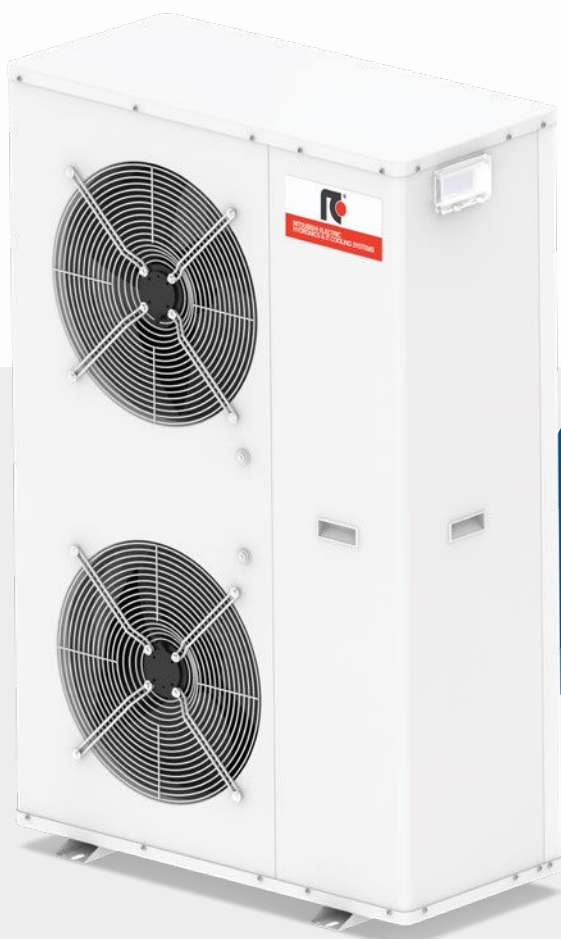


COMFORT

CHILLERS

i-BR

**AIR-COOLED LIQUID CHILLER
FOR OUTSIDE INSTALLATION
FROM 4,3 TO 35,1 kW**



i-BR

PERFECT COMFORT AND MAXIMUM EFFICIENCY



Air-cooled liquid chiller for outside installation from 4,3 to 35,1 kW



Outdoor unit for cold water production, with hermetic rotary compressors with variable speed (Inverter Driven) in a single-circuit configuration using R410A refrigerant, air side heat exchanger with copper tubes and aluminum fins, water side steel brazed plate heat exchanger. The unit is equipped with electronic expansion valve and integrated hydraulic module as standard.

A flexible and reliable unit that adapts to the actual load conditions thanks to the accurate temperature control combined with the use of inverter technology. The precise design and the use of innovative variable speed motors (inverters) ensures a high level of energy efficiency both at full and partial loads.

THE CHILLER FOR EVERY NEED

System efficiency

The unit is designed with a system approach: all components are set in synergy according to a proprietary logic to maximise the efficiency of the unit.

High efficiency at partial loads

High values of seasonal efficiency thanks to the modulation of the compressor with DC inverter technology so that the unit provides the exact thermal power in correspondence with the actual needs of the building. High efficiency which translates into reduced energy consumption throughout the unit's working period.

COMFORT APPLICATIONS

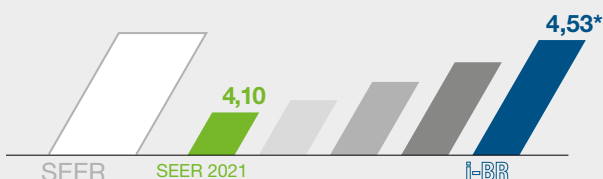
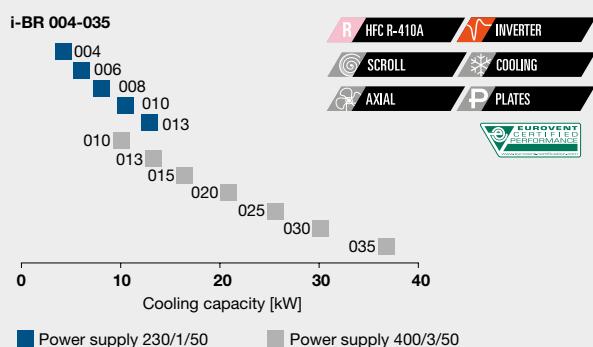
- ✓ Commercial premises.
- ✓ Infrastructure for entertainment.
- ✓ Offices.
- ✓ Hotels and Resorts.
- ✓ Health facilities.
- ✓ Centralized systems that can be implemented with cascade systems.

ErP READY



73% of the time, the chiller works to meet half the building's cooling load. In fact, only one working point is no longer an expression of the efficiency of the unit, the focus is on seasonal efficiency.

A WIDE RANGE FOR EVERY NEED



The ErP directive was introduced with the aim of reducing the energy consumption of products through an environmentally friendly design. A new indicator of seasonal energy efficiency has therefore been defined, the Seasonal Energy Efficiency Ratio (SEER), to allow users of cooling systems to easily compare the efficiency of the chiller.

*average values

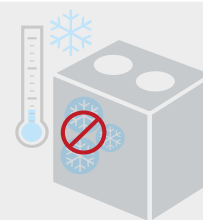
EASY INSTALLATION

The i-BR units are packaged mono-block chillers that are particularly easy to install. The pipe connections are hydraulic; therefore it is not necessary to carry out the typical procedures of direct expansion air-conditioning systems (vacuum, refrigerant topping up, etc.). The hydraulic components are all contained inside the unit: circulator with EC motor, expansion tank, safety valve, relief valve, flow switch and net type filter (not installed).



PROTECTED IN EVERY CONDITION

Dedicated algorithms prevent the formation of ice inside managing the operation of



- ▶ electrical resistance on the plate heat exchanger.
- ▶ activating the pump according to the outdoor air temperature.
- ▶ enabling the inside of the flow switch due to lack of flow.

The unit is also designed to work with brine-free mixtures up to a leaving temperature of -8°C .

NIGHT FUNCTION

Reduces the sound level of the unit, reducing the compressor frequency and fan speed.



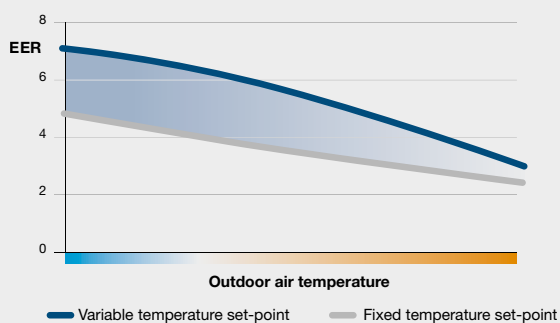
EXTENDED OPERATING LIMITS

Full load operation is guaranteed up to 45°C outside air temperature during the summer season, and up to -10°C outside air temperature during the winter season.

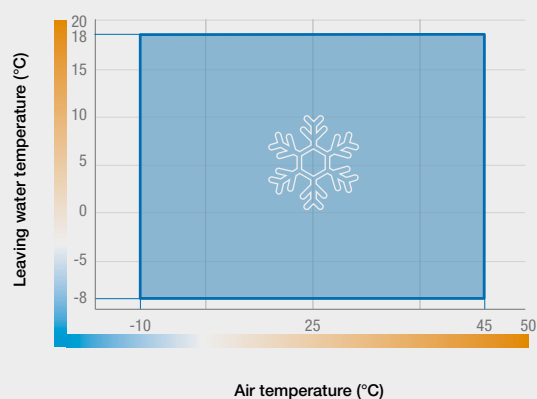
The unit is able to produce chilled water with evaporator outlet temperatures from -8°C to 18°C .

DYNAMIC WATER SET POINT

Dynamic control of the water supply temperature depending on the outdoor air temperature greatly increases the comfort and energy efficiency of the system.



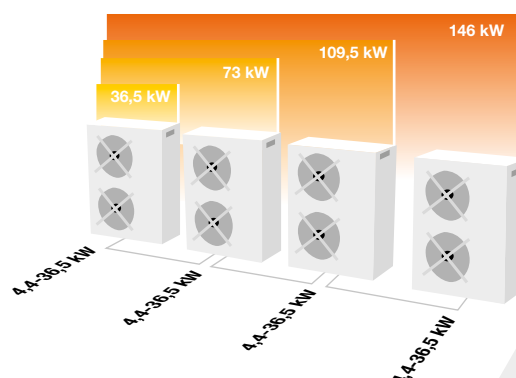
Full load operating limits



CASCADE SYSTEMS MANAGEMENT

In the event that the thermal requirements are high, up to 4 units (of the same power) can be connected in cascade.

- ▶ Managed in master slave mode, with the master unit that takes care of processing the information and then transmitting it to the slave units.
- ▶ Accurate sizing of the system and precise modulation of the power supplied maintaining high performance.



TECHNOLOGICAL CHOICES

Structure

Structure consisting of a base and self-supporting hot galvanized steel panels, painted with RAL 7035 polyester powders.

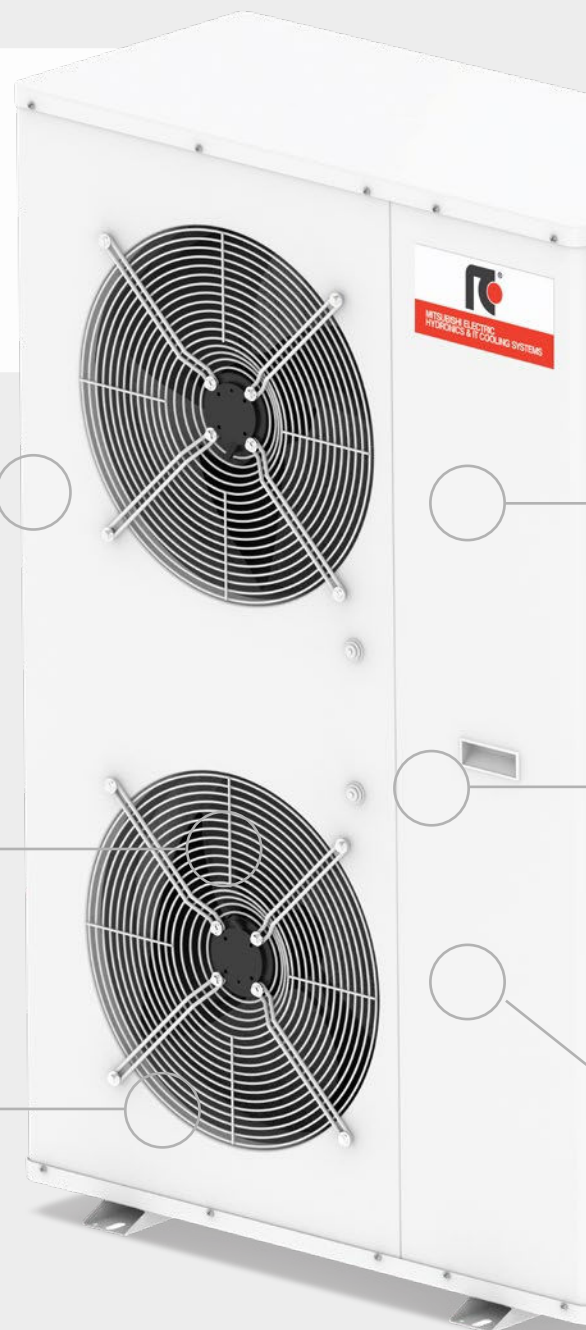
- ▶ Solidity and robustness.
- ▶ Maximum accessibility for service and maintenance operations.

Fans

Axial fans with continuous regulation of the speed, which improves the air distribution obtaining low consumption and minimizing the sound level.

Coil

- ▶ Condenser with copper pipes and aluminum fins.
- ▶ Coil protection grids as standard up to size 015.



nadisystem



NADICompact

- ▶ Functional keys
- ▶ Graphic display and icons

Allows quick and easy consultation and intervention on the unit by means of a multi-level menu.

NADISYSTEM control

- ▶ Setting the water set point with fixed or dynamic value with the Climatic curve.
- ▶ Antifreeze protection depending on the water temperature and outside air temperature.
- ▶ Production of domestic hot water.
- ▶ Management of external auxiliary sources.
- ▶ Two zones with different water temperature distribution
- ▶ Weekly programming up to 6 timeslots.
- ▶ Digital input for night function (Night mode).
- ▶ Remote connectivity to BMS systems via serial card (accessory).

INTEGRATED HYDRONIC UNIT



EC PUMP

All the hydraulic components for the installation of the unit are already included without increasing its size.

- ▶ EC pump, brushless motor with electronic switching to guarantee low consumption and high system efficiency.
- ▶ Water flow switch, to protect the exchanger for low water flows.
- ▶ Safety valve.
- ▶ Expansion vessel.
- ▶ Air release valve.
- ▶ Net type filter, not mounted but supplied with the unit.

Evaporator

- ▶ Brazed plate heat exchanger made of AISI 316 stainless steel, externally coated with an anti-condensation mat in closed cell neoprene (CFC and HCFC-free).
- ▶ Thermostatic electric heater to protect against ice formation on the inside.
- ▶ Low pressure drops and optimized heat transfer.

Refrigerant circuit

New piping layout, no vibration or resonance.

- ▶ Electronic expansion valve as standard:
 - optimized flow of refrigerant in the circuit.
 - rapid start-up.
 - extension of operating limits.



Compressor

Mitsubishi Electric compressors, synonymous with quality, reliability and high performance at partial loads.

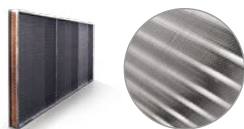
The compressor is installed on rubber anti-vibration mounts and soundproofed by special sound-absorbing material.



ADDITIONAL ACCESSORIES

Coils and treatments

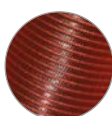
Cu/Al - Epoxy painting Opt.



Cu/Al - Epoxy painting Opt.

- 3000h Resistance to corrosion in salt fog according to ASTM B117.
- Resistance to UV rays.

Cu/Cu - Tube & fin coil (Opt. 881).



Remote Keypad and Cascade Drive Management Kit.

Rubber anti-vibration mounts.

Hydronic group

Configuration without the hydronic group is available. The hydronic group is comprised of the following components:

Safety valve, air release valve, antifreeze electric heater, water flow switch, and net type filter (not installed).

Remote connectivity

Serial card for ModBus protocol.

Buffer tank

Buffer tank to be installed under the unit and dedicated piping connections:

- ▶ BTB 30: 30-liter storage tank (size 004-015).
- ▶ BTB 60: 60-liter storage tank (size 020-030).

Buffer insulated tanks to be installed in the technical room:

- ▶ BT 35: 35-liter storage tank (wall installation);
- ▶ BT100: 100-liter tank;
- ▶ BT200: 200-liter tank.



i-BR

Air-cooled liquid chiller
for outside installation
from 4,3 to 35,1 kW.



i-BR			004	006	008	010	013	010
Power supply		V/ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3+N/50
PERFORMANCE								
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	4,3	6,11	8,1	10,6	12,9	10,7
Total power input	(1)	kW	1,55	2,12	2,82	3,64	4,74	3,64
EER	(1)	kW/kW	2,77	2,88	2,87	2,91	2,72	2,94
ESEER	(1)	kW/kW	4,2	4,36	4,7	4,29	4,55	4,36
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	4,3	6,11	8,11	10,6	12,9	10,7
EER	(1)(2)	kW/kW	2,82	2,92	2,92	2,92	2,74	2,95
ESEER	(1)(2)	kW/kW	4,53	4,6	5,08	4,34	4,69	4,42
Cooling energy class			C	B	B	B	C	B
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(7)	kW	4,3	6,11	8,11	10,6	12,9	10,7
SEER	(7)(8)		4,38	4,43	4,93	4,39	4,78	4,46
Performance η_s	(7)(9)	%	172	174	194	172	188	176
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow		l/s	0,21	0,29	0,39	0,51	0,62	0,51
Available unit's head	(1)	kPa	50,7	38,1	61,8	55,6	55,3	52,7
REFRIGERANT CIRCUIT								
Compressors nr.		N°	1	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1	1
Refrigerant charge		kg	1,45	2,1	3,55	3,6	3,65	3,6
NOISE LEVEL								
Sound Pressure	(3)	dB(A)	33	34	35	38	39	38
Sound power level in cooling	(4)(5)	dB(A)	64	65	66	69	70	69
SIZE AND WEIGHT								
A	(6)	mm	900	900	900	900	900	900
B	(6)	mm	370	370	420	420	420	420
H	(6)	mm	940	940	1240	1240	1240	1240
Operating weight	(6)	kg	75	80	95	110	125	110

Note

- 1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
- 2 Values in compliance with EN14511-3:2013.
- 3 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
- 4 Sound power on the basis of measurements made in compliance with ISO 9614.
- 5 Sound power level in cooling, outdoors.
- 6 Unit in standard configuration/execution, without optional accessories.

7 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]

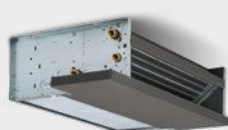
8 Seasonal space heating energy index

9 Seasonal energy efficiency of the space cooling

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

Certified data in EUROVENT

HYDRONIC TERMINALS



a-LIFE HP



a-CND



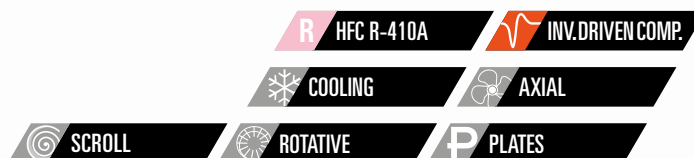
a-CHD



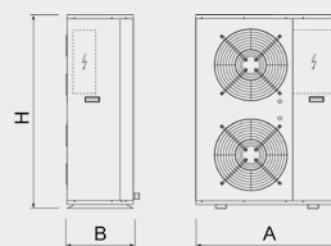
i-CND



i-CHD



i-BR			013	015	020	025	030	035
Power supply			V/ph/Hz	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50
PERFORMANCE								
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	13,3	15,5	20,6	25	29,8	35,1
Total power input	(1)	kW	4,74	5,44	7,2	8,69	10	11,8
EER	(1)	kW/kW	2,81	2,85	2,86	2,88	2,98	2,97
ESEER	(1)	kW/kW	4,57	4,14	4,12	4,26	4,15	4,29
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	13,3	15,5	20,6	25	29,9	35,2
EER	(1)(2)	kW/kW	2,82	2,87	2,88	2,9	3,01	3
ESEER	(1)(2)	kW/kW	4,69	4,2	4,2	4,36	4,27	4,39
Cooling energy class			C	C	C	B	B	B
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(7)	kW	13,3	15,5	20,6	25	29,9	35,2
SEER	(7)(8)		4,8	4,31	4,31	4,52	4,52	4,57
Performance η_s	(7)(9)	%	189	169	169	178	178	180
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow		l/s	0,64	0,74	0,99	1,2	1,43	1,68
Available unit's head	(1)	kPa	51,7	76,7	66,3	60,3	90	73,5
REFRIGERANT CIRCUIT								
Compressors nr.		N°	1	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1	1
Refrigerant charge		kg	3,65	4,7	6,8	7	7,9	8,4
NOISE LEVEL								
Sound Pressure	(3)	dB(A)	39	43	43	43	44	45
Sound power level in cooling	(4)(5)	dB(A)	70	74	74	75	76	77
SIZE AND WEIGHT								
A	(6)	mm	900	900	1450	1450	1450	1700
B	(6)	mm	420	420	550	550	550	650
H	(6)	mm	1240	1390	1200	1700	1700	1700
Operating weight	(6)	kg	125	135	190	250	270	305



The i-BR range is compatible with all RC branded hydronic terminals.





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.



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

Head Office: Via Roma 5 - 27010 Valle Salimbene (PV) - Italy

Tel +39 (0) 382 433 811 - Fax +39 (0) 382 587 148

www.rcitcooling.com

www.melcohit.com