MECON
SAFETY CONTROL

TURBO-LUX® 3

Fire pump flowmeter for use in test lines of fire protection systems

FM APPROVED
LPCB
VdS
made in Germany

The Turbo-Lux® 3 is the world's first and only flowmeter for fire pumps that has been approved by the three leading testing bodies FM, LPCB, and VdS.

This innovative device offers you a uniform and international solution for your fire protection systems. It is available for all nominal sizes from 2"/DN 50 ... 12"/DN 300 and measuring ranges from 75 ... 38 000 l/min (20 ... 10 000 USgpm).

Thanks to its flexible installation position and flow direction, the Turbo-Lux® 3 is versatile.

ADVANTAGES

- Easy installation and handling
- Visualizing of water flow
- Resistant to vibrations
- High and consistent reading accuracy
- Incl. calibration certificate

The grooved connection allows the orifice flowmeter to be easily connected to the pipeline network.

Benefit from triple certification and rely on maximum safety and quality with the robust, vibration-resistant, and low-maintenance design.

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TECHNICAL DATA

System

Measuring principle	Orifice plate flowmeter with variable flowmeter as indication
Measurement range	75 ... 38 000 l/min (20 ... 10 000 USgpm)
Measuring accuracy	±2.0 % of full scale value - FM
	±5.0 % of measured value - LPCB
	±2.5 % of full scale value - VdS
Certificates	FM PR455022
	LPCB 1385a
	VdS G 415006

Input

Nominal diameter	2“/DN 50 (Ø 60.3 mm / 2.4 in)
	2½“/DN 65[1] (Ø 73.0 mm / 2.9 in)
	2½“/DN 65 (Ø 76.1 mm / 3.0 in)
	3“/DN 80 (Ø 88.9 mm / 3.5 in)
	4“/DN 100 (Ø 114.3 mm / 4.5 in)
	6“/DN 150 (Ø 165.1 mm / 6.5 in)
	6“/DN 150 (Ø 168.3 mm / 6.6 in)
	8“/DN 200[2] (Ø 219.1 mm / 8.6 in)
	10“/DN 250[1] (Ø 273.0 mm / 10.7 in)
	12“/DN 300[1] (Ø 323.9 mm / 12.8 in)

Pressure limits	34.5 bar (500 psi) 2“/DN 50 ... 8“/DN 200 - FM
	16 bar (232 psi) 10“/DN 250 ... 12“/DN 300 - FM
	16 bar (232 psi) 2“/DN 50 ... 8“/DN 200 - LPCB, VdS
Hydrostatically strength / Pressure strength	69 bar (1 000 psi) for 5 min. - FM
	40 bar (580 psi) for 5 min. - LPCB
	64 bar (928 psi) for 10 min. - VdS

Application conditions

Temperature range	4 °C ... 50 °C (39 °F ... 122 °F)
Medium	Water

Constructive design

Orifice plate 2“/DN 50 ... 4“/DN 100	Housing tube in stainless steel with turned grooved connection
Orifice plate 6“/DN 150 ... 12“/DN 300	Housing tube in coated steel with rolled grooved connection
Differential pressure tube	Brass
Float	Stainless steel
Bypass orifice	Stainless steel
Filter	Stainless steel
Gasket	NBR

[1]Only available with FM approval
[2]VdS limited measuring range up tp 10 m/s (corresponds to 20 800 l/min / 5 500 USgpm)

INSTALLATION NOTES

The Turbo-Lux® 3 is installed using grooved pipe couplings. It is essential to ensure that the couplings used do not reduce the inner diameter of the pipe in the sealing area, as this can cause flow turbulence and measurement inaccuracies.

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 x D straight calming section in front of the orifice plate and a 2 x D straight calming section behind it.

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

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 2 to 5.

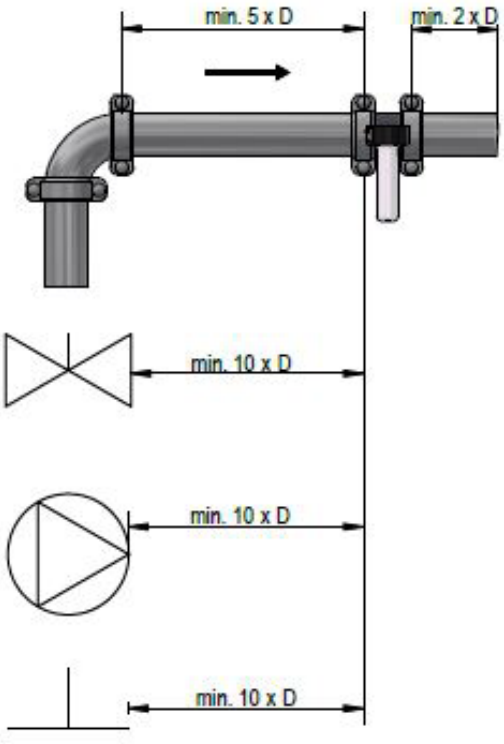


Fig. 1: Inlet path and outflow zone

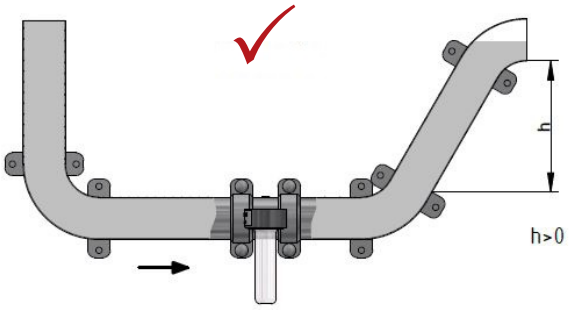


Fig. 2: Turbo-Lux® 3 correct horizontal installation

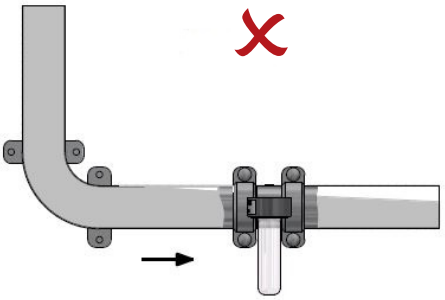


Fig. 3: Turbo-Lux® 3 wrong horizontal installation

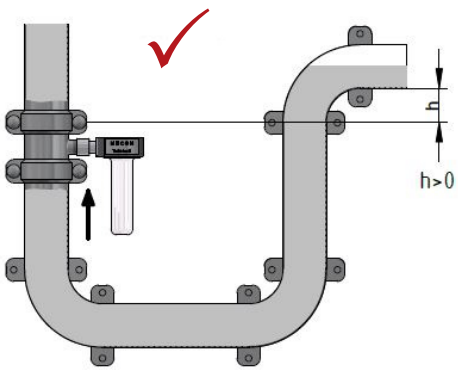


Fig. 4: Turbo-Lux® 3 correct vertical installation

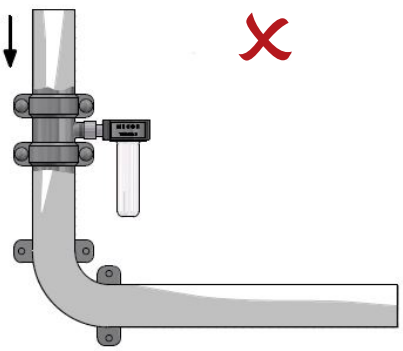
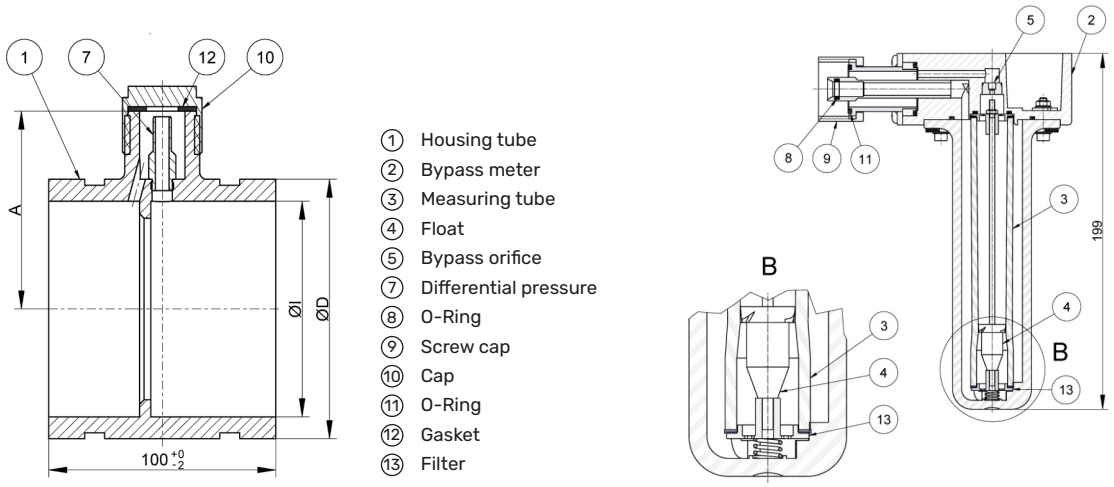


Fig. 5: Turbo-Lux® 3 wrong vertical installation

DIMENSIONS AND WEIGHTS



① Housing tube
② Bypass meter
③ Measuring tube
④ Float
⑤ Bypass orifice
⑦ Differential pressure
⑧ O-Ring
⑨ Screw cap
⑩ Cap
⑪ O-Ring
⑫ Gasket
⑬ Filter

Fig. 2: Turbo-Lux® 3 orifice plate, bypass meter and dimensions for 2"/DN 50 ... 4"/DN 100

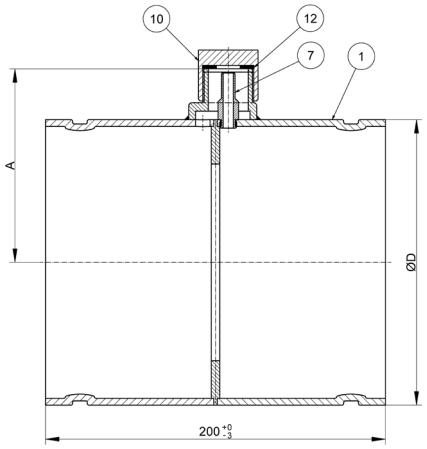


Fig. 3: Turbo-Lux® 3 orifice plate, position drawing and dimensions for 6"/DN 150 ... 12"/DN 300

Nominal diameter	A (mm / in)	ØD (mm / in)	ØI (mm / in)	Weight (kg / lbs)
2"/DN 50	60 / 2.4	60.3 / 2.4	53.0 / 2.1	0.6 / 1.3
2½"/DN 65	68 / 2.7	73.0 / 2.9	66.0 / 2.6	1.0 / 2.2
2½"/DN 65	68 / 2.7	76.1 / 3.0	66.0 / 2.6	1.0 / 2.2
3"/DN 80	75 / 3.0	88.9 / 3.5	80.0 / 3.1	1.0 / 2.2
4"/DN 100	87 / 3.4	114.3 / 4.5	100.0 / 3.9	2.0 / 4.4
6"/DN 150	113 / 4.4	165.1 / 6.5	-	4.5 / 9.9
6"/DN 150	114 / 4.5	168.3 / 6.6	-	4.5 / 9.9
8"/DN 200	140 / 5.5	219.1 / 8.6	-	5.1 / 11.2
10"/DN 250	166 / 6.5	273.0 / 10.7	-	6.6 / 14.6
12"/DN 300	192 / 7.6	323.9 / 12.8	-	9.4 / 20.7
Bypass flowmeter	-	-	-	0.6 / 1.3

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PRODUCT AND ACCESSORIES (FM-, LPCB-, VdS approval)

Nominal diameter	Measuring range	Order code	Bypass meter	Orifice plate			Set measuring accuracy certificate
				Stainless steel	Anthracite	Red	
2"/DN 50 50 USgpm (Ø 60.3 mm / 2.4 in)	20 ... 100 USgpm (75 ... 375 l/min)	TL3A0-EB	X	X			
		TL3A0-EBC	X	X			X
		TL3B0-EB	X				
		TL3P0-EB		X			
2½"/DN 65[1] 100 USgpm (Ø 73.0 mm / 2.9 in)	40 ... 200 USgpm (150 ... 750 l/min)	TL3A0-UC[1]	X	X			
		TL3A0-UCC[1]	X	X			X
		TL3B0-UC[1]	X				
		TL3P0-UC[1]		X			
2½"/DN 65 100 USgpm (Ø 76.1 mm / 3.0 in)	40 ... 200 USgpm (150 ... 750 l/min)	TL3A0-FC	X	X			
		TL3A0-FCC	X	X			X
		TL3B0-FC	X				
		TL3P0-FC		X			
3"/DN 80 150 USgpm (Ø 88.9 mm / 3.5 in)	60 ... 300 USgpm (220 ... 1 100 l/min)	TL3A0-GD	X	X			
		TL3A0-GDC	X	X			X
		TL3B0-GD	X				
		TL3P0-GD		X			
3"/DN 80 200 USgpm (Ø 88.9 mm / 3.5 in)	80 ... 400 USgpm (300 ... 1 500 l/min)	TL3A0-GE	X	X			
		TL3A0-GEC	X	X			X
		TL3B0-GE	X				
		TL3P0-GE		X			
4"/DN 100 250 USgpm (Ø 114.3 mm / 4.5 in)	100 ... 500 USgpm (380 ... 1 900 l/min)	TL3A0-HF	X	X			
		TL3A0-HFC	X	X			X
		TL3B0-HF	X				
		TL3P0-HF		X			
4"/DN 100 300 USgpm (Ø 114.3 mm / 4.5 in)	120 ... 600 USgpm (460 ... 2 300 l/min)	TL3A0-HG	X	X			
		TL3A0-HGC	X	X			X
		TL3B0-HG	X				
		TL3P0-HG		X			

[1]Only available with FM approval

Nominal diameter	Measuring range	Order code	Bypass meter	Orifice plate			Set measuring accuracy certificate
				Stainless steel	Anthracite	Red	
4“/DN 100 400 USgpm (Ø 114.3 mm / 4.5 in)	160 ... 800 USgpm (600 ... 3 000 l/min)	TL3A0-HH	X	X			
		TL3A0-HHC	X	X			X
		TL3B0-HH	X				
		TL3P0-HH		X			
4“/DN 100 450 USgpm (Ø 114.3 mm / 4.5 in)	180 ... 900 USgpm (680 ... 3 400 l/min)	TL3A0-HJ	X	X			
		TL3A0-HJC	X	X			X
		TL3B0-HJ	X				
		TL3P0-HJ		X			
6“/DN 150 500 USgpm (Ø 168.3 mm / 6.6 in)	200 ... 1 000 USgpm (760 ... 3 800 l/min)	TL3A0-KK	X		X		
		TL3A0-KKC	X		X		X
		TL3A0-KKR	X			X	
		TL3B0-KK	X				
		TL3P0-KK			X		
		TL3P0-KKR				X	
		TL3P0-KKS		X			
6“/DN 150 750 USgpm (Ø 168.3 mm / 6.6 in)	300 ... 1 500 USgpm (1 130 ... 5 650 l/min)	TL3A0-KL	X		X		
		TL3A0-KLC	X		X		X
		TL3A0-KLR	X			X	
		TL3B0-KL	X				
		TL3P0-KL			X		
		TL3P0-KLR				X	
		TL3P0-KLS		X			
6“/DN 150 1 000 USgpm (Ø 168.3 mm / 6.6 in)	400 ... 2 000 USgpm (1 500 ... 7 500 l/min)	TL3A0-KM	X		X		
		TL3A0-KMC	X		X		X
		TL3A0-KMR	X			X	
		TL3B0-KM	X				
		TL3P0-KM			X		
		TL3P0-KMR				X	
		TL3P0-KMS		X			

Nominal diameter	Measuring range	Order code	Bypass meter	Orifice plate			Set measuring accuracy certificate
				Stainless steel	Anthracite	Red	
6“/DN 150 1 250 USgpm (Ø 168.3 mm / 6.6 in)	500 ... 2 500 USgpm (1 900 ... 9 500 l/min)	TL3A0-KN	X		X		
		TL3A0-KNC	X		X		X
		TL3A0-KNR	X			X	
		TL3B0-KN	X				
		TL3P0-KN			X		
		TL3P0-KNR				X	
		TL3P0-KNS		X			
6“/DN 150 500 USgpm (Ø 165.1 mm / 6.5 in)	200 ... 1 000 USgpm (760 ... 3 800 l/min)	TL3A0-XK	X	X			
		TL3A0-XKC	X		X		X
		TL3A0-XKR	X			X	
		TL3B0-XK	X				
		TL3P0-XK			X		
		TL3P0-XKR				X	
		TL3P0-XKS		X			
6“/DN 150 750 USgpm (Ø 165.1 mm / 6.5 in)	300 ... 1 500 USgpm (1 130 ... 5 650 l/min)	TL3A0-XL	X		X		
		TL3A0-XLC	X		X		X
		TL3A0-XLR	X			X	
		TL3B0-XL	X				
		TL3P0-XL			X		
		TL3P0-XLR				X	
		TL3P0-XLS		X			
6“/DN 150 1 000 USgpm (Ø 165.1 mm / 6.5 in)	400 ... 2 000 USgpm (1 500 ... 7 500 l/min)	TL3A0-XM	X		X		
		TL3A0-XMC	X		X		X
		TL3A0-XMR	X			X	
		TL3B0-XM	X				
		TL3P0-XM			X		
		TL3P0-XMR				X	
		TL3P0-XMS		X			
6“/DN 150 1 250 USgpm (Ø 165.1 mm / 6.5 in)	500 ... 2 500 USgpm (1 900 ... 9 500 l/min)	TL3A0-XN	X		X		
		TL3A0-XNC	X		X		X
		TL3A0-XNR	X			X	
		TL3B0-XN	X				
		TL3P0-XN			X		
		TL3P0-XNR				X	
		TL3P0-XNS		X			

Nominal diameter	Measuring range	Order code	Bypass meter	Orifice plate			Set measuring accuracy certificate
				Stainless steel	Anthracite	Red	
8“/DN 200 1 500 USgpm (Ø 219.1 mm / 8.6 in)	600 ... 3 000 USgpm (2 200 ... 11 000 l/min)	TL3A0-LP	X		X		
		TL3A0-LPC	X		X		X
		TL3A0-LPR	X			X	
		TL3B0-LP	X				
		TL3P0-LP			X		
		TL3P0-LPR				X	
		TL3P0-LPS		X			
8“/DN 200 2 000 USgpm (Ø 219.1 mm / 8.6 in)	800 ... 4 000 USgpm (3 000 ... 15 000 l/min)	TL3A0-LQ	X		X		
		TL3A0-LQC	X		X		X
		TL3A0-LQR	X			X	
		TL3B0-LQ	X				
		TL3P0-LQ			X		
		TL3P0-LQR				X	
		TL3P0-LQS		X			
8“/DN 200 2 500 USgpm (Ø 219.1 mm / 8.6 in)	1 000 ... 5 000 USgpm (3 800 ... 19 000 l/min)	TL3A0-LR	X		X		
		TL3A0-LRC	X		X		X
		TL3A0-LRR	X			X	
		TL3B0-LR	X				
		TL3P0-LR			X		
		TL3P0-LRR				X	
		TL3P0-LRS		X			
8“/DN 200[2] 3 000 USgpm (Ø 219.1 mm / 8.6 in)	1 200 ... 6 000 USgpm (4 500 ... 22 500 l/min)	TL3A0-LS[2]	X		X		
		TL3A0-LSC[2]	X		X		X
		TL3A0-LSR[2]	X			X	
		TL3B0-LS[2]	X				
		TL3P0-LS[2]			X		
		TL3P0-LSR[2]				X	
		TL3P0-LSS[2]		X			
10“/DN 250[1] 3 500 USgpm (Ø 273.0 mm / 10.7 in)	1 400 ... 7 000 USgpm (5 300 ... 26 500 l/min)	TL3A0-MT[1]	X		X		
		TL3A0-MTC[1]	X		X		X
		TL3A0-MTR[1]	X			X	
		TL3B0-MT[1]	X				
		TL3P0-MT[1]			X		
		TL3P0-MTR[1]				X	
		TL3P0-MTS[1]		X			

[1]Only available with FM approval
[2]VdS limited measuring range up tp 10 m/s (corresponds to 20 800 l/min / 5 500 USgpm)

Nominal diameter	Measuring range	Order code	Bypass meter	Orifice plate			Set measuring accuracy certificate
				Stainless steel	Anthracite	Red	
10“/DN 250[1] 4 000 USgpm (Ø 273.0 mm / 10.7 in)	1 600 ... 8 000 USgpm (6 000 ... 30 000 l/min)	TL3A0-MU[1]	X		X		
		TL3A0-MUR[1]	X			X	
		TL3B0-MU[1]	X				
		TL3P0-MU[1]			X		
		TL3P0-MUR[1]				X	
		TL3P0-MUS[1]		X			
10“/DN 250[1] 4 500 USgpm (Ø 273.0 mm / 10.7 in)	1 800 ... 9 000 USgpm (6 800 ... 34 000 l/min)	TL3A0-MV[1]	X		X		
		TL3A0-MVR[1]	X			X	
		TL3B0-MV[1]	X				
		TL3P0-MV[1]			X		
		TL3P0-MVR[1]				X	
		TL3P0-MVS[1]		X			
12“/DN 300[1] 5 000 USgpm (Ø 323.9 mm / 12.8 in)	2 000 ... 10 000 USgpm (7 600 ... 38 000 l/min)	TL3A0-NW[1]	X		X		
		TL3A0-NWR[1]	X			X	
		TL3B0-NW[1]	X				
		TL3P0-NW[1]			X		
		TL3P0-NWR[1]				X	
		TL3P0-NWS[1]		X			

[1]Only available with FM approval

REPLACEMENT PARTS

Product	Order code
Replacement cap	ZB-TL3P0-001
Replacement cap stainless steel	ZB-TL3P0-002