

# SAB 110 screw compressors



SAB 110 screw compressor package

Sabroe SAB 110 screw compressors are ideal for a wide range of industrial and marine applications where absolute reliability and low operating costs are crucial requirements. They can be used with all the most commonly used refrigerants.

There is a choice of four versions, covering capacities between 140 and 262 m<sup>3</sup>/h swept volume at 50 Hz.

## Integrated design

The drive motor, compressor block and oil separator assembly are flange mounted. This forms a clean package design with an extremely small footprint, low vibration level, and quiet operation.

In the SAB 110, there are many key components integrated into the compressor block itself, resulting in a compact design with less complicated external tubing. The integrated design makes a significant contribution to greater reliability and extended service life.

## Variable V<sub>i</sub>

The SAB 110 screw compressor features variable V<sub>i</sub> (internal volume ratio) that eliminates any loss of efficiency due to over or under-compression when the compressor is operating outside a narrow range of specific conditions. This significantly reduces operating costs.

## Significant advantages

The advantages of the Sabroe SAB 110 compressor design include

- Oil flow switch, oil filter, overflow safety valve, suction gas filter and check valve are all built into the compressor block. External tubing as well as gasket-sealed flanged joints and assemblies are kept to a minimum.
- High-precision anti-friction bearing system that ensures the lowest friction losses and best possible rotor positioning.
- Stepless capacity slide controller, ensuring that capacity is always adjusted to suit the exact requirements.
- Stepless variable V<sub>i</sub> controller to handle a variety of operating conditions with no loss of efficiency. This is rare in screw compressors in the lower capacity range.
- The shaft seal has multipoint oil injection for better cooling and lubrication, and standstill oil sealing for protection against leakage and dry sealing surfaces.
- Flange-mounted drive motor with no risk of offset shaft alignment.

## Customer benefits

For the customer, the benefits of the Sabroe SAB 110 compressor design include

- • Integration of components within the compressor block leads to maximum safety, a compact package design, minimum downtime, great reliability and extended service life.
- • Excellent performance and less sensitivity to variations in lubricant quality. This results in lowest possible operational costs and minimum downtime.
- • Maximum part-load efficiency. The resulting energy savings ensure the lowest possible operating costs.
- • Multiple application possibilities and lowest possible operating costs.
- • Extended shaft seal lifetime, minimum downtime, low maintenance costs and minimal environmental impact.
- • Eliminates time-consuming alignment work and prolongs the bearing and shaft seal lifetime, for optimum reliability and the lowest possible maintenance costs.



## Standard equipment

Sabroe SAB 110 compressor packages are supplied with the following equipment as standard

- compressor block with male or female driven rotor and with manually adjustable stepless  $V_i$
- highly efficient horizontal oil separator, standstill heating and level sight glasses, automatically adjusting oil return system and all required interconnecting piping and service valves
- flexible coupling
- suction and discharge side stop valves
- Sabroe Unisab II microprocessor control unit wired to sensors, transmitters and solenoid valves for compressor protection, monitoring and capacity control
- PED approval (European Pressure Equipment Directive).

A selection of different oil cooling systems is available, based on refrigerant (thermosyphon), water cooling and liquid injection.

## Optional equipment

A wide range of optional equipment is also available, including

- compressor block prepared for liquid injection cooling
- three-way oil temperature control valve mounted in the oil piping
- single or dual external oil filters with isolating valves
- complete economiser systems mounted or supplied as detached assemblies, or economiser connection system
- sensors and transmitters for control by PLC systems
- vibration dampers
- check valve for discharge line
- dual safety valves with changeover valve system
- tools and Sabroe spare part kits
- certificates and test report
- other approvals than PED on request.

### Cooling capacity in kW <sup>1)</sup>

Model	R717		R22		R404A		With economiser		
	High stage -10/+35°C	Booster -40/-10°C	High stage -10/+35°C	0/+40°C	High stage -10/+35°C	0/+40°C	R717 -40/+35°C	R22 -40/+35°C	R404A -40/+35°C
SAB 110 SM	79	NA	76	103	79	107	22	28	28
SAB 110 LM	100	NA	97	130	99	135	28	35	36
SAB 110 SF	130	NA	124	167	128	173	36	45	47
SAB 110 LF	164	NA	156	211	161	218	46	57	59

<sup>1)</sup> Nominal, 5K liquid subcooling, 5K suction gas superheat for R717, 15K suction gas superheat for R22 and R404A.

### Technical data

Model	Swept volume		Dimensions			Weight <sup>2)</sup> kg	Sound pressure level <sup>3)</sup> dB(A)
	2960 rpm m <sup>3</sup> /h	3550 rpm m <sup>3</sup> /h	L m	W m	H m		
SAB 110 SM	140	168	1.9	0.9	1.3	600	81
SAB 110 LM	175	210	1.9	0.9	1.3	600	81
SAB 110 SF	210	252	1.9	0.9	1.3	600	81
SAB 110 LF	262	314	1.9	0.9	1.3	600	81

<sup>2)</sup> Including oil cooler. Excluding drive motor, oil charge and refrigerant charge.

<sup>3)</sup> -10/+35°C, free field, reflecting plane and one metre distance.

Due to variations in equipment configuration, dimensions and weights are guidelines only.

All information is subject to change without previous notice.