

FRB-89434

Water Glycol Purification System

User Manual



Nov 2024

V1.01

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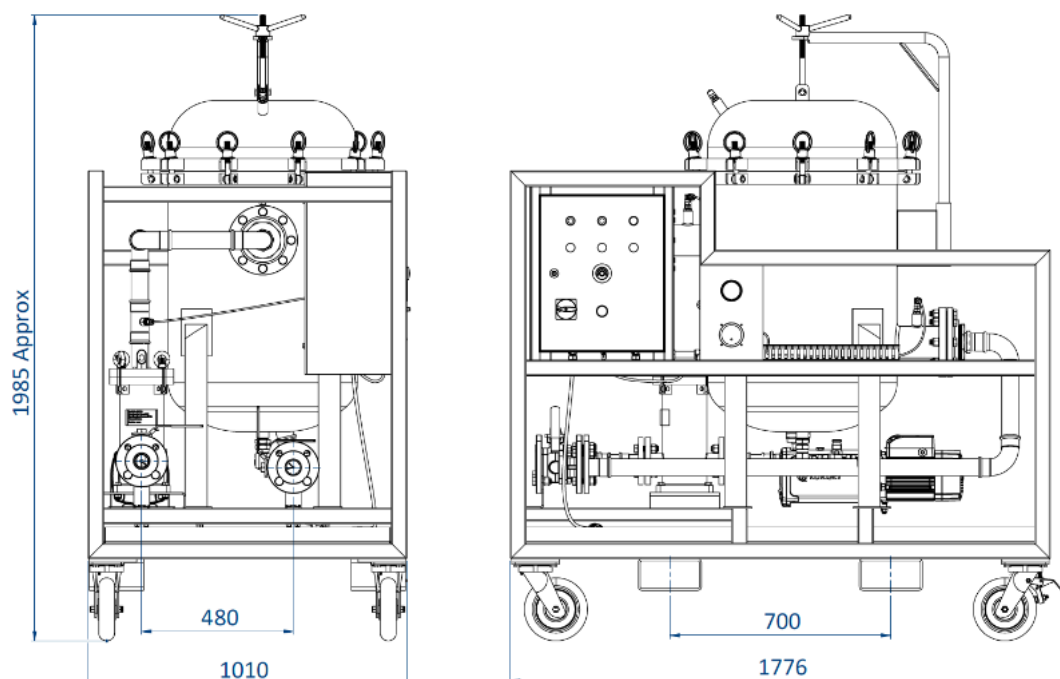
Table of Contents

Specifications	2
Dimensions	2
Fluid Circuit Diagram	3
Product Overview	3
Health, Safety & Environmental Considerations.....	4
Component Identification:	5
Control Panel Layout	6
Starting & Stopping	7
Fault Notification.....	7
Magnet Filter	8
Dimensions	8
Component Identification	8
Technical Data	8
Cleaning	9
Maintenance	9
General notes	9
Pump Information.....	10
Pump Curves	10
Changing the Filter Media	11
.....	11
Wiring Schematics.....	12
Warranty Statement	13
EC Declaration Of Conformity	14

Specifications

Specification	Detail
Dimensions	(w)1776mm x (d)1010 mm x (h)1985 mm
Weight	360kg Approx
Finish	Brushed Finish – Where Possible
Frame material	AISI 304 stst
Voltage	415 VAC 3 P+N+E
Frequency	50 Hz \pm 2%
Current	16 Amp supply
Power	2.2 kW Motor
Duty cycle	Continuous
Noise level	<70dB @ 1 meter
Fluid compatibility	Water/Glycol
Motor protection	Automatic thermal switch
Filtration	Particulate removal
System bypass	N/A
Filter indicators	Mechanical DP Gauge display
Operational Pressure	Up To 5 Bar
Fluid temperature	80°C Max
Flow	Approx 200 L/min
Fluid type	Water/Glycol
Environment	IP55
Connections	2" PN16 Flanged Ball Valve

Dimensions



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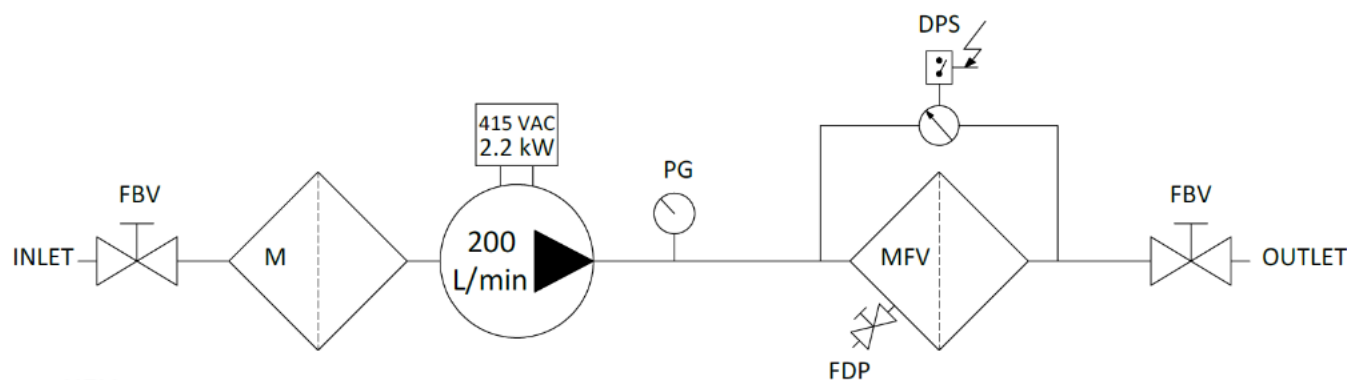
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Fluid Circuit Diagram



KEY:

FBV.....2" PN16 FLANGED BALL VALVE
 M.....MAGNET FILTER
 PG.....PRESSURE GAUGE
 MFV.....MULTI VESSEL FILTER
 FDP.....FILTER DRAIN POERT 1" BSP M C/W BALL VALVE
 DPS.....DIFFERENTIAL PRESSURE GAUGE/SWITCH

Product Overview

The FRB-89434 is a bespoke built water/Glycol purification system, frame is fabricated from AISI 304 grade stst and is fitted with fork-lift channels & with braked swivel wheels for mobility.

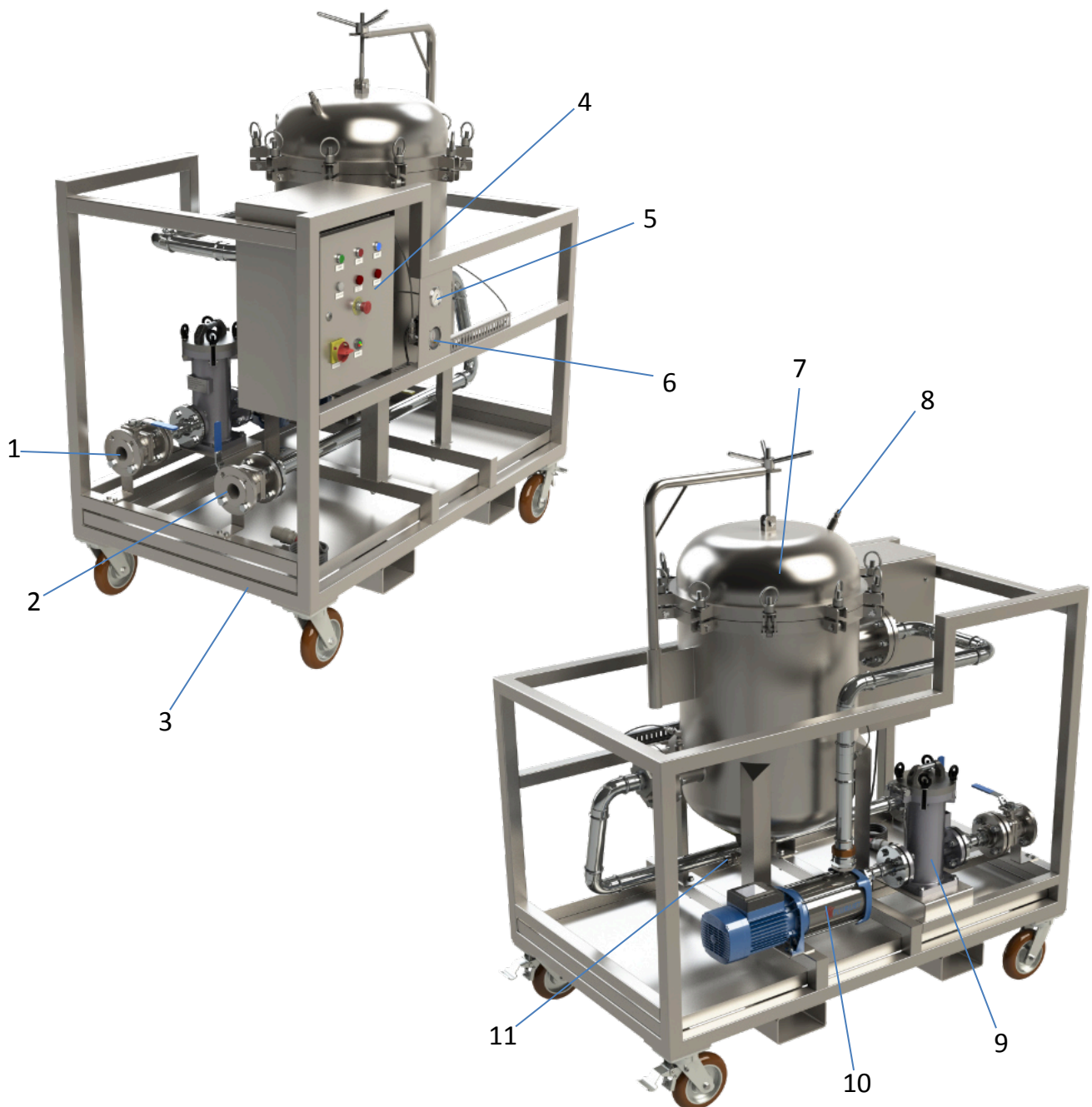
The multi-stage centrifugal pump draws fluid into the system through a 2" PN16 flanged ball valve and is passed through the magnet filter and then on through a multi filter vessel.

A differential pressure gauge/switch is fitted across the filter to allow the operator to monitor how clogged the filter has become, Once the filters are blocked the system will shut down.

Health, Safety & Environmental Considerations

- This equipment should only be used for its intended purpose by competent and authorised persons, inappropriate use of electrical and mechanical equipment could cause serious injury or death.
- Children and minors should NEVER be permitted to operate or move this equipment.
- Do not attempt to open the electrical panel unless you are qualified to do so, risk of electric shock or death.
- Prolonged contact with oil or diesel fuel can cause damage to the skin. Appropriate PPE (personal protective equipment) should be worn when operating the unit e.g. protective gloves, safety glasses, safety shoes etc. Always observe local health and safety requirements.
- The unit should only be used on a flat, even surface and be attended at all times.
- Do not operate switches with wet hands.
- The unit must always be disconnected from the mains supply before carrying out any routine maintenance or repairs.
- Never start or stop the unit by inserting/removing the power supply or other plugs.
- Electrical cables and tubes should be checked for any signs of damage before starting the unit.
- Ensure a spill kit is available in case of any accidental spills.
- Used samples must be disposed of in accordance with local environmental requirements.
- Ensure any water drained from this equipment is disposed of in a responsible manner and in accordance with local environmental requirements.

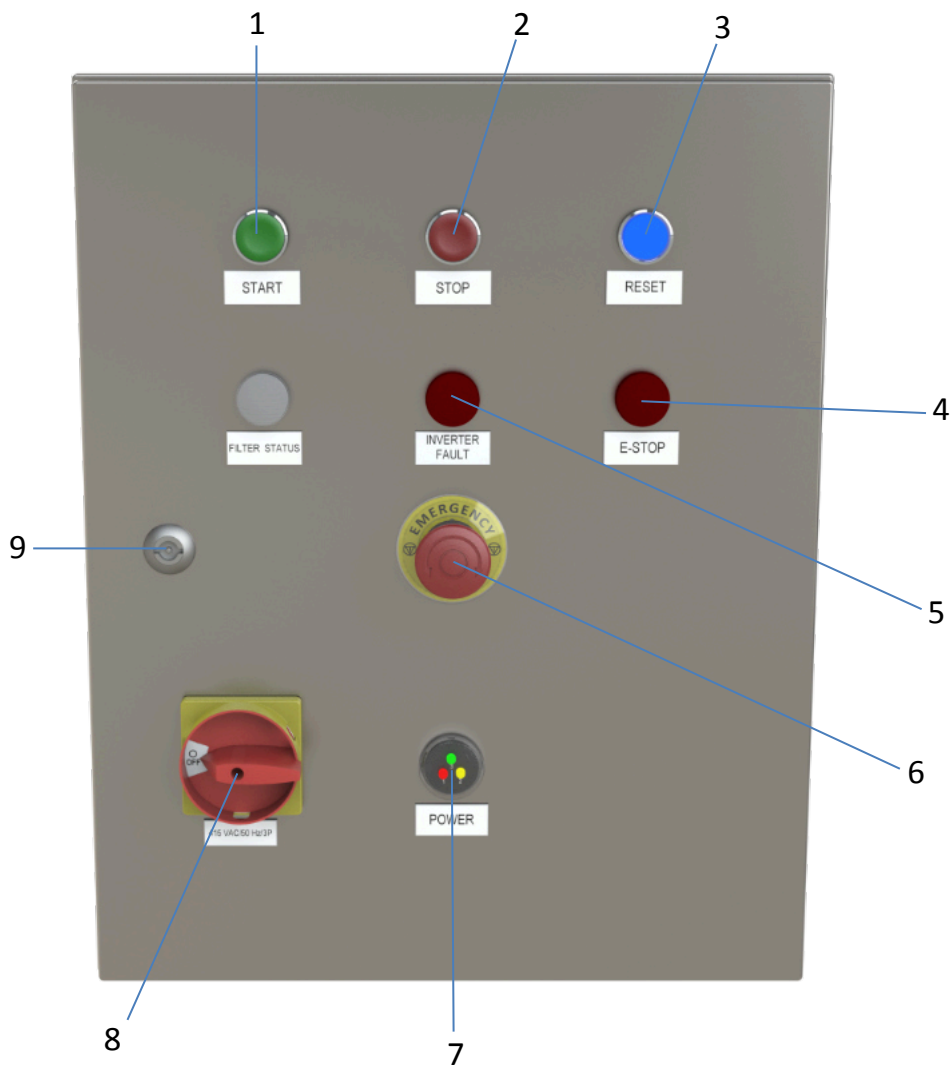
Component Identification:



Key:

1.) Inlet-2" PN16 Flanged Ball Valve	7.) Multi Filter Vessel
2.) Outlet-2" PN16 Flanged Ball Valve	8.) Multi Filter Vent Port
3.) AISI 304 stst Frame c/w Forklift Channels	9.) Magnet Filter
4.) Control Panel	10.) Multistage Pump 200 L/min ATEX motor
5.) System Pressure Gauge	11.) Filter Vessel Drain Port 1" BSP c/w Ball Valve
6.) Differential Pressure Gauge	

Control Panel Layout



Key:

1.) Start Button (Green)	6.) Emergency Stop Button
2.) Stop Button (Red)	7.) Power
3.) Reset Button (Blue)	8.) Mains Isolator Switch
4.) E-stop Activated	9.) Control Panel Door Lock
5.) Inverter Fault	

Starting & Stopping

- Ensure that the system is connected to a suitable 415 VAC 16 Amp Supply.
- Ensure all wet connections are made and the appropriate valves are open.
- Press the GREEN start button the run the system.
- Press the RED stop button to turn the system off.

Fault Notification

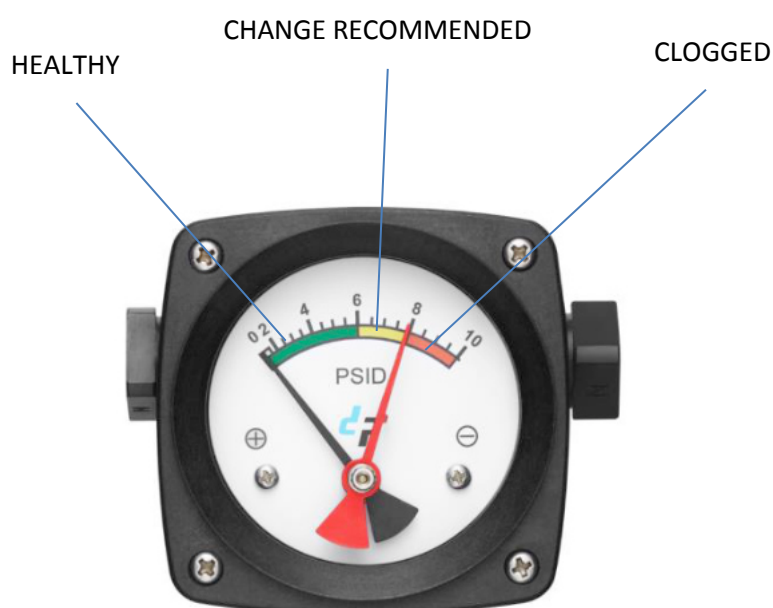
- FILTER STATUS.....Filter Media requires Changing (Illuminates RED).
- INVERTER FAULT.....There is a fault with the Inverter Drive (Illuminates RED).
- E-STOP.....The E-Stop has been activated (Illuminates RED).

NOTE:

Any fault notification will require a manual reset once the fault has been rectified. (BLUE button).

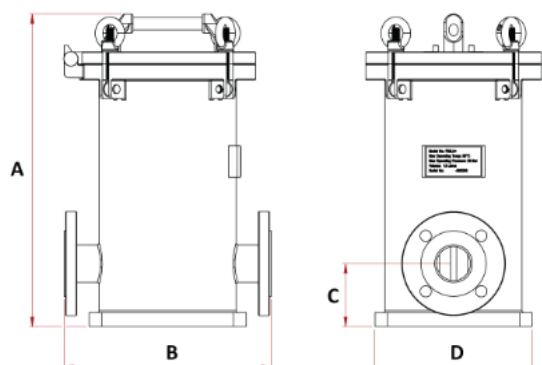
Any activation of the Emergency Stop Button will require a reset of the E-Stop (Pull and twist) and then a Manual reset of the system (BLUE button).

There is a differential pressure gauge (see below) fitted to the system, these use a traffic light style colour display to determine the filter media life, If the needle is in the green there is life in the filter media, if the needle moves into the yellow it is recommended to change the media, and if the needle is in the red the media is blocked. A switch within the gauge will shut the system down when either of the filters become clogged.



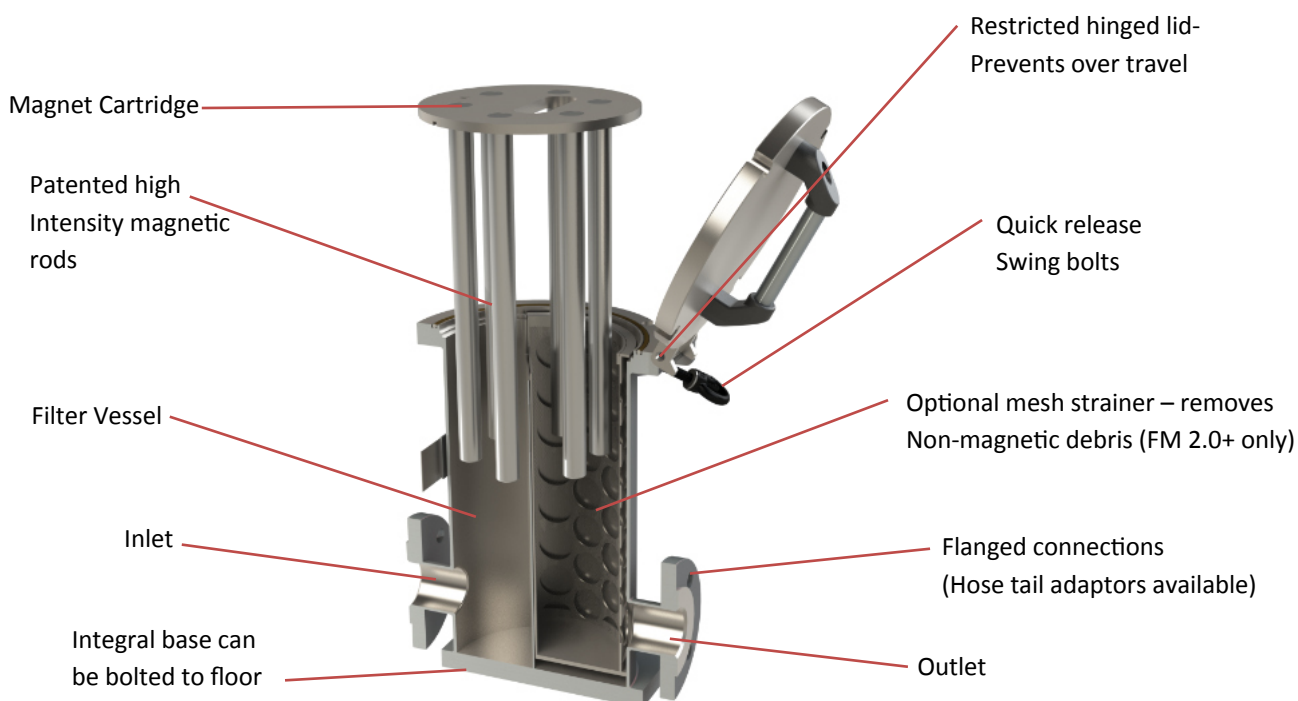
Magnet Filter

Dimensions



Product number	Dimensions mm				
	PN16 FLANGE	A	B	C	D
FM1.5+	1 ½"	395	255	100	180
FM2.0+	2"	442	330	100	250

Component Identification



Technical Data

Maximum Operating temperature:	80°C
Maximum Operating Pressure:	20 bar
Vessel Construction:	Stainless Steel
Seal:	Viton

Product number	PN16 Flange Connection	Vessel Volume	Total Weight	Contamination Capacity	Flow Rate (litres/min)
FM1.5+	1 ½"	4.5 litres	30.5 kg	3 kg	250
FM2.0+	2 ½"	12 litres	54.0 kg	6kg	500

Dismantling & Cleaning the Magnet Filter

Cleaning

Please refer to the cleaning operations below.

- Isolate the filter from the system flow.
- Unscrew the swing bolts on the lid. **(Fig 1)**
- Lift the magnet cartridge assembly out of the body and move it Away to a cleaning station. **(Fig 3)**
- Stand the magnet cartridge on the “cleaning tray” provided.
- Using the “cleaning tool” provided, scrape the bulk of the ferrous contamination off the magnet core-it is not essential to remove all of the collected contamination. **(Fig 4)**
- Remove and clean the mesh basket (if applicable) **(Fig 5)**
- Refit the mesh basket into the vessel.
- Refit the magnet cartridge.
- Clean the seal and re-fit.
- Tighten the swing bolts.
- Switch on system flow.

Do not use corrosive substances to clean the equipment!

Maintenance

General notes

- Keep the system clean, especially the magnetic rods.
- Regularly check the seal for defects.
- Regularly check the tube surface for wear.
- Do not clean with aggressive cleaner.
- Do not clean the magnet rods with water.

(i) Moisture on the bar magnets leads to corrosion and possible Damage to the system.

It is strongly recommended that regular inspections are Carried out to check for moisture and that appropriate action Is taken to ensure the bar magnets are dried thoroughly.

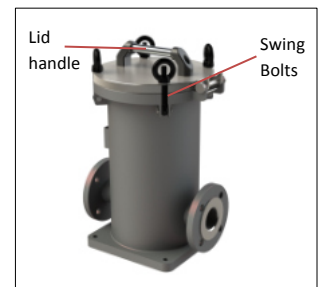


Fig 1



Fig 2

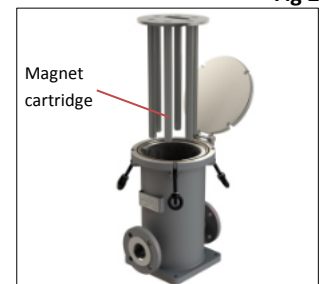


Fig 3

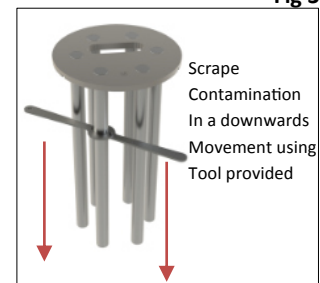


Fig 4

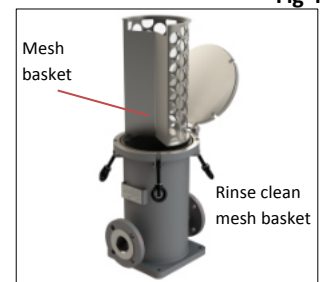
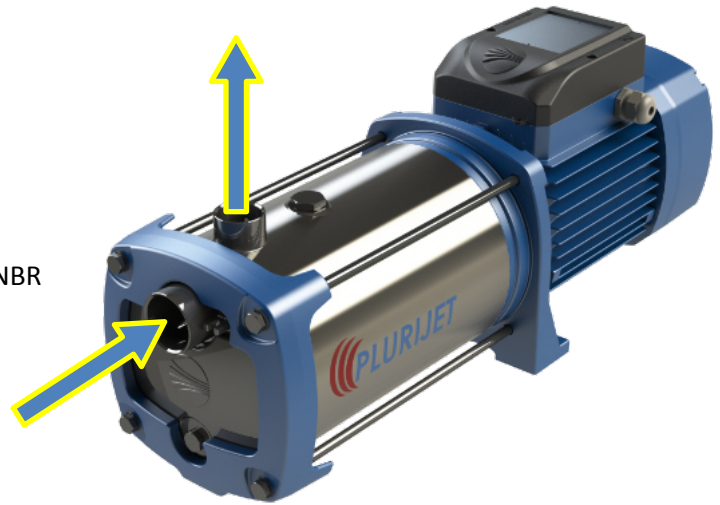


Fig 5

Product number	PN16 Flange Connection	Vessel Volume	Total Weight	Contamination Capacity	Flow Rate (litres/min)
FM1.5+	1 ½"	4.5 litres	30.5 kg	3 kg	250
FM2.0+	2 ½"	12 litres	54.0 kg	6kg	500

Pump Information

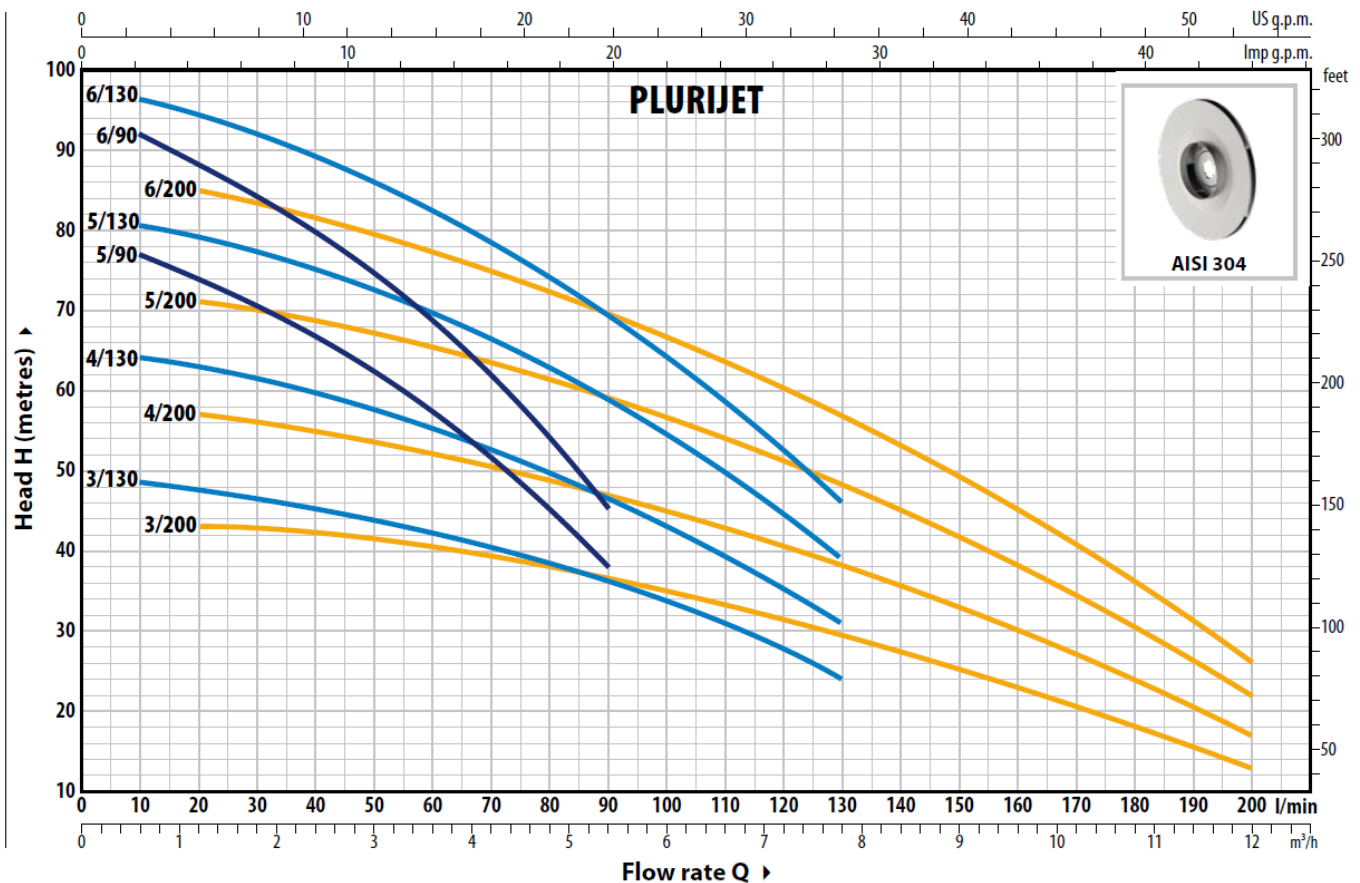
- Weight 25.2Kg
- Motor Size 2.2 Kw
- Voltage 415V 3Ph 50 Hz
- Max Flow Approx 200 L/min
- Max Head 9m
- Material Stainless Steel
- Mechanical Type FN-18 Graphite / Ceramic / NBR
- Impeller Material Stainless Steel / AISI 304



Pump Curves

CURVES AND PERFORMANCE DATA – HS=0 m

50 Hz



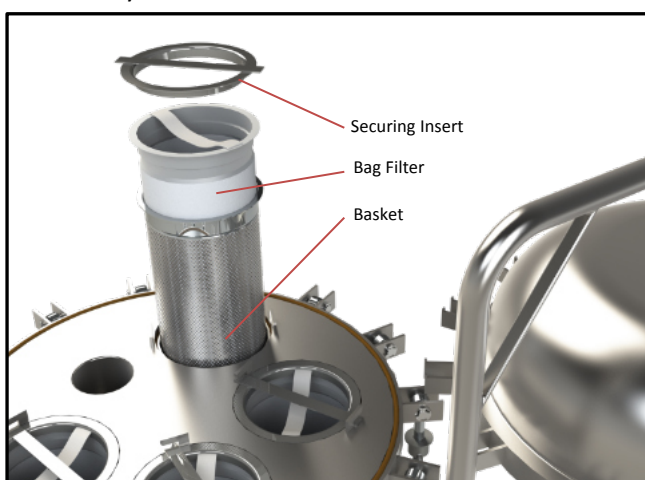
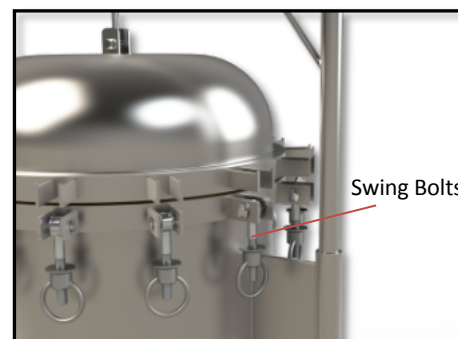
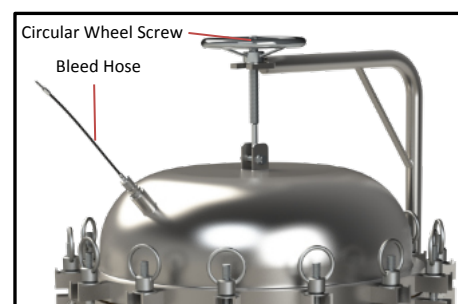
TYPE		POWER (P ₂)		1~3~	Q	m ³ /h														
Single-phase	Three-phase	kW	HP			0	0.3	0.6	1.2	2.4	3.6	5.4	6.0	7.8	8.4	9.6	10.8	12.0		
						0	5	10	20	40	60	90	100	130	140	160	180	200		
PLURIJETm 5/90	PLURIJET 5/90	1.1	1.5	IE2 IE3	H metres	80	78	77	74	67	57	38								
PLURIJETm 6/90	PLURIJET 6/90	1.5	2			96	94	92	88	80	69	45								
PLURIJETm 3/130	PLURIJET 3/130	1.1	1.5			49	49	48.5	47.5	45	42.5	36	33.5	24						
PLURIJETm 4/130	PLURIJET 4/130	1.5	2			65	65	64	63	60	56	46	43	31						
PLURIJETm 5/130	PLURIJET 5/130	1.8	2.5			81	81	80.5	79	75	70	59	54	39						
-	PLURIJET 6/130	2.2	3			97	97	96.5	94.5	90	83	69	64	46						
PLURIJETm 3/200	PLURIJET 3/200	1.1	1.5			44	43.5	43.5	43	42	40.5	37	35	29	27.5	23	18	13		
PLURIJETm 4/200	PLURIJET 4/200	1.5	2			58	57.5	57.5	57	55	52.5	47	45	38	35.5	30	24	17		
PLURIJETm 5/200	PLURIJET 5/200	1.8	2.5			73	72	71.5	71	69	65.5	59	56.5	48	44.5	38	30	22		
-	PLURIJET 6/200	2.2	3			87	86	85.5	85	82	78	69	67	57	53	45	36	26		

Q = Flow rate H = Total manometric head HS = Suction height

Performance curves comply with EN ISO 9906 Grade 3B tolerance limits.

Changing the Filter Media

- Ensure that the filter vessel is drained down and any residual pressure is released via the vent port on the lid, Connect the bleed hose as shown.
- Once all the excess pressure is released undo all the 14 swing bolts and raise the lid for clearance using the large circular wheel on top of the swivel arm.
- Once clearance is sufficient, swing the lid away from the filter vessel to allow access to all the filter elements.
- It is always good practice to remove the filter vessel seal and clean off any debris, then re-seat it back in position. Ensure that it is fitted correctly in the channel.

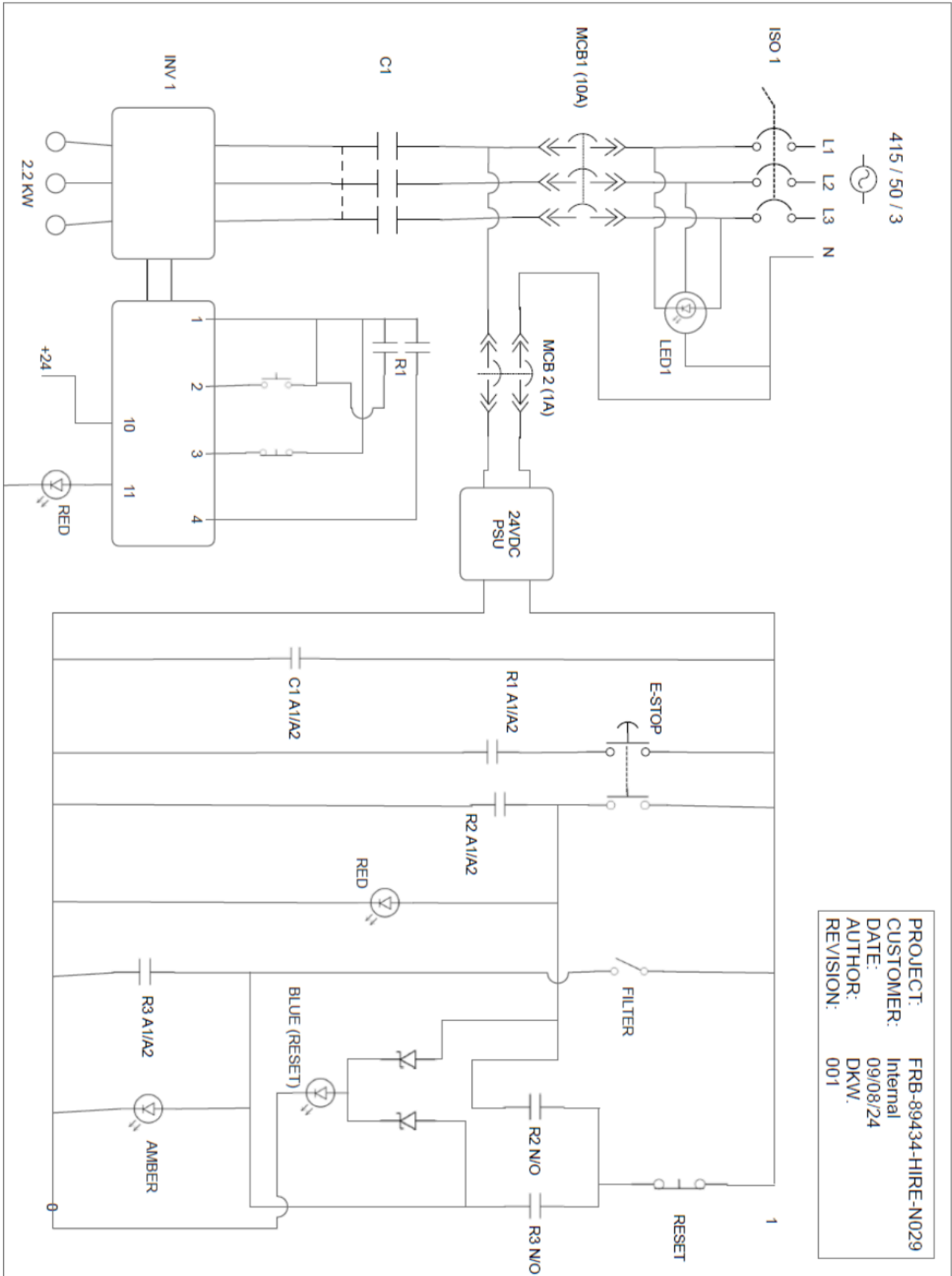


- To remove a basket from the vessel, rotate and release the securing insert and lift out, then using the strap on the top of the filter media bag pull out the dirty filter, it is also good practice to remove each filter basket and give it a clean before replacing the media.
- Once all of the filters have been changed, ensure that all of the securing inserts are in the correct position and that the seal is correctly seated, swing the

lid back into position and lower using the wheel on top of the swing arm.

- Once the lid has been lowered sufficiently reposition and tighten the swing bolts evenly, ensure to tighten the opposite bolt to the last in that sequence and do not over tighten to start with.

Wiring Schematics



PROJECT:	FRB-89434+HIRE-N029
CUSTOMER:	Internal
DATE:	09/08/24
AUTHOR:	DKW
REVISION:	001

Warranty Statement

All products manufactured or distributed by Filtertechnik Ltd are subject to the following, and only the following, Limited Express Warranties, and no others:

For a period of one (1) year from and after the date of delivery of a new Filtertechnik product, Filtertechnik warrants and guarantees only to the original purchaser/user that such a product shall be free from defects of materials and workmanship in the manufacturing process. The warranty period for pumps and motors is specifically limited to ninety (90) days from the date of delivery. A product claimed to be defective must be returned to the place of purchase. Filtertechnik, at its sole option, shall replace the defective product with a comparable new product or repair the defective product. This express warranty shall be inapplicable to any product damaged or impaired by external forces or used for any purpose other than that for which it was originally sold.

THIS IS THE EXTENT OF WARRANTIES AVAILABLE ON THIS PRODUCT. FILTERTECHNIK SHALL HAVE NO LIABILITY WHATSOEVER FOR CONSEQUENTIAL DAMAGES FOLLOWING THE USE OF ANY DEFECTIVE PRODUCT OR BY REASON OF THE FAILURE OF ANY PRODUCT. FILTERTECHNIK SPECIFICALLY DISAVOWS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE (EXCEPT FOR THOSE WHICH APPLY TO PRODUCT OR PART THEREOF THAT IS USED OR BOUGHT FOR USE PRIMARILY FOR PERSONAL, FAMILY OR HOUSEHOLD PURPOSES), WARRANTIES OF DESCRIPTION, WARRANTIES OF MERCHANTABILITY, TRADE USE OR WARRANTIES OF TRADE USAGE.

EC Declaration Of Conformity



EC DECLARATION OF CONFORMITY

Machinery Description

Machine Type:

FRB-89434-HIRE

Serial Number:

Applicable directives

Low voltage Directive 73/23/EEC (as amended by 93/68/EEC)

Electromagnetic Compatibility Directive 2004/108/EC

Machinery Directive 98/37/EC

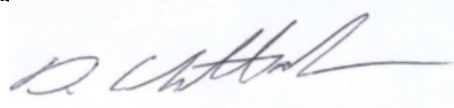
Declaration

We, Filtertechnik Limited, declare that the above referenced product(s), to which the declaration relates, is in conformity with the provisions of the Directives listed above

IMPORTANT

This declaration is only valid when the machinery has been installed, operated and maintained in accordance with the applicable installation, Operation and Maintenance Instructions and safety guidelines contained within as well as instructions supplied for equipment assembled with or intended for use with this equipment.

The technical construction file for this product is maintained at the address given below



Mr D Whittaker, Engineering Director
Filtertechnik Limited, 1 Central Park, Lenton Lane, Nottingham, NG7 2NR
England