

## Oil Service Units

# UM2 045

Oil service - simple, quick and compact ·



UM2 045 - front



UM2 045 - back

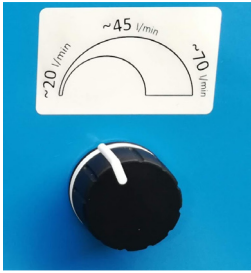
- › Nominal flow 45 l/min / 11.9 gpm
- › Easy filling, cleaning and pumping over
- › Unbeatable ergonomics, comfortable handling
- › High filtration efficiency
- › Huge dirt holding capacity up to 4 kg
- › Switching valve for bypassing the filter
- › Optionally with variable flow range

### Description

#### Oil service units

Easy, compact and ergonomic  
With the oil service unit UM2 045 hydraulic or lubrication systems can simply be filled, cleaned or fluid can be transferred without using the filter function. The compact size and ergonomic design allows for easy handling in minimal work spaces. The UM2 045 comes ready to connect, equipped with hoses. For easy transport, the electrical cables, as well as the suction and return hose, are fixed with support fixtures onto the trolley.

Protection of components through ultra-fine filtration  
The EXAPOR®MAX ultra-fine element is the heart of the UM2 oil service unit. A huge separation efficiency (up to 4 kg) guarantees excellent cleanliness levels and thereby maximum protection of components. The high dirt holding capacity of the EXAPOR®MAX elements makes the UM2 045 units an economical choice for our customers.



### Flexible and universal

Optionally, the unit can be equipped with frequency inverter and potentiometer for adjusting the flow rate in the range of 20 - 70 l/min / 5.3 - 18.5 gpm. This additional feature makes the UM2 unit even more universal and extends its use to smaller and larger systems. The flow rate can be adapted to the actual need depending on the tank size and / or required speed of the filtration / oil transfer.



### Switching Valve for changing operating modes

Each version of UM2 unit is delivered with switching valve. The selector valve installed in the pump block is used to switch between two basic modes of operation: "filtering" (e.g. when cleaning the hydraulic system) and "pumping over without filtering" (e.g. when removing waste fluid from the machine).



### Extremely efficient and capacious filter element

The high separation efficiency of the EXAPOR®MAX filter elements guarantees maximum protection of the components. The large DIRT HOLDING CAPACITY (up to 4 kg) makes the UM2 unrivaled in its class of devices. Apart from the EXAPOR®MAX technology, the customer can use the following:

- › EXAPOR®SPARK PROTECT elements for hydraulic oils with low electrical conductivity (< 500 pS/m at 20 °C)
- › EXAPOR®AQUA elements for filtration combined with dewatering



### Maintenance-free filter housing

The filter element can be removed from the housing together with the cover without any extra tools. Fluid flows through the element from the inside to the outside. The built-in dirt retention valve closes automatically when the element is removed, ensuring that all dirt is removed from the housing together with the element.



### Unbeatable ergonomics

Superior technology and excellent design are of no use if the operator can only move the service equipment with great physical effort. Therefore, ergonomics were of primary importance when designing the UM2 units.

Owing to its optimized weight distribution, the UM2 can be tilted from the standing position with minimum effort. In the tilted position, the UM2 can be moved walking upright, removing strain from the back.



### Leakage-free transport

Transporting the UM2 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. The drip tray prevents oil leakage during both vertical and horizontal transport.

## Characteristics

### Flow rate

UM2 045F: 45 l/min / 11.9 gpm

UM2 045A: 20 up to 70 l/min / 5.3 up to 18.5 gpm

### Operating pressure

max. 7 bar / 101 psi

### Viscosity range

UM2 045F -fixed flow 45 l/min / 11.9 gpm:

15 - 600 mm<sup>2</sup>/s - unit with motor 230 or 400 VAC

15 - 450 mm<sup>2</sup>/s - unit with motor 110-120 VAC

UM2 045A - adjustable flow rate:

15 - 1100 mm<sup>2</sup>/s - at flow 20 l/min / 5.3 gpm

15 - 600 mm<sup>2</sup>/s - at flow 45 l/min / 11.9 gpm

15 - 400 mm<sup>2</sup>/s - at flow 70 l/min / 18.5 gpm

### Temperature range of fluids

0 °C ... +75 °C / +32 °F ... +149 °F

### Ambient temperature range

0 °C ... +50 °C / +32 °F ... +122 °F

### Applicable filter elements

- › EXAPOR®MAX - for solid particles
- › EXAPOR®SPARK PROTECT - for solid particles and protection against electrostatic discharges (oils with low electrical conductivity < 500 pS/m at 20 °C)
- › EXAPOR®AQUA - for free water and solid particles

### Dirt holding capacity

The dirt holding capacity depends on the flow rate. The table below shows the dirt holding capacity values according to ISO16889 for different filter elements and various flow ranges.

Filter element	Fineness (β=200) Dirt-holding capacity according to ISO 16889		Water capacity	Flow rate
	3 μm	5 μm		
EXAPOR® <b>MAX2</b> V7.1560-103	4000g	-	-	20 l/min
	1950g	-	-	45 l/min
	1360g	-	-	70 l/min
EXAPOR® <b>MAX2</b> V7.1560-03	4000	-	-	20 l/min
	1980 g	-	-	45 l/min
	1400g	-	-	70 l/min
EXAPOR® <b>MAX3</b> V7.1560-06	4000g	-	-	20 l/min
	1980 g	-	-	45 l/min
	1440g	-	-	70 l/min
EXAPOR® <b>Spark Protect</b> Z7.1560-103	4000g	-	-	20 l/min
	1950g	-	-	45 l/min
	1360g	-	-	70 l/min
EXAPOR® <b>AQUA</b> Y7.1560-05	1190 g	1520 ml	-	20 l/min
	590 g	1520 ml	-	45 l/min
	420 g	1520 ml	-	70 l/min

### Clogging indicator

optical clogging indication DG 042-04

(all types) Δp = 3.5 ±0.5 bar

### Hydraulic connections

- › Suction side:  
Hose DN 32, length 2.7 m / 8.9 ft with suction lance 0,4 m
- › Suction strainer:  
Screen element 280 μm, ordering code **S9.0417-13**
- › Pressure side\*:  
Hose DN 25, length 2.7 m / 8.9 ft with pressure lance 0,4 m

### Permitted suction heights

max. 2 m (unfilled)

max. 6 m (in operating condition)

### Hydraulic fluids

Mineral oil and biodegradable fluids

(HEES and HETG, see info service sheet 00.20).

Other fluids on request.

### Weight

approx. 76.5 kg / 169 lbs

### Operating and transport position

Operating position: upright

Transport position: upright or horizontal

### Electrical motor types (see also order code)

UM2 045F:

3 ~ 400/460 V 50/60 Hz, 1.1 kW / 1.5 hp

1 ~ 220-240 VAC 50/60 Hz, 1.1 kW / 1.5 hp

1 ~110 -120 VAC 50/60 Hz, 0.75 kW / 1hp

UM2 045A:

3 ~ 400/460 V / 50/60 Hz, 1.1 kW / 1,5hp

### Electrical connection\*\*

Cable length 6 m / 19.7 ft with the electric plug.

To select the required electric plug see order code.

### Accessories (ordered separately)

\* Pressure hose extension (max. 5 m) - see order code

\*\* Electric cable extension - see order code

Long suction lance DN32x1000 mm, order code LA 32X1000

Long pressure lance DN25x1000 mm, order code LA 25X1000

Other lances on request.

## Ordering Code

UM2 045

- /

Type of unit	Code
Oil service unit	UM2 045

Nominal flow	Hydraulic symbol	Code
Fixed nominal flow 45 l/min / 11.9 gpm	1	F
Adjustable flow range 20-70 l/min / 5.3-18.5 gpm	2	A

Filter element	Fineness ( $\beta=200$ ) Dirt-holding capacity according to ISO 16889 and nominal flow 45 l/min / 11.9 gpm		Water capacity	Spare filter element	Code
EXAPOR®MAX 2	3 $\mu\text{m}$	1950 g	-	V7.1560-103	V003
EXAPOR®MAX 2	5 $\mu\text{m}$	1980 g	-	V7.1560-03	V005
EXAPOR®MAX 2	10 $\mu\text{m}$	1980 g	-	V7.1560-06	V010
EXAPOR®SPARK PROTECT	3 $\mu\text{m}$	1950 g	-	Z7.1560-103	Z003
EXAPOR®AQUA	7 $\mu\text{m}$	590 g	1520 ml	Y7.1560-05	Y007

Power supply voltage	Code
1 ~ 220 - 240 VAC 50/60Hz	23050
3 ~ 400 - 460 VAC 50/60Hz	40050
1 ~ 110 - 120 VAC 50/60Hz	11050

### Electric plug - code and description below \*

Other types - on request

No code Default for code 23050	G	J	No code Default for code 11050	I6	I4	No code Default for code 40050
220-250 VAC	220-250 VAC	220-240 VAC	100-127 VAC	200-250 VAC INDUSTRIAL	110-130 VAC INDUSTRIAL	380-480 VAC INDUSTRIAL
15 A TYPE E/F (CEE7/7 Unischuko)	13 A TYPE G (BS 1363)	10 A TYPE J (T12)	15 A TYPE B (NEMA 5-15P)	Type 013-6 16A-6h 3-pins (2P+PE)	Type 013-4 16A-4h 3-pins (2P+PE)	Type 715-6 16A-6h 5-pins (3P+N+PE), IEC 60309 With phase crossover
						

### Optional pressure hose extension (maximum 5 m / 16.4 ft)

Example of order: **P4.5** - pressure hose length 4.5 m / 14.8 ft

P\_.\_

### Optional electric cable extension \*\*

Example of order: **C8.5** - cable length 8.5 m / 27.8 ft

C\_.\_

### Order example:

**UM2 045F-V010/40050**

Service unit UM2 with fixed flow 45 l/min / 11.9 gpm, filter element 10  $\mu\text{m}$ , input voltage 3~400 VAC and electric plug type 715-6

## How to calculate cleaning time for unit without Particle Monitor?

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

In graph D1-D2, the cleaning time is shown in relation to the filter fineness (indication of cleanliness classes according to ISO 4406:1999). The values are recorded by laboratory methods and may be influenced by environmental conditions (e.g. compared to the laboratory test dust ISO MTD considerably deviating particle constellations, 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 / 47.5 gal** and a **nominal volume flow of 15 l/min / 4 gpm**.

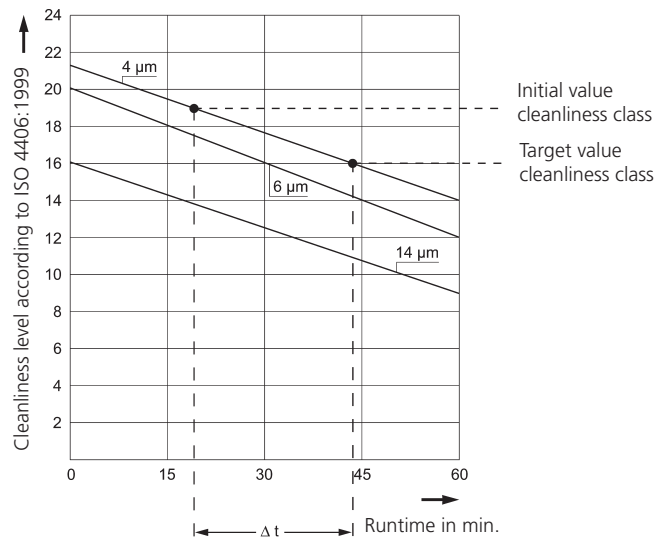
The following formula should be used to convert to the actual oil volume:

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

- $t_{\text{actual}}$  = actual cleaning speed  
 $\Delta t$  = cleaning speed for oil volume of 180 l / 47.5 gal  
 $V_{\text{actual}}$  = volume of oil to be cleaned  
 $Q_{\text{nominal}}$  = nominal volume flow, see Selection Chart

For monitoring purposes, we recommend the OPCom from ARGO-HYTOS, integrated in the version FAPC 016 or the OPCount Particle Counter.

## Determining the cleaning time

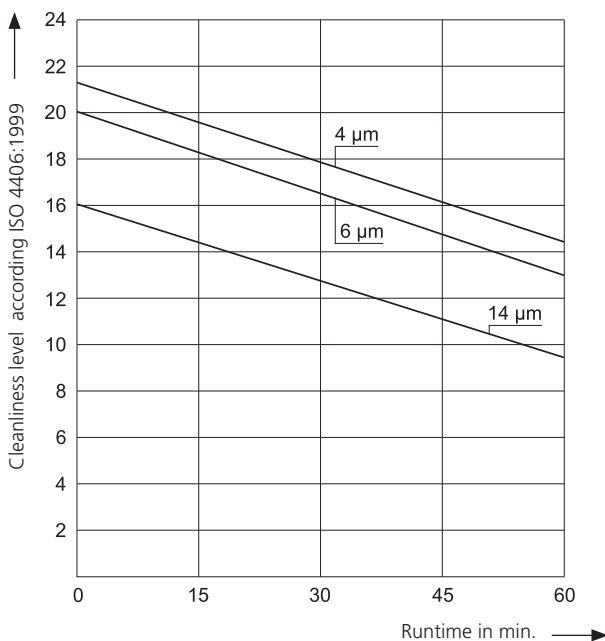


- › Determine the initial cleanliness class and enter it on the graph, e. g. 19/17/14 according to ISO 4406:1999
- › Enter the target cleanliness class on the graph, e.g. 16/14/11 according to ISO 4406:1999
- › Determine  $\Delta t$ , in this case  $\Delta t = 25$  min
- › Insert the value in the formula, where  $V_{\text{actual}} = 350$  l / 92.5 gal and  $Q_{\text{nominal}} = 45$  l/min / 11.9 gpm

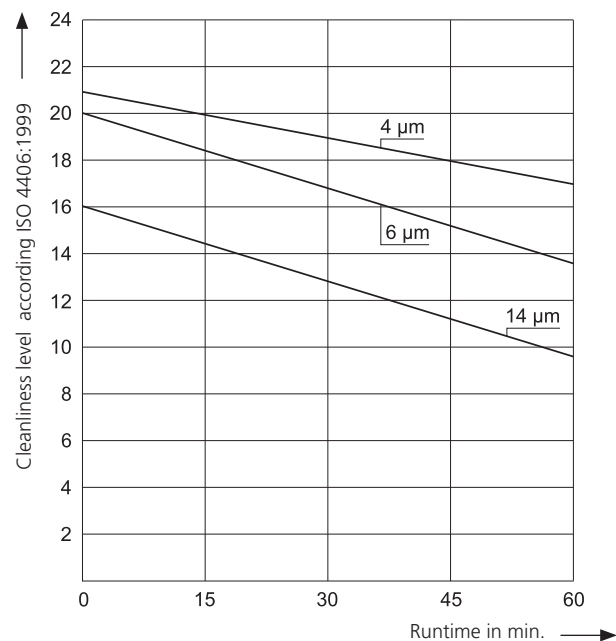
$$t_{\text{actual}} = \frac{V_{\text{actual}} \cdot \Delta t}{12 \cdot Q_{\text{nominal}}} = \frac{350 \cdot 25}{12 \cdot 45} \approx 16 \text{ min}$$

## Curves for the cleaning time as a function of the filter fineness

**D1** 3EN2 and 5EN2 EXAPOR®MAX 2 filter element  
Reference oil volume with  $Q_{\text{Off-line filter}} = 15$  l/min / 4 gpm.

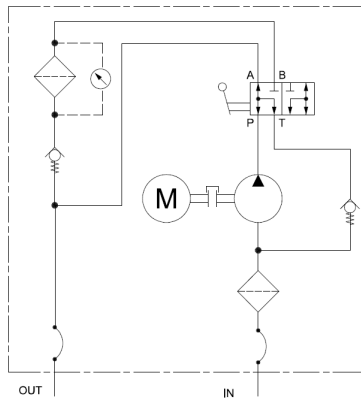


**D2** 10EX2 EXAPOR®MAX 2 filter element  
Reference oil volume with  $Q_{\text{Off-line filter}} = 15$  l/min / 4 gpm.

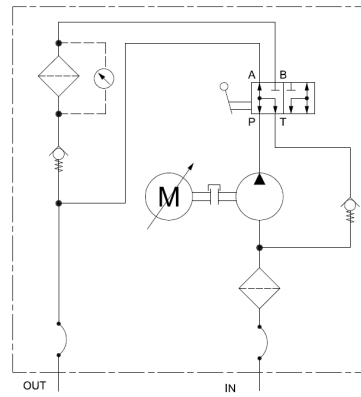


## Hydraulic symbol

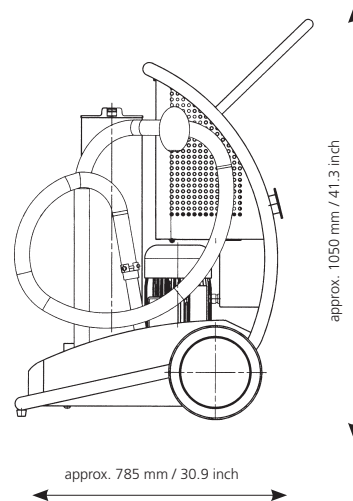
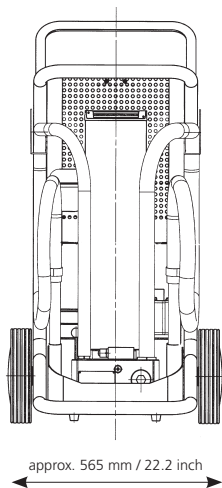
1 (UM2 045F...)



2 (UM2 045A...)



## Dimensions



## Other types of mobile oil service units

In the portfolio of ARGO-HYTOS you can find, other types of mobile filtration systems:

UMPCL2 045



Mobile service unit with integrated particle monitor  
For more details, see data sheet on  
[www.argo-hytos.com](http://www.argo-hytos.com) or click [here](#)

UMPC2 045



Mobile service unit with integrated particle monitor,  
oil condition sensor touch display and printer  
For more details, see data sheet on  
[www.argo-hytos.com](http://www.argo-hytos.com) or click [here](#)