

Belliss & Morcom

Oil Free Compressors for PET Bottle Blowing



The Industry Standard,
Trusted Since 1852

Exceptional Performance & Low Power Consumption

Belliss & Morcom – An Unrivalled History of Excellence

A Whole New Dimension of Reliability, Performance and Durability

Belliss & Morcom, founded in 1852, is a leading global provider of premium, high quality oil free reciprocating compressors, technologies and services. With over 150 years' experience, we have earned the trust of our customers who rely on our exceptional performance and outstanding aftermarket support.

Belliss & Morcom has over 35 years experience of supplying oil free compressors for the PET bottle blowing market and has supplied compressors for some of the largest PET bottling plants in the world today. Due to our vast experience, Belliss & Morcom have become the recognised industry leaders, where customers globally enjoy greater productivity and lower operating costs. Belliss & Morcom compressors set the standard for reliable, efficient and cost-effective PET bottle blowing operations.

Our range of robust, energy-efficient compressors has become the PET Bottle Blowers' compressor of choice due to the reliability, performance and unrivalled durability. This has been achieved through a market leading design ensuring decades of reliable operation in the most hostile of environments.

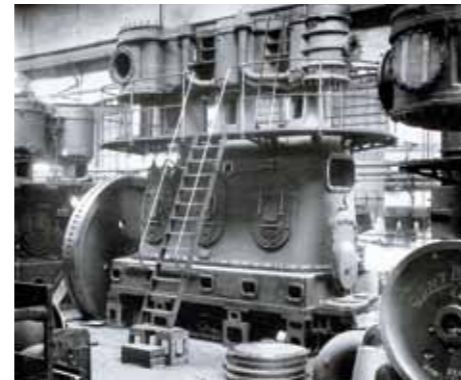
Belliss & Morcom customers all over the world get confidence, flexibility, greater productivity and lower total cost of ownership through specifying one of our compressors, which is why Belliss & Morcom products provide the benchmark for the PET industry today.

We design our systems with your goals in mind. We understand the impact of our compressors on the environment and actively support our customers drive towards "Green Initiatives". We help our customers with a wide range of initiatives from reducing non-productive energy consumption through to reducing the company "carbon footprint". Whatever your goals, Belliss & Morcom aligns our solutions to help meet them through efficient and reliable products which work for you.

Be sure to make the right decision when choosing an oil free compressor for PET bottle blowing, the wrong decision and solution can be expensive in the long term.



Erecting shop 1923



Erecting shop 2106 compressor 1936

The Most Efficient Solution for PET Bottle Blowing

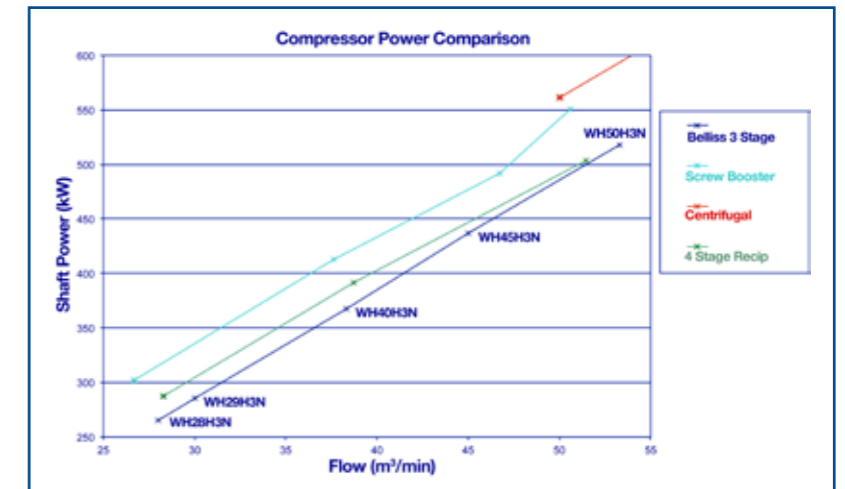
Belliss & Morcom have the ability to understand our customer's specific requirements and are committed to ensuring we provide intelligent solutions that meet your ultimate needs.

Lowest Cost of Ownership

Our standard compressor units are all designed to ISO 8012 and this combined with our enhanced products and flexible package options means Belliss & Morcom can create a lowest cost of ownership compressor solution.

With the highest efficiency motors at 97.1% and the latest in extended life materials technology, both the VH and WH range continue to outperform all other 40 barg oil free compressors in the PET industry.

Maintenance costs are also kept to a minimum due to our unique shaftless motor, with no belts or bearings there are fewer parts to maintain, which can eliminate unscheduled downtime.



Low Power Consumption – High on Efficiency

The Belliss & Morcom range of oil free compressors have a proven track record for being the most energy efficient compressors available for PET applications.

With each compressor driven by our EEF compliant water cooled motor, our 3 stage oil free compressor is proven to be the most power efficient design concept for a 40 barg PET compressor. Our enhanced product range gives you the flexibility to specify energy efficient options such as Variable Speed Drives, our AirPET Control System and Air Recovery Systems, all of which contribute to providing a highly efficient compressor system.

Small Compressor Footprint

Where space is at a premium, the Belliss & Morcom range of oil free compressors offer a neatly arranged compressor system in the smallest available footprint. With no specialist foundations required, our compressor systems are easily installed and fully operational in the shortest possible timescale.

Balanced Operation

All Belliss & Morcom compressors are dynamically balanced, therefore removing the need for any special and expensive structural foundations, the compressor room floor only requires to carry the static weight of the compressor.

Maximum Oil Free Air Quality

With absolutely no risk of contamination, Belliss & Morcom compression technology delivers the highest quality, oil free compressed air meaning no possibility of oil contamination in your process.

The intrinsically oil free air produced by a Belliss & Morcom compressor meets all air quality standards including Pure Air – ISO 8573-1.

Belliss & Morcom Timeline 1852 to present



1852 → 1902 → 1952 → 2002 → 2012



Try our compressor selector at www.belliss.com/compressor-selector

www.belliss.com

VH & WH Oil Free Range

VH compressor

Performance summary

- 420 to 1,500 M³/hour at 40 barg
- 90 to 260kW direct drive "shaftless" motor
- Oil free
- Water cooled
- 3 stages
- Capacity control – 0 to 100%
- Variable speed drive range of 420 to 980 rpm
- Fully balanced operation



The Belliss & Morcom VH range of compressors offers a neatly arranged compressor system which provides maximum oil free air capacity in the smallest available footprint.

WH compressor

Performance summary

- 1,680 to 3,200 M³/hour at 40 barg
- 280 to 550 kW motor
- Oil free
- Water cooled
- 3 stages
- Capacity control – 0%/50%/100%
- Variable speed drive range of 420 to 750 rpm
- Fully balanced operation



The Belliss & Morcom WH range of compressors offers higher volumes of oil free air utilising energy efficient equipment and components. The double acting design provides greater flexibility in capacity control and lower power consumption.

Our unique design includes a three step capacity control with the piston compressing air on the up stroke as well as the down. This type of capacity control allows our customers to save energy and money. Our inclined cylinder arrangement optimises balance and extends component life, reducing maintenance costs.

Capacity at 40 barg

VH & WH PET Range		Belliss VH7	Belliss VH9	Belliss VH12	Belliss VH15	Belliss VH18	Belliss VH21	Belliss VH25	Belliss WH28	Belliss WH29	Belliss WH40	Belliss WH45	Belliss WH50
SPECIFICATIONS 50 Hz Data	Capacity at 40 barg m ³ /hr FAD cfm	420 / 247	580 / 341	729 / 431	916 / 539	1116 / 657	1402 / 825	1500 / 882	1680 / 988	1800 / 1058	2300 / 1354	2700 / 1589	3200 / 1883
	Delivery Pressure barg / psi(g)	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580
SPECIFICATIONS 60 Hz Data	Speed rpm	735	985	585	735	585	735	735	735	735	735	735	735
	Shaft Power kW / HP	75 / 100	101 / 135	124 / 166	156 / 209	192 / 256	235 / 313	251 / 335	265 / 355	286 / 384	368 / 493	437 / 585	518 / 694
	Motor Power kW / HP	90 / 125	110 / 150	150 / 200	175 / 235	210 / 280	260 / 350	260 / 350	280 / 375	325 / 435	400 / 535	450 / 603	550 / 737
	Capacity at 40 barg m ³ /hr FAD cfm	406 / 239	580 / 341	729 / 431	885 / 521	1116 / 657	1354 / 797	1449 / 853	1623 / 955	1739 / 1024	2222 / 1308	2608 / 1535	3091 / 1819
SPECIFICATIONS 60 Hz Data	Delivery Pressure barg / psi(g)	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580	40 / 580
	Speed rpm	710	880	585	710	585	710	710	710	710	710	710	710
	Shaft Power kW / HP	72 / 97	101 / 135	124 / 166	150 / 202	192 / 256	227 / 304	242 / 323	256 / 343	277 / 371	355 / 476	422 / 565	500 / 670
	Motor Power kW / HP	90 / 125	110 / 150	150 / 200	175 / 235	210 / 280	260 / 350	260 / 350	280 / 375	325 / 435	400 / 535	450 / 603	550 / 737

Capacity at 30 barg

VH & WH PET Range		Belliss VH7	Belliss VH9	Belliss VH12	Belliss VH15	Belliss VH18	Belliss VH21	Belliss VH25	Belliss WH28	Belliss WH29	Belliss WH40	Belliss WH45	Belliss WH50
SPECIFICATIONS 50 Hz Data	Capacity at 30 barg m ³ /hr FAD cfm	431 / 254	593 / 349	743 / 437	933 / 549	1122 / 660	1410 / 829	1509 / 887	1693 / 995	1817 / 1068	2313 / 1360	2716 / 1597	3229 / 1899
	Delivery Pressure barg / psi(g)	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435
SPECIFICATIONS 60 Hz Data	Speed rpm	735	985	585	735	585	735	735	735	735	735	735	735
	Shaft Power kW / HP	69 / 92	93 / 124	112 / 150	141 / 188	177 / 237	221 / 296	248 / 332	242 / 324	262 / 351	337 / 452	412 / 552	463 / 619
	Motor Power kW / HP	90 / 125	110 / 150	150 / 200	175 / 235	210 / 280	260 / 350	260 / 350	280 / 375	325 / 435	400 / 535	450 / 603	550 / 737
	Capacity at 30 barg m ³ /hr FAD cfm	417 / 245	530 / 312	743 / 437	901 / 530	1122 / 660	1362 / 801	1457 / 857	1635 / 962	1755 / 1032	2234 / 1314	2624 / 1543	3119 / 1834
SPECIFICATIONS 60 Hz Data	Delivery Pressure barg / psi(g)	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435	30 / 435
	Speed rpm	710	880	585	710	585	710	710	710	710	710	710	710
	Shaft Power kW / HP	67 / 89	83 / 111	112 / 150	136 / 182	177 / 237	213 / 286	240 / 321	234 / 313	253 / 339	326 / 436	398 / 533	447 / 598
	Motor Power kW / HP	90 / 125	110 / 150	150 / 200	175 / 235	210 / 280	260 / 350	260 / 350	280 / 375	325 / 435	400 / 535	450 / 603	550 / 737

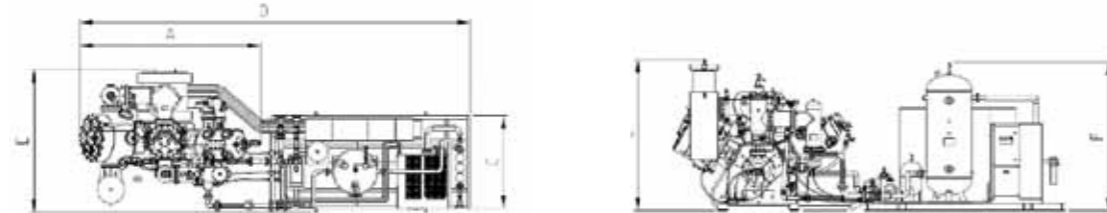


What makes Belliss & Morcom unique?

VH & WH Range

Low Power Consumption	Use of energy efficient equipment ensuring lower operating costs
Small Compact Footprint	Reduction in space requirements leads to cost savings for floor space
Direct Drive Shaftless Motor	Reduces power absorbed and eliminates any belt drive losses
Simple Installation	Compact skid packages thus reducing installation costs
Balanced Operation	Dynamically balanced removing the need for any special foundations
Single Compressor Block	One single 3 stage block resulting in the most efficient air solution
Half Load Capability	Reduced power at partial load conditions for the WH range
Low Maintenance	Only one major annual service required
Robust Construction	Ensures continuous 24/7 operation maintaining production output
High Operating Efficiency	Results in maximum compressor and plant performance
High Quality Oil Free Air	Guaranteed clean dry air to ISO 8573.1 Class 1.2.4
Single Turnkey Partners	A single source for both PET blowing and utility air requirements
Global Supply & Local Support	Dedicated sales and service centres protect your investments

VH and WH PET range dimensions



	VH7	VH9	VH12	VH15	VH18	VH21	VH25	WH28	WH29	WH40	WH45	WH50
Installed min area*	7750 x 4600	7750 x 4600	8650 x 4600	8650 x 4600	8750 x 4600	8750 x 4600	7800 x 4300	9300 x 4900	9300 x 4900	9950 x 4900	9950 x 4900	10500 x 4900
A (mm)	2350	2350	2950	2950	3025	3025	3025	3275	3275	3500	3400	4000
B(mm)	2260	2260	2300	2300	2370	2370	2370	2980	2980	3110	3150	3150
C (mm)	1980	1980	2645	2645	2600	2600	2600	2950	2950	3190	3190	3315
D (mm)	5770	5770	6670	6670	6750	6750	6900	7350	7350	7950	7950	9000
E (mm)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
F (mm)	2695	2695	2695	2695	2695	2695	2740	2740	2740	2740	3210	3210
weight Comp. (Kg)	3875	3875	5160	5160	6345	6345	6800	9900	9900	10410	11500	12000
Weight Skid (Kg)	2350	2350	2400	2400	2500	2500	2600	2900	2900	3000	3600	3600

* installed minimum area required for Ancillary Skid package - (indication only - sizes differ depending on application)

Package Options

The VH & WH Ranges are also available as complete packages including all essential ancillary items such as starter control panels with PLC logic systems, energy efficient motors, air dryer, air receiver, filters and optional cooling systems to suit all site conditions.

Ancillary Skid Options

Both the VH and WH Range are able to be mounted as a floor mounted compressor with all ancillary equipment mounted on a baseplate, complete with all interconnecting pipework and electrical wiring.

Loose Equipment

All equipment can be supplied as loose items with a "kit" of interconnecting parts which just require final connections at site.



Full Turnkey Installation, Commissioning & Training

Correct installation is essential in providing long-term compressor reliability. Belliss & Morcom provide full turnkey solutions from initial site surveys through to design, installation and final commissioning.

Our fully qualified engineers assess all critical factors such as location, radiated heat, noise and air inlet conditions to ensure the complete compressor installation functions reliably whatever the environment.



Try our compressor selector at www.belliss.com/compressor-selector

www.belliss.com

Enhanced Products – Designed to Monitor, Control & Save

Our Enhanced Products are Designed to Reduce Energy Consumption and Improve Compressor Performance.

AirPET

AirPET Control Systems

The AirPET compressor control system is designed to give a better and more accurate overall control of the air pressure on a multi-compressor system than the conventional methods.

Features:

- Powerful trending and logging facilities to implement effective plant management
- Main plant networked if required
- Can monitor other items of equipment and plant giving a common database to assist with effective plant management
- Can monitor low pressure compressors if required
- A broadband connection will allow remote monitoring and assistance
- Compressor hours run
- Proven Technology with International hardware and software support
- Can monitor up to 30 Compressors of any make, model or combination

Benefits:

- Reduces energy costs by reducing compressor off-load time
- Provides live energy usage, energy costs and live CO² emissions data
- AirPRESSURE control of the main line to within +/- 0.5 barg
- AirPREDICT allows a compressor to be online smoothly before the demand is required
- AirSAVE allows the compressor to be switched off, or at low pressure, at weekends or on non-productive shifts
- Ensures optimum compressor usage and improved compressor performance
- Predictive planned maintenance and downtime management
- Indicates air system integrity by monitoring rate of pressure drop

Air Recovery

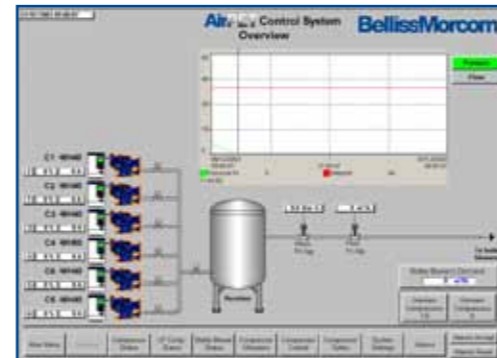
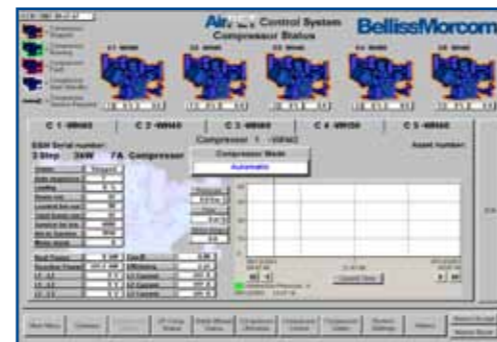
The Air Recovery System is designed to accommodate a returned pressure from the Blow Moulding machines that can be 'recycled' back through the compressor.

- Reduction in compressor energy consumption
- Easily installed to existing installation
- Can be used to supplement LP air requirements

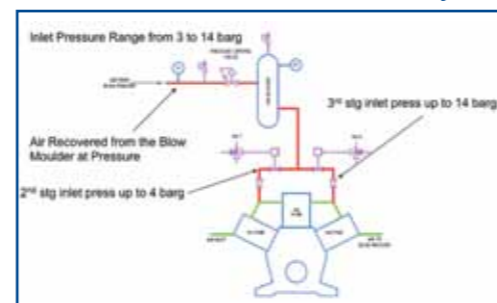
Heat Recovery

Belliss & Morcom have developed a Heat Recovery System to work with the PET compressor. The PET compressors use cooling water to cool the compressor and the compressed air. The water once heated through the compressor will then need to be cooled through the compressor cooling tower.

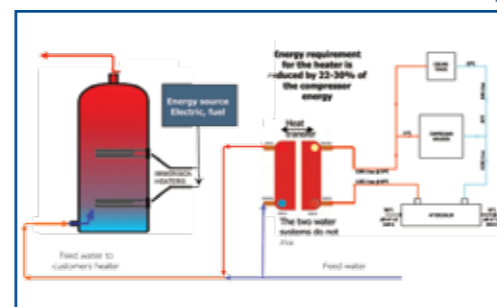
The compressor cooling system can be modified to provide water at around 80°C to pre-heat the customers own feed water to their heating systems (water or steam) and thus reduce their energy load through the water / steam heater. Savings are typically 22-30% of the compressor motor rating kW. Therefore a WH40 compressor with a 400kW would provide energy reduction equivalent to 90kW.



AirPet System



Air Recovery



Heat Recovery

Variable Speed Drives

- Reduced energy costs
- Variable capacity control – 30% to 100%
- Reduced motor starting current (within the FLC of the motor)
- Improved efficiency and power factor
- Extended component life
- Accurate and repeatable pressure control

Water Cooled Motor

It is widely accepted within industry today that the running of motors and drives account for a large percentage of energy usage. Using the right energy efficient motors will help lower your carbon footprint as well as your energy bills. With this in mind Belliss & Morcom developed a unique water cooled shaftless motor, which makes our compressor systems the most energy efficient on the market.

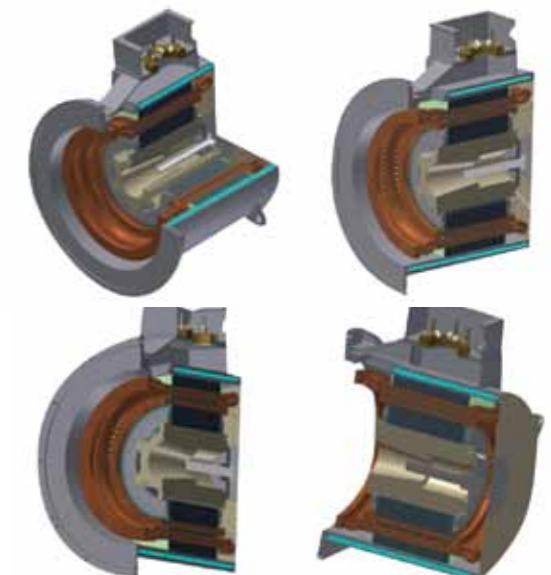
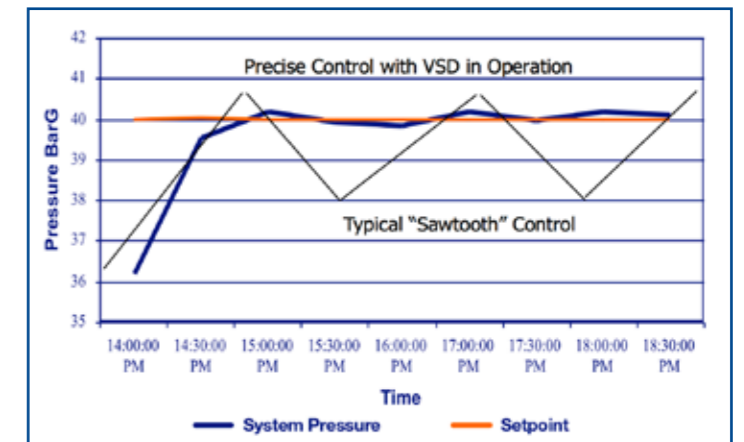
Benefits

- Lower electricity consumption
- Higher efficiency of 97.1%
- Lower CO² emissions
- Suitable for variable speed drive
- IP56 construction, suitable for all operating environments
- 100% reduction in radiated heat
- Low noise specification
- Maintenance free
- Smaller and lighter than air cooled motors
- Connects direct to the existing compressor cooling circuit
- The environmentally friendly 'green' option
- Specifically designed for the global drinks industry

Energy Audits

In order to reduce energy costs and CO² emissions, Belliss & Morcom offer audits tailored to suit your specific needs by our team of dedicated experts.

Please contact us for more details.



Water Cooled Motor



BellissAftermarket

Protect Your Investment with Confidence

To ensure optimum compressor performance and reliability, only one specification of spare part should be used: the original one. Belliss & Morcom guarantee every spare part ordered.

Comprehensive Parts Stock Holding

Stock holding around the world means parts can be dispatched from our support centres within hours of order.

Convenient Service Packs

Services packs and kits provide all the necessary components to carry out field services and repairs efficiently.

Aftermarket Products & Services

- Fixed Cost Preventative Maintenance
- Compressor and Component Refurbishment
- Enhanced Product Upgrades
- On Site Commissioning and Training
- Full Turn Key Installations
- Unrivalled Product & Technical Support

Our Day to Day Commitment to You and Your Business

- 24 Hours a Day, 365 Days a Year Support
- Extensive Spare Parts Stock Holding
- Experienced Local Product and Technical Support
- Fully Flexible Maintenance Packages
- On Site Commissioning and Training
- Full Turnkey Installation Capabilities

Plus the added advantage of the best technical advice and support available in the market place today.

BellissXtra

ULTIMATE PROTECTION

BellissXtra is the “Ultimate Protection Programme” Guaranteeing Unlimited Warranty whilst BellissXtra is in Operation

How Does it Work?

- BellisXtra is an unlimited protection programme for the life of your compressor(s)
- You will be fully budgeted against any unforeseen or unscheduled breakdown and failures
- Gives you peace of mind through maximised productivity and lowered costs

Features include:

- A simple, straightforward agreement – no hidden extras, no small print
- Unlimited operating hours on the compressor
- 100% original spare parts with proven performance and reliability
- Scheduled maintenance carried out by factory-trained technicians
- Only one service required each year, depending on model, increasing compressor availability

Benefits include:

- Parts stocked locally to minimise downtime
- Interactive and proactive compressor monitoring
- Elimination of unexpected repair costs
- Long term reliability and Improved operational visibility and with free, user-friendly expert advice



Belliss & Morcom



For more information about our world-wide network please contact our UK office:

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Belliss & Morcom's policy is one of continuous improvement and we therefore reserve the right to alter specifications and prices without prior notice. All products are sold subject to the Company's conditions of sale. Brochure re-order ref: B001GB

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Denver**