

# Rotary Screw Compressors SIGMA SNOW SYSTEM Series

With the world-renowned SIGMA PROFILE 

Free air delivery 3.18 to 57.8 m<sup>3</sup>/min, Working pressure 9 bar



**Technology**

**TECHNO ALPIN**  
*low experts*

**KAESER**  
KOMPRESSOREN

**Partners**

# SIGMA SNOW SYSTEM

The new standard in convenience and dependability

## What do you expect from your compressed air system?

As an operator of a snowmaking installation, you expect maximum availability and consistent air quality from your compressed air supply system.

Compressed air plays a key role in achieving perfect snowmaking results, but the quality and temperature are critical, as snow crystal formation depends on the outlet temperature of the compressed air. In addition to exceptional reliability, the compressed air system should also deliver a consistent supply of quality oil-free air in accordance with environmental regulations to ensure trouble-free operation.

Moreover, KAESER's turnkey modular design concept provides outstanding reliability and greatly simplifies installation. All compressed air and electrical power connections are pre-installed, making the SIGMA SNOW SYSTEM ready for immediate use.

As you might expect from a system designed by one of the world's leading innovators in air system technology, the SIGMA SNOW SYSTEM from KAESER ensures optimum efficiency at all times. This is achieved through the use of advanced compressor technology, specially designed airend rotors, PC-based controllers and energy-saving eff1 rated drive motors, to name just a few of the features that enable users to benefit from long-term savings and unrivalled performance.



- Air system investment
- Maintenance costs
- Energy costs
- Potential energy savings

## Optimum performance: SIGMA SNOW SYSTEM

The SIGMA SNOW SYSTEM from Kaeser Kompressoren provides a turnkey supply of quality compressed air for snowmaking applications.

All compressed air production, treatment and temperature control systems are integrated within a single compact unit, which is fully piped and tested to KAESER's rigorous quality standards.



## Innovative, tailored system design

Every SIGMA SNOW SYSTEM is specifically designed to ensure outstanding performance for all snowmaking applications. Features include: an air-cooled rotary screw compressor with SIGMA PROFILE rotors, a maintenance-free 1:1 direct

drive system that eliminates the transmission losses associated with gear drive systems, an innovative compressed air temperature control system and tailored compressed air filtration.



## Certified Class 1 compressed air quality as per ISO 8573-1

Tested and certified by TÜV, the German Technical Inspection Authority, the SIGMA SNOW SYSTEM from Kaeser Kompressoren delivers technically oil-free compressed air in accordance with ISO 8573-1.



## Automatic control and data visualisation

The internal PC-based SIGMA CONTROL ensures that the rotary screw compressor in every SIGMA SNOW SYSTEM delivers the very best in efficiency and performance. Equipped with a Profibus interface, this advanced controller can take advantage of Internet connectivity

via the SIGMA AIR MANAGER (SAM) compressed air management system. The SAM's data visualization software, SIGMA AIR CONTROL, enables operational data, messages and alarms to be viewed at any time. The optional 'plus' version allows access to the SAM's long term data memory to allow the user to keep a constant eye on compressed air costs and to closely monitor operation of the air system. Both versions generate HTML pages that can viewed on any standard internet browser without the need for additional specialised software. The control units for regulating compressed air and room temperature are also integrated within the SIGMA SNOW SYSTEM's control cabinet.

## Adjustable compressed air temperature



The SIGMA SNOW SYSTEM is able to automatically maintain the optimal preset compressed air temperature for ice crystal formation by adjusting the flow of cooling air.

# Snow System – Eight decisive advantages



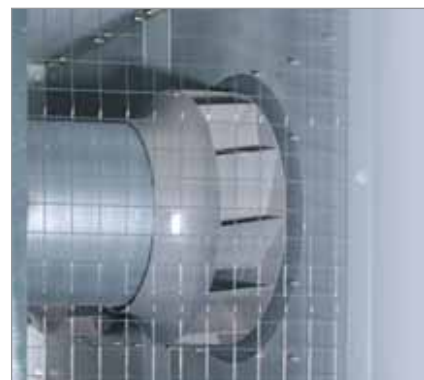
## 1 SIGMA PROFILE air end

Developed by KAESER and continuously enhanced ever since, the KAESER SIGMA PROFILE brings power savings of up to 15 percent compared with conventional screw air end rotor profiles. Meticulous engineering to the highest quality standards and precision-aligned roller bearings ensure that the air end in every SIGMA SNOW SYSTEM provides long service life and maximum reliability.



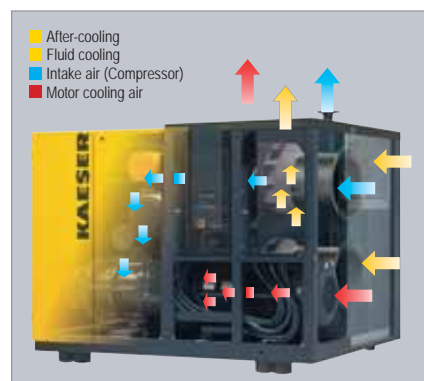
## 2 Energy-saving 1:1 drive

Direct drive reduces the number of components needed in comparison with gear drive and eliminates the associated transmission losses. This significantly increases reliability and service life; sound levels are also considerably lower. The benefits speak for themselves: efficient power transmission, optimal power consumption and minimal servicing / downtime costs.



## 3 Quiet radial fan

Radial fans provide significantly more power than equivalent conventional axial fans. Furthermore, as they operate at low speed they are also far quieter, which provides considerable advantages for system operation in residential areas. The fan's high residual thrust also allows connection of long exhaust duct sections without the need for additional extractor systems, consequently minimising installation costs.



## 4 No need for additional after-cooler

Kaeser rotary screw compressors operate with air end temperatures of approximately only 80° C. The SIGMA SNOW SYSTEM's highly efficient cooling system is therefore able to reduce the temperature of the discharged compressed air to such an extent that there is no need for an additional, external compressed air after-cooler. This further reduces investment costs and keeps installation work to a minimum.

## 5 Adjustable compressed air temperature

The compressed air temperature can be set to between 3 and 7 ° C via the proportional controller in the compressor control cabinet. The SIGMA SNOW SYSTEM is therefore able to automatically maintain the ideal compressed air temperature for ice crystal formation. The nominal and actual values are shown on the display.



## 6 Integrated controller ensures constant room temperature

The SIGMA SNOW SYSTEM is even able to fully automatically control the temperature of its own operating environment: The controller maintains a consistent room temperature at a set value between 10 and 15° C so that neither frost nor heat are ever a problem. The waste heat can be used to warm the facility buildings and significantly reduce heating costs.



## 7 Oil-free compressed air

The multi-stage SIGMA SNOW SYSTEM air treatment system ensures compressed air of the highest quality. After initial condensate removal by the filters and separator upstream, the compressed air passes through the micro-filter combination, which cleans the air to standards significantly superior than to those required for Class 1 as per ISO 8573-1 with regards to oil aerosol and remaining oil content. This ensures that the resulting snow really is whiter than white. Every SIGMA SNOW SYSTEM uses biodegradable cooling fluid.



## 8 ECO DRAIN condensate drain

Each SIGMA SNOW SYSTEM is also equipped with proven ECO DRAIN condensate drains, which ensure reliable removal of fluid from the compressed air. They are electronically controlled to eliminate the compressed air losses associated with solenoid valve control, which not only saves energy, but also enhances operational reliability.



## Technically oil-free compressed air

### Compressed air treatment: Technically oil-free to ISO 8573-1

Compressed air for snowmaking systems has to meet the most stringent quality requirements, as this particular application is trying to replicate a naturally occurring phenomenon. As the resulting snow becomes ground



water once melted, we employ every measure and precaution to ensure that the compressed air is as pure as possible.

The SIGMA SNOW SYSTEM from Kaeser Kompressoren features an initial air cleaning stage comprising a filter and condensate separator combination, which removes remaining fluid droplets of the biodegradable cooling and lubricating fluid from the compressed air.

### Filters

The pre-cleaned compressed air then undergoes intensive purification in a multi-stage micro-filter combination which removes oil aerosols and remaining oil residue. The end result is compressed air so clean that it not only meets, but exceeds, all Class 1 requirements as per ISO 8573-1.



### Condensate treatment

The condensate that accumulates as a by-product of the compressed air production process is always, to a lesser or greater extent, contaminated. The AQUAMAT treatment system enables condensate to be treated on site effectively and easily.



### Condensate drainage

The ECO-DRAIN is fitted with an intelligent level-sensing control that prevents pressure loss when the condensate is drained from the air system. When the collector tank is full, the level sensor opens a diaphragm valve and the condensate is drained off. The electronics keep the valve open until the container is empty and close it again before any compressed air can escape.



## Technical specifications

Model	FAD at 6 bar(g) m³/min	Maximum working pressure bar	Installed motor power kW	Weight kg
Snowsystem ASD 32	3.18	9	18.5	665
Snowsystem ASD 37	3.92	9	22	680
Snowsystem ASD 57	5.54	9	30	710
Snowsystem BSD 72	7.05	9	37	1000
Snowsystem CSD 82	8.28	9	45	1260
Snowsystem CSD 102	10.18	9	55	1300
Snowsystem CSD 122	12.05	9	75	1330
Snowsystem CSDX 137	13.73	9	75	1900
Snowsystem CSDX 162	16.13	9	90	2000
Snowsystem DSD 202	21.00	9	110	3300
Snowsystem DSD 238	24.10	9	132	3400
Snowsystem DSDX 302	30.50	9	160	4500
Snowsystem ESD 351	37.15	9	200	4900
Snowsystem ESD 441	42.25	9	250	5430
Snowsystem FSD 471 *	47.40	9	250	6000
Snowsystem FSD 571 *	57.80	9	325	6200

\* Pre-assembled filter group requires installation

## Optional versions and equipment

### Compressor controller SIGMA CONTROL

Interfaces for data communication comprising RS 232 for modem, RS 485 for a slave compressor in base load sequencing mode and a Profibus DP interface for data networks. Prepared for Teleservice. Selection of Dual, Quadro, Vario and Continuous control



modes as required. Red, yellow and green LEDs show the operational state of the machine at a glance. Also features a four-line plain text display, 30 selectable languages, touch keys with icons and a duty cycle indicator. Fully automatic monitoring and regulation of airtend discharge temperature; monitoring of motor current, direction of airtend rotation, air filter, fluid filter and fluid separator cartridge; display of performance data, service intervals of primary components, operating hours, status data and event memory data.

### Container systems



Turnkey compressed air systems not only save time, but also significantly reduce installation requirement: Deliver, Connect, Use.

### Exhaust air and heat

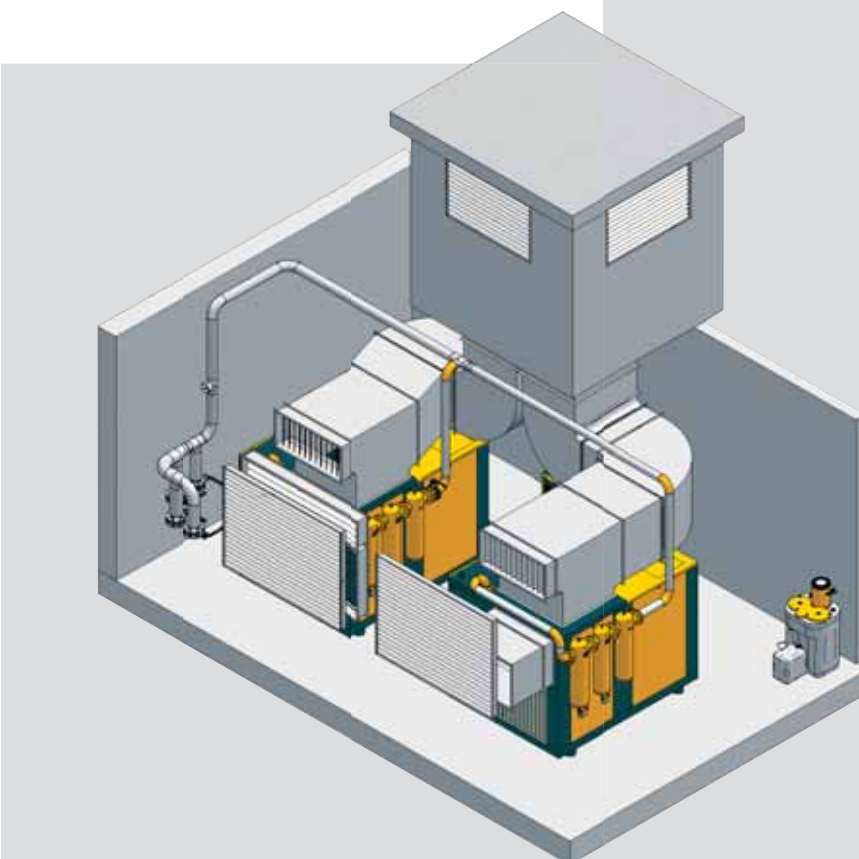


As a leading air system provider, Kaeser Kompressoren can take care of all ducting and exhaust air requirements and can even provide integrated heat recovery systems for enhanced energy savings.

### Interfaces for control system connectivity



Interfaces fitted as standard enable the SIGMA CONTROL compressor controller to communicate with a wide range of control systems.



## From comprehensive planning to a turnkey compressed air system

It's easy to see why turnkey compressed air systems are so popular...

Design and planning made easy: KAESER designs the compressed air supply system, takes responsibility for planning and coordinates deadlines.

One-stop-shop for all components: Maximum reliability and efficiency can only be achieved if all system components are perfectly matched with one another.

Expert installation: According to customer requirement, KAESER can provide pre-assembled modules or carry out installation directly on site. Experienced technicians provide the necessary expertise.

KAESER is one of the leading innovators when it comes to turnkey compressed air systems. Advanced technology ensures optimum system control and monitoring and even enables remote system access via KAESER's Teleservice facility.

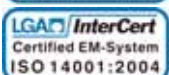


## Worldwide sales and service network: KAESER – Always there

With over 3000 employees worldwide, KAESER is one of the world's foremost compressor manufacturers and providers of compressed air systems. Kaeser is represented in every major industrial nation throughout the world by 36 subsidiary companies and 22 authorised partners.



Algeria	Costa Rica	Hungary	Mauritius			
Argentina	Croatia	Iceland	Mexico			
Australia	Cyprus	India	Marocco			
Austria	Czech Republic	Indonesia	Norway			
Bangladesh	Denmark	Ireland	Oman			
Bahrain	Ecuador	Italy	Pakistan			
Belarus	Egypt	Japan	Panama			
Belgium	El Salvador	Jordan	Philippines	Singapore	Switzerland	United Kingdom
Brazil	Estonia	Kenya	Poland	Slovakia	Taiwan	Uruguay
Bulgaria	Finland	Korea	Portugal	Slovenia	Thailand	U.A.E.
Canada	France	Latvia	Qatar	Spain	The Netherlands	USA
Chile	Germany	Lithuania	Romania	South Africa	Tunisia	Vietnam
China	Greece	Luxembourg	Russia	Sri Lanka	Turkey	
Columbia	Guatemala	Malaysia	Saudi Arabia	Sweden	Ukraine	



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