

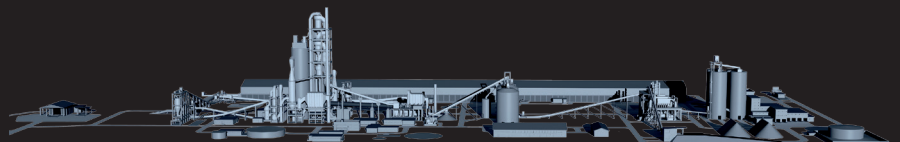


4B GROUP



# CEMENT INDUSTRY SOLUTIONS

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



# STEEL WEB BELT



The 4B Steel Web Belt is a rubber elevator belt with a special steel cord core. The cords provide low elongation with high elasticity in the length, and cross rigidity in the width. The built-in elasticity allows running over slightly crowned pulleys which greatly improves belt tracking, and helps to avoid belt wandering which is often the reason for elevators shutting down. The rigid web cords act as a barrier to ripping and tearing which increases the holding ability for the bucket bolts. This produces a good cross rigid belt resulting in excellent straight tracking characteristics.

In contrast, most conventional steel cable belts lack elasticity and consequently have to run over truly flat, cylindrical pulleys which increases the risk of belts off-tracking.

The 4B Steel Web Belt is designed for heavy duty/industrial bucket elevator applications with long centre distances that require stable running and reliable belts with high safety factors. All 4B Steel Web Belts are manufactured in accordance with DIN 22102 and ISO norms.

## TECHNICAL SPECIFICATIONS

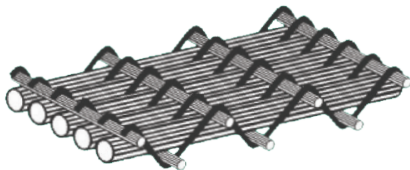
**For tall, high tonnage industrial elevators. Steel cord keeps belt stretch to a minimum.**

- Strength - up to 4,000 kN/m
- Covers 3 + 3 or 4 + 4
- Elongation at maximum working load 0.5%
- Temperature resistant up to 130°C continuous
- Anti static
- Bolt holes to customer specification

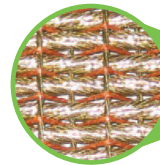
**Temperature Range -20°C to +130°C**



## STEEL WEB BELT

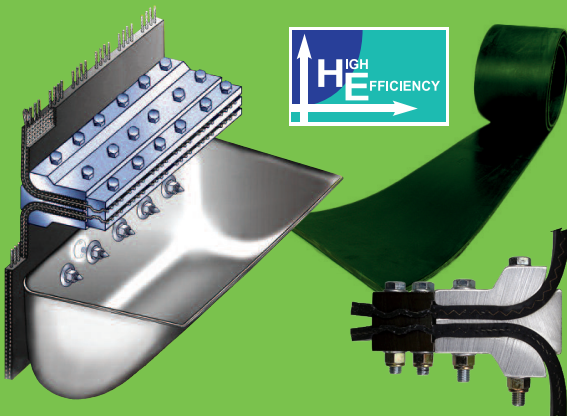


Steel Web Core Carcass



Detailed View of Steel Web Core

## SJ BUCKETS / BC CLAMP / STEEL WEB BELT



## HIGH CAPACITY SYSTEM

**A proven solution for the heavy industry.**

4B can offer an integrated system of Steel Web Belting, SJ Pressed Steel Buckets and free engineering for elevator designs with compact industrial elevators.

## ADVANTAGES OF USING THE SJ SYSTEM AND STEEL WEB BELT:

- Savings of up to 33% on component costs
- Heavy duty but lighter weight system
- Taller elevators are possible (up to 150m)
- Low maintenance costs
- Higher belt speeds are possible
- Closer bucket spacing
- Higher capacity and efficiency



BC Clamp Belt Splice  
on 4B Steel Web Core Belt



Starco Jumbo (SJ) Buckets  
on 4B Steel Web Core Belt  
in Cement Application



# ELEVATOR BUCKETS



## NYLATHANE™ BUCKETS - Next generation industrial elevator buckets



Lightweight, durable, non-stick alternative for cement facilities who have been using carbon steel buckets.

Nylathane™ is a unique polymer that combines nylon 6 with an elastomer. It can withstand impact and return to shape, unlike metal buckets that permanently deform.

That combination makes it ideal for the cement industry, where impact tolerance and efficient discharge of sticky or powdery products are critical to minimize downtime and optimize production.

- Excellent wear resistance
- Excellent impact strength (Izod – 20 KJ/m<sup>2</sup>)
- Self-cleaning surfaces
- 75% lighter than fabricated steel
- Anti-Static (108 Ohms)
- Non-sparking & non-corroding
- Service Temperature: Long term -40 to +110°C (with short peaks of 150°C)
- Suitable for light to heavy abrasive industrial products; ideal for cement

## STARCO JUMBO™ BUCKET

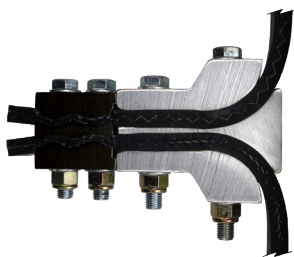
Seamless Steel Buckets



- **Improved capacity:** Wingless design, improves fill and allows closer spacing
- **Greater strength/longer life:** Solid seamless construction with rounded corners for rigidity. No welds or joints to open up
- **Economic solution**
- **More buckets per metre:** More capacity, smaller casing

Developed to meet the needs of industrial elevators, particularly cement. Deep drawn solid steel bucket, designed and engineered to replace large fabricated buckets. Suitable for use with both rubber and steel cord belting.

# BELT FASTENERS



**THE BRAIME CLAMP (BC)** series of heavy-duty belt splices securely fastens belting on larger bucket elevators. As the originator of this proven style of belt clamp, 4B designed it from three pieces of extruded aluminium including a center wedge section to minimize belt wear.

The BC2, BC3 and BC4 versions incorporate an additional three piece machined steel vise grip section designed to ride above the aluminium base clamp and secure the steel cords within a steel web belt.



# ELEVATOR BOLTS



## 4B EURO BOLTS

- Manufactured to approx. DIN15237
- ISO grade 5.8 (exceeds DIN15237)
- Large bolt head diameter
- Fully threaded
- Available as zinc plated or stainless

4B's internationally proven range of elevator bolts for materials handling applications offers benefits including safety, durability, damage reduction and ease of use.

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

# CHAINS

FOR THE TOUGHEST APPLICATIONS



## DROP FORGED CHAIN & SPROCKETS

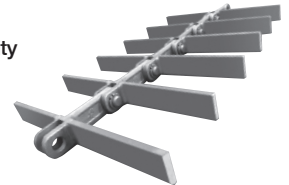


4B's drop forged chain is made of special heat treated alloy steel, case hardened to Rockwell C57 - C62 with a ductile core hardness of Rockwell C40. 4B's superior heat treatment technique provides the optimum chain link with a more resilient ductile core for shock resistance, and an extremely hard exterior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

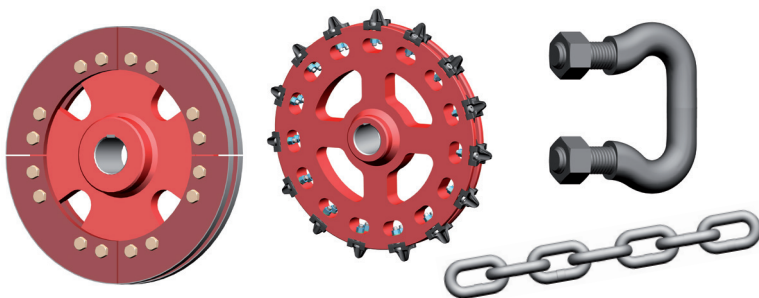
**Bushings** using alloy steel AISI 5120 subject extra deep case carburizing on all wearing surfaces both internal and external to ensure the best combination of high hardness (HRC58- 62) and maximized case depth.

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

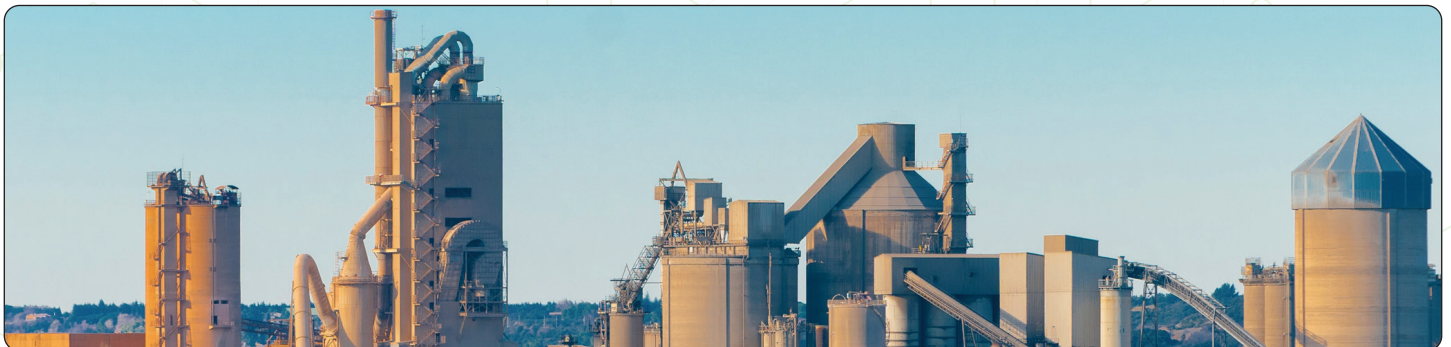
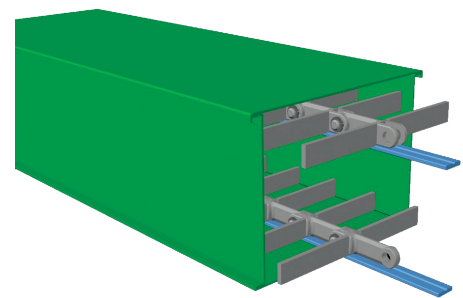
Controlled high interference fits are employed in relation to pins and bushings and relative side plates.

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

## ROUND LINK CHAIN



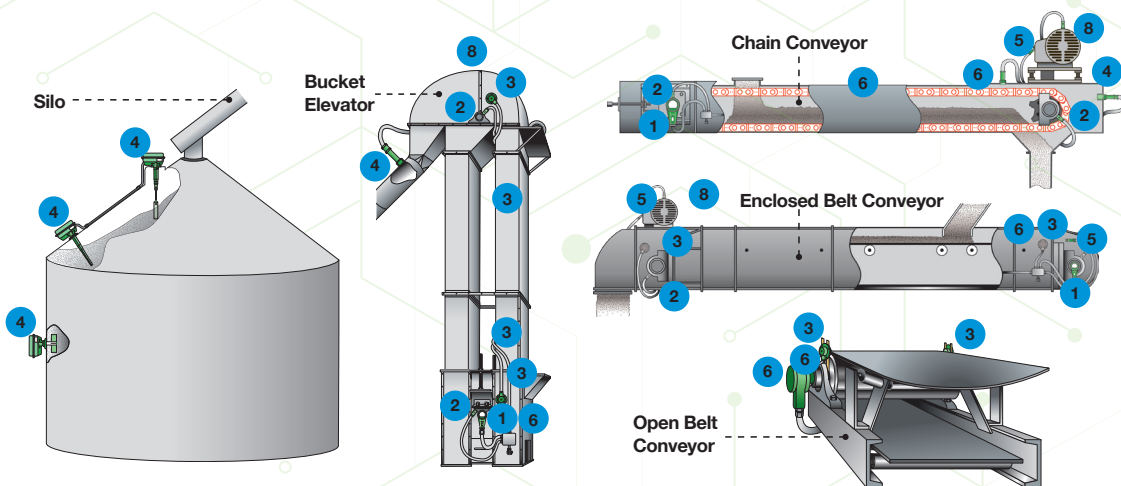
## MANGANESE WEAR RAILS



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



# CONDITION MONITORING



## Typical Sensor Placements

- 1) Belt Speed
- 2) Bearing Temperature
- 3) Belt Misalignment
- 4) Plug / Level Indication
- 5) Surface Temperature
- 6) Slack Chain Detection
- 7) Gate Position
- 8) Vibration

## 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
- 4B-MHE.com cloud based monitoring compatible
- Worldwide hazardous location approvals

## 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
- 4B-MHE.com cloud based monitoring compatible
- Worldwide hazardous location approvals

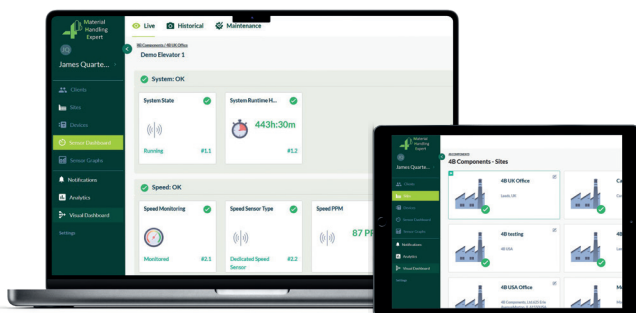
## T400N ELITE



- 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
- Worldwide hazardous location approvals

## MATERIAL HANDLING EXPERT



4B-MHE.com® is a secure cloud based hazard monitoring & preventative maintenance 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.

4B-MHE.com® 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 & Preventative Maintenance
- 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.4b-mhe.com®](http://www.4b-mhe.com®)  
 See What The Cloud Can Do For You!

# SENSORS



## BEARING TEMPERATURE SENSORS 2

### ADB Series

- Adjustable sensor depth
- Probe lengths of 50, 100 & 200mm
- Screw in installation
- Worldwide hazardous location approvals



IP66

### Milli-Temp Series 4-20mA

- Loop-powered analogue sensor
- Single Body Design
- Small Probe Diameter Allows Easy Grease Flow
- Worldwide hazardous location approvals



IP66

### WDB Series

- Screw in positive mount installation
- Grease zerk for bearing lubrication
- 1/4" BSP (brass body) or 1/8" NPT thread
- Worldwide hazardous location approvals



IP65

## 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)
- Worldwide hazardous location approvals



IP65

### ADB Lug Series

- 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
- Worldwide hazardous location approvals



IP66

## 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
- Worldwide hazardous location approvals



IP66

### 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
- Worldwide hazardous location approvals



IP66

## 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
- Worldwide hazardous location approvals



IP66

## VIBRATION SENSORS 8

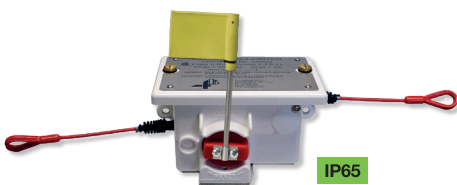
### Milli-VIB

- Robust, compact 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)
- Worldwide hazardous location approvals



IP66

## PULLSWITCH



IP65

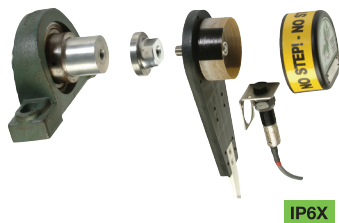
- Open conveyor emergency pull cord safety stop switch
- Unique taut wire fail-safe system - double ended snap action mechanism
- Reflector and/or flag tripped indication
- Designed for severe environments
- Worldwide hazardous location approvals



# SENSORS



## SPEED SENSORS 1



IP6X

### 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



IP66

### 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
- Worldwide hazardous location approvals



IP66

### 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
- Worldwide hazardous location approvals



IP66

### 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
- Worldwide hazardous location approvals

## ENCODERS 1



IP66

### 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
- Worldwide hazardous location approvals

### Heavy Duty Rotech Shaft Encoders



IP66

Aluminium Shaft Encoder



Stainless Steel Encoder



Wheel Encoder

## INDUCTIVE SENSORS 1 7



IP66

### P300 30mm 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
- Worldwide hazardous location approvals



IP66

### P100 18mm 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
- Worldwide hazardous location approvals

## PLUG & LEVEL SENSORS 4



IP65

ATS8  
RF capacitance  
point level  
indicator



IP65

Remote  
Auto-Set™



IP66

Binswitch Elite  
Capacitive  
Sensor



IP65

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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