

Technical documentation



SAB 163 screw compressor units

YORK Refrigeration's range of SAB 163 screw compressors is available in two versions covering the capacity range between 635 and 952 m³/h at 50 Hz (764 and 1145 m³/h at 60 Hz).

The SAB 163 screw compressors are the ideal choice for a whole range of marine and industrial applications, where reliability and low operating costs are prime requirements. Ammonia, R22, R134a or other HFCs are available as refrigerant.

The SAB 163 series has a number of unique features that contribute to safe operation, reduced environmental impact and high reliability:

- Suction filter, suction check valve, oil filter and oil float switch are built into the compressor itself, minimising the exterior piping and eliminating leakage risk
- Integrated oil float switch ensuring proper lubrication
- The 4+6 rotor profiles provide smooth and stable operation. These are available in either male or female versions



SAB 163 Mk 3 screw compressor block with POV valve

- SAB 163 screw compressors are manufactured to ensure long working lives. A solid iron casting manufactured at YORK Refrigeration's own foundry ensures extremely low vibration levels
- A unique combination of roller and ball bearings minimises friction losses
- Hydraulically loaded balance pistons reduce the axial forces, extending the service life of the bearings
- Stepless capacity regulation 10–100%
- Manual or automatic regulation of the variable volume ratio (V_i)
- Compressor overflow valve – balanced type.

The integrated oil separator/frame concept is unique, and means that the temperature impact from the oil separator does not influence the compressor/motor alignment. Major features are:

- Horizontal oil separator with low oil carry-over (5–30 ppm depending on operating conditions and the oil used)
- Oil reservoir with heating element



SAB 163 screw compressor unit

- Piping produced using CNC bending equipment minimises welding and pressure losses
- Compressor/motor base frames robot-welded and ground to ensure easy alignment
- Unisab II control and monitoring system
- Suction side stop valve
- Discharge side stop valve
- Oil pump with service valves for pre-lubrication and lubrication at low differential pressures
- Extremely low noise level – see table.

Optional equipment:

- Dual external oil filters with change-over valves
- Single external oil filter with service valves
- Refrigerant-cooled or water-cooled oil cooler
- Liquid-injection oil cooling
- Oil temperature regulating valve
- Vibration dampers
- Economiser operation.



SAB 163 Mk 3 screw compressor block

Cooling capacities * kW at 2960 rpm

Model	R717		R22		R404A		With economiser		
	High stage	Booster	High stage		High stage		R717	R22	R404A
	-10/+35 °C	-40/-10 °C	-10/+35 °C	0/+40 °C	-10/+35 °C	0/+40 °C	-40/+35 °C	-40/+35 °C	-40/+35 °C
SAB 163 HM	399.9	119.8	355.0	481.0	350.9	475.2	113.9	124.5	127.3
SAB 163 HF	615.9	184.3	551.2	746.6	545.7	738.0	175.2	194.7	202.6

* 5 °K liquid sub-cooling / 5 °K suction superheat for R717 / 15 °C suction superheat for R404A and R22

Technical data

Model	Swept volume ⁽¹⁾		Dimensions ⁽²⁾			Weight ⁽³⁾	Sound pressure level ⁽⁴⁾
	2950 rpm m ³ /h	3350 rpm m ³ /h	Length mm	Width mm	Height mm		
SAB 163 HM	635	764	2630	1470	1725	1800	86
SAB 163 HF	952	1145	2630	1740	1725	1800	87

(1) Drive motor speed – (2) With refrigerant-cooled oil cooler – (3) Excluding electric motor – (4) Free field – one metre distance

All data are subject to change without notice