

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. Use these guidelines in conjunction with the product installation instructions (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).

An experienced refrigeration engineer must correctly calculate long pipe runs and elevations. The engineer must determine correct tube diameter to ensure both a good oil return and limited pressure loss.

You must install the refrigeration system professionally, 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 remote refrigeration products are **NOT** designed to use flammable refrigerants.

Pre-installation Recommendations

Always visit the site to evaluate it for considerations which are specific to a remote refrigeration installation, and investigate any site-specific problems before placing an order.

The following list includes some considerations, but is not exhaustive.

- Site-specific recommendations:
 - Ensure sufficient clearance around the cabinets to allow for future servicing or access to system components. SKOPE strongly recommends that the cabinet is **not** permanently fixed in place. Top-mounted systems require a minimum 300 mm clearance above the evaporator box to allow service access to fans, coils and elements.
 - Understand and manage all ventilation restrictions. Avoid locations where oil, steam, or air conditioning may affect operation.
- Pre-installation recommendations:
 - Fit isolating valves if more than one cabinet is being installed onto one system.
 - Install low temperature (freezer) systems with their own individual condensing units.
 - If there are multiple evaporators, use an evaporator pressure regulating valve.
 - Fit the condensing unit with a receiver, and low and high pressure switches.
 - Specify the correct TX valves for the type of refrigerant that is being used. Optional soldered valves are available at time of ordering.
 - Fit "P" traps to the drains. These are not fitted as standard by SKOPE.

IMPORTANT

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

Cabinet

When installing a remote cabinet, note the following points:

- You can remove the evaporator assembly from top-mounted cabinets to help with moving through low clearance doorways. This is only possible before the pipework and any additional drainage has been fitted.
- 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 approximately 200 kPa).
- A short length of the liquid and suction tubes extend out from the evaporator box. These tubes require a flexible spiralled loop connected (to allow the cabinet to be pulled forward for service access).
- Install the cabinet so that it can be accessed for future service requirements. SKOPE strongly recommends not fixing the cabinet permanently in place.
- You must fully insulate the suction tube. 19 mm wall thickness insulation is a minimum requirement.
- If the evaporator box is externally mounted (i.e. an insulated box that is attached to the outside of the cabinet body), it **must** be vented to prevent condensation and water forming. This means the evaporator box must have unimpeded clearance (above a top-mount cartridge, or in front of an end-mount and bottom-mount cartridge). Generally, when required, horizontal remote cabinets are supplied with a ventilating fan.
- SKOPE remote refrigeration cabinets are generally fitted with a 10 A plug and power supply cord. When the cabinet is fitted in place, make sure that the power supply point remains easily accessible.

Controlling the condensing unit

There are three main ways to control the condensing unit via the cabinet temperature control.

- For regular condensing units:
 - Using the low side pressure switch (where the thermostat is not used).
 - Connecting a control circuit from the condensing unit to the temperature control. This circuit must get the power from the cabinet 10 A supply. The total load must be less than 10 A.
- For larger condensing units and 3-phase systems:
 - Using a liquid line solenoid valve. (If requested in advance, SKOPE can 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 so that a water trap forms.

If the drain tube needs to be extended, use rigid PVC pipe which has a diameter not less than the clear PVC. This pipe must slope down (with minimum 1:20 fall). SKOPE recommends using hard PVC to prevent future sagging.

- For fridges, always consider whether the drain needs to be vented.
- For freezers, the drain **must** be vented to prevent vacuum siphon of the water back into the cabinet.

When installing a remote cabinet, ensure proper condensate drainage by:

- Installing the cabinet on a level surface.
- Making the drain outlet readily accessible for future service.
- Plumbing the drain with a good fall. Secure the drain pipe at regular intervals to prevent any sagging.
- Giving heated condensate trays (if used) unimpeded ventilation to drive out moisture.
- Fitting "P" traps to the drains. This helps prevent gasses and smells returning up the pipe, and also helps prevent warm air entering into the system.

Condensing Unit

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

When specifying and installing the condensing unit:

- Ensure appropriate compressor protection devices are used. Fit and set up a dual high/low pressure control to protect the compressor without nuisance tripping.
- Fit a power isolation switch at the condensing unit.
- When choosing the condensing unit location, consider the condensing unit's noise and the direction of the prevailing wind (to ensure the condenser fan generally works with the wind direction).
- Ensure the condensing unit is fitted in a location that is accessible for future heavy service work. If possible, avoid fitting the condensing unit high on a wall.
- Ensure the condensing unit is securely fixed in place to a suitable structure.
- If being fitted outdoors, provide a suitable weatherproof cover for the condensing unit. In a residential area this may need to have sound-deadening insulation (this must not impede condenser airflow and compressor cooling).
- Route the refrigeration tubing to dissipate vibration.
- Make sure pipe-work is neat, straight and properly secured at regular intervals.
- Fully label the condensing unit with the type of refrigerant, and which cabinets are connected to the system.

Commissioning

At the commissioning of the remote application, complete the following tasks:

1. Fully evacuate the refrigeration system with two stage vacuum pump.
2. Leak test the entire system, including the evaporator assembly – access may 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. Make sure that the electronic controller parameters and settings are optimal for the installation requirements.
6. Revisit the site after 24 hours of operation to check product temperatures and make any final adjustments.

Optional Fittings

SKOPE may be able to connect additional fittings to remote systems, e.g. isolating valves, alternate valves, drains, copper loops. You need to specify these at the time of ordering, and they 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.
- 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 does not provide a warranty for the remainder of the installation.