HYDAC INTERNATIONAL

OFT20 / OFT-HV

Offline Filtration Trolley

Operating and Maintenance Instructions

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Table of authorities

Date	Name	Company	Function	Signature
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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 such errors as 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. 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.

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Table of Contents

Preface

For you, as the owner of a product manufactured by us, we 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 ins and outs of the product and use it properly.

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

Note that the information on the unit's engineering contained in the documentation was that available at the time of publication. There may be deviations in technical details, figures, and dimensions as a result.

If you discover errors while reading the documentation or have suggestions or other useful information, please don't hesitate to contact us:

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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:

Fax: (03) 9369 8912
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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: www.hydac.com.au -- Terms and Conditions.

Using the Documentation

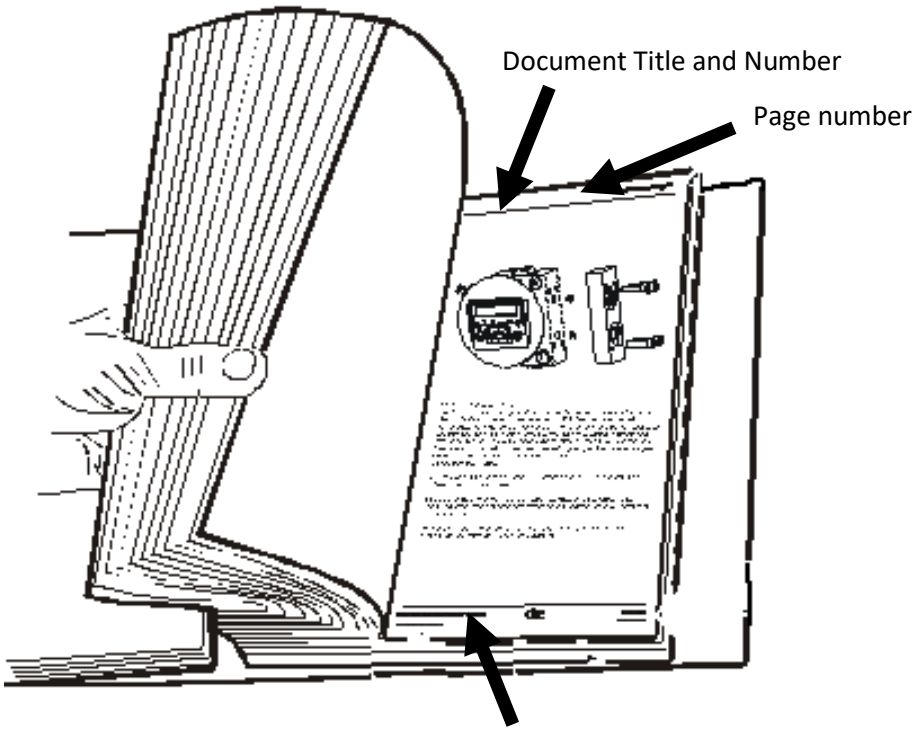
Please note that the method described above of locating specific information does not release you from your responsibility for carefully reading the entire manual prior to starting the unit up for the first time and carefully rereading the manual at regular intervals later on.

WHAT do you want to know?

I determine which topic I am looking for.

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

The document has a table of contents at the beginning. I select the chapter I'm looking for 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 basic prerequisite for the safe and proper handling and operation of the filter unit is knowledge of the safety precautions and warnings.

These operating instructions in general, and the safety precautions in particular, are to be adhered by all those who work with the filter unit.

Adherence is to be maintained to pertinent accident prevention regulations applicable at the site where the product is used.

The safety precautions listed here are restricted to use of the filter unit.

The filter unit has been designed and constructed in accordance with the current state of the art and recognized safety regulations. Nevertheless, hazard may be posed to the life and limb of the individual using the product or to third parties.

The filter unit is to be used:

- solely for its designated use
- only when in a safe, perfect condition

Immediately remedy any malfunctions that might impair safety.

Our General Terms and Conditions apply. They are provided to the owner upon conclusion of purchase of the unit at the latest. Any and all warranty and liability claims for personal injuries and damage to property shall be excluded in the event they are attributable to one or more of the following causes:

- improper assembly/installation, start up, operation and maintenance of the filter unit
- operating the filter unit when the system equipment or systems are defective
- modifications to the filter unit made by the user or purchaser
- Improper monitoring of unit components that are subject to wear and tear
- Improperly performed maintenance or repair work

Basic Symbols

DANGER denotes situations which can lead to death if safety precautions are not observed.

WARNING denotes situations which can lead to death if safety precautions are not observed.

CAUTION denotes situations which can lead to severe injuries if safety precautions are not observed.

NOTICE denotes situations which can lead to property damage if safety precautions are not observed.

Proper/Designated Use

The OFT Series is a mobile filter unit used for filtering and transferring oil.

Any other uses shall be deemed to be improper and not in keeping with the product's designated use.

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

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

- Filtering oils
- Maintaining adherence to all the instructions contained herein.
- Performing requisite inspection and maintenance work.

Improper Use

Improper use may result in hazard to life and limb.

Operation with a non-permitted medium or under non-permitted conditions is regarded as improper use.

NOTICE

Impermissible operating media

The unit will be damaged or destroyed

► Operate the unit using only:
- Mineral oil based fluids as specified in DIN 51524, DIN 51525.

► Never Pump:
- Water
- Aggressive fluids
- Acids
- Solvents
- Oily sludge or sediment in the oil tank or other debris.

► Never operate the unit without a suction strainer.

Informal Safety Precautions

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.

Make sure that the safety and hazard symbols and warnings on the unit are always in a legible condition.

Check the hoses and connectors for leaks on a daily basis. Check the filter unit's electrical equipment for loose connections or damaged cables on a monthly basis.

Training and Instruction of Personnel

The filter unit 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.

Staff undergoing training may not use the filter unit unless supervised by an experienced staff member.

Activity / Individuals	Individuals undergoing training	Individuals with technical training/ engineering background	Electrician	Supervisor with the appropriate authority
Packing Transportation	X	X		X
Commissioning		X	X	X
Operation	X	X	X	X
Troubleshooting/locating the source of malfunction		X	X	X
Troubleshooting, mechanical problem		X		X
Troubleshooting, electrical problem			X	X
Maintenance	X	X	X	X
Repair work				X
Decommissioning/storage	X	X	X	X

Hazards Posed by Stored Residual Energy

Note that the unit may pose a hazard as the result of possible residual stored mechanical and electrical 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, immediately disconnect the filter unit from the power supply.

Modifications to the Filter Unit

Do not make any modifications (design modifications, extensions) to the filter unit without the prior consent of the manufacturer.

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

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.

When unpacking the unit, check it for damage in transit.

Transporting the Unit

NOTICE

Using components for pushing / pulling

The unit will be damaged

- ► Never use the components to push or pull the unit.
- ► Use the handles provided for moving.

NOTICE

Unsuitable lifting accessories

The unit/components will be damaged/destroyed

- ► Use only suitable lifting accessories to raise or lash the unit.
- ► Take care to ensure that the lifting accessories do not cause any pressures to be brought to bear against the components on the unit.

Storing the Unit

Make sure to store the OFT Series in a clean, dry place, in the original packing, if possible. Do not remove the packing until you are ready to install the unit.

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

Checking the Scope of Delivery

The filter unit OFT Series is delivered packed and ready for use. Please check the unit for possible damage before putting it into operation.

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

The following items are supplied:

Item	Qty.	Description
1	1	OFT (Type according to order)
-	1	Operating and Maintenance Instructions (this document)

Technical Description

The application of the OFT Series results in fewer oil changes within the same amount of time, increases the lifetime of the system filter, the lifetime of the components and the availability of the machinery.

Restrictions Pertaining to Use

NOTICE

Impermissible operating media

The unit will be destroyed

► The unit is only to be used with mineral oils or mineral oil-based raffinates.

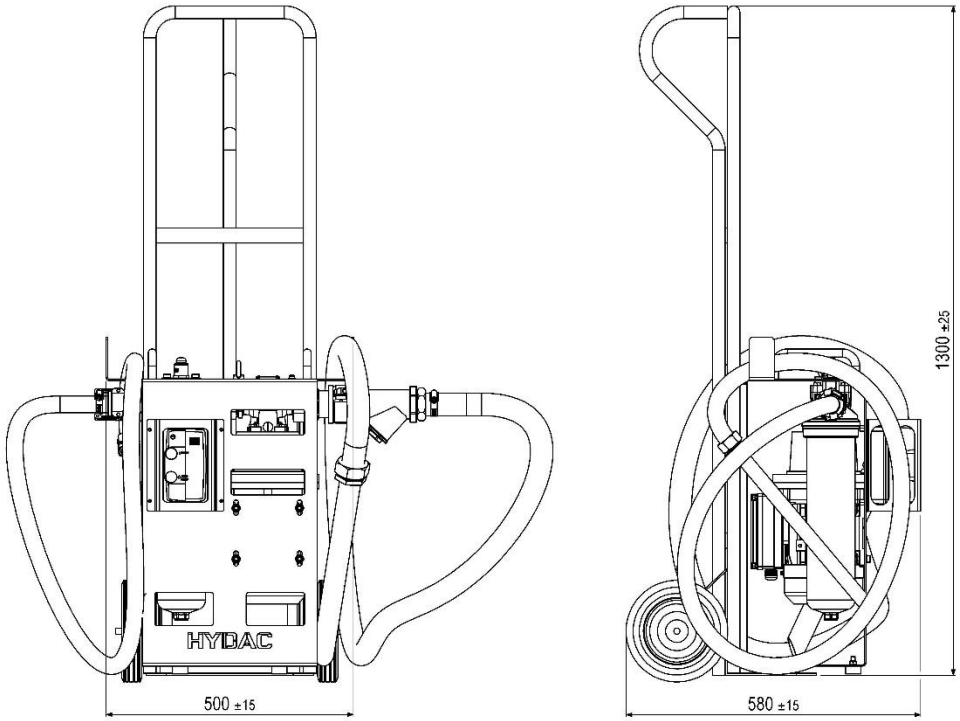
NOTICE

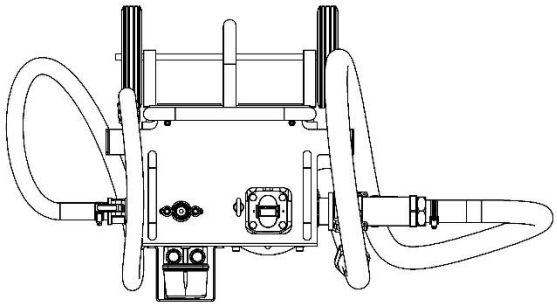
Fluid compatibility

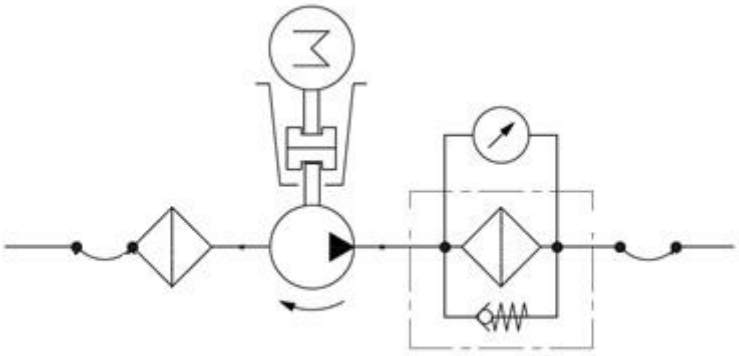
Contamination of system oil

► The unit must be flushed completely and filter element replaced when oil type, brand or grade is changed.

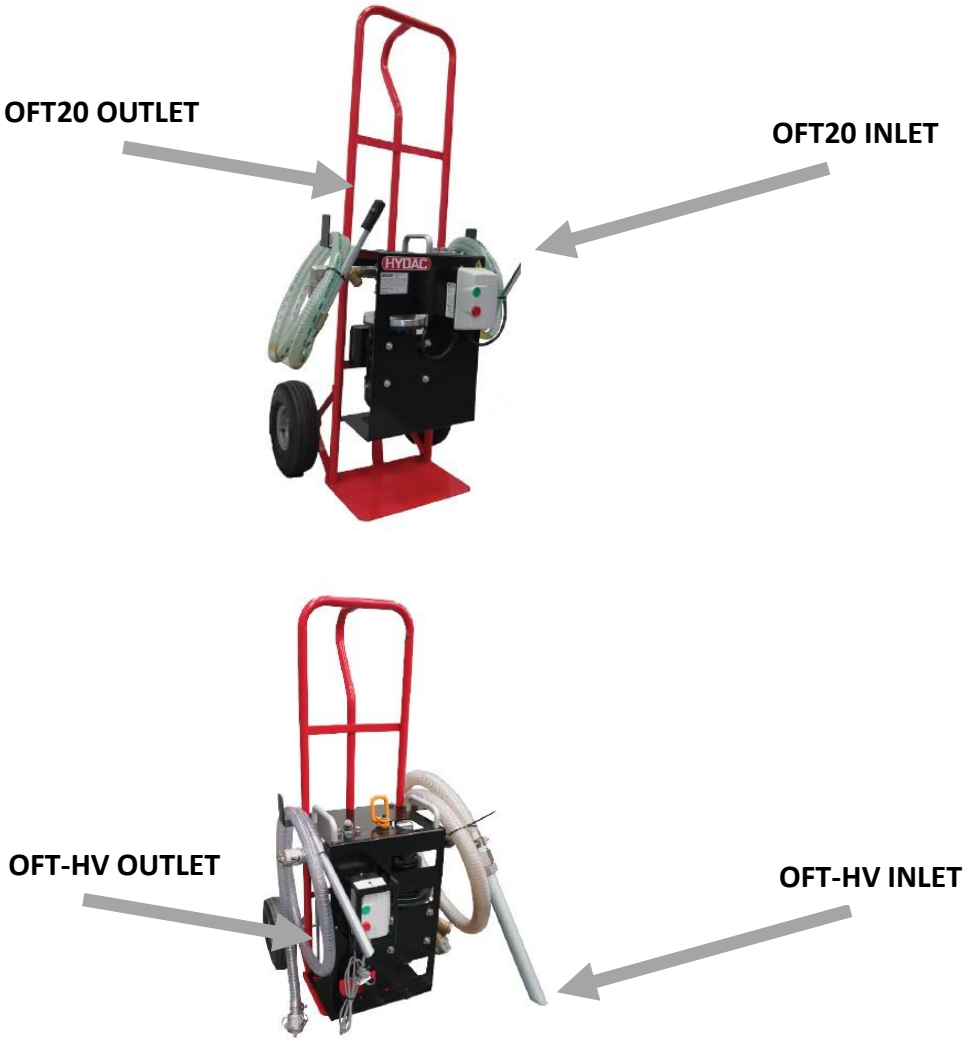
OFT Series Dimensions and Hydraulic Diagram







Connecting the Unit



Connecting the Suction Hose

Pull the suction hose (larger diameter) with lance out of the hose rack.

Put the suction hose with lance, without any tension or twists, into the appropriate container and secure it against falling out.

Connecting the Pressure Hose

Pull the pressure hose (smaller diameter) with lance out of the hose rack.

Put the pressure hose with lance, without tension and or twist, into the appropriate container and secure it against falling out.

To avoid air from entering the medium during operation, make sure that the pressure hose and lance are always below the oil level.

NOTICE

Overpressure at the suction port connection

The unit will be destroyed

► The pressure on the suction port connection IN may not exceed -0.4 bar.

NOTICE

Pressure port (OUT) closed

The unit will be destroyed

► Make sure that the pressure port is always open.

NOTICE

Unexpected operation of the pump

The unit will be destroyed if the pump is operated dry

► Make sure that the unit is not turned on before hose connection

Starting up the Unit

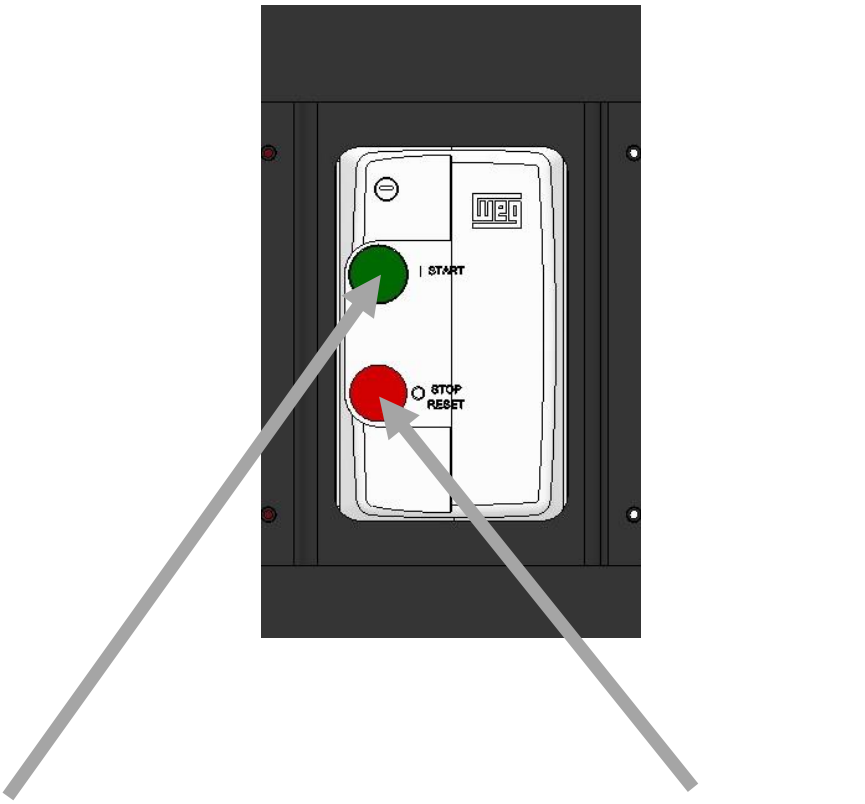
Inserting the filter element

The OFT Series is supplied with filter element installed information on changing a filter element can be found on the next pages.

Priming the pump

If after approximately 30 seconds the unit does not pass any fluid, switch the motor off and prime the pump. Prime the pump by keeping the suction lance above the height of the pump and filling the suction hose with oil from a jug/bottle. Switch the pump back on and quickly return the suction lance into the oil reservoir.

Operation OFT20 & OFT-HV



START THE ELECTRIC MOTOR

STOP THE ELECTRIC MOTOR

Performing Maintenance

WARNING

Hydraulic systems are under pressure

Bodily injury

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

Maintenance Intervals

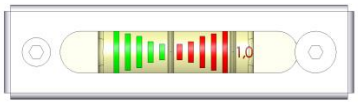
	Daily	Monthly	Annually
Visual inspection for leakage and damage	X		
Cleaning the suction strainer on the line		X	
Changing the filter element (if not already changed)			X

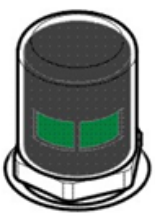
Intervals for Changing the Filter Element

To monitor the degree of contamination in the filtration unit it is equipped with an optical clogging indicator.

If the clogging indicator is red, the differential pressure is too high, indicating that the filter element is used up and must be changed. The colour green indicates that the differential pressure over the filter element is < 2.5 bar for OFT20 and <2 bar for OFT-HV and filtration will take place.

OFT20





OFT-HV

Changing the Filter Element

Removing Element

- The OFT must not be in use.
- Remove oil drain plug. Drain oil into container.
- Unscrew filter bowl. Drain fluid into a suitable container (The oil must not be put back into the system unless it is first cleaned!).
- 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 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

Fitting new Element

- Wet the sealing surfaces and thread on the filter head and bowl/end cover, as well as the O-ring, with clean operating fluid.
- Before fitting a new filter element, check that the designation corresponds to that of the old element.
- Lubricate seal and sealing cone on external diameter with clean operating fluid. Apply aluminium paste or another suitable lubricant to threads on filter head and bowl.
- Screw in oil drain plug
- Check the filter for leakage.
- **OFT20** Screw in filter bowl fully and tighten to 40 Nm
- **OFT-HV** Do not torque, screw in filter bowl fully (metal to metal contact) and then unscrew by one quarter-turn.

NOTICE

Unsuitable/incorrect filter element

The medium is not filtered

► Use only filter elements with the type code suffix ON or ECON2 (for example:

► **OFT20** 200MX 010 ECON2/-B3.5

► **OFT-HV** 280 D 010 ON /-QPG1

Cleaning/replacing the Suction Strainer

NOTICE

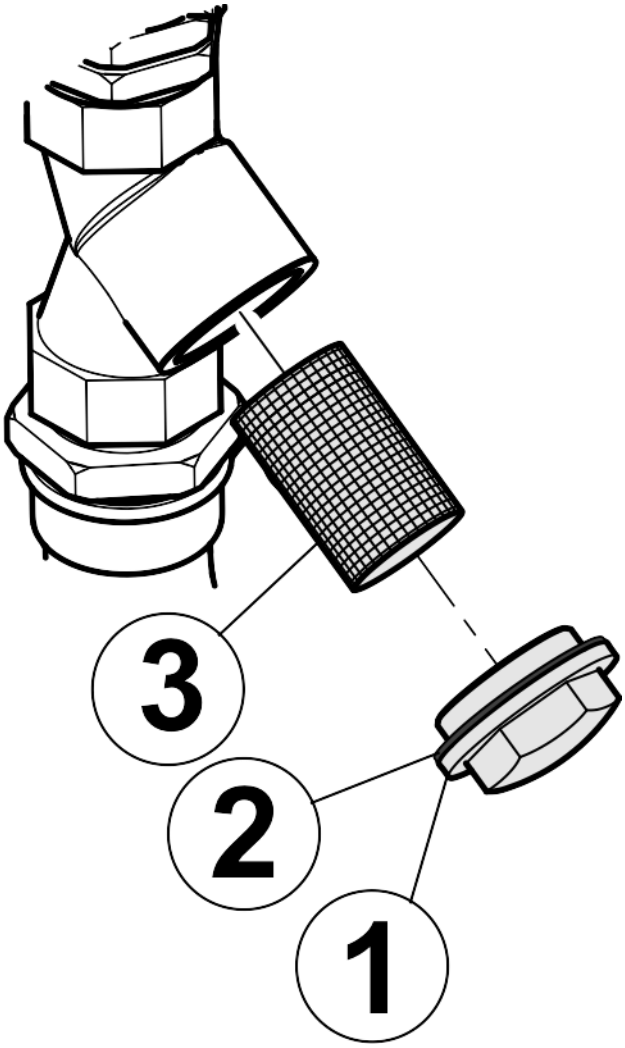
Operation without a suction screen

Pump is disrupted

► Never use/operate the unit without a suction strainer.

► Clean the suction screen regularly.

To protect the pump from coarse contamination particles and other foreign bodies, a suction strainer is fitted at the pump inlet.



Clean or replace the suction strainer insert (3) at regular intervals. To do so, proceed as follows:

1. Unscrew the screw plug (1) counterclockwise with a wrench.
2. Remove the strainer insert (3) and clean it by washing it out with solvent or air-cleaning it using compressed air
3. Check strainer insert (3) and sealing ring (2) on the screw plug (1) for damage. Replace if necessary.
4. Install the new strainer insert (3) in the suction strainer.
5. Screw in the screw plug (1) by hand in a clockwise direction with a wrench (50 mm) and tighten it securely.
6. Check the suction strainer for leaks after commissioning.

   The entry of air causes a loud noise and can damage the pump.

7. Cleaning/replacing the suction strainer is complete.

Errors and Troubleshooting

ERROR	Cause(s)	Remedy
Differential pressure >2.5 bar OFT20 >2 bar OFT-HV	Medium is heavily contaminated	Replace the filter element.
	The contamination retention capacity of the filter element has been reached.	Replace the filter element.
	The viscosity is too high	Warm the medium.
No flow	Pump transfers in the wrong direction	Check the rotational direction of the motor and, if necessary, reverse the phases.
	The suction hose is positioned above the medium and sucks in air.	Sufficiently immerse the suction hose in the medium.
No function	The electrical connection is faulty	Check the electrical connection, plug, cable and socket.
Pump cavitation	Flow is too high for inlet hose configuration	Ensure hose length and diameter complies with guidelines in the document.
	Mechanical restriction in inlet hose	Remove any restrictions to inlet hose.
	The viscosity is too high	Warm the medium.
Mechanical vibration	Pump – Worn or damaged	Repair or replace pump
	Electric motor – Worn or damaged	Repair or replace electric motor
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 List

Spare Parts OFT20

Part no.	Designation
2356973	Inline Y-strainer
-	Strainer insert
-	Sealing ring for strainer
2356876	Suction hose assembly DN 25, L= 3 m (including lance)
2356877	Delivery hose assembly DN 20, L= 4 m (including lance)

Spare Parts OFT-HV

Part no.	Designation
2365186	Inline Y-strainer
-	Strainer insert
-	Sealing ring for strainer
2363313	Suction hose assembly DN 40, L= 3 m (including lance)
2363314	Delivery hose assembly DN 25, L= 4 m (including lance)

Spare Elements

Filtration Rating	Element
OFT20	
3 µm	0200 MX 003 ECON2 /-B3.5 1299105
5 µm	0200 MX 005 ECON2 /-B3.5 1299107
10 µm	0200 MX 010 ECON2 /-B3.5 1296386
20 µm	0200 MX 020 ECON2 /-B3.5 1299109
OFT-HV	
5 µm	0280 D 005 ON/-QPG1 1327379
10 µm	0280 D 010 ON/-QPG1 1323856
20 µm	0280 D 020 ON/-QPG1 1326815

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.

Taking the Unit Out of Operation

Drain the unit completely, including all of its components, before taking it out of operation. Pull out the power plug and securely fasten the hoses and power cord to the unit.

Technical Specifications OFT20

Refer to the type label for specific data of the unit.

Pump Type	Gear Pump
Flow Rate	20 l/min (Viscosity dependant)
Operating Pressure	3.5 bar max.
Element	10µ supplied with unit
Pressure at suction port	0.4 bar abs. (flooded suction recommended)
Viscosity range	16 ... 200 cSt
Permitted operating fluid	Mineral oils
Fluid temperature	0 ... 80°
Ambient temperature	0 ... 45°
Protection class	IP54
Power cable length	2 m
Seal / Gaskets	NBR
Pressure hose (length)	NW 28 with lance (4 m including lance)
Weight	~22.8 kg without trolley ~32.6 Kg with trolley

Model Code OFT20

	OFT	20	N	370	F	010	BF

Offline filtration unit
OFT

Type code
20

Seals
N = NBR

Motor output
370 = 0.37 kW

Connection type
F = 1 x 240V, 50Hz

Filter element
µm = 3, 5, 10 and 20

Clogging indicator
BF = Visual differential indicator

Technical Specifications OFT-HV

Refer to the type label for specific data of the unit.

Pump Type	Gear Pump
Flow Rate	7 l/min
Operating Pressure	5 bar max.
Element	10µ supplied with unit
Pressure at suction port	0.4 bar abs.
Viscosity range	16 ... 3000 cSt
Permitted operating fluid	Mineral oils
Fluid temperature	0 ... 80°
Ambient temperature	0 ... 45°
Protection class	IP54
Power cable length	2 m
Seal / Gaskets	NBR
Pressure hose (length)	NW 28 with lance (4 m including lance)
Weight	~39 kg without trolley ~47 Kg with trolley

Model Code OFT-HV

	OFT	HV	N	550	F	010	BF

Offline filtration unit
OFT

Type code
HV = High viscosity

Seals
N = NBR

Motor output
550 = 0.55 kW

Connection type
F = 1 x 240V, 50Hz

Filter element
µm = 5, 10 and 20

Clogging indicator
BF = Visual differential indicator