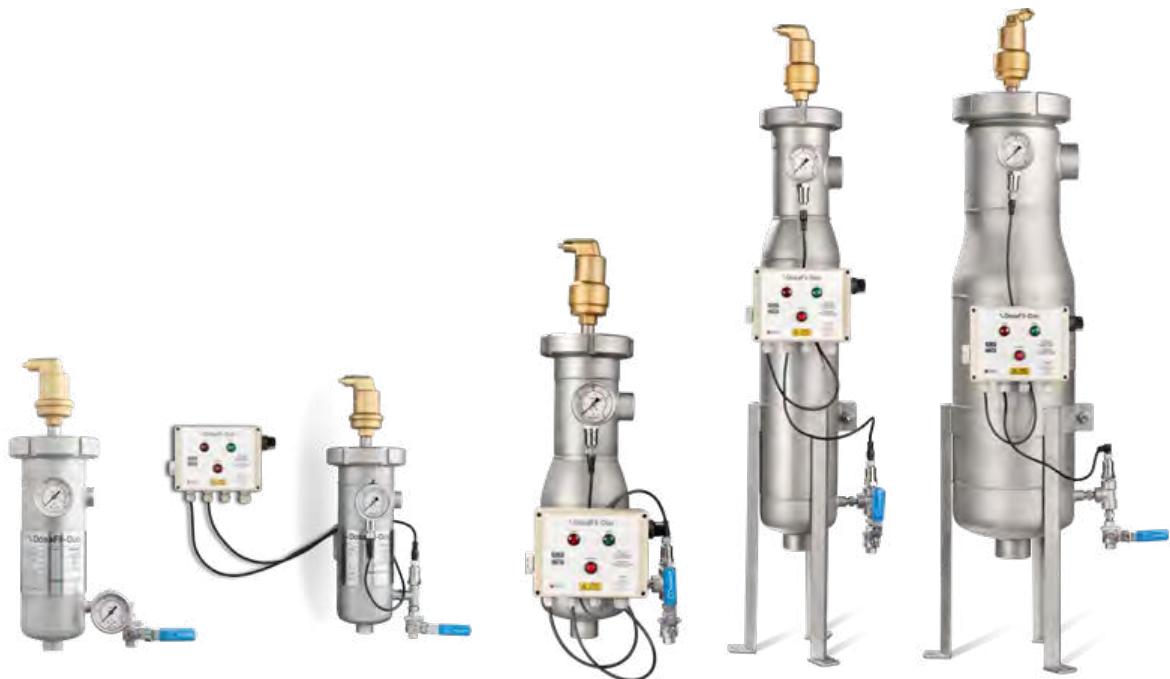


DosaFil-Duo®

INSTALLATION, OPERATION & MAINTENANCE MANUAL



DECLARATION

DosæFil Limited

Declare that we are responsible for the product-

DosæFil-Duo®

**Model numbers: - DFD-Nano, DFD-Nano+, DFD-Micro, DFD-Micro+,
DFD-S, DFD-S+ & DFD-HF+**

**This statement is in accordance with the
following documents and directives**

- **Machine Directive (2006/42/EG)**
- **Low Voltage Directive (2006/95/EG)**
- **EMC Directive (2004/108/EU)**
- **PED Directive(97/23/EU)**
- **EN ISO 12100-2010**
- **EN 60 204-1 EN61000-3, EN61000-6-4-1**
- **EN 61000-6-2**
- **EN 13 445**

**We declare that the equipment referred to in this manual
complies with the above requirements and that factory
approval has been carried out by DosæFil Limited.**

Dated October 2021

Chris Harrison

Technical Director for and behalf of DosæFil Limited

Contents

1. Introduction
 - 1.1 General
 - 1.2 Purpose of manual
 - 1.3 Product marking
 - 1.4 Symbols and conventions
 - 1.5 DoseFil-Duo® Description
 - 1.6 Safety Notes
2. Technical Information
 - 2.1 Technical Description
 - 2.2 Operational Parameters
3. Taking Delivery of the DoseFil-Duo® unit
 - 3.1 DoseFil-Duo® receipt
 - 3.2 Damage Liability
4. Locating the DoseFil-Duo® unit
 - 4.1 Location
 - 4.2 Location Environment
 - 4.3. Pipework Connection
5. DoseFil-Duo® unit installation
6. Replacement Parts
7. Warranty & Limitations
8. General Disclaimer
9. Health, Safety & Environment
10. Commissioning & General Guidance
11. Documentation
12. Troubleshooting Guide
13. Contacts

1. Introduction

1.1 General Remarks

This manual assumes you have ordered a standard DoseFil-Duo®.

It is the responsibility of the installer to read this manual in its entirety, making sure that all sections are fully understood and where necessary completed before attempting to install/operate the equipment. If you have any doubts as to the safe installation of this equipment please contact, our technical help line as detailed later in the manual.

Ensure you read and understand the Safety notice supplied with this equipment and detailed in section 18.3 of this manual.

1.2. Purpose of this manual

This manual describes the functions, installation, operation, and maintenance of the DoseFil-Duo® Nano, Nano+, Micro, Micro+, S, S+, HF & HF+.

This manual provides the user with the necessary information to understand how the equipment functions, together with sufficient information to operate and maintain the equipment in a safe and efficient manner.

This manual is intended for use by competent trained personnel only.

1.3. Product Marking

When delivered the DoseFil-Duo® unit is marked with a vessel plate which gives specific information about the device. This includes the model number working pressure and test pressure. It also contains the unique ID serial number.

1.4 Standard Convention's

Throughout this manual the SI Units of pressure, mass and temperature are used, all manufactured items such as pressure vessels are manufactured to PED 5500 CE.

1.5 DoseFil-Duo® System Description

The DoseFil-Duo® System combines chemical addition capability and high-capacity filtration with automatic air expulsion in a single package. The DoseFil-Duo® is a safe, convenient, and effective way to introduce liquid or solid treatment chemicals into hot or cold closed recirculating water systems while also providing constant side stream filtration and continuous air removal.

1.6 Safety notes

WARNING

ALL NOTES UNDERLINED RED are critical for a successful and safe installation and as such should always be fully adhered to

It is important that this manual is read and fully understood prior to using the DoseFil-Duo® system.

Do not under any circumstances attempt to open the DoseFil-Duo® unit while under pressure- ensure all isolation valves are closed and pressure is vented before opening.

Recommended PPE to be worn when installing/operating the DoseFil-Duo® System:

- Safety Glasses
- Suitable Gloves
- Safety Shoes
- Any additional appropriate PPE for the environment of installation.

WARNING

The water contained in the unit is potentially hot – Ensure appropriate PPE is worn when carrying out routine maintenance and chemical dosing.

Note

Consult your chemical supplier where required to ensure the correct disposal/handling of water drained from the DoseFil-Duo® unit.

Always ensure electrical isolation where necessary prior to working on this system for service and or repairs

Never use any equipment which contains damaged parts

Ensure correct manual handling procedure is used when installing/maintaining the DoseFil Duo® unit.

2. Technical Information

The Standard DoseFil-Duo® Range (standalone units)

Feature	DoseFil-Duo Nano	DoseFil-Duo Nano+	DoseFil-Duo Micro	DoseFil-Duo Micro+	DoseFil-Duo S	DoseFil-Duo S+	DoseFil-Duo HF	DoseFil-Duo HF+
Test Pressure	15 Bar	15 Bar	30 Bar	30 Bar	30 Bar	30 Bar	23 Bar	23 Bar
Maximum Operating Pressure	10 Bar	10 Bar	20 Bar	20 Bar	20 Bar	20 Bar	16 Bar	16 Bar
Vessel PED Certification (PD 5500:2021 Category 3)	CE							
Inlet/Outlet Connection Size	0.75" BSPTF	0.75" BSPTF	1" BSPTF	1" BSPTF	1.25" BSPTF	1.25" BSPTF	1.5" BSPTF	1.5" BSPTF
Designed, Fabricated & Assembled in the UK	YES							
Vessel Materials of Construction	304 Stainless Steel							
Vessel Mounting	Wall	Wall	Wall	Wall	Floor	Floor	Floor	Floor
Filtration Range	50,25,10,5,1,0.5µm							
Minimum Fluid Operating Temperature (all components)	0°C							
Maximum Fluid Operating Temperature (all components)	90°C	90°C	130°C	125°C	130°C	125°C	130°C	125°C
Maximum Flow Rate**	30.5 l/min	30.5 l/min	61 l/min	61 l/min	125 l/min	125 l/min	212.5 l/min	212.5 l/min
Maximum System Volume*	40,000 lt	40,000lt	87,840lt	87,840lt	180,000lt	180,000lt	306,000lt	306,000lt
Solid Chemical Dosing Capability	YES							
Liquid Chemical Dosing Capacity	2.5lt	2.5lt	4.5lt	4.5lt	9.5lt	9.5lt	19lt	19lt
System Standard Warranty	5 Years							
Automatic Air Vent Fitted as Standard	YES							
Automatic Air Vent Standard Warranty	20 Years							
Pressure Gauge Fitted as Standard	YES 10bar	YES 10bar	YES 20bar					
Vessel Drain/Clean Water Sample Point Fitted as Standard	YES							
Integrated Coalescing Assembly Using Proven Technology	YES							
Custom Insulated Jacket Supplied	YES							
DP Sensors with Local Audible & Visual Alarms Fitted as Standard	UPGRADEABLE	YES	UPGRADEABLE	YES	UPGRADEABLE	YES	UPGRADEABLE	YES
DP Controller Power Supply Requirements	N/A	240v 13amp						
DP Control Voltage	N/A	24v	N/A	24v	N/A	24v	N/A	24v
DP Controller Enclosure IP Rating	N/A	IP65	N/A	IP65	N/A	IP65	N/A	IP65
BMS Outputs on DP Alarms Fitted as Standard	UPGRADEABLE	2 x VFC						
Weight Empty	7.5kg	8.5kg	16kg	17kg	20kg	21kg	36kg	37kg
Operating Weight	10kg	11kg	20.5kg	21.5kg	30kg	30.5kg	55kg	56kg

* based on BSRIA guidance of 1 x system volume in 24hrs

** based on clean 50 micron filter bags installed

The DoseFil-Duo® PV Range 8-10bar

Feature	DoseFil-Duo Nano+PV 10bar	DoseFil-Duo Micro+PV 10bar	DoseFil-Duo S+PV 10bar	DoseFil-Duo HF+PV 8bar
Vessel Test Pressure	15 Bar	30 Bar	30 Bar	23 Bar
Maximum Operating Pressure	10 Bar	10 Bar	10 Bar	8 Bar
Vessel PED Certification (PD 5500:2021 Category 3)	CE	CE	CE	CE
Inlet/Outlet Connection Size	0.75" BSPTF	1.25" PN25 Flange	1.25" PN25 Flange	2" PN25 Flange
Designed, Fabricated & Assembled in the UK	YES	YES	YES	YES
Vessel Materials of Construction	304 Stainless Steel	304 Stainless Steel	304 Stainless Steel	304 Stainless Steel
Vessel Mounting	Backboard Mounted	Skid Mounted	Skid Mounted	Skid Mounted
Filtration Range	50,25,10,5,1,0.5µm	50,25,10,5,1,0.5µm	50,25,10,5,1,0.5µm	50,25,10,5,1,0.5µm
Minimum Fluid Operating Temperature (all components)	0°C	0°C	0°C	0°C
Maximum Fluid Operating Temperature (all components)	90°C	120°C	120°C	120°C
Maximum Flow Rate**	45 l/min	61 l/min	125 l/min	212.5 l/min
Maximum System Volume*	15,000lt	87,840lt	180,000lt	306,000lt
Solid Chemical Dosing Capability	YES	YES	YES	YES
Liquid Chemical Dosing Capacity	2.5lt	4.5lt	9.5lt	19lt
System Standard Warranty	5 Years	5 Years	5 Years	5 Years
Automatic Air Vent Fitted as Standard	YES	YES	YES	YES
Automatic Air Vent Standard Warranty	20 Years	20 Years	20 Years	20 Years
Pressure Gauge Fitted as Standard	YES 10bar	YES 20bar	YES 20bar	YES 20bar
Vessel Drain/Clean Water Sample Point Fitted as Standard	YES	YES	YES	YES
Integrated Coalescing Assembly Using Proven Technology	YES	YES	YES	YES
Custom Insulated Vessel Jacket Supplied	YES	YES	YES	YES
DP Sensors with Local Audible & Visual Alarms Fitted as Standard	YES	YES	YES	YES
DP Controller Power Supply Requirements	240v 13amp	240v 13amp	240v 13amp	240v 13amp
DP Control Voltage	24v	24v	24v	24v
DP Controller Enclosure IP Rating	IP65	IP65	IP65	IP65
BMS Outputs on DP Alarms Fitted as Standard	2 x VFC	2 x VFC	2 x VFC	2 x VFC
Base Plate & Pipework Material	Stainless Steel 304 & 316	Stainless Steel 304 & 316	Stainless Steel 304 & 316	Stainless Steel 304 & 316
Pump Supply Voltage	240v/1p/50hz	240v/1p/50hz	240v/1p/50hz	240v/1p/50hz
Pump Manufacturer & Model	Grundfos Magna 3	Grundfos CRIE	Grundfos CRIE	Grundfos CRIE
Pump Type	high-efficiency circulator pump with smart control	Vertical Multistage Centrifugal VSD Controlled	Vertical Multistage Centrifugal VSD Controlled	Vertical Multistage Centrifugal VSD Controlled
Pump Design Flow & Factory Preset	2.7m³/hr @ 0.6bar delivery	3.66m³/hr @ 2bar delivery	7.5m³/hr @ 2bar delivery	12.75m³/hr @ 2bar delivery
Weight Empty (kg)	25.5kg	85kg	98.5kg	144kg
Operating Weight (kg)	28kg	95kg	114.5kg	173kg
Dimensions (L x D x H) (mm) (D = distance unit protrudes from wall mounting)	710 x 300 x 550	x	x	x
Dimensions (L x W x H) (mm)	x	850 x 500 x 1135	850 x 500 x 1485	950 x 600 x 1535

* based on BSRIA guidance of 1 x system volume in 24hrs

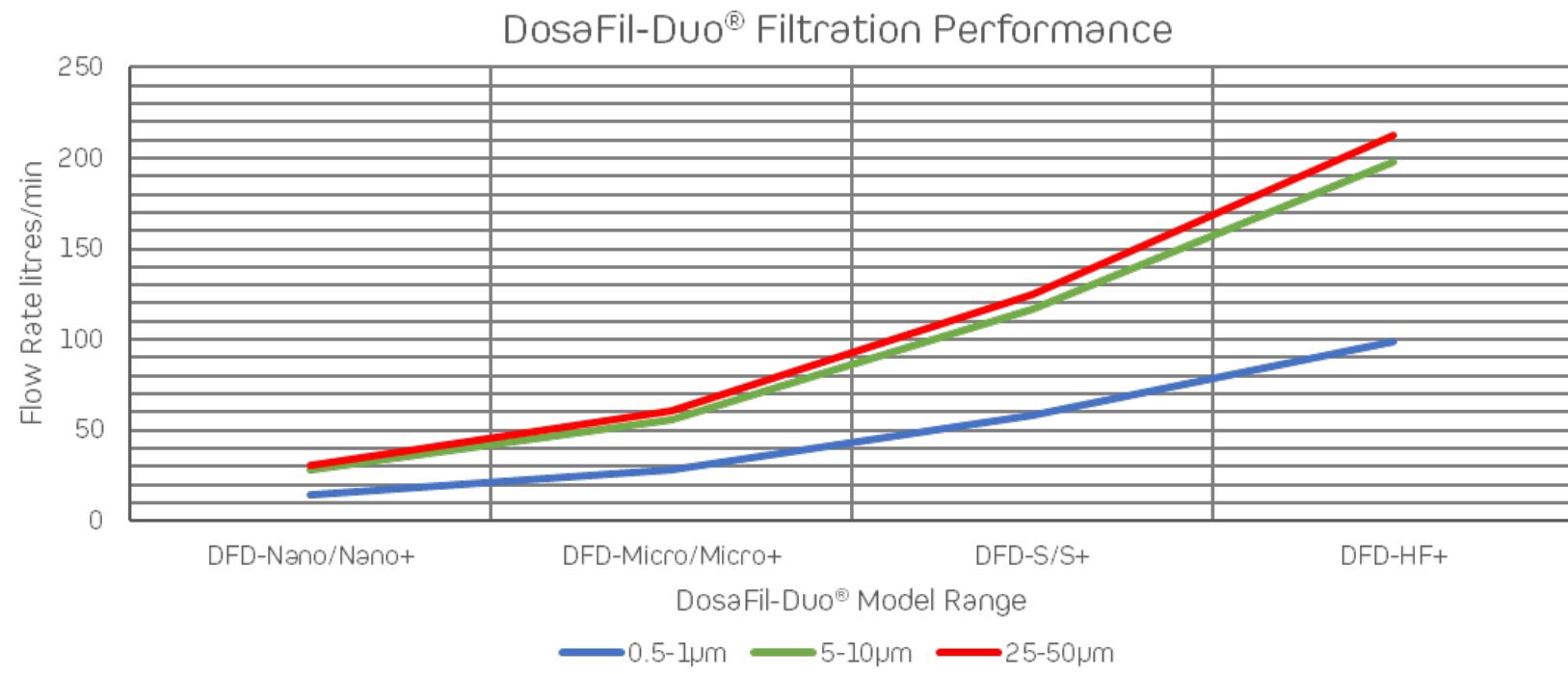
** based on clean 50 micron filter bags installed

The DosaFil-Duo®PV Range 16-20bar

Feature	DosaFil-Duo Micro+PV 20bar	DosaFil-Duo S+PV 20bar	DosaFil-Duo HF+PV 16bar
Vessel Test Pressure	30 Bar	30 Bar	23 Bar
Maximum Operating Pressure	20 Bar	20 Bar	16 Bar
Vessel PED Certification (PD 5500:2021 Category 3)	CE	CE	CE
Inlet/Outlet Connection Size	1.25" PN25 Flange	1.25" PN25 Flange	2" PN25 Flange
Designed, Fabricated & Assembled in the UK	YES	YES	YES
Vessel Materials of Construction	304 Stainless Steel	304 Stainless Steel	304 Stainless Steel
Vessel Mounting	Skid Mounted	Skid Mounted	Skid Mounted
Filtration Range	50,25,10,5,1,0.5µm	50,25,10,5,1,0.5µm	50,25,10,5,1,0.5µm
Minimum Fluid Operating Temperature (all components)	0°C	0°C	0°C
Maximum Fluid Operating Temperature (all components)	120°C	120°C	120°C
Maximum Flow Rate**	61 l/min	125 l/min	212.5 l/min
Maximum System Volume*	87,840lt	180,000lt	306,000lt
Solid Chemical Dosing Capability	YES	YES	YES
Liquid Chemical Dosing Capacity	4.5lt	9.5lt	19lt
System Standard Warranty	5 Years	5 Years	5 Years
Automatic Air Vent Fitted as Standard	YES	YES	YES
Automatic Air Vent Standard Warranty	20 Years	20 Years	20 Years
Pressure Gauge Fitted as Standard	YES 20bar	YES 20bar	YES 20bar
Vessel Drain/Clean Water Sample Point Fitted as Standard	YES	YES	YES
Integrated Coalescing Assembly Using Proven Technology	YES	YES	YES
Custom Insulated Vessel Jacket Supplied	YES	YES	YES
DP Sensors with Local Audible & Visual Alarms Fitted as Standard	YES	YES	YES
DP Controller Power Supply Requirements	240v 13amp	240v 13amp	240v 13amp
DP Control Voltage	24v	24v	24v
DP Controller Enclosure IP Rating	IP65	IP65	IP65
BMS Outputs on DP Alarms Fitted as Standard	2 x VFC	2 x VFC	2 x VFC
Base Plate & Pipework Material	Stainless Steel 304 & 316	Stainless Steel 304 & 316	Stainless Steel 304 & 316
Pump Supply Voltage	240v/1p/50hz	240v/1p/50hz	240v/1p/50hz
Pump Manufacturer & Model	Grundfos CRNE-SF	Grundfos CRNE-SF	Grundfos CRNE-SF
Pump Type	Vertical Multistage Centrifugal VSD Controlled	Vertical Multistage Centrifugal VSD Controlled	Vertical Multistage Centrifugal VSD Controlled
Pump Design Flow & Factory Preset	3.66m³/hr @ 2bar delivery	7.5m³/hr @ 2bar delivery	12.75m³/hr @ 2bar delivery
Weight Empty (kg)	85kg	98.5kg	144kg
Operating Weight (kg)	95kg	114.5kg	173kg
Dimensions (L x W x H) (mm)	850 x 500 x 1135	850 x 500 x 1485	950 x 600 x 1535

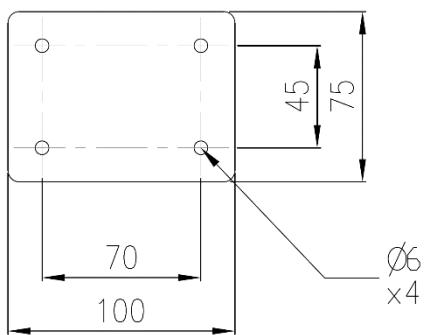
* based on BSRIA guidance of 1 x system volume in 24hrs

** based on clean 50 micron filter bags installed

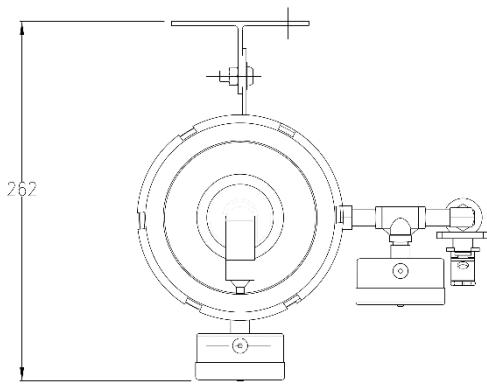


DosæFil-Duo® Vessel General Arrangement Drawings

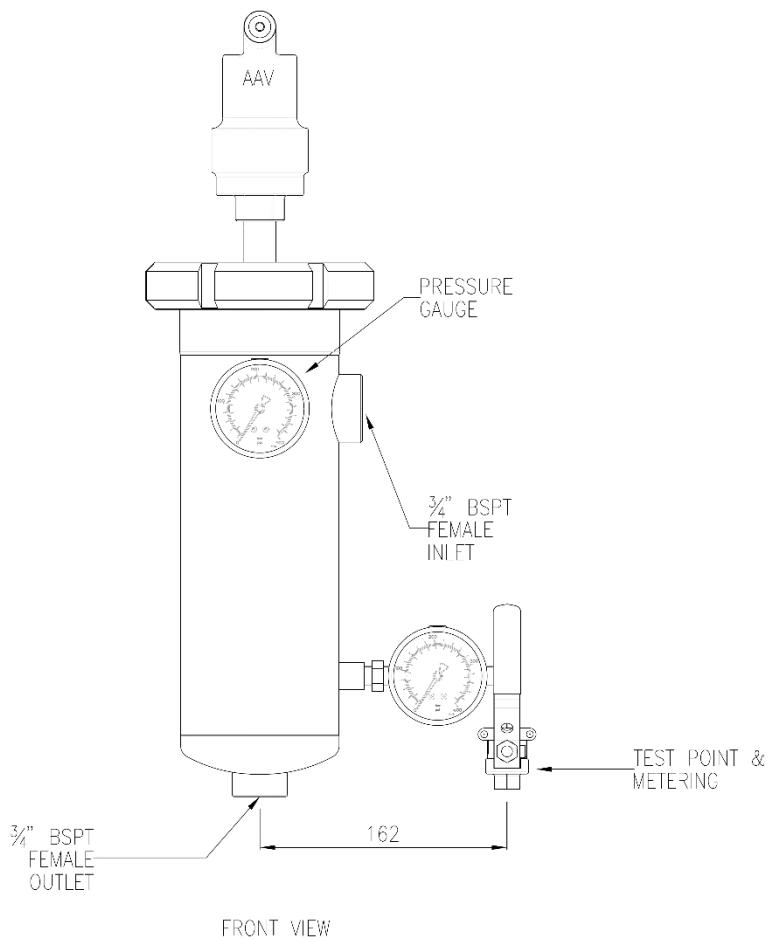
DoseFil-Duo® Nano



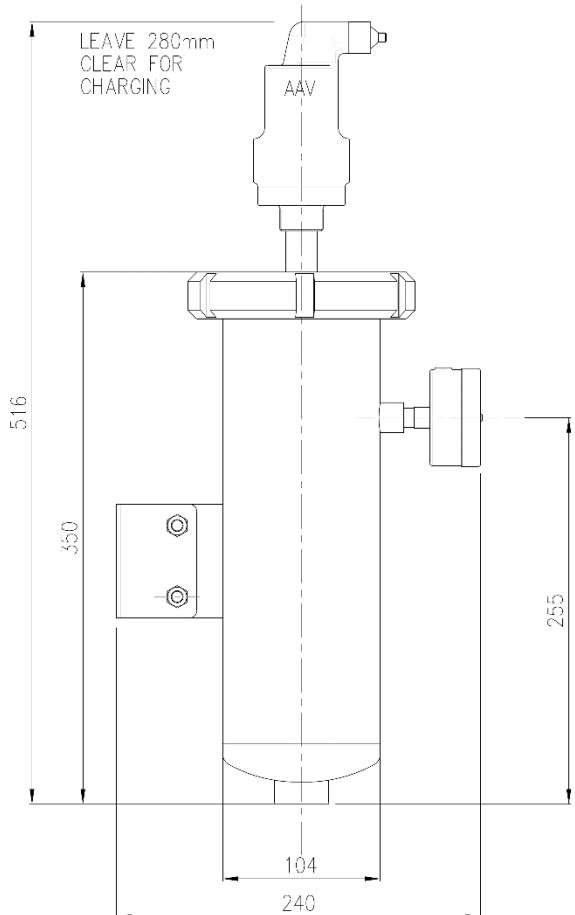
VIEW ON ARROW A
SHOWING MOUNTING HOLES



PLAN VIEW

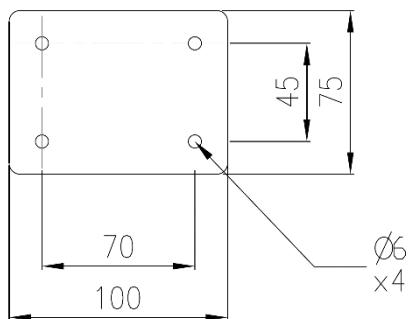


FRONT VIEW

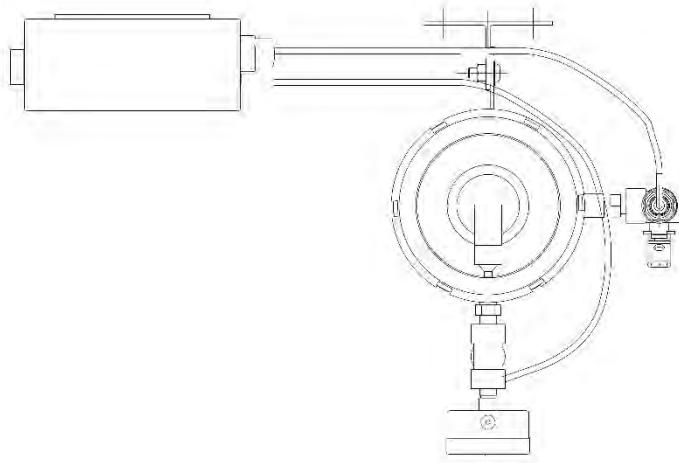


SIDE VIEW

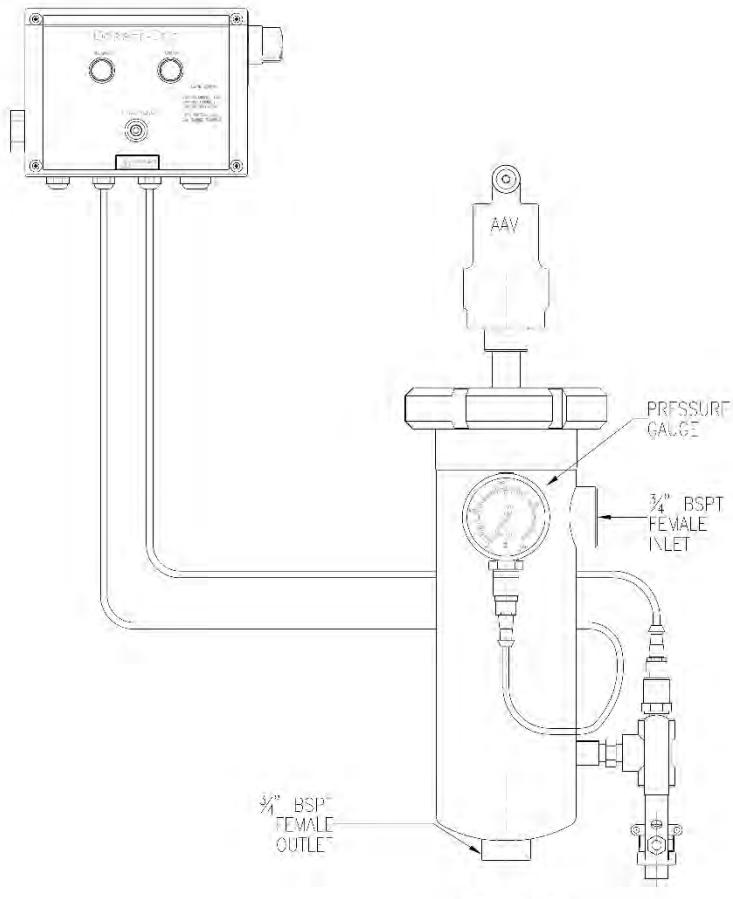
DoseFil-Duo® Nano+



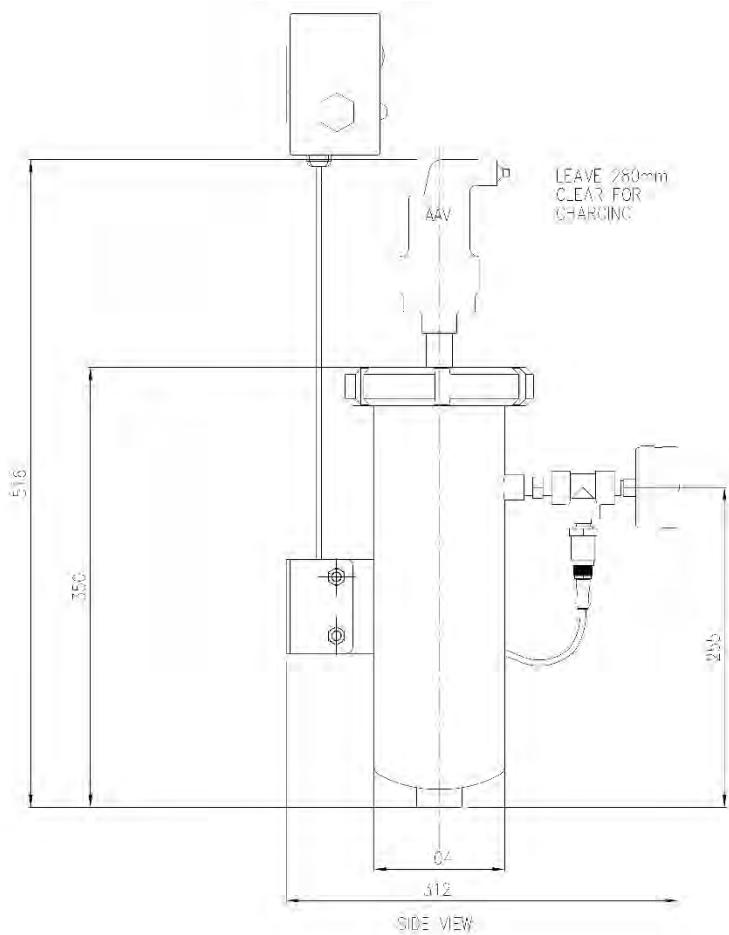
VIEW ON ARROW A
SHOWING MOUNTING HOLES



PLAN VIEW

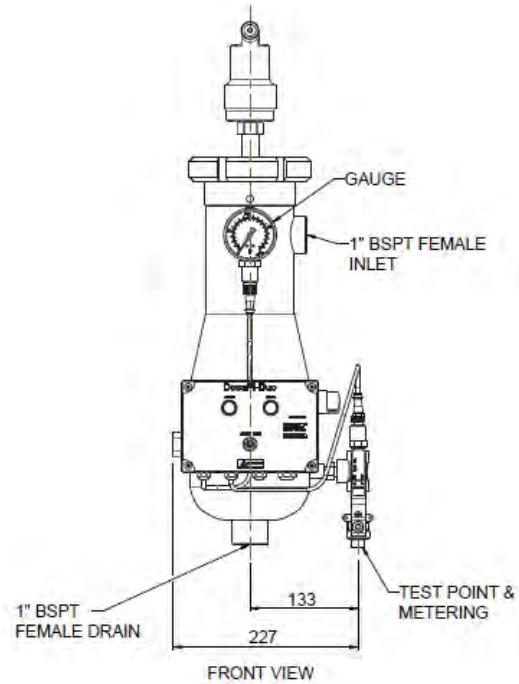
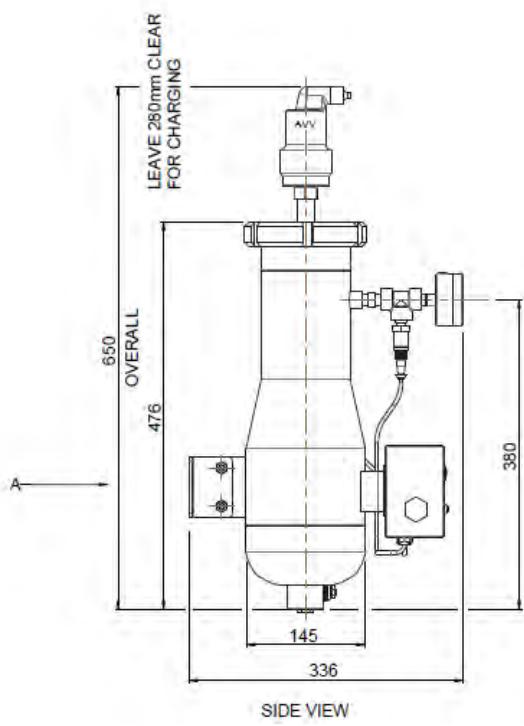
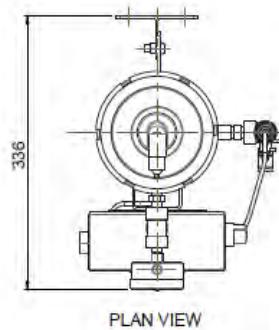
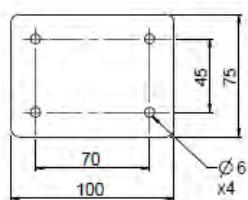


FRONT VIEW

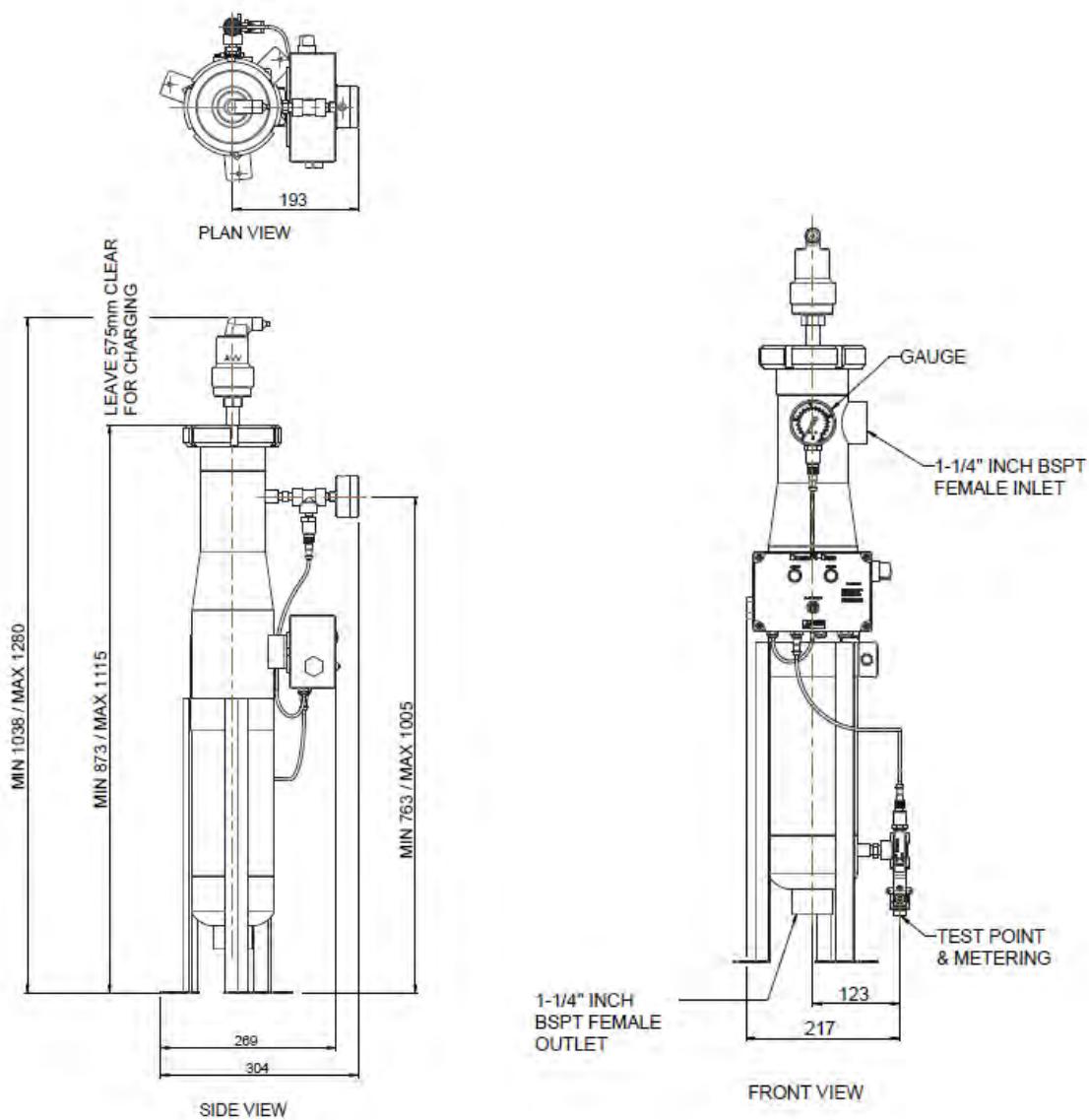


SIDE VIEW

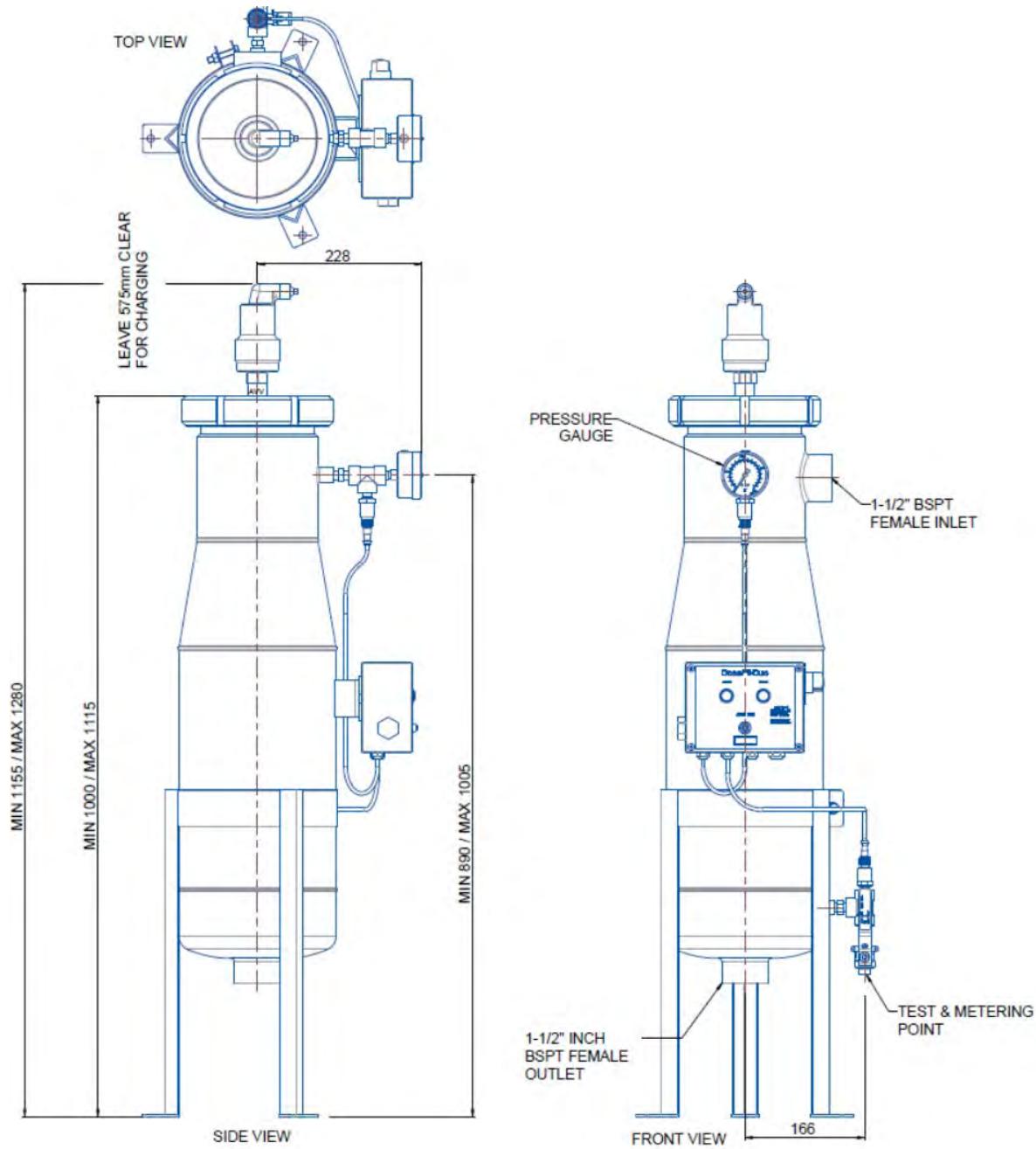
DoseFil-Duo® Micro+



DoseFil-Duo® S+



DoseFil-Duo® HF+



3. Taking delivery of your DoseFil-Duo®

- 3.1. Please check all items have been received undamaged within 24 hours of receipt of delivery All shortages or damage must be reported to the supplier within 24 hours of delivery.
- 3.2. Before the carrier leaves the site, ensure there is no obvious damage to the packaging. If there is evidence of damage at all, note this on the delivery documentation.

4. Locating your DoseFil-Duo® unit

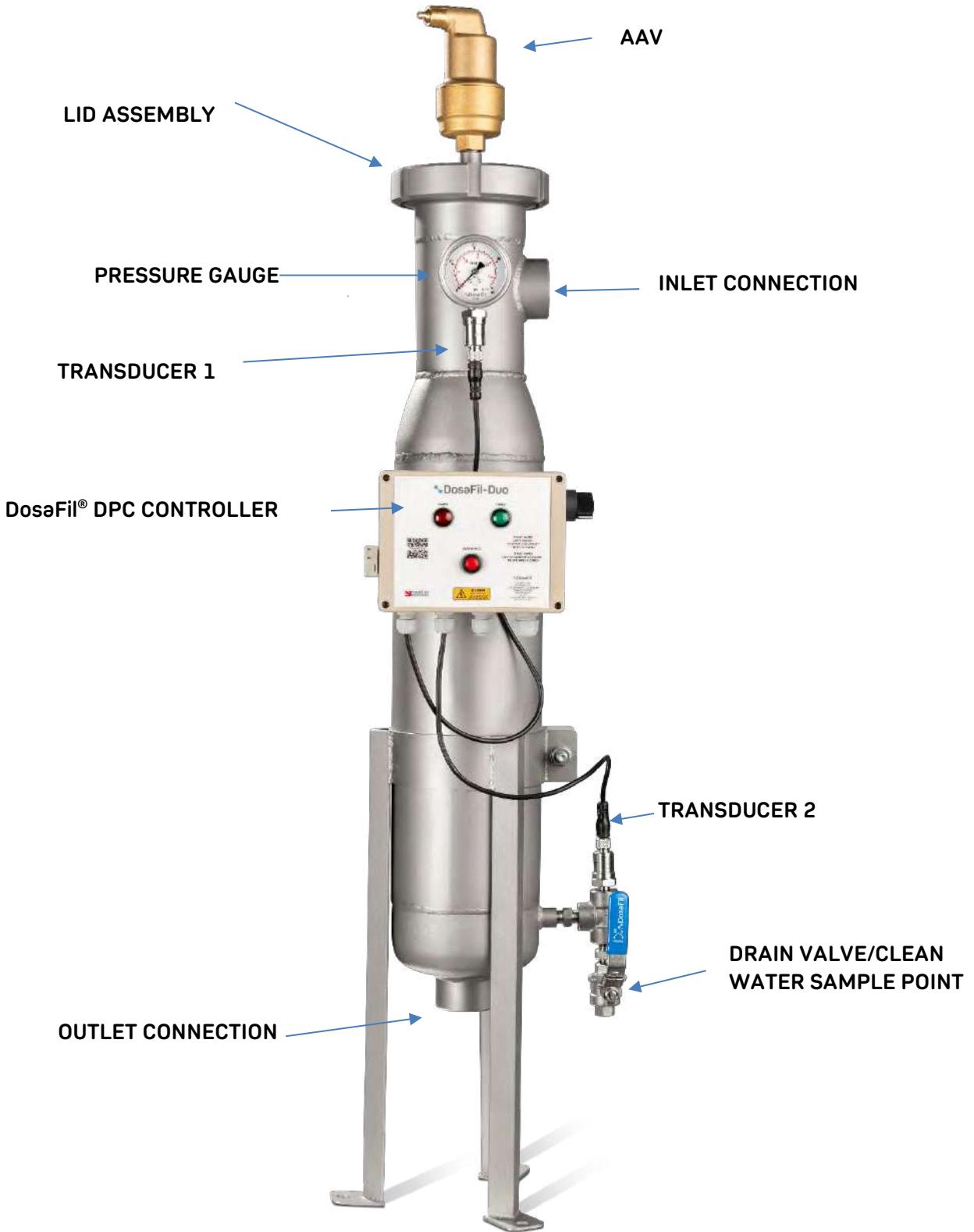
- 4.1 Standalone DoseFil-Duo® units are supplied with either a wall mounting bracket (Nano & Micro vessels) or adjustable support legs which can be secured directly to the floor (S & HF vessels). DoseFil-Duo® PV units are either backboard mounted for easy installation (Nano+PV) or skid mounted (Micro+PV, S+PV & HF+PV). Skid mounted units are supplied on wheels for easy location. Adjustable feet are supplied with skid mounted units which must be used on permanent installations. Wheels should be removed and the threaded adjustable feet installed into the threaded mounting points in the centre of each foot pad on the skid.

IT IS THE RESPONSIBILITY OF THE INSTALLER NOT TO ATTEMPT TO LIFT THE VESSEL BY ANY METHOD WHILST CHARGED WITH WATER OR USING UNSUITABLE EQUIPMENT/METHODS.

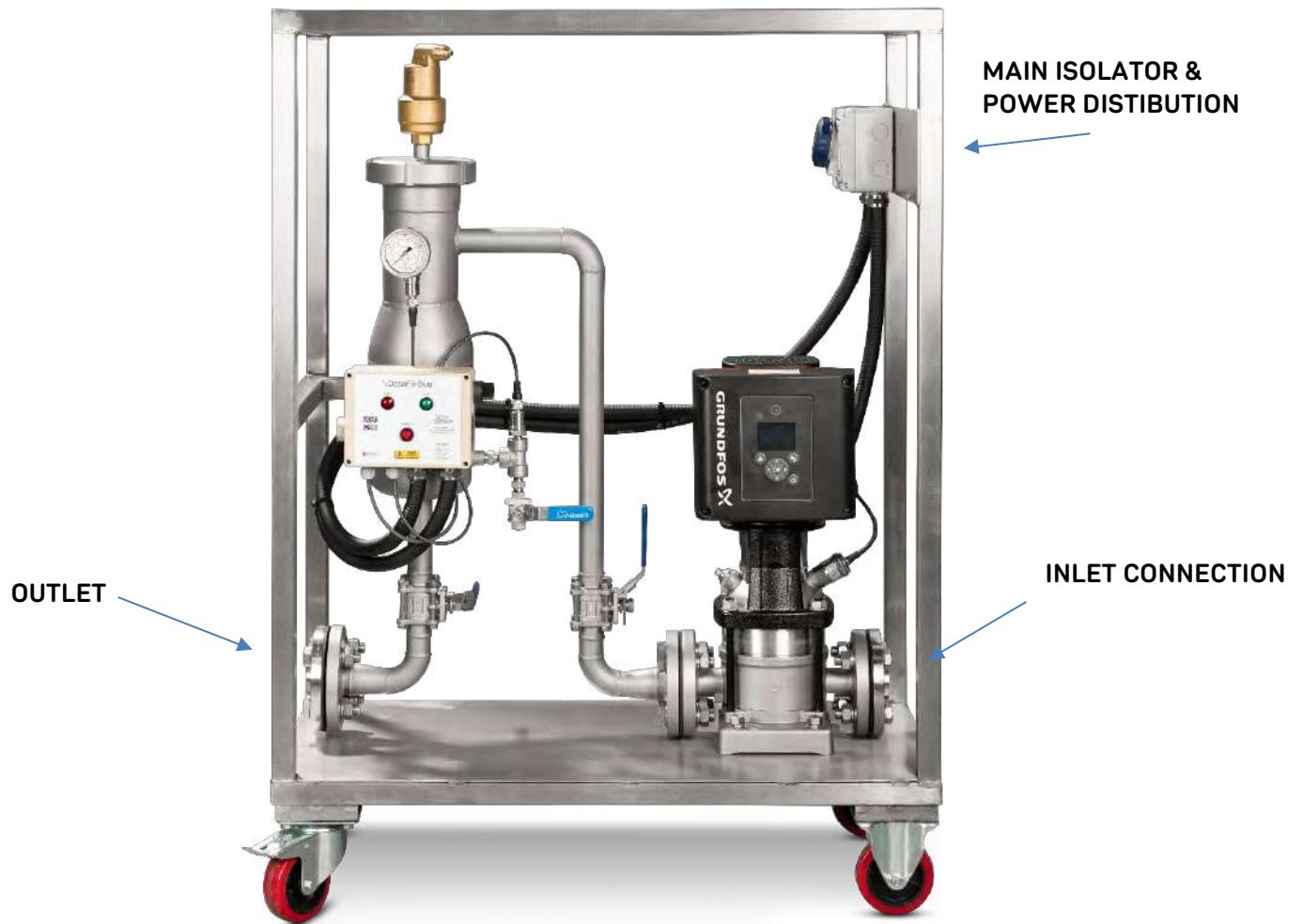
- 4.2 Locate the device in its final position ensuring it is stable and level and access is available to dismantle the unit in place in order to carry out any routine maintenance that may be necessary. Once these criteria are satisfied, fix the device in place. Suitable space above the unit is required to allow for filter bag replacement and chemical additions. 240VAC 13amp supply is required to power the DFD-DPC smart controller. DoseFil-Duo® PV units are supplied prewired with a main power isolator which should be connected to the site power supply via a fused isolator..
- 4.3 The device should not be installed outside, and not subjected to ambient temperatures of below +2°C without heat tracing.
- 4.4 Assemble pipework and any loose components supplied with the filter such as pipework, automatic air vent, pressure gauges and sample points as supplied and check all connections for tightness, as fittings may have worked loose during transit, remembering not to over tighten the connections

5. DosaFil-Duo® Installation

- The DosaFil-Duo® must be connected across flow (discharge side of the main recirculation pumps) and return pipework such that is in constant flow to ensure effective system water conditioning and optimum dissolution and mixing of chemicals added via the device. If installing a DosaFil-Duo®PV device this can be located on the flow – flow or the return – return of pipework of the system as the integral pump will provide constant flow through the DosaFil-Duo®.
- Flow and return pipework to the DosaFil-Duo® should be same size as the inlet/outlet connections on the device to ensure good flow across the DosaFil-Duo®. The pipework should be of materials already present in the system and suited to the pressure, temperature, and water treatment program. It is advised to avoid using copper unless there is already copper present in the system.
- It is recommended that either a commissioning valve/set or Pressure Independent Control Valve (PICV) is installed on the return pipework after the DosaFil-Duo® on the clean return, to allow for control of flow through the device itself and system balancing. This should be installed into the pipe work and not directly into the outlet of the DosaFil-Duo®. These devices should be correctly sized for the size of pipe work and flow required to the model of DosaFil-Duo® being installed. The control valve should be in a location with easy access to enable easy adjustment when required.
- All DosaFil-Duo® models except for the DosaFil-Duo® Nano, Micro, S & HF feature an integrated DosaFil® DPC controller. This package uses transducer technology to determine when the pressure drop across the filter exceeds the set limit which indicates the filter bag is fouled and requires changing. There are two alarm states. The first alarm state (Red lamp flashing only) is an early warning that the differential pressure is approaching the set point. When the pressure differential set point is reached, a second alarm state is triggered (Red lamp permanently illuminated & audible alarm) to alert the user/operator of the need to change the filter. The controller also features volt free contacts on both alarm states (1 x volt free contact for each alarm state) which can link the DosaFil® DPC alarm to BMS for remote monitoring. If no BMS is available a DosaFil® DPC Alert dialer system can be installed to communicate alarm states via text message.
- The DosaFil-Duo® Nano, Micro, S & HF devices have standard pressure gauges installed either side of the filter section. This allows the differential pressure (ΔP) across the filter to be monitored visually measuring bag fouling. Filter bags should be changed when the differential pressure exceeds 0.6-1.0 bar.



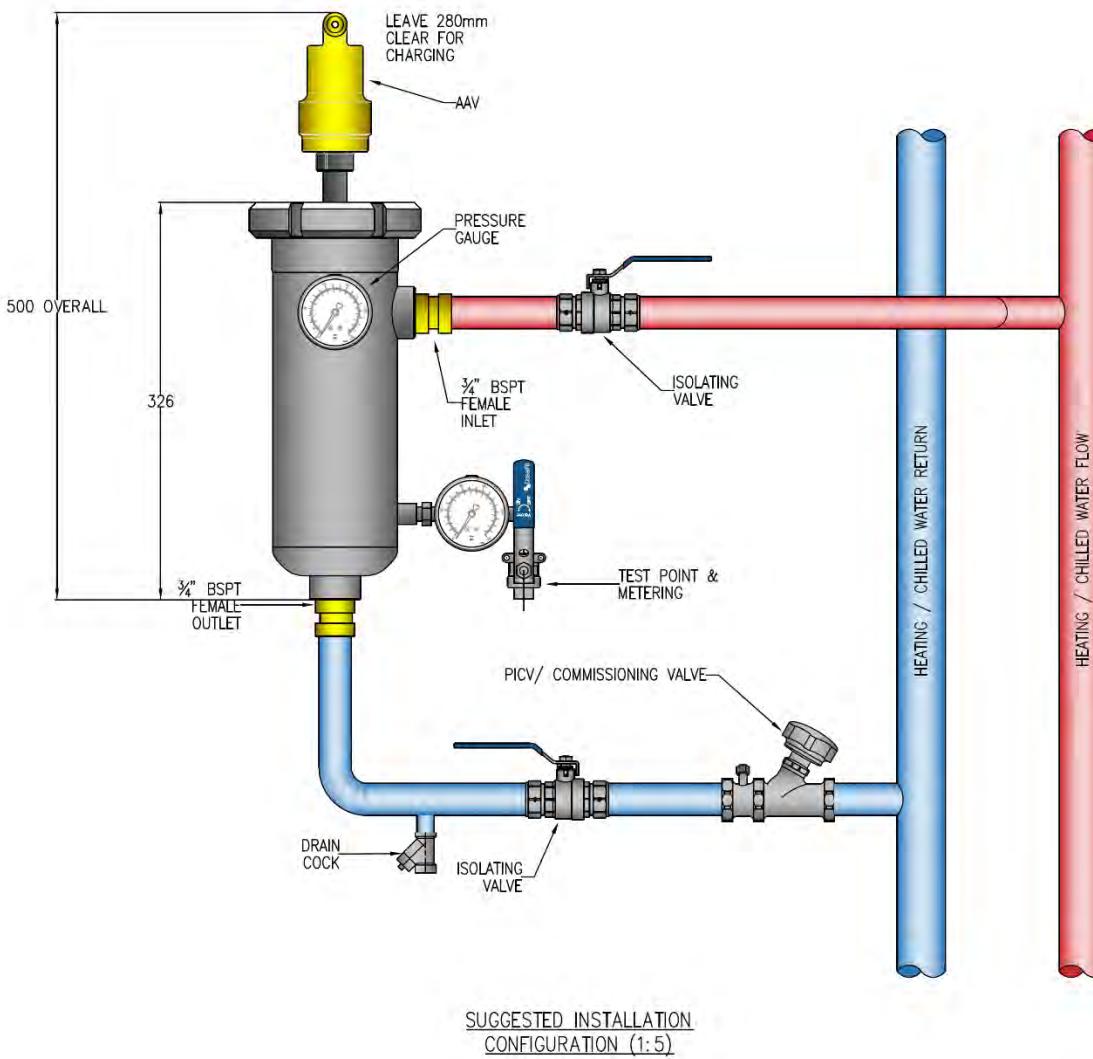
Model Featured above is a DosaFil-Duo® S+



Model Shown above is a DoseFil-Duo® Micro+PV 10bar (caged version)

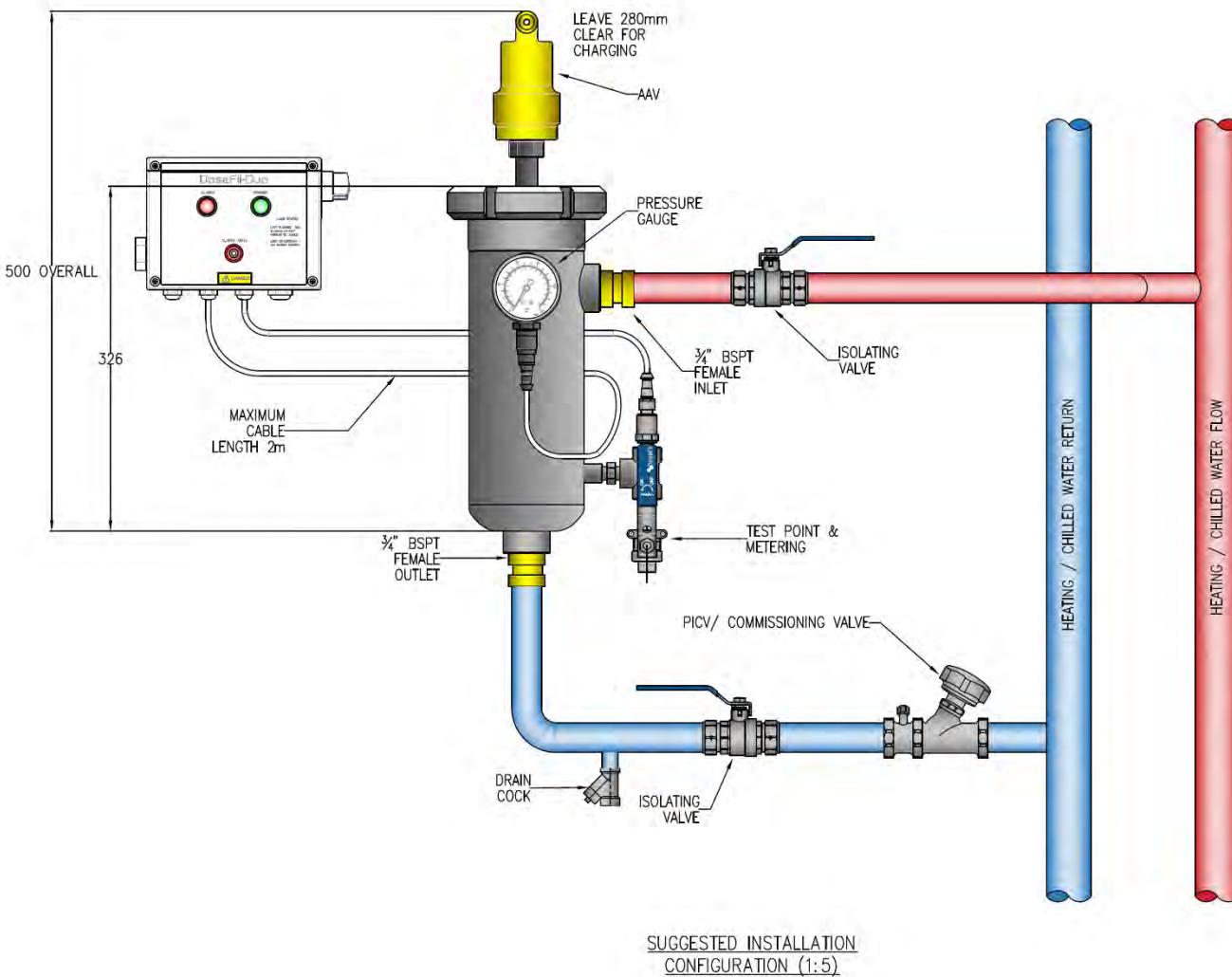
DosæFil-Duo® Suggested Installation Configurations

DosæFil-Duo® Nano



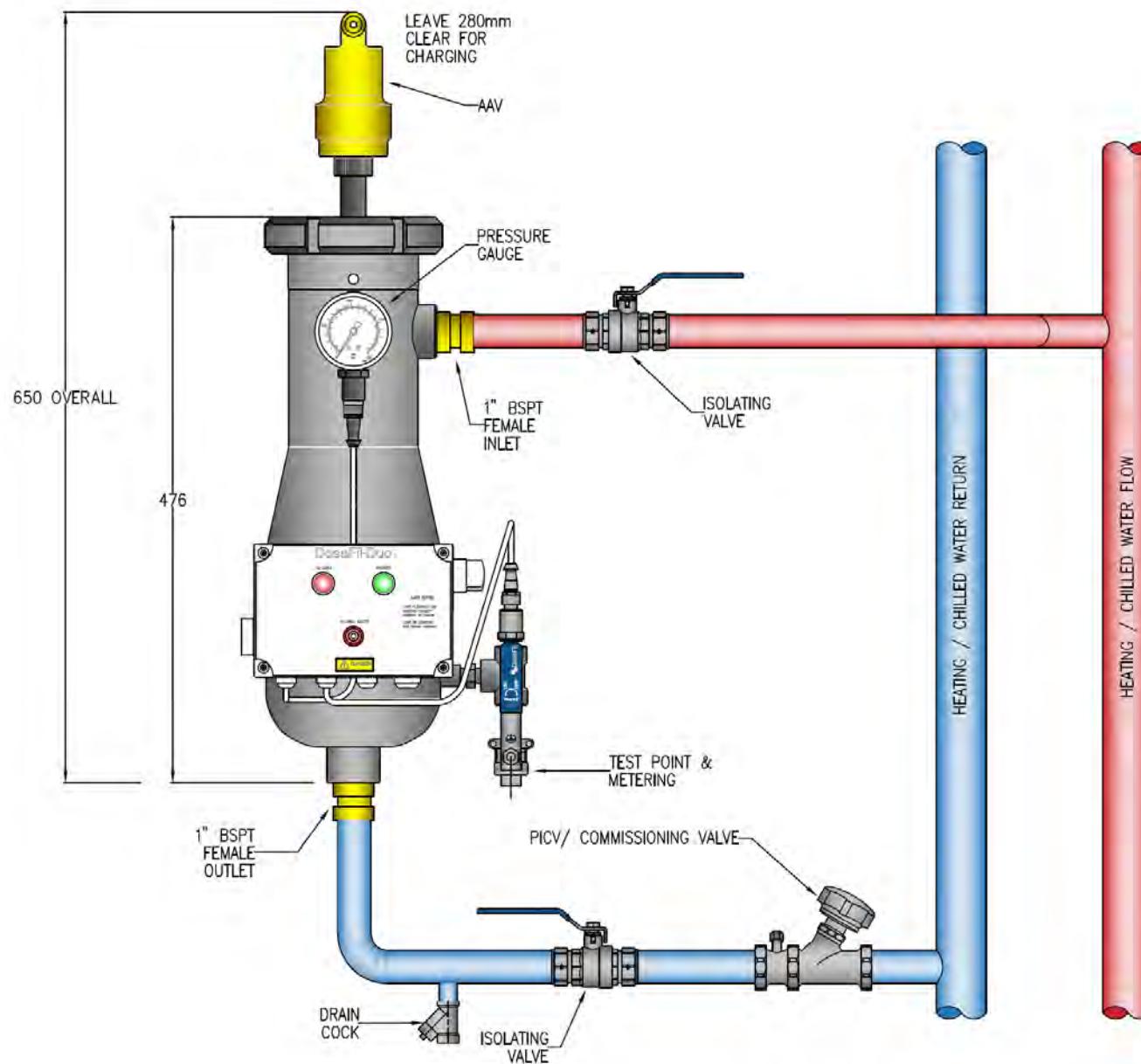
REDUCING THE INLET & OUTLET CONNECTION SIZES WILL COMPROMISE THE OPERATION OF THE DEVICE AND IT IS NOT ADVISED

DosæFil-Duo® Nano+



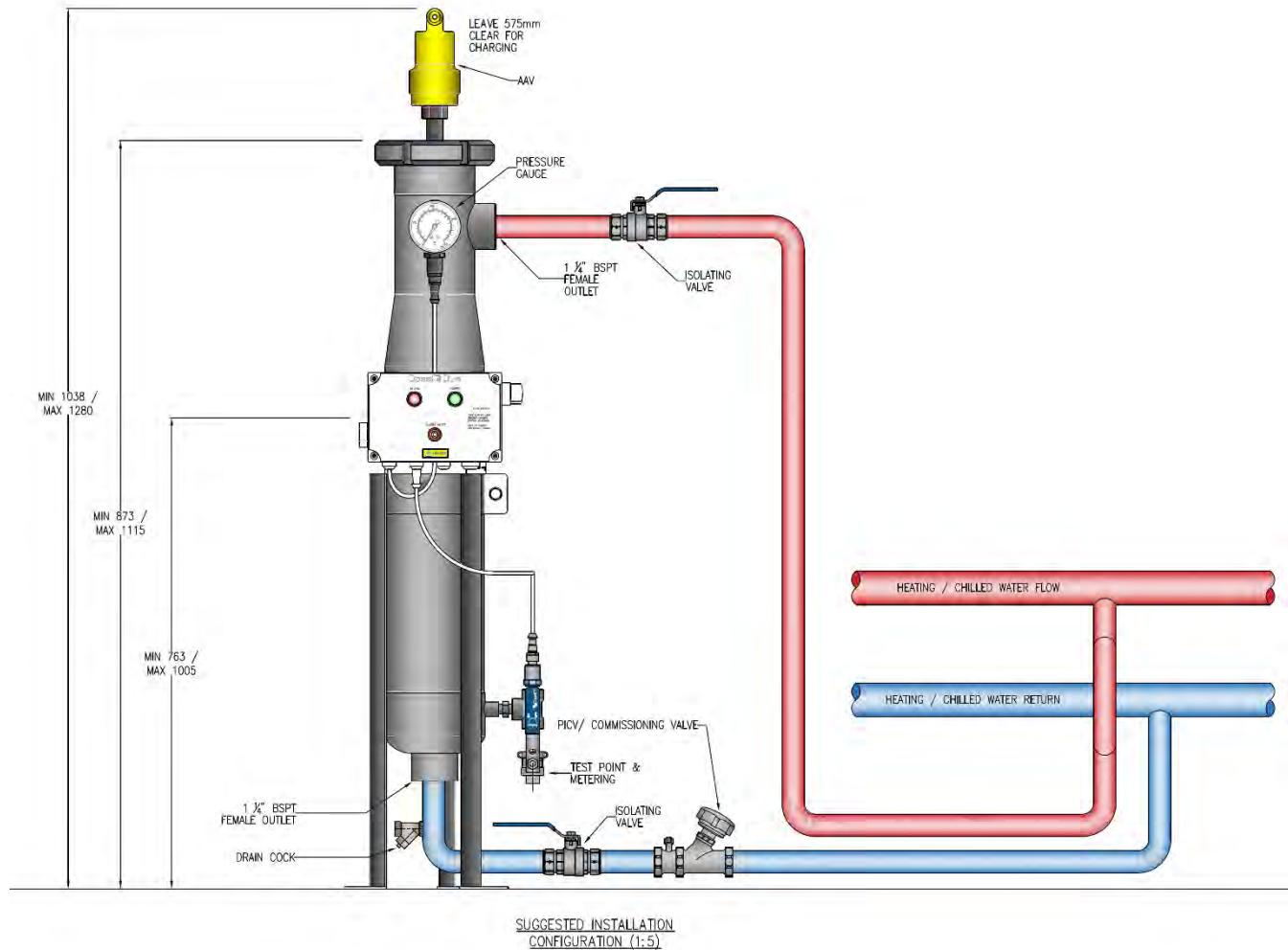
REDUCING THE INLET & OUTLET CONNECTION SIZES WILL COMPROMISE THE OPERATION OF THE DEVICE AND IT IS NOT ADVISED

DoseFil-Duo® Micro+



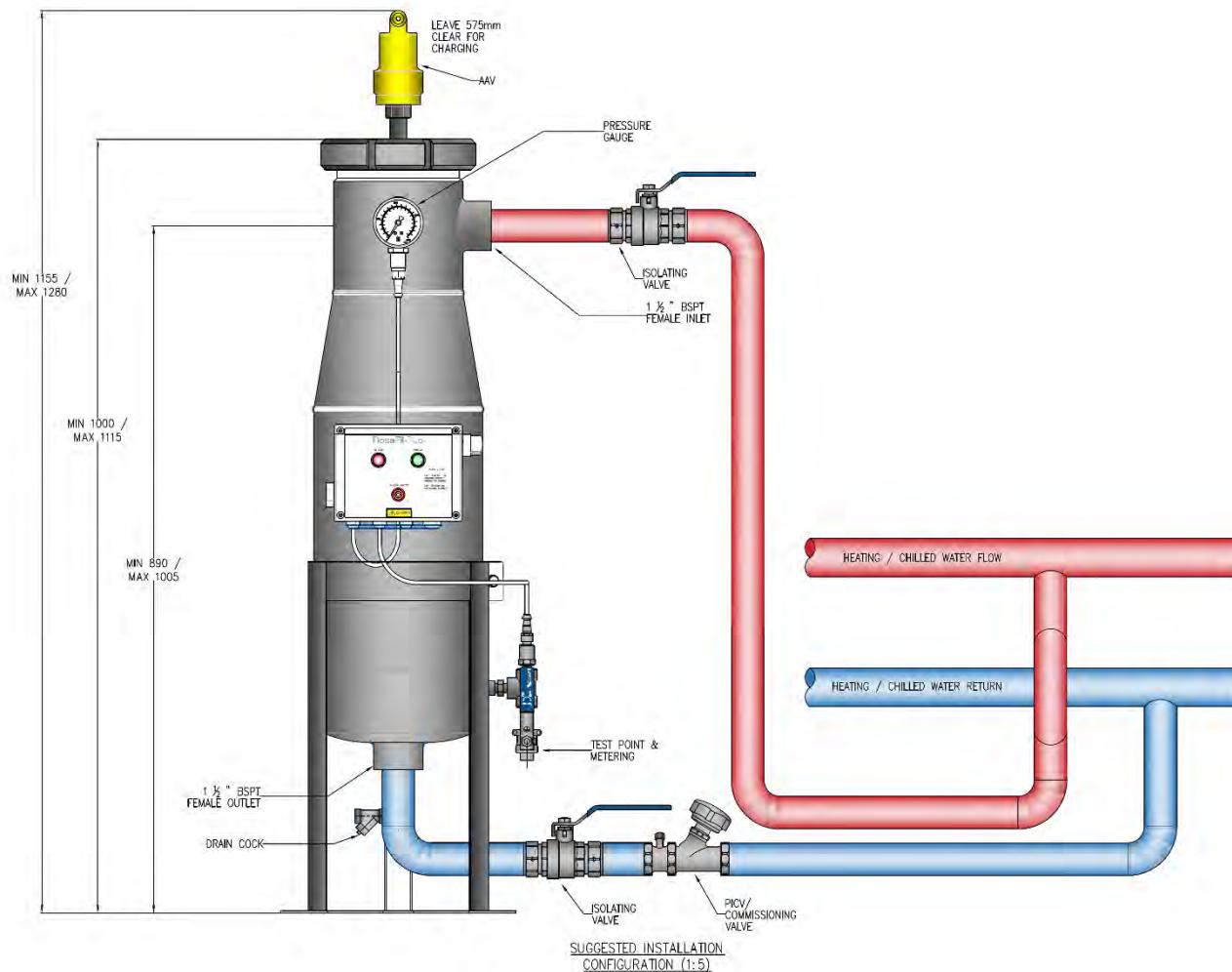
REDUCING THE INLET & OUTLET CONNECTION SIZES WILL COMPROMISE THE OPERATION OF THE DEVICE AND IT IS NOT ADVISED

DoseFil-Duo® S+



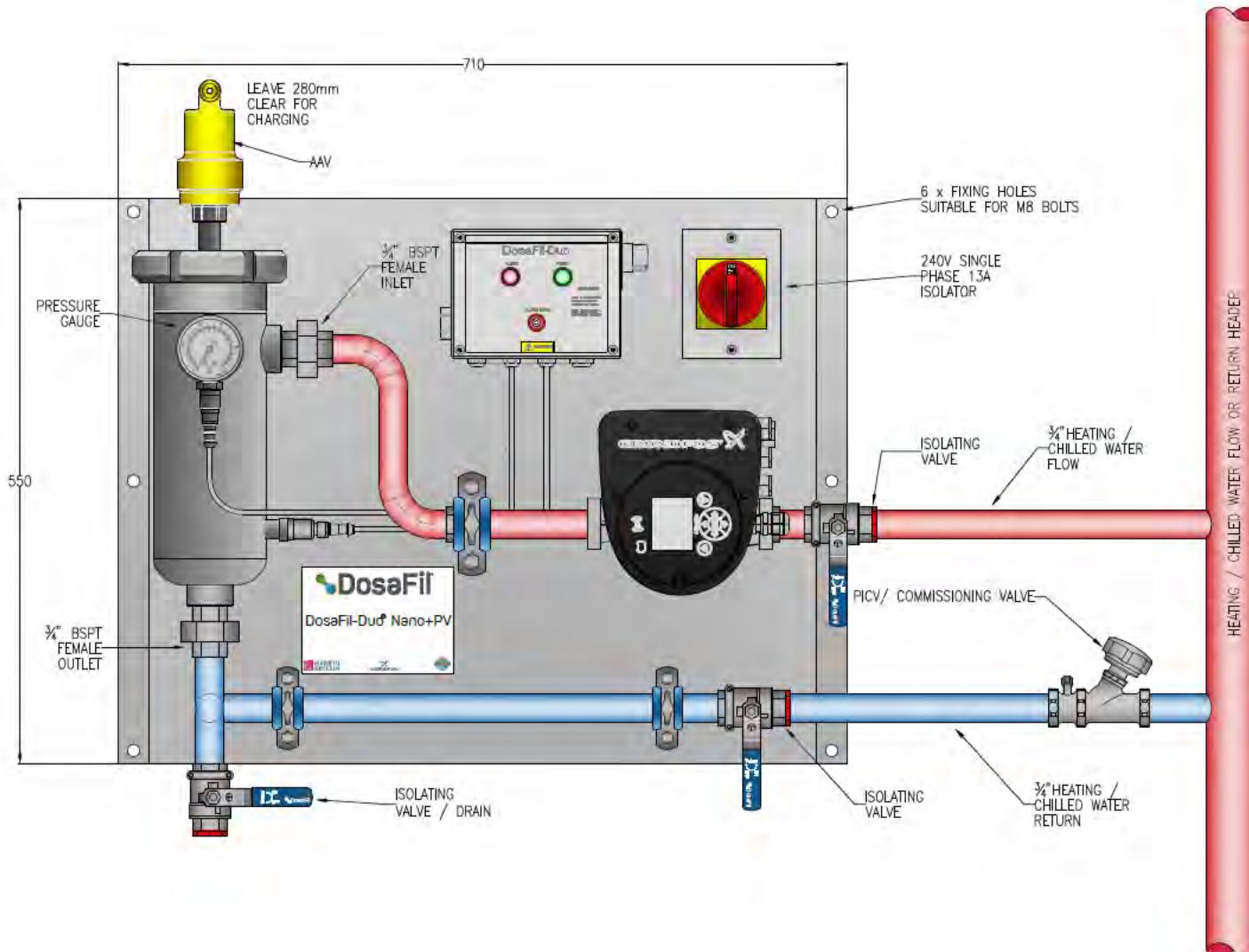
REDUCING THE INLET & OUTLET CONNECTION SIZES WILL COMPROMISE THE OPERATION OF THE DEVICE AND IT IS NOT ADVISED

DosæFil-Duo® HF+



REDUCING THE INLET & OUTLET CONNECTION SIZES WILL COMPROMISE THE OPERATION OF THE DEVICE AND IT IS NOT ADVISED

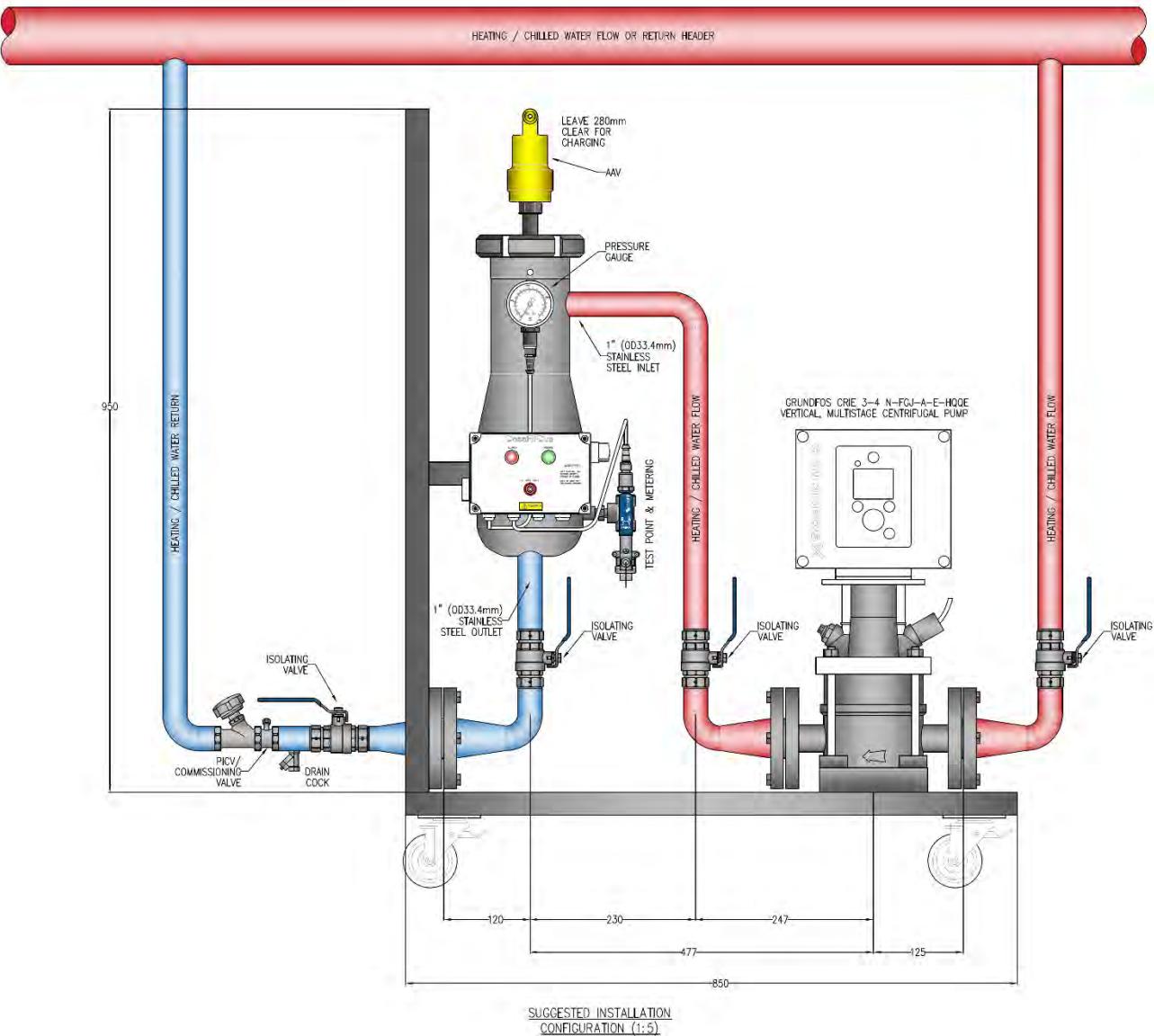
DosaFil-Duo® Nano+ PV



SUGGESTED INSTALLATION
CONFIGURATION (1:5)

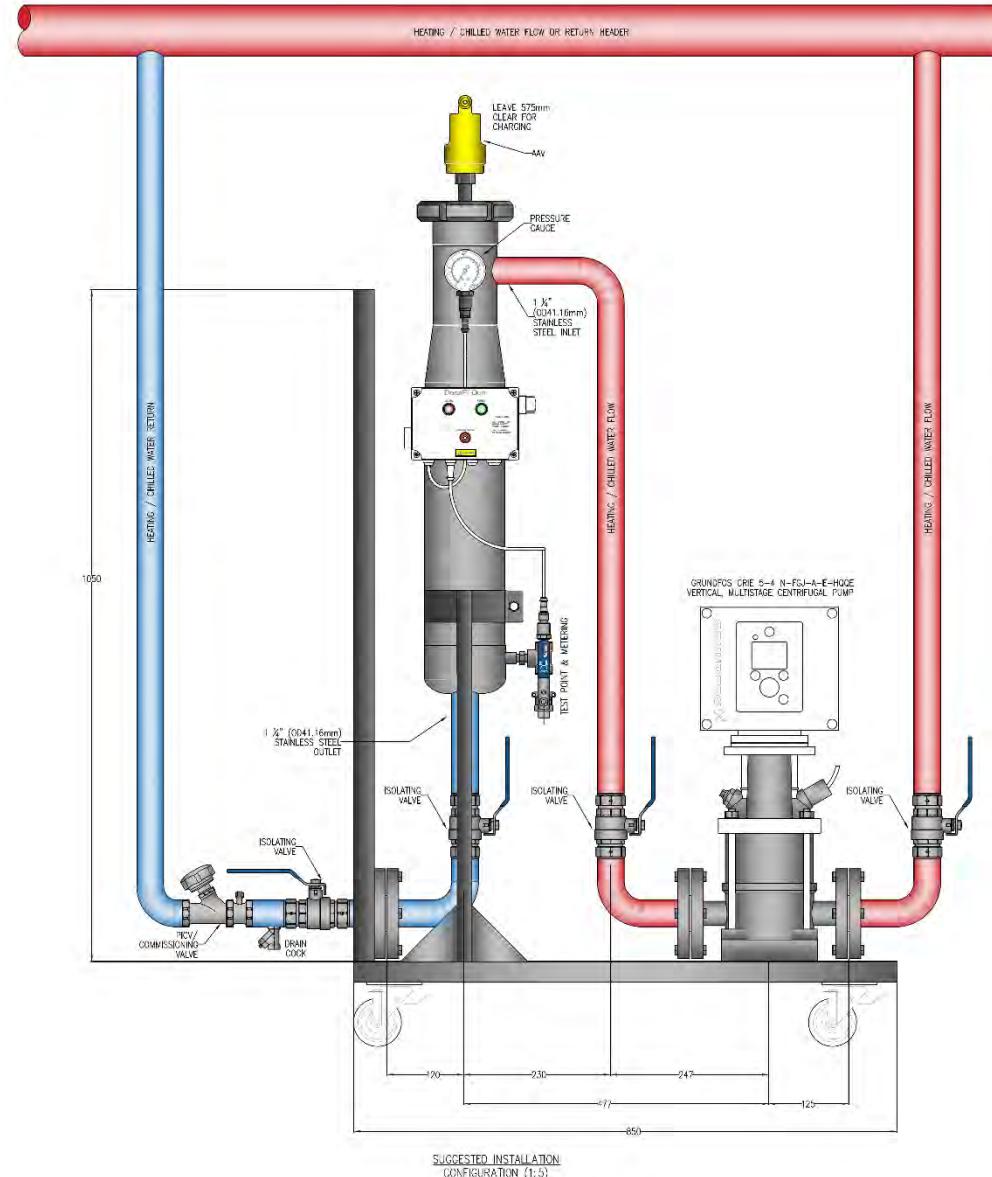
REDUCING THE INLET & OUTLET CONNECTION SIZES WILL COMPROMISE THE OPERATION OF THE DEVICE AND IT IS NOT ADVISED

DoseFil-Duo® Micro+ PV



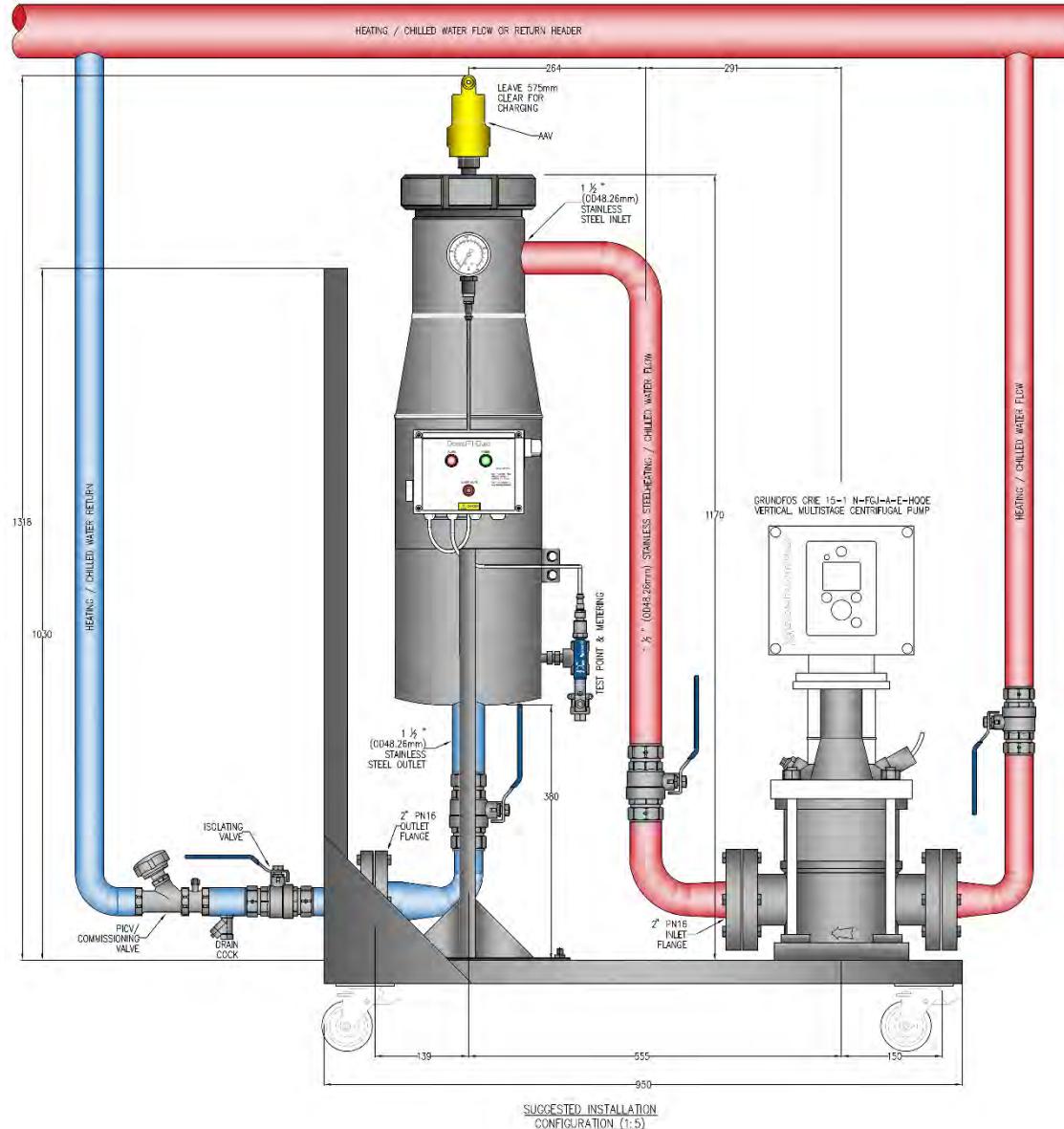
REDUCING THE INLET & OUTLET CONNECTION SIZES WILL COMPROMISE THE OPERATION OF THE DEVICE AND IT IS NOT ADVISED

DoseFil-Duo® S+ PV



REDUCING THE INLET & OUTLET CONNECTION SIZES WILL COMPROMISE THE OPERATION OF THE DEVICE AND IT IS NOT ADVISED

DosaFil-Duo® HF+ PV



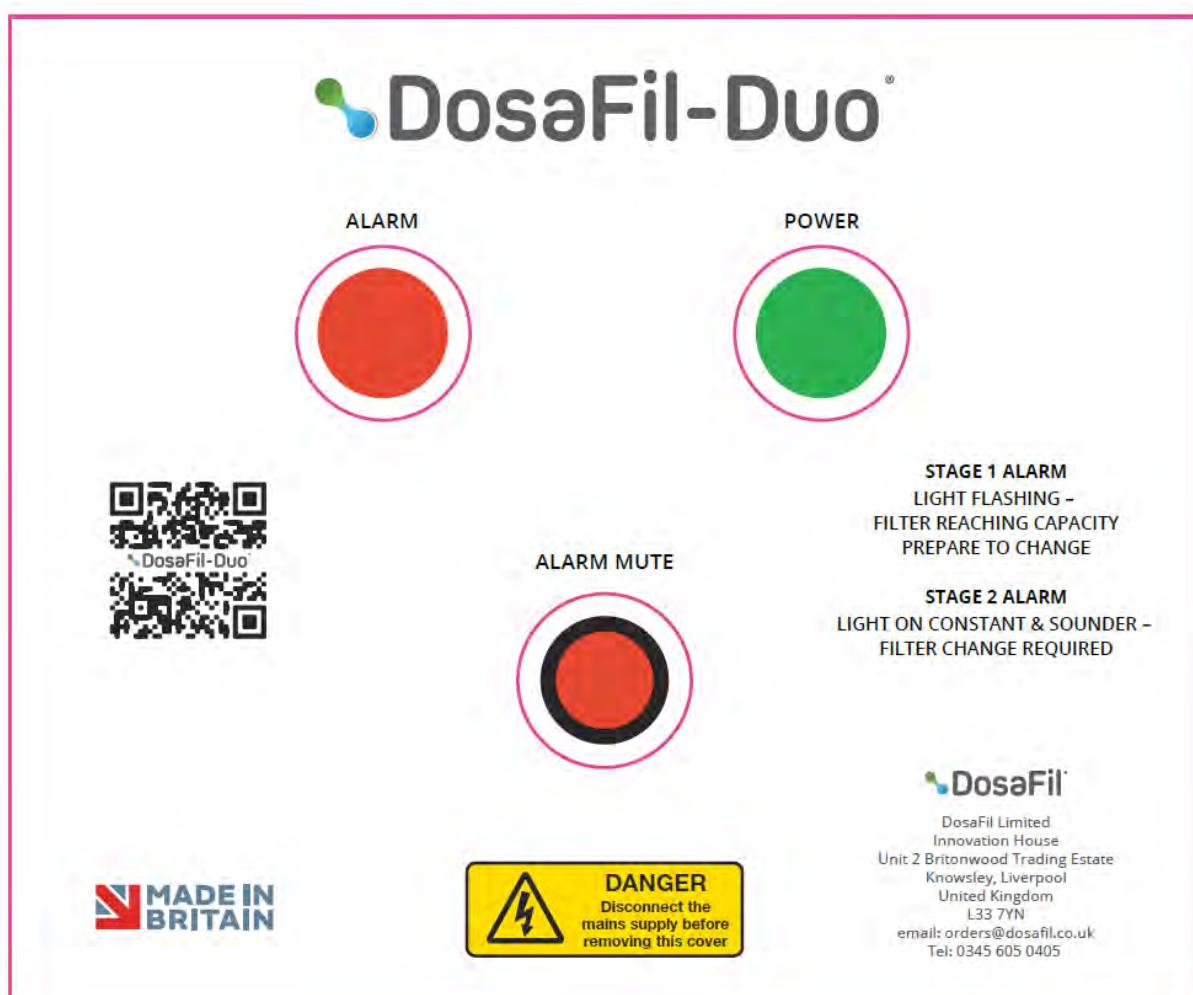
REDUCING THE INLET & OUTLET CONNECTION SIZES WILL COMPROMISE THE OPERATION OF THE DEVICE AND IT IS NOT ADVISED

DosaFil® DPC Smart Controller

The DosaFil® DPC Smart Controller system is designed to notify the user via audible & visual alerts of the need to change the DosaFil-Duo® Filter bag. The DP Smart Controller has 2 alarm states, first alarm state notifies the user when the filter is approximately 75% loaded and the second alarm state notifies the user when the bag is 100% loaded and that the filter bag needs to be changed immediately. The DPC Smart Controller constantly monitors outputs from the two pressure transducers fitted to the device to determine the differential Pressure across the device. The alarm setpoints are adjustable – please see “differential pressure alarm settings” in the installation section of this manual.

In addition to audible and visual alarms the DosaFil® DPC Smart Controller provides two-volt free contacts -1 for each alarm state. The contacts can be used to connect to a building BMS system for remote monitoring or alternatively a DosaFil® DP Alert system can be fitted to each device to enable alarm states to be communicated by text message.

DosaFil® DPC – Smart Controller - front view.



DosaFil® DPC Smart Controller Instructions for use

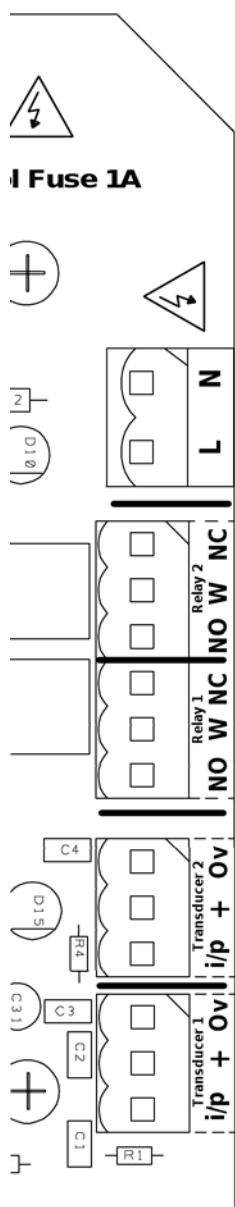
Power Connections:

Standard DosaFil-Duo® Devices

A 240v mains supply should be connected to the ON/OFF switch on side of the enclosure. A low capacity spur fused at no more than 6 Amps is recommended for the supply. The controller PCB has an on-board 1A fuse.

DosaFil-Duo®PV skid Mounted Devices

DosaFil-Duo®PV packages are supplied with the DosaFil® DPC controller prewired to the electrical isolation switch mounted on the main panel. The skid power isolator should be connected to the site electricity supply in accordance with local regulations. A dedicated 13A 240v fused supply is advised to supply the DosaFil-Duo® PV skid mounted equipment.



Supply, 230v 50Hz. (factory option 110v) On-board 1A fuse.
Pre-wired to ON/OFF switch on enclosure.

Relay 2. Alarm Relay for BMS signaling. Changeover relay, volt-free contacts rated up to 5A 230v.

Relay 1. Warning Relay for BMS signaling. Changeover relay, volt-free contacts rated up to 5A 230v.

Transducer 2. Downstream/Lower pressure. 0v Common.
+13v (nominal) Transducer supply. Signal Input (10v full scale)

Transducer 1. Upstream /Higher Pressure. 0v Common.
+13v (nominal) Transducer supply. Signal Input (10v full scale)

All relays are controlled such that de-energized (NO open and NC closed) is the 'safe' no alarm or no warning state. This is the power off state.

Differential Pressure Alarm Settings: -

DP Alarm Setpoint (Bar)	1.72	1.50	1.29	1.07	0.86	0.64 *	0.43	0.2 1
Switches ON	1,2,3	2,3	1,3	3	1,2	2	1	-

*Factory Setpoint

Transducer Cable Colour Coding: -

Transducer Cable Colour	Transducer Pin no	Panel Terminal Connection
Brown	1	+Ve
White	2	i/p
Blue	3	0v

DosæFil-Duo® Leak Detection Strip Installation Instructions

The DosæFil-Duo® insulation jacket features a leak detection system. This feature is designed to alert the user to the presence of a leak on the DosæFil-Duo® vessel lid or AAV (Automatic Air Vent.) There is a clear plastic window located in the lid section of the insulation jacket. This can be easily removed to allow the leak detection strip supplied with the DosæFil-Duo® to be fitted.



Fig.1 – outside view of jacket window



Fig.2 – inside view of jacket window

The strip supplied should be removed from the sealed bag ensuring that hands are dry and free from grease or oil.



Fig.3 Leak Detection Strip as supplied



Fig.4 Leak Detection Strip fitted

Check that the jacket window is clean and dry then insert the leak detection strip as per figure 4 ensuring the strip is placed under the clear vertical retaining strap. Re fit the jacket to the DosæFil-Duo® taking care to ensure the neck of the DosæFil-Duo® unit is clean and dry.

DosæFil-Duo® Insulation Jacket Leak Detection

Fig 6 shows the colour the leak detection strip will change to in the presence of system water. If the detection strip is activated, check the DosæFil unit to determine the cause of the leak.

1. Isolate the DosæFil-Duo® system from water and power and discharge any residual pressure.
2. Drain the vessel as required.
3. Remove the lid section of the insulation jacket.
4. Rectify the cause of the leak.
5. Remove and dispose of the leak indicator strip.
6. Clean the lid jacket and viewing window with a clean cloth ensuring the area is left clean and dry.
7. A replacement leak indicator strip can then be fitted to restore the leak detection function (see installation instructions). Replacement leak detection strips are available from DosæFil.



Fig.5 Leak Detection Strip (unexposed)



Fig.6 Leak Detection Strip after exposure to system water

6. Replacement parts

Part Description	Part Number/Designation
DosæFil-Duo® Vessel SS	DFD-N, DFD-M, DFD-S, DFD-HF
DosæFil Duo® Lid Assembly	DFD-N, DFD-M, DFD-S, DFD-HF Lid assembly
Basket	Basket -DFD-N, DFD-M, DFD-S, DFD-HF
Coalescer Cage	Coalescer – DFD-N, DFD-M, DFD-S, DFD-HF
AAV	DFD-AAV 10bar (Nano Models) DFD-AAV 20bar (Micro, S & HF Models)
DP Smart Controller	As per description
DFD Transducers	As per description
DFD Transducer leads	As per description
DFD Gauge	As per description
DFD PV Power Isolator	As per description
DFD PV Grundfos Pump	As per description & Data plate
DFD Lid Removal Tool	DFD-N, M, S, HF Lid Removal tool
Filter Bags	
DFD-N 0.5µm filter bag	DFD-N-FB 0.5m
DFD-N 1.0µm filter bag	DFD-N-FB 1m
DFD-N 5µm filter bag	DFD-N-FB 5m
DFD-N 10µm filter bag	DFD-N-FB 10m
DFD-N 25µm filter bag	DFD-N-FB 25m
DFD-N 50µm filter bag	DFD-N-FB 50m
DFD-M 0.5µm filter bag	DFD-M-FB 0.5m
DFD-M 1.0µm filter bag	DFD-M-FB 1m
DFD-M 5µm filter bag	DFD-M-FB 5m
DFD-M 10µm filter bag	DFD-M-FB 10m
DFD-M 25µm filter bag	DFD-M-FB 25m
DFD-M 50µm filter bag	DFD-M-FB 50m
DFD-S 0.5µm filter bag	DFD-S-FB 0.5m
DFD-S 1.0µm filter bag	DFD-S-FB 1m
DFD-S 5µm filter bag	DFD-S-FB 5m
DFD-S 10µm filter bag	DFD-S-FB 10m
DFD-S 25µm filter bag	DFD-S-FB 25m
DFD-S 50µm filter bag	DFD-S-FB 50m
DFD-HF 0.5µm filter bag	DFD-HF-FB 0.5m
DFD-HF 1.0µm filter bag	DFD-HF-FB 1m
DFD-HF 5µm filter bag	DFD-HF-FB 5m
DFD-HF 10µm filter bag	DFD-HF-FB 10m
DFD-HF 25µm filter bag	DFD-HF-FB 25m
DFD-HF 50µm filter bag	DFD-HF-FB 50m

7. Warranty Conditions & Limitations

WARRANTY TERMS

The standard warranty period for the **DosaFil-Duo® Vessel** is **5 years** from date of delivery. The AAV fitted has a 20-year manufacturer's warranty. All other device components carry standard 12 months warranty.

Warranty is conditional on the system being maintained in accordance with the manufacturer's recommendations and the use of DosaFil supplied or approved components including filter bags.

Warranty does not include normal serviceable parts, if these items are replaced during the 12-month warranty period they are chargeable.

The purchaser shall inspect the equipment immediately upon receipt of goods. Any defects are to be reported to DosaFil Limited within 48 hours of receipt of the goods.

The purchaser shall make available the defective equipment or part to DosaFil Limited immediately after discovering the defect in order that DosaFil can organize collection of the goods for inspection and replacement.

DosaFil Limited shall not be liable for any damage or loss occurring during transportation. The responsibility, if any, for safe delivery shall lie with the freight carrier as of time of dispatch. Claims for such damages must be filed with the freight carrier.

Please register your device using the Warranty Card at the back of this manual to register for your 5 year warranty.

THIS WARRANTY IS VOID IF: -

The equipment is not correctly mechanically or electrically installed, or not maintained in accordance with the manufacturers' instructions. The warranty shall not cover defects caused by inappropriate or unapproved application of the product.

Filter bags other than those specifically designed, specified, and supplied by DosaFil Limited are used.

The equipment is damaged by negligence, accident or mishandling, or the equipment has not been operated in accordance with the procedures or rated capacities as stipulated in the operating manual. The equipment has been altered, modified, or repaired by anyone other than a DosaFil Limited representative or any competent person approved by DosaFil Limited.

Written Notice of the defect is not forwarded to DosaFil Limited within a 7-day period of discovery at the contact details address.

8. General Disclaimer

DosæFil Limited. does not assume responsibility for any loss of profit, loss of goodwill, loss of use, cost of removal and re-installation of items or any collateral, incidental or consequential damages of any nature, any inconvenience or interruption in operation connected to faults or defects in the equipment.

No person including DosæFil Limited's employees, agents and dealers may assume on behalf of DosæFil Limited. any commitment or liability with regards to the equipment, which is expressively covered by this warranty.

No other warranty, expressed or implied, applies to this equipment and the warranty herein set out exhausts DosæFil Limited's liability.

9. Health, Safety & Environmental

NOTE

This DosaFil-Duo® is supplied on the basis it will be operated in a safe manner and located so as not to represent a risk to personnel. Additional guarding may be required dependent upon a risk assessment carried out by the operator.

Disposal of Used Filter Bags

This material should be disposed of in a responsible manner and depending on its use in your process it may be possible to recycle used filter bags. It is the sole responsibility of the owner to dispose of used filter bags in accordance with local regulations.

10. Commissioning Guidance

Once all electrical & pipework connections and have been made & tested the DosaFil-Duo® is ready to be commissioned as detailed below

DosaFil-Duo® standalone unit

1. Ensure all internal components are fitted inside the DosaFil unit. (filter basket, filter bag & coalescer *dependent on system condition)
2. Fit the 2-part lid and hand tighten the lid ring using the lid spanner provided.
3. Ensure the drain valve and sample point valves are closed
4. Slowly open the inlet isolation valves slowly to allow the system water to flow into the device checking that all connections and the device lid for any leaks and purge air from the vessel via the AAV. Slowly open the outlet isolation valve to allow flow through the device.
5. Electrical power should now be turned on.
6. Once full flow is established check all pressure gauges on the system.
7. The DosaFil® DPC controller will not alarm if the pressure across the filter is the same. Only when the pressure drop across the DosaFil unit exceeds 0.5bar (7.25psi) will the alarm be triggered. The Alarm state consists of an audible sounder and illuminated Red alarm light. In addition, there are BMS outputs which can be connected to the building BMS or for mobile phone text alerts a DosaFil DPC Alert system can be used. The DosaFil DPC alert system is an optional additional component which can be added at any time to your installation.
8. Once the above has been completed and there are no leaks and/or faults your DosaFil-Duo® system is ready for use.
9. Fit the leak indicator collar only after commissioning is complete and the device has been checked for leaks.

* see guidance below for the use of the coalescer in systems with high levels of suspended solids.

DosæFil-Duo® PV unit

1. Ensure all internal components are fitted inside the DosæFil unit. (filter basket, filter bag & coalescer* dependent on system condition)
2. Fit the 2-part lid and hand tighten using the lid spanner provided.
3. Ensure the drain valve and sample point valves are closed.
4. Slowly open the inlet isolation valves to allow the system water to flow into the device checking that all connections and device lid for any leaks and purge air from the vessel via the AAV (automatic air vent). Slowly open the outlet isolation valve to allow flow through the system, bleed the pump using the bleed nipple until all air is removed. Consult the Grundfos manual for further information.
5. Electrical power should now be turned on. The pump will start automatically and is supplied set at the maximum design flow of the DosæFil-Duo® unit supplied. If a lower flow rate is required, this setting can be changed but all other settings should not be adjusted.
6. Once full flow is established check all pressure gauges on the system.
7. The DosæFil®DPC controller will not alarm if the pressure differential across the filter is below the set point. Only when the pressure drop across the DosæFil unit exceeds 0.5bar (7.25psi) will the alarm be triggered. The alarm state consists of an audible sounder and illuminated red alarm light. In addition, there are VFC outputs which can be connected to the building BMS. When the 100% bag fouled alarm is triggered, the pump will switch off. The pump will only restart once the alarm is cleared by changing the filter bag and switching the power back on.
8. Once the above has been completed and there are no leaks and/or faults your DosæFil-Duo® system is ready for use.
9. Fit the leak indicator collar only after commissioning fit the leak indicator collar only after commissioning is complete and the device has been checked for leaks.

* see guidance below for the use of the coalescer in systems with high levels of suspended solids.

General Guidance

- The DosaFil-Duo® is supplied with a specially designed lid removal tool, enough torque can be applied by hand tightening using the lid removal tool only to achieve full operating pressure. Do not use extension bars or any tool other than the lid removal supplied by DosaFil Limited to tightening the vessel lid. If incorrect tools or modifications are used, then all warranties are void.
- When installing a DosaFil-Duo® into a heavily fouled system it is advised to operate the device without the coalescer until such time as the suspended solids are brought under control. This will prevent the coalescer becoming fouled and restricting the flow through the device. Once the suspended solids in the system are brought under control the coalescer can be placed into the device to assist with air removal.
- To commence an online system clean-up, it is advised to start filtration with a higher micron filter bag and gradually drop down the micron sizes until suspended solids and fouling are reduced to satisfactory levels.
- It is advised to filter only for a period to reduce solids loading in the system before adding any online chemical cleaning products, this will reduce the potential for fouling of small-bore pipework and sensitive equipment in the system from becoming blocked due to rapid increases in suspended solids loading.
- Chemical treatments in liquid or solid form can be added via the easy open DosaFil® lid. It is advised to remove the coalescer, filter basket and filter bag before adding liquid or solid chemicals. These can be refitted once the desired volume of chemical has been added. If repeated chemical addition is required to add the chosen volume of chemical it is advised to leave the filter basket, filter bag and coalescer out of the DosaFil unit while chemicals are being introduced to the system. Dependent on system flow, temperature & product in use it is advised to wait at least 30 minutes between chemical additions to ensure the chemical treatments are fully introduced into the system before the next batch is added. The DosaFil unit only needs to be drained fully if you need to completely fill the vessel with chemical product. Small doses and or solid chemical additions may only require a small volume to be drained from the unit.
- It is advised to keep a quantity of the water drained from the DosaFil unit to enable the unit to be topped up prior to closing and putting the unit back into recirculation.

Changing a DoseFil-Duo® Filter bag:

Caution: If your DoseFil-Duo® is installed in a hot closed system wear appropriate protective gloves before handling the device. In high pressure hot water systems, it may be necessary to isolate the DoseFil-Duo® and allow the unit to cool sufficiently to be handled.

1. If using a DoseFil-Duo® PV unit isolated main power and ensure pump is powered down. Isolate the DoseFil-Duo® system by closing the flow and return isolation valves.
2. Drain the vessel as required – if you are simply changing a filter bag there is no need to drain the entire vessel. If the water is clean and treated, it is recommended to keep the drained water to refill into the DoseFil-Duo® when recommissioning.
3. Ensure the pressure has been discharged before moving on to step 3 by checking the pressure gauge(s) on the DoseFil-Duo®.
4. Remove the lid insulation jacket and unscrew the using the lid removal tool supplied to loosen the lid.
5. Place the lid insulation jacket and lid assembly to one side on a clean dry surface.
6. Using the lid removal tool remove the coalescer cage and place to one side. The coalescer has a ring nut on the top for easy removal preventing injuries from scalding. If fouled the Coalescer cage can be rinsed under a running tap.
7. Remove the filter bag and filter housing basket using the lid removal tool, the filter bag contains a handle at the top for easy removal, the filter bag housing basket has lift points on the top ring to aid removal using the lid removal tool.
8. Dispose of the old bag following local recycling schemes. DO NOT WASH THE BAG & REUSE.
9. Select a new DoseFil-Duo® filter bag ensuring you have the desired micron size.
10. Remove the Identification tag, then fold the tip/base of the filter bag until it folds back on itself and the tip/base forms a straight bottom (Figure.1)
11. Fold the bag in half lengthways and slide into the filter bag housing basket (Figures.2 & 3).
12. Ensure the filter bag sits correctly in the basket and is not twisted. The filter bag ring should sit flush on top of the filter bag housing basket (Figure.4)
13. Return the filter bag housing basket into the DoseFil-Duo® device.
14. Replace the coalescer in the DoseFil-Duo® which sits on top of the filter basket. Ensure the ring nut is facing upwards to allow for easier servicing on next filter bag replacement.
15. Any water drained and saved earlier may now be poured back into the DoseFil-Duo®. Do not overfill.
16. Return the lid assembly onto the top of the device and hand tighten, use the lid spanner to tighten but do not over tighten!

17. Slowly open the flow isolation valve and allow pressure to build in the DoseFil-Duo® device. You may hear air escaping from the AAV on top of the lid assembly, some water may escape the AAV, this is normal and should only occur for a short period.
18. Open the return isolation valve and restore power if using DoseFil-Duo®PV unit, the system is now back in service, check for any leaks and rectify if required.
19. Clean and dry the lid area, replace the lid insulation jacket the leak detector strip if required then replace the insulation jacket on the lid assembly.



Figure 1



Figure 2



Figure 3



Figure 4

WHEN TO CHANGE A FILTER BAG –

DosaFil-Duo® Micro, S & HF

When the pressure differential (ΔP) between the top and bottom pressure gauges exceeds 0.5 Bar the filter bag should be changed.



Top Gauge - 10 Bar



Bottom Gauge - 9 Bar

Differential pressure (ΔP) = top gauge reading (Bar) – bottom gauge reading (Bar)

Using the above example, Differential pressure (ΔP) = 10 – 9 = 1.0 Bar

NB. In lower pressure systems when there is only slight pressure indicated on the Top Gauge and zero pressure indicated on the Bottom Gauge this indicates the filter bag is fouled and should be changed.

WHEN TO CHANGE A FILTER BAG –

DosæFil-Duo® Nano

When the pressure differential (ΔP) between the top and bottom pressure gauges exceeds 0.5 Bar the filter bag should be changed.



Top Gauge - 5 Bar



Bottom Gauge - 4 Bar

Differential pressure (ΔP) = top gauge reading (Bar) – bottom gauge reading (Bar)

Using the above example, Differential pressure (ΔP) = $5 - 4 = 1.0$ Bar

NB. In lower pressure systems when there is only slight pressure indicated on the Top Gauge and zero pressure indicated on the Bottom Gauge this indicates the filter bag is fouled and should be changed.

11. Documentation

EC Declaration of Incorporation

In accordance with Annex 2B of the Machinery Directive 98/37/EC

I, Chris Harrison of DosaFil Limited, Innovation House, Unit 2 Britonwood Trading Estate, Liverpool L33 7YN, being the "responsible person", declare that the machinery detailed below: -

<u>Item</u>	<u>Description</u>
DosaFil-Duo®	Water Conditioning Device.

Has been manufactured in accordance with the transposed European Standards: -

BS EN 292 Part 1
BS EN 292 Part 2
BS EN 294
BS EN 60204-1
BS EN 983

The equipment is in conformity with the health and safety requirements set out in the machinery directive **98/37/EC**.

This equipment must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive and its amendments.

Chris Harrison
Technical Director for and on behalf of DosaFil Ltd

12. Troubleshooting Guide

Symptom/Issue	Remedial Action	Additional Action (following remedial action if fault persists)
No “Power” light illuminated	Check correct power supply is present and that all electrical supply connections have been made correctly in DP control panel	Contact Supplier
DP Controller Alarms constantly	1. Check filter is not fouled or there is a blockage present in DoseFil vessel/pipework – remove/clear as required. 2. Check correct flow in line with specification for DoseFil-Duo model fitted. 3. Adjust settings in the DPC controller to suit loading/pressure of the system the DoseFil-Duo is installed.	1. Remove and check transducers are clean. Transducers and wiring is connected correctly. 2. Contact supplier
No Flow through the DoseFil-Duo device	1. Check all isolation valves are fully open. 2. Check if filter is fouled or there is blockage present in DoseFil-Duo Vessel or supply pipework	Check DoseFil-Duo is installed correctly
No Pressure is displayed on the integrated pressure gauge	1. Check all isolation valves are open to the DoseFil device. 2. Check system pressure is present prior to the DoseFil-Duo.	1. Check condition/operation of pressure gauge. 2. Contact Supplier

13. Contact Details

DoseFil Limited
Innovation House
Unit 2 Britonwood Trading Estate
Knowsley
L33 7YN
Office Contact: - 0345 605 0405
Email: - hello@dosafil.co.uk

Pæge left intentionally blank



Warranty Registration Card

Contact Name

Contact email*

DosaFil-Duo® Serial Number
(Located on the data plate fixed to the DosaFil-Duo® Vessel)

Date of Installation/Commission

*Any email address provided will only be used to confirm warranty registration and thereafter communicate any product recalls.

Please return the completed card as detailed below.

By Post

Warranty Registration
DosaFil Limited
Innovation House
Unit 2 Britonwood Trading Estate
Knowsley
Liverpool
L33 7YN
UK

This information can also be sent by email to warranty@dosafil.co.uk