

Siberian™ Mini Glycol Chiller

230V / 50Hz

Installation, Operation & Service Manual



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1. Specifications and Features

1.1 Models

- 31002003 SIBERIAN MINI R404A-211-LM
- 31002004 SIBERIAN MINI 404A-211-WM
- 31002005 SIBERIAN MINI 134A- 211-LM
- 31002006 SIBERIAN MINI 134A-211-WM

1.2 Product Features

The Lancer Siberian system chiller is supplied with the following features as standard:

- Rotationally moulded inner & outer polypropylene tank offering long life and corrosion resistance
- The tank is insulated with environmentally responsible, water blown non-CFC polyurethane insulation
- A second thermostat probe is attached to the evaporator suction line. This probe will shut down the refrigeration system should the suction line temperature drop below normal operating conditions
- Air-tight design of the tank & lid, keeps condensation to a minimum to eliminate dilution of the glycol solution
- Modular screw-in legs allow easy cleaning under the unit once installed
- Semi-submersible, single phase pumps
- Offers low installation, operating and maintenance costs due to single phase (230V 50Hz) power requirement to operate both the refrigeration and pump(s)

NOTE: The Thermostat will not be energised unless a pump switch is turned on.

1.3 Specifications

Dimensions

Width	476 mm
Depth	436 mm
Height	854 mm

Weight (floor/wall mount)

Empty	28 kg (LM – Leg Mount models) / 56 kg (WM – Wall Mount Models)
Operating	68 kg (LM – Leg Mount models) / 96 kg (WM – Wall Mount Models)

Refrigerant Connections

Suction Line	12.7mm
Liquid Line	9.5mm

Tank Capacity 40 Litres

Thermostat Carel PZLASNP001

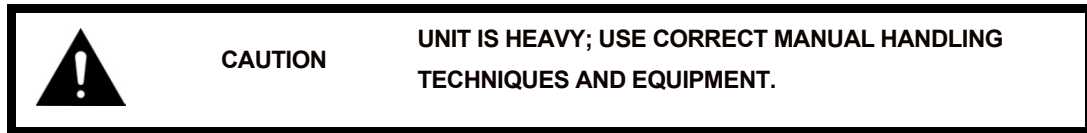
Power Requirements Single Phase 230V / 50 Hz (amps dependent on pump configuration)

Max total head per the following pump configurations:

SPK 2-11	50 metres
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1.4 Options

- Wall-mount bracket (WM Model)
- Refrigerant compatibility R134A, R404A



2. Safety Information



2.1 Safety Instructions

For your personal safety, and that of others working around you please read, understand, and follow thoroughly all safety instructions included in this manual.



- Review all applicable WHS (Work Health and Safety) regulations.
- Learn how to operate the Appliance and use the controls properly.
- Ensure that the Appliance is maintained according to service manual instructions.
- Do not allow any unauthorised modifications to the machine.

2.2 Recognise Safety Alert Symbols



The safety alert symbol precedes **Warning** and **Caution** notes throughout this manual. To prevent personal injury or damage to the machine these alerts must be strictly adhered to.

	Warning	Alerts to a potentially hazardous situation that if not avoided CAN result in death, serious injury.
	Caution	Alerts to a potentially hazardous situation that if not avoided MAY result in injury or equipment damage.

2.3 Operating

	Warning	This Appliance is intended for indoor operation only; do not operate outside unless suitably protected by a weatherproof enclosure. This appliance is not suitable for installation in an area where a water jet could be used. The Appliance must not be cleaned by a water jet.
	Caution	This Appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

2.4 Service & Maintenance

	Caution	Installation of this appliance and service work should only be performed by fully trained & certified Technicians.
	Warning	THIS APPLIANCE MUST BE ISOLATED FROM ELECTRICAL SUPPLY BEFORE COMMENCING ANY SERVICE OR MAINTENANCE WORK.


3. Installation


3.1 Receiving

Each unit is tested and thoroughly inspected before shipment. At time of shipment, the carrier accepts the unit and any claim for damage(s) must be made with the carrier. Upon receiving units from the delivering carrier, carefully inspect shipping crate for visible indication(s) of damage. If damage exists, have carrier note damage on bill of landing and file a claim with the carrier.

3.2 Unpacking

Carefully unpack the Hoshizaki Lancer Siberian system chiller from the shipping carton.

	CAUTION	Unit is heavy; use correct manual handling techniques and equipment.
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	Caution	The use of gloves is recommended to protect hands from potential injury from sharp edges.
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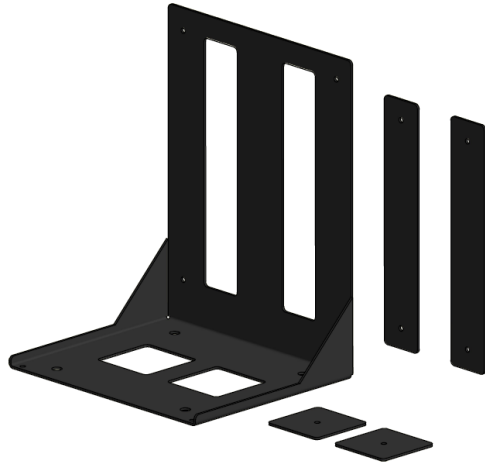
3.3 Selecting a Location

- Unit is for indoor use only unless suitably protected by a weatherproof enclosure.
- The Hoshizaki Lancer Siberian system chiller should be located in a well-ventilated area that will allow easy access for servicing.
- Install on a flat, level surface. Chiller can be wall mounted in a cool room of minimum height 2.1m if the suitable part number is purchased.
- Ensure the maximum tilt of the machine does not exceed 2 degrees in any direction
- Should only be installed by a qualified and competent technician.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.

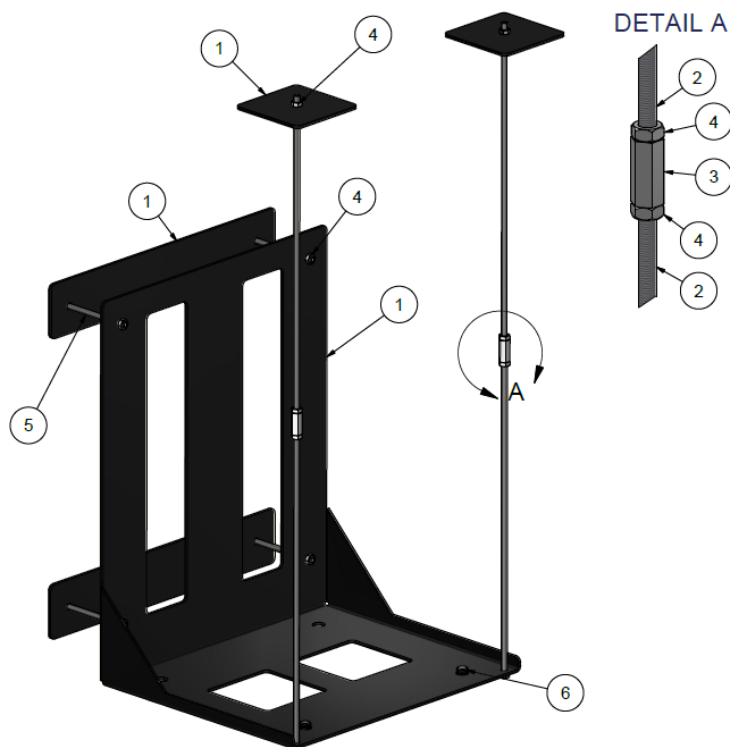
3.4 Wall Mounting

The wall mounting kit for 31002004 SIBERIAN MINI 404A-211-WM and 31002006 SIBERIAN MINI 134A-211-WM consists of

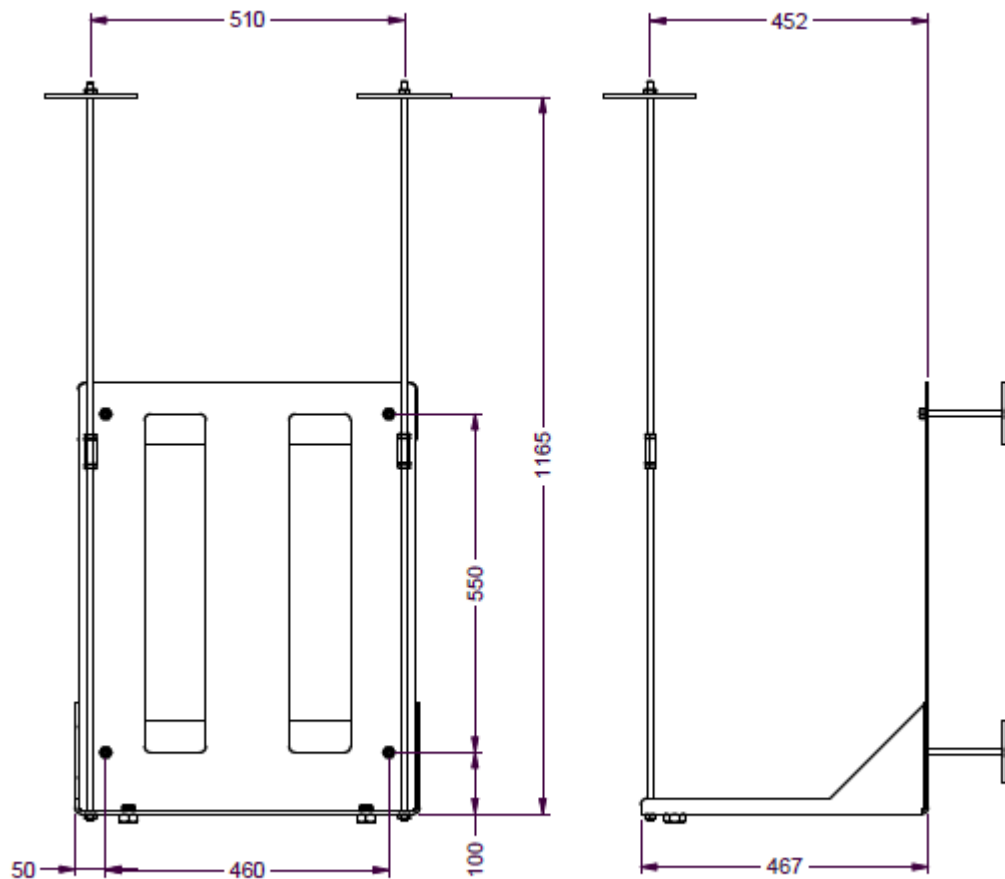
1	64002395	PC BRACKET SIB MINI MATTE BLACK
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2	4	79002019	THREADED ROD SS M10 X 600
3	2	79002026	NUT ROD COUPLER M10 X 40MM
4	16	79000379	NUT M10 HEX S/S
5	4	79001248	THREADED ROD SS M10 X 150
6	2	64002399	BOLT HEX Z/P 3/4UNC X 15MM



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RECCOMENDED MOUNTING HOLE $\phi 12\text{MM}$

Referring to the above mounting hole dimensions, drill 12mm holes in 4 wall locations and 2 roof locations.

Mount the frame using the 6 supplied backing plates (as part of 64002395) and the associated threaded rod and nuts. The above diagrams stipulate how this is completed.


Once mounted to the wall and roof, place the chiller onto the frame and secure using both the $\frac{3}{4}$ UNC x 15mm bolts through the front two holes into the threaded inserts in the bottom of the chiller.

3.5 Refrigeration Connection

- As with all installations, good refrigeration practice is necessary to ensure reliability and satisfactory performance of the Hoshizaki Lancer Siberian™ system chiller.
- All units have a holding charge of Nitrogen. Ensure the solenoid is active prior to evacuation. Failure to do so may result in poor evacuation of the refrigeration system and possible system failure.
- Solenoid can be activated by switching on pumps and making sure thermostat output is calling for refrigeration. It may be necessary to remove pump IEC plug to avoid excessive dry running during the evacuation procedure.
- Particular care should be taken to prevent oxidation during brazing, by using dry nitrogen and to ensure that a thorough evacuation of the system is carried out prior to gas charging.

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- We recommend that isolating valves are fitted to the refrigerant pipes adjacent to the unit and that the refrigeration be connected to a dedicated and correctly sized condensing unit.
- Fully insulate suction line.




	NOTE	<p>Remember one of the main factors affecting equipment reliability and compressor service life is contamination. Pollution of the liquid could occur due to leakage of lubricants (for submersible pumps and vertical wet pit pumps containing lubricants)</p>
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3.6 Connecting Glycol Lines


- Connect glycol lines from the manifolds to the Hoshizaki Siberian system chiller.
- Supply manifold direct to pump(s).
- Return manifold to glycol return pipe via return solenoid if required.
- After leak checking, ensure lines are fully insulated.

3.7 Electrical Connection

- This unit is connected to the supply via a 10 amp flexible cord fitted with a Splashproof IP66 3 pin plug.
- Check the name plate on the machine for electrical supply requirements. Use only the power supply specified on the name plate.

	WARNING	<p>This unit must be electrically grounded (earthed) to avoid possible fatal electrical shock or serious injury to the operator. Electrical connection must be made in accordance with the appropriate local codes and regulations.</p>
	WARNING	<p>If the supply cord is damaged it must be replaced by the manufacturer, it's service agent or similarly qualified persons in order to avoid a hazard.</p>
	CAUTION	<p>In order to avoid a hazard due to inadvertent resetting of the thermal cut out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.</p>

3.8 Filling Unit with Glycol / Water

	CAUTION	<p>Ensure glycol is added first, then water, prior to starting the refrigeration system – failure to do so will cause severe</p>
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damage to the plate heat exchanger and refrigeration system, and will void all warranty.

The Hoshizaki Lancer Siberian system chiller requires a 30% glycol / water mixture (see concentration chart on page 11 for details). Put 12 litres of glycol in the tank and fill with water until the glycol / water mixture reaches the overflow.

The overflow should be plumbed away to a suitable drain or container, via a Goose neck connection.



CAUTION

Only use propylene glycol for freeze point depression. The use of other chemicals may damage equipment and pose a health risk.

3.9 Commissioning

- Ensure refrigeration condensing unit is turned off to prevent heat exchanger plate becoming too cold and freezing glycol on initial return.
- Turn power on to the Hoshizaki Lancer Siberian system chiller.
- Turn pump(s) on and allow the python glycol lines to fill. Ensure liquid level does not drop below pump intake during initial filling of python.
- As required, top up the unit with a premixed 30% glycol / water mixture to correct level.
- Check water / glycol mixture with refractometer.
- Turn on refrigeration condensing unit. If glycol bath temperature is above the set point of the thermostat the refrigeration solenoid should be operational.
- Check all connections for leaks.
- Monitor the indicated temperature on the thermostat and ensure temperature reduces to the set point.
- While the refrigeration system is operating, monitor the evaporator suction line temperature via the probe 2 by pressing and holding the Arrow down button. Record the lowest temperature and then set the AF parameter 5° below this reading. This will ensure protection of the HX plate and refrigeration system in the event of a pump failure or freeze up.

NOTE:

1. The thermostat has a minimum compressor "OFF" time of 3 minutes to prevent short cycling. Temperature & differential settings should be such that the number of compressor starts does not exceed the manufactures recommendations.
2. The Thermostat will not be energised unless a pump switch is turned on.

4. Thermostat– Carel Pjeasy – Thermostat Parameters



NOTE:

The Thermostat will not be energised unless a pump switch is turned on.

4.1 Thermostat Settings

Parameter	Type	Def	Description
St	Set point	-2.0	Refrigeration will turn off when glycol reaches this temperature.
rd	F	1.0	Temperature differential, glycol temperature will increase from the cut out point by this value before the refrigeration turns on.
AF	F	-5.0	Antifreeze alarm set point. If the evaporator suction line reaches this temperature the control will stop the refrigeration system and will require a manual reset. Antifreeze alarm can be reset by holding "UP" and "DOWN" keys for 5 seconds. In case of probe 2 failure, the antifreeze alarm function is inhibited and regulation is still performed. If "AF parameter is set to its minimum value the alarm function is inhibited.
rt	F	**	Time (in hours) of max/min temperatures logging.
rH	F	**	Highest/ maximum recorded temperature.
rL	F	**	Lowest/ minimum recorded temperature.
AH	F	20.0	High temperature alarm (relative to set point).
AL	F	4.0	Low temperature alarm (relative to set point).
c2	F	3 mins	Minimum time in mins after turning off before the control will give an output to the refrigeration solenoid (short cycle protection).
r4	F	7.0	Value to increase the set point in ECO mode.
r2	F	5.0	Maximum allowed set point.
r1	F	-5.0	Minimum allowed set point.

Controls programmed during manufacture.

All other non used parameters are hidden to avoid confusion.

4.2 Programming Instructions

4.2.1 Set Point

Push and hold the “SET” key, “st” is displayed then the current set point is displayed and flashes, release “SET” key to change the set point value.

Push the “UP” or “DOWN” arrow keys to change the set point value.

To accept the new value press the “SET” key or wait 60 seconds without pressing any keys for the unit to time out.

4.2.2 Other Parameters

Push and hold the “SET” key, until “rd” is displayed.

- Select the required parameter to change using the “UP” or “DOWN” arrow keys then press the “SET” key to display its value.
- Press the “UP” or “DOWN” key to change its value.
- Press the “SET” key to store the new value and move to the next parameter.

To exit from programming mode press the “SET” key for 3 seconds or wait 60 seconds without pressing any keys for the unit to time out.

4.2.3 Eco Mode

In the ECO mode an offset is added to the Set point: “St” + “r4”.

To set the ECO mode press and hold the “UP” key, “on” or “oF” is displayed showing how ECO mode will be changed, when “on” or “oF” disappears release key. In ECO mode “Ec” is displayed alternated to probe 1, Glycol temperature actual value.

4.3 Alarm Signals

When an alarm is activated, the display shows the corresponding message that flashes alternating with the temperature.

Message	Cause	Reset
“E0”	Glycol Probe Failure	Automatic
“E1”	Refrigeration Line Probe Failure	Automatic
“LO”	Low Temperature Alarm	Automatic
“HI”	High Temperature Alarm	Automatic
“AF”	Antifreeze Alarm	Manual Antifreeze alarm can be reset by holding “UP” and “DOWN” keys for 5 seconds.

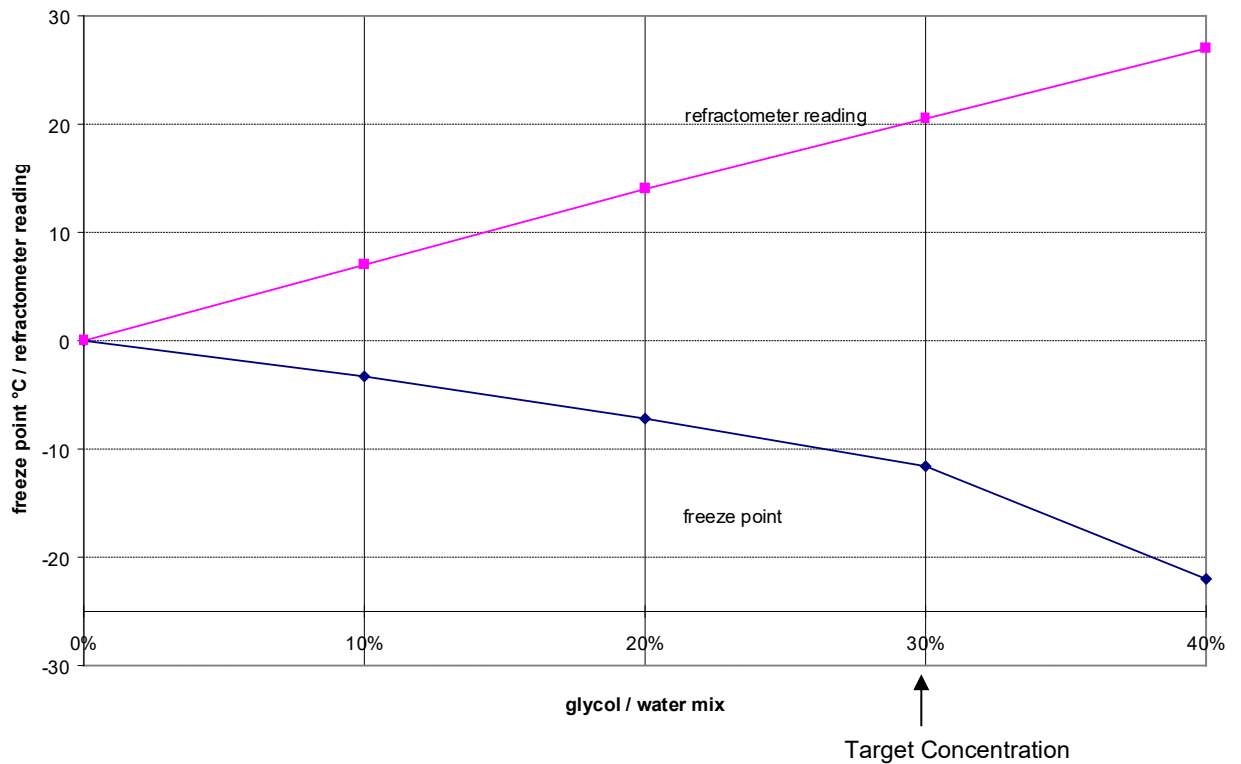
5. Scheduled maintenance

5.1 Monthly

Check water/glycol level.

Check water/glycol concentration using refractometer (see chart).

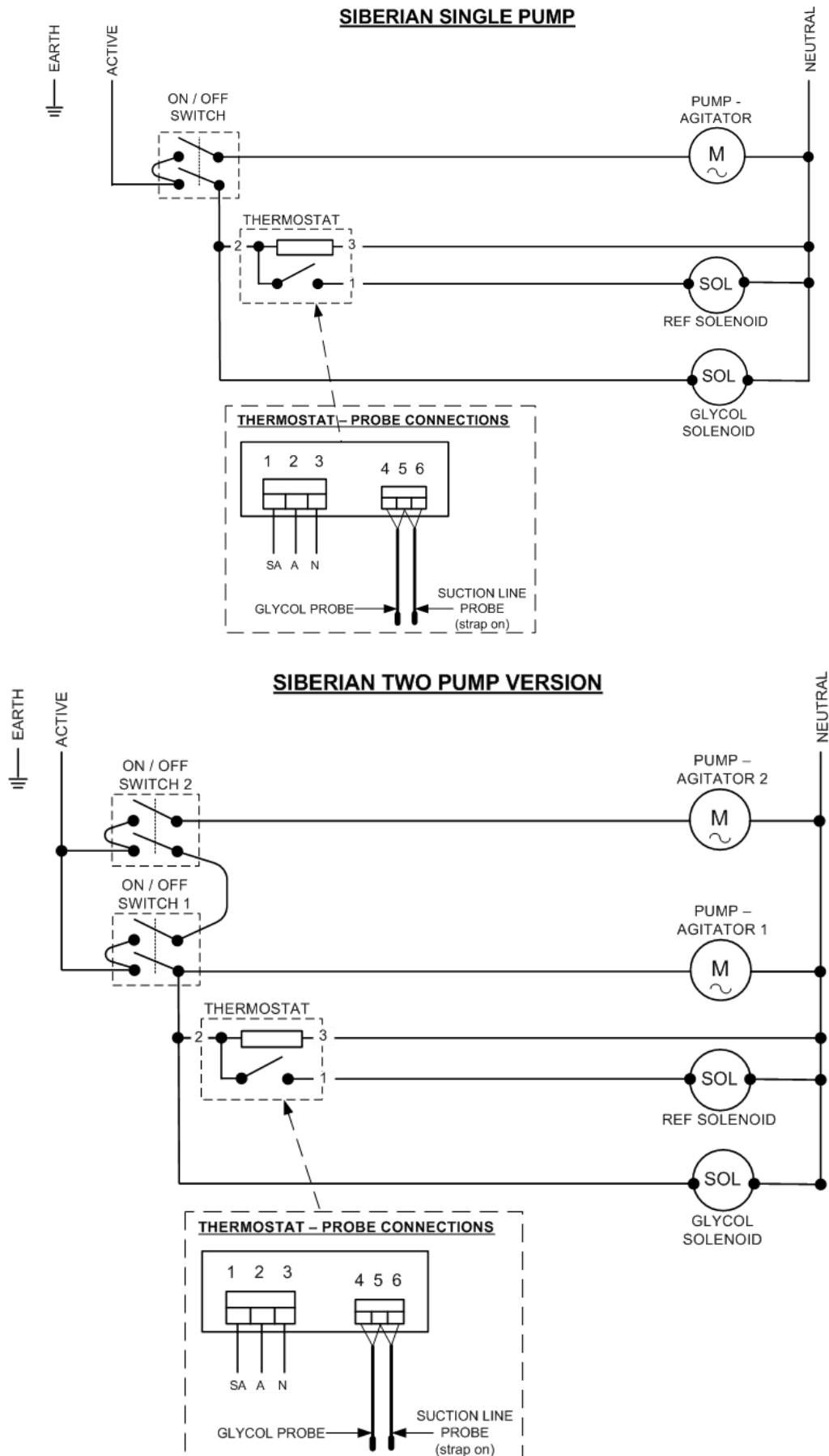
Relative freeze points and refractometer readings for propylene glycol / water mix



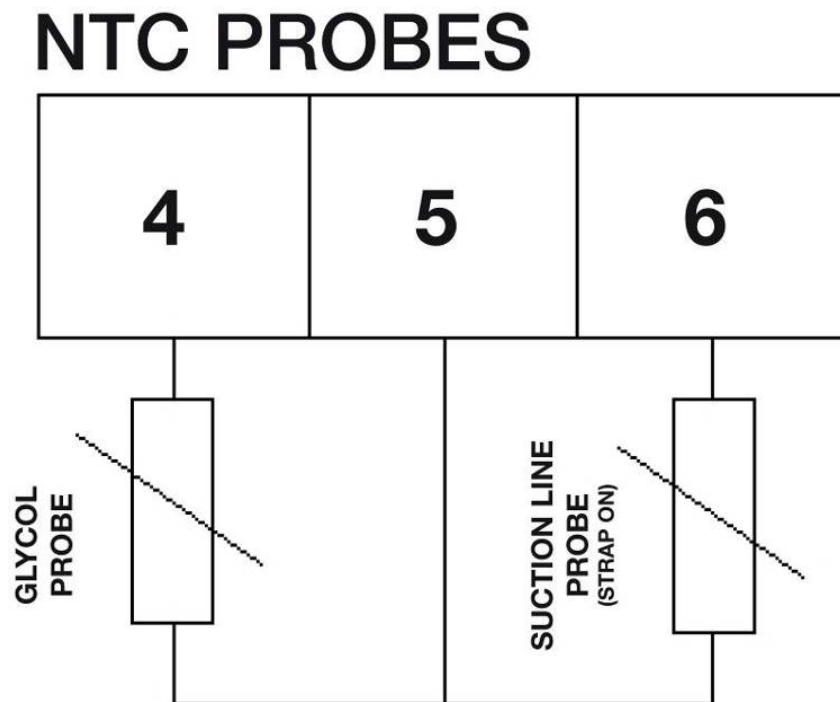
6. Trouble Shooting

TROUBLE	CAUSE	REMEDY
Condensing unit will not start.	Power Failure Pumps not active Thermostat probe failure Solenoid coil failure	Check for blown circuit breaker or cord pulled out. Replace Replace solenoid
Beer Warm	Glycol bath temp outside control set points Suction line hand valve(if fitted) is closed Faulty glycol pump Faulty TX valve Incorrect glycol concentration (poor agitation)	Check set points Open hand valve Replace pump Replace TX valve Check with refractometer & adjust
No product flow	Thermostat set too low Frozen product line	Adjust set point Switch off refrigeration while leaving pumps running & allow thawing. Some beers will freeze when set temp below -2.5°C
Noise evident	Noisy pump	Replace/repair pump
No glycol flow	Frozen HX plate Low glycol level Low glycol %	Adjust set point System leak Add glycol

7. Electrical Diagram – Carel Thermostat



8. Wiring Diagram – Carel Thermostat



9. Spare Parts List

PART NUMBER	DESCRIPTION
78634552	Pump SPK2-11
83000184	Thermostat Carel PJEASY
83000170	Thermostat Dixell XR20CXR
87000050	Solenoid Valve EVR3 – 5 kW
35000028	Solenoid Valve – Glycol Return
83000101	Coil – Solenoid Valve
87002000	TX Valve – R134a – 2kW
87600230	TX Valve – R404A – 2kW
83000102	Switch D.P.S.T
83600701	Rubber Boot (Switch)
83000306	IEC Lead FEM 300mm
83000307	IEC Lead FEM 1200mm
83000308	IEC Lead MALE 300mm

10. Certificate of Warranty

It is the policy of Hoshizaki to provide to its current customers, warranty for all equipment supplied and installation work performed within a specified period.

Parts and Equipment

Lancer provides a warranty period of twelve (12) months from the date of original invoice for all manufactured parts. Repair or replacement of defective parts will be at the sole discretion of Lancer.

Changeover parts will be invoiced to the customer at the customer's normal purchase cost and upon return of the warranty item and validation of the claim, the invoice will be credited.

Installations

Lancer provides a warranty period of twelve (12) months from the date of final invoice for workmanship after the completion of any installation work, provided the parts and labour are completed by Lancer or its subcontractor.

Labour

Lancer will not normally cover any labour costs associated with a warranty claim. Subject to the approval of the Divisional Sales Manager, Lancer may choose to reimburse the customer for some or all labour costs associated with a warranty claim. Any claim for labour costs must be authorized by Lancer prior to the work being undertaken.

Exclusions

Lancer will not accept any liability or cost associated with any consequential losses (such as loss of syrup or beer), loss of profit or damage to property as a result of faulty product.

Warranty shall not apply:

- If in the opinion of Lancer, the equipment has been used in a situation the equipment has not been designed for;
- If in the opinion of Lancer, the equipment has been subject to abuse, negligence or accident;
- If connected to improper, inadequate or faulty power, water or drainage service or operated using incorrect, insufficient or contaminated lubricants, coolants, refrigerants or additives;
- Where the product is installed, maintained or operated otherwise than in accordance with the instructions supplied by Lancer;
- Where the product has been damaged by foreign objects;
- Where the product has been serviced, repaired, altered or moved otherwise than by Lancer or its nominees or using other than Lancer approved replacement parts.

To obtain full details of your warranty and approved service agency, please contact your dealer/supplier, or the nearest Hoshizaki Office.

Hoshizaki Lancer TEL: +61 8 8268 1388 FAX: +61 8 8268 1978

11. Manufacturer's Checklist

- Evacuate, charge with nitrogen and leak check all refrigeration components.
- Liquid line and glycol solenoid installed in the correct flow direction.
- TX valve refrigerant matches unit.
- TX valve sensing bulb is secured tightly and in correct position, TX valve capillary not rubbing on anything.
- Air tape around TX bulb.
- Turn on unit, check thermostat operates and solenoids energise.
- Glycol probe in correct position and suction line probe checked for sensor tightness.
- Confirm operation of glycol probe, check for temp change. As per SOP-PRD-094
- Check pumps operate.
- Check wiring to ensure no internal insulation is exposed.
- All refrigeration tube work straight and not rubbing on other components.
- Installation kit supplied.
- Decals and Serial number plaque correctly positioned.
- Tank area clean.
- Supply manual.
- All screws secure, ensure deck and lid are fully sealed.
- Supply original checklist to unit, file copy.

Electrically Tested By:

Electrical Continuity

Inspection Number:

Earth Continuity

Insulation

Checked by:.....

Date:

Work Order No:

