

Belliss & Morcom

**Gardner
Denver**

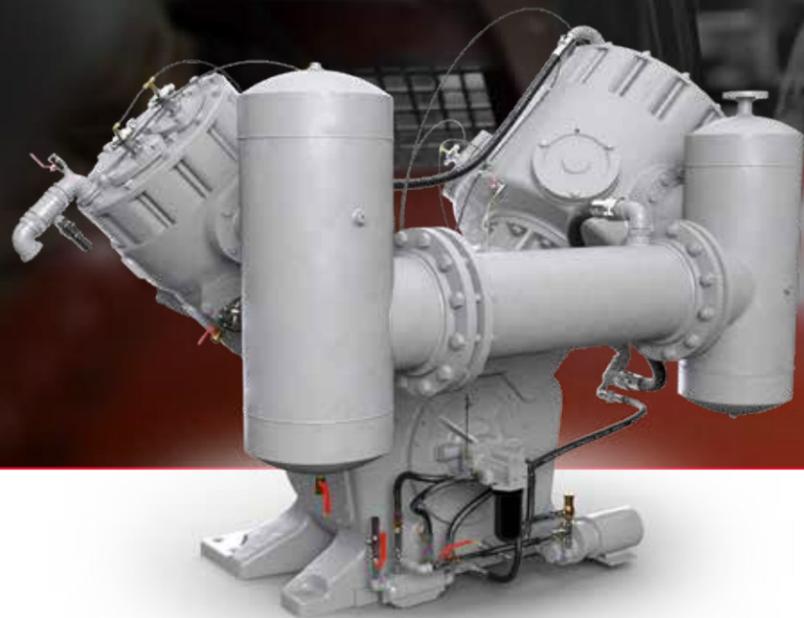
HIGH PRESSURE SOLUTIONS



ENGINEERED
TO
PERFORM

Oil Free Air & Gas Compressors
for Industrial Applications

ENGINEERED FOR PERFORMANCE



Belliss & Morcom V250-4012N-CO2

EFFICIENT, RELIABLE, AND VERSATILE
Maximise your profitability with Belliss & Morcom

BUILT TO LAST

Building on over 150 years of experience and innovation, every Belliss & Morcom compressor is engineered from the ground up, to deliver outstanding levels of efficiency, quality and performance.

In today's competitive world, every efficiency-gain and cost-saving matters; every deliverable matters; every second of every production run matters; and every cubic metre of compressed air matters.

That's why, as world leaders in compressor technology, every detail of equipment design, specification and manufacturing matters to us.

OIL FREE AIR AND GAS PROVIDES THE BACKBONE OF TODAY'S INDUSTRY. WITH PROFITABILITY EXPANDING EFFICIENCY AND UPTIME, BELLISS & MORCOM IS ENGINEERED TO PERFORM, WHATEVER THE PRESSURE.

WHY OUR EXPERTISE MATTERS

Building on decades of innovation, every Belliss & Morcom compressor is engineered from top to bottom to deliver outstanding levels of efficiency, quality and performance.

A combination of unique design features and engineering refinement adds up to real advantages for customers - including reduced energy consumption, greater uptime, lower total cost, and the sheer reliability of air delivery, when the pressure is on.

- Hydropower
- Automotive
- Nitrogen Production
- Power Generation
- Aerospace
- Building Products



ENGINEERED FOR EFFICIENCY

IN INDUSTRY, SUCCESS DEPENDS ON FINE MARGINS, AND EFFICIENCY MATTERS. WHETHER ITS MACHINE EFFICIENCY, MAXIMISED BY OUR SHAFTLESS MOTOR OFFERING THE LOWEST RUNNING COSTS ON THE MARKET, OR OUR UNIQUE SET OF DESIGN FEATURES ENSURING INCREASED PROCESS EFFICIENCY THROUGH UPTIME, YOU CAN BE SURE THAT A BELLISS & MORCOM COMPRESSOR WILL MAXIMISE YOUR PROFITABILITY.

EVEN A SINGLE PERCENTAGE POINT CAN MAKE A HUGE DIFFERENCE.

The smallest issues with the transfer of power from the compressor motor can result in significant energy loss, and serious financial impact. In fact, belt drive system inefficiencies can add up to 12% to energy bills. Which is why every Belliss & Morcom compressor is specified with a shaftless motor as standard*.

This means that 100% of the motor's output power is transferred directly into the compressor's running gear, with zero degradation over the lifetime of the equipment. So you start by saving, and you continue saving, year after year.

*VH7/9 excluded.

NO SHAFT, NO PROBLEM

The Belliss & Morcom shaftless motor requires no drive system maintenance. No belt tensioning, no belt replacement, no motor alignment, no coupling checks or maintenance - this is a zero-maintenance drive system providing a constant and 100% efficient power transmission.

For example a single 500 kW machine might be costing over £400,000 a year to run**. Inefficiencies of even just 1% on the drive system can add in excess of £4,000 to your energy bill - every year.

Brand new belt drive systems typically operate with inefficiencies of around 5% to 7%, rising to around 12% after wear, depending on your maintenance schedule. This means your drive system alone could be costing upwards of £50,000 per compressor, per year in wasted energy. In contrast, with the Belliss & Morcom shaftless motor you enjoy zero energy loss, and zero extra cost.

**Assuming 0.1 £/kWh energy prices and 8,000 running hours per year. $(500/0.99)*8000*0.1 = £404,040$

UNIQUE DIAGONAL DESIGN

The unique Belliss & Morcom 'W' design means each compression stage runs on its own cylinder line. This gives you an extra layer of reliability and efficiency. So whatever your system size and output, capacity control can be achieved in the most cost effective way possible.

Our efficient 50% load system manages smaller flow variations and allows tighter pressure bandwidth without the need for a variable speed drive (VSD). However, where required, Belliss & Morcom also offer a market leading VSD system. Combined with our 50% load and available running speed range, it offers unmatched output control - down to 30% of the maximum output.

UPTIME THROUGH DESIGN

Our unique combination of shaftless motors with diagonal cylinder lines eradicates items that require regular maintenance, such as horizontal cylinder lines and belt drive systems.

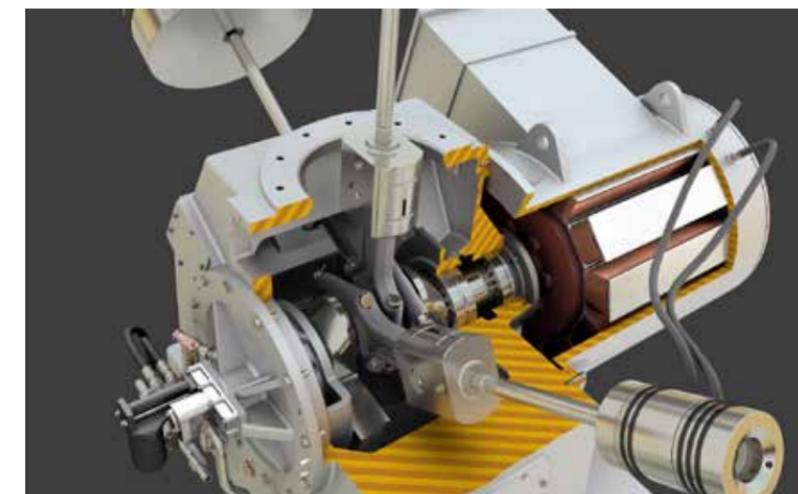
It means you can operate for 8,000 hours between service, and when routine maintenance time comes around, you'll find key components are easy to access and work on, so you'll be up and running quickly.

Reduced Wear

Belliss & Morcom compressors feature a 45 or 60 degree incline. This reduces static piston ring loading by up to 29.3% compared with horizontal cylinder lines. It means less wear and completely eliminates the need for interim turning of either compression or bearing rings.

Ease of Access

As a result, our engineers have been able to move the largest piston off the vertical cylinder line, significantly improving access and reducing service complexity and downtime.



ENGINEERED FOR DEPENDABILITY

IN A BUSY FACTORY, YOU NEED EQUIPMENT THAT DOESN'T DEMAND ATTENTION - EVERY BELLISS & MORCOM COMPRESSOR COMES WITH QUALITY AND RELIABILITY BUILT IN, AND OUR COMBINATION OF LOW FOOTPRINT AND CUSTOM DESIGN CAPABILITY ENSURE YOUR MACHINE WILL FIT WHERE YOU NEED IT, WITH MINIMUM IMPACT ON SURROUNDING EQUIPMENT.

BUILT TO LAST

Belliss & Morcom has been an industrial manufacturer since 1852. Our continuing commitment to outstanding build quality and dependability is backed up by our 5 year+ Belliss Xtra warranty programme.

In order to ensure reliability, every component must be carefully matched to the compressor duty. Compromise is a false economy, and simply aiming for the lowest possible cost is often counter-productive for the customer in the long run.

MOTOR SERVICE FACTORS

Compressor motors offer maximum reliability and deliver maximum efficiency when running at 75%-95% of their rated value. Running above the rated value means higher power costs and increased risk of breakdown. Unlike other equipment on the market, every Belliss & Morcom motor is specified with its full-service factor, so you can be confident that it will run continuously and at maximum efficiency throughout its full design life.

For example, many competitor machines rely on heavy welded base frame assemblies to provide support or dampen very high vibration levels. And while this can be cheaper to manufacture than a fully balanced compressor, it adds extra components which are vulnerable to unexpected and expensive failure. In contrast, the Belliss & Morcom diagonal frame design requires no external supports for structural integrity or vibration damping, and minimizes wear and tear. As a result, you benefit from longer intervals between planned service, and a reduced risk of machine failure and unplanned downtime.

WATER-COOLED MOTOR PROTECTION

In harsh environments, at high altitudes or temperatures, where it is dusty or ventilation is limited, air-cooled motors can de-rate or even fail. Belliss & Morcom's bespoke water cooled motors eliminate this risk.

With IP56 protection and a cooling system that doesn't rely on or impact the surrounding environment, our water cooled motors can run reliably where an air cooled motor can't.

COMPACT FOOTPRINT

In busy production sites, space is always at a premium, so a smaller machine footprint can be a big advantage.

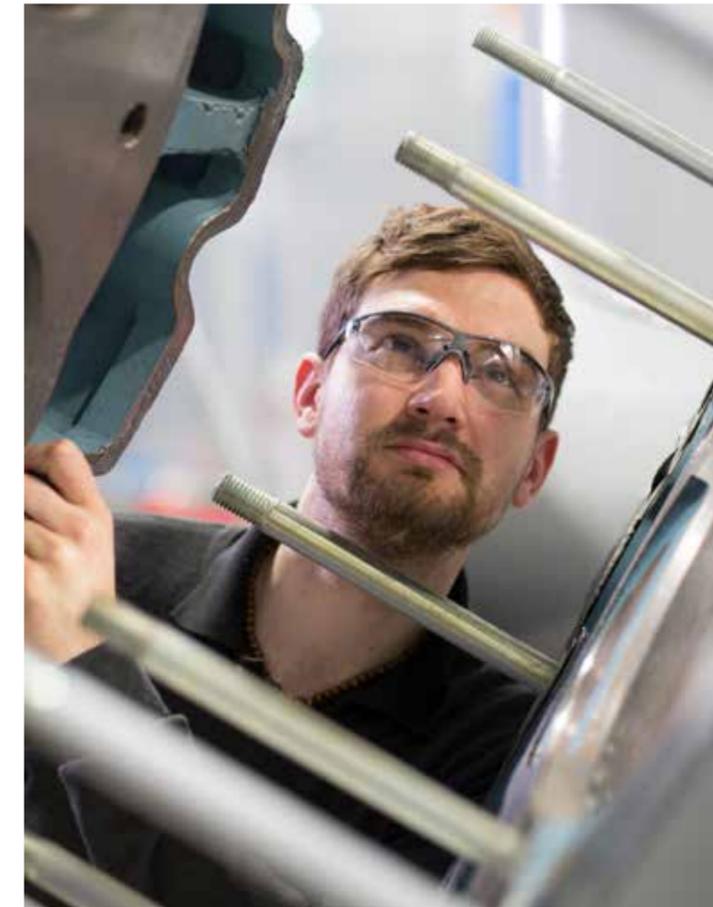
Because of their unique diagonal design, Belliss & Morcom compressors are significantly more compact than competitors' equipment. It means more air delivered for a given amount of factory floor - and valuable extra space for productive activity.

CUSTOM DESIGN

Where your available space is limited, and yet you still require high performance, Belliss & Morcom can create a bespoke solution specifically for you. Our expert team have extensive experience of fitting complete systems in even the tightest of spaces. Our diagonal set up, water cooled motor and modular package mean our systems can operate effectively and efficiently where competitors' simply can't fit.

YOU'RE IN COMPLETE CONTROL

Altogether it means that your compressor is up, running and available for production when you need it - it fits within your existing factory constraints and your schedule doesn't need to be organized around maintenance downtime and frequent servicing. You're in control, every minute of the day and always with the peace of mind that comes with our extensive network of expert service technicians.



ENGINEERED FOR INTEGRATION

BELLISS & MORCOM BESPOKE SOLUTIONS

Belliss & Morcom can manufacture bespoke compressor systems to fit your needs exactly. Based on four frame sizes, and with the performance capabilities shown below, contact your Belliss & Morcom sales representative today.

FRAME SIZE	DELIVERY PRESSURE		FLOW RATE		MAXIMUM MOTOR POWER
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	
	BARG	BARG	M ³ /HR	M ³ /HR	KW
V130	2	90	402	1026	130
V250	2	90	480	2831	280
W370	2	45	1044	7592	500
W540	2	45	2036	8704	550

BELLISS & MORCOM RANGE PERFORMANCE DATA

With a wide range of performance options, ensuring integration with a variety of systems, you can be sure that Belliss & Morcom have the industrial solutions to fit your requirements.

	DELIVERY PRESSURE		ATMOSPHERIC COMPRESSOR INLET		ELEVATED COMPRESSOR INLET					
	MINIMUM	MAXIMUM	FLOW RATE		MAXIMUM INLET PRESSURE	FLOW RATE		ABSORBED POWER AT MAXIMUM SPEED		
	BARG	BARG	M ³ /HR		BARG	M ³ /HR		M ³ /HR		
LOW PRESSURE	V250-28-2N	6	10.3	1682	> 1450	172	0.15	1110	> 1557	197
	W370-45-2N	5	13	2778	> 2580	334	0.1	1890	> 2707	367
	V250-4012N-CO2	5	14	1357	> 2036	275	0.15	1558	> 2187	280
MEDIUM PRESSURE	V130-7-3N	20	40	402		77	0.03	414		79
	V130-9-3N	20	40	540		104	0.03	556		107
	V250-12-3N	10	45	480	> 720	119	0.15	551	> 773	137
	V250-15-3N	10	45	604	> 906	150	0.1	664	> 951	165
	V250-18-3N	15	45	716	> 1074	190	0.03	737	> 1090	196
	V250-21-3N	15	45	908	> 1362	233	0.03	935	> 1382	240
	V250-25-3N	20	45	993	> 1490	249	0	993	> 1490	249
	W370-28-3N	10	45	1044	> 1566	265	0.03	1075	> 1589	273
	W370-29-3N	10	45	1152	> 1728	277	0.1	1266	> 1813	304
	W370-35-3N	15	45	1408	> 2112	339	0.03	1450	> 2143	349
	W370-40-3N	15	45	1472	> 2208	360	0.03	1516	> 2241	371
	W370-45-3N	20	45	1776	> 2664	449	0.03	1829	> 2703	462
HIGH PRESSURE	W370-50-3N	16	45	2036	> 3054	519	0	N/A	> N/A	N/A
	V290-5-3N	40	90	183	> 274	83	0.1	201	> 288	91
	V660-12-3N	50	90	444	> 666	150	0.1	488	> 699	165
	V780-15-3N	50	90	515	> 773	182	0.1	566	> 811	200



BELLISS & MORCOM W370-45-2N

A bespoke design for a premium automotive manufacturer in Germany, the Belliss and Morcom oil and silicon free W370-45-2N offers a reliable air source at variable pressure and flow rate.

Ensuring maximum efficiency through 3-step load control and the unique Belliss and Morcom shaftless motor, and with all of the quality and reliability of Belliss & Morcom built in - whether you need high efficiency, extreme reliability or versatility, Belliss & Morcom offer the ideal solution for you.

All industrial machines available for air and nitrogen
Gas machines available for air, nitrogen and carbon dioxide

ENGINEERED FOR VERSATILITY

WE OFFER A RANGE OF ADDITIONAL FEATURES DESIGNED TO OFFER YOUR PLANT ENHANCED LEVELS OF MONITORING, CONTROL AND COST SAVINGS.

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

HIGH EFFICIENCY WATER COOLED MOTOR

The unique Belliss & Morcom water cooled shaftless motor drives the most reliable and energy efficient compressor system on the market - ensuring reliability in the most difficult operating conditions, and helping reduce your energy bills and carbon footprint.

- IP56 construction, reliable in all operating environments
- Maintenance free
- Lower electricity consumption and CO₂ emissions
- Suitable for variable speed drive
- 100% reduction in radiated heat
- Low noise specification
- Connects direct to the existing compressor cooling circuit

CUSTOMISATION

The Belliss & Morcom range is 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

All our ranges can be installed as floor mounted compressors with all ancillary equipment fixed on a baseplate, complete with all interconnecting pipework and electrical wiring, with options for acoustic enclosures.

Loose equipment

All equipment can be supplied as individual orders.

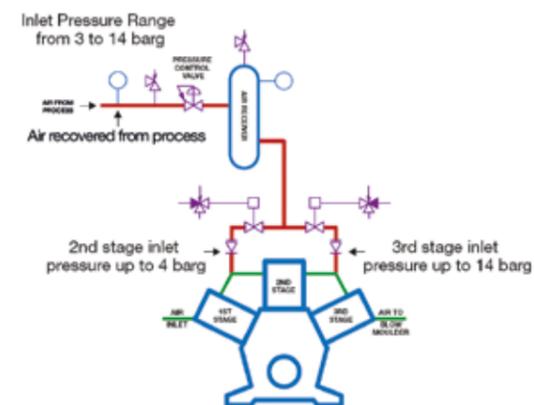
ENERGY AUDITS

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.

AIR RECOVERY

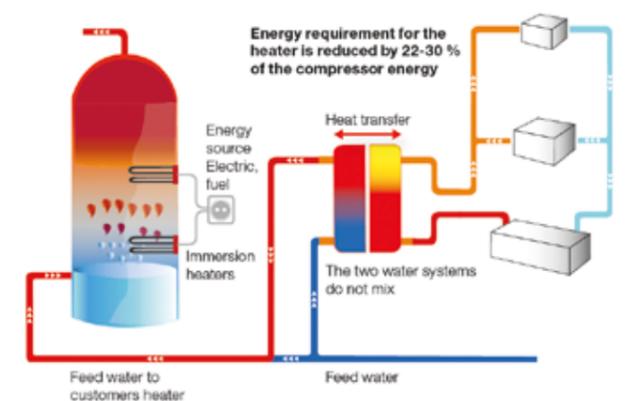
The Air Recovery System is designed to accommodate returned pressure from your process, that can be 'recycled' back through the compressor.

- 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 our industrial compressors. The cooling system can be modified to provide water at around 80°C, to pre-heat feed water to the heating systems - reducing the energy load and delivering savings of 22-30% of the compressor motor rating kW.



ENGINEERED TO PERFORM

Oil Free Air & Gas Compressors for Industrial Applications

BUILT TO LAST

Whatever details matter to you, Belliss & Morcom compressors are designed to meet your needs exactly. Engineered for performance, our machines are built to offer you maximum efficiency, reliability and uptime.

EFFICIENCY

- Shaftless motors ensure 100% drive efficiency.
- Unique diagonal design gives an extra layer of efficient flow control.

RELIABILITY

- Market leading 5 year+ warranty scheme, with re-warrant option.
- Maximum motor service factor for maximum peace of mind.
- Water cooled motor protection ensures reliable running in the harshest of environments.

UPTIME

- Diagonal design reduces wear and tear on all components.
- Shaftless motor means absolutely no drive system maintenance.

OPTIONS

- Range of additional features designed to offer operators enhanced levels of monitoring, control and cost savings.

FOOTPRINT

- Considerably more compact footprint than competitor machines, saving you valuable floor space.

oneair™

SINGLE SOURCE
INDUSTRIAL
AIR SOLUTIONS

For more than 155 years, Gardner Denver has been a leading global provider of compressors, blowers and vacuum pumps. OEMs and end-users from every corner of the world rely on us for their business solutions.

With global teamwork, strong customer focus, and vast application knowledge, our brands provide reliable, energy-efficient products that serve a wide range of manufacturing and process industries.

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