THERMAL IQ
2/8 GUNYA STREET
REGENTS PARKS NSW 2143

(02) 8710 8106

TECHNICAL DATA

INDUSTRIAL WATER CHILLERS – AIR COOLED

4kW to 750kW Cooling Capacity

MINING APPLICATIONS

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. We are now expanding into heat pumps and heat transfer solutions to ensure we are able to offer our expertise for the coming electrification of heating water for all industry.



While the industry has pulled back from OEM manufacturing in Australia – we remain committed to local manufacturing to ensure the expertise is not lost and we are better able to respond to our customer needs with clear and reliable information.

FEATURES AS STANDARD

- IP66 RATED ENCLOSURES
- Sturdy galvanized steel construction
- LOCKABLE PANEL HANDLES
- External cabling steel wire armored
- R134a REFRIGERANT FOR OPERATION IN HIGH AMBIENTS
- Integrated primary water pumps
- CHOICE OF CONTROLLERS TO SUIT SITE SPARES
- Highly accurate electronic controller
- CONTROL CIRCUIT AND EXTERNAL PARTS ELV
- External cabling protected with steel wire glands
- SEGREGATED VOLTAGES
- Coil protection on all models

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TECHNICAL DATA

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PRODUCT RANGE – TECHNICAL DATA

Model	Cooling Cap. – kW[3]	Nominal HP	Power input – Kw[1]	Current Draw – A[2]	A	B	C	Shipping wight
TC03	3.3	1.5	2.6	2.8	1250	685	1050	175
TC05	5.1	2.6	2.1	4.7	1250	685	1050	175
TC08	7.9	3.0	3.0	6.6	1250	685	1050	175
TC10	10.0	3.5	3.5	7.2	1450	735	1180	200
TC12	12.0	4.0	4.1	7.8	1450	735	1180	200
TC15	15.5	5.0	7.1	13.6	1660	820	1370	310
TC18	18.2	8.0	7.9	16.4	1660	820	1370	310
TC20	19.8	10	9.5	18.3	1660	820	1370	310
TC22	22.5	12	11.6	23.1	1660	820	1370	360
TC25	24.6	13	12.7	23.9	1660	820	1370	360
TC30	29.9	15	14.4	25.8	2350	1000	1670	650
TC40	39.0	20	16.6	31.4	2350	1000	1670	700
TC50	49.1	25	19.7	37.3	2350	1000	1670	750
TC55	58.5	30	23.2	44.3	2800	1100	2075	800
TC60	61.0	2 x 15	28.8	54.0	2800	1100	2075	900
TC80	78.8	2 x 20	29.9	56.8	2950	1200	2075	1100
TC100	99.2	2 x 25	38.5	70.8	2800	2000	2075	1250
TC120	119.5	2 x 30	45.0	85.7	2800	2000	2075	1350
TC140	141	2 x 25	54.7	95.6	2950	2000	2075	1500
TC160	175	2 x 30	67.6	114	2950	2000	2075	1600

1. *Includes pump power*
2. *Includes pump current draw*
3. *Chiller performance is based on 10°C water supply - 45°C ambient*

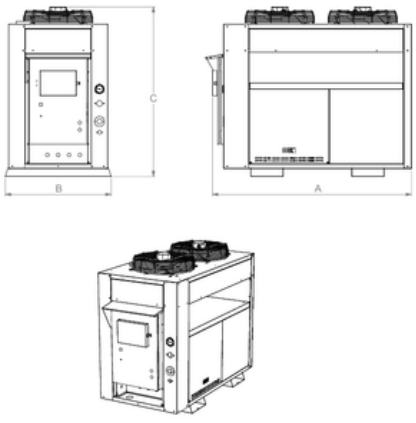
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Model	Air flow – m/hr	Fans -mm	Min flow rate -l/s[2]	Fan type / poles	Evaporator	Pressure drop - kPa	Buffer tank[1]	Water connections
TC03	4400	1 x 450	0.1	Axial -4	Plate HX	50	75L	1" FBSP
TC05	4400	1 x 450	0.2	Axial – 4	Plate HX	50	75L	1" FBSP
TC08	4400	1 x 450	0.4	Axial – 4	Plate HX	50	75L	1" FBSP
TC10	8800	2 x 450	0.5	Axial – 4	Plate HX	56	85L	1" FBSP
TC12	8800	2 x 450	0.6	Axial – 4	Plate HX	56	85L	1" FBSP
TC15	8800	2 x 450	0.7	Axial – 4	Plate HX	42	175L	1 ¼" FBSP
TC18	8800	2 x 450	0.8	Axial – 4	Plate HX	42	175L	1 ¼" FBSP
TC20	13200	2 x 500	0.9	Axial - 4	Plate HX	47	175L	1 ¼" FBSP
TC22	13200	2 x 500	1.1	Axial - 4	Plate HX	47	175L	1 ¼" FBSP
TC25	13200	2 x 500	1.2	Axial – 4	Plate HX	47	175L	1 ¼" FBSP
TC30	15200	2 x 630	1.4	Axial – 6	Plate HX	63	450L	1 ½" FBSP
TC40	15200	2 x 630	1.9	Axial – 6	Plate HX	63	450L	1 ½" FBSP
TC50	15200	2 x 630	2.4	Axial – 6	Plate HX	67	450L	1 ½" FBSP
TC55	15200	2 x 630	2.6	Axial – 6	Shell and tube	70	450L	1 ½" FBSP
TC60	15200	2 x 630	2.8	Axial – 6	Shell and tube	70	450L	1 ½" FBSP
TC80	22800	3 x 630	3.6	Axial – 6	Shell and tube	68	450L	2" FBSP
TC100	30400	4 x 630	4.8	Axial - 6	Shell and tube	68	450L[3]	2" FBSP
TC120	30400	4 x 630	5.6	Axial -6	Shell and tube	60	450L[3]	2" FBSP
TC140	45600	6 x 630	6.5	Axial – 6	Shell and tube	60	450L[3]	2 ½" FBSP
TC160	45600	6 x 630	7.2	Axial - 6	Shell and tube	63	450L[3]	2 ½" FBSP





Thermex chillers are rated to operate – comfortably – in 45°C ambient environments - 52°C is achievable on request

In keeping with the demanding requirements of the mining industry the chillers have lockable IP rated electrical enclosures, external cable protection and ELV controls

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UNIT INFORMATION	
Condenser	**Copper tube and aluminum fin – no micro channel**
Hot air discharge	Vertical
Condenser construction	7mm rifle bore copper tube – aluminum fin 14 FPI
Condensing capacity control	Head pressure fan speed control
Condenser coating	Nano (blue fin) coated for corrosion protection
Evaporator	
Evaporator protection – standard models	Flow switch and bypass
Compressor type	Scroll
Refrigerant	R134a
Compressor start method	DOL
Chassis construction	Powder coated galvanised steel – welded hot dipped galvanised frame on units > 80kW
Electrical	
Control circuit	24VDC
Electrical panel	IP66



PROJECT
Coal loading plant – Queensland



PROJECT
Nickel Mining – Queensland

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LARGE CAPACITY COOLING SOLUTIONS



Chiller for gold mining site – Philippines

Thermex Solutions has the long-term experience to offer the right cooling support for any application.

These chillers are designed to produce very large volumes of cold water for any application.

- Mill presses
- Safety showers
- Waste product cooling

All these units are designed to keep these critical applications cold

PRODUCT RANGE – TECHNICAL DATA

Model	Cooling Cap. – kW[3]	Power input – Kw[1]	Current Draw – A[2]	A	B	C	Shipping weight – kg
FS-S-200	210	44	75.4	2500	2200	2480	2420
FS-S-250	230	48.5	86.5	2600	2200	2480	3140
FS-S-300	302	60.5	116	3200	2200	2480	3730
FS-S-350	324	68	126	3500	2200	2480	4100
FS-S-400	408	80.4	137	4200	2200	2480	4400
FS-S-450	434	90	154	4500	2200	2480	4650
FS-S-500	512	103	177	5000	2200	2480	4850
FS-S-550	544	110	187	5500	2200	2480	4950
FS-S-600	592	118	202	6200	2200	2480	5960
FS-S-650	658	128	217	7000	2200	2480	6340
FS-S-700	716	143	242	7200	2200	2480	6880
FS-S-750	766	152	258	7800	2200	2480	7140

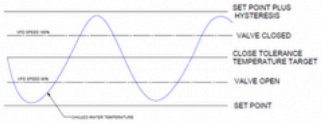
Mammoth
The Leader In Custom HVAC & Energy Saving

Thermex Solutions is the exclusive Australian distributor of Mammoth HVAC products – a part of Nortek Systems from Oklahoma, USA.

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CHILLER OPTIONS

CHILLER OPTIONS	
Close tolerance (CT)	*The chiller can be manufactured with either a hot gas bypass valve or a VFD on the compressor for close temperature tolerance. Standard tolerance achievable is ±0.5C depending on load conditions* *The valve acts as to unload the refrigeration effect to the evaporator as the chilled water temperature approached set point.* *If the compressor is fitted with a VFD this will slow the compressor down as water temperature approaches set point and speed it up as it approached set point plus hysteresis. The software has a PID loop to ensure maximum efficiency and maintain temperature control.* 
BMS Connectivity	The chiller can be connected to the high or low level BMS Low level connectivity will be dry contact for ● Master run ● Master fault High level connectivity is Modbus, SNMP and Bacnet over Ethernet without the need for a gateway
Tandem/ N+1 (T)	The chiller can be wired if they are to be installed in a N+1 arrangement so the lead chiller manages the duty cycling of the chillers and controls the chillers if a fault should develop in one of the chillers
Potable water supply (I)	The chiller can be manufactured to deliver water for potable water application. A typical installation requires the chiller to be connected to the main water and the pressure from the main is used to supply the process. The chiller will have a heat exchanger installed which will cool the mains water to the supply temperature in a single pass If the process does not require water the chillers operation is unaffected This method of construction also allows the chiller to be used to cool water temperatures above 20C
Remote Condensers (R)	The chiller can be manufactured as a split system. The evaporator can be installed indoors in a plant room for example and the condenser installed outdoors. Typically, the maximum distance between the 2 halves of the chiller is 20 meters – for longer runs contact Thermex's engineering staff

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High corrosive environments	If the chiller is to be installed in an environment with corrosive elements present the chiller can be manufactured in such a way to extend the life of the unit These environments can be ● Coastal which high levels of salt spray present ● Mining with Sulphur present The coils on the units can be coated to extend their life – the coil will lose efficiency if the bond between the copper and the aluminum starts to break down The units can be constructed with stainless steel cabinets The electrical enclosures are weather proof but if an enclosure is required with a high IP rating this can be offered In the case where flammable gas is present an Ex or ATEX rated unit maybe required
Soft starters	In installations where the power supply is not robust, soft starters can be supplied on the compressors to limit the inrush current on compressor start up.
Redundant pumps	The units can be supplied with 2 pumps that duty cycle to share the wear and tear. The software can also start the pump sitting in redundancy if the duty pump develops a fault
Pump UPS (U)	The electrical box can be supplied with a separate set of terminals to allow an uninterruptible power supply to be wired so the pump will run continuously – this allows the chiller to keep pumping cold water to the process in the event the 3 phase supply develops and issue and allows the process to shut down in a managed way
Castors	The chiller can be supplied on wheels for ease of re-location
High Ambient	For installations such as mine sites, especially in remote areas where the temperatures are extreme the chiller can be constructed to be able to handle these extreme temperatures
Compressor VSD	Variable speed drives – fitted to the compressor to allow turn down in partial load conditions which adds to the operating efficiency of the chiller
Redundant pumps	The chiller can be supplied with redundant pumps – this allows the chiller to have a healthy chiller in standby in the event one pump fails – the system will also duty cycle the pumps to share the wear and tear

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WARRANTY

- THERMEX Solutions warrants all its products for 12 months from the agreed commissioning date – no later than 30 days from invoicing date.
- The warranty is to the first purchases of the unit
- The warranty covers all parts and labour to rectify the unit
- The warranty is subject to THERMEX Solutions terms and conditions which will be provided at the time of order
- Warranty is subject to Thermex Solutions full terms and conditions



PROJECT
Steel production - NSW

COAL MINING SKID

CONTACT

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