

TURBO-LUX® 3 VDS

Analog fire pump flowmeter system



made
in
Germany



EN OPERATING MANUAL

IMPRINT

All rights reserved. Without the prior written authorisation of MECON GmbH every form of reproduction of this documentation, regardless of method, including excerpts, is forbidden.

We reserve the right to make changes without prior notice.

Copyright 2026 by MECON GmbH - Roentgenstrasse 105 - 50169 Kerpen - Germany

CONTENT

- 1 SAFETY INSTRUCTIONS4**
 - 1.1 Intended use4
 - 1.2 Approval.....4
 - 1.3 Manufacturer’s safety instructions4
- 2 SCOPE OF DEVICES5**
 - 2.1 Scope of delivery5
 - 2.2 Nameplates5
- 3 INSTALLATION AND MODE OF OPERATION6**
 - 3.1 Installation instructions.....6
 - 3.2 Installation6
 - 3.2.1 Installation of the orifice plate6
 - 3.2.2 Mounting the bypass meter8
 - 3.3 Mode of operation8
- 4 COMMISSIONING8**
 - 4.1 Measurement reading.....9
 - 4.2 After device usage11
- 5 SERVICE11**
 - 5.1 Storage.....11
 - 5.2 Maintenance11
 - 5.3 Returning the device to the manufacturer11
 - 5.4 Disposal.....12

1 SAFETY INSTRUCTIONS

1.1 Intended use

The orifice plate flowmeter Turbo-Lux® 3 VdS is used to measure the flow of water in closed conduits.

It is suitable for any point of installation, mounting position and flow direction (in compliance of the directional arrow).

The necessary approval of VdS Schadenverhütung GmbH is available.

NOTICE!

The operator of these measuring devices is solely responsible for the suitability, intended use and corrosion resistance of the selected materials. It must be particularly ensured that the materials selected for the wetted parts of the flowmeter are suitable for the process media to be measured.

The manufacturer is not liable for any damage resulting from improper or unintended use of these devices.

ATTENTION!

The device may only be used in the specified pressure and temperature limits displayed on the name plate.

1.2 Approval

» VdS G 4070023

- Approval basis: VdS 2100-29



Fig. 1: Logo of the certification body

1.3 Manufacturer's safety instructions

The manufacturer is not liable for damages of any kind caused by the use of the device, including, but not limited to direct, indirect, incidental, punitive and consequential damages.

For every product purchased from the manufacturer warranty applies, according to the relevant product documentation and the valid terms and conditions.

The manufacturer reserves the right to revise the content of the documents, including this disclaimer, without notice, and is not liable in any way for possible consequences of such changes.

The responsibility that the instruments are suitable for the particular application rests solely with the operator. The MECON GmbH assumes no liability for the consequences of misuse, modifications or repairs that were carried out by the custo-

3 INSTALLATION AND MODE OF OPERATION

3.1 Installation instructions

i NOTICE!

The following document is valid for the analog and digital version of the Turbo-Lux® 3 with VdS approval.

i NOTICE!

All instruments are carefully checked for proper function before shipment. Check immediately on receipt, the outer packing carefully for damage or signs of improper handling.

Report damage to the carrier and your local sale staff. In such cases, a description of the defect, the type and the serial number of the device is indicated.

Unpack the unit carefully to avoid damages.

Check the completeness of the delivery against the packing list. Check the name plate, if the delivered flowmeter according to your order.

Notice for use (VdS relevant): The use of the flowmeters is allowed with the VdS-approved pipe couplings of the manufacturers Anvil, Jinan Meide (type 1G), Minimax, Modgal, Tyco (type Grinell Mechanical and G-Fire Steel IPS) and Victaulic (except for pipe coupling type Style 77 and 009N).*

**Victaulic style 009N creates significant*

cross section reductions with pressure losses in the pipe!

3.2 Installation

3.2.1 Installation of the orifice plate

Before and after the orifice plate a straight calming section is provided as a function of the nominal diameter (D).

By default, there should be a $5 \times D$ straight calming section in front of the orifice plate and a $2 \times D$ straight calming section behind it.

For the installation of valves, pumps, or T-piece pipes, an inlet path of at least $10 \times D$ is required. Of this, at least $5 \times D$ must be a straight section directly in front of the orifice plate.

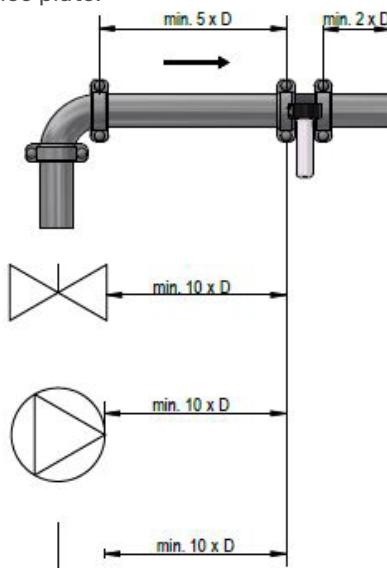


Fig. 3: Inlet path and outflow zone

INSTALLATION AND MODE OF OPERATION

The technical data of the respective measuring device can be taken from the current technical data sheet or name plate.

The installation can be in any line routing - horizontal to vertical - place (fig. 4). However, it is important to ensure that the flow direction of the arrow marked on the device and corresponds to the differential pressure sampling tube is in the vertical position.



Fig. 4: Turbo-Lux® 3 VdS examples of installation

For attachment of the bypass meter, sufficient clearance must be provided. Important for the compliance of the measuring tolerance is the central mounting of the pipeline.

The connected pipelines must be the same size as the orifice plate.

The pipelines must be completely filled at all times. Examples of special installation situations are illustrated in figures 5 to 8.

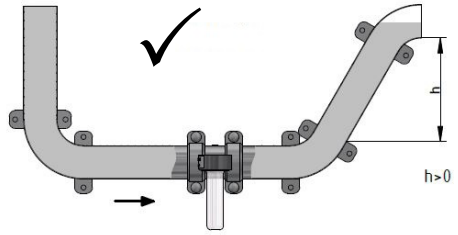


Fig. 5: Turbo-Lux® 3 VdS correct horizontal installation

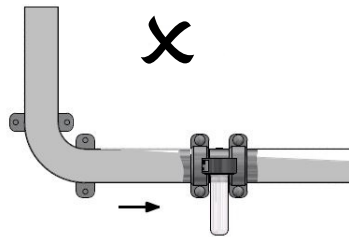


Fig. 6: Turbo-Lux® 3 VdS wrong horizontal installation

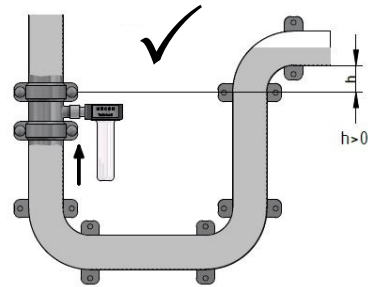


Fig. 7: Turbo-Lux® 3 VdS correct vertical installation

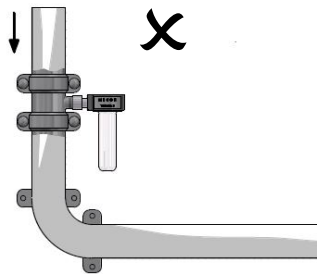


Fig. 8: Turbo-Lux® 3 VdS wrong vertical installation

3.2.2 Mounting the bypass meter

The bypass flow meter can be used for all specified nominal sizes.

Before loosening the cap of the orifice plate, the pipeline must be emptied to prevent the escape of liquids. The meter is plugged and screwed with the nut.

It must always be mounted vertically (fig. 4) so that the float can move freely in the tube. About foreign bodies that have come behind the filter must be removed (by flushing tool or return to the factory). The tightening of the nut or the cap should be done by hand. The threads must – for example be slippery – by fat. To avoid air strikes, the tube should be slowly filled with water.

3.3 Mode of operation

The orifice plate flowmeter Turbo-Lux® 3 VdS consists of an orifice plate for stationary installation and a portable bypass meter. The bypass meter contains a conical glass tube with float.

The water flows vertically from top to bottom through the flow tube at the upper end of a side panel is arranged. A filter at the inlet largely prevents the ingress of foreign bodies. The water flows upwards in the inner tube where the float is located.

Inlet and outlet port for the bypass to be measured are arranged concentrically, so that an easy to combine with the stationary primary element.

4 COMMISSIONING

Read the exact value when a consistent flow has been attained and the float has reached a stable position. The pipeline must always be filled.

Read the value at the greatest diameter (upper edge) of the float:

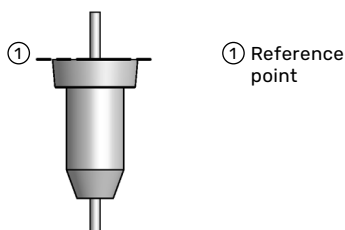


Fig. 9: Float element

For the bypass meter it is important that when starting up the pump, the shut-off-/ control valve of the bypass orifice is opened min. 30 % to avoid hydraulic shocks or pressure surges that could damage the bypass meter.

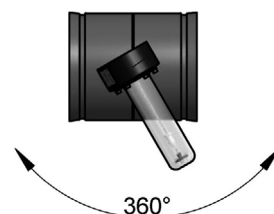


Fig. 10: Rotation of the bypass meter



ATTENTION!

Before pressure test in pipes, the bypass meter has to be disassembled and the connection of the orifice plate has to be screwed pressure-tight with the cap.

4.1 Measurement reading

For the % values read on the scale, the corresponding flow rates for each nominal size can be found on the nameplate.

The flow rates assigned to each mark on the % scale can be found in the following table (Tab. 1):

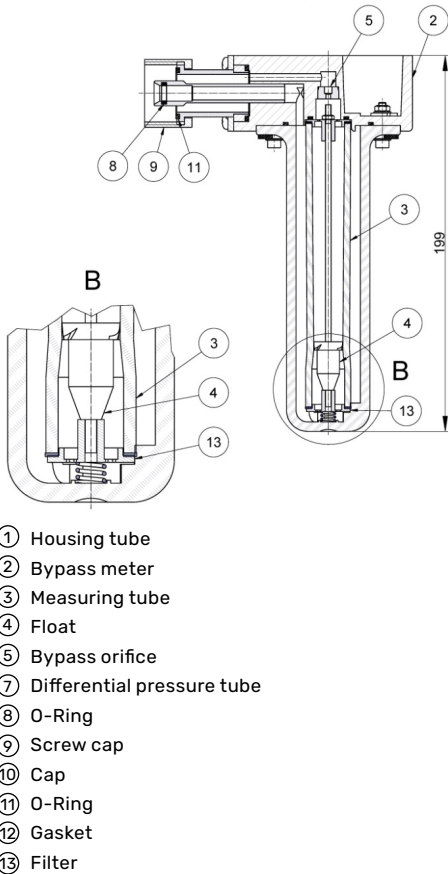


Fig. 11: Bypass meter Turbo-Lux® 3 VdS with position designation

When the bypass meter is commissioned or set into operation, bubbles of air will initially accumulate at the top part, which must be removed. For this purpose, the union nut must be somewhat loosened during operation and the device must be rotated by 360°, so that the air bubbles can escape. Then the bypass meter has to be positioned vertically and the union nut has to be tightened once again.

COMMISSIONING

Display %	DN 50		DN 80		DN 100		DN 150		DN 200	
	m³/min	l/min	m³/min	l/min	m³/min	l/min	m³/min	l/min	m³/min	l/min
100	0,80	800	2,10	2 100	3,60	3 600	7,20	7 200	14,40	14 400
98	0,78	784	2,06	2 058	3,53	3 528	7,06	7 056	14,11	14 112
96	0,77	768	2,02	2 016	3,46	3 456	6,91	6 912	13,82	13 824
94	0,75	752	1,97	1 974	3,38	3 384	6,77	6 768	13,54	13 536
92	0,74	736	1,93	1 932	3,31	3 312	6,62	6 624	13,25	13 248
90	0,72	720	1,89	1 890	3,24	3 240	6,48	6 480	12,96	12 960
88	0,70	704	1,85	1 848	3,17	3 168	6,34	6 336	12,67	12 672
86	0,69	688	1,81	1 806	3,10	3 096	6,19	6 192	12,38	12 384
84	0,67	672	1,76	1 764	3,02	3 024	6,05	6 048	12,10	12 096
82	0,66	656	1,72	1 722	2,95	2 952	5,90	5 904	11,81	11 808
80	0,64	640	1,68	1 680	2,88	2 880	5,76	5 760	11,52	11 520
78	0,62	624	1,64	1 638	2,81	2 808	5,62	5 616	11,23	11 232
76	0,61	608	1,60	1 596	2,74	2 736	5,47	5 472	10,94	10 944
74	0,59	592	1,55	1 554	2,66	2 664	5,33	5 328	10,66	10 656
72	0,58	576	1,51	1 512	2,59	2 592	5,18	5 184	10,37	10 368
70	0,56	560	1,47	1 470	2,52	2 520	5,04	5 040	10,08	10 080
68	0,54	544	1,43	1 428	2,45	2 448	4,90	4 896	9,79	9 792
66	0,53	528	1,39	1 386	2,38	2 376	4,75	4 752	9,50	9 504
64	0,51	512	1,34	1 344	2,30	2 304	4,61	4 608	9,22	9 216
62	0,50	496	1,30	1 302	2,23	2 232	4,46	4 464	8,93	8 928
60	0,48	480	1,26	1 260	2,16	2 160	4,32	4 320	8,64	8 640
58	0,46	464	1,22	1 218	2,09	2 088	4,18	4 176	8,35	8 352
56	0,45	448	1,18	1 176	2,02	2 016	4,03	4 032	8,06	8 064
54	0,43	432	1,13	1 134	1,94	1 944	3,89	3 888	7,78	7 776
52	0,42	416	1,09	1 092	1,87	1 872	3,74	3 744	7,49	7 488
50	0,40	400	1,05	1 050	1,80	1 800	3,60	3 600	7,20	7 200
48	0,38	384	1,01	1 008	1,73	1 728	3,46	3 456	6,91	6 912
46	0,37	368	0,97	966	1,66	1 656	3,31	3 312	6,62	6 624
44	0,35	352	0,92	924	1,58	1 584	3,17	3 168	6,34	6 336
42	0,34	336	0,88	882	1,51	1 512	3,02	3 024	6,05	6 048
40	0,32	320	0,84	840	1,44	1 440	2,88	2 880	5,76	5 760
35	0,28	280	0,74	735	1,26	1 260	2,52	2 520	5,04	5 040
30	0,24	240	0,63	630	1,08	1 080	2,16	2 160	4,32	4 340
25	0,20	200	0,53	525	0,90	900	1,80	1 800	3,60	3 600
20	0,16	160	0,42	420	0,72	720	1,44	1 440	2,88	2 880

Tab. 1: Flow table for the bypass meter Turbo-Lux® 3 VdS

4.2 After device usage



ATTENTION!

After completing the measurement, remove and empty the flowmeter, then store it as described in section 5.1. Before doing so, make sure the piping is depressurized and completely drained. Re-seal the open measuring orifice with the closure cap, including the gasket, to ensure it is pressure-tight.

5 SERVICE

5.1 Storage

Store the emptied device in a dry and dust-free place. Keep away from direct and permanent sun and heat. The storage temperature range is -20 ... 60 °C (-4 °F ... 140 °F). Keep away from direct external load to the device.

5.2 Maintenance

If the filter is blocked by deposits the flowmeter must be returned to the manufacturer to be cleaned and tested. Ensure that the O-ring and the M 30 x 1.5 thread of the orifice plate are lubricated with grease.



ATTENTION!

When removing the device from the pipeline, appropriate safety precautions must be taken. Fundamentally, new seals must be used in the pipeline when reinstalling.

5.3 Returning the device to the manufacturer

All flowmeters were manufactured in accordance with the highest quality standards and were thoroughly tested prior to shipment.

Should you nevertheless need to return a device to MECON GmbH please observe the following points:



ATTENTION!

According to the latest waste disposal directives, the owner/customer is responsible for the waste management of hazardous and toxic waste. For reasons of environmental protection and safeguarding the health and safety of our personnel, all devices sent to MECON GmbH to be repaired must be free of toxic and hazardous substances. This also applies to cavities of the devices. If necessary, the customer is kindly requested to neutralize or rinse the devices before returning them to MECON GmbH.

The customer has to confirm this by filling in an appropriate form and to be added to the device, which is available for download on the MECON website:

<https://www.mecon.de/files/daten/downloads/en/Confirmation-of-decontamination.pdf>

5.4 Disposal



The pertinent regulations of your country must be complied with when disposing of the devices.

MECON
SAFETY CONTROL

MECON GmbH
Röntgenstr. 105
50169 Kerpen
Deutschland

Tel.: +49 (0) 2237 600 06 - 0
E-Mail: info@mecon.de

Web: www.mecon.de