



**INSTRUCTION MANUAL FOR FLOW SWITCHES
SERIE: PLD - CV - CVO - CVM - TGO**

1. GENERAL

The design and construction of the flow switches have been executed in such a way as to assure reliable and long lasting operation with a minimum of maintenance.

The CV, CVO and CVM series are particularly indicated for signalling water flow rates between 0.2 and 5 m³/h.

The TGO and PLD series are particularly indicated for signalling water flow rates between 2.5 m³/h.

The instruments are identified by a serial number impressed on the metal plate.

2. OPERATING PRINCIPLE

The stream of fluid to be controlled actuates a float or a paddle. As the flow rate diminishes, the float or paddle, in closing, draws along with it a magnetic piston which trips one switch in the head of the instrument. Switching is by magnetic action and therefore requires no moving mechanical parts or stuffing boxes.

3. WARNINGS

The flow switches should be handled very carefully while installing and commissioning. They should not be made to operate at higher pressures than allowed and the power and air supply should conform with the values shown on the data plate.

4. INSTALLATION

The distance between connections has an allowance of 1 mm.

The distances between connections on the circuit of the system must be measured on the spot, before installing the instrument.

After these checks, remove any protecting plugs and - on series PLD and TGO - the paddle fastener which had the purpose to avoid damage to the internal leverage while in transit. Mount the instrument on the piping making sure that the head containing the tripping unit is vertical, so that correct sliding of the magnetic piston and smooth running of the magnet are assured. Connect the electric or pneumatic tripping units as shown on the attached drawings SEG-7334, SEG-7335, SEG-7366, A 237.0 and A 238.0.

Owing to its operating principle, the flow switch is adversely affected by shaking or heavy vibrations.

5. COMMISSIONING

After installing the flow switch as instructed, proceed as follows:

Start up the circuit and slowly increase the flow rate of the fluid until the tripping unit is actuated by the high flow rate alarm or by the reset; slow down the flow rate until the tripping unit is actuated again by the low flow rate alarm or by the reset. Now adjust the flow rate to the required operating setting.

In order to adjust and/or change the flow rate, see point 6 "SETTING THE SWITCHING POINT". Follow carefully the instructions under point 8 when testing the operation and commissioning.

For all tests and uses, reference should be made to the data plate. All instruments are factory-tested under pressure and rated.



6. SETTING THE SWITCHING POINT

6.1

The switching assembly is factory-set to the required switching point during rating and subsequent testing. Its original setting should not be changed.

6.2

Procedure for setting and/or changing the switching point, taking account of the fact that the possibility to shift the tripping unit depends on the instrument's built-in features.

6.3

- a - set the flow rate of the fluid to the required value
- b - slowly lower the switching assembly until the tripping unit '1' turns towards the pipe in pos. B and trips the switch '2'
- c - if the required tripping is actuated by the high flow rate alarm, lock the switching assembly in this position by tightening screw '4'
- d - if the required tripping is actuated by the low flow rate alarm, slowly raise the assembly until the tripping unit '1' returns to pos. A; lock the switching assembly in this position by tightening screw '4'.

7. REPLACING THE MICROSWITCH AND/OR TRIPPING UNIT

7.1

In order to remove the switching assembly to replace the microswitch and/or the complete assembly, mark the original position using a gauge to make sure that the assembly is put back in the right place after completing the operation.

7.2

In order to replace the microswitch, proceed as follows:

- a - make sure that it is disconnected
- b - disconnect the terminal block (after taking note of the original connections), remove the switching assembly by unscrewing screw '4'
- c - replace the microswitch '1'
- d - adjust tripping by turning screw '3', twisting the magnet unit '1' manually and checking its operation with a tester
- e - put back the switching assembly in its case and if the original position of tripping unit had not been marked, proceed as described under point 6.3.

8. OPERATIONS ABSOLUTELY TO BE AVOIDED

- Leaving the instrument in operation without the contact guard.
- Using lubricants on the moving parts: this would promote the formation of scales which are extremely harmful for the proper operation of the instrument.
- Using the electrical contacts for currents exceeding the values indicated.



9. CHECKING THE ELECTRICAL CONTACTS

Every 120 days test the efficiency of the electrical contacts.

Check for loss of insulation of the connecting cables owing to excessive heat or humidity; in case of doubts, replace them.

10. TROUBLESHOOTING

Type of trouble : failure to switch when flow rate changes, due to seizing of internal parts owing to dirt or deposits.

Suggested remedy : remove the instrument, open and clean it accurately.

Action : to be carried out on the spot.

11. DISPOSAL

The disposal of the produced instruments must be according to the rules in force, both for what concerns obnoxious toxic material (mercury contained in microswitches), and for what concerns special materials (PVC; moplen ; P.T.F.E.; neoprene; viton; asbestos free joints; PVDF; steel and alloy; aluminium; copper; brass; plexiglass and glass).

FINAL NOTES

Each instrument is supplied fully assembled and with all necessary accessories. Some parts may be supplied separately only in special cases.

The consignment should therefore be checked on arrival and any discrepancies should be reported at once.

N.B. IN CASES WHEN THE INSTRUMENTS ARE MEANT TO BE USED IN AREAS FEATURING POTENTIALLY EXPLOSIVE ATMOSPHERES, THE USER SHALL COMPLY WITH THE ADDITIONAL SAFETY INSTRUCTIONS ATTACHED TO THE STANDARD ONES.

Enclosed dwg. no. SEG - 7334; ~~SEG 7335; SEG 7366; A 237.0; A 238.0; A/328.~~

VISTA LATERALE CUSTODIA
HOUSING SIDE VIEW

Fig. 1

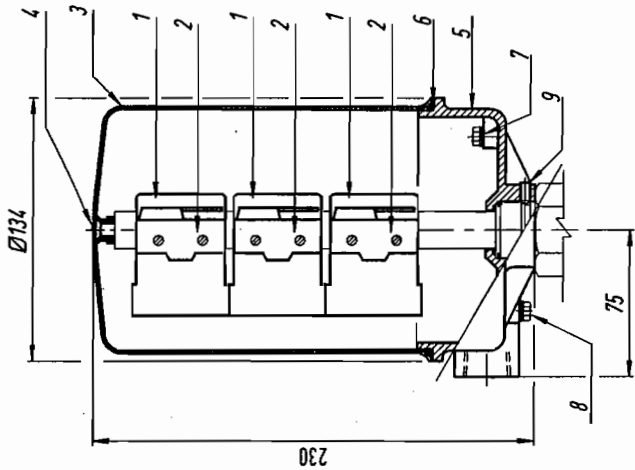


Fig. 2

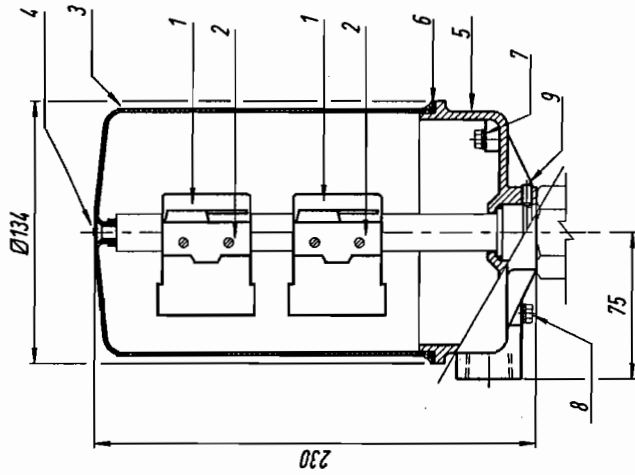
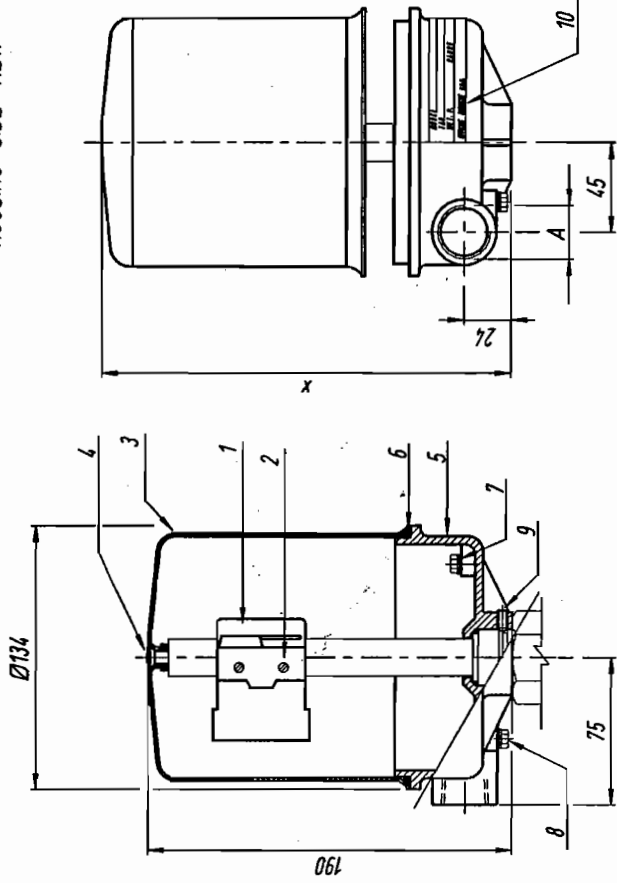


Fig. 3



DOCUMENTO DI PROPRIETÀ DI OFFICINE OROBICHE S.p.A.
NE E VIETATA LA RIPRODUZIONE. (ANCHE PARZIALI) SENZA AUTORIZZAZIONE SCRITTA

OFFICINE OROBICHE S.p.A. RESERVE ALL RIGHTS ON THIS DOCUMENT
THAT CAN NOT BE REPRODUCED ANY PART WITHOUT ITS WRITTEN CONSENT

(A) PARTI DI RICAMBIO CONSIGLiate
(A) RECOMMENDED SPARE PART LIST

10	TARGA DATI STRUMENTO INSTRUMENT NAME PLATE
9	GRAND BLOCCAGGIO COPERCHIO CLAMPING COVER SCREW
8	GRUPPO MESSA A TERRA ESTERNO EXTERNAL GROUNDING GROUP
7	GRUPPO MESSA A TERRA INTERNO INTERNAL GROUNDING GROUP
6(x)	GUARNIZIONE CUSTODIA GASKET FOR HOUSING
5	BASE CUSTODIA HOUSING BASE
4	GRUPPO FISSAGGIO COPERCHIO FIXING COVER GROUP
3	COPERCHIO CUSTODIA COVER HOUSING
2(x)	MICROINTERRUTTORE MICROSWITCH
1(x)	GRUPPO INTERRUTTORE SWITCH ASSEMBLY
POS.	DENOMINAZIONE DENOMINATION

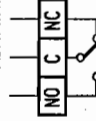
NOTA GENERALE

IL CONTATTO NO-C-NC E' RIFERITO ALLA CONDIZIONE DI STRUMENTO SENZA LA PRESENZA DI LIQUIDO PER LE SERIE 30-40-50-60-70-3060-3070-4060-4070-6000-7000;
MENTRE PER LE SERIE 20-80 E' RIFERITO A STRUMENTO COMPLETAMENTE PIENO DI LIQUIDO.

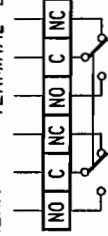
GENERAL NOTE

THE CONTACT NO-C-NC IS REFERRED TO THE CONDITION OF THE INSTRUMENT WITHOUT LIQUID FOR 30-40-50-60-70-3060-3070-4060-4070-6000-7000 SERIES; WHILE FOR 20-80 SERIES IT'S REFERRED TO THE INSTRUMENT COMPLETELY FULL OF LIQUID.

VERSIONE SPDT
MORSETTIERA



VERSIONE DPDT
MORSETTIERA



SPAZIO NECESSARIO PER SMONTAGGIO
COPERCHIO CUSTODIA
NECESSARY SPACE FOR DISASSEMBLING
COVER HOUSING

X = 400 CUSTODIA
HOUSING Fig.1-2

X = 320 CUSTODIA
HOUSING Fig.3

DENOMINATION

CUSTODIA WP - IP66
DIMENSIONALE E CONNESSIONI ELETTRICHE
HOUSING WP - IP66
DIMENSIONAL AND WIRING CONNECTION

SCALE

±5

GEN.TOLERANCE

DIMENSIONS mm

REV. DATE

4 03.09.08

CERTIFIED BY:

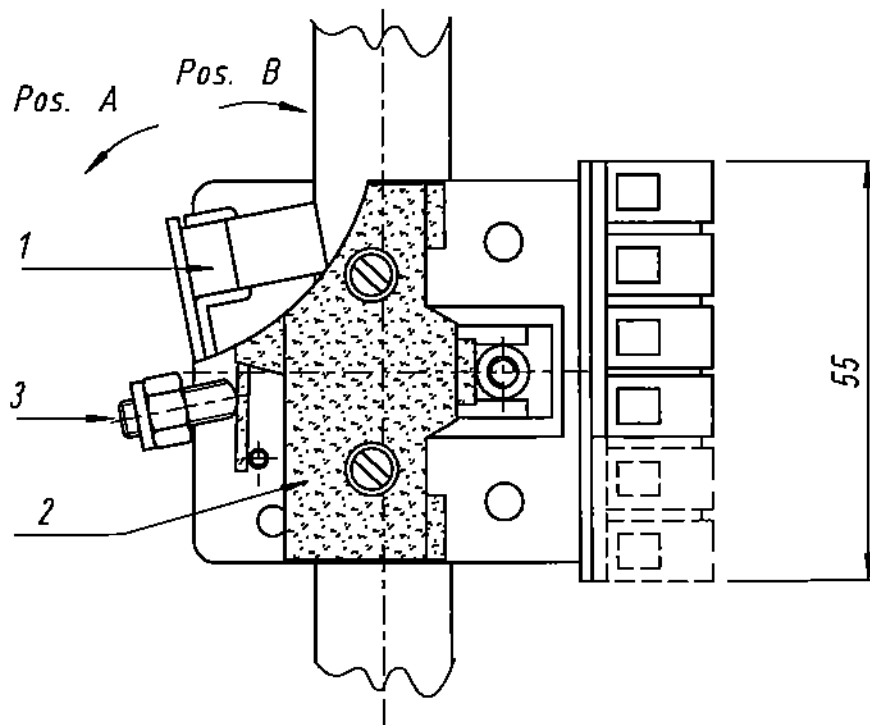


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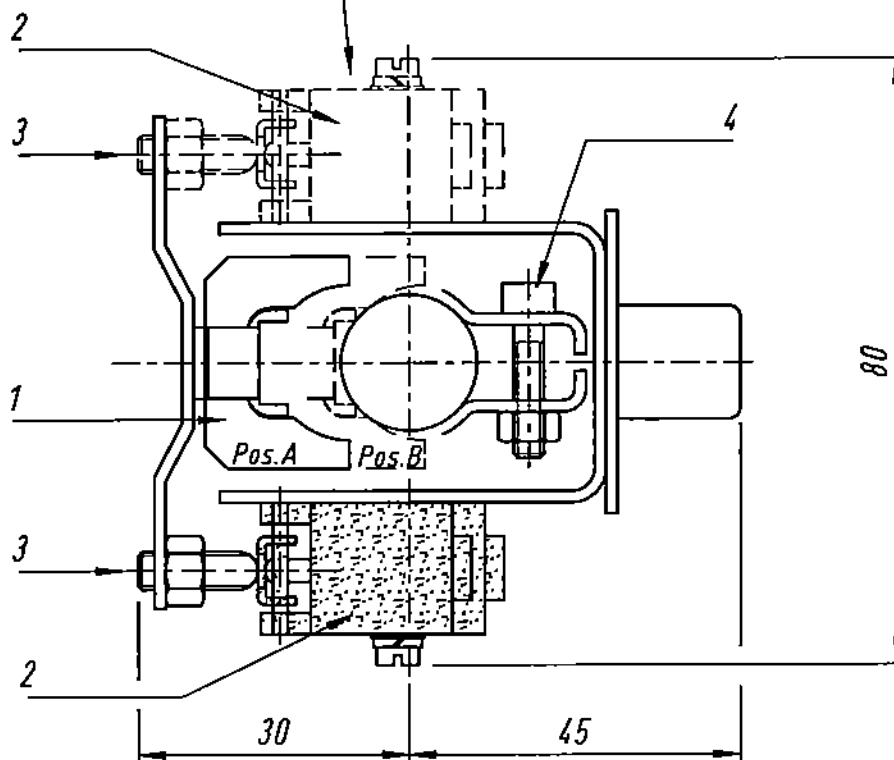
SEG-7334

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SOLO CON VERSIONE DPDT
DPDT ONLY



DENOMINATION

GRUPPO INTERRUETTORE
SWITCH GROUP



SCALA

GEN.TOLERANCE

±5

DIMENSIONI mm

1

18.04.02

REV. DATE

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DOC.REF.:

A-328