

# Sabroe TCMO/TSMC two-stage reciprocating compressor units

Two-stage versions of CMO and SMC reciprocating compressors, with swept volumes of 200–1000 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.

## Range

Eight different models are available to provide swept volumes of between 175 and 1018 m<sup>3</sup>/h at 1500 rpm.



TSMC 108 two-stage reciprocating compressor unit with intermediate 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

## Optional equipment

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

## Intermediate cooling systems (optional)

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 sub-cooling
- Injection inter-stage gas cooling with liquid sub-cooling in a shell-and-tube heat exchanger
- Closed flash inter-stage cooling in a shell-and-coil intermediate cooler, with liquid sub-cooling in the coil

Model	Number of cylinders low/high-pressure side	Bore x stroke mm	Low-pressure side swept volume at 1500 rpm m <sup>3</sup> /h	Nominal capacities kW				Dimensions in mm Direct-coupled unit without intermediate cooler			Weight excluding motor kg	Sound pressure level dB(A)
				-40/+35°C				L	W	H		
				R717	R134a	R404A	R507					
TCMO 28	6 / 2	70 x 70	175 *)	20	11	27	28	1400-1750	700	1000	500	71
TCMO 38	6 / 2	70 x 82	204 *)	23	14	32	33	1400-1750	700	1000	500	71
TSMC 108 S	6 / 2	100 x 80	339	50	30	66	70	1900-2500	1050	1125	1000	82
TSMC 108 L	6 / 2	100 x 100	424	66	31 **)	68 **)	72 **)	1900-2500	1050	1125	1000	83
TSMC 108 E	6 / 2	100 x 120	509	82	NA	NA	NA	1900-2500	1050	1125	1000	83
TSMC 116 S	12 / 4	100 x 80	669	100	60	132	139	2475-3200	1150	1335	1800	84
TSMC 116 L	12 / 4	100 x 100	848	133	62 **)	136 **)	144 **)	2475-3200	1150	1335	1800	84
TSMC 116 E	12 / 4	100 x 120	1018	163	NA	NA	NA	2475-3200	1150	1335	1800	84

Nominal capacities are at 1500 rpm except for: \*) at 1800 rpm, \*\*) at 1200 rpm.

Nominal capacities are based on 2°C subcooling from condenser, 2°C superheat and liquid subcooling in intermediate cooler to 10°C above intermediate temperature.

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