

MSL

MULTIPURPOSE CLASS A HEAT PUMPS AIR CONDENSED WITH SCROLL COMPRESSORS

279-1425 kW



The new MSL range multipurpose units are air/water units in energy class A for both cooling and heating, available for use with R410A refrigerant or, in the "A2L" version, with low environmental impact R454B refrigerant. The MSL range is designed to manage **the conditioning of industrial plants and thermal loads in technological applications, where 24/7 reliability in all working conditions, one of the assets of these units, is a critically important requirement.** The MSL range uses latest generation Scroll compressors, shell and tube water heat exchangers optimised for use with **high pressure refrigerants (R410A/R454B)** and axial fans suitable for outdoor installation.

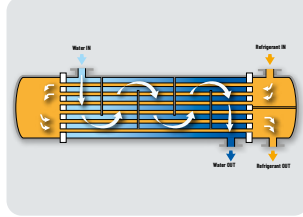
- 3 different soundproofing setups available: Standard, Low Noise and Super Low Noise
- Electric control panel with IP55 protection rating
- High power density units in both chiller and heat pump modes
- Radial EC motor fans (optional)
- Electronic expansion valve
- Easy accessibility thanks to the optimisation of the internal space
- Programmable microprocessor control with proprietary software
- Compliance with ERP regulations





Maximised energy efficiency

The units of the MSL range fall within the **energy efficiency class A**, both in cooling and in heating mode. This is thanks to a **careful selection of internal components**, which also includes the adoption of innovative high efficiency Scroll compressors with direct start, permanent magnet motor technology. The high modulation range guaranteed by the multi-Scroll technology allows cooling/heating requirements to be met at any time, **minimising energy waste and increasing seasonal efficiency**. The high degree of partial load operation (**up to 11%** of the rated power), combined with water flow rate modulation (**up to 20%** of the nominal flow) **allows operating costs and system maintenance costs to be reduced**.



Reliability: shell and tube

The use of shell and tube heat exchangers with exchange water flow on the shell side implies a **lower risk of blocking the flow due to exchanger clogging compared to units with plate heat exchangers**. This is thanks to the larger throughsections, the exchanged power being the same. Additionally, the dual-pass heat exchanger **ensures high heat exchange efficiency** both in "chiller" and in "heat pump" modes, with **lower consumption figures for the user and easier transport and installation**.

Configurability of hydraulic connections

To facilitate installation, especially when replacing existing units, the MSL range is available **with different configurations of hydraulic connections**. They can be both on the right or left side, two on the right and two on the left side, or all on the back of the unit.



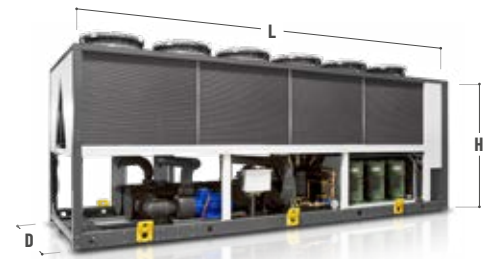
Smart defrosting

A factor that heavily weighs on the costs of managing the entire plant is finned coil defrosting during wintertime operation. The special management of the defrosting cycle of MSL units **minimises the time to completion and ensures that defrosting is only performed when strictly necessary, guaranteeing greater heating efficiency**. The presence of two completely independent thermodynamic circuits ensures **uninterrupted operation** also during the defrosting phase, **with practically no thermal discomfort for the user**.



Easy maintenance

To carry out maintenance of the condensing coil manifolds and refrigeration circuit components, which are located behind the electrical panel, the MSL range is supplied as standard with the Hi-Rail sliding guide. This allows **the control panel to be easily removed, resulting in extra space for unscheduled maintenance, without impacting the footprint** required for normal operation of the unit.



MSL		294PS	324PS	374PS	404PS	454PS	496PS	556PS	596PS	636PS	676PS	748PS	808PS	868PS	900PS	1072PS
Cooling: User water values 12/7°C, 35°C outside air, 40% U.R.																
Cooling capacity	kW	281.5	326.1	364.2	395.9	434.5	486.1	550	598.1	639.8	669.8	737.5	798.8	831.9	917.3	1146
Total absorbed power	kW	88.7	104.2	117	127.1	148	152.7	175.5	193	202.7	218.1	234.4	255.8	275.7	291	343.9
EER		3.18	3.13	3.11	3.12	2.94	3.18	3.13	3.1	3.16	3.07	3.15	3.12	3.02	3.15	3.33
SEER		4.91	4.9	4.82	4.88	4.77	5.01	5.12	5.19	5.08	5.08	4.91	4.96	4.83	4.98	4.76
SCOP		4.09	4.15	4.03	4.16	4.15	3.94	3.98	4.03	3.95	3.95	4.1	4.26	4.16	4.05	3.48
Cooling: Utility water temperature 12/7°C, Recovery water temperature 40/45°C																
Cooling capacity	kW	279.4	317.3	354.4	390	435.9	484.3	542.5	592	618.2	663.7	742	791.7	857.1	906	1129.4
Thermal power	kW	355.2	405.6	455.5	497.5	560.8	614.9	691.6	752.1	790.9	849	937.6	1004.1	1087.9	1156.4	1425.3
Total absorbed power	kW	81.5	95.4	109.8	115.1	134.1	139.4	159.6	172.2	186	200.2	212	230.8	248.6	270.3	319.5
SEER		4.91	4.9	4.82	4.88	4.77	5.01	5.12	5.19	5.08	5.08	4.91	4.96	4.83	4.98	4.76
TER		7.79	7.58	7.38	7.71	7.43	7.89	7.73	7.8	7.58	7.56	7.92	7.78	7.82	7.63	8
SCOP		4.09	4.15	4.03	4.16	4.15	3.94	3.98	4.03	3.95	3.95	4.1	4.26	4.16	4.05	3.48
Heating: User water values 40/45°C, 7°C outside air, 89% U.R.																
Thermal power	kW	296.9	332.8	383.4	417.8	458.8	512.2	563.8	606.5	656.3	683.2	756.3	840.3	863.4	977.7	1183.2
Total absorbed power	kW	89.2	102.3	119.1	126	143.5	152.8	172.1	184.3	200.6	213.7	231.2	250.5	267.7	294.8	349.4
SEER		4.91	4.9	4.82	4.88	4.77	5.01	5.12	5.19	5.08	5.08	4.91	4.96	4.83	4.98	4.76
COP		3.33	3.25	3.22	3.32	3.2	3.35	3.28	3.29	3.27	3.2	3.27	3.35	3.22	3.32	3.39
SCOP		4.09	4.15	4.03	4.16	4.15	3.94	3.98	4.03	3.95	3.95	4.1	4.26	4.16	4.05	3.48
Sound power [Standard]	dB(A)	89	90	90	90	92	91	92	91	93	93	93	93	94	95	96
Sound power [Low noise]	dB(A)	86	87	87	87	89	87	88	87	89	89	90	89	90	91	92
Sound power [Super Low noise]	dB(A)	84	85	85	85	87	85	86	85	87	87	88	87	88	89	90
Dimensions [LxHxD]	mm	3520x2680x2256			4520x2680x2256			5520x2680x2256			6520x2680x2256			9085x2680x2256		
														11085x2680x2256		
														12930x2680x2256		