

Smart Filtration Device

FD90-AA



Security and service rules

Before putting into service, carefully read security and safety rules.

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1. Safety warning



- Follow a user guide and be sure you use right devices.



- Always disconnect a device from a power supply unit during the service of a device such as the change of a filtration element, connection of a device or leak test.



- During the work with a device use protective equipment. Lubricant that is located in a device can damage your eyesight. Use protective glasses.



- During the work with a device use protective equipment. Lubricant that is located in a device can damage your skin. Use protective gloves.

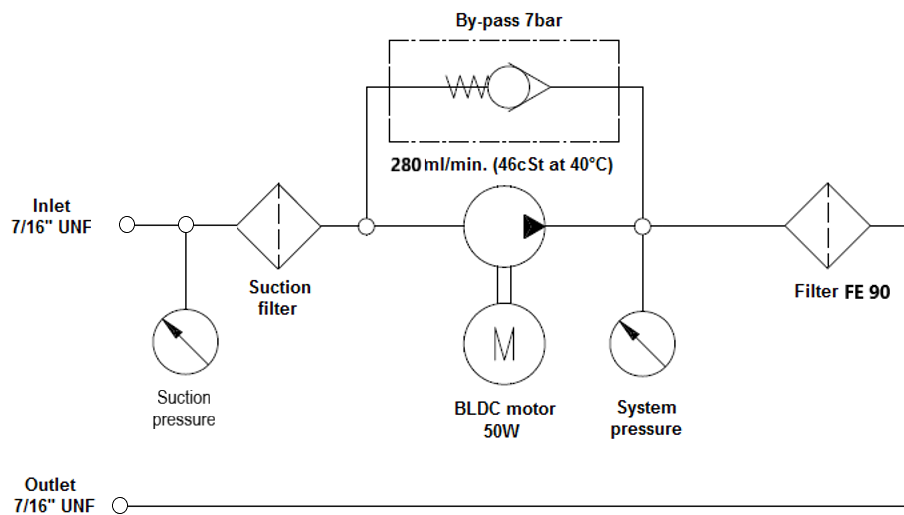
2. Device description

The skeleton of an electric device creates the construction from aluminium alloy. Brushless electromotor along with a pump equipped by safety valve are fixed to the skeleton by screws. Device contains also suction filter and the system is complemented by measuring pressure and temperature. Electric box contains the regulation of operating speed by help of the application GMF View within the range of 0-2200 RPM.

Filtration device is determined for a fine oil cleaning of robot gearboxes, lubricant perhaps even various type of oil in By-pass flow by help of alternative types of filtration elements:

- filtration element FE-90
- filtration of all types of high viscosity oil (40 – 220)

Hydraulic Scheme:



3. Technical parameters

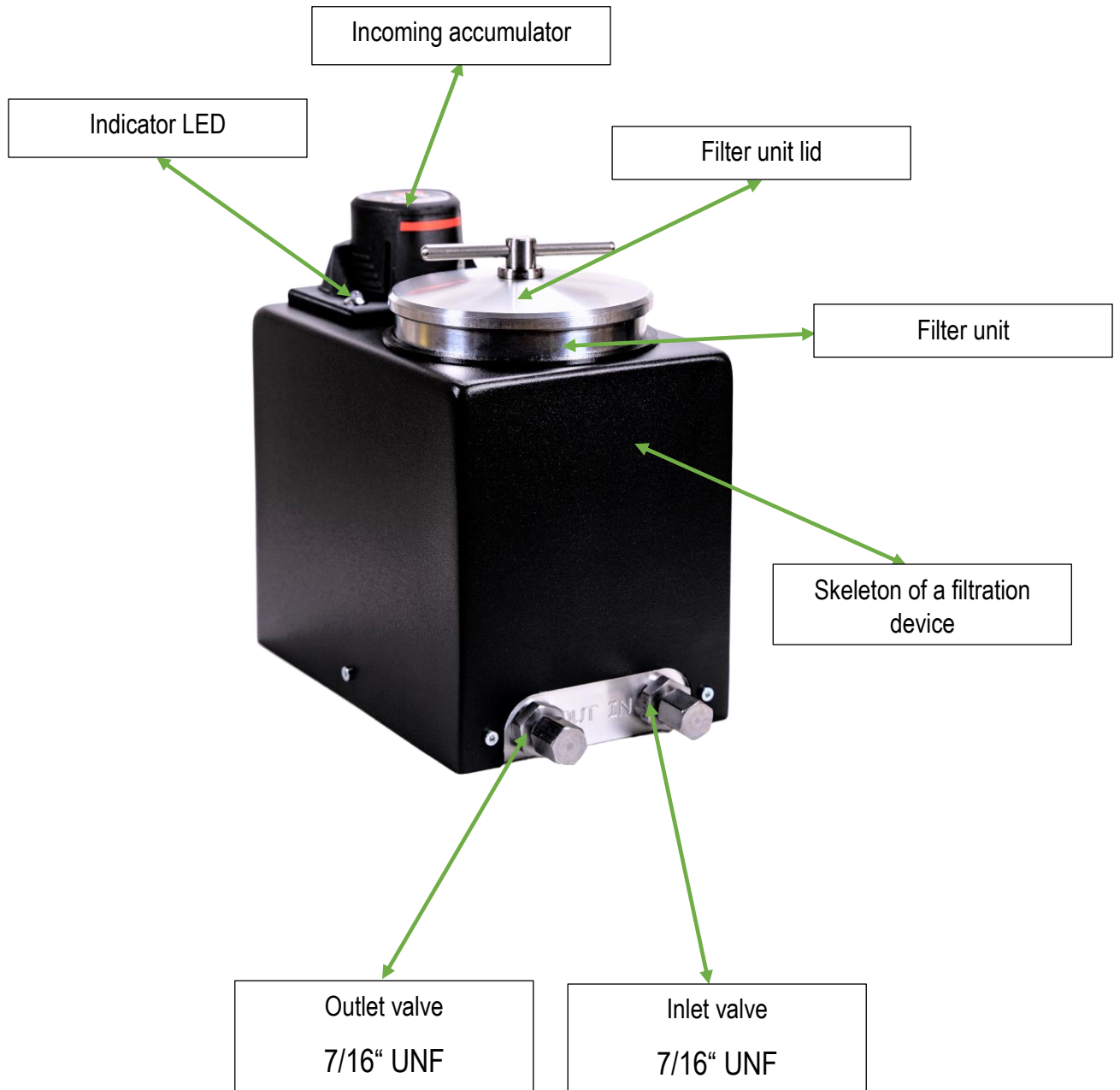
NAME		ABUNIT	VALUE
Type of device		-	FD90-AA
Filtration element FE-90		µm	5
Level of protection of electrical device		IP	40
El. Motor		W	50
Input voltage		V $\overline{=}$	12
Normal flow		ml/min	280 (46 cSt. 40°C)
Maximal pressure		bar	8
Weight		kg	4,4
Hydraulic connection	inlet	fitting	7/16" UNF
	outlet	fitting	7/16" UNF
Outer dimensions	length	mm	180
	width	mm	120
	height	mm	170

4. Hooked illustration (set description)

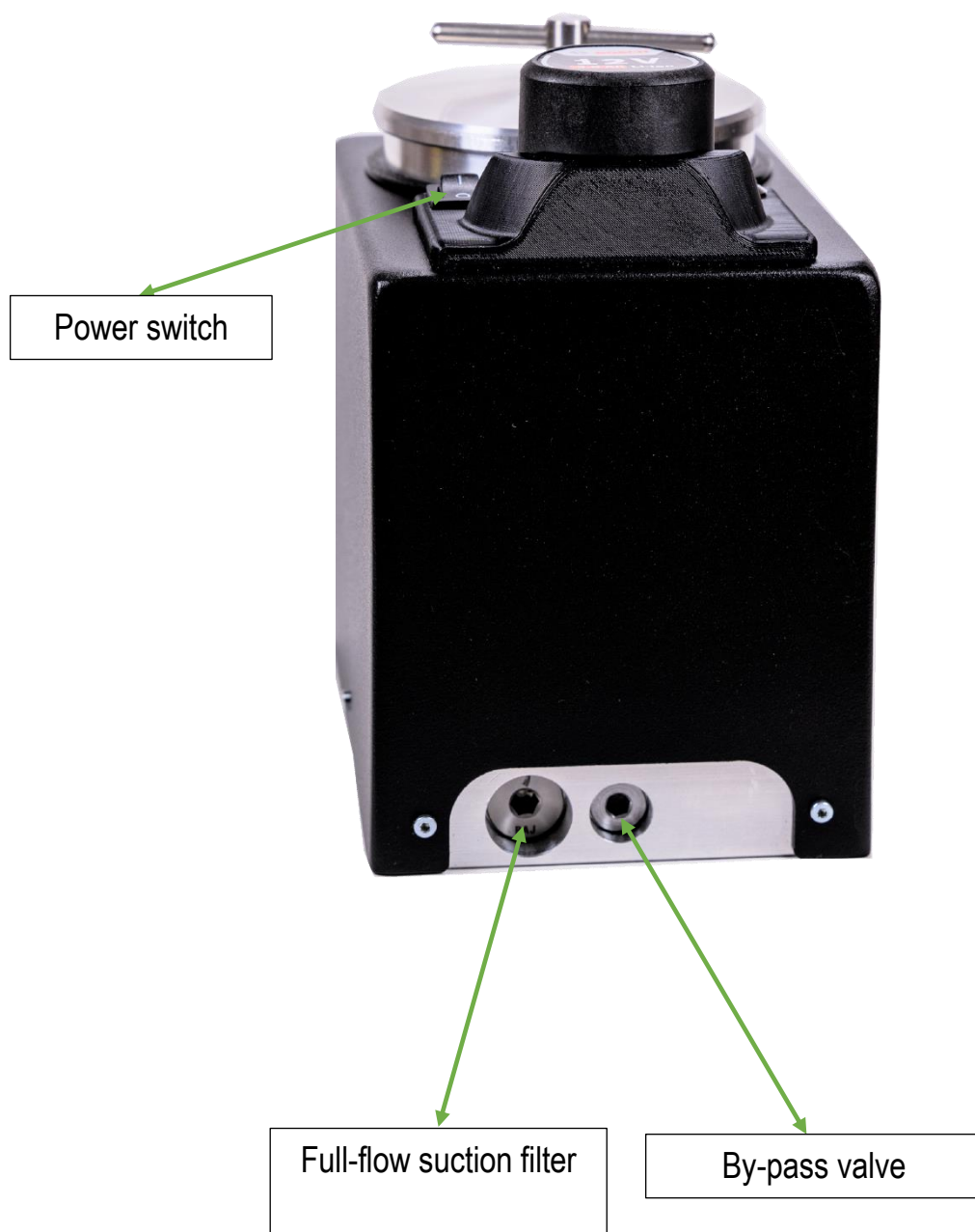


5. Hooked illustration (Smart filtration device description)

5.1. Front side



5.2.Back side



6. Putting into service

- visually check the state of all elements of a device after transport
- find out if a filtration device is equipped by a filtration element and the lid draw close by the screw of the shape „T“
- fix hoses to inlet and outlet valve.
- suction hose cannot be longer than 1 m.
- filling device – sink hoses in the oil, suction hose to the bottom, exhaust one to the surface
- connect incoming accumulator to the device
- turn on power switch next to incoming accumulator
- wait for lighting the indicator led, for green colour and sound signal
- running and action of smart filtration device is managed by help of delivery smartphone with pre-installed application GMF view
- after filling a filtration device by the oil is possible connection to the robotic device and running oil filtration

After this is device putting into service.

Never interfere into electric or mechanic parts of a device!

ATTENTION! recommended oil temperature during the filtration is 30 °C-40 °C.
Maximal possible critical oil temperature is 70 °C.

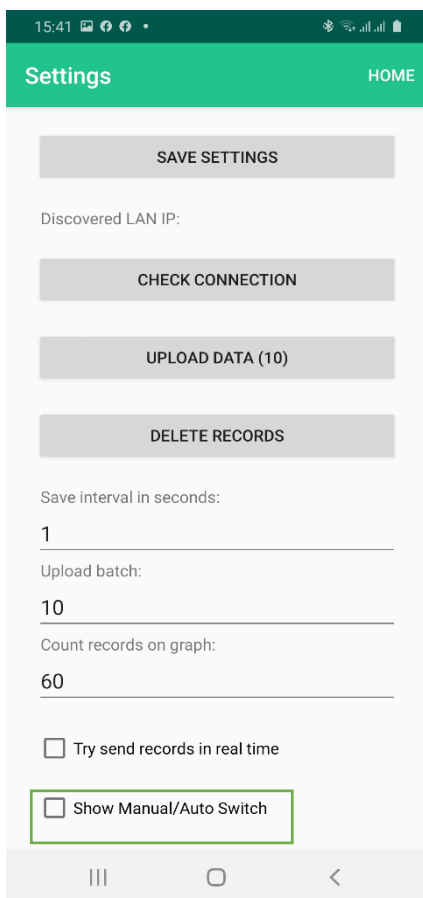
ATTENTION! Manufacturer of equipment forbids to make any alternations and interventions into a device out of everything listed in manual!

7. Operating Smart filtration device by help of GMF View

The installation and introduction of the application GMF View to the action is described in manual _GMF_ver_1.19.

Follow according to inducted manual during the installation and setting of the application on devices with operational system Android version 19 and higher. After a successful installation and settings of the application continue to the step 7.1. Operational systems of this manual.

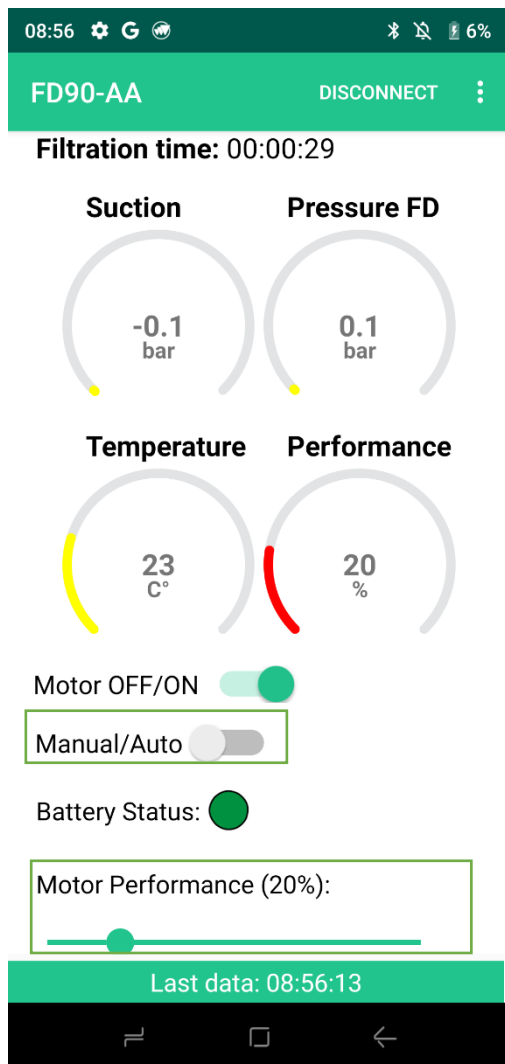
7.1. Operating modes



Smart filtration device disposes by the function of an automatic and manual mode.

Switching these modes is possible to activate in settings of application by ticking the button.

Show Manual/Auto Switch. Look at the picture. **After ticking the button is needed to save settings.**



After ticking the button, the function on the main screen allows the choice of a mode Manual/Auto.

- Automatic mode is a preselect mode. During this mode is set an ideal feat and so and ideal flow of lubricant on the basis of a decoding parameters.
- Manual mode enables the user to set feat of a motor on the required value by help of a scroll bar on the main screen.

8. Device Maintenance

During the filtration is needed continually check pressure.

Barometer: pressure should show fairly rising tendency in dependence on degree of pollution of a filtration cartridge. In repeated decline of pressure under 1 bar or growth pressure to 6 bars and more change a filtration element according to chap. 9.

- Regularly control and clean full-flow suction filter. Cleaning interval is dependent on degree of filtered oil, so this is the reason why you should visually control closeness of single elements of hydraulic circuit during a service.
- The interval of change of filtration cartridge is dependent on various factors, e.g., on oil viscosity, degree of oil contamination, amount of water in oil etc.




The change is always inevitable:

- after one month of a service
- in repeated growth of pressure over 6 bars
- in degradation of cartridge by higher amount of water
- in connection of a filtration device to the filtration of a different type of oil

9. Change of a filtration element

- let device running
- pull out a suction hose from oil and wait while pressure of the system collapses to the value close to 0 and oil stops to discharge from the outlet side
- turn off a device by help of power switch next to incoming accumulator and pick out incoming accumulator from a device
- remove the lid of a filtration unit and check if the input and output of oil is free
- pull out a filtration element by catching stripes and inset them into original polyethylene sac.
- clean interior of a filtration dish
- inset a new filtration element and push it tightly at the bottom of a filtration dish
- visually check the state and cleanness of a o-ring sealing and draw close the lid of a filter unit
- in a repeated usage on various robotic devices check the state of a suction filter and in case of need flow it by a pressed air
- put device into service

10. Error messages and indicator LED

Defect	Possible causes	Solving defect	LED indication
System OK. Filtration running.	-----	-----	
Low Battery	Charging accumulator is flat.	Charge accumulator or change it.	
The battery is low, replace it!	Charging accumulator is flat.	Charge accumulator or change it.	
Low working temperature, stop filtration!	Lubricant temperature is lower than 10 °C.	Increase the temperature of used oil.	
Temperature out of range! Filtration STOP.	Lubricant temperature is higher than 70 °C.	Reduce the temperature of used oil.	
System pressure out of range! Filtration STOP.	Low pressure in front of filter. Incorrectly set or damaged filter.	Increasing operating speed of motor in a manual mode / the change of a filtration element.	
Overpressure in system! Filtration STOP.	High pressure. Glazed filter. Low leakiness of filter.	Decreasing operating speed of motor in a manual mode / the change of a filtration element.	
Suction pressure out of range! Filtration STOP.	Insufficient vacuum.	Increasing operating speed of motor in a manual mode / the change of a filtration element.	
The parameters are not optimal, try starting the filtration for 30 seconds!	Missing oil in the system or incorrect connection of conduit hoses.	Fill up oil / and check the connection of a filtration device to the robotic device.	
Check suction!	Insufficient vacuum.	Increasing operating speed of motor in a manual mode / Check the closeness	

		of connection on the input into device.	
Check filter!	Low pressure in front of filter. Incorrectly set or damaged filter.	Increasing operating speed of motor in a manual mode / the change of a filtration element.	
Checking overpressure after 5 minutes, stop FD for 5 seconds!	Checking overpressure in the system after 5 minutes for 5 seconds.	The process is automatically running, precaution is not needed.	
Checking overpressure after 10 minutes, stop FD for 5 seconds!	Checking overpressure in the system after 5 minutes for 5 seconds	The process is automatically running, precaution is not needed.	
Checking overpressure after 15 minutes, stop FD for 5 seconds!	Checking overpressure in the system after 5 minutes for 5 seconds	The process is automatically running, precaution is not needed.	