

Commissioning

1. GENERAL

1.1. General remarks on the operating instructions

These operating instructions show how the device can be installed and operated safely in the prescribed manner. If, in this respect, difficulties arise which cannot be remedied with the aid of the operating instructions and product information, then further information should be requested from the supplier/manufacturer. The manufacturer reserves all rights for making technical changes or improvements at any time. The use of these operating instructions requires the user to be suitably qualified. The operating personnel must be instructed according to the operating instructions.

1.2. General fundamental principles

Honsberg monitoring and measurement devices mainly operate on an electromechanical basis. For this reason the general installation and operating instructions as well as the product information refer to the mechanical and electrical operating data of the individual devices or device groups.

2. HAZARD INFORMATION

2.1. Terms relevant to safety

The indicating terms DANGER, WARNING, CAUTION and NOTE are used in these operating instructions for information about particular hazards or for extraordinary information needing special labelling.

DANGER indicates that by non-observance there is a danger to life and / or substantial property damage may occur.

WARNING indicates that by non-observance there is a risk of severe injury and / or property damage may occur.

CAUTION indicates that by non-observance there is a risk of injury and / or property damage may occur.

NOTE indicates that particular attention should be paid to technical aspects. The observance of information, not specially highlighted, on transport, assembly, field and servicing information as well as technical data (in the operating instructions, product information and on the device itself) is however just as essential in preventing problems which can on your part directly or indirectly cause personal injury and property damage.

2.2. Qualified personnel

These are persons who are familiar with the siting, installation, commissioning and operation of the product and who have qualifications suitable to their activities and functions, such as for example: Instruction and responsibility for maintaining all application conditions, regional and in-house regulations and requirements. Training or instruction according to the standards of safety engineering in the care and use of appropriate safety and worker protection equipment.

3. USEAGE

3.1. Storage

- Storage temperature -20°C to 65°C, dry and free of contamination.
- In damp areas drying agents or heating is required against the formation of condensed water.

3.2. Transport

- Transport temperature -20°C to 65°C, dry and free of contamination.
- Protect from external effects such as shock, impact and vibration.

3.3. Handling prior to fitting

- With versions with a protective cap, remove the cap immediately before installation.
- Protect against the effects of weather, e.g. wet conditions.
- Proper treatment provides protection against damage.

4. FIELD OF APPLICATION

Data can be taken from the product information.

5. METHOD OF OPERATION

Data can be taken from the product information.

6. TECHNICAL DATA

Data can be taken from the product information.

7. INSTALLATION GUIDELINES

Apart from the general installation guidelines, attention should be paid to the following points:

7.1. General

- **NOTE!** Flush the pipe system before fitting.
- **NOTE!** Carry out sealing when fitting.
- **NOTE!** Note direction of flow; if fitting orientation is defined, then carry out fitting appropriately.
- **DANGER!** Note operating pressure, pressure level and temperature range.
- **NOTE!** Ensure no stress is produced when fitting.
- **CAUTION!** Only use the device for the medium specified.
- Bleed the system before putting into operation.
- **WARNING!** Thermal expansion of the pipework must be taken up by compensators.
- **NOTE!** The device must not be used as the fixed point when compensating with compensators.
- **NOTE!** Do not exceed max. flow rate. The functional value of the switching range is always related to the reducing flow (protection against defects).
- **NOTE!** The system pressure must lie above the value of the arising pressure loss.
- **NOTE!** Inverted installation orientation only with clean media.
- **CAUTION!** Avoid pressure shocks and excess deflections on the measurement systems.
- **NOTE!** 5 x diam. as smoothing section on inlet and outlet.
- **NOTE!** Use dirt trap with heavily contaminated media.
- **CAUTION!** In the case of measurement substances loaded with ferritic material, we recommend the installation of the Honsberg Magnetic Filter Volumat ZV.

7.2. For devices with a flange

- **NOTE!** Centre the seal between the flanges.
- **CAUTION!** Joining flanges must match up.

7.3. For devices with a flange

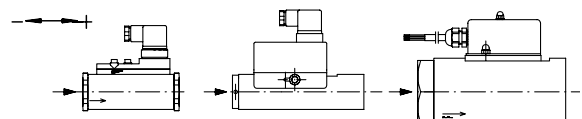
- **CAUTION!** Use the circuit diagram as a basis for wiring.
- **CAUTION!** Check the control circuit, avoid overloading the contacts.
- **NOTE!** With alternating current use a large distance between the contact and the component to be switched.

7.4. Contact protection measures for devices with reed switches

With a capacitive load or when switching filament lamps, current voltage spikes can affect the contact life. To achieve the maximum service life and to prevent damage to the contacts, a suppression circuit must be used in these cases.

Contact protection for an inductive load. When switching off an inductive load a very high self-induced e.m.f. can occur under some circumstances. The size of this voltage depends on the stored energy and on the speed of the switch-off.

- With direct voltage. A diode in parallel to the load or reed contact. The voltage spikes are equal to the voltage drop in the conducting direction of the diode.
- With alternating or direct voltage. An RC network in parallel to the load or reed contact.



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- With alternating or direct voltage. Protection by Zener diodes, voltage spikes occur up to a maximum of the Zener voltage.

Contact protection for a capacitive load. When switching a capacitor or also longer lengths of line, higher switch-on currents occur whose intensity depends on the capacitance and the line length. The current spikes can be reduced by a series-connected resistor. Dimensioning of the suppression resistor depends on the corresponding circuit, but the resistance should be as high as possible to limit the discharge current to a permissible level.

Contact protection for a lamp load. The resistance of a cold filament is about ten times that in the glowing condition. During switch-on this leads to a 10-times larger switch-on current, even if only briefly. This current pulse can be limited by a series-connected resistor. This type of protection is however associated with dissipation. Another possibility would be to preheat the filament via a resistance in parallel to the reed contact.

8. INFORMATION ON HAZARDS DURING INSTALLATION, OPERATION AND MAINTENANCE

DANGER! Safe operation of the device is only ensured if it is properly installed, put into operation and serviced by qualified personnel taking into account the warning information in these operating instructions. In addition conformance to the general installation and safety regulations for pipework and plant construction as well as the proper use of tools and protective equipment must be ensured. For all work on the device please observe the operating instructions and the product information pertaining to the device. Non-compliance may result in injury or property damage.

9. PUTTING INTO OPERATION

- **DANGER!** Before putting the device into operation, the details about material, pressure, temperature and direction of flow should be checked.
- **NOTE!** The TRB 700 must be observed.
- **CAUTION!** Deposits in the pipework and fittings (dirt, welding droplets, etc.) are bound to lead to leaky points and faulty functioning.

DANGER! Before putting a new system into operation or putting a system into operation again after repairs or modifications, it must be ensured that:

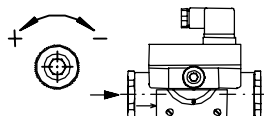
- All fitting and installation work has been properly concluded.
- The device is put onto operation by qualified personnel.
- The correct functional setting on the device is used.
- Protective devices are fitted or existing ones repaired.

10. ADJUSTMENT

The switching value on our mechanical monitoring devices can be adjusted. This is sometimes provided externally, sometimes underneath a protective cover.

HD1 / HD

Slightly loosen the cap nut and adjust the device with knurling. Retighten the cap nut.

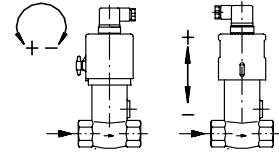


HR / MR / MR1 / RVM / FW1

Slightly loosen screw(s) and move switch head to desired position, then retighten screw(s).

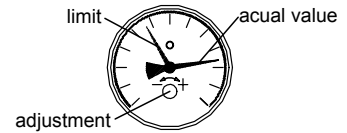
VD / VR

Slightly loosen screw and turn (VD) or move (VR) switch head to desired position, then retighten screw.



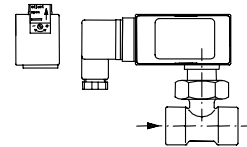
TZ1 / UZ

The flow meter has a limit pointer on the scale. With this the switching value on the scale itself can be set using a special spanner (**NOTE!** Supplied attached to the device - please keep with operating instructions.) The switching value is tripped by the actual-value pointer passing the limit pointer.



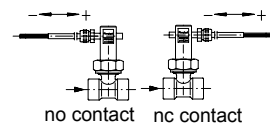
UR3 / UM3 / NW3 / MW3

Open the slide. Adjustment via an adjustment screw (**IMPORTANT!** Max. 50 Nmm). Reclose the slide. The adjustment screw is designed for 7 turns to cover the adjustment range. Example: Adjustment range 13-16.5 l/min corresponds to 3.5 l/min adjustment span over 7 turns. The adjustment is therefore 0.5 l/min per turn. **NOTE!** Please use a Size 1 screwdriver.



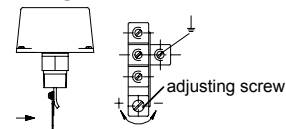
UR1 / UR2

Loosen the stud bolt and move contact tube to desired position. Retighten stud bolt. (**IMPORTANT!** Max. UR1 0.3Nm, UR2 0.1Nm)



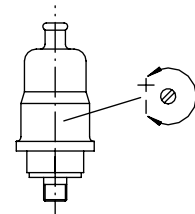
CRE / CRG / CWE / CWG

Loosen screws and remove cover, set desired switching value with adjusting screw, refit cover.



PM / PH

Loosen the cover and set desired switching value with adjusting screw. Refit cover to device.



GENERAL CHARACTERISTICS

Mechanical Flow Indicator for liquids, with a rotor for quantitative flow indication in a special tube-shaped glass housing. A signal-red rotor provides a directly flow-proportional indication of the momentary flow-rate. Rugged design in brass or stainless steel.

- * cleaning mechanism of the internal surface of the glass
- * visibility of rotor 360°
- * floating bearing for liquids
- * grease-free ball bearing for gaseous media

Female thread G1/4 to G1 1/2 brass/stainless steel

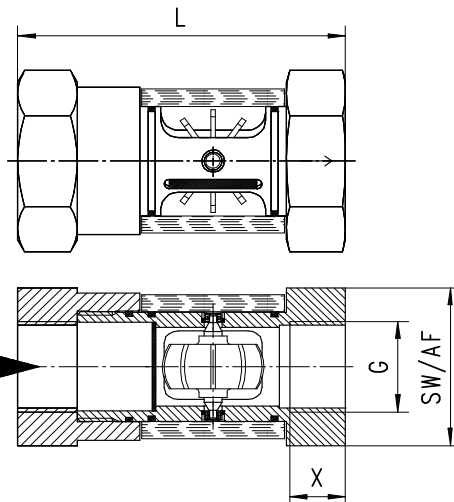


TECHNICAL DATA

WR1-015GK

G	Type	Qmax. recom. l/min H ₂ O	start of rotor l/min			L mm	SW mm	X mm	weight kg
			H ₂ O	40 mm ² /s	41-150 mm ² /s				
G 1/4	WR1-008G.	4	0.7	1.5	2.7	71	36	9	0.35
G 3/8	WR1-010G.	8	0.8	1.5	2.8	71	36	9	0.35
G 1/2	WR1-015G.	12	1.4	1.8	3.2	86	46	13	0.65
G 3/4	WR1-020G.	25	1.4	2.7	5.9	94	46	16	0.65
G 1	WR1-025G.	40	1.7	3.0	7.0	104	46	16	0.65
G 1 1/4	WR1-032G.	80	8.0	5.9	7.9	120	65	19	1.60
G 1 1/2	WR1-040G.	100	8.0	7.3	7.9	130	65	20	1.70

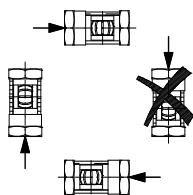
pressure PN 16
media temperature max. 100°C
average pressure loss 0.25 bar at Qmax.



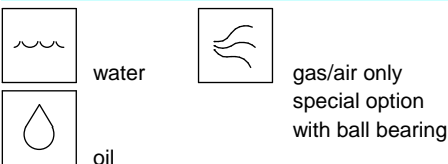
MATERIALS

	WR1-...GM	WR1-...GK
housing	brass Ms58 nickel plat.	stainless steel 1.4305
rotor	DN 8-25 POM red DN 32-40 nylon white	DN 8-25 POM red DN 32-40 nylon white
tube	borosilicate glass	borosilicate glass
axle	stainless steel 1.4541	stainless steel 1.4541
bearing	PEEK	PEEK
wiper	NBR	viton
seal	NBR	viton

MOUNTING POSITION



METERING SUBSTANCES



With higher viscosity instruments tend to higher starting values of the rotor.

NOMENCLATURE

WR1-	008	G	M	W	Beispiel
	008				● nominal diameter
	010				● DN 8 - G1/4
	015				● DN 10 - G3/8
	020				● DN 15 - G1/2
	025				● DN 20 - G3/4
	032				● DN 25 - G1
	040				● DN 32 - G1 1/4
		G			● DN 40 - G1 1/2
			M		● female thread
			K		● brass design
				W	● stainless steel design
				G	● liquids
				□	□ air/gasses
				○	○ seal / wiper EPDM
				□	□ low flow rates
Programme option					
BASIC					
Special option					
VARIO					

All technical changes reserved

●BASIC Standard ○BASIC Programme option □VARIO Special option ⊕ PLUS Accessories ✗not recommendable

GENERAL CHARACTERISTICS

Mechanical Flow Indicator for gaseous media, with a rotor for quantitative flow indication in a special tube-shaped glass housing. A signal-red rotor provides a directly flow-proportional indication of the momentary flow-rate. Rugged design in brass or stainless steel.

- * cleaning mechanism of the internal surface of the glass
- * visibility of rotor 360°
- * grease-free ball bearing

Female thread G1/4 to G1 1/2 brass/stainless steel

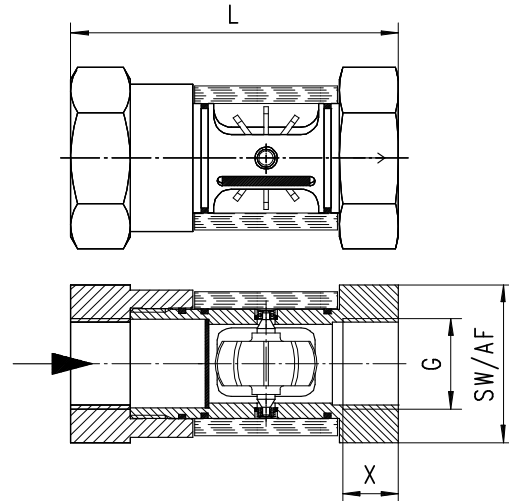


TECHNICAL DATA

WR1-015GKG

G	Type	Qmax. recom. l/min 1bar abs	start of rotor l/min 1 bar abs	L mm	SW mm	X mm	weight kg
G 1/4	WR1-008G.	60	18	71	36	9	0.35
G 3/8	WR1-010G.	150	20	71	36	9	0.35
G 1/2	WR1-015G.	250	25	86	46	13	0.65
G 3/4	WR1-020G.	250	25	94	46	16	0.65
G 1	WR1-025G.	350	35	104	46	16	0.65
G 1 1/4	WR1-032G.	600	60	120	65	19	1.60
G 1 1/2	WR1-040G.	700	70	130	65	20	1.70

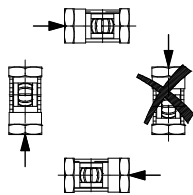
pressure PN 16
media temperature max. 100°C
average pressure loss 0.25 bar at Qmax.



MATERIALS

	WR1-...GM	WR1-...GK
housing	brass Ms58 nickel plat.	stainless steel 1.4305
rotor	DN 8-25 POM red DN 32-40 nylon white	DN 8-25 POM red DN 32-40 nylon white
tube	borosilicate glass	borosilicate glass
axle	stainless steel 1.4541	stainless steel 1.4541
ball bearing	chrome-plated steel 100 CR 6	chrome-plated steel 100 CR 6
wiper	NBR	viton
seal	NBR	viton

MOUNTING POSITION



METERING SUBSTANCES



NOMENCLATURE

WR1-	008	G	M	G	Beispiel Beschreibung
	008			●	DN 8 - G1/4
	010			●	DN 10 - G3/8
	015			●	DN 15 - G1/2
	020			●	DN 20 - G3/4
	025			●	DN 25 - G1
	032			●	DN 32 - G1 1/4
	040			●	DN 40 - G1 1/2
		G		●	female thread
			M	●	brass design
			K	●	stainless steel design
				□	air/gasses
				○	seal / wiper EPDM
Programme option					
BASIC					
Special option					
VARIO				□	low flow rates

All technical changes reserved

●BASIC Standard ○BASIC Programme option □VARIO Special option ⊕ PLUS Accessories ✗not recommendable