

## Reciprocating Compressors **AIRBOX / AIRBOX CENTER**

OIL.FREE

Flow rate 0.25 to 0.90 m³/min, Pressure 7 – 10 – 12.5 bar



## What do users expect from a reciprocating compressor?

The answer: They expect maximum efficiency and reliability. This sounds simple, but these advantages are influenced by many different factors.

Energy costs, for example, taken over the lifetime of a compressor, add up to a multiple of investment costs.

# OIL.FREE

Efficient energy consumption therefore plays a vital role in the production of compressed air.

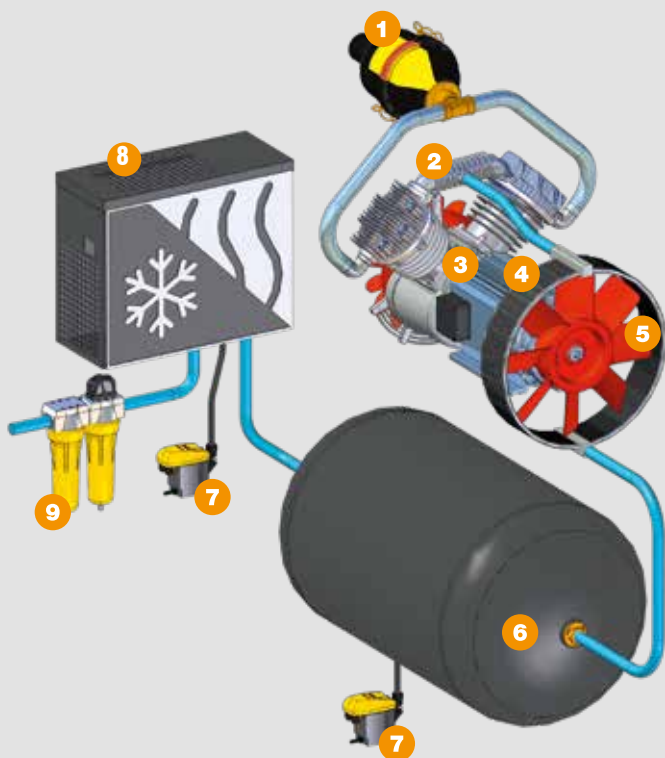
The air system must also deliver the compressed air in the correct volume, at the required quality, and provide exceptional reliability. This is essential to ensure maximum availability of compressed air powered production systems.

Last but not least, a truly efficient compressor is simple to maintain. This is achieved by using high quality components and through logical system design which allows excellent accessibility to all maintenance points.

KAESER reciprocating compressors fulfil all of these needs and provide the basis for highly efficient compressed air production.

## Function diagram

(AIRBOX CENTER 400 with optional microfilter combination attached)



# AIRBOX / AIR

## Flexible and efficient

### The innovative AIRBOX and AIRBOX CENTER

The new AIRBOX and AIRBOX CENTER ranges from KAESER are the first reciprocating compressors to feature the advanced SIGMA CONTROL basic compressor controller.

The AIRBOX and all-in-one AIRBOX CENTER – which features an integrated compressed air receiver, refrigeration dryer and optional filters – are delivered ready for immediate operation and include a switch cabinet.

Energy-efficient compressed air production with IE2 motors.



- 1 Intake filter
- 2 Compressor block
- 3 Maintenance-free direct drive
- 4 Energy saving IE2 drive motor
- 5 Fan
- 6 Internally-coated air receiver
- 7 Electronic ECO-DRAIN condensate drain
- 8 Compressed air refrigeration dryer
- 9 Filtration (optional)

# BOX CENTER



## Made in Germany

Using only premium grade materials, KAESER manufactures all of its compressor blocks. All components are manufactured, inspected and assembled with meticulous care and precision to ensure outstanding performance and unrivalled energy efficiency.



## Around the clock

Thanks to innovative compressor block and drive motor cooling, AIRBOX and AIRBOX CENTER systems can be operated in ambient temperatures up to 30 °C at a maximum pressure of 10 bar with a 100% duty cycle.

(Exception: AIRBOX / AIRBOXCENTER 840 with 75% duty cycle)



## SIGMA CONTROL BASIC

Using efficient Quadro and Dual control, the electronic "SIGMA CONTROL BASIC" control system guarantees best possible efficiency and reliability. Moreover, AIRBOX and AIRBOX CENTER models can be easily integrated into modern compressed air management systems.



## Comfortably quiet

The innovative cooling system provides impressive cooling performance and ensures optimum sound-proofing. In fact, AIRBOX and AIRBOX CENTER systems are so quiet that you hardly notice they're there.



## KAESER ingenuity for maximum flexibility

Whether simply a compressor, or a complete compressed air supply system with integrated compressed air treatment, the modular design of the AIRBOX and AIRBOX CENTER provides the flexibility to ensure that your exact compressed air needs are met. For example, the AIRBOX can be equipped with a second compressed air aftercooler and the AIRBOX CENTER, when equipped with optional filters (microfilter combination), is able to deliver compressed air of any quality class. All models are EMC certified for domestic electrical supplies, which simplifies installation and reduces provisioning costs. Furthermore, should compressed air demand increase in the future, for example, the SIGMA CONTROL basic can be connected to a compressed air management system to enable control of multiple units.



# AIRBOX/AIRBOX CENTER



## AIRBOX – The compressor

The AIRBOX epitomises the concept of 'ready-to-go' compressed air. Each model features a turnkey compressor with advanced SIGMA CONTROL basic controller and star-delta starter integrated within a single enclosure. Furthermore, the soundproofed enclosure enables these versatile units to be installed directly within the working environment without the need for additional sound protection measures.



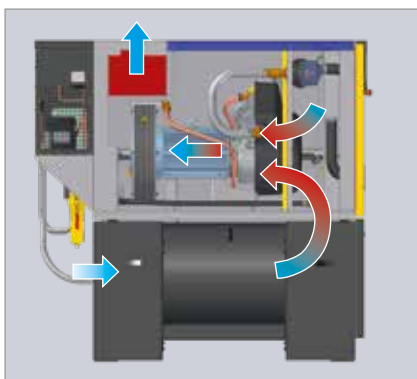
## AIRBOX CENTER – The compact solution

Featuring an integrated compressed air dryer and receiver, the AIRBOX CENTER is an all-in-one compressed air supply system. After compression, the air passes into an internally coated air receiver where it gives up much of its condensate and then enters the integrated refrigeration dryer which dries the compressed air to a pressure dew point of  $+5^{\circ}\text{C}$ . Ensuring even greater reliability, a separate enclosure shields the dryer from compressor exhaust heat. Moreover, the dryer shutdown feature – activated via the compressor controller – is linked to compressor operation and significantly reduces energy consumption when the compressor is at rest.



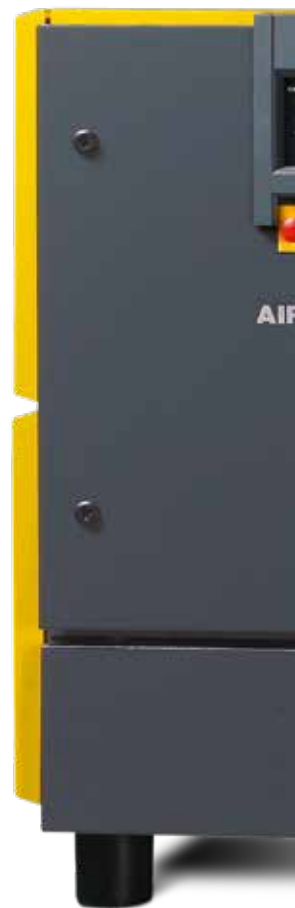
## AIRBOX CENTER – With KAESER FILTER

With an air intake filter, oil-free compression and an integrated refrigeration dryer, the AIRBOX CENTER is ready to deliver exceptional quality compressed air as soon as it is delivered. For applications requiring maximum compressed air quality, all AIRBOX CENTER models can be equipped with optional mounted filters. This enables efficient compressed air delivery at precisely the required quality.



## Cool runners

With independent cooling fans for both the drive motor and compressor block and precisely tailored cooling air ducting, Kaeser's unique cooling system allows – unusually for reciprocating compressors – 100% duty cycles and dependable operation in ambient temperatures up to approximately  $30^{\circ}\text{C}$ . The switch cabinet also features its own ventilation and is connected to the overall cooling air flow to prevent overheating.





## The perfect choice



Standard version  
AIRBOX 550

### Maintenance friendly

The less maintenance required, the more cost-effective the system. This is where the AIRBOX and AIRBOX CENTER really shine: they are oil-free and feature a maintenance- and loss-free 1:1 direct drive system. The air and intake filter are easily accessible once the generously-sized enclosure panels are removed.



### Impressive soundproofing

With 40 mm thick soundproofing, multi-deflected cooling air flow, acoustically separate compressor block, application-specific intake air ducting and highly effective air intake sound damping, the AIRBOX and AIRBOX CENTER continue the Kaeser tradition of super-quiet performance.



### Tailored control

Best possible efficiency and reliability are guaranteed by the electronic SIGMA CONTROL BASIC control system. This advanced controller also optionally allows connection to compressed air management systems such as KAESER's SIGMA AIR MANAGER 4.0.



### Premium efficiency motor

Premium quality IE2 motors ensure outstanding performance and efficiency; they reduce energy losses, on average, by 40 % compared to conventional motors. They also operate with significantly lower temperatures compared to conventional motors, consequently providing enhanced reliability and service life.



# Equipment

## Complete unit

Ready for operation, fully automatic, super silenced, vibration damped, all panels powder coated.

## Sound insulation

Lined with washable foam, anti-vibration mounts, double vibration damped.

## Compressor block

Dry-running, 2 cylinder, single or two stage.

## Electric motor

German made high efficiency (IE2) electric motor to IP 54 and insulation class F for additional reserve.

## Drive

Maintenance- and loss-free 1:1 direct drive.

## Cooling

Air-cooled, two fans, compressed air aftercooler.

## Electrical components

IP 54 control cabinet containing automatic star-delta starter, motor overload protection, control transformer, EMC certified for domestic electrical supply systems.

## SIGMA CONTROL BASIC



- Quick and simple operation with clear icons and large display
- Fully automatic Quadro or Dual compressor control
- Monitoring of network pressure, block discharge temperature, drive motor and, if applicable, refrigeration compressor
- Remote ON/OFF

# Technical specifications – AIRBOX/AIRBOX CENTER

## AIRBOX

Model	Maximum pressure bar	Flow rate at 8 bar *) m³/min	Maximum duty cycle **) %	Nominal motor power kW	Sound pressure level ***) dB (A)	Compressed air connection	Dimensions W x D x H (mm)	Mass kg
AIRBOX 400	10	0.25	100	2.2	59	G 1/2	1200 x 730 x 1160	240
AIRBOX 550	10	0.32	100	3.0	62			255
AIRBOX 840	10	0.50	75	4.0	67	G 3/4	1430 x 820 x 1320	325
AIRBOX 1500	7	0.90	100	7.5	67			385
AIRBOX 1000-2	12.5	0.77	75	7.5	67			385

## AIRBOX CENTER

Model	Maximum pressure bar	Flow rate at 8 bar *) m³/min	Maximum duty cycle **) %	Nominal motor power kW	Sound pressure level ***) dB (A)	Pressure dew point °C	Receiver volume l	Compressed air connection	Dimensions W x D x H (mm)	Mass kg
AIRBOX CENTER 400	10	0.25	100	2.2	60	+5	200	G 1/2	1490 x 730 x 1500	360
AIRBOX CENTER 550	10	0.32	100	3.0	62	+5				370
AIRBOX CENTER 840	10	0.50	100	4.0	67	+5	270	G 3/4	1730 x 820 x 1640	490
AIRBOX CENTER 1500	7	0.90	100	7.5	67	+5				550
AIRBOX CENTER 1000-2	12.5	0.77	75	7.5	66	+5				550

\*) Flow rate measured as per ISO 1217

\*\*) Duty cycle: The proportion of time under load over the total duration of a work cycle

\*\*\*) Sound pressure level as per ISO 2151 and basic norm ISO 9614-2, operation at maximum operating pressure; tolerance: ± 3 dB (A)

## Professional planning

Compressed air supply system with individual components



Compressed air station with AIRBOX CENTER



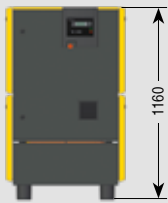
Only properly designed air systems can meet the demands for air quality, availability and efficiency that are placed on a modern compressed air supply. Therefore, benefit from

decades of compressed air engineering experience and let KAESER design your compressed air supply system.

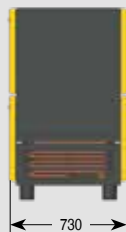
## Dimensions

### AIRBOX systems

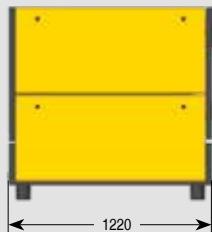
Example: AIRBOX 550



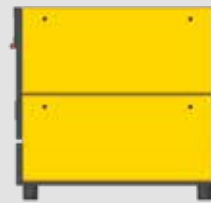
Front view



Rear view



Left view



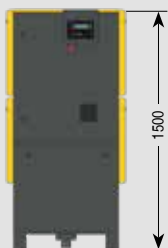
Right view



3-D view

### AIRBOX CENTER

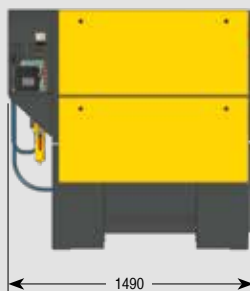
Example: AIRBOX CENTER 400



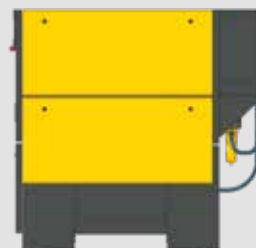
Front view



Rear view



Left view



Right view

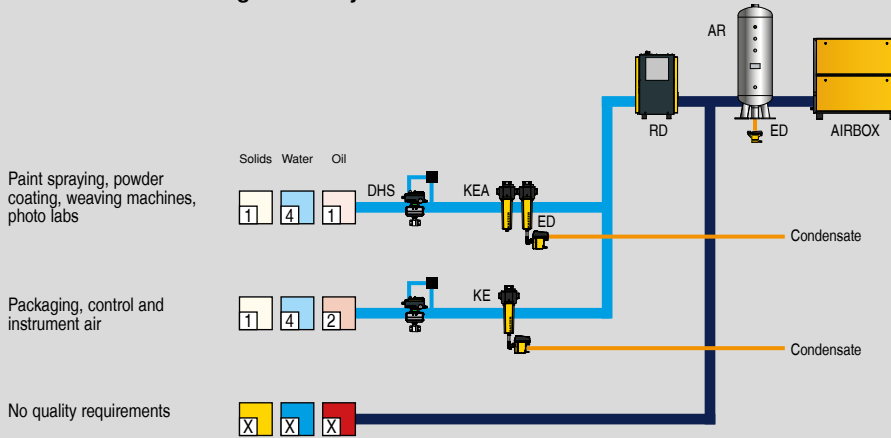


3-D view

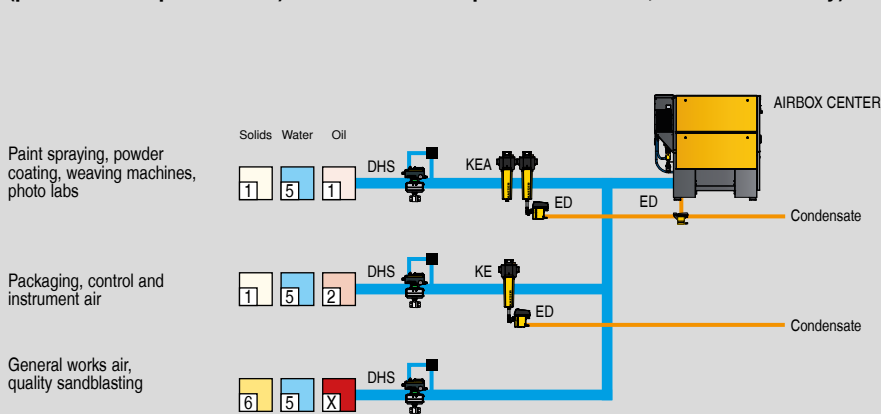
## Choose the required grade of treatment according to your field of application:

Application examples: Selection of treatment classes to ISO 8573-1 (2010)

### Air treatment with refrigeration dryer



### Compressed air treatment with refrigeration dryer, integrated in the AIRBOX CENTER (pressure dew point + 5 °C) at an ambient temperature of 20 °C, 90% rel. humidity)



Explanation	
DHS	Air-main charging system
AR	Air receivers
ED	ECO-DRAIN (condensate drain)
FE / FF	Microfilter
FFG	Activated carbon and microfilter combination
RD	Refrigeration dryer

Compressed air quality classes to ISO 8573-1(2010):

#### Solid particles/dust

Class	Max. particle count per m³ of a particle size with d [µm]*		
	0.1 ≤ d ≤ 0.5	0.5 ≤ d ≤ 1.0	1.0 ≤ d ≤ 5.0
0	e.g. Consult KAESER regarding pure air and cleanroom technology		
1	> 20,000	≤ 400	≤ 10
2	≤ 400,000	≤ 6,000	≤ 100
3	Not defined	≤ 90,000	≤ 1,000
4	Not defined	Not defined	≤ 10,000
5	Not defined	Not defined	≤ 100,000
Class	Particle concentration C <sub>p</sub> in mg/m³ *		
6	0 < C <sub>p</sub> ≤ 5		
7	5 < C <sub>p</sub> ≤ 10		
X	C <sub>p</sub> > 10		

#### Water

Class	Pressure dew point, in °C
0	e.g. Consult KAESER regarding pure air and cleanroom technology
1	≤ -70 °C
2	≤ -40 °C
3	≤ -20 °C
4	≤ +3 °C
5	≤ +7 °C
6	≤ +10 °C
Class	Concentration of liquid water C <sub>w</sub> in g/m³ *
7	C <sub>w</sub> ≤ 0.5
8	0.5 < C <sub>w</sub> ≤ 5
9	5 < C <sub>w</sub> ≤ 10
X	C <sub>w</sub> > 10

#### Oil

Class	Total oil concentration (fluid, aerosol + gaseous) [mg/m³]*
0	e.g. Consult KAESER regarding pure air and cleanroom technology
1	≤ 0.01
2	≤ 0.1
3	≤ 1.0
4	≤ 5.0
X	> 5.0

\*) At reference conditions 20 °C, 1 bar(a), 0% humidity