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# ORIGINAL OPERATING MANUAL



## NTZ<sup>®</sup> MICRO OFF-LINE OIL FILTER OLFS-29 & OLFS-58

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## 1. Introduction

The NTZ Off-Line Filtration System (OLFS) can be applied on any hydraulic, lubricating and transmission system. The unit has been fitted with a dedicated motor and pump, thereby ensuring that system pressure and specifications stay within factory prescribed limits. The purpose of the OLFS is to pump oil from a reservoir (E.g. a oil sump), lead it through the filter and return filtered oil to the reservoir. Cleaner oil leads to less malfunctions and cost savings. The minimal required free space for element change of the OLFS-29 is 260 mm. The required space for the OLFS-58 is 440 mm. NTZ is a ISO 9001, ISO 14001 and ISO/TS 16949 certified company.

## 2. General description

The OLFS has been modularly fitted on a manifold, in which all oil channels have been integrated, thereby minimizing the risk of oil leaks. The unit has been mounted on a base plate for easy installation. The main advantage of the OLFS unit is that the filtration process takes place under constant flow and pressure. Because of this, the efficiency is 10 times higher than any other in-line filter system. The results are:

- Cleaner oil
- Less malfunctions of the system the OLFS is fitted on.
- Less wear of the system the OLFS is fitted on.
- Prolonged lifetime of the system the OLFS is fitted on.
- Less oil consumption, better for the environment.

The OLFS has been constructed according to machinery directive. The OLFS is marked with



## 3. Purpose

The OLFS can be used in systems where manufacturer's specifications cannot be altered because of warranty stipulations. The OLFS is designed for the use of oil filtration on stationary machinery and has proven its value in:

- Steel industry
- Paper industry
- Plastic industry
- Petro chemical industry
- Wind mills
- Maritime industry
- Injection moulding machines
- Engine oil applications in ship and stationary engines
- Hydraulic aggregates

## 4. Safety regulations, risks and warnings

Please keep the following in mind when installing the OLFS unit:

- Before assembling and connecting the OLFS unit, ensure that the machine, on which the OLFS will be installed is safe to work on. If necessary, shut off electricity. Ensure that there is no oil pressure. If there is oil pressure, bring it down to 0 Bar.
- Mount the filter system on a spot free from vibrations.
- Keep hoses as short as possible. Do not bend or tense hoses.
- NEVER INSTALL A CLINCHER OR OTHER RESTRICTION IN THE SUCTION LINE. THIS MAY RESTRICT THE OIL SUPPLY THROUGH THE HYDRO PUMP. The return line must be pressureless.
- Assure there is enough space available to change the filter cartridge.
- To make the suction line use single or double steel-layered hydraulic hoses (diameter 3/8") equipped with the appropriate connectors. Do not use hoses for low-pressure applications.
- The return port of the manifold to the tank must be connected pressureless. Do not use existing return lines. NEVER INSTALL A CLINCHER OR ANY OTHER RESTRICTION IN THE RETURN LINE WHICH MAY SHUT THE RETURN LINE. AN ENTIRELY FREE PASSAGE MUST ALWAYS BE ENSURED.
- Use proper hydraulic connector materials. Do not use tape or sealing liquid!
- When starting up the system, ensure that the electromotor is rotating in the proper direction (clockwise).

Please keep the following in mind when using the OLFS unit:

- Replace filter elements at the prescribed interval.
- Before carrying out maintenance or repairs on the OLFS unit, ensure that the machine, on which the OLFS is installed is safe to work on. If necessary, shut off electricity. Ensure that there is no oil pressure. If there is oil pressure, bring it down to 0 Bar.
- Before starting up the filter unit, check that the motor runs in the correct direction (clockwise).
- Use the personal safety equipment, as prescribed in the Material Safety Data Sheet of the oil, when replacing the filterelements or when oil spillage occurs.

## 5. Operating instructions (including motor)

The filter is functional when the motor is running. The user is responsible for the proper electrical wiring and installation of the filter unit. The user's own guidelines for switching the unit on and off shall be applicable. The manufacturer's operating instruction manual of the motor has been separately enclosed.

## 6. Transport, storage and disposal

The OLFS-unit has been carefully packed in a cardboard box, to avoid damage during normal transport. Should your OLFS unit arrive damaged, please take pictures of the occurred damages and send these with a description to your NTZ dealer, so the damaged unit can quickly be replaced. There are no further special requirements for transport or storage.

When the OLFS unit or filter element is disposed of, the local regulations for disposing chemical waste should be taken into account.

## 7. Installation and assembly

### INSTALLATION

- Before assembling and connecting the OLFS unit, ensure that the machine, on which the OLFS will be installed is safe to work on. If necessary, shut off electricity. Ensure that there is no oil pressure. If there is oil pressure, bring it down to 0 Bar.
- Mount the filter system on a spot free from vibrations.
- Keep hoses as short as possible. Do not bend or tense hoses.
- Assure there is enough space to be able to change the filter cartridge.
- Assure that the pressure gauge is properly accessible.
- The filter system should be installed in such a manner that enough space is available to connect the CM20 oil analysis equipment to the minimum sample connections (optional).
- The feed line (red) of the CM20 should be connected to available "M" connection. The return line (yellow) should be connected to the "T" connection.

### HYDRAULIC & ELECTRICAL INSTALLATION

- Connecting the OLFS unit must be carried out by qualified personnel.
- Firstly assemble a connector to the suction side of the hydraulic pump and the return channel of the manifold. Fit the hose or pipe to these connectors afterwards.
- Create a suction hose from the tank to the hydro engine of the OLFS unit. Ensure that the suction port in the tank is always beneath the minimum oil level. NEVER INSTALL A CLINCHER OR OTHER RESTRICTION IN THE SUCTION LINE. THIS MAY RESTRICT THE OIL SUPPLY THROUGH THE HYDRO PUMP.
- To make the suction line use single or double steel-layered hydraulic hoses (diameter 3/8") equipped with the appropriate connectors. Do not use hoses for low-pressure applications.
- The return port of the manifold to the tank must be connected pressureless. Do not use existing return lines. NEVER INSTALL A CLINCHER OR ANY OTHER RESTRICTION IN THE RETURN LINE WHICH MAY SHUT THE RETURN LINE. AN ENTIRELY FREE PASSAGE MUST ALWAYS BE ENSURED. Ensure the returned oil flows back into the tank below the minimum oil level. Locate the return port on the tank in such a manner that oil in the tank circulates properly (suction and return port not to close together).
- To make the return line use single or double steel-layered hydraulic hoses (diameter 1/2") equipped with the appropriate connectors. Do not use hoses for low-pressure applications. Keep the return line as short as possible!
- Use proper hydraulic connector materials. Do not use tape or sealing liquid!
- Make sure that electrical connection complies with local installation- and safety regulations.  
The motor is provided with six terminals, marked with U1, V1, W1, U2, V2 and W2.  
The motor can be connected in either star or delta connection (connections as shown under point 12 « Technical specifications motor »).
- When starting the system, ensure that the motor is rotating in the proper direction (clockwise). This direction is also marked with an arrow on the motor. Checking the rotation direction can easily be done by looking at the cooling fan at the rear end of the motor.  
Rotating direction depends on wiring connections as shown under point 12 « Technical specifications motor ».  
Prevent the access of any water, dirt or excessive dust in the electric motor.
- After starting the system, and after the first hour of operation, check for any leaks or abnormal sounds in the system.  
When the system shows leaks or any abnormal sounds, switch it off immediately. The cause should be determined and remedied before any further operation.

## 8. Maintenance instructions

The required maintenance on an OLFS-unit consists of the timely and properly changing of the filter elements. Changing the filter elements should be done as follows:

- Only use original NTZ filter cartridges.
- Only use the supplied spare parts.
- The filter cartridge must be replaced when the pressure gauge indicates 5,5 Bar at operating temperature, or every 6 months, whichever comes first.
- Check for pressure on the tank. Relief the pressure of the system when necessary.
- Ensure that the filter system is pressure-less when replacing the filter cartridge.
- Remove the filter cartridge and spare O-ring from the packaging.
- Remove the lid from the system and take out the pressure plate with spring.
- Remove the used filter cartridge and place it in the plastic bag for proper disposal (chemical waste). Place the new filter cartridge in the filter system and place the pressure plate with spring back on the filter cartridge. Replace the O-ring, clean the sealing surfaces and put the lid back on the filter system. Tighten the inner hexagon bolts with a torque of minimal 9 Nm and maximal 12 Nm.
- Start the system until it has reached its operating temperature and check for leakages.

- Check the oil level in the system and top up the necessary quantity, if necessary.
- Check if the oil runs through the filter properly. If the hoses and the filter housing warm up, the filter system operates properly.
- When using the minimess connectors on the manifold for oil analysis, ensure that the return line is pressureless.

## 9. Warranty

### 1. HOUSING

NTZ grants a 3-year limited warranty on the NTZ-filter housings (excluding the accompanying O-rings) from the date of invoice. In the event that the purchaser establishes defects, the purchaser must inform his NTZ-dealer. If the defects are well-founded the NTZ-filter housing will be replaced or repaired free of charge.

### 2. EXTENDED OIL LIFE / DRAIN INTERVALS

When properly installed, NTZ guarantees the smooth filtering operation of the NTZ-filter and its positive effects for the equipment. Extended oil drain intervals are achievable with the proper use of the NTZ system. However, the condition of the oil and the oil change intervals are also dependent upon the equipment manufacturer's regulations, operating conditions, selection of lube/oil, and system type. Due to these conditions out of the control of NTZ, the extent of any extended drain interval is the full responsibility of the user. The user should perform regular oil analysis to ensure the oil is still in good operating condition. Upon request, NTZ can assist in this activity.

### 3. EQUIPMENT WARRANTY

In the event of material damage to the equipment, NTZ warrants the entire cost of repair under the following conditions:

- The installation / machine is within the original manufacturer's warranty period.
- The user must demonstrate the equipment damage is due to the malfunction of a properly installed and properly used NTZ-filter system.
- The user must demonstrate from actual data or from a documented extended drain interval program (historical data) that the oil or lube fluid in the device was within the proper usage specifications at time of failure.

Documentation of which is the full responsibility of claimant.

### 4. LIABILITY

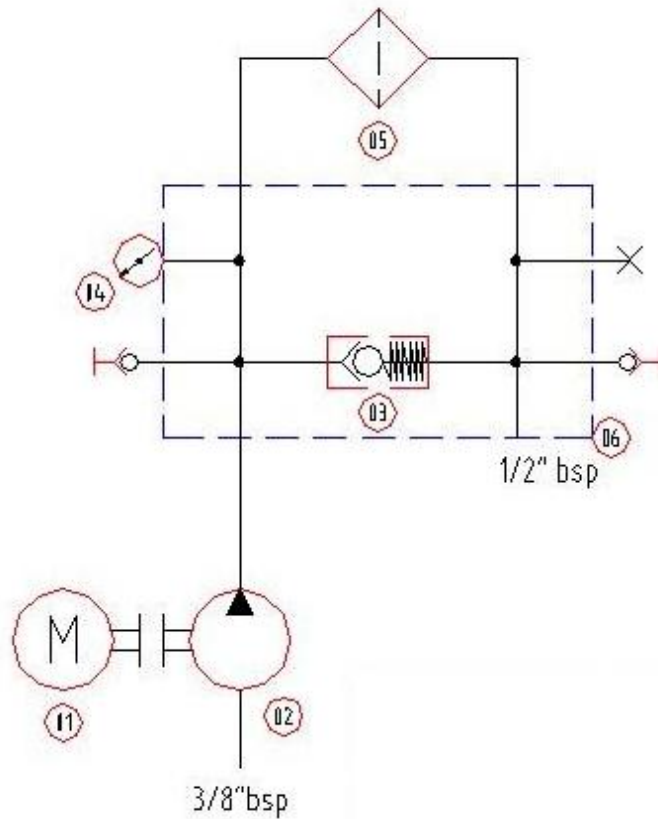
The above-mentioned warranty and NTZ's liability will never extend beyond (the consequences of) defects of the NTZ-filter themselves. Damage as a result of other means or caused by third parties, such as by errors during installation, by incorrect mounting onto the oil circuit or by mounting pieces / hoses are not covered, neither by this warranty nor by NTZ's product liability. With regard to mounting pieces supplied by NTZ the warranty applicable is the warranty of the suppliers/producers of the mounting pieces which is passed on by NTZ to its customers.

### 5. BREACH OF WARRANTY POLICY

The warranty is non-applicable or breached by user if and when:

- The NTZ-filter is handled without due care or in contradiction with the instructions for use, or if used for purposes other than its appropriate purpose.
- Cartridges other than original NTZ-filter cartridges have been applied.
- No valid dated purchase invoice can be produced.
- The defect and/or the damage is a result of a natural disaster, accident, misuse, incorrect use or any other outside cause for which NTZ is not liable.

**10. Technical specifications filter system**



Legenda	
01	Electro motor
02	Hydraulic pump
03	Return valve
04	Pressure gauge
05	NTZ Radial Micro Filter
06	Manifold

**11. Technical specifications gear pump**

The HP gear pumps are irreversible pumps with constant geometrical volume. Inlet pressure of the pumps should be between -0,2 bar and +0,5 bar to ensure proper operation. Outlet pressures are confirm specifications as shown in the table below.

Only mineral-based oil must be used, that keeps its viscosity characteristics. On operation temperature, the viscosity must be higher than 15 cSt. The optimum operating viscosity is between 25 cSt. And 100 cSt. Viscosity should never exceed 250 cSt. For a limited time a cool start could be admitted at 2000 cSt. viscosity. The filtration fineness of the hydraulic oil is 30 micron with an impunity concentration under 0,05% Abresive particles are not admitted.

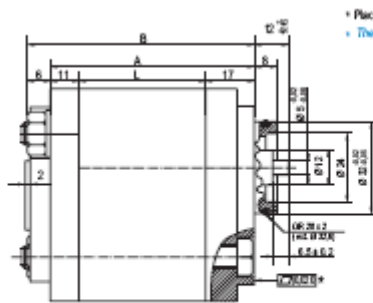
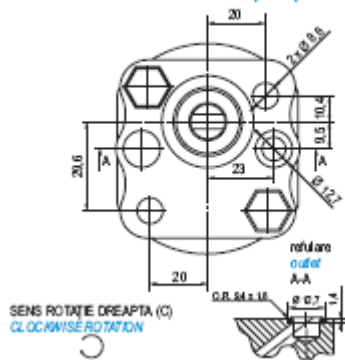
The pumps are designed for continuous working temperatures between -10 and +80 degrees Celsius. It is admitted to start at -15 degrees Celcius.

All technical data and specifications are derived from technical data sheets from pump manufacturer and will therefore remain responsibility of manufacturer ([www.Hesper-ro.com](http://www.Hesper-ro.com))

The technical specifications of the gear pump on the filter unit can be selected from the table below.

PUMPS WITH AXIAL (CLOCKWISE) CIRCULATION								
		Pn bar	Pmax bar	Nv %	Max Noise	L (mm)	A (mm)	B (mm)
HTCK-0,85-C	0,85	250	280	80	60	33,2	61,2	67,2
HTCK-1-C	1	250	280	84	60	33,7	61,7	67,7
HTCK-1,2-C	1,2	250	280	86	60	34,5	62,5	68,5
HTCK-1,7-C	1,7	250	280	88	61	36,3	64,3	70,3
HTCK-2,2-C	2,2	250	280	90	61	38,2	66,2	72,2
HTCK-2,6-C	2,6	250	280	91	61	39,7	67,7	73,7
HTCK-3,2-C	3,2	250	280	92	62	41,9	69,9	75,9
HTCK-3,8-C	3,8	250	280	94	63	52,1	80,1	86,1
HTCK-4,3-C	4,3	250	280	95	63	54	82	88
HTCK-4,7-C	4,7	240	260	96	64	55,5	83,5	89,5
HTCK-6-C	6	190	210	97	64	60,3	88,3	94,3
HTCK-7,8-C	7,8	140	160	98	64	67	95	101

B3 - Pompe EHTCK-HTCK-PHTCK  
B3 - EHTCK-HTCK-PHTCK pumps

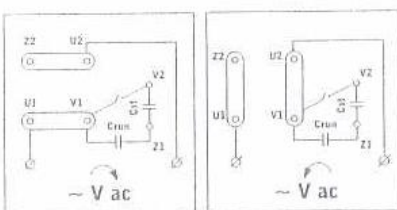


Tightening torque of screws:  $32 \pm 2$  Nm. Use bolts type 10.9 – 12.9 UNI EN 20898/1  
The fixing of the pump should be effected with 2 bolts type 10.9 – 12.9 pretighten at  $25 \pm 2$  Nm.  
Fix the pump by self-locking nuts with tightening torque  $32 \pm 2$  Nm.

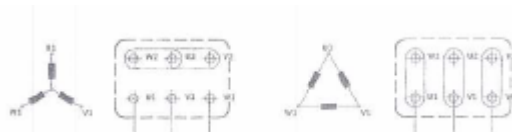
## 12. Technical specifications motor

Protection class	Isolation class	Norms and classifications	Tension	RPM (50 Hz)	Remarks	Pn (kW)	N1 (rpm)	Flange	Capacitor
IP55	F	IEC/DIN – VDE 0530	230/400V – 400/690V 50 Hz.	1500 rpm	300 = star 500 = triangle, can also be star/triangle	0,37	1340	B14	No
IP55	F	IEC/DIN – VDE 0530	230 V 50 Hz.	1500 rpm		0,37	1370	B14	1 operating capacitor & 1 start capacitor

Wiring the 230V motor



Wiring the 230/400V motor



Motors have been manufactured according the following international standards:

IEC 600034-1  
IEC 600034-2  
IEC 600034-5  
IEC 600034-6  
IEC 600034-7  
IEC 600034-8  
IEC 600034-9  
IEC 600072-1  
IEC 600034-14

Motors have been manufactured according to the standard directive 89/336/EEG of the Council concerning the mutual adaptation of the legal regulations of the Member States concerning electromagnetic compability and have been marked with CE brand 91/263/EEG, 92/31/EEG, 9368/EEG.

Motors comply with the directives of the Counsil 73/23/EEG concerning the mutual adaptation of the legal regulations of the Member States concerning the use within certain tension boundaries.

All technical data and specifications are derived from technical data sheets from motor manufacturer and will therefore remain responsibility of manufacturer ([www.wonder-cn.com](http://www.wonder-cn.com))

### 13. EU declaration of conformity

Client :  
Purchase order :  
Purchase date :  
Delivery date :

We, NTZ Nederland bv,

Declare, under own responsibility, that this product OLFS-58/2 with serial number 20080001, to which this declaration is related, complies with all appropriate regulations and is in conformity with:

1. Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC 2.
2. Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.

Rotterdam, The Netherlands

Date :  
Name :  
Function :  
  
Signature :