PAC chillers with screw compressors

Sabroe packaged ammonia chillers (PAC) based on screw compressors provide notable benefits when indirect cooling using a secondary refrigerant is required.
The advanced technology used in Sabroe PAC chillers means they are so energy efficient that their low running costs make them the cheapest option over the lifetime of a refrigeration plant.
In addition, ammonia – because of its environmental friendliness – is the only suitable refrigerant that will still be in use in the foreseeable future.

Comprehensive series of chillers

The standard range of Sabroe packaged ammonia chillers comprises more than 40 models that have been optimised to meet the requirements experienced in the great majority of situations.
Individually customised solutions are also available for remote air-cooled or evaporative condensers and for twin or multi-packages, designed for large capacity requirements.
All the chillers used in these packages are supplied with PED approval (European Pressure Equipment Directive). Other approvals on request.

PAC 233

Significant advantages

The Sabroe PAC chiller design features the following advantages

- The standard Sabroe PAC chiller range is factory-assembled, based on world-renowned screw compressor products.
- Sole use of natural ammonia (R717) as refrigerant.
- The Sabroe PAC chiller design is based on the flooded evaporator system, which is a relatively simple construction.
- All Sabroe chiller units are operationally tested with refrigerant at the specialist End Of Line (EOL) Test Centre before dispatch. A capacity test is also available as an option.

Customer benefits

The Sabroe PAC chiller design provides customers with the following benefits

- Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and provides easy access to service and parts worldwide.
- Ammonia has the highest COP (coefficient of performance) available for chillers. It is also the most environmentally friendly and future compatible refrigerant currently available.
- The most reliable operation with maximum energy efficiency and a very low operating cost.
- Factory testing ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and water and electricity connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

SABROE
BY JOHNSON CONTROLS

PAC chillers with reciprocating compressors

Sabroe packaged ammonia chillers (PAC) based on reciprocating compressors provide notable benefits when indirect cooling using a secondary refrigerant is required.
The advanced technology used in Sabroe PAC chillers means they are so energy efficient that their low running costs make them the cheapest option over the lifetime of a refrigeration plant.
In addition, ammonia – because of its environmental friendliness – is the only suitable refrigerant that will still be in use in the foreseeable future.

Comprehensive series of chillers

The standard range of Sabroe packaged ammonia chillers comprises 40 models that have been optimised to meet the requirements experienced in the great majority of situations. Individually customised solutions are also available for remote air-cooled or evaporative condensers and for twin or multi-packages, designed for large capacity requirements.
All the chillers used in these packages are supplied with PED approval (European Pressure Equipment Directive). Other approvals on request. All chillers are supplied with Y/D starters or with variable-speed drive as a standard option for a modern chiller.

PAC 116

Significant advantages

The Sabroe PAC chiller design features the following advantages

- The standard Sabroe PAC chiller range is factory-assembled, based on world-renowned reciprocating compressor products.
- Sole use of natural ammonia (R717) as refrigerant.
- The Sabroe PAC chiller design is based on the flooded evaporator system, which is a relatively simple construction.
- All Sabroe chiller units are operationally tested with refrigerant at the specialist End Of Line (EOL) Test Centre before dispatch. A capacity test is also available as an option.

Customer benefits

The Sabroe PAC chiller design provides customers with the following benefits

- Full advantage of well-tested Sabroe standard solutions that feature top-quality industrial components. This improves safety, ensures maximum reliability and provides easy access to service and parts worldwide.
- Ammonia has the highest COP (coefficient of performance) available for chillers. It is also the most environmentally friendly and future compatible refrigerant currently available.
- The most reliable operation with outstanding part-load performance, maximum energy efficiency and very low operating cost.
- Factory testing ensures trouble-free on-site start-up and operation as soon as the refrigerant charge has been added and water and electricity connections made. Shorter, safer start-up and commissioning periods reduce overall costs significantly.

SABROE
BY JOHNSON CONTROLS

Selection guide – packaged ammonia chillers

Water: inlet 12°C, outlet 6°C

Type	Capacity	E-motor	R717 charge	Dry weight	Dimensions			Sound
					L	W	H	level *)
	kW	kW	kg	kg	mm	mm	mm	dB(A)
NSPAC 24-A	92	22	20	1400	2500	1500	2200	67
NSPAC 34-A	108	22	21	1450	2500	1500	2200	68
NSPAC 26-A	138	30	22	1450	2500	1500	2200	68
NSPAC 36-A	162	30	28	1600	2700	1500	2200	69
NSPAC 28-A	184	37	32	1600	2700	1500	2200	69
NSPAC 38-A	215	45	34	1650	2900	1500	2200	70
PAC 104 S-A	226	45	48	3100	3300	1850	2300	77
PAC 104 L-A	286	55	49	3250	3300	1850	2300	77
PAC 106 S-A	338	75	51	3500	3300	1850	2300	78
PAC 104 E-A	341	75	51	3400	3300	1850	2300	78
PAC 106 L-A	429	75	54	3550	3300	1850	2300	79
PAC 108 S-A	451	90	54	3700	3300	1850	2300	79
PAC 106 E-A	523	90	57	3700	3550	1850	2300	79
PAC 108 L-A	572	110	58	3900	3550	1850	2300	80
PAC 112 S-A	677	132	73	4650	4130	1850	2450	80
PAC 108 E-A	697	132	74	4300	3850	1850	2450	80
PAC 112 L-A	858	160	78	5000	4130	1850	2450	81
PAC 116 S-A	902	160	79	5350	4130	1850	2450	81
PAC 112 E-A	1046	200	84	5300	4550	1850	2450	81
PAC 116 L-A	1144	200	88	5650	4900	1850	2450	82
PAC 116 E-A	1394	250	137	6300	5750	2000	2600	82

Ethylene glycol 30%: inlet -4°C, outlet -8°C

Type	Capacity	E-motor	R717 charge	Dry weight	Dimensions			Sound
					L	W	H	level *)
	kW	kW	kg	kg	mm	mm	mm	dB(A)
NSPAC 24-C	47	15	19	1400	2500	1500	2200	68
NSPAC 34-C	55	22	20	1400	2500	1500	2200	68
NSPAC 26-C	71	22	21	1450	2500	1500	2200	68
NSPAC 36-C	83	30	22	1500	2600	1500	2200	69
NSPAC 28-C	94	30	30	1550	2600	1500	2200	69
NSPAC 38-C	110	37	32	1600	2700	1500	2200	70
PAC 104 S-C	113	37	47	3000	3300	1850	2300	76
PAC 104 L-C	147	45	48	3050	3300	1850	2300	77
PAC 106 S-C	170	55	49	3250	3300	1850	2300	78
PAC 104 E-C	183	55	50	3200	3300	1850	2300	77
PAC 106 L-C	220	75	51	3450	3300	1850	2300	79
PAC 108 S-C	227	75	52	3550	3300	1850	2300	79
PAC 106 E-C	279	90	56	3600	3300	1850	2300	79
PAC 108 L-C	294	90	55	3650	3300	1850	2300	80
PAC 112 S-C	340	110	68	4400	4130	1850	2450	80
PAC 108 E-C	371	110	74	4100	3600	1850	2450	80
PAC 112 L-C	441	132	74	4600	4130	1850	2450	81
PAC 116 S-C	453	160	74	5150	4130	1850	2450	81
PAC 112 E-C	557	160	83	5050	4130	1850	2450	81
PAC 116 L-C	588	200	80	5400	4130	1850	2450	82
PAC 116 E-C	743	250	132	6000	4550	2000	2600	83

Condenser: water inlet 25°C, outlet 30°C
Motor: 3 x 400V, 50 Hz, 1460 rpm
The above data are only valid for the stated temperatures and operating conditions.

Capacities are nominal.

A = Temperature above 0°C
C = Temperature below 0°C

*) Sound pressure levels in free field. All sound measuring has been carried out according to ISO 9614-2 at a distance of 1 m.

Johnson Controls Denmark ApS · Sabroe Products
Christian X's Vej 201 · 8270 Højbjerg · Denmark
Phone +45 87 36 70 00 · Fax +45 87 36 70 05
www.sabroe.com

PUBL-5647 2008.10 - 1