

MR-H/FC-INVERTER

CHILLERS WITH INVERTER AND INTEGRATED FREE COOLER



The series MR-H FC **INVERTER** offers two functions in one cabinet: the chiller function and the free-cooler function.

The main advantage of this type of machines is the extremely **easy installation**: one inlet and one outlet for the water circuit and only one electrical connection.

MR-H FC **INVERTER** are equipped with two rows of fans, one of the rows is dedicated to the free-cooler and the other row is dedicated to the chiller. This is the best way to grant high reliability to the system and easy cleaning of the finned coils both of the chiller and of the free-cooler.

Three models are forming the extremely high efficiency series MR-H/FC-**INVERTER**, which includes the most advanced technical solutions presently available on the market, having cooling capacities from **90 kW to 200 kW**.

All the three models grant the highest possible efficiency at any thermal load.

MR-H /FC-INVERTER



R 410A



TECHNICAL DATA

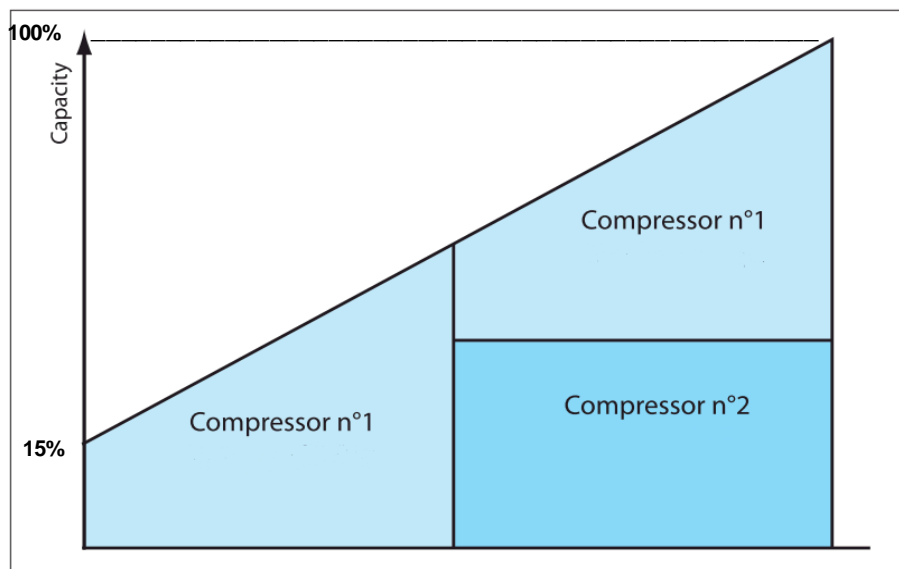


- chiller fans and Free Cooler fans completely independent
- stainless steel high efficiency brazed plate evaporator
- stainless steel centrifugal pump
- SCROLL compressors : one ON/OFF and one controlled by **inverter**
- axial fans with brushless motors both on the free-cooler and on the refrigeration side
- electronic thermostatic valve
- finned coil condenser (copper tubes and aluminium fins)
- independent air-water heat exchanger of the free-cooler
- three-way valve controlled by thermostat (installed inside)
- frame and panels made of galvanised steel coated with polyester paint
- all components easily accessible

• The final result of the combined action of all these components is the lowest possible energy consumption together with a very accurate operating temperature.

Advantages:

- **continuous regulation of the cooling capacity**
- **high precision of the machine set point**
- **minimum energy consumption**



The graphic shows how the two compressors work: compressor 1 is the special Scroll compressor controlled by **inverter**, compressor 2 is the traditional Scroll type On/Off.

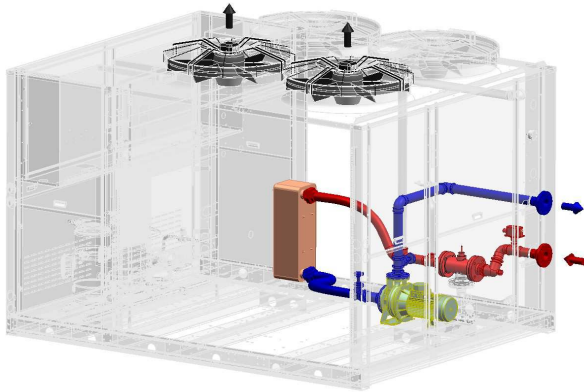
The coupling of the two compressors allows a continuous regulation of the cooling capacity between **15% and 100% of the nominal capacity** with an extremely high accuracy.



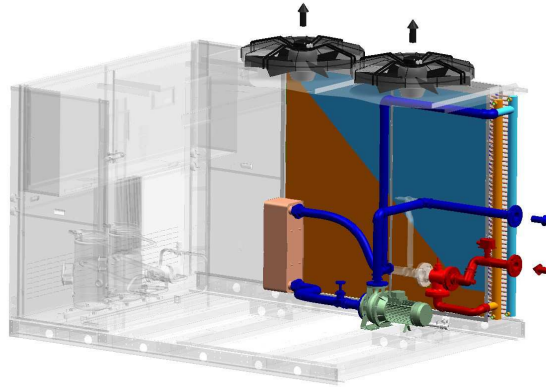
TWO MACHINES IN ONE



OPERATING SCHEME



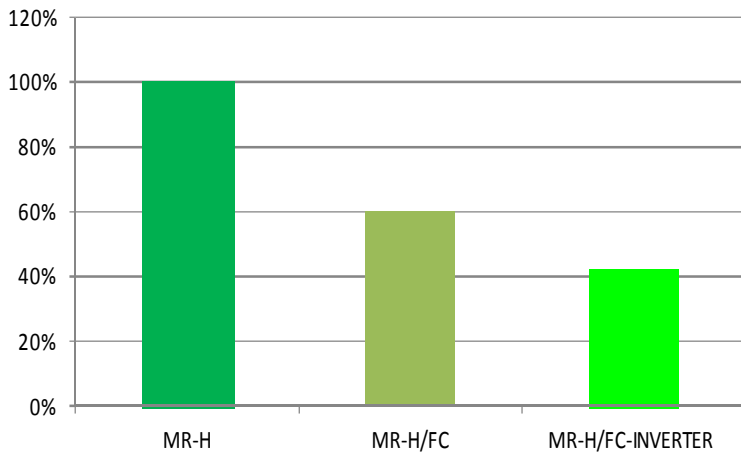
Summer operation as chiller



Winter operation as Free Cooler

ENERGY SAVING MR-H/FC-INVERTER

Energy consumption



The graphic shows the energy consumption of a traditional chiller MR-H. Energy saving of about 40 % is granted by the solution of chiller with integrated free-cooler. The newest **MR-H/FC/INVERTER** grant the highest Energy **saving up to 58%**.

Calculations refer to the following working conditions: 24h/day, water temperature 15°C, Milan temperatures.

ENERGY SAVING 30.000 kWh/year for each 50 kW of installed cooling capacity.



TECNICAL DATA

MOD.	MR-H 102/1 - FC-INVERTER	MR-H 152/1 - FC-INVERTER	MR-H 252/1 - FC-INVERTER
Chiller cooling capacity (*)			
kW	90	125	200
kcal/h	77.400	107.500	172.000
Free Cooler cooling capacity (**)			
kW	120	120	180
kcal/h	103.200	103.200	154.800
Compressor input power			
n°	2	2	2
KW	17,3	24,0	36,9
Chiller Axial Fans			
n°	2	2	3
kW	4	4	6
m3/h	39.000	33.340	50.000
Free Cooler Axial Fans			
n°	2	2	3
kW	4	4	6
m3/h	39.000	33.000	50.000
Water pump			
kW	3	4	4
l/min	100 ÷ 333	200 ÷ 700	200 ÷ 700
bar	4,2 ÷ 2,8	3,9 ÷ 2,6	3,9 ÷ 2,6
Pipe connections			
BSP	2"	2"	3"
Dimensions			
mm	2860	2860	4525
mm	2150	2150	2150
mm H	2000	2000	2000
Net weight			
kg	1700	1750	3100

*Referred to outlet water temperature 15°C and ambient air temperature 25°C, based on the compressor's highest rotation speed at 100% of the refrigerant load

**With a temperature difference of 10°C between ambient air and outlet water from the Free Cooler, based on the fans highest rotation speed at 100% of the refrigerant load

Refrigerant :Ecological Gas R 410A -Power supply 400V/3ph/50Hz

Options:

- water/glycol filling system
- remote control (distance up to 50m)
- high pressure pumps
- water filter
- special voltages
- Condenser with microchannels

Green Box Srl reserves the right to change the specification of these machines without previous notice. Release 01 04/2014

