



ADVANCE-GRP[GD] SERIES OPTIMA-EX[GD] SERIES

Plug and socket for applications in potentially explosive atmospheres - GAS & DUST



ADVANCE-GRP[GD] Series - OPTIMA-EX[GD] Series



SPECIAL CHARACTERISTICS



OUTSTANDING IMPACT RESISTANCE

The glass-fibre reinforced polyester used in **ADVANCE-GRP[GD]** and the high thickness of the casing walls guarantee an excellent mechanical resistance to impacts.

The **SMC** technology used to produce the casings makes **ADVANCE-GRP[GD]** an indestructible product.

The impact resistance of the casings is higher than 20J (IK10) according to EN50102, even under limit temperature conditions (-50°C +60°C).



RESISTANCE TO CHEMICAL AGENTS

The **ADVANCE-GRP[GD]** interlocked sockets and casings, thanks to the glass-fibre reinforced polyester with which they are produced, have excellent resistance to aggressive chemical substances, saline solutions, diluted acids, hydrocarbons, mineral oils, alcoholic substances. They are ideal for use in highly corrosive atmospheres.



RESISTANCE TO ATMOSPHERIC AGENTS

The structure and materials used also make **ADVANCE-GRP[GD]** a product suited for the most extreme environmental conditions. The degree of protection IP66, guarantees an excellent seal against the entry of solid objects or liquids into the casings. Outstanding resistance to UV radiation, exceptional reliability under environmental stress and use at both low and high ambient temperatures (-40°C +60°C) for 63/125A and (-50°C + 60°C) for 16/32A.



In the chemical and petrochemical plants, or, in general, in all those places where, a production process gives the possibility to forming a potentially explosive atmosphere are necessary electrical equipment that protect from the risk of explosion and they comply at ATEX Directive 94 /92/EC. SCAME complete the ATEX project, which currently covers only the dust area (Zone 21), introducing a safety switch designed and manufactured by SCAME till 80A suitable for GAS environments.

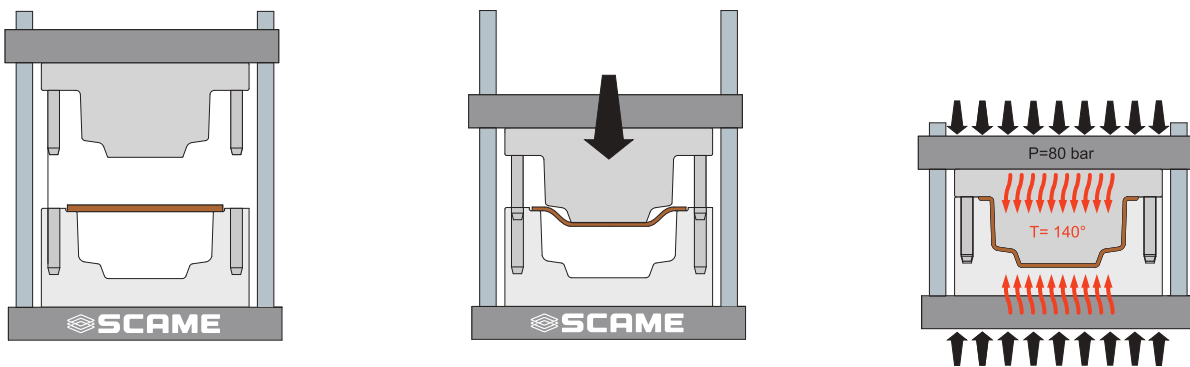
The plugs and sockets for Zone 1 unlike dust, require special design arrangements including the materials and the necessity of having a key insertion to prevent the connection of plugs of other builders, these and other, measures are required to prevent that any spark or arc, is formed through cutting the supply voltage, or at the time to coupling or decoupling plug and socket body, where they can come into contact with the surrounding atmosphere and cause an explosion.

CHARACTERISTICS

The **ADVANCE-GRP[GD]** product line includes a series of 16A, 32A, 63A, 125A interlocked sockets (compliant with EN60309-4 standards) and the casings to contain them. It's the most complete range of interlocked sockets produced in GRP (*Glass Reinforced Polyester*) thermosetting material.

A unique feature which enhances the exceptional mechanical strength of **ADVANCE-GRP[GD]** products is the **SMC** (*Sheet Moulding Compound*) production process used for the casings.

SMC is a technology which uses exclusively non-woven sheets, pre-impregnated with polyester resin. This method consists in preparing the sheet material inside a mould which, equipped with a negative mould, presses the composite so as to allow compaction.



SMC is an advanced technology which enhances the quality of the raw material without reducing the high-strength characteristics during transformation; it's a high-performing technology in terms of the mechanical performance of the resultant product (glass fibre length, homogeneity of the material, integrity of the fibres).

On the contrary, the **BMC** (*Bulk Moulding Compound*) technology is a technology for moulding composite materials which uses a raw material available in "blocks" (short, charged fibres) which are subjected to high thermomechanical stress during the transformation process, consequently diminishing the mechanical properties of the details, thereby reducing the impact strength and flexural strength.

The glass-fibre reinforced polyester used in **ADVANCE-GRP[GD]** guarantees excellent mechanical strength and a long lifetime: this material is highly resistant to contamination, completely corrosion resistant and suited for applications requiring the use of components with low smoke emission and no halogens, **LSOH** (*Low Smoke Zero Halogen*) components. The outstanding properties of the material are also guaranteed over time, thanks to the high **RTI** value (*Relative Temperature Index*), measured to be 20,000h. Numerous verifications and tests have been carried out, even UV resistance tests, in order to guarantee the long duration of the material's initial performance.

The thickness of the walls is sufficient to offer an excellent alternative to aluminium, stainless steel or cast iron.



OUTSTANDING HEAT AND FIRE RESISTANCE

The glass-fibre reinforced polyester used in **ADVANCE-GRP [GD]** guarantees excellent heat and fire resistance: it does not propagate flames, emit halogens or smoke.

This material has outstanding flame retardancy: Glow Wire 960°C according to EN 60695-2-1; V0 according to UL94.

It's suited for applications requiring the use of components with low smoke emission and no halogens, **LSOH** (*Low Smoke Zero Halogen*).

ADVANCE-GRP[GD] Series - OPTIMA-EX[GD] Series



SWITCHED INTERLOCKED SOCKET OUTLETS



VERSIONS WITH MECHANICAL INTERLOCK

	With switch-disconnector	16A-32A 63A-125A
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PRODUCTS FOR USE IN A POTENTIALLY EXPLOSIVE ENVIRONMENT

Scame offers products suitable for installation into environments under potential risk of explosion identified as Zone 1/22 and that enter into the field of application for the ATEX Directive (European Directive 94/9/CE and IECEx).

REFERENCE STANDARDS

ATEX IECEx	IEC 60079-0 / EN 60079-0 Explosive Atmospheres. <i>Part 0: general requirements.</i>
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ATEX IECEx	IEC 60079-1 / EN 60079-1 Explosive Atmospheres. <i>Part 1: equipment protection by flameproof enclosures "d".</i>
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ATEX IECEx	IEC 60079-31 / EN 60079-31 Explosive Atmospheres. <i>Part 31: equipment dust ignition protection by enclose "t".</i>
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ATEX IECEx	IEC 60079-7 / EN 60079-7 Explosive Atmospheres. <i>Part 7: equipment protection by increased safety "e".</i>
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IEC/EN 60309-1 Plugs, socket outlets and couplers for industrial purposes. <i>Part 1: general requirements.</i>
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IEC/EN 60309-2 Plugs, socket outlets and couplers for industrial purposes. <i>Part 2: dimensional interchangeability requirements for pin and contact-tube accessories of harmonised configurations.</i>

IEC/EN 60309-4 Plugs, socket-outlets and couplers for industrial purposes. <i>Part 4: Switched socket-outlets and connectors with or without interlock.</i>
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SOCKET LABEL

504.1683	2015	 Via Costa Erta 15 Parre BG ITALY	
INERIS 15ATEX0017X			2P+⊕16A
IECEx INE15.0033X			6h 200-250V~
Ex d e IIC T6 Gb			
Ex tb IIIC T80°C Db IP66			
Tamb. -35/+60°C			
WARNING: DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT			



PLUG LABEL

219.6336	2015	 Via Costa Erta 15 Parre BG ITALY	
INERIS 15ATEX0017X			3P+⊕63A-6U 380-415V~
IECEx INE15.0033X			
Ex e IIC T6 Gb			
Ex tb IIIC T80°C Db IP66			
Tamb. -35/+60°C			
WARNING: DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT			

■ BEHAVIOUR WITH CHEMICAL AND ATMOSPHERIC AGENTS

Saline solution	Acids		Bases		Solvents				Mineral oil	UV rays
	Concentrated	Diluted	Concentrated	Diluted	Hexane	Benzol	Acetone	Alcohol		
Resistant	Limited Resistance	Resistant	Limited Resistance	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant

For specific substances please contact our technical service.

■ TECHNICAL CHARACTERISTICS

Rated current:	16A-32A-63A-125A
Rated voltage:	50÷690V~
Frequency:	50÷60Hz
Insulating voltage:	690V~
Switch-disconnectors:	16A-32A-63A: COMMAND-EX Series 125A: CZ0513
ATEX Code:	II 2 GD
Ex Protection type:	Plugs: Ex e IIC T4, T5, T6 Gb Ex tb IIIC T80°C Db IP66 Sockets: Ex d e IIC T4, T5, T6 Gb Ex tb IIIC T80°C Db IP66
Ambient temperature range:	-50°C + 60°C for plug and socket 16/32A -35°C + 60°C for plug and socket 63/125A

Maximum permissible surface temperature (DUST):	T80°C
Temperature class (GAS):	T4/T5/T6
Protection degree:	IP66
Impact Resistance:	7J
Switched socket outlets with interlock material:	Dissipative Thermosetting (GRP)
Sockets colour:	Black RAL9005
Plugs material:	PA6 - Dissipative

■ ATEX IECEX CERTIFICATE

ATEX-Sockets and plugs 16A-32A-63A-125A:
INERIS 15ATEX0017X

IECEX-Sockets and plugs 16A-32A-63A-125A:
IECEX INE 15.0033X

■ ELECTRICAL FEATURES ADVANCE-GRP[GD] SERIES

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

■ ELECTRICAL FEATURES OPTIMA-EX[GD] SERIES

Rated Current	Maximun Current			Max. Cable Entry Temperature when Ta +60°C
	Ta 40°C	Ta 50°C	Ta 60°C	
16A	16A	16A	16A	80°C (*)
32A	32A	32A	32A	85°C (*)
63A	63A	63A	63A	90°C (*)
125A	100A	112A	125A	-

(*) WARNING: the cable entry can be reach high temperature; suitable cable can be used.

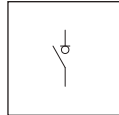
ADVANCE-GRP[GD] Series - OPTIMA-EX[GD] Series



SWITCHED INTERLOCKED SOCKET OUTLETS IP66

ADVANCE-GRP[GD] Series

504.



Poles	Hz	Volt	Colour		h.	16A	32A	63A	125A
			16A-32A 63A	125A		⊞1	⊞1	⊞1	⊞1
2P+E	50/60	100-130		-	4	504.1670	504.3270	-	-
	50/60	200-250		-	6	504.1683	504.3283	-	-
	50/60	380-415		-	9	504.1678	504.3278	-	-
	50/60	480-500		-	7	504.16836	504.32836	-	-
	300÷500	50÷500		-	2	504.16832	504.32832	-	-
	d.c.	50÷250		-	3	504.16834	504.32834	-	-
	d.c.	>250÷500		-	8	504.16838	504.32838	-	-
3P+E	50/60	100-130			4	504.1672	504.3272	504.6372	504.12572
	50/60	200-250			9	504.1674	504.3274	504.6374	504.12574
	50/60	380-415			6	504.1686	504.3286	504.6386	504.12586
	60	440-460			11	504.16865	504.32865	504.63865	504.125865
	50/60	480-500			7	504.16866	504.32866	504.63866	504.125866
	50/60	600-690			5	504.16867	504.32867	504.63867	504.125867
	50/60	380/440			3	504.16864	504.32864	504.63864	504.125864
	100÷300	50÷690			10	504.16861	504.32861	504.63861	504.125861
>300÷500	50÷690			2	504.16862	504.32862	504.63862	504.125862	
3P+N+E	50/60	100-130			4	504.1679	504.3279	504.6379	504.12579
	50/60	208-250			9	504.1675	504.3275	504.6375	504.12575
	50/60	346-415			6	504.1687	504.3287	504.6387	504.12587
	50/60	480-500			7	504.16876	504.32876	504.63876	504.125876
	50/60	600-690			5	504.16877	504.32877	504.63877	504.125877
	60	440-460			11	504.16875	504.32875	504.63875	504.125875
	50/60	380/440			3	504.16874	504.32874	504.63874	504.125874
>300÷500	50÷690			2	504.16872	504.32872	504.63872	504.125872	

⊞ Pack Quantity.

PLUGS IP66

OPTIMA-EX[GD] Series

219.



16A	32A	63A	125A
cable gland □ 10/40	cable gland □ 10/40	cable gland □ 6/24	cable gland □ 1/8
219.1630	219.3230	-	-
219.1633	219.3233	-	-
219.1638	219.3238	-	-
219.16336	219.32336	-	-
-	-	-	-
219.16332	219.32332	-	-
219.16334	219.32334	-	-
219.16338	219.32338	-	-
219.1631	219.3231	219.6331	219.12531
219.1634	219.3234	219.6334	219.12534
219.1636	219.3236	219.6336	219.12536
219.16365	219.32365	219.63365	219.125365
219.16366	219.32366	219.63366	219.125366
219.16367	219.32367	219.63367	219.125367
219.16364	219.32364	219.63364	219.125364
219.16361	219.32361	219.63361	219.125361
219.16362	219.32362	219.63362	219.125362
219.1632	219.3232	219.6332	219.12532
219.1635	219.3235	219.6335	219.12535
219.1637	219.3237	219.6337	219.12537
219.16376	219.32376	219.63376	219.125376
219.16377	219.32377	219.63377	219.125377
219.16375	219.32375	219.63375	219.125375
219.16374	219.32374	219.63374	219.125374
219.16372	219.32372	219.63372	219.125372

PLUG ACCESSORIES

PLUGS COVER



Description	□	
16A-20A 2P+E	10/100	570.90163
16A-20A 3P+E	10/100	570.90164
16A-20A 3P+N+E	10/100	570.90165
32A-30A 2P+E and 3P+E	10/100	570.90324
32A-30A 3P+N+E	10/100	570.90325
63A-60A 2P+E, 3P+E and 3P+N+E	10/100	570.9063
125A-100A 2P+E, 3P+E and 3P+N+E	10/100	570.9125

SOCKET ACCESSORIES

EARTH STUD

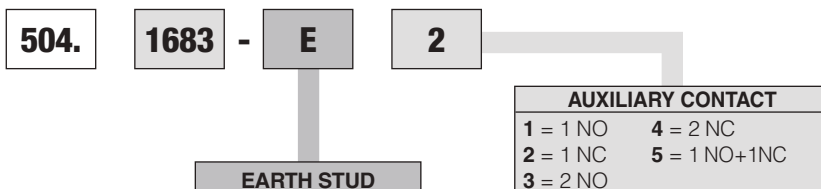


Description	
Earth stud.	644.E650

AUXILIARY CONTACT



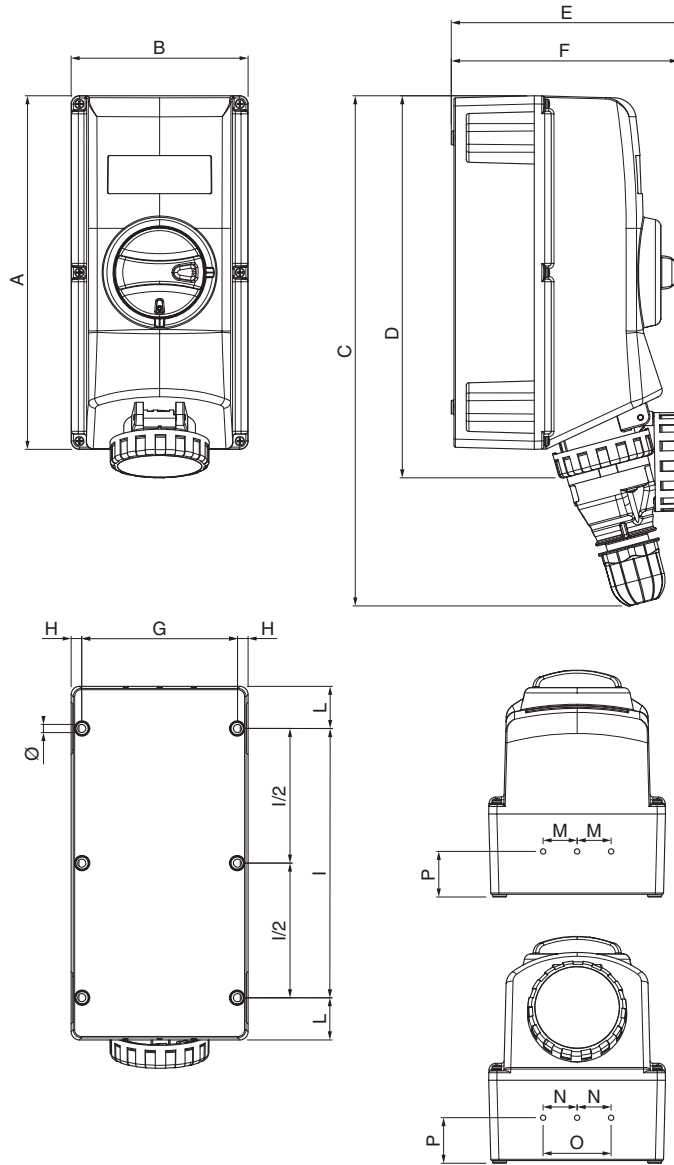
CONFIGURATION SOCKET OPTIONAL ACCESSORIES



ADVANCE-GRP[GD] Series - OPTIMA-EX[GD] Series



ADVANCE-GRP[GD] SERIES - DIMENSIONS



	TYPE	A	B	C min	D	E	F	G	H	Ø	I	I/2	L	M	N	O	P
16A	2P+E	260	130	370	280	170	166,8	114,5	7,75	6	198		31	25	25		33,5
	3P+E	260	130	375	282	175	166,8	114,5	7,75	6	198		31	25	25		33,5
	3P+N+E	260	130	393	282	182	166,8	114,5	7,75	6	198		31	25	25		33,5
32A	2P+E	260	130	395	285	189	166,8	114,5	7,75	6	198		31	25	25		33,5
	3P+E	260	130	395	285	189	166,8	114,5	7,75	6	198		31	25	25		33,5
	3P+N+E	260	130	403	286	185	166,8	114,5	7,75	6	198		31	25	25		33,5
63A	3P+E	380	170	550	420	225	205,75	150	8,3	7	310		35	32,5	32,5		40
	3P+N+E	380	170	550	420	225	205,75	150	8,3	7	310		35	32,5	32,5		40
125A	3P+E	575	280	800	626	253	250	257	11,5	9	468		54	50		130	49
	3P+N+E	575	280	800	626	253	250	257	11,5	9	468	234	54	50		130	49

■ CROSS SECTIONAL AREAS CONDUCTORS & TORQUE

TERMINALS CONTACTS - TORQUE		
ADVANCE GRP[GD] – In	Cross Sectional Areas Conductors	Tightening Torque - (Nm)
16/32A	Cross Sectional Areas 10 mm ² finely-stranded	0.8
	16 mm ² single-wire	0.8
63A	25 mm ² finely-stranded	2.5
	35 mm ² single-wire	2.5
125A	50/70mm ² finely-stranded	3.5

■ EARTH TERMINALS

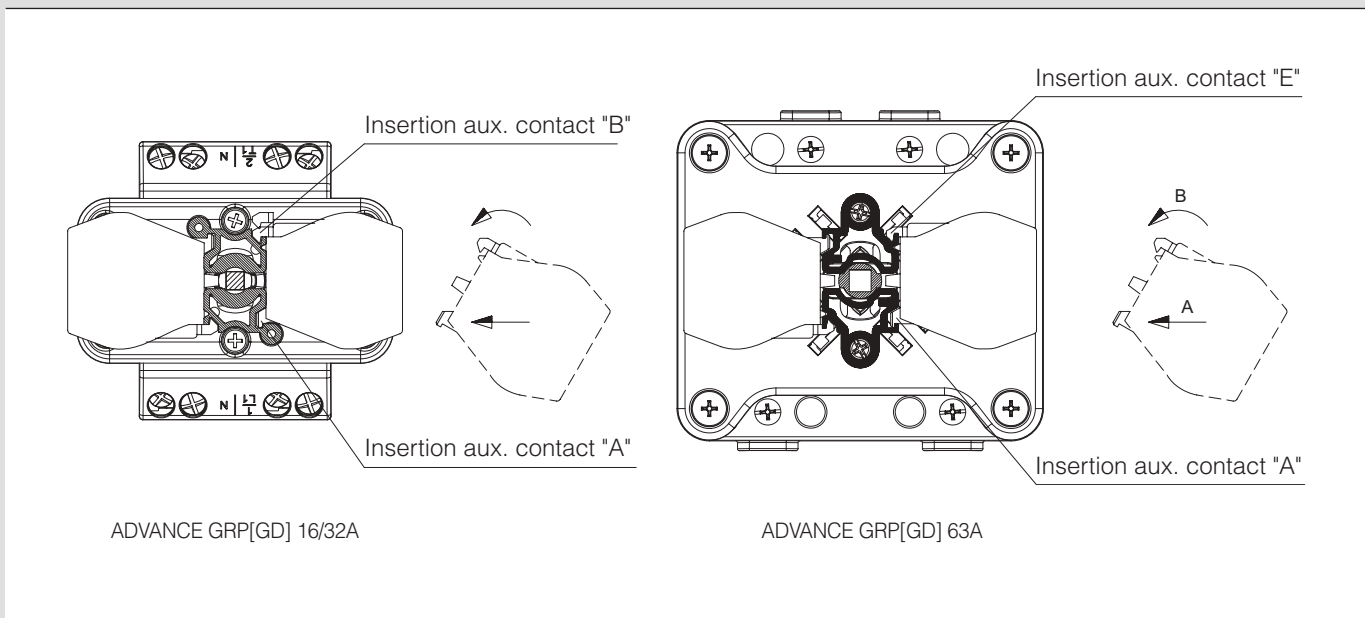
EARTH TERMINALS CONTACTS - TORQUE		
Type	Cross Sectional Areas Conductors	Tightening Torque - (Nm)
16/32A	10/16mm ²	1.2
63A	Weidmuller Ex e terminal type WPE35 35mm ²	3.5
125A	50/70mm ²	3.5

■ AUXILIARY CONTACTS

In the sockets ADVANCE GRP[GD] type 16A, 32A, and 63A can be install as optional 2 auxiliary contacts maximum, on model type 125A is not possible to install auxiliary contacts.

They are optional accessories with ATEX/IECEX separate certificates. Installation and maintenance shall be done as prescribed by manufacturer documents.

■ HOW TO INSTALL AUXILIARY CONTACT



ADVANCE-GRP[GD] Series - OPTIMA-EX[GD] Series



ELECTRICAL PARAMETERS - AUXILIARY CONTACT

ATEX Certification – Auxiliary Contact

Type	V _{max} - I _{max}	Mode of protection (Nm)	ATEX Certificate	Ambient Temperature
TECHNOR				
ZBWE 6	400V – 4A	Ex d e IIC	INERIS 02 ATEX 9007U	-50°C / +75°C
ZBWE 16	600V – 4A	Ex d e IIC	INERIS 02 ATEX 9007U	-50°C / +75°C
CORTEM (only for 63A size)				
M-0530 M-0531	400V – 4A	Ex d e IIC	CESI 09 ATEX 016 U	- 40°C / +80°C

IECEx Certification – Auxiliary Contact

Type	V _{max} - I _{max}	Mode of protection (Nm)	ATEX Certificate	Ambient Temperature
TECHNOR				
ZBWE 6	400V – 4A	Ex d e IIC	IECEx INE13.0063U	-50°C / +75°C
ZBWE 16	600V – 4A	Ex d e IIC	IECEx INE13.0063U	-50°C / +75°C
CORTEM (only for 63A size)				
M-0530 M-0531	400V – 4A	Ex d e IIC	IECEx CES 11.0031U	- 40°C / +80°C



The ambient temperature is limited by the auxiliary contacts when installed.

The ambient temperature is marked on the label and should not be used outside this range.

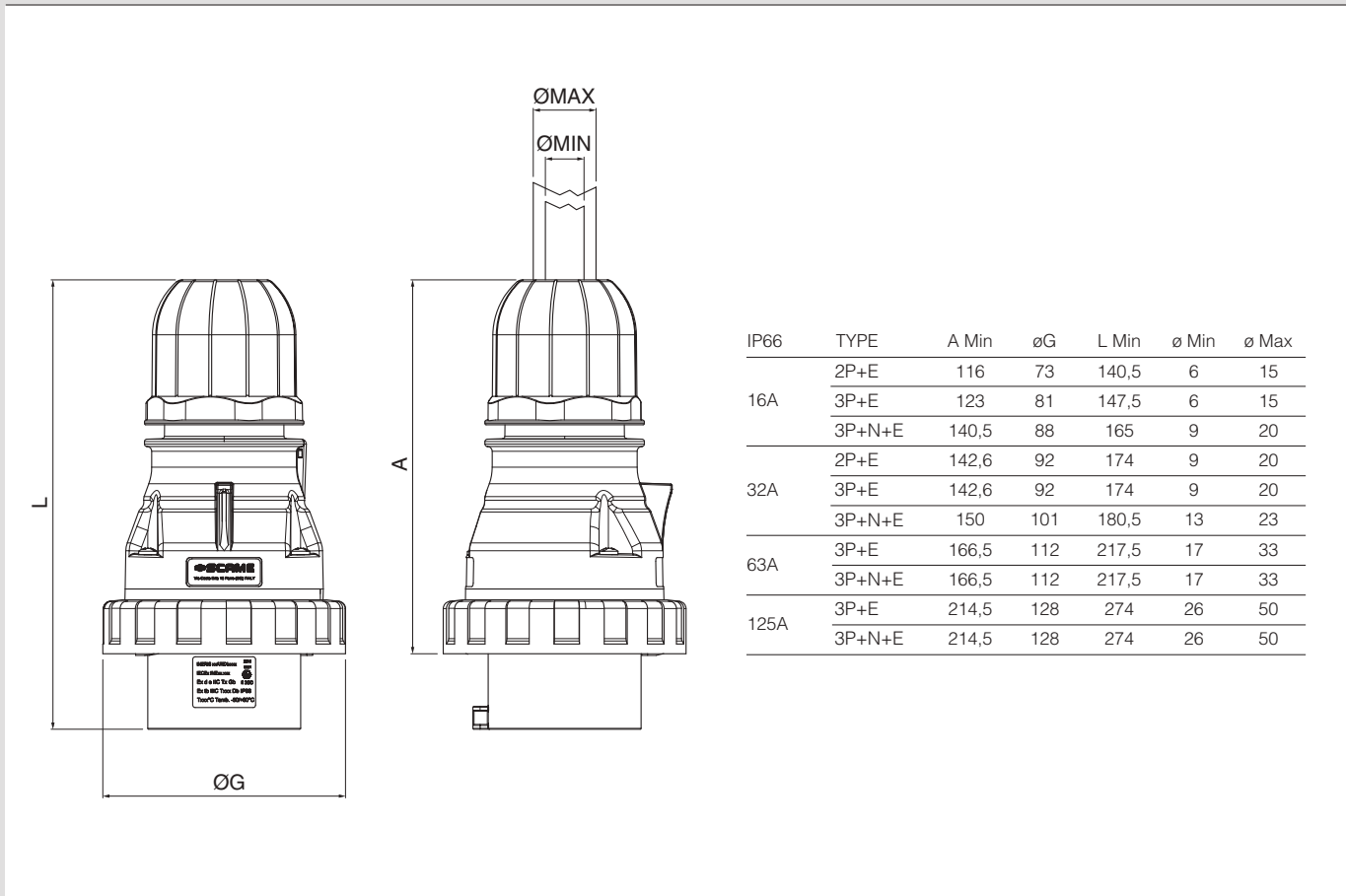
DRILLING AREA

The drilling area have to drilled respecting the minimum distance, and diameters e number of maximum hole indicated in table 2 (Clearance).

Drilling Area	Dimensions	Socket Size	Cable gland size	Clearance		Max. drill holes
				a	b	
	80x45mm	16/32A	20mm 25mm 32mm	21mm 26mm 33mm	39mm 46mm 56mm	2 2 1
	110x55mm	16/32A	25mm 32mm 40mm	26mm 33mm 41mm	46mm 56mm 70mm	2 2 1
	196x72mm	125A top side (A)	25mm 32mm 40mm 50mm	26mm 33mm 41mm 51mm	46mm 56mm 70mm 78mm	5 3 2 2
	72x72mm	125A bottom side (B)	25mm 32mm 40mm 50mm	26mm 33mm 41mm 51mm	46mm 56mm 70mm 78mm	1 1 1 1

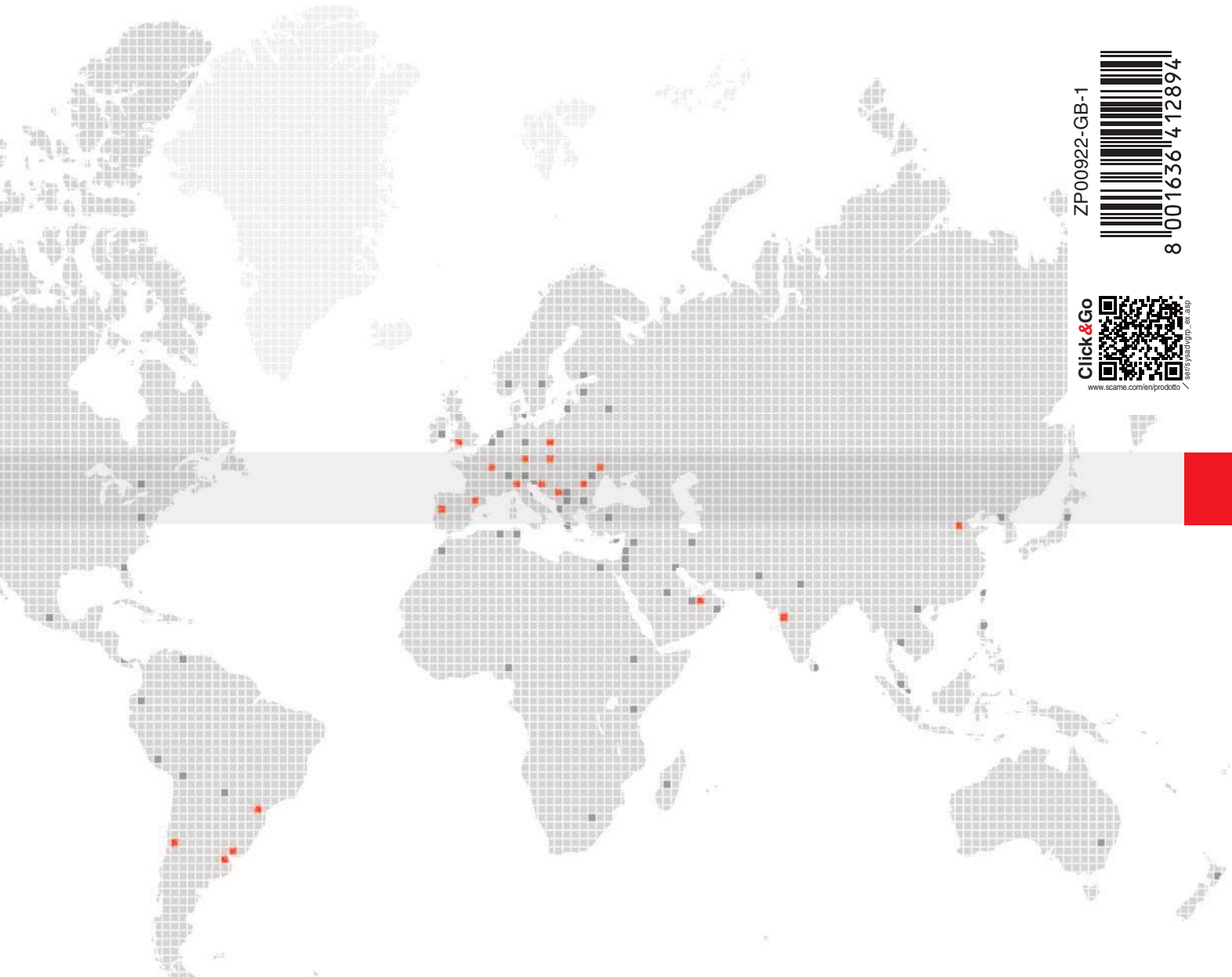
The diagram shows a top-down view of the drilling area. It features a central circular gland with a crosshair. A rectangular area is defined by dimensions 'a' (width) and 'b' (height). A dashed line indicates the 'Clearance' around the gland and the rectangular area.

■ OPTIMA-EX[GD] SERIES - DIMENSIONS



■ TECHNICAL FEATURES

OPTIMA-EX[GD] SERIES	Unit	Value				
		16A	32A	63A	125A	
Rated Current						
Code		219.16...	219.32...	219.63...	219.125...	
Suitable Size cables Ground-Terminals	(mm ²)	2,5	6	10	25	
Power Supply Terminals - Tightening-Torque	(Nm)	1	1.5	2	4	
Cable size accepted by Cable-Clamp (eg.H07RN-F) Do not use armoured cable	(mm)	2P+E	14	16	21	30
		3P+E				
		3P+N+E				
Cable Gland/Cable-Clamp Tightening-Torque	(Nm)	2P+E	5,6	10	10	25
		3P+E				
		3P+N+E				
Cable-Gland/Cable-Clamp (Screw) - Tightening-Torque	(Nm)	0.8	0.8	0.8	0.8	
Handle Screws - Tightening-Torque	(Nm)	1	1	1,2	1,2	



SCAME ARGENTINA
Argentina

SCAME BRAZIL
Brazil

SCAME BULGARIA
Bulgaria

SCAME CHILE
Chile

SCAME CHINA
China

SCAME CROATIA
Croatia

SCAME CZECH REPUBLIC
Czech Republic

SOBEM **SCAME**
France

SCAME INDIA
India

SCAME POLSKA
Poland

SCAME PORTUGAL
Portugal

SCAME ROMANIA
Romania

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Slovakia

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ScameOnLine
www.scame.com
atex@scame.com



SCAME PARRE S.p.A.
VIA COSTA ERTA, 15
24020 PARRE (BG) ITALY
TEL. +39 035 705000
FAX +39 035 703122