N-L2237
Updated 31.03.2016

APPLICATION MANUAL

Universal instrument housing types

XD-I, XD-Iwin, XD-ILwin, XD-IH, XD-IHwin
XD-IC, XD-ICwin, XD-ICLwin, XD-ICH, XD-ICHwin

Contents:

NOTES OF SAFETY

The XD-I... series are designed to accommodate various electronic instruments. If used incorrectly it is possible that application-related dangers may arise.
The XD-I... universal instrument housing may be used by qualified and authorized company and people only, under strict observance of these application manual and relevant standards, legal requirements, and, where appropriate the certificate.

Only the empty XD-I... instrument housing is certified. When used as part of an end product assembly, subsequent approval of the end use equipment assembly is required.

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1. DESTINATION .

- Marking:

2014/34/UE	IECEx
II 2G Ex db IIC Gb II 2D Ex tb IIIC Db	Ex db IIC Gb Ex tb IIIC Db

- Standards:
  ATEX 2014/34/UE
  EN 60079-0, EN 60079-1, EN 60079-31,
  IEC 60079-0, IEC 60079-1, IEC 60079-31

- Service temperature:

Housing type	T_{serv}		
	O-ring TPE rubber	O-ring VMQ rubber	O-ring FKM rubber
XD-I, XD-IH XD-IC, XD-ICH	-40 to + 100 °C	-40 to + 100 °C	-20 to + 200 °C
XD-Iwin XD-ILwin XD-IHwin XD-ICwin, XD-ICLwin XD-ICHwin	-40 to + 85 °C	-40 to + 85 °C	-20 to + 85 °C

- Possible zone application

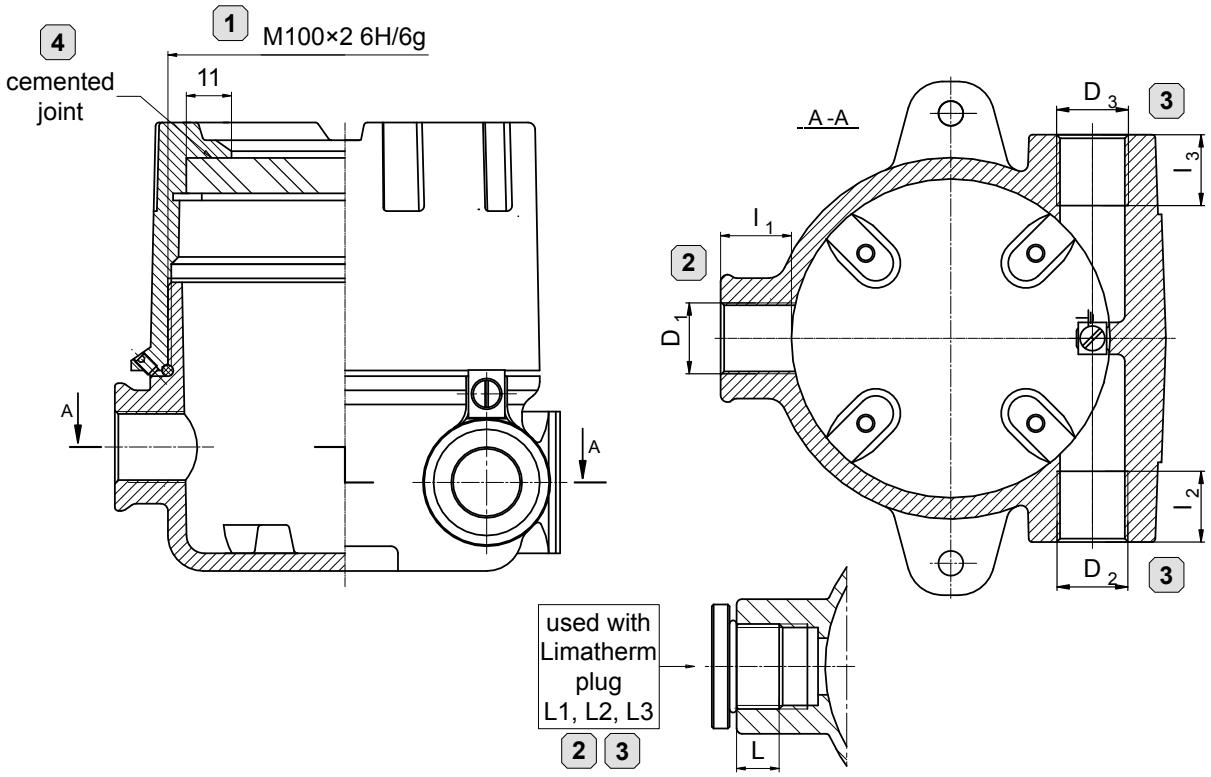
Zone	Protection Code
Zone 1 Zone 21	Ex d
Zone 2 Zone 22	Ex d

! The enclosure with Ex component certificate shall be applicated only by assumption of filling requests of the standard EN 60079-1 cl.D.3.10 !

! Apparatus installed inside of enclosure can has any lay-out, which ensures, that in any cross-section area will be least 40% (group IIC) of area free !

2. FLAMEPROOF JOINTS.

Flameproof joints are designed for volume 500 < V ≤ 2000 cm^3 group II C enclosures.



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Lp.	Connection type		Requirements of 60079-1	Achieved values			
1	M100×2 6H/6g		threads engaged ≥ 5	9			
			depth of engagement ≥ 8 mm	18,5mm			
2	D_1 proces opening	M20×1.5 6H M24×1.5 6H M25×1.5 6H	fit of thread	l_1	6g of male thread should be ensured by customer	L_1	6H/6g
			threads engaged ≥ 5		should be ensured by customer, possible to reach: 12,5		6,5
			depth of engagement ≥ 8 mm		should be ensured by customer, possible to reach: 19mm		10mm
		M27×2 6H	fit of thread	l_1	6g of male thread should be ensured by customer	L_1	6H/6g
			threads engaged ≥ 5		should be ensured by customer, possible to reach: 9		5
			depth of engagement ≥ 8 mm		should be ensured by customer, possible to reach: 19mm		10mm
		½NPTmod ¾NPTmod	threads provided on each part ≥ 5	l_1	10 male part should be ensured by customer	L_1	-
			threads engaged		should be ensured by customer, possible to reach: 5,0 ÷ 5,5		5
3	D_2, D_3 conduit openings	M20×1.5 6H M24×1.5 6H M25×1.5 6H	fit of thread	l_2, l_3	6g of male thread should be ensured by customer	L_2, L_3	6H/6g
			threads engaged ≥ 5		should be ensured by customer, possible to reach: 12,5		6,5
			depth of engagement ≥ 8 mm		should be ensured by customer, possible to reach: 19mm		10mm
		½NPTmod ¾NPTmod	threads provided on each part ≥ 5	l_2, l_3	10 male part should be ensured by customer	L_2, L_3	-
			threads engaged		should be ensured by customer, possible to reach: 5,0 ÷ 5,5		5
4	Cemented joint		min. length of joint 10mm	11mm			
NPT threads are modified to reach 5÷5,5 engaged threads and can create flameproof joint with threaded male part with standard cutting tolerance.							

Process opening can be used for mounting sensor (e.g. level, flow sensor) or thermowell.

Conduit openings can be used to equip it with appropriate **certificated Ex d flameproof cable glands**, fill sealing fittings, flexible couplings or thermowells.

Each D_1, D_2 and D_3 opening can be **plugged**.

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3. PRESSURE TEST.

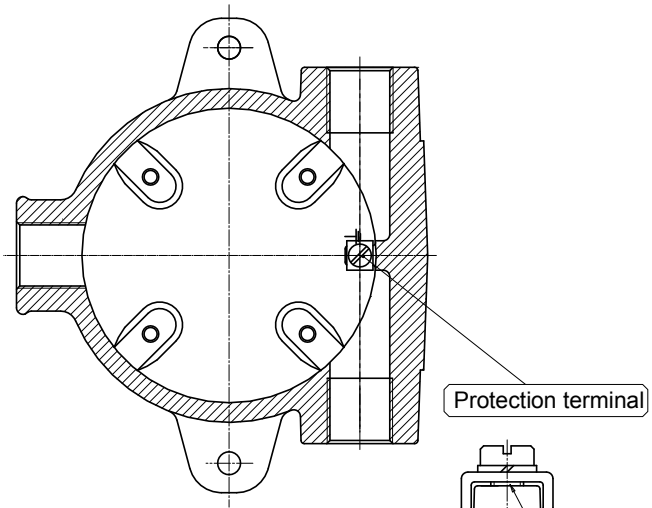
Enclosure passed maximum water pressure test 50 bar. No routine test is required when reference pressure of final assembly (enclosure with additional volume come from thermowells, conduit, pipe, etc.) is not higher than 12,5 bars.

4. TEMPERATURE CLASSES, AMBIENT TEMPERATURE, MAX POWER DISSIPATION.

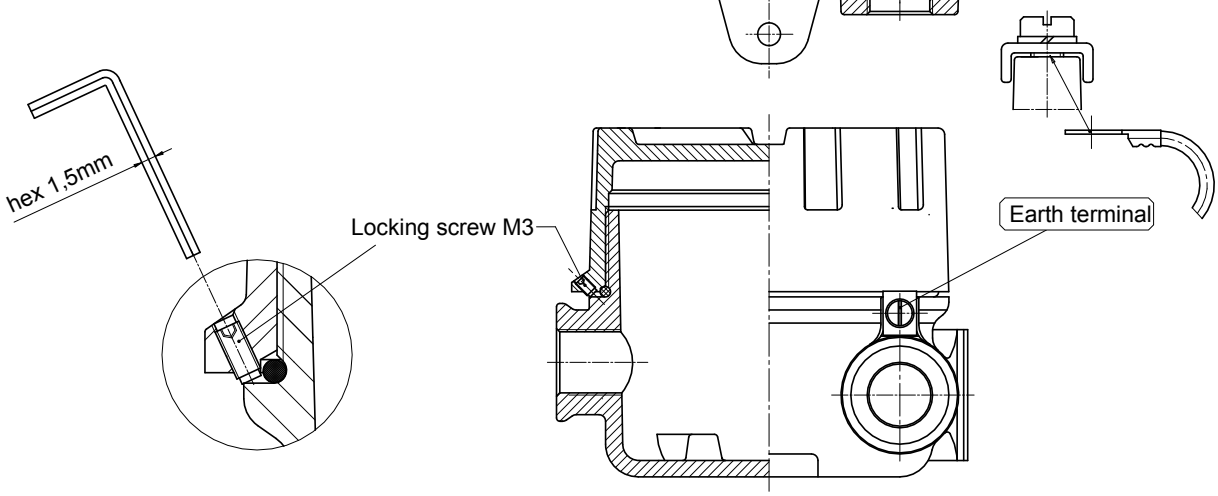
Maximum power dissipation [W]				
T_{amb}	Temp. class T6, or surface temp. 85º C	For all variety of enclosures Position horizontally/vertically	Temp. class T5, or surface temp. 100ºC	For all variety of enclosures Position horizontally/vertically
40ºC	Δ 0 ≤ 40 K	26 / 20	Δ 0 ≤ 55 K	38 / 33
55ºC	Δ 0 ≤ 25 K	15 / 11	Δ 0 ≤ 40 K	26 / 20
70ºC	Δ 0 ≤ 10 K	5 / 4	Δ 0 ≤ 25 K	15 / 11
85ºC	N/A	———	Δ 0 ≤ 10 K	5 / 4

5. EARTH AND PROTECTION TERMINALS.

Place	Type	Cable cross section [mm^2]	
		Stranded wire	Solid wire
Inside	Protection terminal	1.5	2.5
Outside	Earth terminal	4.0	6.0



6. COVER LOCKING.



Lock the cover by screw with hex socked using hex spanner with across flat 1,5mm.

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7. PROTECTION DEGREE IP.

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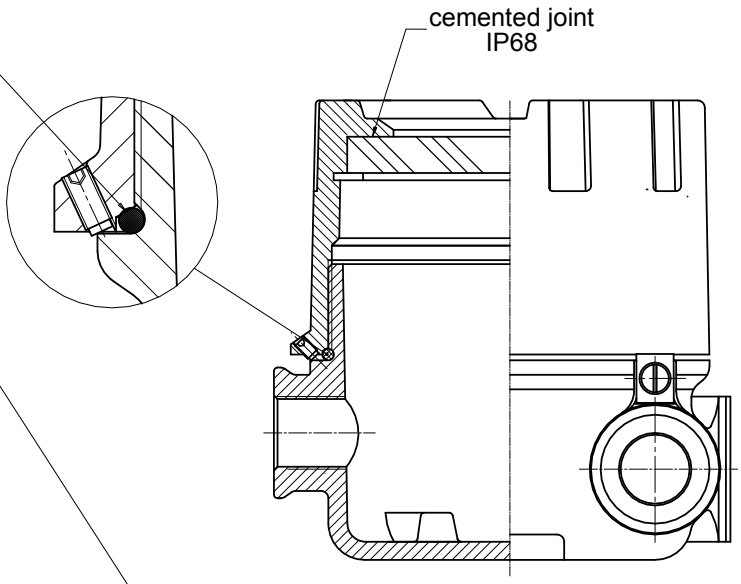
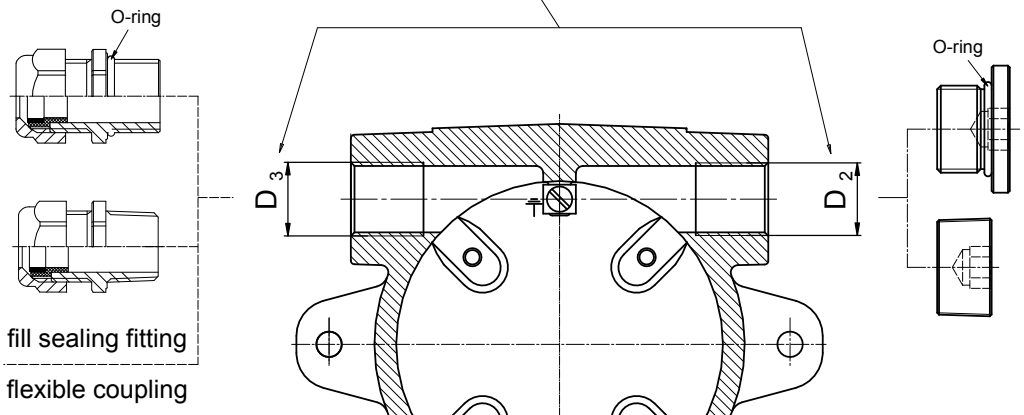
There are three connections of assembled device deciding about IP degree:
1 – cover,
2 – process opening,
3 – conduit openings.

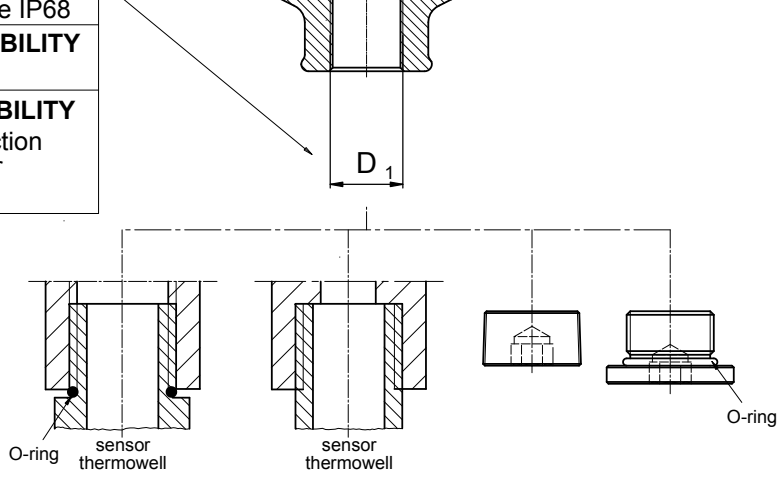
1
max. possible to achieve IP68
LIMATHERM RESPONSIBILITY • design • execution quality
CUSTOMER RESPONSIBILITY • rate of screw tightness



3
max. possible to achieve IP68
LIMATHERM RESPONSIBILITY • sealing surface quality • thread execution quality
CUSTOMER RESPONSIBILITY • choise of cable gland type regarding to cable diameter and IP degree • cable gland mounting and sealing • rate of press cap tightness



2
max. possible to achieve IP68
LIMATHERM RESPONSIBILITY • thread execution quality
CUSTOMER RESPONSIBILITY • choise of type of connection between housing-sensor • housing-sensor sealing



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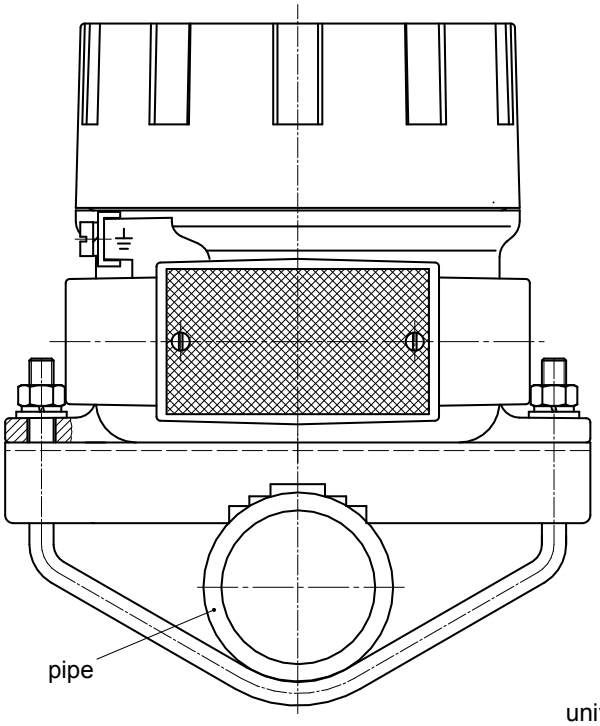
Threaded connection sealing	Possible IP
Without sealing - standard accuracy class thread	54
Use of a sealant, e.g. Loctite 577	68
Thread tightened with O-ring	68

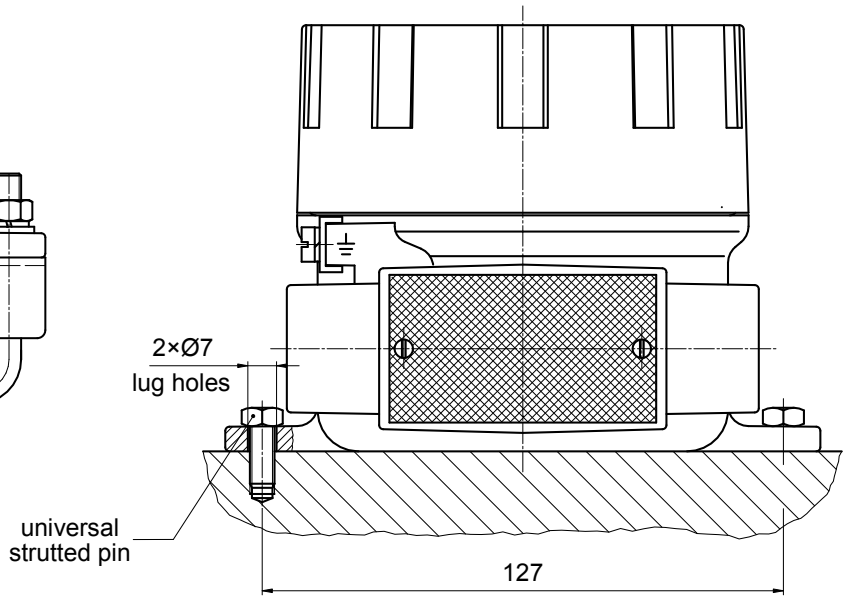
If IP for each connection			IP of assembled device
1	2	3	
68	54		IP 54
	66		IP 66
	67		IP 67
	68		IP 68

! ATTENTION !
Protection IP68 refers to depth 1,0m of submersion under water.
It is required min IP65 protection for instruments designed for dust zones. (Besides zone 22, non-conductive dust, where min IP54 protection is required)

8. WAY OF MOUNTING

NOTES
It is important to be careful when screw on or undo a cover. Thread surface should be free of any grains, pellets and other impurity, which cause seizing, and thread could be damaged. **! Never screw on the cover forcefully !**
In case of necessaries of opening of the connection head's cover after operation in maximum temperature it can be blocked (does not give to open with the hand). In such case keep cover tensioned with the hand to opening and hit delicate with rubber hammer into cover.





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9. MARKING

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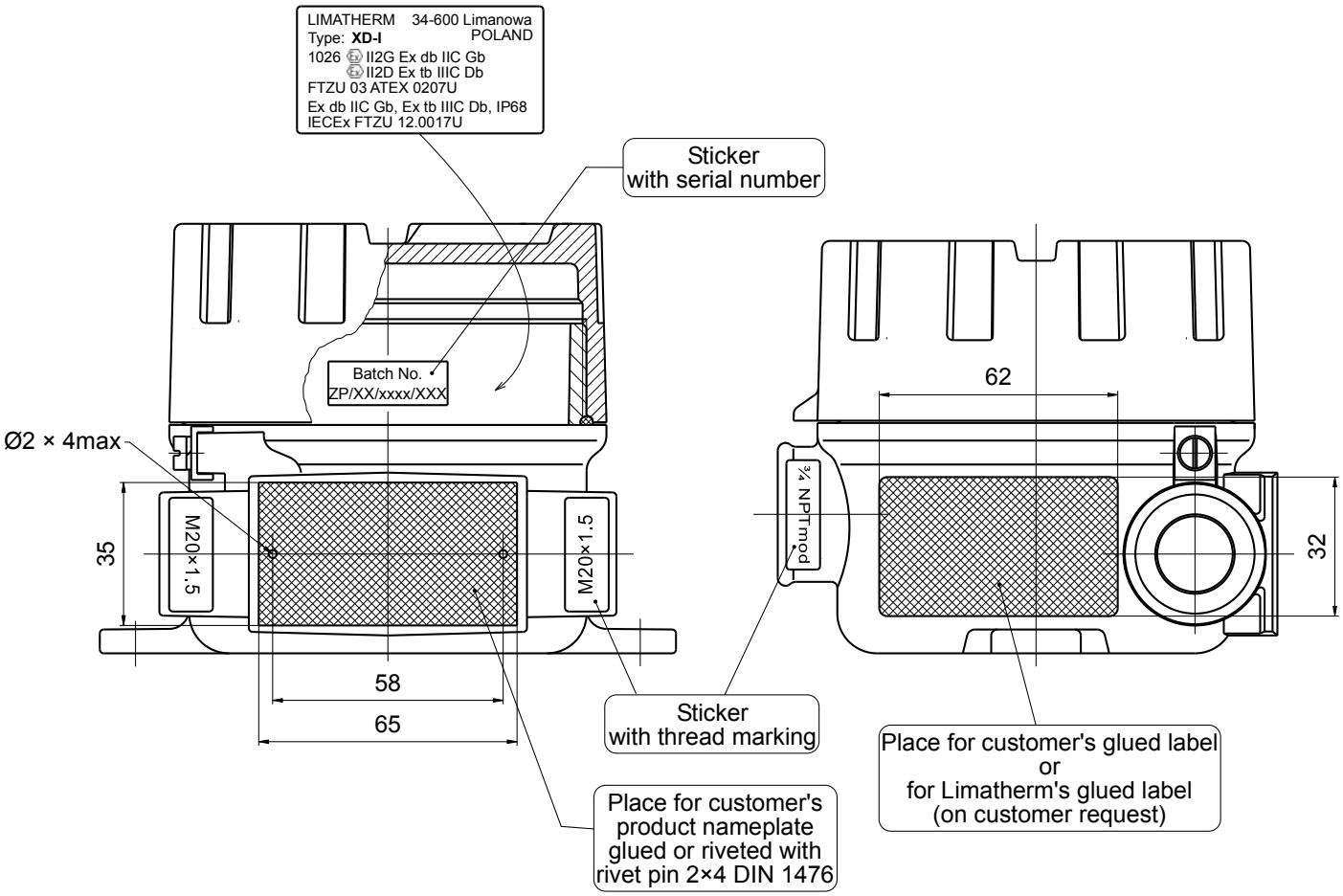
Limatherm label with marking is put inside the housing.
The label can be glued on the outside or inside surface, it's up to customer.
Producer of assembled instrument should apply additional own label with the marking of complete sensor or transfer valuable information from Limatherm's label to instrument nameplate.



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