

Sabroe DualPAC heat pumps

Two-stage ammonia-based heat pumps with capacities of up to 3000 kW

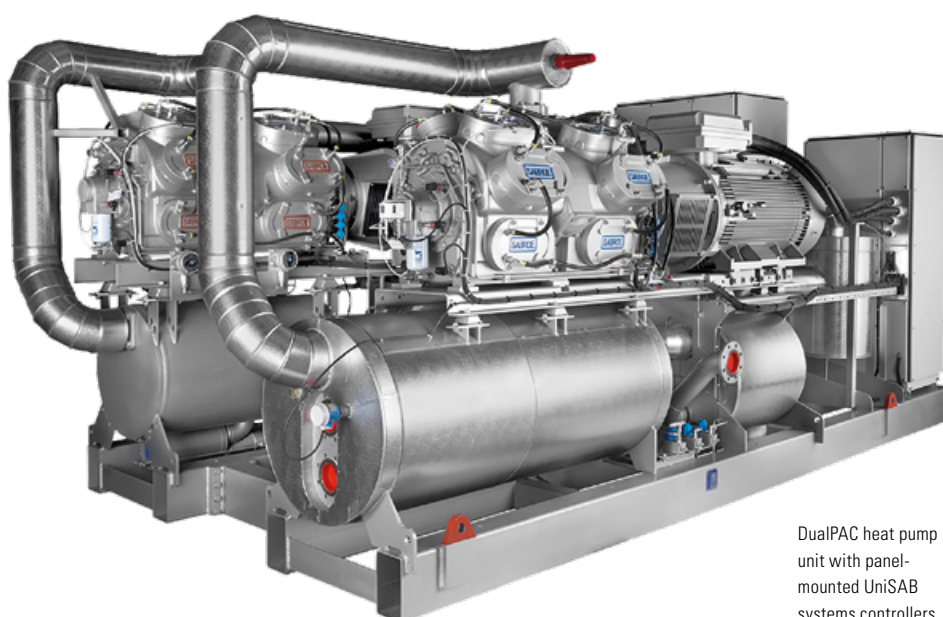
Sabroe DualPAC heat pumps combine ChillPAC, HeatPAC and HeatPAC HPX units into one single heat pump, using an ingenious modular system that makes it possible to achieve high temperature lifts, with the advantages of compact design and attractive operating economics.

The DualPAC is a two-stage high-temperature heat pump configuration that uses ammonia as refrigerant, and is designed with the sole aim of best possible performance and versatile operating conditions along with the same practical benefits – including small refrigerant charges and limited footprint – as any other Sabroe heat pump. This unique set-up ensures maximum flexibility in both configuration and capabilities, because all standard ChillPAC and HeatPAC models can be used.

The set-up is possible due to a purpose-designed open inter-stage cooler that operates with a minimal refrigerant charge.

Range

There are seventeen different models in the range of DualPAC heat pumps, with capacities ranging from 400 kW to 3000 kW.



DualPAC heat pump unit with panel-mounted UniSAB systems controllers

Advantages	Benefits
Stepless, skip-free capacity control ensures that output always matches requirements	Lowest possible operating costs and maximum return on investment
Consistently high performance at both full and part load	Maximum part-load efficiency and low life cycle costs
Unique two-stage solution featuring patented technology	Makes it possible to deal with multiple sets of running conditions
Space-saving footprint, with fewer moving parts and very low vibration	Exceptional reliability and low maintenance costs
Supports Condition Based Service (CBS) schedules	Optimised service/maintenance intervals, with a minimum of unscheduled downtime

Options

- Variable-speed drive (VSD)
- Soft-starter or Y/D starter
- Desuperheater
- Subcooler
- Control panel mounted separately
- Shunt solution for high-temperature difference
- Factory acceptance test (FAT), customer-witnessed.



The DualPAC benefits from all of the advantages of the ChillPAC and HeatPAC product ranges, based on patented Sabroe evaporator and condenser designs along with the most extensive range of reciprocating compressors available anywhere in the world, and featuring configurations with HPO/ HPC or HPX compressors as the high stage and SMC compressors on the low stage.

Within the extensive portfolio of Sabroe heat pumps, these dual versions are ideal wherever there is a need for big temperature lifts along with good performance in order to make the installation financially advantageous.

The DualPAC configuration is optimised for use in district heating and ground-source cooling, so that thermal energy can be put to the most cost-effective use. The water circuit on the hot side consists of a series of heat exchangers built into one single vessel that extracts the heat from de-superheating, condensing and subcooling processes. In many cases even de-superheating at the low stage is profitable, and serves to increase performance still further.

Condenser: water inlet: 50 °C, outlet 70 °C
Evaporator: water inlet 30 °C, outlet 20 °C

Type	Heating capacity kW	Cooling capacity kW	Power consumption (shaft) kW	R717 charge kg	Dry weight (approx.) kg	Unit dimensions in mm (approx.)			Sound level dB(A)	COP shaft heating
						L	W	H		
DualPAC 24-W	434	345	90	53	4020	2900	3000	2000	82	4.8
DualPAC 26-W	652	519	134	60	4460	2900	3000	2000	83	4.9
DualPAC 28-W	869	692	178	71	4840	2900	3000	2000	84	4.9
DualPAC 104-W	1039	827	213	78	5500	4500	3000	2000	84	4.9
DualPAC 106-W	1557	1232	325	103	6700	5000	3000	2000	85	4.8
DualPAC 108-W	2075	1625	450	119	7890	6000	3000	2200	86	4.6
DualPAC 112-W	2895	2266	628	132	10450	7500	3000	2200	86	4.6
DualPAC 704-W	498	395	102	53	6500	3500	3000	2100	86	4.9
DualPAC 706-W	747	594	153	64	7900	3700	3000	2100	86	4.9
DualPAC 708-W	996	789	206	78	10000	4100	3000	2100	87	4.8
DualPAC 712-W	1494	1180	312	106	13500	5000	3000	2100	88	4.8
DualPAC 716-W	1991	1559	433	118	16500	6000	3000	2100	89	4.6

Condenser: water inlet: 70 °C, outlet 90 °C
Evaporator: water inlet 15 °C, outlet 5 °C

Type	Heating capacity kW	Cooling capacity kW	Power consumption (shaft) kW	R717 charge kg	Dry weight kg	Unit dimensions in mm (approx.)			Sound level dB(A)	COP shaft heating
						L	W	H		
DualPAC 704-W	460	318	150	57	6500	3500	3000	2100	86	3.1
DualPAC 706-W	690	476	223	65	7900	3700	3000	2100	86	3.1
DualPAC 708-W	920	623	298	75	10000	4100	3000	2100	87	3.1
DualPAC 712-W	1381	940	445	102	13500	5000	3000	2100	88	3.1
DualPAC 716-W	1841	1243	608	114	16500	6000	3000	2100	89	3

W = Heat pump unit water/water
Please contact your Sabroe representative for availability.

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

All information is subject to change without notice.

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