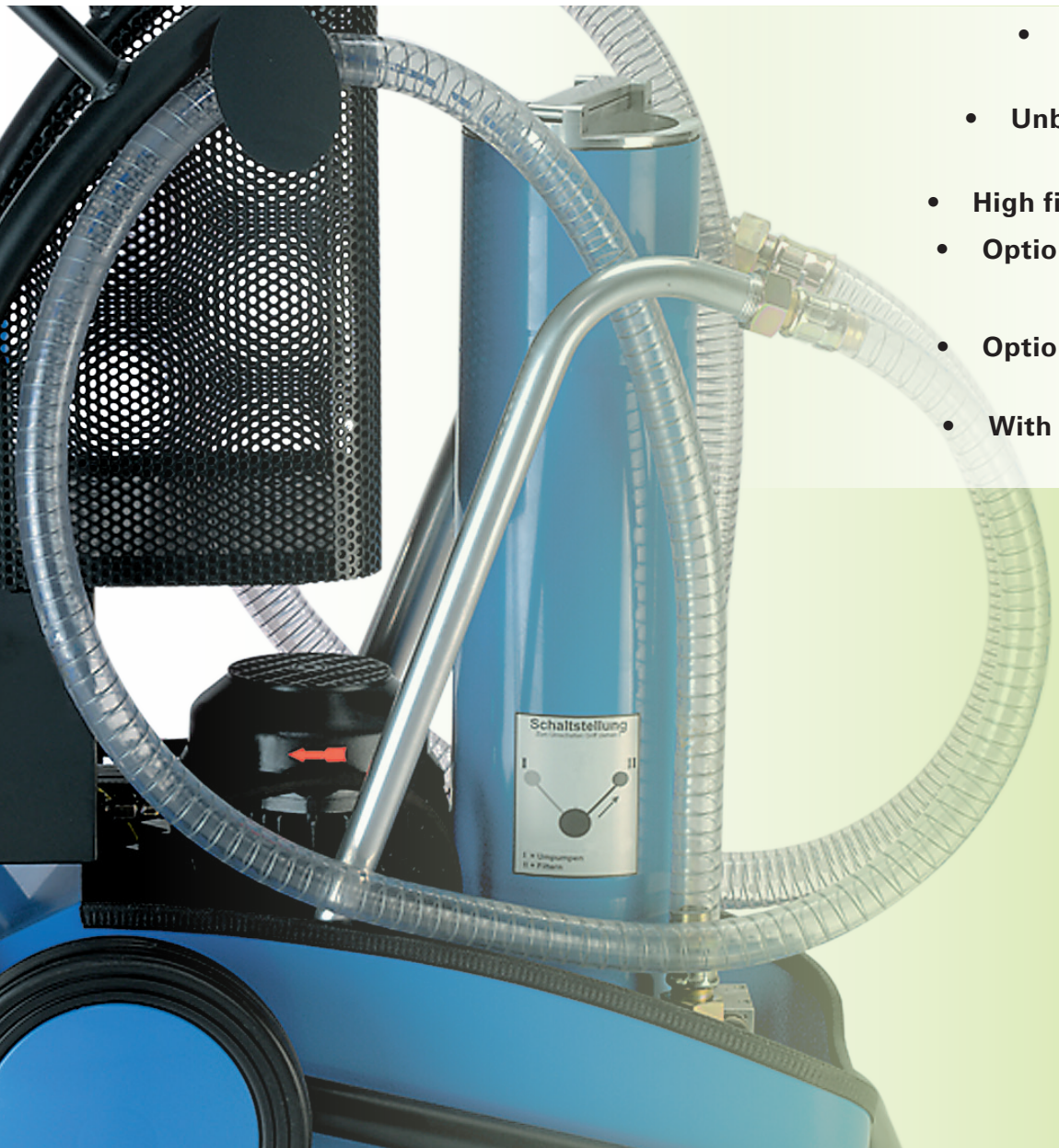
ORELL

OHF 910

OIL SERVICE UNIT

UM 045 / UMPC 045



- Easy filling, cleaning and pumping over
- Unbeatable ergonomics, optimal handling
- High filtration performance
- Optionally with integrated particle monitor
- Optionally with integrated humidity sensor
- With automatic switch-off funktion

OIL SERVICE – simple, quick and compact

UM 045 and UMPC 045

Easy, compact and ergonomic
With OLAER Oil service units for hydraulic or lubrication systems can simply be filled, cleaned or fluid can be pumped over without using the filter function. The ergonomic design allows simple handling also on closest work space.

Protection of components through ultra-fine filtration
The EXAPOR®MAX 2 ultra-fine element is the heart of the oil service unit ECOLINE. High separation efficiency guarantees excellent cleanliness levels and thereby highest protection of components. The high dirt holding capacity of the EXAPOR®MAX 2 ultra-fine elements allows economic operation of the Oil service unit

Base model – UM 045

The UM 045 is delivered equipped with hoses, and is ready to connect. For easy transport, electrical cables, as well as suction and return hose, are mounted with support fixtures on the carrier device. The tool can be stowed in the basket of the carrier device.

OIL SERVICE – with integrated particle monitor

UMPC 045

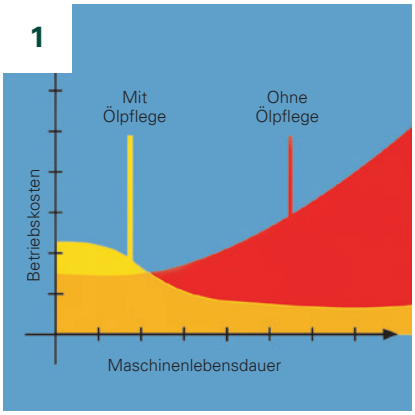
The integrated particle monitor in the UMPC 045 permanently monitors the oil cleanliness during the filtering process. A humidity sensor (LubCos H2O) is optionally available, which permanently monitors the humidity of the oil during the filtering process.

Cleanliness class monitoring can be selected for "cleaning" or "filling" with a change-over cock. The ordinal numbers of the particle sizes are shown on the display in accordance with ISO 4406:1999. Also the humidity in %rh is shown on the display.

Via a W-Lan SD card data can be transmitted to a computer or Smartphone during measurement. If data transmission is not possible, the data are stored on the SD card and can be retrieved at a later point in time.

ADVANTAGES AT A GLANCE

1



1. Economical
Efficiency through OLAER Fluid Management systems. Fast return on investment by extended service intervals and increased machine availability.

2

2. User-friendly filter element change
The filter element can be removed from the housing together with the cover. The dirt retention valve ensures that solid particle sediment is completely removed with the filter element. During operation, the fluid passes through the filter element from the inside to the outside, which eliminates the need for flushing the filter housing.

3

3. Switching functions
The rotary valve is used to switch between the basic modes of operation: "filtering" and "pumping over without filtering".

4

4. Keeping hoses in place
The retainers attached to the sides of the frame secure the hoses in any transport position.

5

5. Compact design
Among the numerous advanced features, listed in the specification of the UM, compact design was a basic requirement to be met by our team of design engineers. Transporting the UM in horizontal position, e.g. in the cargo area of a service vehicle, is facilitated by the wheels and the curved design of the frame.

6

6. Unbeatable ergonomics
Superior technology and excellent design are of no use if the service equipment requires great physical effort form the operator. Therefore, ergonomics were of primary importance when the UM design was conceived.
Owing to its optimized weight distribution, the UM can be tilted from the standing position with minimum effort. In the tilted position, the UM can be moved walking upright, removing strain from the back.

TECHNICAL CHARACTERISTICS

Hydraulic connection
Hoses:
Suction hose NG 32, length 2,7 m, with suction strainer 280 µm, pressure hose NG 25, length 2,7 m

Electrical connection / Electric motor
Electric motor, air cooled fan type

Cable:	length 6 m
Electro motor types:	1 ~ 230 V / 50 Hz
	3 ~ 400 V / 50 Hz
	(3 ~ 460 V / 60 Hz)
Protection type:	IP 54

Tank capacity
Approx. 13 l

Pump design
Internal gear pump

Operating and transportation position
Operating position: upright
Transportation position: upright or horizontal

Hydraulic fluids
Mineral oil and biodegradable fluids (see info service sheet 00.20). Other fluids on request.

Temperature range of fluids
0 °C ... +65 °C (also see fluid viscosity range)

Ambient temperature range
0 °C ... +50 °C

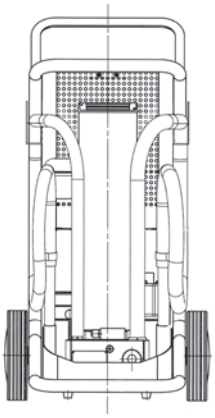
Accessories
Water-absorbing filter elements EXAPOR® AQUA
These can be used for short-term water absorption in all standard units (on request).

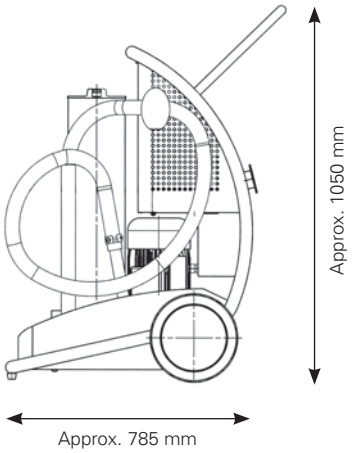
Viscosity range

Type	Continuous operation min.	Continuous operation max.	Short-term operating max.
UM 045	15 mm²/s	600 mm²/s	800 mm²/s
			800 mm²/s
UMPC 045	15 mm²/s	250 mm²/s * 600 mm²/s *	800 mm²/s

* An exact measurement of the oil cleanliness class is only possible within a viscosity range from 15 mm²/s to 150 mm²/s.

Dimensions

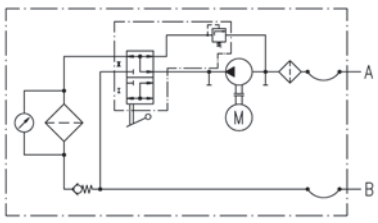

Approx. 565 mm



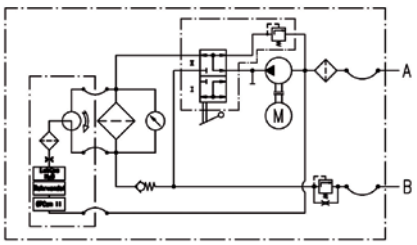
Approx. 785 mm

Symboles

Hydraulik symbol 1 – UM 045



Hydraulik symbol 2 – UMPC 045



Cleaning speed

The cleaning speed depends on the efficiency of the filter elements (βx (c)), the nominal volume flow ($Q_{nominal}$) and the oil volume (V_{actual}).

In graph D1-D2 the cleaning time is shown in relation to the filter fineness (cleanliness information according to ISO 4406:1999). The values are recorded by laboratory methods and they may be influenced by environmental conditions (such as continuous additional introduction of dirt on running systems, high water content, etc.).

All characteristic curves (see graphs D1-D2) relate to a **reference oil volume of 180 l** and a **nominal volume flow of 15 l/min**.

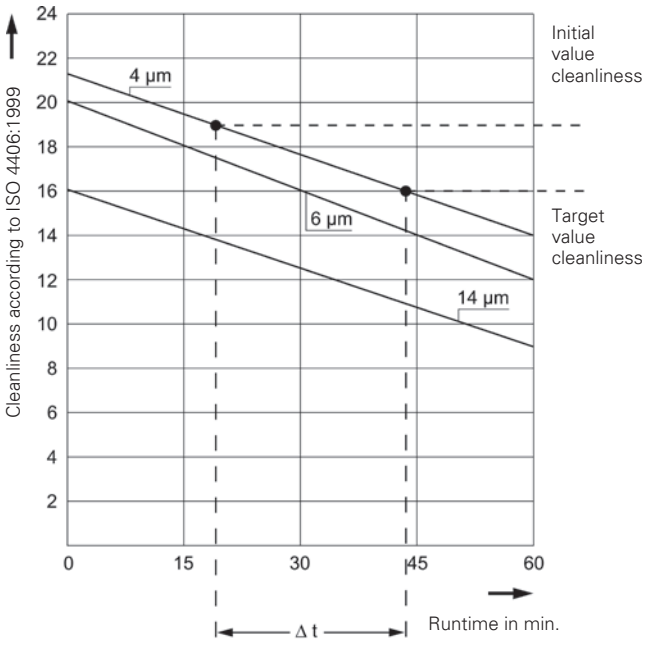
The following formula should be used to convert to the actual oil volume:

$$t_{actual} = \frac{V_{actual} \cdot \Delta t}{12 \cdot Q_{nominal}}$$

t_{actual} = Actual cleaning speed
Δt = Cleaning speed for oil volume of 180 l
V_{actual} = Volume of oil to be cleaned
$Q_{nominal}$ = Nominal volume flow, see selection chart

For monitoring, we recommend the use of the OPCom, which is integrated in the FAPC 016 version, or the particle counter PODS Pro (Portable Oil Diagnostic System).

Determining the cleaning time



1. Determine the initial cleanliness class and enter it on the graph, e. g. 19/17/14 according to ISO 4406:1999
2. Enter the target cleanliness class on the graph, e.g. 16/14/11 according to ISO 4406:1999
3. Determine Δt, in this case $\Delta t = 25$ min
4. Insert the value in the formula, where $V_{actual} = 350$ l and $Q_{nominal} = 16$ l/min

$$\mathbf{t}_{actual} = \frac{V_{actual} \cdot \Delta t}{12 \cdot Q_{nominal}}$$

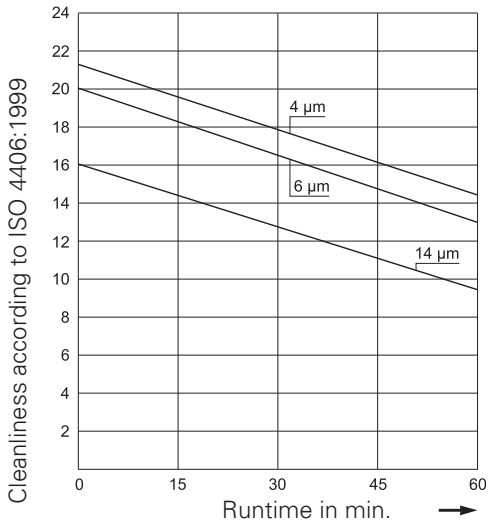
$$= \frac{350 \cdot 25}{12 \cdot 16} \approx 46 \text{ min}$$

DIAGRAMS

Curves for cleaning time as a function of the filter fineness

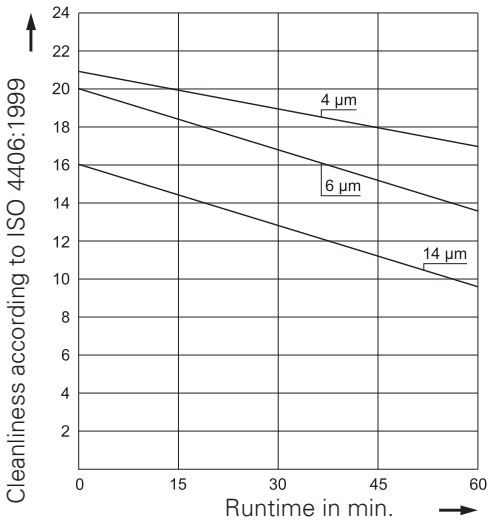
D1

3EN2 and 5EN2 EXAPOR®MAX 2 filter element
Reference oil volume with $Q_{off\text{-}line}$ filter = 15 l/min.



D2

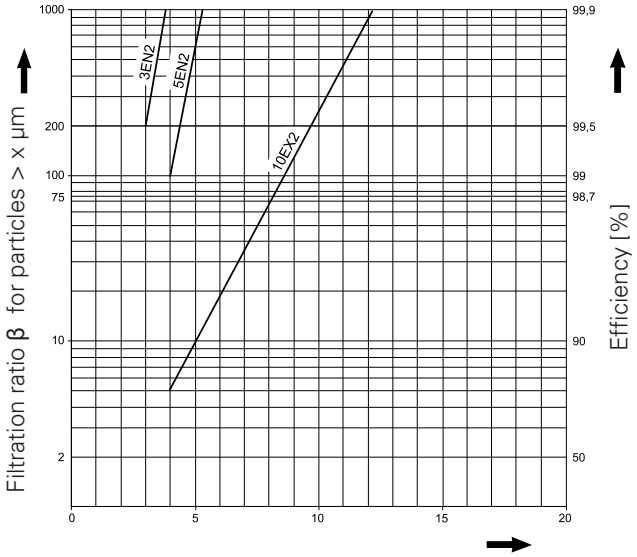
10EX2 EXAPOR®MAX 2 filter element
Reference oil volume with $Q_{off\text{-}line}$ filter = 15 l/



Filter fineness curves in selection chart

Dx

Filtration ratio β as a function of particle size x obtained by the Multi-Pass-Test according to ISO 16889



Particle size x [µm] (for particles larger than the given particle size x)

The abbreviations represent the following β-values resp. finenesses:

For EXAPOR®MAX 2 elements:

3EN2 = $\beta_{3(c)} \geq 200$ EXAPOR®MAX 2
5EN2 = $\beta_{5(c)} \geq 200$ EXAPOR®MAX 2
10EX2 = $\beta_{10(c)} \geq 200$ EXAPOR®MAX 2

SELECTION CHART

Order No.	Nominal flow rate	Filter fineness see diagram Dx	Dirt holding capacity	E-Motor operating voltage	E-Motor max. operating frequency	E-Motor power	Lenght suction hose (lance incl.) Length pressure hose (lance incl.)	Viscosity	Suction height max.	Hydraulic symbol	Replacement element order no.	Clogging indicator	Weight
Basic model – UM 045													
UM 045-1553	45 l/min ** 11.9 gpm**	3EN2	1950 g	1~230 V	50/60 Hz	1.1 kW**	2.7 m / 8.9 ft	15 ... 600 mm²/s 70 ... 2790 SUS	2.0 m 6.6 ft	1	V7.1560-103	optical	76.5 kg 169 lbs
UM 045-4553	45 l/min ** 11.9 gpm**	3EN2	1950 g	3~400 V 50 Hz 3~460 V 60 Hz	50/60 Hz	1.1 kW**	2.7 m / 8.9 ft	15 ... 600 mm²/s 70 ... 2790 SUS	2.0 m 6.6 ft	1	V7.1560-103	optical	76.5 kg 169 lbs
UM 045-1153	45 l/min ** 11.9 gpm**	5EN2	1980 g	1~230 V	50/60 Hz	1.1 kW**	2.7 m / 8.9 ft	15 ... 600 mm²/s 70 ... 2790 SUS	2.0 m 6.6 ft	1	V7.1560-03	optical	76.5 kg 169 lbs
UM 045-4153	45 l/min ** 11.9 gpm**	5EN2	1980 g	3~400 V 50 Hz 3~460 V 60 Hz	50/60 Hz	1.1 kW**	2.7 m / 8.9 ft	15 ... 600 mm²/s 70 ... 2790 SUS	2.0 m 6.6 ft	1	V7.1560-03	optical	76.5 kg 169 lbs
UM with integrated Particle Monitor OPCom – UMPC 045													
UMPC 045-15735 ***	45 l/min ** 11.9 gpm**	3EN2	1950 g	1~230 V	50/60 Hz	1.1 kW**	2.7 m / 8.9 ft	15 ... 600 mm²/s 70 ... 2790 SUS	2.0 m 6.6 ft	2	V7.1560-103	electr.	97 kg 214 lbs
UMPC 045-15835 ****	45 l/min ** 11.9 gpm**	3EN2	1950 g	1~230 V	50/60 Hz	1.1 kW**	2.7 m / 8.9 ft	15 ... 600 mm²/s 70 ... 2790 SUS	2.0 m 6.6 ft	2	V7.1560-103	electr.	97 kg 214 lbs
UMPC 045-45735 ***	45 l/min ** 11.9 gpm**	3EN2	1950 g	3~400 V 50 Hz 3~460 V 60 Hz	50/60 Hz	1.1 kW**	2.7 m / 8.9 ft	15 ... 600 mm²/s 70 ... 2790 SUS	2.0 m 6.6 ft	2	V7.1560-103	electr.	97 kg 214 lbs
UMPC 045-45835 ****	45 l/min ** 11.9 gpm**	3EN2	1950 g	3~400 V 50 Hz 3~460 V 60 Hz	50/60 Hz	1.1 kW**	2.7 m / 8.9 ft	15 ... 600 mm²/s 70 ... 2790 SUS	2.0 m 6.6 ft	2	V7.1560-103	electr.	97 kg 214 lbs

Please request our data sheet no. 100.10 for more detailed information on the OPCom Particle Monitor.

* The exact determination of the cleanliness class is possible in a viscosity range of 15 mm²/s to 250 mm²/s / 70 SUS to 1160 SUS.
** Indications at 50 Hz. At 60 Hz the value increases by 20 %.
*** H_2O + OPCom Particle Monitor, function see description
**** H_2O+ II + OPCom Particle Monitor, function see description

Other versions on request.

Filter elements:

see Selection Chart.
Water-absorbing filter elements EXAPOR®AQUA on request.

Accessories:

Hose extensions on request.
For the appropriate clogging indicators see datasheet 60.20.