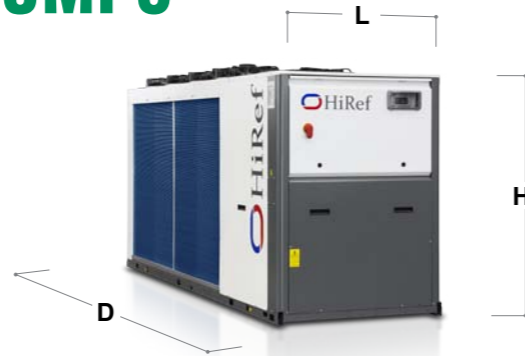


# MSA

## MULTI-PURPOSE HEAT PUMPS

AIR CONDENSED  
WITH SCROLL COMPRESSORS



MSA P (For 4 pipes)		041	051	061	071	081	094	104	124	144	164	194
<b>COOLING - Water conditions: user side 12/7°C; outside air temp. 35°C</b>												
Cooling capacity (UNI 14511)	kW	49.4	54.8	64.4	72.0	80.5	98.0	108.4	127.2	141.8	160.1	184.4
Total absorbed power (UNI 14511)	kW	16.1	18.3	20.5	23.7	27.0	32.6	37.1	41.8	48.3	54.3	65.6
EER (UNI 14511)		3.07	2.99	3.14	3.04	2.99	3.01	2.92	3.04	2.93	2.95	2.81
ESEER		4.13	4.08	4.24	4.19	4.09	4.47	4.55	3.98	4.07	4.21	4.32
<b>HEATING - Water conditions: user side 40/45°C; outside air temp. 7°C</b>												
Heating capacity (UNI 14511)	kW	51.0	57.6	68.8	74.1	82.7	100.9	113.6	135.1	152.9	172.4	199.6
Total absorbed power (UNI 14511)	kW	16.9	19.0	21.5	24.5	27.1	33.7	38.0	43.8	50.2	55.7	64.2
COP (UNI 14511)		3.03	3.03	3.20	3.02	3.06	2.99	2.99	3.08	3.05	3.10	3.11
SCOP		3.69	3.77	3.65	3.72	3.81	3.47	3.56	3.22	3.32	3.45	3.57
ERP efficiency	%	148	151	146	149	152	139	142	129	133	138	143
ERP Efficiency Class		A+ / L.T. HP	A++ / L.T. HP	A+ / L.T. HP	A+ / L.T. HP	A+ / L.T. HP	A+ / L.T. HP	A+ / L.T. HP	A+ / L.T. HP	A+ / L.T. HP	A+ / L.T. HP	A+ / L.T. HP
<b>COOLING AND HEATING - Water conditions *</b>												
Cooling capacity (UNI 14511)*	kW	47.1	52.7	61.0	68.8	78.9	93.8	105.1	120.5	135.6	155.1	183.7
Heating capacity (UNI 14511)*	kW	62.7	70.5	80.6	91.7	104.2	124.9	140.7	159.8	181.4	206.1	243.7
Total absorbed power (UNI 14511)*	kW	15.7	17.9	19.8	23.0	25.5	31.5	35.9	39.7	46.2	51.5	60.7
Total COP (UNI 14511)*		6.98	6.87	7.17	6.97	7.17	6.94	6.84	7.06	6.86	7.01	7.04
Sound power level Lw (standard unit)	db(A)	80	80	81	81	81	82	82	84	84	85	85
Sound power level Lw (low noise unit)	db(A)	73	73	75	75	75	77	77	79	79	80	80
Dimensions [L x D x H]	mm	2440x1183x1735		2792x1183x1735			3540x1183x1676		3538x1653x1846			3538x1653x2330

MSA P (For 4 pipes)		214	244	274	294	324	344	374	414	486	536
<b>COOLING - Water conditions: user side 12/7°C; outside air temp. 35°C</b>											
Cooling capacity (UNI 14511)	kW	206.9	224.6	248.2	271.6	283.4	335.3	354.3	389.3	487.0	548.3
Total absorbed power (UNI 14511)	kW	76.3	85.3	93.4	100.9	112.2	122.6	133.6	155.3	191.0	194.4
EER (UNI 14511)		2.71	2.63	2.66	2.69	2.53	2.74	2.65	2.51	2.55	2.82
ESEER		4.44	4.24	4.19	4.33	4.29	4.19	4.19	4.19	4.19	4.19
<b>HEATING - Water conditions: user side 40/45°C; outside air temp. 7°C</b>											
Heating capacity (UNI 14511)	kW	218.9	239.3	266.1	287.6	306.5	354.9	375.4	423.0	518.9	575.2
Total absorbed power (UNI 14511)	kW	73.5	79.8	87.7	96.5	105.8	116.3	124.0	139.6	172.7	187.5
COP (UNI 14511)		2.98	3.00	3.04	2.98	2.90	3.05	3.03	3.03	3.00	3.07
SCOP		3.58	3.65	3.59	3.45	3.47	3.6	3.62	3.7	3.68	3.61
ERP efficiency	%	143	146	144	138	139	144	145	148	147	144
ERP Efficiency Class		A+ / L.T. HP									
<b>COOLING AND HEATING - Water conditions *</b>											
Cooling capacity (UNI 14511)*	kW	208.3	231.1	256.1	276.5	291.1	342.9	369.7	413.1	514.2	555.2
Heating capacity (UNI 14511)*	kW	278.7	308.4	338.7	367.7	392.5	451.4	485.5	546.3	678.3	729.8
Total absorbed power (UNI 14511)*	kW	71.0	77.9	83.8	92.4	102.3	110.1	117.6	134.5	165.7	176.5
Total COP (UNI 14511)*		6.86	6.93	7.09	6.97	6.68	7.21	7.27	7.14	7.20	7.28
Sound power level Lw (standard unit)	db(A)	86	86	86	87	87	90	90	92	91	91
Sound power level Lw (low noise unit)	db(A)	82	82	82	83	83	86	86	88	89	89
Dimensions [L x D x H]	mm	3538x1653x2330		4206x1653x2330			3065x2250x2650		3065x2258x2652	4065x2258x2652	5065x2258x4510

\*Cold user In water temperature 12°C  
Cold user Out water temperature 7°C  
Hot user In water temperature 40°C  
Hot user Out water temperature 45°C  
Also available with 60 Hz power supply



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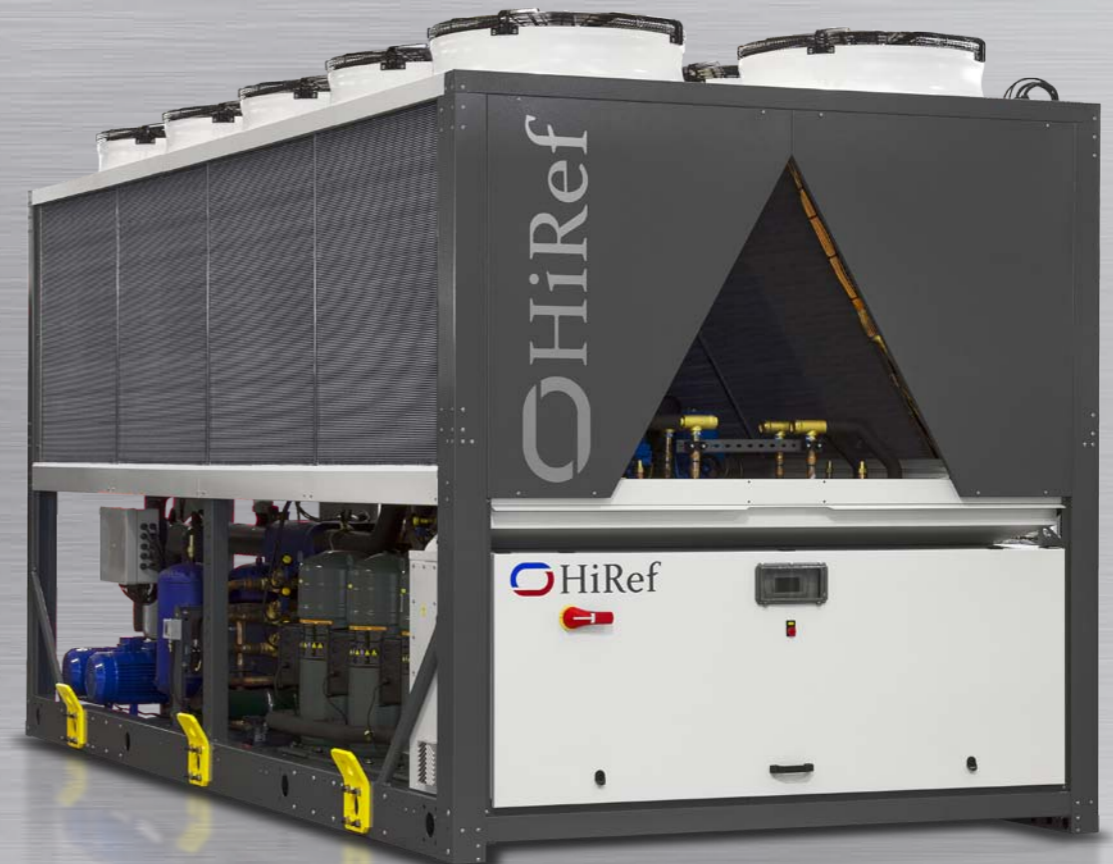
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ITALIAN  
COOLING  
SOLUTIONS



## MULTI-PURPOSE HEAT PUMPS AIR CONDENSED WITH SCROLL COMPRESSORS

# MSA



50 - 580 kW





# MSA

## MULTI-PURPOSE HEAT PUMPS

### AIR CONDENSED WITH SCROLL COMPRESSORS

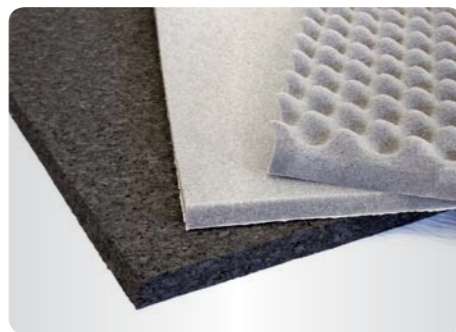
● **EFFICIENCY AND RELIABILITY ACCORDING TO SYSTEM REQUIREMENTS**



The main strength of the **MSA** range is the number of available configurations of the refrigeration circuit, which depending on the machine size and special system requirements can consist of:

- **EFFICIENCY PACK 1:** dual compressor on dual circuit for high system redundancy.
- **EFFICIENCY PACK 2:** dual compressor (tandem) on single circuit for greater efficiency at partial loads.
- **EFFICIENCY PACK 3:** three compressors (trio) on single circuit for greater efficiency at partial loads.

● **ATTENTION TO DETAIL AND TO LOW NOISE REQUIREMENTS**



Scroll compressors, which are the main noise source in the unit, are fitted on rubber feet; these dampen vibration and therefore attenuate the noise transmitted to the various system parts. On request, the compressor compartment can be lined with special sound absorbing material to reduce airborne noise emissions.

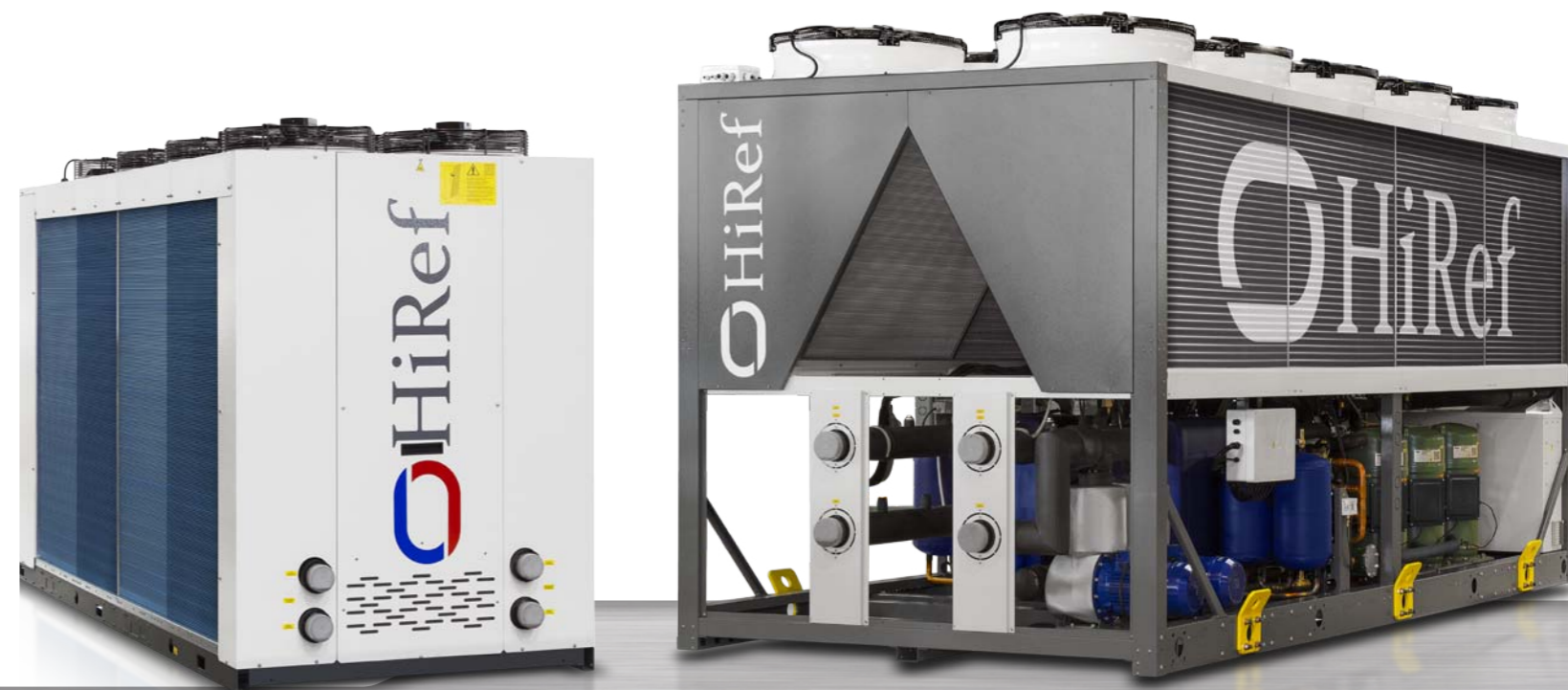
● **ALL MACHINE ON-BOARD ACCESSORIES**



The special component layout, together with compact plate heat exchangers and Scroll compressors, allows users to make the most of large sized condensing sections and have sufficient internal space available for fitting a wide range of accessories and hydraulic options. The hydraulic circuit may include a dual shut-off pump, flow switch, tank, expansion tank and safety valve.

● **GREATER HEATING EFFICIENCY**

A factor that heavily affects the efficiency of the entire heating cycle is the defrosting of the evaporator. In the products of the **MSA** range this problem is minimised through the use of hydrophilic batteries which help the run-off and precipitation of water by gravity, preventing the formation of frost at low temperatures. The software management of the defrosting cycle also minimises the time to completion and ensures that defrosting is only performed when strictly necessary. Finally, thanks to two completely independent refrigeration circuits, while the first is performing a defrost cycle, the second is able to ensure machine operation continuity, with virtually no thermal discomfort for the user.



- » Refrigerant R410A
- » Available versions:
  - **Multi-purpose for 2-pipe system**
  - **Multi-purpose for 4-pipe system**

- » Easy accessibility thanks to internal space optimisation
- » Optional EC motor fans

