THERMAL IQ
2/8 GUNYA STREET
REGENTS PARKS NSW 2143

(02) 8710 8106

CO2 HEAT PUMPS

Australian Engineering Expertise, Backed by Global Capability

The principles at Thermal IQ have been at the forefront of providing innovative HVAC solutions across Australia and Southeast Asia dating back to 1946 – now with more than six decades of combined experience. Our family is one of the founders of the Australian HVAC manufacturing industry with our roots being in cooling for the rail industry.



While much of the HVAC and heat transfer industry has moved away from OEM manufacturing in Australia, Thermal IQ remains committed to local manufacturing and engineering excellence. By maintaining domestic manufacturing capabilities, we preserve critical industry expertise, provide reliable technical support, and respond quickly to our customers' unique requirements.

Built on a strong foundation in heat exchangers and industrial chillers, Thermal IQ is expanding its product and service offering to include:

- **Heat Pumps**
- **Thermal Storage Tanks**
- **Heat Transfer Systems**
- **Engineered Process Cooling Solutions**

This expansion positions us to support the growing electrification of industrial and commercial water heating systems, delivering efficient and sustainable thermal solutions for the future.

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Global Manufacturing Partnerships

Thermal IQ has partnered with Mammoth and RVG, internationally recognised HVAC manufacturers with extensive operations across the United States and China. These partnerships enable us to combine local engineering knowledge with world-class manufacturing capabilities.

With access to a global supply network, Thermal IQ delivers high-performance, engineered HVAC and heat transfer solutions that meet the demands of modern industry.

Mammoth HVAC Systems

Mammoth is a leading manufacturer of complete HVAC packaged systems, known globally for its engineering expertise, product reliability, and commitment to energy efficiency.

Every product is supported by:

- **Precision engineering**
- **Rigorous quality assurance**
- **Robust supply chain management**
- **Proven manufacturing processes**
- **More than 30 years of combined industry experience**

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CO2 HIGH TEMPERATURE HEAT PUMPS

PERFORMANCE FEATURES

- **Green and Environmentally** - Friendly Use natural refrigerant CO2(R744), with ODP of 0 and GWP of 1, promoting a green economy and supporting the "dual carbon" goals.
- **High Outlet Water Temperature** - Inlet temperature range: 5°C to 55°C, Outlet temperature range: 40°C to 95°C.
- **Low Ambient Temperature** - Air source COz heat pump unit is suitable for ambient temperatures ranging from-35°C to 45°C, allowing stable and reliable operation in a wide range of regions.
- **Multi functionality** - CO2integrated heating and cooling unit provides 7°C chilled water or lower temperature antifreeze fluid while also producing high-temperature hot water, offering both heating and cooling capabilities.
- High Performance - Air source CO2 heat pump unit features ultra-efficient energy performance across its entire range, with the CO2integrated unit achieving a comprehensive energy efficiency of up to 10.0.



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CO2 HIGH TEMPERATURE HEAT PUMPS

TECHNICAL SPECIFICATIONS

Model			MRPAS-30SHDC3A	MRPAS-40SHDC3A	MRPAS-60SHDC3A	MRPAS-75SHDC3A	MRPAS-110SHDC3A	MRPAS-160SHDC3A	MRPAS-320DHDC3A
Normal Temperature Condition	Heating Capacity	kW	28.4	38.7	56.5	74.5	109.2	160.0	319.0
	Water Yield	m^3/h	0.6	0.8	1.2	1.6	2.3	3.4	6.9
	Input Power	kW	6.1	8.4	12.2	16.0	23.7	34.8	69.3
	COP	W/W	4.62	4.62	4.63	4.65	4.61	4.60	4.60
Normal and High-temp. Water Outlet Condition	Heating Capacity	kW	24.0	32.8	47.1	62.0	95.5	142.5	284.0
	Water Yield	m^3/h	0.3	0.4	0.6	0.8	1.3	1.9	3.8
	Input Power	kW	6.8	9.3	13.3	17.6	27.1	40.7	81.1
	COP	W/W	3.55	3.54	3.53	3.52	3.52	3.50	3.50
Nominal Condition	Heating Capacity	kW	25.0	34.4	49.4	64.1	99.7	147.2	294.0
	Water Yield	m^3/h	0.5	0.6	0.9	1.2	1.9	2.8	5.5
	Input Power	kW	6.0	8.3	11.9	15.4	24.1	35.9	71.7
	COP	W/W	4.15	4.14	4.14	4.15	4.13	4.10	4.10
Low Temperature Condition	Heating Capacity	kW	18.0	24.7	35.2	46.4	71.7	105.8	210.0
	Water Yield	m^3/h	0.3	0.5	0.7	0.9	1.3	2.0	3.9
	Input Power	kW	5.7	7.8	11.2	14.7	22.8	34.1	67.7
	COP	W/W	3.16	3.15	3.15	3.15	3.14	3.10	3.10
Power Supply			380V/3N~50Hz						
Max. Input Power		kW	10	12	16	22	30	45	90
Max. Input Current		A	19	23	30	42	57	85	171
Ambient Temperature		℃	-35~45						
Max. Outlet Temperature		℃	95						
Refrigerant			R744(CO_2)						
Compressor			CO2-Dedicated Semi-hermetic Piston						
Heat Exchanger			Efficient Copper Tube Fin (Air Side)/Double-tube (Hot Water Side)						
Design Pressure		MPa	14.0(HP)/8.0(LP)						
Water System	Pipe Diameter		DN20 (Female)	DN20 (Female)	DN25 (Female)	DN25 (Female)	DN32 (Female)	DN40 (Female)	DN50 (Flange)
	Pressure Drop	kPa	≤150						
Dimension (L*W*H)		mm	1700*950*1800	1700*950*1800	1950*1100*2160	1950*1100*2160	2700*1410*2300	3000*1600*2500	3000*3100*2500
Sound Power		dB(A)	≤60	≤62	≤65	≤68	≤72	≤75	≤78
Weight		kg	500	600	750	850	1400	2000	3800

- Normal Temperature Condition: Dry bulb temperature 20°C, wet bulb temperature 15°C, inlet water temperature 15°C, outlet water temperature 55°C;
- Operating Condition for normal and high-temperature water outlet: Dry bulb temperature 20°C, wet bulb temperature 15°C, inlet water temperature 15°C, outlet water temperature 80°C;
- Nominal Condition: Dry bulb temperature 7°C, wet bulb temperature 6°C, inlet water temperature 9°C, outlet water temperature 55°C;
- Low Temperature Condition: Dry bulb temperature -7°C, wet bulb temperature -8°C, inlet water temperature 9°C, outlet water temperature 55°C;
- Reference standards: GB/T 21362-2023, JB/T 12840-2016;
- Specifications are subjected to change with product improvements. No prior notice will be given. Please refer to the actual product for final specifications.

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We understand that every application is different, so we have geared our supply chain to ensure the time from specification to engineering to supply is as short as possible.

We also can supply

- **CAD support – 3D and 2D**
- **Heat exchanger software support**
- **Heat transfer calculations**
- **Skid with pump, control, storage tanks**

INDUSTRIES SERVED

- HVAC AND R
- POWER GENERATION
- MARINE
- PROCESS APPLICATIONS
- FOOD PREP
- RENEWABLE ENERGY
- DATA CENTRES

THERMAL IQ PRODUCTS/ SERVICES

- General engineering support and HX sizing
- Pump and transfer skids
- Buffer tanks
- CAD support
- High temperature CO2 heat pumps
- Hot water heat pumps
- Chillers
- Swimming pool heat pumps
- HX Service and repair

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CHILLERS / HOT WATER HEAT PUMPS
www.thermaliq.com.au
MAMMOTH HIGH-CAPACITY CHILLERS AND HEAT PUMPS
www.mammoth-HVAC.com.au



MADE IN AUSTRALIA

THERMAL IQ is a Thermex Solutions business

Mammoth
The Leader in Custom HVAC & Energy Saving

CONTACT

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