

# CLUSTER-FLUSH

Milking Cluster Disinfection System

**ROTARY PARLOUR**



## Installation Manual

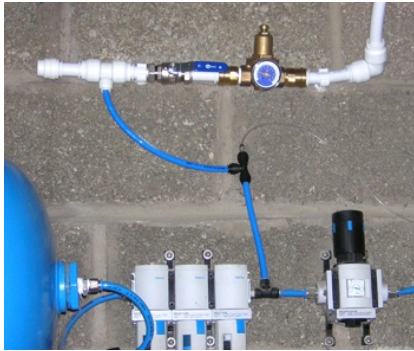
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AIR SUPPLY



CHEMICAL ENTRAINMENT  
(option)



FLEXIBLE  
PIPE  
RUN



WATER INLET SYSTEM



HEADER TANK  
(Note: Level With Cylinders)



CONNECTION TO MILK LINE (Y Piece)

# **COTSWOLD CLUSTER FLUSH**

## **Milking Cluster Disinfection System**

**FOR SWING OVER PARLOURS**  
**Model 220**

### **PRODUCT MANUFACTURING, SERVICING & MAINTENANCE OVERVIEW**

The Cotswold Cluster Flush is a system for the effective removal of infectious material left in the milking cluster after a cow has been milked, so that the cluster is disinfected before it is used to milk another cow.

The system mixes a small amount of recommended disinfectant with a pre-determined amount of water, and automatically “flushes” each milking cluster with this mixture. This process is repeated after every cow is milked.

Using the Cluster Flush System leads to a substantial reduction in the risk of cross-infection between cows in the dairy.

### **SERVICES**

The system is mains-powered (230v 50/60hz 1amp). At the point of use the operating voltage is reduced to 24v dc.

The system requires a ready supply of fresh clean water and a clean compressed-air supply (at 2 bar).

### **WIRING:**

Connect the Power Supply Unit (PSU) to the mains via a double-pole isolation switch, which should be visible and within easy reach of system operators.

Wiring from the power supply to each control box should be SELV, using a suitable type of wire like H03VVF with a CSA of at least 0.75mm<sup>2</sup>.

All controllers and the power supply unit must be suitably earthed.

All connector tags and terminals will be zinc plated.

This equipment is rated for OV (over-voltage) Category 2 supplies.

### **PRESSURE VESSEL SPECIFICATION AND USAGE**

The pressure cylinder is SEP-rated category-1 at its 2 bar mandatory operating pressure. Its maximum safe pressure rating is 6 bar.

### **ENVIRONMENTAL CONDITIONS:**

The system can be installed in milking parlours anywhere on the planet. Do not use in the open, in direct sunlight or where pipework could be subject to freezing.

The protection offered by this product may be impaired or lost if installation and maintenance is not carried out in line with the instructions in this manual.

### **LABELING**

All labels used in this product comply with the CE Water and Hexane Rub Test.

# COTSWOLD CLUSTER FLUSH

## Milking Cluster Disinfection System

### CLUSTER FLUSH – PRODUCTION, SERVICING & MAINTENANCE SAFETY INSTRUCTIONS –

#### (COMPLETE SYSTEM INCLUDING PRESSURE COMPONENTS)

(The Cotswold Cluster Flush – an SEP category 1 product)

*These instructions relate primarily to factory manufacturing procedures, but since the Cluster Flush needs regular onsite service and maintenance, we include them here too.*

#### **Component Preparation**

All forming, bending drilling chamfering or any other working of components must not cause changes in the mechanical characteristics of those components and in no way reduce their efficiency.

#### **Permanent joints in pressurised segments**

For Cluster Flush pressure equipment (pressure cylinders), permanent joining of components which contribute to their pressure resistance - and components which are directly attached to them - must be carried out by suitably trained personnel.

Permanent Joints and their adjacent zones must be free of any surface or internal defects that could be detrimental to the safety of the equipment. Permanent joints must always meet the minimum properties specified for the materials to be joined.

#### **Traceability**

Inner pressure cylinders must be permanently labelled to show operating pressure and year of manufacture.

Use label: (*Pressure-Vessel (Sep-Category-1)*), also label: (*S Ayling materials and date of moulding*).

#### **Final Testing**

Pressure equipment must be subjected to final testing and inspection. A test and inspection of the completed power supply unit and every control panel/pressure cylinder assembly is essential.

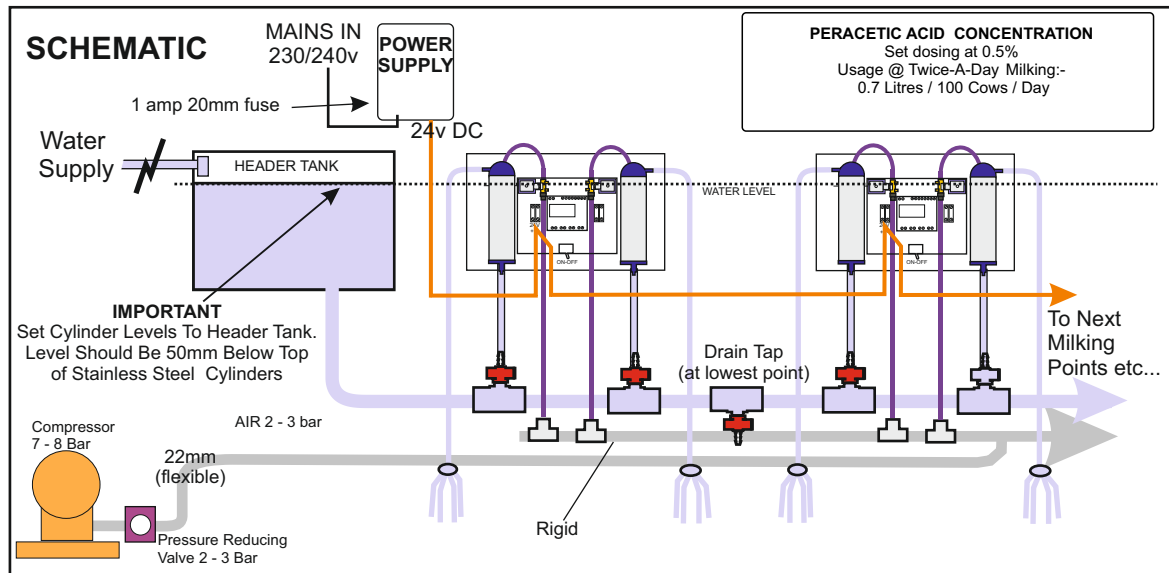
**IF IN DOUBT – ASK!**

**IEC 60417-5018)**

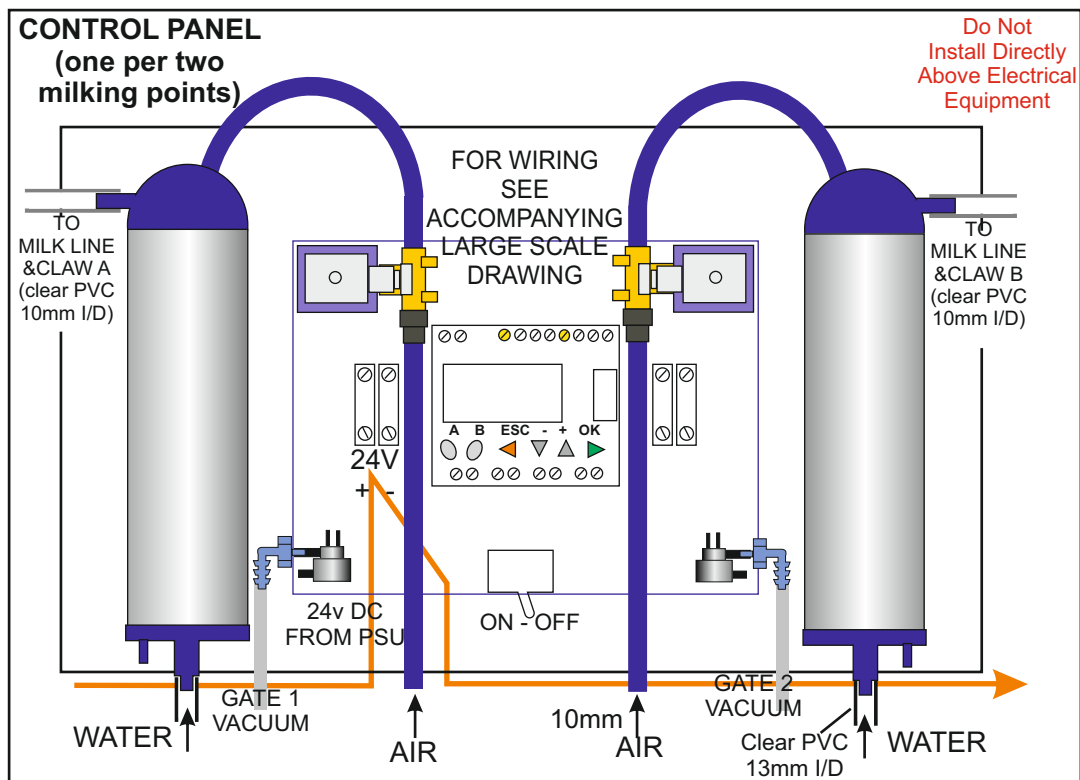
CLUSTER FLUSH – PRODUCTION SAFETY INSTRUCTIONS.DOC

## Milking Cluster Disinfection System

**FOR ROTARY PARLOURS:**



**(ALWAYS SWITCH OFF EITHER THE POWER SUPPLY OR THE CONTROLLER(S) WHEN NOT IN USE)**



### PERACETIC ACID CONCENTRATION

Set dosing at 0.5%  
Usage @ Twice-A-Day Milking:-  
0.7 Litres / 100 Cows / Day

## IMPORTANT

BEFORE installation of your new Cotswold Cluster Flush system:  
ensure that all EXISTING milk shut-off valves are working satisfactorily,  
(sealing fully and without leaks)



## INSTALLATION NOTES

### ORDER OF INSTALLATION

For ease of installation we recommend the following installation sequence:-

- 1/ Header Tank(s)
- 2/ Water / Plumbing
- 3/ Set Up Water Cylinders
- 4/ Install Airlines
- 5/ Controllers and Electrical

### WATER / CHEMICAL

Site the Header Tank at the same level as the cylinders. Ensure that the water level in the cylinders is set 50mm (2 inches) below the top of the stainless tube, (see drawing opposite).

Run 2 inch (50mm) water tube from header tank along the centre of the parlour, connecting to every cylinder using tees, taps and 10x16mm i/d tube. Terminate this tube with a reversed (upside-down) tee/tap so that it can be used as a drain point if required.

### Chemical Dosing

We can supply Dosatron high accuracy dosing units if required. When dealing with chemicals, do take all recommended precautions. Before commissioning the system, ensure all unions are tight and the clusters hang correctly

### AIR 2 - 3 bar, (pressure reducer may be required)

Use 22mm Flexible Tubing between the compressor (clean air filters should be fitted) and the first 22x22x10mm tee located adjacent to the first controller. Continue to following controllers using **rigid** tubing. Terminate the air line in a blanking cap.

### Anti Syphon Valves

fit one valve either side of the Tee connection of air line, at the mid-point of each half (see schematics)

### Pressure Reducer

We can supply a suitable pressure reducing valve if required.

### ELECTRICAL

Locate Power Supply Unit (PSU) in a safe dry location, run 24v supply to first controller, and then daisy-chain the supply from controller to controller.

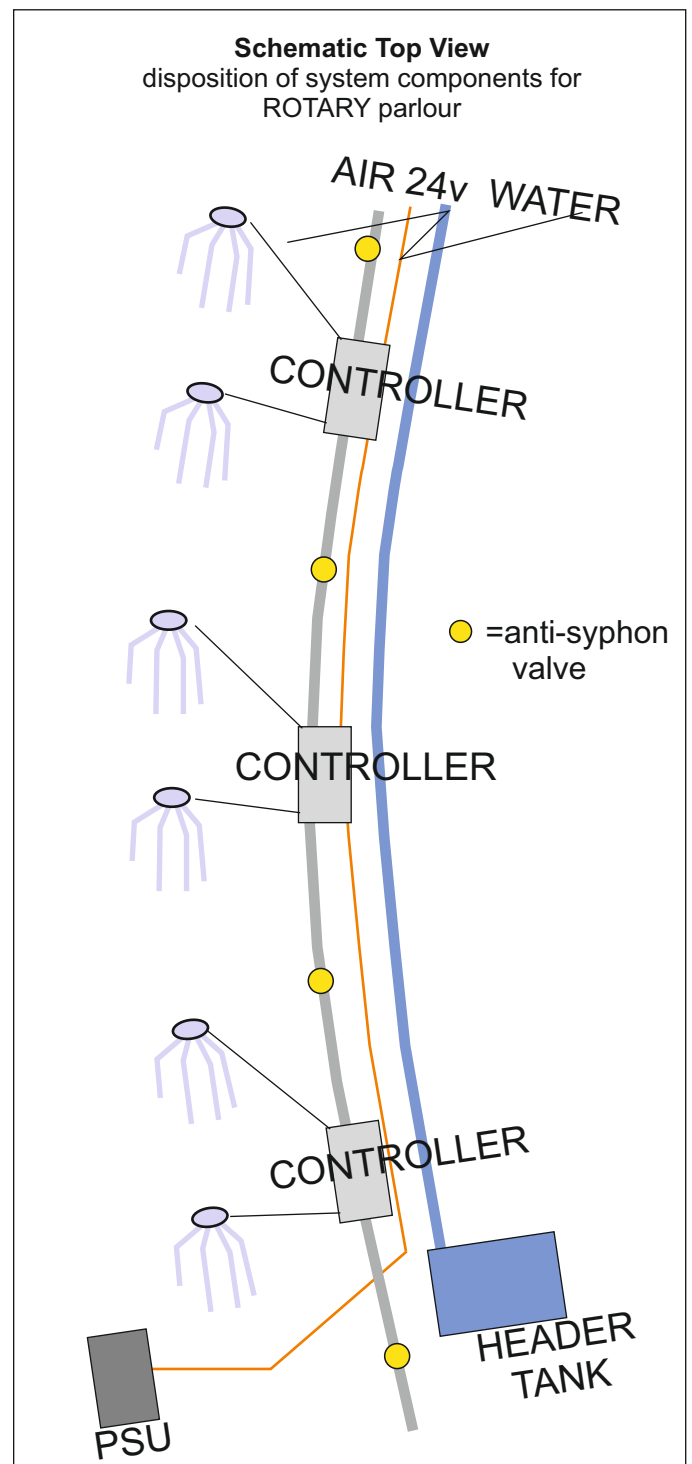
Each controller controls two milking points simultaneously.

Arrange a convenient switch to turn off the system when not in use.

**Always switch off system when washing the parlour**

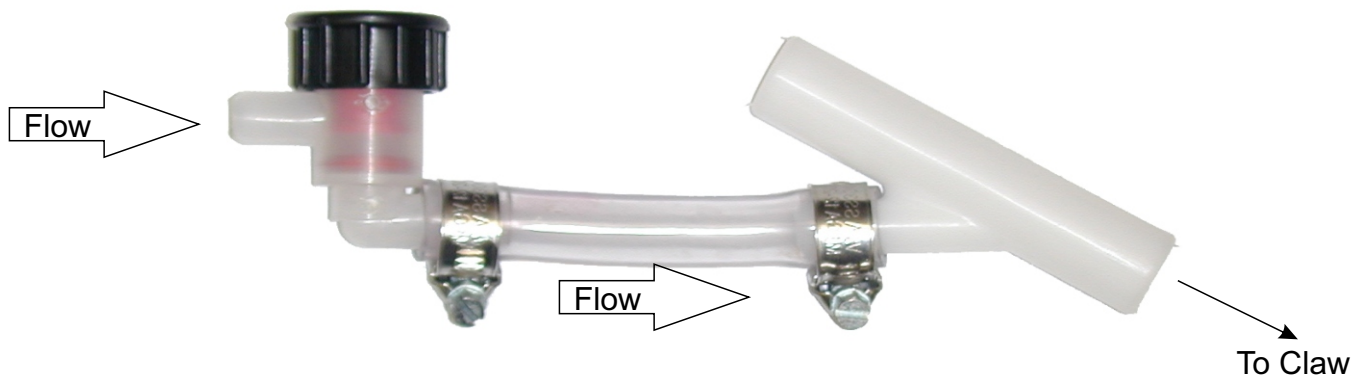
### CONNECTION TO MILK LINE

Cut into the milk line and and fit the "Y" piece moulding using 13mm pvc tubing connecting to upper horizontal outlet of stainless steel cylinder.



# SHUT-OFF VALVE (for CLUSTER FLUSH)

Controls maximum of two (2) cluster points on either side of valve (see schematic on previous page).



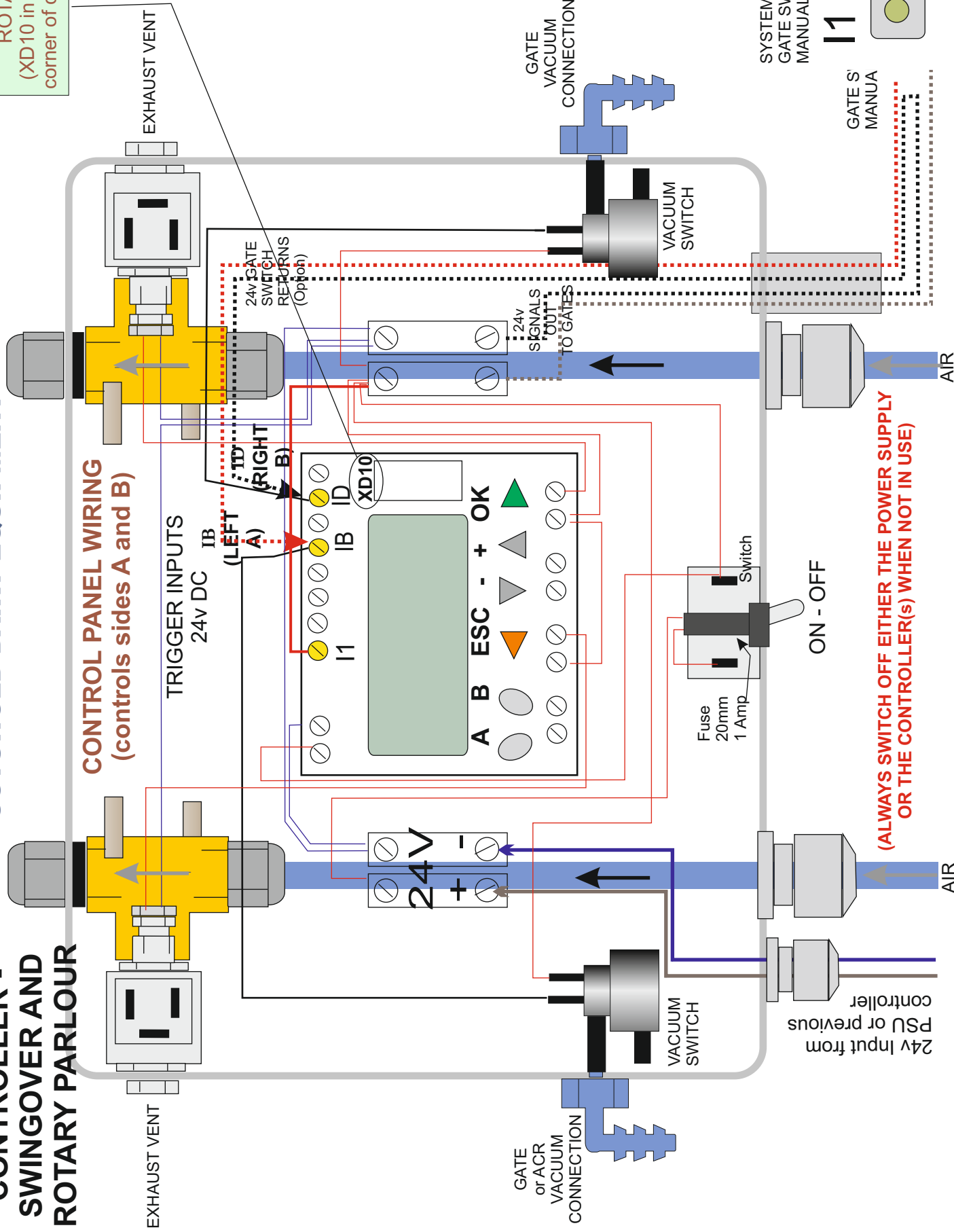
**Unit MUST be installed vertically (as above)**

# CONTROLLER - SWINGOVER AND ROTARY PARLOUR

## COTSWOLD DAIRY EQUIPMENT

18

MCL-VERSION  
ROTARY  
(XD10 in top right  
corner of controller)





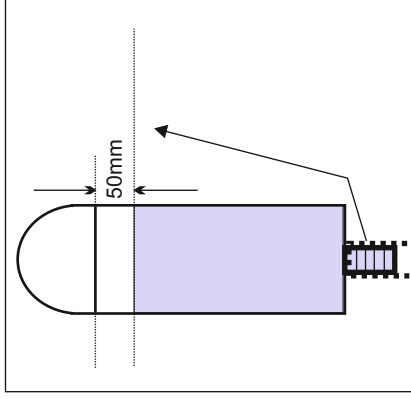
# COTSWOLD CLUSTER FLUSH SWINGOVER & ROTARY PARLOUR

Crouzet Controller  
Euro/MCL

**PERACETIC ACID CONCENTRATION**  
Set dosing at 0.5%  
Usage @ Twice-A-Day Milking:-  
0.7 Litres / 100 Cows / Day

## SCHEMATIC Not To Scale

**IMPORTANT**  
Set Cylinder Levels To Header Tank.  
Level Should Be 50mm Below Top  
of Stainless Steel Cylinder



(ALWAYS  
SWITCH OFF  
WHEN NOT IN USE)

1 amp 20mm fuse

**POWER  
SUPPLY**  
Out 24VDC

**COTSWOLD CLUSTER FLUSH  
SWINGOVER & ROTARY PARLOUR**  
Crouzet Controller  
Euro/MCL

TEE OFF  
ACR  
VACUUM  
SUPPLY

TEE OFF  
ACR  
VACUUM  
SUPPLY

TEE OFF  
ACR  
VACUUM  
SUPPLY

DOSATRON (Option)  
Chemical Induction Unit

STOP VALVE

CHEMICAL  
STORE  
(UP TO 7 METRES  
HORIZONTALLY)

HEADER TANK

WATER LEVEL

**IMPORTANT**  
Set Cylinder Levels To Header Tank.  
Level Should Be 50mm Below Top  
of Stainless Steel Cylinders

Drain Tap  
(at lowest point)

Pressure Reducing  
Valve 2 - 3 Bar  
and food grade air filters

22mm  
(flexible)

AIR  
2 - 3 bar

Rigid

# ACCESSING TIMING PARAMETERS

## MCL CONTROLLER (XD10)

*(If interrupted, this version will continue from where it was interrupted and complete the cycle. Inputs I2 and IC).*

To open main screen, press the “-” (minus) button twice.

To access any sub-menu

Press OK

Then A

then either “+” or “-” to move between sub-menus

### 2. Sub Menu 1 = Milk Sweep Setup

2a. When finished, press esc

### 3 Timer Setup - Maintenance

(Change Timings)

(a) Initial Delay

Milk Sweep

Flush Delay

First Flush

Fill Time

Second Flush

### 3. Maintenance Help

Shows “A” Solenoid Function

### 4. Help - Version (call dealer)

### 5. Software Version

No. eg: R5-4-M5



# Cluster Flush Servicing

page 1

**Service interval:** **22,000 Actions**

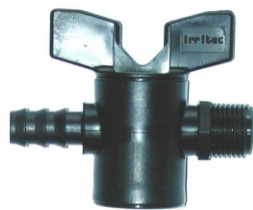
At 1 year max, the following service parts should be fitted

## Dosatron Service Kit

## Food Grade Air Filter Service Kit (Compressor)



Dosatron Service Kit DOS/KIT



Inline Tap /  
Lever Valve  
152-153



Bracket -  
Swingover Control  
Box  
CF100

Bracket -  
Pressure Vessel  
CF38A



Food Grade Air Filters - Service Kit CF21

**Other parts you may find useful to have with you when servicing a cluster Flush system.**

10 mm i/d x 16mm o/d hose (30m).....	151-102
10mm i/d x 20mm o/d hose (30m) .....	151-127
13mm i/d Hose (30m).....	151-118
Herbi Clips 16mm.....	154-153B
Herbi Clips 20mm .....	154-154C
10 MM Jubilee clips.....	154-159A
Brackets for pressure vessels.....	CF 38A
Brackets for swing over control box.....	CF 100
Taps.....	152-153

see overleaf for 3 Year Major Service...

## Service interval: 22,000 Actions

At 22,000, the following service parts should be fitted (in addition to Annual Servicing)

## Service Part: Cylinder Service Kit: Part No CF 99 (See picture below)

**CF 99** - Replaces all the internal parts of the pressure vessel.

Order one Service Part per Milking Point:

example: 10 x 20 order 10, or 20 x 20 order 20

### Replacing the complete vessel assembly is:

**Assured:** Complete assembly factory-tested before dispatch.

**Quick:** Internal parts exchanged in-place without moving vessels.

**Simple:** No small parts to take apart. No leaky re-assembly.

**Warranty:** We will give 3 years warranty on serviced assembly.

**\*\* See video of service procedure on our Website\*\***

**Additional Non-Return Valve:** You will also need to replace the external non-return valve, which is included in the service kit.

You may want to change flexible tubes during the service

30 Metres 10mm tube - 151-102B

30 Metres 13mm tube – 151-118

30 metres 20mm tube - 151-127

Thoroughly rinse out header tanks and pipe work with alkaline cleaner.

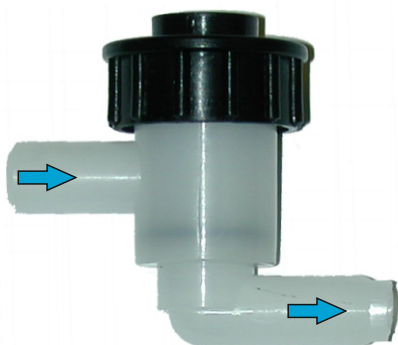
Check water levels: (See picture)

- o Water level must be level with or just below top label on the vessels.
- o **important** - water levels above this level risk contamination of milk.

Best way to set water levels:

- o Set the water in the header tanks level with the overflow
- o Set the top label of the vessels level with the overflow
- o This way if the water level rises it only overflows the header tank

Prevent dust and dirt getting into the header tank.



Non-Return Valve  
CF91



NRV Kit comes  
with 2 x Tube Clamps



Pressure Vessel  
Service Kit  
CF99

# CLUSTER FLUSH POWER SUPPLY

(Switched Mode)



Fuse  
1.5 amp 20mm

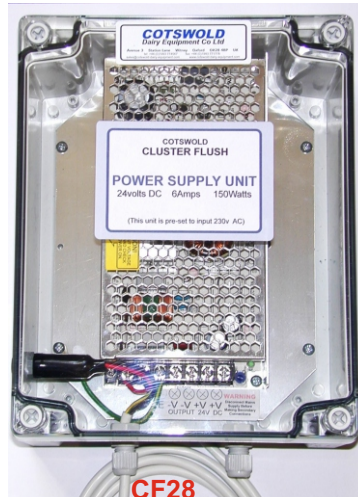
PRODUCT	Qty
Power Supply 200W	1
Box	1
Plate	1
Screws	4
Fuseholder	1
Fuse 1.5A 20mm	1
Boot - Fuseholder	1
Cable Gland	2
Nut - Cable Gland	2
Cable 3-core 0.75 (m)	2

outlets, 24v supply  
to Cluster Flush  
system



## COTSWOLD CLUSTER FLUSH - Major Parts

## CF40 Header Tank Assembly



**CF35**  
**Food Grade**  
**Air Filter Set**



**CF37**  
**1/2" Tap**



## CF91 Milk Valve



## CF28 Power Supply



## CF21 Air Filter Service Kit



**CF29**  
**Digital Controller**  
**(programmed)**



## CF110 Eazy Clip Tool



**CF112**  
**20mm Eazy Clip**

**CF48**  
**Cluster Hanger**



**CF27**  
**Vac Switch**



**CF24**  
**Solenoid**



**CF25 Solenoid**



**CF26**  
**Solenoid**





# DECLARATION OF CONFORMITY



EC – Declaration of Conformity according to;

Low Voltage Directive 2014 / 35 / EU

Electromagnetic Compatibility Directive 2014 / 30 / EU

Restriction of Hazardous Substances Directive 2011 / 65 / EU

Pressure Equipment Directive 2014 / 68 / EU

We, **Cotswold Dairy Equipment Co Ltd**, located at **Avenue 3, Station Lane, Witney, OX28 4BP, United Kingdom**, declare in exclusive responsibility that the **Cluster Flush** meets the essential health and safety requirements of the above mentioned directives.

To ensure presumption of conformity, the product has been assessed for compliance with the following directives and standards either in part or in full.

Directive	Requirements and / or Standards applied
LVD 2014/35/EU	BS EN 61010-1: 2010+A1: 2019 BS EN 61010-2-201: 2018
RoHS 2011/65/EU	EN 50581: 2012
EMC 2014/30/EU	BS EN 61000-6-4: 2007+ A1: 2011 BS EN 61000-6-2: 2005 AC: 2005 BS EN 61000-3-2: 2014 BS EN 61000-3-3: 2013
PED 2014/68/EU	Annex I

TCF reference no. : CE\_TCF\_Cluster\_Flush

Name: Stephen Gibson

Title: Director

Date: 4<sup>th</sup> April 2023

Signature:

A handwritten signature in black ink, appearing to read "S. Gibson", written over a light blue horizontal line.

