

IT-Data Centre Computer Room Cooling Systems

Product Review ISF Series



Variable Capacity

Hot Aisle / Cold Aisle
Applications

Nominal Cooling Capacity
30 – 45 kW

ISF SERIES - IT DATA CENTRE COMPUTER ROOM COOLING SYSTEMS

GENERAL

The ISF Floor Mounted indoor units, together with their associated OSA outdoor units, have been designed to be efficient, high sensible IT Data Centre Computer Room Coolers of the hot aisle / cold aisle type.

TEMPERZONE LIMITED

temperzone is one of Australasia's largest manufacturers of reverse cycle split system air conditioners. The company has been supplying units to the residential, commercial and industrial markets for over 40 years. Manufacturing facilities are located in New Zealand and Australia.

temperzone's mission is to provide the most competitively priced, reliable and efficient air conditioning equipment available to the international market.

APPLICATIONS

The ISF units are designed to control the high sensible heating output load of IT Data centres, computer and printing rooms, and motor control centres. Within the normal operation range, there is no moisture removal and thus no necessity to introduce humidity. The ISF is a modular rack cooler which can be used slotted in line with the existing data rack system in a closed cold aisle, hot aisle containment system.

There are three individual compartments in the ISF which can be connected to three separate outdoor units or one large outdoor unit (OSA). The outdoor units are refrigerant based condensers. Chilled water units are available on request.

The ISF/ OSA combination can easily be controlled by the Building Management System (BMS) and will supply fault alarms for each OSA and each ISF fan as well as a wet moisture alarm.

This range of units have been developed to meet the needs of typical applications. Should you have special requirements, such as higher air flows, heating in low/ high ambients, or greater sensible duty units contact your nearest **temperzone** representative. **temperzone** engineers have extensive experience in designing air conditioning equipment for specific applications.

FEATURES

Refrigerant R410A. Each complete system uses refrigerant R410A which is deemed to have zero ozone depletion potential.

Digital Scroll Compressor Option. 'Digital' outdoor units include a digital scroll compressor. Each digital model/ version provides a variable capacity ability that enables closer control of room temperature. This is achieved by avoiding on/off cycling of the compressor. These compressors have proven very reliable because of their design simplicity. Electrical harmonic noise is negligible.

Efficient. Airflow through the unit is by highly energy efficient high pressure backward curved Electronically Commutated (EC) motors with infinite variable speed control from 0% to 100%. The air is distributed sideways through special SH grille diffusers enabling efficient distribution of airflow across the face area of the data/IT racking system. These air conditioners provide one of the most efficient forms of cooling you can invest in. Each outdoor unit incorporates high efficiency scroll compressor/s. Heat exchange coils use inner grooved (rifled) tube for better heat transfer.

Economical. All OSA digital option units have capacity modulating digital scroll compressors for close control of the space temperature by duty reduction from 100% to 10%. The Electronically Commutated (EC) motor is the highest efficiency motor currently available contributing the least amount of heat to the space and costs the least to run. The integrated variable speed motor drive allows the unit to be controlled at the optimum airflow where there is a varying load.

Performance. These systems have been designed to operate on cooling in outdoor ambient conditions as low as -5°C and as high as 46°C. Variable-speed fan motors are used to match the supply air requirements.

Quiet. Most models have their compressor/s isolated in built-in, insulated compartments to minimise noise. The indoor units have a backward curved fan which supplies air at reduced noise levels.

Slimline. The compact upright design of most of the smaller outdoor units requires only a 100mm gap on the coil side where installation is against a wall. Their slimline cabinet is particularly practical where there is restricted space, e.g. side access pathways, balconies, narrow ledges, etc.

Durable. **temperzone** split systems are built tough to withstand all weathers. Their durable construction ensures a long life and excellent return on your investment.

The outdoor coil's aluminium fins are epoxy coated for extra protection in corrosive environments, e.g. salt laden sea air. Outdoor unit cabinets are constructed from high grade galvanised steel (not plastic) - polyester powder coated (grey) for all weather protection. External fasteners are stainless steel. Indoor unit cabinets are constructed from high grade polyester powder-coated galvanised steel and also include corrosion resistant drain trays. **All galvanised steel panels are powder-coated 'both' sides so they don't contribute to Zinc Whiskering of computer electronic equipment.**

Service Access. Ensure adequate access and ventilation areas around the outdoor unit for optimum performance. The indoor unit has easily accessible filters behind an optional screen door. The indoor unit has easy access to fans / motors via removal of the supply grilles on the front face.

Filtration. High efficiency EU4 washable filters in aluminium extruded frames ensure capture of dust.

Insulation. Indoor unit cabinets are generously insulated to eliminate condensation.

Self Diagnostics. Outdoor Units include a controller (UC7) that has an LED display to indicate faults and running conditions. A general fault indicator is included for interface to external systems.

Safety. The refrigeration systems includes a number of protection facilities, including: HP and loss of refrigerant indication, anti rapid cycle timers, frost protection, circuit breaker control circuits, electronic de-ice switch, crankcase heaters and 24 V control. There is a fault indication for each refrigeration system as well as each indoor fan plus a wet moisture alarm. Even though the ISF unit at design operating conditions does not remove moisture from the circulating air, the unit includes an emergency self priming sump pump with a lift of 4m.

Connections. All electrical, control and refrigeration piping connections are through the top of the unit to enable easy connections. The refrigeration pipework is ready for either "Lockring TM" crimp connection or brazed joints. When connected to one outdoor unit, the 3 systems need to be joined at the indoor unit by a liquid and a gas manifold.

Peace of Mind. The manufacturer operates a quality management system that conforms to AS/NZS **ISO 9001:2008**. **temperzone** products have been chosen, against worldwide competition, for use in some of the most exclusive projects — chosen because of their proven efficiency, durability, performance, reliability and value.

OPTIONS

Contact temperzone engineering team for all options:

- Digital scroll outdoor unit (made-to-order)
- Perforated screen door on rear to make filters less visible
- Colour choice
- Stand-alone TZT-100 temperature controller
- Chilled Water option
- Casters

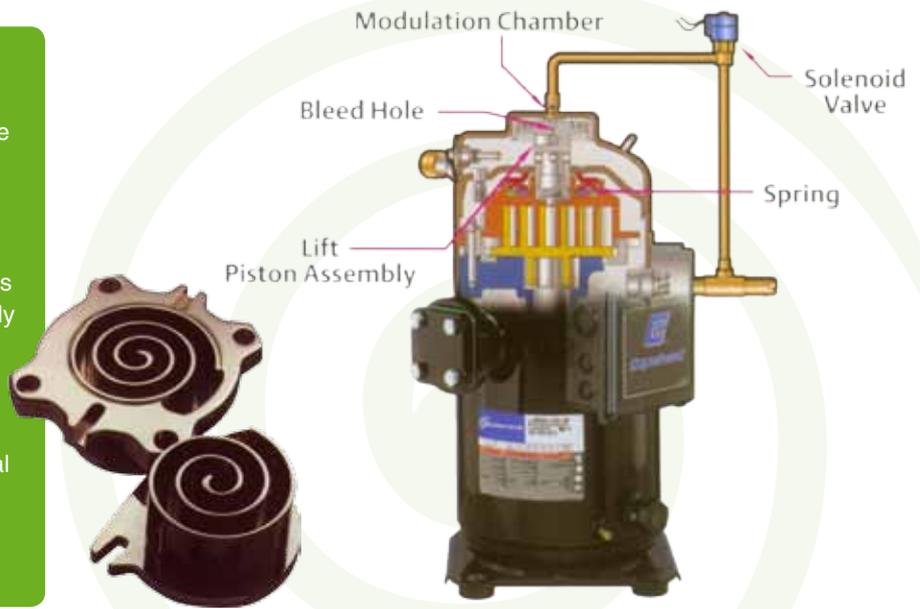
diGital option

SECRETS OF THE SCROLL

Introducing one of the first compressors to deliver a capacity range from 10% to 100% without the use of inverters.

Digital compressors ensure high efficiency through a unique feature termed axial compliance. This allows the fixed scroll to move incrementally in the axial direction to ensure that fixed and orbiting scrolls are always loaded together with optimal force.

With 70% fewer moving parts, digital compressors deliver enhanced performance with reliable and uncomplicated design.



Power Supply: 400 - 415 V a.c. 3Ø 50Hz		Unit Combinations			
Indoor Unit		ISF 300K	ISF 300K	ISF 450K	ISF 450K
					
					
Outdoor Unit		OSA 110RKTH (x3)	OSA 330RKTV	OSA 160RKTH (x3)	OSA 460RKTV
Cooling Capacity *1	kW	30	30	45	45
Cooling Capacity Digital Option	kW	2 - 30	3 - 30	3 - 45	5 - 45
Indoor Air Flow (nominal)	l/s	200 - 2000	200 - 2000	400 - 4000	400 - 4000
Sound Pressure Level (Outdoor) *2	dB(A)	50	76	52	63
Maximum Vertical Separation	m	16	20	20	20
Maximum Standard Line Length	m	30	50	30	50
Maximum Extended Line Length (with extra protection) *3	m	40	90	60	90
Running Amps (Total System)	A/ph.	23	26	32	31
Dimensions	Width mm	600 / 1035	600 / 1680	800 / 1125	800 / 2010
	Height mm	2200 / 765	2200 / 1195	2200 / 970	2200 / 1320
	Depth mm	1030 / 400	1030 / 825	1030 / 420	1030 / 765
Recommended Pipe Sizes (Suction/Liquid)	mm dia	19 / 10 (3 pairs)	28 / 13	22 / 13 (3 pairs)	35 / 16
Weight (Indoor/Outdoor)	kg	200 / 88	200 / 260	250 / 133	250 / 300

Notes

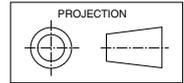
*1 Cooling Capacity at 28°C, 30% RH and 35°C ambient temperature

*2 Sound pressure at 3m from outdoor unit

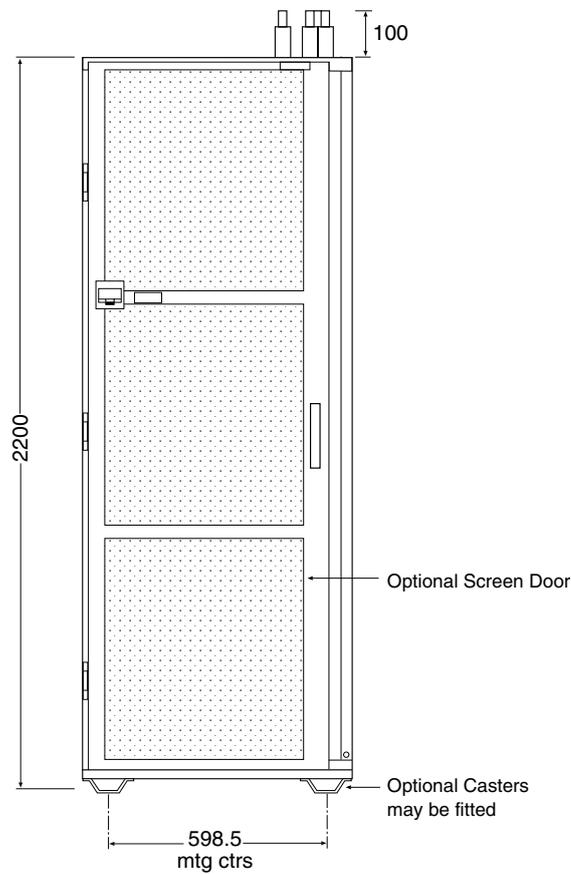
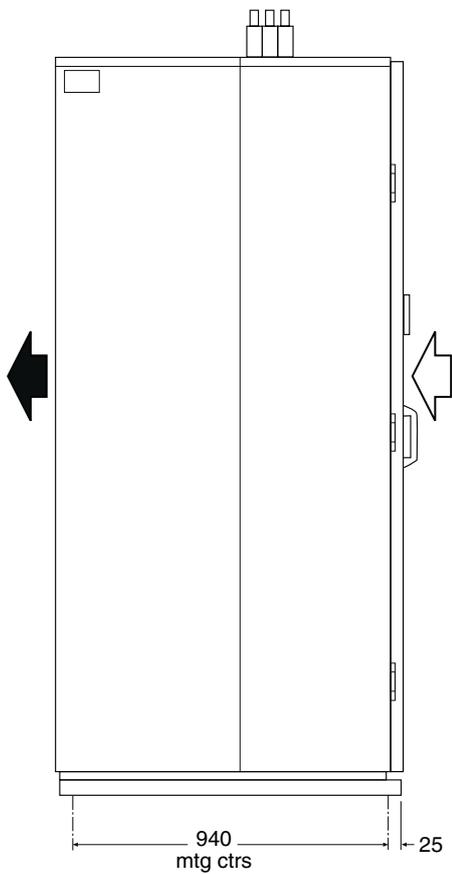
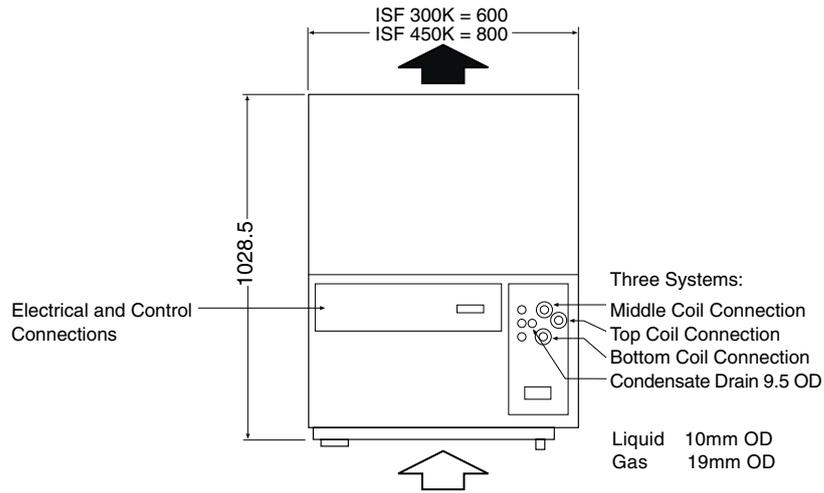
*3 Refer to "Split Systems Installation Guide" at www.temperzone.biz/Technical Support

DIMENSIONS (mm)

Not to Scale



Model	ISF:	300K	450K
Net Weight		200 kg	240kg
Shipping Weight		230 kg	270 kg



Note

Materials and specifications are subject to change without notice due to the manufacturer's ongoing research and development programme. Certified dimensions available on request.



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