SAB 193 high-pressure screw compressor unit with UniSAB systems controller

Sabroe SAB high-pressure screw compressor units

Variable-speed high-pressure screw compressor units with swept volumes of 1000–2,700 m³/hour

These unique high-pressure compressor units are ideal for large, site-built ammonia heat pump installations that condense at either 90 °C or 72 °C. They are also the ideal choice for larger CO_2 systems or low-temperature two-stage freezer installations, such as carbon dioxide–ammonia (R744–R717) cascade refrigeration systems.

Using CO_2 as refrigerant makes it possible to make big savings on installation, piping and compressor costs because a single compressor unit can replace multiple compressors using traditional refrigerants.

Sabroe SAB high-pressure screw compressors are specially designed for variable-speed operation and maximum flexibility, doing away with the traditional capacity limitations of slide-valve technology. The capacity range of all SAB models extends from 1000 rpm to maximum rpm.

The SAB 193, 233 and 283 high-pressure configurations, all ductile iron-cased versions of the large Sabroe compressor units, provide substantial base load capacities along with providing exceptional flexibility in frequency converter operation. This ensures the robustness and reliability derived from the thousands of compressors in long-term service in refrigeration plants worldwide.

Range

Four models are available to provide swept volumes of between 1000 and 2,700 m³/h.

Advantages	Benefits
High-pressure units designed specifically for applications that use CO_2 or ammonia as refrigerant	Makes it possible to undertake freezing and defrosting in a single stage, or to utilise waste heat
Stepless, skip-free capacity control ensures that output always matches requirements	Lowest possible operating costs and rapid return on investment
Consistently high performance at both full and part load	Maximum part-load efficiency and low life cycle costs
Space-saving small footprint, with fewer moving parts and very low vibration	Exceptional reliability and low maintenance costs
Load-based service schedules	Optimised service/maintenance intervals, with a minimum of unscheduled downtime

SABROE

For R717, 40 bar

Model	Max. rpm	Swept volume at max. rpm	Capacities in kW including economiser +4/72°C R717			Capacities in kW including economiser at max. rpm +32/72°C, R717			Unit dimensions in mm	Weight excluding motor/ oil	Sound pressure level
			Cooling	Heating	COP_{line} Heating/cooling	Cooling	Heating	COP_{line} Heating/ cooling			
		m^3/h							L x W x H	kg	db(A)
SAB 193 HP	4200	1188	1270	1797	3.41/2.41	2822	3399	5.90/4.90	3150 x 1500 x 1800	2700	90
SAB 233 HP	3800	1890	2040	2866	3.47/2.47	4576	5466	6.15/5.51	3700 x 1700 x 2100	4600	90
SAB 283 HP	3000	2676	2853	4025	3.35/2.37	6475	7735	6.01/5.03	3700 x 1800 x 2250	5500	92

For R717, 60 bar

Model	Max. rpm	Swept volume at max. rpm	Capacities in kW R717 Heating			Unit dimensions in mm	Weight excluding motor/oil	Sound pressure level
		m^3/h	+40/90 °C	+30/90 °C	+20/90 °C	L x W x H	kg	db(A)
SAB 273	3600	1680	5180	4780	3780	6000 x 1500 x 2100	5000	On request

For R744

Model	Max. rpm	Swept volume at max. rpm	Capacities in kW R744		Unit dimensions in mm	Weight excluding motor/oil	Sound pressure level
		m^3/h	-40/-5°C	-50/-5°C	L x W x H	kg	db(A)
SAB 193 HP	4200	1188	1711	1159	3150 x 1500 x 1800	2700	88
SAB 233 HP	3800	1890	2773	1875	3700 x 1700 x 2100	4600	88

All Sabroe high-pressure screw compressors are available on request.

40 bar design pressure:
SAB 193 HP, SAB 233 HP and SAB 283 HP

60 bar design pressure:
SAB 273

Sound pressure levels measured in free field, over reflecting plane and one metre from the compressor block.

Dimensions, weight and sound pressure levels are guidelines only.

Options

- Variable-speed drive
- Thermosyphon and water-cooled oil coolers, with 3-way oil temperature control valve
- Liquid injection oil cooling (EZ Cool)
- Dual external oil filters (SuperFilter II type)
- Complete economiser systems
- Demand oil pump – controlled by UniSAB systems controller
- Sensors and transmitters for control by external PLC systems

Min./max. speed	R717 and R744
SAB 273	1000-3600 rpm
SAB 193	1000-4200 rpm
SAB 233	1000-3800 rpm
SAB 283	1000-3000 rpm

PUBL-8592 01.2021

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