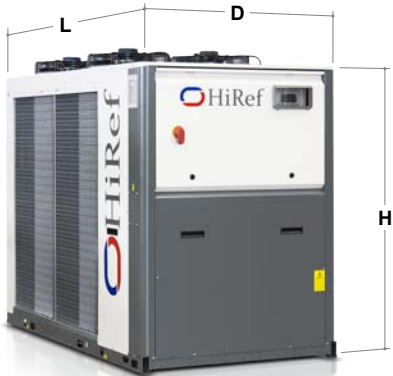


MHA

CHILLERS
AND HEAT PUMPS

AIR CONDENSED
WITH SCROLL BLDC INVERTER
COMPRESSORS



Available also for 60 Hz power supply

		25	30	35	62	81	82	102	104	121	122	124	142	144	171	172	174	204	244	294		
HIGHEST EFFICIENCY		Water conditions: 12/7°C; 35°C outdoor air																				
Cooling capacity	kW	14.8	21.5	28.1	53.8	74.9	71.0	90.1	80.0	104.6	117.1	113.0	141.8	126.3	131.5	145.0	142.2	176.6	213.1	216.0		
Total Power Input	kW	4.8	6.9	9.0	17.4	24.1	21.4	29.1	25.8	33.7	37.5	36.2	45.4	40.7	42.5	46.4	45.7	56.9	68.7	69.7		
EER (UNI 14511)		3.10	3.10	3.12	3.10	3.10	3.32	3.10	3.10	3.10	3.12	3.12	3.13	3.11	3.10	3.13	3.11	3.10	3.10	3.10		
HIGHEST EFFICIENCY		Water conditions: 16/10°C; 35°C outdoor air																				
Cooling capacity	kW	16.4	23.8	31.0	59.1	82.1	77.9	98.8	88.0	114.4	131.7	123.8	155.7	138.7	144.2	159.2	156.3	191.2	234.2	237.0		
Total Power Input	kW	4.8	7.0	9.1	17.7	24.6	21.8	29.7	26.3	34.4	40.0	37.0	46.1	41.3	43.2	47.3	46.4	56.1	69.7	71.0		
EER (UNI 14511)		3.42	3.41	3.40	3.33	3.33	3.58	3.33	3.35	3.32	3.29	3.34	3.38	3.36	3.34	3.36	3.37	3.40	3.36	3.34		
HIGHEST EFFICIENCY		Water conditions: 26/20°C; 35°C outdoor air																				
Cooling capacity	kW	21.8	31.6	41.0	71.4	99.1	93.9	120.7	104.7	136.2	156.5	150.9	196.4	173.7	176.0	200.5	194.4	243.6	295.2	294.0		
Total Power Input	kW	4.9	7.3	9.7	18.3	25.5	22.3	30.7	26.3	34.6	39.3	38.2	49.1	43.7	44.0	50.6	48.2	59.6	73.7	75.7		
EER (UNI 14511)		4.49	4.34	4.22	3.90	3.89	4.20	3.93	3.98	3.93	3.98	3.96	4.00	3.97	4.00	3.96	4.03	4.09	4.00	3.89		
MAXIMUM CAPACITY		Water conditions: 12/7°C; 35°C outdoor air																				
Cooling capacity	kW	20.5	30.4	35.8	66.3	88.0	76.1	98.2	101.7	117.5	126.0	125.1	148.6	157.4	171.2	158.5	170.2	205.1	251.5	280.8		
Total Power Input	kW	7.5	12.3	15.6	24.4	30.9	23.9	33.7	37.3	40.5	42.7	43.3	48.6	53.9	61.6	52.8	59.7	71.6	87.9	101.2		
EER (UNI 14511)		2.72	2.48	2.30	2.72	2.84	3.19	2.91	2.72	2.90	2.95	2.89	3.06	2.92	2.78	3.00	2.85	2.86	2.86	2.77		
Total Free Cooling temperature	°C	0	-3.0	-4.2	-	-2.9	-	-	-4.6	-2.6	-	-3.3	-	-2.7	-3.7	-	-3.6	-3.7	-3.4	-4.7		
MAXIMUM CAPACITY		Water conditions: 16/10°C; 35°C outdoor air																				
Cooling capacity	kW	22.7	33.7	39.4	72.4	96.2	83.7	107.6	111.3	128.3	138.3	136.9	162.9	172.7	187.1	173.5	186.8	224.7	275.3	306.9		
Total Power Input	kW	7.6	12.5	16.0	25.0	31.6	24.4	34.5	38.1	41.4	43.6	44.2	49.5	54.8	62.9	53.8	60.7	72.7	89.6	103.5		
EER (UNI 14511)		2.99	2.70	2.47	2.90	3.04	3.44	3.12	2.92	3.10	3.17	3.10	3.29	3.15	2.97	3.22	3.08	3.09	3.07	2.96		
Total Free Cooling temperature	°C	2.5	-0.9	-2.3	-	-0.7	-	-	-2.6	-0.4	-	-1.1	-	-0.5	-1.7	-	-1.5	-1.6	-1.2	-2.7		
MAXIMUM CAPACITY		Water conditions: 26/20°C; 35°C outdoor air																				
Cooling capacity	kW	30.0	44.5	51.8	88.1	116.1	101.2	131.8	137.3	155.5	171.5	168.1	201.4	215.4	234.6	215.1	234.5	289.3	345.4	387.7		
Total Power Input	kW	7.9	13.3	17.4	26.2	32.5	25.1	36.0	40.5	42.8	46.2	45.9	50.9	57.5	66.6	56.0	64.0	78.1	93.8	112.1		
EER (UNI 14511)		3.80	3.33	2.98	3.36	3.57	4.03	3.66	3.39	3.63	3.72	3.66	3.96	3.74	3.52	3.84	3.66	3.71	3.68	3.46		
Total Free Cooling temperature	°C	10.4	5.9	4.1	-	6.8	-	-	4.5	6.5	-	5.3	-	6.1	5.1	-	5.1	5.4	6.0	4.4		
ESEER		3.86	4.12	4.55	4.16	4.30	4.15	4.29	4.14	4.40	4.45	4.40	4.39	4.40	4.45	4.34	4.45	4.55	4.54	4.46		
Sound power	dB(A)	80	80	84	87	90	88	90	88	93	94	88	94	91	96	94	91	94	94	94		
Sound power version Low Noise	dB(A)	77	77	81	83	86	84	86	84	89	90	84	90	87	92	90	87	90	90	90		
Dimensions (LxDxH)	mm	1661x914x1468			2090 x 1185 x 1735		2972x1185x1735				3540x1185x1735						3538 x 1653 x 1847		3538 x 1653 x 2247		4206 x 1653 x 2247	
Weight (without optional equipment)	kg	410	418	424	600	789	789	789	789	1085	1085	1085	1390	1390	1430	1430	1470	1620	1943	1985		

(1) Free-Cooling version not available for this Efficiency Pack



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HF65000412 rev.B

ITALIAN
COOLING
SOLUTIONS



CHILLERS AND HEAT PUMPS
AIR CONDENSED WITH SCROLL BLDC INVERTER COMPRESSORS

MHA



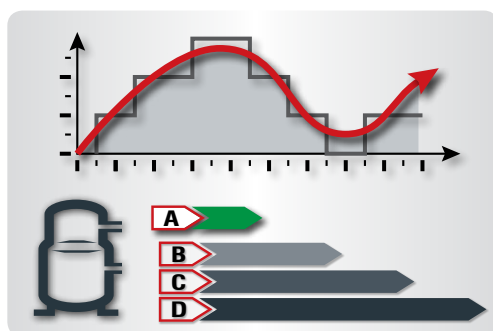
23 - 709 kW



CHILLERS AND HEAT PUMPS

AIR CONDENSED WITH SCROLL BLDC INVERTER COMPRESSORS

DOUBLE MANAGEMENT OF THE DELIVERED CAPACITY



The integrated software of the **MHA** range controls the delivery of the cooling/heating capacity by means of a dual logic on Scroll ON/OFF compressors and BLDC modulating compressors:

- **Maximum capacity:** the compressors are driven by inverters at the maximum frequency, in order to quickly reach the set-point conditions
- **Maximum efficiency:** the software calculates the highest efficiency point of the machine in order to minimise operating costs.

ADVANTAGES OF THE MODULATION



DC inverter compressors are frequency modulated, thus the starting currents are significantly limited.

EFFICIENCY AND RELIABILITY ACCORDING TO THE INSTALLATION NEEDS



Depending on the machine size and on any special engineering installation needs, the chiller circuit is available in different versions:

- **EFFICIENCY PACK 1:** Dual compressor on a double circuit, for high system redundancy
- **EFFICIENCY PACK 2:** Dual compressor (tandem) on a single circuit, for higher efficiency at partial loads
- **EFFICIENCY PACK 3:** Three compressors (trio) on a single circuit, for higher efficiency at partial loads
- **EFFICIENCY PACK 4:** Four compressors (double tandem) on a double circuit, for a system that is both redundant and efficient at partial loads.

CARE FOR DETAILS AND FOCUS ON NOISE



According to the site specific requirements, a MHA unit can come in standard or Low-Noise execution. To reduce the noise emissions the fan speed is managed, anti-vibration elements are used in the refrigerating circuit, compressors and pumps are installed in a soundproof box (HiRef's new HI-BOX®).

MHA is the HiRef's range of air cooled liquid chillers that uses a combination of Scroll ON/OFF compressors and BLDC (Brushless DC-inverter) modulating compressors. Thanks to a precise control of the delivered cooling capacity, based on achieving the **maximum capacity** or the **maximum energy** efficiency of the system, the plant operating costs are cut down to a minimum. The high level of configurability of the range (layout of refrigerating circuit, sound emission level and available sizes), combined with the large number of accessories and selectable options make the **MHA** chillers especially versatile and suited to many applications.

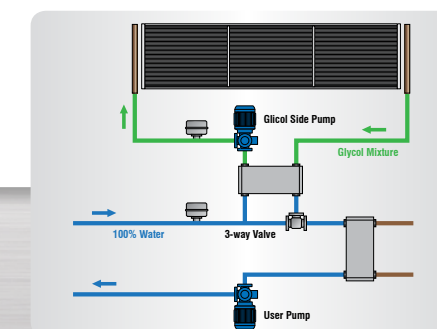
MAXIMUM EFFICIENCY AT PARTIAL LOADS

The high precision of the hot wire flow switch (down to 1/10 the nominal flow rate), combined with pump modulation through the control software, allows optimal matching between the unit capacity and the flow rate in the primary circuit. This optimises the water flow requested at each operating point and reduces the power absorbed by the hydraulic module, in any case preventing ice from forming inside the evaporator.



ESEER = 4.3

GLYCOL-FREE KIT



The Free-Cooling versions can be selected with the "Glycol-Free" kit (onboard) in order to confine glycol inside the coils' tubes. This solution makes it possible to maximise efficiency during the heat exchange to the evaporator using pure water exclusively, as well as to drastically reduce pumping costs.



- » Refrigerant R410A
- » Available in the version:
 - Liquid chiller
 - Free-Cooling
 - Reversible heat pump
- » Water flow management down to 25% of the nominal one
- » Electronically-controlled expansion valve (standard)
- » Quick water connections
- » Programmable microprocessor with dedicated software
- » Electronic flow switch