

**MITSUBISHI ELECTRIC  
HYDRONICS & IT COOLING SYSTEMS S.p.A.**

IT COOLING

CLOSE CONTROL AIR CONDITIONERS

# NEXT X TYPE

**THE X REVOLUTION  
IN PRECISION  
AIR CONDITIONING**

# NEXT X TYPE

**CLOSE CONTROL AIR CONDITIONER  
WITH INNOVATIVE X COILS FROM 52 TO 182 kW**



## THE “X” REVOLUTION IN PRECISION AIR CONDITIONING

The NEXT X TYPE project has been developed and achieved according to the new, high  $\Delta T$  temperature standards of modern data centers and with the objective to maximize the performance of the machine.

An innovative air conditioner with a revolutionary idea, structure and application, with the aim to reduce energy consumption, dramatically reduce maintenance costs, provide high reliability and continuous operation.

Around these values, Mitsubishi Electric Hydronics & IT Cooling System's RC brand has developed the X TYPE project with a revolutionary double-stage cooling heat exchanger and has used the art components with high efficiency, in order to obtain the lowest pPUE index.



Innovative and unique “X” coils



Up to 30 m<sup>2</sup> of filter surface



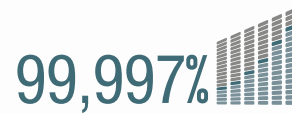
Outstanding energy management



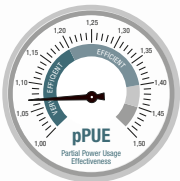
Reduced maintenance costs



No waste of water



Availability  
99,997%



Low pPUE=1,07



Modularity



SHR ratio=1



## FILTER SECTION

The section is divided into several boxes each containing two bag filters with G4 efficiency. The high filtering surface ensures a year of operation before replacement. Available also with standard plain filters for a reduced height.

## AIR HANDLING SECTION

Innovative double stage "X" coils. Low turbulence on air side. Reduced pressure drops versus a conventional coils.

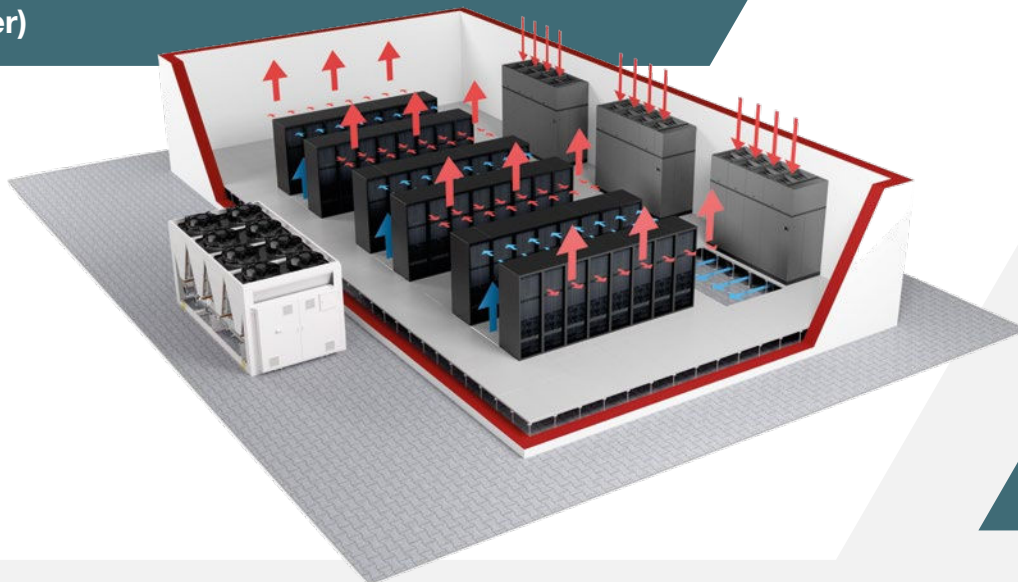
## FANS SECTION

New Plug Fans with EC electric motors and composite impeller of the latest generation, which guarantees a reduction of power consumption. The section is divided into several boxes each containing its own fan with safety net.

## FANS SECTION

### DOWNFLOW VERSION (Under)

Typical installation is on the perimeter. The units are placed along the perimeter of the data center. Air suction from the top of the unit and air delivery in the underfloor void. The air distribution is achieved by special tiles placed in front of the racks row, forming a cold aisle for air diffusion. Hot air is expelled from the rear of the racks hot aisle then aspirated by the unit.



# NEXT X TYPE

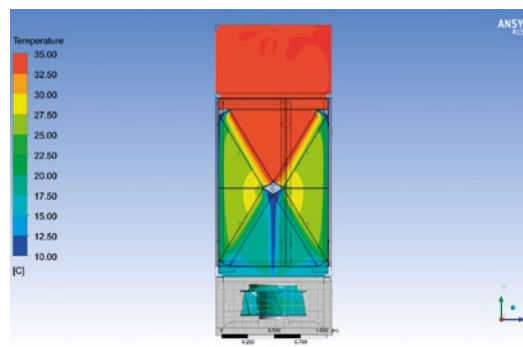
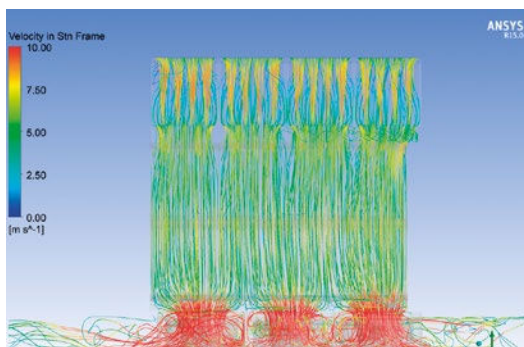
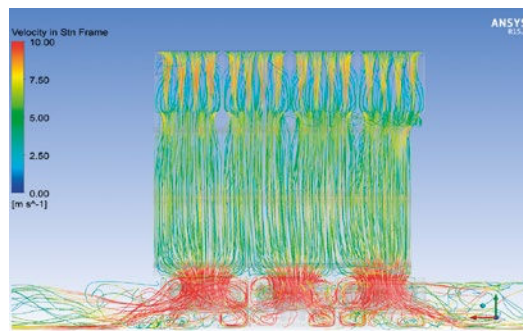
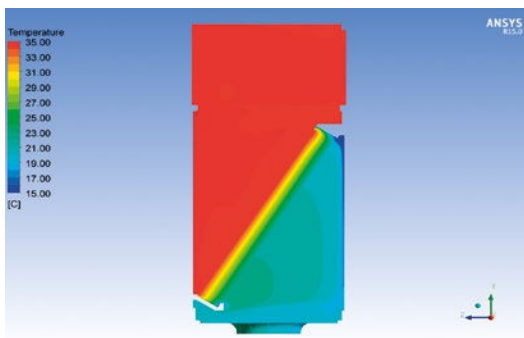
## A DETAILED CFD ANALYSIS FOR THE BEST

Mechanical design by a 3D software followed by a CFD analysis (Computational Fluid Dynamics) which is a branch of fluid mechanics that uses numerical methods and algorithms to solve and analyze problems that involve fluid flows.

CFD analysis was used to compare NEXT X TYPE with the traditional precision A/C solution consisting of a 140 kW cooling capacity unit with single 8-row coil.

CFD analysis of air flow and temperature of the prototype NEXT X TYPE.

### TRADITIONAL UNIT



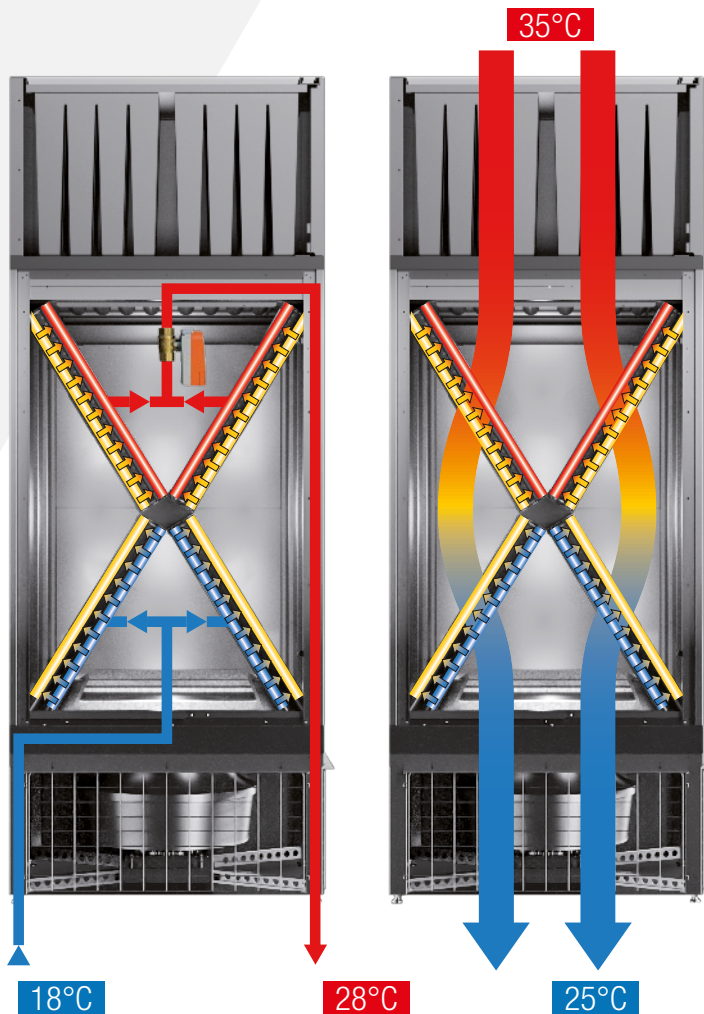
The results from this study was the construction of a prototype NEXT X TYPE, with a cooling capacity of 140 kW, characterized by an innovative layout to ensure the highest possible performance:

- ✓ SYMMETRICAL HEAT EXCHANGER
- ✓ TWO COOLING STAGES
- ✓ NO PIPING IN THE HEAT EXCHANGER SECTION
- ✓ SUPPLY FANS IN AXIS WITH THE HEAT EXCHANGER
- ✓ PRESSURE DROPS MINIMIZED



## INSIDE X

The heart of NEXT X TYPE is the innovative X coils.  
Compared with traditional coil systems, NEXT X TYPE has advantages in every respect.  
A new layout specifically developed to provide high heat transfer and lower air side and water side pressure drops.



## X COILS

4 sizes  
min  $\Delta T 10^{\circ}\text{C}$   
X coil  
Bag Filters  
Variable air flow  
Variable water flow

2-way motorized valve  
Air return temperature probe  
Air supply temperature probe  
Chilled water inlet temperature probe  
Chilled water outlet temperature probe

NEXT X TYPE has innovative operating conditions with  $\text{SHR}=1$  to maximize the performance of the machine.

Air return temperature:  $35^{\circ}\text{C}$  or higher  
Air delivery temperature:  $23^{\circ}\text{C}$  or higher  
Chilled water inlet temperature: min  $18^{\circ}\text{C}$  with  $\Delta T 10^{\circ}\text{C}$  or larger

## WIDE RANGE OF ACCESSORIES

NEXT X TYPE has a wide range of accessories designed to maximize the performance of the unit.

Software ADVANCED intelligent NET for IT Cooling, that maximizes the energy savings in Load Sharing  
Characterised control valve with sensor-operated flow  
Double power supply with automatic transfer switch  
M5, M6, F7 efficiency air filters.

RC CLOUD PLATFORM, the most advanced solution in unattended monitoring and remote management for an air conditioning plant.





# NEXT X TYPE



CLOSE CONTROL AIR CONDITIONER  
FROM 52 TO 182 kW

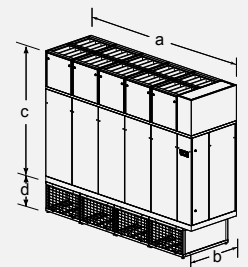


MODEL		T1 S	T2 S	T3 S	T4 S
<b>COOLING CAPACITY (1)</b>					
Total	kW	49,3	93,3	133	173
Sensible	kW	49,3	93,3	133	173
SHR	kW/kW	1	1	1	1
Power input	kW	1,2	2,9	4,5	6,2
EER (1)		40,7	32	29,3	27,8
Plug fans EC	n.	1	2	3	4
Air flow	m <sup>3</sup> /h	11000	21200	30600	40000
Nominal external static pressure	Pa	30	30	30	30
Max external static pressure	Pa	330	280	270	260
<b>"X" Type cooling coil</b>					
Water flow rate	m <sup>3</sup> /h	4,26	8,06	11,5	15
Pressure drop - coil + valve	kPa	21,6	43,5	33,6	31
Air filters	n.	4	6	8	10
Efficiency		G4	G4	G4	G4
Filtering surface	m <sup>2</sup>	11,8	17,6	23,5	29,4
Power supply	V/Ph/Hz	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
Max unit operating current (FLA)	A	4,4	8,7	13,1	17,4
<b>SOUND LEVEL - ISO 3744 (2)</b>					
On air delivery	dB(A)	74,2	75,7	76,8	77,7
On air intake	dB(A)	63,1	67,2	68,3	69
On front side	dB(A)	55,6	60	61,4	62,3
Net weight	kg	494	765	1042	1330
Net weight Air handling section		357	525	703	892
Net weight Filters section		64	94	120	146
Net weight Fans section	kg	73	146	219	292
<b>CONNECTIONS</b>					
Water inlet/outlet - ISO 7/1 - R	Ø	1+1/2"	2"	2"	2+1/2"
Condensate discharge - Rubber pipe	F Ø	1/2"	1/2"	1/2"	1/2"
<b>DIMENSIONS</b>					
a		1620	2260	2900	3540
b		1100	1100	1100	1100
c		2375	2375	2375	2375
d		525	525	525	525

THE COOLING CAPACITY DOES NOT CONSIDER THE SUPPLY FAN MOTOR THERMAL LOAD

(1) Characteristics referred to entering air at 35°C - 30%RH; chilled water temperature 18-28°C - 0% glycol

(2) Noise level at 1 meter in free field.





for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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