

SABROE TCMO/TSMC two-stage reciprocating compressor units

Two-stage versions of CMO and SMC reciprocating compressors, with swept volumes of 150–1000 m³/h

SABROE TCMO/TSMC two-stage reciprocating compressors are an economical operating alternative to single-stage compressors in smaller low-temperature refrigeration installations.

TCMO/TSMC compressor units are also ideal for medium-size industrial refrigeration installations that involve a big temperature range, such as freezer installations. Furthermore, these units are easy to customise with intermediate cooling systems.

Using a two-stage set-up built together as a single unit helps avoid equipment duplication – and thus reduce costs and save space.

Range

Eight different models are available to provide swept volumes of between 146 and 1018 m³/h.



TSMC 108 two-stage reciprocating compressor unit shown with closed flash inter-stage cooling system and Unisab III systems controller

Advantages

Splitting the temperature lift into two separate stages reduces overall energy consumption

Relatively small footprint

High coefficient of performance (COP), with excellent performance under part-load conditions

Variable-speed drive (optional) provides stepless capacity control over the entire operating range

Benefits

Two-stage installations are relatively cost-effective, which helps reduce energy costs

Can be installed in relatively small locations, or where space is limited

Low power consumption, which greatly reduces operating costs

Power consumption and operating costs kept to a minimum

Options

- Unisab III systems controller
- Gauges, thermometers and temperature/pressure control switches
- Oil level regulator (for use in parallel systems)
- ATEX-compliant configuration
- Special vibration dampening.



Intermediate cooling system options

In plants with multiple two-stage compressors, TCMO/TSMC units can be connected to a shared intermediate cooler, in a separate installation.

Alternatively, a range of built-on intermediate cooling systems are available, as optional equipment.

- Injection inter-stage gas cooling without liquid subcooling
- Injection inter-stage gas cooling with liquid subcooling in a shell-and-tube heat exchanger
- Closed flash inter-stage cooling in a shell-and-coil intermediate cooler, with liquid subcooling in the coil.

Model	Number of cylinders low/high-pressure side	Swept volume at 1500 rpm m ³ /h	Swept volume at 1800 rpm m ³ /h	Nominal capacities in kW R717 *		Unit dimensions in mm			Weight excluding motor kg	Sound pressure level at 1500 rpm dB(A)	Sound pressure level at 1800 rpm dB(A)
				-40/+35°C		L	W	H			
				1500 rpm	1800 rpm						
TCMO 28	6 / 2	146	175	20	24	1400-1750	700	1000	500	68	70
TCMO 38	6 / 2	170	205	23	28	1400-1750	700	1000	500	69	71
TSMC 108 S	6 / 2	339	407	50	60	2311-2915	1052	1247	1746	80	82
TSMC 108 L	6 / 2	424	509	66	79	2311-2915	1052	1247	1781	81	83
TSMC 108 E	6 / 2	509	N/A	81	N/A	2311-2915	1052	1247	1796	81	83
TSMC 116 S	12 / 4	679	814	100	121	3329-3737	1327	1445	2791	81	83
TSMC 116 L	12 / 4	848	1018	133	159	3329-3737	1327	1445	2841	82	84
TSMC 116 E	12 / 4	1018	N/A	163	N/A	3329-3737	1327	1445	2891	83	84

* Other refrigerants are available on request.

Nominal capacities are based on:
1500 rpm at 50 Hz.
1800 rpm at 60 Hz or VSD.

For R717

2K liquid subcooling, 0.5 K non-usable suction super-heat and liquid subcooling in intermediate cooler to 10K above intermediate temperature.

For TCMO

Design pressure, HP side: 28 bar
Design pressure, LP side: 18 bar
Differential pressure: 25 bar.

For TSMC

Design pressure, HP side: 28 bar
Design pressure, LP side: 18 bar
Differential pressure: 25 bar.

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

Min./max. speed	R717
TCMO 20	700-1800 rpm
TCMO 30	700-1800 rpm
TSMC S	500-1800 rpm
TSMC L	500-1800 rpm
TSMC E	500-1500 rpm

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All information is subject to change without notice.

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