ENERGY EFFICIENT

temperzone

ISD / OSA 266

Technical Data

Ducted Three Phase
Split System Air Conditioner

EXTRA LONG LIFE EPOXY COATED OUTDOOR COIL

Nominal Cooling Capacity

26.5 kW (Total)

JUNE 2004

ISD / OSA 266 DUCTED THREE PHASE SPLIT SYSTEM AIR CONDITIONER

GENERAL

ISD 85Q, **ISD 127Q**, **ISD 181Q,**
ISD 266Q - Indoor units usable for reverse cycle or cooling only
OSA 266 - A general designation for outdoor unit
OSA 266C - Outdoor unit, cooling only version
OSA 266R - Outdoor unit, reverse cycle version

The ISD indoor unit, together with its associated OSA outdoor unit, provides a three phase split system air conditioner designed and developed to comply with and exceed AS/NZS 3823 specified conditions (i.e. guaranteed cooling cycle performance at 43°C outdoor temperature).

APPLICATIONS

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

Distributing Capacity

The outdoor unit can be matched to its own dedicated indoor unit. Alternatively, two split capacity indoor units can be coupled to the single compressor outdoor unit and controlled from one room thermostat. This tandem arrangement is often quieter than a larger single unit and permits air distribution closer to where it's needed most.

The Indoor Unit options are:

1. One **ISD 266Q** (26.5 kW),
2. Two **ISD 127Q** (12.5 kW x 2), or
3. One **ISD 85Q** (8.5 kW) and one **ISD 181Q** (18.1 kW).

Air Flow Selection

The nominal indoor air flow and temperature /humidity conditions meet AS/NZS 3823 rating standards (incl. 50%RH).

Consideration must always be given to selecting an air flow and face velocity that avoids water carry-over problems.

High humidity levels can occur in tropical or subtropical conditions, and/or when heavily moisture laden fresh air is introduced. 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 (refer Air Flow graph; 2.5 m/s is clearly marked).

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

Efficient. The outdoor unit has a high efficiency scroll compressor. Heat exchange coils incorporate inner grooved (rifled) tube for better heat transfer.

Performance. A dynamically balanced forward curved fan with a multi-speed motor enables fine tuning of the indoor unit to match the supply air requirements. The system includes a temperature sensing head pressure control which enables the system to run efficiently on cooling cycle at outdoor ambient temperatures below 20°C, and heating cycle above 15°C.

Quiet. The compressor is isolated in a built-in, insulated compartment to minimise noise. The indoor unit is also insulated for noise attenuation.

Slimline. The compact upright design of the outdoor unit requires only a 150 mm gap on the coil side where installation is against a wall. Its slimline cabinet is particularly practical where there is restricted space, e.g. side access pathways, balconies, narrow ledges, etc. .

Durable. The outdoor coil fins are epoxy coated for extra protection in corrosive environments, e.g. salt laden sea air. The outdoor unit's cabinet is constructed from high grade galvanised steel – polyester powder coated for all weather protection (IP 45). External fasteners are stainless steel. Heat exchange coils comprise aluminium plate fins on mechanically expanded rifled copper tube. The indoor unit's cabinet is constructed from high grade galvanised steel and includes a plastic drain tray for complete corrosion resistance.

Service Access. The indoor unit's built-in drain tray can be removed for ease of cleaning and service accessibility.

Insulation. Closed cell foam insulation has been used in the indoor unit's cabinet to ensure no particles are introduced into the air stream. The insulation is foil faced and meets fire test standards AS 1530.3 (1989) and BS 476 parts 6 & 7.

Mounting. The indoor unit can be mounted rigid, or using the optional spring mounting brackets which minimise transfer of vibration.

Self Diagnostics. The Outdoor Unit Controller (OUC) has a display of LEDs to indicate faults and running conditions. A general fault indicator is included for interface to external systems.

OPTIONAL ACCESSORIES

Outdoor Unit:

1. LP switch.
2. Fault indicating auxillary relay board.

Indoor Unit:

1. Filter box - integrated return air spigot and washable filter (rated EU2).
2. **temperzone** TTS-10 Wall Thermostat kit
3. Spring Mounting Kit.
4. Electric booster heater box
   - complete with safety cutouts required to meet AS/NZS 3350.2.40 1997.
   ISD 85Q: 2 kW
   ISD 127Q: 3 kW
   ISD 181Q: 4.5 kW
   ISD 266Q: 4.5 kW.
5. Supply and return air plenums.

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 prevents icing up of the outdoor coil during heating cycle (OSA 266R only).
5. Frost protection on cooling cycle.
6. Sensor fault indication.
7. Crankcase heater prevents liquid refrigerant condensing in the compressors during the 'off' cycle.
8. Compressor minimum run time to ensure oil return.

COMPRESSOR

Each high efficiency scroll type compressor is hermetically sealed, quiet running and supported on rubber mounts to minimise vibration.

REFRIGERATION PIPING

The standard unit allows for a line length of up to 30 m.

Max. height separations between units are :
Reverse Cycle systems:
Outdoor unit above indoor unit : 12 m
Outdoor unit below indoor unit : 12 m.
Cooling Only systems:
Outdoor unit above indoor unit : 18 m
Outdoor unit below indoor unit : 12 m.

For extended line lengths contact your nearest **temperzone** sales office for additional details on piping requirements.

The OSA 266 is shipped from the factory with a charge of HCFC-22 (R22) refrigerant sufficient for a 10 m line length. Liquid and suction service valves are provided. Accurator expansion devices control the flow of refrigerant. The matched indoor units are shipped with a holding charge of nitrogen. Both units have one flare and one brazed pipe connection.

TANDEM PIPING

When connecting two indoor units in tandem to the OSA 266R outdoor unit ensure the following:

1. Maximum line length specified for the outdoor unit must include both tandem legs.
2. Tandem legs must be as close as possible to equal, after leaving the common leg.
3. Ensure each 'T' joint connection is the same size as the common leg's pipe size, downsizing if necessary from there to each indoor unit.

WIRING

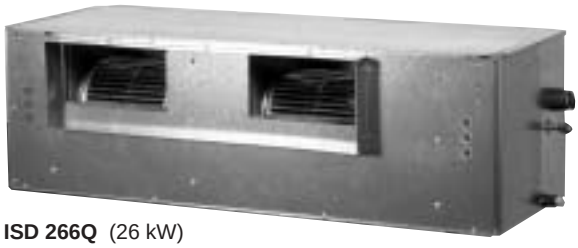
The electrical supply required (including voltage fluctuation limits) is:
3 phase 342-436 V a.c. 50 Hz with neutral and earth. The compressor crankcase heater requires a 24 hour power supply.

A control panel, located in the outdoor unit, is fully wired ready to accept the main power supply.

The manufacturer operates a quality management system that conforms to AS/NZS **ISO 9001**:2000.

COMBINATIONS

OSA 266



ISD 266Q (26 kW)

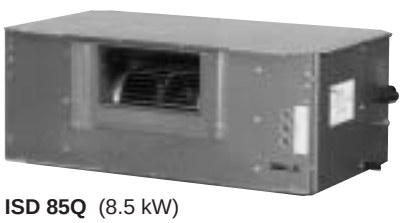
OSA 266

ISD 127Q (12.7 kW)

ISD 127Q (12.7 kW)

OSA 266

ISD 181Q (18 kW)



ISD 85Q (8.5 kW)

PERFORMANCE DATA

COOLING CAPACITY (kW)

Total = Total Capacity (kW) Sens. = Sensible Capacity (kW)
E.A.T. = Entering Air Temperature ◯ = Nominal Capacity (kW)

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 (refer page 6).

MODELS Indoor Unit / Outdoor Unit	INDOOR FAN SPEED	INDOOR FAN AIR l/s	INDOOR COIL E.A.T. W.B. °C	INDOOR COIL E.A.T. D.B. °C	OUTDOOR COIL ENTERING AIR TEMPERATURE °C D.B. 23 Total	23 Sens.	27 Total	27 Sens.	31 Total	31 Sens.	35 Total	35 Sens.	39 Total	39 Sens.	43 Total	43 Sens.
ISD 127Q / OSA 266	HIGH	750	17	23	13.0	9.3	12.6	9.1	12.2	9.0	11.8	8.8	11.4	8.6	11.0	8.5
			19	27	13.7	10.7	13.3	10.5	12.9	10.4	(12.5)	10.2	12.1	10.0	11.7	9.9
			21	31	14.5	12.0	14.1	11.9	13.7	11.7	13.2	11.6	12.8	11.4	12.4	11.3
ISD 85Q / OSA 266	HIGH	500	17	23	8.6	6.1	8.4	6.1	8.2	6.0	8.0	5.9	7.8	5.8	7.5	5.7
			19	27	9.2	7.0	8.9	7.0	8.7	6.9	(8.5)	6.8	8.2	6.7	8.0	6.6
			21	31	9.7	7.9	9.5	7.9	9.2	7.8	9.0	7.7	8.8	7.6	8.5	7.5
ISD 181Q / OSA 266	HIGH	1045	17	23	18.5	13.4	18.0	13.1	17.5	12.9	17.0	12.7	16.5	12.5	16.0	12.3
			19	27	19.6	15.3	19.0	15.1	18.5	14.9	(18.0)	14.8	17.5	14.6	16.9	14.4
			21	31	20.7	17.3	20.1	17.1	19.6	16.9	19.1	16.8	18.5	16.6	17.9	16.4
ISD 266Q / OSA 266	HIGH	1500	17	23	27.2	19.6	26.4	19.3	25.7	19.0	24.9	18.7	24.2	18.4	23.4	18.1
			19	27	28.7	22.5	27.9	22.2	27.2	21.9	(26.5)	21.6	25.6	21.3	24.8	21.1
			21	31	30.3	25.4	29.5	25.1	28.7	24.9	27.9	24.6	27.1	24.3	26.2	24.0

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

PIPE LENGTH CAPACITY LOSS

ON COOLING CYCLE DUE TO PRESSURE DROP

Note: Loss percentage is approximate only.
No allowance made for vertical piping.

System	Pipe Size (mm) Liquid	Suction	Equivalent Line Pipe Length (m) 5	10	15	20	30
ISD 85Q / OSA 266	10	16	2 %	4 %	6 %	8 %	–
	10	19	1 %	1.5 %	2.5 %	3.5 %	–
ISD 127Q / OSA 266	13	19	1.6 %	3.2 %	4.7 %	–	–
	13	22	0.8 %	1.6 %	2.4 %	3.2 %	–
ISD 181Q / OSA 266	13	22	2.25 %	4.0 %	5.6 %	7.3 %	–
	13	28	1.2 %	1.7 %	2.25 %	2.7 %	–
ISD 266Q / OSA 266	13	28	–	1.8 %	–	3.75 %	5 %

Suction Pipe Size OD	Additional Pipe Length to allow per Bend Long 90° Radius (2 x pipe dia.)
16 mm	0.30 m
19 mm	0.40 m
22 mm	0.50 m
28 mm	0.61 m

HEATING CAPACITY (kW)

G = Gross Heating Capacity kW, based on nominal air flows.
N = Net Heating Capacity kW allowing for average defrost.
◯ = Nominal Capacity (kW)

Reverse Cycle Systems

MODELS Indoor Unit / Outdoor Unit	INDOOR ENTERING AIR TEMP. °C D.B.	OUTDOOR COIL ENTERING AIR TEMPERATURE (E.A.T.) °C D.B. -4 G	-4 N	-2 G	-2 N	0 G	0 N	2 G	2 N	4 G	4 N	6 G	6 N	8 G	8 N	10 G	10 N
ISD 85Q / OSA 266R	15	6.2	5.6	6.6	6.0	7.1	6.3	7.5	6.4	7.9	6.7	8.5	7.7	9.0	9.0	9.3	9.3
	20	6.0	5.4	6.5	5.8	6.9	6.1	7.3	6.3	7.7	6.6	8.3	7.6	(8.9)	8.9	9.1	9.1
	25	5.8	5.2	6.2	5.6	6.7	5.9	7.1	6.1	7.5	6.4	8.0	7.3	8.5	8.5	8.8	8.8
ISD 127Q / OSA 266R	15	9.0	8.1	9.6	8.6	10.3	9.1	10.9	9.4	11.5	9.8	12.4	11.3	13.1	13.1	13.6	13.6
	20	8.8	7.9	9.4	8.4	10.0	8.9	10.6	9.1	11.3	9.6	12.1	11.0	(12.7)	12.7	13.2	13.2
	25	8.5	7.6	9.1	8.2	9.7	8.6	10.3	8.8	10.9	9.2	11.7	10.6	12.4	12.4	12.8	12.8
ISD 181Q / OSA 266R	15	12.6	11.3	13.5	12.1	14.3	12.8	15.2	13.1	16.1	13.7	17.3	15.8	18.4	18.4	19.0	19.0
	20	12.3	11.0	13.1	11.8	14.0	12.5	14.9	12.8	15.8	13.4	16.9	15.4	(17.9)	17.9	18.5	18.5
	25	11.8	10.7	12.7	11.4	13.5	12.0	14.4	12.4	15.2	12.9	16.3	14.9	17.3	17.3	17.9	17.9
ISD 266Q / OSA 266R	15	18.9	17.0	20.3	18.3	21.6	19.3	23.0	19.8	24.4	20.7	26.1	23.8	27.7	27.7	28.7	28.7
	20	18.5	16.6	19.8	17.8	21.1	18.8	22.4	19.3	23.8	20.2	25.5	23.2	(27.0)	27.0	28.0	28.0
	25	17.9	16.1	19.1	17.2	20.4	18.2	21.7	18.7	23.0	19.5	24.6	22.4	26.2	26.2	27.1	27.1

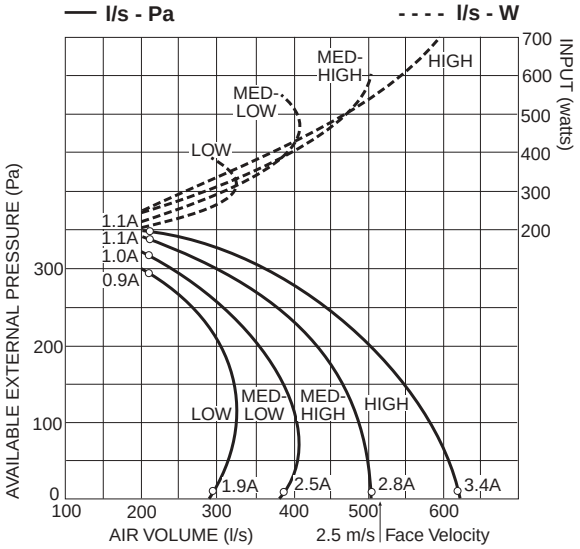
PERFORMANCE DATA

AIR HANDLING

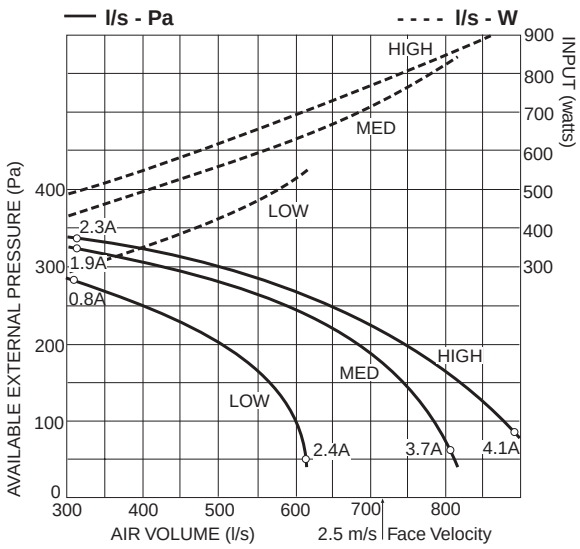
Note: In a free blow application, beware of exceeding indoor fan motor's full load amp limit.

As filters are optional, air flows given are for ISD units without filter installed.

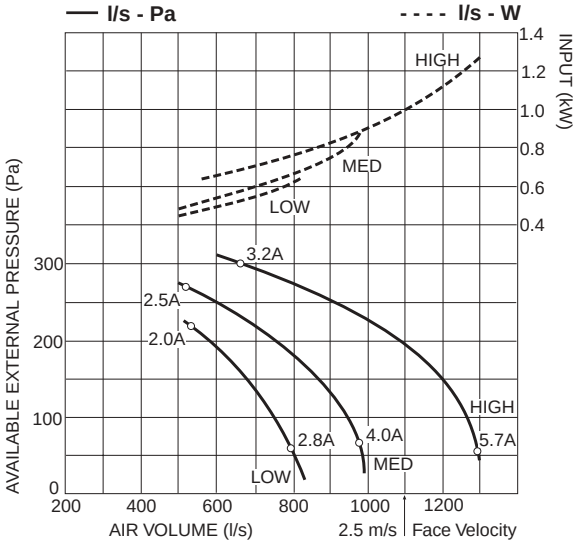
ISD 85Q



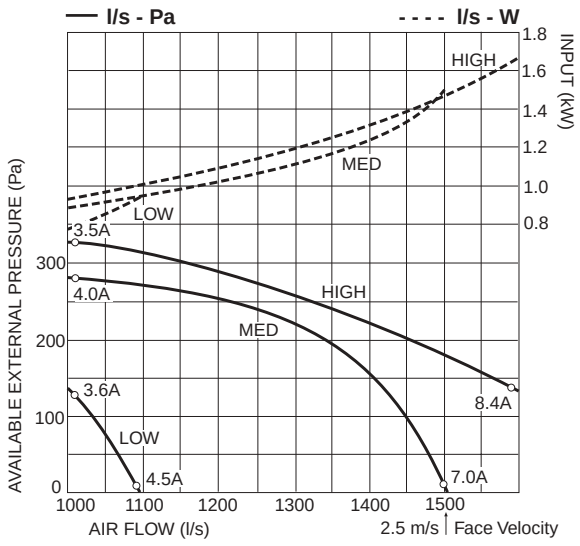
ISD 127Q



ISD 181Q



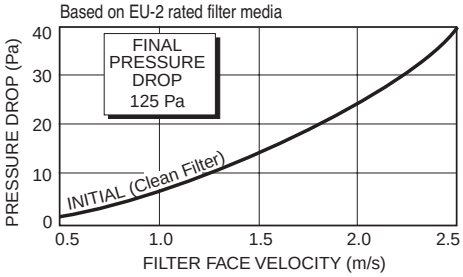
ISD 266Q



ELECTRICAL

	ISD 127Q (x2)	**ISD 85Q + 181Q**	**ISD 266Q**
E.E.R. (cooling)	2.92	2.88	2.92
Indoor Fan Full Load Amps	5.0 (x2)	6.3 & 3.0	5.0 (x2)
Running Amps (Total System)	15 / 17 / 17	15 / 19 / 16	25 / 14 / 14
Recommended External Fuse	40 A	40 A	40 A

FILTERS - PRESSURE DROP



Filter Areas:
ISD 85Q - 0.211 m^2
ISD 127Q - 0.259 m^2
ISD 181Q - 0.408 m^2
ISD 266Q - 0.590 m^2

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

MODEL	FAN SPEED	AIR FLOW l/s	SWL dB(A)	OCTAVE BAND FREQUENCY Hz					
				125	250	500	1 k	2 k	4 k
				SOUND POWER LEVELS (SWL) dB					
ISD 85Q	LOW	320	63	62	60	60	59	55	53
	MED-LOW	400	68	65	66	64	64	60	59
	MED-HIGH	460	71	70	70	67	67	63	62
	HIGH	540	73	72	72	68	69	66	64
ISD 127Q	LOW	535	68	62	64	66	62	59	58
	MED	715	75	68	71	71	71	67	66
	HIGH	750	77	70	74	73	74	69	68
ISD 181Q	LOW	800	65	61	63	63	60	56	53
	MED	970	70	66	68	67	66	62	59
	HIGH	1260	77	71	74	72	73	69	66
ISD 266Q	LOW	1034	64	57	54	61	59	58	57
	MED	1355	75	63	63	70	69	68	67
	HIGH	1590	77	66	67	71	73	71	70

Supply Air Outlet + Insulated Duct *

MODEL	FAN SPEED	AIR FLOW l/s	SWL dB(A)	OCTAVE BAND FREQUENCY Hz					
				125	250	500	1 k	2 k	4 k
				SOUND POWER LEVELS (SWL) dB					
ISD 85Q	HIGH	540	60	61	61	58	55	50	47
ISD 127Q	HIGH	750	66	59	63	62	63	58	57
ISD 181Q	HIGH	1260	66	60	63	61	62	58	55
ISD 266Q	HIGH	1590	66	55	56	60	62	60	59

* 1 metre of 25 mm insulated duct

Outdoor Unit

MODEL	FAN SPEED	SWL dB(A)	OCTAVE BAND FREQ. Hz						SPL @ 3 m dB(A)	OCTAVE BAND FREQ. Hz					
			125	250	500	1 k	2 k	4 k		125	250	500	1 k	2 k	4 k
			SOUND POWER LEVELS dB							SOUND PRESSURE LEVELS dB					
OSA 266	MED	68	70	67	66	64	57	58	52	54	51	50	48	50	42
	HIGH	70	79	69	69	64	57	59	54	63	53	43	48	51	43

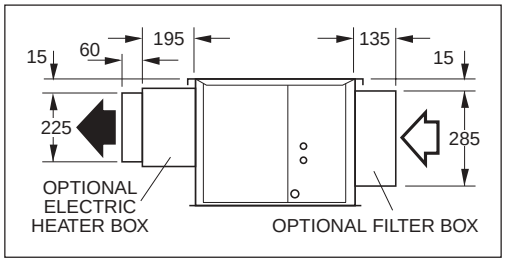
Sound Pressure Level (SPL) in decibels re 20 µPa.

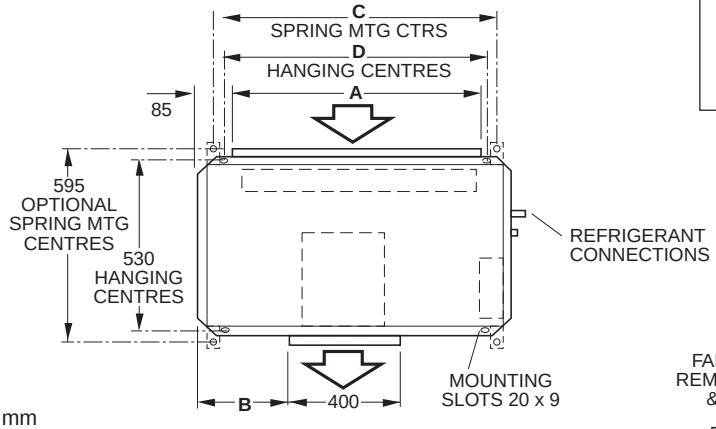
Dimensions (mm)

Not to Scale

ISD 85Q, 127Q Indoor Unit

	ISD 85Q	ISD 127Q
Net Weight	38 kg	45 kg
Shipping Weight	41 kg	48 kg



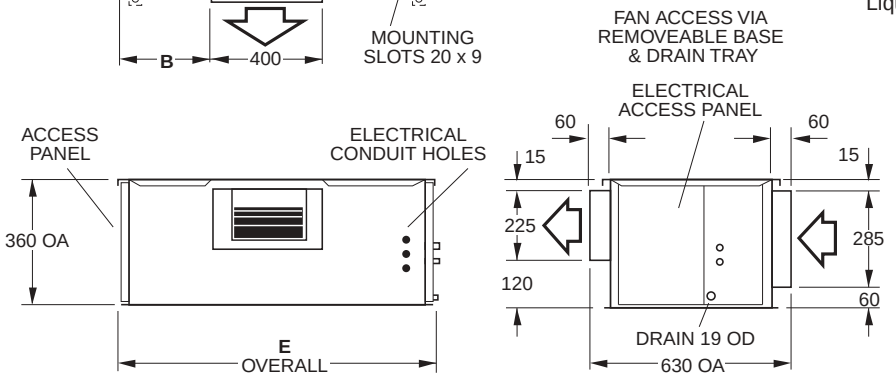


MODEL	A	B	C	D	E
ISD 85Q	765	265	865	825	945
ISD 127Q	910	340	1015	975	1095

Recommended Pipe Sizes

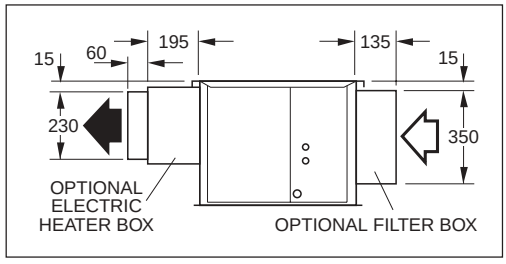
(mm OD)	ISD 85Q	ISD 127Q
Suction:	19	22
Liquid:	10	13

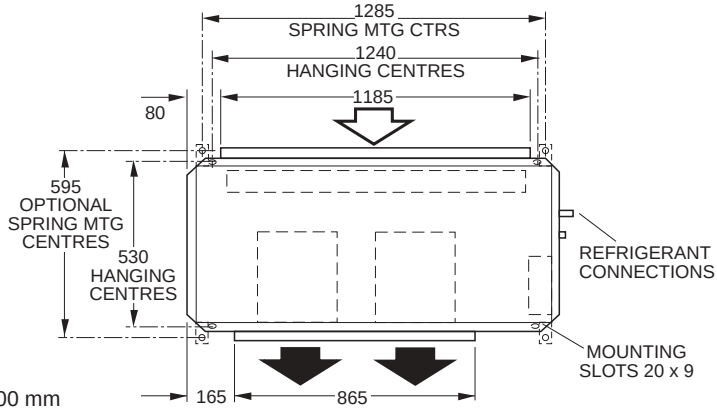
Note : Allow 500 mm minimum clearance to each access panel.



ISD 181Q Indoor Unit

Net Weight	59 kg
Shipping Weight	68 kg

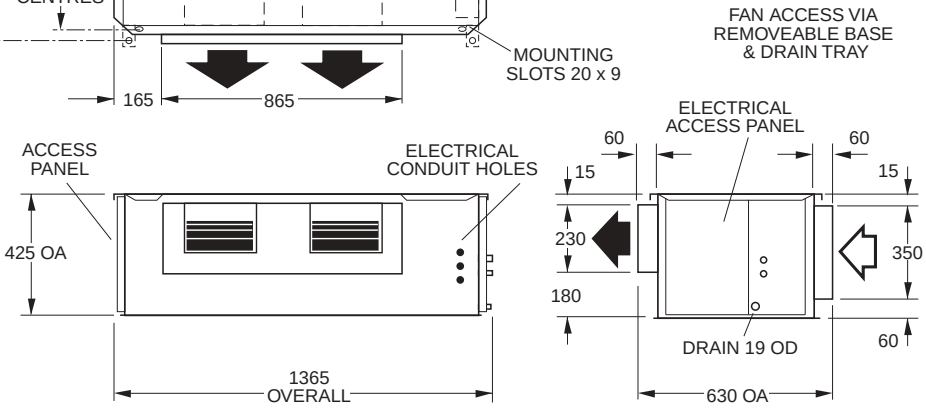




Recommended Pipe Sizes

Suction: 22 mm OD
Liquid: 13 mm OD

Note : Allow 500 mm minimum clearance to each access panel.

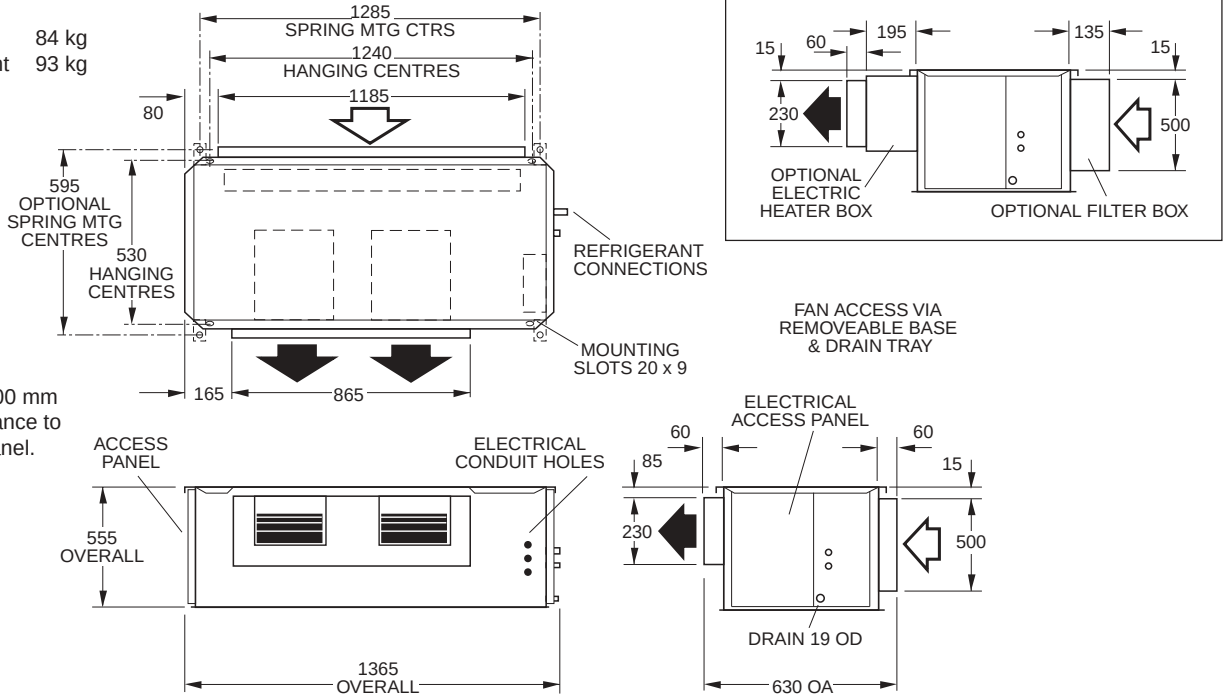


DIMENSIONS (mm)

Not to Scale

ISD 266Q Indoor Unit

Net Weight 84 kg
Shipping Weight 93 kg

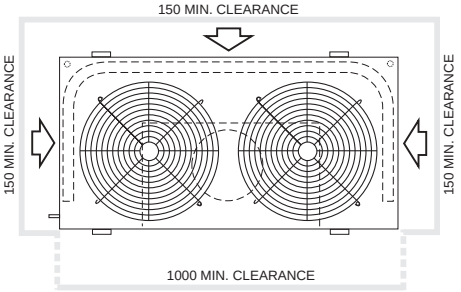


Note : Allow 500 mm minimum clearance to each access panel.

OSA 266 Outdoor Unit

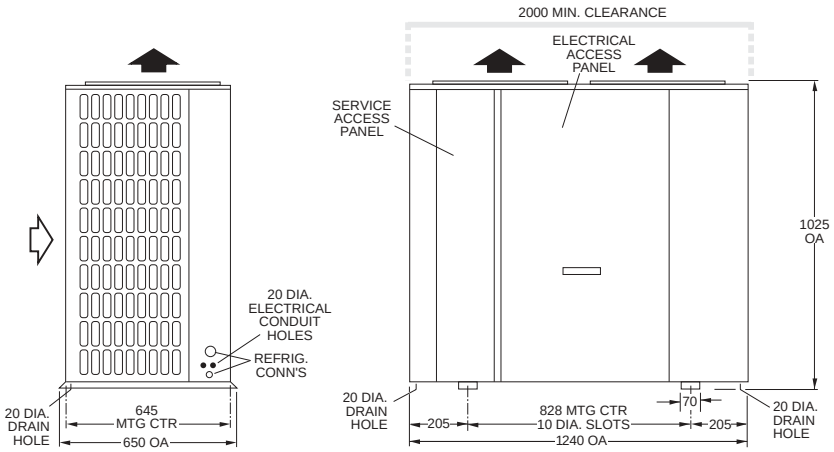
	OSA 266C	OSA 266R
Net Weight	207 kg	211 kg
Shipping Weight	215 kg	219 kg

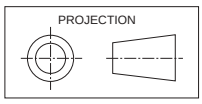
Note
Materials and specifications are subject to change without notice due to the manufacturer's ongoing research and development programme.



Recommended Pipe Sizes

Suction: 28 mm OD
Liquid: 13 mm OD





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