



PAC 233 chiller with UniSAB systems controller

## Sabroe PAC chillers

Packaged ammonia chillers based on screw compressors, with a 100–6,200 kW capacity range

PAC ammonia-based chillers are fully integrated packaged units, designed to take full advantage of the many different models of ultra-reliable Sabroe screw compressors. They are popular because there is such a wide range of different standard sizes. They are also particularly easy to customise to meet specific requirements.

The integrated design, with the plate evaporator/condenser, oil separator, and control system all built in, means PAC units provide exceptional refrigeration capacity while only taking up a minimum of space. They are ideal for use in indirect cooling setups and in installations where it is important to use future-compatible natural refrigerants, such as ammonia.

The advanced technology and the well-matched integration of the component systems make these chillers so energy efficient that their low operating costs make them the most economical choice over the lifetime of a refrigeration plant.

### Range

There are 19 different standard models in this range of packaged chillers, with capacities ranging from approx. 100 kW to 6,200 kW.

Customised configurations are also available for use with remote air-cooled or evaporative condensers, and for twin- or multi-packages, designed to provide particularly large cooling capacities.

Advantages	Benefits
Factory-assembled, pre-tested packaged units	Easy pre-commissioning makes installation and running-in both faster and cheaper. Factory acceptance test (FAT) available as an option
Comprehensive selection of compressor capacities, making it easier to match particular requirements	Avoid paying for greater capacity than needed
Very easy access for service	Improves safety, ensures maximum reliability and global sourcing of parts
Indirect cooling and uncomplicated flooded evaporating system, using ammonia (R717) only	Greater safety and outstanding reliability
Plate evaporator/condenser are easy to open and service	Routine checks/service can be carried out by operator's own staff



## Water: inlet 12 °C, outlet 7 °C

Type	Cooling capacity	E-motor	R717 charge	Operational weight	Unit dimensions in mm			Sound pressure level	COP shaft cooling
	kW	kW	kg	kg	L	W	H	dB(A)	
PAC 120 S-A	195	55	38	4000	4310	1870	2260	82	4.4
PAC 120 M-A	252	75	40	4150	4310	1870	2260	83	4.6
PAC 120 L-A	324	75	50	4550	4310	1870	2260	84	4.8
PAC 120 E-A	439	110	54	4800	4560	1870	2360	86	4.9
PAC 151 S-A	508	132	55	5600	3800	2070	2360	88	5.0
PAC 151 M-A	599	160	59	5700	5700	2070	2360	89	5.0
PAC 151 L-A	760	200	75	6200	3940	2090	2450	89	5.1
PAC 151 E-A	872	200	80	6350	4600	2090	2450	90	5.2
PAC 193 S-A	920	200	81	6400	4600	2350	2450	82	5.1
PAC 193 L-A	1171	315	91	7000	5300	2350	2450	82	5.2
PAC 233 S-A	1592	355	167	11500	5500	2900	3200	83	5.5
PAC 233 L-A	2006	450	183	12500	6700	3000	3200	83	5.4
PAC 233 E-A	2479	560	211	15200	6700	3050	3400	84	5.5
PAC 283 S-A	2876	630	229	17000	7500	3400	3400	85	5.4
NSPAC 283 L-A	3620	800	350	20500	7300	3700	4500	83	5.4
NSPAC 283 E-A	4357	900	391	25500	8500	3700	4700	83	5.4
NSPAC 355 S-A	4953	1000	410	28000	8500	4000	4700	83	5.4
NSPAC 283 X-A	4519	1000	450	30000	9100	4000	4700	83	5.4
NSPAC 355 L-A	6119	1250	700	40000	10000	4000	6000	83	5.3

## Ethylene glycol 30%: inlet -2 °C, outlet -8 °C

Type	Cooling capacity	E-motor	R717 charge	Operational weight	Unit dimensions in mm			Sound pressure level	COP shaft cooling
	kW	kW	kg	kg	L	W	H	dB(A)	
PAC 120 S-C	108	55	37	4000	4310	1870	2260	82	2.6
PAC 120 M-C	140	75	39	4150	4310	1870	2260	83	2.8
PAC 120 L-C	180	75	48	4500	4310	1870	2360	84	2.9
PAC 120 E-C	243	110	52	4700	4310	1870	2360	86	2.9
PAC 151 S-C	282	110	53	5550	3940	2070	2360	88	3.1
PAC 151 M-C	333	132	56	5600	3940	2070	2360	89	3.1
PAC 151 L-C	422	160	71	6100	3940	2090	2450	89	3.1
PAC 151 E-C	488	200	76	6200	4290	2090	2450	90	3.2
PAC 193 S-C	511	200	77	6250	4600	2350	2450	82	3.1
PAC 193 L-C	655	250	85	6750	5000	2350	2450	82	3.2
PAC 233 S-C	886	315	158	11250	5200	2750	3200	84	3.3
PAC 233 L-C	1117	400	170	12100	5800	2750	3200	84	3.3
PAC 233 E-C	1380	450	193	14700	6500	2800	3400	84	3.3
PAC 283 S-C	1605	560	206	16350	6700	3150	3400	86	3.3
PAC 283 L-C	2012	710	230	19000	7100	3700	3400	88	3.3
NSPAC 283 E-C	2423	800	374	24500	7300	3700	4500	84	3.3
NSPAC 355 S-C	2752	1000	380	26000	8000	4000	4700	84	3.3
NSPAC 283 X-C	2534	900	400	28000	8500	4000	4700	84	3.3
NSPAC 355 L-C	3406	1200	600	38000	9500	4000	6000	84	3.3

## Options

- Variable-speed drive (VSD)
- Soft-starter or Y/D starter
- Desuperheater
- Subcooler
- External condenser
- Control panel mounted separately
- 3600 rpm at 60 Hz or VSD
- 4200 rpm at 70 Hz or VSD (PAC 193, 233, 283, 355)
- Available with high-pressure compressors as HeatPAC
- Factory acceptance test (FAT), customer witnessed

Dimensions, weight and sound pressure levels are guidelines only.

**Condenser:** water inlet 30°C, outlet 35°C. The above data are only valid for the stated temperatures and operating conditions. All data and nominal capacities kW at 3000 rpm. 60 Hz or VSD operation possible. Sound pressure levels measured in free field, over reflecting plane and one metre distance from the unit.

Our products within the scope of eco-design, implemented according to regulation No 2015/1095 for low (-25°C) and medium (-8°C) temperatures and No 2016/2281 for high temperatures (+7°C), are in compliance. The harmonised standards EN 14511 series and EN 14825 have been used for testing and calculation. Value tolerances for selection tools comply with EN 12900.