

## Ducted Split System Air Conditioners

## Product Review ISD-K Series



**R410A**

Extra Long Life  
Epoxy Coated Outdoor Coil

Nominal Cooling Capacity  
**6.5 – 95 kW**



**MEPS**  
OCT 2011  
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**diGital**  
MODELS

## ISD-K SERIES - DUCTED SPLIT SYSTEM AIR CONDITIONERS

### GENERAL

The ISD-K Indoor Units, together with their associated OSA-RK Outdoor Units, have been conceived from the start as reverse cycle (heat pump) split systems – designed to be efficient both when heating and cooling.

### 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

Ducted split systems are unobtrusive, quiet, and designed to provide year round comfort – warming in Winter and cooling in Summer. **temperzone**'s wide product range offers a unit of performance capacity to suit small to large split system air conditioner applications, e.g. homes, apartments, offices, shops, restaurants, motels, hotels, open plan office and work spaces, supermarkets, shopping malls and auditoriums.

**temperzone** ducted systems are particularly suitable for rooms with suspended tile ceilings. Not only is valuable wall space preserved, but also the conditioned air can be ducted to the parts of the room where it is most needed.

ISD units are suited to applications where large volume spaces are to be air conditioned. Medium to long pipe and duct runs are possible enabling greater installation flexibility.

A low profile version of the ISD, named ISDL, is available for applications where ceiling space is limited and only short duct lengths are required, e.g. apartments, hotel rooms. These units are small, lightweight, very quiet and easy to install.

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, and is supplied precharged for a 10 m line length (systems up to 27 kW).

**Digital Scroll Compressor.** 'Digital' systems include a digital scroll compressor, plus a conventional scroll compressor on twin systems. 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 very low.

**Efficient.** These reverse cycle (heat pump) air conditioners provide one of the most efficient forms of heating you can invest in. For every 1 kW of power consumed, up to 3 kW of heat is generated. Each outdoor unit incorporates high efficiency scroll or rotary compressor/s. Heat exchange coils use inner grooved (rifled) tube for better heat transfer. High efficiency EC motors are used in some models.

**Economical.** Some ISD/OSA systems (refer table) have two independent refrigeration circuits to provide the flexibility and economy of two stage operation, i.e. utilising one or two circuits as conditions vary, plus the advantage of staggered starting.

**Performance.** These systems have been designed and tested to perform in ambient conditions as low as –5°C and as high as 46°C (52°C on some models). Multi-speed fan motors are used to match the supply air requirements. Models with EC motors can be controlled by either a 0-10V DC signal or High/Med/Low fan speed. EC Plug fan models have high static performance. The larger indoor units have belt driven fans for even finer tuning.

**Quiet.** Most models have their compressor/s isolated in built-in, insulated compartments to minimise noise. The indoor units are insulated for noise attenuation.

**Slimline.** The compact upright design of most of the smaller outdoor units requires only a 100 mm 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 galvanised steel and also include corrosion resistant drain trays.

**Ease of Installation.** ISD 86–184K indoor units are separable for ease of installation through a 500mm sq. clear aperture.

**Service Access.** Most indoor units have built-in drain trays that can be removed for ease of cleaning and service accessibility.

**Insulation.** Indoor unit cabinets are generously insulated to reduce condensation and contain noise.

**Self Diagnostics.** Outdoor Units include a controller (OUC) that has a display of LEDs 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. An externally attached safety drain tray is available for clients who require added peace of mind re condensate drainage.

**User Friendly.** ISD/L non-digital models up to 27 kW can be supplied with a **temperzone** SAT Controller. This controller has been designed to maintain a high level of comfort for room occupants. Emphasis has been placed on providing controls that are easy to use — despite the sophisticated microprocessor system that runs it. Use of the Auto and Timer function settings allows you to "set it and forget it".

**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

- Pleated filters, 50mm thick, on belt drive indoor units
- Indoor unit spring mounting kit (ISDL 65K - ISD 380K)
- SAT Wall t/stat and safety drain tray on non-digital models up to 27kW
- Electric heater box for boost heat
- Soft starter (OSA 86–140RKS; standard on OSA 159RKS)
- Outdoor unit wall mounting brackets (OSA 65-184RK)
- TZ-701 Wall thermostat on models with 24V control
- SAT Controller kit (230 or 24V) for retrofit to all non-digital models

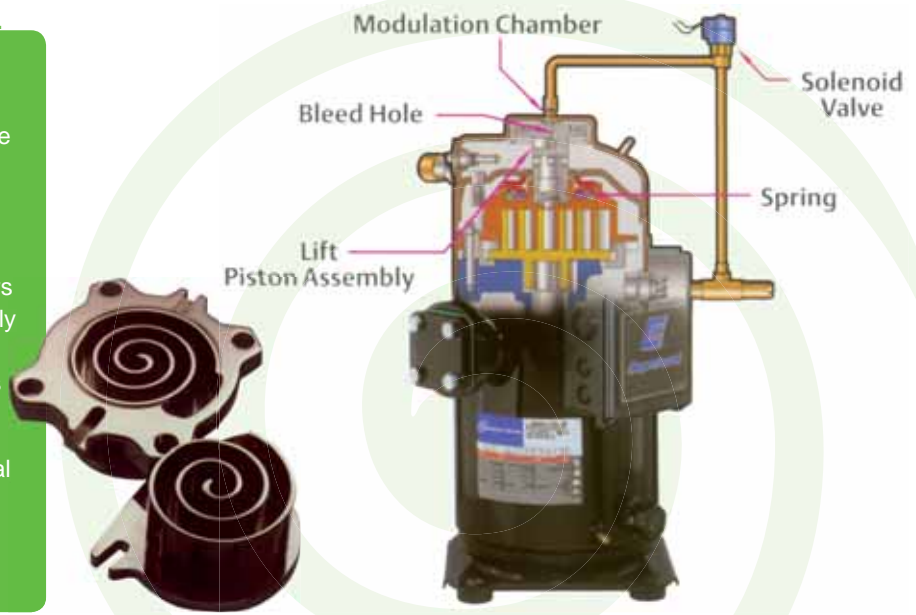
# new diGital models!

## 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.







**Extended Capability.** Digitals are particularly suitable for applications requiring full or high proportions of fresh air, VAV, close control and supply air temperature control.

**Control Option.** The compressor is controlled variably by a 0–10 volt DC signal that can be supplied either by a BMS system, a sophisticated controller or temperzone's optional TZT-701 Controller.



## DIGITAL MODELS

Power Supply: 400 - 415 V a.c. 50Hz			
Indoor Unit		ISD 184KY	ISD 235KY
			
Outdoor Unit		OSA 184RKTHG	OSA 235RKTHG
			
Nominal Cooling Capacity *1	kW	<b>18.4</b>	<b>23.5</b>
Net Cooling Capacity	kW	18.00	22.00
EER / AEER (cooling)		3.33 / 3.31	3.23 / 3.21
Heating Capacity *2 (Rev. Cycle versions)	kW	<b>17.9</b>	<b>21.0</b>
COP / ACOP (heating)		T.B.A.	T.B.A.
Indoor Air Flow (nominal)	l/s	1020	1290
Sound Pressure Level (Indoor/Outdoor) *3	dB(A)	T.B.A.	T.B.A.
Maximum Vertical Separation	m	20	20
Maximum Standard Line Length	m	30	30
Maximum Extended Line Length (with extra protection)*4	m	60	60
Running Amps (Total System)	A/ph.	T.B.A.	T.B.A.
Dimensions (Indoor/ Outdoor)	Width	mm	1505 / 1125
	Height	mm	425 / 1270
	Depth	mm	785 / 420
Recommended Pipe Sizes (Suction/Liquid)	mm dia	22 / 13	22 / 13
Weight (Indoor/Outdoor)	kg	95 / 180	T.B.A.
Features *5		c g p s w	c g p s w

\*See page 6 for Notes and Key to Features.

# ISD-K SERIES - SINGLE PHASE SYSTEMS (NON-DIGITAL)



Power Supply: 220—240 V a.c. 50 Hz					
Indoor Unit		ISDL 65KY	ISDL 86KY	ISDL 114KY	
Outdoor Unit		OSA 65RKSH	OSA 86RKSH	OSA 114RKSH	
Nominal Cooling Capacity *1	kW	<b>6.5</b>	<b>8.4</b>	<b>11.0</b>	
Net Cooling Capacity	kW	6.45	8.22	11.03	
EER / AEER (cooling)		3.25 / 3.22	3.22 / 3.20	3.14 / 3.12	
Heating Capacity *2 (Rev. Cycle versions)	kW	<b>6.26</b>	<b>8.01</b>	<b>10.78</b>	
COP / ACOP (heating)		3.42 / 3.39	3.54 / 3.51	3.35 / 3.33	
Indoor Air Flow (nominal)	l/s	420	520	650	
Sound Pressure Level (Outdoor)*3 (Hi / Med)	dB(A)	46 / 43	48 / 46	61 / 58	
Maximum Vertical Separation	m	12	16	16	
Maximum Standard Line Length	m	30	30	30	
Maximum Extended Line Length (with extra protection)*4	m	—	40	40	
Running Amps (Total System)	A/ph.	8.5	11.1	17.2	
Dimensions (Indoor/ Outdoor)	Width	mm	1260 / 1085	1565 / 1085	1785 / 1125
	Height	mm	265 / 660	265 / 765	265 / 970
	Depth	mm	805 / 420	805 / 420	805 / 420
Recommended Pipe Sizes (Suction/Liquid)	mm dia.	16 / 10	16 / 10	16 / 10	
Weight (Indoor/Outdoor)	kg	47 / 94	63 / 100	87 / 124	
Features *5		c p s t	a c p s t	a c p s t	

Power Supply: 220—240 V a.c. 50 Hz				Standard Profile Indoor Units			
Indoor Unit		ISD 86KY	ISD 114KY	ISD 139KY	ISD 159KY		
Outdoor Unit		OSA 86RKSH	OSA 114RKSH	OSA 139RKSH	OSA 159RKSH		
Nominal Cooling Capacity *1	kW	<b>8.5</b>	<b>11.7</b>	<b>13.8</b>	<b>15.7</b>		
Net Cooling Capacity	kW	8.3	11.03	13.5	15.5		
EER / AEER (cooling)		3.25 / 3.23	3.17 / 3.15	3.14 / 3.11	3.16 / 3.14		
Heating Capacity *2 (Rev. Cycle versions)	kW	<b>7.98</b>	<b>10.99</b>	<b>12.8</b>	<b>14.5</b>		
COP / ACOP (heating)		3.46 / 3.42	3.33 / 3.31	3.54 / 3.52	3.64 / 3.61		
Indoor Air Flow (nominal)	l/s	520	650	850	900		
Sound Pressure Level (Outdoor)*3 (Hi / Med)	dB(A)	48 / 46	61 / 58	60 / 58	50 / 48		
Maximum Vertical Separation	m	16	16	20	20		
Maximum Standard Line Length	m	30	30	30	30		
Maximum Extended Line Length (with extra protection)*4	m	40	60	60	60		
Running Amps (Total System)	A/ph.	11.1	17.2	19.7	23		
Dimensions (Indoor/ Outdoor)	Width	mm	1020 / 1085	1115 / 1125	1280 / 1125	1310 / 1125	
	Height	mm	425 / 765	425 / 970	425 / 970	425 / 1120	
	Depth	mm	785 / 430	785 / 430	785 / 430	785 / 420	
Recommended Pipe Sizes (Suction/Liquid)	mm dia.	16 / 10	16 / 10	16 or 19 / 10	19 or 22 / 13		
Weight (Indoor/Outdoor)	kg	68 / 100	75 / 124	85 / 132	92 / 149		
Features *5		a c k p s t	a c k p s t	a c k p s t	a c k p s t		

# ISD-K SERIES - THREE PHASE SYSTEMS (NON-DIGITAL)



Power Supply: 400 - 415 V a.c. 50Hz		Low Profile	Standard Profile			
Indoor Unit	ISDL 114KY	ISD 114KY	ISD 139KY	ISD 159KY		
Outdoor Unit	OSA 114RKTH	OSA 114RKTH	OSA 139RKTH	OSA 159RKTH		
Nominal Cooling Capacity *1	kW	<b>11.0</b>	<b>11.7</b>	<b>13.8</b>	<b>15.7</b>	
Net Cooling Capacity	kW	11.03	11.30	13.5	15.5	
EER / AEER (cooling)		3.14 / 3.12	3.17 / 3.15	3.14 / 3.11	3.16 / 3.14	
Heating Capacity *2 (Rev. Cycle versions)	kW	<b>10.99</b>	<b>10.73</b>	<b>12.8</b>	<b>14.5</b>	
COP / ACOP (heating)		3.35 / 3.33	3.33 / 3.31	3.54 / 3.52	3.64 / 3.62	
Indoor Air Flow (nominal)	l/s	650	650	850	900	
Sound Pressure Level (Outdoor)*3 (Hi / Med)	dB(A)	61 / 58	61 / 58	60 / 58	50 / 48	
Maximum Vertical Separation	m	16	20	20	20	
Maximum Standard Line Length	m	30	30	30	30	
Maximum Extended Line Length (with extra protection)*4	m	40	40	60	60	
Running Amps (Total System)	A/ph.	7.4 / 4.3 / 4.3	7.4 / 4.3 / 4.3	10 / 6 / 6	8 / 7 / 7	
Dimensions (Indoor/ Outdoor)	Width	mm	1785 / 1125	1115 / 1125	1020 / 1125	1310 / 1125
	Height	mm	265 / 970	425 / 970	425 / 970	2125 / 1120
	Depth	mm	805 / 420	785 / 430	785 / 430	785 / 420
Recommended Pipe Sizes (Suction/Liquid)	mm dia	16 / 10	16 / 10	16 or 19 / 10	19 or 22 / 13	
Weight (Indoor/Outdoor)	kg	47 / 94	75 / 124	85 / 132	92 / 149	
Features *5		a c p s t	a c k p s t	c k p s t	c k p s t	

Power Supply: 400 - 415 V a.c. 50Hz		Standard Profile				
Indoor Unit	ISD 184KY	ISD 184KY	ISD 235KY	ISD 280KY		
Outdoor Unit	OSA 184RKTH	OSA 184RKTV	OSA 235RKTH	OSA 280RKTV		
Nominal Cooling Capacity *1	kW	<b>18.4</b>	<b>18.4</b>	<b>23.5</b>	<b>27.2</b>	
Net Cooling Capacity	kW	17.72	17.81	22.78	26.4	
EER / AEER (cooling)		3.23 / 3.21	3.24 / 3.22	3.29 / 3.27	3.17 / 3.16	
Heating Capacity *2 (Rev. Cycle versions)	kW	<b>17.2</b>	<b>17.2</b>	<b>22.1</b>	<b>26.1</b>	
COP / ACOP (heating)		3.73 / 3.70	3.51 / 3.49	3.67 / 3.65	3.44 / 3.41	
Indoor Air Flow (nominal)	l/s	1020	1290	1290	1540	
Sound Pressure Level (Outdoor)*3 (Hi / Med)	dB(A)	52 / 51	50 / -	63 / 60	60 / -	
Maximum Vertical Separation	m	20	20	20	20	
Maximum Standard Line Length	m	30	30	30	30	
Maximum Extended Line Length (with extra protection)*4	m	60	60	60	90	
Running Amps (Total System)	A/ph.	12 / 8 / 8	14 / 8 / 8	16 / 11 / 11	19 / 13 / 13	
Dimensions (Indoor/ Outdoor)	Width	mm	1505 / 1125	1505 / 1475	1635 / 1250	2140 / 1500
	Height	mm	425 / 1270	425 / 1270	425 / 1380	425 / 1445
	Depth	mm	785 / 420	785 / 760	785 / 450	785 / 760
Recommended Pipe Sizes (Suction/Liquid)	mm dia.	19 or 22 / 13	22 / 13	22 / 13	28 / 13	
Weight (Indoor/Outdoor)	kg	95 / 152	95 / 205	105 / 189	143 / 178	
Features *5		c k p s t	c k p s t u	c k p s t	c k p s t	

\*See page 6 for Notes and Key to Features.

# ISD-K SERIES - THREE PHASE SYSTEMS (NON-DIGITAL)



Power Supply: 400 - 415 V a.c. 50Hz						
Indoor Unit			ISD 310KBY	ISD 310KB-P	ISD 380KBY	ISD 380KB-P
Outdoor Unit			OSA 310RKTB	OSA 310RKTB	OSA 380RKTB	OSA 380RKTB
Nominal Cooling Capacity * <sup>1</sup>	kW		<b>31.6</b>	<b>31.6</b>	<b>37.6</b>	<b>37.1</b>
Net Cooling Capacity	kW		30.7	30.6	36.4	35.9
EER / AEER (cooling)			3.37	3.32	3.26	3.20
Heating Capacity * <sup>2</sup> (Rev. Cycle versions)	kW		<b>30.1</b>	<b>30.1</b>	<b>38.8</b>	<b>38.5</b>
COP / ACOP (heating)			3.85 / 3.83	3.81 / 3.78	3.49 / 3.47	3.44 / 3.42
Indoor Air Flow (nominal)	l/s		1900	1900	2100	2100
Sound Pressure Level (Outdoor) * <sup>3</sup>	dB(A)		59	59	64	64
Maximum Vertical Separation	m		20	20	20	20
Maximum Standard Line Length	m		40	40	40	40
Maximum Extended Line Length (with extra protection) * <sup>4</sup>	m		90	90	90	90
Running Amps (Total System)	A/ph.		20 / 17 / 17	23 / 14 / 14	22 / 17 / 16	22 / 17 / 17
Dimensions (Indoor/ Outdoor)	Width	mm	2050 / 1680	2050 / 1680	2315 / 1755	2315 / 1755
	Height	mm	700 / 1515	700 / 1515	705 / 1420	705 / 1420
	Depth	mm	740 / 825	830 / 825	830 / 1480	830 / 1480
Recommended Pipe Sizes (Suction/Liquid)	mm dia.		22 / 13 (x2)	22 / 13 (x2)	22 / 13 (x2)	22 / 13 (x2)
Weight (Indoor/Outdoor)	kg		179 / 301	162 / 301	203 / 410	169 / 410
Features * <sup>5</sup>			cesuv	cejsuv	cesuv	cejsuv

Power Supply: 400 - 415 V a.c. 50Hz			High Capacity Models c/w Belt Drive Indoor Fan				
Indoor Unit			ISD 465KB	ISD 550KB	ISD 660KB	ISD 840KB	ISD 950KB
Outdoor Unit			OSA 465RKTBV	OSA 550RKTVB	OSA 660RKTVB	OSA 840RKTVB	OSA 950RKTVB
Nominal Cooling Capacity * <sup>1</sup>	kW		<b>44.6</b>	<b>55.0</b>	<b>66.0</b>	<b>84.7</b>	<b>94.9</b>
Net Cooling Capacity	kW		42.64	53.0	63.0	79.38	89.95
EER / AEER (cooling)			2.98 / 2.96	2.98 / 2.96	2.98 / 2.97	2.70 / 2.68	2.70 / 2.68
Heating Capacity * <sup>2</sup> (Rev. Cycle versions)	kW		<b>44.0</b>	<b>51.0</b>	<b>61.0</b>	<b>79.8</b>	<b>90.1</b>
COP / ACOP (heating)			3.53 / 3.51	3.45 / 3.44	3.67 / 3.66	3.20 / 3.16	3.25 / 3.21
Indoor Air Flow (nominal)	l/s		2550	2800	3250	4500	5000
Sound Pressure Level (Outdoor) * <sup>3</sup>	dB(A)		64	64	64	66	66
Maximum Vertical Separation	m		20	20	20	20	20
Maximum Standard Line Length	m		40	50	50	50	50
Maximum Extended Line Length (with extra protection) * <sup>4</sup>	m		90	90	90	90	90
Running Amps (Total System)	A/ph.		31 / 26 / 25	37 / 37 / 37	43 / 43 / 43	59 / 50 / 50	68 / 59 / 59
Dimensions (Indoor/ Outdoor)	Width	mm	1565 / 1755	1670 / 1755	1670 / 1755	2220 / 2300	2220 / 2300
	Height	mm	1210 / 1420	1005 / 1200	1005 / 1200	1070 / 1210	1210 / 1280
	Depth	mm	1200 / 1480	1200 / 1510	1200 / 1510	1320 / 1680	1320 / 1680
Recommended Pipe Sizes (Suction/Liquid)	mm dia.		22 / 13 (x2)	28 / 13 (x2)	28 / 13 (x2)	35 / 16 (x2)	35 / 16 (x2)
Weight (Indoor/Outdoor)	kg		277 / 365	274 / 446	274 / 446	372 / 546	383 / 560
Features * <sup>5</sup>			b c u v	b c u v	b c u v	b c u v	b c u v

### Notes

Capacities are for close coupled systems. Allowance must be made for pipe length, pipe size and bends. Refer to separate Technical Data pamphlets for performance data under a range of conditions.

\*1 Nominal Cooling Capacity at AS/NZS 3823 conditions: Indoor Entering Air Temperature 27°C D.B., 19°C W.B.; Outdoor Entering Air Temperature 35°C D.B.

Net Cooling Capacity figures at AS/NZS 3823 include an allowance for fan motor heat loss.

\*2 Nominal Heating Capacity at AS/NZS 3823 conditions: Indoor Entering Air Temperature 21°C D.B.; Outdoor Entering Air Temperature 7°C D.B., 6°C W.B.

\*3 Indoor unit at 1 m from outlet of 1 m insulated duct (to JIS 8616); Outdoor unit at 3 m.

\*4 Refer to the *Split Systems Installation Guide* published at [www.temperzone.biz](http://www.temperzone.biz), or consult your nearest temperzone representative

### \*5 Key to Features:

for extended line length requirements.

a – Soft starter option

b – Belt drive indoor fan

c – 24 volt control

d – Single phase version available

e – EC motor

g – Digital compressor (single)

j – Plug fan

k – Separable indoor unit

p – Precharged for 10 m line length

s – Indoor unit spring mounting kit option

t – Wall t/stat option

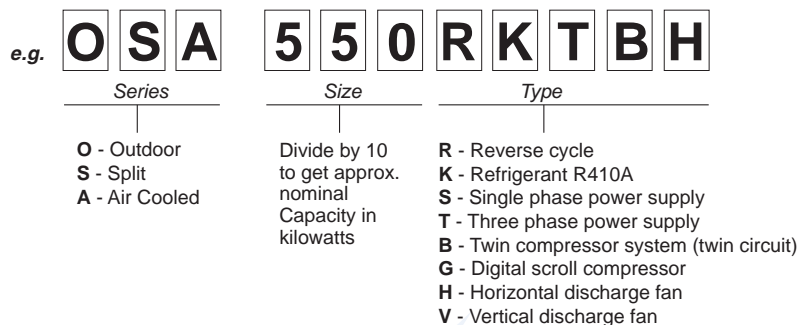
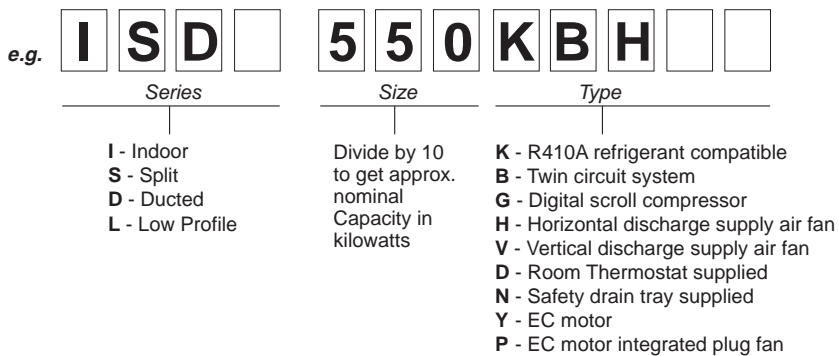
u – Upward discharge outdoor air fans

v – Twin compressor system (twin circuit)

w – Optional TZT-701 Controller supplied for digitals

Materials and specifications subject to change without notice due to the manufacturer's ongoing research and development programme.

### NOMENCLATURE



**Optional SAT Wall Thermostat**  
for non-digital systems up to 27kW



**OSA 520RKT**  
outdoor unit

**ISD 520KBH**  
indoor unit



visit our website [www.temperzone.biz](http://www.temperzone.biz)

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