



# Product Manual

## *Bracton Sub Zero glycol chiller*

### **PREFACE**

The manufacturer reserves the right to modify the product and the relative technical documentation without any obligations in relation to third parties, and does not accept liability for any errors or inaccuracies in the contents of this manual. This version of the operator's manual describes the technical characteristics of the standard production appliance as of the date when this publication is approved for printing.

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### **1.0 General specifications**

Bracton Subzero glycol chillers have been designed to chill and maintain a set temperature for beer and associated dispense equipment.

Bracton manufactures two main types of commercial glycol chillers, remote and self contained. Remote glycol chillers are supplied without the condensing unit and designed for large scale draught beer systems. Self contained glycol chillers are plug and play solution including the condensing unit. No refrigerant plumbing is required for Bracton Subzero self contained glycol chillers.

Bracton glycol chillers have been designed to operate in Australian conditions.

### **2.0 Installation**

Installation should only be performed by a suitably qualified technician. NOTE 1: Bracton Subzero Remote Glycol Chillers are quality checked, pressure tested and dispatched with a nitrogen holding charge at between 600 - 800 kPa. NOTE 2: Bracton Subzero Self Contained Glycol Chillers are quality checked, pressure tested and charged with R507 refrigerant prior to dispatch.

#### **2.1 Positioning - General**

The chiller must be placed on a level surface capable of bearing the weight of the machine complete with coolant. The appliance must not be placed close to direct or indirect heat sources (ovens, stoves, radiators, etc.). The electricity and glycol manifold points should be close to the cooler, and positioned so that the electric cable and water hose do not create obstacles. Do not install area where liquid can drip onto tank.

#### **Remote chillers**

The chosen position must in any case allow satisfactory ventilation; in particular, there must be a gap of at least 400mm around the top for pump ventilation. Bracton Subzero Remote Glycol Chillers are designed to be installed indoors, either in the cool room or back of house. For best performance install inside the cool room.

#### **Self contained chillers**

The chosen position must in any case allow satisfactory ventilation; in particular, there must be a gap of at least 400mm at top and on a minimum two sides including the condenser. Bracton Subzero Self Contained Glycol Chillers are designed to be installed indoors, either in the cool room or back of house. For best performance install outside of cool room in a well ventilated area. If installed outdoors, a weatherproof housing must be fitted.

	Bracton Subzero Self contained glycol chiller	Bracton Subzero Remote glycol chiller	
<b>Tank capacity</b>	80 Litres	80 Litres	180 Litres
<b>Dimensions</b>	SZSC1800 67 x 64 x 153cm  SZSC2800 67 x 64 x 158cm	62 x 40 x 85 - 95cm	SPK2-11 Installed 72 x 59 x 125 - 127cm  SPK4-11 Installed 72 x 59 x 138 - 140cm
<b>Dry weight</b>	SZSC1800 = 90Kg SZSC2800 = 105Kg	Approx 50Kg	Approx. 100Kg depending on configuration
<b>Operational weight</b>	SZSC1800 = 172Kg SZSC2800= 187Kg	Approx 136Kg	Approx 285Kg
<b>Electrical input</b>	SZSC1800 1 Ø / 10A / 240v / 50Hz  SZSC2800 1 Ø / 15A / 240v / 50Hz	1 Ø / 10A / 240v / 50Hz	1 Ø / 10A / 240v / 50Hz
<b>Thermostat</b>	Carel PJ Easy		
<b>Pump(s)</b>	SPK 2-11 Single pump option only		SPK 2-11 SPK 2-15 SPK 4-11 Single or dual pump
<b>Cooling Capacity</b>	SZSC1800 @32C - 10 SST = 2kW  SZSC2800 @32C - 10 SST = 3kW	1.8 - 2.7kW	1.8 - 16kW
<b>Refrigerant</b>	R507	R22, R134a, R404a	
<b>Refrigerant connections</b>	Suction line = $\frac{5}{8}$ " Liquid line = $\frac{3}{8}$ "	Suction line = $\frac{5}{8}$ " Liquid line = $\frac{3}{8}$ "	1.8 - 10kW Suction line = $\frac{7}{8}$ " Liquid line = $\frac{3}{8}$ "  >10 - 16kW Suction line = $1\frac{3}{8}$ " Liquid line = $\frac{1}{2}$ "

## 2.2 Commissioning procedure

Inspect for damage, if any damage evident contact bracton service centre for advice.

### Remote systems

Install in accordance with Australia and New Zealand Refrigerant handling code of practice 2007, Part 1 — Self-contained low charge systems.

NOTE: Units are delivered with a holding charge of 600-800 kPa of nitrogen. Pressure test remote systems if no holding charge, report back to manufacturer prior to installing. No warranty will be available if this step is missed.

### Brazing

All copper connections must be brazed with flowing dry nitrogen within through the system to prevent oxidation build up.

### Charging

System is to be charged in accordance with AS/NZS 1677.2:1998 Section 6.1: Charging and discharging refrigerant

### Test and tag

On completion of installation test and tag in accordance with AS/NZS 3760:2010

### Insulating

All outlet points and lines are to be appropriately insulated to prevent condensation formation. For more information contact the Manufacturer.

#### 2.2.1 Flush

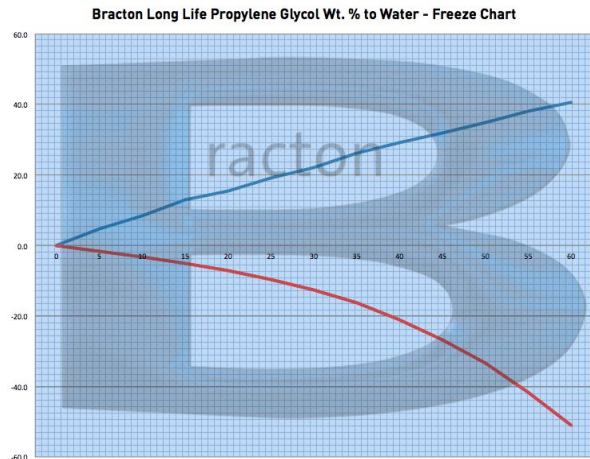
Flush the system with fresh potable water, ensure no debris is in tank or water/glycol lines.

#### 2.2.2 Fill the tank

Remove the cover and fill the tank with a 30% mixture of propylene glycol to 70% distilled water. Standard propylene glycol may be used, however for the ultimate protection consider using Bracton Long Life Propylene Glycol to protect the reticulation system for up to five times longer than standard glycol.

<b>Remote Glycol Chiller</b>	Tank size 80 Lt	Propylene glycol 24L Distilled water 56L
<b>Self Contained Glycol Chiller</b>	Tank size 180 L	Propylene glycol 54L Distilled water 126L

To verify concentration of glycol / water mixture, place a couple of drops of the mixture onto a refractometer sight and view the concentration



reading, which should be approximately 21 bx.

## 2.3 Operations

**Safety** Do not allow anyone to operate the machine unless suitably trained. Keep the machine in good working order and do not allow any modifications to it unless these have been authorised by the manufacturer.

**Electrical Safety** Always disconnect the machine from the electricity supply before doing any work on it, to prevent damage and health hazards.

**General use** The use of the chiller for any purposes other than those for which it was designed is not recommended. Likewise, its use in any way other than that indicated in this manual is forbidden.

This machine is not intended to be used by people (including children) with reduced physical or sensory capacities, or with a lack of experience and knowledge, unless under supervision and with the instructions of someone responsible for their safety.

For the purposes of your safety, and in accordance with the current legislation, any repair operations on the machine must be carried out by the Service Centre or approved contractor.

- Do not tamper with the internal components; if they do not work well, contact the Service Centre or approved contractor
- Do not place any objects on the chiller
- Do not place the chiller on top of any other object.
- Do not use liquids other than those indicated.
- If you believe the chiller to be damaged, contact the Service Centre or approved contractor.

## 2.4 Maintenance / Cleaning

**Electrical Safety** Always disconnect the machine from the electricity supply before doing any work on it, to prevent damage and health hazards.

**Authorised Technical Service** Only technical staff who are skilled refrigeration technicians, or with expertise in cooling systems, may carry out work on the machine. All wiring and plumbing components must comply with national and local legal requirements (when replacing components, use only genuine parts certified by Bracton).

**Coolant mixture** The coolant mixture should be checked quarterly to ensure concentration ratio of propylene glycol to distilled water is appropriate. ie. Reading of 21 brix on the refractometer, indicating a 30:70 propylene glycol: distilled water. Refer to section 2.2.2 for more information.

## 3.0 Thermostat controller

Bracton programs thermostats prior to dispatch with the following settings.

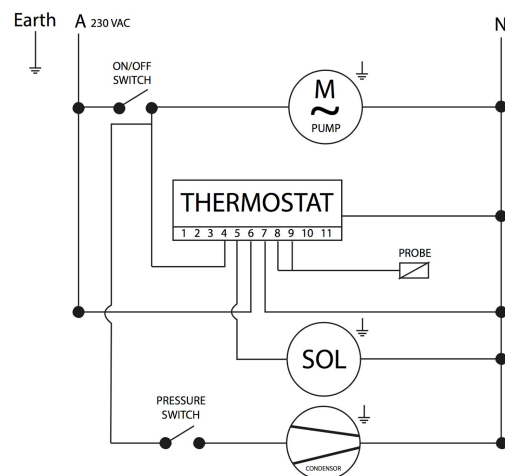
Parameter		Setting
st	set point	- 2.5°C (minus)
rd	temperature differential	1.5 °C
AH	high temperature alarm	8.0 °C
AL	low temperature alarm	- 8.0 °C (minus)

## 3.1 Alarms

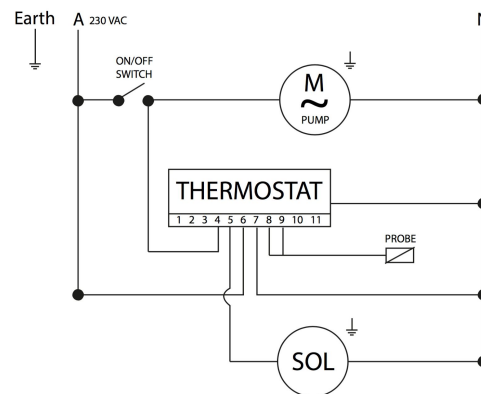
alarm code	buzzer and alarm relay	LED	alarm description	reset
E0	active	ON	probe 1 error= control	automatic
E1	not active	ON	probe 2 error= defrost	automatic
E2	not active	ON	probe 3 error= condenser/product	automatic
IA	active	ON	external alarm	automatic
dOr	active	ON	open door alarm	automatic
LO	active	ON	low temperature alarm	automatic
HI	active	ON	high temperature alarm	automatic
EE	not active	ON	unit parameter error	not possible
EF	not active	ON	operating parameter error	manual
Ed	not active	ON	defrost ended by timeout	on first defrost ended correctly
dF	not active	OFF	defrost running	automatic
cht	not active	ON	dirty condenser pre-alarm	automatic
CHt	active	ON	dirty condenser alarm	manual
ETC	not active	ON	clock alarm	by setting the time
SrC (easy split only)	not active	ON	maintenance request signal	manual, set HMr=1

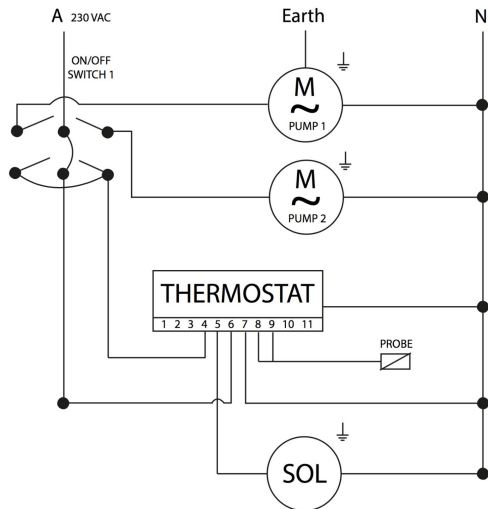
## 3.2 Wiring diagrams

Subzero self contained glycol chiller



Subzero remote glycol chillers





#### 4.0 Troubleshooting

Problem	Cause	Solution
Warm beer	Glycol mixture too weak	Increase glycol concentration
	Glycol heat exchanger	Check thermostat parameters and probe
	Glycol pump failure	Replace pump
	Tank on defrost	Change thermostat parameters
	Capacity exceeded	Reduce load on tank.
	Other	Contact bracton service centre
No beer flow	No beer gas / air compressor failure	Check gas board, replace gas, check air compressor.
	Keg handle up	Push keg handle down
	Frozen beer lines from glycol mixture to cold	Check set temperature/ thermostat, check probe, solenoid.
Noisy pump	Pump ware	Check fan seal or replace pump

#### 5.0 Checklist - Remote

- Evacuate, charge with nitrogen to 600 - 800kPa 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.
- Taped TX bulb.
- Turn on unit, check thermostat operates and solenoid energise.
- Glycol probe in correct position and suction line probe checked for sensor tightness. Confirm operation of glycol probe, check for temp change.
- Check pumps operate.
- Check wiring to ensure no internal insulation is exposed.
- Branding and Serial number correctly positioned.
- Supply leveling legs
- Tank area clean.
- Supply manual.
- Lid and body insulation is installed and unit is fully sealed.

Assembly technician: \_\_\_\_\_

Date: \_\_\_\_\_