

Aquaflair

UNIFLAIR™

UNIFLAIR™

Residential and Industrial
Cooling Systems



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Combining cutting-edge technology with energy efficiency and environmental protection is what inspired Uniflair to create this product line

The experience the company has built up over the years, and its leadership in the sector of precision air-conditioning channelled the technical and functional choices of Uniflair designers, who included technical excellence in the solutions proposed

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Air-cooled water chillers and heat pumps with centrifugal fans



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Range: 4 ÷ 19 kW

(*) The product guide contains detailed technical data regarding the units working conditions of each chiller

Company Profile

COSTANTLY GROWING ALL OVER THE WORLD

Founded at the end of 1988, in just a few years Uniflair managed to conquer an important position among the biggest manufacturers in the world of air conditioning for technological application, as well as chillers and modular access flooring.

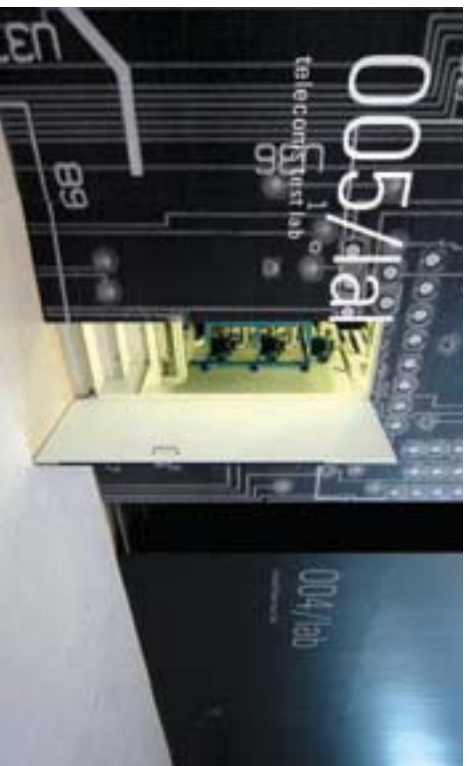
Initially only dealing on the national market, Uniflair's expansion has now reached Europe and the other continents. It currently counts over 60 sales points.

The company's considerable expansion has made it necessary to adapt its working space. Thus, from the first factory measuring 1,200 m², Uniflair recently moved to a new site which, with a surface area of over 120,000 m², makes use of a production area of 30,000 m², training rooms, conference halls and one of the most innovative research centres in Europe.



RESEARCH AND INNOVATION

Innovation has always been the mainstay of Uniflair's development: considerable company resources have been invested in research into new application solutions intended to assure products excellence with an unbeatable level of reliability. The whole production and management system is run based on an ISO 9001 certified quality model.



Products

RESIDENTIAL AND INDUSTRIAL COOLING SYSTEMS



A products line designed both for air-conditioning (homes or technological installations) and for industrial cooling processes. With chillers and heat pumps as its main reference points, Uniflair aims to offer its customers a series of complementary products, many of which are utterly innovative, combined to produce complete, highly reliable, energy-efficient systems with the least possible environmental impact.

PRECISION AIR CONDITIONING UNITS



When it comes to air-conditioning rooms and structures containing technological equipment, Uniflair is recognized as one of the world's market leaders for the quality and utmost reliability of its units, as well as for its innovative application solutions. Telephone exchanges, computer centres, laboratories and control rooms require specific products offering top levels of efficiency and great reliability. Wherever optimal functioning of hi-tech processes is a priority, our products assure the right room temperature and humidity conditions by recirculating and filtering the air, cooling, reheating, dehumidifying and humidifying. All activities are performed under the strict control of microprocessor-based controllers for intelligent management of the system's operating sequence.

MODULAR ACCESS FLOORING



Uniflair has a series of cutting-edge systems capable of producing various kinds of flooring. Some are exclusive, patented solutions. The various production have an annual capacity of around one million mq, whilst all processes are supervised by control systems, checking manufacturing every step of the way. Apart from being a functional element essential to the building's flexibility, Uniflair access floors can also be used to add a high-quality architectural and aesthetic dimension to the interior.

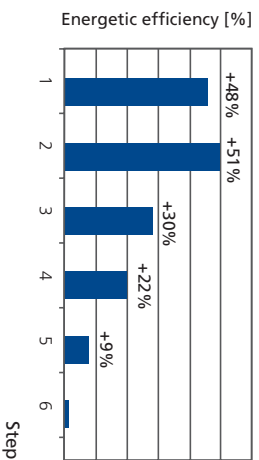
Why Uniflair

EFFICIENCY - REABILITY



The issue of energy continues to play an extremely important role regards operating costs for modern systems. The choice of a given type of technical product makes it possible to guarantee maximum service reliability while cutting energy consumption to a minimum:

- Indirect free-cooling
- Efficiency at partial loads
- Choice and optimisation of components
- Electronic expansion valve
- Scroll compressors
- Double screw compressors
- High efficiency refrigerants



COP percentage increase refers to partial rather than complete loads, 350kW units equipped with 6 Scroll compressors



FREE-COOLING

Text



Fig. A - Mechanical cooling operation

15° C



Fig. B - Mixed cooling operation

5° C

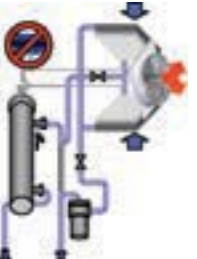
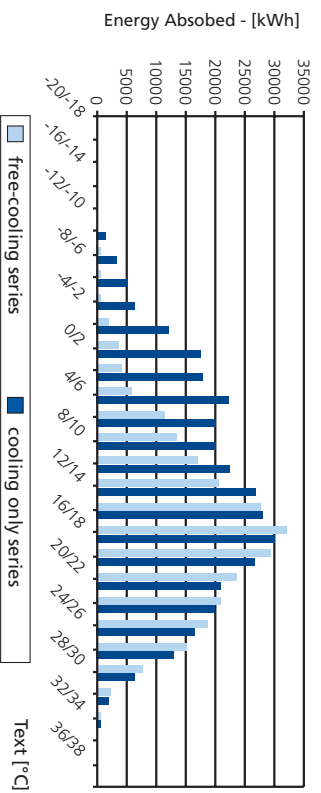


Fig. C Free-cooling operation

This operating principle uses external air to remove the heat from the liquid to be cooled, providing for the system requirements at no cost. Thus, the lower the ambient temperature during operating hours is, the greater the energy savings. The sophisticated microprocessor control automatically manages operation in three different situations. During summer, the unit acts like a traditional air-cooled chiller (Fig. A). As the outside temperature drops, the air can be used directly to pre-cool the water, thus lowering the number of hours the compressor is in operation (Fig. B). Should the ambient temperature be such it is possible to supply all the cooling capacity the system requires, the compressors will be excluded and the water chilled using external air only (Fig. C). This technology makes it possible to drastically reduce energy consumption, cut compressor operating hours and increase reliability.

Cooling capacity kW	Area	Energy savings kWh
120	Northern Italy	42700 - 21%
190	Central Europe	92000 - 28%
560	Spain	244000 - 17%

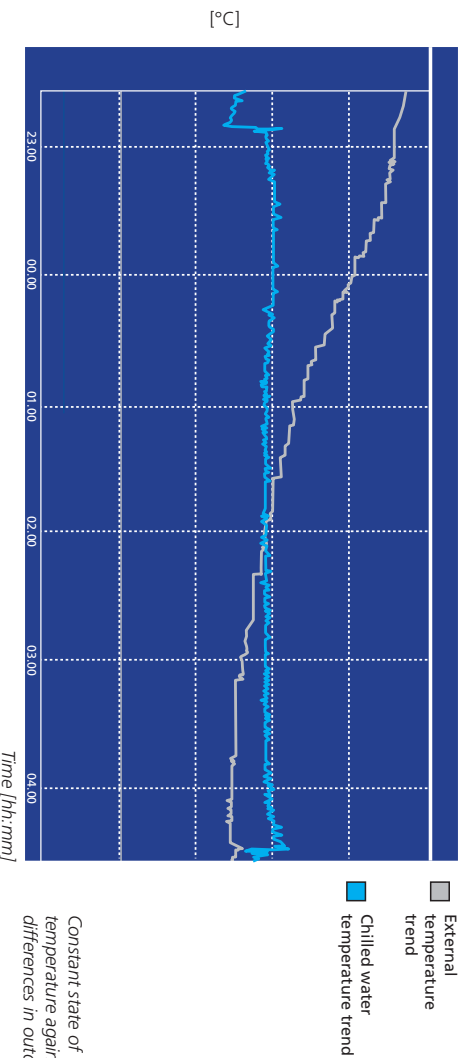


ADVANCED CONTROLS

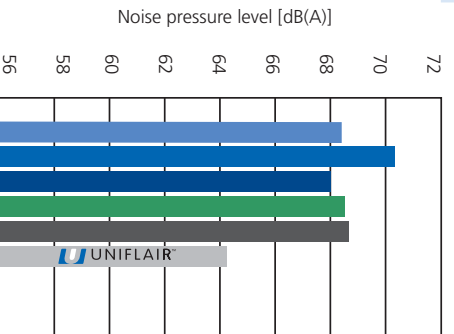
Uniflair internally produces the software for its units. This enables the company to equip each machine with a “tailor made” control which manages all aspects of the unit.

Absolute control means:

- **Precision** : the units use advanced algorithms to accurately control the temperature of the chilled water
- **Reliability**: each component is continuously monitored to guarantee it is always used within operating limits and will signal any faults before breakdown occurs
- **Local Area Network**: Aquaflair chillers can “talk” to each other, resulting in excellent control of multi-unit systems, managing all the cooling resources and units on stand-by (either on a time basis or alarm)
- **Connectivity**: Uniflair microprocessor controls can “talk” to the most common supervision systems (Building Management Systems) among which: Modbus, Bacnet, LonWorks, Trend, Metasys, TCP/IP and SNMP



ACOUSTIC IMPACT



Comparison of basic 650KW unit with equivalent models currently available on the market $T_{ambient}$: 35°C, $T_{inlet/outlet}$ water: 7/12°C (data refer to 10 m, Q=2, coil side)

Reduction in sound pollution is one of the most critical factors designers are called on to solve when choosing plant systems.

Uniflair chillers offer low-noise solutions with extremely low acoustic impact thanks to:

- extra-large coils
- specially devised and implemented algorithms which control the rotation speed of the fans
- tested, optimised compressor insulation and housing



PICCOLO CRAT - PRAT



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

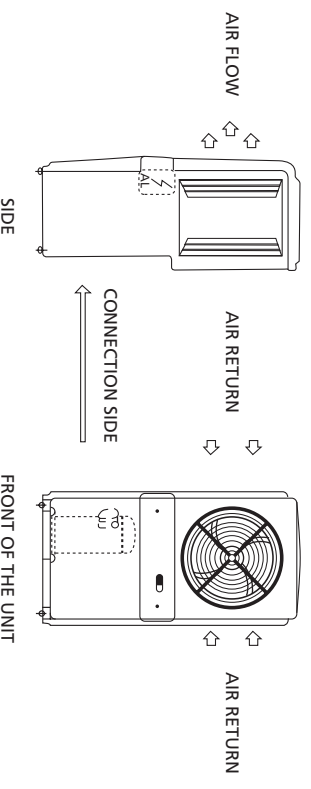
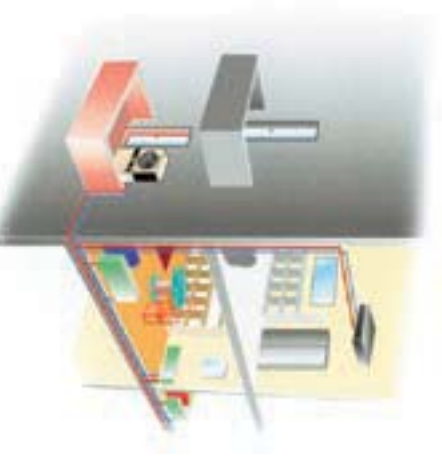
Range:
Cooling capacity: 4 ÷ 7 kW

Available versions:
- Cooling only
- Heat pump

**Refrigerant R407C
Rotary Compressor**

STANDARD FEATURES

- Compact design ideally suited for applications with reduced dimensions
- Ease of installation of hydraulic and electrical connections
- Vertical design with reduced footprint
- Self-supporting cabinet in galvanised steel with a protective thermoformed ABS coating
- Hermetic rotary Compressor with internal thermal protection and anti-vibration supports and acoustic insulation
- Stainless steel brazed plate heat exchangers insulated with closed-cell panded polyurethane
- Heat exchanger coil made of copper tubes mechanically expanded into aluminium fins (coil protected by an external grille)
- Condenser head pressure control through automatic speed regulation
- Rubber anti-vibration feet
- Low-noise due to sound-proofing and automatic fan speed regulation
- Microprocessor control including: local user terminal with LCD display and LED signals for all working parameters
- On-board water circulation pump
- Water flow differential pressure switch
- Expansion tank
- On-board water tank
- Internal change over valve for water recycling on primary circuit and connection with the external pump



TECHNICAL DATA

CRAT/PRAT MODEL	0021B	0031B
Power supply	230 / 1 / 50	
Cooling only (CRAT)		
Cooling capacity (1)	4,5	6,7
Absorbed power (1)	1,59	2,34
Heat pump (PRAT)		
Heating capacity (2)	4,9	7,6
Absorbed power (2)	1,61	2,51
No. of circuits / No. of compressors	1 / 1	
No. of fans / No. of poles	1 / 6	
Airflow	m ³ /h	2930
Water flow	l/h	1150
Available head pressure	kPa	51
Pump absorbed power	kW	0,22
Water tank capacity	l	15
Noise pressure level (3)	dB(A)	34
Hydraulic connections		3/4"
Dimensions and weight		
Height	mm	1170
Depth	mm	485
Width	mm	565
Weight (4)	kg	90

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

(2) Data refer to nominal conditions: water temperature 40/45°C; ambient temperature 7°C dry bulb, 5°C wet bulb; refrigerant R407C

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

(4) Data refer to empty unit

CONSTRUCTION OPTIONS

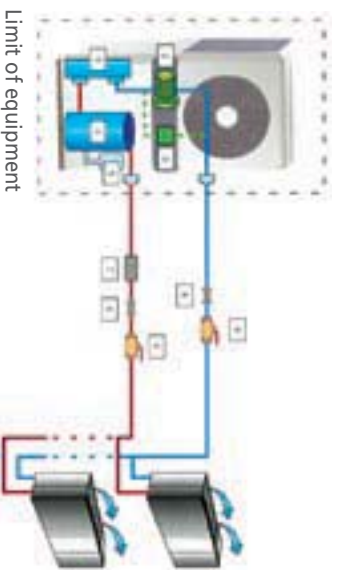
- Anti-freeze protection on evaporator and reservoir tank
- R22 refrigerant (available on request according to UE 2037/2000 std)
- Production of glycol water mixture at low temperature (down to - 8°C) CRAT only (*)

(*) on request

OPTIONS

Units can be supplied with the following construction options:

- Remote user terminal (up to 30 metres) for:
 - display / entering of commands
 - display unit status and alarms



Limit of equipment

Legend:

- 1 Heat exchangers
- 2 Water circulation pum
- 3 Water flow differential pressure switch
- 4 Reservoir tank
- 5 Expansion tank
- 6 Rubber antivibranti gasket
- 7 Metal filter
- 8 Interception valve

LRAC-LRAH



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

Range:

Cooling capacity: 6 ÷ 39 KW

Heating capacity: 7 ÷ 43 KW

Available versions

- Low noise
- Top Operating Performance

Refrigerant R410A

Scroll Compressor/s



STANDARD FEATURES

- Compact, vertically developing unit
- Self-supporting, galvanised steel, RAL7037 frame with panels coated in epoxy powders in compliance with norm ASTM B117
- One hermetic Scroll compressor (023B - 090A models) with internal thermal protection and anti-vibration supports
- Two hermetic Scroll compressors (120A - 180A models) with internal thermal protection and anti-vibration supports
- Crankcase heaters (LRAH)
- Ecological Refrigerant: R410A
- One cooling circuit in compliance with EC norms (PED 97/23/EC directive) in copper tubes comprising a filter dryer, water flow switch, stainless steel thermostatic valve with external equalization, and high pressure switch
- Low pressure limit function carried out by control valve (LRAH)
- Stainless steel, brazed plate heat exchangers insulated using closed-cell, expanded polyurethane
- Heat exchangers with aluminium fins and mechanically-expanded copper tubes protected by metal grilles
- Statically and dynamically balanced axial fans with sickle-blades and safety protection grilles in polymeric material
- Fan housing nozzle in sound-proofing material
- Condensation control, including continuous fan speed control
- Electric panel conforming to EC Directives 73/23/EC and EMC 89/336/EC with auxiliary 12/24V circuit: general cut-off switch, magneto-thermal protection cut-off switches and anti-condensation heater (LRAH)
- UECH microprocessor control system with local user control and monitoring terminal with LCD display and LED signals for all working parameters, chilled/hot water temperature adjustment, self-adjusting set-point regulations, anti-freeze protection, compressor timing and protection, fan speed adjustment, alarm code signalling, and centralization for general alarm control transmission, remote ON-OFF switch and remote cycle inversion (LRAH)
- Water flow differential pressure switch
- Rubber anti-vibration feet

TOP OPERATING PERFORMANCE

- Electronic Expansion Valve
- Hot gas by-pass disposal guaranteeing constant chilled water temperature even with a 0 to 100% change in load (optional)
- UPCOXS microprocessor control system with specific algorithm to: - chiller/hot outlet water temperature regulation guaranteeing a constant chilled water temperature even with no tank
- E.E.V. total management
- hot gas by-pass disposal management
- advanced management of compressors run through automatic set-point sensitivity regulation (optional)
- advanced defrost function to minimise cycle inversions (LRAH)
- advanced anti-freeze protection on evaporator
- integrated LAN card for local network connection of a group of chillers (max. 10 units)
- Moreover, the microprocessor control system permits: - management of double set-point and selection
- free-contact for general alarm and 2 addressable alarm management
- 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

TECHNICAL DATA

LRAC - LRAH MODEL

	023B					032B					041B					054A					067A					090A					120A					137A					180A				
	230 / 1 / 50										400 / 3 + N / 50																																		
Power supply	V/ph/Hz																																												
Cooling capacity (1)	6					8					10					14					17					19					27					33					39				
Absorbed power (1)	1,5					2,2					2,9					4,4					4,9					6					8,7					10					12				
COP (1)	4,0					3,6					3,5					3,2					3,5					3,3					3,1					3,2					3,2				
Heating capacity(2)	6,7					9					10,9					15,5					18,9					22,1					30,2					36,7					43,5				
Absorbed power (2)	1,7					2,3					2,8					3,9					4,7					5,5					8,5					10					11,9				
Noise pressure level (3)	34					34					34					35					37					38					38					40					41				
N _o of fans / N _o of poles	1 / 6					1 / 6					1 / 6					1 / 6					2 / 6					2 / 6					2 / 6					3 / 6					4 / 6				
N _o of circuits / N _o of compressors	1 / 1					1 / 1					1 / 1					1 / 1					1 / 1					1 / 1					1 / 1					1 / 2					1 / 2				
Compressor type	Scroll																																												
Evaporator	Plate																																												
Water tank	25					25					25					50					50					50					100					100					100				
Dimensions and weight																																													
Height	650					650					650					1271					1271					1271					1271					1271					1271				
Depth	458					458					458					458					458					458					615					615					615				
Width	1274					1274					1274					1273					1273					1273					2054					2054					2054				
Weight (without hydronic kit)	100					101					103					152					160					162					262					272					282				
Weight (version with pump)	104					105					107					159					167					169					273					281					291				
Weight (version with water tank and pump)(4)	116					117					119					179					187					189					300					308					318				

(1) Data refer to nominal conditions: water temperature 12/7°C; ambient temperature 35°C; R410A refrigerant

(2) Data refer to nominal conditions: water temperature 40/45°C; ambient temperature 7°C db., 6°C wb.; R410A refrigerant

(3) Measured in free field at 10m (Q=2, front) from the unit running in nominal conditions

(4) Data refer to empty unit

CONSTRUCTION OPTIONS

- On-board water tank and pump
- High head pressure pump (*)
- Low external temperature option: unit works down to -20°C
- Production of glycol water mixture at low temperatures option (down to -10 °C)
- Anti-freeze protection on evaporator, water tank and pump
- RS485 serial adaptor used to communicate with Uniflair supervisory system or to interface with external BMS
- LON FTT10 serial adaptor used to communicate with external BMS managed with LON protocol
- TCP/IP serial adaptor used to interface with external BMS
- Condensing coils equipped with safety grilles and filter

(*) on request

OPTIONS

- Remote user terminal for:
 - display / entering of commands
 - display unit status and alarms
- Chilled / hot water piping filter

ARAC - ARAH



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

Range:

Cooling capacity: 42 ÷ 95 kW

Heating capacity: 50 ÷ 106 kW

Available versions:

- Cooling only
- Heat pump
- Ultra low noise

**Refrigerant R407C
Scroll Compressors**



STANDARD FEATURES

- Self-supporting frame in galvanised steel (RAL9001 colour) with panels varnished with epoxy powders in compliance with ASTM B117
- Protection grade IP44
- Hermetic scroll compressors with internal thermal protection and anti-vibration supports
- Crankcase resistance (ARAH) with modulating condensation control option
- Stainless steel brazed plate heat exchangers insulated with closed-cell expanded polyurethane
- Heat exchangers with aluminium fins and mechanically-expanded copper tubes
- Cycle inverter with 4-way reversing valve (ARAH)
- Sickle-blade axial fans, statically and dynamically balanced with safety protection grilles: protection grade IP44
- Two independent refrigerant circuits conforming to EC Directives (PED 97/23/EC directive) including: filter dryer, flow indicator, thermostatic valves with external equalisation and high & low pressure switches
- Low-noise version: due to the particular dimensions of the aerailic circuit and low-speed fans
- Electric panel conforming to EC Directive 73/23/EC and Directive EMC 89/336/EC with auxiliary 24V circuit, general cut-off switch, magneto-thermal protection cut-off switches
- Sequence phase control
- Water flow differential pressure switch
- Microprocessor control system including: local user control and monitoring terminal with LCD display and LED signals for all working parameters:
 - chilled water temperature regulation and hot water temperature for ARAH
 - anti-freeze protection
 - compressor timing and protection
 - compressor function display

- alarm code signalling and centralisation for general alarm control transmission
- remote ON-OFF switch

OPTIONS

- Units can be supplied with the following construction options:
- Remote user terminal (up to 150 meters) for:
 - direct display/entering of commands
 - display unit status and alarms
 - Remote user terminal MP20 II (up to 200 meters) for:
 - display / entering of commands
 - display unit status and alarms
 - Rubber anti-vibration kit

TECHNICAL DATA

ARAC/ARAH MODEL	0182A	0202A	0232A	0252A	0302A	0403A	0504A
Power supply	400 / 3 + N / 50						
Cooling only (ARAC)							
Cooling capacity (1)	42,1	49,4	56,9	66,7	74,7	84,7	95,0
Absorbed power (1)	14,66	17,30	19,86	22,06	26,48	30,36	35,29
Heat pump (ARAH)							
Heating capacity (2)	50,1	56,8	65,9	74,0	81,4	95,4	105,6
Absorbed power (2)	13,09	14,91	17,93	19,87	23,13	28,9	34,87
N° of circuits / N° of compressors	2/2						
N° of fans / N° of poles	4/6	4/6	6/6	6/6	6/6	8/6	8/6
Airflow	14000	14000	21000	21000	21000	28000	28000
Water flow	7240	8500	9790	11480	12820	14580	16340
Pressure drop	20	22	25	30	29	32	36
Available head pressure (3)	211	186	158	155	150	179	165
Pump absorbed power	1,34	1,34	1,50	1,50	1,50	2,35	2,35
Noise pressure level (4)	43,0	43,0	45,0	45,0	45,0	46,0	46,0
Ultra low noise version							
Noise pressure level (4)	41,0	41,0	43,0	43,0	43,0	44,0	44,0
Partial heat recovery (option)							
Thermal heat recovery (5)	13,2	15,9	16,9	19,7	24,5	27,5	32,8
Water flow	2280	2750	2920	3390	4210	4740	5650
Dimensions and weight							
Height	1452	1452	1452	1452	1452	1452	1452
Depth	1950	1950	2300	2300	2300	3200	3200
Width	1191	1191	1191	1191	1191	1191	1191
Weight (without hydronic kit) (6)	530	550	620	635	655	800	850

(1) Data refer to nominal conditions: water temperature 12/7°C; ambient temperature 35°C; refrigerant R407C
 (2) Data refer to nominal conditions: water temperature 40/45°C; ambient temperature 7°C dry bulb, 6°C wet bulb; refrigerant R407C
 (3) With re-circulating pump

(4) Measured in free field conditions, coil side, direction factor Q=2, at 10 mt. from the unit (at nominal conditions)
 (5) Data refer to nominal conditions: recovery water temperature 40/45°C; drilled water temperature 12/7°C; ambient temperature 35°C; refrigerant R407C
 (6) Data refer to empty unit

Available pump group

ARAC / ARAH	0182A / 0202A	0232A / 0252A	0302A	0403A / 0504A
A (1,34 kW)	OPZ.	n.a.	n.a.	OPZ.
B (1,50 kW)	OPZ.	OPZ.	n.a.	OPZ.
C (2,36 kW)	OPZ.	OPZ.	OPZ.	OPZ.

OPZ. = option; n.a. = not available

Available water tanks

ARAC / ARAH	0182A / 0202A	0232A / 0252A	0302A	0403A / 0504A
A (210 l)	OPZ.	n.a.	OPZ.	OPZ.
B (300 l)	n.a.	n.a.	OPZ.	OPZ.
C (500 l)	n.a.	n.a.	n.a.	OPZ.

OPZ. = option; n.a. = not available

CONSTRUCTION OPTIONS

- Modulating condensation control through automatic fan speed regulation
- Ultra low-noise version and modulating control of condensation pressure
- Integrated hydronic system with 1 or 2 thermo-protected circulation pump (1 + 1 stand-by), with safety valve and reservoir tank
- Partial condensation heat recovery and modulating control of condensation pressure (ARAC only)
- Microprocessor control system mP20 II with the management of capacity steps (ARAC only)
- Electronic expansion valve (*)
- Outlet water temperature control
- RS485 serial adapter used to communicate with Uniflair supervision system or to interface with external BMS
- LAN card for local network connection mP20 II (ARAC only)
- Cascade management ready for 2, 3 or 4 units installed on a parallel hydraulic circuit connection

- (only for standard control)
- High and low refrigerant pressure gauges
 - Version for the production of glycol water at low temperatures (down to - 8 °C) ARAC only (*)
 - Compressor power phase correction capacitors
 - Anti-freeze protection on evaporator, reservoir tank and pump group
 - Condensing coils equipped with safety grilles
 - R22 refrigerant (available option on request according to UE 2037/2000 standards)
 - R134a Refrigerant (*)
- (*) on request

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 UPCTm 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)	118	135	165	190	230	260
Absorbed power (1)	42	49	54	73	84	95
Heat pump (ARAH)						
Heating capacity (4)	129	141	179	220	255	285
Absorbed power (4)	38	41	64	79	84	85
Noise pressure level min/max (3)	50 / 57	50 / 57	51 / 58	51 / 58	52 / 59	52 / 59
Condenser air flow (1)	44000	44000	68120	66000	89000	89000
Low noise version						
Cooling capacity (1)	112	128	158	180	219	245
Noise pressure level (3)	47	47	48	48	50	50
Condenser air flow (1)	35000	35000	52000	53350	69240	69240
No. circuits / No. of compressors	2 / 4	2 / 4	2 / 4	2 / 4	2 / 4	2 / 4
No. of fans / No. of poles	2 / 6	2 / 6	3 / 6	3 / 6	4 / 6	4 / 6
No. condensing coil	1 + 1					
Evaporator type / No.	Shell & Tube / 1					
External hydraulic connections (1)	20300	23200	28400	32700	39600	44800
Pressure drop evaporator	40	45	44	39	48	35
Pressure drop evaporator with pump group	80	95	97	78	103	105
Pump group (option)						
Available head pressure (2) (std pump group)	190	230	200	140	140	130
Available head pressure (2)(H.P. pump group)	260	310	290	310	300	300
Water tank (option)						
Water tank capacity	500	500	500	500	650	650
Partial heat recovery (option)						
Exchanger type / No.	Plate / 2					
Thermal heat recovery (5)	46	48	53	75	76	86
Water flow	7912	8256	9116	12900	13072	14792
Total heat recovery (option)						
Exchanger type / No.	Shell & Tube / 2					
Thermal heat recovery (5)	166	178	207	278	318	350
Water flow	28550	30616	35600	47816	54696	60200
Dimensions and weight						
Height	1618	1618	2140	2140	2140	2140
Depth	3807	3807	4542	4542	5242	5242
Width	1193	1193	1344	1344	1344	1344
Weight (without hydronic kit) (6)	1237	1271	1754	2001	2182	2290
Weight (with water tank and 2 pumps) (6)	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; drilled 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

BRAC - BRAT



Air-cooled water chillers with axial fans for outdoor installation

Range:

BRAC - Cooling only series

BRAT - Cooling only series for high external temperatures

Cooling capacity: 298 ÷ 746 kW

Available versions:

BRAC

- basic
- low noise

BRAT

- basic
- low noise
- ultra-low noise

Refrigerant R407C/R134a* Scroll Screw Compressors



STANDARD FEATURES

- Self-supporting frame in galvanised steel with panels finished in epoxy powders (RAL 7037 colour)
- Six hermetic Scroll compressors with internal thermal protection and anti-vibration supports (1206A ÷ 1506A models)
- Two semi-hermetic Screw compressors with internal thermal protection, oil heaters and anti-vibration supports (1802A ÷ 3002A models)
- 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 (E.E.V. optional), discharge shut-off valve, high and low pressure switches and high and low pressure transducer
- Shell & tube evaporator with two independent cooling side circuits and one hydraulic circuit: the heat exchanger is insulated with closed-cell expanded neoprene
- Condensing coil with aluminium fins and internally grooved copper tubes
- Water flow pressure switch
- Sickle-blade axial fans, statically and dynamically balanced with safety protection grilles, protection grade IP54
- Modulating condensation control by fan speed regulation of one line
- Electric panel conforming to EC (Directive 73/23/EC and Directive EMC 89/336/EC, protection grade IP54) with anti-condensation heater (with low external temperature option), maximum internal temperature control, general cut-off switch, magneto-thermal protection for fans and auxiliaries, magneto-thermal protection for Scroll compressors and fuses for screw compressors, cut-off switches
- Sequence phase monitor
- Microprocessor control system UPCTm including:
 - local user terminal mP20 II visible on unit with panel
 - outlet chilled water temperature regulation
 - advanced management of compressors (units equipped with Scroll compressors) or of 8 steps (units equipped with screw compressors) through automatic set-point sensitivity regulation; compressor rotation with FIFO system (run time,

- protection and function)
- monitoring of refrigerant charge (with E.E.V.)
- 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
- integrated LAN card for local network connection of a group of chillers
- Integrated clock card
- Microprocessor control system with:
 - 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

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

TECHNICAL DATA

BRAC/BRAT MODEL

1206A 1306A 1506A 1802A 2002A 2202A 2502A 2802A 3002A

Power supply	V/ph/Hz	400 / 3 + N / 50				400 / 3 + N / 50				
		6 x Scroll				2 x Screw				
Compressors	no x mod	1 x Shell & Tube				1 x Shell & Tube				
Evaporator	no x mod									
Cooling only (BRAC) - basic version (ambient temperature max 45°C*)										
Cooling capacity (1)	KW	298	338	371	410	455	511	557	627	697
Cooling capacity ECO (2)	KW	--	--	--	438	490	545	593	668	746
Absorbed power (1)	KW	118,7	122,5	138,3	157,6	149,4	182,1	219,5	250,4	247,1
Absorbed power ECO (2)	KW	--	--	--	160,5	151,6	184,9	223,1	255,3	251,9
Noise pressure level (3)	dB(A)	61,5	62,5	62,5	63	64	64,5	64,5	67	67,5
No. of fans / No. of poles		4 / 6	6 / 6	6 / 6	6 / 6	8 / 6	8 / 6	8 / 6	8 / 6	10 / 6
Cooling only (BRAC) - Low noise version (ambient temperature max 43°C*)										
Cooling capacity (1)	KW	274	315	350	382	424	470	512	566	633
Cooling capacity ECO (2)	KW	--	--	--	406	455	499	542	600	674
Absorbed power (1)	KW	132,3	135,7	151,1	174,8	160,4	198,2	239,0	294,9	272,9
Absorbed power ECO (2)	KW	--	--	--	179,0	163,5	202,2	243,3	303,3	279,5
Noise pressure level (3)	dB(A)	55	56	56	56	56,5	57	57	57	57,5
No. of fans / No. of poles		4 / 6	6 / 6	6 / 6	6 / 6	8 / 6	8 / 6	8 / 6	8 / 6	10 / 6
Dimensions (BRAC)										
Height	mm	2525	2525	2525	2525	2525	2525	2525	2525	2525
Length	mm	3500	4930	4930	4930	6360	6360	6360	6360	7785
Width	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200
Cooling only for high temperature (BRAT) - Basic version (ambient temperature max 50°C*)										
Cooling capacity (1)	KW	317	351	378	415	455	511	577	638	696
Cooling capacity ECO (2)	KW	--	--	--	445	489	545	614	679	746
Absorbed power (1)	KW	108,3	123,1	136,5	146,5	147,7	182,5	205,9	240,3	241,9
Absorbed power ECO (2)	KW	--	--	--	148,3	149,8	185,4	208,2	244,1	246,4
Noise pressure level (3)	dB(A)	62,5	62,5	62,5	64	64	64,5	66,5	67,5	67,5
No. of fans / No. of poles		6 / 6	6 / 6	6 / 6	8 / 6	8 / 6	8 / 6	10 / 6	10 / 6	10 / 6
Cooling only for high temperature (BRAT) - Low noise version (ambient temperature max 46°C*)										
Cooling capacity (1)	KW	298	328	353	389	434	480	539	584	644
Cooling capacity ECO (2)	KW	--	--	--	415	465	509	572	619	687
Absorbed power (1)	KW	116,1	133,0	151,7	156,5	160,0	201,7	223,4	268,7	268,6
Absorbed power ECO (2)	KW	--	--	--	159,1	162,9	205,8	226,8	274,5	275,1
Noise pressure level (3)	dB(A)	56	56	56	56,5	56,5	57	57,5	57,5	57,5
No. of fans / No. of poles		6 / 6	6 / 6	6 / 6	8 / 6	8 / 6	8 / 6	10 / 6	10 / 6	10 / 6
Cooling only for high temperature (BRAT) - Ultra low noise version (ambient temperature max 43°C*)										
Cooling capacity (1)	KW	284	313	339	371	403	457	504	552	601
Cooling capacity ECO (2)	KW	--	--	--	395	431	484	534	584	638
Absorbed power (1)	KW	123,1	142,0	160,3	166,1	169,6	209,1	234,5	285,1	290,1
Absorbed power ECO (2)	KW	--	--	--	169,3	173,4	213,6	238,4	291,7	297,9
Noise pressure level (3)	dB(A)	52	52	52	52,5	52,5	52,5	53,5	53,5	53,5
No. of fans / No. of poles		6 / 6	6 / 6	6 / 6	8 / 6	8 / 6	8 / 6	10 / 6	10 / 6	10 / 6
Dimensions (BRAT)										
Height	mm	2525	2525	2525	2525	2525	2525	2525	2525	2525
Length	mm	4930	4930	4930	6360	6360	6360	7785	7785	7785
Width	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200

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

(2) Unit equipped with compressors with economiser, data refer to nominal conditions: water temperature 12/7°C; external temperature 35°C; refrigerant R407C

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

(*) For units with economiser max ambient temperature decreases of 2°C

CONSTRUCTION OPTIONS

- Economiser option: available only for models equipped with screw compressors increases cooling capacity and COP
- Low external temperature option: unit works down to - 20°C
- Low noise version: with sound-proofing of Scroll compressors or sound-proofed casing and vibration absorbers for screw compressors and low fan speed
- Ultra-low noise version (BRAT): with sound-proofing of Scroll compressors or sound-proofed casing and vibration absorbers for screw compressors and ultra-low fan speed (control on each row)
- Production of glycol water mixture at low temperatures option, (down to - 10 °C)
- Electronic expansion valve (E.E.V.)

- Partial / total condensation heat recovery
- Integrated hydronic system with 1 or 2 pumps
- High and low pressure gauges
- Anti-freeze protection on evaporator, and pump group
- Evaporator / pumps protection grilles
- Condensing coils equipped with safety grilles and filter
- Suction shut-off valves on compressor
- RS485 serial adaptor used to communicate with Uniflair supervisory system or to interface with external BMS
- LON FTT10 serial adaptor used to communicate with external BMS managed with LON protocol
- Condensing coil cataphoresis treatment (*)
- R134a refrigerant (*)

(*) on request

BRAH



Air to water heat pumps with axial fans for outdoor installations

Range:

Cooling capacity: 298 ÷ 697 kW

Heating capacity: 340 ÷ 750 kW

Available versions:

- basic
- ultra-low noise

Refrigerant R407C

Scroll / Screw Compressors



STANDARD FEATURES

- Self-supporting frame in galvanised steel with panels finished in epoxy powders (RAL7037 colour)
- Six hermetic Scroll compressors with internal thermal protection, oil heaters and anti-vibration supports (1206A ÷ 1506A models)
- Two semi-hermetic double Screw compressors with internal thermal protection, oil heaters and anti-vibration supports (1802A ÷ 3002A models)
- 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, discharge shut-off valve, high and low pressure switches, pressure transducers and pressure gauges
- Exchange of the cycle on the refrigerant side with 4-way reversing valve
- Shell & tube evaporator with two independent cooling side circuits and one hydraulic circuit: the heat exchanger is insulated with closed-cell expanded neoprene
- Heat exchanger coils with aluminium fins and internally grooved copper tubes
- Water flow pressure switch
- Sickle-blade axial fans, statically and dynamically balanced with safety protection grilles, protection grade IP54
- Modulating condensation control by fan speed regulation
- Electric panel conforming to EC (Directive 73/23/EC and Directive EMC 89/336/EC, protection grade IP54) with anti-condensation heater, maximum internal temperature control, general cut-off switch, magneto-thermal protection for fans and auxiliaries, magneto-thermal protection for Scroll compressors and fuses for screw compressors, cut-off switches
- Sequence phase monitor
- Microprocessor control system UPCLm including:
 - local user terminal mP20 II visible on unit with panel
 - outdoor chilled / heat water temperature regulation
 - advanced management of compressors (units equipped with Scroll compressors) or of 8 steps (units equipped with screw compressors) 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 defrost function to minimise cycle inversions
- advanced anti-freeze protection on evaporator
- integrated LAN card for local network connection of a group of chillers (up to 10 units)
- integrated clock card
- Moreover microprocessor control system permits:
 - 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

TECHNICAL DATA

BRAH MODEL

1206A 1306A 1506A 1802A 2002A 2202A 2502A 2802A 3002A

Power supply	V/ph/Hz	400 / 3 + N / 50	400 / 3 + N / 50
Compressors / circuits	n° x mod	6 x Scroll / 2	2 x Screw / 2
Evaporator	n° x mod	1 x Shell & Tube	1 x Shell & Tube
N° of fans / N° of poles		4 / 6 6 / 6 6 / 6	6 / 6 8 / 6 8 / 6 8 / 6 8 / 6 10 / 6

Basic version

Cooling capacity (1)	kW	298	338	371	410	455	511	557	627	697
Absorbed power (1)	kW	118	122	138	157	149	182	219	250	247
Heating capacity (2)	kW	340	405	439	462	492	567	632	710	750
Absorbed power (2)	kW	116	133	143	153	156	177	205	234	237
Noise pressure level (3)	dB(A)	61,5	61,5	63	63	64	65	66	66	67

Ultra low noise version

Cooling capacity (1)	kW	274	315	350	382	424	470	512	566	633
Absorbed power (1)	kW	132	136	151	175	160	198	239	295	273
Heating capacity (2)	kW	317	380	411	430	462	526	584	656	697
Absorbed power (2)	kW	117	131	141	150	154	174	201	230	233
Noise pressure level (3)	dB(A)	55	55	56	57	57	57	57	57	57,5

Height	mm	2527	2527	2527	2527	2527	2527	2527	2527	2527
Length	mm	3500	4930	4930	4930	6360	6360	6360	6360	7785
Width	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200

(1) Data refer to nominal conditions: water temperature 12/7°C; ambient temperature 35°C; refrigerant R407C
 (2) Data refer to nominal conditions: water temperature 40/45°C; ambient temperature 7°C db; 6°C wb.; refrigerant R407C

(3) Measured in free field at 10 m (Q=2, coil side) from the unit running in nominal conditions

CONSTRUCTION OPTIONS

- Ultra-low noise version
- Partial heat recovery
- Integrated hydronic system with 1 or 2 pumps (1 + 1)
- Anti-freeze protection on evaporator, and pump group
- Evaporator / pumps protection grilles
- Heat exchange coils equipped with safety grilles and filter
- Suction shut-off valves on compressors
- RS485 serial adaptor used to communicate with Uniflair supervisory system or to interface with external BMS
- LON FTT10 serial adaptor used to communicate with external BMS managed with LON protocol
- Air-side heat exchangers cataphoresis treatment (*)

(*) on request

OPTIONS

Units can be supplied with the following

construction options:

- Remote user terminal mP2011 (up to 200 metres) for:
 - entering of commands
 - display unit status and alarms.
- Spring anti-vibration kit

BRAC



Air-cooled water chillers with axial fans for outdoor installation

Range:

Cooling capacity: 820 ÷ 1492 KW

Available versions:

- basic
- low noise

**Refrigerant R407C/R134a*
Screw Compressors**



STANDARD FEATURES

- Self-supporting frame in galvanized steel with panels finished in epoxy powders (RAL7037 colour)
- Four semi-hermetic double Screw compressors with internal thermal protection, oil heaters and anti-vibration supports; moreover the compressors can be equipped with the Economiser (optional)
- Four refrigerant circuits conforming to EC norms (PED 97/23/CE) in copper tubes mainly including: filter dryer, flow indicator, thermostatic valves with external equalisation (EEV optional), discharge shut-off valve, high and low pressure switches and high and low pressure transducers
- Two shell & tube evaporator with two independent cooling side circuits and one hydraulic circuit: the heat exchanger is insulated with closed-cell expanded neoprene
- Condensing coil with aluminium fins and internally grooved copper tubes
- Water flow pressure switch
- Sickle-blade axial fans, statically and dynamically balanced with safety protection grilles, protection grade IP54
- Modulating condensation control by fan speed regulation
- Double electric panel conforming to EC (Directive 73/23/EC and Directive EMC 89/336/EC, protection grade IP54) with anti-condensation heater (with low external temperature option), maximum internal temperature control, general cut-off switch, magneto-thermal protection for fans and auxiliaries, fuses for compressors and cut-off switches
- Sequence phase monitor
- Microprocessor control system UPCTm including:
 - local user terminal MP20 II visible on unit with panel
 - outlet chilled water temperature regulation
 - advanced 16 steps of the compressors management through automatic set-point sensitivity regulation;
 - compressor rotation with FIFO system (run time, protection and function)
 - monitoring of refrigerant charge (only with E.V.)
- 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
- integrated LAN card for local network connection of a group of chillers (up to 5 units)
- Integrated clock card
- Moreover microprocessor control system permits:
 - 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

TECHNICAL DATA

² BRAC MODEL	3604A	4004A	4404A	5004A	5604A	6004A	
Power supply	V/ph/Hz		400 / 3 + N / 50				
Compressors / circuits	n° x mod		4 x Screw / 2				
Evaporator	n° x mod		2 x Shell & Tube				
N° of fans / N° of poles		12 / 6	16 / 6	16 / 6	16 / 6	20 / 6	
Basic version							
Cooling capacity (1)	kW	820	910	1022	1114	1254	1394
Cooling capacity ECO (2)	kW	876	980	1090	1186	1336	1492
Absorbed power (1)	kW	315	299	364	439	501	494
Absorbed power ECO (2)	kW	321	303	370	446	511	504
Noise pressure level (3)	dB(A)	66,0	67,0	67,5	67,5	70,0	70,5
Low noise version							
Cooling capacity (1)	kW	764	848	940	1024	1132	1266
Cooling capacity ECO (2)	kW	812	910	998	1084	1200	1348
Absorbed power (1)	kW	350	321	396	478	590	546
Absorbed power ECO (2)	kW	358	327	404	487	607	559
Noise pressure level (3)	dB(A)	59,0	59,5	60,0	60,0	60,0	60,5
Dimensions							
Height	mm	2525	2525	2525	2525	2525	2525
Length	mm	9860	12720	12720	12720	12720	15570
Width	mm	2200	2200	2200	2200	2200	2200

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

(2) Unit equipped with economiser; data refer to nominal conditions: water temperature 12/7°C; ambient temperature 35°C; refrigerant R407C

(3) Measured in free field at 10 m (Q=2, coil side) from the unit running in nominal conditions

CONSTRUCTION OPTIONS

- Low noise version
- Electronic expansion valve (E.E.V.)
- Economiser
- Partial heat recovery
- Production of glycol water mixture at low temperatures (down to - 10°C)
- High and low pressure gauges
- Integrated hydronic system with 1 or 2 pumps (1 + 1)
- Anti-freeze protection on evaporator, and pump group
- Evaporator / pumps protection grilles
- Condensing coils equipped with safety grilles and filter
- Suction shut-off valves on compressors
- RS485 serial adaptor used to communicate with Uniflair supervisory system or to interface with external BMS
- LON FTT10 serial adaptor used to communicate with external BMS managed with LON protocol
- Condensing coil cataphoresis treatment (*)

(*) on request

OPTIONS

Units can be supplied with the following construction options:

- Remote user terminal mp201l (up to 200 meters) for:
 - entering of commands
 - display unit status and alarms.
- Spring anti-vibration kit

ARAF - ARAM



Air-cooled water chillers with free-cooling system and ultra-low noise free-cooling system

Range:

ARAF: Cooling capacity: 42 ÷ 74 KW

ARAM: Cooling capacity: 36 ÷ 76 KW

Available versions:

- free-cooling
- free-cooling ultra low noise

Refrigerant R407C

Scroll Compressors



STANDARD FEATURES

- Exclusive free-cooling system completely managed by micro processor control mP20 II
- Ultra-low noise free-cooling version (ARAM)
- Self-supporting frame in galvanised steel with panels finished in epoxy powders (colour RAL9001) in compliance with ASTM B117: protection grade IP44
- Hermetic scroll compressors with internal thermal protection and anti-vibration supports
- Compressor crankcase heater
- Stainless steel brazed plate heat exchangers insulated with closed-cell expanded polyurethane
- Heat exchanger coil (free-cooling) with aluminium fins and mechanically-expanded copper tubes
- Sickle-blade axial fans, statically and dynamically balanced with safety protection grilles: protection grade IP44
- Modulating condensation control through automatic fan speed regulation
- Two independent refrigerant circuits conforming to EC Directives (PED 97/23/EC directive) including: filter dryer, flow indicator, thermostatic valves with external equalisation and high & low pressure switches
- Electric panel conforming to EC Directive 73/23/EC and Directive EMC 89/336/EC with auxiliary circuit, general cut-off switch, magneto -thermal protection cut-off switches
- Sequence phase control
- mP20 II microprocessor controlling system including:
 - local user control and monitoring terminal with large LCD display and LED signals for unit status display
 - chilled water temperature regulation
 - anti-freeze protection
 - compressor timing and protection
 - compressor function display
 - alarm code signalling and free-contact for general alarm control transmission

- refrigerant high and low pressure sensor
- remote ON-OFF switch

OPTIONS

Units can be supplied with the following construction options:

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

TECHNICAL DATA

MODELLO ARAAF/ARAM	0152A	0182A	0202A	0232A	0252A	0302A
Power supply	V/ph/Hz 400 / 3 + N / 50					
Free-cooling (ARAAF)						
Cooling capacity (1)	-	42,7	50,3	56,9	66,7	74,6
Cooling capacity free-cooling (4)	-	27,3	28,4	35,2	36,7	37,7
Absorbed power (1)	-	14,53	17,02	20,34	22,54	26,96
N _o of circuits / N _o of compressors	2 / 2					
N _o of fans / N _o of poles	-	4 / 4	4 / 4	6 / 4	6 / 4	6 / 4
Airflow	-	16000	16000	21000	21000	21000
Water flow	-	7360	8680	9790	11480	12820
Available head pressure (2)	-	209	182	167	155	150
Noise pressure level (3)	-	51	51	52	52	52
Dimensions and weight						
Height	-	1452	1452	1452	1452	1452
Depth	-	1950	1950	2300	2300	2300
Width	-	1191	1191	1191	1191	1191
Weight (only with free-cooling pump) (5)	-	620	640	730	745	765
Free-cooling ultra low noise (ARAM)						
Cooling capacity (1)	36,1	43,3	51,1	56	65,5	76,6
Cooling capacity free-cooling (4)	23,6	30,6	32,1	32,9	34,2	43,3
Absorbed power (1)	12,27	14,17				
N _o of circuits / N _o of compressors	2 / 2					
N _o of fans / N _o of poles	4 / 6	6 / 6	6 / 6	6 / 6	6 / 6	8 / 6
Airflow	13000	18400	18400	18400	18400	23800
Water flow	7240	7450	8780	9630	11270	13180
Available head pressure (2)	206	206	179	169	157	146
Noise pressure level (3)	43,0	44,0	44,0	44,0	44,0	46,0
Dimensions and weight						
Height	1452	1452	1452	1452	1452	1452
Depth	1950	2300	2300	2300	2300	3200
Width	1191	1191	1191	1191	1191	1191
Weight (only with free-cooling pump) (5)	610	715	730	745	760	920

(1) Data refer to nominal conditions: water temperature 12/7°C; ambient temperature 35°C; refrigerant R407C; glycol 20%
 (2) With re-circulating pump
 (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: inlet water temperature 15°C; ambient temperature 5°C; glycol 20%
 (5) Data refer to empty unit

Available pump group

ARAF	0182A / 0202A	0232A / 0252A / 0302A
A (1,34 kW)	OPZ.	n.a.
B (1,50 kW)	OPZ.	OPZ.
C (2,36 kW)	OPZ.	OPZ.
ARAM	0152A / 0182A / 0202A	0232A / 0252A / 0302A
A (1,34 kW)	OPZ.	n.a.
B (1,50 kW)	OPZ.	OPZ.
C (2,36 kW)	OPZ.	OPZ.

ARAF	0182A / 0202A	0232A / 0252A / 0302A
A (210 l)	OPZ.	OPZ.
B (300 l)	n.a.	OPZ.
C (500 l)	n.a.	OPZ.
ARAM	0152A / 0182A / 0202A	0232A / 0252A / 0302A
A (210 l)	OPZ.	OPZ.
B (300 l)	OPZ. (n.a. for 0152A)	OPZ.
C (500 l)	n.a.	n.d. (opz. only 0302A)

opz. = option; n.a. = not available

opz. = option; n.a. = not available

CONSTRUCTION OPTIONS

- Integrated hydronic system with 1 or 2 thermo protected circulation pump (1 + 1 stand-by), with safety valve and reservoir tank
- Partial condensation heat recovery
- Discharge water temperature control
- RS485 serial adapter used to communicate with Uniflair supervision system or to interface with external BMS
- LAN card for local network connection mp20 II control
- High and low refrigerant pressure gauges
- Compressor power phase correction capacitors
- Anti-freeze protection on evaporator

- Free-cooling coil protection filters
- Productio of glycol water at low temperature (down to - 8°C) (*)
- R22 Refrigerant (available on request according to UE 2037/2000 standards)
- R134a Refrigerant (*)

(*) on request

ARAF



**Air-cooled water chillers with axial fans
free-cooling system**

Range:

Cooling capacity: 115 ÷ 253 kW

Available versions:

- standard with modulating condensation control
- low noise

**Refrigerant R407C
Scroll Compressors**

STANDARD FEATURES

- Exclusive Free-Cooling Uniflair system completely managed by the microprocessor control
- Self-supporting frame in galvanised steel (colour RAL9001) with panels varnished with epoxy powders
- Modulating condensation control with automatic regulation of fans speed
- Four hermetic Scroll compressors with incorporated thermal protection, with anti-vibration supports and crankcase heaters
- Shell & tube evaporator insulated with closed-cell expanded neoprene
- Condensing and free-cooling coils with aluminium fins and mechanically expanded copper tubes
- Condensing coil protection filters and grilles
- Axial fans, statically and dynamically balanced, with sickle-blades and with safety protection grilles
- Two independent refrigerant circuits conforming to EC norms (PED 97/23/EC directive) in copper tubing including: filter dryer, flow indicator, thermostatic valves with external equalization, high & low pressure switches and high pressure transducers
- Free-cooling pump regulated by microprocessor control
- Electric panel conforming to EC norms (73/23/EC directive and EMC 89/336/EC directive) complete with anti-condensation heater, auxiliary circuit, general cut-off switch, magneto-thermal protection cut-off switches for compressors, fans and auxiliaries
- Sequence phase control
- Water flow differential pressure switch
- 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 FFO 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
- integrated LAN card for local network connection of a group of chillers (up to 10 units with 1or 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

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

ARAF MODEL

0574A

0644A

0744A

0964A

1084A

1204A

Power supply V/ph/Hz

400 / 3 + N / 50

Basic version

Cooling capacity (1)	KW	115	131	161	185	224	253
Absorbed power (1)	KW	43	50	56	75	86	99
Cooling capacity free-cooling (4)	KW	82	85	146	152	196	202
Absorbed power free-cooling (4)	KW	5,7	6,3	8,4	7,9	9,9	10
Condenser air flow (4)	m ³ /h	39500	39500	61600	61600	79300	79300
Noise pressure level (3)	dB(A)	57	57	58	58	59	59

Low noise version

Cooling capacity (1)	KW	108	122	152	172	210	233
Absorbed power (1)	KW	46	55	59	82	93	109
Cooling capacity free-cooling (4)	KW	68	70	123	127	163	166
Absorbed power free-cooling (4)	KW	4,3	5,1	6,5	6	7,4	7,6
Condenser air flow (1)	m ³ /h	29800	29800	46900	46900	54500	54500
Noise pressure level (3)	dB(A)	48	48	49	49	50	50
No. circuits / No. of compressors		2 / 4	2 / 4	2 / 4	2 / 4	2 / 4	2 / 4
No. of fans / No. of poles		2 / 6	2 / 6	3 / 6	3 / 6	4 / 6	4 / 6
No. condensing coil / No. free-cooling coil				1 + 1 / 1 + 1			
Evaporator type / No.				Shell & Tube / 1			
Water flow with std. pump (1)	l/h	21700	24700	30400	35000	42300	47700
Pressure drop evaporator (1)	kPa	52	58	57	50	62	47
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 / No.					Plate / 2		
Thermal heat recovery (5)	KW	46	48	53	75	76	86
Water flow	l/h	7912	8256	9116	12900	13072	14792
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 (only with free-cooling pump) (6)	Kg	1417	1451	2164	2411	2682	2790
Weight (water tank, 2 + f.c. pump) (6)	Kg	1699	1734	2468	2731	3037	3148

- (1) Data refer to nominal conditions: water temperature 12/7°C; ambient temperature 35°C; glycol 20%; 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: inlet water temperature 15°C;

- ambient temperature 5°C; glycol 20%
 (5) Data refer to nominal conditions: recovery water temperature 40/45°C; chilled water temperature 12/7°C; ambient temperature 35°C; glycol 20%; refrigerant R407C
 (6) Data refer to empty unit

CONSTRUCTION OPTIONS

- Low noise version with modulating condensation control through special algorithm and sound-proofing of compressor housing
- Partial 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)
- High and low pressure gauges
- Power phase correction capacitors (compressors + fans + pump group)

- 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

BRAF - BRAM



Air-cooled water chillers with free-cooling system and ultra-low noise free-cooling system

Range:

BRAF - free-cooling series

Cooling capacity: 298 ÷ 725 KW

BRAM - ultra-low noise free-cooling series

Cooling capacity: 270 ÷ 610 KW

Available versions:

BRAF

- basic

- low noise

BRAM

- ultra low noise



STANDARD FEATURES

- Exclusive free-cooling Uniflair system completely managed by the microprocessor control
- Self-supporting frame in galvanised steel with panels finished in epoxy powders
- Six hermetic Scroll compressors with internal thermal protection and anti-vibration supports (1206A ÷ 1506A models)
- Two semi-hermetic Screw compressors with internal thermal protection, oil heater and anti-vibration supports (1802A ÷ 3002A models)
- 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 (E.E.V. optional), discharge shut-off valve, high and low pressure switches and high and low pressure transducer
- Oil heater on compressors
- Shell & tube evaporator with two independent cooling side circuits and one hydraulic circuit: the heat exchanger is insulated with closed-cell expanded neoprene
- Free-cooling coil with aluminium fins and mechanically expanded copper tube
- Condensing coil with aluminium fins and internally grooved copper tubes
- Condensing coil protection grilles and filters
- Water flow pressure switch
- Sickle-blade axial fans, statically and dynamically balanced with safety protection grilles, protection grade IP54
- Modulating condensation control
- Electric panel conforming to EC (Directive 73/23/EC and Directive EMC 89/336/EC, protection grade IP54) with anti-condensation heater, maximum internal temperature control, general cut-off switch, magneto-thermal protection for fans and auxiliaries, magneto-thermal protection for Scroll compressors and fuses for screw compressors, cut-off switches
- Sequence phase monitor
- Free-cooling pump regulated by microprocessor control
- Microprocessor control system UPCLm including:
 - local user terminal mp20 II visible on unit with panel

- outlet chilled water temperature regulation
- advanced management of compressors run (units equipped with Scroll compressors) or of 8 steps (units equipped with screw compressors) through automatic set-point sensitivity regulation; compressor rotation with FIFO system (run time, protection and function)
- monitoring of refrigerant charge (with E.E.V.)
- 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
- integrated LAN card for local network connection of a group of chillers
- integrated clock card
- Microprocessor control system with:
 - 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

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

TECHNICAL DATA

MODELLI BRAF - BRAM

1206A 1306A 1506A 1802A 2002A 2202A 2502A 2802A 3002A

Power supply	V/ph/Hz	400 / 3 + N / 50	400 / 3 + N / 50
Compressors	no x mod	6 x Scroll	2 x Screw
Evaporator	no x mod	1 x Shell & Tube	1 x Shell & Tube
Free-cooling (BRAAF) - basic version (ambient temperature max 44°C*)			
Cooling capacity (1)	kW	290	329
Cooling capacity ECO (2)	kW	--	--
Absorbed power ECO (1)	kW	122,4	124,1
Absorbed power ECO (2)	kW	--	--
Cooling capacity in F.C. (4)	kW	199	286
Absorbed power in F.C. (4)	kW	14,0	17,3
Noise pressure level (3)	dB(A)	61,5	62,5
No. of fans / No. of poles		4/6	6/6
Free-cooling (BRAAF) - Low noise version (ambient temperature max 41°C*)			
Cooling capacity (1)	kW	261	303
Cooling capacity ECO (2)	kW	--	--
Absorbed power ECO (1)	kW	132,3	135,7
Absorbed power ECO (2)	kW	--	--
Cooling capacity in F.C. (4)	kW	162,1	235,8
Absorbed power in F.C. (4)	kW	11,9	14,1
Noise pressure level (3)	dB(A)	55	56
No. of fans / No. of poles		4/6	6/6

Dimensions (BRAAF)	mm	2525	2525	2525	2525	2525	2525	2525	2525
Height	mm	2525	2525	2525	2525	2525	2525	2525	2525
Length	mm	3500	4930	4930	4930	6360	6360	6360	7785
Width	mm	2200	2200	2200	2200	2200	2200	2200	2200
Free-cooling supersenziato (BRAM) (ambient temperature max 42°C*)									
Cooling capacity (1)	kW	271	300	326	357	389	436	481	526
Cooling capacity ECO (2)	kW	--	--	--	383	417	462	514	558
Absorbed power (1)	kW	126,3	146,4	166,5	171,0	175,2	216,5	240,6	296,1
Absorbed power ECO (2)	kW	--	--	--	175,3	179,9	222,1	246,0	304,7
Cooling capacity in F.C. (4)	kW	204,8	207,1	209	275	275,4	278,8	343,9	347,2
Absorbed power in F.C. (4)	kW	12,6	12,6	12,6	17,8	17,8	17,8	19,4	19,4
Noise pressure level (3)	dB(A)	52	52	52	52,5	52,5	52,5	53,5	53,5
No. of fans / No. of poles		6/6	6/6	6/6	8/6	8/6	8/6	10/6	10/6
Dimensions (BRAM)									
Height	mm	2525	2525	2525	2525	2525	2525	2525	2525
Length	mm	4930	4930	6360	6360	6360	7785	7785	7785
Width	mm	2200	2200	2200	2200	2200	2200	2200	2200

- 1) Data refer to nominal conditions: water temperature 12/7°C; external temperature 35°C; glycol 20%; refrigerant R407C
- 2) Unit equipped with compressors with economiser. data refer to nominal conditions: water temperature 12/7°C; external temperature 35°C; refrigerant R407C
- 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: inlet water temperature 15°C; external temperature 5°C; glycol 20%
- (*) For units with economiser max ambient temperature decreases of 2°C

CONSTRUCTION OPTIONS

- Economiser option: available only for models equipped with screw compressors: increases cooling capacity and COP
- Low noise version: with sound-proofing of Scroll compressors or sound-proofed casing and vibration absorbers for screw compressors and low fan speed
- Ultra low noise series (BRAM): with sound-proofing of Scroll compressors or sound-proofed casing and vibration absorbers for screw compressors and ultra low fan speed
- Electronic expansion valve (E.E.V.)
- Partial condensation heat recovery
- Integrated hydraulic system with 1 or 2 pumps

- High and low pressure gauges
- Evaporator / pumps protection grilles
- Suction shut-off valves on compressor
- RS485 serial adaptor used to communicate with Uniflair supervisory system or to interface with external BMS
- LON FT10 serial adaptor used to communicate with external BMS managed with LON protocol
- Condensing and free-cooling coil cataphoresis treatment (*)
- Refrigerante R134a (*)

(*) on request

2 BRAF



Air-cooled water chillers with free-cooling system

Range:

Cooling capacity: 802 ÷ 1448 kW

Available versions:

- basic
- low noise

Refrigerant R407C/R134a*
Screw Compressors



STANDARD FEATURES

- Exclusive free-cooling Uniflair system completely managed by the microprocessor control
- Self-supporting frame in galvanised steel with panels finished in epoxy powders (RAL7037 colour)
- Four semi-hermetic double Screw compressors with internal thermal protection, oil heaters and anti-vibration supports; moreover the compressors can be equipped with the Economiser (optional)
- Four refrigerant circuits conforming to EC norms (PED 97/23/CE) in copper tubes mainly including: filter dryer, flow indicator, thermostatic valves with external equalisation (E.E.V. optional), discharge shut-off valve, high and low pressure switches and high and low pressure transducers
- Two shell & tube evaporator with two independent cooling side circuits and one hydraulic circuit: the heat exchanger is insulated with closed-cell expanded neoprene
- Condensing coil with aluminium fins and internally grooved copper tubes
- Free-cooling coil with aluminium fins and mechanically expanded copper tube
- Water flow pressure switch
- Sickle-blade axial fans, statically and dynamically balanced with safety protection grilles, protection grade IP54
- Modulating condensation control by fan speed regulation
- Double electric panel conforming to EC (Directive 73/23/EC and Directive EMC 89/336/EC, protection grade IP54) with anti-condensation heater, maximum internal temperature control, general cut-off switch, magneto-thermal protection for fans and auxiliaries, fuses for compressors and cut-off switches
- Sequence phase monitor
- Free-cooling pump regulated by microprocessor control
- Microprocessor control system UPC1m including:
 - local user terminal MP20 II visible on unit with panel
 - outlet chilled water temperature regulation
 - advanced 16 steps of the compressors management through automatic set-point sensitivity regulation;
 - compressor rotation with FFO system (run time, protection and function)
 - monitoring of refrigerant charge (only with E.E.V.)
 - 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
 - integrated LAN card for local network connection of a group of chillers (up to 5 units)
 - integrated clock card
 - Moreover microprocessor control system permits:
 - 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

TECHNICAL DATA

2BRAE MODEL		3604A	4004A	4404A	5004A	5604A	6004A
Power supply	V/ph/Hz			400 / 3 + N / 50			
Compressors / circuits	n° x mod			4 x Screw / 2			
Evaporator	n° x mod			2 x Shell & Tube			
N° of fans / N° of poles		12 / 6	16 / 6	16 / 6	16 / 6	16 / 6	20 / 6
Basic version							
Cooling capacity (1)	KW	802	884	982	1098	1210	1354
Cooling capacity ECO (2)	KW	854	950	1044	1168	1286	1448
Absorbed power (1)	KW	323	303	368	446	533	504
Absorbed power ECO (2)	KW	329	308	373	454	546	515
Cooling capacity free-cooling (3)	KW	590	762	776	790	800	986
Absorbed power free-cooling (3)	KW	42	48	48	48	48	55
Noise pressure level (3)	dB(A)	66,0	67,0	67,5	67,5	70,0	70,5
Low noise version							
Cooling capacity (1)	KW	730	814	904	990	1086	1214
Cooling capacity ECO (2)	KW	778	876	964	1054	1152	1298
Absorbed power (1)	KW	350	321	396	478	588	546
Absorbed power ECO (2)	KW	360	329	402	491	615	557
Cooling capacity free-cooling (3)	KW	483	629	638	645	652	805
Absorbed power free-cooling (3)	KW	35	40	40	40	40	44
Noise pressure level (3)	dB(A)	59,0	59,5	60,0	60,0	60,0	60,5
Dimensions							
Height	mm	2525	2525	2525	2525	2525	2525
Length	mm	9860	12720	12720	12720	12720	15570
Width	mm	2200	2200	2200	2200	2200	2200

(1) Data refer to nominal conditions: water temperature 12/7°C; ambient temperature 35°C; refrigerant R407C; glycol: 20%

(2) Unit equipped with economiser. Data refer to nominal conditions: water temperature 12/7°C; ambient temperature 35°C; refrigerant R407C; glycol: 20%

(3) Data refer to nominal conditions: inlet water temperature 15°C; ambient temperature 5°C; glycol: 20%

(4) Measured in free field at 10 m (Q=2, coil side) from the unit running in nominal conditions

CONSTRUCTION OPTIONS

- Low noise version
- Electronic expansion valve (E.E.V.)
- Economiser
- Partial heat recovery
- High and low pressure gauges
- Integrated hydronic system with 1 or 2 pumps (1 + 1)
- Evaporator / pumps protection grilles
- Condensing coils equipped with safety grilles and filter
- Suction shut-off valves on compressors
- RS485 serial adaptor used to communicate with Uniflair supervisory system or to interface with external BMS
- LON FTT10 serial adaptor used to communicate with external BMS managed with LON protocol
- Condensing and free-cooling coil cataphoresis treatment (*)
- R134a Refrigerant (*)

(*) on request

OPTIONS

Units can be supplied with the following

construction options:

- Remote user terminal mP2011 (up to 200 metres) for:
 - entering of commands
 - display unit status and alarms
- Spring anti-vibration kit

CRCC - CRCH

**Air-cooled water chillers and heat pumps
with centrifugal fans for indoor installation**

Range:

Cooling capacity: 7 ÷ 35 kW

Heating capacity: 8 ÷ 41 kW

Available versions:

- Cooling only
- Heat pump

**Refrigerant R407C
Scroll Compressor**



STANDARD FEATURES

- Reduced footprint and easy front accessibility to all components
- Intake and outtake of duct air
- Self-supporting frame in galvanised steel with panels finished in epoxy powders in compliance with ASTM B117
- Hermetic scroll compressors with internal thermal protection and anti-vibration supports
- Stainless steel brazed plate heat exchangers insulated with closed-cell expanded polyurethane
- Heat exchangers with aluminium fins and mechanically-expanded copper tubes
- Centrifugal fans, statically and dynamically balanced with safety protection grilles
- Refrigerant circuit in compliance with EC norms (PED97/23/EC directive) including filter dryer, water flow indicator, thermostatic valves with external equalisation and high and low pressure switches, cycle inverter (CRCH)
- Electric panel conforming to EC Directive 73/23/EC and Directive EMC 89/336/EC with auxiliary transformer 24V circuit, general cut-off switch, magneto-thermal protection cut-off switches
- Differential pressure switch
- Microprocessor controlling system including:
 - local user control and monitoring terminal with LCD display and LED signals for all working parameters
 - chilled water temperature regulation (also hot water for CRCH)
 - anti-freeze protection
 - compressor timing and protection
 - alarm code signalling
 - remote ON-OFF switch

TECHNICAL DATA

CRCC/CRCH MODEL

	0031A 0031B 0041A 0041B 0061A 0061A 0081A 0091A 0121A 0161A 0191A			
Power supply	400/3/50 230/1/50 400/3/50 230/1/50			
Cooling only (CRCC)	400 / 3 / 50			
Cooling capacity (1)	kW	kW	kW	kW
Absorbed power (1)	6,9	6,9	8,0	8,0
Heat pump (CRCH)	kW	kW	kW	kW
Heating capacity (2)	2,54	2,54	3,09	3,08
Absorbed power (2)	2,57	2,49	3,12	3,08
Heat recovery power (3)	2,2	2,2	2,7	2,7
Water flow	I/h	I/h	I/h	I/h
Pressure drop	376	376	458	458
Airflow (4)	m ³ /h	m ³ /h	m ³ /h	m ³ /h
Fan absorbed power	7,0	7,0	10,4	10,4
No. of circuits / No. of compressors	2490	2490	3070	3070
Water flow	0,3	0,3	0,37	0,37
Pressure drop evaporator	I/h	I/h	I/h	I/h
Available head pressure (5)	1190	1190	1370	1370
Noise pressure level (6)	22	22	28	28
Water tank capacity	47	47	39	39
Hydraulic connections chilled water	39,0	39,0	41,0	41,0
Water connections recuperator	55	55	55	55
Dimensions and weight	1/2" G.f. 1 1/4" G.f. 1" G.f. 1" G.f.			
Height	mm	mm	mm	mm
Width	950	950	950	950
Depth	1000	1000	1000	1000
Weight (basic version) (7)	mm	mm	mm	mm
	655	655	655	655
	166	166	170	170
	166	166	170	170
	260	320	333	400
	450	503		

- (1) Data refer to nominal conditions: water temperature 12/7 °C; ambient temperature 35 °C; refrigerant R407C
 (2) Data refer to nominal conditions: water temperature 40/45°C; ambient temperature 7°C dry bulb; 6°C wet bulb; refrigerant R407C
 (3) Data refer to nominal conditions: chilled water temperature 7/12°C; recovery water temperature 40/45°C; ambient temperature 35°C; refrigerant R407C

- (4) With 100 Pa head pressure
 (5) Available with standard pump group
 (6) Measured in free-field conditions at 10 mt. from the front of the unit (at nominal conditions)
 (7) Data refer to empty unit

CONSTRUCTION OPTIONS

- Integrated hydronic system with thermo protected circulation pump, with safety valve and reservoir tank
- Modulating condensation control through automatic fan speed regulation
- Flange for intake/ discharge of condensed air
- Safety protection filters on coil
- Partial condensation heat recovery (CRCC only)
- R22 refrigerant (available option on request according to UE 2037/2000 standards)
- RS485 serial adapter used to communicate with Uniflair supervision system or to interface with external BMS
- Cascade management of 2, 3 and 4 units installed on the hydraulic circuit
- Version for the production of glycol water mixture at low temperatures (down to - 8 °C) only CRCC (*)
- Evaporator and reservoir anti-freeze protection

(*) on request

OPTIONS

- Remote user terminal (up to 150 metres) for:
 - display / direct entering of commands
 - display unit status and alarms
- Rubber anti-vibration kit
- Spring anti-vibration kit

ARCC - ARCH



**Air-cooled water chillers and heat pumps
with centrifugal fans for indoor installations**

Range:

Cooling capacity: 43 ÷ 99 kW

Available versions:

- cooling only
- low noise

**Refrigerant R407C
Scroll compressors**

STANDARD FEATURES

- Self-supporting frame in galvanised steel with panels finished in epoxy powders (colour RAL9001) in compliance with ASTM B117
- Centrifugal fans coupled with an electric engine for speed regulation. Motor class H insulation and IP54 protection
- Standard fan group assure a 100 Pa available static pressure
- If selected the unit can have a vertical air out-put upwards, or horizontal on the same intake side
- Hermetic scroll compressor with incorporated thermal protection and anti-vibration supports
- Stainless steel brazed plate two-circuit evaporators that enable increased COP ratings at partial load
- Condensing coils with aluminium fins and mechanically-expanded copper tubes, with integrated cooling
- Two refrigerant circuits conforming to EC Directives (PED 97/23/EC directive) including: filter dryer, flow indicator, thermostatic valves with external equalisation and high & low pressure switches
- Electric panel conforming to EC Directive 73/23/EC and Directive EMC 89/336/EC with auxiliary transformer 24V circuit, general door lock switch, magneto-thermal protection cut-off switches
- Sequence phase control
- Water flow differential pressure switch
- Microprocessor control system including: local user control and monitoring terminal with LCD display and LED signals for all working parameters
- chilled water temperature regulation
- anti-freeze protection
- compressor timing and protection
- alarm code signalling and centralisation for general alarm control transmission
- remote ON-OFF switch

OPTIONS

- Remote user terminal (up to 150 meters) for:
 - display / changing set points
 - display unit status and alarms
- Remote user terminal rMP20 II (up to 200 meters) for:
 - display / changing set points
 - display unit status and alarms
- Rubber anti-vibration kit
- Soundproofing discharge plenums
- Soundproofing intake plenums

TECHNICAL DATA

ARCC/ARCH MODEL

	0182A	0202A	0232A	0252A	0302A	0402A	0502A
Power supply	V/ph/Hz						
Cooling capacity (1)	43,5	49,5	57,4	400 / 3 + N / 50			63,8
Absorbed power (1)	18,16	20,51	24,81	28,43	33,38	37,66	46,2
Water flow	7490	8530	9880	10980	12640	15230	17100
Heat pressure (water circuit) std pump	kPa	204	185	166	161	155	179
No. of circuits / No. of compressors	2 / 2						
Airflow (2)	m ³ /h	14050	14050	17340	17340	20380	28940
Noise pressure level (3)	dB(A)	47,5	47,5	51,5	51,5	53,5	55,5
Thermal heat recovery (5)	KW	15,1	17,8	20,2	22,5	27	30,9
Water flow (5)	l/h	2597	3062	3475	3870	4644	5315
Water tank capacity	l	240	240	240	240	240	240
Dimensions and weight							
Height	mm	1880	1880	1880	1880	1880	1880
Depth	mm	984	984	984	984	984	984
Width	mm	2104	2104	2104	2104	2104	2504
Weight (basic version) (4)	kg	595	615	650	670	690	850

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

(2) With 100 Pa head pressure

(3) Measured in free-field conditions at 3 mt. from the front of the unit at nominal conditions (version with sound absorbing plenum or ducted)

(4) Data refer to empty unit

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

Available pump groups (option)

	0182 / 0202	0232 / 0252 / 0302	0402 / 0502
A (1,34 kW)	OPZ.	n. a.	n. a.
B (1,50 kW)	OPZ.	OPZ.	n. a.
C (2,36 kW)	OPZ.	OPZ.	OPZ.

opz. = option; n. a. = not available

CONSTRUCTION OPTIONS

- ARCH heat pumps series (*)
- Modulating condenser head pressure control through automatic fan speed regulation (modulating control includes heat exchangers for compressors)
- ARCH series heat pumps (*)
- Low-noise version and modulating condenser head pressure control
- Supersilent version equipped with soundproofing plenums (option)
- Centrifugal pitch pulley fans with variable speed, units assure a 150 Pa available external static pressure
- High capacity pitch pulley fans with variable speed units and high ESP up to 300 Pa (not for ARCC0402 / ARCC0504)
- Integrated hydronic system with 1 or 2 thermo protected circulation pumps (1 + 1 stand-by), expansion tank, safety valve, reservoir tank
- Partial condensation heat recovery and modulating condenser head pressure control
- Advanced mP20 II microprocessor controlling system with single management of all capacity steps
- Electronic expansion valve (E.E.V.) (*)
- Discharge temperature control

- RS485 serial adapter used to communicate with Uniflair supervision system or a link-board Modbus RTU to interface with external BMS
- LAN card for the local network connection mP20 II control
- Cascade management ready for 2, 3 or 4 units installed on a parallel hydraulic circuit connection (only std control)
- High and low refrigerant pressure gauges
- Version for the production of glycol water mixture at low temperatures (down to - 8 °C) (*)
- Compressor power phase correction capacitors
- Anti-freeze protection on evaporator, reservoir tank
- Coil protection metal filters and grilles
- Flange for air intake duct
- R22 refrigerant (available on request according to Reg. UE 2037/2000 standards)
- R134a refrigerant (*)

(*) on request

ARWVC - ARWVH



Water-cooled water chillers and heat pumps

Range:

Cooling capacity: 47 ÷ 112 kW
Heating capacity: 57 ÷ 132 kW

Available versions:

- cooling only
- Heat pump
- low noise

Refrigerant R407C Scroll Compressors



STANDARD FEATURES

- Self-supporting frame in galvanised steel with panels finished in epoxy powders (colour RAL9001) in compliance with ASTM B117; protection grade IP44
- Hermetic scroll compressors with internal thermal protection and anti-vibration supports
- Crankcase heaters (ARWH)
- Stainless steel brazed plate heat exchangers insulated with closed-cell expanded polyurethane
- Exchange of the cycle on the refrigerant side with 4-way reversing valve (ARWH)
- Two refrigerant circuits in compliance with EC norms (PED 97/23/EC directive) including filter dryer, water flow dryer, thermostatic valves with external equalisation and high and low pressure switches
- Electric panel conforming to EC Directive 73/23/EC and Directive EMC 89/336/EC with auxiliary transformer 24V circuit, general door lock switch, magneto-thermal protection cut-off switches
- Sequence phase control
- differential pressure switch
- Microprocessor controlling system including:
 - local user control and monitoring terminal with LCD display and LED signals for all working parameters
 - chilled water temperature regulation (and hot water on ARWH)
 - anti-freeze protection
 - compressor timing and protection
 - compressor function display
 - alarm code signalling and centralisation for general alarm control transmission
 - remote ON-OFF switch

OPTIONS

- Units can be supplied with the following construction options:
- External pump groups supplied by Uniflair with 1 or 2 pumps (1 + 1 in stand-by) including: expansion tank safety valve: motor guarantees IP55 protection
 - External reservoir tank
 - Remote user terminal (up to 150 meters) for:
 - display / entering of commands
 - display unit status and alarms
 - Remote user terminal mp20 II (up to 200 meters)
 - Rubber anti-vibration kit

TECHNICAL DATA

ARWC/ARWH MODEL

Power supply V/ph/Hz

0182A 0202A 0232A 0252A 0302A 0403A 0504A
400 / 3 + N / 50

Cooling only (ARWC)

	0182A	0202A	0232A	0252A	0302A	0403A	0504A
Cooling capacity (1)	KW	46,5	54,9	62,4	71,4	82,6	97,8
Absorbed power (1)	KW	12,71	14,23	17,06	18,92	21,63	24,01
N _o of circuits / N _o of compressors		2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 3
Water flow evaporator	l/h	7990	9470	10750	12880	14220	16830
Water flow condenser	l/h	10260	11990	13770	15660	18070	21110
Pressure drop evaporator	KPa	25	28	30	32	31	28
Available head pressure (evaporator)	KPa	193	162	158	148	140	160
Noise pressure level (4)	dB(A)	50,5	51	52,5	54,5	55,5	56
Hydraulic connections in/out		2" gas f.					
Partial heat recovery (2)	KW	12,1	13,5	16,2	18	20,5	22,8
Water flow (2)	l/h	2080	2330	2790	3100	3540	3930
Pressure drop (2)	KPa	15	7	10	9	11	13

Heat pump (ARWH)

	0182A	0202A	0232A	0252A	0302A	0403A	0504A
Heating capacity (3)	KW	57,1	66,5	76,7	87,0	100,2	116,6
Absorbed power (3)	KW	15,05	17,59	20,38	23,17	26,5	29,61
N _o of circuits / N _o of compressors		2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 3
Water flow evaporator	l/h	7240	8420	9700	10980	12670	14900
Water flow condenser	l/h	9920	11560	13350	15140	17420	20210
Pressure drop evaporator	KPa	21	23	25	26	25	30
Available head pressure (evaporator)	KPa	210	187	168	161	155	179
Noise pressure level (4)	dB(A)	50,5	51	52,5	54,5	55,5	56

Dimensions and weight

	0182A	0202A	0232A	0252A	0302A	0403A	0504A
Height	mm	1452					
Width	mm	1191					
Depth	mm	905					
Weight (basic version) (5)	Kg	320	330	350	360	390	460
						460	530

(1) Data refer to nominal conditions: chilled water temperature 7/12°C; condenser inlet/outlet water temperature 30/35°C; refrigerant: R407C
(2) Data refer to nominal conditions: chilled water temperature 7/12°C; recovery water temperature 45/40°C; condenser inlet / outlet water temperature 30/35°C; refrigerant R407C

(3) Data refer to nominal conditions: evaporator inlet/outlet water temperature 40/45°C; Condenser inlet/outlet water temperature 7/12°C; refrigerant R407C
(4) Measured in free field conditions at 1m; from the front of the unit (at nominal conditions)
(5) Data refer to empty unit

Available pump groups (external)

ARWC/ARWH	0182A	0202A	0232A	0252A	0302A	0403A	0504A
A (1,34 kW)	opz.	opz.	n.a.	n.a.	n.a.	n.a.	n.a.
B (1,50 kW)	opz.	opz.	opz.	opz.	opz.	n.a.	n.a.
C (2,35 kW)	opz.	opz.	opz.	opz.	opz.	opz.	opz.

opz = option; n.a = not available

Available water tank (external)

ARWC/ARWH	0182A	0202A	0232A	0252A	0302A	0403A	0504A
A (210 l)	opz.	opz.	opz.	opz.	opz.	opz.	opz.
B (300 l)	opz.	opz.	opz.	opz.	opz.	opz.	opz.
C (500 l)	opz.	opz.	opz.	opz.	opz.	opz.	opz.

opz = option; n.a = not available

CONSTRUCTION OPTIONS

- Modulating condenser head pressure control through automatic fan speed regulation (modulating control includes heat exchangers for compressors)
- Supersilent version equipped with soundproofing plenums (external option)
- Rearrangement of the external Uniflair pump group
- Partial condensation heat recovery and control of condensation pressure (ARWC)
- Microprocessor mP20 II (ARWC only)
- Electronic expansion valve (ARWC only) (*)
- RS485 serial adapter used to communicate with Uniflair supervision system or to interface with external BMS
- LAN card for local network connection mP20 II (ARWC)

- Cascade management ready for 2, 3 or 4 units installed on a parallel hydraulic circuit connection (only standard controls)
 - High and low pressure gauges
 - Production of glycol water mixture at low temperatures (up to - 8 °C) (*)
 - Compressor power phase correction capacitors
 - Compressor crankcase heaters (standard for ARWH)
 - R22 refrigerant (available on request according to UE 2037/2000 standards)
 - R134a refrigerant (*)
- (*) on request

ARRC



Condenserless chiller unit for indoor applications

Range:

Cooling capacity: 46 ÷ 102 KW

Available versions:

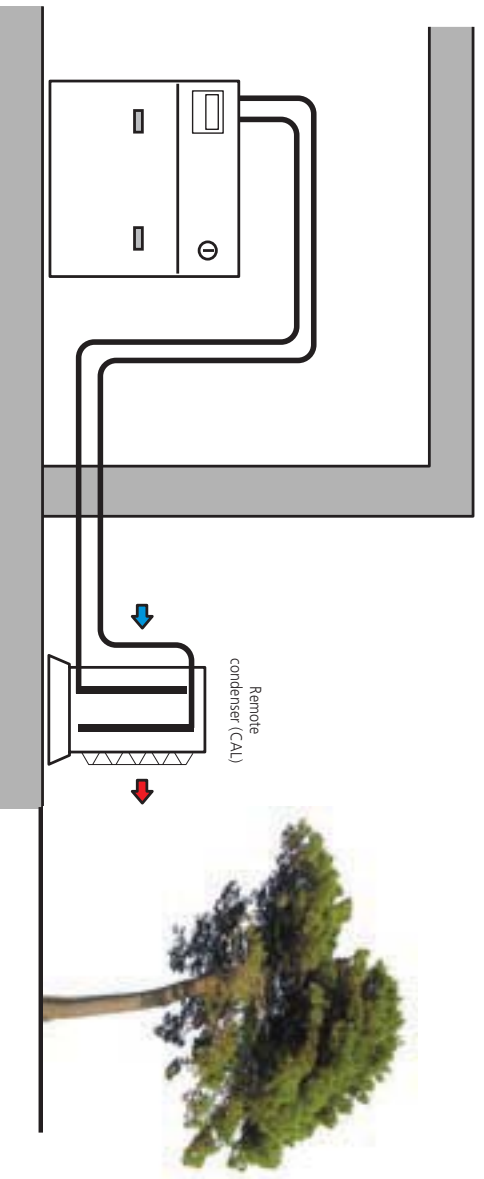
- cooling only
- low noise

Refrigerant R407C

Scroll Compressors

STANDARD FEATURES

- Self-supporting frame in galvanised steel with panels finished in epoxy powders (colour RAL9001) in compliance with ASTM B117
- Motor protection grade IP44
- Hermetic scroll compressor with incorporated thermal protection and anti-vibration supports
- Stainless steel brazed plate heat exchangers insulated with closed-cell expanded polyurethane
- Two refrigerant circuits conforming to EC Directives (PED 97/23/EC directive) including: filter dryer, flow indicator, thermostatic valves
- Electric panel conforming to EC Directive 73/23/EC and Directive EMC 89/336/EC with auxiliary transformer 24V circuit, general door lock switch, magneto-thermal protection cut-off switches
- Sequence phase control
- Water flow differential pressure switch
- Microprocessor control system including: local user control and monitoring terminal with LCD display and LED signals for all working parameters
 - chilled water temperature regulation
 - anti-freeze protection
 - compressor timing and protection
 - compressor function display
 - alarm code signalling and centralisation for general alarm control transmission
 - remote ON-OFF switch



TECHNICAL DATA

ARRC MODELL

01822A 02022A 02322A 02522A 03022A 04032A 05042A

	400 / 3 / 50 + N							
Power supply	V/ph/Hz							
Cooling capacity (1)	KW	43,3	49,4	57,1	63,3	74,7	86,5	96,0
Absorbed power (1)	KW	16,33	19,62	22,52	26,51	29,15	34,26	40,27
No. of circuits / No. of compressors		2/2	2/2	2/2	2/2	2/2	2/3	2/4
Condenser	No. x mod	2xCAL0801 2xCAL0801 2xCAL1011 2xCAL1011 2xCAL1301 2xCAL3002 2xCAL3002						
Partial heat recovery (2)	KW	12,1	13,5	16,2	18	20,5	22,8	25,1
Water flow (2)	l/h	2080	2330	2790	3100	3540	3930	4320
Pressure drop (2)	kPa	15	7	10	9	11	13	12
Water flow evaporator	l/h	7450	8500	9830	10910	12850	14890	16520
Airflow	l/h	18990	18990	18090	18090	23630	31200	31200
Pressure drop evaporator	kPa	22	23	25	26	26	30	34
Available head pressure (evaporator)	kPa	205	186	167	162	153	180	166
Noise pressure level (3)	db(A)	50,5	51	52,5	54,5	55,5	56	56

Dimensions and weight

Height	mm	1452						
Width	mm	1191						
Depth	mm	905						
Weight (basic version) (4)	kg	305	310	325	335	360	425	490

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

- (3) Measured in free-field conditions at 1 mt. from the front of the unit (at nominal conditions)
 (4) Data refer to empty unit

Available pump groups (external)

ARRC	01822A	02022A	02322A	02522A	03022A	04032A	05042A
A (1,34 kW)	opz.	opz.	n.a.	n.a.	n.a.	n.a.	n.a.
B (1,50 kW)	opz.	opz.	opz.	opz.	opz.	n.a.	n.a.
C (2,35 kW)	opz.	opz.	opz.	opz.	opz.	opz.	opz.

opz = option; n.a. = not available

Available water tank (external)

ARRC	01822A	02022A	02322A	02522A	03022A	04032A	05042A
A (210 l)	opz.	opz.	opz.	opz.	opz.	opz.	opz.
B (300 l)	opz.	opz.	opz.	opz.	opz.	opz.	opz.
C (500 l)	opz.	opz.	opz.	opz.	opz.	opz.	opz.

opz = option; n.a. = not available

CONSTRUCTION OPTIONS

- Low-noise version
- Management of Uniflair pump group to be installed externally for ARRC
- Microprocessor control advanced mP20 II
- Electronic expansion valve (*)
- RS485 serial adapter used to communicate with Uniflair supervision system or to interface with external BMS
- LAN card for the local network connection mP20 II control (only ARRC)
- Cascade management ready for 2, 3 or 4 units installed on a parallel hydraulic circuit connection (only with standard control)
- High and low refrigerant pressure gauges
- Version for the production of glycol water mixture at low temperatures (down to - 8 °C) (*)
- Compressor power phase correction capacitors
- R22 Refrigerant (available on request according to Reg. UE 2037/2000 standards)
- R134a Refrigerant (*)

(*) on request

OPTIONS

- External Uniflair pump groups with 1 or 2 circulation pumps (1 + 1 in stand-by), reservoir tank, safety valves: pump motor IP55
- External reservoir tank
- Remote user terminal (up to 150 meters) for:
 - display / changing set points
 - display unit status and alarms
- Remote user terminal mP20 II (up to 200 meters) for:
 - display / changing set points
 - display unit status and alarms
- Rubber anti-vibration kit

MRAC



Air-cooled condensing units with axial fans

Range:

Cooling capacity: 10 ÷ 46 KW

**Refrigerant R407C
Scroll Compressor**

STANDARD FEATURES

- Vertical development with reduced bulk
- Self-supporting frame in galvanised steel with panels varnished with epoxy powders (colour RAL9001) in compliance with the ASTM B117 norm
- Rubber anti-vibration feet
- Hermetic Scroll Compressor with anti-vibration feet
- Condensing coils with aluminium fins and mechanically-expanded copper tubes
- Condensing coil metal protection filters
- Axial fans, statically and dynamically balanced, with sickle-blades and safety protection grilles
- Refrigerant circuit in compliance with EC norms (PED 97/23/EC Directive) in copper tubes mainly including a filter dryer, water flow switch, high and low pressure switches
- Electric panel conforming to EC norms (73/23/EC and EMC 89/336/EC Directives) with an auxiliary 24V circuit, magneto-thermal protection cut-off switch, compressor cut-off switch and fan, potential-free terminal for remote alarm signalling and power supply terminal
- Sequence control phase
- Condensation control including continuous regulation of fan speed and compressor crankcase heater (option)

TECHNICAL DATA

MIRAC MODEL	0041A	0041B	0061A	0081A	0091A	0121A	0161A	0191A
Power supply	400 / 3 + N / 50230 / 1 / 50			400 / 3 + N / 50				
Cooling capacity (1)	9,8	9,8	14,8	19,7	22,2	29,9	38,0	45,7
Absorbed power (1)	2,72	2,72	4,03	5,46	5,80	8,15	10,04	12,43
Airflow (1)	3020	3020	6290	5670	9530	9090	15670	14850
No. of fans / No. of poles	1 / 6	1 / 6	2 / 6	2 / 6	3 / 6	3 / 6	5 / 6	5 / 6
No. of circuits / No. of compressors	1 / Scroll							
Noise pressure level (2)	42,5	42,5	43,5	43,5	43,5	45,5	49	49
Dimensions (3)								
Height	860	860	1230	1230	1365	1365	1515	1515
Width	950	950	1200	1200	1620	1620	2170	2170
Depth	480	480	480	480	580	580	580	580

(1) Data refer to nominal conditions: air temperature condensing coil: 30°C;

evaporation temperature: 7.5°C; subcooling: 8°C; refrigerant R407C

(2) Measured in free-field conditions at 10 mt. from the front of the unit

(at nominal conditions)

(3) Data refer to unit without packing

SETTING BETWEEN UTA AND MRAC

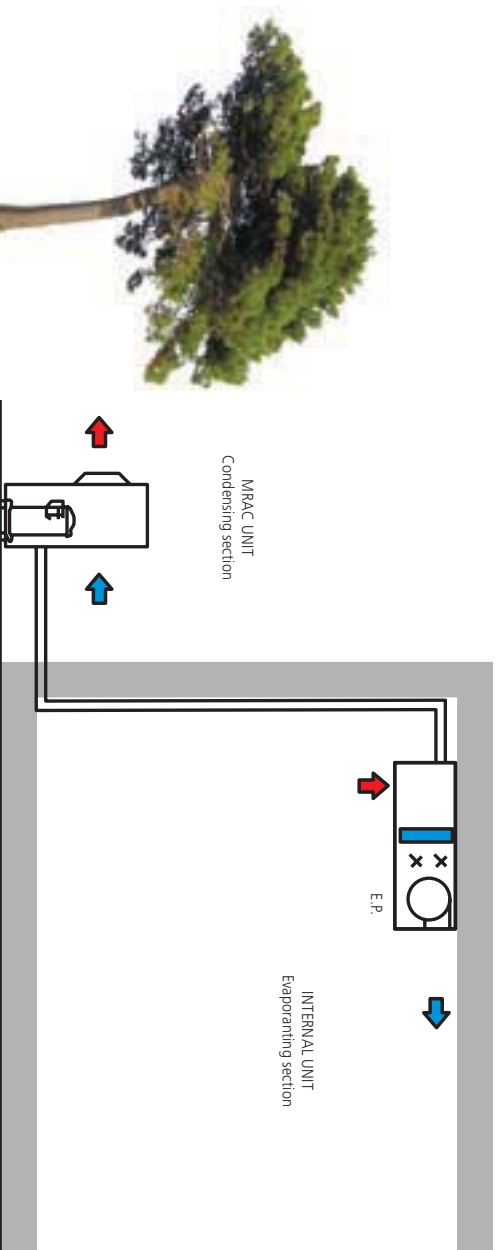
UTA	MRAC	0041	0061	0081
0010				
0020				
0025				
0030				
0040				
0060				
0080				

Working conditions:

evaporating temperature: + 5°C

external air temperature: + 35°C

internal air temperature/humidity: + 24°C / 50% R.H.



EPAC/EPAF



**Multifunctional air-cooled water chiller units
with axial fans for outdoor installations**

Range:

Cooling capacity: 49 ÷ 107KW

Serie disponibili:

- air & water-cooled series (EPAC)
- air & water-cooled series with free-cooling device (EPAF)

Available versions:

- basic
- low noise

**Refrigerant R407C
Scroll Compressors**



STANDARD FEATURES

- The EPAC/F series units have been specially studied and designed for 4 tube or 2 tube systems where there is the need for a domestic hot water supply. They provide for producing hot and cold water contemporaneously in two separate circuits, regardless of the outdoor temperature. Moreover the units provide for producing hot or cold water depending on the needs. A 4 tube user system must be provided.
- The microprocessor control will automatically manage the operation mode in order to satisfy the load in the most energetically efficient manner
- EPAF series units are fitted with a free-cooling device, completely managed by the microprocessor control. When part of the system is being used for technological systems with a continuous demand for chilled water, free-cooling operation leads to a considerable saving in electric consumption
- Self-supporting, galvanised steel frame, and panels with an RAL9001 epoxy powder finish
- Two hermetic Scroll compressors with internal thermal protection, crankcase heaters and anti-vibration supports
- One cooling circuit conforming to EC norms (PED 97/23/CE) in copper tubes including: filter dryer, filter shut-off valve, flow indicator, thermostatic valves with external equalisation, Electronic Expansion Valve, high and low pressure switches and high pressure transducer
- "SOFT" inversion chilling side cycle with the aid of solenoid valves, without 4 way inversion valve
- Stainless steel brazed plate heat exchangers insulated with closed-cell expanded polyurethane
- Heat exchanger coil with aluminium fins and internally grooved copper tubes
- Free-cooling coils with aluminium fins and mechanically expanded copper tubes
- Free-cooling pump managed by microprocessor control
- Water flow differential pressure switch
- Statically and dynamically balanced axial fans, with sickle-blades and safety protection grilles (protection grade IP54)

- Condensation control, including continuous fan speed regulation
- Electric panel conforming to Directives 73/23/EC and EMC 89/336/EC (IP54 protection degree), auxiliary circuit, general cut-off switch, magneto-thermal protection cut-off switches
- Sequence phase control
- UPCLm microprocessor control system including:
 - mP2011 local user terminal with panel visible on unit
 - outlet chilled water temperature regulation
 - advanced compressor management run through automatic set-point sensitivity regulation
 - compressor rotation with FIFO system (run time, protection and function)
 - intelligent defrost management by means of hot gas solenoid valve for minimising defrost times
 - advanced anti-freeze protection on evaporator
 - integrated LAN card for local network connection of a group of chillers (up to 10 units with 1 or 2 units on stand-by)
- Moreover the microprocessor control system permits:
 - set-point adjustment from external signal (0-10V)
 - management of double set-point and selection
 - 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, Trend, Metasys, TCP/IP and SNMP

TECHNICAL DATA

		EPAC		EPAF	
		0251A	0501A	0251A	0501A
Power supply	V/ph/Hz	400 / 3 + N / 50	400 / 3 + N / 50	400 / 3 + N / 50	400 / 3 + N / 50
Compressors / circuits	no x mod	2 / 1	2 / 1	2 / 1	2 / 1
Evaporator	no x mod	Plate	Plate	Plate	Plate
N _o of fans / N _o of poles	no x mod	1 / 6	2 / 6	2 / 6	3 / 6
Basic version					
N _o of fans / N _o of poles		1 / 6	2 / 6	2 / 6	3 / 6
Cooling capacity (1)	KW	48,8	106,1	49,5	107,1
Absorbed power (1)	KW	18,8	38,6	20,0	40,2
Heating capacity (2)	KW	56,3	123,7	57,2	125,6
Absorbed power (2)	KW	18,9	37,2	20,6	39,1
Cooling capacity - water / water mode (3)	KW	48,9	108,7	48,9	108,7
Heating capacity - water / water mode (3)	KW	65,9	142,6	65,9	142,6
Absorbed power - water / water mode (3)	KW	17,0	33,9	17,0	33,9
Cooling capacity free-cooling (4)	KW	-	-	35,8	96,7
Absorbed power free-cooling (4)	KW	-	-	4,3	7,6
Noise pressure level (5)	dB(A)	55,5	57,0	56,5	58,0

Low noise version

N _o of fans / N _o of poles		1 / 6	2 / 6	2 / 6	3 / 6
Cooling capacity (1)	KW	47,1	102,8	48,3	105,7
Absorbed power (1)	KW	19,5	39,4	19,8	39,1
Heating capacity (2)	KW	54,8	120,9	55,8	123,2
Absorbed power (2)	KW	18,3	36,0	19,5	37,2
Cooling capacity - water / water mode (3)	KW	48,9	108,7	48,9	108,7
Heating capacity - water / water mode (3)	KW	65,9	142,6	65,9	142,6
Absorbed power - water / water mode (3)	KW	17,0	33,9	17,0	33,9
Cooling capacity free-cooling (4)	KW	-	-	29,7	84,3
Absorbed power free-cooling (4)	KW	-	-	3,1	5,8
Noise pressure level (5)	dB(A)	46,5	48,0	47,5	49,0

High external temperature operation version

N _o of fans / N _o of poles		2 / 6	3 / 6	-	-
Cooling capacity (1)	KW	49,6	109,7	-	-
Absorbed power (1)	KW	20,1	39,0	-	-
Heating capacity (2)	KW	57,7	127,9	-	-
Absorbed power (2)	KW	20,7	39,1	-	-
Cooling capacity - water / water mode (3)	KW	48,9	108,7	-	-
Heating capacity - water / water mode (3)	KW	65,8	142,6	-	-
Absorbed power - water / water mode (3)	KW	17,0	33,9	-	-
Noise pressure level (5)	dB(A)	47,5	49,0	-	-

Dimensions

Water tanks: N _o / Volume	l	2 / 210	2 / 500	2 / 210	2 / 500
Height	mm	1618	2140	1618	2140
Length	mm	3807	5242	3807	5242
Width	mm	1193	1344	1193	1344

- (1) Data refer to nominal conditions: water temperature 12/17°C; ambient temperature 35°C; R407C refrigerant
 (2) Data refer to nominal conditions: water temperature 40/45°C; ambient temperature 7°C db; 6°C wb; R407C refrigerant
 (3) Data refer to nominal conditions: cool circuit water temperature 7/12°C; heat circuit water temperature 40/45°C; R407C refrigerant
 (4) Data refer to nominal conditions: inlet water temperature 15°C; ambient temperature 5°C; R407C refrigerant; glycol: 20%
 (5) Measured in free field at 10 m (Q=2, coil side) from the unit running in nominal conditions in Chiller mode (1)

CONSTRUCTION OPTIONS

- Low noise version
- High external temperature operation version (EPAC)
- Integrated hydronic system with 2 water tanks and 2 pumps
- High head pressure pump group
- Anti-freeze protection on evaporator,
- Water tanks and pump group
- Heat exchange coil equipped with safety grilles and filter
- Inlet shut-off valve for compressors
- R5485 serial adaptor used either to communicate with Uniflair supervision system or interface with external BMS

OPTIONS

Units can be supplied with the following

- accessories:
- mP2011 remote user terminal (max. 200 metres) for:
 - entering commands
 - displaying unit status and alarms
 - Spring anti-vibration kit

FWM2 FWI2
FCM2 FC12



**Wall/ceiling mounted fan coil units
with or without housing
(FWM2 - FWI2 - FCM2 - FC12)**

Range:

Cooling capacity: 1 ÷ 8 kW

Heating capacity: 2,5 ÷ 18 kW

Available versions:

- with/without casing
- wall-or ceiling-mounted

FWM2: wall-mounted fan coils with casing

FWI2: wall-mounted fan coils without casing

FCM2: ceiling-mounted fan coils with casing

FC12: ceiling-mounted fan coils without casing

STANDARD FEATURES

- Extra-thick galvanised steel support frame, internally lined with class M1 self-extinguishing sound insulation material
- Cleanable filter in self-extinguishing material EU2, complete with a rigid metal frame
- Three-row heat exchanger (mod. 21 - 41 - 51 - 61 - 81 - 101 - 121 - 141) or two-rows (mod. 16 - 31) made from mechanically expanded copper tubes with expanded tubes with aluminium fins, complete with 1/2" threaded female brass connectors and valves for air bleeding and water draining
- Water drain tray vin galvanised steel externally lined with a class M1 self-extinguishing anti-condensation material
- Double-intake galvanised steel centrifugal fan with aluminium rotors and forward curved blades directly coupled to an IP32 3-speed rotation and protection motor: the power factor is equivalent or greater than 0,92 at all speeds
- Power supply 230V/1ph/ 50Hz

OPTIONS

- Heating elements
- Supporting legs in ABS (only FWM2 FCM2)
- Extra condensate drain tray (only FWM2 / FWI2)
- Rear panel
- Minimal thermostat
- 1 row hot water coil (for 4-pipe systems)
- 3 - way valve kit for 2-pipe systems
- 3 - way valve kit for 4-pipe systems
- CB(2)/QB(2) control box installed on fan coil/ remote ON-OFF switch and 3-speed switching
- CEI(2)/QEI(2) control box installed on fan coil/ remote ON-OFF switch, 3-speed switching, summer /winter switching and control of the additional electrical resistance, electronic thermostat and temperature sensor
- CEI(c2)/QEI(c2) control box installed on fan coil / remote ON/OFF switch, 3-speed switching, centralised summer/winter switch
- CMP2(2) / CMP4(2) control box, evolved microprocessor, 3-speed switching, centralised summer/winter switch
- QMP control box, evolved microprocessor, 3-speed switching, centralised summer/winter switch

TECHNICAL DATA

MODELS

	0016	0021	0031	0041	0051	0061	0081	0101	0121	0141	
Total cooling capacity (1)	kW	1,07	1,31	2,15	2,49	3,57	4,25	5,07	5,78	7,00	8,38
Sensible cooling capacity (1)	kW	0,87	1,00	1,74	1,97	2,83	3,36	4,20	4,72	5,71	6,72
Absorbed power (1)	W	35	45	58	58	64	94	172	195	193	252
Water flow cooling capacity	l/h	184	224	368	426	612	729	868	990	1199	1436
Pressure drop	kPa	2	1	10	6	15	22	7	9	13	19
Total heating capacity (2)	kW	2,47	3,38	4,39	5,46	7,52	8,93	11,24	12,57	15,03	18,13
Water flow during heating	l/h	217	297	386	480	661	787	989	1107	1323	1594
Pressure drop during heating	kPa	2	2	9	6	15	21	7	9	13	19
Air flow (3)	m ³ /h	250	285	450	450	620	770	960	1110	1300	1660
Noise power level (4)	speed 1 dB(A)	34	35	35	35	40	46	48	50	54	60
	speed 2 dB(A)	40	41	44	44	47	52	51	57	58	65
	speed 3 dB(A)	47	48	51	51	52	59	57	62	63	70
Noise pressure level (5)	speed 1 dB(A)	23	24	24	24	29	35	37	39	43	49
	speed 2 dB(A)	29	30	33	33	36	41	40	46	47	54
	speed 3 dB(A)	36	37	40	40	41	48	46	51	52	59

Sizes with casing (FWM2 / FCM2)

Height	mm	555	555	555	555	555	590	590	590	590
Depth	mm	220	220	220	220	220	250	250	250	250
Width	mm	800	800	1020	1020	1240	1350	1350	1570	1570
Sizes without casing (FWI2 / FCI2)										
Height	mm	525	525	525	525	525	560	560	560	560
Depth	mm	220	220	220	220	220	250	250	250	250
Width	mm	525	525	745	745	965	965	1075	1075	1295

(1) Inlet water temperature at 7°C; ambient temperature 27°C DB - 19°C WB, 3th speed

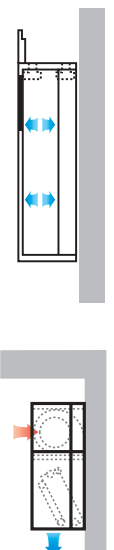
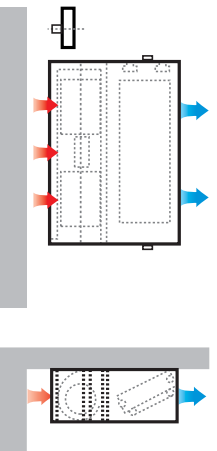
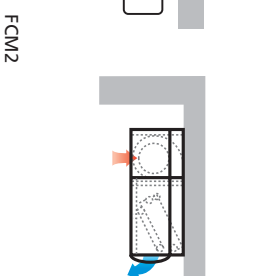
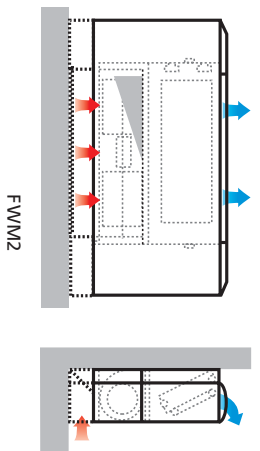
(2) Water intake temperature at 70°C; ambient temperature 20°C DB, 3th speed

(3) Unit with fans operating at 3th speed

(4) In free field conditions at 1m from unit

(5) According with ISO 3741

VERSIONS



FWI2

FCI2

FKCM



Fan coil cassette units

Range:

Cooling capacity: 2 ÷ 7 kW
Heating capacity: 4 ÷ 15 kW

Available versions:

- cooling only
- with heating coil

STANDARD FEATURES

- Chassis manufactured from galvanized steel. An acoustic and anticondensation insulation is fitted within. Air flow by means of four rectangular opening
- Diffuser ABS made RAL9010
- Main heat exchanger: Copper tubes/aluminium fins with threaded connections; each coil is fitted with a manual air vent and drain plug. The coil is tested at a pressure of 15 ATE
- External rotor fan with ABS centrifugal impellers; single inlet, statically and dynamically balanced
- Single phase 230V 50Hz motor, induction type, fitted with condenser. The motor complies with IP41 protection class and ECM Standards (EC89/336, EC92/31, EC93/68) and with low voltage standards (Art. 10, EC73/23). Available with 3 speeds
- Main drain pan manufactured from preformed plastic material
- Filter: synthetic media with a galvanized sheet frame with mesh on both sides

OPTIONS

- Heating coil: Copper tubes/aluminium fins with connections manufactured from die cast brass with \varnothing 1/2" female BSP threads; each coil is fitted with a manual air vent and drain plug. The coil is tested at a pressure of 15 ATE
- Infrared remote control: complete of management electronic cord and receiver fitted on the unit
- Intelligent microprocessor control QMP: control with automatic 3-speed and Summer/Winter switching for 2-or 4-pipe fan coil
- QB(2): ON/OFF, 3-speed switching
- QEI/C(2): ON/OFF, 3-speed switching, fitting for centralised Summer/Winter switch, electronic thermostat and temperature sensor
- Minimum thermostat
- 2-way ON-OFF motor driven valves
- 3-way ON-OFF motor driven valves 4 connections
- Secondary drip tray made of plastic material for condense discharge on collector's side

TECHNICAL DATA

Modello FKCM	0001	0011	0012	0023
Cooling capacity (1)	1,84	2,38	3,89	7,04
Sensible cooling capacity (1)	1,55	2,05	3,35	6,05
Water flow (cooling) (1)	320	410	670	1210
Absorbed power (1)	80	90	90	100
Heating capacity (2)	4,38	5,74	9,33	15,07
Water flow (heating) (2)	385	500	810	1320
Air flow (4)	600	900	900	1200
Noise pressure level (3)	Speed 1 dB(A)	22	24	24
	Speed 2 dB(A)	23	35	35
	Speed 3 dB(A)	35	47	47
Noise power level (5)	Speed 1 dB(A)	33	35	35
	Speed 2 dB(A)	34	46	46
	Speed 3 dB(A)	46	58	60
Weight (basic version)	Kg	21	21	22
				23

(1) Inlet water temperature at 7°C; ambient temperature 27°C DB - 19°C WB

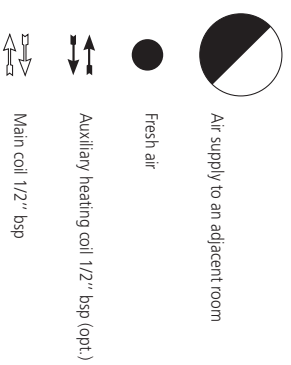
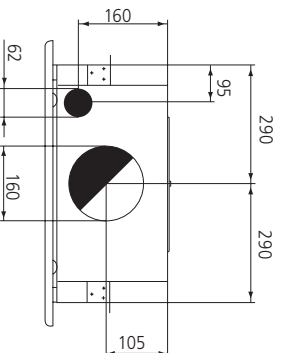
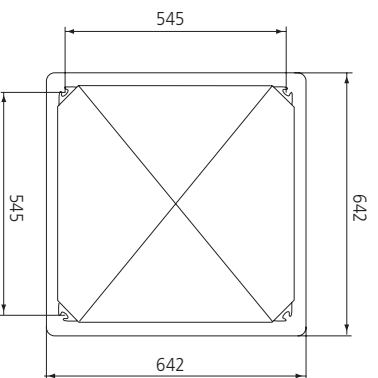
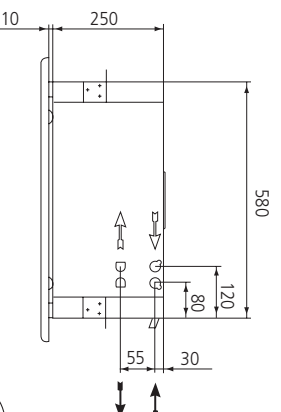
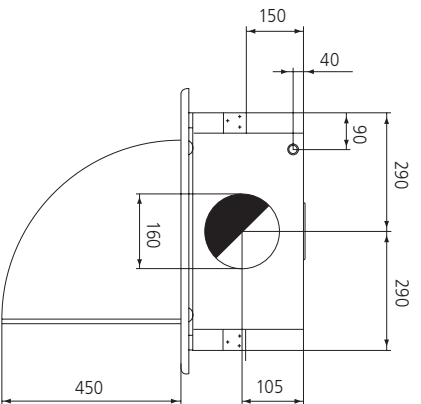
(2) Water intake temperature at 70°C; ambient temperature 20°C DB

(3) According to ISO5741

(4) Unit with fans operating at 3th speed

(5) According to ISO 3741

DIMENSIONS



UTAT



Fan coil cassette units for underfloor installations

Range:

Cooling capacity: 1 ÷ 2 kW

Heating capacity: 1 ÷ 3 kW

STANDARD FEATURES

- Structure manufactured in thermoformed plastic, with bearing parts in galvanised steel
 - 2 rows, thermal exchange pack coil with expanded copper tubing and aluminium fins, collectors with threaded air outlet connectors. The coil has been tested at a pressure of 10 bar
 - Four blade axial fan manufactured in PP 30% GV stabilised to UV rays, statically and dynamically balanced on two levels
 - 230V/150Hz winding induction motor with constantly inserted condenser. Class B insulation. Declared to conform with electromagnetic compatibility (according to CE89/336, CE92/31, CE93/68 Directives) and low voltage directives (Section 10, Directive CE73/23), IP44 protection level.
- Three rotation speeds:
- CE Directive electrical panel (Directives 73/23/CE and EMC 89/336/CE) with unit control card equipped with incorporated relays
 - Thermoformed plastic condensation collection tray
 - Cleanable filter in self-extinguishing material with EU2 efficiency, supplied with galvanised plate hooks
 - 230V/150Hz Power supply

CONSTRUCTION OPTIONS

- Self-priming condense discharge pump with heat protection and alarm on NC resistive contact
- RS485 serial adaptor
- Can-bus serial adaptor
- Remote user terminal
- Incorporate NTC sensor for ambient temperature adjustment
- LCD display with intuitive symbols
- Selection of the value to display (temperature, set-point, offset compared with common set-point)
- Selective key block (limited functions for offices, hotels...)
- Signalling of coded alarms and faults
- ON-OFF timer functions
- Economy-sleep function
- Manual or automatic operation

TECHNICAL DATA

UTAT MODEL

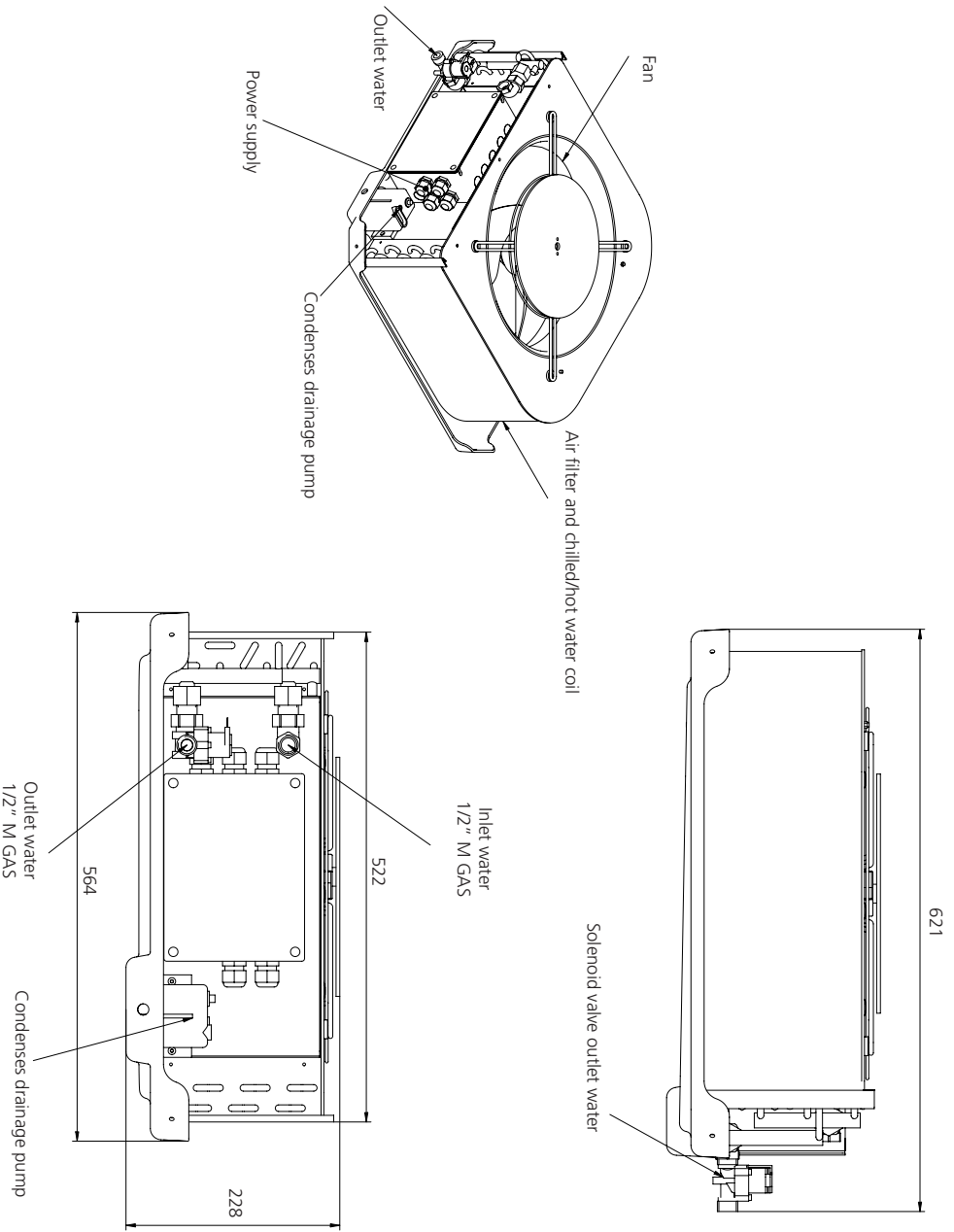
Cooling capacity (1)		0030B	0030B	0030B
		1° speed	2° speed	3° speed
Sensible cooling capacity (1)	kW	1,74	1,96	2,36
Air flow	m ³ /h	221	280	438
Absorbed power (1)	W	25	32	50
Heating capacity (2)	kW	1,64	1,98	2,71
Airflow	m ³ /h	221	280	438
Noise pressure level (3)	dB(A)	29,9	34	39,5
Weight				
Weight (basic version)	kg	10		

(1) Inlet chilled water temperature: 7°C, water flow: 250 l/h, air ambient temperature: 27°C d.b., 19°C w.b.

(2) Inlet hot water temperature: 45°C, water flow: 250 l/h; air ambient temperature: 20°C d.b.

(3) Values measured at 1m in free field conditions from the unit with direction factor Q=2

DIMENSIONS



UTA - UTW



**Direct expansion/chilled water
modular air handling units**

Range:

UTW: Cooling capacity: 4 ÷ 19 kW

Heating capacity: 10 ÷ 43 kW

UTA: Cooling capacity: 7 ÷ 18 kW

STANDARD FEATURES

- 3-speed centrifugal fans with high static pressure for ducted air distribution
- Reduced size, designed for ceiling installation
- Basic version with filter in self-extinguishing material EU3 and drain pan
- Low noise thanks to sound-proofing and fan speed regulation
- EU3 filter in self-extinguishing material
- Self-supporting frame in galvanised steel housing with internal sound and heat insulation
- Heat exchanger with 3 or 4 aluminium fins (according to model)
- Electric panel conforming to EC norms with terminal for connection to external unit, to the control thermostat and power supply

OPTIONS

- Air distribution plenum return/external (SP)
- Hot water post heating coil 2 rows (HW)
- Crankcase heaters post heating with thermostat safety valves and control (HR)
- Discharge plenum for circular duct (PM)
- Discharge plenum for rectangular duct (PR)
- Ambient thermostat winter/summer with fan speed regulation (QEI)
- Ambient thermostat winter/summer with fan speed regulation and electrical heater installation (QEI/R)

TECHNICAL DATA

UTW MODEL	0010	0020	0025	0030	0040	0060	0080
Cooling capacity (1)	4,5	7,4	9,1	10,0	11,8	14,9	19,2
Water flow recovery (4)	13	19	21	17	23	23	25
Heating capacity (2)	9,8	15,3	18,6	21,0	24,2	34,2	43,0
Water flow recovery	11	17	21	18	21	24	24
UTA MODEL							
Cooling capacity (3)	-	6,8	8,6	9,2	10,7	13,4	17,9
Airflow (max)	940	1500	1650	2000	2200	3000	3800
Available head pressure (4)	100	120	100	100	70	130	140
Absorbed pressure (4)	0,32	0,44	0,44	0,44	0,44	0,64	0,91
N° fans	3	3	3	3	3	3	3
Power supply	230 / 1 / 50						
Dimensions and weight							
A	640	1000	1000	1100	1340	1340	1340
B	295	295	295	322	322	372	372
C	485	485	485	535	570	570	570
D1 UTW	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 1"	G 1"
D2 UTW	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 3/4"	G 1"	G 1"
D1 UTA	SAE 3/8"	SAE 3/8"	SAE 3/8"	SAE 3/8"	SAE 1/2"	SAE 1/2"	SAE 1/2"
D2 UTA	SAE 5/8"	SAE 5/8"	SAE 5/8"	SAE 5/8"	SAE 3/4"*	SAE 3/4"*	SAE 3/4"*
N1	500	860	860	960	1200	1200	1200
N2	39	39	39	39	39	39	39
N3	28	28	28	28	28	28	28
N4	210	210	210	235	235	260	260
Weight	28	41	43	58	64	66	70

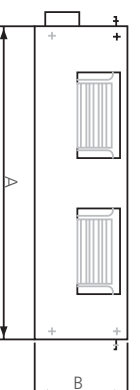
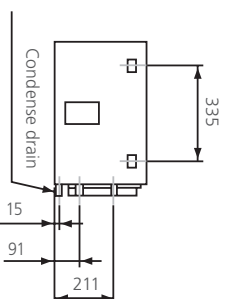
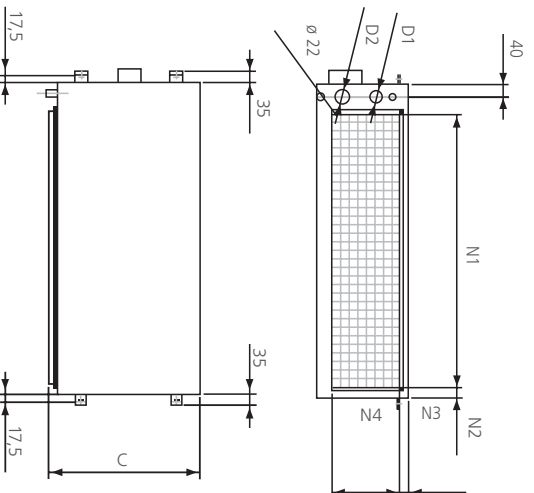
SETTING BETWEEN UTA AND MRAC

UTA	MRAC	0041	0061	0081
0010				
0020				
0025				
0030				
0040				
0060				
0080				

Working conditions:

evaporating temperature: + 5°C
 external air temperature: + 35°C
 internal air temperature/humidity: + 24°C / 50% U.R.

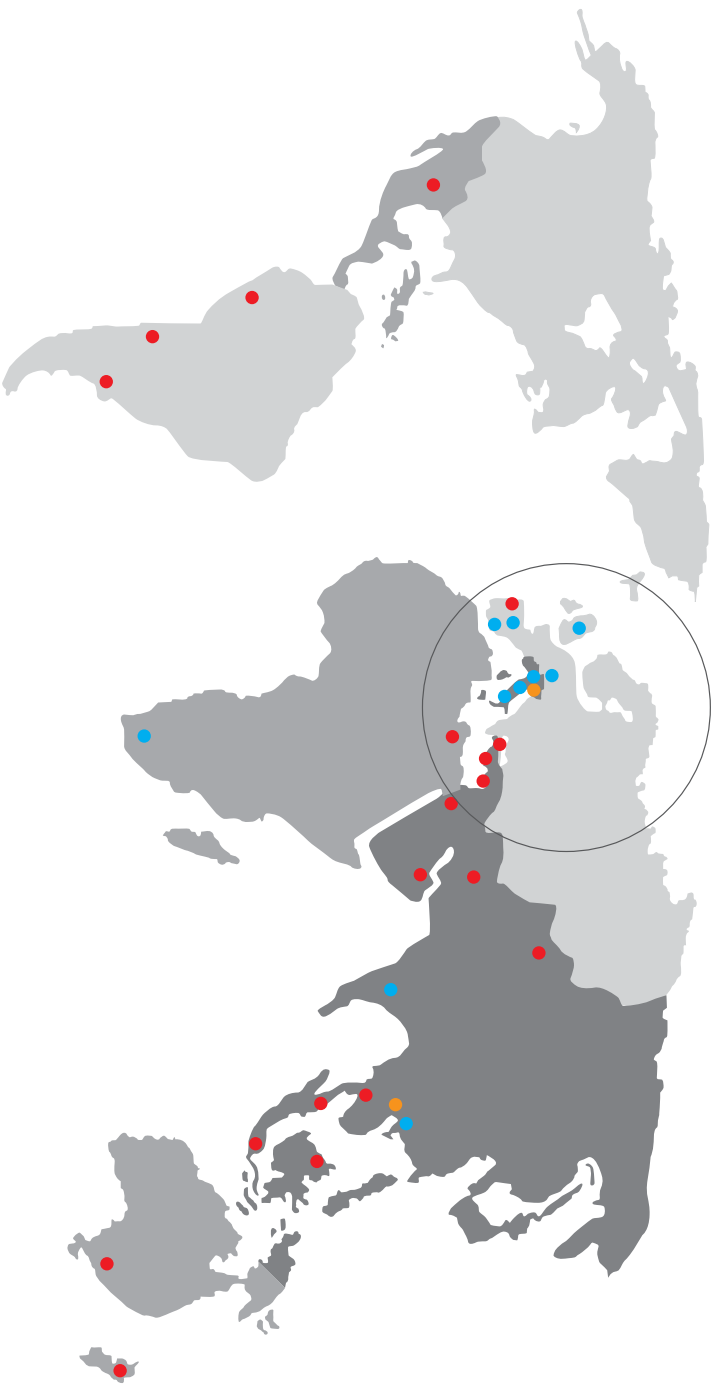
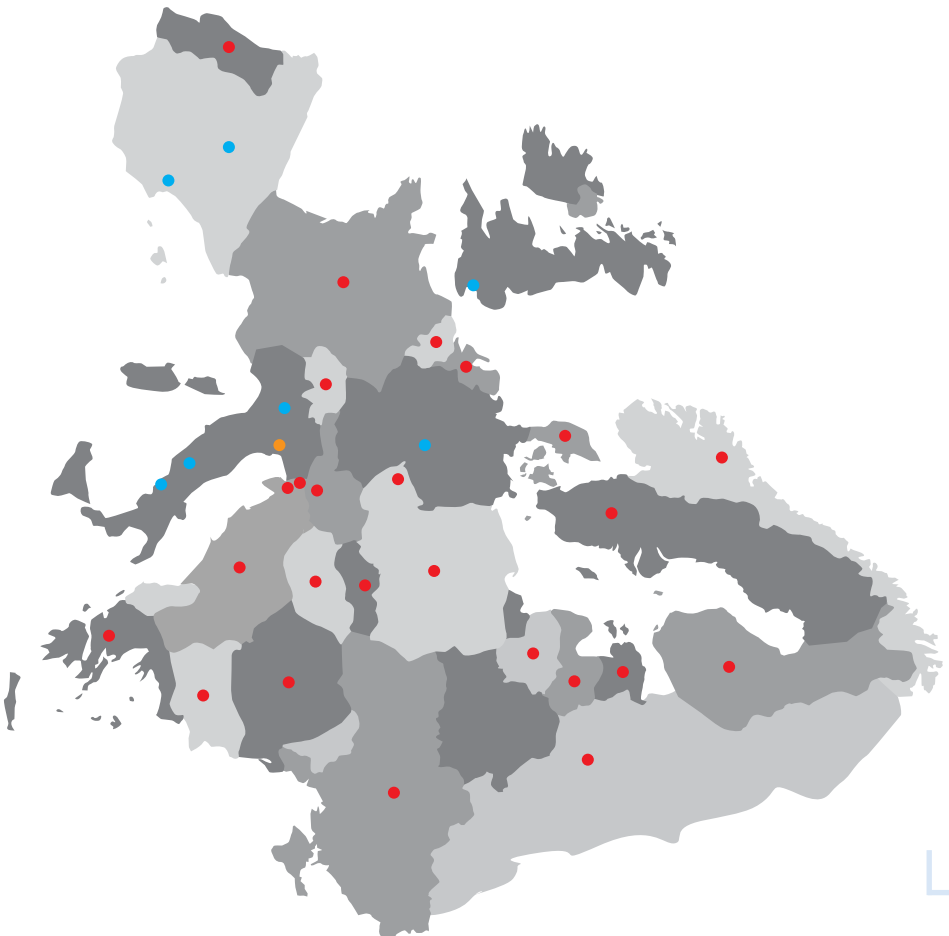
DIMENSIONS



- (1) Air intake 26 °C 50% Ur; water 6/12°C
- (2) Air intake 20°C; water 7/60°C
- (3) Air intake 26°C 50% Ur; external air 32°C; evaporating temperature 7°C

- (4) Nominal airflow (Max)
- (*) 3/4" SAE with 5/8" - 3/4" reduction

UNIFLAIR: your global partner



- branches
- partner
- production facilities

REFERENCES

Aena	Spain	NKBM	Slovenia
Airport Schiphol	Holland	MNET	South Africa
AJM	Slovenia	Monzanova National Grid	
Alfa Panzió	Hungary	Electricity Transmission plc	UK
Amena	Spain	NATO	Italy
Analytical	Italy	Novacom Kft	Hungary
Arcont	Slovenia	O2 Telecom	UK
Astra Zeneca p.l.c.	UK	OSCE	Austria
Auna	Spain	Oesterreichische Nationalbank	Austria
Batterssea Reach	UK	Oxford University	UK
Bayrischer Rundfunk	Germany	Sejm Rzeczypospolitej Polskiej	Poland
Beatrix Potter Gallery	UK	Papyrusmuseum Wien	Austria
Bewog	Germany	Peace Palace the Haque	Holland
Billa AG	Italy	Philips Magyarország Kft.	Hungary
BMW	Germany	Philips Semiconductors	UK
Bürogebäude Baseler Platz	Germany	Princess Maxima Hospital	Holland
Cheadle Hospital	UK	Pro Banka	Slovenia
Coca Cola	Italy	Radici Novacips	Italy
Coloplast	Denmark	Ragn Sells	Estonia
Colt Telecom	Europe	Red Bull Racing	UK
Comune di Roma	Italy	Renfrew Community Council	UK
C-Quadrat	Austria	Rijksmuseum	Holland
Dainese	Italy	SABC	South Africa
Delft University	Holland	Sasó Klima Kft.	Hungary
Development Bank of South Africa	South Africa	Scania	Holland
Drogerie Markt	Slovenia	Seb Eup	Estonia
Eastern China Electric Power	China	Siemens Medical	Europe
Eilon	Estonia	Sigma-Tau	China
Emt	Estonia	Sitel Corporation	Italy
E.ON Benelux	Holland	Sivamont Kft.	Czech Republic
Fairfield Hospital	UK	St Mary's Hospital	Hungary
Fiducia	Germany	Standard Bank Centurion	UK
Fleetwood Hospital	UK	Stepping Hill Hospital	South Africa
Fondazione Gaslini	Italy	Supermercati Euro-Spin	UK
Fraunhofer Institut	Germany	Tallinna Masinatehas	Italy
Glasgow Caledonian University	Germany	Tatarski Republik Hospital	Estonia
Greater Manchester Police	UK	Telecom Argentina	Russia
Handmann	Germany	Telecom Italy	Argentina
Heineken Nederland	Holland	Telecom Italy Mobile	Italy
Henkel	Slovenia	Telefonica	Italy
Holiday Inn	Europe	Telkom South Africa	Spain
Hoteli Piran	Slovenia	T-Mobile Netherlands	South Africa
HRF Magyarorszáq Kft.	Hungary	Toughsan Mobil	Holland
Imperial College	Hungary	United Biscuits	China
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Istituto Nazionale delle Assicurazioni I.N.A.	Italy	Vodafone	Austria
Klaverblad	Holland	Vodafone - Omnitel	South Africa
LOH - Gruppe	Germany	Volksbank	Italy
Lonza S.p.A.	Italy	Volkswagen	Austria
Mardstone Hospital	UK	Xtera Moviles	Germany
Militärhospital Reutovo	Russia	Zagrebačka Banka	Spain
MTN	South Africa	ZK Getriebe	Croatia
	South Africa		Germany

