Manual

Off-line Filter Unit

FNA 040

Safety and operating instructions

Read safety and operating instructions before use.

Note: The indicated data only serve to describe the product.
Specifications regarding the use of this product are only examples and suggestions.
Catalog specifications are no guaranteed features.
The information given does not release the user from his / her own assessments and inspection.

Our products are subject to a process of natural wear and aging.

The picture on the title page shows a configuration example.
The delivered product may thus differ from the illustration.

Contents

1. About this documentation

1.1 Applicability of this documentation

This documentation is applicable for the following product:

› Off-line Filter Unit FNA 040

This documentation is written for technicians, operators, service engineers and system operators.
This document contains important information for safe and appropriate assembly, transport, activation, operation, usage, servicing, dismantling and simple troubleshooting.

› Read this document completely and in particular Chapter 2, "Safety Instructions", before you work with the product.

1.2 Required and supplementary documentation

Do not commission the product until you have received the documentation marked with the book icon and before you have understood and complied with the information therein.

	Title	Number of document	1.2.1 Document type
🕮	Data sheet	80.65	PDF

Table 1: Required and supplementary documentation

1.3 Presentation of information

So that this document can help you to work quickly and safely with your product, we use standardized safety instructions, symbols, terms and abbreviations. For better understanding, these are explained in the following sections.

1.3.1 Safety instructions

In this documentation, safety instructions are faced with a sequence of actions which would result in the danger of personal injury or damage to equipment. The measures described to avoid theses hazards must be observed.

DANGER

Type and source of danger
› Consequences of the danger
› Escaping or averting the danger
› Rescue (optional)

› Warning signal: draws attention to the danger
› Signal word: indicates the severity of the danger
› Type and source of danger: specifies the type and source of danger
› Consequences: describes the consequences in the event of non-compliance
› Action: indicates how the danger can be avoided

Warning sign, signal word	Meaning
DANGER	Indicates a dangerous situation which results in death or serious injury if not avoided.
WARNING	Indicates a dangerous situation which may result in death or serious bodily injury if not avoided.
CAUTION	Indicates a dangerous situation which may result in light to moderate injury if not avoided.
NOTE	Indicates property damage: The product or surrounding could be damaged.

Table 2: Meaning of the warning signs

1.3.2 Symbols

The following symbols indicate notes which are not safety-relevant but increase the intelligibility of the documentation.

Symbol	Meaning
	If this information is not observed, the product cannot optimally be used or operated
>	Singular, independent action step / instruction
1. 2. 3.	Numbered instruction The numbers indicate that the action steps follow one another
	This symbol indicates danger to equipment, material and environment
	This symbol indicates the risk of personal injury (minor injury).
	This symbol indicates the risk of personal injury (death, serious bodily injury).
	This symbol specifies that protective gloves should be worn.
	This symbol specifies that safety shoes should be worn.
	This symbol specifies that protective goggles should be worn.
	This symbol specifies that the unit should be disconnected from the power supply.

Table 3: Meaning of symbols

1.3.3 Terms

In this documentation the following terms are used:

Term	Meaning

Table 4: Terms

1.3.4 Abbreviations

In this documentation the following abbreviations are used:

Term	Meaning
FNA	Off-line Filter Unit

Table 5: Abbreviations

2.1 About this chapter

This product was manufactured according to the generally recognized standards of engineering. Nevertheless, there is a danger of injury or damage if you do not observe this chapter and the safety instructions in this documentation.

› Read this document thoroughly and completely before working with the product.
› Retain this document and ensure that it is available for all users at all times.
› Always include the necessary documentation when passing the equipment along to a third party.

2.2 Intended use

This product is a hydraulic component.
You may use the product for the following:

› for filtration of hydraulic fluids in the bypass flow on machines and systems, taking account of the technical data.

This product is intended for professional use only and not for private use.

"Intended use" also includes that you have completely read and understood this documentation, in particular Chapter 2 "Safety Instructions".

2.3 Improper use

Any other use than the intended use described, is improper and inadmissible.
If unsuitable products are installed or used in safety-related applications, unintended operating states may occur in the application, which may cause personal injury and / or property damage.
Therefore only use this product in safety-related applications if this use is explicitly specified and permitted in the product documentation, e.g. in explosion protection areas or in safety-related parts of a control system (functional safety).
ARGO-HYTOS GMBH assumes no liability for damages resulting from improper use. The risks associated with improper use are solely with the user.

2.4 Reasonably foreseeable misuse

The delivery of the following media is forbidden:

› others than listed in Chapter 16 “Technical data”.

Especially

› flammable liquids such as petrol or thinner (explosion hazard)
› foodstuffs
› The device is not suitable for sucking sludge and sediment.

The operator alone is liable for damages resulting from improper use.

2.5 Qualification of personnel

The operations described in this document require fundamental knowledge of mechanics and hydraulics as well as knowledge of the appropriate technical terms. In order to ensure safe use, these operations may therefore only be carried out by a correspondingly skilled worker or an instructed person under the guidance of a skilled worker.
A skilled worker is someone who can - based on his / her technical education, knowledge and experience as well as knowledge of the respective regulations of the jobs assigned to him / her - recognize possible dangers and ensure appropriate safety measures.
A skilled worker must observe the relevant technical regulations.

2.6 General safety instructions

› Observe the valid regulations for accident prevention and environmental protection.
› Observe the safety regulations and requirements of the country in which the product is used / applied.
› Only use ARGO-HYTOS products that are in technically perfect condition.
› Observe all instructions on the product.
› People who assemble, operate, disassemble or maintain ARGO-HYTOS products may not do so under the influence of alcohol, other drugs or medications that affect the responsiveness.
› Only use manufacturer-approved accessories and spare parts, in order to prevent personal danger due to unsuitable spare parts.
› Observe the technical data and ambient specifications specified in the product documentation.
› If unsuitable products are used or installed in safety-relevant applications, unintended operating states may occur in the application, which can cause personal injury and / or material damage. Therefore only use the product in safety-relevant applications if this use is explicitly specified and permitted in the product documentation.
› You may only put the product into operation, when it has been established that the final product (e.g. a machine or system), into which the ARGO-HYTOS products have been installed, complies with the country-specific regulations, safety regulations and standards of the application.

2.7 Product and technology related safety instructions

⚠ CAUTION

Leaked hydraulic oil

Environmental hazard / risk of slipping.

› In case of spills, cover the oil-covered surface immediately with an oil-binding medium.
› Then immediately dispose of the oil-binding medium according to the national environmental regulations.

Ignition hazard

Risk of electrostatic charge by poorly conducting hydraulic fluid.

› If the electrical conductivity of the hydraulic fluid is not known, please contact the manufacturer of the hydraulic fluid.

Risk of burns

Contact temperatures according to DIN EN563 (3) and DIN EN13202 (4) may be exceeded during operation.

› Allow the off-line filter unit to cool down before touching it.

3.1 For prevention of material damage and product damage

CAUTION

Danger due to improper handling

Property damage

› The filter unit may only be used in accordance with Section 2.2, "Intended use".

Leakage or spillage of hydraulic fluid

Environmental pollution and ground water contamination.

› Use oil binding agents in order to bind leaked hydraulic oil.

Risk of burns

Contact temperatures according to DIN EN563 (3) and DIN EN13202 (4) may be exceeded during operation.

› Allow the off-line filter unit to cool down before touching it.

Contamination due to fluids and foreign bodies

Premature wear, malfunction, risk of damage, property damage.

› Ensure cleanliness during installation in order to prevent foreign bodies, such as welding beads or metal chips, from entering the hydraulic lines, leading to premature wear or malfunction.
› Make sure that connections, hydraulic lines and attachment parts (e.g. gauges) are free from dirt and chips.
› Prior to commissioning, check that all hydraulic and mechanical connections are connected and tight, and that all gaskets and seals of the plug connectors are correctly assembled and undamaged.
› For removal of lubricants and other contaminants, use residue-free industrial wipes.
› Make sure that all connections, hydraulic lines and attachment parts are clean.
› Ensure that no contaminants enter when closing the connections.
› Make sure that no detergents enter the hydraulic system.
› Do not use cotton waste or faying cleaning rags for cleaning.
› Do not use hemp as sealing agent.

Improper cleaning

Premature wear, malfunction, risk of damage, property damage.

› Close all openings with appropriate protective fittings to prevent penetration of detergents.
› Do not use aggressive cleaning agents for cleaning. Clean the product with a suitable cleaning fluid.
› Do not use a high pressure cleaner.
› Do not use compressed air to clean function interfaces such as seal areas.

4. Scope of delivery

The package includes:

› 1 Off-line Filter Unit FNA 040
› 1 Operating manual

5.1 Performance specification

The off-line filter unit FNA 040 is a stationary filter unit for filtration of hydraulic fluids and lubricants with a viscosity of 15 mm²/s - 400 mm²/s (in continuous operation).
A separate installation in the bypass or cooling circuit for fine filtration and discharge of the full flow filter is just as possible as the filtration of fresh oil and the cleaning (flushing) of polluted systems for wear protection of components and systems.
The volume flow is 40 l/min (50 Hz).
The operating temperature is in the range of 0 °C to 60 °C.

5.2 Device description

The off-line filter unit FNA 040 consists of an electrically operated filter pump with exchangeable filter element and may be equipped with an electrical maintenance indicator. The control box of the pump motor is used to connect the power supply. The suction hose may be connected to the suction port of the pump and the pressure hose at the outlet of the main filter.

5.3 Component overview

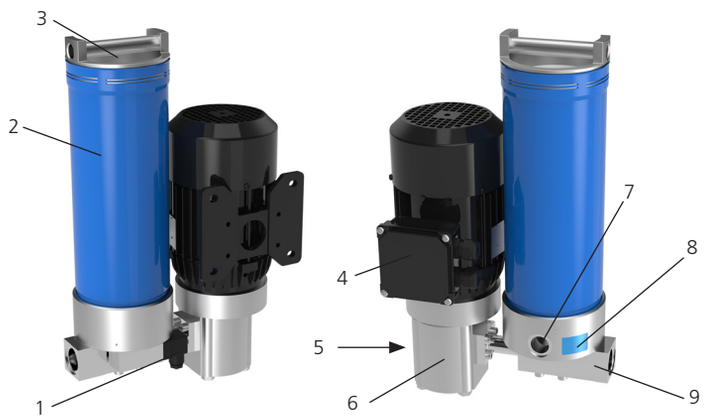


Fig. 1: Component overview

1 Differential pressure switch
2 Filter housing with filter element
3 Filter cover
4 Terminal box electric motor
5 Fluid inlet / suction connection
6 Pump
7 Fluid outlet / pressure connection
8 Nameplate
9 Pressure limiting valve

5.4 Identification of the product

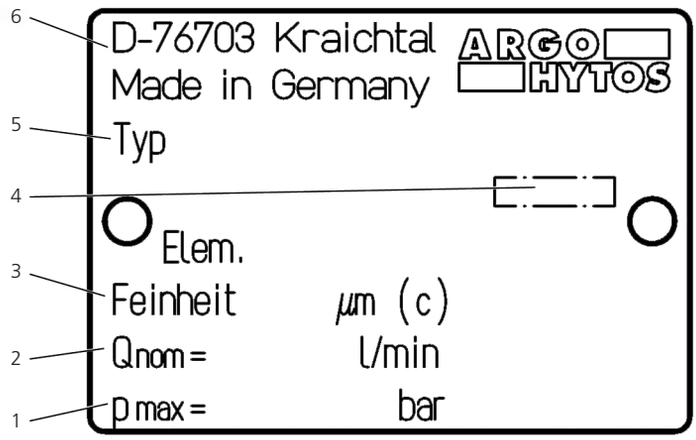


Fig. 2: Nameplate

1 Max. pressure
2 Nominal volume flow
3 Filter fineness
4 Year of manufacture
5 Type designation
6 Address

NOTE

Nameplates are documents which must not be changed or removed.

› Damaged or lost nameplates immediately have to be replaced true to the original.

6. Transport and storage

6.1 Transport

CAUTION	
	**Falling unit through incorrect transport** **Injury and property damage** › The unit must be carried manually by two persons due to its own weight of 37 kg. › Wear safety shoes when transporting the filter unit.

› When using mobile transport aids, ensure a secure position of the unit (danger of tipping).

› During transport, close the suction and pressure port, in order to avoid a possible leakage of residual oil.

6.2 Storage

CAUTION	
	**Risks related to chemical reactions** **Risk of injury** **Chemical substances in the immediate vicinity of the off-line filter unit may react and lead to destruction of the device and to injuries of persons who are in the immediate vicinity of the device.** › Storage in the immediate vicinity of chemically active substances such as acids, alkalis, salts, organic solvents and rechargeable batteries is prohibited.

The ambient temperature during storage of the off-line filter unit FNA 040 should be between + 5 °C and + 30 °C at a humidity of 80 %. Before storage over a period of more than 6 months, the unit should be filled with oil in order to preserve it against corrosion.

7. Assembly

WARNING

Faulty power supply
Risk of death and injury

› Always consider the country-specific regulations.

Let - prior to commissioning - an electrician check whether:

› the mains voltage matches with the voltage specified on the type plate of the motor,
› the power source has appropriately been secured,
› the cross-section is of sufficient size,
› cable and connection to the power source are in perfect condition.

With 3-phase AC motors check after connecting that:

› when switching on, the direction of rotation matches with the direction arrow on the motor, if not, have it changed by an electrician.

Specifically, proceed with the following steps:

› connect the motor to the local power supply.

8. Commissioning

8.1 Before commissioning

› Be sure to read and understand the operating manual before putting the device into operation.
› The information for intended use, the operating conditions and the technical specifications must be adhered to.
› The unit must be positioned so that there is no danger of tipping and vibrations are largely intercepted.
› Cables and hoses must be outside of the movement range of the operating personnel (tripping hazard).
› If no hydraulic oil is sucked in during commissioning, switch off the unit, open the cover at the filter housing and fill in approx. 0.3 l hydraulic oil.
› The oil to be filtered must be compatible with the previously filtered hydraulic oil. If this is not the case, the filter unit must be cleaned and the filter element is to be replaced (see filter element change).
› When using the hoses during unmanned operation, ensure that they might not fall out of the container.
› The suction and discharge pipe must be immersed far enough below the liquid level, so that oil is sucked in.
› The hydraulic fluid must be free of water (no oil turbidity).
› Properly close the cover of the filter housing.
› Manually turn the cover until it stops; a gap between cover and housing may remain visible (see Figure 3).

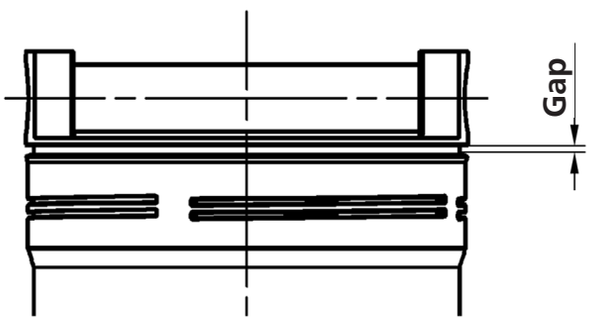


Fig. 3: Gap at the filter cover

8.2 After switching on

› With 3-phase AC motors check after connecting if the direction of rotation matches with the direction arrow on the motor. If not, have it changed by an electrician.
› Check the off-line filter unit for leaks.

8.3 In case of power failure

In order to prevent unintentional starting of the unit, always switch off and unplug the unit.

CAUTION

Exposure to spilled oil

Injury - risk of slipping

› If oil leaks, the oil-covered area must be shut of immediately and covered with an oil binding medium (risk of slipping).

Static charge

Sparking

› There is a risk of static charge when using poorly conducting hydraulic or lubricating oils. In this case, please consult the manufacturer.

9.1 Filtering hydraulic fluids in the bypass flow

1. Connect the filter unit to a power source.
2. Place the suction line into the container of the machine or system (e.g. hydraulic tank).
3. Place the pressure line of the pressure limiting valve in the container of the machine or system (e.g. hydraulic tank).
4. Turn on the power supply and plug in the mains plug.
5. Check the oil flow on possibly insufficient immersion depth of the suction pipe in the oil tank.

NOTE

Faulty insertion of the discharge pipe

› At the beginning of the filtration, filling of the off-line filter unit may take a few seconds.

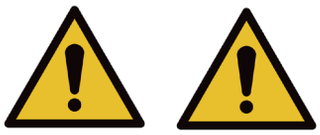
6. Using the clogging indicator, check the element for clogging at operating temperature of the medium used.
7. At the end of filtration, pull the suction strainer out of the container of the machine or unit (e.g. hydraulic tank) and draw in air for max. 30 seconds.
   Thus, residual oil from the filter housing and the lines above oil level will be returned via the discharge pipe into the tank of the machine or unit.
8. Turn off the power supply and unplug the mains plug.

NOTE

Reaching the maximum cleaning performance

› In order to prevent a short circuit of the oil flow, the distance between the suction and pressure connection should be kept as large as possible.

DANGER



Danger to life

Risk of electric shock

› During repair work, turn off the unit and pull the mains plug.

CAUTION

Risks related to chemical reactions

Risk of injury

› Chemical substances in the immediate vicinity of the filter unit may react and lead to destruction of the device and to injuries of persons who are in the immediate vicinity of the device

› Storage in the immediate vicinity of chemically active substances such as acids, alkalis, salts, organic solvents and rechargeable batteries is prohibited.

Hydraulic oil spills

Environmental hazard / risk of slipping

Before maintenance and repair work, completely drain the unit.

› In case of spills, cover the oil-covered surface immediately with an oil-binding medium.

› Then immediately dispose of the oil-binding medium according to the national environmental regulations.

Ignition hazard

› Risk of electrostatic charge by poorly conducting hydraulic fluid.

› If the electrical conductivity of the hydraulic fluid is not known, please contact the manufacturer of the hydraulic fluid.

Risk of burns

› Contact temperatures according to DIN EN563 (3) and DIN EN13202 (4) may be exceeded during operation.

› Allow the filter unit to cool down before touching it.

NOTE

Impaired function by dirt ingress into the pump.

The function of the filter unit is no longer guaranteed.

› During repair work, all parts coming in contact with the hydraulic medium, must be kept free of dirt and chips.

10.1 Maintenance

10.2 Maintenance overview

Except from the filter element, the off-line filter unit is maintenance-free.

Maintenance work	Maintenance interval
Checking / changing the filter element	Once the clogging indicator responds at a permissible viscosity.

Table 6: Maintenance overview

10.3 Replacing the filter element

1. Pump the filter element empty - (see Chapter 9.1 "Filtering liquids in the bypass flow" Point 7)
2. Disconnect the off-line filter unit from the power supply and unplug the mains plug.

CAUTION

Risk of burns

Contact temperature according to DIN EN563 (3) and DIN EN13202 (4) may be exceeded during operation.

› Allow the filter unit to cool down before touching it.

10.3.1 Removing the filter element

Fig. 4: Removing the filter element

1. Turn the housing cover (1) counterclockwise.
2. Carefully remove the cover (1) with the filter element (2) from the filter tube. (The filter element is attached to the cover. Let the draining oil drip off into the housing.)

10.3.2 Removing the filter element from the cover

Fig. 5: Removing the filter element from the cover

1. Push the filter element at the cover in arrow direction 1 and remove it in arrow direction 2.
2. Dispose of the filter element according to the national environmental legislation (Waste code: Oil filter 16 01 07).

10.3.3 Attaching the filter element

Fig. 6: Attaching the filter element

1. Check the filter element type number. Does the laser inscription on the filter element match with the indications on the type plate or in the operating manual?
2. Attach the filter element in arrow direction 2 and lock it in arrow direction 1.

10.3.4 Installing the filter element

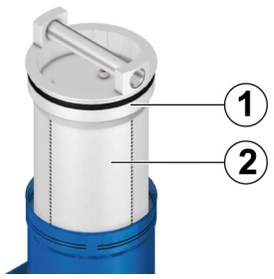


Fig. 7: Installing the filter element

1. Carefully insert the cover (1) with the filter element (2) into the filter tube.
2. Screw in the cover manually until it stops. A gap between cover and filter pipe may remain visible. (see Chapter 8.1 "Before commissioning" / Fig. 3)

10.4 Replacing the pump and the motor

DANGER

Danger to life

Risk of electric shock.

› Before uninstalling, disconnect the device from the power supply and pull the mains plug. Uninstalling may only be carried out by qualified electricians.

› Electrical work on the off-line filter units has strictly to be carried out by qualified electricians. Danger of electrical shock.

Risk of injury

Risk of injury by incorrect handling

› Uninstalling may only be carried out by instructed persons.

CAUTION

Risk of burns

Contact temperatures according to DIN EN563 (3) and DIN EN13202 (4) may be exceeded during operation.

› Allow the filter unit to cool down before touching it.

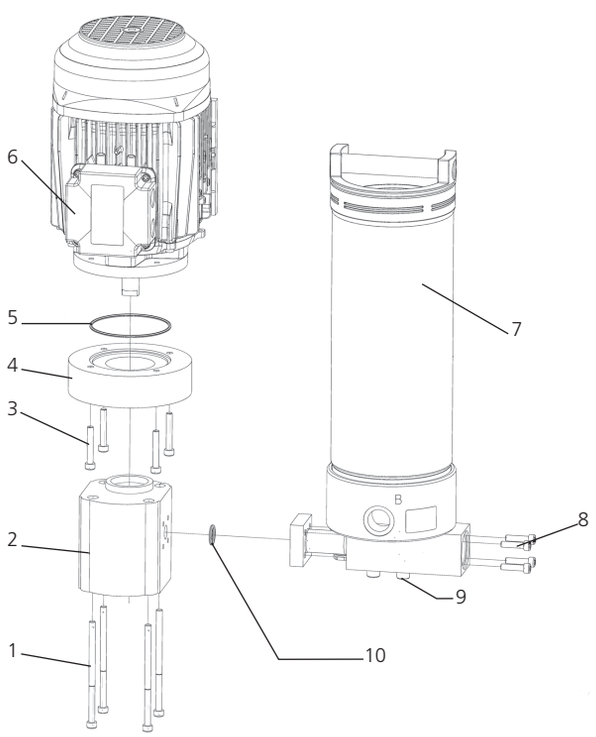


Fig. 8: Replacing the motor and the pump

WARNING

Risk of functional impairment

In case of dirt ingress into the pump during maintenance work, optimal functioning of the device is no longer guaranteed (no manufacturer liability).

› Work with special care when replacing the pump / motor.

› All parts coming into contact with the hydraulic medium must be kept free from dirt and chips.

10.4.1 Removing the pump / motor

1. Unscrew the cylinder screws (Pos. 8) and release the filter unit (Pos. 7) from the pump unit (Pos. 2).
2. Loosen the cylinder screws (Pos. 9) and detach the filter housing (Pos. 7) from the filter carrier.
3. Loosen the hexagon bolts (Pos. 1) and separate the pump (Pos. 2) from the pump carrier (Pos. 4).
4. Loosen the cylinder screws (Pos. 3) and separate the pump carrier (Pos. 4) from the motor (Pos. 6).
5. Loosen the motor mounting and remove the motor (Pos. 6).

NOTE

› When replacing the pump / motor, the O-rings (Pos. 5 and Pos. 9) must always be replaced by new O-rings. Please take the Order No. from the spare parts list.

10.4.2 Installing the pump / motor

1. Mount the motor (Pos. 6) using the previously removed motor mounting on the machine / system.
2. Lubricate the O-ring (Pos. 5) and insert it into the provided O-ring groove in the pump carrier (Pos. 4).
3. Mount the pump carrier (Pos. 4) to the motor (Pos. 6) using the cylinder screws (Pos. 3). Make sure that the O-ring (Pos. 5) remains in the O-ring groove and that it is not damaged between the pump carrier (Pos. 4) and the motor (Pos. 6).
4. Fasten the pump (Pos. 2) to the pump carrier using the hexagonal screws (Pos. 1) (MA 30 ±3 Nm).
5. Lubricate the O-ring (Pos. 10) and insert it into the O-ring groove provided for the filter unit (Pos. 7).
6. Fasten the filter unit (Pos. 7) with the cylinder screws (Pos. 8) at the pump (Pos. 2) (MA 10 ±1 Nm). Ensure that the O-ring (Pos. 10) remains in the O-ring groove and that it is not damaged between the pump (Pos. 2) and the filter unit (Pos. 7).
7. Fasten the filter housing (Pos. 7) to the filter carrier with the cylinder screws (Pos. 9).
8. Connect the unit to the power supply according to the electrical connection diagram.

The device can be put into operation (see manual: Commissioning).
If no oil is sucked during commissioning, open the cover at the filter housing and fill in about 0.3 l oil.

11. Decommissioning

DANGER

Danger to life

Risk of electric shock

› Before uninstalling, pull the mains plug. Uninstalling may only be carried out by qualified electricians.

Risk of injury

Risk of injury by incorrect handling

› Uninstalling may only be carried out by instructed persons.

The final decommissioning and disposal requires complete uninstallation of the total energy supply, the mechanical components and the disposal of the hydraulic media remaining in the device.

With disassembly and disposal, all national safety and environmental regulations must be observed.

12. Disassembly

The off-line filter unit is a device which does not have to be dismantled.

13. Disposal

› Careless disposal of the off-line filter unit FNA 040 and the hydraulic fluid can lead to environmental pollution.
› Therefore, dispose of the filter unit and the hydraulic fluid in accordance with the national regulations of your country.
› Dispose of hydraulic fluid residues according to the applicable safety data sheets for these hydraulic fluids.

14. Troubleshooting

14.1 How to proceed

› Get an overview on the function of the product in connection with the overall system.
› Try to find out whether the product had provided the required function in the overall system before the error occurred.
› Try to detect changes in the overall system, into which the product has been installed:
  » Have the operating conditions or the operating range of the product changed?
  » Have modifications (e.g. conversions) or repairs been carried out at the overall system (device / unit, electrics, control) or at the product? If so, which modifications?
  » Has the product or the device been operated correctly?
  » How does the fault tend to show?
› Get a clear impression about the cause of trouble. Possibly consult the direct operator or machine operator.

14.2 Fault table

Problem / fault	Possible cause	Elimination
Electric motor does not turn on during commissioning	› Electric cable or mains plug defective	▶ Have the cable replaced by a skilled electrician
	› Supply voltage missing	▶ Establish the power supply or activate the electric fuse
	› On/off switch defective	▶ Replace on/off switch
	› Motor defective	▶ Replace motor (repair at manufacturer's premises)
	› Pump defective	▶ Replace pump (repair at manufacturer's premises)
	› Viscosity too high (medium)	▶ Warm up the oil
Electric motor switches off during operation	› Electric motor overheated	▶ Let the motor cool down, clean any contaminated ventilation slits
	› Pump blocked	▶ Replace pump (repair at manufacturer's premises)
Volume flow is clearly too low	› Filter element contaminated	▶ Replace filter element
	› Viscosity too high	▶ Warm up the medium
	› Suction height too large	▶ Adjust suction height
	› Leak on suction side	▶ Replace suction hose or seal connection points (re-tighten them)
	› Wear of the pump	▶ Replace pump (repair at manufacturer's premises)
Operating noise too loud	› Filter element contaminated	▶ Replace filter element
	› Viscosity too high	▶ Warm up the medium
	› Suction height too large	▶ Adjust suction height
	› Leak on suction side	▶ Replace suction hose or seal connection points (re-tighten them)
	› Wear of the pump	▶ Replace pump
	› Off-line filter unit standing on a vibration-sensitive surface (e.g. sheet metal)	▶ Improve site conditions
Pump does not suck	› Leak on the suction side	▶ Replace suction hose or seal connection points (re-tighten them)
	› Unit pumped empty (with refilling)	▶ Prime the unit (0.3 l)

Table 7: Fault table

15.1 Device dimensions

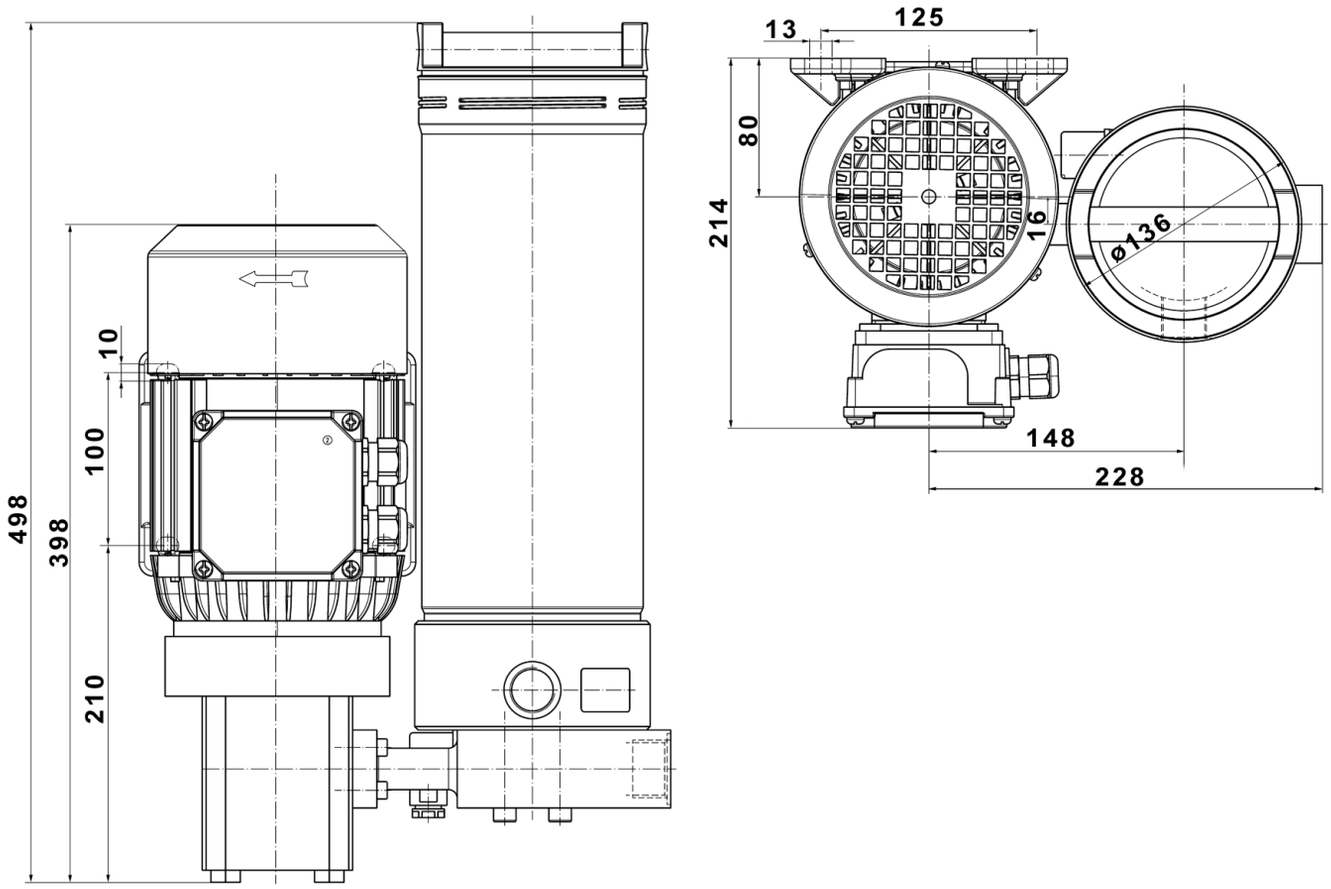


Fig. 9: Device dimensions

15.2 Technical data

Nominal flow rate (50Hz)	l/m	40
Pressure limiting valve	bar	7 ± 1
Max. operating pressure	bar	8
Filter element		V7.1230-153 $\beta_3(c) \geq 200$
Clogging indicator		electric DG 041-32 2,5 bar switch-on point
Electric drive		3~400V 1,5 kW n = 1.500 min^{-1} 50 Hz n = 1.800 min^{-1} 60 Hz
Tare weight	kg	approx. 30
Sound power level	db(A) max.	72 (under operating conditions permitted for continuous operation) 77 (under operating conditions permitted for short-term operation)
Device dimensions (length x width x height)	mm	see chapter 15.1

Table 8: Technical data

15.3 Operating conditions

Permissible temperature range	Hydraulic fluid °C	0 ... 60 (note viscosity range)
	Ambient temperature °C	0 ... 50

CAUTION

Risk of burns

Contact temperatures according to DIN EN563 (3) and DIN EN13202 (4) may be exceeded during operation.

› Allow the filter unit to cool down before touching it.

Permissible viscosity range	mm^2/s (continuous operation)	15 - 400

NOTE

Varying viscosity behavior

› Viscosities of a medium are always temperature-dependent.

Admissible suction heights	m (max.) first use	1,0
	m (max.) operating status	2,0
	Resistant to environmentally friendly and petroleum based fluids. Before use with synthetic fluids please contact the manufacturer.	
Work position	Arbitrarily, preferably standing	
Mains fuse	400 V, 50 Hz, 10 - 16 Ampere	

15.4 Hydraulic circuit diagram

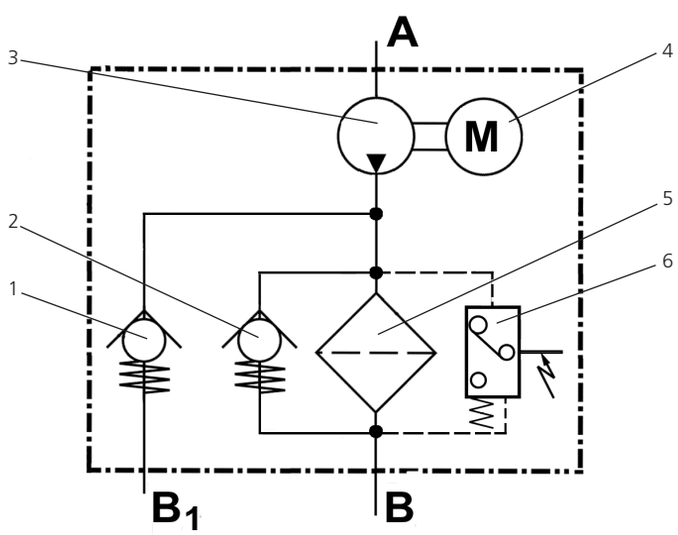


Fig. 10: Hydraulic circuit diagram

1 Pressure limiting valve
2 By-pass valve
3 Pump
4 Motor
5 Filter element
6 Clogging indicator

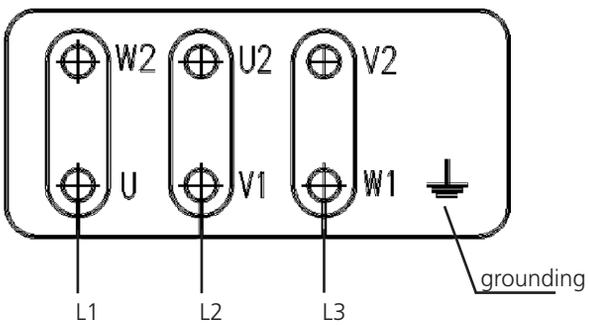
15.5 Connection plan

DANGER

Danger to life
Risk of electric shock

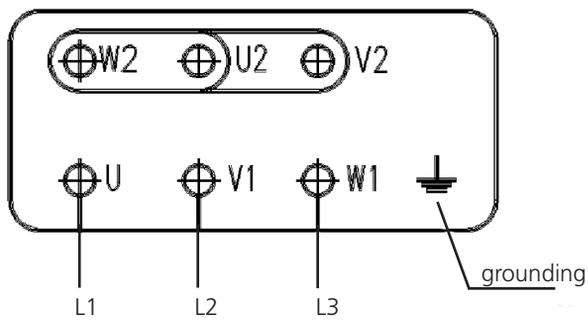
› Electrical work on the off-line filter units has strictly to be carried out by qualified electricians.

Connections



△ Delta connection

Connections



Y Star connection

Fig. 11: Connection plan

16.1 Declaration of conformity

Einbauerklärung
Installation declaration

ARGO-HYTOS Polska sp. z o.o.
Władysława Grabskiego 27
32-640 Zator

Tel.: +48 33 873 16 52
Fax: +48 33 873 19 15
www.argo-hytos.com

Die Einbauerklärung gilt für folgendes Gerät:

The installation declaration applies to the following unit:

Nebenstromfilteraggregat

Off-line filter unit

FNA 040

Wir bestätigen die Übereinstimmung mit den wesentlichen Anforderungen der europäischen Richtlinie(n):

Maschinenrichtlinie 2006-42-EG

EMV Richtlinie 2004/108/EG

We declare the conformity according to the essential requirements of the European directive(s):

Machinery Directive 2006/42/EC

EMC Directive 2004/108/EC

Folgende Norm(en) wurde(n) angewandt:

The following standard(s) was (were) applied:

DIN EN 809
DIN EN 60204-1 (VDE 0113-1: 2007-06

Zator, 22.11.2016

(Ort und Datum der Ausstellung)

(Place and date of issue)

A. Noworyta

(Unterschrift) Arkadiusz Noworyta/ Vorsitzender des Vorstandes

(Signature) Arkadiusz Noworyta/ President of the Board

16.2 Spare parts list

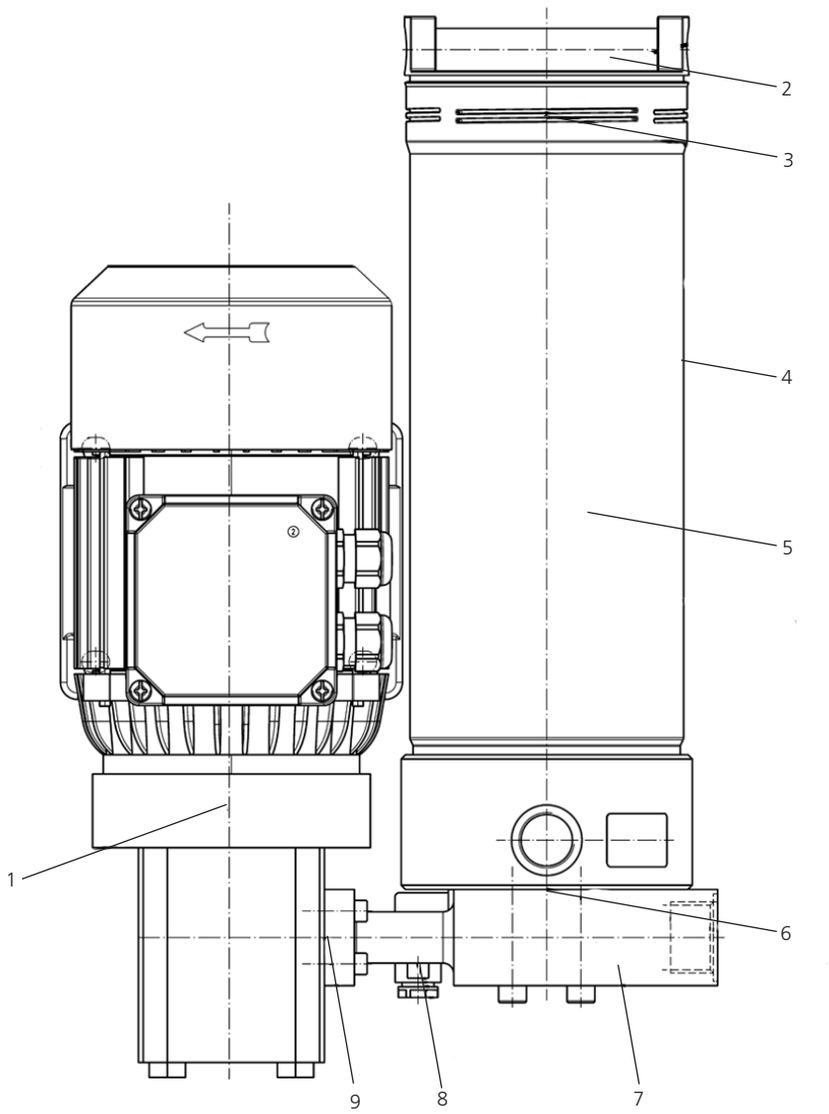


Fig. 12: Spare parts drawing

No.	Description	Pieces	Part No.	Remark
1	O-ring D75,87x2,62	1	N007.0763/1	
2	Cover, complete	1	FNA 008.1250	
3	O-ring D 117, 48x5,3	1	N007.1175	
4	Housing, complete	1	N031.1401	(with parts 2 and 6)
5	Filter element	1	V7.1230-153	(with sealing)
6	O-ring D25x3	1	N007.0253	
7	Differential pressure switch	1	DG 041-32	(with part 8)
8	O-ring D4,5x1,5	2	N007.0041	
9	O-ring D15x3	1	N007.00153/1	

Table 9: Spare parts list

ARGO HYTOS
A Voith Company

International

ARGO-HYTOS worldwide

Benelux	ARGO-HYTOS B.V.	info.benelux@argo-hytos.com
Brazil	ARGO-HYTOS Fluid Power Systems Ltda.	info.br@argo-hytos.com
China	ARGO-HYTOS Fluid Power Systems	info.cn@argo-hytos.com
Czech Republic	ARGO-HYTOS s.r.o	info.cz@argo-hytos.com
	ARGO-HYTOS Protech s.r.o	info.protech@argo-hytos.com
France	ARGO-HYTOS SAS	info.fr@argo-hytos.com
Germany	ARGO-HYTOS GMBH	info.de@argo-hytos.com
Great Britain	ARGO-HYTOS Ltd.	info.uk@argo-hytos.com
Hong Kong	ARGO-HYTOS Hong Kong Ltd.	info.hk@argo-hytos.com
India	ARGO-HYTOS PVT. LTD.	info.in@argo-hytos.com
Italy	ARGO-HYTOS S.r.l.	info.it@argo-hytos.com
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USA	ARGO-HYTOS Inc.	info.us@argo-hytos.com

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