

Flotronic Barrel Unloading System

Operating Instructions



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Declaration of conformity

As defined by the Machinery Directive 2006/42/EC, and complies with the essential Health & Safety requirements, Annex 1, and the technical construction file requirements of the Directive.

A declaration of conformity accompanies this product, and this product carries the CE Mark as required by UK and European Law.

Description of Function

This equipment is designed to allow the user to pump the contents of a barrel to another location for process use with the assistance of a Flotronic Pumps double diaphragm self-priming air driven One Nut pump.

For ease of use the pump can be raised and lowered into the barrel using pneumatic cylinders controlled by a central control unit.

Sealing inside the barrel is achieved with an inflatable seal to ensure minimum product loss and maximum pumping efficiency. The seal is deflated at the end of a production run for easy removal from the barrel.

The 'ONE-NUT' pump can be cleaned in place using the pump itself or by using an external CIP rig. Alternatively, because of the 'ONE-NUT' design of the pump, it can easily be dismantled for cleaning.

Installation

1. Ensure the equipment is on flat stable ground and any mounting points are securely affixed if applicable.
2. Connect air supply to Isolation Valve (ref. 0V1) on rear of control cabinet – Ensure maximum supply pressure of 10 Barg.
3. Ensure sufficient overhead space for full pump lift
4. If the equipment has been ordered with remote pump operation capability there is an additional air connection on the underside of the cabinet labelled **Pilot Signal**. This is a 6mm 'push in' type connection and is used to supply signal air to switch the pump on / off remotely. You will need to supply constant air pressure between 2 Barg and 10 Barg for this pilot signal line while the pump is required to operate.
 - a. Air pressure in the pilot signal line – pump will run.
 - b. No air pressure in the pilot signal line – pump will stop.
5. Example shown as our standard configuration on page 11 requires 3m of overhead space for full pump lift.

Safety

All operating staff must wear appropriate safety wear.

Keep hands and other body parts away from moving item of this machinery.

Never exceed the operating parameters detailed in the Technical Data section.

Pressurised Air may be retained within areas of the unit after the main air supply has been isolated or disconnected.

If maintenance is required while the cylinders are extended, i.e. the pump is raised, the use of suitable 'chocks' is recommended to ensure that the cylinders cannot lower in case of pressure loss.

External Cabinet Controls

Top of Control Cabinet



Front of Control Cabinet

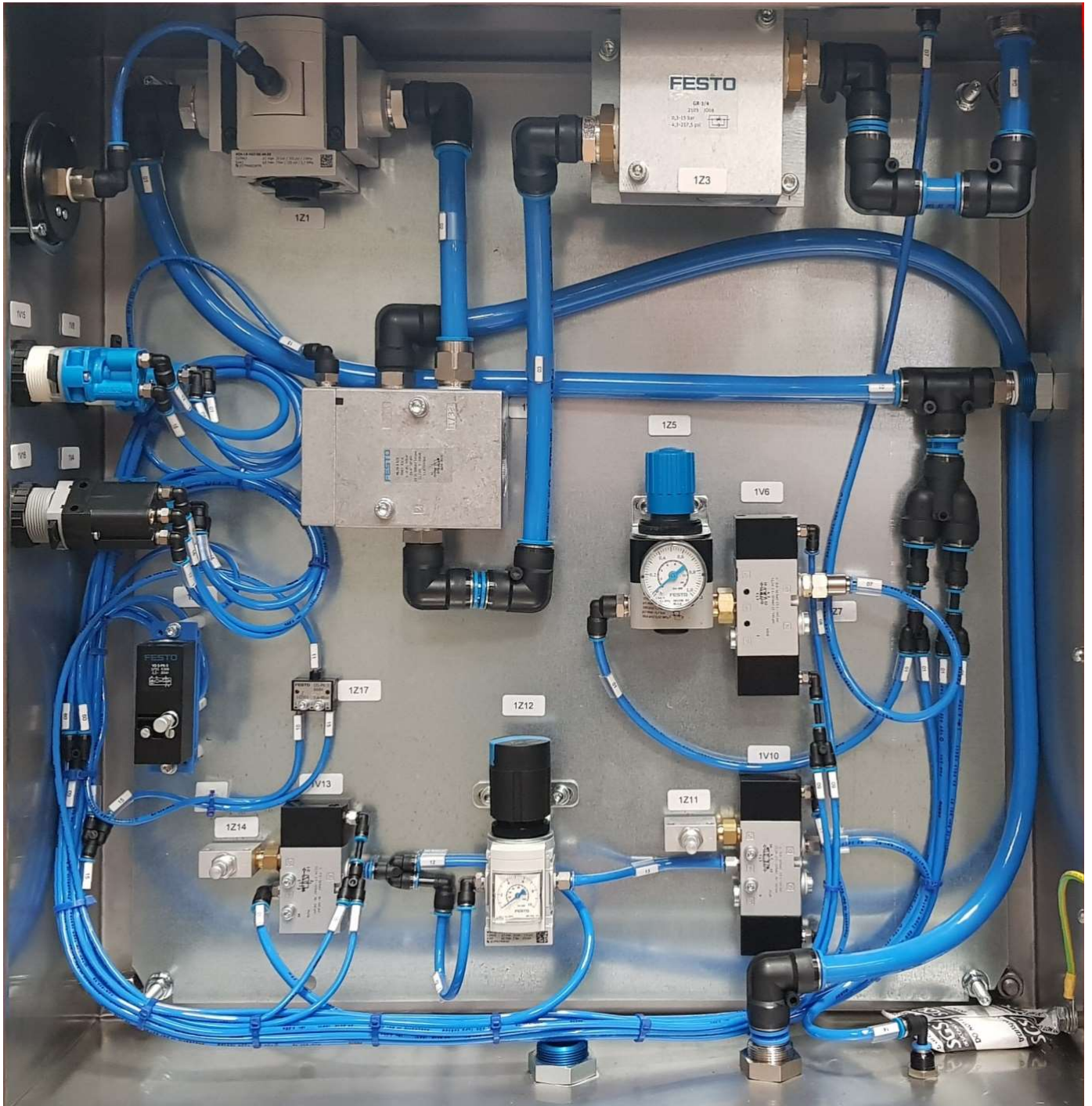


Rear of Control Cabinet



Label	Function	Operation
OV1, OV2	Main Air Isolator	Rotate to operate unit or isolate air supply
1Z1	Pump Pressure Regulator	Adjust to change the pump operating air pressure. Note: Maximum operating pressure for the pump is 7.2 barg
1Z3	Pump Speed Control	Adjust to change the pump speed
PUMP	Pump On/Off Switch	Starts and Stops the pump. NOTE: On versions for remote operation this switch is replaced with a 6mm air connection on the underside of the control cabinet.
SEAL INFLATE	Seal Inflate Button	Press to inflate the seal. Inflation to the pre-set pressure is automatic after pressing – i.e. Pressure is NOT dependent on how long the button is pressed
CYLINDERS MOVE	Cylinder Move Button	Press and hold to move the pump in the direction selected on 1V16. If UP is selected there will be a short delay before movement while the system automatically deflates the seal
CYLINDERS	Cylinder direction Selector	Use to adjust the direction of pump movement when the MOVE button is pressed and held

Internal Cabinet Controls



Reference Label	Function	Operation
1Z5	Seal Pressure Regulator	Adjust to change the operating pressure for the seal. Maximum seal pressure is 1.5 Barg. Factory set to 0.3Barg
1Z9	Cylinder Move Delay	Adjusts the delay between the Move UP signal and ACTUAL cylinder movement to allow seal to automatically deflate.
1Z11	Pump Descent Flow Control Valve (Pump NOT Running)	Adjust to change speed of pump descent when pump is NOT running – i.e. when cylinder move button is pressed and down is selected as direction
1Z12	Cylinder Pressure Regulator	Adjust to change the cylinder driving air pressure
1Z14	Pump Descent Flow Control Valve (Pump Running)	Adjust to change speed of pump descent when pump is running – i.e. when pump is operating

Operation

- 1- Raise pump fully by selecting **Cylinder UP** followed by pressing and holding the **Cylinder Move** button.

NOTE: There will be a short delay before movement as the system automatically deflates the seal prior to any upwards cylinder movement

NOTE: Ensure there is sufficient headroom to allow unit to fully rise.

- 2- Place barrel directly under seal unit – take care to align the seal and barrel
- 3- Lower pump onto product by selecting **Cylinder DOWN** followed by pressing and holding the **Cylinder Move** button until the desired position is reached.
- 4- Press the **Seal Inflate** button and wait for the seal to fully inflate and make continuous contact with the inside diameter of the barrel.
- 5- Select **Pump ON** – this will start the pump and simultaneously allow the pump to descend. The pump will now be pumping product.

NOTE: The lowering speed in this condition can be adjusted using control 1Z14 located inside the cabinet.

NOTE: Ensure that the delivery pipework is securely located in the product receptacle.

- 6- Once barrel is empty or desired quantity has been dispensed select **Pump OFF**. The pump operation and descent will be halted. The pump can be stopped at any time during the barrel emptying process. To restart the pumping process simply select **Pump ON**.

- 7- If the process is complete select **Pump Off**.

- 8- Raise the pump by selecting **Cylinder UP** followed by pressing and holding the **Cylinder Move** button.

NOTE: There will be a short delay before movement as the system automatically deflates the seal prior to any upwards cylinder movement

- 9- Remove the barrel and repeat the above procedure as required for subsequent barrels.

NOTE: On versions fitted with remote pump operation any reference to **Pump On** requires a positive air feed to the remote connection labelled **Pilot Signal** on the underside of the control cabinet and any reference to **Pump Off** requires the positive pressure to be exhausted for the pump to stop.

Emergency Shutdown

Isolate air supply from the equipment using the Main Air Isolator located on the rear of the control unit (ref. OV1). This will stop all movement of the equipment and prevent further operation until safety has been assured.

NOTE: Pressurised Air may be retained within areas of the unit after the main air supply has been isolated or disconnected.

NOTE: If maintenance is required while the cylinders are extended, i.e. the pump is raised, the use of suitable 'chocks' is recommended to ensure that the cylinders cannot lower in case of pressure loss.

Seal Removal/Fitting

Seal replacement can be carried out with the pump in any position but best practice dictates this should be after an upwards movement of pump unit as this ensures the air supply to the seal has been terminated.

- 1- Ensure seal is fully deflated
- 2- Disconnect air feed pipe at the junction close to the seal.
- 3- Insert blunt seal removal tool into slot on top plate of seal housing and gently lever seal free.
- 4- Carefully pull air feed tube through seal housing and remove seal.
- 5- Fitting the seal is the reversal of the removal process – remember to feed the air pipe through the seal housing before fitting the seal.

Pump Maintenance

Please refer to relevant section in the pump IOM supplied with this machinery.

NOTE: If the pump is to be maintained while still attached to the drum emptying frame, the pump and seal plate **MUST** be lowered to the floor. This ensures that the torque required to loosen and tighten the main pump nut is transmitted through the seal plate aiding the supporting of the pump.

Pump Cleaning

FPL Slimline Style pumps for food and pharmaceutical applications have been designed for clean in place (CIP), allowing internal cleaning without the need for dismantling.

The pump may be cleaned by flushing with a suitable CIP fluid dependent upon the application and compatibility with the pump wetted component materials.
The fluid used may typically include sodium hydroxide (caustic) with mild acid and sanitizers for rinsing.

CIP fluid temperatures are normally up to about 90°C although a maximum of 100°C may be used if required. Steam up to 135°C may also be used for sterilization. If temperature exceeds 100°C high temperature diaphragms need to be fitted, which are rated to 135°C.

CIP may be performed solely by operation of the pump which may then use standard diaphragms, or by an independently pressurized system.

If an independently pressurized system is employed, where pressure at the inlet of the pump exceeds 0.8 Barg, the diaphragms should be of the reinforced type. Maximum CIP pressure in this case 6 Barg.

Technical Data

Maximum Pump Air Pressure	7.2 Barg (105psi)
Maximum Seal Pressure	1.5 Barg (22psi)
Pump Remote Start Signal (optional)	2 – 10 Barg
Pump Operating Temperature Range	0°C - +135°C
Equipment Weight	200 Kg

Standard Configuration:

