

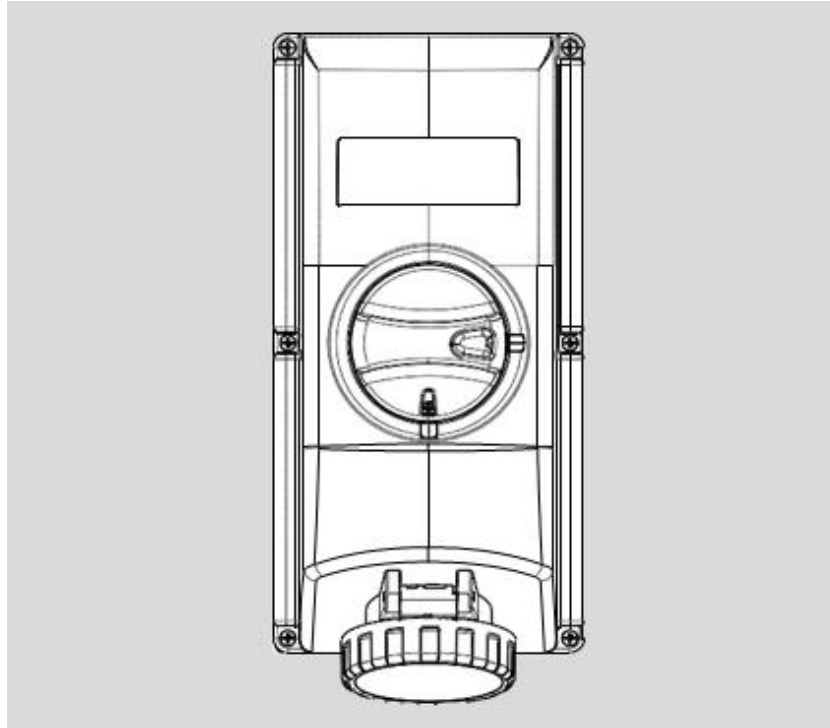


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HUBBELL ELECTRICAL PRODUCTS
Killark, A Division of Hubbell Inc. (Delaware)
2112 Fenton Logistics Park Blvd.
Fenton, Missouri 63026 USA

**INSTALLATION, OPERATION &
MAINTENANCE DATA SHEET**

**SERIES VSIH SWITCHED
SOCKETS (RECEPTACLES)**



**16A, 32A, 63A and 125A EXPLOSION-PROOF AND DUST IGNITION-
PROOF SWITCHED SOCKETS (RECEPTACLES) - SERIES VSIH**

**INERIS 20 ATEX 0022X
IECEX INE 20.0020X
CML 21UKEX1362X**

**Ex db eb IIC T6...T3 Gb
Ex tb IIIC T80°C Db IP66**

CAUTION:

Before installing, make sure you are compliant with area classifications, as failure to do so may result in bodily injury, death and property damage. Do not attempt installation until you are familiar with the following procedures. All installation must comply with the applicable Electrical Code(s).

Make sure that the circuit is de-energized before starting installation or maintenance.

Verify that the installation is grounded. Failure to ground will create electrical shock hazards, which can cause serious injury and or death.

IMPORTANT:

Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.

Technical information, advice and recommendations contained in these documents is based upon information that Killark believes to be reliable. All the information and advice contained in these documents is intended for use only by persons having been trained and possessing the requisite skill and know-how and to be used by such persons only at their own discretion and risk. The nature of these instructions is informative only and does not cover all of the details, variations or combinations in which this equipment may be used, its storage, delivery, installation, check out, safe operation and maintenance. Since conditions of use of the product are outside of the care, custody and control of Killark, the purchaser should determine the suitability of the product for his intended use, and assumes all risk and liability whatsoever in connection therewith.





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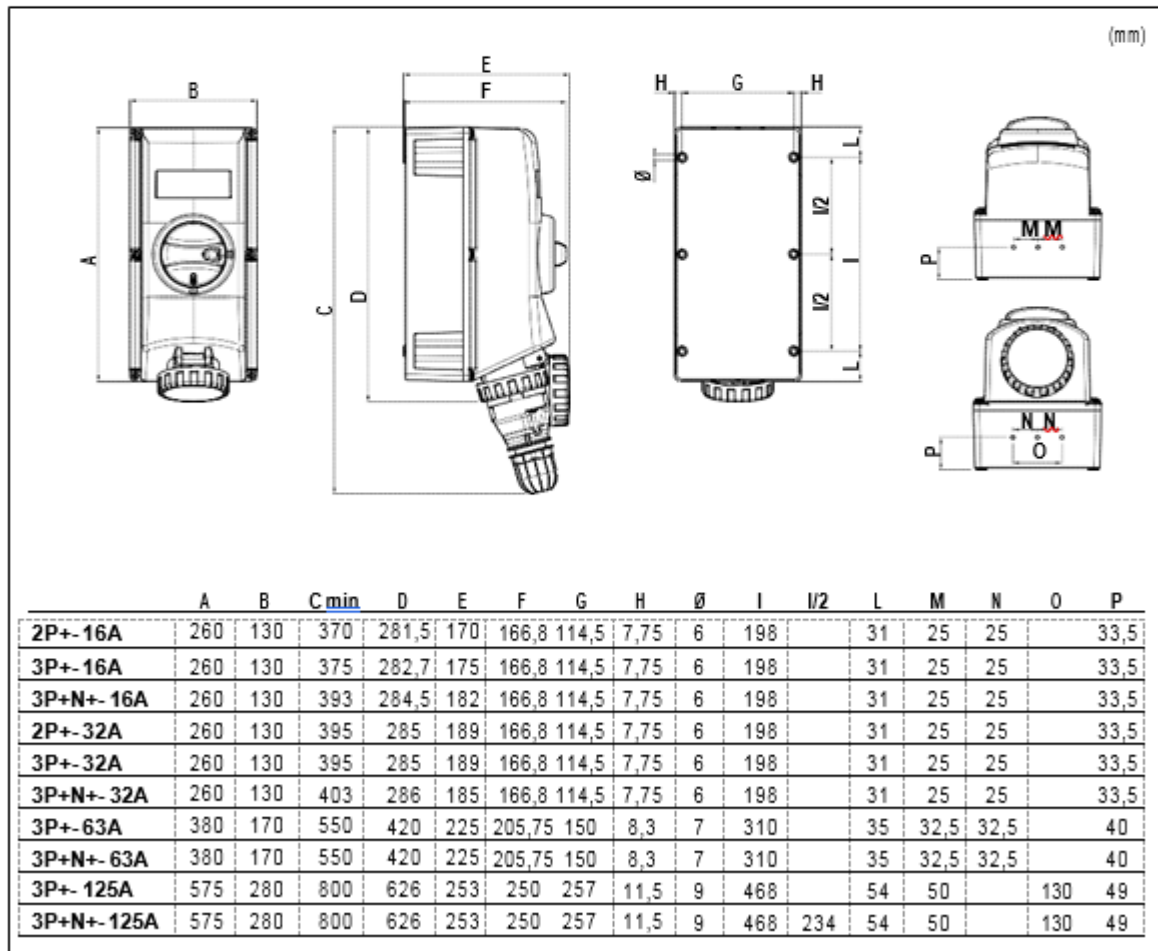
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Dimensional Drawings.





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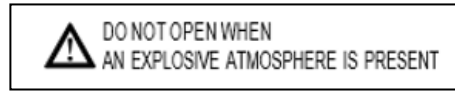
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Example Socket (Receptacle) Marking Labels ATEX / IECEx:

		SOCKET CAT. NO. [A]		51937AAAM
		FOR USE WITH [B]		DATE: []
IECEX INE 20.0020X CML 21UKEX1362X INERIS 20 ATEX 0022X				
Ex db eb IIC T4 Gb		Tambient: -35 to 40°C		
Ex tb IIIC T80°C Db IP66		SEE KILLARK IOM FORM K1519 FOR T-CODE AND AMBIENT TEMP INFO.		
RATED: 125 Amps [E] Volts	POLE: [C] + ⊕ KEY: [D]h	CE UK CA 2813 0518 II 2 G D	Ex	
WARNING: DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT. USE 90°C CABLE (MIN.) WHEN THE MAXIMUM AMBIENT IS +60°C				



		SOCKET CAT. NO. [A]		51897AAAM
		FOR USE WITH [B]		DATE: []
IECEX INE 20.0020X CML 21UKEX1362X INERIS 20 ATEX 0022X				
Ex db eb IIC [C] Gb		Tambient: -50 to 60°C		
Ex db eb IIC [D] Gb		Tambient: -50 to 50°C		
Ex tb IIIC T80°C Db IP66		SEE KILLARK IOM FORM K1519 FOR T-CODE AND AMBIENT TEMP INFO.		
RATED: 16 Amps [G] Volts	POLE: [E] + ⊕ KEY: [F]h	CE UK CA 2813 0518 II 2 G D	Ex	
WARNING: DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT. USE 90°C CABLE (MIN.) WHEN THE MAXIMUM AMBIENT IS +60°C				

THIS DOCUMENT SHOULD BE READ CAREFULLY BEFORE INSTALLATION

1. INSTALLATION , OPERATION AND MAINTENANCE INSTRUCTIONS FOR SAFE USE

1.1 SAFETY RULES

VSIH SERIES sockets (receptacles) are designed as Group II Category 2 equipment suitable for use in fixed installations in Classified Hazardous Location areas designated Zone 1/21 and Zone 2/22.

These operating instructions must be kept in a safe place for future reference. Use VHS Series devices only as intended and in undamaged / clean condition, and only where the resistance of the material to the surroundings is assured. NO modifications are allowed to Series VHS devices which are not specifically described in this instruction manual.

When installing Series VHS devices, the creepage and clearance distances shall be duly considered as noted in Item 5.3, Table 8 below. For all VSIH sockets (receptacles), the handle is lockable in position 0 (OFF) and 1 (ON).

1.2 CONFORMITY TO STANDARDS

Series VSIH devices have been evaluated and Certified to the following Standards**:

IEC/EN 60079-0, -1, -7, -31; IEC/EN 60309-1, -2, -4

** - refer to the IECEx and ATEX Certificates for the current editions of each Standard.





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2. TECHNICAL DATA

2.1 TYPES OF PROTECTION

- ATEX / IECEx:
Ex db eb IIC T⁽¹⁾Gb - Ex tb IIIC T80°C Db IP66
Tamb⁽²⁾ – Tcable: ⁽³⁾

- (1) Temperature Class for Gas according to Table 1.
- (2) Ambient temperature range according to Table 1 when different from -20°C to +40°C.
- (3) Tcable: “80°C” for Series VSIH20... when max. ambient temperature is +60°C.
Tcable: “85°C” for Series VSIH32... when max. ambient temperature is +60°C.
Tcable: “90°C” for Series VSIH63... when max. ambient temperature is +60°C.
Tcable: “85°C” for Series VSIH125...

2.2 TYPES OF PROTECTION

ATEX Certificate: **INERIS 20 ATEX 0022X**
IECEx Certificate: **IECEx INE 20.0020X**
UKCA Certificate: **CML 21UKEX1362X**

2.3 TABLE 1 – AMBIENT TEMPERATURE RANGE

SOCKET SERIES	Ambient Temperature Range (Tamb)	Temperature Class (T-Code) - Gas	Optional Auxiliary Contacts		Max. Surface Temperature - Dust
			CORTEM M-053X	TECHNOR ZBWE	
VSIH20...	-50°C to +50°C	T6	----	YES	T80°C
	-50°C to +60°C	T5	----	YES	
VSIH32...	-50°C to +60°C	T4	----	----	
	-50°C to +50°C	T4	----	----	
	-50°C to +40°C	T5	----	YES	
	-40°C to +60°C	T4	----	----	
	-40°C to +50°C	T4	YES	----	
VSIH63...	-40°C to +40°C	T5	YES	YES	
	-35°C to +60°C	T3	----	----	
	-35°C to +50°C	T3	----	----	
VSIH63...	-35°C to +40°C	T4	YES	YES	
	-35°C to +40°C	T4	----	----	

3. TABLE 2 - PRODUCT NOMENCLATURE : SERIES VSIH SOCKET CATALOG NUMBER SUFFIXES

POLES	Hz	Volts	Color	h	16A(*)	32A(*)	63A(*)	Color	125A(*)
2P+E	50/60	100-130	Yellow	4	20R304	32R304	---	---	---
	50/60	200-250	Blue	6	20R306	32R306	---	---	---
	50/60	380-415	Red	9	20R309	32R309	---	---	---
	50/60	480-500	Red	7	20R307	32R307	---	---	---
2P+E	300-500	50-500	Red	2	20R302	32R302	---	---	---
3P+E	50/60	100-130	Yellow	4	20R404	32R404	63R404	Black	125R404
	50/60	200-250	Blue	9	20R409	32R409	63R409	Black	125R409
	50/60	380-415	Red	6	20R406	32R406	63R406	Black	125R406
	60	440-460	Red	11	20R411	32R411	63R411	Black	125R411
	50/60	480-500	Red	7	20R407	32R407	63R407	Black	125R407
	50/60	600-690	Red	5	20R405	32R405	63R405	Black	125R405
	50/60	380/440	Red	3	20R403	32R403	63R403	Black	125R403





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**TABLE 2 (CONTINUED) - NOMENCLATURE : SERIES VSIH SOCKET CATALOG
NUMBER SUFFIXES****

POLES	Hz	Volts	Color	h	16A(*)	32A(*)	63A(*)	Color	125A(*)
3P+E	100-300	50-690	Red	10	20R410	32R410	63R410	Black	125R410
3P+E	>300-500	50-690	Red	2	20R402	32R402	63R402	Black	125R402
3P+N+E	50/60	110-130	Yellow	4	20R504	32R504	63R504	Black	125R504
	50/60	208-250	Blue	9	20R509	32R509	63R509	Black	125R509
	50/60	346-415	Red	6	20R506	32R506	63R506	Black	125R506
	50/60	480-500	Red	7	20R507	32R507	63R507	Black	125R507
	50/60	600-690	Red	5	20R505	32R505	63R505	Black	125R505
	60	440-460	Red	11	20R511	32R511	63R511	Black	125R511
3P+N+E	>300-500	380/440	Red	3	20R503	32R503	63R503	Black	125R503
3P+N+E	>300-500	380/440	Red	2	20R502	32R502	63R502	Black	125R502

** - Suffixes in Table 2 above may be followed by these optional suffix letters:
ES – Earth Stud (optional)
ESEP – Earth Stud and Earth Plate (optional)
A / AA – Auxiliary contact(s): 1NO + 1NC / 2NO + 2NC

4. ELECTRICAL FEATURES - IEC “UTILIZATION” CODES

Switch Socket Type	16/32A			63A			CZ0513-180A	
Rated Voltage	400V	500V	690V	400V	500V	690V	690V	
Category	AC3	--	25A	--	--	50A	--	125A
	AC22A	--	--	32A	--	--	63A	125A
	AC23A	--	32A	--	--	--	63A	125A

4.1 WIRING INFORMATION – SWITCH TERMINALS

LOAD SWITCH TERMINALS			
SWITCH RATING	CONDUCTOR CROSS SECTIONAL AREA		TIGHTENING TORQUE (Nm)
	MINIMUM	MAXIMUM	
16A	4mm ²	10mm ²	0.8
32A	6mm ²	10mm ²	
63A	16mm ²	25mm ²	2.5
125A	50mm ²	70mm ²	3.5

4.1.1 EARTH TERMINALS

TYPE	CONDUCTOR CROSS SECTIONAL AREA	TIGHTENING TORQUE (Nm)
16/32A	10 / 16 mm ²	1.2
63A	Weidmuller (Ex e) Type WPE35 : 35mm ²	3.5
125A	50 70 mm ² – CZ05130-180A-Switch-Earth Terminal	





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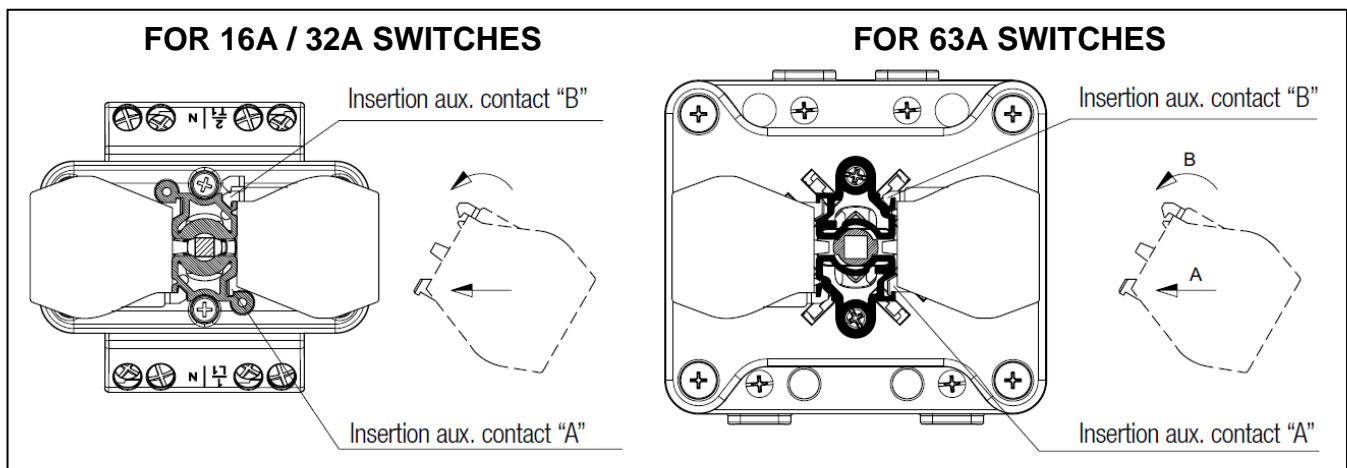
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4.2 AUXILIARY CONTACTS – (SUITABLE FOR ATEX CERTIFICATION ONLY)

Sockets size 16A, 32A and 63A can have 2 optional auxiliary contacts maximum. It is not possible to install aux. contacts on the 125A sockets. Auxiliary contacts are optional accessories covered by separate ATEX/IECEX Certificates. Installation and maintenance shall be conducted in accordance with the manufacturer’s documents. Creepage and clearance distances shall comply with IEC EN60079-7 – Table 1. Current and dissipated power shall not exceed the maximum value allowed.

4.3 HOW TO INSTALL AUXILIARY CONTACTS



4.3.1 ELECTRICAL PARAMETERS – AUXILIARY CONTACTS

4.3.1.1 SWITCH TYPE "ZBWE" (For Use with 16/32/63A Sockets)

Maximum Supply Voltage: 415 Vac
Maximum Current : 4A
Maximum Dissipation : 1W
Wiring by screw clamp 2 x 1,5 mm² or 1 x 2.5 mm² with tip.
Torque: 0,8 Nm to 1.2 Nm max.

4.3.1.2 SWITCH TYPE "M-053x" (For 16/32/63A Sockets) (Service Temp. Range -40°C to +80°C)

TYPE M-0530 and M-0531 Parameter	UTILIZATION CATEGORY	
	AC15	DC13
Operating Voltage Ue... up to Rated Current Ie.....max	400V 4A	48V 4A
Operating Voltage Ue... up to Rated Current Ie.....max	500V 4A	---
Operating Voltage Ue... up to Rated Current Ie.....max	690V 2A	
Conductor cross-section	2,5mm ² max.	2,5mm ² max.





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4.3.2 ATEX CERTIFICATION – AUXILIARY CONTACTS

TYPE	Vmax - Imax	Mode of Protection	Certificate No.	Ambient Temp.
EX-TECH SOLUTION				
ZBWE-...	415V-4A	Ex db eb IIC Gb	INERIS 02ATEX9007U	-50°C / +75°C
CORTEM				
M-053x	400V-4A	Ex d e IIC	CESI 09ATEX016U	-40°C / +80°C

4.3.3 IECEx CERTIFICATION – AUXILIARY CONTACTS


TYPE	Vmax - Imax	Mode of Protection	Certificate No.	Ambient Temp.
EX-TECH SOLUTION				
ZBWE-...	415V-4A	Ex db eb IIC Gb	IECEX INE 13.0063U	-50°C / +75°C
CORTEM				
M-053x	400V-4A	Ex d e IIC	IECEX CES 11.0031U	-40°C / +80°C

5. INSTALLATION

 Installation shall be carried out by suitably-trained personnel in accordance with the applicable code of practice (e.g. IEC EN 60079-14) and the provisions of the national safety and accident prevention regulations and this instruction manual.

5.1 SAFETY INSTRUCTIONS

Use the switch only for its intended purpose. Incorrect / impermissible use, or non-compliance with these instructions, invalidates the warranty provision. No changes to the switch impairing its explosion protection are permitted. Install and operate the switch only if it is clean and undamaged.

 The contact element must be replaced after each short-circuit in the switch main circuit. This is because the device is hermetically sealed and the state of the switching contacts cannot be checked. Any damage can invalidate the Ex protection.

5.2 ACCESSORIES

- Auxiliary Contacts (See. Section 4.2 of this manual).
- Cable glands and Close-up/Blanking Plugs with separate Certificates.
- Earth-stud (stud, nuts and plain washer) made of brass, iron, or AISI316 Stainless Steel.

Only approved accessories must be used.





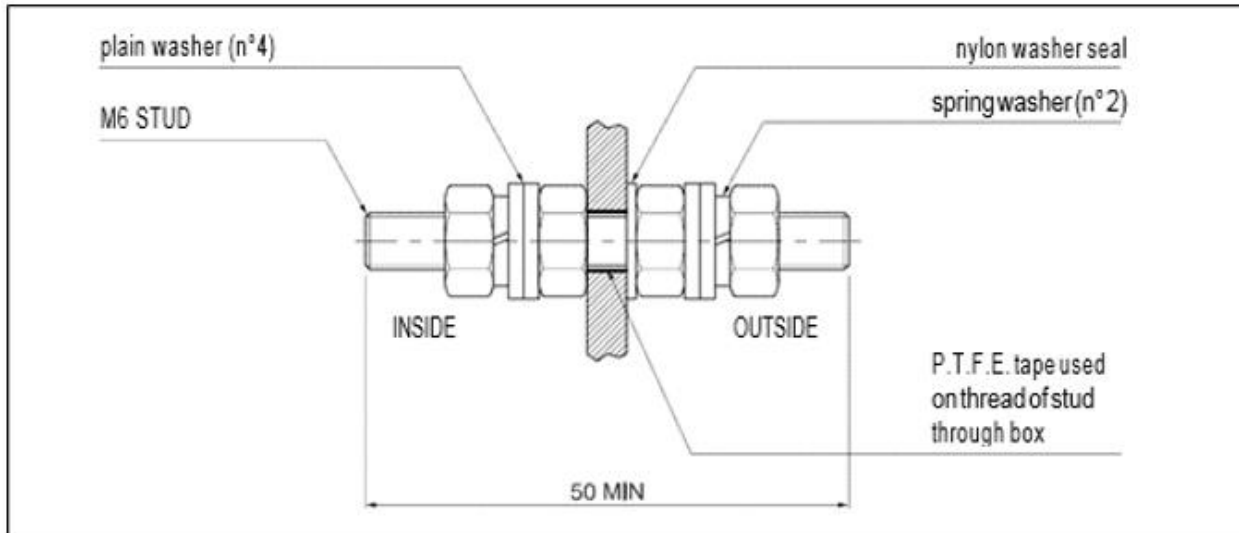
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Detail of optional Earth-stud assembly:



5.3 TERMINAL FITTING

All wiring must be carried out in accordance with the code of practice and installation standards in hazardous areas like IEC/EN 60079-14. Use the correct size of tool and torque (see manufacturer documents) for tightening the terminal clamps (screwdriver or spanner). Creepage and clearance distances shall comply with IEC/EN 60079-7 (Table 1). Electrical parameters shall not exceed the maximum allowed.

Note: Minimum creepage and clearance distances that shall be maintained to conductive parts or other live parts are:

Minimum Creepage		Minimum Clearance	
250V	5mm	250V	5mm
400V	8mm	400V	6mm
500V	10mm	500V	8mm
630V	12mm	630V	10mm

Note: Voltages are nominal voltages – the working voltage may exceed by 10% the voltage level given.

6 CABLE GLANDS

Use only Ex e and/or Ex tb IIC approved glands (as relevant). Certified Cable glands can only be fitted with a suitable IP rating commensurate with the IP rating of the enclosure.

Ensure that all cable glands used shall be suitable for the cable type in order to prevent self-loosening and ensure permanent sealing to avoid moisture ingress. Refer to the installation instructions of the cable gland manufacturer.





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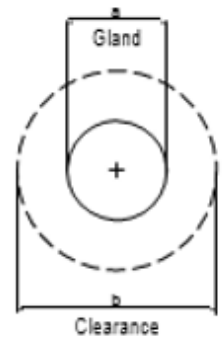
6.1 BLANKING (CLOSE-UP) PLUGS

Any unused entries must be blanked (closed) using a suitably approved Blanking (Close-up) Plug with a separate certificate.


6.2 DRILLING AREA

The enclosure end-wall drilling areas are shown below (A and B). The size, location, and number of entry holes are limited by maximum hole diameter (a), minimum clearance distance (b), and maximum number of drill holes:

Drilling Area	Dimensions	Socket Size	Cable gland size	Clearance		Max. Drill Holes
				a	b	
	80x45mm	16/32A	20mm	20,7mm	39mm	2
			25mm	25,7mm	46mm	2
			32mm	32,7mm	56mm	1
	110x55mm	63A	25mm	25,7mm	46mm	2
			32mm	32,7mm	56mm	2
			40mm	40,7mm	70mm	1
	196x72mm	125A top side (A)	25mm	25,7mm	46mm	5
			32mm	32,7mm	56mm	3
			40mm	40,7mm	70mm	2
			50mm	50,7mm	78mm	2
	72x72mm	125A bottom side (B)	25mm	25,7mm	46mm	1
			32mm	32,7mm	56mm	1
			40mm	40,7mm	70mm	1
			50mm	50,7mm	78mm	1



7 SERVICING AND MAINTENANCE AND REPAIRING

 Installation, inspection and maintenance of this equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice (e.g. IEC/EN 60079-14, IEC/EN 60079-17). Repair of this equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice. During servicing, it is particularly important to check those components upon which the type of protection depends.





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7.1 ROUTINE MAINTENANCE

Routine maintenance is required to guarantee the efficiency of the enclosure and to maintain the required level of protection.

- 1) Check that the lid seal is in place and not damaged...each time the enclosure is opened.
- 2) Check that all the lid fixing screws are in place and secured...each time the enclosure is closed.
- 3) Check that the mounting screws/bolts are tight and free of corrosion...annually.
- 4) Check the security of all cable glands...annually.
- 5) Check the enclosure for damage...annually.
- 6) In Zones where combustible dust is present, it is necessary to periodically clean the upper surface of the box, limiting the depth of the dust layer to less than 5 mm.

Storage Conditions:

Storage Temperature: from -50°C to +70°C for 16A/32A

Storage Temperature: from -35 °C to +70°C for 63A/125A

Relative Humidity: ≤95% RH

Storage time: 20 years

The estimated product lifetime is 10 years if storage conditions are respected and all routine care and maintenance practices specified in this manual are applied.

7.2 RESISTANCE TO CHEMICAL AGENT

Consideration should be given to the environment in which these enclosures are to be used to determine the suitability of these materials to withstand any corrosive agents that may be present.

7.3 DISPOSAL

Disposal and recycling of the product shall be carried out according to national regulations for waste disposal and recycling.