

# OSA 73

## Single Phase Split System Outdoor Unit

## Installation & Maintenance

### GENERAL

**OSA 73** - A general designation for outdoor unit  
**OSA 73C** - Outdoor unit, cooling only version  
**OSA 73R** - Outdoor unit, reverse cycle version

This OSA 73 Outdoor Unit must be installed in accordance with all national and local safety codes.

### INSTALLATION

#### Positioning

Refer to dimension diagram below for minimum clearances. Position the unit so that prevailing winds do not blow onto the exhaust to slow the fan, and one unit does not exhaust toward the inlet of another unit.

Mount either free standing or on a wall using the optional mounting brackets available.

#### Free Standing :

Fasten the unit down to a firm flat horizontal base using the four holes provided in the mounting rails.

When the unit is being installed on a roof it is recommended that the unit is installed on a substantial structure with vibration isolating springs beneath the unit. These springs are not supplied with the unit.

#### Wall Mounting Option:

Complete wall mounting instructions are supplied with the optional wall mounting kit.

#### Drain

Install the unit with a positive fall to the rear to ensure condensate and/or rain water drains away freely through the drain holes provided. For a totally drip free installation mount the unit in a separate drain tray.

#### OPTIONAL FAN SPEED CONTROLLER

Fit a head pressure fan speed controller where cooling is required in below 20°C ambient conditions for long periods of time. An electronic HP Fan Speed Controller (4 amp) is available from **temperzone**.

### REFRIGERATION PIPING

#### General

The OSA 73 is shipped with a refrigerant charge sufficient for a 10 m line length. The matched indoor unit is shipped with a holding charge of nitrogen. OSA 73 units have shut-off service valves and flare nut connections.

#### Recommended Pipe Sizes

Suction pipe : 16 mm OD  
 Liquid pipe : 10 mm OD

#### Line Lengths

For line lengths in excess of 30 m, fit a compressor crankcase heater to prevent liquid refrigerant condensing in the 'off' cycle. Refer also to *Oil Charge* overleaf. Maximum extended line length is 40 m.

#### Height Separation Limits

##### Reverse Cycle Systems

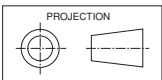
Outdoor Unit above Indoor Unit : 12 m  
 Outdoor Unit below Indoor Unit : 12 m

##### Cooling Only Systems

Outdoor Unit above Indoor Unit : 18 m  
 Outdoor Unit below Indoor Unit : 12 m

## Dimensions (mm)

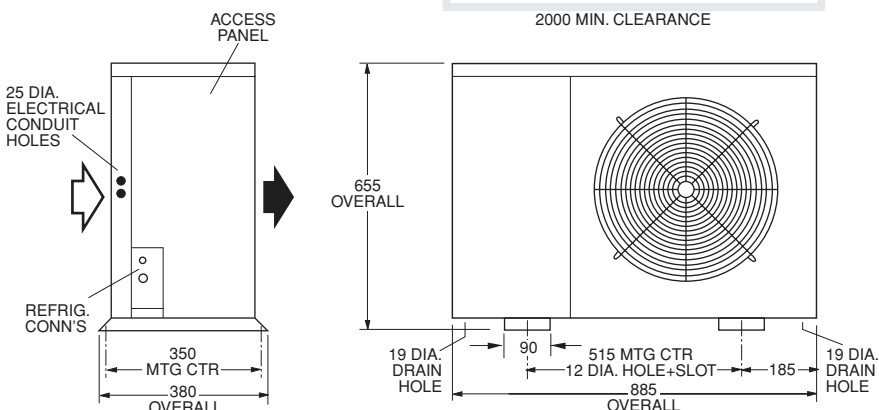
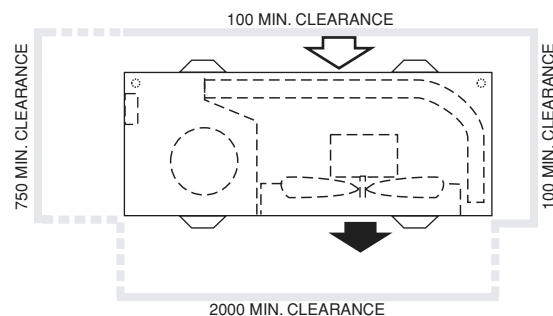
## OSA 73



Not to Scale

#### Net Weight

OSA 73C 70 kg  
 OSA 73R 72 kg



### Vertical Risers

If the outdoor unit is to be installed above the indoor unit, then the suction riser should be trapped at the bottom of the vertical rise and then again at 5 m (maximum) intervals. This is to ensure oil return to the compressor. The trap to be a 'swan neck' curve in the pipe, with no change in the pipe size.

### Piping

1. Use clean sealed refrigeration grade piping.
2. Cut pipe with a pipe cutter ONLY.
3. Use long radius bends (2 x pipe dia.).
4. Insulate the suction (gas) line and seal all insulation joints.
5. Filter dryer may be fitted in the liquid line (bi-flow type on reverse cycle systems).
6. Include a process point in the interconnecting pipework.
7. Ensure open pipe ends are sealed until the final connection is made.

### Charging

The unit is supplied with 2.2 kg of refrigerant HCFC-22 (R22) which is sufficient for up to 10 m of pipework between the indoor and outdoor units. Add 40 g of HCFC-22 per metre over 10 m.

#### Procedure:

1. Evacuate Indoor Unit and interconnecting pipework to a pressure of 500 microns and hold for 15 mins.

- Add refrigerant, if needed, via the Schraeder connection on the smaller of the Outdoor Unit's two service valves.
- Open the service valve at the Outdoor Unit to allow refrigerant to flow throughout the system.
- Leak check all flared joints.

**IMPORTANT :**

Step 8 of the 'Start Up Procedure' requires you to check that the superheat on the suction line (where it enters the Outdoor Unit) is between 3°C - 5°C on cooling cycle with an indoor air temperature in the range 21° - 27°C and outdoor air temperature in the range 24° - 35°C. If the conditions of the day do not allow this, use the heating cycle (on a reverse cycle unit) or other heat source to raise the indoor air temperature to about 24°C. Return to cooling cycle and blank off the outdoor coil to raise the head pressure to 240–280 psig (1750–1950 kPag). Alter charge up or down to establish correct superheat.

**WARNING:**

This unit is designed for use ONLY with the refrigerant HCFC-22. The use of other refrigerants is NOT authorised or approved by the manufacturer and may cause operational problems such as poor performance and efficiency, loss of capacity, degradation of materials and refrigerant leaks. **The use of flammable or explosive materials as a refrigerant creates the additional risks of fire and explosion which may result in property damage, personal injury or death.**

**Oil Charge**

For line lengths in excess of 30 m, Suniso 4GS oil (or similar) should be added to the refrigerant at the rate of 1/3 fluid ounce per metre (10 ml/m) of suction piping.

**ELECTRICAL REQUIREMENTS**

Electrical work must be done by a qualified electrician. The outdoor unit must be wired directly from a distribution board by means of a circuit breaker or H.R.C. fuse, and a mains isolator provided - preferably close to the Outdoor Unit.

**Note:** DO NOT USE REWIRABLE FUSES.

*OSA 73R only* - It is recommended electricians run two spare wires between Outdoor Unit and Indoor Unit in case one, or both, of the following options becomes a requirement. **Note:** Leave the wires unconnected until required.

*Option 1* - Indoor Fan Off During De-Ice

*Option 2* - Electric Boost Heat.

Refer indoor unit's wiring diagram.

Standard units are suitable for use with thermostats with either manual Heat/Cool selection or automatic changeover subject to the contact ratings of the thermostats.

Refer to separate pamphlet for approved thermostats, or contact the manufacturer's nearest sales office.

If a compressor crankcase heater is fitted, then a 24 hour power supply to the crankcase heaters is required, otherwise the warranty is void.

**SYSTEM CHECK TESTS**

- Leave the remote switch in the off position and close the mains isolating switch.  
A four hour delay period is required to allow the crankcase heater (if fitted) to drive any liquid refrigerant out of the compressor oil.
- Check that all fan motors are free running.
- Check that the thermostat is correctly wired to the unit and is set at the desired temperature.
- Check that the air filters, if any, have been correctly installed.
- Check any supply air diffuser dampers are open.

**START UP PROCEDURE**

Use the supplied Commissioning Sheet to help you complete the following procedure:

- Switch on the unit.  
**Note:** If crankcase heater fitted, switch on the unit after the four hour delay period has expired.
- Check the supply voltage.
- Measure the current draw on the compressor motor and on each fan motor. Check all readings against the specified values - particularly the indoor fan amps if the unit is installed in a free blow application.
- Fit gauges and measure the suction and discharge pressures.
- Test the operation of the high pressure safety control by switching off the outdoor unit's fan.
- Test the operation of the reversing valve by running the unit in both the heating and cooling mode (OSA 73R only).
- Check that the air flow over the outdoor unit's coil is adequate and that the fan is running smoothly.
- Check the superheat - refer charging procedure.
- Check the supply air flow at each outlet.
- Touch up all outdoor unit paintwork damage to prevent corrosion.

**MAINTENANCE**

**Weekly For First Four Weeks**

- Check indoor unit air filters (if fitted) and vacuum or wash clean as necessary.
- Check condensate drains for free drainage.
- Check compressor compartment for oil stains indicating refrigerant leaks.
- Check tightness of electrical connections.

**Six Monthly**

- Check the tightness of all fan and motor mountings.
- Check the tightness of electrical connections
- Check that fan motors are free running.
- Check suction and discharge operating pressures.
- Replace indoor unit air filters (if fitted).
- Check condensate drains for free drainage.

**Yearly**

- Check all refrigerant piping for chafing and vibration.
- Check the operation of electric heaters if fitted.
- Check air supply at all diffusers.
- Check for excessive noise and vibration and correct as necessary.
- Check for insulation and duct damage and repair as necessary.
- Remove lint and dust accumulation from outdoor coil fins.
- Touch up all outdoor unit paintwork damage to prevent corrosion.

**NOTE**

The manufacturer reserves the right to change specifications at any time without notice or obligation. Certified dimensions available on request.

This pamphlet replaces the previous issue no. 1905 dated 09/00. Start up, oil traps, wiring revision C.

**Pipe Length Capacity Loss  
On Cooling Cycle Due to Pressure Drop**

**Note :** Loss percentages are approximations only, due to piping variations. No allowance made for vertical piping.

Pipe Size (mm)		Equivalent Line Pipe Length (m)					Additional Pipe Length to allow per Bend		
Liquid	Suction	5	10	15	20	30	Suction Pipe Size OD	16 mm	19 mm
10	16	2 %	4 %	6.5 %	9 %	13 %	Long 90° Radius (2 x pipe dia.)	0.3 m	0.4 m
10	19	-	-	3 %	4 %	6 %			




OUTDOOR UNIT :- OSA 73 R	ISDL 71	ISD 75	GME 222
WITH INDOOR UNIT			
CAPACITIES - NET to AS/NZS 3823			
COOLING - kW	7.10	6.91	7.00
HEATING - REVERSE CYCLE kW	6.9	7.2	7.3
ELECTRICAL INPUT			
COOLING - kW	2.5	2.6	2.4
HEATING - REVERSE CYCLE kW	2.0	2.3	2.2
E.E.R. (COOLING) kW/kW	2.94	2.82	2.92

SUPPLY REQUIRED 1PH 200-252V ~ 50Hz INCLUDING VOLTAGE FLUCTUATION LIMITS			
COMPRESSOR (1PH) RUN AMPS RATED CONDITIONS	A	9.6	9.7
COMPRESSOR (1PH) STARTING AMPS	A	40	40
COMPRESSOR CAPACITOR	MFD	45	45
INDOOR FAN MOTOR (1PH) FULL LOAD AMPS	A	1.4	3.5
INDOOR FAN MOTOR CAPACITOR	MFD	3.5	5
OUTDOOR FAN MOTOR (1PH) FULL LOAD AMPS	A	0.8	0.8
OUTDOOR FAN MOTOR CAPACITOR	MFD	5	5
RUNNING AMPS (TOTAL)		12.5	12.2
RECOMMENDED EXTERNAL FUSE SIZE	A	25	25
RECOMMENDED EXTERNAL FUSE SIZE WITH OPTIONAL ELECTRIC HEAT	A	32	32

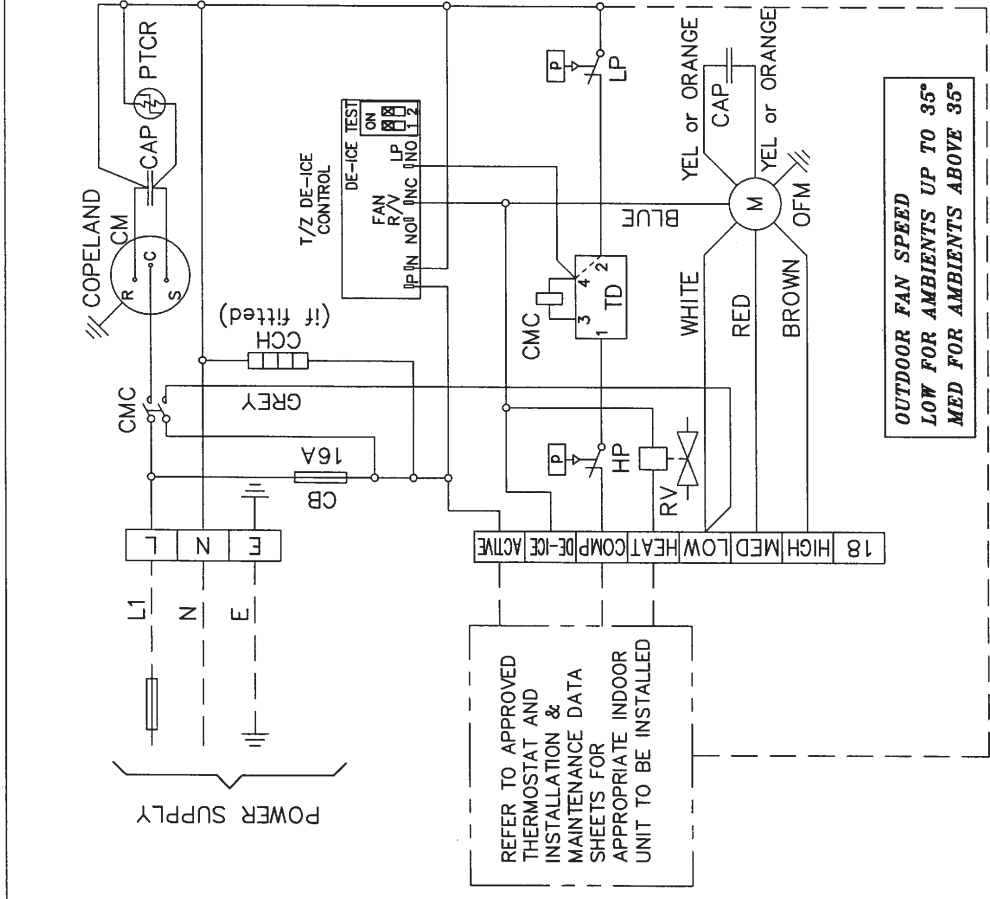
WEIGHT - NETT OSA 73 R 72 kg  
 REFRIGERANT - HCFC (R22)  
 UNIT PRECHARGED (10 METRE LINE LENGTH) 2.2 kg  
 BASE CHARGE UNIT 1.8 kg PLUS 40 grams PER METRE LINE LENGTH  
 BASED ON ø10 mm OD LIQUID LINE & ø16 mm OD GAS LINE

ABB	DESCRIPTION
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CCH	CRANK CASE HEATER
CM	COMPRESSOR MOTOR
CMC	COMPRESSOR CONTACTOR
HP	HI PRESSURE CONTROL
LP	LOW PRESSURE CONTROL
OFM	OUTDOOR FAN MOTOR
RV	REVERSING VALVE
TD	TIME DELAY 6 MINS
PTCR	START ASSIST THERMISTER

Title  
**OSA 73 R**  
**WIRING SCHEMATIC**



Drawn P.W-M Date 7-3-00 Drawing No. 326-124-002 Revision C  
 Scale *As per*



NOTE: TESTING OF DE-ICE SWITCH POSITION ON SWITCH DIP SWITCH 1 OFF TO ALLOW REPEATED DE-ICE CYCLES WITHOUT A 33 MINUTE DELAY. SWITCH DIP SWITCH 2 OFF TO FORCE A DE-ICE CYCLE. ALWAYS RETURN BOTH SWITCHES TO 'ON' POSITION FOR NORMAL OPERATION.

CHECK WIRING BEFORE SWITCHING ON, INCORRECT CONNECTION WILL DAMAGE MOTORS

CLIENT WIRING \_\_\_\_\_

Interconnections between units by client. Double insulated multi-core cable.

ISSUE	MODIFICATION	ECN	DATE	APRVD	DRG SIZE	No.	DESCRIPTION
C	CHANGED TO NEW NET AS/NZS 3823 STANDARD CCH OPTION ADDED. ISK 73 DATA REMOVED. 9.30.02-05-03 D.A.B						
B	CAPACITOR WIRES OF MOTOR WERE YELLOW PTCR & DE-ICE NEUTRAL WIRE MOVED	739	01-08-00	P.W-M			
A	ISD 71 WAS 5 NOW 3.5 MFD GME 222 WAS 3.5 NOW 2 & 3.5 MFD ISD 76 COLUMN REMOVED RECOMMENDED EXT. FUSE E-HEAT ADDED	717	03-05-00	P.W-M			

Programmed by	
Plotted	16-05-03
©temperzone ltd	2003
Mat.l	
FINISH No.	
ASSY No.	