STATEBOURNE cryogenics

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Operating instructions

Withdrawal device For Cryolab 20, 25 ,35, 50 .

The Statebourne Cryogenics low pressure withdrawal device makes dispensing liquid from the larger Cryolab series of dewars convenient and safe. The unit is ideal for the user who appreciates the convenience of low pressure dispensing but does not require the integrated pressure build system of Statebourne's popular Cryostor series of containers.

Installation and removal is made simple as the device is held in the neck of the dewar by four springs attached to the carrying handles, no nuts, bolts or screws need to be removed before the device can be taken out and the dewar filled. Liquid dispensed through the delivery tube is passed finally via a phase separator to minimise splashing. Pressure can be reduced manually by the gas vent valve, and protection against over-pressurisation is provided by twin safety relief valves set at 4 psi and 7 psi. Ultimate safety is provided by the spring retained manifold lifting and breaking the seal with the neck of the dewar. Never leave the springs unattached or replace them with any other form of attachment.

Statebourne's low pressure withdrawal device is available in two sizes for use with 51mm (2") and 63mm (2.5") neck diameters. The unit is suitable for most makes of dewar with these corresponding neck sizes where suitable attachment points exist.

Technical Data

PRODUCT ORDER CODE 51mm (2") - 9701056 Cryolab 20 and 25 Supplied as standard for CL25 for CL20 16 mm to be cut from the end.

PRODUCT ORDER CODE 63mm (2.5") - 9701057 Cryolab 35 and 50 Supplied as standard for CL50 for CL35 165 mm to be cut from the end.

FLOW RATE - 2.3 LITRES PER MINUTE #

MAX. OPERATING PRESSURE - 7 PSI (0.483 BAR)

PRIMARY RELIEF VALVE PRESSURE - 4 PSI (0.276 BAR)

SECONDARY RELIEF VALVE PRESSURE - 7 PSI (0.483 BAR)

PRESSURE BUILD TIME - 1 TO 6 HOURS

Figure based on Cryolab 35 starting at a pressure of 4psi when 50% full over a period of 2 minutes continuous use. This figure will vary according to type of vessel, starting volume & pressure and period of use. Similar variables will also determine actual pressure build times.

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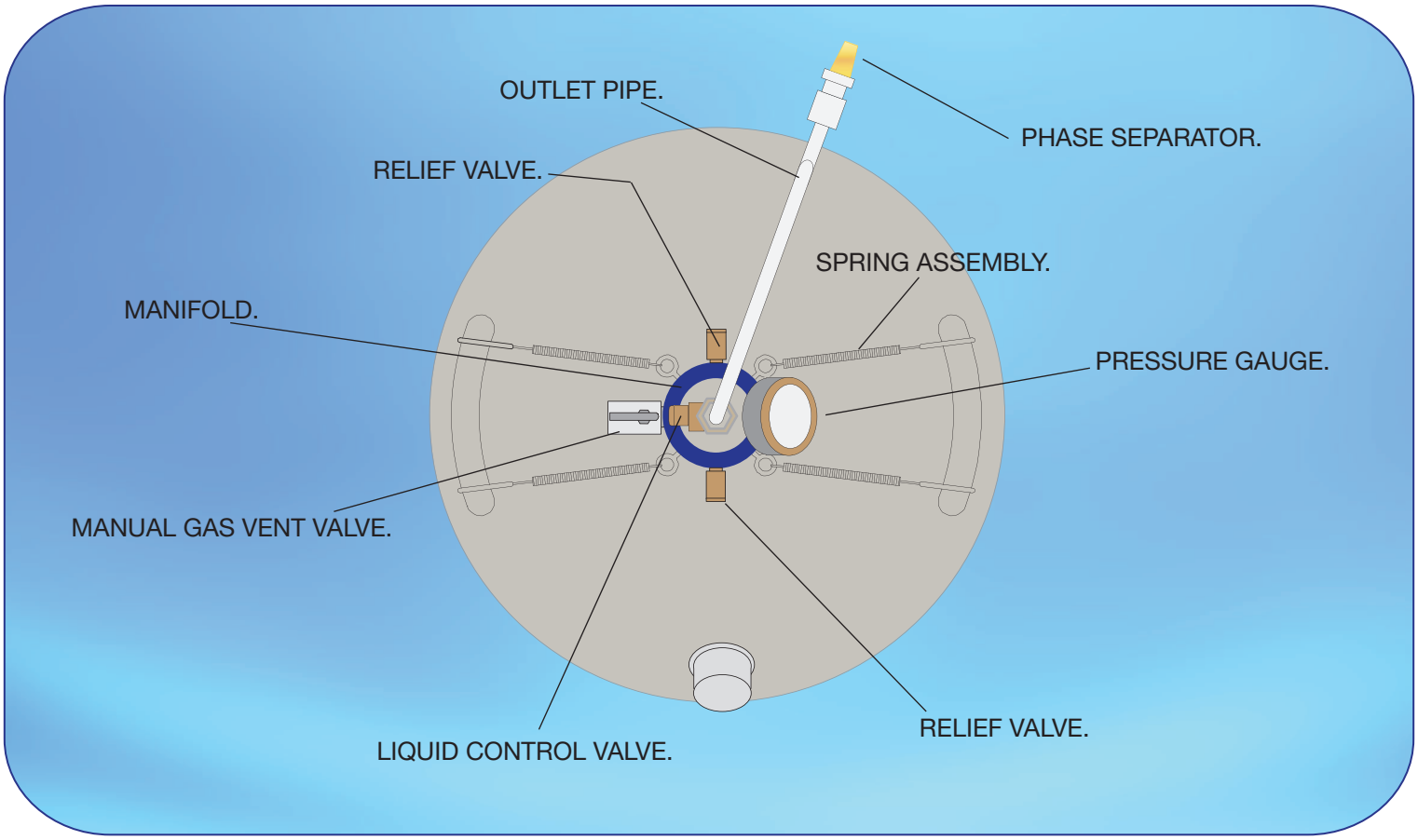
Operating instructions

Withdrawal device components



1. Ensure liquid valve is closed and manual gas vent is open. Insert the withdrawal tube into the liquid nitrogen container and maintain a firm downward pressure on the top of the manifold so that the rubber plug seals in the neck of the dewar.
   Do not push down on the outlet tube – this may cause damage to the joint between the tube and the liquid control valve.
   Do not rotate the outlet tube as this will cause leaks at threaded joints.

2. While maintaining downward pressure on the top of the device, hook the individual four hooks into the handles of the dewar. Close manual gas vent.

3. It may take up to 6 hours to build sufficient pressure to withdraw liquid through the valve assembly depending on how much liquid is in the dewar.

4. When the withdrawal device is not in use the pressure will be maintained automatically at 4 psi in the dewar by the cryogenic relief valve (backed up by the 7 psi in case of failure to open).
   However when liquid is being decanted the pressure will gradually drop.

CAUTION

For refilling the dewar or removing the withdrawal device, the gas vent valve must be opened and all of the gas pressure within the dewar allowed to escape. Failure to do this could lead to a hazardous spray of liquid from the neck of the dewar.
It is advisable that before removing the withdrawal device the dewar is allowed to stand for about 15 minutes with the gas vent valve open after the needle on the pressure gauge reaches zero to ensure that no residual pressure remains.

To open the manual gas vent valve turn the handle 90° anti-clockwise, so that the handle is in-line with the body.
To close turn 90° clockwise.

Before inserting your new withdrawal device check the neck of the dewar for any restrictions (eg. collars etc.) that could prevent the device sealing in the neck.

Troubleshooting

1. Dewar pressurises but no liquid is dispensed

If there is pressure of 2 psi or more inside the dewar and no liquid is dispensed when the liquid valve is opened there may be an ice blockage in the outlet tube.
This can be overcome by closing the liquid valve and allowing the outlet to warm to ambient temperature.
This may take some time and can be accelerated by blowing warm air onto the outlet tube and particularly the phase separator.

2. Dewar will not build pressure

Perform the following checks in the order listed:

a) Check that the manual gas vent valve and liquid control valve are both closed.

b) Check to make sure the manifold is pushed securely into the neck of the dewar and is seated level with the top of the neck. (Only push down on the manifold body).

c) Check for leaks on the neck to manifold seal and all joints between the component parts of the device. Only use a specialized leak detection fluid such as “Snoop” for this. Soap and water may not detect very small leaks at such low pressures.

d) Remove the withdrawal device from the dewar after having first opened the manual gas vent valve. Check that the dewar is not too full – the liquid level should not be above the bottom of the fibre glass neck. Inspect the internal surface on the neck of the dewar and the rubber seal on the withdrawal device manifold for signs of damage, or any dirt or debris which may affect the sealing surfaces.

Spares list

	DESCRIPTION	PART NO.
1.	51mm (2”) MANIFOLD	5401134
2.	63mm (2.5”) MANIFOLD	5401135
3.	RUBBER SEAL	2301084 (51mm neck)
	RUBBER SEAL	2301140 (63mm neck)
4.	PRESSURE GAUGE	2001090
5.	GAS VENT VALVE	1701088
6.	LIQUID CONTROL VALVE	1701278
7.	LIQUID CONTROL VALVE FITTING	1001098
8.	4 PSI RELIEF VALVE	1801100
9.	7 PSI RELIEF VALVE	1801101
10.	PHASE SEPARATOR	9701003
11.	OUTLET PIPE	9701390
12.	DIP TUBE ASSEMBLY	2701272
13.	SPRING ASSEMBLY	5701030