

HMA



SINCE 1966



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Introduction

Formed in 1966, The HMA Group represents an impressive list of internationally respected companies and manufactures under licence to a number of these companies. We also manufacture a range of products and equipment developed and designed by our own engineers.

Employee group owned, these shareholders span a diverse section of the company and underwrite the efficient function of the HMA Group.

The HMA Group of Companies manufactures, services and sells a wide range of capital plant and equipment to a diverse range of industries. This includes mining, processing, materials handling, water management, power generation and, oil and gas.

We can provide state-of-the-art industrial equipment and also offer customers sound advice, consultation and technical back-up. A team of qualified engineers, who have extensive product training and experience can offer a complete service, from equipment selection through to installation, commissioning and maintenance.

Offices and service facilities are strategically located in Sydney, Wyong & Singleton in NSW, Morwell & Melbourne in VIC, Brisbane & Mackay, in QLD, Perth in WA, Hamilton in New Zealand, Jakarta in Indonesia and Johannesburg in South Africa. With these locations we stand ready to assist you from the project inception stage through contract engineering to installation, commissioning and full maintenance support.

As we recognise industry works 24 hours around the clock, so do we. We are on call to promptly supply essential parts from our local stock and provide technical back up to ensure maximum availability and efficient operation of customer's equipment.

SERVICES:

- **ABRASION RESISTANT EQUIPMENT**
- **BOILER CLEANING & DIAGNOSTICS**
- **GEOTECHNICAL INSTRUMENTATION**
- **MATERIALS HANDLING**
- **MEASUREMENT INSTRUMENTATION**
- **MECHANICAL, STRUCTURAL & ELECTRICAL ENGINEERING**
- **NUCLEAR INSTRUMENTATION**
- **OPTIMISED ENERGY SOLUTIONS**
- **PIPE SYSTEMS**
- **SENSOR TECHNOLOGY**
- **TRANSMISSION & MOTORS**
- **VALVES & CONTROLS**



Introduction

MATERIALS HANDLING

Solutions designed for efficiency when materials require movement in a processing environment.

WEAR SOLUTIONS

Abrasion, impact and erosion resistant materials and piping systems.

FLOW & INDUSTRIAL

Complete range of valves, controls, motors and gear boxes for industrial applications.

INSTRUMENTATION

Measurement & analytical instrumentation and controls for industrial industries.

POWER GENERATION

Integrated solutions for boiler diagnostics, boiler cleaning, ash handling and sootblower controls.

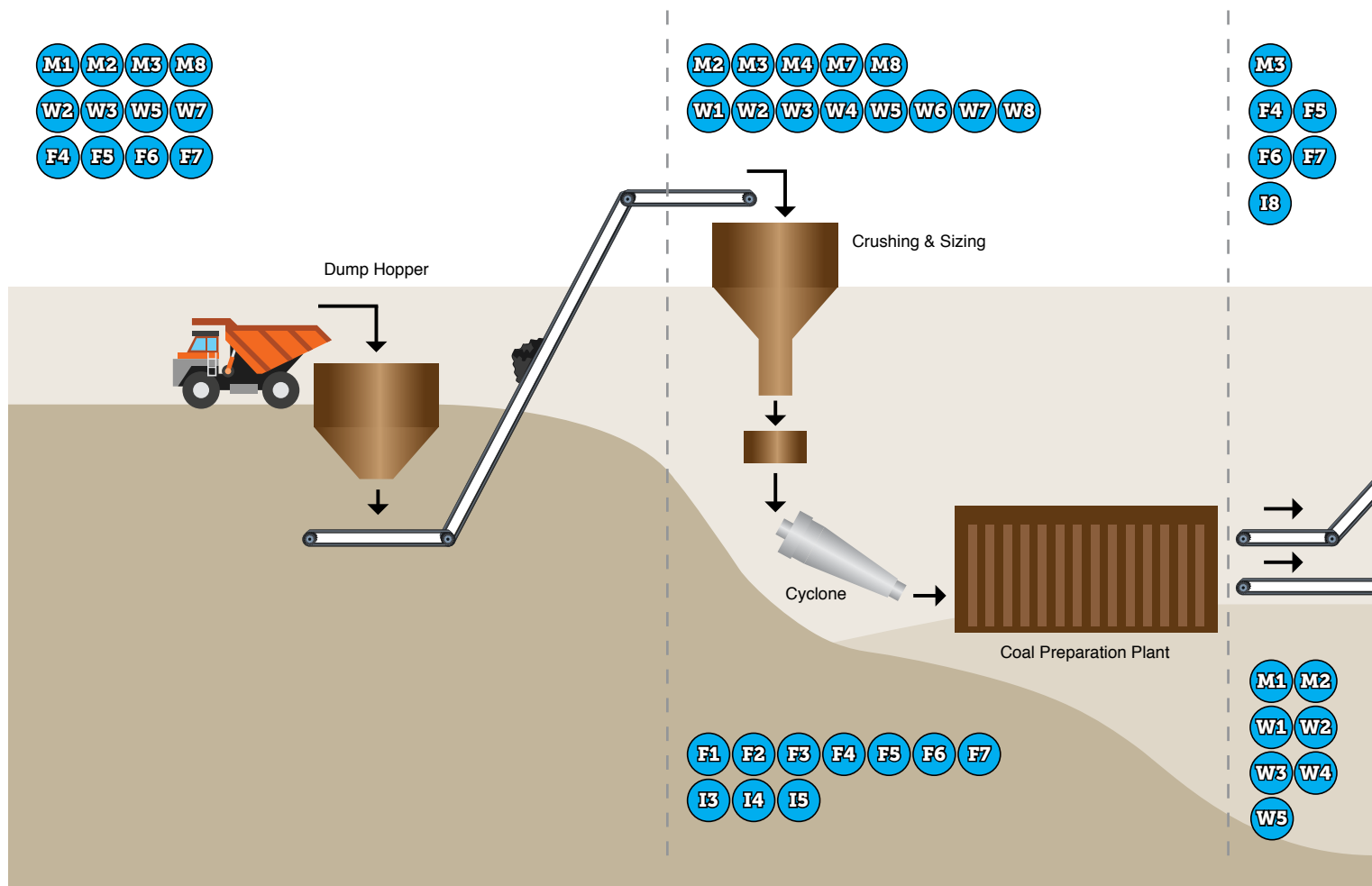
GEOTECHNICAL

A range of Geotechnical Instruments used to measure insitu pressure, displacement, inclination and stress.

INDUSTRIES:

- **WATER & WASTE**
- **CEMENT & QUARRY**
- **POWER GENERATION**
- **OIL & GAS**
- **PROCESS INDUSTRY**
- **PULP & PAPER**
- **MINING & MINERALS**
- **PHARMACEUTICAL, FOOD & BEVERAGE**
- **RAIL & TRANSPORT**
- **CIVIL & INFRASTRUCTURE**
- **MARINE & OFFSHORE**
- **ENVIRONMENTAL**





MATERIALS HANDLING

- M1** Material Loading Systems
- M2** Chutes, Gates & Slingers
- M3** Stockpile Reclaim & Conveying
- M4** Process Equipment
- M5** Overhead Access Equipment
- M6** Hi Rail Equipment
- M7** Rail Fixing & Resurficing Equipment
- M8** Engineered Products *

WEAR SOLUTIONS

- W1** Wear Resistant Pipe
- W2** Sump, Chutes & Gates
- W3** Specialised Lining Systems
- W4** Ancillary Products **
- W5** Impact Panels
- W6** Polyurethane Products
- W7** Process Equipment *
- W8** Site Services

FLOW & INDUSTRIAL

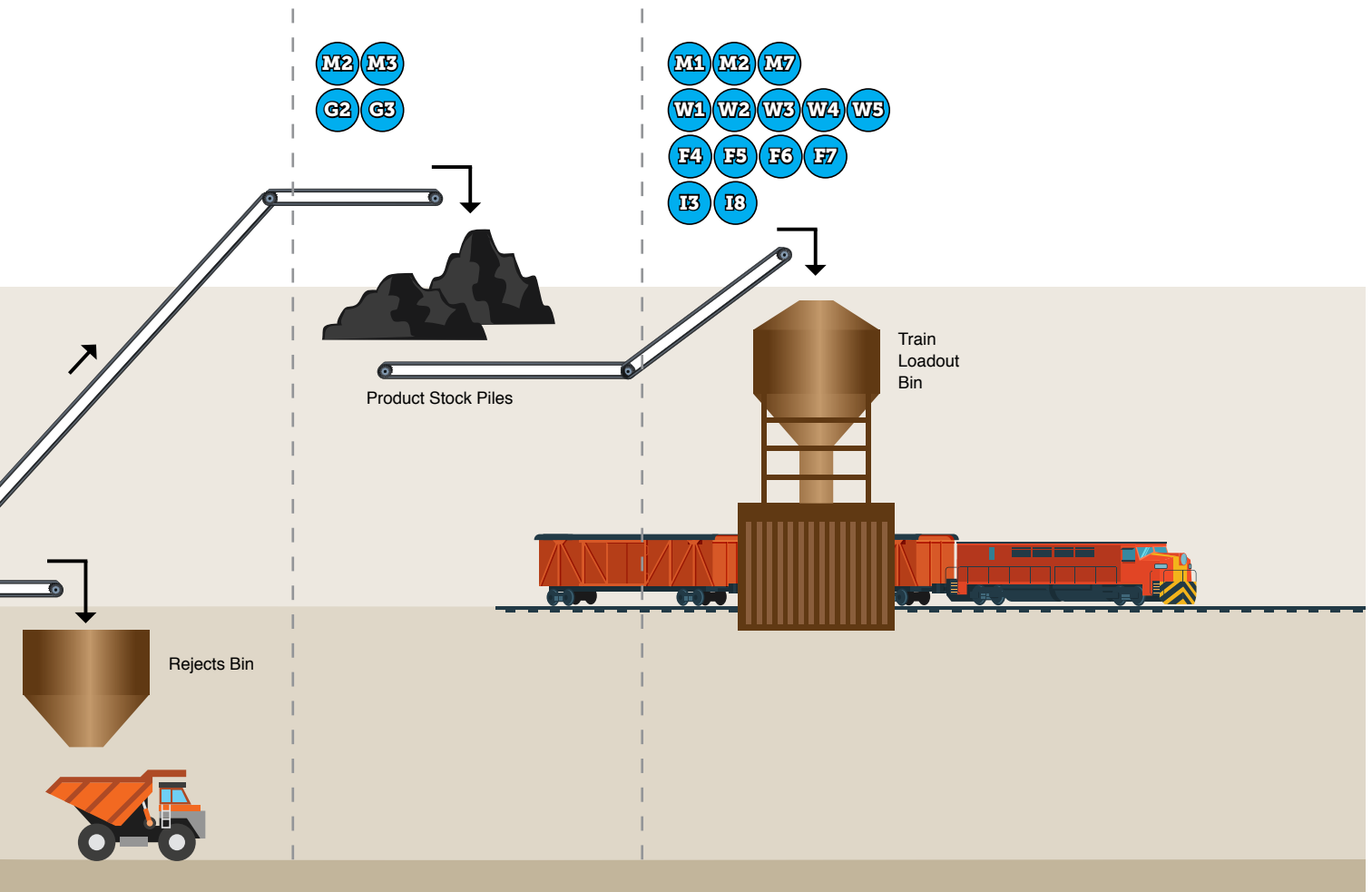
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- F2** Valve Actuation & Controls
- F3** Engineered Products *
- F4** Gearboxes
- F5** Electric Motors
- F6** Conveyor Products
- F7** Screw Jack & Power Transmission

* Includes: Weighing Systems, Safety Guarding, Wheel Washing Systems, Aluminium Dome Covers, Specialised Products & Prototypes

* Includes: Cyclones, Erietz
** Abrasion & Corrosion Compound

* Includes: Couplings, Expansion, Condenser Tube, Filters, Water Treatment

Coal Preparation



INSTRUMENTATION

- I1** Fire & Gas
- I2** Analytics
- I3** Pressure & Temperature
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- I8** Engineered Products *

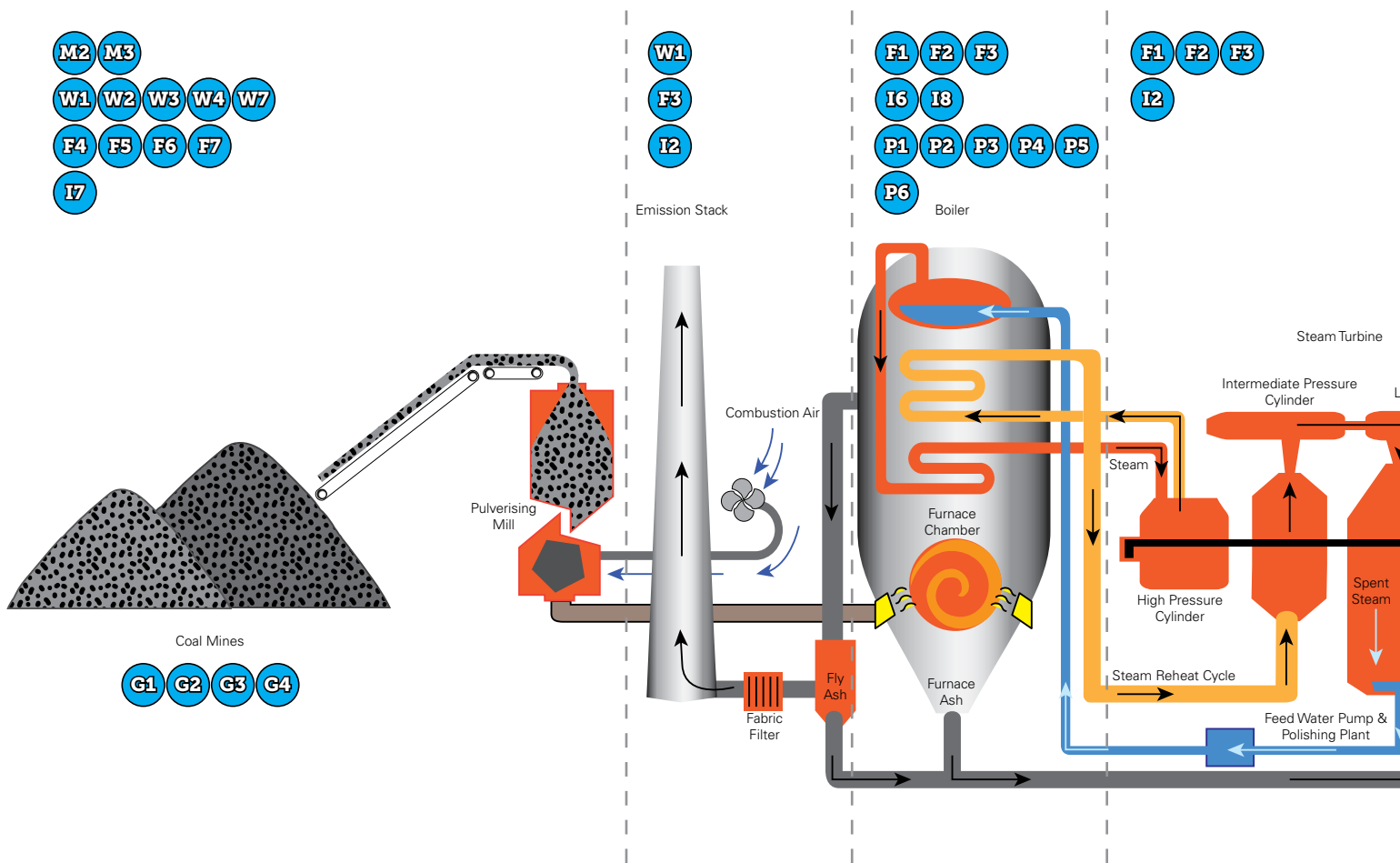
POWER GENERATION

- P1** Online Boiler Cleaning
- P2** Sootblower Enhancements
- P3** Boiler Diagnostic Tools
- P4** Boiler Optimisation
- P5** Boiler Services
- P6** Offline Boiler Cleaning

GEOTECHNICAL

- G1** Water Monitoring
- G2** Inclination Monitoring
- G3** Displacement Monitoring
- G4** Stress & Strength Monitoring
- G5** Field & Workshop Services

* Includes: Expansion Joints, Sodium Hypochlorite Generation, Offshore & Marine Sewage Treatment, Hydrogen Generation, Belt Conveyor Protection & Automation



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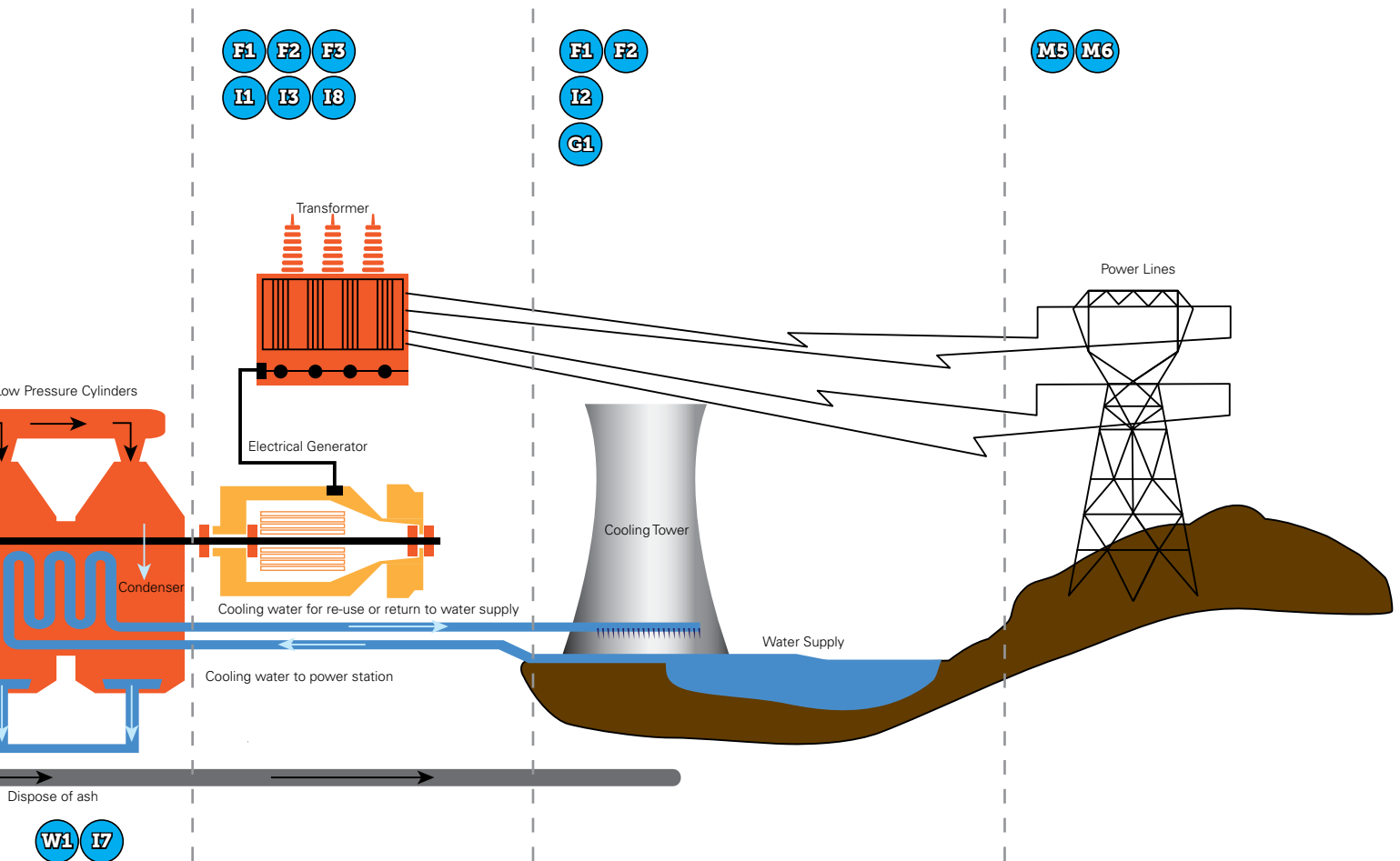
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Power Generation



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F1 F2 F3
I1 I2 I3
G1 G2 G3 G4

Well Head

F1 F2 F3
I1 I3

Compressor Station

F1 F2 F3
I6 I8
P1 P2 P3 P4
P5 P6

I1 I2 I3 I4 I5 I6 I8

F1 F2 F3
F4 F5 F7

Offshore / FPSO

M1
F1 F2 F3
I1 I2 I7 I8

Boiler

Jetty

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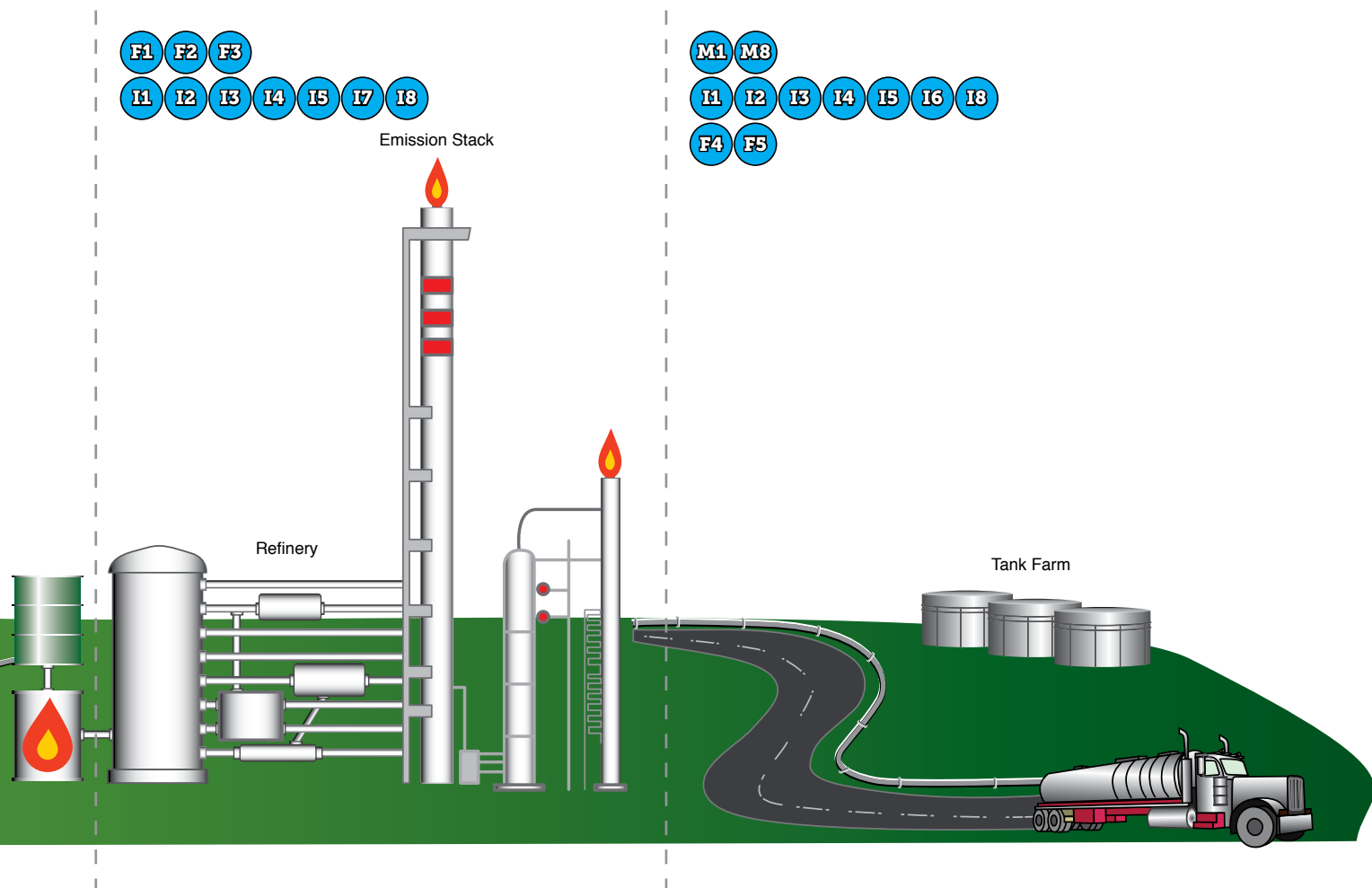
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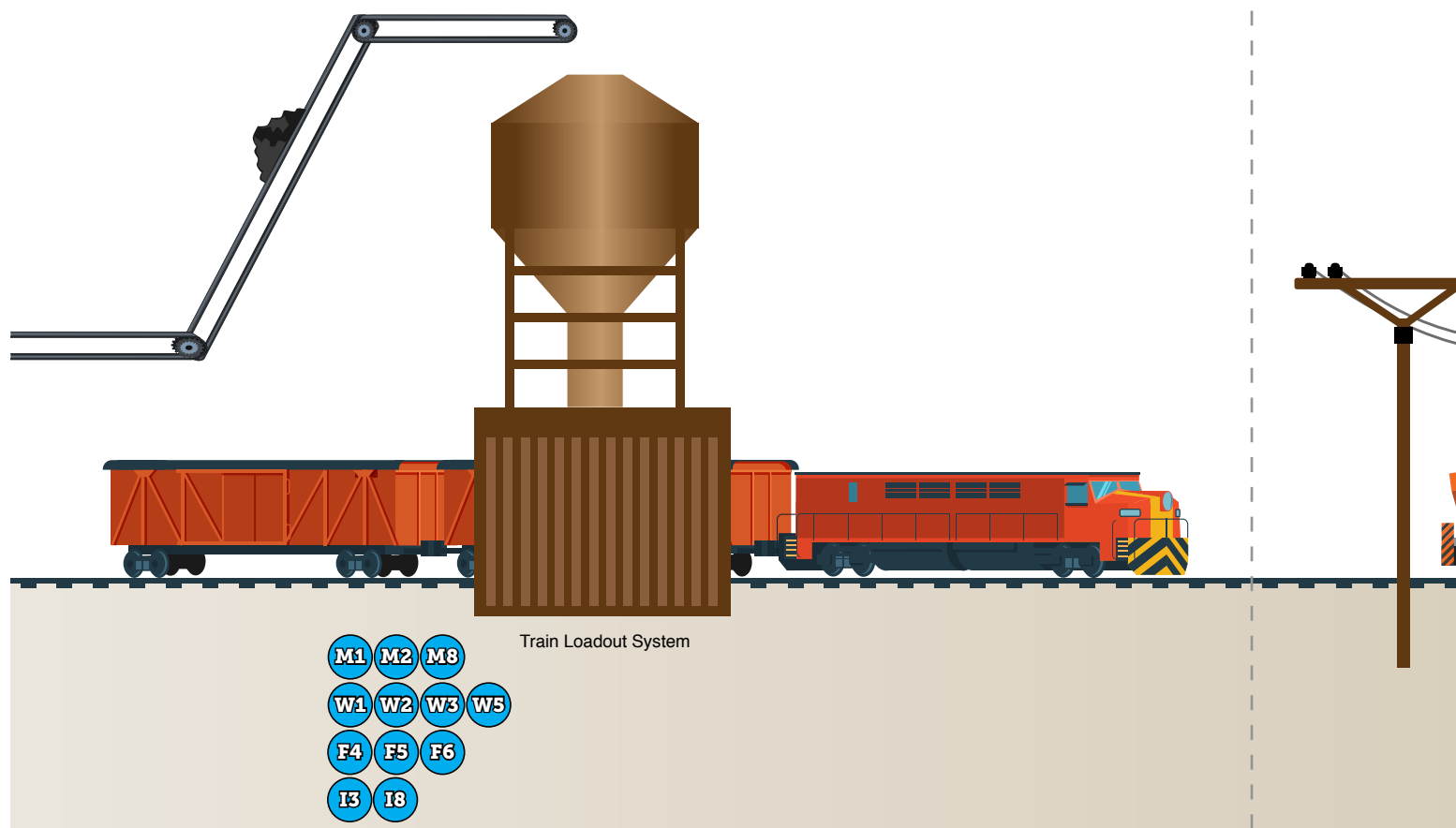
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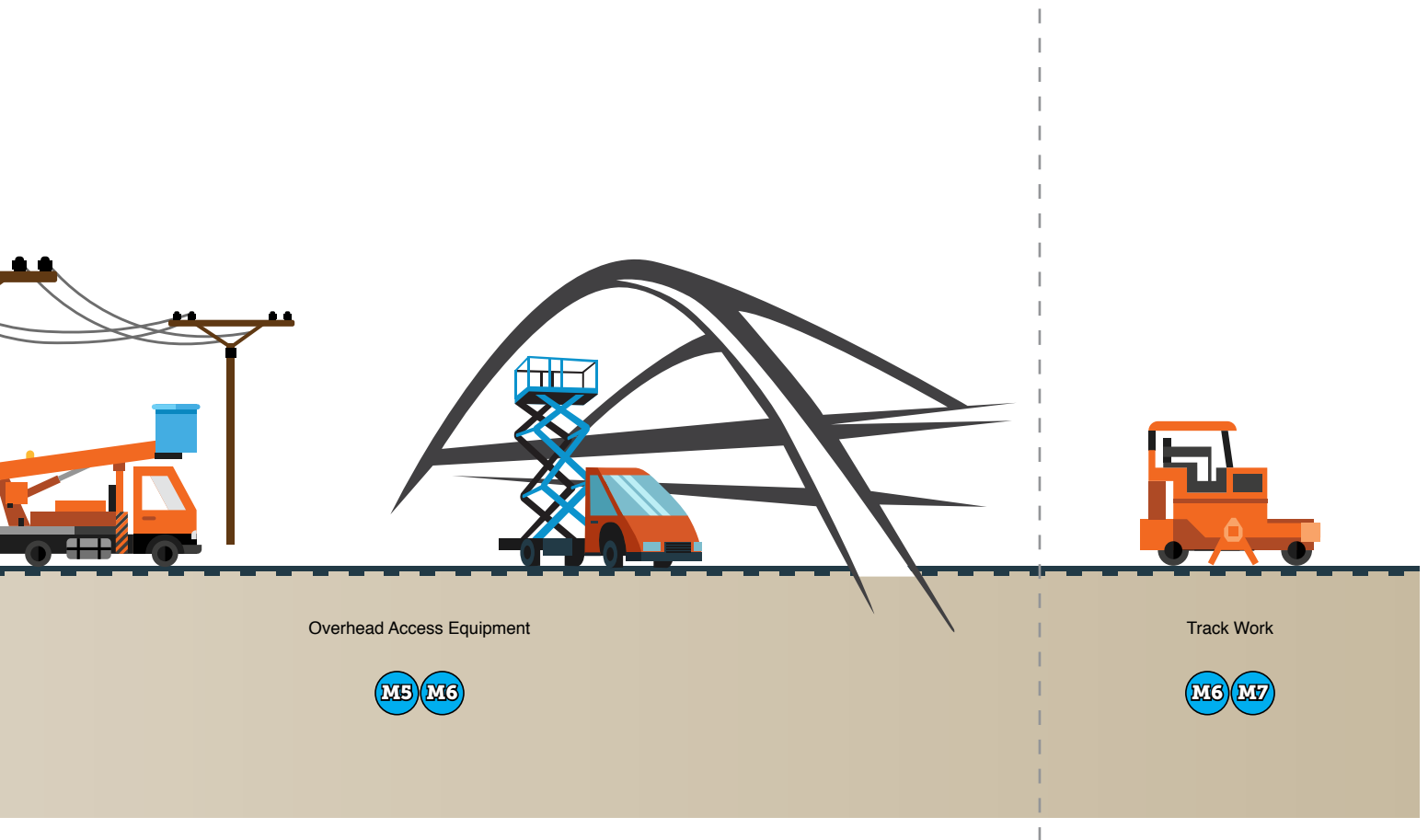
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Precision Loading Systems

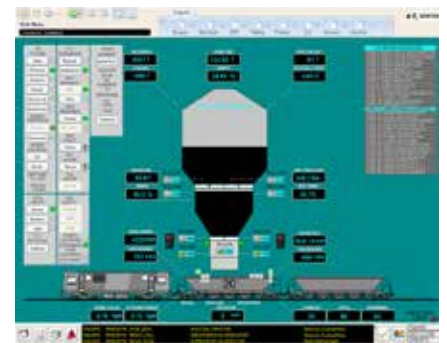
HMA Materials Handling holds the patent for the Precision Loading System (PLS) in the Australasian region. The PLS uses a single or multi batch approach to the loading of bulk materials in both trains and trucks, weighing the material before it is placed into the wagon ensuring that each load is maximised for improved efficiency.



System Upgrades

We are able to provide solutions to improve the operation of existing loading facilities. Examples of what can be done to improve throughput and/or reliability include:

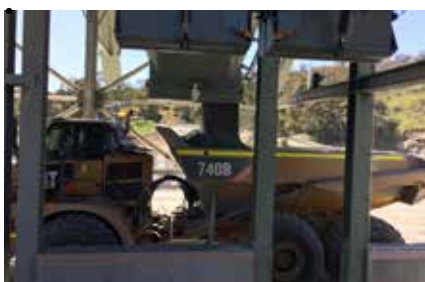
- Replacement control gates and chutes
- Improved hydraulic power systems
- Loading automation
- Real time weight loading (VILU)



Truck and Train Loading Systems

Materials such as coal, iron ore, gravel and sand can all be loaded in bulk using our variety of design and operating systems. Loading systems are available to suit applications involving trucks (including oversized and multiple trailers) as well as trains with options including:

- Flood (Volumetric) Loading
- Single or Multiple Batch Weighed Loading
- Automatic or manual operation
- Real time weight loading (VILU)



Feeder Breakers

Feeder breakers in capacities from 500 to 2,500 tph for a range of materials including coal and aggregates. Options for either electric or hydraulic drives with standard designs or designs specific for an application.



In Pit Crushing

Static or mobile In Pit Crushing systems designed to suit your specific needs and able to process up to 1000 tph.



Mobile Equipment

We can supply tracked vehicles such as feeders, conveyors, stackers and reclaimers or work and carry platforms.



Loading, Isolation & Flow Control Gates

We have a range of gate designs to suit a variety of applications such rejects systems, equipment isolation and material flow control or we can design a gate and actuation system to suit a particular need.

- Single, double or multi blade gates
- Clamshells
- Water capture designs



Ship / Barge Loading

We have a range of Jet Slingers and Loading Spouts for accessing and loading the holds of ships or barges.

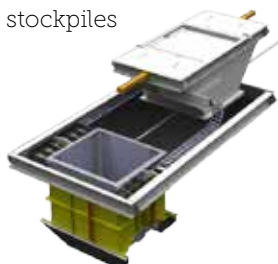
We have supplied units for a range of materials including grain, sugar, coal, wood chip and mineral sands.



Chutes - Telescopic / Transfer / Traversing

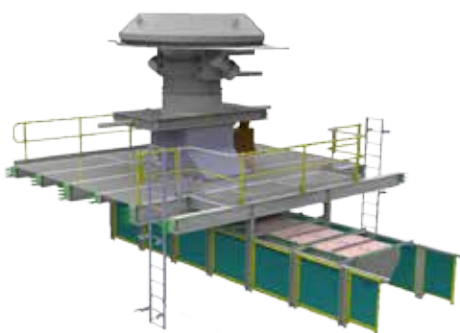
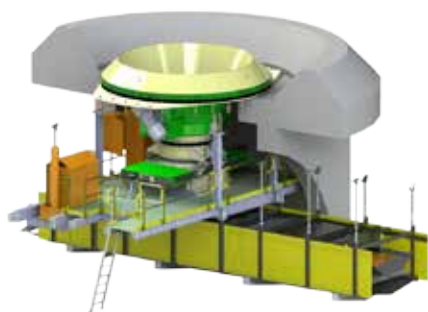
From simple in line chutes through to complex transfer tower design, our designs are based around promoting the natural angle of movement of material. All designs feature a full range choice of wear resistant liner options available through HMA Wear Solutions.

Telescopic loading chutes which enable complete flexibility for accessing and loading the holds of ships/barges and for dust control and environmental management on product stockpiles



Drawdown Hopper

Our range of Carman Drawdown Hopper eliminates outdoor stockpile storage and reclaim problems including coring, bridging, and minimal active reclaim by using vibratory action to transmit energy directly into the stockpile, encouraging sloughing into the flow stream and maximizing active reclaim.



Chain Feeder / Reclaimer

Chain Feeders for the reclaim of material from stockpiles or fed via trucks/front end loaders to efficiently move material. Standard sizes with capacities from 500 to 2,500 tph with options for electric or hydraulic drive.



Stackers

Range of standard and non-standard stackers including features such as luffing, slewing, and telescoping.



Jet Slingers

Proven solution for stockpiling and ship loading applications. Have been used successfully on the following bulk material:

- Coal - washed and raw (Capacity up to 3000 tph)
- Woodchips - hardwood and soft wood (Capacity up to 1500 tph)
- Grains - Wheat, barley, Maize (Capacity up to 1000 tph)
- Sugar (Capacity up to 3000 tph)
- Mineral sands - ilmenite etc (Capacity up to 1000 tph)



Belt Feeders

We can supply Belt Feeders up to 2500 mm wide to suit most bulk materials. Low head designs to suit tight spaces with options for drive types and feed conditions.



Trippers & Ploughs

We have designs for travelling trippers and belt ploughs to suit a variety of material types and belt configurations or can design a system to suit a particular need.



Screens

We are partnered with leading designers and manufacturers of quality screening equipment including Mogensen and Conn-weld. Equipment includes Banana, Dewatering, Horizontal, Circular Motion Incline, Extreme Duty Scalping Screens. Sizers and Sieves.

Our screens service the industries of coal, aggregate, pulp and paper, minerals, corn, fine metals, and many more.



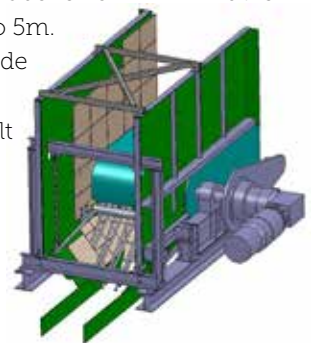
Sampling Systems

We are partnered with one of the leaders in the design and supply of samplers for the coal industry. From simple single stage cross belt samplers through to complex three stage and auger samplers we can supply a system complying with international sampling standards.



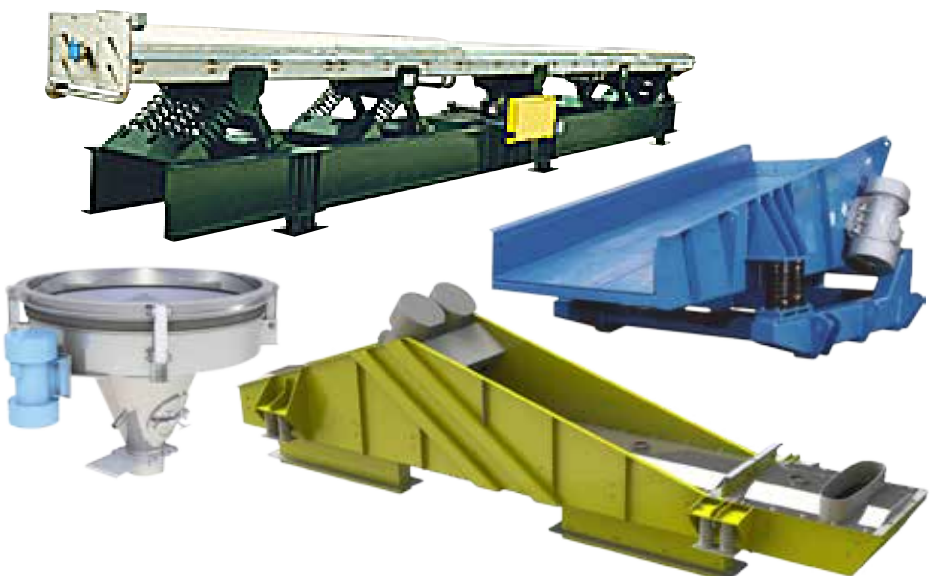
Divergators

Patented high capacity non-binding and self-cleaning static grizzly. Contains no moving parts and the individual bars are easily replaceable. Sized to suit most applications for separation above 20 mm in widths from 0.5 to 5m. Uses include crusher bypass, belt protection and misplaced material removal.



Vibratory Equipment

Equipment such as Bin Dischargers, Feeders, Grizzlies, Fluid Bed Processors and conveyors can be engineered to suit each individual application from the world renowned Carman and Mogensen brands.



Scissor Lift

Either standalone scissor lifts or attached to truck bodies they can incorporate extension platforms to make work area access easier. Supplied with complete with electrical control systems with single or multiple control stations. A full range of controls are available from the operating platform including: Platform Raise and Lower, Extension Platform (In and Out), Emergency Lower, Emergency Stop, Hi Rail Truck Travel (Forward and Reverse), Braking and Engine Control (Stopping and Starting).



Telescopic Boom Lift

Can either be permanently attached, bolted or attached with twist locks to the tray body of the Hi Rail vehicle supplied complete with electrical control systems with single or multiple control stations. A full range of controls are available from the EWP basket.



Equipment Manipulators

Specialised designs for making maintenance of and access to overhead equipment safer and easier. Examples include a cradle system to facilitate the transport, removal and installation of fans in underground tunnels, making the task quicker and easier to accomplish.



Boom Lift

Design and supply a range of Boom Lift Elevating Work Platforms (EWP) for attachment to Hi Rail vehicles. Can either be permanently attached, bolted or attached with twist locks to the tray body of the Hi Rail vehicle.



Light & Medium

Range of Hi Rail kits for light vehicles for use as general fitter gang trucks, track inspection Hi Rail vehicles and weed and vegetation control Hi Rail vehicles. Base vehicles include Land Cruisers, Iveco and Fuso trucks. Fitted with tray bodies and tool boxes and are supplied complete with electrical and hydraulic control systems for Hi Rail and accessories deployment.



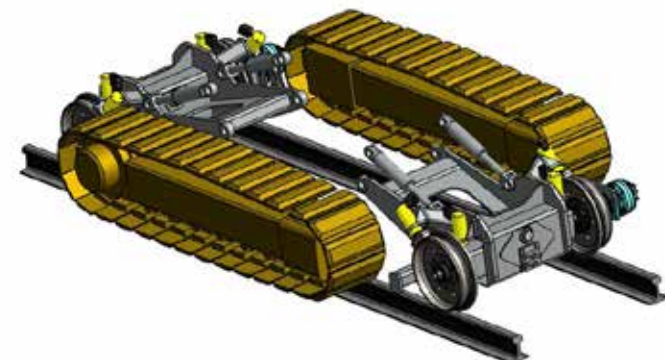
Heavy

We can offer tray bodies, toolboxes, pedestrian collision covers, and other Hi Rail attachment kits. Our Hi Rail heavy vehicle range are for road rail conversions of vehicles with a gross vehicle mass (GVM) greater than 7000kg. Suitable for overhead construction and maintenance elevating work platforms (EWP) including Scissor Lifts, Boom Lifts and Telescopic Boom Lifts.



Excavators and EWPs

We can supply Hi Rail kits for almost any type and size of excavator or EWP to allow it to access the rail for travel or work. Designs can allow for hydrostatic or traction drive systems as per preference.



Track Lifter

Used by various railways authorities to remove condemned sleepers and simultaneously replace them with new ones. The sleeper renewers form part of a "consist" used by flying rail maintenance gangs in remote areas.



Spot Tamer

The 'Vibropak' is a spot tamping machine designed to consolidate either new, worn or loose ballast under concrete, steel or timber sleepers. Each work head, which can be operated independently, has four tines which are vibrated at high frequency by a rotating eccentric shaft. The machine is rapidly deployable and incorporates suspension suitable for medium speed travel up to 40 km/h.



Rail Heaters

Used to stress and de-stress sections of tracks which have been used for long periods of time. Consists of a tractor to provide traction for a controlled work speed and the gas bottle module mounted on the tractor and the rail heater unit.



Material Handlers & Trolleys

Designed to make work easier, we can supply equipment to carry tools, clips, sleepers or personnel – anything required to make the job go faster and safer.



Clippers

Designed to apply and extract rail clips from both sides of the rail simultaneously with one operator. A hydraulically operated scissor-type rail clamp ensures the machine remains fixed to the track during insertion and extraction. We have designs to suit most clip types including e-clips, Fast clip and Trak-Lok.



Ballast Undercutter

Designed to remove fouled ballasts from underneath the railway track so that fresh clean draining ballasts can be substituted, the machine is specifically designed to work on points, turnouts and crossings. The major materials handling elements are a horizontal excavating chain, a vertical cell type bucket wheel and three troughed belt conveyors.



Weighing Systems

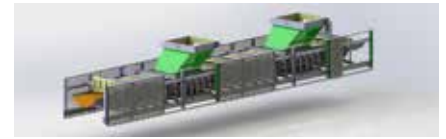
Our designs are based on latest technology load cell modules that are capable of producing accurate and repeatable results in a wide range of applications. These include

- Bin weighing systems
- In-motion train weighing systems
- Conveyor Belt Scales
- Weigh feeders



Safety Guarding

GuardianCoil® works as a protective screen around all types of machinery, including mills, routers, spar mills, lathes, grinders, forges, testing equipment, etc. It is used as a machine guard to protect personnel and property from high-velocity flying debris or shrapnel.

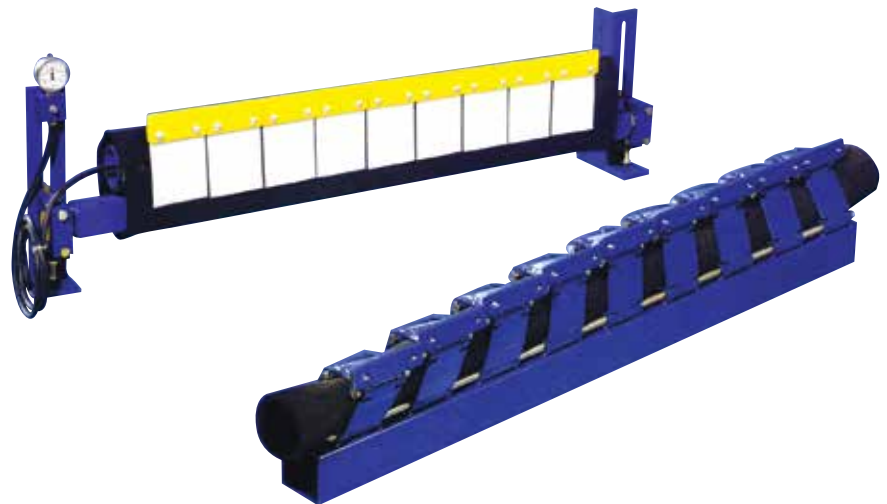


Belt Tracking & Cleaning

Belt alignment problems can be resolved using HMA Halley & Mellowes (MHD) supplied Hallitrak and Tru-track belt equipment.

The Hallitrak is a fully assembled idler frame style Belt Tracker that is designed to accept stock rollers making maintenance easy.

The Tru-Track belt tracker is a simple to install yet highly effective it maintaining belt alignment. The unique design is particularly effective as a retrofit into existing conveyor structures.



Wheel Wash

A perfect solution to your problem of dirty and contaminated roads no matter what the site conditions. Eight base models with an extensive range of design variations to meet individual customer needs.



Aluminium Dome

Aluminium geodesic domes for tank covers. Can be applied to almost any application.

Typical examples are:

- Water and waste water tank covers
- Bulk storage facilities
- Petrochemical Tanks
- Stadiums and Architectural designed buildings



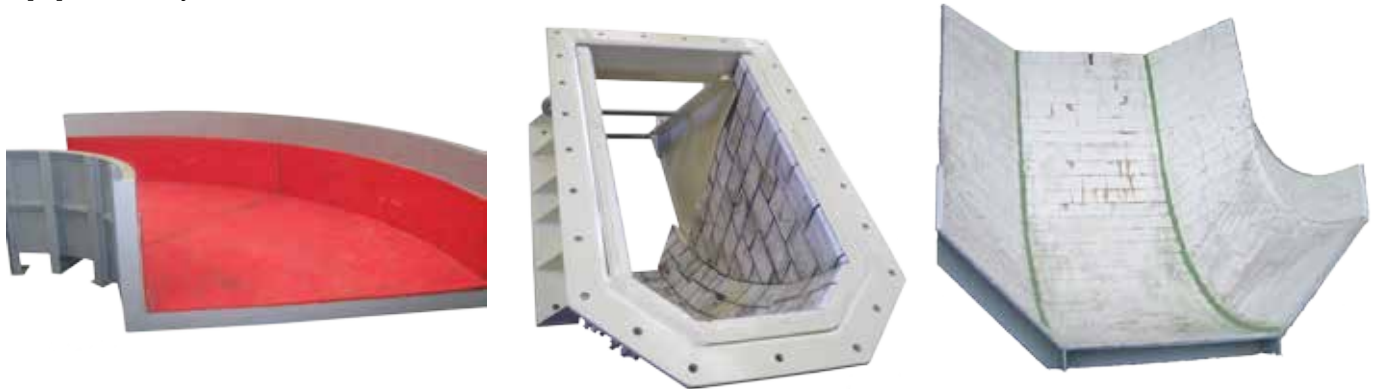
Wear Resistant Lined Pipe

Piping connects some of your most important and expensive process equipment, and with a lined piping system specifically designed for your operation, you will keep them operating at optimal performance. HMA Wear Solutions offers a range of lining materials including basalt, alumina, Weartech, polyurethane and rubber as well as complete design, supply and in some instances installation via our Site Services division.



Sumps, Chutes & Gates

With the movement of materials you will have wear. To reduce the expensive change out of your sumps, chutes and bins we have wear resistant lining materials that will prolong the life of this vital equipment. The main industry linings are basalt, alumina, rubber and polyurethane, we can offer these plus others, through design and manufacture of new equipment or by on site installation via our Site Services division.



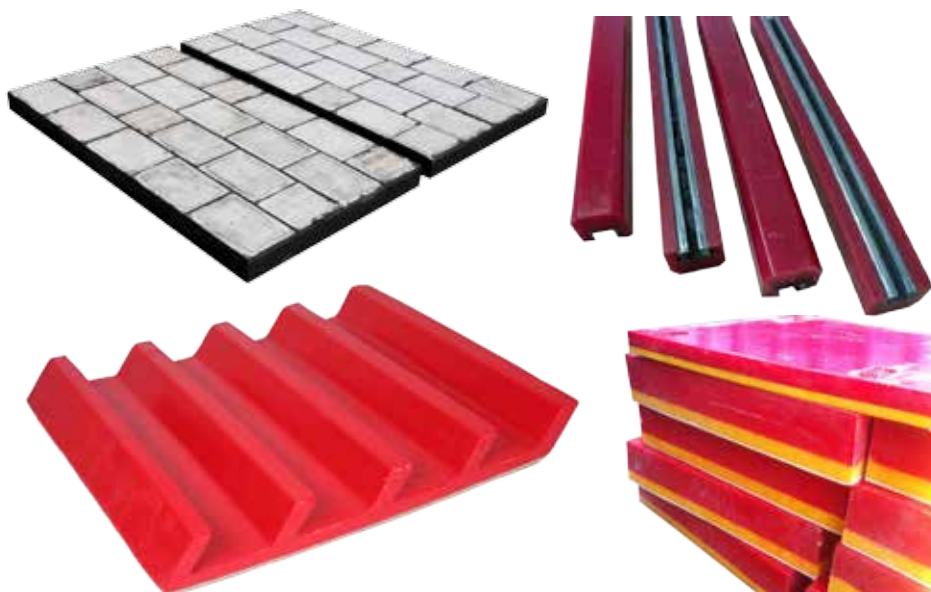
Specialised Lining Systems

In many applications, solving the wear problem requires more than the standard wear lining, which is why we have a wide range of lining systems that while having higher initial costs, delivers substantial savings over its life cycle, and therefore justifies its use. Specialised products like Alumax, Aerotech, SiTech, PSZ, ZTA and ARZ, to name a few. Our experience gives us the unique ability to apply the most cost effective product to solve your wear problems.



Impact Panels

When impact is a problem and the standard fixing method of epoxy adhesive is not sufficient, then using "Impact Panels" is a cost effective solution. This method allows you to have the lining material prefixed to a panel that can be mechanically fixed into the chute by way of bolts or tracks. It will minimise your down time as it is a quick process to change out the worn area and get your plant running.



Engineering

With over 35 years' experience solving wear problems in a wide range of industries, we can solve your wear problems to give you higher plant reliability and less downtime. HMA Wear Solutions can partner with our clients to successfully achieve their desired outcomes through engineered solutions and take a project from initial concept through to completion.



Ancillary Products

Complementing our range of equipment and services is the ancillary products, like our Greenbank Couplings, WrapTech repair bandages, WearTech trowelable ceramic, alumina & basalt tiles, adhesives and specialised gaskets.



Cyclones

Cyclones are an extremely fast and efficient way of separating materials based on density and size. HMA Wear Solutions specialises in the design and manufacture of superior ceramic lined equipment. Utilising our unique manufacturing equipment and processes ensures that our product exceeds industry expectations. The GTech range of Dense Medium (GTD) and Classification (GTC) Cyclones is the accumulation of such experience, offering superior cyclone performance throughout its operating life with process guarantees to support this.

GTech CYCLONES

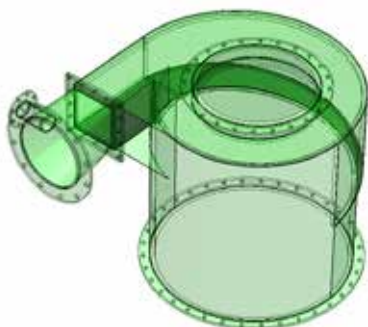
The advantages of the GTech range of cyclones include:

- Ongoing Technical Support
- Optimal Ceramic Selection
- Superior Lining Design
- High Separation Efficiency
- Reduced Operating Costs
- Engineered Tiles and Monolithics



HMA Wear Solutions supplies cyclone components in a range of abrasion resistant materials such as Alumina Tiles, Alumax Monolithics, SiTech and 27% Chrome. We can also offer Aerotech, a ceramic bonding that provides a more consistent and predictable operating life where tramp is present.

HMA Wear Solutions can provide you with your complete cyclone solution.



Eriez

The world authority in advanced technology for magnetic, vibratory and inspection systems. We also specialise in flotation and separation systems.

The product range includes;

- **Suspended Magnetic Separators**

Safely and automatically remove damaging tramp iron from heavy product flows such as coal, rock, iron ore, minerals and wood chip being conveyed on belts, vibratory feeders or chutes. Available in both permanent and electro models.

- **Eriez Flotation Column**

Eriez Flotation Columns are ideal for efficient high volume recovery of fine coal (0.3 mm) particles. State of the art column flotation design, using a variety of air sparging techniques. High-capacity columns with low operating and maintenance costs.



- **Wet Drum Separators**

Eriez offer a wide range of wet drum magnetic separators for a variety of separation and direct recovery applications. Recover magnetite or ferrosilicon in heavy media operations or concentrate magnetic ores. Varying magnetic strengths and pole configurations to suit most applications is available.

- **Metal Detectors**

Eriez have a comprehensive range of metal detectors available for industrial, aggregate and mining applications.



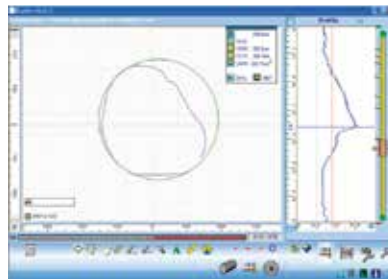
Site Maintenance and Installation

- Safe and effective work crews available for installation and maintenance work
- Specialised in the installation of our equipment
- Ability to undertake projects from conception through to commissioning



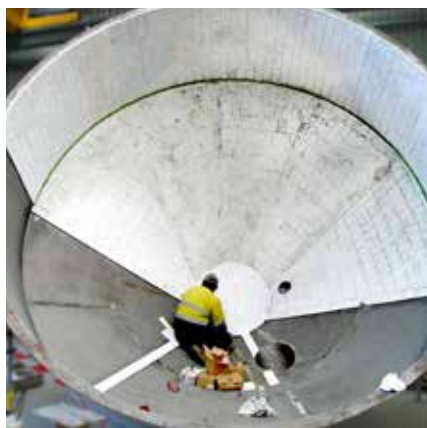
Pipe Scan Inspection

- Maximise pipe life through condition monitoring inspections.
- Developed as a measuring tool for internal monitoring of lined pipework.
- Ability for visual and or light line measurements
- Used to determine wear patterns and nominate effective life and maintenance practices.
- Allows preventative maintenance planning accuracy.
- Decreases breakdowns while maximising pipe life opportunities.
- Specialised in-house service providers



Industrial Tiling

- Specialised crews and equipment for maximising client tiling opportunities
- Ability to recommend improvements
- Multiple work crews available for large scope activities and support
- Ability to utilise in-house trades support when required for extensive repairs



Cyclone Condition Monitoring

- Internal inspection and measuring of cyclone components
- Detailed reporting with tonnages and wear life predictions
- Allows preventative maintenance planning accuracy
- Ability to provide installation and maintenance support for cyclones
- Safe and effective work crews available for installations on large and small projects

Magnetic Separation Inspections

- Regular and or one-off audits to inspect condition, set up and overall performance
- Recommendations and maintenance strategy options available for increased productivity of magnetite recovery systems
- Specialised in-house service providers

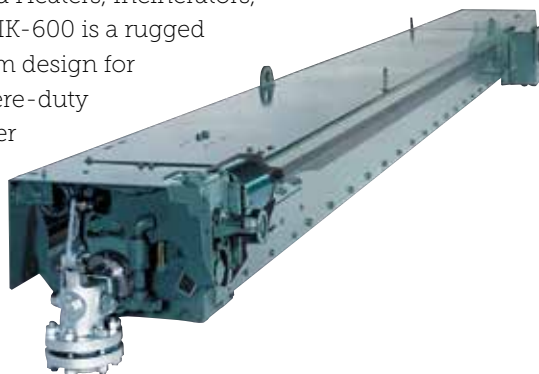
Chute & Wear Liner Inspection

- Detailed reports generated from inspections
- General chute condition prioritised to assist in preventative maintenance schedule
- Optional in-house maintenance support capability



IK Series Retractable Sootblowers

Long retractable sootblowers available with steam, air or water as the cleaning medium. IK-525 & IK-545 have a cleaning coverage of 8.5 and 13.5 metres respectively. Typical applications: Superheater, reheater and economiser regions, Fired Heaters, Incinerators, Catalytic Crackers and SCR's. IK-600 is a rugged sootblower with an open beam design for accessibility intended for severe-duty applications. IK-4M for smaller units with a cleaning coverage up to 5.5 metres. Typical applications: Industrial applications such as oil fired heaters, waste heat and package boilers.



Diamond Rodding Robot

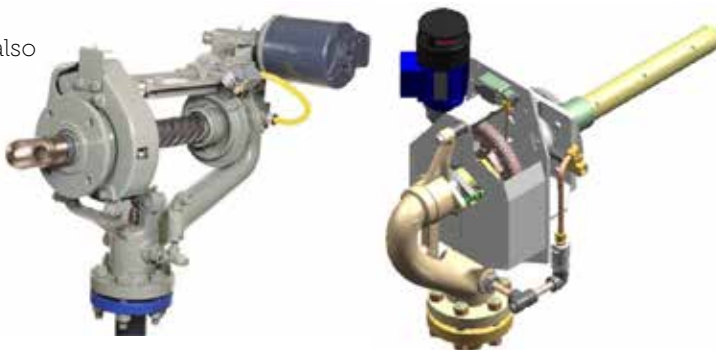
Simple robust automated port cleaning system, with a single stroke and patented flex head technology. If recovery boiler ports are cleaned regularly boiler capacity is increased, hence increasing steam production and reducing emissions.



IR & G9B Series Wall (Rotating) Sootblowers

The IR series wall sootblower is light and small enough to fit into tight areas, and is ideally suited for high temperature locations while the G9B sootblower is designed to remove ash deposits from tube surfaces in stationary boilers, marine boilers, waste heat boilers and direct-fired oil-heaters, where gas temperature zones inside the boiler permit a fixed cleaning element.

The G9B may also be used for cleaning low-temperature gas zones in large boilers.



Hydrojet® Retractable

Boiler cleaning system which represents a major breakthrough in furnace water cleaning technology.

Extended articulating nozzle into furnace for vastly improved cleaning area coverage and effectiveness.

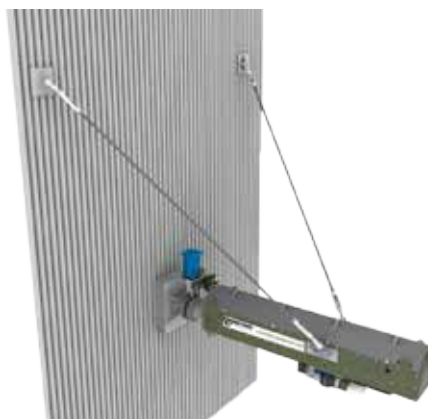
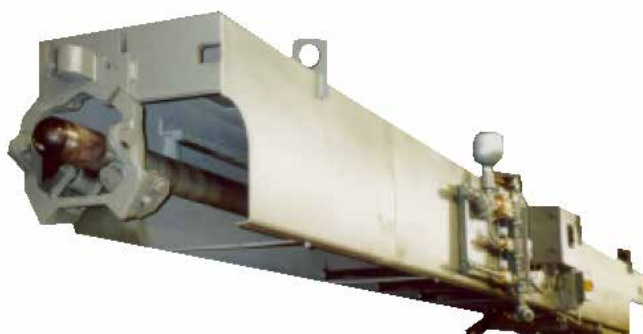
Consumes up to 70% less water than older models and eliminates requirement of continuous cooling air.



SPWL® & Customised Water Blowing

Provides effective cleaning on slag deposits that conventional steam or air cleaning cannot fully remove. Combines a high performance variable speed drive with accurate position sensors and PLC-based programmability.

Custom-programmed by our engineers for specific boiler surfaces to maximize coverage and control effects on tube life by avoiding areas that can be damaged by water impact. Available on the entire range of IK series sootblowers.



Gemini® Sootblower Nozzle

The Gemini® features two nozzle jets, offset from one another so that each can have the physical distance necessary to effectively accelerate the steam flow to supersonic speeds.

Unlike previous nozzle designs, the Gemini® corrects a traditional problem whereby downstream jet performance was always substantially less than the upstream jet. With Gemini®, the upstream and downstream nozzle jets are essentially equal in performance.

HMA Power Generation's experienced field evaluation and application engineers will assist you in calculating the steam savings and economic payback of installing Gemini® sootblower nozzles.

New money-saving design reduces steam flow up to 17% and decreases boiler tube erosion potential by 30%.



Live Loaded Gland

For feed tube packing, the live loaded gland maintains uniform, 360-degree compression without frequent manual adjustments, substantially increasing packing life and reducing traditionally high maintenance activity. Graphite foil packing continuously loaded by a high energy packing gland virtually eliminates steam and condensate leakage.



Progressive Helix Mechanism

Patented mechanism that improves nozzle cleaning coverage by incrementally changing the nozzle path. Precision-gear indexed mechanism precisely shifts the nozzle starting position every cycle for more complete cleaning and reduced tube erosion damage.

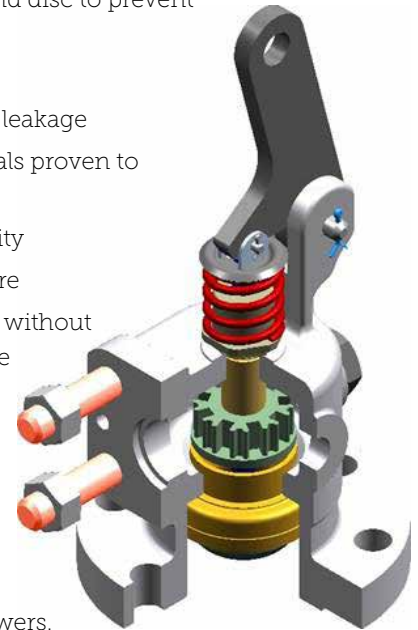


Poppet Valves

HMA Power Generation poppet valve features:

- Replaceable welded flexible valve seat and disc to prevent distortion from thermal stress
- Self-aligning disc for better sealing
- Long term reliability with freedom from leakage
- Pressure control disc made from materials proven to withstand steam service
- Varying models with adjustment flexibility
- Steam yoke ensures positive valve closure
- Feed tube and lance tube are removable without disturbing piping to the sootblower valve
- Fully serviceable
- Available in ANSI 600#, 900#, and 1800# pressure ratings.
- Companion flanges to suit are available.

HMA Power Generation poppet valves are available for other manufacturer's sootblowers.



Tubular Products

HMA Power Generation stock a vast variety of tubular products used in lance, feed tube and element manufacture. We source directly from the mills ensuring exacting standards are maintained. Tightly controlled weld procedures combined with full Non Destructive Testing ensure longevity. Whether it is an existing design or new application talk to us about your next requirement. Available for HMA Power Generation and all other manufacturers' boiler cleaning equipment.



High-Resolution Cameras

High resolution cameras with no moving parts, variety of mounting configurations that can be incorporated to meet individual requirements and provides temperature feedback for burner adjustments.

- KilnCam™ can view the product in the burner zone just before it's ready to exit
- SteelCam™ can view the slab/billet in the burner zone just before it's ready to exit
- GlassCam™ can view the batch product in the burner zone just before it's ready to exit
- Cameras feature exclusive TempVu™ software system allowing up to 15 user definable temperature regions and single or multi-point region averaging.



Wall-Eye™ HD Furnace & Viewing

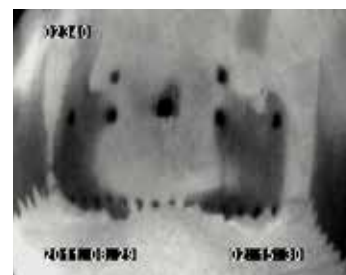
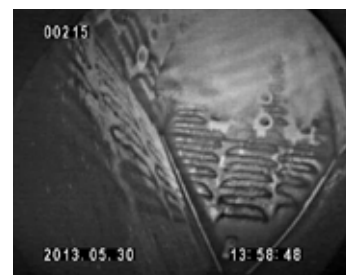
Our high resolution viewing system is the most powerful industrial remote system available. Using a solid state camera delivers pristine, highly-detailed images of your boiler or furnace – in vivid colour. Wide field-of-view that allows you to see more of your process.



Wall-Eye™ HD Furnace & Viewing

HMA Power Generation's high temperature IR camera systems feature the latest solid-state technology with special optics to produce viewing through smoke, fumes and particulate laden steams. Both in water or air cooled camera housings to minimise the amount of cooling medium used thus reducing operating costs.

Optional accessories include either pneumatic or electric retract systems in the event of cooling medium failure.



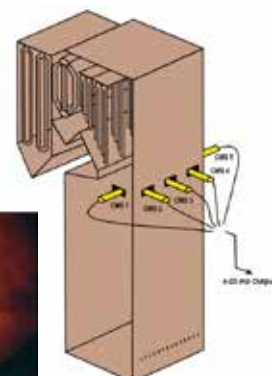
Gas Temp®

Extended range optical pyrometer uses a patented wavelength to directly measure actual furnace gas temperature - including minute changes in flue gas temperatures. Can be used from boiler start-up to full-load operation and also available for Recovery Boilers



Carry Over Monitoring System

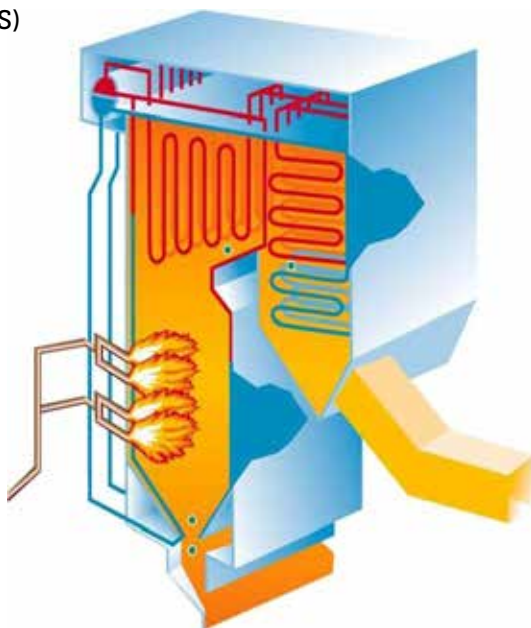
Monitors on-line, luminous particle activity in the boiler. Multiple sensors used to detect activity at selected locations in the upper boiler, monitor particle carryover in several locations at once.



Intelligent Sootblowing (ISS)

Intelligent cleaning system provides real-time decisions to enable operators to maximise boiler cleaning and operating decisions under changing conditions.

Closed loop control system utilises sensors and software that go beyond conventional control systems. Anticipates and adapts to changes within the boiler.



SentrySeries™ Controls

Control systems that provide a cost effective programmable logic control (PLC) for modular solutions for up to 48 sootblowers.

Easy-to-configure cleaning solutions with colour touch screen, DCS interface option, incorporating header control and motor current monitoring for a complete control solution.



Steam Drum - Level, Indication & Monitoring

The Diamond® Series II - Ported Level Gauge (Bi-Color) which is a 3000 psi ported gauge that produces a red/green image to indicate the water level in a high-pressure steam drum.

Reflex Gauge providing excellent visibility of liquid level. Single Detection Circuit (SDC) Alarm Module represents a reliable, cost effective and versatile means of sensing water in high temperature and pressure applications.



Heat Flux Sensors

Used in conjunction with boiler optimisation, our transducers are the most robust of their kind and due to their patented design, incorporate a true 100% redundancy that is unmatched. Complete with an ASME



Boiler Services

We aim to extend your boiler run length while improving its condition, output, reducing carbon emissions and steam consumption.

Our proven track record will return maximum gain on your investment, the services we provide include:

- Flexible maintenance arrangements such as turn-key maintenance contracts, onsite routine maintenance, offsite maintenance and repairs.
- Site service and inspections such as walk-down inspections with full written report, performance review, sequence optimisation and system operational parameter tuning.
- Engineering support such as heat transfer improvements, process optimisation, engineering consulting, product training, specialised equipment design and diagnostic equipment hire.



Offline Cleaning

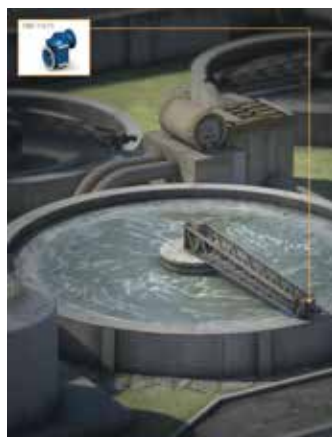
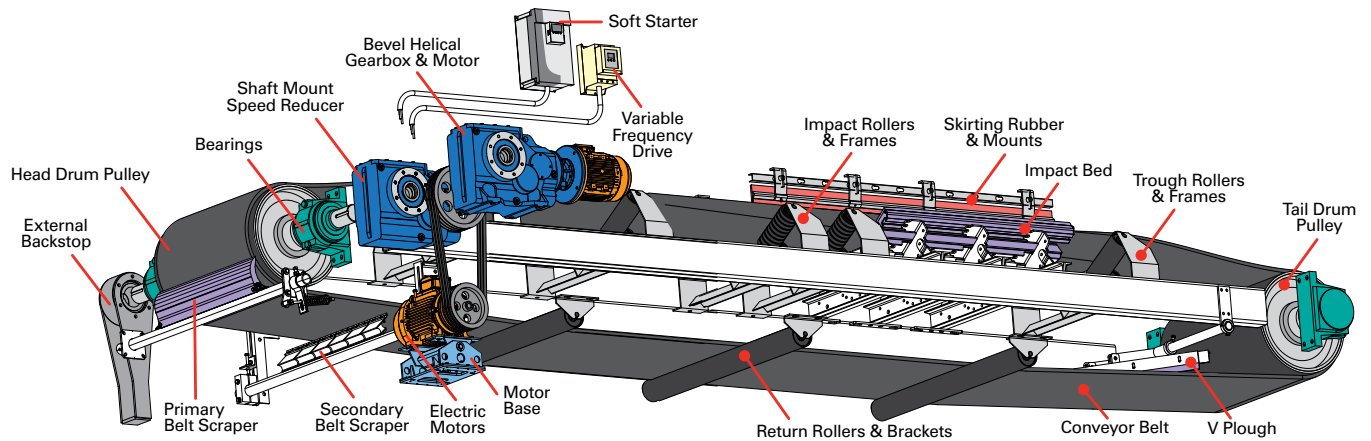
Our offline Boiler Cleaning service is a bespoke, highly automated process designed to reduce pre outage cleaning from days down to hours allowing your outage activity to commence and conclude much sooner. We offer a mobile cleaning system specific to your boiler dimensions that accurately deploys high pressure water to the desired cleaning zones.

Commencing during the cool down process the combination of thermal and kinetic energy rapidly removes tenacious slag and fouling deposits. The automation aspect removes the need for workers to enter the boiler space and twin rope access often required for hard to reach areas.

Our service is scalable from large utility boilers right through to package boilers, uses less water than traditional labor intensive cleaning methods and dramatically reduces outage durations. Talk to us about how this service can assist your operational requirements.



Complete Conveyor Solutions



Knifegate

Sizes from 50mm to 1800mm with a range of actuator options including pneumatic, hydraulic and electric. Stainless steel types with options for deflection cones in Nihard or Polyurethane.

Technegate Heavy Duty types, sleeved bi-directional slurry valves for off-on applications in mining, mineral processing and power industries.

Hardened tool steel vee orifice types for severe service throttling applications.

Customised versions including ceramic lined also available.



Butterfly

Sizes ranging from 50mm to 2,200mm, in wafer, lugged and double flanged styles.

Rubber lined on-centre disc, offset seal-on-disc and high performance types.

Pressure classes include PN10, 16, 21 and 35.

Actuator options include manual lever or gearbox, pneumatic or electric.



Air

Supplier for the Val-Matic range of air valves with solutions for a variety of air related concerns in water, sewage and slurry pipelines. Air valves increase pipeline conveyancing efficiency and provide vacuum, surge and water column separation protection.



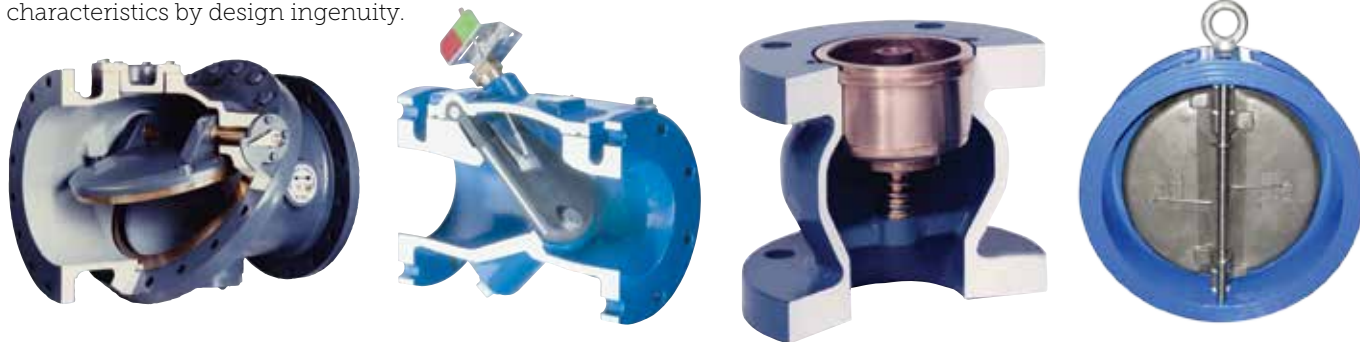
Eccentric Plug

Val-Matic Cam-Centric eccentric type plug valves in sizes ranging from 25mm to 900mm. Proven in both water and wastewater applications. Long service life with low or no maintenance for both shut-off and throttling duties. Clog free in slurries and sewage. Excellent choice for both high frequency service and rare infrequent operation, large surface area stainless steel bearings do not seize, machined nickel seat-in-body resists wear and rectangular port is forgiving to plug alignment and bearing/shaft wear, ensuring positive shut-off time after time.



Check

Val-Matic is a leading manufacturer of check valves for water, waste-water, sewage, industrial and building applications whilst Proco offers a range of rubber check valves. Types include dual disc, swing flex check, the very dynamic silent check, tilting disc, rubber duckbill and perforated plate with options for both wafer and double flanged. Many feature inherent slam resistant characteristics by design ingenuity.



Ball

Available in a range of stainless steel materials, full and reduced port versions with BSP, NPT, BW, SW and flanged end connections.



Deluge

Inbal Valves are high quality, pressure operated, axial flowing type valves. Designed to function as a control valve in fire protection. Able to withstand pressure surges and resistant to false tripping. Smooth quick opening, virtually eliminating water hammer. Rated to 21 bar, available in sizes 40 mm to 300 mm.



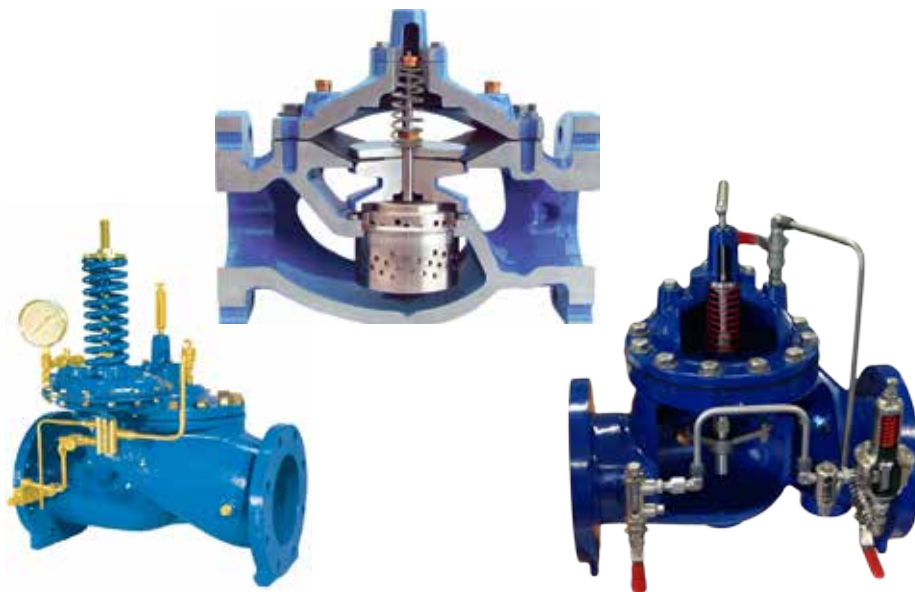
Resilient Seated Gate

Quality resilient seated gate valves, AS2638.2 compliant, Class 16 with metal seated Class 35 options, choice of closing rotation, valve cap or handwheel operated. A popular isolation valve in water and sewage applications.



Automatic Control

Singer quality Canadian automatic control valves serving waterworks, fire protection and industrial/mining markets. Range includes pressure reducing, pressure relief/sustaining, flow rate control, pump control, float operated, altitude, dual solenoid electronic interface types and many, many others. Unique rolling diaphragm design provides unequalled stable high ranging control with extreme low flow capability. Also available with anti-cavitation trims for what are usually valve destroying applications.



Valve Actuation

Includes pneumatic, electric, hydraulic with on/off and modulating duty options.



Controls

Solenoids, limit switch boxes, proximity switches, pneumatic and electro-pneumatic positioners and single loop process controllers.



Couplings

Klarnflex, straight couplings, flange adapters, stepped couplings and dismantling joints in sizes 50mm to 2700mm

JW Couplings ,multi-purpose pipe couplings in sizes 15mm to 2000mm

Proco, spool type wide arch rubber expansion joints

Uni-Flange international adapter flange series.



Expansion

Proco offers a complete line of rubber, Teflon lined and braided flexible metal expansion joints.



Tech Taylor

Automatic changeover check valves designed for critical areas and especially slurry process lines where standby and duty pumps are cycled to discharge into a common line. This automatic acting valve reliably and economically replaces older technology combinations of Y pieces and actuated shutoff valves.



Condenser Tube

Taprogge filtration, water circuit cleaning technologies and condenser tube cleaning systems are found in all industries, particularly in power stations, desalination plants, refrigeration and industrial applications. Specifically engineered to suit each application and ensures that your system is performing to its full capacity. Provides maximum thermal and financial benefits.



Filters

Custom-designed high value filter bags, cartridges, cages and associated products to suit most applications. Suitable for dust removal, liquid/solid separation and product recovery under various conditions such as high/low temperature, wet, dry, acid, alkaline and sticky dusts. Industrial applications include cement, chemical, mineral, feed, timber, steel, plastics, power and more.

- Dry filter materials: Polyester, PPS, Aramid, Polypropylene, PTFE, PAN and others. Surface treatments include singed, glazed, anti-static, flame retardant water and oil repellent and acid resistant.
- Wet filter bag materials: monofilament, multifilament, nylon, stainless steel, copper, polyester and polypropylene.



Water Treatment

Found in all industries, including power stations, desalination plants, refrigeration and industrial applications, Taprogge's DynamicFilter and high performance PR-BW series debris filters perform reliably for extended periods with minimal maintenance.

- DynamicFilters are suitable for water conditions with separation requirements of above 50µm and flows up to 4,000 m³/hr.
- PR-BW series is suitable for separations above 1mm, and flow conditions exceeding 100,000m³/hr.
- Terrawater technology can produce pure distillate from any water or waste water source by utilising a 90 Deg C heat source.



Bevel

The Bevel Helical Gearbox is of a right angle design which offers a more compact fitment as it can run alongside the conveyor. Supplied primarily as a hollow shaft fitment direct to the conveyor head drum and with the electric motor directly coupled to the gear box the use of a primary vee belt drive is no longer necessary. Bevel Helical gearboxes are also very efficient with 94% plus not being uncommon.

Bevel Helical combines both a bevel gear set as well as a helical gear set (or sets) to obtain larger ratios with power transmission through right angles. Widely used throughout the Quarry and Mining Industry and also within conveyor applications.



Worm

The S.T.M. range of cube-shaped worm gearboxes. This style is suitable for a wide variety of fixing possibilities and allows a better modularity of the components in stock.

In fact, through an input coupling it is possible to connect all sizes IEC, brushless and NEMA electric motors, to enable a wide range of possible gearbox configurations, as well as to improve the overall quality by removing the fretting.

The body has been designed in order to optimize the heat dissipation and to simplify the cleaning of it, even in the most difficult environmental conditions.



Inline

The design of this range of gear units is based on one body piece casting giving increased rigidity. This allows the application of high loads without risks of deformation which might negatively affect technical performances. The particular internal shape of the body directs the oil flow in a way to reach all moving parts while reducing noise levels and improving sealing. Another new feature is the modular output flange that allows a great versatility of application.



Poulibloc

Arguably the best shaft mounted gearbox. Unique taper bush mounting system making it the most versatile for use in quarries. Can be matched to any head drum shaft. Mounting bush system allows gearbox to be drawn onto the shaft and clamped, acting as press tool eliminating drum shaft cut off.



Electric

Complete range of low to high voltage, high efficiency and hazardous area motors built tough to withstand harsh industry and mining conditions.

Preferred amongst equipment manufacturers, constructors, engineering companies and major end users alike.

0.09Kw to 450 Kw



Vibrating

Used in heavy duty industrial applications such as vibrating screens, dewatering screens, conveyors, feeders, spiral elevators, grizzly feeders, vibrating fluid beds, foundry shake-outs and pre-fab moulds.

Also known as electric vibrators, offer a guarantee of long term durability and are capable of exerting forces from 68 Kg to 13000 Kg.



Motor Control

Motors need some form of control and protection whether it is DOL Starter, Soft Starter or VFD. We also offer a range of accessories including Thermister relays, shock protection relays and shaft encodes.



Rollers

We offer a quality range of conveyor products that can be designed to suit your application at competitive pricing. Our technicians will discuss speed, size, spacing and other factors with you to determine the best solutions for your application.



Pulleys

Conveyor Drums custom made to meet your requirements whether it be replacing an existing unit or manufacturing new equipment. Variety of styles of drum, shaft design and mounting systems available to meet every application.



Scrapers

Primary and Secondary Cleaners suitable for a range of applications.

Our simple, do-it-yourself installation EZP1 Rockline® Primary Cleaner has easy, visual check spring tensioning and faceted ConShear™ blade. It is compatible with Flexco fasteners and available in High-Temp with belt ranges 300 – 1800 mm (12" – 72").

The H-Type® Primary Cleaner has a unique design with segmented blades mounted on individual, pre-tensioned cushions that maintain cleaning efficiency, even as the blades wear. Ideal primary cleaner for mechanical, vulcanised conveyor belt applications with a belt range of 450 – 3000 mm (18" – 120").

For Secondary Cleaners the Y-Type™ is suitable for belt speeds up to 3M/s (600 fpm) for standard duty, up to 3.8M/s (750 fpm) for heavy duty. It has an easy maintenance, simple design which makes changing the blades fast and easy. The 75mm (3") wide blade segments conforms to worn or damaged belts and is available in 450 - 1200mm (18" - 48") for standard duty belts, 900 - 1800mm (36" - 72") for heavy duty belts.



Power Transmission

Power transmission products are used extensively in virtually every industry, including manufacturing, processing and mining industries, in fact, anywhere something needs to be lifted, moved, rotated or conveyed.

We offer quality power transmission products, suitable for a wide range of applications, including high speed applications, from various manufacturers including belts, chains, couplings, pulleys, sprockets, and bushings.

Products for all your industrial or mechanical power transmission applications.



Screw Jacks

Screw Jacks are ideal for a wide variety of uses. They can be used to lift, pull, move, or align any load, even if highly unbalanced, with perfect synchronization offered by no other movement method.

Perfectly suited to positioning applications where accuracy can be guaranteed due to the mechanical nature of the screw jack system.



Flame Detection

Specifically designed for areas where the risk to personnel is high and where fire might result in a catastrophic loss of assets.

Det-Tronics X3301.

Industry leading false alarm rejection, fast response times and a wider cone of vision resulting in a reduced cost of coverage.



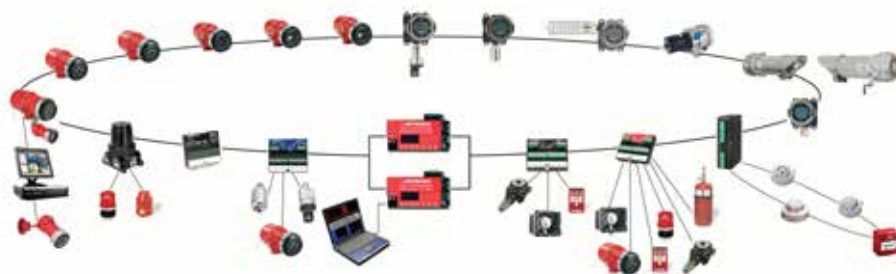
Gas Detection

Hazardous area flammable gas detectors range from a variety of fixed IR gas detectors, catalytic gas detectors, and toxic gas detectors to the latest in open path gas detection technology. Display transmitters, gas controllers, power supplies, and gas control panels are also available.



Certified Fire & Gas Detection Systems

Addressable and point-to-point systems allow complete design and configuration to meet your safety system requirements. Certified to NFPA and Safety Instrumented Systems (SIS) certified as SIL-2 certified.



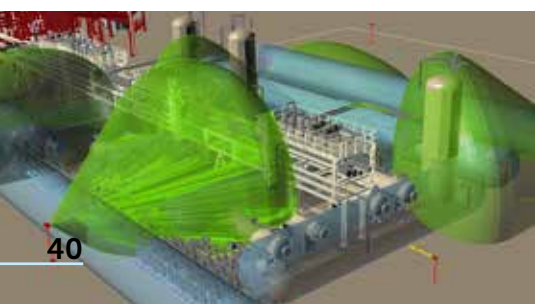
Ancillary Warning Devices

Extensive range of manual, visual and audible alarms, as well as loudspeakers have been developed in close collaboration with customers to deliver the best combination of performance and safety. Manual Alarm Call Points, Status Lights, Beacons/Strobes and Speakers.



3D Fire & Gas Mapping

Precise and reliable 3D fire and gas mapping tool for the placement of detectors in high risk locations. Using line-of-sight flame detectors, point IR and open-path gas detectors can be positioned and oriented within any geometry in seconds. Highlight zero-visibility areas and adjust the position of the detectors and receive real-time feedback.



Fire Protection

High quality fire fighting equipment and systems for high-value asset protection that can be relied upon whenever danger strikes. Foam Proportioner, Monitors, Hydrant Valves, Mobile & Fixed Foam Skids, Deluge Valves.



Gas Analysers

Multi-technology safe and hazardous area process analysers to measure common gases such as oxygen, hydrogen, methane, CO, CO₂, H₂S and natural gas composition.



Liquid Analysers

Physical property analysers typically used in refineries and gas/condensate processing facilities. Parameters include vapour pressure, cloud/freeze/flash/pour points, distillation, viscosity and colour.



Moisture/Dew Point Analysers

Single/multi-channel and portable measurements in gas/liquid applications in industrial, petrochemical and natural gas industries. Proven technologies include aluminium oxide and tunable diode laser (TDL).



System Integration

Customised sample handling systems (probe/transport line/sample conditioning/recovery) can be designed and supplied along with stands/shelters to meet specific environmental requirements.



Density & Viscosity

Online measurement to laboratory accuracies for liquids and gases utilising either vibrating element principle or nucleonics (no moving parts). Insertion, bypass and skid-mounted solutions, with HART, hazardous area, high temperature and pressure options available.



Oil in Water Detection

Hydrocarbon analysers for oil detection monitoring using fluorescence technology when sensitivity and reliability counts. TD-500D - Portable Grab Sample Analyser for analysing Oil in Water and Soil. TD-3100 - Laboratory Fluorometer for detection of Oil in Water and Soil. TD-4100XD & TD-120 - Online Oil in Water Monitor.



Oil on Water Detection

Floating oil on water detectors provide an easy to install, low maintenance solution to the detection of oil and hydrocarbon pollutants in retention pits and ponds.



Water in Oil Detection

Patented energy absorption principle includes improved Interface Detectors, Oil-Water or Water Cut Monitors, Wet Gas Meters, and Multi-Phase Flow Meters.



Rupture Discs

BS&B Safety Systems is the originator and industry leader for reverse buckling, tension loaded, graphite and custom engineered rupture disc devices.

BS&B Safety Systems, since inventing the first rupture disc in 1934, has been at the forefront of the industry. With over 70 registered patents covering reverse buckling, tension loaded, graphite, sanitary and custom engineered rupture disc devices you can be assured BS&B has the right rupture disc to suit your application.

Our standard range covers sizes from 1/8" (3mm) to 72" (1,828mm) and pressures from 4" WC (10 mBarg) to 100,000 psi (6,900 Barg).



Explosion Vents

BS&B's range of explosion vents offer an economic solution for protecting your plant from dust explosions. BS&B's VSP vent has been tested to over 1,000,000 pressure cycles from vacuum to light positive pressure, while retaining its burst accuracy.



Explosion Suppression

BS&B's chemical explosion suppression systems are the best way to protect your plant and equipment by suppressing a dust explosion before it happens. We can offer a complete protection and prevention solution consisting of chemical suppression, chemical and mechanical isolation, venting and flameless venting.



Flame Arrestors

BS&B FlameSaf manufacture inline and end of line flame arrestors for deflagration, detonation and endurance burning applications, as well as pressure/vacuum breather vents with and without flame arrester elements.



Buckling Pin

BS&B's buckling pin valves have been designed as a fast acting non-reclosing pressure relief device. After activation the valve can be easily reset in minutes without the need to remove the valve from service. Buckling pin valves are available as inline or angle type, with sizes ranging from 2" (50mm) to 60" (1,500mm).



A complete range of pressure and temperature instrumentation for general purpose, marine and military applications. Local assembly and manufacturing of select items.

Pressure Instruments

- Pressure Gauges - Gauge, Absolute, Differential
- Pressure Switches
- Pressure Transmitters - OEM & DP Type
- Pressure Recorders & Controllers
- Fit and manufacture of Isolating Diaphragm Seals
- NATA Calibration



Temperature Instruments

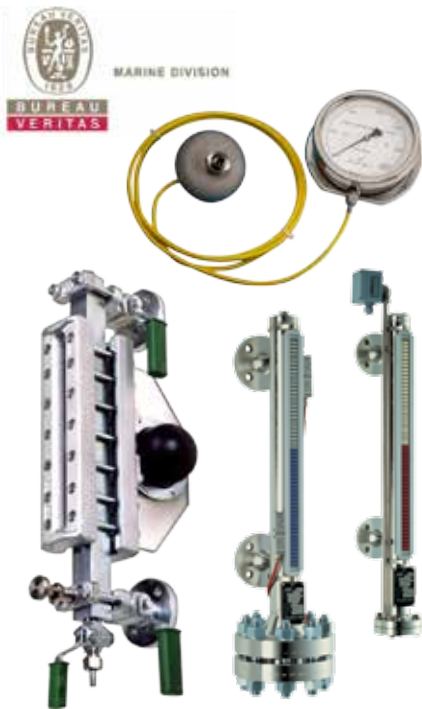
- Temperature Gauges - Bi-metal and Gas Filled
- Exhaust Gas Thermometers
- Temperature Switches
- Temperature Transmitters
- Temperature Recorders & Controllers
- RTD's & Thermocouples
- Thermowells
- Temperature Calibrators



Level Gauges

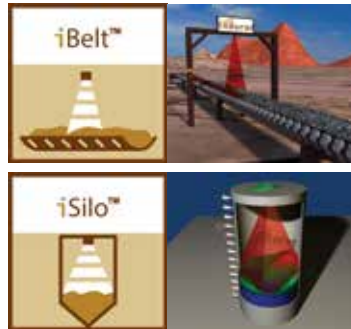
Local and remote tank gauging solutions via Hydrostatic, Float, Magnetic Bypass or Glass level gauge technologies. Our Self Powered Contents Gauges are manufactured locally in Australia.

Whether your solution requires hazardous, marine, safety or pressure related approvals, we have the right technology with the right approval for your application.



2D/3D Inventory Measurement

Process Measurement Solutions provide suitable performance to a point. If your application requires volume profiling for accurate inventory management then our 2D/3D Solutions are for you.



Bulk Material Level Measurement

Radar Level Transmitter designed for medium/long range measurement of powders, particles and bulk solids including applications such as Flyash and cement. The compact, highly directional system utilises unique frequency and signal to noise management providing a more stable measurement. An air purge function can be integrated for challenging applications. High temperature isolating barriers and angle adjustment for a wider range of installation environments.



Liquid Level Transmitters

Whether your application is for a mobile tank, marine tanks, has foaming, high temperature or even interface level, we have the right solution from our extensive suite of level technologies.

- Hydrostatic
- Float Level
- Ultrasonic
- Radar
- Capacitance
- Magnetostrictive



Level Switches

Solutions for both liquids and solids, we have the following technologies for pump control, alarm duties, and overfill prevention;

- Float Level Switches (Vertical & Horizontal)
- Capacitance Level Switches
- Conductivity Level for conductive fluids
- Vibrating fork and rod
- Rotary paddle and tilt switches for solids.



Tank Farm Solutions

From our range of level transmitters and process indicators, we have the capability to design and supply complete tank farm monitoring solutions with many systems providing client interface through a small SCADA and HMI package.



Primary Flow Elements

Supported by Wyatt Engineering in the USA we supply industry leading differential flow measurement and control products including the highly regarded Badger Lo-Loss and Venturi meters. All products are independently verified to accuracies of or better than the ISO standard.

Key solutions are;

- Orifice Meter Runs
- Venturi's
- Insertion Venturis
- Flow Nozzles
- Pitot Tubes

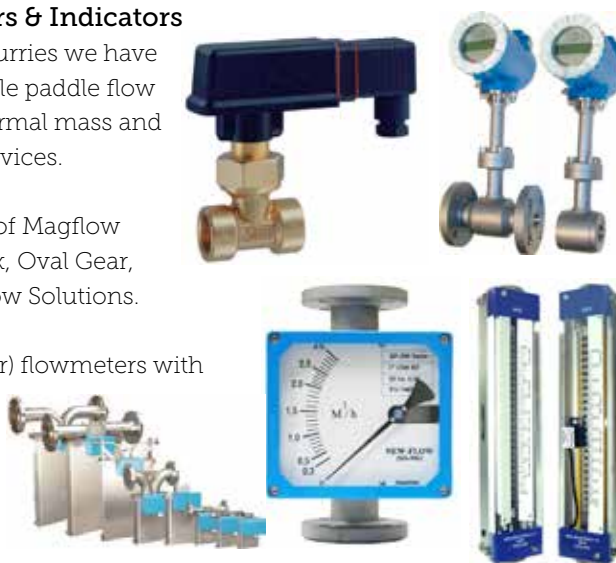


Flow Switches, Meters & Indicators

For liquids, gases and slurries we have technologies from simple paddle flow switches through to thermal mass and doppler/microphone devices.

In addition to our suite of Magflow products we offer Vortex, Oval Gear, Turbine and Coriolis Flow Solutions.

Variable Area (Rotameter) flowmeters with optional flow alarms and transmitters, offer a clear local indications of fluid flow.



Magnetic Flow Meters (Includes Slurries)

HMA Specialises in the manufacture and supply of magnetic flowmeter tubes with ceramic/basalt liners for simple integration into our Wear Solutions piping solutions. In addition we can manufacture tubes with custom ID's and lay lengths using traditional rubber and PFA liners. Flexibility in our design allows flowtubes to be supplied so that they are compatible with the majority of electronics on the market.

As a manufacturer we offer a cost effective refurbishment option for large magflow tubes.

Our new battery powered product provides an ideal solution to water networks interested in revenue monitoring or leakage loss monitoring.



Thermal Mass Flow

Kurz thermal mass flowmeters incorporate advanced microprocessor electronics technology and constant delta T mode of operation to provide accurate and real time flow measurement. Response time is critical with this type of device with Kurz offering one of the fastest response times available, especially when compared against Constant Power technologies of some more well-known brands. Ideally suited to aeration, combustion air, flare gas and digester gas applications the following solutions are available to meet your needs:

- Single Point insertion flowmeters
- Multipoint insertion flowmeters
- Chlorine Meter
- World first Wet Gas Flow Meter using this technology



Ultrasonic & Heat Meters

A complete range of transit time and doppler flow technologies for clean fluids and slurries in full and partially filled pipes through to open channels.

Optional temperature sensors are available for energy meter applications.



Flame Scanners

A variety of UV and IR flame scanners which accurately detect the presence or absence of flame in a combustion chamber. Scanners include advanced sensors and algorithms that can discriminate its target burner from adjacent flames in the same combustion chamber. They can be used with all fuel types and burner configurations.

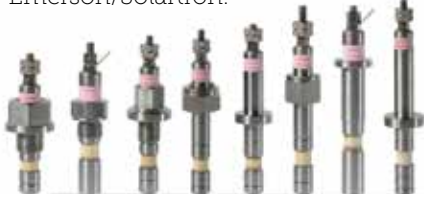
Integrated Scanners

Integrated designs which include all the appropriate detections and amplification circuitry or in one compact unit. Insight, Insight II, Phoenix, Paragon & Simplicity



Replacement OEM Boiler Probes

We offer a complete range of Boiler Drum Level Probes for all systems on the market. Our probes are manufactured to the highest quality utilising the latest vacuum brazing technologies with full traceability and 100% helium leak testing. Replacement probes are available for 100% compatibility with the following manufacturers: Hydrastep, Clark Reliance, Narvik, Yarway, Fossil, Bonetti, Levelstate, Diamond Power, Emerson/Solartron.



Ignition Equipment

Surefire Igniter - High Energy Spark Igniters (HESI) for direct spark ignition of oil or gas burners. Surefire Gas Pilot - Gas pilot with 15KW to 30KW capacity available in natural draught or force draught.



Discrete Scanners

Used in conjunction with the appropriate flame safeguard controls to provide reliable flame detection on a variety of burner applications and fuel types. 45UV5, 55UV5, UV90L, UV1A & 48PT2



Boiler Drum & Boiler Plant Level

A range of products to meet regulatory, safety and boiler control requirements. Our electronic systems offering complete redundancy and fault tolerance unlike other products on the market.

- Electronic Drum Level Indicators (EDLI) both local and remote utilising electrodes/conductivity probes, high integrity, often referred to as Hydrastep
- Electronic Level Switches to replace float level systems in boiler plant
- Gauge Glasses
- Magnetic Level Gauges
- Bypass Gauges



Burner Controls & Flame SafeGuard

- BurnerLogix
- Flame Monitor
- Nexus - Parallel positioning system for liquid or gas fuel fired combustion
- NXM2G - Non-intrusive prevention of boiler dry cycling to increase efficiency.



Level Measurement for Harsh Environments

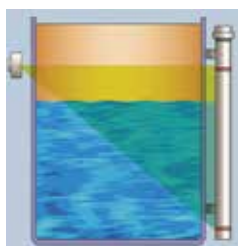
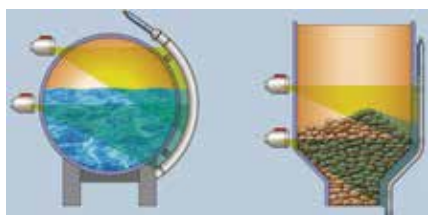
Whether continuous or point level control, our radiometric products are perfect solutions for solids and liquids applications.

This technology is ideally suited to the most difficult of applications and is not affected by;

- Internal obstructions such as agitators
- Extreme process temperatures
- Highly Alkaline or Acidic processes
- Sticky applications

In addition the microprocessor based technology provides automatic compensation for;

- Vapour density changes
- Foam and Gases
- Process Buildup



Process Density Measurement

Nucleonic technology is ideally suited for liquid processes where traditional contact technologies cannot and should not be used. These density measurement solutions are not affected by;

- Extreme process temperatures
- Highly Alkaline or Acidic processes
- Abrasive applications such as slurries
- Violent and/or erratic product flow
- Pipe Materials
- Liner Materials



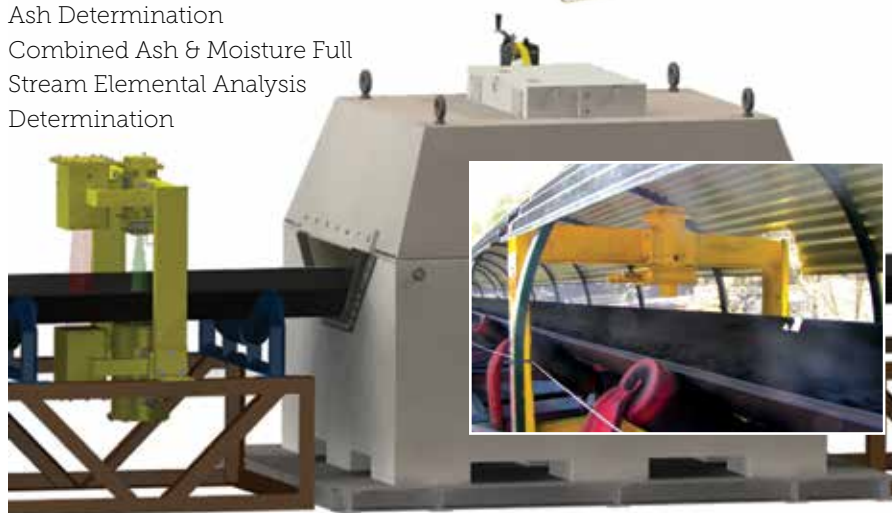
Material Composition

Ash Determination

Combined Ash & Moisture Full

Stream Elemental Analysis

Determination



Non-Contact Material Weighing

Mounts externally to conveyor with no modifications required. Works on flat or trough belt, bucket and screw. Can be mounted to inclined conveyors and suitable for variable or fixed speed conveyors.



Service, Commissioning, and Disposal

- Start-up & Troubleshooting
- Source Life Calculations
- Disposal back to approved disposal facilities in USA or Europe
- All documentation as required by local authorities, including notice of final disposal



Thermal Expansion Joints

Bespoke fabric and metal joints for boilers, turbines and ducts on gas fire plants and coal fire plants.



Sodium Hypochlorite Generation

SEACLOR® & SANILEC® - On-site generation of sodium hypochlorite from seawater via electrolysis. Combining three common consumables, salt, water and electricity to generate a disinfecting agent for industrial bio-fouling control.



Offshore & Marine Sewage Treatment Systems

Omnipure offers effective electrolytic treatment of both black and gray water. Omnipure treatment systems produce effluent quality that easily meets IMO requirements.



Onsite Hydrogen Generation

Hogen™ - Industrial hydrogen generation via electrolysis of water. Units ranging from 300cc/min to 30Nm³/hr.

Stableflow™ - Actively monitor and control purity and dew point to optimise hydrogen quality.



Belt Conveyor Protection & Automation

Belt Tear Detector -
Immediately detect belt tear and stop conveyor

Belt Sway Switch -
Belt misalignment/sway motion detection

Motor-operated Adjusting Carrier -
Belt misalignment automatic adjusting carrier

Conveyor Starting Indicator -
Indicate conveyor driving, no power required

Speed Relay -
Belt slip detection switch, no power

Speed Switch -
Belt slip detection switch, setting adjustable at site

Pull Cord Switch -
Emergency conveyor stop pull wire switch



Process Indicators & Alarm Management Systems

Complete alarm management systems including indicators and annunciators for field and control rooms.



Pore Water

Standpipe or Casagrande Piezometers are economical systems allowing manual water level reading and water sampling if required.

Pneumatic Piezometers are suited to short term monitoring of low pore pressures.

Vibrating Wire Piezometers, simple to read, instant response. Ideal for where automatic data acquisition is required.



Ground Water

Large range of equipment for monitoring and physically protecting monitoring wells.

Data loggers are also available for use in monitoring water levels either above ground or in-hole systems.

Water level indicators and whistles also available to manually record static water levels.



Borehole Cameras

Small diameter colour cameras can inspect, visually view and electronically record the conditions of a borehole or casing. Simple to use and available for purchase or hire.



ShapeAccelArray (SAA)

Comprises of continuous strand inclination monitoring segments each consisting of 3 MEMS (micro electrical mechanical sensors) that can be further resolved to measure displacements. Used vertically to track magnitude and direction of lateral deformation in 2 dimensions, and horizontally to monitor vertical deformation. Can also be configured to monitor tunnel perimeter cross sectional displacements.



Biaxial Inclinometer

Monitors the inclination of embankments and structures. The Inclinometer Probe is passed along the length of a grooved Inclinometer Casing, which is placed in the borehole or attached to the structure. Uses digital servo accelerometers to provide precise data on the magnitude and location of lateral displacements. Readings are displayed and automatically stored for data processing using a PDA that utilises Bluetooth Communication between the Inclinometer Probe/cable reel and PDA unit.



Inclinometer Casing

ABS polymer Inclinometer Casing is self-aligning and has self-coupling connections. Quick and simple assembly with accurately machined grooves allows for ease of installation resulting in quality Inclinometer monitoring results.



Tilt Sensor

Designed to be externally mounted to a structure allowing the structure to be monitored for inclination deviation which in turn can be used to determine horizontal and vertical displacements.



Data Loggers and Readouts

Used to monitor instruments remotely or to provide instantaneous readings, the Dataloggers and Readouts are constructed to withstand the harsh environments found on site. Datalogger enclosures are specifically designed and constructed to meet clients' requirements. Dataloggers allow data to be accessed, displayed and alarmed online or via radio networks. Can be mains, battery or solar powered.



Inplace Inclinometer

Utilises a series of inclination monitoring accelerometers permanently housed within Inclometer Casing and linked together to continually monitor, via the use of a Datalogger, the inclination of a particular Inclometer.



Extensometer

Specialising in a diverse range of multiple point Extensometers to suit most displacement monitoring requirements in addition to open and underground mining projects. Easily installed and connected to Datalogging Systems. Our deep hole range is ideal for subsidence monitoring and have been installed down to 900m in depth with up to 24 anchors.



Displacement Detector System

These behave as an early warning system consisting of a series of tensioned stainless steel wire continually monitoring real time embankment displacement. The wires are connected to a switch system which when a pre-set displacement is exceeded or the wire is broken create an audible/visual alarm to be activated. Up to six sensors monitored continually.



Convergence Monitor

Based on a spring loaded wire mechanism. Measuring a displacement range of 1m but can monitor up to 20m with extension wires. When used with a Readout has an output resolution of 0.1mm. Suitable for remote reading and data logging. Light, small and simple to install.



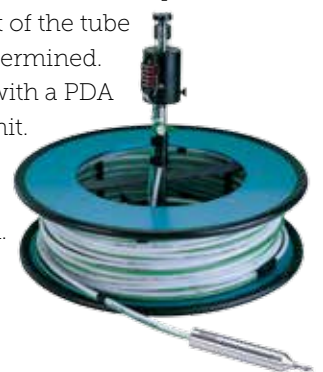
Tell-Tale Crack Monitors

Consists of two plates that overlap for part of their length allowing 2 dimensional monitoring of surface cracks. One plate is calibrated in millimetres and the other is transparent, marked with a hairline cursor. Relationship of the cursor to the scale represents the amount of movement. Range +25mm. Various positional applications are easily monitored.



Hydrostatic Profiler System

Designed to measure horizontal settlement profiles at intervals along a buried/backfilled semi-rigid access tube. By comparing profiles taken at different times, the displacement settlement of the tube can be determined. Supplied with a PDA readout unit. Operating range is +1 to -17m.



Point Load

Portable machine suitable for use in the field or laboratory to determine the point load strength index of rocks specimens. Uses a hand operated hydraulic jack for load application, and a strain-gauged load cell with digital readout for load monitoring. Features include peak load function, protective perspex safety screen, platen separation indicator and smooth platen retracting system. Readout range 0 – 50kN, core size up to 75mm diameter. Incorporates a micro-processor for superior load measurement with increased accuracy. Hydraulic version also available.



Rock Stress

Two types of Rock Stress Meters for borehole application are available. Hydraulic type Rock Stress Meters are best suited for coal and soft rock applications these can be read using a bourdon tube pressure gauge or an electronic pressure sensor. Vibrating wire Rock Stress Meter which works on a proving ring principle and are best suited to hard rock applications. Both are installed in specially drilled boreholes and can be read remotely.



Structural Monitoring

Load Cells can be used in tunnels and excavations to monitor rock bolts, tunnel linings and structural beams.

Available in different dimensions, shapes, reading technologies and load ranges.

Load Cells can be used for both dynamic and static applications and can be easily connected to Datalogging systems.



Earth Pressure Monitoring

Measurement of earth pressure in embankments, dams, retaining walls and abutments. Consisting of two flat plates of various sizes, welded together around their periphery and filled with an incompressible fluid. Ideal for long term monitoring and easily connected to automatic data acquisition systems.



Strain Gauges

Vibrating Wire Surface Strain Gauges used in any application to monitor strain in concrete, steel or masonry structures. These can be affixed by spot welding, arc welding or bolting.

Vibrating Wire Embedment Strain Gauge used for measurement of internal strains in prefabricated concrete panels, massed concrete or within shotcrete lined structures.





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MATERIALS HANDLING

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INSTRUMENTATION

POWER GENERATION

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