

Operating Instructions ^{007e}

LABOPORT[®] Mini Laboratory Pumps

Type ranges

N 86 KN.18
N 86 KT.18

N 811 KN.18
N 811 KT.18

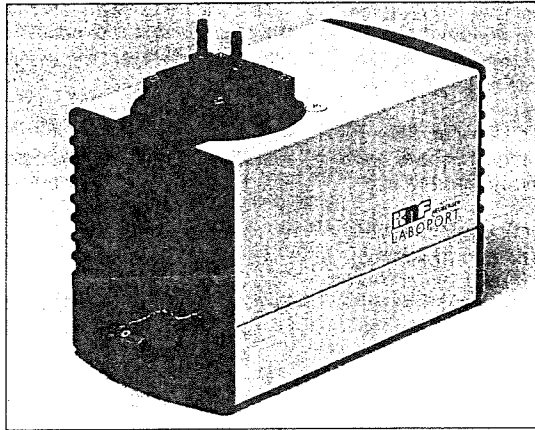


Fig. 1
N 86 KN.18

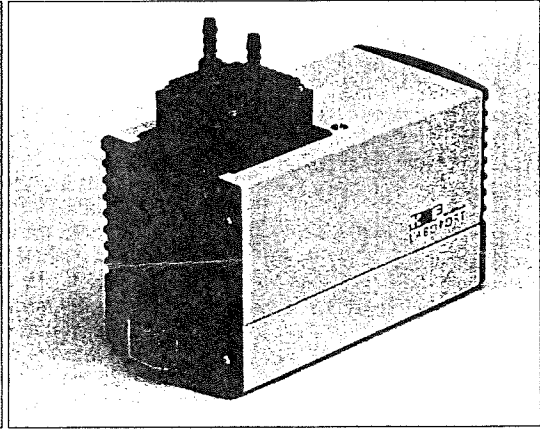


Fig. 2
N 811 KN.18

You have selected a high-quality KNF product; the following tips will help you operate it safely, and reliably over a long period of time. **Carefully study the operating instructions before using the pumps and observe at all times the relevant instructions to avoid dangerous situations.** The manual was produced for the serial pumps stated above. Within customer-specified projects (pump types starting with "PJ" or "PM") there could be differences in detail. For customer-specified projects please therefore take into account any agreed technical specifications, as well as these instructions.

0. List of Contents

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2. Safety
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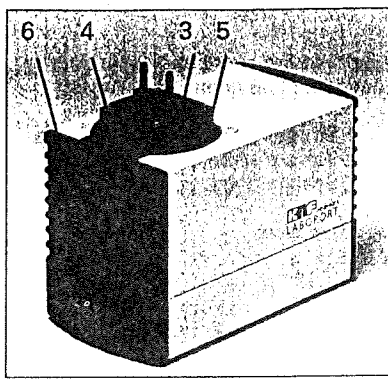


Fig. 3: N 86 K_18

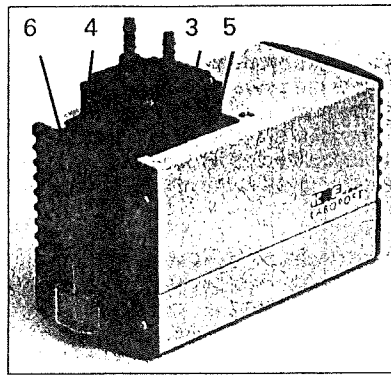


Fig. 5: N 811 K_18

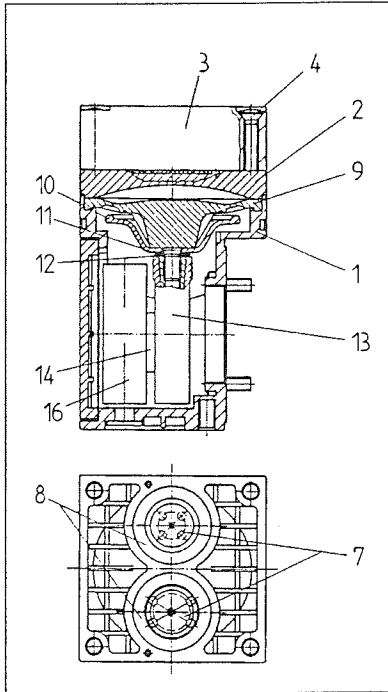


Fig. 4: N 86 K_18

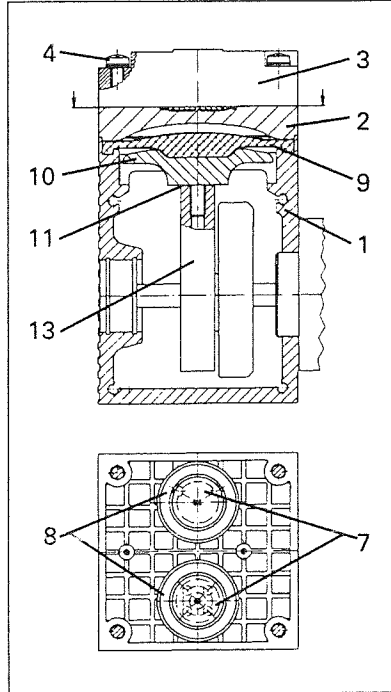


Fig. 6: N 811 K_18

Specification

- ① Housing
- ② Intermediate plate
- ③ Head plate
- ④ Screw
- ⑤ Cover
- ⑥ Cover plate
- ⑦ Valve plate
- ⑧ Sealing ring
- ⑨ Structured diaphragm
- ⑩ Diaphragm support
- ⑪ Diaphragm spacer(s)
- ⑫ Disc spring*
- ⑬ Connecting rod
- ⑭ Counter weight

* only for pumps N 86 K_18

b) Change structured diaphragm

- ① Using a small screwdriver, between the housing and the outer edge of the structured diaphragm, carefully lever the edge of the diaphragm lightly upwards
 - ② Grip the structured diaphragm on opposite sides, unscrew it about two turns (anti-clockwise)
 - ③ Hold the pump with one hand, so that the head is pointing downwards. Turn the structured diaphragm anti-clockwise to unscrew it
 - ④ Take the diaphragm support ⑩, diaphragm spacer(s) ⑪ and disc spring ⑫ off the threaded portion of the diaphragm and retain them
 - ⑤ Check that all parts are free from dirt and clean them if necessary (see section 6. *Cleaning*)
 - ⑥ Put the diaphragm support, diaphragm spacer(s) and disc spring, in that order, on the threaded portion of the new structured diaphragm
- The concave side of the disc spring must be towards the dia-

phragm

- ⑦ Screw the new structured diaphragm, complete with diaphragm support, diaphragm spacer(s) and disc spring into the connecting rod (clockwise) and tighten it by hand.

c) Changing the valve plates

- ① Remove the valve plates ⑦ and sealing rings ⑧ from the intermediate plate ②
- ② Check that the valve seats in the head plate and intermediate plate are clean. If scratches, distortion, or corrosion are evident on these parts they should be replaced
- ③ Lay the new valve plates in the recesses in the intermediate plate. The valve plates for suction and pressure sides are identical, as are upper and lower sides of the plates
- ④ Check that the valve plates are not deformed by moving them gently sideways in their recesses
- ⑤ Lay the new sealing rings on the intermediate plate.

d) Refitting the pump head

- ① Place the intermediate plate ②, with valve plates ⑦ and sealing rings ⑧ on the housing, in the position indicated by the drawing line
- ② Place the head plate ③, with cover on the housing, in the position indicated by the drawing line
- ③ Check that the head plate is centred by moving it gently sideways
- ④ Tighten the screws ④, evenly and diagonally, first gently, then firmly.

► If you have any questions about servicing call our technical adviser (see last page for contact telephone number).

5.1.2 N 811 K_18

See figs. 5 and 6.

a) Removing pump head

- ① Mark the position of head plate ③, intermediate plate ②, cover ⑤ and cover plate ⑥ relative to each other by a drawing line with a pencil. This helps avoid incorrect assembly later
- ② Undo the 4 screws ④ in the head plate ③ and lift the head plate together with intermediate plate ② off the pump housing.

b) Change structured diaphragm

- ① Using a small screwdriver, between the housing and the outer edge of the structured diaphragm, carefully lever the edge of the diaphragm lightly upwards
- ② Grip the structured diaphragm on opposite sides, unscrew it about two turns (anti-clockwise)
- ③ Hold the pump with one hand, so

Table 1: Electrical Data**N 86 K_18**

| Electrical Type | | | |
|---------------------|--------|----------|-------|
| Voltage | 230 V | 100 V | 115 V |
| Frequency | 50 Hz | 50/60 Hz | 60 Hz |
| Power consumption | 65 W | 70 W | 60 W |
| Operating current | 0.63 A | 1.8 A | 1.2 A |
| Fuse (2 x) T (A) | 1.0 | 3.5 | 3.2 |

N 811 K_18

| Electrical Type | | | |
|---------------------|-------|----------|-------|
| Voltage | 230 V | 100 V | 115 V |
| Frequency | 50 Hz | 50/60 Hz | 60 Hz |
| Power consumption | 65 W | 70 W | 75 W |
| Operating current | 0.8 A | 1.5 A | 1.3 A |
| Fuse (2 x) T (A) | 1 | 3.5 | 3.2 |

Table 2: Pneumatic Data

| Pump Type | Delivery (l/min*) | Ultimate vacuum (mbar abs) | Maximum permissible operating pressure (barg) |
|-------------|----------------------|-------------------------------|--|
| N 86 KN.18 | 6 | 100 | 2.4 |
| N 86 KT. 18 | 5.5 | 160 | 2.5 |
| N 811 KN.18 | 11.5 | 240 | 2 |
| N 811 KT.18 | 11.5 | 290 | 2 |

* Litre at STP at atm. pressure

Table 3: Pump Materials

| Pump Type | Material | | |
|-------------|-----------|----------------------|--------|
| | Pump head | Structured diaphragm | Valves |
| N 86 KN.18 | PPS | EPDM | FPM |
| N 86 KT.18 | PPS | PTFE-coated | FFPM |
| N 811 KN.18 | PPS | EPDM | FPM |
| N 811 KT.18 | PPS | PTFE-coated | FFPM |

Material abbreviations according to DIN ISO 1629 and 1043.1