

Guidelines for SKOPE Remote Refrigeration

These guidelines are generic to most SKOPE remote applications, but there are exceptions due to model type, installation type, specification and/or customised product. These guidelines must be used in conjunction with the product installation instructions (as supplied inside the cabinet).

The SKOPE refrigeration system must only be installed by qualified refrigeration mechanics who hold a valid refrigerant handling licence and an appropriate electrical practising licence.

Ensure installation complies with electrical wiring regulations (or rules) and applicable refrigeration code of practice (the Australia and New Zealand refrigerant handling code of practice 2007, part 2 - systems other than self-contained low charge systems).

Long pipe runs and elevations must be correctly determined by an experienced refrigeration engineer. The engineer must determine correct tube diameter to ensure both a good oil return and limited pressure loss.

Installation must be done in a professional way to ensure:

- Optimised product temperature
- Minimum Environmental Impact
- Energy efficient operation
- Long reliable operation
- Ease of future maintenance and service
- Warranty is maintained

IMPORTANT

The installer is liable for a poorly specified, installed or commissioned site.

WARNING

SKOPE refrigeration products are **NOT** designed to utilise flammable refrigerants.

Pre-Installation Recommendations

Initial site evaluation is vital when planning a remote refrigeration installation. There are considerations that must be taken into account before placing an order for any remote refrigeration system. Some of these are listed below, but this is not an exhaustive list and site specific issues should always be investigated prior to any order being placed.

- Sufficient clearance around the cabinets to allow for future servicing or access to system components. It is strongly recommended that the cabinet is **NOT** permanently fixed in place. Top Mounted systems require a minimum 300mm clearance above the evaporator box to allow for service access to fans, coils and elements.
- All ventilation restrictions are understood and allowed for in selected installation location. Locations where oil, steam or air conditioning may affect operation should be avoided.
- SKOPE recommend fitting isolating valves if more than one cabinet is being installed onto one system.
- SKOPE recommend that low temperature (freezer) systems are installed with their own individual condensing units.



- Where multiple evaporators are used, SKOPE recommend use of an evaporator pressure regulating valve.
- SKOPE recommend that the condensing unit is fitted with a receiver and with low and high pressure switches.
- Ensure that correct TX valves are specified for the type of refrigerant that is being used. Optional soldered valves are available at time of ordering.
- SKOPE recommend the fitting of 'P' traps to the drains. These are not fitted as standard by SKOPE.

IMPORTANT

The installer is responsible for condensing unit performance and component selection. The installer must ensure the installation is suitable for the application, taking into consideration factors such as: heat load, refrigeration load, variable operating conditions, refrigerant tube diameter and length, location and ventilation.

Cabinet

When installing a remote cabinet, take note of the following points:

- The evaporator assembly can be removed from top mounted cabinets to allow passage through doorways etc. This is only possible prior to the fitting of pipework and any additional drainage.
- The cabinet is supplied with a fitted expansion valve (R134a for chillers and R404A for freezers unless optionally specified differently).
- Evaporator assemblies have been leak tested, evacuated and filled with dry nitrogen (to approx. 200kPa).
- A short length of the liquid and suction tube extend out from the evaporator box. These tubes require a flexible spiralled loop connected (to allow the cabinet to be pulled forward for service accessibility).
- The suction tube must be fully insulated. 19mm wall thickness insulation is a minimum requirement.
- The cabinet should be installed so that it can be accessed for future service requirements. SKOPE strongly recommend that the cabinet is not permanently fixed in place.
- When there is an externally mounted evaporator box (i.e. an insulated box that is attached to the outside of the cabinet body), it **MUST** be vented to prevent the formation of condensation and water. To achieve the required venting the evaporator box must have unimpeded clearance (above a top mount unit or in front of an end mount and bottom mount unit). Generally, when required, horizontal remote models are supplied with a ventilating fan.
- SKOPE remote refrigeration cabinets are generally fitted with a 10A plug and power supply cord. When the cabinet is fitted in place, ensure the power supply point remains easily accessible.

There are three basic ways to control the condensing unit via the cabinet temperature control:

1. Use of low side pressure switch (where thermostat is not used).
2. Connecting a control circuit from the condensing unit to the temperature control. This circuit must obtain the power from the cabinet 10A supply. Ensure total load is less than 10A.
3. For larger condensing units and 3 phase systems, a liquid line solenoid valve should be used (when requested in advance, SKOPE can optionally supply fitted solenoid valves). This method has no electrical link between the cabinet and the condensing unit, instead the condensing unit compressor is switched via the low side pressure switch.



Condensate Drain

The cabinet is supplied with a fitted clear PVC condensate drain tube. This tube must be directed to the nearest waste water outlet, with the pipe arranged in such a way that a water trap forms.

If the drain tube needs to be extended, rigid PVC pipe should be used of a diameter not less than the clear PVC. This pipe must slope down (with minimum 1:20 fall). Consideration must be given as to whether the drain needs to be vented. Use of hard PVC is recommended to prevent future sagging.

When installing a remote cabinet, take note of the following to ensure proper condensate drainage:

- Ensure the cabinet is installed level.
- Ensure the drain-outlet is readily accessible for future service.
- The drain must be plumbed with a good fall. Ensure the drain pipe is secured at regular intervals to prevent any sagging.
- In some instances a heated condensate tray may be used. This requires unimpeded ventilation to drive out the moisture.
- The fitting of 'P' traps to the drains is recommended as this is seen as good practice. This will help prevent gasses and smells returning up the pipe and will also assist in preventing warm air entering into the system.

Condensing Unit

The condensing unit is not usually supplied by SKOPE Industries. Ensure it is correctly specified and suitable for the application.

When specifying and installing the condensing unit:

- Ensure appropriate compressor protection devices are employed. Ensure a dual high / low pressure is fitted and set up to offer compressor protection without nuisance tripping.
- Fit a power isolation switch at the condensing unit.
- Ensure the condensing unit is fitted in a location that will be accessible for future heavy service work. If possible, avoid fitting the condensing unit high on a wall. When choosing the condensing unit location take into consideration the noise of the condensing unit and the direction of the prevailing wind (to ensure the condenser fan generally works with the wind direction).
- Ensure the condensing unit is securely fixed in place to a suitable structure.
- The refrigeration tube layout must be routed to dissipate vibration.
- If being fitted outdoors, the condensing unit must have a suitable weatherproof cover. In a residential area this may need to have sound deadening insulation (this must not impede condenser airflow and compressor cooling).
- Ensure pipe work is neat, straight and properly secured at regular intervals.
- Fully label condensing unit with type of refrigerant and, if applicable, unit number and cabinets connected to system.

Commissioning

At commissioning of the remote application, ensure the following tasks are completed:

1. A full evacuation with two stage vacuum pump.
2. Leak test entire system (including the evaporator assembly - access may need to be via the inside of the cabinet).
3. After charging and system stabilisation set pressure switches according to local environmental conditions and installation requirements.
4. Check and confirm temperature, defrost and thermostatic expansion valve settings.
5. Ensure that the correct electronic controller settings and parameters are selected and best suit the installation requirements.
6. Revisit site after 24 hours of operation to check product temperatures and make any final adjustments.

Optional Fittings

SKOPE may be able to fit additional fittings to remote systems, such as isolating valves, alternate valves, drains, copper loops etc. These must be specified at the time of ordering and are subject to an additional cost.

SKOPE Warranty Protection

To activate Warranty Protection, the purchaser MUST register the cabinet with SKOPE within four weeks from the date of invoice.

IMPORTANT

Cabinets that are not registered within four weeks from the date of invoice are not eligible for Warranty Protection.

To register online:

Visit our website at www.skope.com/warrantyprotection then complete and submit the online registration form.



Or alternatively contact our Customer Services team to register:

1800 121 535 (Australia)
0800 947 5673 (New Zealand)

Before contacting SKOPE Warranty to report a problem, please ensure that the remote system has been checked.

If multiple cabinets have been fitted to a single system and isolating valves are not fitted, SKOPE may not be liable for all refrigerant costs.

The warranty on SKOPE remote cabinets is limited to the SKOPE cabinet, which usually ends at the TX valve. SKOPE do not provide a warranty for the remainder of the installation.

