



N-L3625

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APPLICATION MANUAL

Flameproof Ex d Universal Instrument Housing Type: **XD-SI, XD-SIwin, XD-SILwin,**

Contents:

1. Destination.
2. Flameproof joints.
3. Carried out tests.
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NOTES OF SAFETY

The XD-SI, XD-SIwin, XD-SILwin series are designed to accommodate different electronic instruments or devices. If used incorrectly it is possible that application-related dangers may arise.




The XD-SI, XD-SIwin, XD-SILwin 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-SI... instrument housing is certified. When used as part of an end product assembly, subsequent approval of the end use equipment assembly is required.

1. DESTINATION

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- Marking

2014/34/UE	IECEX
 I M2 Ex db I Mb	Ex db I Mb
 II 2G Ex db IIC Gb	Ex db IIC Gb
 II 2D Ex tb IIIC Db	Ex tb IIIC Db

- Service temperature

Housing type	T _{serv}	T _{serv}
	o-ring VMQ rubber	o-ring FKM rubber
XD-SI	-50 to +150°C	-20 to +200°C
XD-SIwin XD-SILwin	-50 to +85°C	-20 to +85°C

- Standards:

ATEX 2014/34/UE

EN 60079-0, EN 60079-1, EN 60079-31,

IEC 60079-0, IEC 60079-1, IEC 60079-31

- Possible zone application

Zone	Protection Code
Zone 0, Zone 20	Ex d + Ex ia, Exd + mechanical separation
Zone 1, Zone 21	Ex d
Zone 2, Zone 22	Ex d

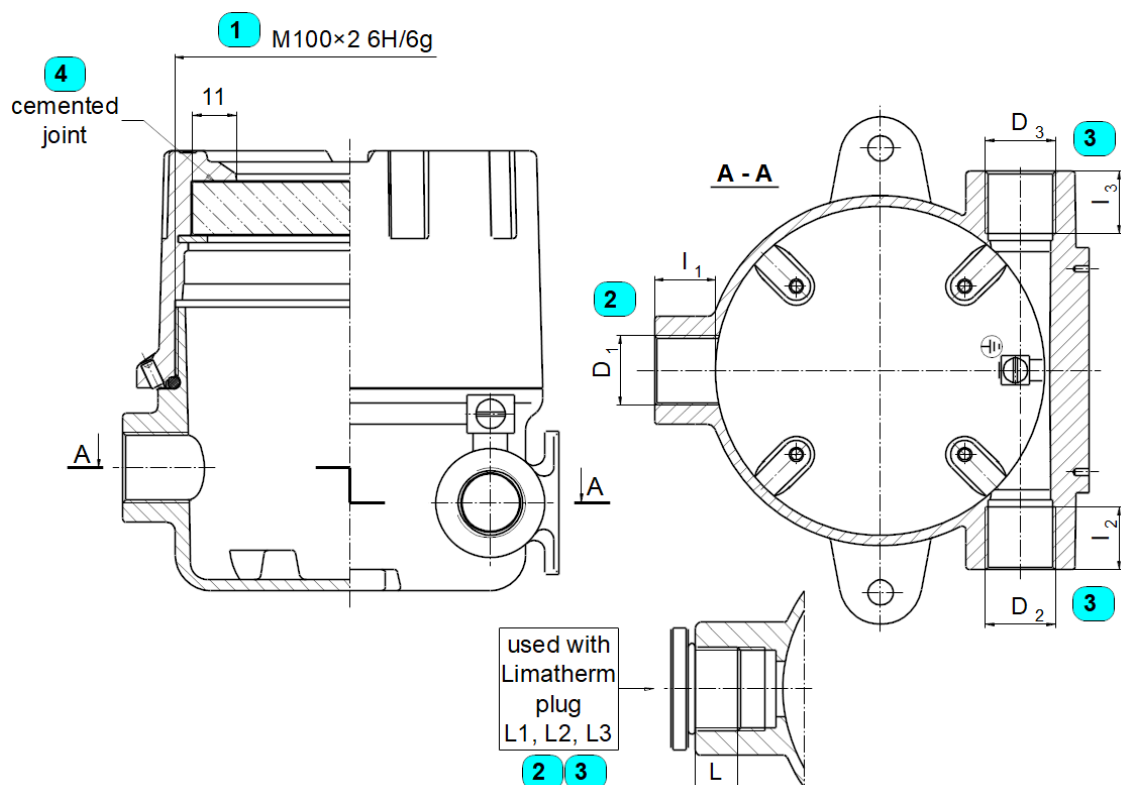
! The empty enclosure can be used for electrical equipment designed for ambient temperatures not exceed range -50°C to +85°C !

! An apparatus installed inside of the empty enclosure can has any lay-out, which ensures, that in any cross-section area will be at least 40% of area free for group IIC and 20% for group I Mb !

! A circuit breakers or contactors containing oil filling are not allowed to be installed inside of the empty enclosure !

2. FLAMEPROOF JOINTS

Flameproof joints are designed for volume $500 < V \leq 2000 \text{ cm}^3$ 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: 11		6,5		
			depth of engagement ≥ 8 mm		should be ensured by customer, possible to reach: 17mm		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: 8,5		5		
			depth of engagement ≥ 8 mm		should be ensured by customer, possible to reach: 17mm		10mm		
		½NPTmod ¾NPTmod	threads provided on each part ≥ 5	l ₁	9 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: 11		6,5
depth of engagement ≥ 8 mm	should be ensured by customer, possible to reach: 17mm				10mm				
½NPTmod ¾NPTmod	threads provided on each part ≥ 5			l ₂ , l ₃	9 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 D₁, D₂ and D₃ opening can be **plugged**.

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3. CARRIED OUT TESTS

a) IMPACT TEST

Enclosure was tested for lower mechanical strength for mines area (I M2 Ex db I Mb) **4J**.

b) OVERPRESSURE TEST

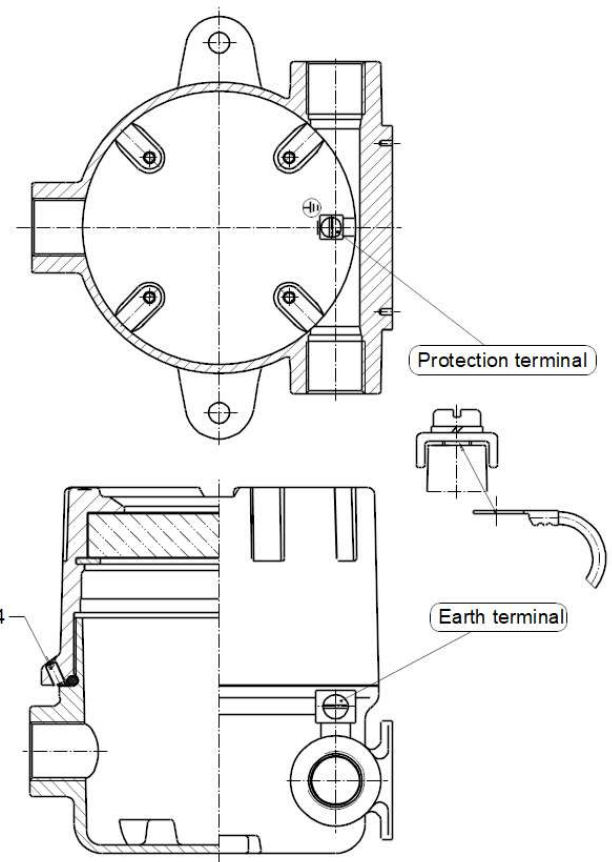
Enclosure was verified by overpressure static test **41 bar** / 10s (reference pressure 10,07 bar) for types **XD-SI** and **XD-SIwin** and **34 bar** (reference pressure: 8,32 bar) for type **XD-SILwin**.

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

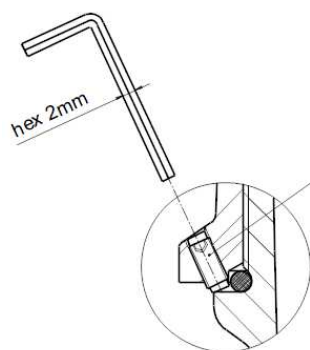
Maximum power dissipation [W]				
T_{amb}	Temp. class T6, or surface temp. 85°C	For all variety of enclosures Position horizontally/vertically	Temp. class T5, or surface temp. 100°C	For all variety of enclosures Position horizontally/vertically
40°C	$\Delta 0 \leq 40 \text{ K}$	20,0 / 15,0	$\Delta 0 \leq 55 \text{ K}$	29,0 / 24,0
55°C	$\Delta 0 \leq 25 \text{ K}$	11,0 / 8,5	$\Delta 0 \leq 40 \text{ K}$	20,0 / 15,0
70°C	$\Delta 0 \leq 10 \text{ K}$	3,6 / 3,1	$\Delta 0 \leq 25 \text{ K}$	11,0 / 8,5
85°C	N/A		$\Delta 0 \leq 10 \text{ K}$	3,6 / 3,1

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



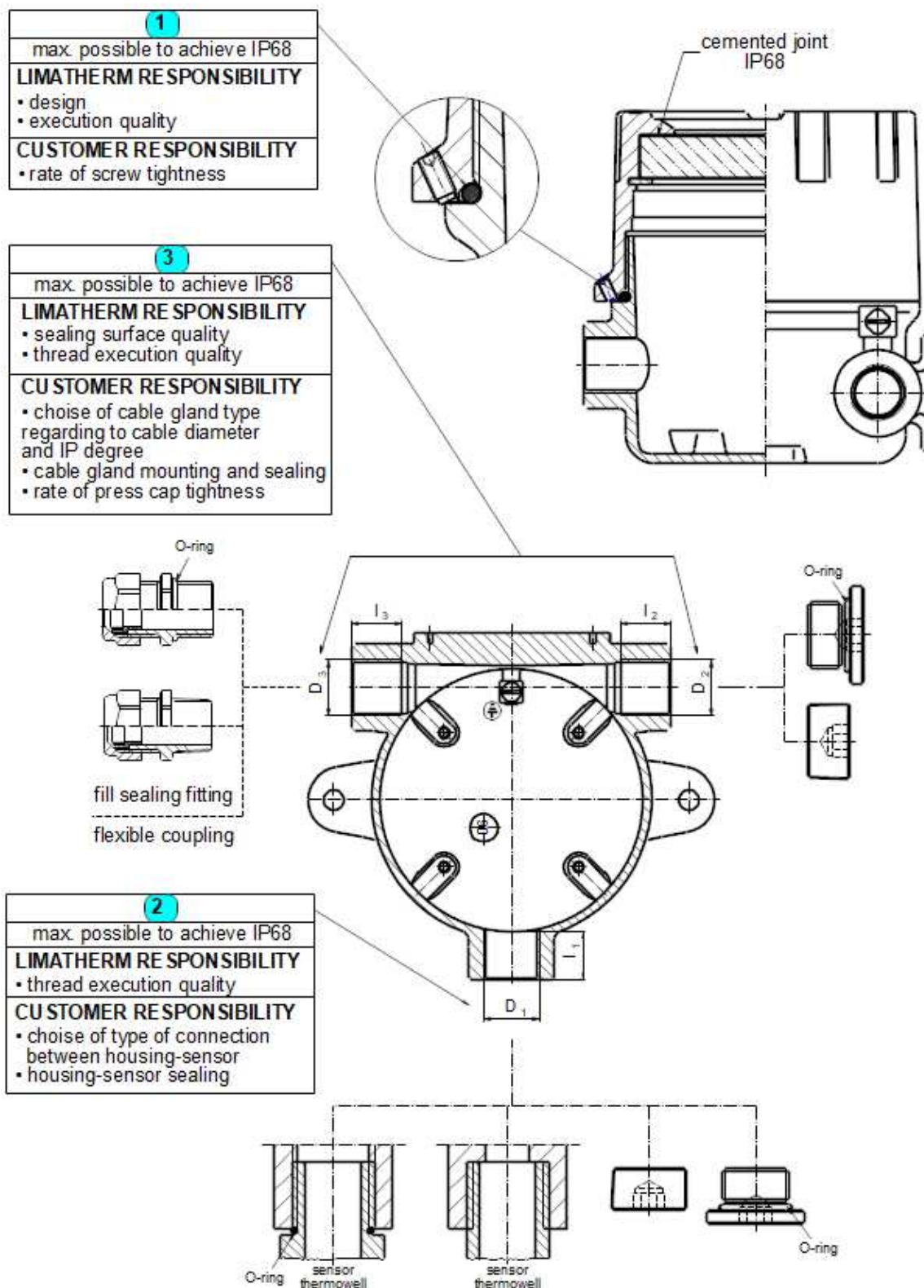
Cover is locked by screw with hex socket using hex spanner with across flat 2 [mm].

7. PROTECTION DEGREE

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There are three connections of assembled device deciding about IP degree:

- 1 – cover,
- 2 – process opening,
- 3 – conduit openings.



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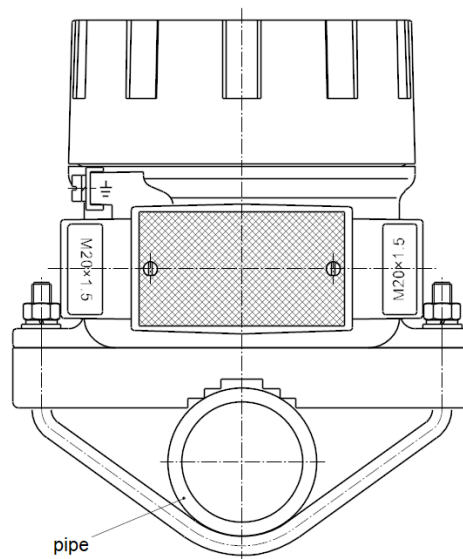
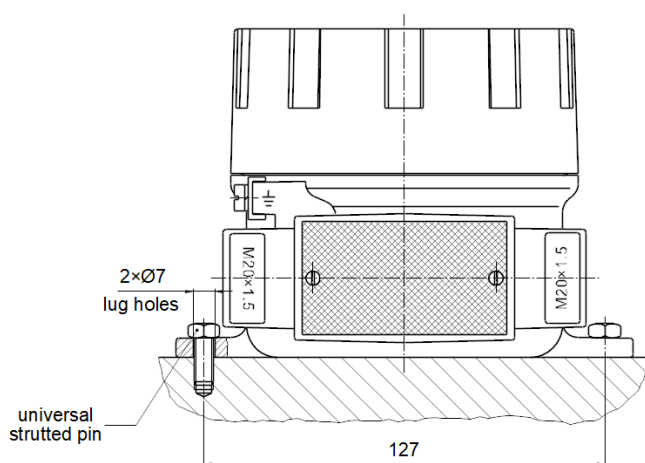
Threaded connection sealing	Possible IP
Without sealing - standard accuracy class thread	54
Use of a sealant, e.g. Loctite 577	68
Thread tightened with O-ring	68

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

! ATTENTION !

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 FIXING**9. MARKING**

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.

