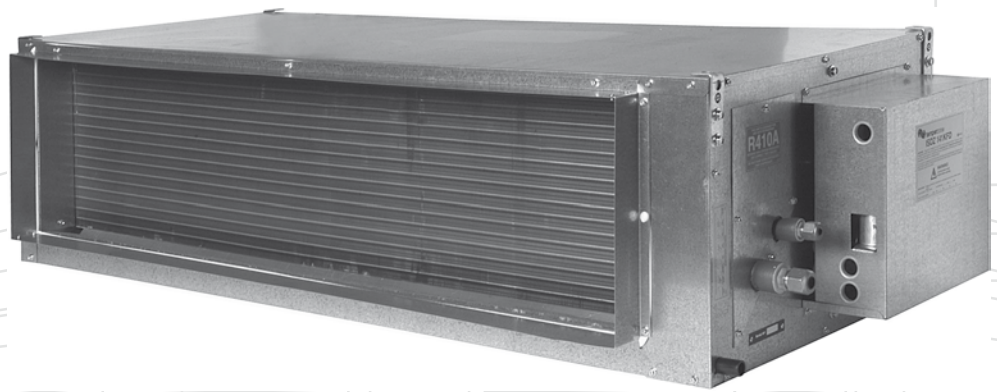


## Ducted Inverter Split System Air Conditioner

## Technical Data ISDZ / OSA Series



**RC-E3N Controller**

Advanced  
Inverter Technology

Nominal Cooling Capacity  
**10.5–15.1 kW**

# ISDZ / OSA DUCTED INVERTER SPLIT SYSTEM AIR CONDITIONERS

## GENERAL

The temperzone ISDZ indoor unit, together with its associated OSA inverter outdoor unit, provides a reverse cycle (heat pump) 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 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 1.8 m/s or less (refer Air Flow graph; 2.0 m/s is clearly marked).

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 is deemed to have zero ozone depletion potential.

**Advanced Inverter Technology.** The outdoor unit incorporates a high efficiency DC twin rotary compressor with inverter control. MHI Inverter technology automatically senses when to slow down and speed up, adjusting and regulating its workload so room temperature fluctuation is minimised. Instead of stopping and starting frequently the compressor rotates continuously, smoothly increasing or reducing the compressor capacity in the outdoor unit so that the output exactly equals the duty called for by the indoor unit. An added benefit is the low start-up current which is particularly advantageous in rural areas.

**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 may be operated on cooling in ambient air down to -5°C and on heating cycle down to -10°C.

**Convenient.** The system requires only a single phase power supply – which is readily available and requires less wiring.

**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 up-right 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 acrylic coated blue 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. 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 also 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.

**User Friendly.** The air conditioning system is designed to be used with the RC-3N Controller (supplied separately). This thermostat 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".

**Self Diagnostics.** The Outdoor Unit Controller is able to display any fault information on the RC-E3N wall control.

**Network.** The RC-E3N control may be connected to a building management system via optional CNT or SuperLink connection for reporting of faults or operating status.

## OPTIONAL EQUIPMENT

1. Filter box - integrated return air spigot and washable polypropylene net filter.
2. CNT connector.
3. ISDZ Spring Mounting Kit.

## 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. Microprocessor controlled de-icer prevents icing up of the outdoor coil during heating cycle.
5. Frost protection on cooling cycle.
6. Sensor fault indication.
7. Compressor minimum run time to ensure oil return.
8. Abnormal discharge temperature protection.
9. Internal thermostat for all fan motors.

## COMPRESSOR

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

The compressor has its own self-protection function, that reacts in response to abnormal high pressure and excessively high temperatures.

## REFRIGERATION PIPING

The maximum line length is 50 m; minimum 5 m.

Max. height separations between units are :  
Outdoor unit above indoor unit : 30 m  
Outdoor unit below indoor unit : 15 m.

Each OSA outdoor unit is shipped from the factory with a charge of HFC-410A (R410A) refrigerant sufficient for a 30 m line length. Liquid and suction service valves are provided. Electronic expansion devices control the flow of refrigerant. The matched indoor unit is shipped with a holding charge of nitrogen. Both units have flared pipe connections.

## WIRING

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

1 ph. 200-252 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.

## 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.

MODELS Indoor / Outdoor Unit	INDOOR FAN		INDOOR COIL E.A.T.		OUTDOOR COIL ENTERING AIR TEMPERATURE °C D.B.											
	SPEED	AIR l/s	W.B. °C	D.B. °C	23		27		31		35		39		43	
					Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.	Total	Sens.
ISDZ 102K / OSA 102	LOW	550	15	21	7.7	7.4	7.7	7.4	7.6	7.3	7.7	7.3	7.6	7.3	7.6	7.2
			17	23	9.1	8.1	9.1	8.1	9.0	8.0	8.9	8.0	8.7	7.9	8.5	7.8
			19	27	11.0	9.0	10.9	9.0	10.7	8.9	10.5	8.9	10.3	8.7	10.2	8.6
			21	31	12.7	9.7	12.4	9.6	12.1	9.5	11.9	9.4	11.6	9.3	11.2	9.2
ISDZ 120K / OSA 120	MED	660	15	21	9.6	9.3	9.6	9.2	9.6	9.2	9.6	9.2	9.5	9.1	9.5	9.0
			17	23	11.4	10.2	11.4	10.2	11.3	10.1	11.1	10.0	10.9	9.9	10.6	9.8
			19	27	13.7	11.3	13.7	11.2	13.4	11.1	13.2	11.1	12.9	10.9	12.8	10.8
			21	31	15.9	12.2	15.6	12.1	15.2	11.9	14.9	11.8	14.5	11.7	14.1	11.5
ISDZ 141K / OSA 141	HIGH	750	15	21	11.0	10.6	11.0	10.5	10.9	10.5	11.0	10.4	10.8	10.4	10.8	10.3
			17	23	13.1	11.6	13.0	11.6	12.9	11.5	12.7	11.4	12.4	11.3	12.2	11.2
			19	27	15.7	12.9	15.6	12.8	15.3	12.7	15.1	12.7	14.7	12.5	14.6	12.4
			21	31	18.1	13.9	17.8	13.8	17.3	13.6	17.0	13.5	16.6	13.3	16.1	13.1

### 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

### HEATING CAPACITY (kW)

G = Gross Heating Capacity kW, based on nominal air flow of 560 l/s.

N = Net Heating Capacity kW allowing for average defrost.

○ = Nominal Capacity (kW)

MODELS Indoor / Outdoor Unit	INDOOR ENTERING AIR TEMP. °C D.B.	OUTDOOR COIL ENTERING AIR TEMPERATURE (E.A.T.) °C D.B.															
		-5		-3		-1		1		3		5		7		9	
		G	N	G	N	G	N	G	N	G	N	G	N	G	N	G	N
ISDZ 102K / OSA 102	15	7.3	6.5	7.9	7.1	8.4	7.6	9.0	7.9	9.5	8.0	10.2	9.2	10.8	10.7	11.4	11.4
	20	7.1	6.4	7.7	6.9	8.2	7.4	8.8	7.7	9.3	7.9	10.0	9.0	10.6	10.5	11.2	11.2
	25	6.9	6.2	7.4	6.7	7.9	7.1	8.5	7.4	9.0	7.6	9.6	9.6	8.7	10.2	10.1	10.7
ISDZ 120K / OSA 120	15	8.7	7.8	9.4	8.5	10.1	9.1	10.7	9.4	11.4	9.6	12.2	11.0	13.0	12.9	13.7	13.7
	20	8.5	7.7	9.2	8.3	9.9	8.9	10.5	9.3	11.2	9.4	12.0	10.8	12.8	12.6	13.4	13.4
	25	8.3	7.4	8.9	8.0	9.5	8.6	10.1	8.9	10.7	9.1	11.5	10.4	12.3	12.2	12.9	12.9
ISDZ 141K / OSA 141	15	9.9	9.0	10.8	9.7	11.5	10.4	12.3	10.8	13.0	11.0	14.0	12.6	14.9	14.7	15.6	15.6
	20	9.8	8.8	10.6	9.5	11.3	10.2	12.1	10.6	12.8	10.8	13.7	12.4	14.6	14.5	15.3	15.3
	25	9.4	8.5	10.2	9.2	10.9	9.8	11.6	10.2	12.3	10.4	13.2	11.9	14.1	13.9	14.8	14.8

### ELECTRICAL

	OSA:	102	120	141
E.E.R. (cooling)		3.070	2.818	2.606
Indoor Fan Full Load Amps		4.4	4.4	4.4
Running Amps (Total System)		14	19.6	24.7
Recommended External Fuse		25	32	40

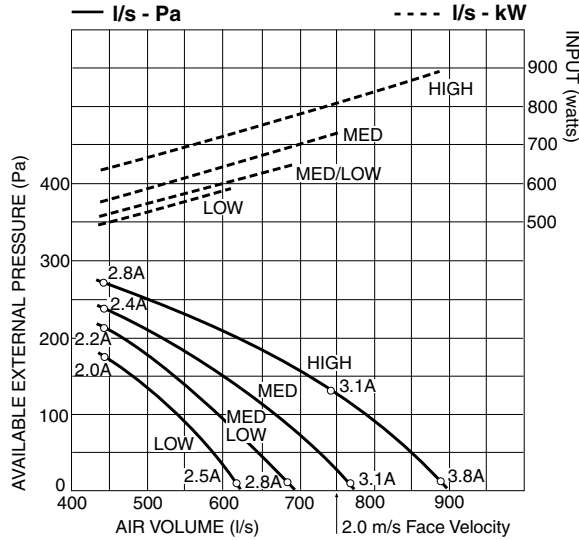
## AIR HANDLING

**Note:** Airflows are for a dry coil. Reduce airflow by 5% in high moisture removal conditions. In a free blow application, beware of exceeding indoor fan motor's full load amp limit.

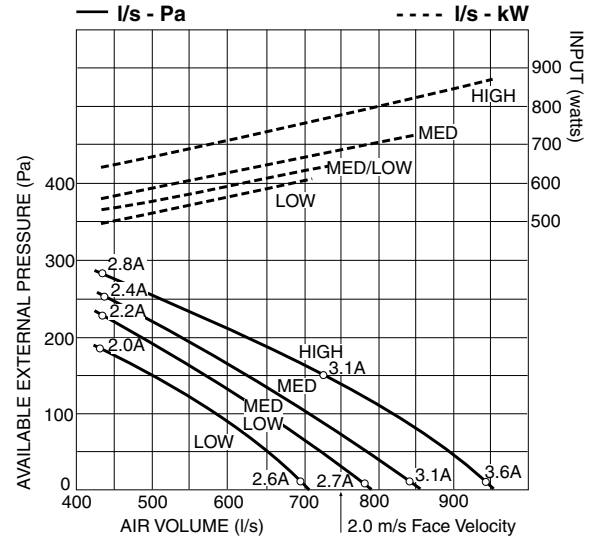
As filters are optional, the fan air flows given are for units installed without filters.

If using EU-2 filter media, provide 0.08 m<sup>2</sup> face area per 100 l/s of airflow to maximise efficiency.

### ISDZ 102KFD



### ISDZ 120/141 KFD



## 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					
ISDZ 102	LOW	570	67	62	59	61	64	59	56
	MED/LOW	620	69	64	61	63	66	61	59
	MED	675	71	66	62	65	68	64	62
	HIGH	750	74	70	67	67	70	68	66
ISDZ 120 & ISDZ 141	LOW	620	66	60	59	62	62	58	54
	MED/LOW	650	68	62	61	66	64	61	57
	MED	680	69	64	63	61	66	63	59
	HIGH	750	72	66	65	64	69	66	62

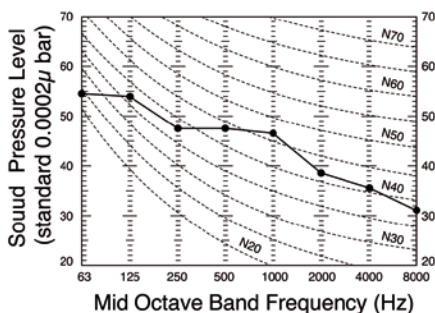
### Outdoor Unit

### Sound Pressure Levels (SPL)

**Test Conditions:** JIS B 8616. Mike position at highest noise level 1m from front of unit and at 1m height.

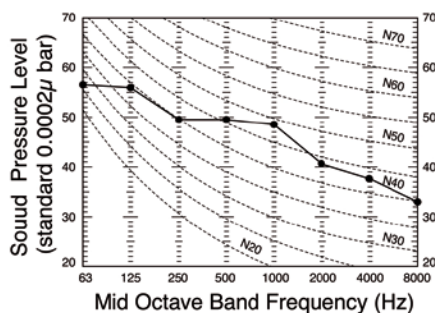
#### Model OSA 102RKSHF

Noise level 50 dB (A)



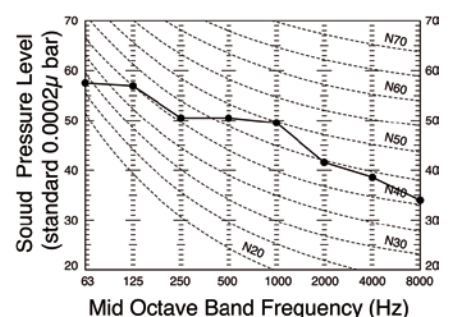
#### Model OSA 120RKSHF

Noise level 52 dB (A)



#### Model OSA 141RKSHF

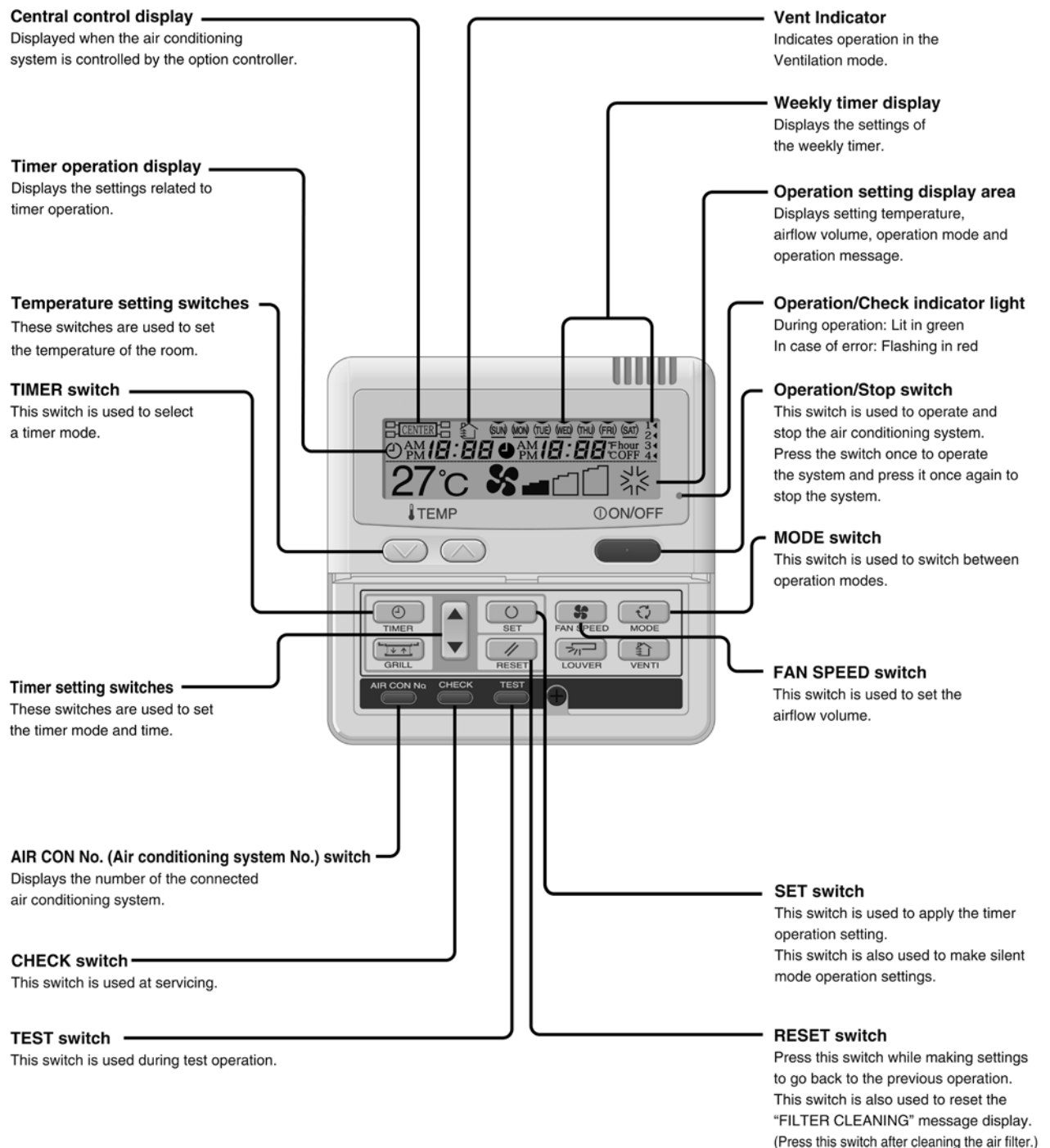
Noise level 53 dB (A)



# RC-E3N WIRED CONTROLLER

## Features Summary

- Cool / Dry / Fan modes.
- Heat / Auto modes
- Auto / High / Medium / Low fan speed selection.
- Temperature setting range from 18°C – 30°C.
- LED to indicate status of the unit [Power On/Off].
- Fault indication lamp – flashes red when error detected.
- Room temperature display.
- Real time clock.
- Weekly timer – allows one week operation schedules to be registered  
A user can specify up to four times a day to start/stop the air conditioner. (Temperature setting is also possible with the timer).
- Auto-Restart after power failure.
- Backlit screen for ease of reading.
- Sleep function.
- Low voltage control cable.
- Run hour meters to facilitate maintenance checking. The RC-E3N stores operation data when an anomaly occurs and indicates the error on the display. It also indicates cumulative operation hours of the air conditioner and compressor since commissioning.
- Changeable set temperature ranges. The upper and lower limits can be adjusted to avoid excessive cooling or heating.

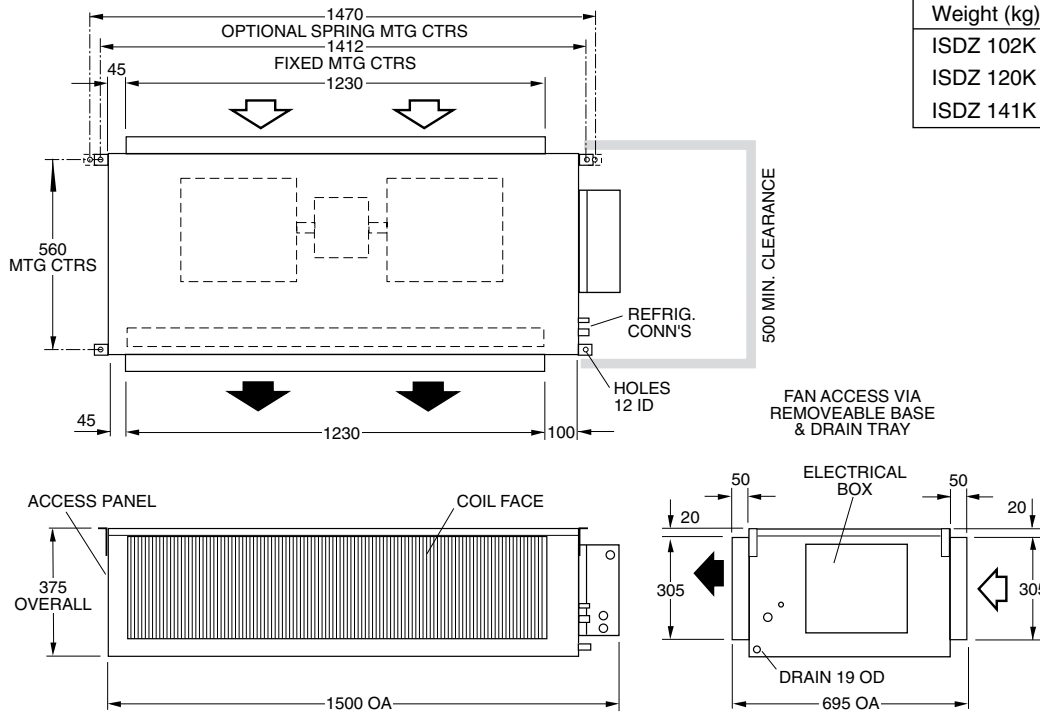


Note: Some of the buttons have no function for ISDZ models.

## DIMENSIONS (mm)

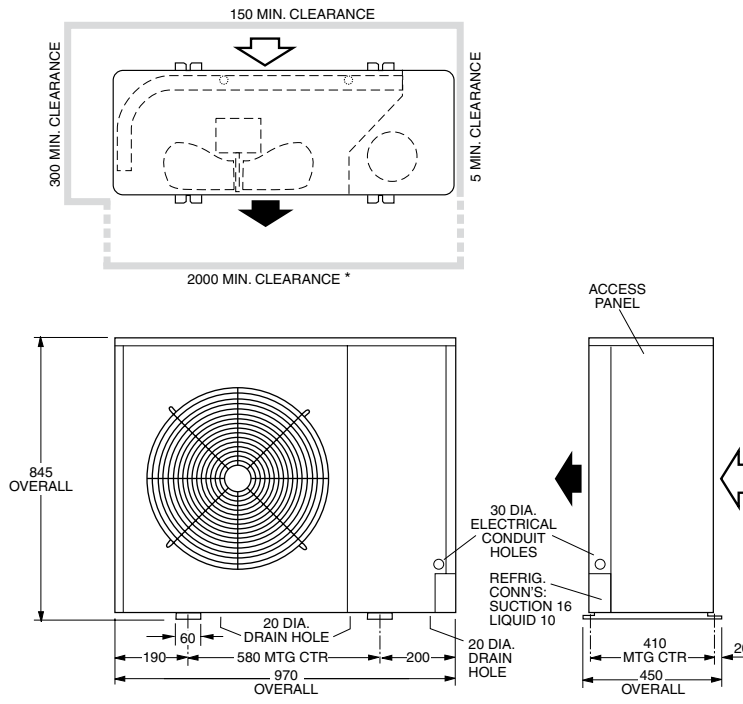
Not to Scale

### ISDZ 102, 120, 141 KFD Indoor Unit



Weight (kg):	Net	Shipping
ISDZ 102K	53	70
ISDZ 120K	58	75
ISDZ 141K	58	75

### OSA 102, 120, 141 RKSHF Outdoor Unit



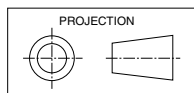
#### Note

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

Net Weight 74 kg  
Shipping Weight 78 kg

#### Recommended Pipe Line Sizes

Liquid: 10 mm OD  
Suction: 16 mm OD  
(flare connections)



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