- > Simple magnetic calibration
- > Loop powered (2 wire)
- > Totally sealed construction: submersible
- > Easy installation with Whirligig® mount
- > SpeedMaster™ compatible for accurate testing

### Style

- > 30mm cylindrical

### Supply voltage

- > 24 to 240 VAC
- > 17-30 VDC

### Output

- > Over speed 20 mA (of calibrated speed)
- > Calibrated speed 17 mA (100%)
- > Zero speed 4 mA (0 - 10% of calibrated speed)

### Approvals

- > Europe - ATEX
- > Brazil - InMetro
- > China - Nepsi
- > Worldwide - IECEX

### Applications

- > Conveyors, elevators, any speed sensitive shaft for automatic underspeed detection with 10% alarm and 20% shutdown

## MILLISPEED - US



*Monitors Rotating Machinery for Dangerous Underspeed Conditions*

The **Milli-Speed Switch** with 4 - 20 mA output is designed to detect belt slip, belt underspeed, stop motion, and zero speed on bucket elevators, conveyors, airlocks, mixers, fans, grinders and many other rotating machines. Totally sealed and simple to calibrate.

### Features

- > 4 - 20 mA output
- > Normalised output
- > Simple magnetic calibration
- > Loop powered (2 wire)
- > Totally sealed construction: submersible
- > Built in conduit adaptor (1/2" NPT)
- > Easy installation with Whirligig® mount
- > SpeedMaster™ compatible for accurate testing

### Style

- > DIN (40mm x 40mm)

### Supply voltage

- > 17 - 30 VDC

### Output

- > Over speed 20 mA (123% or more of calibrated speed)
- > Calibrated speed 17 mA (100%)
- > Zero speed 4 mA (0 - 10% of calibrated speed)

### Approvals

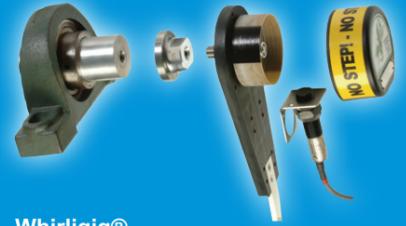
- > USA, Canada - CSA

### Applications

- > Conveyors, elevators, any speed sensitive shaft for automatic underspeed detection with 10% alarm and 20% shutdown

## ACCESSORIES

### WHIRLIGIG



#### Whirligig® (Patented)

The Whirligig is the new standard for shaft speed monitoring. It is a three-in-one universal shaft sensor mount that makes installation simple and more reliable for all inductive shaft speed sensors.

Your sensor mounts to the Whirligig and the complete assembly bolts to the machine's shaft. Machine and shaft vibration does not affect the performance of the sensor, as the whole assembly moves with the shaft. Personal safety is also improved since the rotating target is completely enclosed behind a tough plastic cover.

- > Fully Guarded Target for Easy Mounting of Motion Sensors

- > For DIN Style and Standard Cylindrical Inductive Sensors

- > Easy Installation – Only Requires M12 Tapped Hole in the Machines Shaft or Use a Mag-Con™ for Magnetic Connection

- > Available with 1, 2 or 4 Targets



#### MagCon™ Magnetic Connector (Patented)

50mm diameter magnetic coupler with 150 lb/660N of pulling force for connecting M12 thread to rotating shaft. Saves on drilling and tapping.



### TEST TOOLS

#### SpeedMaster™ Speed Switch Tester

The Speedmaster is a calibration and testing device that accurately tests the calibration of a speed switch, and allows testing of the 10% alarm and 20% shutdown features of the sensor while installed on the machine shaft.



## INDUCTIVE SENSORS

### P100 INDUCTIVE SENSOR



#### *Inductive Proximity Sensor*

Inductive proximity sensors used to signal the position of equipment in conveyors, elevators and other mechanical assemblies. Also used as pulse generators for speed detection.

#### Features

- > IP 65
- > Watchdog and PLC compatible
- > Visual indication of output state by LED

#### Style

- > 18mm cylindrical

#### Supply voltage

- > 24 to 240 VAC/VDC
- > 10-30VDC

#### Output

- > FET transistor output
- > PNP or NPN output

#### Approvals

- > Europe – ATEX
- > USA, Canada – CSA
- > Brazil - InMetro
- > China - Nepsi
- > Worldwide – IECEx

#### Applications

- > Conveyors, elevators and other mechanical assemblies, and other proximity detection and speed applications.

### P300 INDUCTIVE SENSOR



#### *Inductive Proximity Sensor*

Inductive proximity sensors used to signal the position of equipment in conveyors, elevators and other mechanical assemblies. Also used as pulse generators for speed detection.

#### Features

- > IP 65
- > Watchdog and PLC compatible
- > Visual indication of output state by LED

#### Style

- > 30mm cylindrical

#### Supply voltage

- > 24 to 240 VAC/VDC
- > 10-30VDC

#### Output

- > FET transistor output
- > PNP or NPN output

#### Approvals

- > Europe – ATEX
- > USA, Canada – CSA
- > Brazil - InMetro
- > China - Nepsi
- > Worldwide – IECEx

#### Applications

- > Conveyors, elevators and other mechanical assemblies, and other proximity detection and speed applications.



**Compatible with the Whirligig speed sensor mount**

## ROTECH ENCODERS

The 4B heavy duty Rotech rotary shaft encoders are used primarily for protecting equipment and personnel from dangerous underspeed/belt slip conditions in extreme environments. Other applications include accurate speed control, direction of rotation detection, gate position indication and counting the number of revolutions of the shaft.

### POLYPROPYLENE SHAFT ENCODER



#### Features

- > Heavy duty design
- > 1 to 1,000 PPR
- > Multiple outputs
- > Intrinsically safe option available
- > IP66

#### Style

- > Polypropylene (reinforced with 30% glass)
- > Totally self-contained (no guards required)

#### Supply voltage

- Model dependent:
- > 10-30Vdc
  - > 20-240VAC

#### Output

- Model dependent:
- > Intrinsically safe
  - > NPN
  - > PNP
  - > Quadrature

#### Approvals

- > Europe - ATEX
- > Worldwide - IECEX
- > USA & Canada - CSA

#### Applications

- > Conveyors, bucket elevators or any shaft speed measurement

### ALUMINIUM SHAFT ENCODER



#### Features

- > Ultra heavy duty
- > 1 to 1,000 PPR
- > Multiple outputs
- > Intrinsically safe option available
- > IP67

#### Style

- > Cast aluminium construction
- > Totally self-contained (no guards required)

#### Supply voltage

- Model dependent:
- > 8.2Vdc for intrinsically safe version
  - > 10-30Vdc
  - > 20-240VAC

#### Output

- Model dependent:
- > Intrinsically safe
  - > NPN
  - > PNP
  - > Quadrature

#### Approvals

- > Europe - ATEX
- > Worldwide - IECEX
- > USA & Canada - CSA

#### Applications

- > Conveyors, bucket elevators or any shaft speed measurement

### STAINLESS STEEL ENCODER



#### Features

- > Ultra heavy duty
- > 1 to 1,000 PPR
- > Multiple outputs
- > Intrinsically safe option available
- > IP67

#### Style

- > 304 or 316 stainless steel
- > Totally self-contained (no guards required)

#### Supply voltage

- Model dependent:
- > 8.2Vdc for intrinsically safe version
  - > 10-30Vdc
  - > 20-240VAC

#### Output

- Model dependent:
- > Intrinsically safe
  - > NPN
  - > PNP
  - > Quadrature

#### Approvals

- > Europe - ATEX
- > Worldwide - IECEX
- > USA & Canada - CSA

#### Applications

- > Conveyors, bucket elevators or any shaft speed measurement

### WHEEL ENCODER



#### Features

- > Heavy duty design
- > 1 to 1,000 PPR
- > Multiple outputs
- > Intrinsically safe option available
- > IP67

#### Style

- > Trailing arm and wheel

#### Supply voltage

- Model dependent:
- > 8.2Vdc for intrinsically safe version
  - > 10-30Vdc
  - > 20-240VAC

#### Output

- Model dependent:
- > Intrinsically safe
  - > NPN
  - > PNP
  - > Quadrature

#### Approvals

- > Europe - ATEX
- > Worldwide - IECEX
- > USA & Canada - CSA

#### Applications

- > Belt speed monitoring applications

## TACHO DISPLAY

Bright 25mm high LED display unit for connection to any PNP or NPN transistor output sensor to indicate shaft speed. The unit incorporates a user-adjustable under speed relay contact output. Quadrature display also available.








## SPEED RELAY

DIN rail mounted speed relay can be used with any PNP or NPN pulsed output sensor for providing a user adjustable underspeed relay contact output to alarm or shutdown machinery.





## BEARING TEMPERATURE SENSORS

ADB	MILLITEMP	WDB7 LUG STYLE	MDB	WDB8
 <p>The <b>ADB</b> series have been designed to allow the depth of the sensor to be adjustable depending on your application. Three standard versions are available with probe lengths of 50, 100 and 200mm (other lengths available for special order). The sensors screw directly into a bearing housing through the existing grease zerk thread. Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The ADB style sensors are available with a standard NTC thermistor for 4B's Hotbus and Watchdog systems, or a Pt100 - RTD type for PLC and DCS systems.</p>	 <p>The <b>Milli-Temp</b> is a loop powered analog sensor with a 4-20 mA linear output that is scaled across a temperature range for continuous temperature monitoring. The sensor has been designed to allow the depth of the probe to be adjustable depending on your application. The sensor screws directly into a bearing housing through the existing grease zerk thread. Each sensor is fitted with a zerk to allow lubrication of the bearing without the need for removal of the sensor.</p>	 <p>The <b>WDB7</b> series is a lug style NTC, Pt-100 or PTC thermistor type for surface temperature monitoring and has been designed to bolt directly onto a bearing housing, motor, gearbox, or machine casing. The mounting hole is 8mm from the factory, but can be drilled up to 13mm if needed. The sensor can be connected to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 Elite. The connections are not polarity sensitive therefore special connection requirements are eliminated.</p>	 <p>The <b>MDB</b> series is a range of bearing sensors manufactured to screw directly into a bearing housing through the existing 1/4" BSP threaded grease zerk (can be installed in 1/8" NPT grease zerk fitting with an adapter). Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The sensor is fitted with a M12 connector for use with a separately supplied cable and socket assembly which can be connected directly to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 Elite. The connections are not polarity sensitive therefore special connection requirements are eliminated.</p>	 <p>The <b>WDB8</b> series is a range of bearing temperature sensors designed to screw directly into an existing 1/4" BSP grease zerk fitting on a bearing housing. Each sensor is fitted with a grease nipple to allow lubrication of the bearing without the need for removal of the sensor. The WDB Series is available with either a PTC thermistor with various factory set trip points or an NTC thermistor with a user adjustable trip point.</p>
<p><b>Features</b></p> <ul style="list-style-type: none"> <li>&gt; Screw in positive mount installation</li> <li>&gt; Grease zerk for bearing lubrication</li> <li>&gt; Adjustable depth (50, 100, 200mm probes)</li> <li>&gt; 1/4" NPT (brass body)</li> <li>&gt; NTC or Pt100 RTD versions - continuous temperature</li> </ul>	<p><b>Features</b></p> <ul style="list-style-type: none"> <li>&gt; 4-20 mA output</li> <li>&gt; Screw in positive mount installation</li> <li>&gt; Grease zerk for bearing lubrication</li> <li>&gt; Lug style adaptor (surface temp.)</li> <li>&gt; 1/2" NPT conduit entry</li> <li>&gt; 304 stainless steel body</li> </ul>	<p><b>Features</b></p> <ul style="list-style-type: none"> <li>&gt; Surface mount installation</li> <li>&gt; 8mm to 13mm bolt entry</li> <li>&gt; 1/2" NPT conduit entry</li> <li>&gt; Continuous temperature monitoring</li> </ul>	<p><b>Features</b></p> <ul style="list-style-type: none"> <li>&gt; Screw in installation</li> <li>&gt; Grease zerk for bearing lubrication</li> <li>&gt; Wiring connector</li> </ul>	<p><b>Features</b></p> <ul style="list-style-type: none"> <li>&gt; Screw in positive mount installation</li> <li>&gt; Grease zerk for bearing lubrication</li> <li>&gt; 1/4" BSP (brass body)</li> <li>&gt; Cable with protective anti-bend cover</li> </ul>
<p><b>Sensor options</b></p> <ul style="list-style-type: none"> <li>&gt; NTC Thermistor</li> <li>&gt; Pt-100 4-wire RTD</li> <li>&gt; Selectable probe length: 50, 100 and 200 mm</li> </ul>	<p><b>Sensor options</b></p> <ul style="list-style-type: none"> <li>&gt; Selectable probe length: 50, 100 and 200mm</li> <li>&gt; 4-20 mA loop</li> </ul>	<p><b>Sensor options</b></p> <ul style="list-style-type: none"> <li>&gt; NTC Thermistor</li> <li>&gt; Pt-100 4-wire RTD</li> <li>&gt; PTC (trip temperature selected at time of purchase)</li> </ul>	<p><b>Sensor options</b></p> <ul style="list-style-type: none"> <li>&gt; NTC Thermistor</li> <li>&gt; Pt-100 4-wire RTD</li> <li>&gt; PTC (trip temperature selected at time of purchase)</li> </ul>	<p><b>Sensor options</b></p> <ul style="list-style-type: none"> <li>&gt; NTC Thermistor</li> <li>&gt; PTC (trip temperature selected at time of purchase)</li> </ul>
<p><b>Input supply voltage</b></p> <ul style="list-style-type: none"> <li>&gt; 12/24 VDC (current limited)</li> </ul>	<p><b>Input supply voltage</b></p> <ul style="list-style-type: none"> <li>&gt; 15-28 VDC (24VDC nominal)</li> </ul>	<p><b>Input supply voltage</b></p> <ul style="list-style-type: none"> <li>&gt; 12/24 VDC (current limited)</li> </ul>	<p><b>Input supply voltage</b></p> <ul style="list-style-type: none"> <li>&gt; 12/24 VDC (current limited)</li> </ul>	<p><b>Input supply voltage</b></p> <ul style="list-style-type: none"> <li>&gt; 12/24 VDC (current limited)</li> </ul>
<p><b>Compatible 4B control unit</b></p> <ul style="list-style-type: none"> <li>&gt; Watchdog</li> <li>&gt; T500</li> <li>&gt; T400</li> </ul>	<p><b>Compatible 4B control unit</b></p> <ul style="list-style-type: none"> <li>&gt; Watchdog</li> </ul>	<p><b>Compatible 4B control unit</b></p> <ul style="list-style-type: none"> <li>&gt; Watchdog</li> <li>&gt; T500</li> <li>&gt; T400</li> </ul>	<p><b>Compatible 4B control unit</b></p> <ul style="list-style-type: none"> <li>&gt; Watchdog</li> <li>&gt; T500</li> <li>&gt; T400</li> </ul>	<p><b>Compatible 4B control unit</b></p> <ul style="list-style-type: none"> <li>&gt; Watchdog</li> <li>&gt; T500</li> <li>&gt; T400</li> </ul>
<p><b>Approvals</b></p> <ul style="list-style-type: none"> <li>&gt; Europe - ATEX</li> <li>&gt; USA, Canada - CSA</li> <li>&gt; Worldwide - IECEx</li> </ul>	<p><b>Approvals</b></p> <ul style="list-style-type: none"> <li>&gt; USA, Canada - CSA</li> </ul>	<p><b>Approvals</b></p> <ul style="list-style-type: none"> <li>&gt; Europe - ATEX</li> <li>&gt; USA, Canada - CSA</li> <li>&gt; Worldwide - IECEx</li> </ul>	<p><b>Approvals</b></p> <ul style="list-style-type: none"> <li>&gt; Europe - ATEX</li> </ul>	<p><b>Approvals</b></p> <ul style="list-style-type: none"> <li>&gt; Europe - ATEX</li> <li>&gt; USA, Canada - CSA</li> <li>&gt; Worldwide - IECEx</li> </ul>
<p><b>Applications</b></p> <ul style="list-style-type: none"> <li>&gt; Bearing temperature control</li> <li>&gt; Temperature measurement</li> </ul>	<p><b>Applications</b></p> <ul style="list-style-type: none"> <li>&gt; Bearing temperature control</li> <li>&gt; Temperature measurement</li> </ul>	<p><b>Applications</b></p> <ul style="list-style-type: none"> <li>&gt; Surface temperature measurement and control</li> </ul>	<p><b>Applications</b></p> <ul style="list-style-type: none"> <li>&gt; Bearing temperature control</li> <li>&gt; Temperature measurement</li> </ul>	<p><b>Applications</b></p> <ul style="list-style-type: none"> <li>&gt; Bearing temperature control</li> </ul>

## ACCESSORIES

### ADB BEARING SENSOR TESTER

The **ADB Sensor Tester** has been designed to test 4B adjustable depth bearing (ADB) temperature sensors in the field. This hand held test unit features an integrated heating block specifically designed to have a 4B ADB sensor directly inserted. With integral controls and temperature display, the unit heats the sensor to the desired trip point, and allows quick and easy real life testing of the sensor and temperature monitoring system.

During planned maintenance or periodic testing, the ADB Sensor Tester can be used as a diagnostic tool to verify the alarm and shutdown sequences of the control unit are functioning as expected. To test, the heater block should be set above the control units alarm operating temperature. Remove the ADB bearing sensor probe from the housing and insert it into the heater block. As the heater block reaches the alarm temperature, the ADB sensor will relay this data to the control unit, allowing you to verify that the alarm and shutdown sequences run as expected.

### Features

- > ADB Bearing Sensor Tester
- > Hand Held Portable Unit
- > Exact Alarm Point Testing
- > Exact Shutdown Point Testing
- > Easy To Read Display



ADB Sensor Installed on Conveyor Bearing

### ADB WRENCH

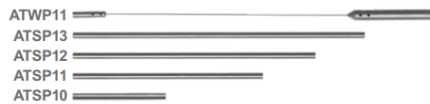
Used to loosen and tighten the ADB bearing temperature probe for proper depth adjustment.



## AUTO-SET™

A user friendly, reliable point level indicator for bulk granular solids, powders and liquids. Digital display, push-button calibration and material build-up compensator make this unit the elite point level sensor.

A selection of screw-on stainless steel probes to suit your application.



## AUTO-SET™ REMOTE

A user friendly, reliable point level indicator for bulk granular solids or powders where there is high vibration and/or temperature involved. Remote electronic display/control unit allows for remote calibration/set-up away from vibration or heat.

### ATS8



**ATS8**  
RF capacitance point level indicator

### ATS8 & EXTENDED POWER SHIELD



**ATS8 with Extended Power Shield**  
RF capacitance point level indicator for thick-walled silos

### ATS8 FLUSH PROBE



**ATS8 Flush Probe**  
RF capacitance heavy-duty plugswitch

### AUTO-SET™ REMOTE PROBE



**Auto-Set™ Remote Probe**  
Polyprop probe - 120°C  
PEEK probe - 250°C  
Ceramic probe - 600°C

### AUTO-SET™ REMOTE CONTROL



**Auto-Set™ Remote Control**  
Remote control unit with digital display and calibration push buttons

#### Features

- > Push button calibration
- > Digital display
- > Internal timer
- > Automatic material build-up compensator
- > Attachable SS probes

#### Style

- > 1 inch BSP

#### Supply voltage

- > 120/240 VAC  
24 VDC  
(universal supply)

#### Output

- > 1 set of voltage-free changeover relay contacts

#### Approvals

- > Europe - ATEX
- > USA, Canada - CSA
- > IECEX - worldwide

#### Applications

- > Material point level indication in silos, bins and other vessels.

#### Features

- > Push button calibration
- > Digital display
- > Internal timer
- > Automatic material build-up compensator, 12 or 16 inches long
- > Attachable SS probes

#### Style

- > 1 inch BSP

#### Supply voltage

- > 120/240 VAC  
24 VDC  
(universal supply)

#### Output

- > 1 set of voltage-free changeover relay contacts

#### Approvals

- > Europe - ATEX
- > USA, Canada - CSA
- > IECEX - worldwide

#### Applications

- > Material point level indication in thick-walled concrete silos.

#### Features

- > Push button calibration
- > Digital display
- > Internal timer
- > Automatic material build-up compensator
- > No moving parts

#### Style

- > 100mm dia. probe with integral mount

#### Supply voltage

- > 120/240 VAC  
24 VDC  
(universal supply)

#### Output

- > 1 set of voltage-free changeover relay contacts

#### Approvals

- > Europe - ATEX
- > USA, Canada - CSA
- > IECEX - worldwide

#### Applications

- > Plug condition in chutes, discharges and pipes.

#### Features

- > No moving parts
- > No electronic components
- > Automatic material build-up compensator
- > Attachable SS probes
- > High temp available

#### Style

- > 1 inch BSP

#### Supply voltage

- > From control unit

#### Output

- > To control unit

#### Approvals

- > Not approved

#### Applications

- > Material point level indication in surge bins, vibratory feeders and high temperature processes.

#### Features

- > Push button calibration
- > Digital display
- > Internal timer
- > DIN rail mountable

#### Style

- > DIN rail mountable enclosure processes

#### Supply voltage

- > 120/240 VAC  
24 VDC  
(universal supply)

#### Output

- > 1 set of voltage-free changeover relay contacts

#### Approvals

- > Not approved

#### Applications

- > Material point level indication in surge bins, vibratory feeders and high temperature processes.

## BINSWITCH



The **Binswitch** is a capacitive sensor for the detection of blockages in chute, discharges and pipes. Available in 2-wire and 5-wire models. Simple semi-automated calibration process using magnets.

### Features

- > Capacitance probe
- > Detects presence or absence of liquids & free-flowing bulk granular materials
- > Easy installation & self-containing
- > Magnet calibration

### Style

- > 30mm cylindrical

### Supply voltage

- > 24 to 240 VAC/VDC

### Output

- > Programmable high or low level detection

### Approvals

- > Europe - ATEX
- > IECEX - worldwide

### Applications

- > Plug condition in chutes, discharges and pipes.

## RLI



The **RLI** is designed to signal the presence or absence of bulk materials such as: chemical products, wood chips, grain, granules and powders. It is ideal for use as a point level indicator in tanks and silos as well as a blockage detector in conveyor chutes.

### Features

- > High or low level indication
- > Automatic power shut off
- > Limit switch contact output
- > 14 foot vertical extensions (maximum)

### Style

- > Rotary level indicator with 1 1/4-inch NPT mounting thread
- > Glass-fibre reinforced nylon housing

### Supply voltage

- > 24 VDC
- > 110VAC
- > 240VAC

### Output

- > 1 set of voltage-free changeover relay contacts

### Approvals

- > No explosive environment approvals

### Applications

- > Material point level indication in surge bins, vibratory feeders and high temperature processes

## RLI SHAKER



A rotary paddle switch used to detect high / low levels of bulk granular solids in bins, tanks and silos. It can also be used as a plug sensor in spouts, where long life and failsafe detection is required. The **RLI "Shaker"** rotates clockwise, then counter-clockwise and then shakes to shed any excess material build-up.

### Features

- > Failsafe rotation detection
- > Shaking action for shedding material build-up
- > User adjustable torque control
- > Direct stepper motor drive
- > No clutch and no gearbox
- > Built in adjustable timer

### Style

- > Glass-fibre reinforced nylon housing
- > Vertical extensions to 2m (max.) wire rope

### Supply voltage

- > 120/240 VAC
- > 24 VDC (universal supply)

### Output

- > 1 set of voltage-free changeover relay contacts

### Approvals

- > USA, Canada - CSA

### Applications

- > Material point level indication in surge bins, vibratory feeders and high temperature processes.

## BINSWITCH ACCESSORIES

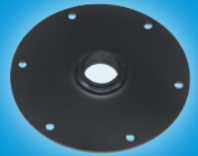
### BAS3 Abrasion Shield

Polyethylene abrasion shield for ATEX Binswitch.



### Mounting Plate

Powder-coated mild steel mounting plates with 1 1/4-inch NPT or 1 inch BSP, half or full coupling. Use with AutoSet, Roto-Level Indicators and Binswitches with adapters. (Also available in stainless steel.)



## PADDLE SWITCH ACCESSORIES

### Rotary Level Paddles

Complete range of stainless steel paddles for Roto-Level Indicators.



Binswitch Installed on Bucket Elevator Spouting (with SMP, BAS & conduit adapter)



Auto-Set™ Flush Probe Installed on Belt Conveyor Discharge



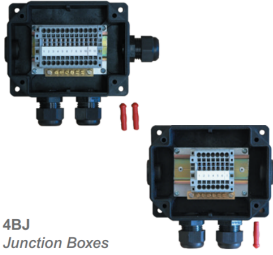
Auto-Set™ Flush Probe Installed on Screw Conveyor Discharge



## JUNCTION BOXES

## MONITORING FOR DRAG CHAIN CONVEYORS

### 4BJ JUNCTION BOXES



4BJ  
Junction Boxes

4B Atex approved junction boxes allow for the easy installation of sensors in potentially explosive dust hazard environments.

#### Features

- > Robust glass reinforced nylon casing
- > Up to 4 gland inputs
- > Dust and water tight seal
- > Detachable cover for easy terminal access

#### Terminal springs

- > 6 x 2.5mm<sup>2</sup> or 12 x 2.5mm<sup>2</sup>

#### Approvals

- > Europe – ATEX

#### Applications

- > Electrical installations in dust – explosive environments

### D5M INLINE JUNCTION BOX



D5M  
Inline Junction Box

The D5M's unique moulded body with Atex approved glands and mounting clip/bracket allows for in-line connection closer to the sensors simplifying connections and reducing the time of intervention during maintenance operations or repairs.

#### Features

- > Ideal for extending sensor cables within Atex hazard areas
- > Complete with Atex glands and mounting bracket

#### Terminal springs

- > 5 x 2.5mm<sup>2</sup>

#### Approvals

- > Europe – ATEX

#### Applications

- > Electrical installations in dust – explosive environments



Speed Relay

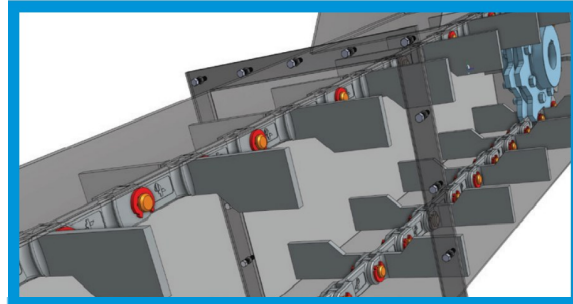
WDA Sensor

By using a WDA sensor in combination with a speed relay, ferrous steel flights or bolts on plastic paddles are used to monitor for broken or slack chain issues on drag conveyors.

The WDA is a non-contacting extended range magnetic proximity sensor, not affected by dust or material build up, used to detect moving ferrous material up to 75mm away from the sensor. The speed relay is used to monitor the speed of a rotating shaft and detect if it rises or falls below a preset safety level.

#### Features

- > Solution for drag chain conveyors
- > Monitor for chain slack or breakage
- > Detects movement of steel flights or bolts on plastic paddles
- > Prevent costly equipment damage and downtime
- > Simple sensor and speed relay solution



## TOOLS AND SERVICES

4B offers an array of tools and services to support you and your products. The 4B Tech Team can answer your installation and operating questions, and provide on-site inspection, testing or commissioning services for our products. 4B has developed testing tools to easily check our sensors in the field during routine maintenance. We also have a selection of tools available to help with the installation of our products.

### SPEEDMASTER™



The SpeedMaster™ is the only device that accurately tests the calibration of a speed switch, and allows testing of the alarm and shutdown features of the sensor while installed on the machine shaft.

- > Speed switch calibration testing
- > Exact alarm & shutdown point testing
- > No need to modify sensor assembly for testing

### ADB BEARING SENSOR TESTER



The ADB sensor tester has been designed to test 4B adjustable depth bearing (ADB) style temperature sensors in the field. With integral controls and temperature display, the unit heats the sensor to the desired trip point, and allows quick and easy real life testing of the sensor and temperature monitoring system.

### HOTBUS™ NODE TESTER



The Hotbus Node Tester is a portable testing unit that can be used in the field to determine the operational status of any Hotbus communications node and network to quickly identify wiring or node issues.

- > Portable & compact
- > Optional PC connection for extensive data analysis

### TOUCHSWITCH™ BELT ALIGNMENT SENSOR HOLE SAW



- > Recommended tool for Touchswitch™ sensor installation
- > 57mm carbide teeth for optimum performance and durability
- > Cobalt steel pilot drill with split point tip prevents walking
- > Built in flange stop prevents over drilling
- > Ejector spring



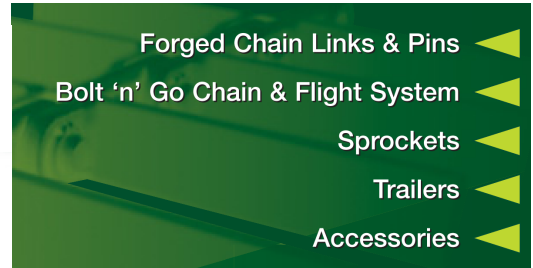
# Forged Chains & Sprockets for the toughest applications

## DROP FORGED CHAIN

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 125 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.

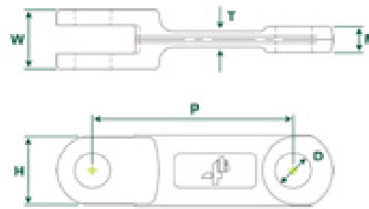


Standard Link



Bolt 'N' Go Link

Links and pins are available in all grades of stainless steel



Standard Link

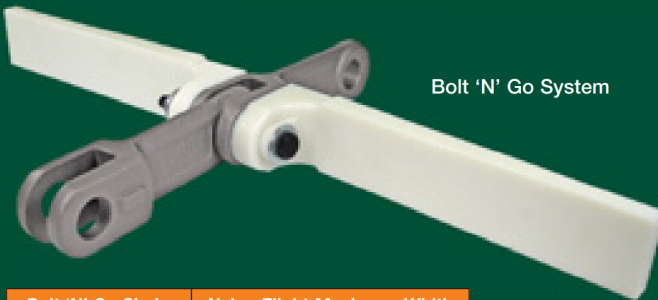
Chain Link	Min Breaking Load		Case Hardness	Case Depth (mm)	Core Hardness	Weight (Per Link) (kg)	Bolt 'N' Go Compatible	Dimensions					
	(kN)	(lb)						P (mm)	H (mm)	T (mm)	W (mm)	M (mm)	D (mm)
<b>NEW</b> 4B102LA	150	33,750	Rockwell C57-C62	0.5	Rockwell C40	0.36	No	102	36	6	25	8	14
4B102NA	180	40,400	Rockwell C57-C62	0.5	Rockwell C40	0.38	Yes	102	36	7	28	12	14
4B125NA	200	44,900	Rockwell C57-C62	0.6	Rockwell C40	0.70	Yes	125	35	10	36	15	16
<b>NEW</b> 4B142LA	250	56,250	Rockwell C57-C62	0.7	Rockwell C40	0.66	No	142	40	10	31	14	18.2
4B142NA	300	67,500	Rockwell C57-C62	0.7	Rockwell C40	1.08	Yes	142	50	12	42	18.7	25
4B142HA	450	101,000	Rockwell C57-C62	0.7	Rockwell C40	1.76	Yes	142	50	16.5	62	28.5	25
4B150NA	300	67,500	Rockwell C57-C62	0.7	Rockwell C40	1.20	Yes	150	49	13	36	15	25
4B160NA	350	78,700	Rockwell C57-C62	0.8	Rockwell C40	1.30	Yes	160	44.5	13	42	19.5	20
4B175NA	520	117,500	Rockwell C57-C62	1.0	Rockwell C40	2.73	No	175	60	16	72	22	30
4B200NA	600	135,000	Rockwell C57-C62	1.0	Rockwell C40	2.85	Yes	200	60	18	68	30	30
4B216NA	600	135,000	Rockwell C57-C62	1.0	Rockwell C40	3.66	No	216	75	19	59	26	35
4B250NA	700	158,000	Rockwell C57-C62	1.0	Rockwell C40	4.26	No	250	75	18	70	32	32
4B260NA	700	158,000	Rockwell C57-C62	1.0	Rockwell C40	5.38	No	260	75	21	71	31	32

# BOLT 'N' GO™

PATENTED

The Bolt 'N' Go flight system is a revolutionary assembly method for drop forged chain. Link and flight assembly is made easy by using a standard bolt and mechanical lock nut with a high strength, heat treated hollow pin. There are no circlips and no intricate assembly is required. There is no welding of flights, no need to remove chain from the conveyor for installation, and no issues with strength. Just bolt the links and the flights together. It's easy, simple and reliable!

## Forged Chain



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

NOTE: 4B125BNA, 4B150BNA, 4B160BNA & 4B200BNA Chain also available.

Feed Mill Application using Bolt 'N' Go Chain with Nylon Flights



Assembled Bolt 'N' Go Chain



# WELDED FLIGHTS & PINS

## TYPICAL WELDED FLIGHT ATTACHMENTS



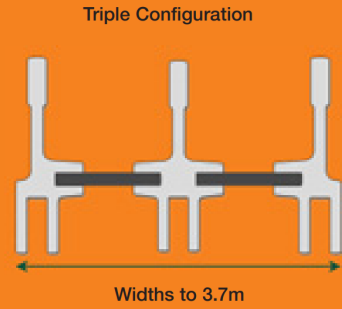
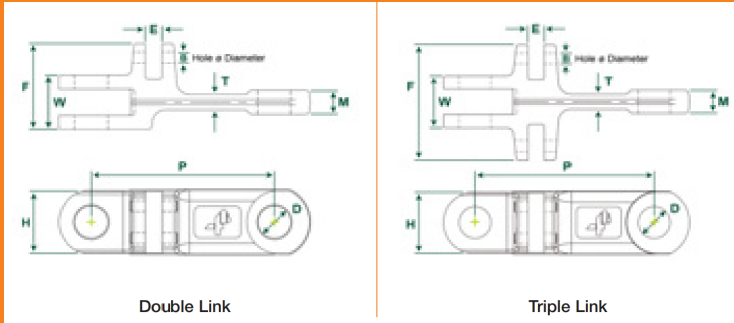
## STANDARD PIN OPTIONS





# DOUBLE & TRIPLE LINKS

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



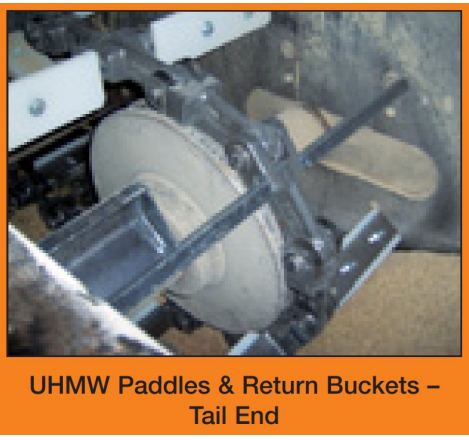
Chain Link	Min Breaking Load (kN) (lb)	Case Hardness	Case Depth (mm)	Core Hardness	Weight (Per Link) (kg)	Bolt 'N' Go Compatible	Dimensions								
							P (mm)	H (mm)	T (mm)	W (mm)	M (mm)	D (mm)	F (mm)	E (mm)	B (mm)
4B142DNA	300 67,500	Rockwell C57-C62	0.7	Rockwell C40	1.37	No	142	50	12	42	18.7	25	67	13	8.5
4B142DHA	450 101,000	Rockwell C57-C62	0.7	Rockwell C40	2.00	No	142	50	16	62	28	25	87	13	8.5
4B142TNA	300 67,500	Rockwell C57-C62	0.7	Rockwell C40	1.67	No	142	50	12	42	18.7	25	92	13	8.5
4B142THA	450 101,500	Rockwell C57-C62	0.7	Rockwell C40	2.32	No	142	49	16	62	28.5	25	112	13	8.5
4B175DNA	520 117,500	Rockwell C57-C62	1.0	Rockwell C40	3.17	No	175	60	16	72	22	30	96	17	10.5



UHMW Paddles on "T" Plate Flights – Drive End



Typical Double Strand Chain Application



UHMW Paddles & Return Buckets – Tail End

# BOLT 'N' GO™ ROUND LINK CHAINS

PATENTED

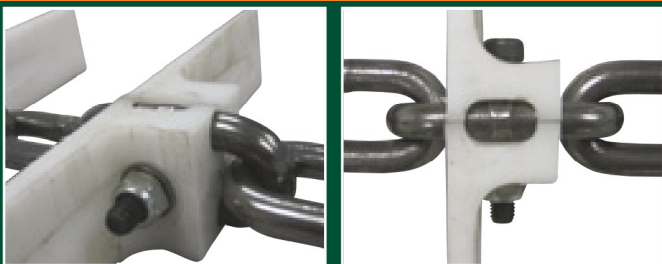
## Economical Round Link Chain System

Easy flight assembly by using a standard bolt and nut, connecting the flights directly to the link. The chain can be supplied in a coil together with the bolt-on flights already assembled.

### Round Link Chain with Bolt 'N' Go Flights



Size 13 x 65mm



Bolt 'N' Go System  
Round Link Chain  
Application on a  
Conveyor

### Round Link Chain



**ON DEMAND**  
Separate datasheets available

### Miscellaneous Conveyor Chain



**ON DEMAND**  
Separate datasheets available

## ACCESSORIES

### NYLON FLIGHTS FOR SCRAPER CHAINS



'L' Shape with 1  
fixing hole



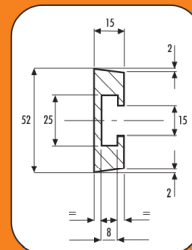
'L' Shape with 2  
fixing holes



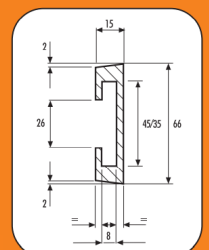
'T' Shape with 2  
fixing holes

- Easy to install or replace, cutting down installation and maintenance costs
- Eliminates the need for a bottom liner in the conveyor
- Reduces conveyor noise.

### NYLON FLIGHT SLEEVES FOR 102 NA CHAIN and 142 NA CHAIN



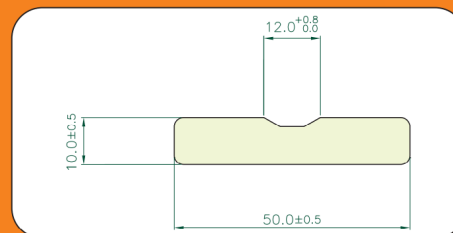
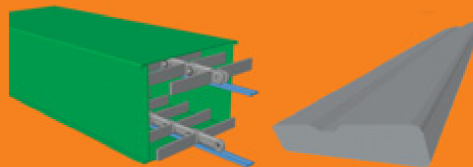
102 NA



142 NA

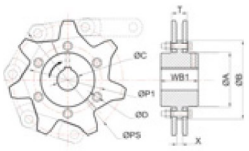
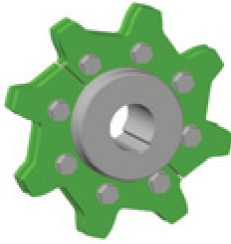


### MANGANESE RAILS FOR FORGED CHAINS

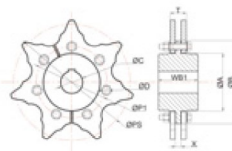


Available sizes:  
40 x 10mm  
50 x 10mm  
60 x 10mm

4B sprockets and trailers are manufactured from high grade heat treated steel to a minimum hardness of 57 HRC. Each piece is machined to size with appropriate bore and keyway specific to each customer's application. Most sizes are in stock and ready to ship from 4B's extensive inventory.



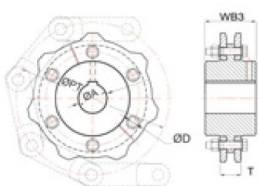
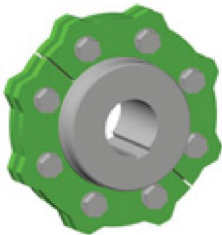
Standard Sprocket (Shown with Hub)



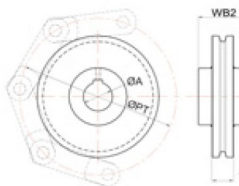
Wear Reversible Sprocket (Shown with Hub)

Chain Link	No. of Teeth	ØPS (mm)	ØP1 (mm)	ØA (mm)	ØB (mm)	ØC (mm) Max.	ØD (mm)	N No. of Holes	T (mm)	X (mm)	WB1 (mm)
<b>4B102NA</b>	6	204.0	—	105.0	135.0	70	—	—	30	10	83
	7	235.1	146.0	108.0	173.0	70	M12	6	30	10	83
	8	266.5	170.0	144.0	196.0	85	M12	6	30	10	83
	9	298.2	200.0	174.0	232.0	105	M12	6	30	10	83
	10	330.1	241.3	179.0	264.0	105	M12	8	30	10	83
<b>4B142NA</b>	6	284.0	168.3	136.5	190.5	85	M12	6	46	16	112
	7	327.3	200.0	162.0	234.0	105	M16	6	46	16	112
	8	371.1	241.3	187.3	282.0	115	M20	8	46	16	127
	9	415.2	285.8	240.0	330.0	150	M20	8	46	16	127
	10	459.5	285.8	240.0	330.0	150	M20	8	46	16	127
	11	504.0	368.3	310.0	419.0	170	M20	8	46	16	150
	12	548.6	415.0	345.0	465.0	170	M20	8	46	16	150
	13	593.4	470.0	380.0	521.0	170	M20	8	46	16	150
	14	638.1	470.0	380.0	546.0	170	M20	10	46	16	150
	<b>4B142HA</b>	7	327.3	200.0	162.0	234.0	105	M16	6	69	19
8		371.1	241.3	187.3	282.0	115	M20	8	69	19	150
9		415.2	285.8	240.0	330.0	150	M20	8	69	19	150
10		459.5	285.8	240.0	330.0	150	M20	8	69	19	150
11		504.0	368.3	310.0	419.0	170	M20	8	69	19	150
12		548.6	415.0	345.0	465.0	170	M20	8	69	19	150
13		593.4	470.0	380.0	520.0	170	M20	8	69	19	150
14		638.1	470.0	380.0	546.0	170	M20	10	69	19	180

# TRAILERS



Segmental Star Trailer (Shown with Hub)



Smooth Trailer

Chain Link	Max Shaft Dia. ØA (mm)	Pitch Circle Dia. ØPT (mm)	Hub Width Dia.* (mm)		Rim Width Dia. T (mm)
			Smooth WB2	Segmental WB3	
<b>4B102NA</b>	65	204.0	57	83	35
	65	235.1	57	83	35
	65	266.5	57	83	35
	65	298.2	57	83	35
	65	330.1	57	83	35
<b>4B142NA</b>	85	284.0	74	112	45
	85	327.3	74	112	45
	85	371.1	77	127	45
	115	415.2	77	127	45
	115	459.5	77	127	45
	115	504.0	105	150	45
	115	548.6	105	150	45
	115	593.4	120	150	45
	115	638.1	120	150	45
	<b>4B142HA</b>	115	327.3	110	127
115		371.1	110	150	75
115		415.2	110	150	75
115		459.5	120	150	75
140		504.0	120	150	75
140		548.6	120	150	75
140		593.4	120	150	75

\* Smooth and segmental trailers have different hub widths as noted (WB2 & WB3).  
 - 4B offers any bore size to suit your requirements, consult with our engineers for recommended shaft diameter.  
 - 216NA and 260NA sizes are available, contact 4B for more information.