



APPLICATION MANUAL

Explosionproof universal instrument housing types:

XD-I, XD-Iwin, XD-ILwin XD-IC, XD-ICwin, XD-ICLwin

Contents:

1. Destination.
2. Flameproof joints.
3. Earth and protection terminals.
4. Cover locking.
5. Protection against water and dust ingress.
6. Way of mounting.
7. Marking.

NOTES OF SAFETY

The XD-I series housings are designed to accommodate various electronic instruments or devices working in hazardous areas. If used incorrectly it is possible that application-related dangers may arise.

The XD-I series housings 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 housing is certified. When used as part of an end product assembly, subsequent Approval by FM Approvals or CSA of the end use equipment assembly is required.

1. DESTINATION.

- Rottating machines or other devices which create turbulence shall not be incorporated.
- Oil-filled circuit-breakers and contactors shall not be used.
- Do not install switching devices with arcing contacts intendet to interrupt a circuit with an available short circuit current of greater than 10.000 r.m.s. symmetrical amperes.

CERTIFICATIONS	STANDARDS	HAZARDOUS AREAS
FM	FM 3600, FM 3615, FM 3810 ANSI/NEMA 250	Class I, Groups A, B, C, D Class II, Groups E, F, G Class III NEMA 4x
	ANSI/ISA 60079-0, ANSI/ISA 60079-1, ANSI/ISA 60079-31 ANSI/IEC 60529	Class I, Zone 1, AEx db IIC IP66
CSA	CSA C22.2 No.0.4, No.0.5, No.25, No.30, No.94	Class I, Groups A, B, C, D Class II, Groups E, F, G Class III Type 4x
	CSA C22.2 No.60079-0, No.60079-1, No.60079-31, CAN/CSA 60529	Ex db IIC IP66

Possible application

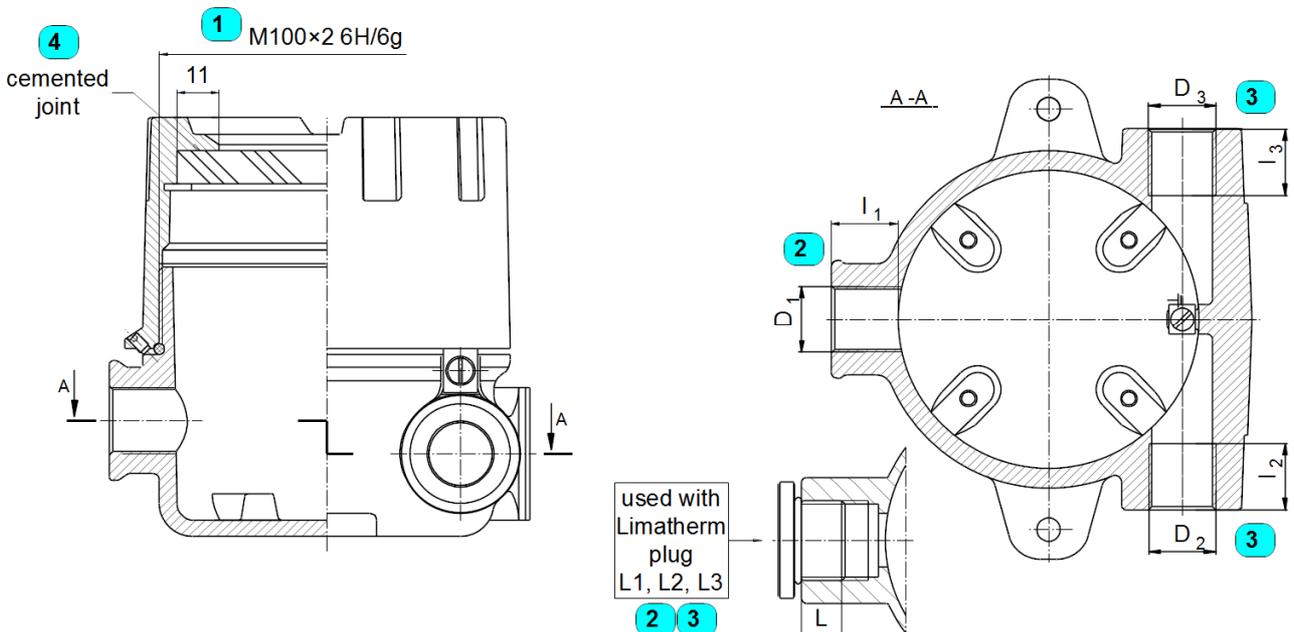
Division	Protection Code	Zone	Protection Code
Division 1 Division 2	Explosionproof	Zone 1 Zone 21	Ex d
		Zone 2 Zone 22	Ex d

Ambient temperature

Housing type	T _{amb} VMQ rubber
XD-I, XD-IC	-40 to +212 °F -40 to +100 °C
XD-Iwin, XD-ILwin, XD-ICwin, XD-ICLwin,	-40 to +185 °F -40 to +85 °C

! The content of the housing may be placed in any arrangement provided that an area of at least 40% (group IIC) or 20% (group I) of each cross-sectional area remains free to permit unimpended gas flow and, therefore, unrestricted development of an explosion. Separate relief areas may be aggregated, provided that each areas has a minimum dimension in any direction of 12,5mm **!**

2. FLAMEPROOF JOINTS.



N-L2431

Flameproof joints are designed for gas group A (Div), volume $500 < V \leq 2000 \text{ cm}^3$ group II C (Zone) enclosures.

Lp.	Connection type		Requirements of FM 3615 CSA C22.2 No. 30 60079-1	Achieved values					
1	M100x2 6H/6g		threads engaged ≥ 7	9					
			width of engagement $\geq 12,5\text{mm}$	18,5mm					
2	D ₁ proces opening	M20x1.5 6H M24x1.5 6H M25x1.5 6H	class 2 fit	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 $\geq 8 \text{ mm}$		should be ensured by customer, possible to reach: 19mm		10mm		
		M27x2 6H	class 2 fit	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 $\geq 8 \text{ mm}$		should be ensured by customer, possible to reach: 19mm		10mm		
	$\frac{1}{2}\text{NPTmod}$ $\frac{3}{4}\text{NPTmod}$	threads engaged ≥ 5	l ₁	should be ensured by customer, possible to reach: 5,0 ÷ 5,5	L ₁	5			
	3	D ₂ , D ₃ conduit openings	M20x1.5 6H M24x1.5 6H M25x1.5 6H	class 2 fit	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 $\geq 8 \text{ mm}$				should be ensured by customer, possible to reach: 19mm		10mm			
$\frac{1}{2}\text{NPTmod}$ $\frac{3}{4}\text{NPTmod}$			threads engaged ≥ 5	l ₂ , l ₃	should be ensured by customer, possible to reach: 5,0 ÷ 5,5	L ₂ , L ₃	5		
4			Cemented joint		min. joint length 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.				

Only NPT threads can be used for CSA Division, in all openings.

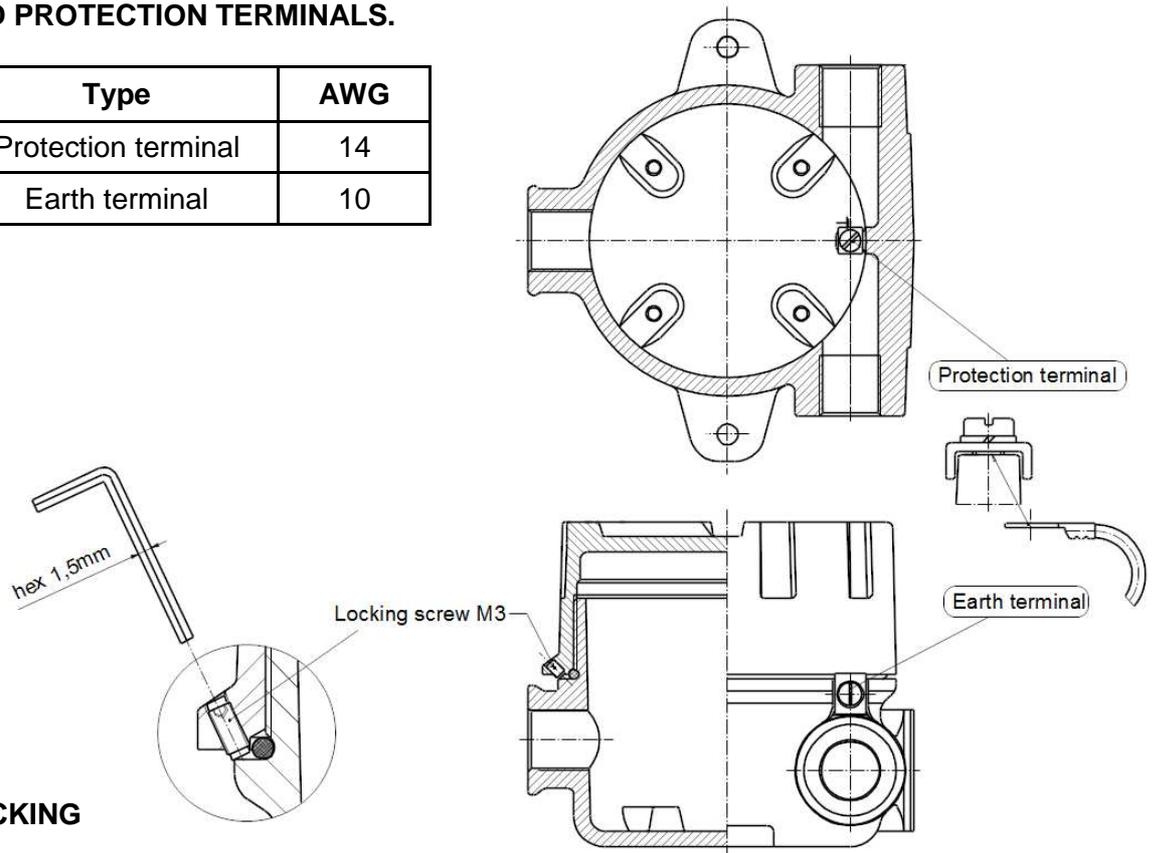
Process opening can be used for mounting sensor (e.g. level, flow sensor) or thermowell.

Conduit openings can be used to equip it with certificated explosionproof / flameproof cable glands, fill sealing fittings, flexible couplings or thermowells.

Each D₁, D₂ and D₃ opening can be **plugged**.

3. EARTH AND PROTECTION TERMINALS.

Place	Type	AWG
Inside	Protection terminal	14
Outside	Earth terminal	10



4. COVER LOCKING

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

5. PROTECTION AGAINST WATER AND DUST INGRESS, (Enclosure type 4x)

There are three connections of assembled device deciding about water and dust tightness:

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

Threaded connection sealing	Protection against water and dust ingress	Possible IP
Without sealing - standard accuracy class thread	NO	IP54
Use of a sealant, e.g. Loctite 577	YES	IP66
Thread tightened with O-ring	YES	IP66

! 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)

1
watertight, dusttight
max. possible to achieve IP66
tighten the cover until it stops

cemented joint
watertight, dusttight
IP66

3
max. possible to achieve IP66
choose cable gland against
cable diameter and
proper tightness, proper IP
seal up thread connection

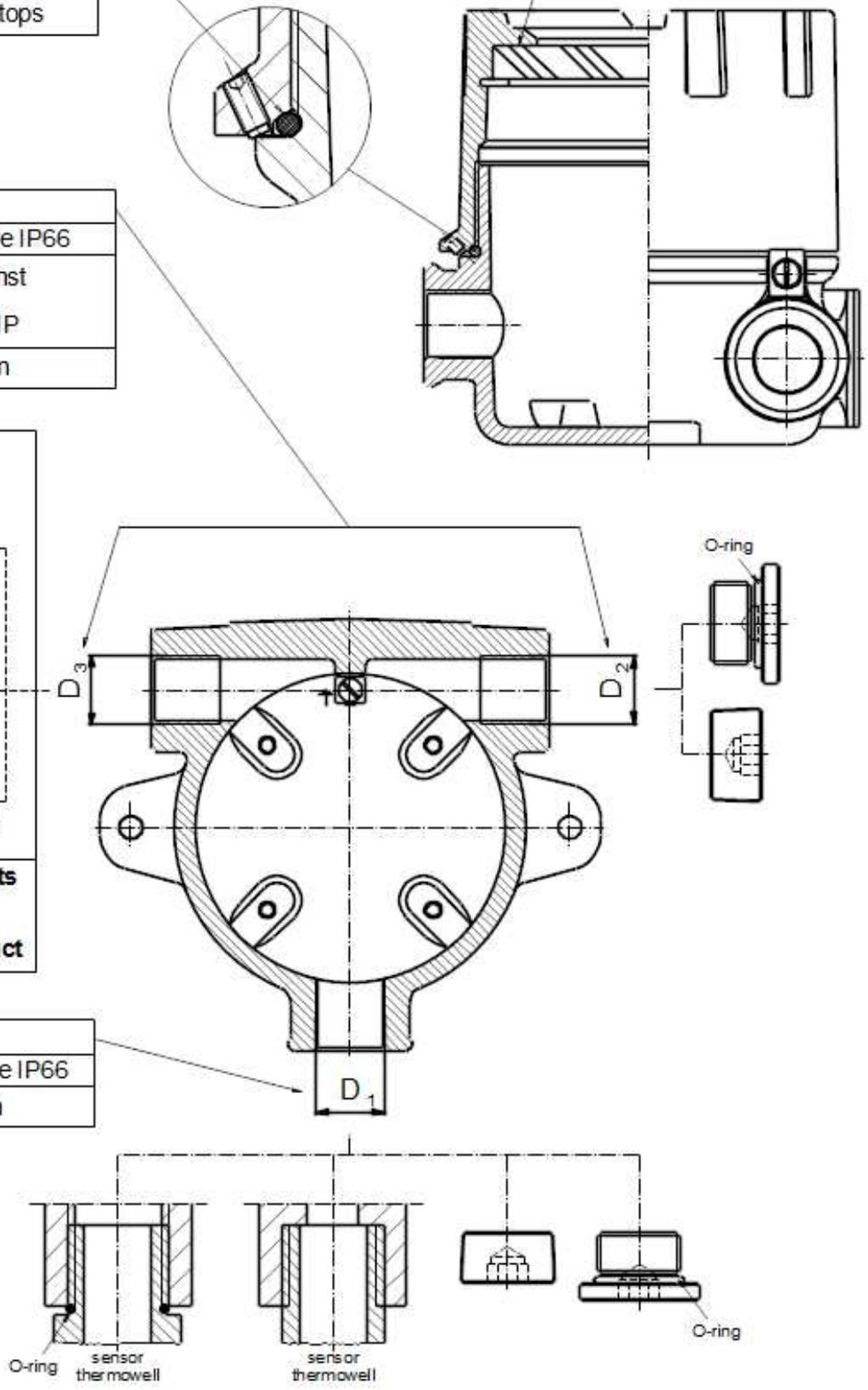
O-ring

fill sealing fitting

flexible coupling

These components are not included as parts of the certificated product

2
max. possible to achieve IP66
seal up thread connection



6. WAY OF MOUNTING.

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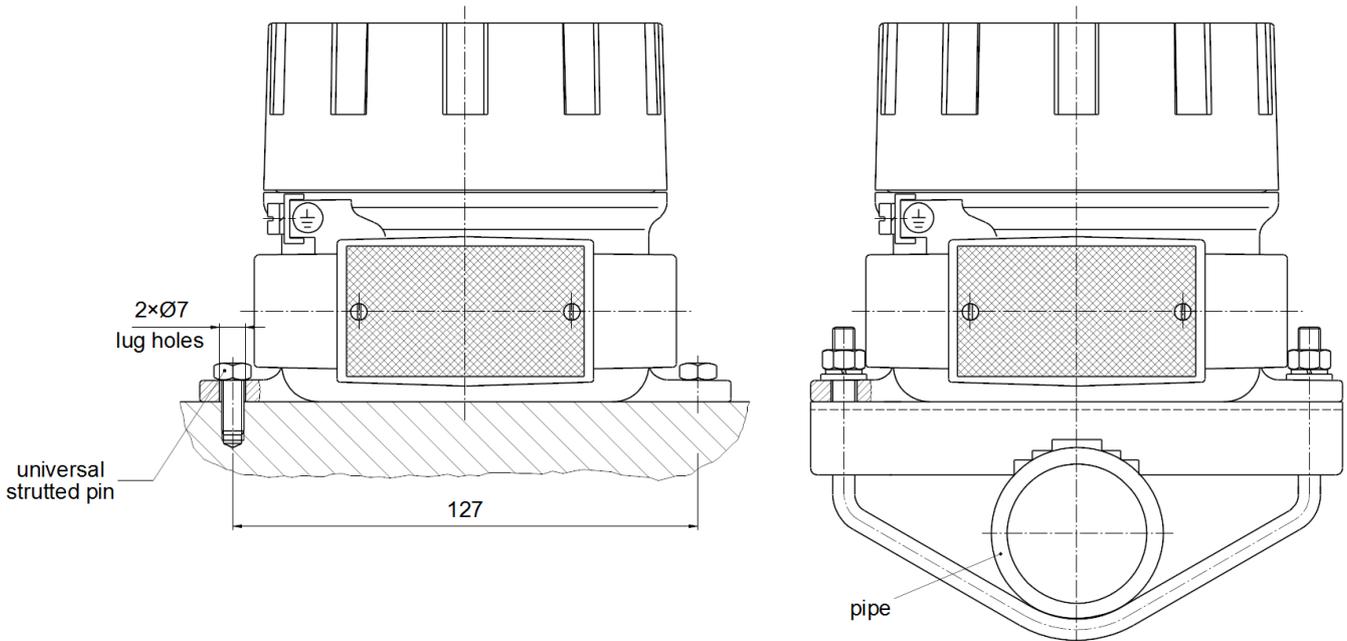
NOTES

It is important to be carefull 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.

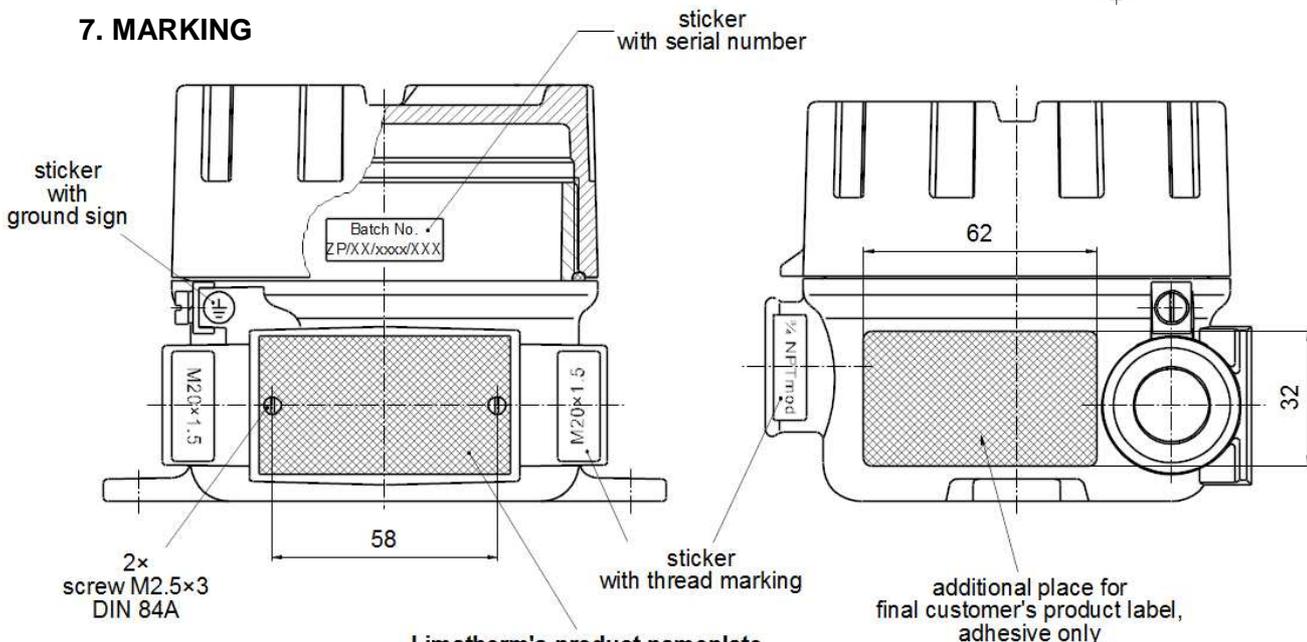
! Never screw on the cover forcefully !

In case of necessities 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.



7. MARKING



Limatherm's product nameplate

