

Flow Switches Type HNMQ + HNMS

Flow Monitors and Indicators for Water, Oil, Air, for controlling Cooling Water, Oil Circulation and Pump, On or Off according to adjustable Flow



HNMS or HNMQ oscillating flap system **not tight sealing**, for pure, liquid and also aggressive substances, up to **80 ° C**, 20 ° E, inasfar as GBz, WBz, Rg, Ms, PP are resistant. ND 10/16 **at least 0.5 bar constant pressure.**

Available: in 3 sizes ½" to 2", for 5 to 300 liters/min Flow Range,
1-2 **micro- changers** Voltage 250 VAC / 24 VDC, or 1 x **Q** switching tube 250 VAC,
adjustable with regulating screw and indicator
dial according to flow quantity.
3 fittings positions h, vst, vf, only at the pressure side.

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Technical Data Sheet

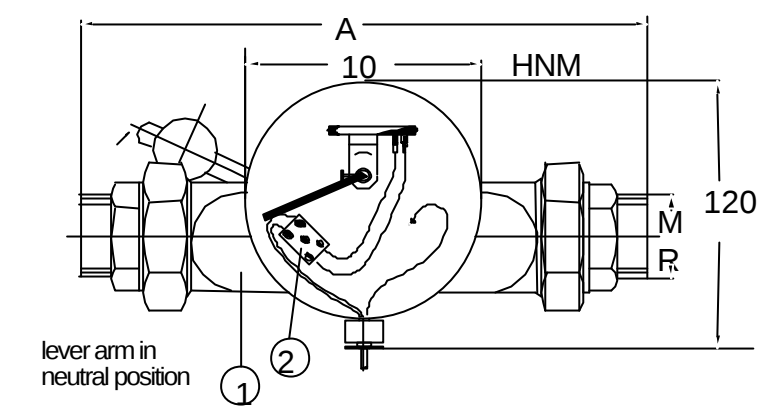
Size	I	II	III
Connect ports female "inch"	3/8 1/2 3/4 1	3/4 1/2 3/4 1	5/4 11/2 2
Connect ports male "inch"	- - 3/4 1	- - - 1 1/2	- - -
Capacity l/m	5 - 25	15 - 180	30 - 300
Flow Range m³/h	0,3 - 1,5	0,9 - 10,8	1,8 - 18
Nominal pressure Kp /cm²	10	10	10
B Overall lenght without Ports	150	160	180
A Overall lenght with Ports	225	225/260	225/285
Weight	2,2	3,3	5,2
Width C	115	140	160
Dimension D	55	75	90
Dimension E	60	65	70
pressure losses operat.press.	2,5 - 3,5	1,5 - 2,5	0,5 - 1,0
Disconnection of contact at lowering of flow of about %	40 - 35	20 - 15	15 - 10

Spare- Parts- List HNMS & HNMQ

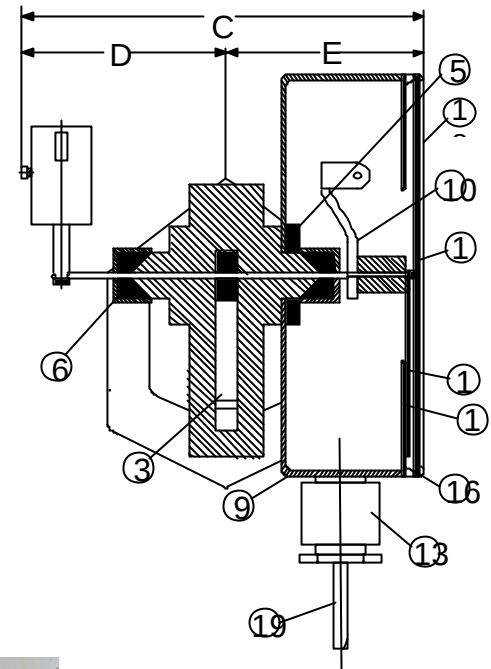
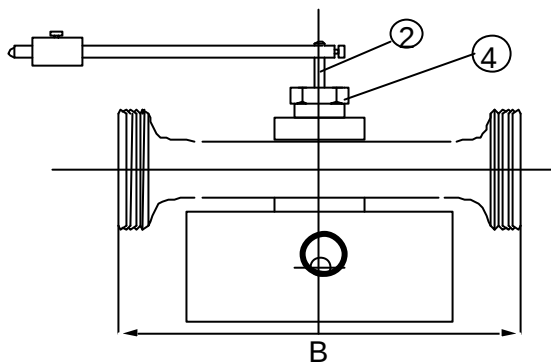
Pos.	Description	Materials
1	Casing	brass
2	Disc shaft octagonal	bronze cast.
3	Disc	brass
4	Union	brass
5	Fixing nut	brass
6	grooved joint	Viton
7	lever with screw	brass
8	Counter weight	brass
9	Control box with screen	stainless steel
10	Clamping nut	brass
11	Micro switch 250 VAC / 24 VDC	2x 1 phase
12	Hg bulb Q 250 VAC	mercury
13	Cable stuffing box	brass
14	Scale with graduation in degrees	PVC
15	Indicator with screw	brass
16	Intermediate ring	Aluminium
17	plexiglass	
18	Fitting ring with screw	brass
19	Electric cable	3x 1,5 qmm
20	Terminal connection	

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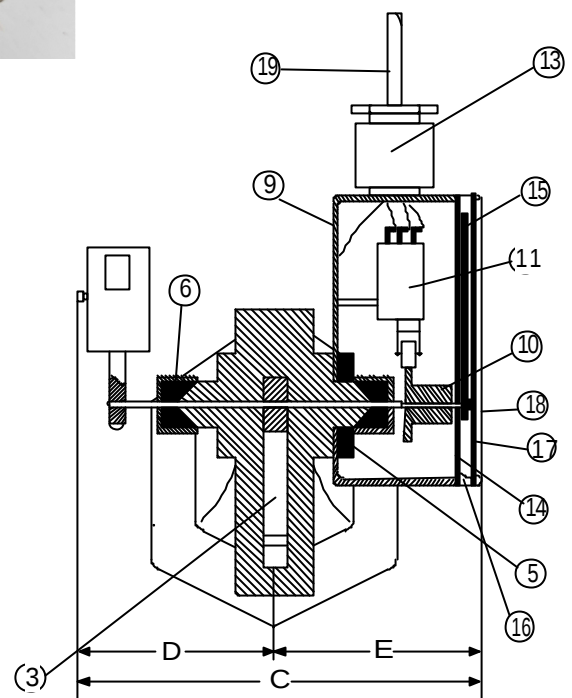
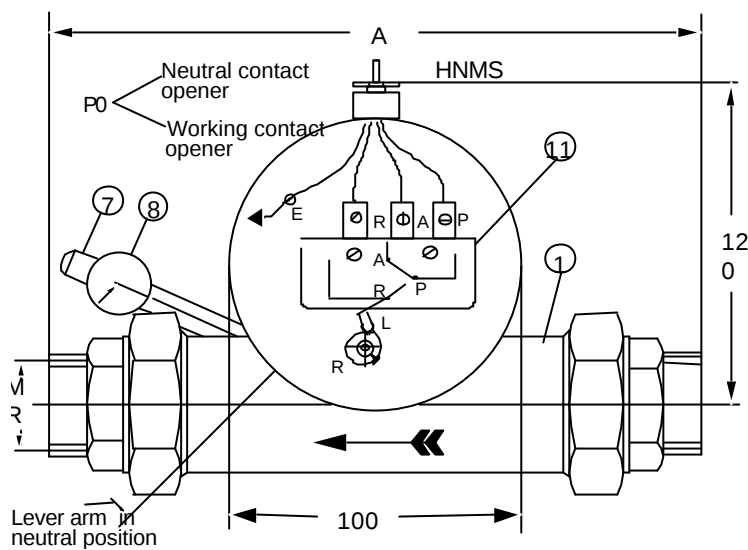
Measurement drawings and cross sections



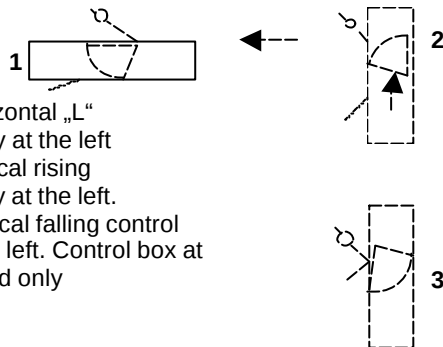
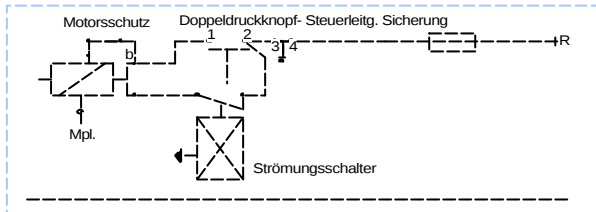
HNM - case
without inner units and
connecting-screws



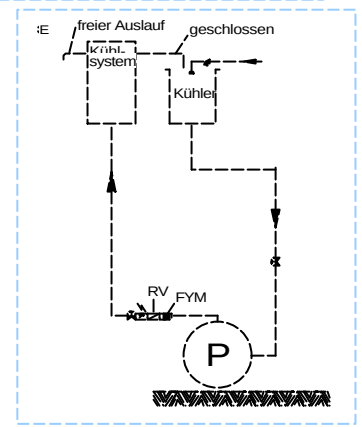
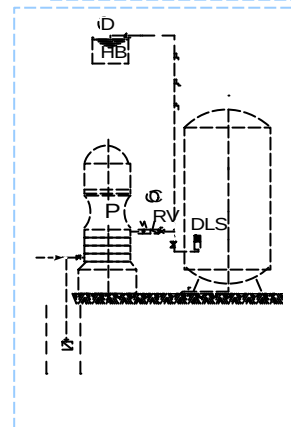
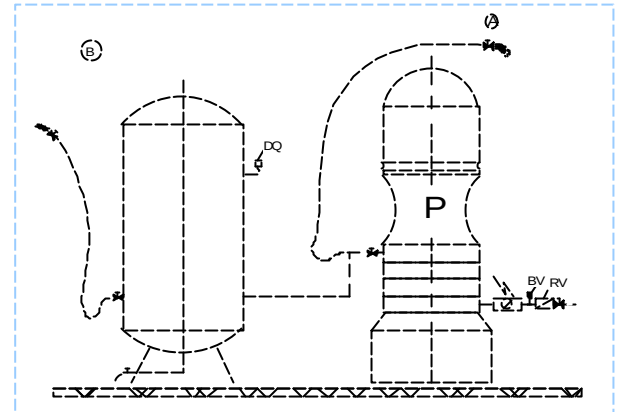
Schaltbild



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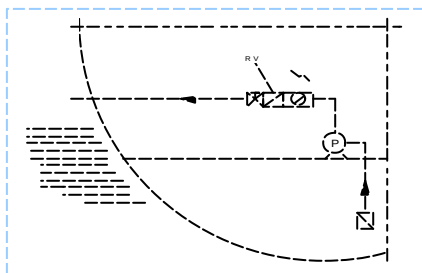


- 1 Flow direction horizontal „L“ control box normal at the left
- 2 Flow direction vertical rising control box normal at the left.
- 3 Flow direction vertical falling control box normal at the left. Control box at the right on demand only



HNMS for use of:

- 1) Vibrating machines, ships, and everywhere Mercury bulb flow switch cannot be used.
- 2) Very little capacities.



HNMS

Protects sump pump against dry operating.

HNMS:

Control flow of cooling water and circulation oil compressors, transformers, induction melting ovens, air conditioning, installations, machines with water cooled and lubricated bearings.

A HNMQ control automatically car wash pump, suction pressure 3 to 6 kp/cm²

B HNMQ If suction pressure drops below 2kp/cm² an additional pneumatic water Receiver of 150 l is required.

C HNMQ on pressure side protects pressure pump against dry operation if working under suction pressure of suction lift.

D HNMQ or shuts off pump working on an elevated water tank when flow falls due to shut off of float valve in tank.

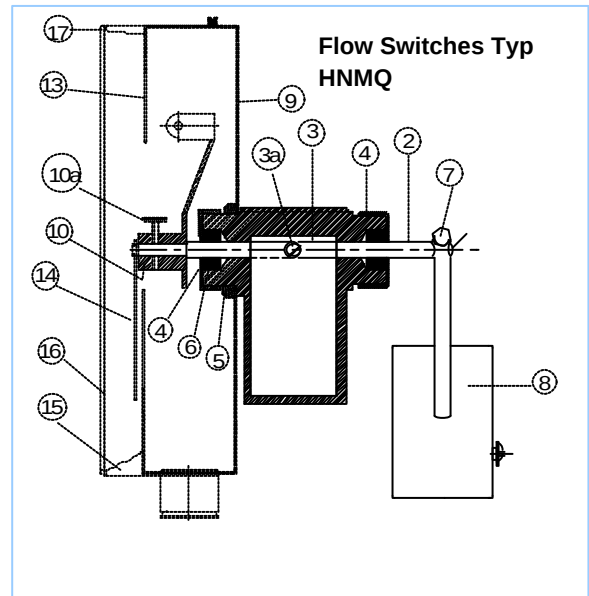
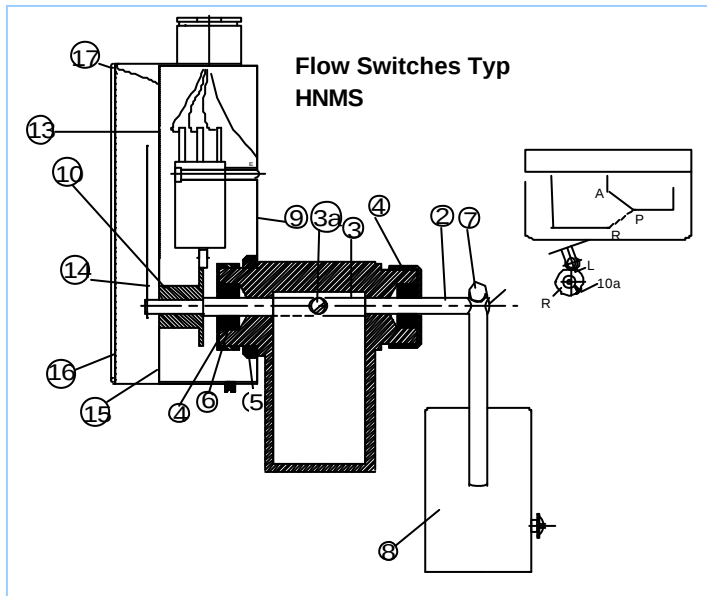
E HNMQ controls flow of cooling water and cooling and lubrication oil (compressors, Transformers, induction melting ovens, machines with cooled bearings aso)

 =HNMS
 =check valve
 =strainer

 = pressure switch
 = air ball float valve
 = air valve
 = strainer

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MOUNTING AND SERVICE INSTRUCTIONS



Notice: These types are only suitable for installations under constant pressure of 0,5 – 10 kp/cm², in special cases also up to 16 kp/cm².

Suitable: For water, mineral oil, fuel oil up to 80°, aggressive agents only if brass, cast bronze, an Perbunan-joints are resistant to these agents.

Size: The usual capacity must be within the range of the controller,
Size I: 5 – 25 l/min. – size II: 15 – 180 l/min. – size III: 30 – 300 l/min.

Pipe union sizes: according to pipe size in inches according to table.

Usual mounting position: horizontal, flow direction right to left, on demand in inverse direction, see backside, graph 1, 2, 3.

Mounting in pressure lines only: in case of pumps with an inlet pressure (minimum 0,5 kp/cm²) also on suction side.

Electric connection: cable- like 3 x 1,5 qmm including earthing, if necessary in protection pipe or metal hose.

* **Electric connection:** Cable – like line 3 x 1,5 qmm including earthing, normal P-A-E. In case of contact in rest position P-R, or 4 x 1,5 in rest and working position P-A-R-E.

* **Contact setting:** If the order contains no indications we shall set for the following capacities: I = 5 l/min. II = 15 l/min. III = 50 l/min. P – A = on

* **Change of contact setting:** Loosen knurled nut 10a, let pass capacity required, turn cams and tighten so that curve (refer to illustration) almost touches the roller of the micro switch. Left curve if control box left, R right curve if control box right

Contact setting: If no indications are made me set for I: appr. 5 l/min. for II: 15 l/min. For working voltage (closing device, for continuous current) opening contact on demand.

Contact setting for mounting: Switching tube contact must be closed at normal flow quantity, otherwise loosen screw 10, turn bulb holder 10 until mercury level is horizontal, then tighten.

Contact interruption: by reduction of capacity by means of slide, examine several times and examine flow out capacity if possible

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Change of control box with flow direction: left – right Take off fitting ring 17, plexiglass 16, shield ring 15, indicator 14, scale 13, bulb holders 10 and 11. Remove covering screws 4 on both sides, also retaining nut 5, box 9 as well as setting screw 3 a of flow flap 3. Pull out shaft in direction of lever and put in again from the opposite side (take care that grooved ring joints 6 are not damaged) then mount again in inverse sequence.

Change of switch box in vertically rising flow: Remove parts 17. 16. 15. 14. 13. Exchange terminal 19 for earthing screw, turn scale 13 by 90° and newly tighten weight lever 7 in previous position

Trouble and inspections:

a) leakage of shaft joint: Exchange grooved rings as under I including covering screws; push out used joint by using pipe pressure or with the help of screw driver. Slightly grease new joint (Molykott)

b) If no improvement, take out shaft 2 and polish with fine emery. If strongly worn renew scores and shaft. Also clean hereby inside Faces of box with smooth file or hydrochloric acid; flap 3 at the side faces should be polished bright on emery

c) Switch bulbs 11 is broken by short circuit or excessive heat:
Replace or bend out holding spring.

Ordering of spare parts with ref- numbers of parts list No..... indicating year of delivery.

* Just for flow switches type HNMS