

Rotary Screw Compressors DSD/DSDX Series

With the world-renowned SIGMA PROFILE 

Free air delivery from 12.68 to 30.20 m³/min – Pressure 5.5 to 15 bar



DSD(X) series

DSD/DSDX – Leading the way

KAESER KOMPRESSOREN pushes the boundaries of compressed air efficiency once again with its latest generation of DSD/DSDX series rotary screw compressors. Intelligent design solutions have not only lead to enhanced ease of operation and serviceability, but also give this series of class-defining compressors their distinctive appearance.

DSD/DSDX – The multi-savers

These high performance systems help save energy in various ways:

1. Flow-optimised SIGMA PROFILE rotors improve specific power.
2. The use of IE3 drive motors maximises energy efficiency (these motors will become mandatory in the EU from the 1st of January 2015).
3. Kaeser's 1:1 drive design eliminates the transmission losses associated with gear or V-belt driven systems, as the motor directly drives the airend.
4. The SIGMA CONTROL 2 compressor controller optimises performance by using specially developed control algorithms.

Ease of maintenance ensures savings

There's much more to KAESER's latest system design than initially meets the eye: The new internal component layout not only ensures even greater efficiency, but also allows direct access to all service and maintenance parts from the front of the unit. This saves time and money, as well as maximising compressed air system availability.

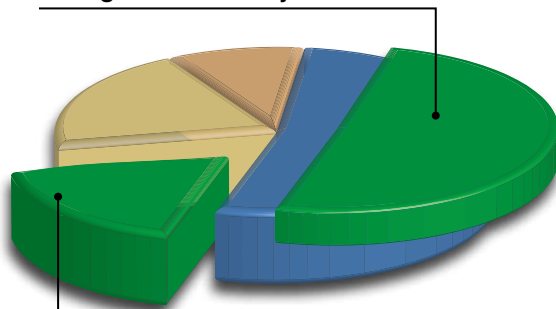
Station components

DSD/DSDX series rotary screw compressors are the perfect partners for high-efficiency industrial compressed air stations. The internal SIGMA CONTROL 2 compressor controller offers numerous communication channels, which allow seamless interaction with advanced master controllers, such as KAESER's SIGMA AIR MANAGER, and in-house centralised control systems. This enables simple setup and achieves unprecedented levels of efficiency.

Enhanced cooling

KAESER's innovative cooling concept features external coolers to provide significant user advantages: Because the ambient air that is drawn in is not "pre-warmed", it provides significantly enhanced cooling performance. Moreover, cooler status can be checked at a glance and these compact units can be easily cleaned from the outside.

Potential energy cost savings through heat recovery



Energy cost savings through system optimisation

- Compressed air system investment
- Maintenance costs
- Energy costs
- Potential energy cost savings

Efficiency redefined



Image: DSD 202

DSD(X) series

KAESER quality and efficiency for every need



SIGMA PROFILE airend

At the heart of every DSD/DSDX system lies a premium quality airend featuring Kaeser's SIGMA PROFILE rotors. Flow-optimised for impressive performance, these advanced rotors help Kaeser systems set the standard for superior efficiency.



Maximum efficiency: IE3 motors

Use of these motors will become obligatory in the EU from the 1st of January 2015, but users can already enjoy the benefits that these premium efficiency motors have to offer by choosing KAESER DSD/DSDX series rotary screw compressors.



SIGMA CONTROL 2

The SIGMA CONTROL 2 provides efficient control and system monitoring. The large display and RFID reader ensure simple communication and maximum security. Multiple interfaces offer exceptional flexibility, whilst the SD card slot makes updates quick and easy.



Energy-saving 1:1 drive

With 1:1 direct drive, the motor and airend, together with the coupling and coupling flange, form a compact durable unit with zero drive losses.

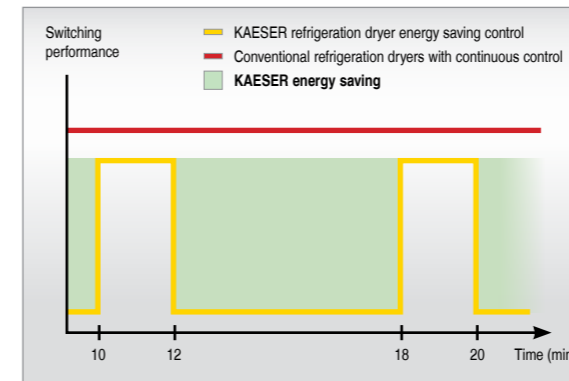


Image: DSD 238 T

Lubrication point for drive motor and fan motor

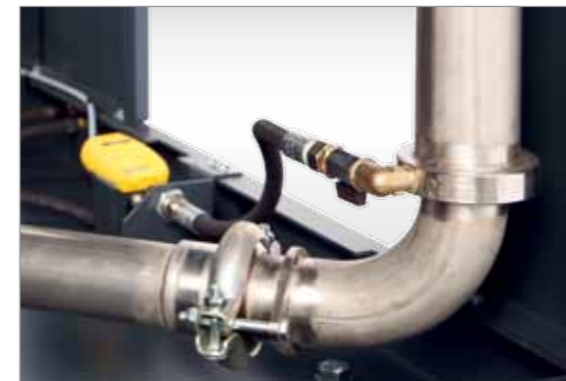
DSD T series

Efficient compressed air drying



Energy-saving control

The integrated refrigeration dryer in DSD(X)-T units provides high-efficiency performance thanks to its energy-saving control. In other words, the dryer is active only when compressed air actually needs to be dried. This consequently achieves the required compressed air quality with maximum efficiency.



Centrifugal separator with ECO DRAIN

Before flowing into the refrigeration dryer, the compressed air from the compressor passes through KAESER's newly developed centrifugal separator which efficiently removes accumulating condensate. This reduces the load on the dryer and reduces energy consumption.



Efficient cooling

A powerful fan and a separate enclosure ensure high thermal reserve for the integrated refrigeration dryer. This allows the required compressed air quality to be reliably maintained at all times even at high ambient temperatures.



Service-friendly savings

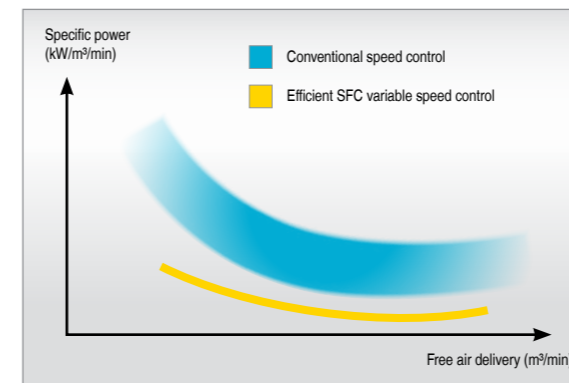
Excellent accessibility to all maintenance and service-relevant components minimises maintenance effort and therefore costs. KAESER's newly developed centrifugal separator with electronic condensate drain is fitted as standard.



Image: DSDX 302 SFC

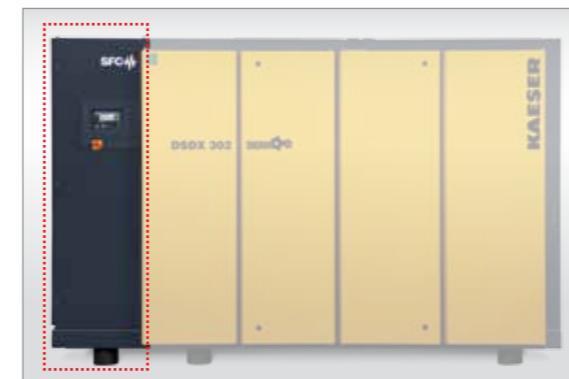
DSD(X) SFC series

Variable speed control... perfected



Optimised specific power

The variable speed compressor is the most heavily loaded piece of equipment in every compressor station. DSD(X)-SFC models are therefore designed to provide maximum efficiency without running at extreme speeds. This saves energy, maximises service life and enhances reliability.



Separate SFC control cabinet

The SFC variable speed drive is housed in its own control cabinet to shield it from heat from the compressor. A separate fan keeps operating temperatures in the optimum range to ensure maximum performance and service life.



Precision pressure control

The volumetric flow rate can be adjusted within the control range to suit actual compressed air demand. As a result, operating pressure is precisely maintained to within ± 0.1 bar. This allows maximum pressure to be reduced which saves both energy and money.



Zero Interference:

It goes without saying that the SFC control cabinet and SIGMA CONTROL 2 are tested and certified both as individual components and as a system to EMC directive EN 55011 for Class A1 industrial power supplies.



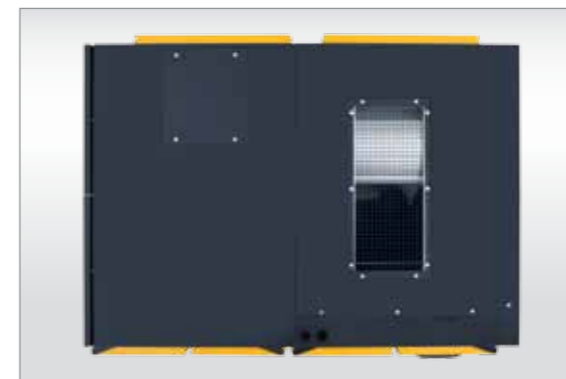
DSD(X) series

Intelligent detail solutions



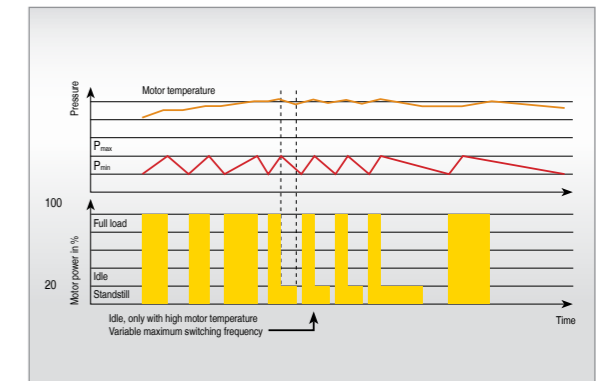
Water-cooling with heat recovery

In water-cooled systems, integrated plate or tube-type heat exchangers are available, depending on the available water quality. Our compressed air specialists can advise you regarding which design is right for your particular application.



High residual thrust exhaust air

The integrated radial fans are considerably more efficient than axial fans and provide high residual thrust. This generally enables the warm exhaust air to be directly ducted away without the need for an auxiliary fan.



Efficient dynamic control

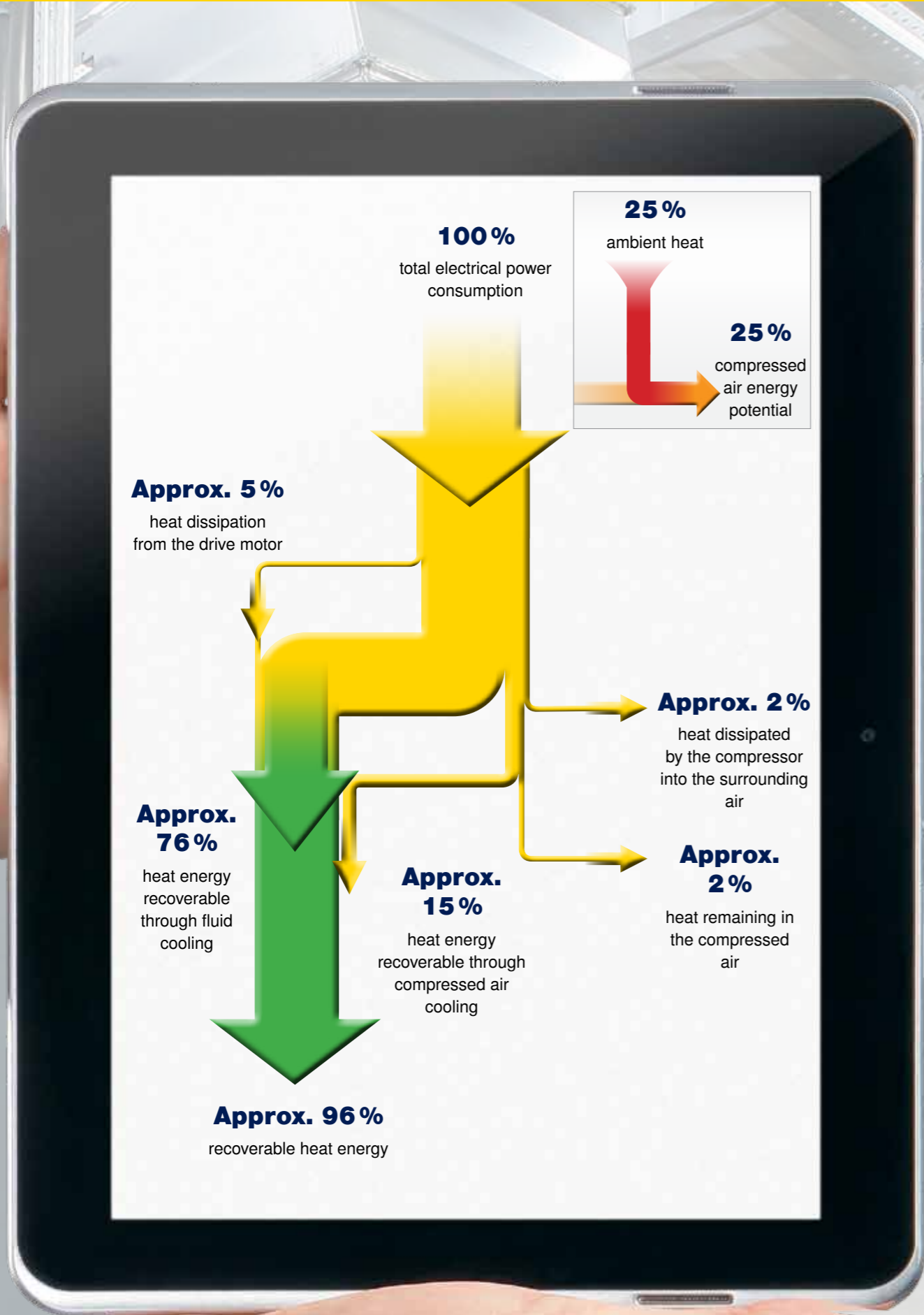
To calculate run-on periods, dynamic control monitors the motor winding temperature. This reduces idling times and energy consumption. The SIGMA CONTROL 2 offers additional control modes as required.



Service-friendly

Just as the air filter easy is to change from the front of the unit, all other maintenance components are also easy to access. This streamlines maintenance and service work, thereby reducing operating costs and increasing reliability.

Image: DSDX 302



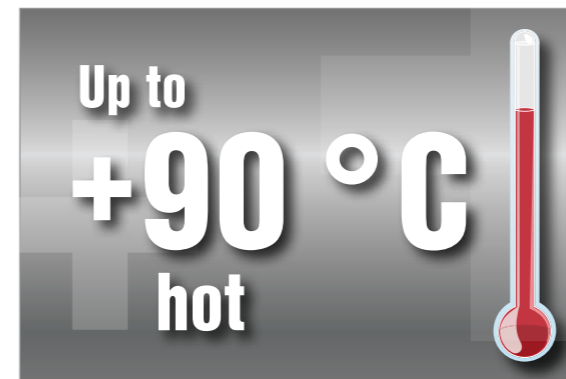
DSD(X) series

Save more energy through heat recovery



Systems for hot water usage

The integrated system comprising the plate heat exchanger, thermostatic valve and complete pipework requires no additional space in the compressor and can recover 76% of the overall power consumption of DSD(X) compressors by utilising the heat in the water.



Process, heating and service water

Hot water, up to +70 °C, can be produced from reusable compressor heat via PWT and SWT heat exchanger systems. Please contact KAESER regarding higher temperature requirements.



Using warm exhaust air for space heating

It's heating made easy: Thanks to the high residual thrust radial fan, exhaust (warm) air can be easily ducted away to spaces that require heating. This simple process is thermostatically controlled.



Heat recovery a winner

Amazingly, 100 percent of the electrical energy input to a compressor is converted into heat. From that, up to 96 percent is available for heat recovery purposes. Use this potential to your advantage!



KAESER

DSD 172

SIGMA 

KAESER T

KAESER

Equipment

Complete unit

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

Sound insulation

Panels lined with laminated mineral wool; maximum 72 dB(A) to PN8NTC 2.3 at one metre distance, free-field measurement.

Vibration damping

Double insulated anti-vibration mountings using rubber bonded metal elements.

Airend

Genuine KAESER rotary screw, single-stage, fluid-injected airend with SIGMA PROFILE rotors.

Drive

Direct, high-flex coupling, without gearing.

Electric motor

Premium efficiency electric motor of quality German manufacture to IP 55, ISO F, for additional reserve.

Connection from motor to airend

Airend with integral coupling bell.

Electrical components

Control cabinet to IP 54, control transformer, switch cabinet for Siemens Masterdrive frequency converter (for SFC version), floating contacts for ventilation control.

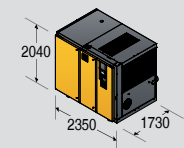


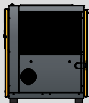

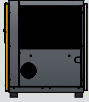

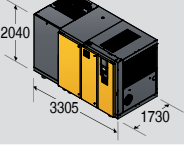


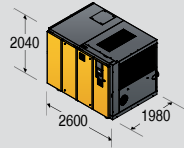



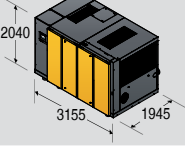



Cooling

Air cooled; separate aluminium cooler for compressed air and fluid, radial fan driven by its own motor (externally lubricated).

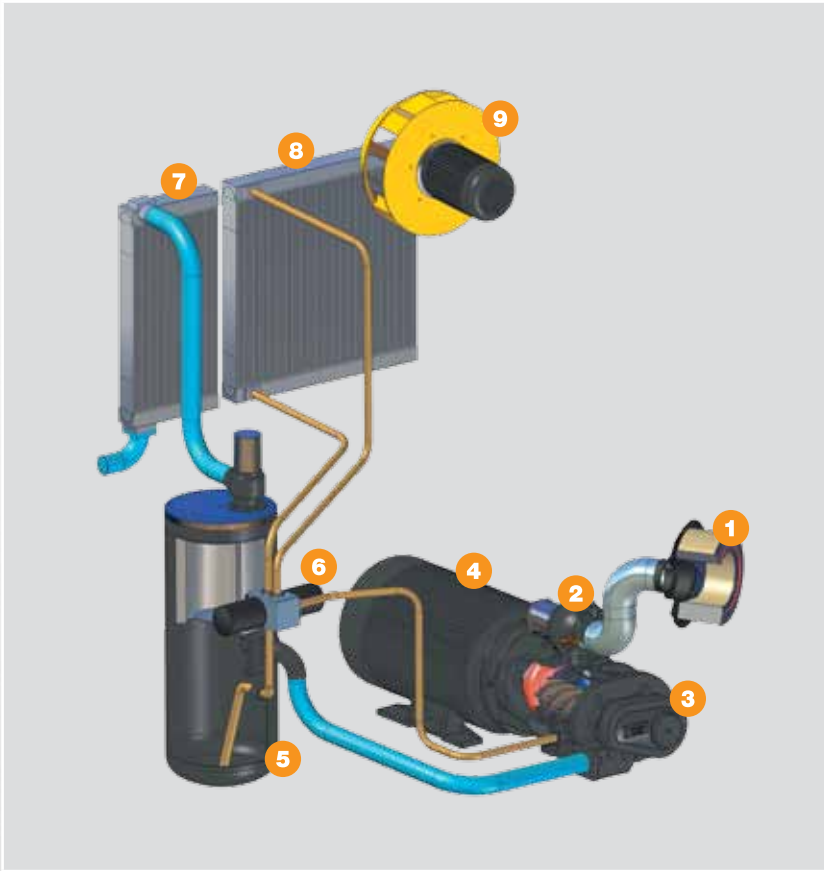
SIGMA CONTROL 2

“Traffic light LED” indicators show operational status at a glance, plain text display, 30 selectable languages, soft-touch keys with icons, fully automated monitoring and control. Selection of Dual, Quadro, Vario, Dynamic and continuous control as standard. Interfaces: Ethernet; additional optional communication modules for: Profibus DP, Modbus, Profinet and Devicenet. SD-card slot for data-logging and updates. RFID reader, web server.

Views

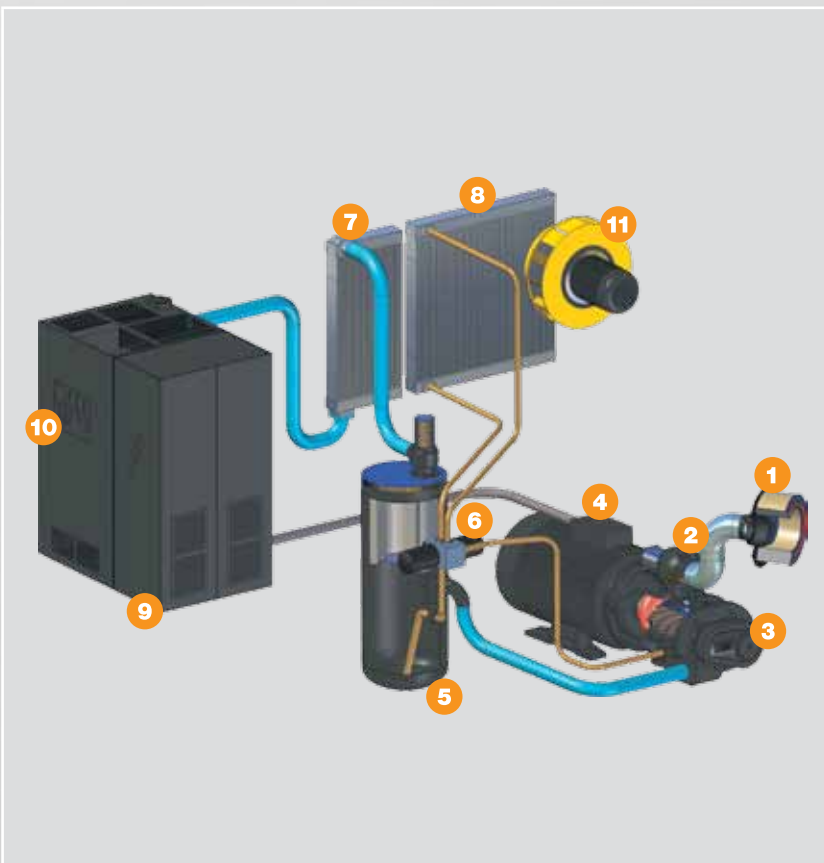
	Front view	Rear view	Left view	Right view	3-D view
DSD					
DSD T					
DSD T SFC					
DSDX					
DSDX SFC					

Technical specification



Standard version

- 1 Intake filter
- 2 Inlet valve
- 3 Airend
- 4 Drive motor
- 5 Fluid separator tank
- 6 Fluid filter
- 7 Compressed air aftercooler
- 8 Fluid cooler
- 9 Fan



T SFC version

- 1 Intake filter
- 2 Inlet valve
- 3 Airend
- 4 Drive motor
- 5 Fluid separator tank
- 6 Fluid filter
- 7 Compressed air aftercooler
- 8 Fluid cooler
- 9 Frequency converter (Optional)
- 10 Refrigeration dryer (Optional)
- 11 Fan

Technical specifications

Standard version

Model	Working pressure	FAD *) overall machine at working pressure	Max. pressure	Rated motor power	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	mm		dB(A)	kg
DSD 142	7.5	13.62	9	75	2350 x 1730 x 2040	DN 65	68	2700
DSD 172	7.5 10	16.12 13.20	8.5 12	90	2350 x 1730 x 2040	DN 65	69	2850
DSD 202	7.5 10 13	20.46 15.52 12.68	8.5 12 15	110	2350 x 1730 x 2040	DN 65	70	3200
DSD 238	7.5 10 13	23.80 19.92 14.80	8.5 12 15	132	2350 x 1730 x 2040	DN 65	71 79	3400
DSDX 243	7.5 10 13	24.10 20.12 14.90	8.5 12 15	132	2600 x 1980 x 2040	DN 80	70 78	3650
DSDX 302	7.5 10 13	30.20 23.50 19.52	8.5 12 15	160	2600 x 1980 x 2040	DN 80	71 78	4100

SFC - Version with variable speed drive

Model	Working pressure	FAD *) overall machine at working pressure	Max. pressure	Rated motor power	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	mm		dB(A)	kg
DSD 142 SFC	7.5	3.60 - 14.80	9	75	2905 x 1730 x 2040	DN 65	69	3100
DSD 172 SFC	7.5 10	3.60 - 16.33 3.55 - 14.20	10 10	90	2905 x 1730 x 2040	DN 65	70	3230
DSD 202 SFC	7.5 10 13	4.25 - 20.30 4.00 - 17.30 3.25 - 14.95	10 10 15	110	2905 x 1730 x 2040	DN 65	71	3730
DSD 238 SFC	7.5 10 13	5.93 - 22.50 5.80 - 20.00 3.56 - 16.00	10 10 15	132	2905 x 1730 x 2040	DN 65	72 79	3870
DSDX 243 SFC	7.5 10 13	6.62 - 26.90 5.60 - 23.73 3.56 - 19.00	8.5 12 15	132	3155 x 1945 x 2040	DN 80	71 78	4150
DSDX 302 SFC	7.5 10 13	6.62 - 30.60 5.60 - 26.70 3.56 - 21.10	8.5 12 15	160	3155 x 1945 x 2040	DN 80	72 78	4600

T - Version with integrated refrigeration dryer (R 134a refrigerant)

Model	Working pressure	FAD *) overall machine at working pressure	Max. pressure	Rated motor power	Refrigeration dryer power consumption **)	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	kW	mm		dB(A)	kg
DSD 142 T	7.5	13.62	9	75	2.1	3310 x 1730 x 2040	DN 65	68	3100
DSD 172 T	7.5 10	16.12 13.20	8.5 12	90	2.1	3310 x 1730 x 2040	DN 65	69	3250
DSD 202 T	7.5 10 13	20.46 15.52 12.68	8.5 12 15	110	2.35	3310 x 1730 x 2040	DN 65	70	3650
DSD 238 T	7.5 10 13	23.80 19.92 14.80	8.5 12 15	132	2.35	3310 x 1730 x 2040	DN 65	71 79	3850

T SFC - Version with variable speed drive and integrated refrigeration dryer

Model	Working pressure	FAD *) overall machine at working pressure	Max. pressure	Rated motor power	Refrigeration dryer power consumption **)	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	kW	mm		dB(A)	kg
DSD 142 T SFC	7.5	3.60 - 14.80	9	75	2.1	3310 x 1730 x 2040	DN 65	69	3400
DSD 172 T SFC	7.5 10	3.60 - 16.33 3.55 - 14.20	10 10	90	2.1	3310 x 1730 x 2040	DN 65	70	3530
DSD 202 T SFC	7.5 10 13	4.25 - 20.30 4.00 - 17.30 3.98 - 14.95	10 10 15	110	2.35	3310 x 1730 x 2040	DN 65	71	4080
DSD 238 T SFC	7.5 10 13	5.93 - 22.50 5.80 - 20.00 4.37 - 16.00	10 10 15	132	2.35	3310 x 1730 x 2040	DN 65	72 79	4220

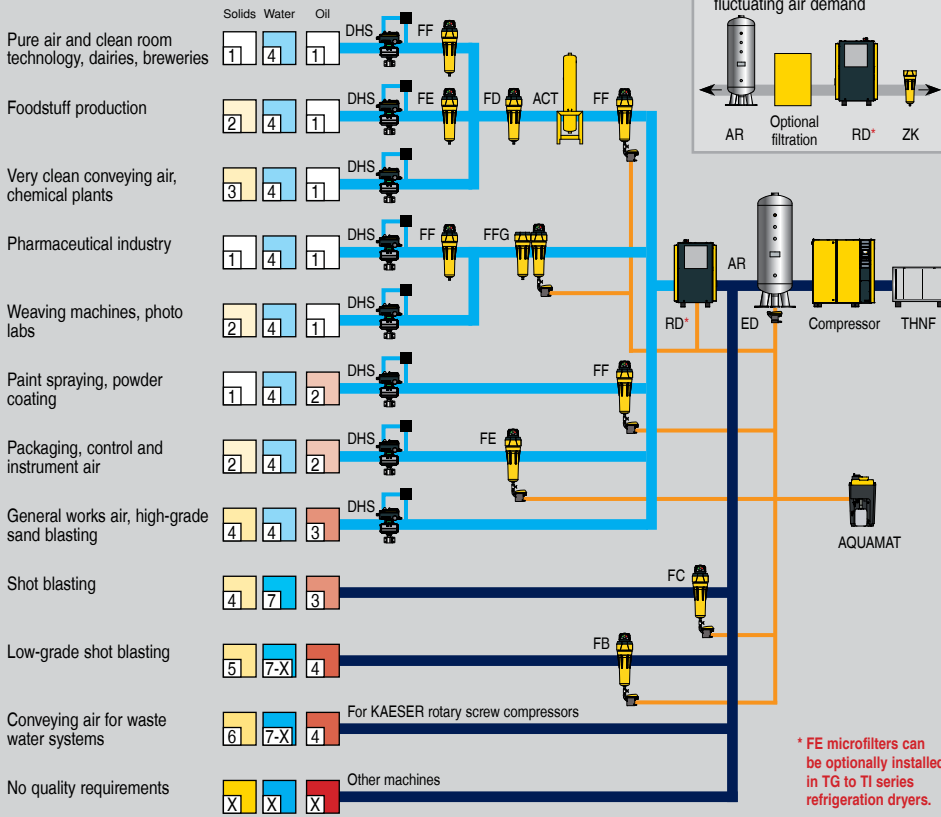
*)FAD in accordance with ISO 1217 : 2009, Annex C: absolute inlet pressure 1 bar (a), cooling and air inlet temperature 20 °C

**)Sound pressure level as per ISO 2151 and the basic standard ISO 9614-2, tolerance: ± 3 dB (A)

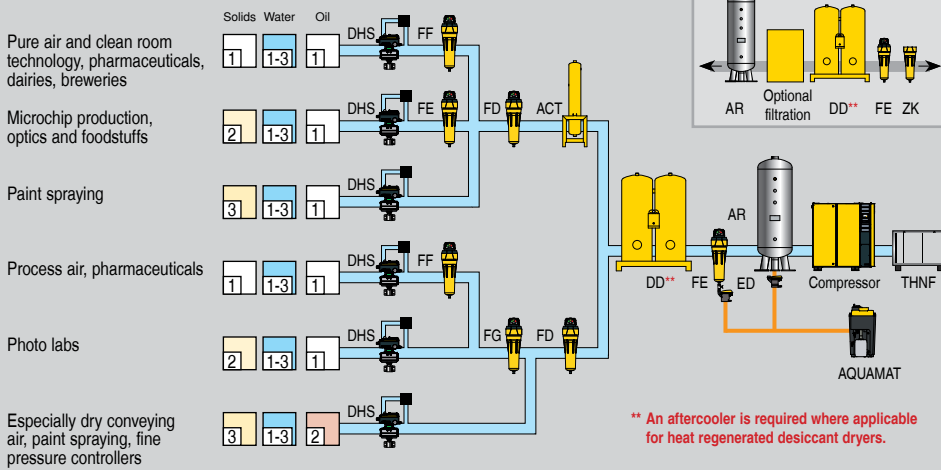
Choose the required grade of treatment according to your field of application:

Air treatment using a refrigeration dryer (pressure dew point +3 °C)

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



For non frost protected air systems: Compressed air treatment with a desiccant dryer (down to -70 °C pressure dew point)



Explanation	
ACT	Activated carbon adsorber
AQUAMAT	AQUAMAT
DD	Desiccant dryer
DHS	Air-main charging system
AR	Air receiver
ED	ECO DRAIN
FB / FC	Pre-filter
FD	Particulate filter
FE / FF	Microfilter
FPG	Activated carbon and microfilter combination
FG	Activated carbon filter
RD	Refrigeration dryer
THNF	Bag filter
ZK	Centrifugal separator

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

Solid particles / dust			
Class	max. particle count per m ³ 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
Particle concentration C _p in mg/m ³ *			
6	0 < C _p ≤ 5		
7	5 < C _p ≤ 10		
X	C _p > 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
Concentration of liquid water C _w in g/m ³ *	
7	C _w ≤ 0.5
8	0.5 < C _w ≤ 5
9	5 < C _w ≤ 10
X	C _w > 10

Oil	
Class	Total oil concentration (fluid, aerosol + gaseous) [mg/m ³]*
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