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TAS

HiRef

Innovators above
the standards

SERVICES

DATA CENTER

INDUSTRY



Chillers and heat pumps air condensed

TAS

with scroll compressors

Range: 60.3–260.5 kW



TAS is the HiRef range of air-condensed liquid chillers and heat pumps with Scroll compressors. Three different versions (chiller, Free-Cooling chiller and reversible heat pump) and the several available power output rates make these units highly versatile and suited to a wide range of system set-ups. The sizing and selection of individual components have focused on containing energy consumption, aiming to optimise energy savings not just for individual chillers but for the entire system. The unit is suitable for being installed in environments where noise abatement is fundamentally important, thanks to the possibility of choosing from as many as three soundproofing set-ups. The configurations available for the refrigeration circuit are:

- **EFFICIENCY PACK 1:** Dual compressor dual circuit unit for higher redundancy systems.
- **EFFICIENCY PACK 2:** Dual compressor (tandem) on single circuit for greater efficiency at partial loads.
- **EFFICIENCY PACK 4:** Four compressors (dual tandem) on dual circuit, for a redundant system that is efficient with low loads.

Main advantages

Plate heat exchangers

The TAS range uses brazewelded plate exchangers with asymmetrical channels, suitable for the use of high and medium pressure refrigerant gases. The configuration with asymmetrical channels allows high exchange efficiencies to be reached while maintaining pressure drops low on the water side - reducing pumping costs at both full and partial load.



Is the unit working?

Three different soundproofing setups are available: the most suitable one will depend on the importance of noise containment in the overall plant layout. Adopted technical solutions include fan speed control, the use of anti-vibration devices on the refrigerating circuit, compartmentalisation of compressors and pumping kits in a box internally lined with soundproofing material.

All accessories on-board the machine

The special component layout, together with compact plate heat exchangers and Scroll compressors, allows users on the one hand to make the most of large sized condensing sections and on the other hand, to have sufficient Free-Cooling internal space available for fitting a wide range of accessories and hydraulic options. The hydraulic circuit may include a dual shut-off pump, flow switch, tank, expansion tank and safety valve.



Maximum efficiency at partial loads

The adoption of the multiscroll solution, the use of electronically controlled expansion valves, selection of plate heat exchangers, fan modulation and variable flow rate controlled with circulation pumps are all key features that make the TAS range particularly efficient at partial loads.

Technological components



Multi-protocol communication interface

HiRef units can be integrated with the customer's external supervision Building Management System (BMS), using the most popular communication protocols, including Modbus RTU, Modbus/IP, BacNet, LonWorks, SNMP.



Scroll compressors

Scroll compressors include a mobile scroll, driven by the motor, which completes orbital revolutions and a fixed scroll that is coupled to it. The orbital motion creates a series of gas pockets that move from one scroll to the other. When moving closer to the centre of the scroll, where exhaust takes place, the gas is compressed to smaller and smaller volumes until the desired delivery pressure is reached. Scroll technology improves volumetric efficiency and flow continuity, reduces noise and leakage and eliminates harmful volumes and downtime.



Axial fans

In axial fans air moves in a parallel direction to the rotation axis and allows large air flows to be processed. Thanks to their low head compared to radial fans, they are used on remote condensers and on components with free outlet into the atmosphere, where there are no high pressure drops due, for example, to ducting.



Corrosion resistant material

The HiRef outdoor units are protected by a metal structure resistant to corrosion and weathering. They are also made of galvanised steel sheet, with epoxy-polyester powder coating, oven-polymerised at 180°C, to offer a C3 degree of protection. On request, it is possible to order specific paint finishing treatments or a metalwork structure built entirely in stainless steel, to obtain a higher degree of protection from high impact adverse weather events.



A2L Ready

Some ranges of liquid chillers, in addition to safety class A1 refrigerants R410A and R134a, can also be supplied with class A2L slightly flammable refrigerants with low environmental impact R454B and R1234ze. HiRef makes these product sub-ranges available also in the "A2L Ready" version, filled with a safety class A1 refrigerant, factory-ready and equipped with all the necessary safety sensors to allow, if the customer requests it, fast refrigerant switching at a later stage.



Low GWP refrigerant

The Global Warming Potential (GWP) index is a numerical indicator that identifies the environmental impact of a substance. It measures the extent to which a gas contributes to the greenhouse effect, in relation to carbon dioxide (CO₂) whose baseline value is equal to 1. This parameter is used to determine the amount in kilograms of CO₂ corresponding to the environmental impact of the release of a refrigerant gas into the atmosphere. The use of low GWP refrigerants, such as R513A, R454B, R1234ze, CO₂, allows the environmental impact of air conditioning systems to be significantly reduced.

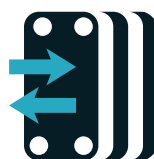


Plate heat exchanger

Brazed plate heat exchangers ensure efficient heat transfer with minimised footprint, eliminate the need for thick frame plates and seals, and ensure high thermal power density. They have a long life cycle, are maintenance-free and withstand both high temperatures and extremely high pressures. This type of exchanger is used in a wide range of applications including cooling, heating, evaporation and condensation.



Class A

Internal high-tech components suitably chosen and sized allow the units to operate with outstanding levels of efficiency.

Available versions



COOLING ONLY



REVERSIBLE HEAT
PUMP



FREE-COOLING

Types of system



AIR/WATER



Additional benefits

- 3 different soundproofing setups available: Standard, Low Noise and Super Low Noise
- Radial EC motor fans (optional)
- Electrically controlled expansion valve
- Easy accessibility thanks to the optimisation of the internal space
- Compliance with ERP regulations
- Programmable microprocessor control with proprietary software
- Available with variable flow pumping kit
- Maintenance kit available

Technical table

TAS FS		061	071	081	101	114	124	144	164	194	214	244
USER WATER TEMPERATURE 12/7°C 20% ETHYLENE GLYCOL, OUTSIDE AIR 35°C, 40% R.H.												
COOLING CAPACITY	kW	60.4	74.3	87.1	100.8	116.4	124.5	146.8	159.3	184.6	218.6	246.1
TOTAL POWER INPUT	KW	17	21.5	25.9	30	34.1	36.6	44.3	48.3	56.7	72.1	81.3
EER	-	3.55	3.45	3.36	3.36	3.42	3.4	3.31	3.3	3.26	3.03	3.03
FULL FREE-COOLING TEMPERATURE	°C	-1.5	-3.2	-5.3	-4.9	-6.5	-4.8	-6.5	-8.1	-5.8	-8.2	-6.5
SOUND POWER LEVEL	dB	81	83	86	83	84	86	87	88	89		
SOUND POWER LEVEL LOW NOISE	dB	78	80	83	80	81	83	84	85	86		
SOUND POWER LEVEL SUPER LOW NOISE	dB	76	78	81	78	80	82	84	85			
DIMENSIONS [LxHxD]	mm	2792x1735x1183			3540x1735x1183		3540x1846x1653		3540x2330x1653		4206x2330x1653	

Also available in 60 Hz power supply. Data declared with use of R410A refrigerant | Features referred to the standars set-up. If not available, these features are referred to the Low Noise or Super Low Noise set-ups | Data declared with use of R410A refrigerant

TAS CS		062	072	082	102	114	124	144	164	194	214	244
USER WATER VALUES 12/7°C, 35°C OUTSIDE AIR, 40% U.R.												
COOLING CAPACITY	kW	61.5	75.5	88.5	102.8	118.2	127	149.6	162.5	187.7	222.6	250.4
TOTAL POWER INPUT	KW	16.9	21.4	25.6	29.6	33.8	35.9	43.3	47.2	55.9	71	80
EER	-	3.63	3.53	3.45	3.47	3.5	3.54	3.46	3.44	3.36	3.14	3.13
SEPR	-	5.33	5.49	5.73	5.45	5.59	5.61	5.65	5.76	5.77	5.61	5.69
SEER	-	4.68	4.82	4.94	4.71	4.87	4.76	4.79	4.91	4.9	4.81	4.76
SOUND POWER LEVEL	dB	81	83	86	83	84	86	87	88	89		
SOUND POWER LEVEL LOW NOISE	dB	78	80	83	80	81	83	84	85	86		
SOUND POWER LEVEL SUPER LOW NOISE	dB	76	78	81	78	80	82	84	85			
DIMENSIONS [LxHxD]	mm	2792x1735x1183			3540x1735x1183		3540x1846x1653		3540x2330x1653		4206x2330x1653	

Also available in 60 Hz power supply. Data declared with use of R410A refrigerant | Features referred to the standars set-up. If not available, these features are referred to the Low Noise or Super Low Noise set-ups | Data declared with use of R410A refrigerant

TAS HS		062	072	082	102	114	124	144	164	194	214	244
USER WATER VALUES 40/45°C, 7°C OUTSIDE AIR, 89% U.R.												
THERMAL POWER	kW	60.3	74.2	85.5	100.7	121.3	127.6	147	159.6	183.2	223.4	260.5
TOTAL POWER INPUT	KW	18.8	22.7	26.6	31.3	36.4	39.6	45.2	49.8	57.2	69.8	81.5
SCOP	-	3.45	3.83	3.81	3.74	3.7	3.59	3.61	3.67	3.77	3.9	3.93
COP	-	3.21	3.27	3.21	3.22	3.33	3.23	3.25	3.21	3.2	3.2	3.2
SOUND POWER LEVEL	dB	81	83	86	83	84	86	87	88	89		
SOUND POWER LEVEL LOW NOISE	dB	78	80	83	80	81	83	84	85	86		
SOUND POWER LEVEL SUPER LOW NOISE	dB	76	78	81	78	80	82	84	85			
DIMENSIONS [LxHxD]	mm	2792x1735x1183			3340x1735x1183	3540x1735x1183	3540x1846x1653		3540x2330x1653		4206x2330x1653	

Also available in 60 Hz power supply. Data declared with use of R410A refrigerant | Features referred to the standars set-up. If not available, these features are referred to the Low Noise or Super Low Noise set-ups | Data declared with use of R410A refrigerant

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