



by Gardner Denver

# The Next Generation of Efficiency

Oil-Free Two-Stage Variable Speed Centrifugal Compressors

**PureAir**  
ISO CLASS: ZERO PLUS SILICONE FREE



Innovative oil-free compressed air technologies

**Quantima<sup>®</sup>**  
**Q26 – Q70L**

# No Oil. No Silicone. No Risk.

## Think of it as the best compressed air insurance you can get

Air purity is critical for many applications where even the smallest drop of oil can cause product spoilage, or damage the production equipment. Quantima, a completely oil-less compressor eliminates all possible risks associated with oil and silicone contamination. It is designed and manufactured to give compressed air users complete peace of mind and provides 100% air purity, certified ISO 8573-1 (2010) Class 0 and silicone-free!

▶ **Pressure range**  
3 to 8 bar

▶ **Volume flow**  
18.5 to 69.5 m<sup>3</sup>/min

▶ **Motor power**  
150 to 300 kW



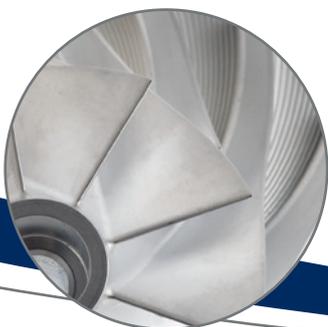
## Breakthrough oil-free compressed air technology

The CompAir Quantima centrifugal air compressors deliver significant benefits over traditional technology. Offering outstanding energy efficiency, reliability and low environmental impact, Quantima also offers low noise levels at 69 db(A) and a physical footprint around 25% smaller than comparable compressors in the market.

## What makes Quantima® special?

Quantima's patented Q-drive compression and motor assembly has just one moving part and operates with the rotor spinning in a magnetic field at up to 76,000 rpm.

- Superb efficiency due to no gearbox and no contact parts
- Variable speed technology minimising off-load running
- Outstanding energy savings of up to 25% are easily achievable
- No performance degradation
- Lowest off-load power consumption of just 2.5% of full load power, equal to 7 kW for a 300 kW compressor
- Smallest physical footprint
- Lowest noise levels of just 69 db(A)



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Quantima – no gearbox, no oil, no contacting parts & no mechanical wear. Just one single moving part, spinning in a magnetic field at up to 76,000 rpm.

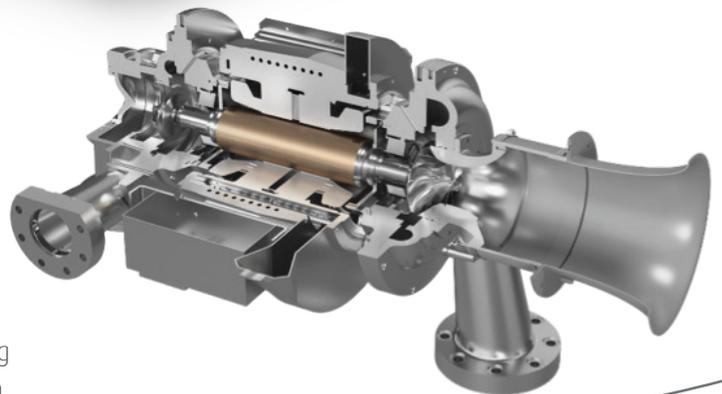
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## Q-drive technology

The patented Q-drive motor incorporates an asynchronous induction design and operates at high speeds to avoid the need for a conventional gearbox. This eliminates costly losses and means that the compressor does not require any oil at all.

The motor and direct drive compression assembly incorporates magnetic bearings to provide stable control, both axially and radially of the rotor shaft. The shaft is supported in a magnetic field which means that there is no contact and no wear, ensuring reliable operation and long life without performance degradation.



# Engineering excellence

## In capable hands

CompAir have been manufacturing and supplying oil-free compressors for over 90 years and with each new decade the customers benefit from new advanced technologies and engineering improvements. CompAir's oil-free solutions are proven in thousands of applications across the world, providing high quality, low cost air to manufacturers, processors and operators in a diverse range of industries including:

- Food and beverage
- Pharmaceuticals
- Chemicals
- Energy
- Engineering and technology
- Automotive
- Electronics



We used the 'total cost of ownership' as our guide and the Quantima machines definitely came out on top.



[View Case Study](#)

**Joachim Lehmann, Dipl.-Ing. (FH),**  
**Operations Manager for maintenance at BSW, Germany**

## Advanced Quantima® technology

In addition to Quantima's patented Q-drive technology which ensures reliable operation and longer life without performance degradation, these compressors incorporate a variety of innovative design features, delivering the ultimate efficiencies.

### Inlet Filters

High efficiency inlet air filtration for effective protection of the compression assembly. The filters provide one micron, high capacity particle filtration resulting in lowest pressure drops and longest service life.

### Stainless Steel Coolers

Packaged shell and tube intercooler and aftercooler. Comprises water-in-tube stainless steel straight tube design as standard, for long service life and simple maintenance.

### Variable Speed Drive

The high frequency inverter variable speed drive acts as an electronic gearbox. Not only does it allow for the required high speeds for compression, it also provides variable speed operation to match compressor flow to plant demand and hence, minimise power consumption.

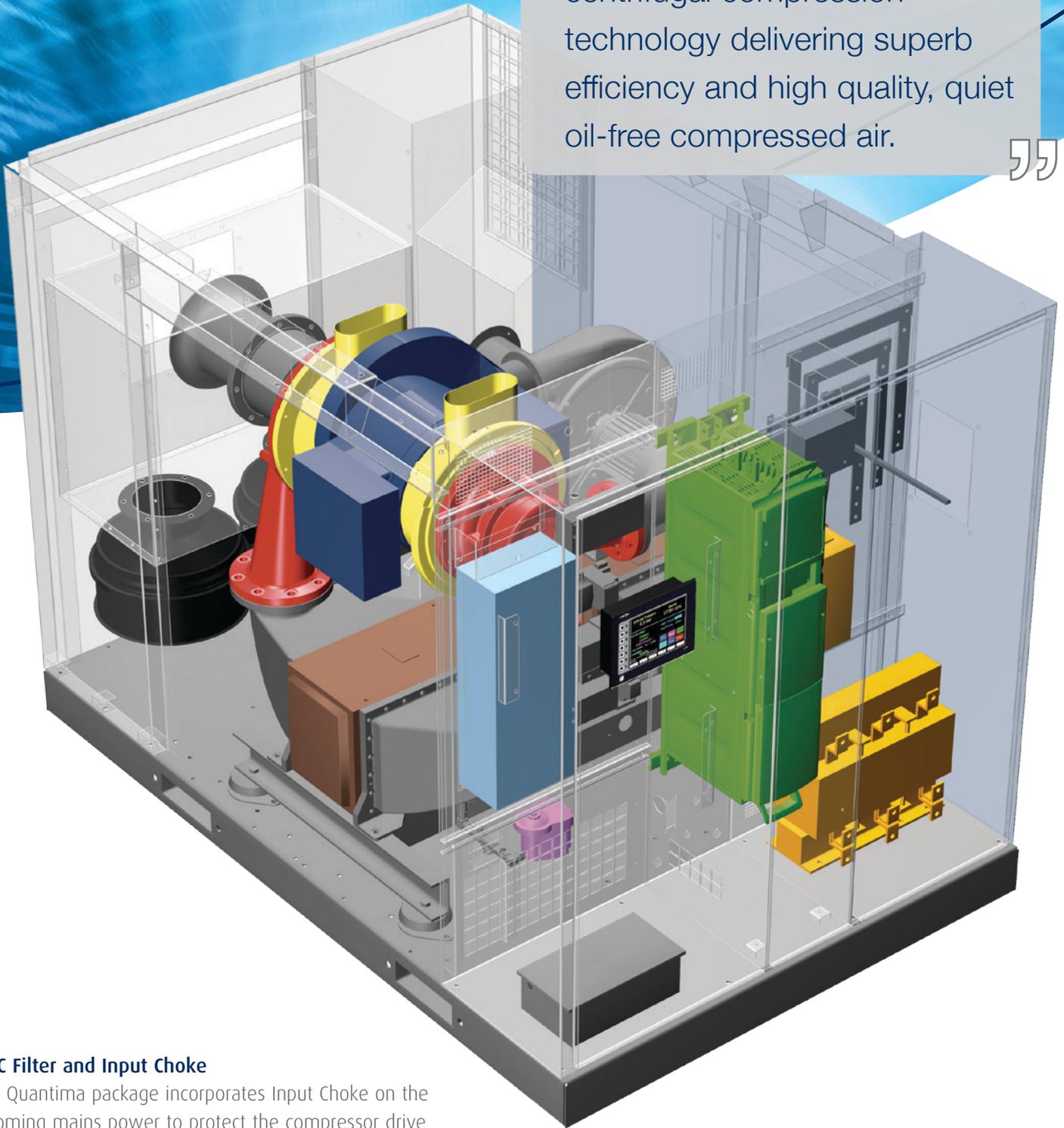
### Zero Loss Drains

The Quantima package is fitted with zero loss drains which automatically drain condensate from the package based on level sensors. These are fitted on both the intercooler and aftercooler and condensate strainers are also fitted on the inlet of the drains. Manual drains are also included.

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CompAir Quantima advanced centrifugal compression technology delivering superb efficiency and high quality, quiet oil-free compressed air.

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#### **EMC Filter and Input Choke**

The Quantima package incorporates Input Choke on the incoming mains power to protect the compressor drive from abrupt changes to incoming power supply and also function as protection against harmonics back to the mains supply. An EMC filter is also fitted to attenuate any electro-magnetic noise at higher frequencies that may cause harm to external equipment.

#### **Acoustic Canopy**

The compressor is housed in a modular acoustic canopy with intelligent sound attenuation resulting in noise levels which are the lowest of any compressor in this class – just 69dB(A).

#### **Simple Installation**

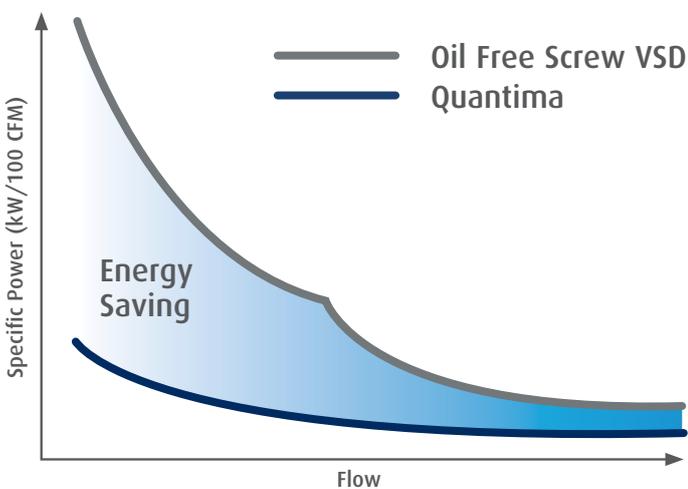
The Quantima compressor is a fraction of the weight and size of equivalent compressors meaning it has a significantly smaller physical footprint. In addition, the compressor incorporates a soft start VSD drive to ensure there is no current peak on start up.

# Revolutionising energy savings and efficiency

## Why is Quantima<sup>®</sup> exceptionally efficient?

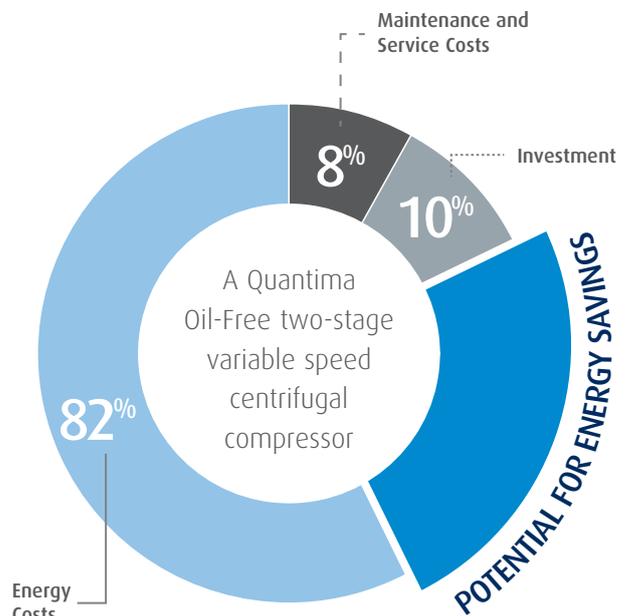
Quantima is a variable speed compressor which can efficiently handle the varying air demand that is often found in manufacturing environments and offers incredibly low off load power consumption. At 300 kW the Quantima off load power is 2.5% of full load power or 7 kW. These off load power savings, along with better efficiency result in up to 25% lower energy consumption when compared to traditional oil-free technology.

## Lower energy across the entire flow range



## Lower energy consumption – lower cost of ownership

Energy costs account for approximately 80% of the total cost over the life of the compressor – making energy efficiency the number one priority.



With energy savings of up to 25% and in some conditions even more, Quantima is the preferred choice in the oil-free market.



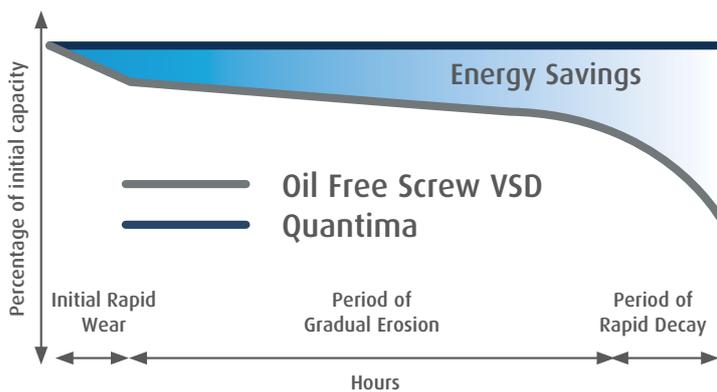
Just six months after installing new Quantima compressors from CompAir, Jaguar Land Rover's Castle Bromwich plant is on target to achieve annual electricity savings [View Case Study](#) in the region of 3 million kWh, with a payback on return on investment within two years.



## Lower life cycle costs

The combination of low energy consumption and reduced maintenance cost keeps the life cycle costs of the compressor at the lowest levels.

The design of Quantima Compressors features only one rotating part, suspended in air by a magnetic field. So there are no wearing parts and in addition, no oil or oil filter to replace and dispose of. As Quantima does not lose performance over time and does not require element change, the maintenance costs are significantly lower compared with traditional screw technology.



## Stable performance

Unlike standard screw technologies with wearing parts, Quantima has no performance degradation over the lifetime.

**PureAir**  
ISO CLASS: ZERO PLUS SILICONE FREE

## Reduced environmental footprint

Over a ten-year period compared to traditional screw technologies, a 300kW Quantima unit can reduce the amount of CO<sub>2</sub> produced by 1,920 tonnes.

% Reduction	Energy	Waste	CO <sub>2</sub>
In Manufacture	67% less	78% less	60% less
In Use	10% less	65% less	12% less
In Disposal	29% less	66% less	30% less

**That offsets the total emissions from 75 family cars or is equal to planting 16,000 trees\*\*.**

\* European Commission EuP EcoReport Version 3a  
Comparison to 300kW Oil free Screw Compressor

\*\* [www.smmtco2.co.uk](http://www.smmtco2.co.uk) The Society of Motor Manufacturers and Traders Ltd [www.unep.org](http://www.unep.org) United Nations Environment Programme

# Less is more

## Simplicity. The ultimate in 'peace of mind'

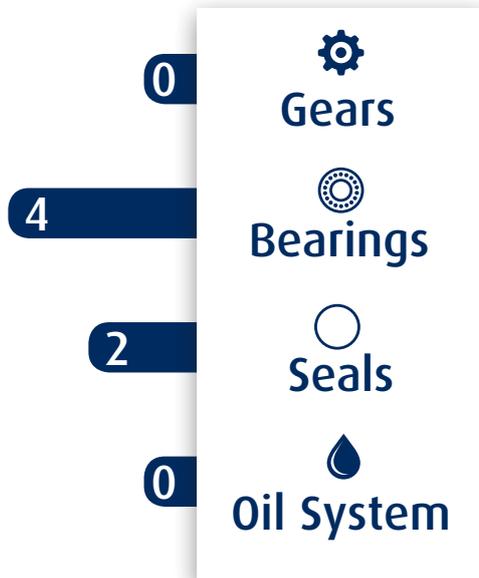
Less is more... Quantima is special for what it doesn't have:

- No gearbox
- No contact
- No oil
- No wear
- No oil-laden parts

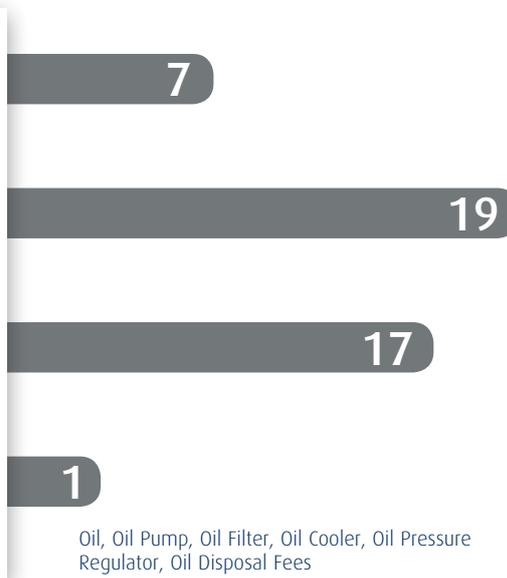
Fewer parts means less needs to be maintained, less needs to be replaced, less needs to be disposed of and environmental impact is lowered. The resulting reliability offers plant managers and operators total peace of mind and zero risk.



### Quantima®



### Standard Screw Technology



## Unrivalled output to weight ratio

The Quantima compressors from CompAir are a fraction of the size and weight of comparable compressors in the market and therefore require a smaller footprint and lower installation costs.

Quantima  
**25%**  
Smaller  
than a standard  
screw compressor



## Lowest noise levels

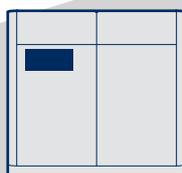
CompAir Quantima feature high-quality, sound-insulating enclosure panels and vibration-free design. These features reduce the noise levels and eliminate the need for a separate compressor room. Not only gives this higher flexibility but also further lowers the installation costs.



Casual  
Conversation  
60 dB(A)



Quantima  
Centrifugal  
Compressor  
69 dB(A)



Traditional  
Rotary Screw  
Compressors  
75 dB(A)



## Perfect control and performance

The specially developed Q-master compressor controller provides comprehensive control and protection of the compressor's operation. It incorporates a touch screen panel as well as intuitive navigation and menu structure for easy-to-use operation. It includes sophisticated control methodology and surge calibration, designed to minimise energy consumption.

- Colour touch screen
- Setting of all compressor parameters
- Temperatures and pressure display
- Automatic data logging
- Fault memory and diagnostics
- Remote monitoring via customer Ethernet, Modbus RTU via RS485 or direct hardware input
- Predictive maintenance

# AirPlus

## Quantima<sup>®</sup> and more

### Ways to further upgrade the efficiency

Like the compressor itself, the Quantima options are designed to be energy efficient and environmentally friendly. The Heat Recovery option allows customers to recoup the vast majority of energy input to the compressor in the form of reusable hot water. This can provide a valuable source of energy for many industries with processes where hot water or steam are used, as well as in applications such as space heating. For customers requiring the high quality of compressed air that adsorption dryers can provide, the Quantima Heat of Compression (HOC) dryer option uses the heat from the compression process to regenerate the adsorption beds, meaning that no additional heaters are required, hence saving further energy.

### Quantima<sup>®</sup> options

- Heat recovery kit
- Weatherproof kit
- Heater kit
- Connectivity with Building Management Systems (BMS)
- Heat of Compression (HOC) dryer
- Closed-loop cooling water system

With CompAir's advanced demand responsive sequencer SmartAir Master, the efficiency of the compressor stations with up to twelve compressors including downstream equipment can be maximised. Apart from the energy savings, the compressed air management system also contributes to decreased downtime, optimum performance and monitoring, and ultimately leads to increased plant productivity.



Just five months after installing the Quantima air compressor from CompAir, Australia's largest milk processor, Murray Goulburn (MGC) is on track to save £70,560 in annual energy and maintenance costs and reduce CO<sub>2</sub> by more than 1,908 tonnes over 12 months.



[View Case Study](#)

**Murray Goulburn, Australia**

### Would you like to know how much you could save?

You know that energy is by far the biggest cost associated with your compressed air system. Quantima can deliver significant power savings in your compressed air generation. CompAir offer comprehensive measurement and analysis of your compressed air system and tell you exactly what compressed air is costing you, highlight areas for improvements and realistically quantify the potential for savings. Contact your local CompAir representative to get some assistance in assessing the potential for savings at your site.

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Quantima delivers outstanding efficiency, premium reliability and the lowest environmental impact.

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CompAir's commitment to providing the purest, highest quality compressed air, through the development of innovative products, delivers world-class solutions. Dedicated to improving performance and efficiency for our customers,

at the same time lowering the impact on our environment, CompAir are clearly focused on developing unique innovation to benefit all markets.

## CompAir Quantima® - Technical Data

Medium Pressure Models	Cooling Method	Motor Rating	Working Pressure	FAD @ 7 bar g <sup>1</sup>	Dimensions	Noise Level <sup>2</sup>	Weight
		[kW]	min / max [bar g]	[m <sup>3</sup> /min]	L x W x H [mm]	dB[A]	[kg]
Q-26	Water	150	5 / 8	27.8	2400 x 1600 x 1850	69	2300
Q-34	Water	190	5 / 8	33.1	2400 x 1600 x 1850	69	2300
Q-43	Water	240	5 / 8	43.2	2400 x 1600 x 1850	69	2600
Q-52	Water	300	5 / 8	52.1	2400 x 1600 x 1850	69	2600

Low Pressure Model	Cooling Method	Motor Rating	Working Pressure	FAD <sup>1</sup>	Dimensions	Noise Level <sup>2</sup>	Weight
		[kW]	[bar g]	[m <sup>3</sup> /min]	L x W x H [mm]	dB[A]	[kg]
Q-70L	Water	300	3	69.5	2950 x 2000 x 1950	69	3800
	Water	300	4	67.2	2950 x 2000 x 1950	69	3800
	Water	300	5	61.3	2950 x 2000 x 1950	69	3800

<sup>1</sup> Data measured and stated in accordance with ISO 1217, Ed. 4, Annex C & E at the following conditions:  
 Air Intake Pressure: 1 bar a / 14.5 psia  
 Air Intake Temperature: 20°C / 68°F  
 Humidity: 0% (dry)

<sup>2</sup> Measured in free field conditions in accordance with the ISO 2151 test code, tolerance ± 3dB(A)

# Global experience – truly local service

With over 200 years of engineering excellence, the CompAir brand offers an extensive range of highly reliable, energy efficient compressors and accessories to suit all applications.

An extensive network of dedicated CompAir sales companies and distributors across all continents provide global expertise with a truly local service, ensuring our advanced technology is backed up with the right support.

As part of the worldwide Gardner Denver operation, CompAir has consistently been at the forefront of compressed air systems development, culminating in some of the most energy efficient and low environmental impact compressors on the market today, helping customers achieve or surpass their sustainability targets.



## CompAir compressed air product range

### Advanced Compressor Technology Lubricated

- Rotary Screw
  - > Fixed and Regulated Speed
- Piston
- Portable

### Oil-Free

- Water Injected Screw
  - > Fixed and Regulated Speed
- Two Stage Screw
  - > Fixed and Regulated Speed
- Piston
- High Speed Centrifugal - Quantima®

### Complete Air Treatment Range

- Filter
- Refrigerant and Desiccant Dryer
- Condensate Management
- Heat of Compression Dryer
- Nitrogen Generator

### Modern Control Systems

- CompAir DELCOS Controllers
- SmartAir Master Sequencer

CompAir 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.

### Value Added Services

- Professional Air Audit
- Performance Reporting
- Leak Detection

### Leading Customer Support

- Custom Engineered Solutions
- Local Service Centres
- Genuine CompAir Parts and Lubricants

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