HYDAC INTERNATIONAL

# Offline filters
## OLF 15/30/45/60

## Description

The OLF 15/30/45/60 series of offline filters consists of robust offline filters for stationary applications in hydraulic and lubrication systems with large oil volumes.

The Dimicron elements used feature a particularly high dirt absorption capacity and can be disposed of in an environmentally friendly manner (incinerability).

Comprehensive measurement technology for monitoring the oil condition is available as an option. They can be integrated into the control systems at the customer's location. Measurement and analysis results can also be displayed as graphs and tables on the device display or further processed using Connect Cloud and a network/mobile phone connection. Connectivity to IoT platforms at the customer's location is also possible.

## Applications

- Machine tools
- Plastic injection machines
- Oil hydraulics
- Pressing / forming technology
- Test benches
- Thermal power plants

## Advantages

- Improved component and system filter lifetime
- Increased machine availability
- Longer oil change intervals
- Easy to service
- High contamination retention capacity of the elements
- Environmentally safe disposal of elements (incinerable)
- Optional sensors available to monitor the contamination in the oil

**With optional CMXconnect cloud:**

- Remaining level indicator for the filter elements
- Historical development of purity classes, water content, dielectricity
- Overview of purified fluid quantity
- Usage profiles and energy consumption of the unit can be viewed
- Energy saving as a result of automated cleaning, automatic switch-off and purity control

## Technical data

| **Filter housing** | **OLF-15** | **OLF-30** | **OLF-45** | **OLF-60** |
|---|---|---|---|---|
| Filter element | N15DMxxx (1x) | N15DMxxx (2x) | N15DMxxx (3x) | N15DMxxx (4x) |
| Housing material | Stainless steel 1.4301 | | | |
| Housing contents | 20 l | 40 l | 60 l | 78 l |
| Max. operating pressure | 6 bar (others on request) | | | |
| Sealing material (standard) | NBR (FKM optional) | | | |
| Empty weight (housing & frame) | 25 kg | 30 kg | 40 kg | 45 kg |
| Medium temperature | 10 ... 80 °C | | | |

| **Motor-pump group** | **15 l/min** | **30 l/min** | **45 l/min** | **60 l/min** |
|---|---|---|---|---|
| Pump operating pressure | 4.5 ... 5.5 bar | | | |
| Permitted suction pressure at suction port | -0.4 ... 0.5 bar | | | |
| Viscosity range with vane pump OLF | 15 ... 500 mm²/s | | | |
| Viscosity range with vane pump OLFCM | 15 ... 200 mm²/s | | | |
| Viscosity range with gear pump | 15 ... 1000 mm²/s | | | |
| Viscosity range with centrifugal pump | 1 ... 20 mm²/s | | | |
| Motor power<br>Vane pump OLF<br>Vane pump OLFCM<br>Gear pump<br>Centrifugal pump | <br>370 Watt<br>370 Watt<br>370 Watt<br>750 Watt | <br>750 Watt<br>1500 Watt<br>750 Watt<br>750 Watt | <br>1500 Watt<br>1500 Watt<br>1500 Watt<br>1500 Watt | <br>1500 Watt<br>1500 Watt<br>1500 Watt<br>1500 Watt |
| Vane pump weight | 9.8 kg | 17.2 kg (OLFCM: 23 kg) | 23 kg | 23 kg |
| Gear pump weight | 12.3 kg | 17.6 kg | 29 kg | 29 kg |
| Centrifugal pump weight | 21.1 kg | 21.1 kg | 27.5 kg | 27.5 kg |
| Pump sealing material | NBR (FKM optional) | | | |
| Ambient temperature | -10 ... 40 °C | | | |
| Protection class | IP 54 | | | |

# Model code

**OLF – 30/30 – S – N – N15DM002 – E/ – PKZ -V – ACD**

**Basic type**

OLF = Stationary offline filter (with dynamic pressure gauge and ball valve for draining)
OLFCM = Stationary offline filter with fluid condition monitoring

**Size and nominal flow rate**

| Without pump | 15 l/min | 30 l/min | 45 l/min | 60 l/min | |
|---|---|---|---|---|---|
| 15/Z | 15/15 | X | X | X | 1 filter element |
| 30/Z | 30/15 | 30/30 | X | X | 2 filter elements |
| 45/Z | 45/15 | 45/30 | 45/45 | X | 3 filter elements |
| 60/Z | 60/15 | 60/30 | 60/45 | 60/60 | 4 filter elements |

**Pump version**

| | | | |
|---|---|---|---|
| S = | Vane pumps (required for OLFCM) | W = | Centrifugal pump |
| G = | Gear pump | Z = | Without pump |

**Supply voltage**

| | | |
|---|---|---|
| L = 115 V – 1 Ph | N = 400 V – 3 Ph | B = 480 V – 3 Ph |
| M = 230 V – 1 Ph | R = 415 V – 3 Ph | S = 550 V – 3 Ph |
| W = 230 V – 3 Ph | G = 440 V – 3 Ph | P = 575 V – 3 Ph (not for OLFCM with CB / CC) |
| C = 380 V – 3 Ph | O = 460 V – 3 Ph | Z = without a motor |

Other voltages available upon request L60, M60, ... = operation at 60 Hz

**Filter element**

| | | |
|---|---|---|
| N15DM002 = 2 µm | N15DM010 = 10 µm | N15DM030 = 30 µm |
| N15DM005 = 5 µm | N15DM020 = 20 µm | Z = without element |

**Clogging indicator**

E = Standard, dynamic pressure gauge
B = Differential pressure indicator – optical (VM 2 BM.1)
C = Differential pressure indicator – electric (VM 2 C.0)
D3 = Differential pressure indicator – optical/electric (VM 2 D.0/-L220)
D4 = .../.../... (VM 2 D.0/-L24)
D5 = .../.../... (VD 2 LZ.1/-DB)
ED = Differential pressure, electronic (necessary for use with CB and CC)
F = Electric pressure switch

**Supplementary details**

V = with FKM (FPM, Viton®) seals
L = filter housing only, without motor-pump assembly, without sump
PKZ = On/Off switch with motor protection switch
FA0 = On/Off switch with motor protection switch and power supply for the measurement technology (with OLFCM version)
FA1 = On/Off switch with motor protection switch and shut-off when filter gets clogged. Neutral conductor required.
Only for voltages up to max. 240 V, 1-phase or max. 415 V, 3-phase
FA2 = On/Off switch with motor protection switch and shut-off when filter gets clogged. No neutral conductor required
All voltages possible. Clogging indicator C required
CB = Control Basic; On/Off switch with motor protection switch and shut-off when filter gets clogged and/or target cleanliness achieved.
No neutral conductor required. All voltages possible (only possible with HCx as measurement technology)
CC = Connect Cloud; functionality like CB and extensive control and setting options via cloud services
(only possible with HCx as measurement technology). Cloud interfaces: ModBus TCP and REST API

For versions with On/Off switch:
- 230V/1Ph: with schuko plug
- 230V/400V/3Ph: with CEE-plug 3319A
The rest: no plug

**Measurement technology (only for OLFCM)**

C = Contamination Sensor CS1310 (no display)
CD = Contamination Sensor CS1320 (with display)
AC = Contamination Sensor CS1310 (no display) with AquaSensor AS1000 (no display)
ACD = Contamination Sensor CS1320 (with display) and AquaSensor AS3000 (with display) (only for FA0)
HCx = HydacLab HLB 14J8-1C000-000 and Contamination Sensor CS1310 (no display)
x = 1 = ISO
x = 2 = SAE
x = 3 = NAS
HCD = HydacLab HLB 14J8-1C000-000 and Contamination Sensor CS1320 (with display) (only for FA0)

For versions with “CB” and “CC”:
M1 = Sensor package with cleanliness class indicator acc. to ISO, rel. water saturation, fluid temperature, DK, rel. change DK, conductivity, rel. conductivity change
M2 = Sensor package with cleanliness class indicator acc. to ISO NAS, rel. water saturation, fluid temp, DK, rel. change DK, conductivity, rel. conductivity change
M3 = Sensor package with cleanliness class indicator acc. to NAS, rel. water saturation, fluid temp, DK, rel. change DK, conductivity, rel. conductivity change

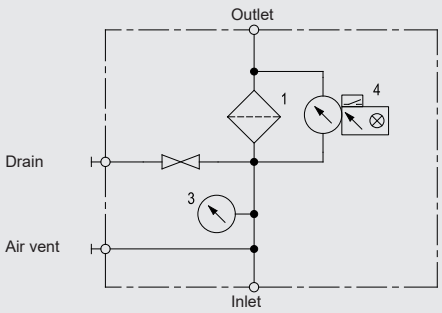
**Note:** At 60 Hz operation, the delivery rate can rise by approx. 20 %.

## Overview of Functions for OLFCM types with CB or CC

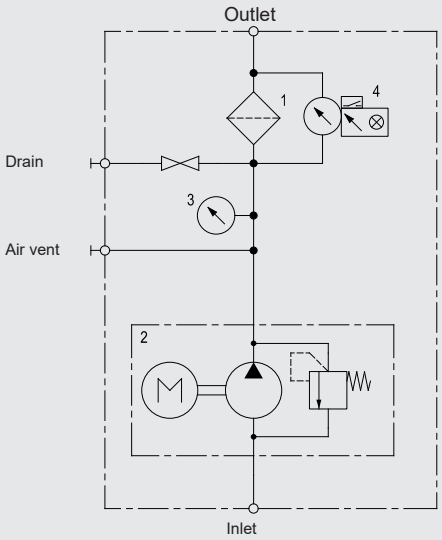
| Function | Control Basic (CB) | Connect Cloud (CC) |
|---|---|---|
| Autom. shut-off if filter is clogged | √ | √ |
| Digital differential pressure indicator | √ | √ |
| Fluid cleanliness class indicator (optionally ISO, SAE or NAS) | √ | √ |
| Shut-off when target cleanliness achieved | √ | √ |
| Fluid temperature indicator | √ | √ |
| Rel. water saturation indicator | √ | √ |
| Dielectric constant indicator | √ | √ |
| Relative dielectric constant change indicator | √ | √ |
| Touch panel for operating the unit | √ | √ |
| Selection between two operating modes<br>1. Continuous operation – long-term system maintenance<br>2. Cleaning until target cleanliness is achieved (automatic mode with energy-saving function: independent, cyclical check of set limit values) | √ | √ |
| Option to enter system-specific information (system, oil type, quantity and type of installed filter elements, most recent filter change) | √ | √ |
| Current and historical measured values displayed at the touch panel | √ | √ |
| Filter monitoring via differential pressure | √ | √ |
| Web server to display the measured values and unit status (PC, notebook, tablet) | √ | √ |
| Data export of the measured values as a CSV file | √ | √ |
| Setting options via web server just like on the touch panel incl. Start/Stop | √ | √ |
| CMXconnect-Cloud | | √ |
| Device-specific cloud access via the internet providing all important device information on a clear dashboard | | √ |
| Current and historic measured values (graphic, error messages) | | √ |
| Statistical data, filter process (operating hours, energy consumption, amount of oil treated, etc.) | | √ |
| E-mail alert of limit values being exceeded, malfunctions and pending maintenance requirements | | √ |
| Filter monitoring function with e-mail alert for better planning of filter changes | | √ |
| Filter monitoring function with remaining time algorithm* for optimal planning of filter changes<br>* = not possible for every application or oil type – please contact us if you are interested | | √ |

# Hydraulic diagram

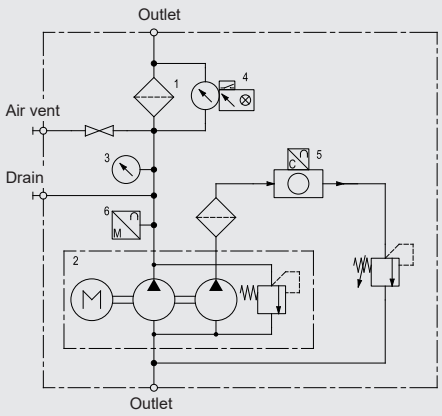
## OLF without motor-pump assembly




## OLF with motor-pump assembly



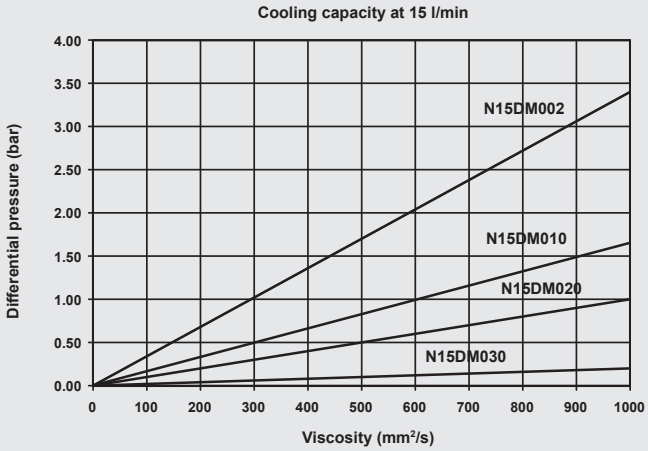

## OLFCM 15–60




# Connections

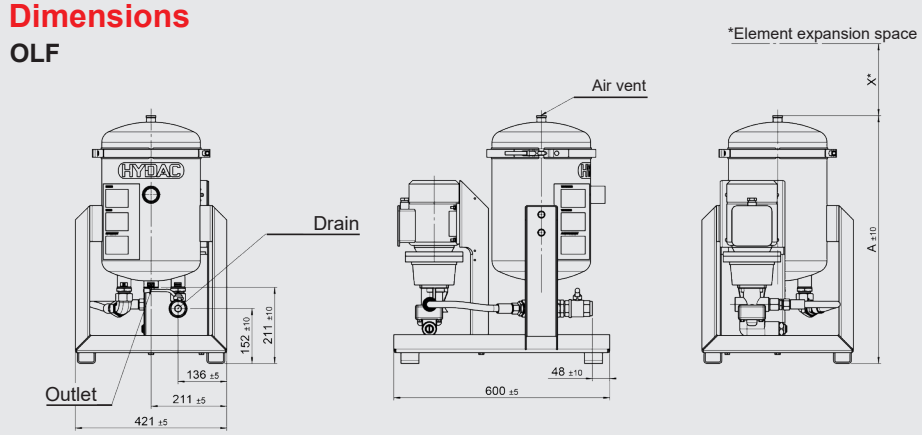
| | Vane pump | Gear pump | Centri-fugal pump |
|---|---|---|---|
| **Inlet** (OLF15, OLFCM15) | G 3/4 | G 3/4 | G 1 |
| **Inlet** (OLF30) | G 1 1/4 | G 1 | G 1 |
| **Inlet** (OLFCM30) | ISO 8434-1-35L (M45x2) | – | – |
| **Inlet** (OLF45, OLF60) | G 1 1/4 | G 1 1/2 | G 1 1/4 |
| **Inlet** (OLFCM45, OLFCM60) | ISO 8434-1-35L (M45x2) | – | – |

# Pressure loss element

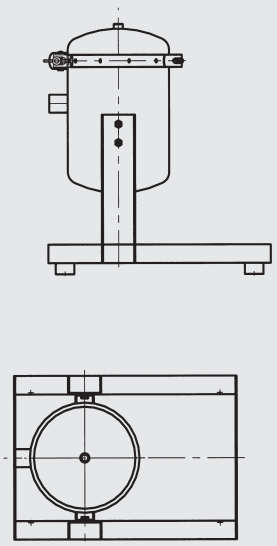



# Dimensions

## OLF

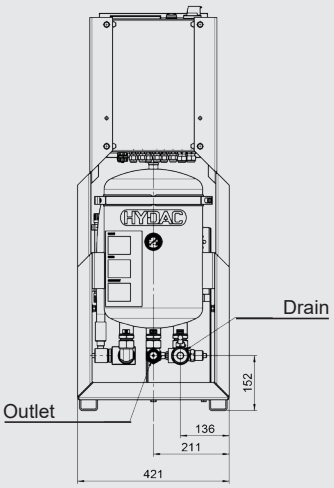


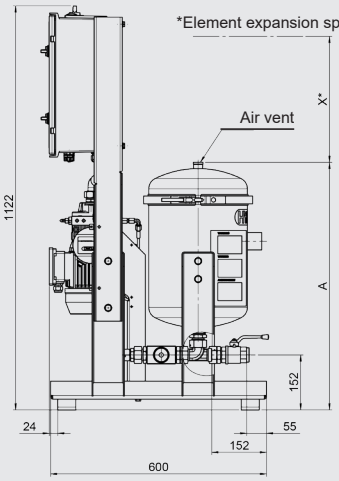

## OLF-15/Z

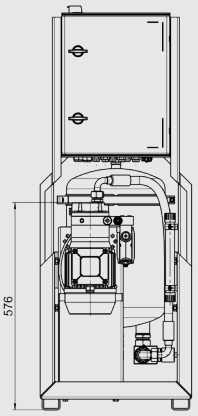


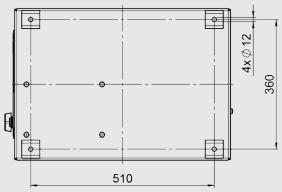
# Dimensions

## OLFCM-15

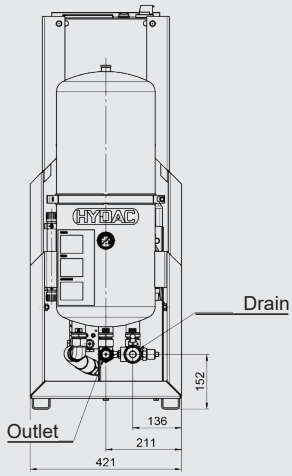


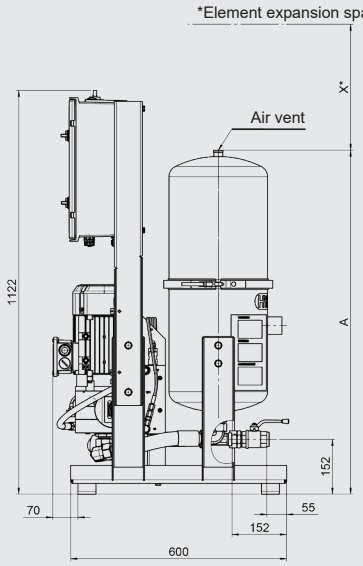



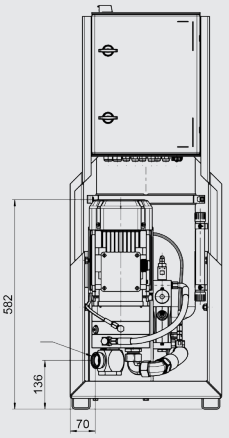



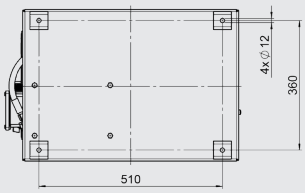




## OLFCM-30 – 60



## Note

The information in this brochure relates to the operating conditions and fields of application described.

For applications and/or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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