



# Rotary Screw Vacuum Pumps

## ASV/BSV/CSV Series

With the world-renowned SIGMA PROFILE

Intake capacity 4.0 to 15.7 m<sup>3</sup>/min, maximum vacuum 20 mbar (a)

# Rotary screw vacuum pumps

Durable, robust and easy to maintain, rotary screw vacuum pumps from KAESER are equipped with a specially developed vacuum airend featuring SIGMA PROFILE rotors. Meticulous manufacturing and precision-aligned anti-friction bearings guarantee long service life and maximum reliability. Using single-stage vacuum generation to produce a low vacuum, KAESER rotary screw vacuum pumps feature highly effective cooling fluid injection for optimal cooling, rotor sealing and bearing lubrication. Units are delivered ready for connection and provide the ideal solution for such applications as extraction systems, packaging and filling machines, drying, degassing or filtration.

## Powerful - Efficient - Quiet

As the most energy-efficient way of achieving a specific drive power, KAESER uses large rotary screw vacuum airends operating at low speeds, thereby ensuring that specific output is always within the optimal range. Using a flexible V-belt drive with automatic belt-tensioning, airend speed is precisely matched to suit the specific airend installed. Low-speed operation brings additional benefits, such as extended service life of all connected components, as well as exceptionally quiet performance.

## Efficient cooling system

An efficient cooling air flow guarantees sufficient power reserves, even at high ambient temperatures. The cooling air system is designed to draw cooling air in slowly, which helps reduce noise levels to an absolute minimum.

## Reliable gas ballast unit

The gas ballast unit serves to enhance the vacuum pump's water vapour tolerance and prevent condensation from forming inside the suction chamber, thereby ensuring reliable operation.

## Safe and ready for connection

KAESER's rotary screw vacuum pumps are delivered as complete machines, ready for connection. This significantly reduces the work and costs associated with planning, installation, certification, documentation and commissioning. Safety is also a key priority for KAESER – in order to ensure that maintenance work can be carried out in safety, all service-related parts feature protective grilles.



## Made in Germany

Every rotary screw vacuum pump comes equipped with a KAESER vacuum airend manufactured to Made in Germany quality standards.

These airends are manufactured in KAESER's rotary screw compressor production centre at the factory in Coburg, where the complete systems are also assembled and tested. High-quality materials and meticulous assembly guarantee maximum levels of performance and efficiency, as well as a long service life.

# A complete solution for vacuum generation



Image: Vacuum station with BSV 101



50 mbar 09:26 70°C  
Log-in successful  
Change password:  
Name: K00000100  
Level: 5  
Valid until: 02/20XX

**KAESER**



**SIGMA CONTROL 2**

**KAESER**  
KOMPRESSOREN  
02/20XX

Rotary screw vacuum pumps

## Ever-efficient and economical

Rotary screw vacuum pumps from KAESER are equipped with high-efficiency IE3 drive motors for a particularly economical operation, whilst their intelligent layout and user-friendly design makes servicing a breeze. Thanks to the integrated SIGMA CONTROL 2 controller, KAESER vacuum systems are network-capable and can therefore be connected to the SIGMA AIR MANAGER 4.0 master controller.



### SIGMA PROFILE

At the heart of every KAESER rotary screw vacuum pump lies a premium-quality airend, equipped with energy-saving SIGMA PROFILE rotors and mounted inside a robust housing with durable bearings. Of course, the entire package is Made in Germany.



### SIGMA CONTROL 2

The SIGMA CONTROL 2 has been designed to control and monitor vacuum systems operation with the utmost efficiency. Features such as a large display and RFID reader provide optimal communication and enhanced security. Multiple interfaces offer exceptional flexibility, whilst the SD card slot makes updates quick and easy.



### IE3 motor

Premium Efficiency IE3 drive motors stand out for their superior performance and lower losses when compared to conventional drive motors. As they consume significantly less energy, they also enhance the overall system efficiency.

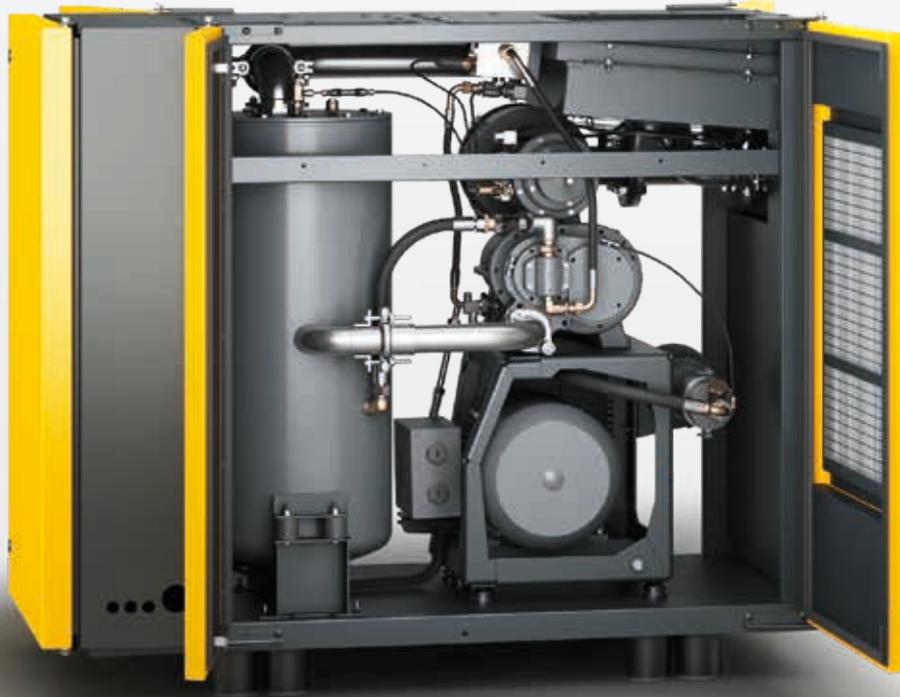


### Service-friendly

KAESER vacuum systems are equipped with both front and rear swing doors, providing maximum ease of access for simple, seamless servicing. Long maintenance intervals minimise costs and enhance efficiency.

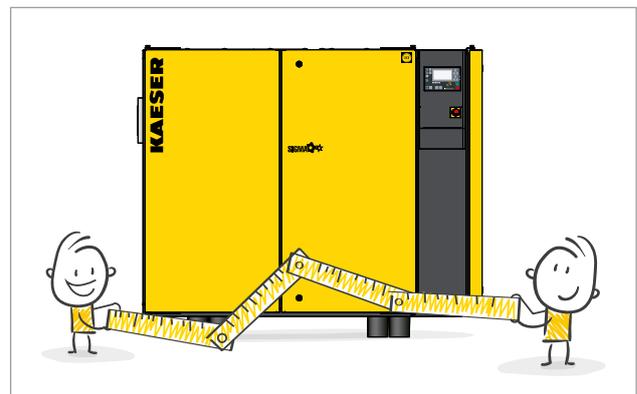
Rotary screw vacuum pumps

## Design is in the details



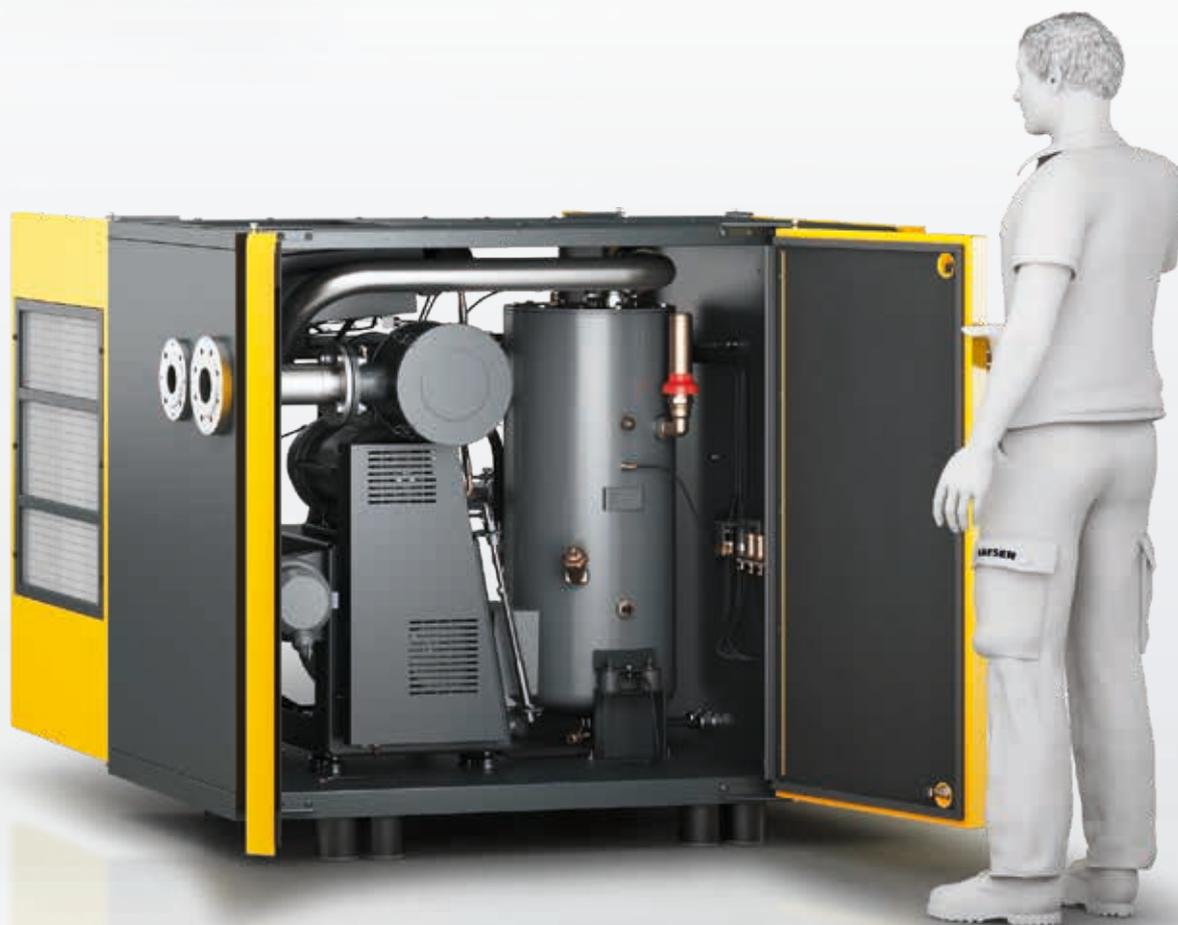
### Safety

Because all moving parts are fitted with protective grilles to prevent injuries from occurring, there is no need for a door limit switch.



### Compact

The left-hand side of the vacuum pump does not need to be accessible and therefore can be installed up against a wall – only sufficient space for the connections is required.



### **Installation**

The vacuum air filter is located inside the machine, so there are no supplementary installation costs.

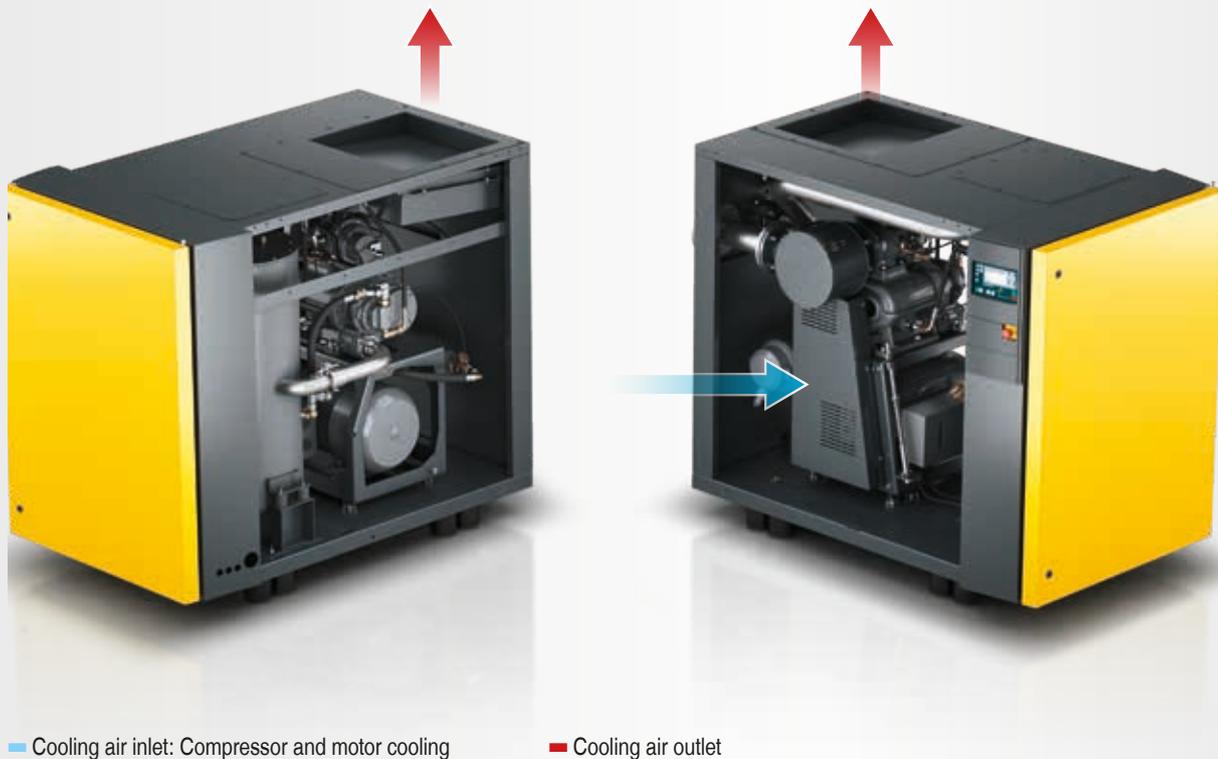


### **Comprehensive sensors**

A comprehensive array of sensors and switching contacts for monitoring pressure, temperature, oil pressure and oil level ensures reliable operation and enables remote monitoring and visualisation of operating status and all recorded data via the SIGMA CONTROL 2.

Rotary screw vacuum pumps

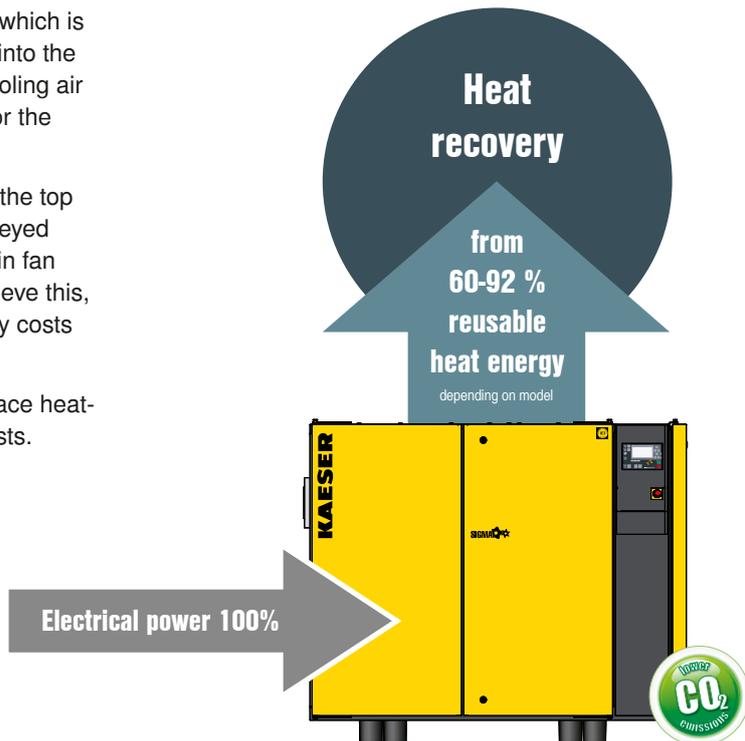
# Clever cooling air flow



Vacuum generation produces heat in the airend, which is then absorbed by the cooling oil and discharged into the surrounding ambient air via the oil cooler. The cooling air also ensures an optimal operating temperature for the drive motor.

The hot exhaust air is directed outwards through the top of the unit by the internal fan; from here it is conveyed outside via the exhaust air ducting. Since the main fan already produces sufficient residual thrust to achieve this, no auxiliary fan is required, thereby saving energy costs and increasing safety.

The discharged exhaust heat can be used for space heating purposes, which serves to reduce heating costs.



Rotary screw vacuum pumps

# Connection to SIGMA AIR MANAGER 4.0



KAESER CONNECT

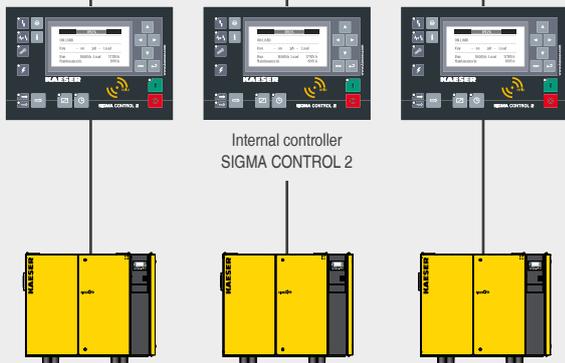


SIGMA AIR MANAGER 4.0

Communications module e.g. Modbus TCP

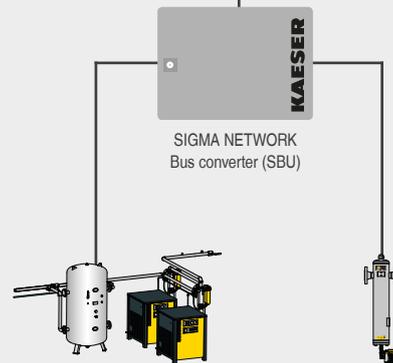


## KAESER SIGMA NETWORK



Internal controller  
SIGMA CONTROL 2

Connection of rotary screw vacuum pumps with SIGMA CONTROL 2



Various connection options for other components in the station



# Secure data – secure business!

# Equipment

## Components

KAESER rotary screw vacuum airend with energy-saving SIGMA PROFILE rotors; V-belt drive with automatic tensioning and control; pneumatic inlet valve for intake capacity control; cooling oil pump (gear-type pump); inlet air temperature up to +45 °C with cooling

## Electric motor

Premium Efficiency IE3 motor, IP 55 protection, Iso F, 400 V, 3 Ph, 50 Hz

## Cooling

Aluminium air-cooler for cooling fluid, max. ambient temperature +45 °C, max. inlet air temperature (vacuum) +45 °C

## Cooling fluid circuit

Thermostatic valve, microfilter with replaceable insert; separator tank with safety valve, multi-stage separator cartridge; quick-release couplings for measuring pressure drop across the separator cartridge; cooling fluid level sight glass; drain valve and hose

## Design and construction

Compact enclosure mounted on solid base frame, equipped with anti-vibration mounts; high quality powder-coated surfaces; mineral wool soundproofing; front maintenance access doors; vacuum airend and motor on anti-vibration mounts; flexible pipe connections; protective grille for belt drive and fan; vacuum filter for intake line with contamination indicator; infinite control of inlet valve via partial-load controller or changeover to Dual control mode; gas ballast unit for enhanced water vapour tolerance

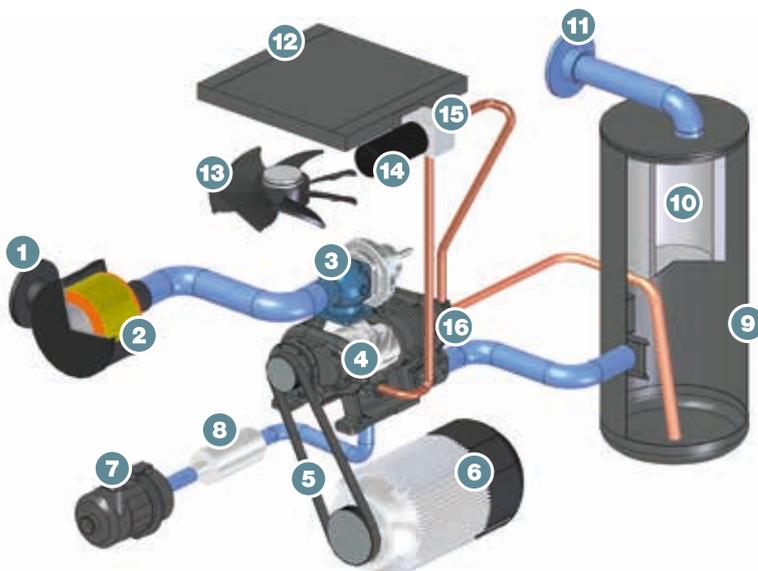
## Control cabinet

IP 54 enclosure protection; 230 V control voltage; direct motor start; overcurrent protection relay (motor contactor)

## SIGMA CONTROL 2

"Traffic light" LED indicators show operating status at a glance, 30 selectable languages, soft-touch keys with icons, fully automated monitoring and control. Selection of Dual, Vario and Partial Load control standard and freely selectable, interfaces: Ethernet; additional optional communications modules for: Profibus DP, Modbus, Profinet and Devicenet. SD card slot for data-logging and updates, RFID reader, web server

# How it works

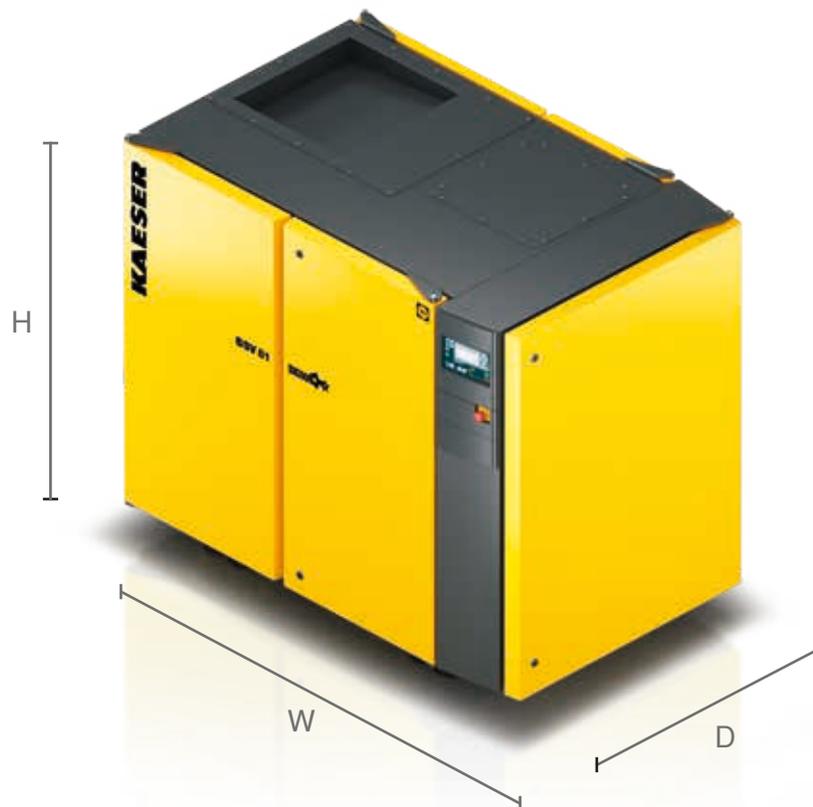


- 1) Vacuum network connection
- 2) Intake air filter (vacuum)
- 3) Inlet valve
- 4) Rotary screw vacuum airend
- 5) Belt drive
- 6) Drive motor
- 7) Gas ballast air filter
- 8) Gas ballast silencer
- 9) Cooling fluid separator tank
- 10) Exhaust air filter insert
- 11) Exhaust air outlet connection
- 12) Cooling fluid cooler
- 13) Cooling fan
- 14) Cooling fluid microfilter
- 15) Cooling fluid thermostatic valve
- 16) Cooling fluid pump

# Technical specifications

Model	Intake capacity at inlet pressure (vacuum)			Max. vacuum mbar (a)	Drive motor rated power kW	Vacuum connection	Exhaust air connection	Dimensions W x D x H	Mass kg
	500 mbar (a) m³/min	300 mbar (a) m³/min	100 mbar (a) m³/min						
ASV 41	4.7	4.5	4.0	20	7.5	DN65 / PN16	G 2	1345 x 935 x 1265	505
ASV 61	6.1	5.9	5.2	20	11	DN65 / PN16	G 2	1345 x 935 x 1265	515
BSV 81	8.4	8.1	7.1	20	15	DN80 / PN16	DN65 / PN16	1670 x 1030 x 1400	750
BSV 101	10.4	10.0	8.7	20	18.5	DN80 / PN16	DN65 / PN16	1670 x 1030 x 1400	770
CSV 126	13.4	13.3	12.3	20	22	DN100 / PN16	DN80 / PN16	1965 x 1270 x 1670	1510
CSV 151	15.7	15.7	14.7	20	30	DN100 / PN16	DN80 / PN16	1965 x 1270 x 1670	1550

## Dimensions



# The world is our home

As one of the world's largest compressed air system providers and compressor manufacturers, KAESER KOMPRESSOREN is represented throughout the world by a comprehensive network of branches, subsidiary companies and authorised partners in over 100 countries.

With innovative products and services, KAESER KOMPRESSOREN's experienced consultants and engineers help customers to enhance their competitive edge by working in close partnership to develop progressive system concepts that continuously push the boundaries of performance and compressed air efficiency.

Moreover, the decades of knowledge and expertise from this industry-leading system provider are made available to each and every customer via the KAESER group's global computer network.

These advantages, coupled with KAESER's worldwide service organisation, ensure that every product operates at the peak of its performance at all times and provides maximum availability.



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