

## Sabroe TCMO/TSMC two-stage reciprocating compressor units

Two-stage versions of CMO and SMC reciprocating compressors, with swept volumes of 150–1000 m<sup>3</sup>/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.

Our three-year guarantee covers the complete unit, including compressor block, UniSAB, motor and coupling – for all refrigerants.

### Range

Eight different models are available to provide swept volumes of between 150 and 1000 m<sup>3</sup>/h.

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



Advantages	Benefits
Splitting the temperature lift into two separate stages reduces overall energy consumption	Two-stage installations are relatively cost-effective, which helps reduce energy costs
Relatively small footprint	Can be installed in relatively small locations, or where space is limited
High coefficient of performance (COP), with excellent performance under part-load conditions	Low power consumption, which greatly reduces operating costs
Variable-speed drive (optional) provides stepless capacity control over the entire operating range	Power consumption and operating costs kept to a minimum

### Options

- UniSAB 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	Swept volume at 1800 rpm	Nominal capacities in kW R717 *		Unit dimensions in mm			Weight excluding motor	Sound pressure level at 1500 rpm	Sound pressure level at 1800 rpm
				-40/+35°C		L	W	H			
				1500 rpm	1800 rpm						
		m³/h	m³/h						kg	dB(A)	dB(A)
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 superheat 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 measured 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

All information is subject to change without notice.

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