NEXT MTR: Air conditioners for Metrology Labs with upflow air delivery for matching with remote air cooled condenser (DX) or with built-in water cooled condenser (DW)

Cooling capacity: 7,1 ÷ 15,4 kW



rcgroup airconditioning

MAIN FEATURES

- Precision air conditioner for metrology labs.
- 10 models available, 2 versions for a wide selection opportunity.
 Available in two versions: for matching with remote air cooled condenser
- (DX) or with built-in water cooled condenser (DW)
- On/off scroll compressors
- Single refrigerant circuit.
- R407C refrigerant charge.EC plug fans.
- Steam humidifier.
- Debumidification system
- Dehumidification system with automatic air flow reduction.
- 3 working steps electric heater.
- Upflow air delivery, Over version.Suitable for indoor installation
- DX version:
- EER up to 3,92.
- DW version:
- EER up to 5,30
- · Built in water cooled condenser..

MAIN BENEFITS

- · Wide selection opportunity.
- High precision in maintaining the characteristics of temperature-humidity of the air conditioned room.
- · Humidifier, De-Humidifier, Electric heater supplied as standard.
- · High EER.
- · High efficiency at partial load.
- · Complete set of optional accessories: filters, plenum, panels, stand.
- · Easily of maintenance.



INDOOR INSTALLATION

The machines are designed for indoor installation.

WORKING RANGE

The machines are designed to maintain a room temperature between 20 and 26 °C (± 0.5 °C) with a relative humidity between 45 and 55% RH (\pm 3%).

The room has to be closed and with a good thermal insulation as clean rooms, metrology labs, etc.

It is possible to extend the operating range from a minimum of 16°C up to a maximum of 32°C with relative humidity from 40 to 60% RH. CAUTION:

In these operating conditions precision and accuracy of the control are reduced:

- Temperature: ± 1°C
- Humidity: ± 5%rH.



next mtr

MAIN COMPONENTS

FRAMEWORK

- Base in aluminium extrusion, painted with epoxy powders.
- Inner frame and upper frame in aluminium profile, painted with epoxy powders. The inner frame is provided with seals to ensure air tight with the panels.
- Galvanized steel sheet panels externally coated with PVC film and internally insulated with noise absorption material.
 The panels are fixed to the frame with non visible mounting system.
- Electric board in separate technical compartment on the machine front.
- Colour: RAL 9005 for base and frame
- Similar to RAL7015 for panels, with hammered finish
- Air intake from the front through honeycomb type grille and air delivery from the top.
- · Washable air pre-filters with G2 efficiency, with cells in synthetic fibre .

COMPRESSORS

- Orbiting spiral (SCROLL) hermetic compressors with spiral profile optimized for R407C refrigerant.
- · Continuous control of the cooling capacity by hot gas by-pass.
- 2-pole 3-phase electric motor with direct on line starting.
- Crankcase heater.
- · Electric motor thermal protection via internal winding temperature sensors.
- Terminal box with IP54 enclosure class.
- · Rubber supports.

FILTER SECTION

 Washable air filters with G4 efficiency, with cells in synthetic fibre and metallic frame (EN 779-2002).

EVAPORATING SECTION

- Heat exchanger coil with internally corrugated copper tubes and high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops.
- · Cooling capacity control.
- Frame in galvanized steel.
- · Condensate tray in peraluman with PVC flexible discharge pipe.

HEATING SECTION

- 3 working steps electric heater consisting of aluminium armoured elements with integral fins and safety thermostat (binary control logic).
- Modulating type hot gas reheating system.

HUMIDIFICATION SECTION

 Proportional controlled steam humidifier with immersed electrodes fitted with safety and running accessories.

DEHUMIDIFICATION SECTION

· Dehumidification system with automatic air flow reduction.

FANS SECTION

- Centrifugal fans with backward curved blades, single suction and without scroll housings (Plug-fans), directly coupled to external rotor electric motor. Brushless type synchronous EC motor with integrated electronic commutated system and continuous variation of the rotation speed. The motor rotation control is obtained with the EC system (Electronic Commutation) that manage the motor according to the 0÷10V proportional signal coming from the microprocessor control.
- · Temperature/humidity sensors on air intake.

REFRIGERANT CIRCUIT

- Thermostatic expansion valve.
- Sight glass.
- Filter dryer on liquid line.
- Pressure transducers with indication, control and protection functions, on low and high refrigerant pressure.
- · High pressure safety switch with manual reset.
- Safety valve.
- · Liquid receiver with accessories.
- 3-way modulating valve for hot gas re-heating system.
- Check valve for hot gas re-heating system.
- · Hot gas injection valve for capacity control.
- · Balancing valve for hot gas capacity control.
- Refrigerant circuit with copper tubing with anticondensate insulation of the suction line.
- · Plastic capillary hoses for pressure sensors connection.
- R407C refrigerant charge.
- NEXT MTR DX:
 - Valves on gas delivery and liquid return for coupling to remote air cooled condenser.
 - 0÷10V proportional signal to manage the condensing control system of the remote air cooled condenser.
- NEXT MTR DW:
 - Copper brazed plate type with cover plates, plates and connections in AISI 316 stainless steel.
- 0÷10V proportional signal to manage the condensing control system of the 2-way motorized valve.

ELECTRICAL PANEL

- In accordance with EN60204-1 norms complete with:
- · Main switch with door lock safety.
- Magnetothermic switch for supply fan, compressor, electric heaters and humidifier.
- Contactors for each load. The supply fans equipped with EC electric motor are not supplied with contactors.
- · Transformer for auxiliary circuit and microprocessor supply.
- · Panel with machine controls.
- Power supply: 400/3/50.

CONTROL SYSTEM

- MP.COM microprocessor system with graphic display for control and monitor of operating and alarms status. The system includes:
 - Voltage free contact for remote general alarm.
- Main components hour-meter.
- Nonvolatile "Flash" memory for data storage.
- Menu with protection password.
- LAN connection.

TO BE MATCHED WITH REMOTE CONDENSER

The DX units are designed to be matched with remote condensers with axial fans (TEAM MATE series) or plug-fans (TEAM MATE PF series).





TEAM MATE pg:145

TEAM MATE PF pg:149

NEXT MTR DX OPTIONAL ACCESSORIES

NEXT MTR DX	007 Z1	009 Z1	011 Z1	013 Z1	015 Z1
SIZE	H2	H2	H2	H3	H3
TEAM MATE remote condenser	•	•	•	•	•
TEAM MATE PF remote condenser	•	•	•	•	•
260 - Liquid solenoid valve	•	•	•	٠	•
			•	available accessory: -	not available accessorv

G ITC 0114 • RCGROUP SpA • 19632013 fiftycoolyears

COMMON OPTIONAL ACCESSORIES

NEXT MTR	007 Z1	009 Z1	011 Z1	013 Z1	015 Z1
SIZE	5 H2	5 H2	5 H2	5 H3	5 H3
220 - Electronic expansion valve	•				
606 - Compr. power factor capacitor - 0.9	•	•	•		•
865 - Phase control relay	•	•			•
610 - Noise deading cup on compressor	•	•	•		•
215 - Disposal E5 efficiency air filter	•	•			•
811 - Floor stand Hmax=450 mm	•	•	•		•
848 - Condensate discharge system (kit)	•	•	•		•
808 - Sandwich panels	•	•	•		•
807 - Blind frontal pannel	•	•	•		•
805 - Bottom panel	•	•	•	•	•
909 - Clogged filters alarm	•	•	•		•
912 -Air flow loss alarm FC Fan	•	•	•	•	•
911 - Water presence alarm	•	•	•	•	•
913 - Additional water sensor (kit)	•	•	•	•	•
843 - Motorized damper with frame	•	•	•	•	•
830 - Air discharge plenum with grilles	٠	•	•	•	•
831 - Plenum with frontal grille and sound absorber	•	•	•	•	•
832 - Air supply plenum with F6 filters	٠	•	•	•	•
833 - Air supply plenum with F7 filters	•	•	•	•	•
835 - Air supply plenum with F9 filters	•	•	•	٠	•
836 - Air supply plenum with sound absorber	•	•	•	•	•
906 - Outlet air temperature indication	•	•	•	•	•
919 - Clock card	•	•	•	•	•
907 - Current indication	•	•	•	•	•
908 - Voltage indication	•	•	•	•	•
923 - RC-Com MBUS/JBUS Serial board	•	•	•	•	•
926 - LON Serial board	•	•	•	•	•
932 - BACnet MS/TP Serial board	•	•	•	•	•
931 - BACnet Ethernet - SNMP - TCP/IP Serial board	•	•	•	•	•
942 - Serial card for GSM Modem	•	•	•	•	•
943 - Data Logger	•	•	•	•	•
922 - Driver card	•	•	•	•	•
962 - Kit modem GSM	•	•	•	•	•
957 - Plantwatch without modem	•	•	•	•	•
930 - Remote graphic terminal kit	•	•	•	•	•

TECHNICAL DATA - NEXT MTR DX

NEXT MTR DX		007 Z1	009 Z1	011 Z1	013 Z1	015 Z1
SIZE		S	S	S	S	S
Cooling capacity (1)		Π2	Π2	Π2	<u>п</u> э	ī
Total	kW	67	8.8	0.0	11.5	1/1 3
Sensible	kW	67	8.8	9,9	11,5	14,5
SHR	kW/kW	1.00	1 00	1 00	1 00	1 00
Unit power input (*)	kW	1 78	2 23	2 72	3 21	4 45
Supply fans	n	1	1	1	1	1
Air flow	m ³ /h	2300	3000	3300	4000	5500
Nominal external static pressure	Pa	50	50	50	50	50
Max external static pressure	Pa	625	530	480	600	640
Compressors		scroll	scroll	scroll	scroll	scroll
Quantity	n	1	1	1	1	1
Capacity steps	n.	Modulating	Modulating	Modulating	Modulating	Modulating
Air filters	n.	1	1	1	1	1
Efficiency		G4	G4	G4	G4	G4
Refrigerant		R407C	R407C	R407C	R407C	R407C
Refrigerant charge (2)	ka	5.4	5.4	5.4	6.8	6.8
Gas circuits	n.	1	1	1	1	1
Power supply (**)	V/Ph/Hz	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
Max operating current (FLA)	А	7,2	8,1	9,3	12,5	16,1
Unit starting current (LRA)	А	25,9	33,9	41,9	50,3	54,3
EER (1) (*)	kW/kW	3,78	3,92	3,65	3,58	3,21
Sound pressure – ISO 3744 (3)						
On air delivery	dB(A)	55,0	59,8	61,6	59,3	65,6
On air intake	dB(A)	54,4	54,8	55,1	55,9	57,1
Net weight	kg	235	242	249	300	312
Remote condenser (4)	n.	1	1	1	1	1
TEAM MATE STD series	Mod.	M 11	M 17	M 17	M 17	M 20
Hot gas reheating system		Modulating	Modulating	Modulating	Modulating	Modulating
Heating capacity	kW	7,7	8,4	9,0	10,6	11,9
Electric heater				-		
Capacity	kW	5,1	5,1	5,1	6,0	6,0
Capacity steps	n.	2	2	2	2	2
Humidifier						
Steam capacity	kg/h	3	3	3	3	3
Power input	kW	2,3	2,3	2,3	2,3	2,3
Refrigerant connections		10				10
Gas delivery	ODS Ø	16	16	16	18	18
Liquid return	ODS Ø	12	12	12	16	16
Connections	5.0	0/48	0/48	0/48	0/48	0/48
Humidifier filling	гØ	3/4"	3/4"	3/4"	3/4"	3/4

THE COOLING CAPACITY DOES NOT CONSIDER THE SUPPLY FAN MOTOR THERMAL LOAD 1. Characteristics referred to entering air at 24°C-50%RH; 35°C ambient temperature. 2. Unit refrigerant charge. Remote condenser, connections pipes and optional are excluded. 3. Noise level at 1 meter in free field (external static pressure 50 Pa) 4. For matching to other remote air cooled condensers please refer to RC WORLD selection program (*) The value includes the remote condenser as shown in the table. (**)

1. 2. 3. 4. (*) (**)

1erst mt Г Г

TECHNICAL DATA - NEXT MTR DW

S S	
SIZE H2 H2 H2 H3 H3 Cooling capacity (1) Total 10.2 12.4 45.4	
Cooling capacity (1)	
10.a1 KVV /,1 9,0 10,5 12,4 15,4	
Sensible kW 7,1 9,0 10,3 12,4 15,4	
SHR kW/kW 1,00 1,00 1,00 1,00 1,00 1,00	
Unit power input kW 1,33 1,81 2,20 2,52 3,33	
Condenser water flow rate m³/h 1,2 1,5 1,8 2,1 2,6	
Condenser pressure drop kPa 19 24 23 21 15	
Supply fans n. 1 1 1 1 1	
Air flow m ³ /h 2300 3000 3300 4000 5500	
Nominal external static pressure Pa 50 50 50 50 50 50 50	
Max external static pressure Pa 625 530 480 600 640	
Compressors Scroll Scroll Scroll Scroll Scroll Scroll Scroll	
Quantity n. 1 1 1 1 1	
Capacity steps n. Modulating Modu	ıg
Air filters n. 1 1 1 1 1	
Efficiency G4 G4 G4 G4 G4	
Refrigerant R407C R407C R407C R407C R407C R407C	
Refrigerant charge (2) kg 5,8 5,8 5,8 7,5 7,5	
Gas circuits n. 1 <	
Power supply V/Ph/Hz 400/3/50+N 400/3/50+N 400/3/50+N 400/3/50+N 400/3/50+N	⊦N
Max operating current (FLA) A 6,1 7,0 8,2 11,3 14,3	
Unit starting current (LRA) A 25,9 33,9 41,9 50,3 54,3	
Energy efficiency indexes (1)	
EER – Energy Efficiency Ratio kW/kW 5,30 4,99 4,68 4,92 4,62	
Sound pressure – ISO 3744 (3)	
On air delivery dB(A) 55,0 59,8 61,6 59,3 65,6	
On air intake dB(A) 54,4 54,8 55,1 55,9 57,1	
Net weight kg 239 242 249 300 312	
Hot gas reheating system Modulating Modulating Modulating Modulating Modulating Modulating	ng
Heating capacity kW 7,7 8,4 9,0 10,6 11,9	
Electric heater	
Capacity kW 5,1 5,1 5,1 6,0 6,0	
Capacity steps n. 2 2 2 2 2 2	
Humidifier	
Steam capacity kg/h 3 3 3 3 3	
Power input kW 2,3 2,3 2,3 2,3 2,3 2,3	
Connections ISO 228/1-G	
Condenser water inlet/outlet MØ 1 1/4" 1 1/4" 1 1/4" 1 1/4" 1 1/4"	
Humidifier filling FØ 3/4"	

THE COOLING CAPACITY DOES NOT CONSIDER THE SUPPLY FAN MOTOR THERMAL LOAD
Characteristics referred to entering air at 24°C-50%RH; water to the condenser 30-36°C
Unit refrigerant charge optional excluded.
Noise level at 1 meter in free field (external static pressure 50 Pa)

NEXT MTR DIMENSIONS (mm)

SIZE	а	b	с
H2	785	650	1925
H3	1085	750	1925

