

TECHNICAL FEATURES	
Description	
Partial counter	6 digits
Total counter	6 digits
Flow rate litres/minute	5-120
Maximum pressure	3,5 bar
Overflow pressure	20 bar
Temperature	-10+50 °C
Precision / Repetitiveness	+/- 0,5% / 0,3%
Unit of measure	L (Litres); G (U.S. gallons); F (Fourth); P (Pints)
Button battery	3V.
Attachment in/out	1"G (BSP)
Weight	1,24 Kg.
Dimensions	172 x 180 x h143mm

CONFORMITY DECLARATION:

Craind impianti S.r.l.

states that the flow meter KHS meets the conformity requirements of the directive 2004/108/CEE



THE FLOW-METERS SERIES KHS ARE NOT FISCAL INSTRUMENTS, THEY ARE FOR PRIVATE USE ONLY, IT IS FORBIDDEN THEIR USE IN TRANSACTIONS WITH THIRD PARTIES



BEFORE USING THE INSTRUMENT READ CAREFULLY THE FOLLOWING INSTRUCTIONS, AN INCORRECT USE CAN CAUSE DAMAGES TO PERSONS OR THINGS.

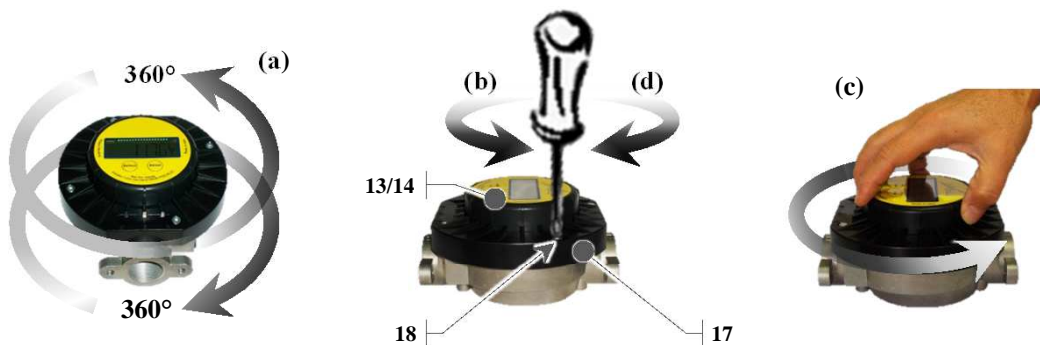


CAUTION

- Extract the device from its packaging, if existing take off the thread protection caps, be careful to any calibration liquid residuals that can be inside the device.
- Be sure that the used liquids are compatible with the flow-meter executive materials (see the Table "TECHNICAL FEATURES"), if unsure verify it with the liquid supplier.
- It is advisable to insert a flow-meter upstream filter as to avoid impurities that could cause an anomalous working, could block the device or damage it.
- If the flow-meter and the pump are used together it is advisable to use a safety valve calibrated at 3,5 bar in order to avoid dangerous over-pressures in the supply circuit.
- Be sure that the flow-meter is calibrated for the liquid used, if not follow the instructions for the adjustment of the correction/calibration factor
- The flow-meter counts also the air inside the pipes. Do an accurate cleaning of all feeding circuit, before its first starting. If feeding is done through the pump, it is advisable to use deep end valves as to avoid the entry of air into the circuit.
- The liquids are affected by the change of temperature, therefore as to get a better precision is worthwhile to calibrate the instrument at the liquid supply temperature.
- Do not dunk the flow-meter in liquids as to avoid damages to the electronic card.
- Before any maintenance operation be sure that all liquid has come out from all circuit and from the flow-meter.

INSTALLATION:

The flow-meter KHS can be installed on tanks, pumps, rigid and flexible pipes; it is important to follow the flow direction IN (entrance) and OUT (exit) as mentioned on the flow-meter. The flow-meter HS2008 is very versatile and easy to use, it can be used in any position because of its rotating head (the body and the head of the flow-meter rotate independently degree by degree clockwise and anticlockwise), is adaptable to any need (a). In order to allow the head to rotate it is necessary to loosen (b) the 4 screws (18) that block the sleeve (17), rotate (c) the head (13/14) in the wished position and tighten again (d) the screws (18).



USE BY MEANS OF GRAVITY:

If there is no pump, the flow-meter HS2008 can be used by means of the gravity. The only pressure will be that caused by the weight of the column of liquid from the tank to the exit mouth of the supplying gun. It is not advisable the use by means of gravity for liquids with differences of level lower than a meter because of the low flow rate that lead up to a flow-meter working out of its precision range. It is advisable to calibrate the instrument at the real use conditions.

CALIBRATION:

The flow-meter KHS is calibrated for diesel oil, however is advisable to do **preliminary checks** in the real use conditions because there are several causes that can affect the precision of the instrument. The temperature of the liquid supplied, the existence or not of the pump, the flow rate of the pump are some of the elements that can affect the precision of the instrument.

DOSING TEST / CHECK (preliminary checks):

1. For the dosing test you need a graduated tank with a capacity not less than 20 litres.
2. Check that all air has been pulled out from the circuit, in order to get a full and a regular jet, stop the supply of liquid by closing the supplying gun but don't stop the pump if there is.
3. Reset the partial meter according to the instructions in the manual **"PROGRAMMING OF THE DIGITAL FLOW-METER"**.
4. Now you are ready to start the supply, the correct way is to supply the liquid with a constant flow until it reaches the reference notch of the tank. If you don't reach the notch in one time don't reduce the flow, but start and stop more times the supply keeping a constant flow. It is advisable to supply the liquid at the same flow that will be used for supplying in order to get a best reading precision of the instrument.
5. When the reference notch is reached, verify that the quantity of liquid supplied is the same to the quantity indicated by the instrument, at the contrary it is necessary to adjust the correction factor, see the **"PROGRAMMING OF THE DIGITAL FLOW-METER"**.

MAINTENANCE:



Before any disassembling operation be sure that all liquid has came out from the flow-meter and from the connection pipes.

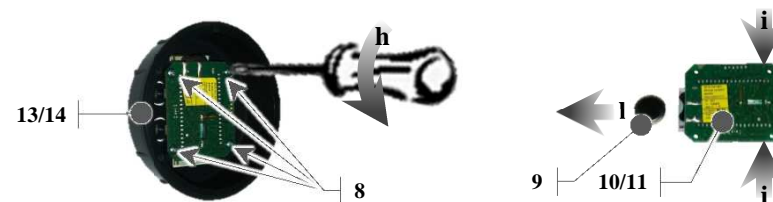
If used according to the above instructions, the flow-meter doesn't need special maintenance; if there have been used liquids not previously filtered it could be necessary an extraordinary cleaning operation. **Disassembling procedure:** unscrew (a) the four screws (18) of the sleeve (17); lift (b) the sleeve (17), take-off (c) the digital head (13/14) together with the OR (12). Unscrew the six screws (7) of the flange (6) and remove it paying attention to the OR (5) and to the internal transmission kit (4)); extract (d) the chamber kit and clean with suitable liquid detergents. **Assembling procedure:** reassemble all parts according to the exploded view, paying attention to the following: assemble the chamber (2) with the nutating disk and the OR (3); insert the (e) exit mouth of the chamber into the exit hole of the body "OUT" and lightly press (f) its back side as to get a correct positioning; place again (g) the pivot of the nutating disk into the hole of the transmission connecting rod (4); place again and fasten the flange with its OR (5).



BATTERY REPLACEMENT:

The battery in use is a commercial 3V button type and is put inside the electronic card of the quadrant; if on the display the **B** letter starts lightening alternated to the letter **P**, **T** or **F** (**Partial - Total - Flow-reader**) the battery has to be replaced; this operation doesn't involve the parameter loss.

To replace the battery, disassemble the head (13/14) from the flow-meter body according to the above mentioned actions (a), (b) and (c), unscrew (h) the four screws of the head (13/14) (8) that fasten the electronic card (10/11) keep it from the outside borders (i) to avoid touch and damage the circuits, extract (l) the battery (9) and replace it respecting the polarity (the sign + towards the display side); reassemble carefully.



WASTE DISPOSAL

The packaging materials can pollute the environment, therefore it is advisable to dispose of or recycle them according to the laws in force in the country where the instrument is used. Do not dispose of the flow-meter like an urban waste, it can be returned to the seller if a new instrument is bought or it can be delivered to the existing ecological islands. It is forbidden to use parts of the instrument in order to avoid incorrect uses.