
High Pressure Gas Compressor unit for Helium
350 bar, 240 l/min
Model G 15.1-7.5-V

VERTICUS

These efficient, sophisticated and easy-to-operate systems are ideal for helium compression at lower delivery volumes. They are equipped with the fully automatic B-CONTROL MICRO compressor control unit as standard.

In addition, their ultra-compact dimensions ensure fast installation and operation, saving time and money.



*VERTICUS G-Range in Super Silent version,
with intake and condensate vessel on common base frame*

TECHNICAL DATA COMPRESSOR BLOCK

Parameter	Data
Medium	Helium
Intake Condition	Free of pollutions
Intake Pressure	Atmospheric
Intake Temperature	+5°C...+45°C
Ambient Temperature	+5°C...+45°C
Nominal Pressure max.	350 bar adjusted by safety valve
Working Pressure	90-340 bar
Capacity	240 l/min
	Volume flow rate according to ISO 1217
	Measured with helium
Speed approx.	880 rpm
Number of Compression Stages	4
Number of Cylinders	4
Stroke	50 mm
Mean Piston Speed	1.5 m/s
Power Consumption at max. Pressure approx.	6.6 kW
Residual oil content at outlet (without purification)	< 1.5 mg/m ³
Drive	V-belt
Cooling Airflow, min required.	2250 m ³ /h
Leak rate	< 0.1 mbar x l / s

TECHNICAL DATA MOTOR

Parameters	Data
Type	three phase electric motor
Power	7.5 kW
Speed approx.	2850 1/min
Enclosure	IP55
Operating voltage	400 V
Frequency	50 Hz
Energy efficiency	IE 3

Prices for other voltages and frequencies are available on request.

STANDARD SCOPE OF SUPPLY

› INTAKE LINE & BUFFER VESSEL

- Combined intake buffer and condensate collecting vessel (geometric volume: approx. 100 litre)
- Connection
 - 42 L (for gas inlet and outlet; piping with outer diameter 42 mm; e.g. N17878)
 - 15 L (for condensate inlet; piping with outer diameter 15 mm; e.g. N15130)
 - Piping for connection with compressor is not included
- With ball valve, particle filter, intake pressure gauge, Intake pressure monitored by pressure sensor, condensate drain ball valve and safety valve

› COMPRESSOR BLOCK

- Oil pump for force feed lubrication with oil filter
- Oil sump content: G100/G120 (MINI-VERTICUS): 2.8 litre;
G15.x/G18.x (VERTICUS): 6.0 litre
- Interstage coolers, air cooled after each stage
- Aftercooler, air cooled, outlet temperature approx. 10-15 K above ambient temperature
- Intermediate oil/water separators from 2nd stage
- Final oil/water separator
- Safety valves after each stage, gastight and refeed to the intake buffer vessel
- Final pressure safety valve
- Pressure maintaining and check valve before compressor outlet
- Crankcase venting back to suction side
- Final pressure gauge
- First fill of oil

› AUTOMATIC CONDENSATE DRAIN DEVICE – B-DRAIN

The innovative design enables condensate to be drained in a gentle, controlled manner while minimising the pressure drop. This saves energy and helps to increase the efficiency of the compressor unit. At the same time, the new B-DRAIN is much quieter than conventional solutions.

- Drains regularly all oil/water separators during compressor operation and during shut-down of the unit
- Each separator is equipped with its own drain valve with solenoid valve.
- Draining interval is adjustable according to local situation
- Unloaded start integrated
- The condensate will be collected in an condensate collecting tank

› CONFIGURATION AND STYLE OF UNIT

- Vertical arrangement of the compressor unit on solid frame
- Open version
- Shock absorbers for free standing installation
- V-belt tension is adjusted automatically by the weight of the motor
- The control unit and power unit are located at the bottom right of the housing and have a fold-out design for easy access
- B-CONTROL display and operating panel are ergonomically positioned and easily accessible from the front
- The compressor frame, housing and load-bearing parts are metal (primer and painted finish); the front housing and control unit cover are of solid plastic (painted finish).
- Combined intake buffer and condensate collecting vessel
(Loose supply without piping for connection with compressor)
- Electrical connection: Cable length 5 m; CEE-plug; only for 400V/50Hz, max 11 kW
- High pressure outlet: twin ferrule compression fitting for pipe \varnothing 8mm
- The compressor can be loaded using a lift truck and forklift
- Colour:
 - Compressor block: Silver
 - Front housing and top: RAL 7024
 - Compressor housing: RAL 9006 white aluminium / cyan



VERTICUS G-Range with Super Silent housing and combined intake and buffer vessel

- ➔ The basic version with combined intake buffer and condensate collecting vessel may only be used in combination with upstream gas storage balloon, because the balloon will be used as buffer volume in case of condensate drain and compressor shut down.
- ➔ The optional complete version with separate intake buffer and condensate collecting vessel on common base frame does also work without upstream gas storage balloon.

› COMPRESSOR CONTROL B-CONTROL MICRO

The B-CONTROL MICRO is a modern, easy-to-use control system with colour display, which controls and monitors all basic functions of the compressor.

- Fully automatic monitoring of all relevant compressor data
- 3.5" TFT colour monitor with clear text display
- Maintenance management: Maintenance information is displayed.
- The system log stores incident history
- Password protection for various menu levels
- B-CLOUD ready



Technical Data	
Ambient temperature range (display + CPU):	-10°C to + 60°C (5-90% humidity; non-condensing)
Ambient temperature range (complete control):	+5°C to +45°C
Control voltage (internal):	24 VDC
Protection class display:	IP 65

FEATURES

- Indication of actual pressure, working hours and operation mode
- Semi and fully automatic operation selectable
- Common SI-units can be chosen for pressure and temperature
- Intuitive menu navigation
- Service/maintenance interval indication
- Data logger & logbook to record incidents
- Easy software update and upload by SD card or B-CLOUD
- Cycle counter & hour meter
 - Safety: information for the operator when to exchange the final separator
- Language selection option (German, English, French, Chinese, Czech, Danish, Dutch, Finnish, Flemish, French, Italian, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, Taiwanese, Turkish)

SUPERVISION OR CONTROL OF

- Compressor start/stop by final pressure
- Operation via signal (digital/analogue) from level indicator gas balloon (only applicable with rare gas recovery systems; please specify in case of order: digital or analogue 4-20 mA fill level signal (source or sink))
- Operation based on intake pressure (booster only, w/o inlet pressure reduction)
- Oil pressure monitoring
 - Protection from wrong rotation
- B-SECURUS monitoring (via CAN Bus)
 - Safety: compressor switch off possible in case of saturated filter cartridge
- Temperature monitoring
 - Security of too high/low temperatures (last stage)
- Intake pressure (gas version only)
 - To prevent the compressor from too high or low inlet pressure
- Motor over-current (indirect by PTC)

EXCHANGE CONNECTION FOR

- CAN bus included (for internal use)
- Remote start/stop (dry contact)
- External “emergency switch”
- Collective fault message (dry contact)
- External connections for: B-SECURUS, SECCANT, B-KOOL, B-DETECTION, external display, external operating panel, gas balloon fill level, des point sensor, gas measurement system, filling level integrated condensate vessel
- Ethernet connection (for connection with local LAN/WLAN or B-LINK – for communication with B-APP and B-CLOUD)
- Optional: Modbus RTU RS485, Modbus TCP RS485, Profibus DP slave, Profinet

OPERATING MODE

- Fully automatic operation / semi automatic operation
- Operation via digital signal from level indicator gas balloon (only applicable with rare gas recovery systems)
- Leakage test / final safety valve test

SCOPE OF SUPPLY

- Star-delta contactor combination
- Regulated power supply
- Switchbox with all necessary auxiliary relays and terminal boards
- Combined main switch / emergency off switch
- Main circuit breaker
- B-CONTRO MICRO with 3.5” colour display and with key pad

OPTION

- External Display
- SD card for display unit
- B-LINK
- Extension module for monitoring pressures and temperatures of all stages

OPTIONS

› SUPER SILENT HOUSING

- Recommended for locations requiring a reduced sound level.
- Closed version enables a managed cooling air throughput.
- Large doors (removable) enable easy access for maintenance purposes.
- Exhaust air duct is easily connected.
- Reduction of the sound pressure level to approx.:
 - G15.1-7.5-V: 69 dB(A) ± 2 dB(A) (ISO 3744)
 - G15.1-11-V: 70 dB(A) ± 2 dB(A) (ISO 3744)
 - G15.2-15-V: 72 dB(A) ± 2 dB(A) (ISO 3744)
 - G18.1-15-V: 73 dB(A) ± 2 dB(A) (ISO 3744)
- Colour: base frame RAL 7024, housing RAL 9006 and Cyan
- Standard compressor units of VERTICUS can be upgraded to Super Silent.



Compressor unit range MINI-VERTICUS in complete helium version with Super Silent housing

› **PURIFICATION SYSTEM P 61**

For flow rate up to 800 l/min (FAD)

Filter system built onto compressor unit:

SCOPE OF DELIVERY

- Check valve
- Bleed valve with pressure gauge
- 1x filter housing with long-life-filter cartridge 27" (filling MS-AC)
- Pressure maintaining- and check valve
- Key for filter housing
- Air quality acc. to DIN/EN 12021
- Filling of filter cartridges (AC, MS) according to customer requirement

GAS QUALITY

Values refer to ambient temperature: 20°C		Quality class according to ISO8573-1:2010
Pressure dew point (90 bar – 350 bar):	-20°C	3
Oil content (droplets, aerosols, moisture):	< 0.1 mg/Nm ³	2

Different gas quality upon request

VERSIONS

- P61/350: working pressure 90 – 330 bar; safety valve max. 350 bar
- P61/420: working pressure 330 – 400 bar; safety valve max. 420 bar
- P61/550: working pressure 400 – 500 bar; safety valve max. 550 bar
- P61/ -He: gas-version with twin ferrule compression fittings

USAGE

Depending on type and series, BAUER purification systems are available as follows:

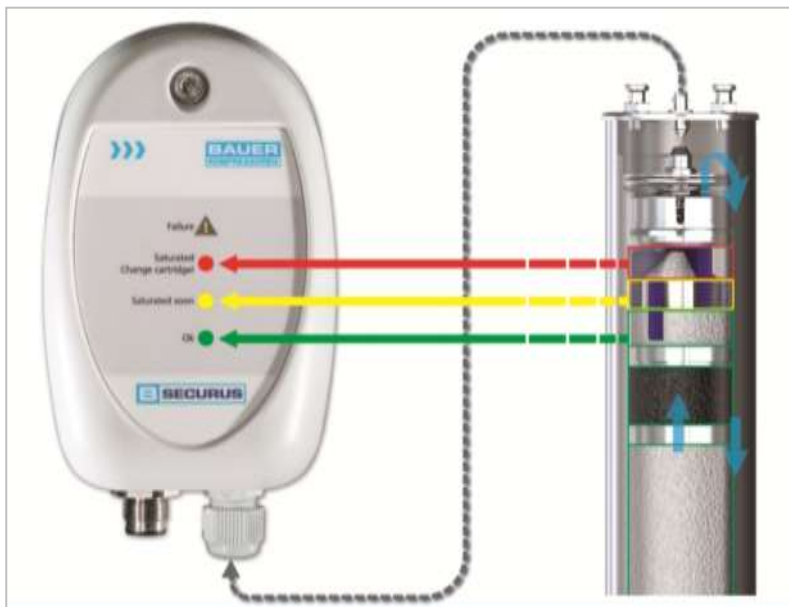
- 350 bar compressor: purification system 350 bar
- 365 bar compressor: purification system 350 bar or 420 bar
- 420 bar compressor: purification system 420 bar
- 525 bar compressor: purification system 550 bar

All filter housings are designed, manufactured and tested in accordance with AD 2000-Data Sheets and PED 2014/68/EU. Other housing standard certification can be provided upon request against at additional costs.

› B-SECURUS AIR PURITY CONTROL DEVICE

The B-SECURUS system continuously monitors the saturation of the filter cartridge by measuring the air humidity in the molecular sieve layer and gives a warning signal before a cartridge change is necessary.

- When the filter cartridge is at 100% saturation, the B-SECURUS control stops the compressor unit automatically.
- The following operating conditions are indicated on the display:
 - GREEN light on: cartridge is okay
 - YELLOW light flashing: pre-warning of cartridge saturation
 - RED light flashing: cartridge is saturated, compressor is switched off.
- With B-SECURUS it is impossible to overuse the filter (concerning humidity).



› INTERSTAGE PRESSURE GAUGE

- Additional pressure gauges to indicate all inter stage pressures.
- The pressure gauges are built inside the compressor unit.



› Oil level monitoring

- If the oil level reaches the minimum mark, this is displayed on the control as a warning message.
- This option is highly recommended for compressor units in continuous operation.

SERVICE MATERIAL

Maintenance kits	For compressor block	
	Compression of Air	Compression of inert gases
Maintenance kit 1000 hours	--	D-15.1II-F14-a1
Maintenance kit 2000 hours	--	D-15.1II-F14-ab1
Maintenance kit 4000 hours	--	D-15.1II-F14-abc1

DIMENSIONS / WEIGTH (approx.)

COMPRESSOR STANDARD VERSION

Length	x	Width	x	Height	Weight
1195 mm	x	802 mm	x	1525 mm	400 kg

SUPER SILENT-VERSION

Length	x	Width	x	Height	Weight
1543 mm	x	802 mm	x	1525 mm	465 kg

See diagram for details

Regulations und Standards

Relevant EC Directives (where applicable):

- EC Machinery Directive
- EC Pressure Equipment Directive
- EC Electromagnetic Compatibility (EMC) Directive

Documentation:

Standard units:

- 1 × Instruction Manual (EC languages) and parts list with exploded drawings
- 1 × Declaration of conformity (CE)* resp. EC manufacturer's declaration
- 1 × Pressure vessel documentation

Testing:

Bauer Standard according to DIN EN 10204-3.1

Any further tests and/or technical documentation will be quoted upon request.

*CE Mark (Declaration of Conformity)

BAUER Compressors, both as standard models and with optional features, undergo CE testing as whole units before shipping and are then shipped with CE certification. Where compressor systems or components need to be partially dismantled for shipping, they must be installed on site by specialist personnel in line with the operating instructions (piping schematic and circuit diagram) and inspected by specialists for fulfilment of their intended function (CE function). Assembly and inspection can be performed by BAUER Kompressoren specialists on request if required, and if the requisite conditions and specialist personnel are unavailable on site.

Otherwise, improper, non-professional or incorrect installation and operation startup will invalidate the CE declaration of conformity.

This applies to BAUER large-scale systems in the BK23-BK52 series and may also extend to other series depending on their configuration or model. BAUER KOMPRESSOREN will be happy to supply further information on request after clarifying the order.

TECHNICAL INFORMATION

Flow rates

The flow rates given are defined and specified in accordance with ISO 1217. In applications requiring continuous volume flow, please note that when condensate is drained at regular intervals, air / gas is released with the

condensate and does not arrive at the compressor outlet. The actual flow rate is thus reduced by approx. 1-2% per stage or separator.

Intake pressure

Unless otherwise specified, the compressors are designed for atmospheric intake pressure. In gas compression or where intake pressure reduction is used, the intake pressure is set at a low number of mbar. If higher intake pressure is required, please contact BAUER KOMPRESSOREN for support (where necessary, larger motor / limitation of intake pressure depending on the block, unit configuration and gas involved).

Power consumption

The power consumption of the compressors [kW] is given for atmospheric primary pressure and maximum final pressure, valid at 400 V 50 Hz. Optional accessories (e.g. Super Silent housing with its own fan, from the K22 series) or additional consumers can increase the total power requirement.

In gas compression (intake pressure reduction) primary pressure is several mbar higher, increasing power consumption. Energy consumption also increases at low temperatures, which may require a more powerful motor to be used.

Installation

The compressors are designed for an installation location at a maximum of 1000 m above sea level. Higher locations are possible on request depending on the compressor.

Further important information on installation and location is given in the Installation Manual.

Electrical connection

Medium- and high-pressure compressors require high startup current when powering up. Given this, they must be fitted with a K- or D-type automatic circuit breaker (type depending on device manufacturer). The system safety device must be configured for "heavy starts". Please contact your local electrical installation company if you have any questions on the subject.

Electricity grid

Compressor units from BAUER KOMPRESSOREN are designed for use with TN-S resp. TN-C-S electricity grids. In case of other electricity grids, please contact BAUER KOMPRESSOREN.

Dimensioning

For optimum lay-out of the complete system all components (compressor, purification, storage cylinders, etc.) shall be matched in the best possible way. The number of starting cycles (4 per hour up to 15 kW, 2 per hour from 18.5 kW) shall not be exceeded. Effective running time per cycle shall be min. 15 minutes (up to 15 kW) resp. 30 minutes (from 18.5 kW) in order to reach an optimum between exploitation of the unit and actual life time.

Weight specifications

Weight specifications are given for standard versions without optional features. The weight of the units will increase if optional extras, different voltages etc. are selected or if motors from different manufacturers are used.

Systems at 60 Hz - Applications

BAUER Compressors are designed for 50 Hz as standard.

V-belt drive: Different V-belt pulleys are used for operation at 60 Hz. This may result in deviations in block speed, FAD and power consumption.

Direct coupling: A frequency inverter is required for operation at 60 Hz to limit the speed to a maximum of 1485 rpm, unless otherwise specified. Some directly coupled units can be operated at 1785 rpm.

GENERAL INFORMATION

Please, consider our advice regarding the installation of the compressor unit which is available as download from our webpage. Furthermore, our staff will most gladly assist in case of questions and/or required support.

Our General Terms and Conditions (AGB) apply in their latest version at date of order entry. Our actual valid AGB are available on our homepage for download in the footer at www.baugroup.com; upon request we can forward by other means.

We reserve the right to modify without further notice.

Best Regards

BAUER KOMPRESSOREN GmbH