HYDAC INTERNATIONAL

Drum Filtration Unit

Installation, Operation and Maintenance Manual

Item No. **ODF- S, ODF- HV**

Project No. **4363**

Document No.: 4363-IOM-00

Document Control for 4363-IOM-00:

Table of revisions

Revision	Date	Revision by	Revision details
-	3 November 2025	Ashneel Deo	Initial document production

Table of authorities

Date	Name	Company	Function	Signature
3/11/2025	Ashneel Deo	HYDAC	Project Engineer	Ashneel Deo 2025.11.03 16:02:39 +11'00'
3/11/2025	Kent Paulsen	HYDAC	Project Engineer	Kent Paulsen 2025.11.03 15:16:42 +11'00'

Trademarks

The trademarks of other companies are exclusively used for the products of those companies.

Exclusion of liability

We made every endeavour to ensure the accuracy of the contents of this document. However, errors cannot be ruled out. Consequently, we accept no liability for any errors which may exist nor for any damage or loss whatsoever which may arise as a result of such errors. The content of the manual is checked regularly. Any corrections required will be incorporated in future editions. We welcome any suggestions for improvements.

All details are subject to technical modifications.

Technical specifications are subject to change without notice.

HYDAC Pty. Ltd.

109 - 111 Dohertys Road,
Altona North, VIC, 3025
Australia

Tel: (03) 9272 8900
Sales: (03) 9272 8999
Web: hydac.com.au

Table of Contents

Preface

HYDAC have produced this manual comprising of the most important instructions for its operation and maintenance.

It is intended to help you become acquainted with the functionality of the product and use it correctly.

You should keep it in the vicinity of the product, so it is always at your fingertips.

Please note that any technical information contained in this document, is what was correct and available at the time of publication. As a result of the details within this document being subject to change without notice, there may be deviations in technical details, figures, and dimensions between what is in this document and that which you find within the piece of equipment you have received from HYDAC.

Should you discover any errors while reading this document, have any suggestions for improving this document or have any other information, which you consider may be useful to HYDAC, please contact us: HYDAC Pty. Ltd.

HYDAC Pty. Ltd.

109 - 111 Dohertys Road,
Altona North, VIC, 3025
Australia

Tel: (03) 9272 8900
Sales: (03) 9272 8999
Web: hydac.com.au

We look forward to receiving your input.
“Putting experience into practice”

Technical Support

If you have any questions, suggestions, or encounter any problems of a technical nature, please don't hesitate to contact us. When contacting us, please always include the model/type designation and article no. of the product.

Web: hydac.com.au

Modifications to the Product

We would like to point out that changes to the product (e.g. purchasing options, etc.) may result in the information in the operating instructions no longer being completely accurate or sufficient.

When making modifications or performing repair work to components affecting the safety of the product, the product may not be put back into operation until it has been examined and released by a HYDAC representative.

Please notify us immediately of any modifications made to the product whether by you or a third party.

Warranty

For the warranty provided by us, please refer to the Terms and Conditions of Trade for HYDAC Pty. Ltd.

They are available at: https://www.hydac.com.au/terms-conditions.

Using the Documentation

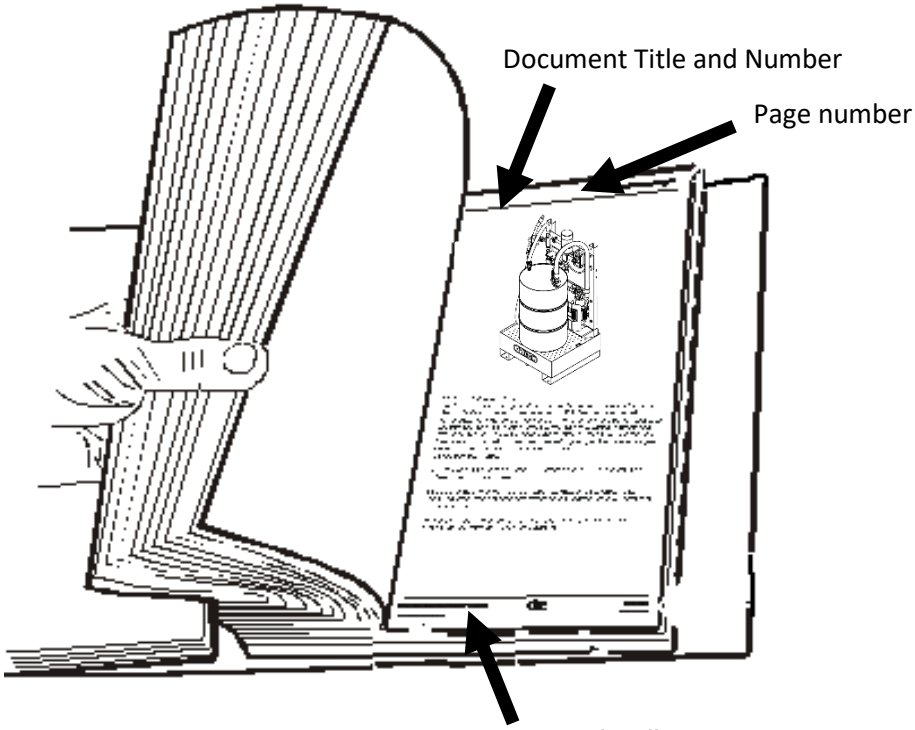
Please note that the method described above of locating specific information does not release you from your responsibility for carefully reading the entire manual prior to starting the unit up for the first time and carefully rereading the manual at regular intervals later on.

WHAT do you want to know?

Determine which topic you are looking for.

WHERE can I find the information I'm looking for?

The document has a table of contents at the beginning. Select the chapter and the corresponding page number.



The documentation number with its index enables you to order another copy of the operating and maintenance instructions. The index is incremented by one digit every time the manual is revised or changed.

Safety Information and Instructions

The unit was built according to the statutory regulations valid at the time of delivery and satisfies current safety requirements.

Any residual hazards are indicated by safety information and instructions and are described in the operating instructions.

Observe all safety and warning instructions attached to the unit. They must always be complete and legible.

Do not operate the unit unless all the safety devices are present.

Maintain the unit inspection intervals prescribed by law.

Document the results in an inspection certificate and keep it until the next inspection.

Hazard symbols

These symbols are listed for all safety information and instructions in these operating instructions which indicate particular hazards to persons, property or the environment.

Observe these instructions and act with particular caution in such cases.

Pass all safety information and instructions on to other users.

General hazard

Danger due to electrical voltage / current

Exposed electrical components

Danger of electrical shock

Danger due to operating pressure

Risk of burns due to hot surfaces

Signal words and their meaning in the safety information and instructions

⚠ DANGER

DANGER indicates a danger with a high risk and which will lead to death or serious injury if not avoided.

⚠ WARNING

WARNING indicates a danger with a medium risk and which can lead to death or serious injury if not avoided.

⚠ CAUTION

CAUTION indicates a danger with a low risk and which can lead to minor injury if not avoided.

NOTICE

NOTICE indicates a danger which will lead to damage to property if not avoided.

Structure of the safety information and instructions

All warning instructions in this manual are highlighted with pictograms and signal words. The pictogram and the signal word indicate the severity of the danger.

Warning instructions listed before an activity are laid out as follows:

HAZARD SYMBOL	**⚠ SIGNAL WORD**
	Type and source of danger Consequence of the danger
	Measures to avert danger

Observe regulatory information

Observe the following regulatory information and guidelines:

- Legal and local regulations for accident prevention
- Legal and local regulations for environmental protection
- Country-specific regulations, organization-specific regulations

Proper/Designated Use

The Offline Drum Filtration System (ODF and ODF-HV) are a series of oil conditioning units for filtering and dispensing 200L drums of oil.

The Offline Drum Filtration System must not be used for purposes other than that which is described above. Any other use shall be deemed as improper and not in keeping with the product's designated use will void any owner's warranty.

HYDAC will not assume any liability for any damage resulting from any such use.

Proper or designated use of the product extends to the following:

- Observing all instructions contained in the instruction manual.
- Performing required inspection and maintenance work
- Regular maintenance is undertaken on the unit.
- Operating temperatures do not exceed those indicated on the technical specifications.
- No modifications are done to this unit.
- No improper use of the unit.
- Lifted, installed, and operated by qualified personnel.

Improper Use or Use Deviating from Intended Use

DANGER

Danger due to unanticipated use of the unit

Bodily injury and damage to property will result when operated improperly.

Never operate the unit in potentially explosive atmospheres other than that for which it is rated.

The unit is only to be used with permissible media.

HYDAC PTY. LTD. will assume no liability for any damage resulting from such use. The user alone shall assume any and all associated risk.

Improper use may result in hazards and/or will damage the unit. Examples of improper use:

- Operation in potentially explosive atmospheres, other than that which the system is rated for.
- Operation with a non-approved medium.
- Operation under non-approved operational conditions.
- Operation when the safety devices are defective.
- Modifications to the unit made by the user or purchaser.
- Inadequate monitoring of parts that are subject to wear and tear.
- Improperly performed repair work.

Restrictions pertaining to use

NOTICE

Impermissible operating media

The unit will be destroyed

The unit is only to be used with Mineral Oil with maximum viscosity:

- **ODF-S** - 1000 cSt
- **ODF-HV** - 3000 cSt

Please contact HYDAC for more information should other media be required.

Safety Precautions & Hazards

Always keep the operating instructions in the vicinity of the unit.

In addition to the operating instructions, the general and local regulations on accident prevention and environmental protection are to be made available and observed.

The operator must ensure that all hoses and fluid couplings are checked for leaks on a regular basis; as well as checking electrical equipment for loose connections and/or damaged cables.

The following are general hazards associated with the system:

- Risk of high pressure injection injuries (never try to detect leaks with your hand or other body parts)
- Trapped / stored pressure (never open a connection or component without checking for stored energy)
- Burns from hot leakage
- Unplanned movement due to a malfunctioning component (always shut down the system and isolate before working on the system)
- Slips trips & falls (tubes and hoses laying along the ground)
- Environmental, leaking of hydraulic oil

WARNING

Hydraulic systems are under pressure

Risk of Bodily injury. Before performing any work on the Offline Drum Filtration System:

The system must be shut down and isolated.

The system must be depressurized.

Check the system of any residual or trapped pressure.

Check that the “Rated Operating Pressures” of all externally connected hoses, pipes and fittings, meet or exceed that which is required.

WARNING

Hydraulic systems are environmental hazards

The system is at risk of hydraulic leaks and spillages

A hydraulic bunding system of 110% of the total volume may be required when performing maintenance on the unit.

Check Local Environment Protection Requirements

Training and Instruction of Personnel

The Offline Drum Filtration System may only be operated by properly trained and instructed personnel.

The areas of responsibility of your staff must be established in a clear-cut manner as per Table 1 – Training.

Staff undergoing training may not operate The Offline Drum Filtration System unless supervised by a sufficiently experienced staff member.

Qualifications of personnel / target group

Persons who work on the Offline Drum Filtration System must be aware of the associated hazards when using the unit.

Auxiliary and specialist personnel must have read and understood the operating instructions, in particular the safety information and instructions, and applicable regulations before beginning work.

The operating instructions and applicable regulations are to be kept so they are accessible for operating and specialist personnel.

These operating instructions are intended for:

- Auxiliary personnel: such persons have been instructed in the hydraulic system operation and are aware of potential hazards due to improper use.
- Specialist personnel: such persons with corresponding specialist training and several years work experience. They are able to assess and perform the work assigned to them; they are also able to recognize potential hazards.

Activity	Person	Knowledge
Transport / storage	Forwarding agent Specialist personnel	• Proof of knowledge of cargo securing instructions • Safe handling/operation of hoisting and lifting equipment
Mechanical / electrical installation, first commissioning, operation/adjustment maintenance, troubleshooting, repair, decommissioning, disassembly	Specialist personnel	• Safe handling/use of tools • Fitting and connection of hydraulic lines and connections • Fitting and connection of electrical lines, electrical machinery, sockets, etc. • Checking the phase sequence • Product-specific knowledge
Operation, Operations control	Auxiliary personnel	• Product-specific knowledge • Knowledge about how to handle operating media
Disposal	Specialist personnel	• Proper and environmentally-friendly disposal of materials and substances • Decontamination of contaminants • Knowledge about reuse

Table 1 – Training

Hazards Posed by Stored Residual Energy

Note that the unit may pose a hazard as the result of possible residual stored mechanical energy. Take the proper precautions when instructing personnel on the use of the unit. Detailed information is provided in the respective chapters of this manual.

WARNING

Hydraulic systems are under pressure

Bodily injury

The hydraulic system must be depressurized before performing any work on the hydraulic system.

Electrical Hazards

DANGER

Electric shock

Danger of fatal injury

Any work involving the electrical system may only be done by a properly trained, certified electrician.

What to Do in Case of Emergency

In the event of an emergency, only after having assessed that it is safe to approach the system, immediately shut down and isolate the Offline Drum Filtration System.

IN CASE OF FIRE OR ANY PERSONAL INJURY,
IMMEDIATELY FOLLOW ANY SITE SPECIFIC EMERGENCY PROCEDURES
AND CALL LOCAL EMERGENCY SERVICES AS REQUIRED

Modifications to the Offline Drum Filtration System

Do not make any modifications (design modifications, extensions) to The Offline Drum Filtration System without the prior consent of the manufacturer.

Immediately replace any faulty components. Use only original spare parts.

Wear suitable clothing

Loosely worn clothing increases the danger of getting caught or wound up in rotating parts and the danger of getting snagged on protruding parts. You can be severely injured or killed.

- Wear close-fitting clothing.
- Do not wear any rings, chains, or any other jewellery.
- Wear work safety shoes.

Unpacking the unit

Before delivery the unit is inspected for leaks and proper functioning at the factory then carefully packed for shipment.

When receiving and unpacking the unit, check it for damage in transit. Dispose of the packaging material in an environmentally friendly manner.

Do not unpack the system before moving it to its final installation location. Once at the location:

1 – Cut the plastic straps
2 – Remove all protective material from the package
3 – Remove any internal straps and securing bolts or screws

Transporting the unit

Always transport The Offline Drum Filtration System vertically with cantilevered components supported.

NOTICE

Unsuitable transportation of the unit

The unit will be damaged

Transport the unit in vertical position

For transportation using a forklift, use the two slots located on the bottom base of the frame as shown below.

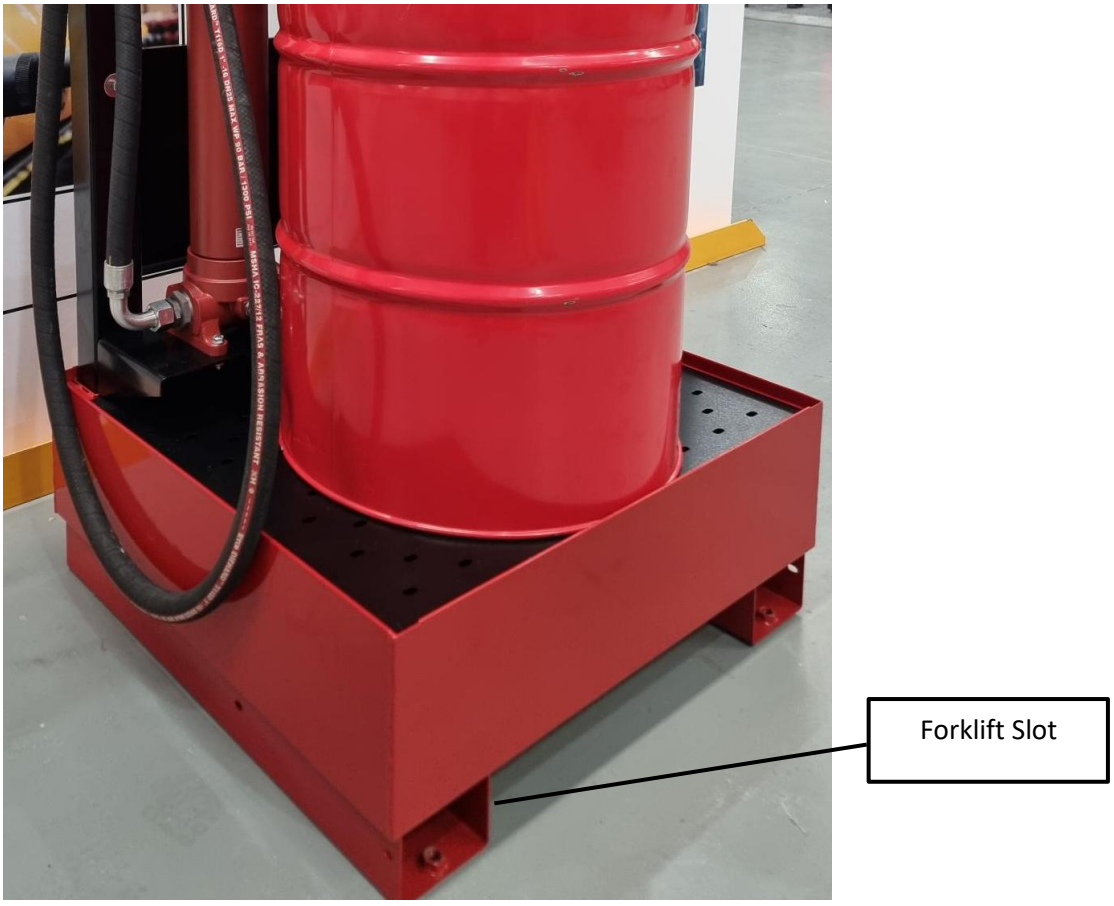


Figure 1 : Slot on Frame

Should not lift the unit whilst it is still connected.

Should not lift the unit via any other points on the frame other than the forklift slots illustrated above.

Should not lift the unit with a drum fitted.

NOTICE

Unsuitable lifting method

The unit/components will be damaged/destroyed

Use only suitable lifting method to lift system to ensure centre of gravity is stable.

⚠ WARNING

Sharp edges, splinters and exposed fasteners can cause injuries

Bodily injury

Only properly trained and qualified technicians wearing appropriate headgear, gloves and shoes, should move, lift, unpack, or prepare the unit for installation.

⚠ WARNING

Risk of handling a unit heavier than 25kg (55lb): improper lifting can cause injuries and equipment damage

Bodily injury

Properly trained & qualified persons are required to move the ODF.

Storing the unit

- Make sure to store the Offline Drum Filtration System in a clean, dry place, in the original packing if possible. Do not remove the packing until you are ready to install the unit.
- Do not store the Offline Drum Filtration System in an area that is prone to flooding.

Storage temperature:	+10°C … +40°C
Relative humidity:	max. 95%, non-condensing

Checking the Scope of Delivery

The Offline Drum Filtration System is delivered fully assembled with all filtration elements sold separately.

Immediately report any damage found in transit to the forwarding agent or to the HYDAC department in charge. Do not put the unit into operation if damaged.

Technical Specifications

The following sections will outline the operating parameters of the Offline Drum Filtration System.

The intent of this section is to give the Offline Drum Filtration System's operator a quick reference tool to important requirements and limitations of the Offline Drum Filtration System.

It is not intended to remove any of the operator's responsibility to have a complete and thorough understanding of the Offline Drum Filtration System.

	ODF- S	ODF - HV
Permitted Operating Fluid	Mineral Oil	
Viscosity Range	15…1000cSt	15…3000cSt
Fluid Temperature	+ 10... + 60 °C	
Ambient Temperature	+ 10... + 40 °C	
Ingress Protection	IP55	
Pump Type	External Gear Pump with integrated Bypass Check Valve	
Pump Flow Rate	18.7 L/min	8.0 L/min
Operating Pressure	10 bar Maximum	
Electric Motor Details	0.75kW 3PH 8P 415 50Hz	0.75kW 3PH 6P 415 50Hz
Filter Housing	LF 660	NF 750 DF
Element Series	0660 D XXX ON /-SO882	0750 R XXX ON
Weight (dry)	~210kg	
Dimensions (mm)	836 (L) x 835 (W) x 1806 (H)	

Table 2 – Technical Specification

Model Code

ODF S G N 1 N 1 B 0

Offline Drum Filtration Unit
ODF

Type code
S = Standard
HV = High viscosity

Pump version
G = Gear Pump

Seals
N = NBR

Motor output
1 = 0.75 kW

Connection Voltage
N = 3 x 415V, 50 Hz

Filter Housing
1 = LF 660 (Standard only)
2 = NF 750 D F (HV only)

Clogging Indicator
B = Standard Differential Pressure Indicator - Visual (VM2 B.1)

Supplementary Details
0 = No details

Component Identification

The following sections will identify the major subsystems and components of The Offline Drum Filtration System using photos and the name of each component identified. The intent of this section is to give the Offline Drum Filtration System's operator a quick reference tool to identify major subsystems and/or components.

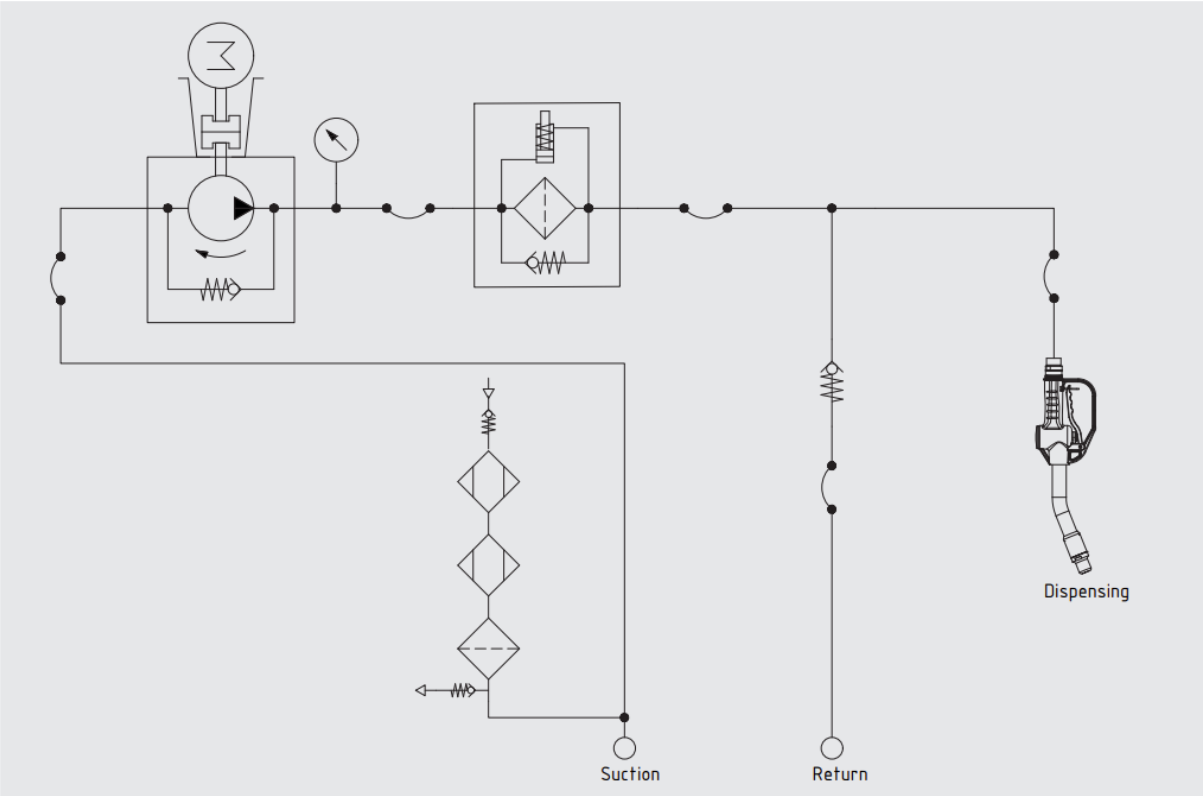
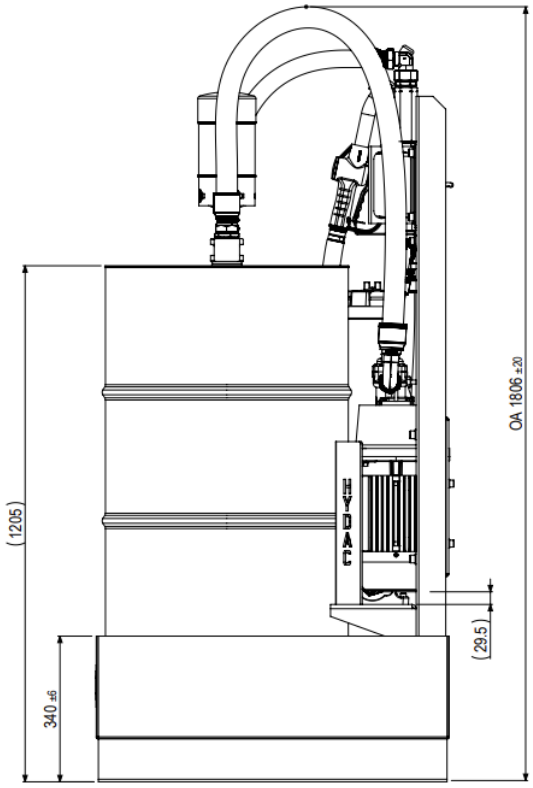
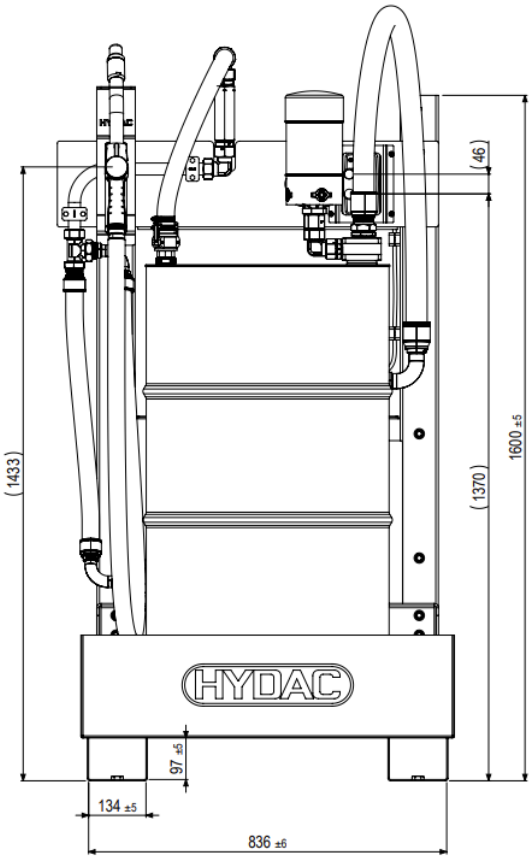
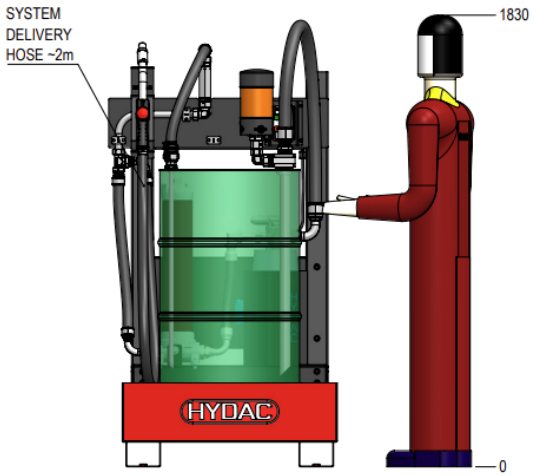
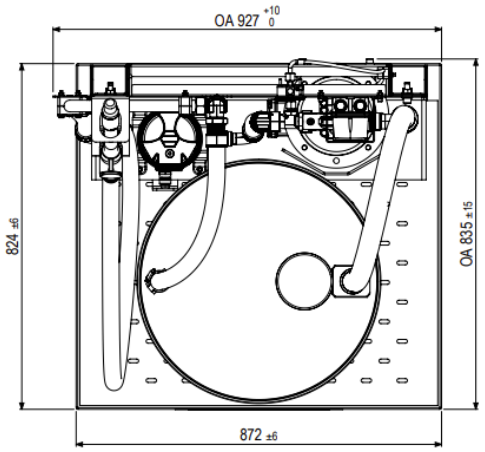


Figure 2: ODF-S & ODF-HV Hydraulic Circuit


OA 1806 ±20
(1205)
340 ±6
(29.5)
HYDAC


(46)
619
010
(1433)
(1370)
1600 ±5
HYDAC
97 ±5
134 ±5
836 ±6


SYSTEM
DELIVERY
HOSE ~2m
1830
HYDAC
0


OA 927 +10 0
824 ±6
OA 835 ±15
872 ±6

Major Subsystems and Components Overview

Front of Offline Drum Filtration System – Standard

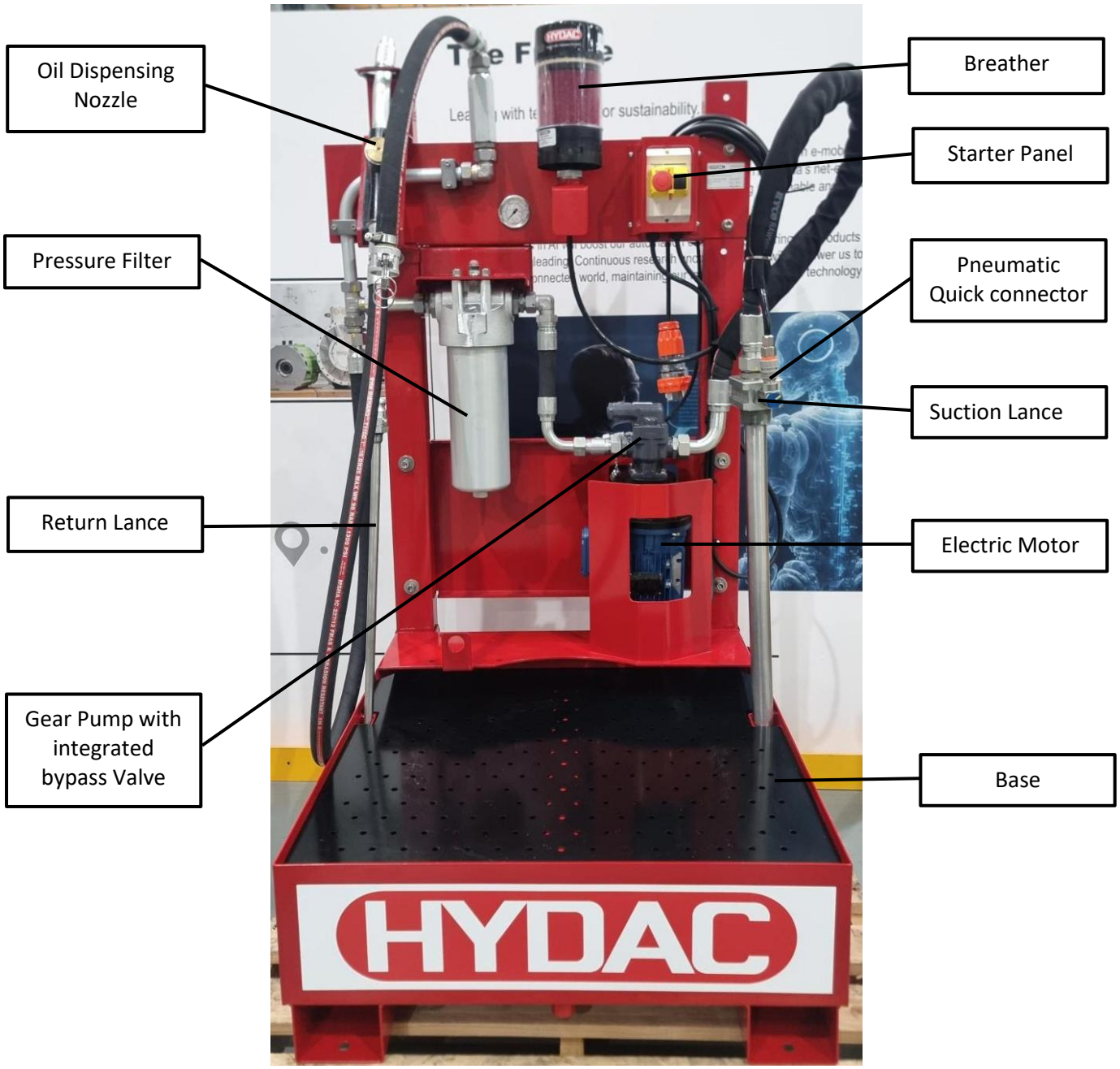


Figure 3 : Front View of ODF-S

Front of Offline Drum Filtration System – High Viscosity

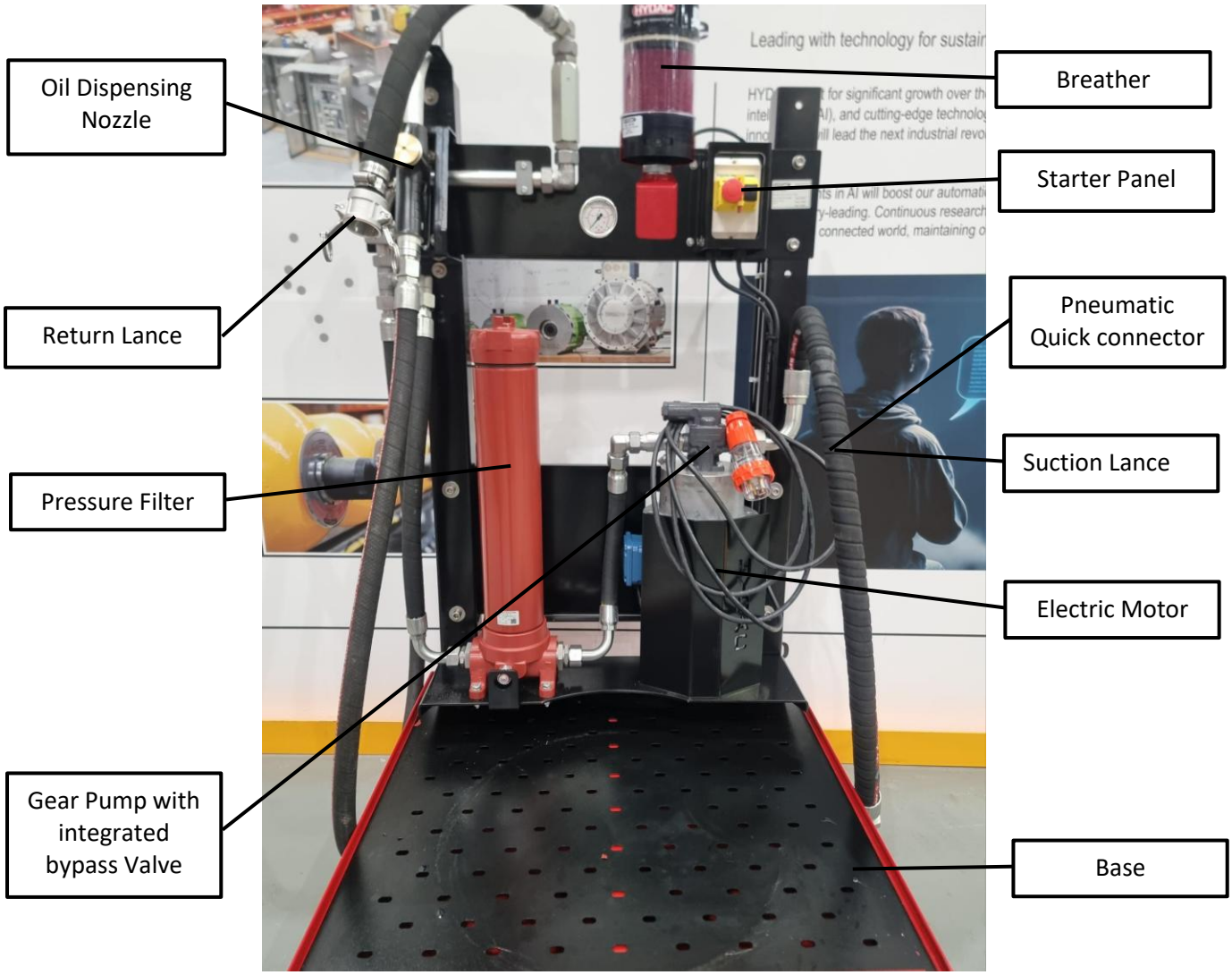


Figure 4 : Front View of ODF-HV

Connection Ports (ODF-S, ODF-HV)

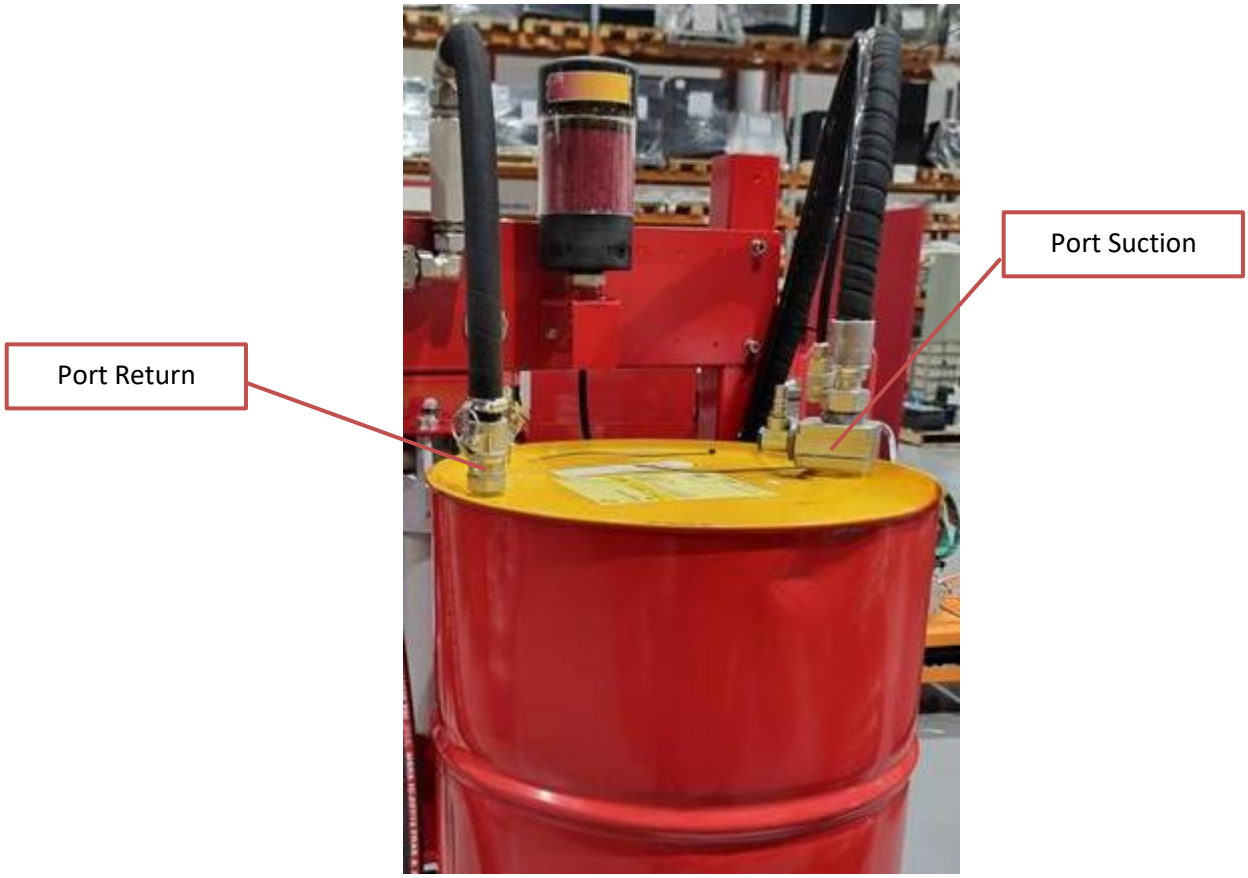


Figure 5 : Port Connection

Instrument Panel (ODF-S, ODF-HV)

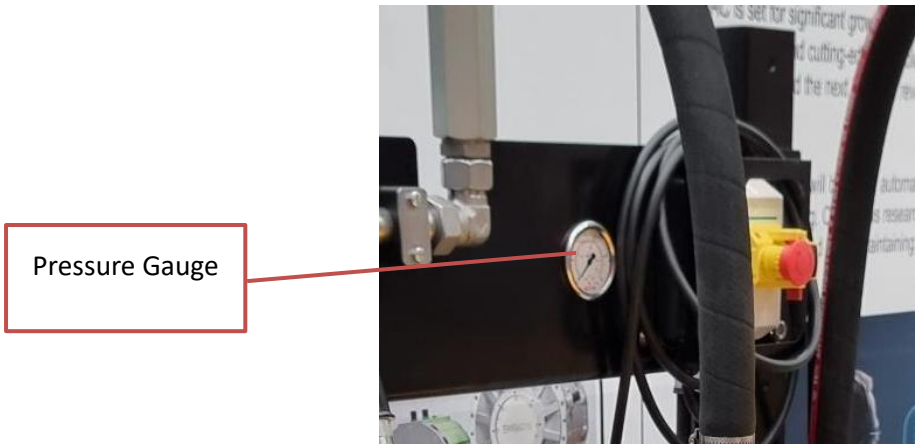


Figure 6: Instrument Panel

Positioning the System

Offline Drum Filtration System can be considered to be environmental hazards due to their inherent risk of leaks and/or spillages. As mediation to that risk, The Offline Drum Filtration System should be positioned in an area where the effects of a leak or spill during normal operation and whilst performing maintenance/repairs on the system can be minimised.

Site specific standards and local regulations may require the system to be placed in a permanent structure providing a leak proof bunding of the system.

WARNING

Hydraulic systems are to be environmental hazards

Environmental Hazard

The system is at risk of hydraulic leaks and spillages.

A hydraulic bunding system may be required.

Check Local Environment Protection Requirements

The Offline Drum Filtration System should be installed on a horizontal surface, away from entries or openings to buildings. If the area is prone to flood, consider a raised position for the unit.

Vibration

Some vibration is to be expected during operation, loose components should be suitably protected from abrasion when in contact with other parts. Any hoses or wires in contact with sharp edges should be moved or protected.

Airflow

The Offline Drum Filtration System must always be provided with unrestricted air flow at the outlet of the Electric Motor.

Noise Pollution

The Offline Drum Filtration System does not have any noise attenuating covers or features. Consideration must be given to any nearby populated areas before installing the unit and site-specific noise regulations.

Dust

Exposure of the Offline Drum Filtration System's components to dust can reduce the life of the system and increase the maintenance costs. Consideration should be given in the surrounding area to reduce and/or control the amount of airborne dust ingested by the system.

Pre-Start Activities

Starting Position (ODF – S, ODF – HV)

Ensure that all lances are in their normal operating positions as indicated below:

Description	Normal Operating Position
Return Lance – ¾" BSPP	Turned into ¾" BSPP Drum port
Suction Lance with Breather – 2" BSPP	Turned into 2" BSPP Drum port
Pneumatic Quick connector	Securely plugged

Drum Position

Ensure the drum is positioned in the middle of the base.

Use a suitable drum lifting device to position drum on base.

Hydraulic Connections

The Offline Drum Filtration System must be hydraulically connected to a drum. The suction and return connections must be made airtight.

Ensure pneumatic quick connector is securely connected.

All connections must be made by a suitable qualified hydraulic technician.

Hydraulic connections must be supported with a suitable tool when screwing or unscrewing the connection thread on the drum.

Return Lance (ODF – S, ODF – HV)

Screw the return lance into the 3/4" BSPP thread of the selected drum, ensuring that an O-ring is in place to provide an airtight seal. Insert the return hose equipped with the camlock fitting and secure it by fully engaging both locking latches.

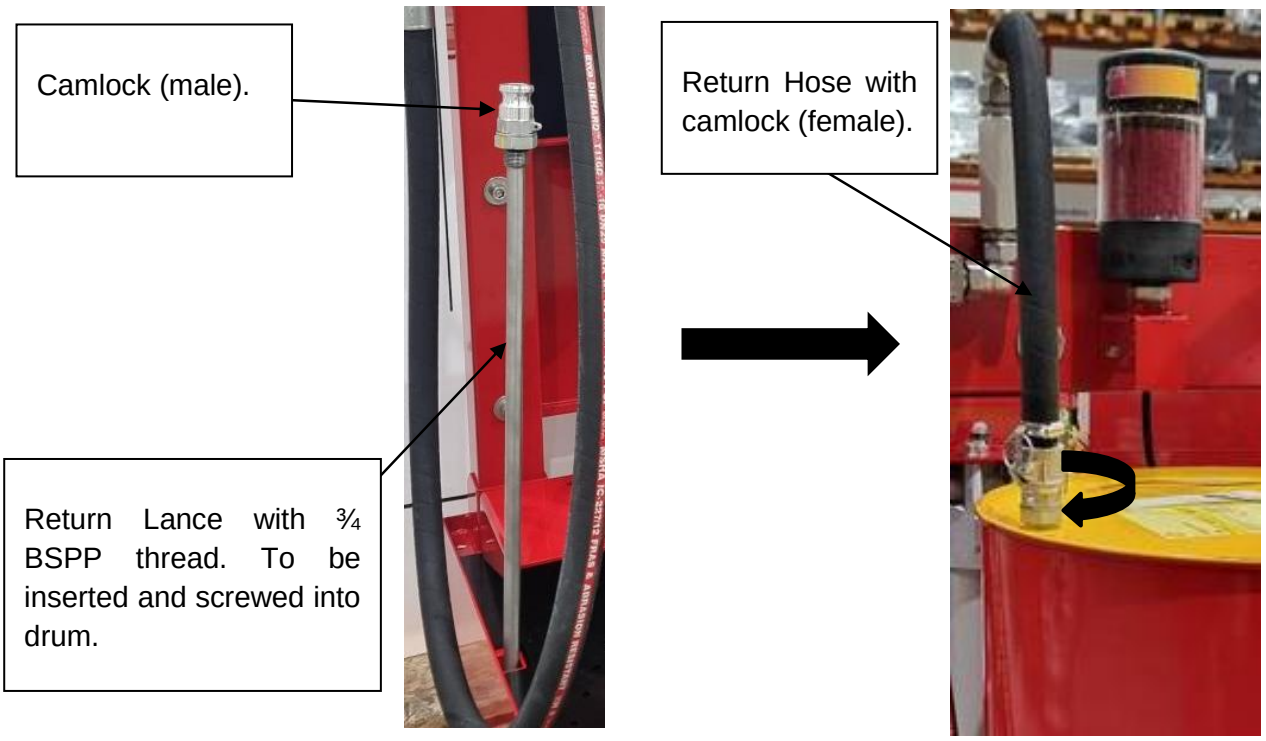


Figure 7: Return Lance.

Suction Lance (ODF – S, ODF – HV)

Screw the suction lance into the 2" BSPP thread of the selected drum, ensuring that an O-ring is in place to provide an airtight seal. Screw the suction hose-end on the top of the suction manifold ensuring an airtight seal.

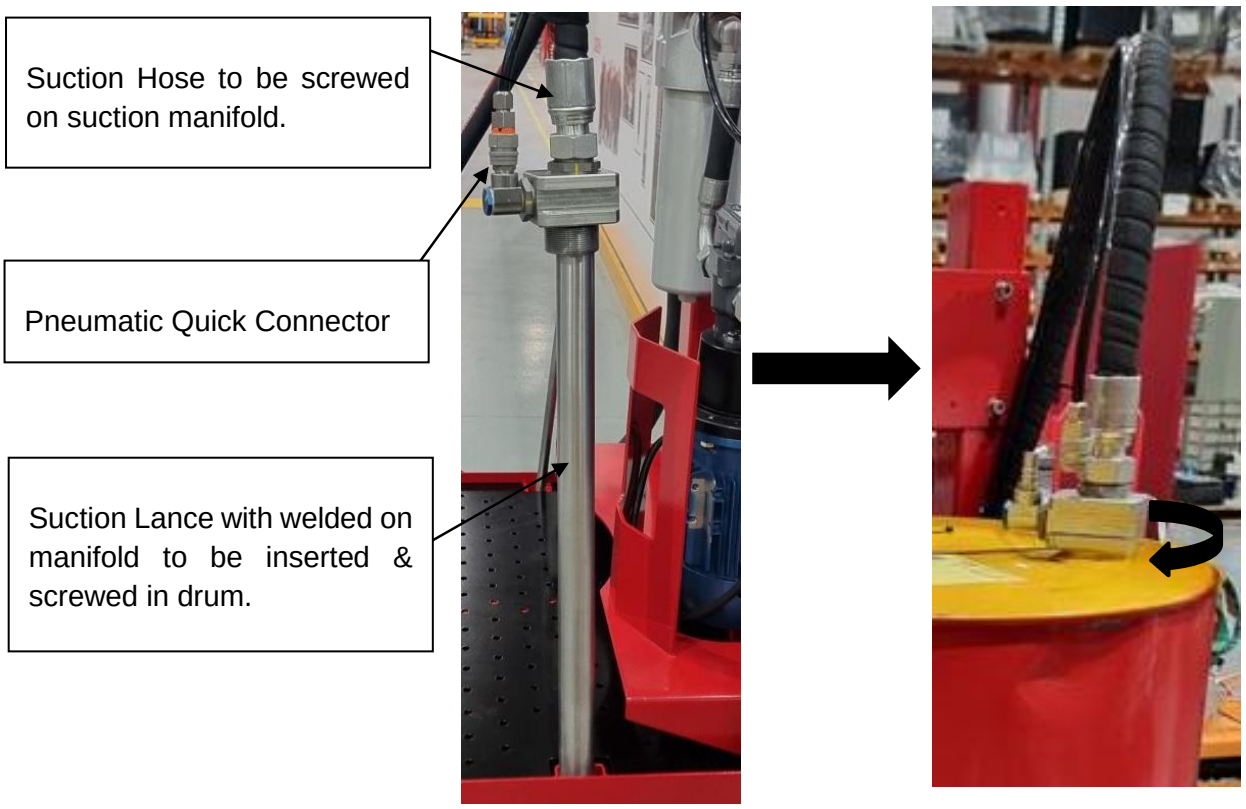


Figure 8: Suction Lance.

Air leaks or improper hose connections may cause pump cavitation, resulting in reduced performance or potential damage to the hydraulic system. Ensure all fittings and seals are properly tightened before operation.

Pneumatic Quick Connector (ODF – S, ODF – HV)

Connect

Connect the socket end of the pneumatic tube to the plug fitting on the suction lance, as shown in Figure 6. Retract the sleeve, insert the socket fully into the plug, and release the sleeve until an audible “click” confirms proper engagement.

Figure 9: Pneumatic quick connector - Connect

Disconnect

To disconnect the quick connector, pull the sleeve back on the socket side. This will release the connector allowing you to disconnect.

Figure 10: Pneumatic quick connector – Disconnect

Electrical Connection

The cable plug must be supplied with a 415V, 50Hz power supply. The voltage and frequency must match what is specified on the electrical motor nameplate.

Unwind the connector cable fully. Plug the power plug into a suitable, earthed and protected power outlet. Ensure that voltage and frequency of the power supply are correct. Check the rating plate and information label in the control box of the filter unit for this information.

Install a motor protection switch tailored to the nominal current of the motor upstream of the unit.

CAUTION

Incorrect 3 Phase Sequence

The unit/components will be damaged/destroyed

Please ensure that configuration of 3 phase supply correspond to the information on the motor label.

CAUTION

Incorrect voltage and frequency of the motor

The unit/components will be damaged/destroyed

Please ensure that voltage and frequency correspond to the information on the label.

DANGER

Electric shock

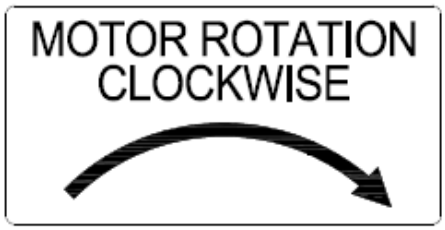
Danger of fatal injury

Any work involving the electrical system may only be done by a properly trained, certified electrician.

Rotational Check

NOTE: All electric motors must rotate in a clockwise direction. When connecting to a new outlet, perform a pulse/jog test for approximately one second to verify proper operation.

Electric motor shall have a rotational arrow, similar that that which is pictured below, stuck on or near the motor fan cowling. This can be used to confirm that the direction is correct during the above-mentioned pulse/jog test. Incorrect phase must be rectified by a certified electrician.



.

NOTICE
Electric motor direction
ODF will not operate at full capacity
Check direction of motor rotation as per instruction above

Starter Button

Startup & Unlocking procedure

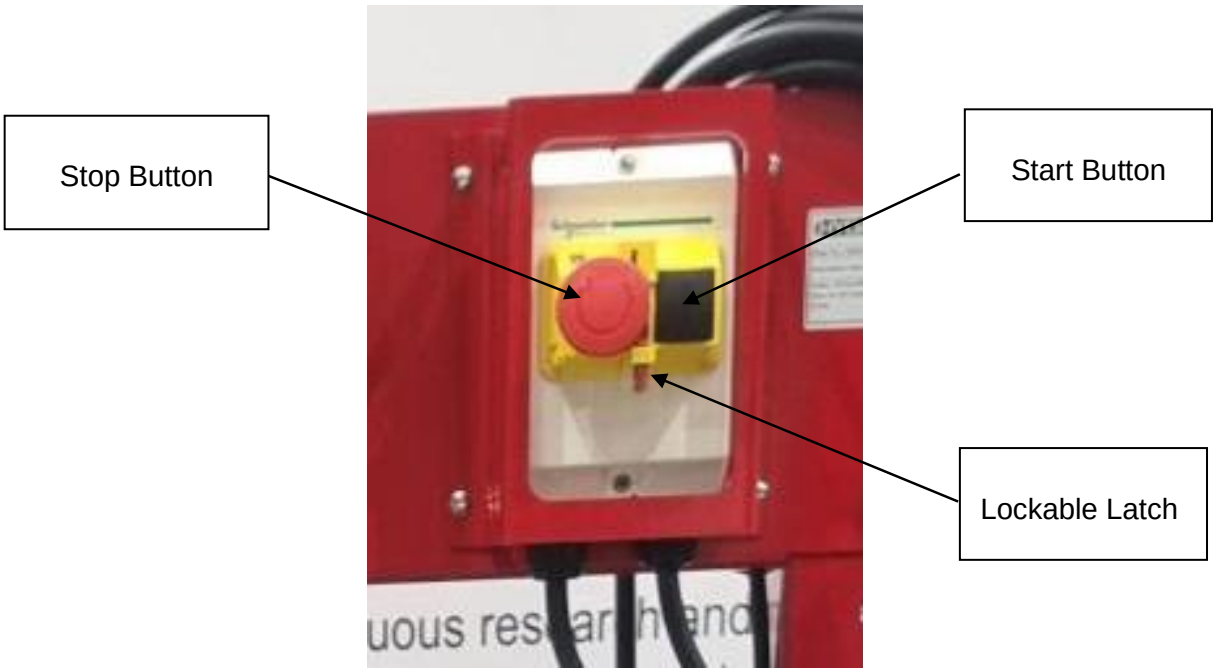


Figure 11: Enclosed Starter

To start the unit, unlock the lockpad if engaged. Press the stop button to reset the lockable latch (should get pushed up), then press the black start button to power on the unit.

Shut down & Locking procedure

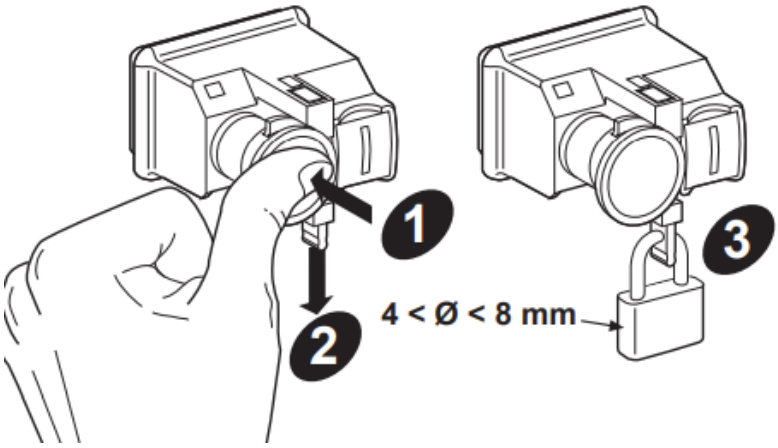


Figure 12: Locking Method

Press the stop to shut down the unit. Pull the lockable latch down and lock the unit if required.

Changing Drums

When a new drum has to be fitted on the ODF, follow the following steps:

- Switch the ODF off.

- Remove the return lance.
  - Unlock the camlock and remove the return hose – **this may be filled with oil.**
  - Unscrew the return lance from the old drum and pull it out.

- Remove the suction lance.
  - Remove the pneumatic connection by pulling back the sleeve as shown on figure 10.
  - Unscrew the suction hose from the top of the suction lance manifold – **this may be filled with oil.**
  - Unscrew the suction lance from the old drum and pull it out.

- Replace the drum on the ODF with desired 208L drum using a suitable lifting device.

- Follow the steps from page 30 to set up a new drum.

- **Note (ODF-HV Only)**: Ensure that the NF Inline Pressure Filter is bleed of air with every drum change.

Operating modes

Recirculating Mode – Filtering Oil

Upon activation of the pump through the starter panel, the system defaults to recirculation mode. In this mode, oil is drawn from the drum through the 2-inch suction lance into the pump inlet. The fluid is then directed through the filtration assembly where particulate contaminants are removed. Post-filtration, the oil passes through a check valve to prevent backflow and is subsequently returned to the drum via the ¾-inch return lance. During this mode the suction and the return must be securely turned into the drum's port.

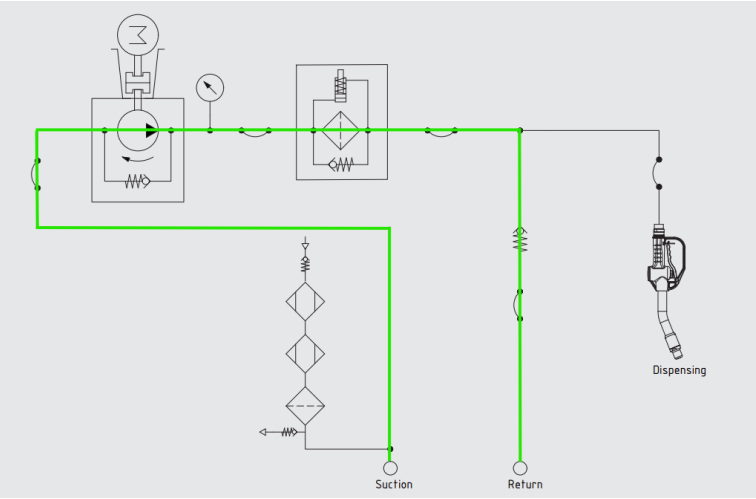


Figure 12: Recirculating Mode

Dispensing Mode – Dispensing Oil

When the oil dispensing nozzle handle is pressed, the oil flow is redirected to the nozzle. Releasing the nozzle will result in the Offline Drum Filtration going back into recirculation mode. During this mode the suction and the return must be securely turned into the drum's port. **Note**: Ensure there is always sufficient oil level within the drum for pump suction to prevent cavitation.

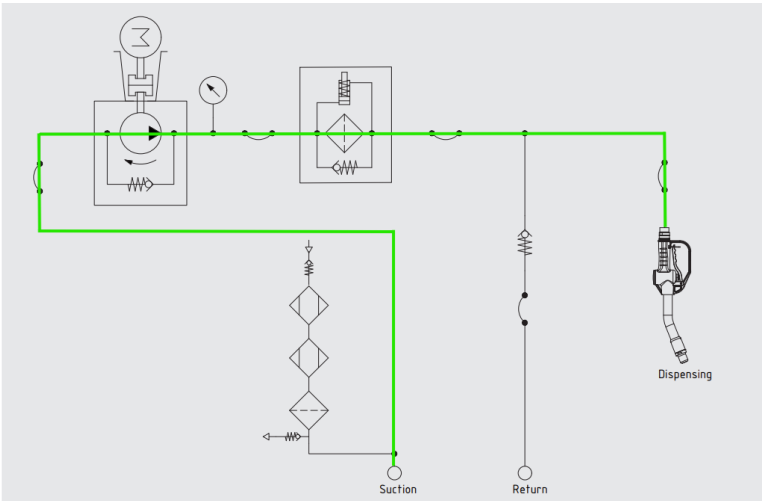


Figure 13: Dispensing Mode

Filter Elements

The Offline Drum Filtration System should be installed with filter elements before use. HYDAC recommends the following standard filters elements. More details about changing the filter elements can be found on page 44.

Unit	Model Code	Part Number
ODF - S	0660 D 005 ON /-SO882	1316343
	0660 D 010 ON /-QPD	1316144
	0660 D 020 ON /-SO882	1316344
ODF - HV	0750 R 010 ON	1292787
	0750 R 020 ON	1292788

Table 3: Recommended Filter Elements

General notes

Apart from the items detailed above, operating instructions for major components and/or sub-systems are to be consulted prior to commissioning.

System Operating Warning

The operation of The Offline Drum Filtration System is semi-automated and needs to be monitored during operation by qualified personnel depending on site specific standards.

DANGER

Danger due to unattended operation

Damage to property and/or catastrophic failure could result when system is left unattended for extended time periods.

This unit only has visual indication and should be routinely monitored.

Commissioning

The following sections will identify the areas requiring attention during commissioning of the Offline Drum Filtration System.

The necessary safety precautions should be taken before performing the tasks below.

WARNING

Hydraulic systems are under pressure

Bodily injury

The appropriate safety equipment should be worn whilst performing these actions.

When commissioning, the following points must be taken into consideration:

- Check that there are no restrictions in any of the hydraulic lines.
- Check for any leakages within the unit as well as all connections to and from the unit.
- Check that the system is securely placed (vibration free) & correctly connected.
- Check that all parts are free from damage.
- **WARNING Check OIL temperature is suitable for pump operation.**
- Check that all electrical connections are made according to the motor data plate.
- Check that hoses are properly attached and tight.
- Check that there is oil available for the pump and the suction connection is open to flow freely.
- ODF-HV only – Filter must be bled off air during operation when a new drum is fitted via the air vent port – See page figure 17.
- Check that there is sufficient oil in the drum before the pump is operated.

NOTICE
Check drum oil level Pump cavitation will occur Pump will be destroyed / damaged

The following sections will identify the areas requiring attention during commissioning the Offline Drum Filtration System.

	**DANGER** **Explosive areas** Danger of fatal injury Disregarding the warning above can cause danger to life and limb and damage to the system
	**CAUTION** **Pump, motor & filter surfaces may be hot** Skin burns Risk of severe burns. The unit can become extremely hot during operation. Ensure that the unit is cool before touching.

Do not overload the electric motor (see label on the electric motor).
Wear ear protection when standing for long periods of time, in the immediate vicinity of a running system.

Monitoring

Check the specified temperatures of the fluid after commissioning.
If these values are not stable and the system reaches excessive temperatures, please check the following:

- Electrical connections
- Pressure bypass valves
- Fluid flow rate
- Inlet/outlet temperatures of fluid

- Maximum pressure of the system

Temperature

Check the temperatures of the pump and motor bearings using a thermal camera or infrared thermometer.

WARNING

Oil temperature

The unit/components will be damaged/destroyed

Check oil temperature is suitable for pump operation.

De-Commissioning

- Disconnect the unit from the electrical power supply.
  This is to be done by a qualified electrical technician.

DANGER

Electric shock

Danger of fatal injury

Any work involving the electrical system may only be done by a properly trained, certified electrician.

- De-pressurise the system and disconnect from the installation.

WARNING

Hydraulic systems are under pressure

Bodily injury

The appropriate safety equipment should be worn whilst performing these actions.

- If required, drain the fluid into suitable containers.

WARNING

Hydraulic systems are to be environmental hazards

Environmental Hazard

The system is at risk of hydraulic leaks and spillages.

A hydraulic bunding system may be required.

Check Local Environment Protection Requirements

Performing Maintenance

General

The basic prerequisites for proper and reliable operation are that the entire Offline Drum Filtration System be kept clean and properly maintained.

The operating and maintenance personnel must be thoroughly acquainted with proper operation and applicable safety regulations. These regulations are to take precedence over any and all economic interests or production requirements. If there are any questions concerning operational measures, the individual in charge of maintenance operations is to be contacted.

The prime objective of maintenance is to maintain the operability and performance of the existing and newly commissioned Offline Drum Filtration System and prevent outages and failures while keeping the costs associated with maintaining within reasonable economically viable limits and to minimize repair costs in the event of malfunction or failure.

The primary cause of the poor performance of a hydraulic system is mechanical and chemical wear and tear.

Mechanical wear and tear are the result of the relative movement between materials (abrasion, deformation, seizing, sticking etc.).

Chemical wear is the result of contact with aggressive media (corrosion, erosion, and aging).

In addition, micro structural changes result in poor performance of a system. They are the result of marked alternating loading through tensile stress and compression.

Deposit build-up, contamination, soiling, cross-sectional changes, and clogging are the main indications, with impaired quality, substandard manufacturing and total failure being the result.

One of the main targets of maintenance is to identify normal, operation-induced wear and tear in all the forms described above and to assess and record them to prevent excess wear and tear.

WARNING

Hydraulic systems are under pressure

Bodily injury

The system must be depressurized before performing any work.

Maintenance Intervals

The following general preventative maintenance work must be performed at the intervals indicated below during normal operation.

The extent and frequency of maintenance depends on the facility's operating conditions and system duty cycle.

The following maintenance intervals are recommended and may have to be adapted as necessary depending on the operating conditions.

Daily Maintenance

- Check the temperature of The Offline Drum Filtration System components and piping system. If excess temperature is detected, investigate, and identify the root cause. Resolve the issue if practical or report it to the site principal.
- Check the operating pressure on the pressure gauge.
- Check the clogging indicator for the pressure filter. Change element if required as per Changing Filter Elements on page 47.
- Check the colour of breather, change breather if required as per page 52.
- Check for noises, shocks and vibration in the components and piping system.
- If any unusual noise, shocks or vibrations are detected, investigate and identify the root cause. Resolve the issue if practical or report it to the site principal.
- Check all components, fittings, pipes and hose connections for leakage. If leakage is detected, investigate and identify the root cause. Resolve the issue if practical or report it to the site principal.

Monthly Maintenance

- Check the mounting of the pipes/hoses and tighten any loose components.
- Check piping and hose/tubing (joints, connection points, flanges, screwed fittings, and places subject to abrasion and bending).
- Repair any damage to the systems mechanical components if practical or report it to the site principal.
- Perform external cleaning of the unit/system.
- Check the operation of the measuring devices such as pressure level gauges.
- Observe and report any sign of corrosion on the components.

Quarterly to Six-Monthly Maintenance

- Check the settings and functionality of the pump and its pressure relief, as well as the pressure gauge.
- Check the external appearance of the system (check for dirt build-up and damage). If necessary, clean and repair damage.

Yearly Maintenance

- Change the filter element (if not already changed)
- Tighten the screwed fittings.
- Check for any leakage.
- Check the pressure settings and conduct a functional check.
- Check the hose lines. Hose lines are to be replaced every 5 years even if they do not exhibit any apparent damage.
- Check the seals and gaskets of piping, valves, and other units and, if necessary, replace them.

Where applicable components such as the pump, valves and monitoring devices are to be repaired or replaced. When removed, these components should be inspected and repaired by an approved specialist and properly preserved for storage or re installation.

Changing Filter Elements

NOTICE

Unsuitable/incorrect filter element

The medium is not filtered.

Element may become swollen and damage filter housing.

Use only filter elements stated on datasheet for the appropriate unit

WARNING

Hydraulic system is under pressure

Danger of bodily injury

Note the maximum operating pressure.

The hydraulic system must be depressurized before performing any work

Clogging Indicator

The clogging indicator for the ODF Standard & High Viscosity can be located on the filter housing.

Figure 14: Clogging Indicator on ODF-S

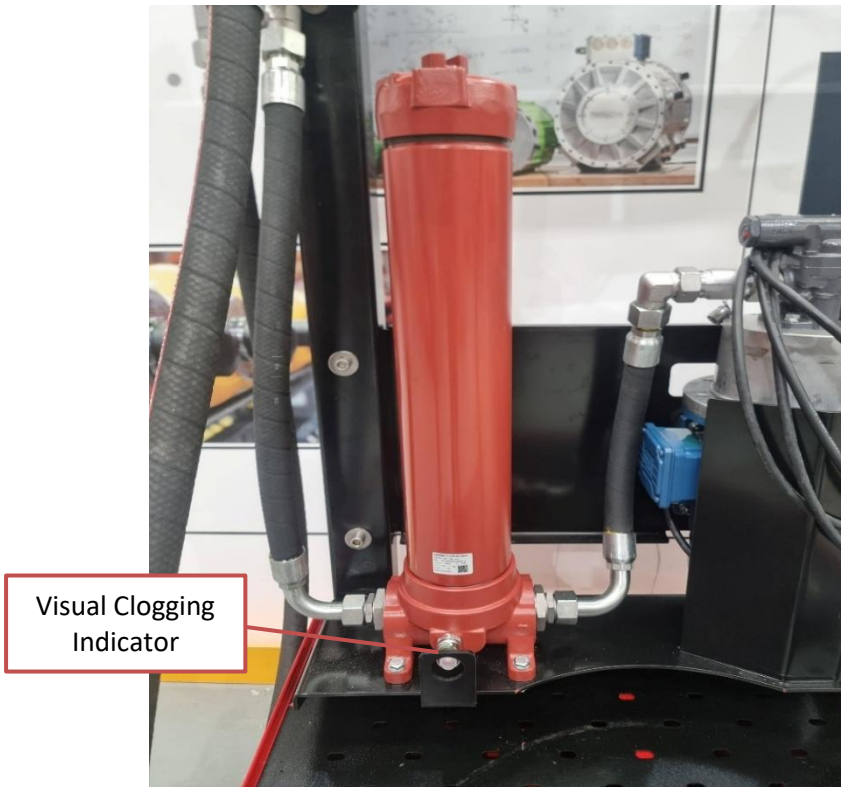


Figure 15: Clogging Indicator on ODF-HV

The Clogged Status shall be displayed as follows:

- Unclogged – Green Band is visible
- Clogged and replacement required – Red Band visible

A manual reset of the clogging indicator may be required to verify that the filter element is clogged or after a new element has been installed or changed over to.

Check clogging indicator status whilst unit is in normal operating mode.

Note: The clogging indicators only respond when fluid is flowing through the filter.

Removing Element (ODF-S)

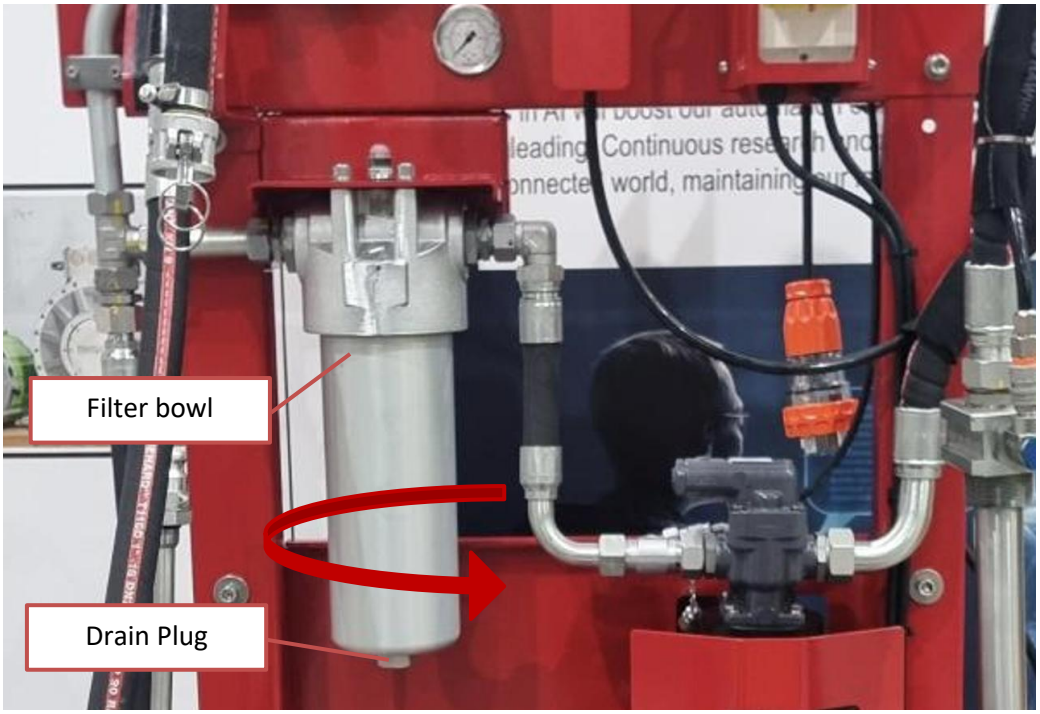


Figure 16: Filter Bowl & Drain Plug on ODF -S

- Switch the system off and release filter pressure.
- Open oil drain plug on the filter.
- Drain filter housing into a suitable container. Do not return this oil to the system without filtering.
- Unscrew the bowl from the filter head.

WARNING

Removal of slippery bowl

Danger of bodily injury

Note that the bowl is heavy < 10kg.

Ensure hands and bowl are free of oil residue, may result in mishandling if not

- Remove filter element from element spigot in filter head (check surface of element for contamination residue and larger particles; these can indicate damage to components).
- Clean the filter bowl and filter head, particular attention must be given to the threads.
- Examine filter, especially sealing surfaces, for mechanical damage.
- Check O-rings and replace if necessary.

Removing Element (ODF-HV)

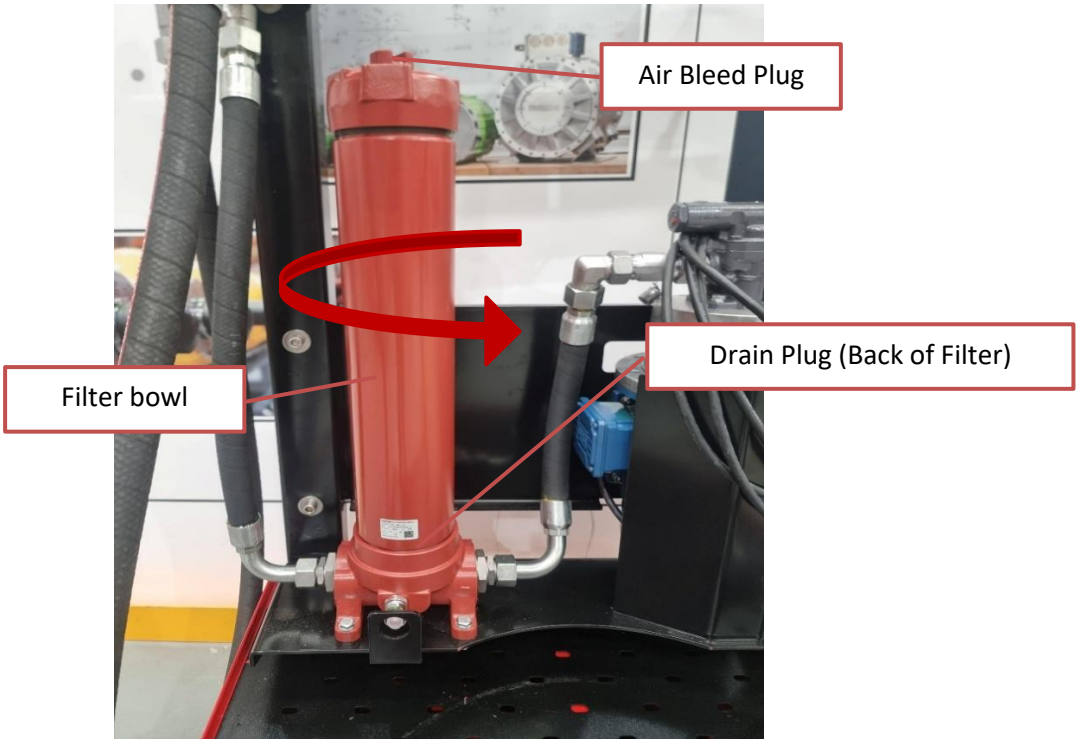


Figure 17: Filter Bowl & Drain Plug on ODF-HV

- Switch off hydraulic system and release filter pressure.
- Loosen the air bleed screw
- Open oil drain plug on the filter.
- Drain filter housing into a suitable container. Do not return this oil to the system without filtering.
- Unscrew cover from filter housing.
- Remove filter element from the element spigot.
- Examine element surface for dirt residues and larger particles since these can be an indication of damage to components.
- Clean housing and cover
- Examine filter, especially sealing surfaces, for mechanical damage.
- Check O-rings – and replace if necessary.

Installing Element (ODF-S)

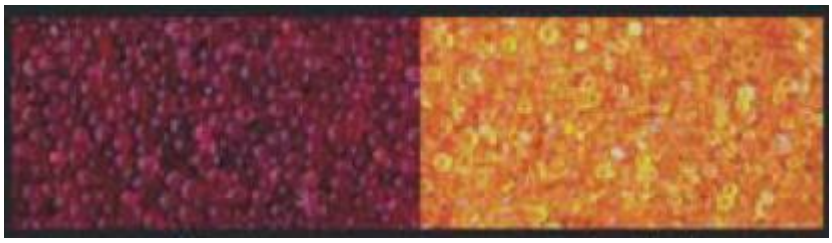
- Lubricate the O-ring with clean operating fluid.
- When installing a new filter element, check that the designation corresponds to that of the old element.
- Place filter element carefully on to the element spigot.
- Apply silver grade anti-seize to threads. Screw in filter bowl fully (metal to metal contact) and then unscrew by one quarter-turn.
- Screw in oil drain plug
- Switch on the unit and vent filter at a suitable point
- Check filter for leakage.

Installing Element (ODF-HV)

- Lubricate the O-ring with clean operating fluid. Apply aluminium paste or another suitable lubricant to threads on filter head and bowl.
- When fitting a new filter element, check that the designation corresponds to that of the old element.
- Place filter element(s) carefully on to the element spigot. - Pay attention to the position of the handle on the element, change over as necessary.
- Screw the cover on by hand fully and then a quarter-turn back again.
- Screw in oil drain plug
- Switch on the unit and fill filter until oil exits from the air bleed screw.
- Close air bleed screw
- Check the filter for leakage.

Replacing Breather Cartridge

When the breather element needs to be replaced it will change from dark red to orange as per photo below:



Active - Usable **Saturated - Replace**

Change the breather element by completing the following steps:

- Unscrew current element from base.
- Remove new element from packaging and check the model code of the new element matches the existing element.
- Remove yellow protective cover from new element.
- Screw new element onto base.

Figure 18: Breather Cartridge

Troubleshooting

ERROR	Cause(s)	Remedy
Differential pressure > 3 bar / Clogging indicator responds	Medium is heavily contaminated	Replace the filter element. (see page 47)
	The contamination retention capacity of the filter element has been reached.	Replace the filter element. (see page 47)
	The viscosity is too high	Check if oil viscosity is within operating range at current temperature, heat the oil if required.
No flow	The suction hose is positioned above the medium and sucks in air.	Sufficiently immerse the suction hose – Check the oil level of the drum
No function	The electrical connection is faulty	Check the electrical connection - plug, cable and socket.
Pump Cavitation	Suction hose not secured	Check suction hose.
	The viscosity is too high	Warm the medium.
Mechanical Vibration	Pump – Worn or damaged	Repair or replace pump
	Coupling set – Worn or damaged	Repair or replace coupling set
	Electric motor – Worn or damaged	Repair or replace electric motor
	Pneumatic connector not connected securely	Check pneumatic connection
Clogging indicator responds during a cold start	The viscosity is too high	Check if oil viscosity is within operating range at current temperature, heat the oil if required.
High pump temperature	Pump – Worn or damaged	Repair or replace pump
	High Fluid Temperature	Ensure fluid is within acceptable limits
Leakage	Leakage of a component or hose installation	Find leakage and replace. or repair component

If this section has not helped rectify your difficulties, please contact HYDAC for further advice.

Spare Parts

Part Number	Description	QTY per Unit
2365652	Hand Nozzle	1
6052626	Pressure Gauge	1
2365271	Suction Lance	1
2364933	Return Lance	1
2363346	Pump – ODF-S	1
6091276	Pump – ODF-HV	1
2352917	Coupling Set – ODF-HV	1
2363347	Coupling Set – ODF-S	1
2359467	Electrical Motor – ODF-HV	1
2359468	Electrical Motor – ODF-S	1
2367084	Pneumatic Quick Connector – Male	1
2367083	Pneumatic Quick Connector – Female	1
1287341	Filter Housing – High Viscosity	1
1292787	Filter Element – 10µ – High Viscosity	1
1292788	Filter Element – 20µ – High Viscosity	1
1316575	Filter Housing – Standard Viscosity	1
1316343	Filter Element – 5µ – Standard Viscosity	1

1316144	Filter Element – 10µ – Standard Viscosity	1
1316344	Filter Element – 20µ – Standard Viscosity	1

Table 4: Spare Parts List

Please contact HYDAC for further assistance.

Adaptors and Couplings

HYDAC endeavours to utilise only standard adapters and couplings that are readily available to the Australian Fluid Power Industry.

Adaptors and Couplings used are DIN 2353 Metric Compression type fittings.

Disposing of the unit

Dispose of the packaging material in an environmentally-friendly manner.

After dismantling the unit and separating the various materials, dispose of the unit in an environmentally friendly manner.