



Powering Business Worldwide

# IFPM32

## *Internormen Fluid Purifier Systems*



# ***Maintenance manual***

## **Version 1.4**

Serial-no.: .....

Rev.-Date: 27.01.2015

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# 1. Safety information

## 1.1. Signal glossary

- Failure to observe the safety instructions in this manual implies various risks and endangerment of life and the physical condition of the operator. The notices are marked with the following signal words:



**DANGER** implies a dangerous situation which causes death or serious injuries in case of nonobservance.



**WARNING** implies a dangerous situation which can cause death or serious injuries in case of nonobservance.



**CAUTION**, implies, together with the danger symbol, a dangerous situation which can cause light, medium or heavy injuries in case of nonobservance.

- Failure to observe the safety instructions in this manual, which does not cause injuries but destruction of the system and its operability, are marked with the following signal word:



**NOTICE** describes the correct way of handling the device.

- The above signal words can be combined with the safety symbols or the warning symbols.



General danger



Danger caused by electricity



Danger for the environment

## 1.2. Safety notes

**DANGER** **DANGER: For all kinds of maintenance work the IFPM/S-unit must be switched off and secured from accidentally being turned on!**

## 1.3. Intended use

- The IFPM/S-units are oil purification systems, which take oil from a reservoir with a hose line or a pipeline. This oil will be purified of water, solid contamination and gases.
- The purified oil will be pumped back into the same reservoir.
- The solid contamination will be separated by the filter element, the removed water will be blown out as humid air into the atmosphere. The removed gases also will be blown into the atmosphere.
- **The unit works unattended after starting it.**

## 2. Maintenance

### 2.1. Hydraulic pump

- Generally hydraulic pumps do not require special maintenance.
- **NOTICE** However during regular maintenance work on the entire unit the following points should be taken into account:
  - a) Examine the alignment of the clutch control.
  - b) Examine fixing bolts and connections tightness.
  - c) The condition of a pump depends on the volumetric efficiency. Therefore also the deviation from the original number of revolutions should be observed while performing maintenance. **Deviations > 10% require closer investigation.**

### 2.2. Vacuum pump

- The IFPM/S-unit operates with an oil lubricated rotary vane pump.

#### 2.2.1. Checking the oil level



**NOTICE** If the oil level is below the MIN-mark on the oil sight glass, more oil has to be added.

- Therefore remove the oil level switch/locking screw and fill in oil until the oil level has reached the **MAX-mark**.
- A low oil level is indicated by a failure message at the display.  
⇒ When the oil level is too low the IFPM/S shuts down automatically and the failure message “**No oil in the vacuum pump**” will appear at the display

#### 2.2.2. Oil change

**NOTICE** An oil change must be made after 500 operating hours or at least every six months. If there is a very heavy contamination it can be necessary to change the oil even earlier!

- After 500 operating hours a **warning** will be shown at the **display**. (see operating manual, chapter 4.4)
- For the oil change, the IFPM/S must be switched off and the vacuum pump which is still at operating temperature must be vented at atmospheric pressure.
  - Drain the old oil with the oil drain plug.
  - When the oil flow stops, close the drain plug and start up the pump again for a few seconds.
  - Open the drain plug again and discharge the remaining oil.
  - Screw in the drain plug again
  - Fill in oil via the oil filling point until the oil level has reached the **MAX-mark**..  
**Therefore only use original Internormen-oil!**



**The waste oil must be disposed according the environmental regulations!**

### 2.2.3. Exchanging the coalescent element

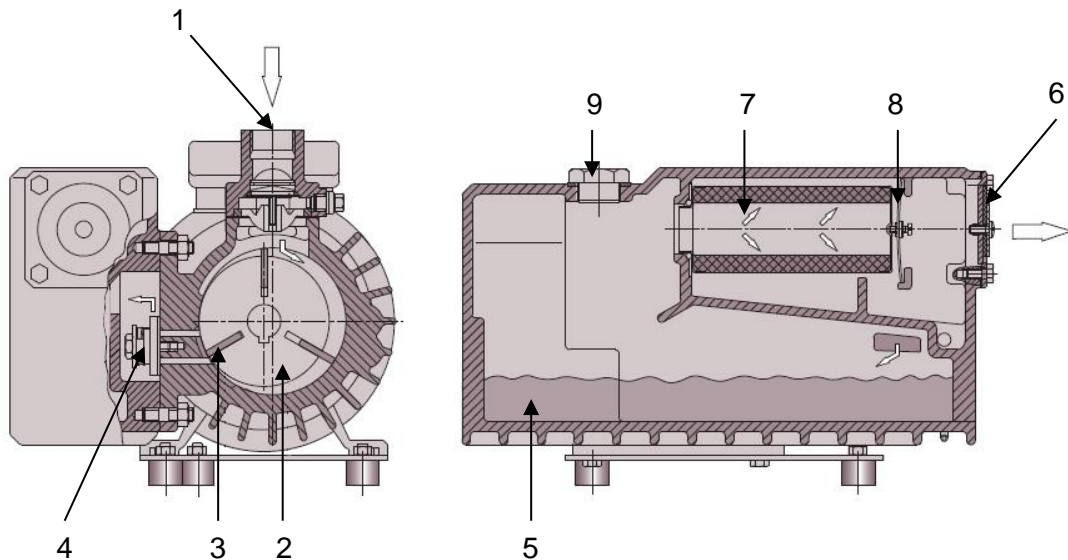


Coalescent element

- We suggest to **replace the coalescent elements after 500 operating hours.**
- **Use only original Internormen coalescent elements!**

 **Used coalescent elements are special waste and must be disposed according the actual regulations!**

- For demounting the coalescent element the piping at the **air outlet of the vacuum pump**, the **exhaust cover (6)** and the **filter spring (8)** must be removed.
- The coalescent element can be pulled with the clamp on it.
- When the coalescent element is changed, **new sealings** must be used.



- 1 Inlet flange
- 2 Rotor
- 3 Vane
- 4 Exhaust valve
- 5 Oil sump
- 6 Exhaust cover
- 7 Coalescent element
- 8 Filter spring
- 9 Oil filling plug

## 2.3. Other maintenance work

**NOTICE** At all kinds of maintenance works check the following points.

### 2.3.1. Functional test of the emergency stop switch

- Use the emergency stop switch in order to check its functionality and eliminate eventual blockings.

**NOTICE** If the emergency stop switch does not turn off the system, operation has to be delayed until the cause of this malfunction is found and eliminated.

### 2.3.2. Functional test of the overload relays

- Check the functionality of the **overload relays of both motors.**
- If function is disturbed.
  - ⇒ **Changing of the overload relay.**

### 2.3.3. Cleaning the hoods of the motors

- To prevent overheating of the motors, at all maintenance work the hoods of the motors also should be cleaned.

### 2.3.4. Functional test of the water sensor

- It is recommended to carry out an annual examination of the calibration **by comparison with a hygrometer in air.**
- In case of **variations > 5%**, the sensor is to be sent to the manufacturer for a new calibration.

### 2.3.5. Functional test of the level switches

- Check the functionality of the level switches as follows:



- Touch this marking with a **magnet** (check both poles) when **the system is switched on but not running.**

⇒ The **green** and the **red** LED must light up.

⇒ **If the red LED doesn't light up, the sensor has to be replaced!**

## 2.4. Maintenance time schedule

<ul style="list-style-type: none"> <li>• Checking/Draining the demister</li> </ul>	daily
<ul style="list-style-type: none"> <li>• Checking oil level of vacuum pump</li> </ul>	weekly
<ul style="list-style-type: none"> <li>• Clean electric motors</li> <li>• Change oil of vacuum pump</li> <li>• Replace coalescent element of vacuum pump</li> <li>• Replace breather filter and Silica-Gel</li> <li>• Check the functionality of the three level switches</li> <li>• Check the functionality of the Emergency-stop</li> <li>• Check the overload relays</li> <li>• Check system for leakages</li> </ul>	after 500 hours of operation
<ul style="list-style-type: none"> <li>• Retighten connecting screws</li> <li>• Check all cable for signs of aging</li> <li>• Change filter element (or when it is clogged)</li> <li>• Clean the outside of the unit</li> </ul>	semi-annually
<ul style="list-style-type: none"> <li>• Check the water sensor</li> </ul>	annually



**Used filter elements are special waste and must be disposed according the actual regulations!**

## 3. Draining the system

- For draining the system, if a different oil is supposed to be used, for example, the following steps have to be performed:
  1. Shut the suction line using the ball valve.
  2. Switch on the unit and Login.
  3. Select „Manual operation“ and switch on the hydraulic pump
  4. Switch off the hydraulic pump as soon as all oil is being discharged from the chamber (different sound of the pump and more vibrations indicate this).
  5. Perform this procedure again after approximately 30-60 minutes in order to drain also the oil from the dispersion material.
  6. Disconnect the suction line.
  7. For collecting the oil from the heating container, place a tank or bucket underneath the suction point, switch on the solenoid valve in the menu “Manual operation” and slowly open the ball valve.

## 4. Checking let systems

- If the unit is let for service reasons or if it is reactivated after a longer shutdown period, the following points should be checked:
  1. Clean the unit and look for damages on the outside.
  2. Check the content of the vacuum chamber and the heater, if necessary drain those.
  3. Check the oil level of the vacuum pump. If contamination with external oil is suspected, replace both the oil and the filter element in the vacuum pump.
  4. Provide the unit with power and check the functionality of the motors.
  5. Check the functionality of the emergency stop.
  6. Remove the water sensor and clean it.
  7. Exchange the filter element.
  8. Check the condition of the Silica-Gel breather filter, determine the saturation of the silica pellets and exchange them if necessary.
  9. Check the oil mist separator, drain it or replace it if damaged.

## 5. Spare parts and accessories

Quantity	Description	Article number
1	Screw-in heater 400V (Version A, C, E)	338689
1	Screw-in heater 460V (Version B)	346581
1	Screw-in heater 575V (Version F)	347129
1	Solenoid valve	338695
3	Oil level sensor vacuum chamber	324841
1	Water sensor WSPS05	337181
1	Clogging indicator VS1	323148
1	Pressure sensor -1...0 bar	344581
1	Vacuum pump KC0016E (VP01) with motor and level switch (Version A, B, C, E)	322004
1	Vacuum pump KC0016E (VP09) with motor and level switch (Version F)	334429
1	Coalescent element for vacuum pump KC0016E	323882
1	Level switch for vacuum pump KC0016E	338139
0,3 Liter	Oil for vacuum pump	344304 (Unit of quantity 1L)
1	Hydraulic pump with motor (Version A, B, C, E)	322003
1	Hydraulic pump with motor (Version F)	347131
1	Breather filter BFD95 complete	323332
1	Filter element for breather filter BFD95	322768
1	Replacement gel for breather filter BFD95	323371
1	Oil mist separator	323451
1	Replacement filter element for oil mist separator	339473
1	Filter element	See type plate
1	Sealing kit NF631	321022
1	Sealing kit hydraulic pump	326785
1	Sealing kit vacuum pump	337113
1	Touch-Display	344600
1	Power supply unit EASY600-POW (Version A, C)	344585
1	Power supply unit PSG120F (Version B, E)	346807
1	Transformer 575VAC/24VDC (Version F)	334478
1	CANopen Gateway	344590
2	Digital input module	344591
2	Digital output module	344595
1	Analog input module	344593
1	Connecting cable Display to Gateway	344597



3	Contactora 3 kW	344586
1	Relé sobrecarga 1...1,6A	344588
1	Relé sobrecarga 2,4...4A	344587
1	Optoacoplador	344599
1	Conjunto de llaves para caja de control	346163
1	Manguera de alta presión M16.630 (para ventilar el filtro)	308591
1	Manguera de alta presión M16.2000 (para ventilar el filtro)	308637

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