



# Robust and powerful

Oil-free piston compressors



## **Oil**FREE

Modern, oil-free piston compressor technology

## R80-R180

# CompAir – for compressed air quality and efficiency

## Setting the benchmark in oil-free technology

With more than 90 years' experience in the manufacture and supply of oil-free compressors, CompAir is known for its high standards of quality and innovation and its unparalleled understanding of customer needs in respect of individual applications.

As a specialist in oil-free compressor systems, CompAir's portfolio includes a number of oil-free technologies:

- R series** high-output two-stage piston compressors
- DH series** single-stage water-injected screw compressors
- D series** two-stage screw compressors
- Quantima** high-speed centrifugal compressors

### CompAir in action

Oil-free compressed air solutions from CompAir are tried and tested. Known for their high quality and low operating costs, they are used successfully in industry throughout the world.



## Going oil-free – compelling advantages for a wide range of sectors

For many compressed air users, oil-free compression is the ideal solution: There is no risk of oil contamination of products or equipment. Additional installation, energy and maintenance costs for condensate treatment, filter system or compressed air treatment are avoided. The result is a greatly improved carbon footprint for compressed air generation.

There is a clear trend towards the use of oil-free compressed air, not only in areas where highly sensitive products such as food or pharmaceuticals are produced, but also in key industries such as:

- Automotive industry
- Chemical industry
- Development and technology sector
- Electronics industry

R series piston compressors are especially popular in the beverage industry, in breweries and with milk and dairy processors because of their oil-free technology and energy efficiency.

**OilFREE**



## CompAir in action

The R series in car body production at BMW



Oil-free and silicone-free compressed air generation is standard at BMW's car body manufacturing plants in Dingolfing in Germany.

A need for higher pressure on the production line combined with a general increase in demand for compressed air prompted the factory to upgrade and expand its existing system.

So the pressure output from the original 6-bar piston compressed air station was increased to 12 bar with boosters. The additional capacity was provided by four new 110 kW R series oil-free piston compressors. The ability to switch between half-load and full-load operation is an energy saving feature which allows the compressed air volume to be adjusted to demand at any given time, with minimal off-load operation. With oil-free generation, treatment is low cost and energy efficient. Two refrigerant dryers, operating in parallel at full load, and a downstream particle filter are sufficient.

The managers are extremely satisfied with the reorganisation of the compressed air supply and the efficiency gain and are logging the energy savings with an integrated three-phase meter.

### CompAir piston technology: oil-free, state-of-the-art compression

Piston compression is known for its excellent energy efficiency, and CompAir has consolidated and at the same time consistently developed this proven technology to maintain its cutting edge.

Pressure range	4 to 12 bar
Volume flow	7.5 to 18.1 m <sup>3</sup> /min
Motor power	45 to 110 KW

### The champion of oil-free piston compressors

The R series from CompAir has a top-class reputation:

- Oil-free
- Energy efficient
- Reliable
- Robust
- Durable
- Easy to maintain

**Possible energy savings of up to 20%.**

# Cost-effective operation in all conditions

## Modern technology combined with robust engineering

High-quality, robust construction along with excellent efficiency means that payback times are short. With its long economic life cycle, the R series continues to supply affordable compressed air, year after year.

- Two-stage, double-acting piston compressor
- Energy-saving three-stage control: 0% – 50% – 100%
- Water-cooled, with generously dimensioned tubular coolers
- Piston and guide rings made from high-quality materials, with a central guide ring and piston rings above and below for an effective, low-wear seal, eliminating reverse flow losses
- Efficient IP55 electric motor with a low rotational speed of 1000 rpm
- No separate components
- Wired ready for connection and easy to install, with no foundation required



## Comprehensive electronic control system

The multilingual Delcos 3100-R controller ensures safe and reliable operation and continuously monitors the operating parameters to protect your investment.

- Menu-driven, user-friendly microprocessor control with plain text display
- Status display
- Half-load/full-load control
- Fault memory as standard
- Maintenance interval monitoring
- Base load sequencing for up to five units
- Timer control



## Options & variants

- Operating pressure 13 bar
- Purpose-built recooling system which provides optimum cooling and does not rely on the factory cooling system
- Connection of an unpowered desiccant dryer to the hot gas outlet with dew points down to -40°C
- Profibus and Modbus for the Delcos controller
- Heat recovery
- Open or soundproofed housing
- Silicone free

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Compressed air system operators expect maximum availability and efficiency. The R series meets or exceeds this expectation – year after year.

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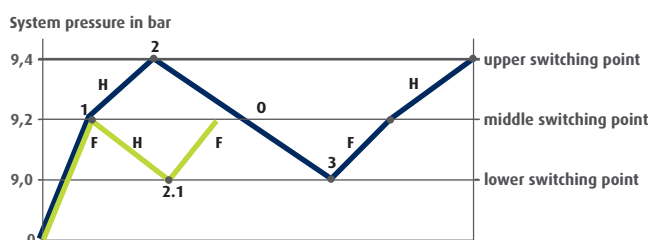
## Efficiency impact of half-load/full-load control

The design of the double-acting high-performance piston compressor brings about a big reduction in electrical input power, at both full and half load. Rapid switching from full load to half load and back again ensures a flexible response to compressed air demand and a low pressure difference in the network. At the same time off-load losses are minimised, at just 8–9% of generating capacity in the case of piston compressors. The significant energy savings result from the **low input power at full load**, the **narrow pressure band** and the **low off-load losses**.

**Full load:** 100% volume flow → 100% power input

**Half load:** 50% volume flow → 53% power input

## Savings from stable differential pressure



By switching from full load [F] to half load [H], the off-load component [O] can be bypassed and the pressure band held within a minimum pressure range of 0.2 bar, with roughly the same compressed air consumption.

## CompAir in action

The new compressed air supply system at Sartorius AG is cutting energy costs by EUR 40,000 per year.



The company's Biotech division has completely modernised its compressed air station, replacing the three existing screw compressors with two oil-free water-cooled R100 piston compressors from CompAir. Both compressors operate in two stages, generating four different volumes of compressed air. Uniquely, the compressors are just as efficient at half load as they are at full load. For a reliable pressure dew point of  $-40^{\circ}\text{C}$ , two vacuum-regenerative desiccant dryers were installed. Annual maintenance costs have also fallen by EUR 10,000 since the new technology was installed.

# Protect your investment



The simple, robust construction minimises servicing and parts costs.



## Modern compressed air treatment

CompAir compressed air systems use only the latest technologies and energy efficient solutions with low life cycle costs.

### **X series water cyclone separator**

Efficiently removes condensed water from the compressed air

### **CF series compressed air filters**

Efficient design for removing water, atmospheric dust and dirt particles

### **Bekomat condensate drain system**

To drain compressed air condensate without loss of compressed air

### **Compressed air refrigerant dryers**

Energy-saving, environmentally friendly refrigerant dryers

### **Heatless desiccant dryers**

A\_XS and A\_TX series

### **Heat-regenerative desiccant dryers**

A\_TV and A\_RS series

### **Nitrogen generator**

Designed for maximum efficiency and gas quality

### **SmartAir Master multi compressor controller**

for up to 12 units

## Original spare parts – always on the safe side

Operating a compressed air system economically requires energy efficient operation and good availability.

The advantages of top-class, type-tested CompAir parts, guaranteeing OEM quality, include:

- A long service life, even when subject to extreme loads
- Minimum pressure losses, leading to energy savings
- Good reliability for an extended uptime
- Proven quality, type-tested and certified

Maintenance is easy, with CompAir's extensive network of factory-trained service engineers on hand – day and night.



## CompAir R series – technical data

Model		R80		R100		R135	R180	
Cooling method		Water		Water		Water	Water	
Operating pressure (bar g)		4 - 10	11 - 12	4 - 9	10 - 12	4 - 12	4 - 7	8 - 12
Motor power (kW)		45	55	55	75	75	90	110
Volume flow, max. <sup>1)</sup> (m <sup>3</sup> /min)		8.0		10.0		13.3	18.1	
<b>Dimensions</b>								
<b>Excluding housing</b>								
Dimensions L x W x H (mm)		1662 x 1630 x 1364		1796 x 1630 x 1364		1939 x 1835 x 1544	2021 x 1835 x 1553	
Weight (kg)		1650		1815		2480	2760	
Noise level <sup>2)</sup> dB(A)		79		79		83	83	
<b>Including housing</b>								
Dimensions L x W x H (mm)		2766 x 2016 x 1860		2766 x 2016 x 1860		2766 x 2016 x 1860	2766 x 2016 x 1860	
Weight (kg)		2750		2915		3580	3860	
Noise level <sup>2)</sup> dB(A)		69		69		73	73	

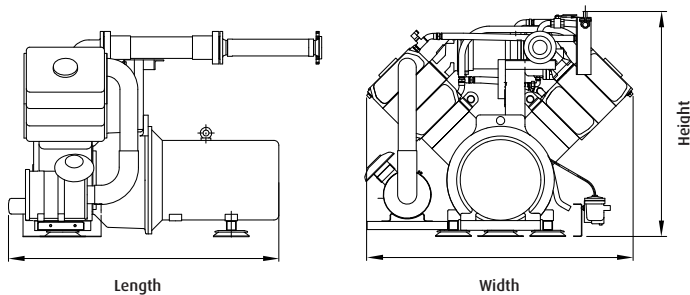
<sup>1)</sup> Data measured and stated in accordance with ISO 1217, Edition 4, Annex C, at the following conditions:

- Intake pressure 1 bar a
- Intake temperature 20°C
- Humidity 0% (dry)

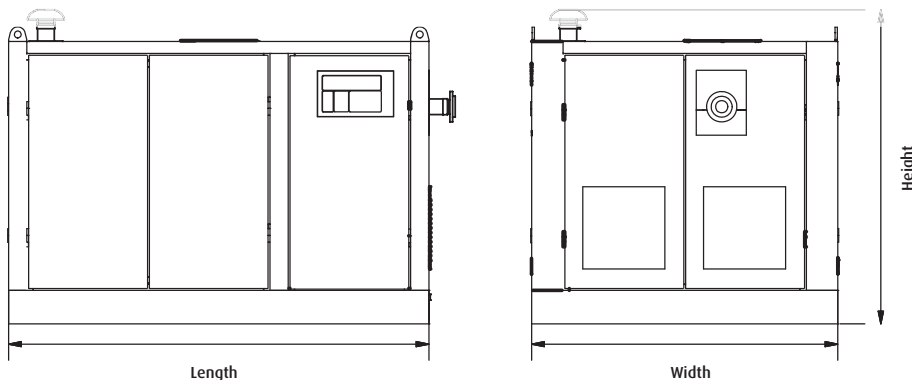
<sup>2)</sup> Measured in free field conditions in accordance with ISO 2151, tolerance +/-3 dB(A)

Oil-lubricated models from 4 to 10 bar available upon request.

### Excluding housing



### Including housing



# Innovative products & services



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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