



Ducted Split System Air Conditioners Technical Data

ISDL 66, ISDL 87, ISDL 116



Cooling Capacity
6.7kW - 11.2kW

Heating Capacity
6.2kW - 11.1kW

Ducted Split System Air Conditioners

Contents



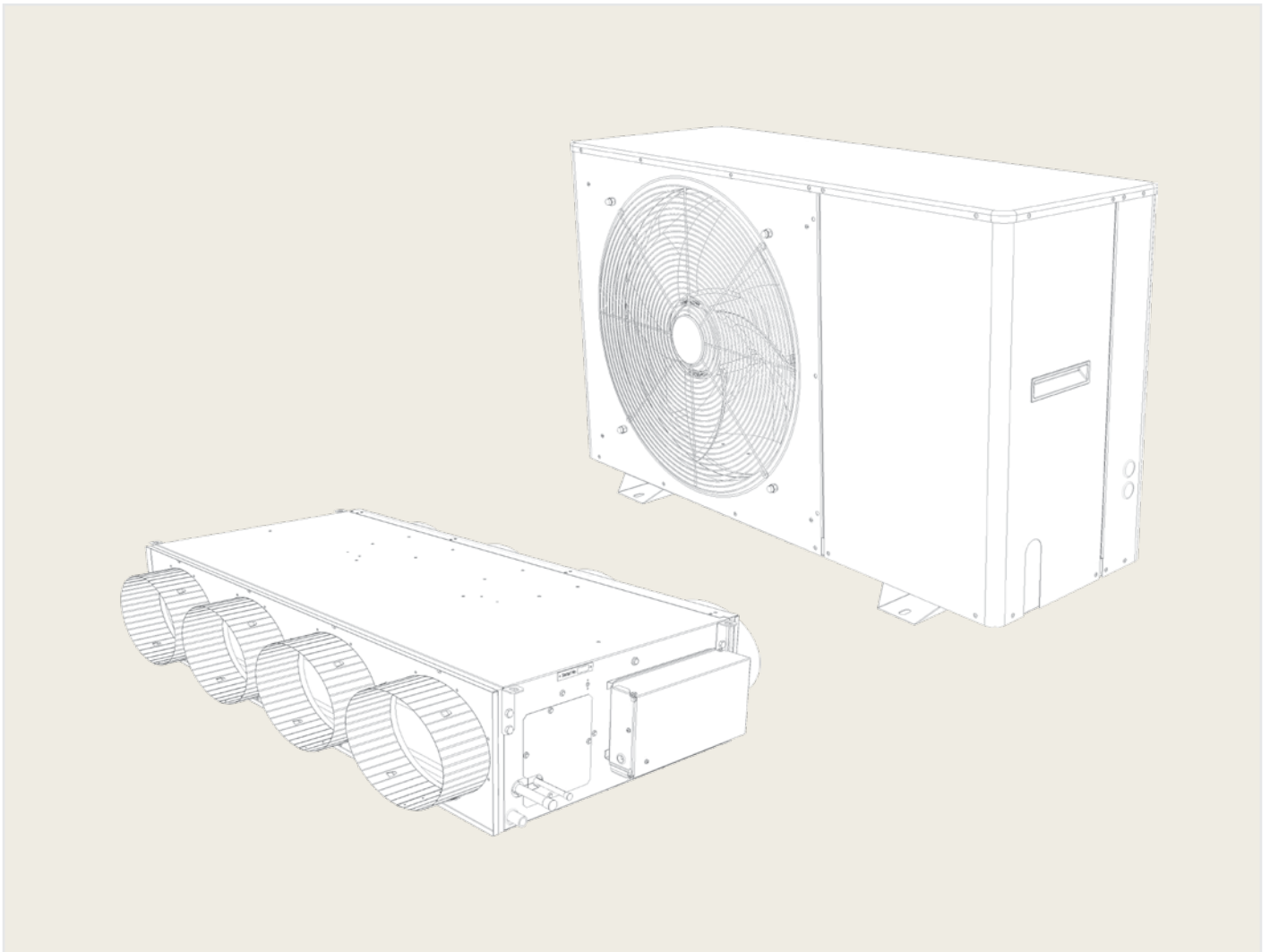
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Ducted Split System Air Conditioners

ISDL 66-116 KYX series



The ISDL indoor units, together with their associated OSA outdoor units, provide a reverse cycle (heat pump) split system air conditioner designed and developed to comply with and exceed AS/NZS 3823. Each system has been successfully tested at 52°C ambient.



Ducted Split System Air Conditioners

ISDL 66-116 KYX series



Applications

These low profile units have been specifically developed for air conditioning of light commercial and residential premises, e.g. offices, motels shops and homes.

AIR FLOW SELECTION

If the air returning to the indoor coil is regularly expected to be above 50%RH, then the coil face velocity should be limited to be 2.5 m/s or less.

High humidity levels can occur in tropical or subtropical conditions, and/or when heavily moisture laden fresh air is introduced. Consideration must always be given to selecting an air flow and face velocity that avoids water carry-over problems.

Applications using full or high proportions of fresh air should be referred to your nearest temperzone sales office to establish the correct selection of units.

FEATURES

Refrigerant R410A

Each complete system uses refrigerant R410A which has zero ozone depletion potential.

User Friendly

The air conditioning system is available with an optional SAT-3 or TZT-100 Controller which is wired to the Indoor or Outdoor unit. These thermostats have 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”.

Efficient

Indoor units include a high efficiency electronically commutated (EC) motor. Part load operation at low loads (75% airflow equates to 55% power use) using

temperzone algorithms. Each outdoor unit incorporates a high efficiency compressor. Heat exchange coils use inner grooved (rifled) tube for better heat transfer.

Performance

The OSA 116 digital scroll compressor technology can provide close comfort control of the room temperature.

A dynamically balanced forward curved fan with a multi-speed EC motor enables fine tuning of the indoor unit to match the supply air requirements. These EC motor fans have a fully integrated speed control that enables soft starting. Fan speed can be stepped to your own requirements or continuously variable using a 0–10V DC control signal. The system includes a temperature sensing head pressure control which enables the system to compensate for outdoor ambient temperatures below 20°C on cooling cycle, and above 15°C on heating cycle.

Low Profile.

The indoor units have a low 267 mm height making them ideal for small ceiling spaces.

Quiet

Each integral high efficiency EC motor can vary from zero to full speed. This allows slow ramp up with no sudden noise change.

The outdoor units' coil design permits low fan speeds and hence low noise levels. The compressor is isolated in a built-in, insulated compartment to minimise noise. The indoor unit is also insulated for noise attenuation.

Ducted Split System Air Conditioners

ISDL 66, 87, 116



Slimline

The compact up-right design of the outdoor units requires only a 100 mm gap on the coil side where installation is against a wall. Their slimline cabinets are particularly practical where there is restricted space, e.g. side access pathways, balconies, narrow ledges, etc. The unit is free standing, but can be fitted on a wall using the optional wall mounting brackets.

Durable

Both indoor and outdoor coil fins are epoxy coated for extra protection in corrosive environments, e.g. salt laden sea air. Each outdoor unit's cabinet is constructed from high grade galvanised steel - polyester powder coated (grey) for all weather protection (IP 44). External fasteners are stainless steel. Heat exchange coils comprise aluminium corrugated plate fins on mechanically expanded rifled copper tube. Each indoor unit's cabinet is constructed from high grade galvanised steel and includes a plastic drain tray for complete corrosion resistance. OSA 116 coil is protected with louvred anti-hail guards.

Serviceable

To enable a thorough cleanse, the indoor units' drain tray is removeable.

Insulation

Closed cell foam insulation has been used in the indoor units' cabinet to ensure no particles are introduced into the air stream. The insulation is foil faced and meets fire test standards AS 1530.3 (1999) and BS 476 parts 6 & 7.

Control Option

Commissioning is made easier when the EC motor to be controlled variably (within a restricted range) by a 0-10 volt DC signal that can be supplied either by a BMS system, a sophisticated controller or temperzone's optional TZT-100 Controller.

Compatibility

The supply and return air spigots on the indoor unit have been designed to fit standard flexible ducting. Alternatively they can easily be removed for attaching rigid ducting.

Self Diagnostics

The Outdoor Unit Controller (UC8) has a LED display to indicate faults and running conditions. A non-specific fault indicator is included for interface to external systems via the optional relay board.

Zone Control

ISDL 116KYX versions, if supplied with SAT-3 controller, can be fitted with the optional Zone Control kit which allows up to 6 zone dampers to be switched from the SAT-3 wall control. Standard damper motors, 24 volt ac, can be used with drive open/drive close.

Ducted Split System Air Conditioners

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OPTIONAL EQUIPMENT

Outdoor Unit:

1. Wall mounting brackets.
2. Anti-vibration mounts (rubber)
3. Drain connection - right angle
4. Fault relay board (201-000-105)
5. Soft Starter for lowering starting current (OSA 116RKSG only).

Indoor Unit:

1. temperzone SAT-3 Controller or TZT-100 Controller.
2. Six Zone Control kit for SAT-3 (ISDL 116 only).
3. Spring mounting kit.
4. Filter - EU2/G2 rated.

SAFETY FEATURES

1. HP and loss of refrigerant protection.
2. Anti-rapid cycle timer and internal overload for compressor protection.
3. Circuit breaker control circuits.
4. Time-and-temperature controlled electronic de-ice switch ensures icing up of the outdoor coil during heating cycle is kept to a minimum.
5. Frost protection on cooling cycle.
6. Sensor fault indication.
7. Compressor minimum run time to ensure oil return.
8. 12V control circuit.

COMPRESSOR

Each high efficiency scroll compressor is hermetically sealed, quiet running and supported on rubber mounts to minimise vibration. Digital scroll compressors (used in OSA 116) have proven very reliable because of their design simplicity; electrical harmonic noise is very low.

REFRIGERATION PIPING

Maximum line length is 40m for OSA 66/87 and 60m for OSA 116.

Max. height separations between units are:

Outdoor unit **above** indoor unit: 20m

Outdoor unit **below** indoor unit: 20m.

Each OSA unit is shipped from the factory with a charge of HFC-410A (R410A) refrigerant sufficient for a 10m line length. Liquid and suction service valves are provided. The matched indoor unit is shipped with a holding charge of nitrogen. Both units have brazed pipe connections.

WIRING

The electrical supply required (including voltage fluctuation limits) is:

OSA 66/87/116 RKS:

1 phase 200–252 V a.c. 50 Hz with neutral and earth.

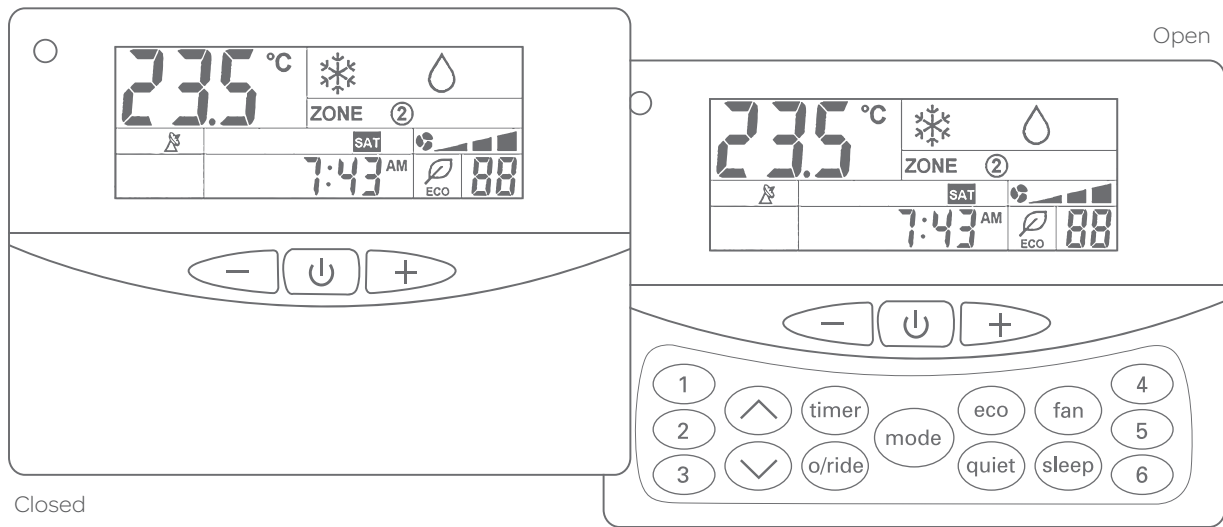
OSA 116 RKT:

3 phase 342–436 V a.c. 50 Hz with neutral and earth.

A control panel, located in each outdoor unit, is fully wired ready to accept the main power supply. Each system conforms with emission standards EN 55014-1, EN 60335-1 and EN 60335-2-40.

Ducted Split System Air Conditioners

SAT-3 Controller (Optional)



FEATURES SUMMARY

- Cool / Dry / Fan modes.
- Heat / Auto modes
- Auto / High / Medium / Low fan speed selection. (customisable).
- Temperature setting range from 16°C – 30°C.
- Room temperature display.
- Real time clock.
- **7 day timer** – up to four start and/or stops per day
- Override countdown run timer; up to 4 hours.
- Continuous or Intermittent selection of fan run-on in dead zone.
- Backlit screen for ease of reading; changes colour for each mode.
- Soft touch tab keys
- Battery backup (Lithium).
- **Sleep function** – improves night time comfort and saves energy.
- **Eco mode** – for economical operation.
- **Quiet mode** – for outdoor unit.
- Low voltage control cable.
- Connects to either indoor unit or outdoor unit.
- Colour: white and light grey (Keypad - green and blue).

Optional:

1. Remote return air sensor
2. Six Zone Control kit (ISDL 116 only)

Note: Not backwards compatible with units using SAT-2.

Ducted Split System Air Conditioners Performance Data



COOLING CAPACITY (KW)

Total = Total Capacity (kW).

Sens. = Sensible Capacity (kW).

E.A.T. = Entering Air Temperature.

○ = Nominal Capacity (kW).

See over for Indoor Air Flow Correction factors >

Note: Capacities are **gross** and do not include allowance for fan motor heat loss. Capacities are for close coupled systems. Interconnecting pipework will reduce capacity..

Models	Indoor Fan	Air l/s	Indoor coil		Outdoor coil entering air temperature °C D.B.											
			E.A.T.		23		27		31		35		39		43	
			D.B. °C	W.B. °C	Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.
ISDL 66 OSA66	High	370	21	15	6.5	5.2	6.5	5.2	6.3	5.1	6.0	4.9	5.6	4.6	5.1	4.3
			23	17	6.9	5.1	6.8	5.1	6.7	5.0	6.3	4.8	6.0	4.6	5.5	4.2
			27	19	7.2	5.8	7.2	5.8	7.0	5.7	6.7	5.6	6.3	5.3	5.8	4.9
			31	21	7.6	6.9	7.5	6.9	7.3	6.8	7.1	6.6	6.7	6.3	6.2	5.9
ISDL 87 OSA87	High	480	21	15	8.3	6.6	8.2	6.6	8.0	6.4	7.6	6.2	7.1	5.9	6.5	5.4
			23	17	8.8	6.4	8.7	6.4	8.5	6.3	8.1	6.1	7.6	5.8	6.9	5.4
			27	19	9.2	7.4	9.1	7.4	8.9	7.3	8.5	7.0	8.0	6.7	7.4	6.2
			31	21	9.7	8.7	9.6	8.7	9.3	8.6	9.0	8.3	8.5	8.0	7.8	7.5
ISDL 116 OSA116G	High	630	21	15	11.0	8.6	10.9	8.6	10.5	8.4	10.0	8.1	9.4	7.7	8.6	7.1
			23	17	11.6	8.4	11.4	8.4	11.2	8.3	10.6	8.0	10.0	7.6	9.1	7.1
			27	19	12.2	9.7	12.0	9.7	11.7	9.5	11.2	9.2	10.6	8.8	9.7	8.2
			31	21	12.8	11.4	12.6	11.4	12.3	11.3	11.8	10.9	11.2	10.5	10.3	9.8

Ducted Split System Air Conditioners

Performance Data - Reverse Cycle Systems



HEATING CAPACITY (KW)

G = Gross Heating Capacity kW, based on nominal air flow.

N = Net Heating Capacity kW allowing for average defrost.

○ = Nominal Capacity (kW).

Models	Indoor Entering Air Temp. °C	Outdoor coil entering air temperature °C D.B.															
		-5		-3		-1		1		3		5		7		9	
Indoor Unit	D.B.	G	N.	G	N.	G	N.	G	N.	G	N.	G	N.	G	N.	G	N.
ISDL 66 OSA 66	15	4.6	4.4	4.9	4.3	5.2	4.4	5.4	4.7	5.7	5.2	6.0	6.0	6.2	6.2	6.5	6.5
	20	4.6	4.3	4.8	4.3	5.1	4.3	5.4	4.6	5.6	5.2	5.9	5.9	6.2	6.2	6.4	6.4
	25	4.4	4.2	4.7	4.2	5.0	4.2	5.2	4.5	5.5	5.0	5.8	5.8	6.0	6.0	6.3	6.3
ISDL 87 OSA 87	15	5.9	5.6	6.2	5.5	6.6	5.6	6.9	5.9	7.3	6.6	7.6	7.6	7.9	7.9	8.3	8.3
	20	5.8	5.5	6.2	5.4	6.5	5.5	6.8	5.9	7.2	6.6	7.5	7.5	7.8	7.8	8.2	8.2
	25	5.6	5.4	6.0	5.3	6.3	5.4	6.7	5.7	7.0	6.4	7.3	7.3	7.7	7.7	8.0	8.0
ISDL 116 OSA 116G	15	8.3	7.9	8.8	7.8	9.3	7.9	9.8	8.4	10.2	9.4	10.7	10.7	11.2	11.2	11.7	11.7
	20	8.2	7.8	8.7	7.7	9.2	7.8	9.6	8.3	10.1	9.3	10.6	10.6	11.1	11.1	11.5	11.5
	25	8.0	7.6	8.4	7.5	8.9	7.6	9.4	8.1	9.9	9.1	10.3	10.3	10.8	10.8	11.3	11.3

INDOOR AIR FLOW CORRECTION FACTORS @ NOMINAL CONDITIONS

Indoor Air Flow (%)

	-20	-10.	Rated	+10
Total Capacity	0.95	0.975	1.0	1.025
Sensible Capacity	0.89	0.950	1.0	1.050

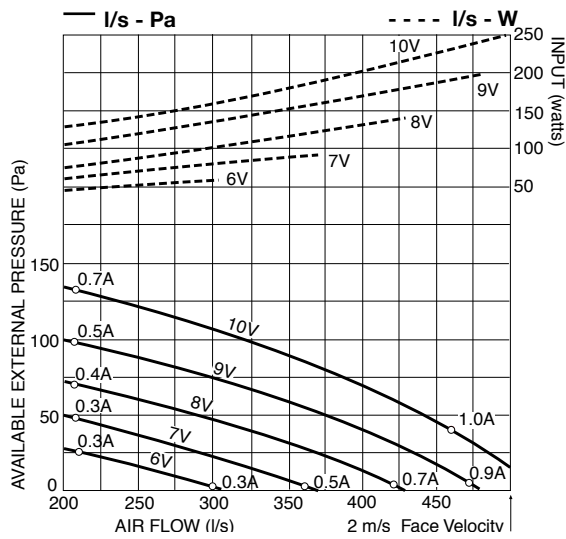
Ducted Split System Air Conditioners Performance Data



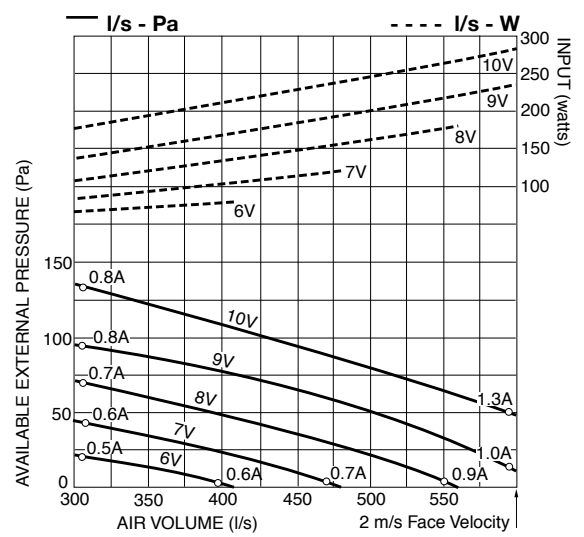
AIR HANDLING

Airflows are for a dry coil. Supply and return air spigots fitted. Reduce airflow by 10% in high moisture removal conditions. In a free blow application, beware of exceeding indoor fan motor's full load amp limit. Refer back page for filter losses. **Air flows given are for ISDL units without filter installed.**

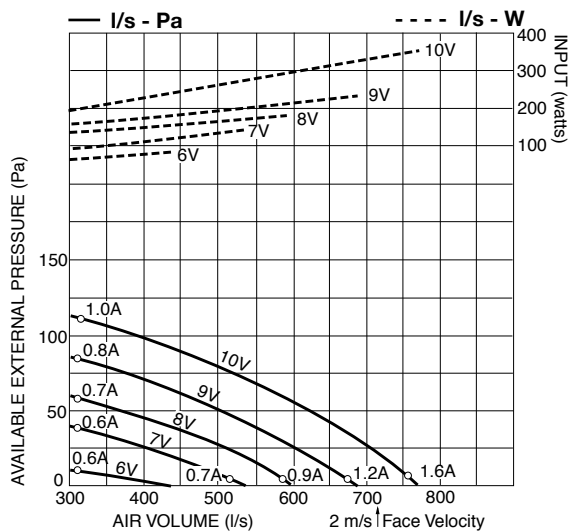
ISDL 66KYX



ISDL 87KYX



ISDL 116KYX



Optional Filter EU2/G2 rated media (clean):

Coil Face Velocity (m/s)	1.5	2.0	2.5
Pressure Loss (Pa)	5	9	13

Ducted Split System Air Conditioners Performance Data



SOUND LEVELS

Sound Power Levels (SWL)

Test Conditions: BS 848 PT2 1985.

Installation Type A (free inlet and outlet).

Direct method of measurement (reverberant room).

Measured in decibels re 1 picowatt.

INDOOR UNIT - SUPPLY AIR OUTLET

Models	FAN SPEED	SWL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1K	2K	4K
			SOUND POWER LEVELS (SWL) dB					
ISDL 66	6 V	49	53	51	44	44	39	35
	8 V	56	60	58	52	51	47	44
	10 V	62	64	63	58	57	53	49
ISDL 87	6 V	50	54	53	47	44	40	33
	8 V	57	60	58	54	52	48	43
	10 V	63	66	64	59	58	55	50
ISDL 116	6 V	51	56	53	49	46	41	35
	8 V	57	59	59	54	53	48	43
	10 V	64	65	64	62	59	55	51

SOUND PRESSURE LEVELS (SPL) WITHIN A ROOM

Deduct the room absorption effect below from the Sound Power Levels (SWL) above to obtain Sound Pressure Levels within a room.

Note: Occupant at least 1.5 m from sound source.

Room type	OCTAVE BAND FREQUENCY Hz					
	125	250	500	1K	2K	4K
	ROOM ABSORPTION EFFECT					
Soft	4	8	11	11	11	11
Medium	3	7	8	9	9	9
Hard	0	1	3	4	4	5

Ducted Split System Air Conditioners

Performance Data



SOUND LEVELS

Sound Power Levels (SWL)

Test Conditions: BS 848 PT2 1985.

Installation Type A (free inlet and outlet).

Direct method of measurement (reverberant room).

Measured in decibels re 1 picowatt.

INDOOR UNIT - CASE BREAKOUT + RETURN AIR

Models	FAN SPEED	SWL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1K	2K	4K
			SOUND POWER LEVELS (SWL) dB					
ISDL 66	6 V	49	54	52	45	44	39	32
	8 V	55	58	58	51	49	47	41
	10 V	61	64	63	58	55	54	48
ISDL 87	6 V	49	53	52	47	42	40	33
	8 V	56	57	58	53	50	47	42
	10 V	62	63	64	59	55	53	49
ISDL 116	6 V	51	52	54	47	46	40	31
	8 V	56	58	58	53	52	46	39
	10 V	61	62	63	59	57	52	46

Ducted Split System Air Conditioners

Performance Data



OUTDOOR UNIT

Models	FAN SPEED	SWL dB(A)	OCTAVE BAND FREQUENCY Hz					
			125	250	500	1K	2K	4K
			SOUND POWER LEVELS dB					
OSA 66	LOW	59	62	62	58	52	47	42
	MED	62	63	64	61	56	51	44
	HIGH	64	66	67	62	59	53	47
OSA 87	LOW	65	69	66	62	61	55	50
	MED	66	70	66	63	61	56	51
	HIGH	67	70	68	64	63	57	52
OSA 116	LOW	69	76	67	69	60	58	52
	MED	71	79	70	71	63	58	53
	HIGH	73	81	73	72	66	62	55

Sound Pressure Level (SPL) in decibels re 20 μ Pa.

Models	FAN SPEED	SPL @ 3 m dB(A)	SOUND PRESSURE LEVELS dB					
			125	250	500	1K	2K	4K
OSA 66	LOW	43	46	46	42	36	31	26
	MED	46	47	48	45	40	35	28
	HIGH	48	50	51	46	43	37	31
OSA 87	LOW	49	53	50	46	45	39	34
	MED	50	54	50	47	45	40	35
	HIGH	51	54	52	48	47	41	36
OSA 116	LOW	53	60	51	53	44	42	36
	MED	55	63	54	55	47	42	37
	HIGH	57	65	57	56	50	46	39

Ducted Split System Air Conditioners

Dimensions (mm)

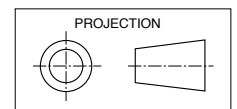


ISDL INDOOR UNIT

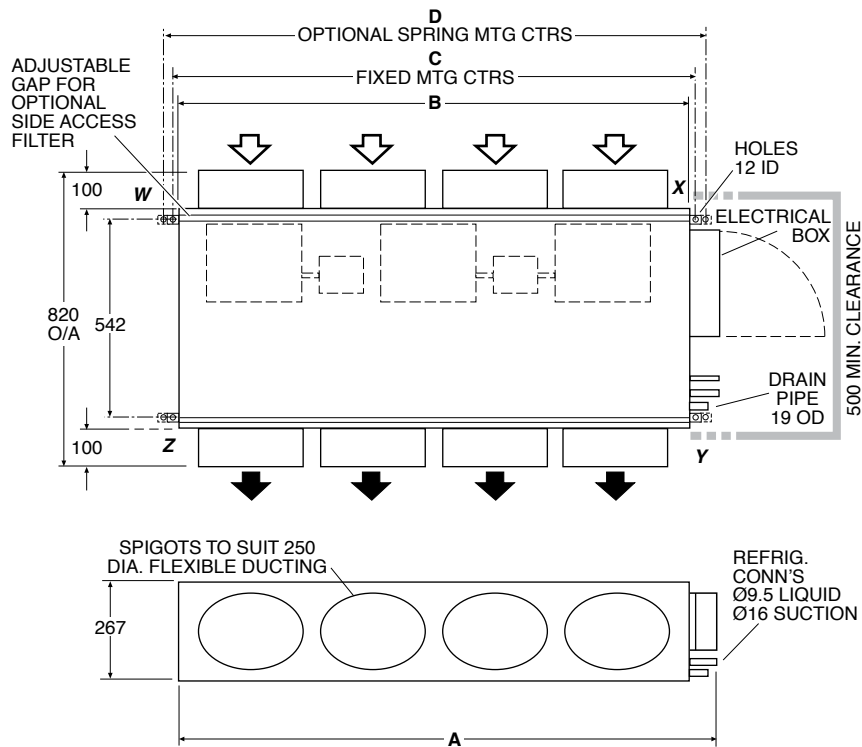
Model	A	B	C	D	Spigots*
ISDL 66	1215	1117	1155	1220	250 dia.(x6)
ISDL 87	1410	1320	1350	1415	250 dia.(x8)
ISDL 116	1660	1540	1570	1635	250 dia.(x8)

Note: Fan motor/s can be accessed from return air side or the underside.

* Supply & Return Air



ISDL 87KYX shown here



POINT LOAD (kg)

Model	W	X	Y	Z
ISDL 66	9	12	14	14
ISDL 87	11	14	17	17
ISDL 116	17	15	18	18

Drawings are NOT TO SCALE

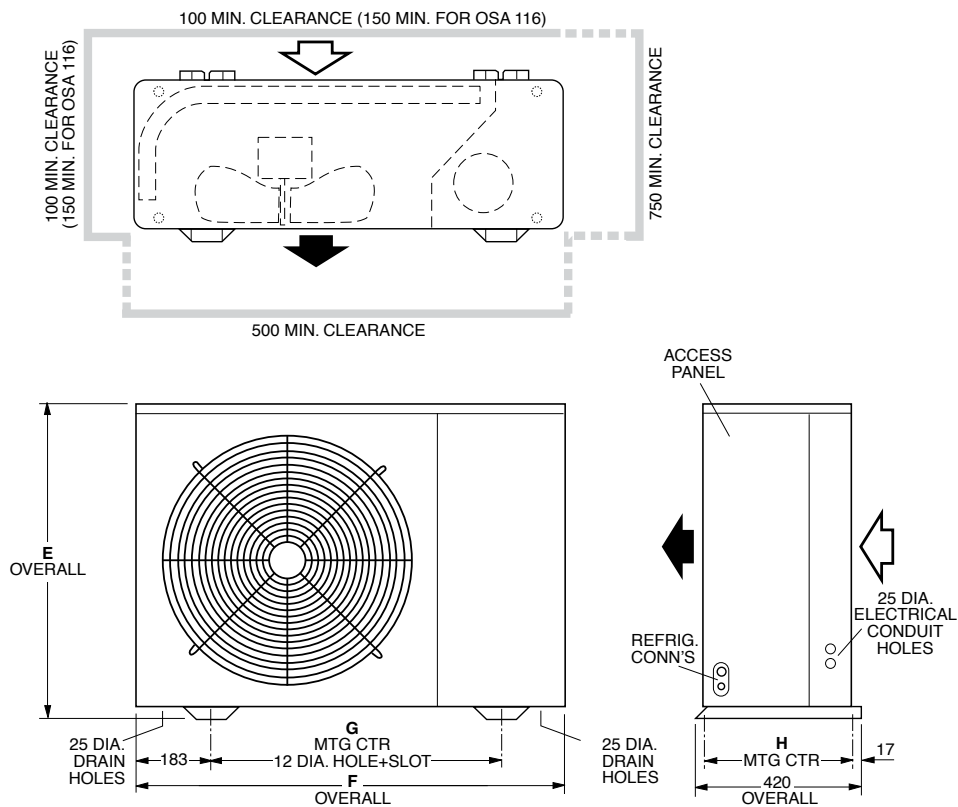
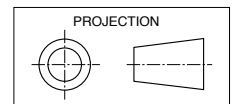
Materials and specifications are subject to change without notice due to the manufacturer's ongoing research and development programme.

Ducted Split System Air Conditioners Dimensions (mm)



OSA OUTDOOR UNIT

Model	E	F	G	H
OSA 66	660	1085	714	375
OSA 87	765	1085	714	375
OSA 116	965	1120	753	398



POINT LOAD (kg)

Model	W	X	Y	Z
OSA 66	24	17	38	6
OSA 87	22	23	37	8
OSA 116	16	38	50	24

Drawings are NOT TO SCALE

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

Ducted Split System Air Conditioners Specifications



System			
Indoor Unit	ISDL 66KYX	ISDL 87KYX	ISD 116KYX
Outdoor Unit	OSA 66	OSA 87	OSA 116G
Nominal Cooling Capacity* ¹ kW	6.7	8.5	4.5-11.2
Net Cooling Capacity (MEPS)* ¹ kW	6.5	8.3	10.9
EER / AEER (cooling)	3.25 / 3.20	3.33 / 3.23	3.21 / 3.19
Heating Capacity* ² kW	6.2	7.8	4.4-11.1
COP / ACOP (heating)	3.23 / 3.20	3.45 / 3.43	3.46 / 3.44
Air Flow* ³ l/s	370	480	630
Sound Levels* ⁴			
Indoor Unit (SWL)	56	57	57
Outdoor Unit (SPL)	48	51	57
Power Source* ⁵	1 phase		1 ph. or 3 phase
Compressor type	fixed	fixed	digital
Indoor Fan Maximum Current A	1.5	1.5 (x2)	1.6 (x2)
Running Amps (Total)			
OSA*RKS A	9.4	11	10
OSA*RKT A/ph.	-	-	7.1 / 4.5 / 4.5
Refrigerant	HFC-410A (R410A)		
Maximum Vertical Separation m	20	20	20
Maximum Line Length m	40	40	60
Pipe Sizes (Suction/Liquid) mm OD	16 / 9.5	16 / 9.5	16 / 9.5
Controller	IUC / UC8		
Finish			
Indoor Unit	zinc galvanised steel		
Outdoor Unit	grey polyester powder coat		
Weight (net/shipping) kg			
Indoor Unit	49 / 54	58 / 78	68 / 86
Outdoor Unit	85 / 92	90 / 103	128 / 138

Notes:

- *¹ Nominal Cooling Capacity (gross) 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.
- *² 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 Supply air flow at Nominal Cooling Capacity conditions stated above.
- *⁴ Sound Levels are measured at nominal cooling capacity conditions stated above. SPL measured at 3m from unit.
- *⁵ Voltage fluctuation limits: Single phase systems 200-252 V;
Three phase systems 342-436 V

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