

ARAC - ARAH



Air-cooled water chillers and heat pumps with axial fans for outdoor installations

Range:

Cooling capacity: 118 ÷ 260 kW

Heating capacity: 129 ÷ 285 kW

Available versions:

- Standard
- Modulating condensation control
- Low-noise
- Low temperature water production (ARAC only)

Refrigerant R407C

Scroll Compressors

STANDARD FEATURES

- Self-supporting frame in galvanised steel RAL (9001 colour) with panels finished in epoxy powders
- Four hermetic Scroll compressors with internal thermal protection and anti-vibration supports
- Two refrigerant circuits conforming to EC norms (PED 97/23/CE) in copper tubes mainly including: filter dryer, flow indicator, thermostatic valves with external equalisation, high and low pressure switches and high and low (*) pressure transducer
- Compressor crankcase heaters (*)
- Exchange of the cycle on the refrigerant side with 4-way reversing valve (only for ARAH)
- Shell & tube water/refrigerant heat exchanger with two independent cooling side circuits and one hydraulic circuit: the heat exchanger is insulated with closed-cell expanded neoprene
- Heat exchanger coil with aluminium fins and mechanically-expanded copper tubes
- Water flow pressure switch
- Sickle-blade axial fans, statically and dynamically balanced with safety protection grilles (internal and external) protection grade IP54
- Condensation pressure control switch ON-OFF
- Electric panel conforming to EC (Directive 73/23/EC and Directive EMC 89/336/EC) with anti-condensation heater (*), auxiliary circuit, general cut-off switch, magneto-thermal protection cut-off switches
- Sequence phase control
- Microprocessor control system UPC1m including:
 - local user terminal mP20 II visible on unit with panel
 - outlet chilled water temperature regulation
 - advanced management of compressors run through automatic set-point sensitivity regulation
 - compressor rotation with FIFO system (run time, protection and function)
 - rotation of pump group setting functioning and start of pump in stand-by (alarm display) in the event of pump breakdown
- advanced anti-freeze protection on evaporator (*)
- advanced defrost function (only for ARAH)
- integrated LAN card for local network connection of a group of chillers (up to 10 units with 1 or 2 units in stand-by)
- Moreover microprocessor control system permit:
 - an overlapped management of units as 1 chiller (up to 10)
 - set-point adjustment from external signal 0-10V
 - management of double set-point and selection
 - free-contact for general alarm and 2 addressable alarm management
 - remote ON-OFF switch
 - ability to interface with Modbus protocol directly on RS485 serial card
 - ability to interface with main external communication protocols: Bacnet, Lonworks, Metasys, TCP/IP and SNMP

(*) Standard only for ARAH

OPTIONS

Units can be supplied with the following construction options:

- Remote user terminal mP20 II (up to 200 metres) for:
 - entering of commands
 - display unit status and alarms
- Spring anti-vibration kit
- Rubber anti-vibration kit

TECHNICAL DATA

ARAC / ARAH MODEL		0574A	0644A	0744A	0964A	1084A	1204A
Power supply	V/ph/Hz	400 / 3 + N / 50					
Cooling only (ARAC)							
Cooling capacity (1)	kW	118	135	165	190	230	260
Absorbed power (1)	kW	42	49	54	73	84	95
Heat pump (ARAH)							
Heating capacity (4)	kW	129	141	179	220	255	285
Absorbed power (4)	kW	38	41	64	79	84	85
Noise pressure level min/max (3)	dB(A)	50 / 57	50 / 57	51 / 58	51 / 58	52 / 59	52 / 59
Condenser air flow (1)	m ³ /h	44000	44000	68120	66000	89000	89000
Low noise version							
Cooling capacity (1)	kW	112	128	158	180	219	245
Noise pressure level (3)	dB(A)	47	47	48	48	50	50
Condenser air flow (1)	m ³ /h	35000	35000	52000	53350	69240	69240
N _o circuits / N _o of compressors		2 / 4	2 / 4	2 / 4	2 / 4	2 / 4	2 / 4
N _o of fans / N _o of poles		2 / 6	2 / 6	3 / 6	3 / 6	4 / 6	4 / 6
N _o condensing coil		1 + 1					
Evaporator type/ N _o		Shell & Tube / 1					
External hydraulic connections (1)	l/h	20300	23200	28400	32700	39600	44800
Pressure drop evaporator	kPa	40	45	44	39	48	35
Pressure drop evaporator with pump group	kPa	80	95	97	78	103	105
Pump group (option)							
Available head pressure (2) (std pump group)	kPa	190	230	200	140	140	130
Available head pressure (2)(H.P. pump group)	kPa	260	310	290	310	300	300
Water tank (option)							
Water tank capacity	l	500	500	500	500	650	650
Partial heat recovery (option)							
Exchanger type / N _o		Plate / 2					
Thermal heat recovery (5)	kW	46	48	53	75	76	86
Water flow	l/h	7912	8256	9116	12900	13072	14792
Total heat recovery (option)							
Exchanger type / N _o		Shell & Tube / 2					
Thermal heat recovery (5)	kW	166	178	207	278	318	350
Water flow	l/h	28550	30616	35600	47816	54696	60200
Dimensions and weight							
Height	mm	1618	1618	2140	2140	2140	2140
Depth	mm	3807	3807	4542	4542	5242	5242
Width	mm	1193	1193	1344	1344	1344	1344
Weight (without hydronic kit) (6)	kg	1237	1271	1754	2001	2182	2290
Weight (with water tank and 2 pumps) (6)	kg	1519	1554	2058	2321	2537	2648

(1) Data refer to nominal conditions: water temperature 12/7°C; ambient temperature 35°C; refrigerant R407C

(2) With pump group

(3) Measured in free field conditions, coil side, direction factor Q=2, at 10 mt. from the unit (at nominal conditions)

(4) Data refer to nominal conditions: water temperature 40/45°C, ambient temperature 7°C dry bulb, 6°C wet bulb; refrigerant R407C

(5) Data refer to nominal conditions: recovery water temperature 40/45°C; chilled water temperature 12/7°C; ambient temperature 35°C; refrigerant R407C

(6) Data refer to empty unit

CONSTRUCTION OPTIONS

- Standard version with modulating condensation control
- Low noise version with modulating condensation control through special algorithm and sound-proofing of compressor housing
- Version for production of glycol water mixture at low temperatures down to -10 °C (ARAC)
- Partial / total condensation heat recovery
- Integrated hydronic system with 1 or 2 thermo protected circulation pump (1 + 1 stand-by), reservoir tank, safety valves, expansion tank (each pump is equipped with a non-return valve and interceptive valve)
- Reservoir tank equipped with pump for primary circuit management
- High and low pressure gauges
- Power phase correction capacitors (compressors + fans + pumpgroup)

- Anti-freeze protection on evaporator, reservoir tank and pump group
- Condensing coils equipped with safety grilles and filter
- Discharge interception valves on compressor
- Sound-proofing of compressor housing
- Clock card
- RS485 serial adapter used to communicate with Uniflair supervision system or to interface with external BMS
- Condensing coil cataphoresis treatment
- R134a Refrigerant (*)

(*) on request