

## FA2 016 · FAPC2 016



Oil Service Unit FA2 016



Oil Service Unit FAPC2 016

- › Easy filling and cleaning
- › Compact design, comfortable handling
- › High filtration efficiency
- › Option: with oil cleanliness monitor and data storage

### Description

#### FA2 016

With the FA2 016, hydraulic and lubricating systems can be easily filled or cleaned with off-line filtration.

#### Compact design and comfortable handling

The compact design allows easy access to the oil tank. The unit comes ready to connect with hose packages. The ultra-fine elements can quickly be changed without special auxiliary tools. Residual oil from the hoses is collected in the oil pan.

#### Protection of components through ultra-fine filtration

The ultra-fine filter element is the heart of the FA2 / FAPC2 oil service unit. High separation efficiencies guarantee excellent cleanliness levels and thereby highest protection of components. The high dirt holding capacity of the filter elements allows economic operation of the device.

#### FAPC2 016: filtration & oil cleanliness monitoring

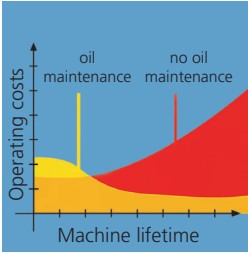
The FA2 016 can be equipped with an oil cleanliness monitor. The ARGO-HYTOS OPCOM Particle Monitor permanently monitors the current cleanliness class during the cleaning or filling process.

When monitoring the cleanliness class, a ball valve is used to select "behind filter" (e.g. when filling systems) or "before filter" (e.g. when cleaning filled oil). At the display of the OPCOM Particle Monitor, the result is shown according to ISO 4406:1999, NAS 1638, SAE AS 4059 or GOST 17216.

The FAPC2 016 can store up to 3000 data sets. A PC-software for data recording and representation of the measured values can be downloaded for free at [www.argo-hytos.com](http://www.argo-hytos.com). The data can be transmitted to a computer via an USB port so that the cleaning trend can be visualized and followed graphically or in table form.

#### Easy Transport

For easy transportation of the FA2 016 and FAPC2 016, an optional trolley can be hooked onto the standing unit - for more information see chapter Accessories.



### Economical

The FA2 016 · FAPC2 016 Oil Service Unit offers protection that can extend the lifetime of machinery. This protection gives a direct return on investment through extended service intervals and increased machine availability.



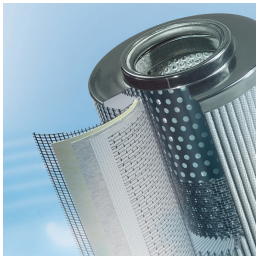
### Portable in any position

Thanks to the compact design, the FA2 016 · FAPC2 016 can be easily carried and also be used in inaccessible areas of hydraulic systems. Hoses and electric cables can be fixed at the service unit. The device can be operated and transported in both upright and horizontal positions.



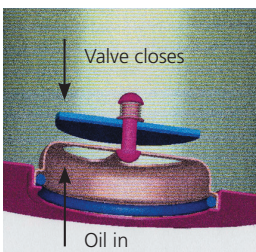
### User-friendly filter element change

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.



### Quality in detail

The ultra-fine element is the heart of the FA2 016 · FAPC2 016. A high separation efficiency and dirt holding capacity guarantee maximum cleanliness levels and service intervals in line with practical needs.



### Maintenance-free filter housing thanks to a unique filter element technique

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.



### Controlled cleaning with Oil Cleanliness Monitor OPCOM

The FA2 016 can optionally be equipped with the Oil Particle Monitor OPCOM which allows to monitor the oil cleanliness during the cleaning or filling process. The current cleanliness classes are indicated on the display or can be queried via the USB port.

## Characteristics

### Flow rate

up to 16 l/min / 4.2 gpm

### Operating pressure

FA2 016: max. 4 bar / 58 psi  
FAPC2 016: max. 5 bar / 72 psi

### Viscosity range

15 - 250 mm<sup>2</sup>/s - continuous operation  
15 - 400 mm<sup>2</sup>/s - short term operation  
15 - 150 mm<sup>2</sup>/s - continuous operation of the FAPC2 to assure exact measurement of the oil cleanliness class

### Temperature range of fluids

0 °C ... +65 °C / +32 °F ... +149 °F

### Ambient temperature range

0 °C ... +50 °C / +32 °F ... +122 °F

### Applicable filter elements



for efficient separation of solid particles



for separation of solid particles and protection against electrostatic discharges (oils with low electrical conductivity < 500 pS/m at 20 °C)



for separation of free water and solid particles

### Dirt holding capacity

The dirt-holding capacity values in grams from the ISO MTD test dust are in accordance with the ISO 16889 requirements (see Ordering Code, table Filter Element).

### Clogging indicator

FA2 016: optical, manometer DG200-16 (see data sheet 60.20)  
FAPC2 016: optical, differential pressure switch DG 042-01 (see data sheet 60.30)

### Hydraulic fluids

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

### Electrical connection\*

Cable length 2.5 m / 8.2 ft with the electric plug.  
To select the required electric plug see order code.

### Electrical motor

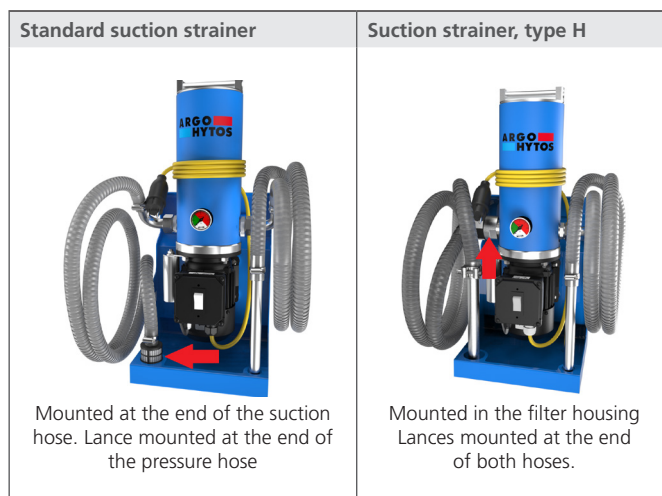
Single or three phase version:  
1~ 110-120 V / 50 / 60 Hz  
1~ 220-240 V / 50 / 60 Hz  
3~ 380-480V / 50 / 60 Hz  
Other motors on request

### Hydraulic connections

(see also in the table below)

Suction side:

- › **Standard version (no extra coding):**  
Hose DN 20, length 1,8 m / 5.9 ft with with suction strainer 600 µm, Ø approx. 44 mm / 1.7 inch mounted at the free end of the hose
- › **On request (letter H in the ordering code):**  
Hose DN 25, length 1,8 m / 5.9 ft with with suction strainer 200 µm mounted directly in the filter housing. Lance Ø approx. 25 mm / 0.98 inch mounted at free end of hose.



Pressure side\*\*:

- › Hose DN 20, length 2 m / 6.6 ft with lance Ø approx. 20 mm / 0.8 inch

### Permitted suction heights

max. 1,5 m (unfilled)  
max. 6 m (in operating condition)

### Weight

FA2 approx. 17 kg / 37.5 lbs  
FAPC2 approx. 21 kg / 46 lbs

### Operating and transport position

Operating position: upright  
Transport position: upright or horizontal

\* For electric cable extension - see order code

\*\* Pressure hose extension - see order code

## Ordering code

FA 2 016 /







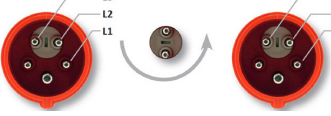
Type of unit	Code
Oil service unit	FA

Product version	Code
Without oil cleanliness monitor	
With oil cleanliness monitor	PC

Nominal flow rate 16 l/min / 4.23 gpm	016
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Filter element				Code
	Fineness ( $\beta=200$ ) Dirt-holding capacity according to ISO 16889 / water capacity		Code of spare filter element	
EXAPOR®MAX	3 $\mu$ m	280 g	V7.1220-113	V003
EXAPOR®MAX	5 $\mu$ m	270 g	V7.1220-13	V005
EXAPOR®MAX	10 $\mu$ m	210 g	V7.1220-06	V010
EXAPOR®AQUA	7 $\mu$ m	85 g / 190 ml	Y7.1220-05	Y007
EXAPOR®AQUA	3 $\mu$ m	105 g / 205 ml	Y7.1220-113	Y003
EXAPOR®SPARK PROTECT	3 $\mu$ m	280 g	Z7.1220-113	Z003

Electric motor*			Code
Phase(s), voltage	Frequency	Power	
1~220-240 VAC	50/60 Hz	0.45 kW	23050
1~110-120 VAC	50/60 Hz	0.45 kW	11050
3~380-480 VAC	50/60 Hz	0.45 kW	40050

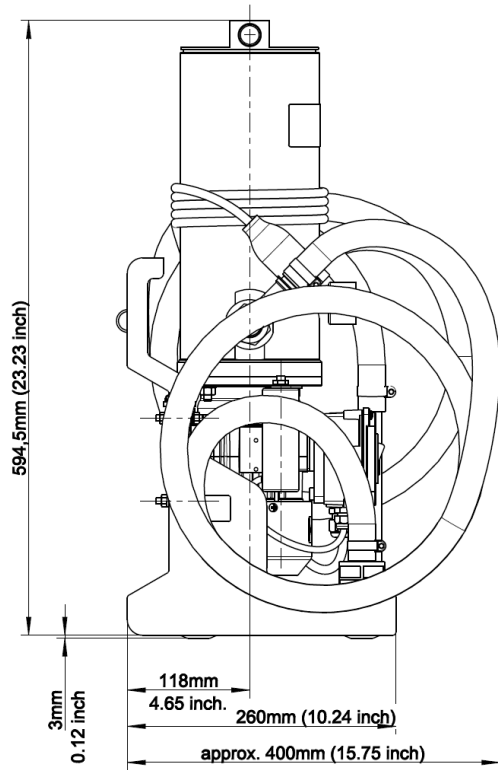
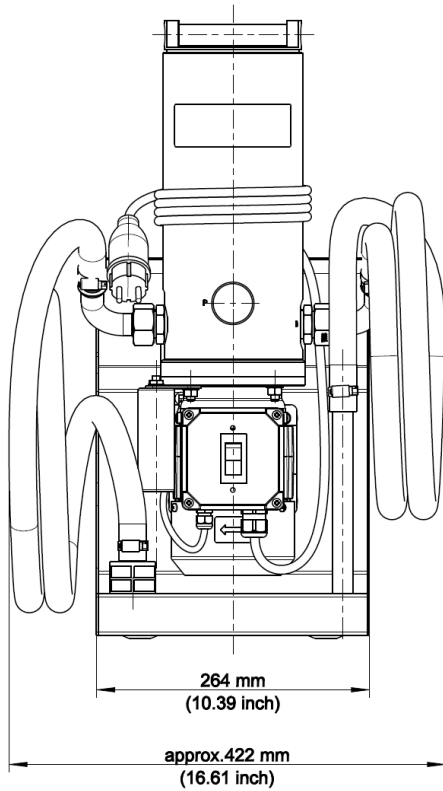
Electric plug - code and description below *						
Other types - on request						
No code Default for code 23050	G	J	No code Default for code 11050	I6	I4	No code Default for code 40050
220-250 VAC	220-250 VAC	220-240 VAC	100-127 VAC	200-250 VAC INDUSTRIAL	110-130 VAC INDUSTRIAL	380-480 VAC INDUSTRIAL
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
						

Suction strainer (options described on previous page)	Code
Standard - mounted at the free end of the hose, $\varnothing$ approx. 44 mm / 1.7 inch	
Optional - mounted in the filter housing + hose with lance $\varnothing$ approx. 25 mm / 0.98 inch	H

Optional pressure hose extension (maximum 5 m / 16.4 ft)	
Example of order: <b>P4.5</b> - pressure hose length 4.5 m / 14.8 ft	P_._

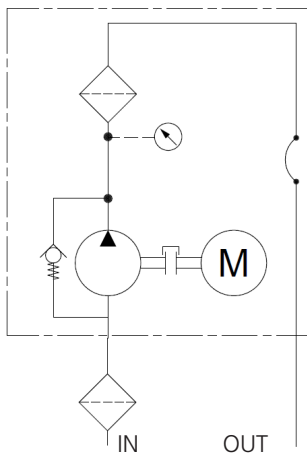
Optional electric cable extension **	
Example of order: <b>C8.5</b> - cable length 8.5 m / 27.8 ft	C_._

## Dimensions

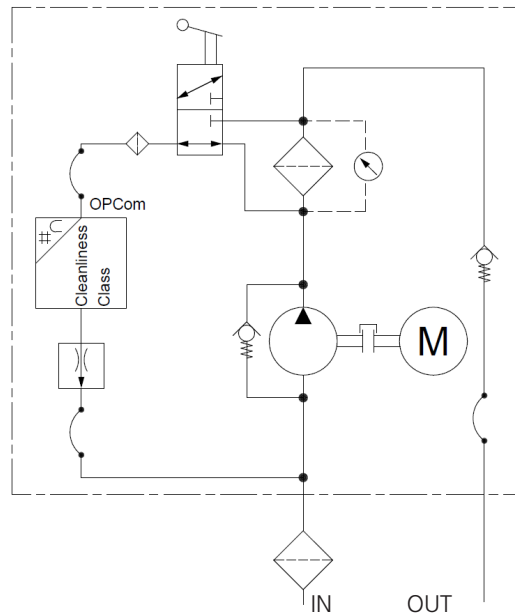


## Hydraulic symbols

FA2 016



FAPC2 016



## 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 (such as continuous additional introduction of dirt on running systems, high water content, etc.).

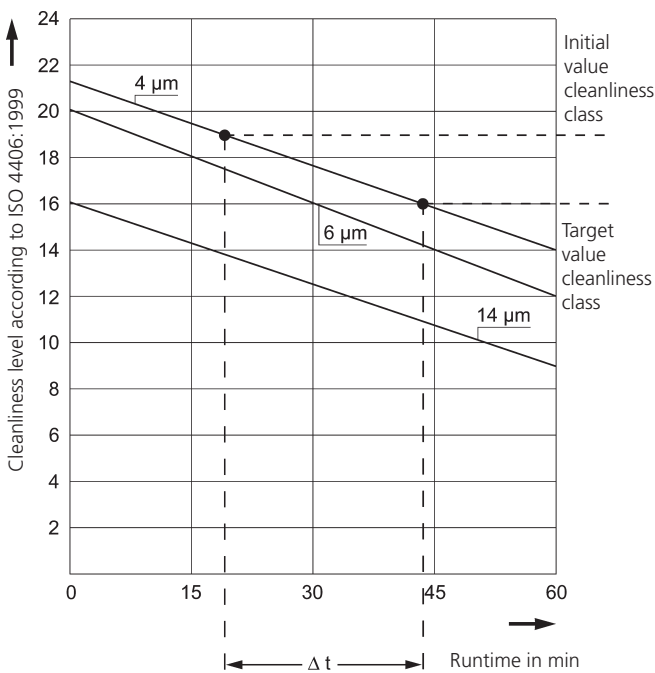
All characteristic curves (see graphs D1-D2) relate to a **reference oil volume of 180 l / 47.5 gal** and a **nominal volume flow of 15 l/min / 4 gpm**.

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

### Determining the cleaning time



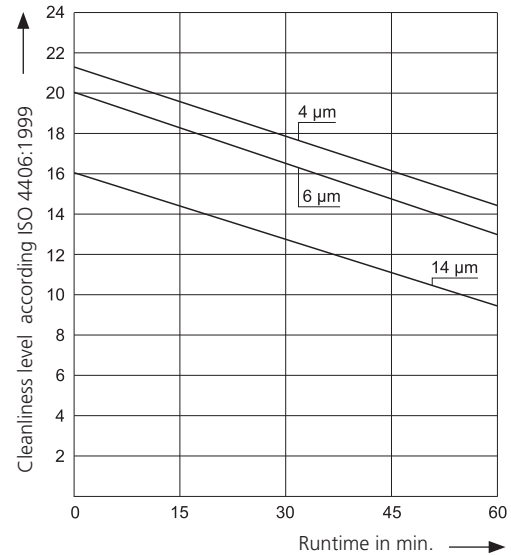
- › Determine the initial cleanliness class and enter it on the graph, e.g. 19/17/14 according to ISO 4406:1999
- › Enter the target cleanliness class on the graph, e.g. 16/14/11 according to ISO 4406:1999
- › Determine  $\Delta t$ , in this case  $\Delta t = 25$  min

- › Insert the value in the formula, where  $V_{\text{actual}} = 350$  l / 92.5 gal and  $Q_{\text{nominal}} = 16$  l/min / 4.2 gpm

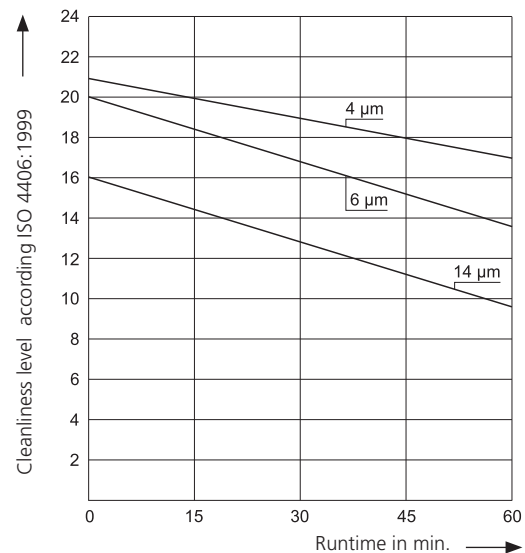
$$t_{\text{actual}} = \frac{V_{\text{actual}} \cdot \Delta t}{12 \cdot Q_{\text{nominal}}} = \frac{350 \cdot 25}{12 \cdot 16} \approx 46 \text{ min}$$

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

**D1:** FA2 016 with 3 and 5 µm EXAPOR®MAX filter element

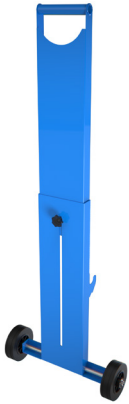


**D2:** FA2 016 with 10 µm EXAPOR®MAX filter element



### Trolley for easy transportation

- › Compatible with all versions of FA2 016 and FAPC2 016.
- › Order code. **FA-T**



FA-T trolley



FA-T trolley attached to the filter unit

### Suction strainer for direct installation in the filter housing

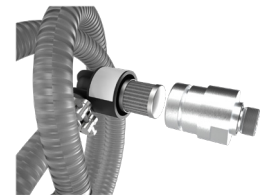
- › Used in case when standard strainer mounted at the end of the suction hose cannot be used
- › When ordered separately: use code **FA-SH/18/025** (strainer + hose DN25 length 1,8 m + lance Ø 25 mm, length 0,25m)
- › When ordered together with the FA2 / FAPC2 unit: put **H** in the Ordering code, table Suction Strainer.



FA-SH/18/025 suction strainer set



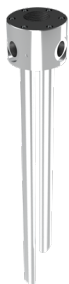
Strainer set mounted in the filter housing



Suction strainer set - exploded view

### Suction-return set

- › For easy connection of the suction and return hose to the tank, provided that there is a connection for a ventilating filter (e.g. LE.0716 or LE.0817... 0827) at the tank cover. For more information see data sheet no. 80.920.
- › Order code **FNA 008.1700**



FNA 008.1700 suction return adapter



FNA 008.1700 - example of installation