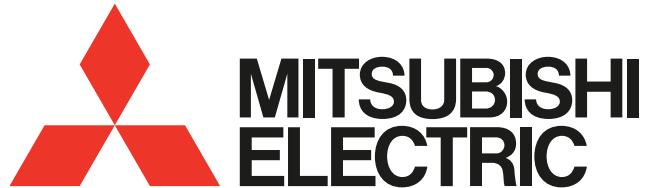


**Introducing...**



A brand of



# Timeline of MEHITS' Key Technologies



**RC is established**

1963

**Climaveneta is established**

1971



**Energy Raiser: FIRST MULTI-PURPOSE UNIT FOR COMBINED HEATING AND COOLING** in 4-pipe systems.



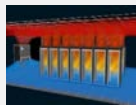
**UA / UH:** the first complete series of close control air conditioners for Computer rooms application.

1980

**FREE-COOLING**

The "free cooling liquid chillers" are introduced for process cooling.

1990



**Displacement Air Flow:** Close Control Air Conditioners with displacement air flow.

1997



**EUROVENT Certification**  
Climaveneta is **among the initiators** aligning Europe with the USA.

1999



**TECS chillers with oil-free technology**  
Pioneering high-efficiency liquid chillers equipped with **magnetic levitation compressors.**

2005



**RC CLOUD:** Web service for remote monitoring and management of air conditioning plants

2008



**FIRST 'FULL INVERTER' CHILLER**  
Pioneering high-efficiency liquid chillers equipped with inverter on screw compressors, fans and pumps.

2011



**FULL INVERTER**  
Full inverter technology applied to Close Control Air Conditioners for data center application.



**INNOVATIVE HVAC PLANT ROOM CONTROL AND OPTIMIZING SYSTEM** for top energy performance.

2012

# Timeline of MEHITS' Key Technologies



**COOLNET**  
RC AI

**COOLNET**  
Software for the Load Sharing in data center application for maximization of energy savings.

2013



**i-FX(1+i)**

**i-FX(1+i):** New inverter chiller with 1 **FIXED SPEED +1 VARIABLE SPEED COMPRESSOR** for highest efficiency **both at full and partial loads.**



**X TYPE**  
the unique precision air conditioner with innovative **X coils** for operation with  $\Delta T$  10°C or higher.

2014



Acquisition by Mitsubishi Electric Corporation

2015



**SIVIS**  
Innovative indirect adiabatic cooling system for Data Center

2016

**TX-W**

**TX-W: INNOVATIVE OIL-FREE CHILLER**

- More than **60 configuration**
- Efficiency **ESEER over 10,2**
- From **246 to 4191 kW CC**

2017

**MEHITS is established**

**i-FX-Q<sub>2</sub>**

**FIRST** multi-purpose heat pump for simultaneous production of hot and cold water with **FULL INVERTER TECHNOLOGY.**



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

**S-MEXT**

**S-MEXT**  
The first MEHITS "3-diamonds" branded product

2018

**i-FX**



**NEW PRODUCT RANGES WITH ECO-FRIENDLY** **R513A AND HFO 1234ze REFRIGERANTS.**



# Corporate Mission & 7 guiding Principles

The **Corporate Mission of the Mitsubishi Electric Group** is to continually improve its technologies and services by applying creativity to all aspects of our business. By doing so, we enhance the quality of life in our society.

## Mitsubishi Electric Hydronics & IT Cooling Systems spa

is the core company for central hydronic and IT cooling technologies within the group.

### 7 Guiding Principles

1



#### Trust

Establish relationships with society, customers, shareholders, employees, and business partners based on strong mutual trust and respect.

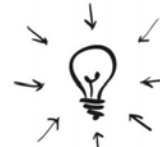
2



#### Quality

Provide the best products and services with unsurpassed quality.

3



#### Technology

Pioneer new markets by promoting research and development, and fostering technological innovation.

4



#### Citizenship

As a global player, contribute to the development of communities and society as a whole.

5



#### Ethics and Compliance

Conduct always in compliance with applicable laws and high ethical standards in all endeavors.

6



#### Environment

Respect nature, and strive to protect and improve the global environment.

7



#### Growth

Assure fair earnings to build a foundation for future growth.

## Timeline of MEHITS' Key Technologies



The Mitsubishi Electric Company specialized in hydronic systems for air conditioning and IT Cooling solutions.

It designs, manufactures, and markets high efficiency, reliable, economically viable, eco-sustainable solutions and value adding services worldwide, in particular by embracing renewable energy sources.

Headquartered in Italy.

Production facilities in Italy, China, and India.

We operate in the market with two brands:



A leading brand in central climate control systems and Process Cooling with 45 years' experience, providing products and value adding services in the most demanding projects worldwide.



Leading IT cooling solutions with 50 years' experience, a proven track of innovations, high quality and successful projects worldwide.

Please consult Climaveneta and RC websites for further details on the product ranges

Leadership in smart heat pumps for 2, 4 and 6 pipe systems

Extensive Range of  
Hydronic Chillers & Heat Pumps  
up to 4,550kW (1,295 Tons)

over **45** years  
of experience

Vast portfolio of  
Control, Monitoring  
and Optimisation  
systems

**12** specialized  
manufacturing hubs

Countless succesful projects worldwide

**7** R&D and testing labs worldwide

- Sales network
- Manufacturing hubs or R&D labs



# Product and Technologies

## CHILLERS

## HEAT PUMPS

## 4-PIPES HEAT PUMPS



- Residential chillers
- Reversible chillers
- Heat pumps optimized for heating



- Commercial and industrial chillers
- Commercial and industrial heat pumps



- Heat pumps for simultaneous and independent production of hot and cold water



Free cooling chillers

## PRECISION AIR CONDITIONERS

## AIR CONDITIONERS FOR HIGH DENSITY RACK AND BLADE SERVERS

## TELECOM SOLUTIONS

## DATA CENTER INFRASTRUCTURES



- Close control units
- Close control units with inverter
- Rack cooling solutions



Data center infrastructures



Dry coolers and remote condensers



Air conditioners for Telecom applications

## ROOFTOP UNITS

## ADIABATIC COOLING SYSTEMS



Fully configurable all-in-one rooftop units



Packaged fresh air units



Rooftop units for WLHP and WSHP systems



Indirect adiabatic cooling systems for data centers

## HYDRONICS TERMINALS



Cassette Type

Fan coil units

## AIR HANDLING UNITS



Air handling units

## CONTROL AND OPTIMISATION SYSTEMS



Group devices



Supervision devices



Metering devices



Control and optimization systems

# New Refrigerant Trends

## HFO 1234ze G04 SERIES



**Ozone Depletion Potential**

**COMPATIBLE WITH COMMON CONSTRUCTION MATERIALS**

- ✓ No special components
- ✓ No extra cost

**IN-LINE WITH ENVIRONMENTAL REGULATION OBJECTIVES**

- ✓ No future retrofit required

**NEGLIGIBLE GWP Global Warming Potential**

GWP<sub>100 year</sub> < 1



**RAPID MOLECULE DISINTEGRATION IN THE ATMOSPHERE**

- ✓ HFO 1234ze = 2 weeks (R134a = 14 years)

**APPROVED BY INTERNATIONAL STANDARDS**

- ✓ ASHRAE 34, ISO 817:
- ✓ A2L classification (non toxic, mildly flammable)

### PRODUCT RANGE WITH HFO 1234ze REFRIGERANT.

The G04 series with HFO 1234ze refrigerant is the greenest eco-friendly alternative to traditional refrigerants and the perfect solution for HVAC plants where environmental issue is a key priority. Featuring GWP values almost 0, the G04 series maintain very high efficiency values and operating performance similar to the R134a products.

CHILLERS



## R513a G05 SERIES



**THE GREEN ALTERNATIVE TO R134A**

**-56% GWP COMPARED TO R134A**

**NON-FLAMMABLE Safety Class A1**

**REDUCED GWP**

- ✓ R513A GWP<sub>100 year</sub>=572
- ✓ R134a GWP<sub>100 year</sub>=1300
- ✓ GWP values according to IPCC AR5

**NON-TOXIC, NON-FLAMMABLE**

- ✓ ASHRAE 34, ISO817: A1class

**FAVORABLE PHYSICAL PROPERTIES**

- ✓ Same cooling capacity delivered as R134a
- ✓ Same operating pressures as R134a

**IN-LINE WITH STANDARD BUILDING CODES**

- ✓ No special equipment
- ✓ No need for flammable risk assessment
- ✓ No extra costs

**COMPLIANT WITH ECO REGULATION OBJECTIVES**

- ✓ No future retrofit required
- ✓ Reduced price volatility

### PRODUCT RANGE WITH HFO 1234ze REFRIGERANT.

The green alternative to R134a  
Among the alternative refrigerants available on the market, the R513a of the G05 series features very low GWP values and 0 depletion potential.

CHILLERS



HEAT PUMPS



UNITS FOR SIMULTANEOUS AND INDEPENDENT PRODUCTION OF HOT AND COLD WATER





## Europe

### M11

#### Bassano-Italy

**Productive area: 12,500 m<sup>2</sup>**



- Scroll compressor chillers
- Scroll compressor reversible chillers
- Heat pumps up to 700 kW
- ISO 9001 / ISO 14001 / OHSAS18001

### M12

#### Belluno-Italy

**Productive area: 25,000 m<sup>2</sup>**



- Screw and oil-free compressor chillers
- Screw and oil-free compressor reversible chillers / Heat pumps
- Shell&tube evaporators
- ISO 9001 / ISO 14001 / OHSAS18001

### M13

#### Belluno-Italy

**Productive area: 7,000 m<sup>2</sup>**



- MEHITS Training Centre

### M14

#### Treviso-Italy

**Productive area: 10,000 m<sup>2</sup>**



- Residential chillers
- Heat pumps up to 50kW
- ISO 9001 / ISO 14001 / ISO 18001
- OHSAS18001

### M21

#### Valle Salimbene-Italy

**Productive area: 36,500 m<sup>2</sup>**



- Telecom solutions
- Rack cooling air conditioners
- Split air systems
- ISO 9001 / ISO 14001 / OHSAS18001

### M22

#### Valle Salimbene-Italy

**Productive area: 2,300 m<sup>2</sup>**



- Scroll compressor chillers and heat pumps up to 200 kW
- ISO 9001 / ISO 14001 / OHSAS18001

### M23

#### Zeccone-Italy

**Productive area: 7,500 m<sup>2</sup>**



- Close control air conditioners
- Telecom solutions
- ISO 9001 / ISO 14001 / OHSAS18001

## India

### M81

#### Bangalore - India

**Productive area: 2,500 m<sup>2</sup>**



- HPAC units
- Screw compressor chillers
- ISO 9001

## China

### M91

#### Shanghai-China

**Productive area: 15,000 m<sup>2</sup>**



- Liquid chillers
- Reversible chillers for the Chinese and SEA market
- ISO 9001, ISO 14001, OHSAS18001

### M92

#### Shanghai-China

**Productive area: 2,500 m<sup>2</sup>**



- HPAC units for the Chinese and SEA market
- ISO 9001, ISO 14001, OHSAS18001

### M93

#### Shanghai-China

**Productive area: 3,000 m<sup>2</sup>**



- AHU units
- Fan coil units
- Aluminium fin and copper tube coils
- ISO 9001, ISO 14001, OHSAS18001

### M94

#### Shanghai-China

**Productive area: 2,000 m<sup>2</sup>**



- Shell & tube Heat Exchangers
- Condensers and evaporators
- ISO 9001, ISO 14001, OHSAS18001

## Europe

### ML12 – New Testing Centre Belluno Italy



**Chillers, Heat Pumps, 4-pipe units, rooftop units, AHUs, IT cooling systems**

- Total Area: 4000 m<sup>3</sup>
- Up to 4800 kW
- From -20°C to +55°C
- Up to 100.000 m<sup>3</sup>/h
- Combined Testing of IT Cooling package (Chillers + HPAC units)
- UNI 14511
- ISO 9614-2

## China

### ML91 Shanghai-China



**Terminal units**

- GB/T 19232-2003
- GB/T 7725-2016

### ML92 Shanghai-China



**Chillers & Heat Pumps**

- GB/T 10870-2014

### ML93 Shanghai China



**Precision air conditioners**

- GB/T 17758-2010

### ML14 Treviso-Italy



**Terminal Units, small chillers & Heat Pumps**

- UNI 14511
- ISO 9614-2

### ML21 Valle Salimbene-Italy



**Chillers & Heat Pumps up to 1600 kW, Telecom solutions**

- UNI 14511
- ISO 9614-2

### ML24 Valle Salimbene-Italy

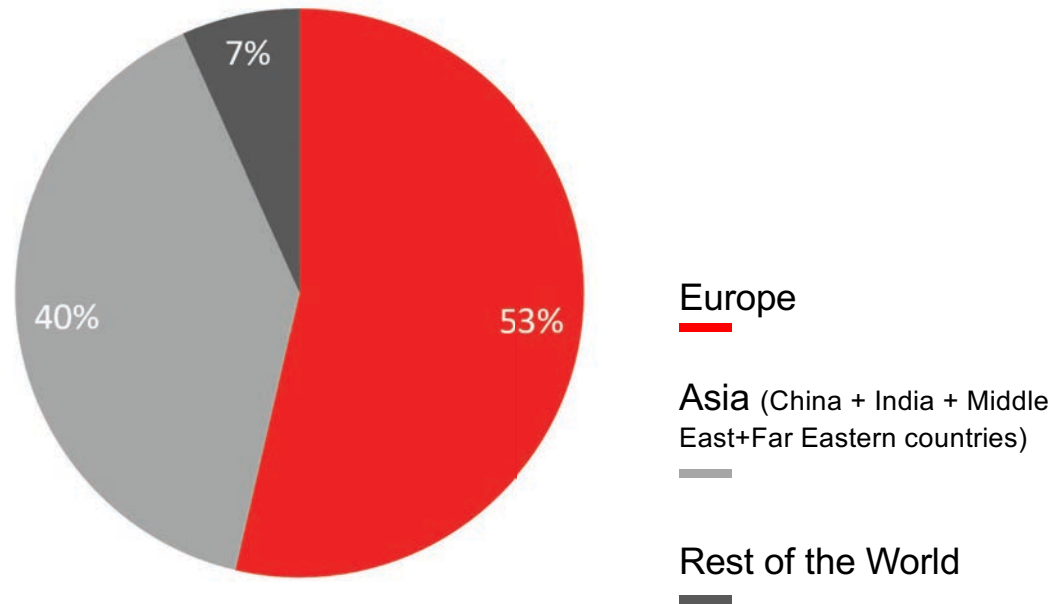


**Close control air conditioners, Rack cooling units**

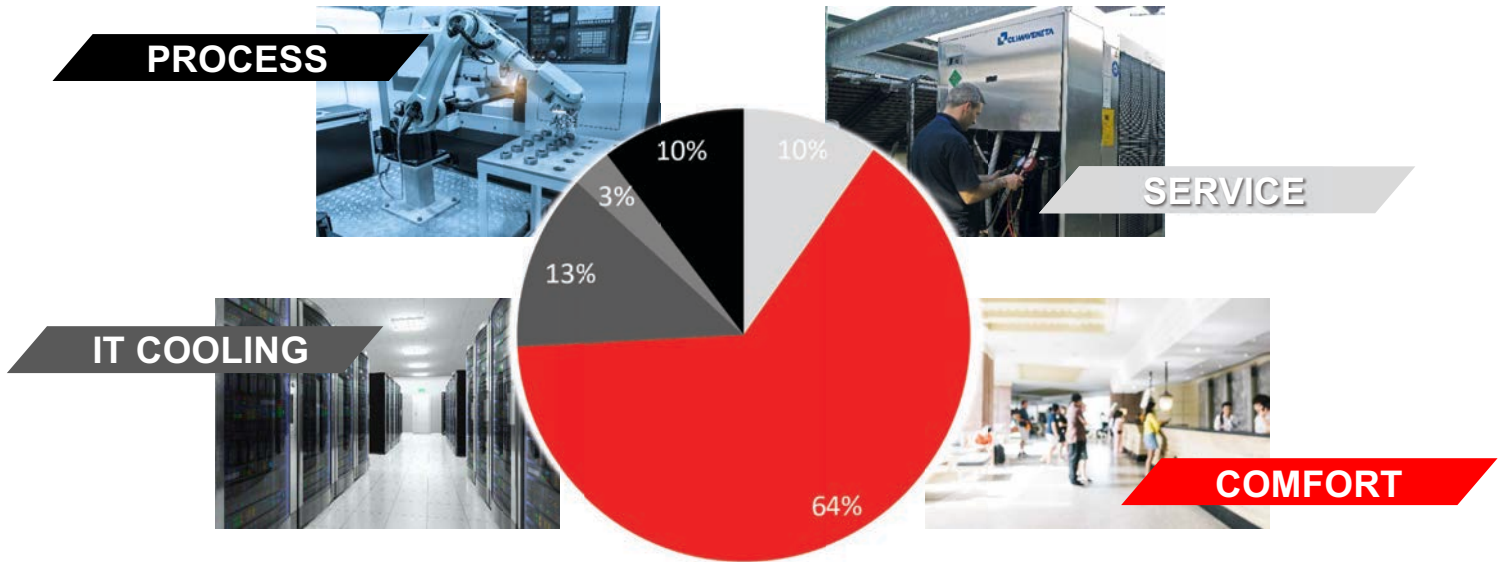
- EUROVENT 6/6
- ANSI-ASHRAE 2016

- ISO, UNI, ANSI-ASHRAE, Eurovent certified
- Simulation of naval applications
- Performance testing both at full and partial loads
- Failure tests
- Sound emissions tests
- Unit operation tests in severe conditions

## Turnover 2018 Breakdown by Region




## Turnover 2018 Breakdown by Segment



Comfort 

IT Cooling 

Process 

OEM 

Service 

# Brands & Segments: Climaveneta



Climaveneta's mission is to provide energy efficient heating and air conditioning solutions that enhance everyone's comfort, improve the profitability of a building, and do not contribute to an increase in CO2 levels.



Environmental  
Respect



Specific Solutions  
for each project



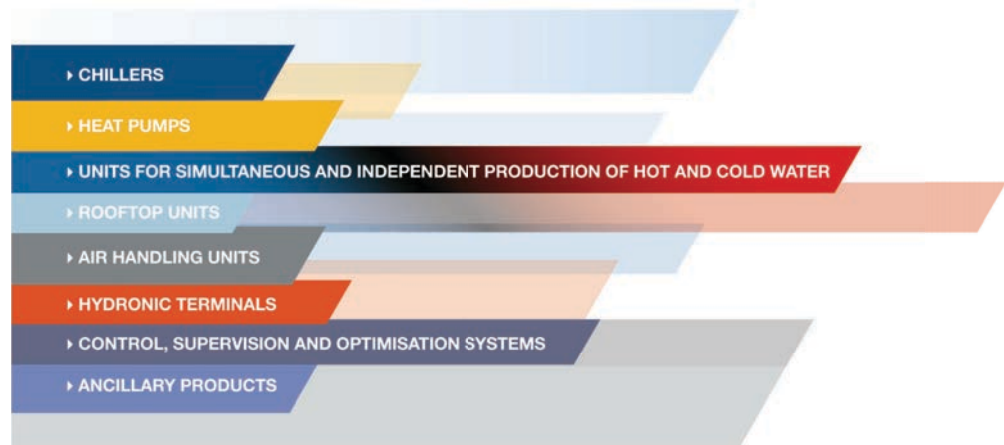
Lowest  
operating costs



**COMFORT APPLICATIONS**



**PROCESS APPLICATIONS**



## Brands & Segments: RC



With more than 50-year experience in the HPAC segment, RC brand provides ICT cooling solutions for data center, telecom applications and mission-critical applications needing precise temperature and humidity control.



Energy Saving



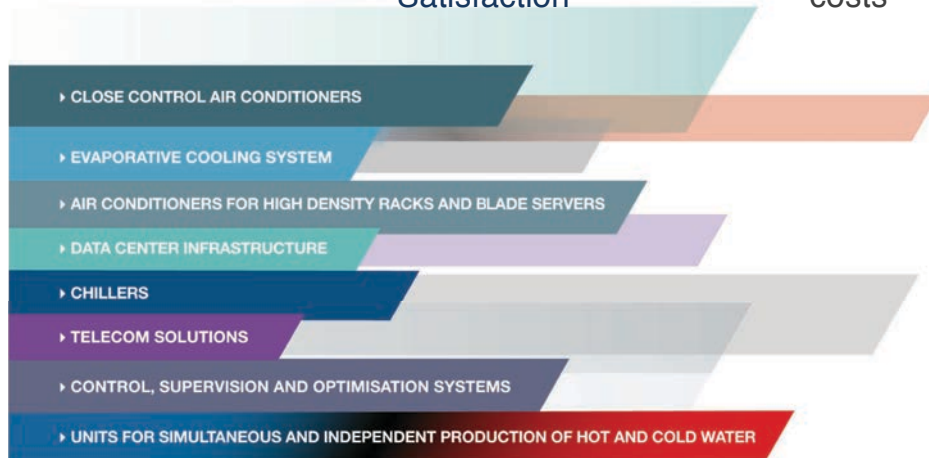
Deep Experience  
and Customer  
Satisfaction



Total reliability and  
Low operating  
costs



**IT COOLING APPLICATIONS**



# Segments



**COMFORT APPLICATIONS**



**PROCESS APPLICATIONS**



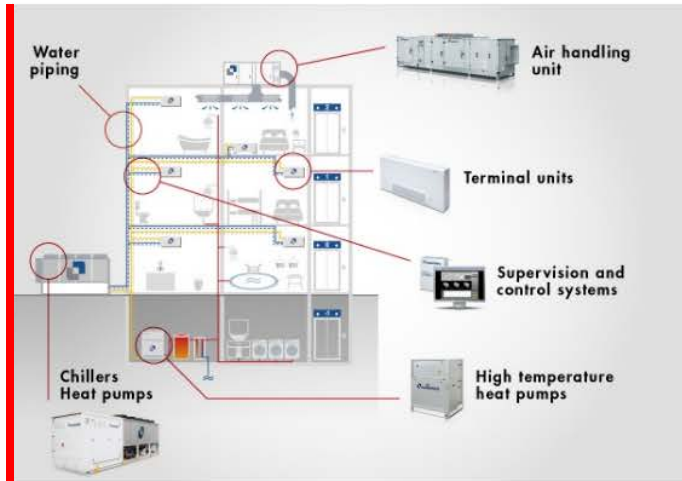
**DATA CENTER APPLICATIONS**



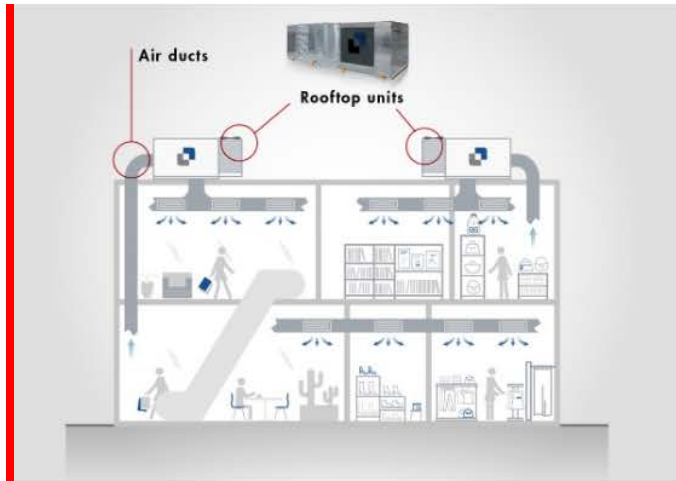


## COMFORT APPLICATIONS

A large array of solutions and systems for controlling environmental conditions (temperature humidity and air quality) in human occupied spaces.



COMFORT APPLICATIONS - HYDRONIC SYSTEMS



COMFORT APPLICATIONS - AIR TO AIR SYSTEMS



# Comfort: typical applications and examples

## OFFICE BUILDINGS



**The Willis Building**  
London – UK  
Hydronic System



## SPORT FACILITIES



**Singapore Sports Hub**  
Singapore  
Hydronic system



## HOTELS



**Sheraton Mirage Resort**  
Gold Coast - Australia  
Hydronic System



## SHOPPING CENTRES



**Marks & Spencers Dundrum**  
Dublin - Ireland  
Hydronic System



## EXHIBITIONS



**Milan EXPO 2016**  
Milan  
Hydronic System, Air-to-air System



## THEATRES



**La Fenice Theatre**  
Venice, Italy  
Hydronic System



## Comfort: Some of our business partners

### Clients

---



**Hotels:** Sheraton, Hyatt, Hilton, NH, Best Western, Ibis, etc.



**Finance:** BNP Paribas, Barclays, Unicredit, Santander, China Construction Bank etc.



**Office buildings:** Hines, Willis Insurances, Stanhope, British Land, Legal&General, etc.



**Shopping Centres:** Ikea, Marks & Spencer, Zara, Auchan, Carrefour, Konsum, etc.

### Architects

---

Foster + Partners  
David Chipperfield  
Zaha Hadid  
Renzo Piano  
Santiago Calatrava  
Sauerbruch Hutton  
Stanton Williams

HOK architects  
Murphy/Jahn  
Dominique Perrault  
Rogers Stirk Harbour + Partners

### Design

---

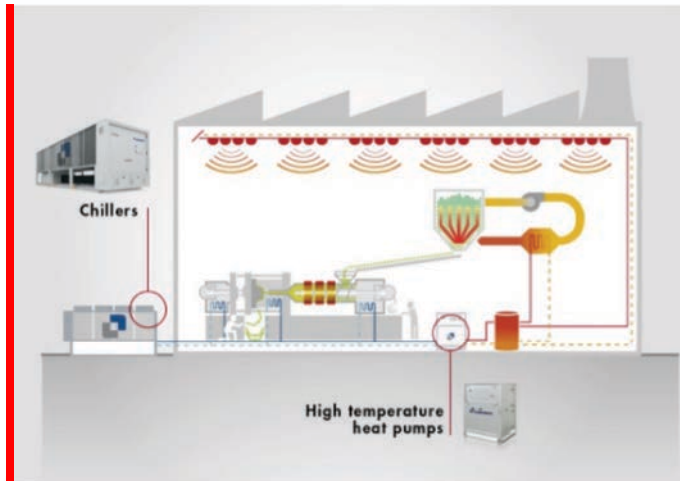
Aurecom  
Buro Happold  
Hoare Lea  
Arup  
AECOM  
BSG  
Cundall

Grontmij  
Meinhardt UK Ltd  
Flatt Consulting  
Watkins Payne  
Partnership  
Deerns

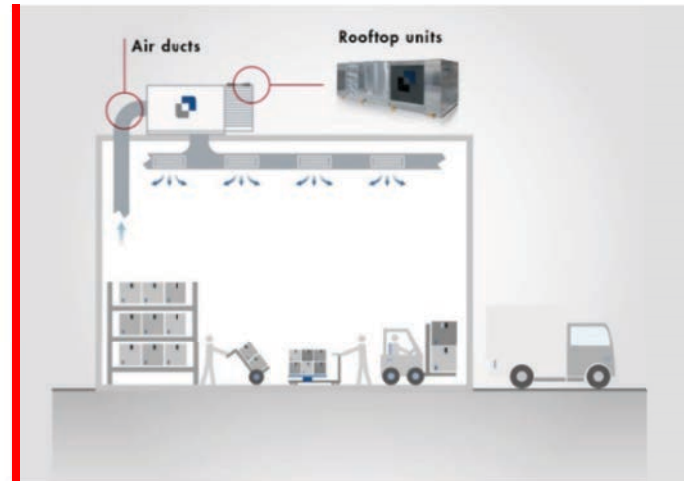


## PROCESS APPLICATIONS

A large array of solutions to provide temperature control of processes (food, pharmaceutical, automotive, plastic moulding, etc.) and ideal storage conditions.



PROCESS APPLICATIONS – HYDRONIC SYSTEMS



PROCESS APPLICATIONS – AIR TO AIR SYSTEMS

# Process: typical applications and examples

## AUTOMOTIVE



**Volkswagen Plant**  
San Paolo – Brasil  
Hydronic Systems



## MANUFACTURING



**Pirelli**  
Settimo Torinese  
Packaged Units Rooftops



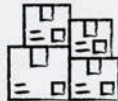
## FOOD



**Bodega Garzón**  
Uruguay  
Chillers + Air Handling Units



## LOGISTIC



**Amazon**  
Milan - Italy  
Centralised system



## PLASTIC MOULDING



**Husky Molding Systems**  
Chennai - India



## PHARMACEUTICAL



**Akzo Nobel Chemicals**  
Wurzen – Germania  
Hydronic System



## Process: Some of our business partners

### Clients



#### **Automotive:**

BMW, Opel, Bridgestone, Hella,  
Husqvarna, Seat, Jaguar,  
Volkswagen, etc.



#### **Manufacturing:**

Unilever, Bosch, SKF,  
Danfoss, Dupont, EBM Papst,  
Fuji, etc.



#### **Logistic:**

Amazon, Inditex,  
etc.



#### **Wineries:**

Cantine Antinori, Concha y Toro,  
Bodega Garzon, Distell, etc.

#### **Pharmaceutical:**

Akzo Nobel Chemicals, Bayer,  
Henkel, LG Chemicals: Merck  
Serono, etc.



#### **Food Industry:**

Coca Cola, Unilever, Eataly,  
Guinness, etc.



#### **Energy:**

Hong Kong Electric, Vestas,  
Brunei Shell Petroleum, etc.



#### **Electronic and Automation:**

ABB, Magneti Marelli, Bosch,  
Siemens, etc.

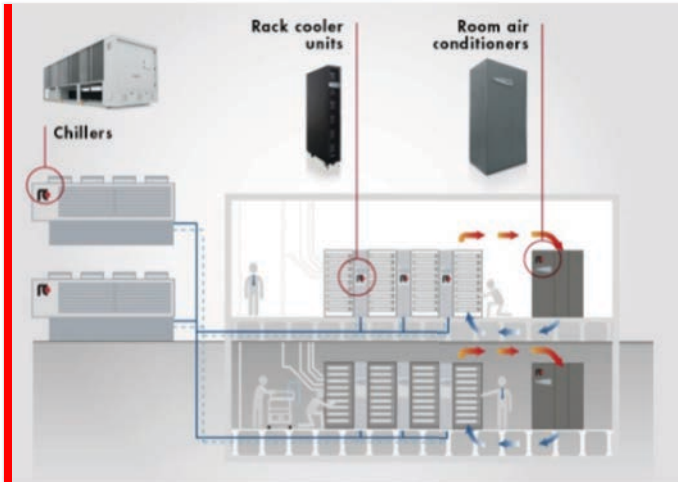


# Timeline of MEHITS' Key Technologies

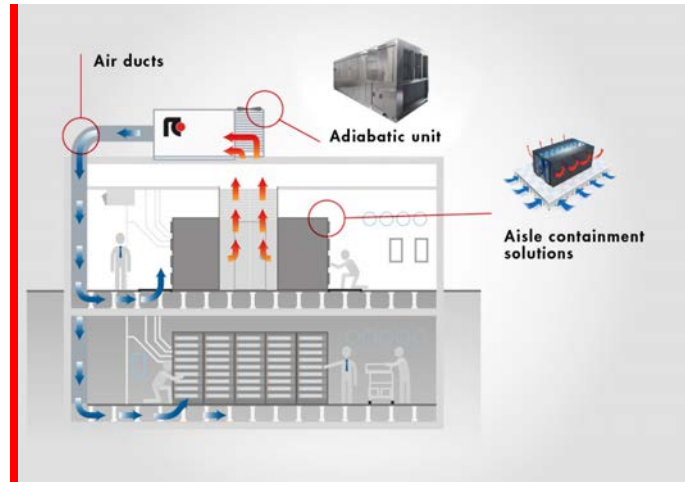


## DATA CENTER APPLICATIONS

A large array of solutions and systems to provide precise temperature, humidity control and filtration for ICT data centres and Telecom applications.



IT COOLING APPLICATIONS - HYDRONIC SYSTEMS



IT COOLING APPLICATIONS - AIR TO AIR SYSTEMS

# IT Cooling: typical applications and examples

## TELECOMMUNICATIONS



### **Bouygues Telecom**

France  
HPAC, IT Cooling



## GOVERNMENT

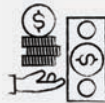


### **Ministère de l'intérieur**

France  
Chillers + HPAC,  
IT Cooling



## FINANCE



### **China Construction Bank**

China  
IT Cooling



## INTERNET



### **Galileo connect London**

London –Great Britain  
Chillers + HPAC,  
IT Cooling



## Clients

---



### Data Center customers

IBM

Fastweb

Vodafone

China Construction Bank

Barclays

BNP Paribas

French Ministry of the Interior

German Military Airforce

US Air force

### Telecom customers

Hi3G

Telefonica Chile

Ericsson



### Data Center Developers

COLT Telecom

DeLL

Telecity Group







## Examples of Relevant Projects



## Office buildings



### PRINCIPAL PLACE LONDON

Great Britain – London



Application  
MIXED-USE DEVELOPMENT

Installed Units:  
6x TECS2-W/LC 1453  
1x FOCS2-W/R/CA-E  
1801

Cooling Capacity:  
9243 kW

Heating Capacity:  
478 kW



### EUSTON ROAD

Great Britain – London



Application  
OFFICE BUILDINGS

Installed Units:  
1x ERACS2-Q/SL-CA/S 2222  
1x TECS2/SL-CAE/S 0512  
1x ClimaPRO

Cooling Capacity:  
1022 kW

Heating Capacity:  
541 kW



## SHERATON MIRAGE RESORT

Gold Coast – Australia



Investor:  
Sheraton Hotel Group

Application:  
HOTEL AND RESORTS

Plant type:  
Hydronic System

Cooling capacity: 3000 kW

Installed machines:  
2x TECS2, 1x ERACS-W,  
1x ClimaPRO



## HANGZHOU LADISON HOTEL

Zhejiang - China



Application  
HOTEL AND RESORTS

Cooling Capacity:  
1900 kW

Installed Units:  
1x Oil free centrifugal  
chillers

TECS-W5204L-E



## TIANJING INDUSTRIAL HEALTH PARK

Tianjing - China



Application  
MUSEUMS

Installed Units:  
3x AQS065M-N-E-LT

Cooling Capacity:  
200 kW

Heating Capacity:  
200 kW



## FONDAZIONE PRADA

Milan - Italy



Application  
MUSEUM, OFFICE BUILDING

Installed Units:  
4x ERACS2/WQ 3202  
1x EW-HT 0152  
2x NECS-W 0262  
1x KlimaPRO

Cooling Capacity:  
3.480 kW

Heating Capacity:  
3.764 kW



## JINAN QIANFOSHAN HOSPITAL

Shandong - China



Application  
HEALTHCARE

Cooling capacity: 2900 kW  
Heating capacity: 3200 kW  
Heat recovery: 3700 kW

Installed Units:  
4x 4-Pipe Air source  
Screw Heat Pumps  
CSRAN2722-Y-Q



## GUSTAVO FRICKE HOSPITAL

Viña del Mar - Chile



Application  
HEALTHCARE

Cooling capacity: 6381 kW  
Heating capacity: 5711 kW

Installed Units:  
1x ERACS2-Q/SL-CA 2722, 2x  
FOCS-N/B 2622, 4x FOCS-N/B  
3222, 2x FOCS-N/B 2222, 1x  
MANAGER 3000

## Process cooling - Logistic



**BGX LOGISTIC**  
Shanghai - China



Application  
INDUSTRIAL PROCESS

Cooling Capacity:  
12101 kW

Installed Units:  
8x FX-FC/T 4802, 3x  
FOCS2/K 2652, 3x  
FOCS/B/S 1542



**AMAZON LOGISTIC HUB**  
Piacenza - Italy



Application  
PROCESS COOLING

Cooling Capacity:  
3980 kW

Heating Capacity:  
4126 kW

Installed Units:  
3x ERACS2-Q 3222, 2x  
FOCS-N/CA 3222, 1x  
ClimaPRO



## **CCB - CHINA CONSTRUCTION BANK DATA CENTER** Beijing - China



Application:  
DATA CENTER

Cooling capacity: 70000 kW

Plant type:  
Hydronic System

Installed machines:  
48x free cooling chillers, 4x  
heat pumps



## **WUXI SUPER COMPUTING CENTRE** Jiangsu Province - China




Application:  
Data Center

Installed machines:  
18x TECS-W/H water  
cooled chillers

Investor:  
Ministry of Science and  
Technology

Cooling Capacity:  
28000 kW (28 MW)



**mitsubishi**  
**ELECTRIC**  
*Changes for the Better*