

Furnace Stack Airfield Lighting System

(0 ft – 150 ft / 45 mt)

Night Time Lighting Arrangements

Platforms Area Lighting & Obstruction Lights

Comply With

ICAO – FAA – CAA - EAC

Lights & Controls - TDS / Manuals

Catalogs & Technical Data Sheets

القاهرة فى ٠٨/٠١/٢٠١٨ م

السادة : شركة السويس للصلب

تحية طيبة وبعد ،،،

نتشرف مجموعة البدرى للتنمية والاستثمار **BADRY GROUP**، ومن خلال إحدى شركاتها المتخصصة (شركة البدرى للتركيبات الصناعية - BADRY IIC) بأن نتقدم لسيادتكم ب العرض الفني والمالى لعملية "أعمال تنفيذ نظام إضاءة تحذيرية للطائرات وإضاءة منطقة العمل بالمدخنة وفقا لمتطلبات" **ICAO / FAA / CAA / EAC** .

وذلك طبقا للمواصفات الفنية الآتية (نظام الإضاءة الليلية الخاص بالمدخنة الواحدة):

نظام إضاءة ليلية تحذيرية نمطى (أحمر اللون) RED OBSTRUCTION LIGHT SYSTEM
خاص بمنشآت المداخن. **Chimneys, Flare Stacks, and Similar Solid Structures.**

عدد وحدات الإضاءة للمستوى الواحد. Number of Light Units Per Level.

لمدخنة لا يتجاوز قطرها ٦ متر Structures 20 Feet (6 m) or Less in Diameter.

عدد ثلاثة وحدات لكل مستوى. Three light units per level (see Figure A-20 in Appendix A).

A- Over Top-Mounted Obstruction Lights. وحدة إضاءة ليلية أعلى قمة المدخنة

Structures less than 150 Feet (46 m) AGL. At least Twin L-810 lights installed. استخدام ١
إستخدام ١ وحدة مزدوجة ضوء ثابت أحمر (مجوز) من النوع المقاوم للعوامل الجوية أعلى قمة ارتفاع المدخنة = ٤٢ م

B- Under Top-Mounted Obstruction Lights. وحدات إضاءة ليلية للمستوى العلوى أسفل قمة المدخنة

Structures Less Than 150 Feet (46 m) AGL. At least three Single L-864 lights installed.
إستخدام ٣ وحدات فلاش أحمر مفرد (٢٠ فلاش / دقيقة) أسفل قمة المدخنة (الفوهة) ب ٦ متر طبقا للكود

C- Mounting Intermediate Levels. وحدات إضاءة ليلية للمستوى المتوسط

AS Structures under 150 feet AGL. It should have a second level of steady-burning red light units installed approximately at the midpoint of the structure and in a vertical line with the top level of lights.

Steady-Burning (L-810) Lights. The recommended number of light levels is shown in Figure A-15 in Appendix A. At least three lights should be installed on each level.

إستخدام ٣ وحدات ضوء ثابت أحمر (مفرد) من النوع المقاوم للعوامل الجوية عند نصف ارتفاع المدخنة = ٢١ م

النظام الكهربى - ELECTRICAL SYSTEM

إستخدام لوحة تشغيل أسفل المدخنة (يوفر العميل وصول كابل التغذية من لوحة الطوارئ حتى أسفل المدخنة مباشرة) - تشغيل اللوحة بنظام خلية فوتوسيل كهروضوئية بكونتاكتور وتايمر اليكترونى وسويتش سليكتور وبوش بوتن- ونظام تأريض مستقل - مسار مواسير معدنية ضد الحريق EMT/FR وكابل مسلح بطبقة ضد الحريق (ميكا MICA) تحمل ٧٠٠ درجة (٣ فاز / ٤ قطب) لكل مستوى إضاءة يصل الى بوكس مقاوم للحرارة (واحد / مستوى) - تعلق وحدات الاضاءة على تفصيله صلب تثبت بجسم الطوب المدخنة بأكمون طوب بمقاس وحدة الاضاءة فقط - العرض يشمل التركيب والتشغيل - والتحكم والمراقبة Monitoring Control Panel.

أملين في تعاون مثمر مع سيادتكم ،،،

وتفضلوا بقبول فائق الاحترام ،،،

مدير العمليات

م / هانى البدرى

BADRY Industrial Installations Co.

Quotation

BADRY GROUP Member - Code 146

P.O.Box 1527 Alf Maskan
Cairo 11777, Egypt
Phone 21906401 Fax 21906823

DATE 07/03/2019
Quotation # 1470 (Rev.00)
Customer ID 980

Quotation For:

Project Platform & Obstruction Night Lights
Name Mr. Saad Kamona
Company Suez Steel
Address Suez Industrial Area
City, State ZIP Suez, Egypt
Phone 0100 615 72 24
E-Mail s.kamona@hotmail.com

Quotation valid until: 31/03/2019

Prepared by: Jasmin Salah



**Furnace Stack Lighting
Lighting System (Chimney)**

Comments or Special Instructions: 50% In Advance, 25% On Material On Site, 25% Within Delivery
Delivery 4 Weeks, From PO / PR / WO & Advanced Payment

SALE SPERSON	QUOTE NUMBER	DELIVERY PERIOD	SHIP VIA	DELIVERY	TERMS
Jasmin Salah	1470-00 / 146 / 980	4 Weeks (4W)	DTD	SUEZ	Due on Order

QUANTITY	DESCRIPTION	SUPPLY	INSTALL	AMOUNT (EGP)
1	LS, Design, CAD, WSD Work-Shop-Drawings	EGP 3,000	12,000	EGP 15,000
6	NO, Bulkhead EX LED Light Fixture OMP (Poland)	EGP 20,000	2,000	EGP 132,000
3	NO, Exe Aluminium J.B, 300X200X100 mm (Italy)	EGP 8,000	1,000	EGP 27,000
1	PC, Twin Above TOP OBL Red Steady L-810 (France)	EGP 22,000	4,000	EGP 26,000
3	PC, Single Under TOP OBL Red Flash, L-864 (France)	EGP 15,000	2,000	EGP 51,000
3	PC, Single MID OBL Red Steady L-810 (France)	EGP 12,000	1,000	EGP 39,000
3	LS, Manual Pulley System, Gearbox, Handel (EGY)	EGP 45,000	10,000	EGP 165,000
13	NO, Light Unit ST Mounting Support, Local, (EGY)	EGP 2,000	500	EGP 32,500
200	MT, Thermo / MICA Fire RT CU 5*6 Cable 700°C (EGY)	EGP 300	50	EGP 70,000
200	MT, Rubber / MICA Fire RT CU 7*1 Cable 700°C (EGY)	EGP 400	75	EGP 95,000
200	MT, Fire Rated EMT Conduit for Cable (EGY)	EGP 200	100	EGP 60,000
3	NO, IP-67 Steel BOX C/W Terminal Block (Italy)	EGP 6,000	1,000	EGP 21,000
1	NO, LCP; Lighting Control Panel (ABB - EGY)	EGP 35,000	8,000	EGP 43,000
1	NO, OMP; OBL Lights Montoring Panel (ABB - EGY)	EGP 105,000	25,000	EGP 130,000
1	LS, Earth Pit, 2 Rods, Bar, Manhole - 3 Ω (UK)	EGP 8,000	2,000	EGP 10,000
1	LS, T&C, ABD, O&M, Documentaion, Certification	EGP 2,000	8,000	EGP 10,000

Atatched Technical Data Sheet for Obstruction Light	SUBTOTAL	EGP 926,500
Steel Support, Control Panel Acc. To SPECS & STDs	VAT RATE	5.00%
Prices SITC; Supply, Install, Test, Commission (T&C)	VAT TAX	EGP 46,325
OTHER Cost for Transport, Accomodation (Un-Refund)	OTHER (Un-Refund)	EGP 27,175
Offer Excluding Social Insurance, Spare Parts (Separet Quote)	TOTAL	EGP 1,000,000

ABD = AS-Builts, O&M = Operations & Maintenance Manuals

If you have any questions concerning this quotation contact Ms. Jasmin Salah
Tel +20 2 219 06 401, Fax +20 2 219 06 823, hasoegypt@gmail.com, badry@badrygroup.com

THANK YOU FOR YOUR BUSINESS!

BADRY
Group

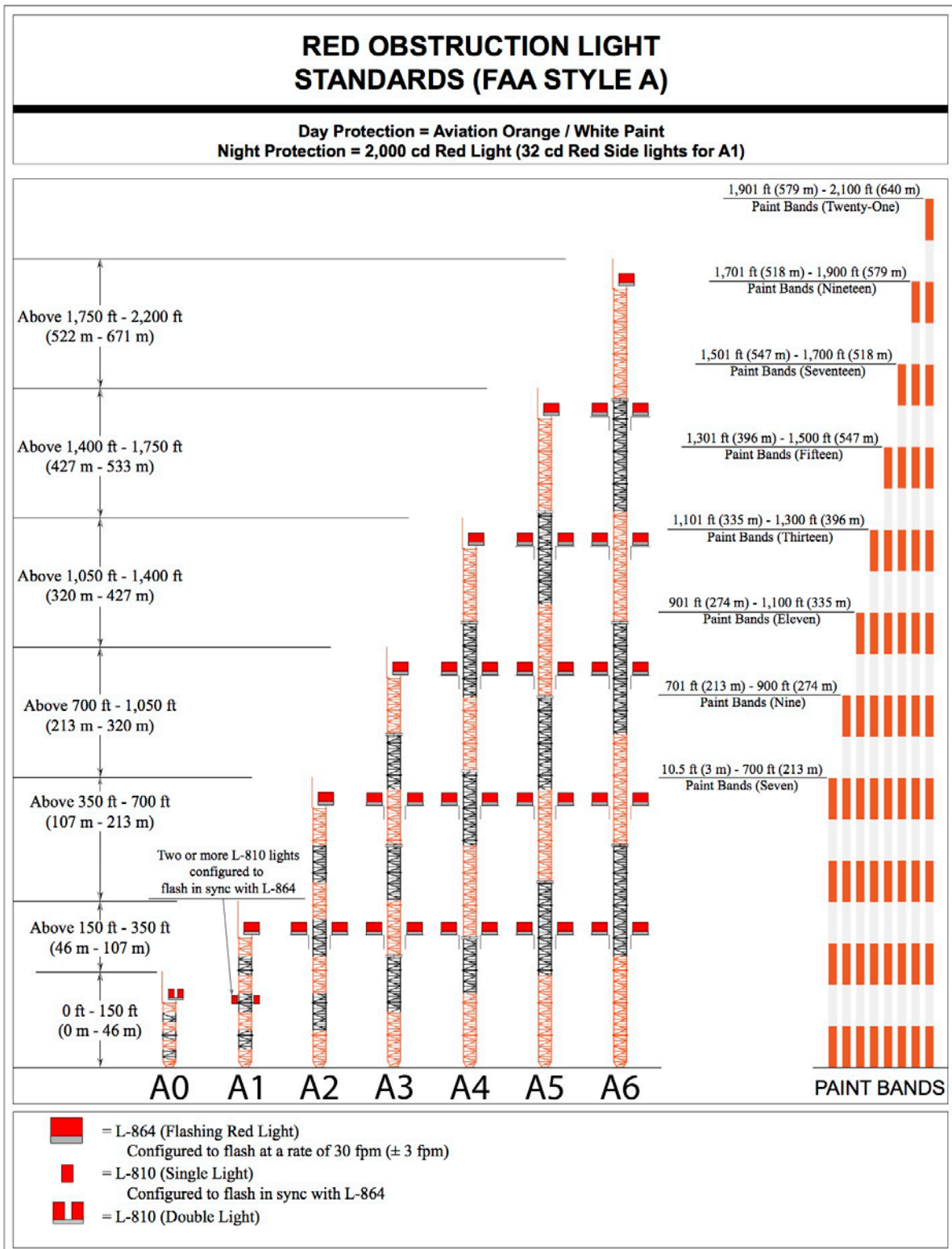


Figure A-6. Red Obstruction Light Standards

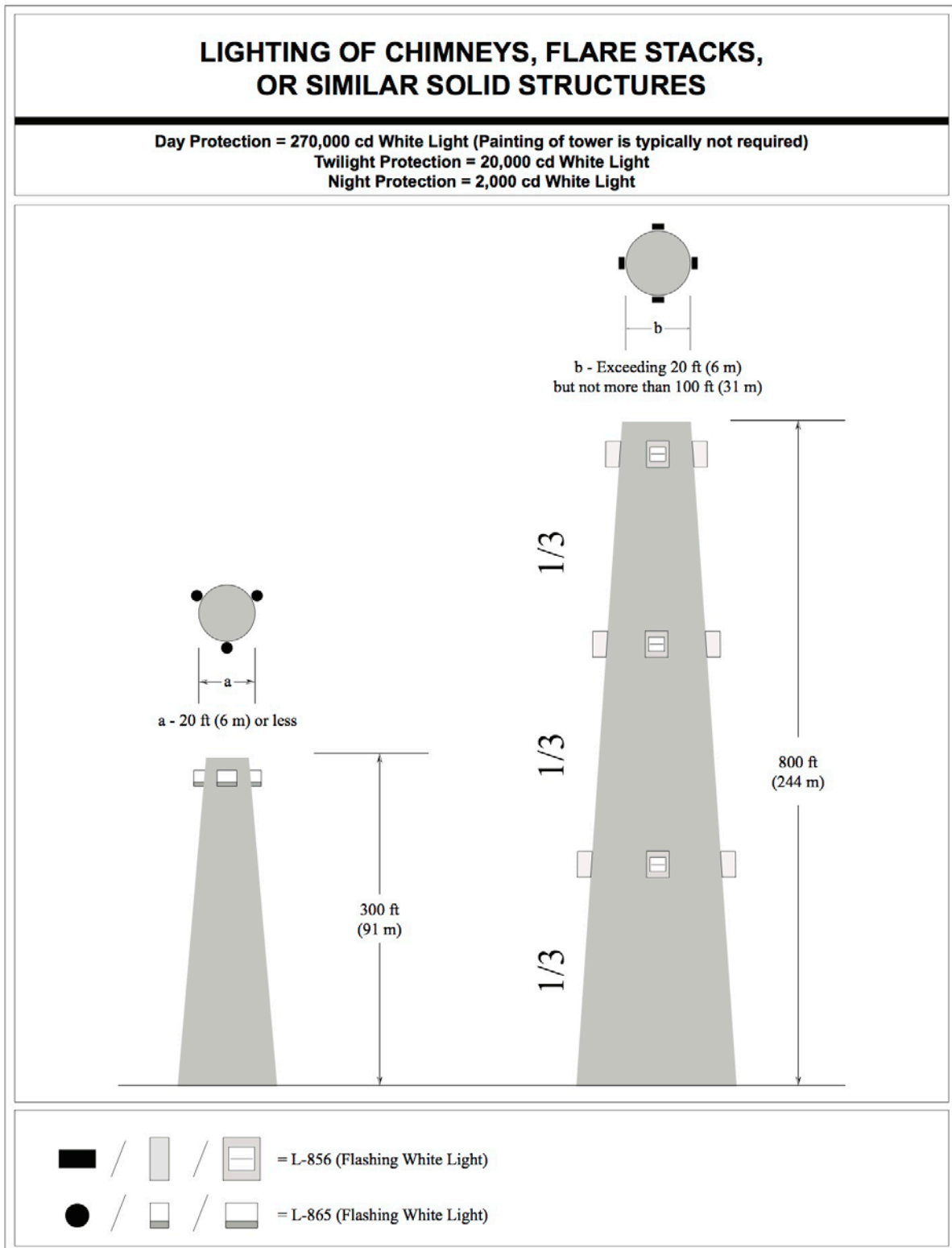


Figure A-20. Lighting of Chimneys, Flare Stacks, or Similar Solid Structures

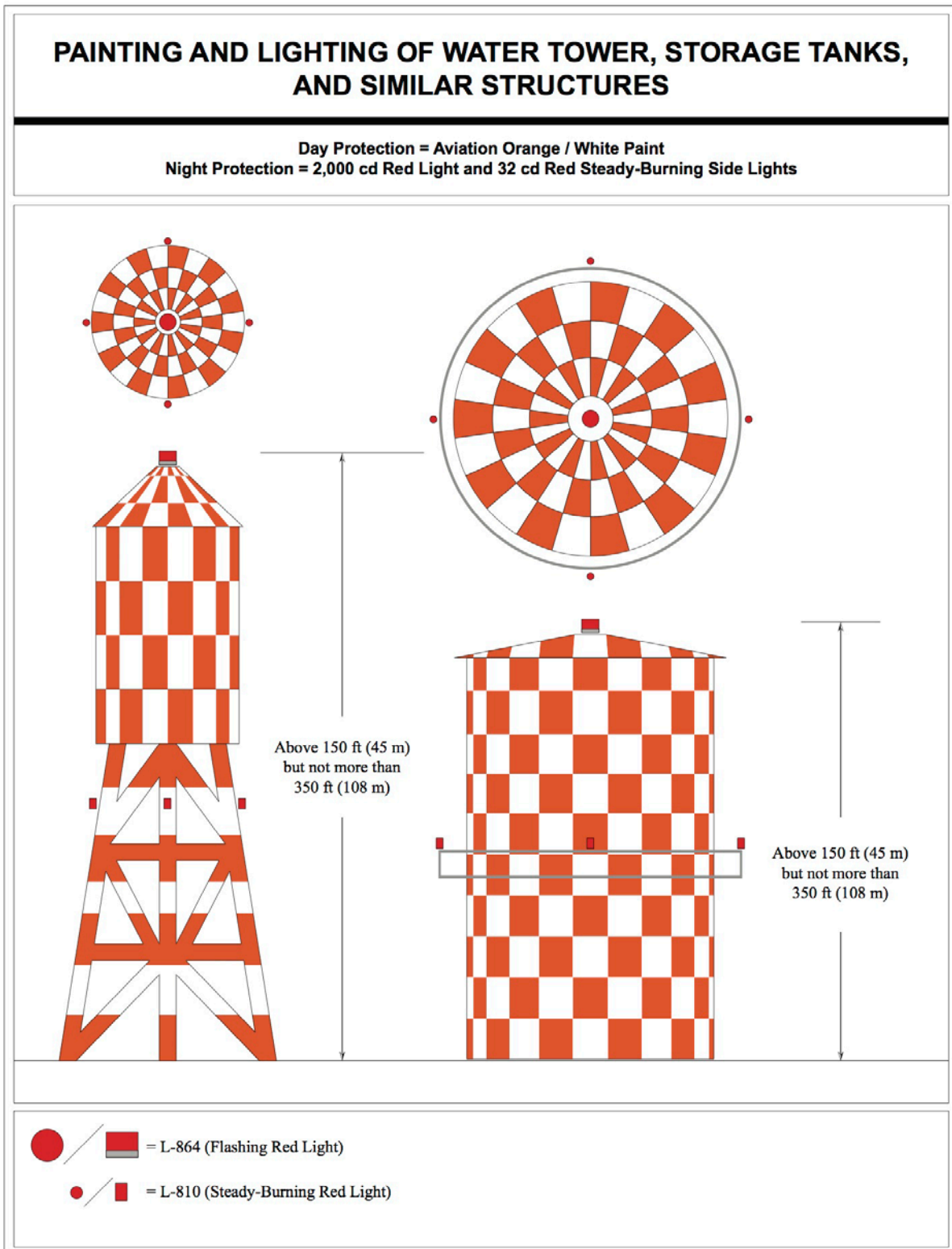


Figure A-15. Painting and Lighting of Water Towers, Storage Tanks, and Similar Structures

EX Single Obstruction Light (Explosion Proof)

LBEx - 02

Domeniul de utilizare: Iluminarea obstacolelor aeriene sub 100 m în atmosfere explozive grupa II. Lampa de balizaj tip A (10 cd)

Descriere:

Carcasa: Din siluminiu, turnată sub presiune și vopsită

Rama: Din siluminiu, turnată sub presiune și vopsită

Dispersor: Din policarbonat roșu

Introducător de cablu cu etanșare prin garnitură de cauciuc pentru diametru $\varnothing 11$ - $\varnothing 14$ mm, Secțiunea maximă a conductorului 2,5mm

Număr de borne: 3 (L1, L2-dulie, PE)

Montaj: Staționar, conectare individuală

Fixare:

- pe țevă cu diametrul $\varnothing 40$ mm printr-un colier metalic zincat
- prin flanșă din tablă de oțel zincat cu 4 șuruburi M4 x 45

Condiții speciale pentru folosire sigură: Risc redus la deteriorare mecanică

Protecție antiexplozivă:

II 2G, Exde II C

e - securitate mărită

Certificat: SECEEx,NMATEx,2003,12122X+A1/2007

Application: Lighting of aerial obstacles under 100 meters in atmospheres with danger of explosion group II. Obstruction light type A (10cd)

Description:

Body: Powder painted pressure cast silumin

Frame: Powder painted pressure cast silumin

Diffuser: Red PC

Cable insertion with rubber gasket sealing for cable diameters between $\varnothing 11$ - $\varnothing 14$ mm

Maximum cross-section of the wire: 2,5 mm

Number of terminals: 3 (L1, L2-socket, PE)

Mounting: Stationary; individual connection

Fixing:

- by a zinc-plated metallic collar on a pole with $\varnothing 40$ mm diameter
- by a zinc-plated steel sheet flange with 4 screws M4 x 45

Special conditions for safe use: Low risc of mechanical damage

Explosion proof protection:

II 2G, Exde II C

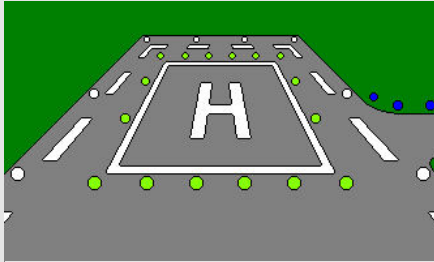
e - increased safety

Certificate: SECEEx,NMATEx,2003,12122X+A1/2007



THORN

Airfield Lighting



Elevated Omni-directional Low & Medium Intensity Light

F 2.1

DOC 1803.E

Revision 3.0 01/05/06

Utilisation

- . Boundary Marking of F.A.T.O : Final Approach and Take Off area
- . Boundary Marking of T.L.O.F: Touchdown and Lift Off area
- . Taxiway Edge
- . Apron Edge
- . Heliport Approach Lighting System
- . Low Intensity obstruction

Compliance with Standards

- . ICAO : Annex14 Volume II § 5.3.3, 5.3.6, 5.3.7, 5.3.8, 5.3.10
- . FAA : AC 150/5390-2B
- . OTAN : STANAG 3652
- . French STNA
- . CAP 168
- . BS 3224



F2-1 Elevated Omni-directional Low & Medium Intensity Light

Main advantages

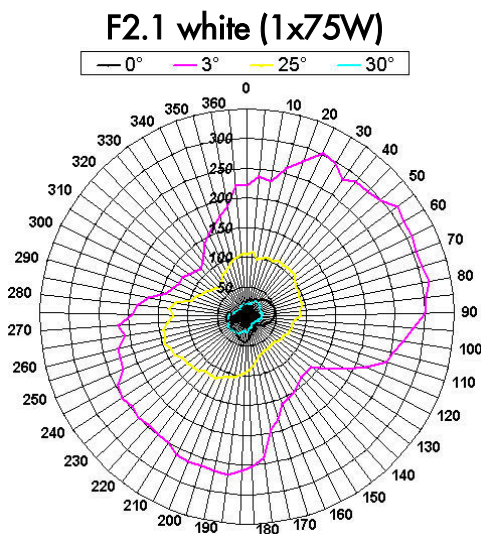
- Low power consumption
- Power supply : 30 Vac 50/60 Hz.
- Lifetime higher than 2,000 hours for halogen lamps, higher than 50,000 hours for LED.
- Frangibility of the fitting comply with FAA standards.
- Easy and fast lamp replacement.
- Power Supply Cable protected by running through the support.
- Simple but sturdy design.
- Light weight : less than 1,5 kg with the lamp.
- The fittings installed on frangible holding tube can be equipped in option with a day marking cone.

Technical characteristics

Lamp :	E27 lamp of 75, 60 or 100 W. Lifetime higher than 2,000 hours.
LED lamp :	E27 "lamp" with 6 LED. Consumption around 4W. Lifetime higher than 50,000 hours.
Power :	230 Vac, through a 2 x 1, 5 mm ² cable.
Photometrics & colors :	Compliant with ICAO Annex 14 Appendix 2.
Finish :	Yellow full coloured body in polyamid reinforced with glass. Mounting accessories in aluminium. All fixings and fastening in stainless steel.
Overall height :	250 mm (short frangible tube), 340 mm (long frangible tube), from 350 mm to 1,8 m (tiltable mast).
IP :	54
Class :	2



Photometrics

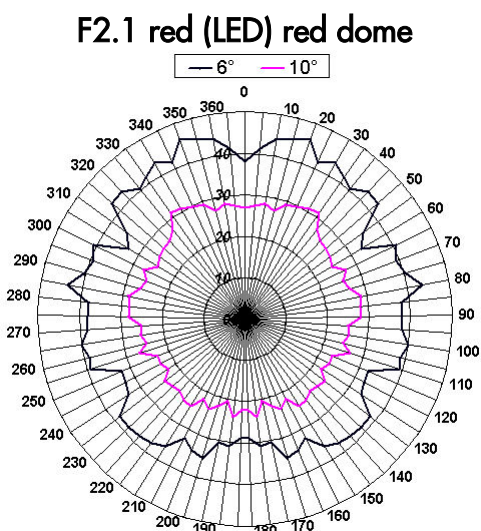
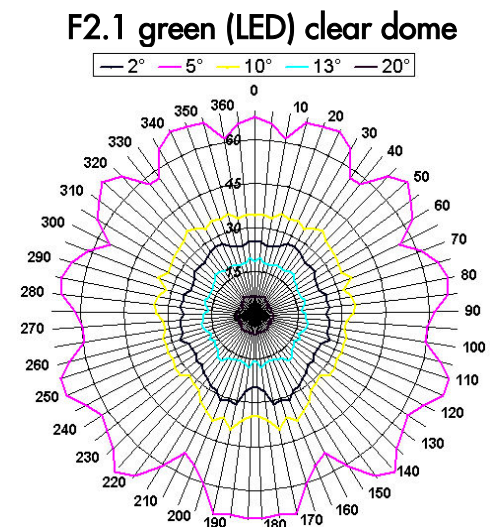


Helipad lights

F.A.T.O. edge



T.L.O.F. edge

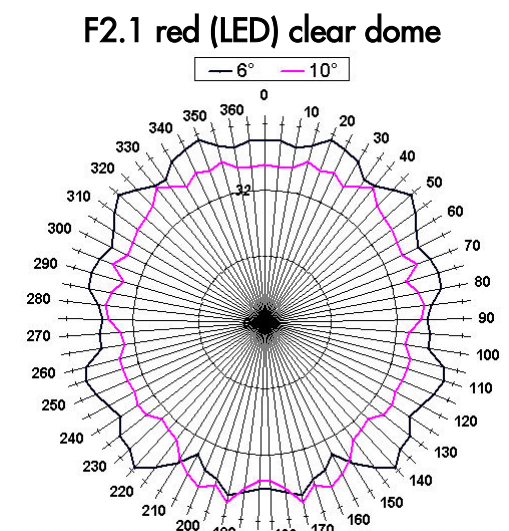


Low Intensity obstruction lights

A type (10cd)



B type (32cd)



F2-1 Elevated Omni-directional Low & Medium Intensity Light

Design

For all the fittings (Approach, T.L.O.F, F.A.T.O, Obstruction, Taxiway Edge and Apron Edge) :

- 1) F2-1 Tripod Stand
- 2) Frangible Holding Tube Fixing Screws
- 3) Frangible Holding Tube Locknuts
- 4a) Long Frangible Holding Tube
- 4b) Short Frangible Holding Tube
- 5) F2-1 Mounting and accessories
- 6) E27 Lamp Holder
- 7) Lamp Holder Fixing Screws
- 8) F2-1 Gasket
- 9a) 100 Watts E27 Lamp
- 9b) E27 LED lamp

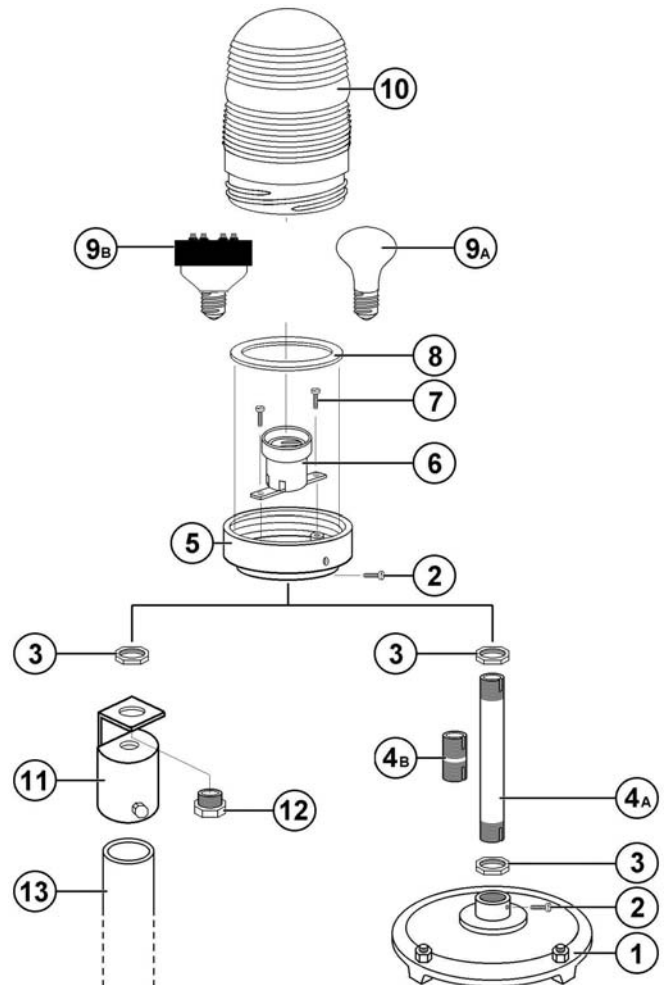


- 10) F2-1 Optical Glass With Fresnel Prism screwed in the Mounting

Only for Approach fittings :

- 11) Fixing for Mounting on 60 mm Tube
- 12) F2-1 Fixing Screw
- 13) 60 mm Tube

Note : Fitting mounted on long frangible holding tube can be equipped as an option with a day marking cone.



Installation

- Ground level mounting on Long Frangible Tube (Fig 1).
- Ground level mounting on Short Frangible Tube (Fig 2).
- Up to 1.8 m on a Pole with Frangible Coupling (Fig 3).
- Between 1.8 m et 8.10 m on Tilttable Mast.
- On Any other safety support with 60 mm external diameter.

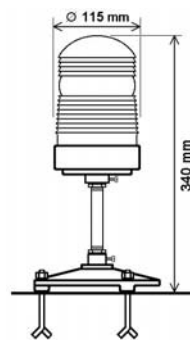


FIG 1

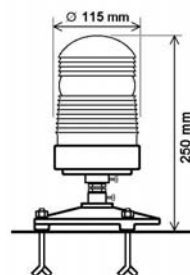


FIG 2

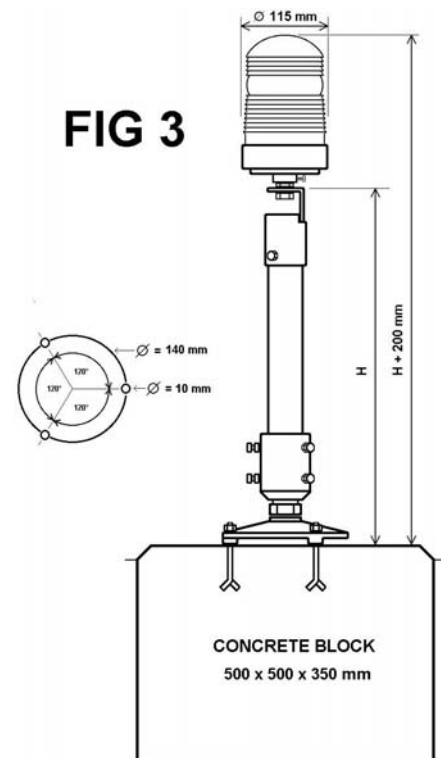


FIG 3

F 2.1 light

Ordering Code

F2.1 light

- F2.1 mounting (without optical glass and lamp) F2.1+E27
- White optical glass dome for E27 lamp F2.1 / FILTER / W
- Red optical glass dome for E27 lamp F2.1 / FILTER / R
- Blue optical glass dome for E27 lamp F2.1 / FILTER / B
- Frangible tube
 - . Long frangible tube F2.1 / LONG_FT
 - . Short frangible tube F2.1 / SHORT_FT
- Special tripod stand for frangible tube F2.1 / TRIPODE STAND
- 60 mm tube fixing accessory F2.1 / 60mm COUPLING
- Frangible coupling, 60 mm tube and tripod stand See Doc 1401.E

Lamp

- E27 75 W lamp (F.A.T.O) E27 / 75W
- E27 60 W lamp (T.L.O.F, Taxiway and Apron) E27 / 60W
- E27 100 W lamp (Approach) E27 / 100W
- E27 LED lamp RED E27 LED lamp / RED
- E27 LED lamp GREEN E27 LED lamp / GREEN

Day marking cone (Option)

- * Only for ground level mounting on frangible tube F2.1 / DAY_MARKING_CONE

Cardboard packing data

Designation	Volume in m ³	Dimensions in mm	Weight in kg
F2.1 fitting without optical glass and without lamp	0,023	315 x 270 x 270	7
Optical glass dome for E27 lamp (x 6)	0,012	520 x 260 x 200	5,4
E27 lamps (x 25)	0,027	520 x 260 x 200	1,8
E27 LED lamp (x 4)	0,003	165 x 165 x 110	1,24
Day marking cone	0,032	410 x 410 x 185	1,5

Specification

The Approach, F.A.T.O edge, T.L.O.F edge and taxiway edge elevated light shall be omni-directional complying with ICAO recommendations, with FAA, STANAG, CAP 168 and British Standards BS 3224.

It shall be fitted with one E27 lamp of 100W for approach, 75W for F.A.T.O and 60W for T.L.O.F. Lamp lifetime must be longer than 2,000h. For T.L.O.F. edge and Low Intensity obstruction lighting, the fitting shall be equipped with LEDs having a lifetime longer than 50,000 hours.

The optical system shall comprise of just an optical glass done with Fresnel prisms, clear or directly full coloured.

Its water-tightness is obtained by using a flat gasket.

It shall be able to be mounted at ground level (on long or short frangible holding tube) or higher on pole or tiltable mast. The

overall height shall be 250mm with short frangible holding tube or 340 mm with long frangible holding tube.

The weight shall no exceed 1.5 kg with the lamp.

The body shall be made of polyamide reinforced with glass fibre, full coloured in yellow aviation. The support tube shall be made of aluminium. All fixings and fastening shall be stainless steel.

The Power cable shall be protected by running through the support.

Maintenance on site shall be high-speed as replacement of the lamp is to be made possible by unscrewing the glass dome.

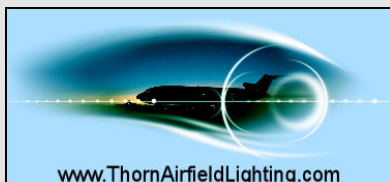
The fittings mounted at ground level on frangible holding tube shall be (as an option) equipped with a day marking cone.

All descriptions and photometric characteristics in this publication present only general particulars and shall not form of any contract. The right is reserve to change then without prior notification.

Thorn Airfield Lighting France
156 boulevard Haussmann
75379 Paris Cedex 08
FRANCE
Tel : +33 (0) 1 49 53 62 62
Fax : +33 (0) 1 49 53 62 89
info@ThornAirfieldLighting.fr

Thorn Airfield Lighting Pty Ltd
7-9 Newcastle Road
Bayswater Victoria 3153
AUSTRALIA
Tel : +61 (0) 3 97 20 32 33
Fax : +61 (0) 3 97 20 82 33
info@ThornAirfieldLighting.com

Thorn Airfield Lighting UK Ltd
11 Town Quay Wharf, Abbey
Road,
Barking, Essex, IG117BZ
UNITED KINGDOM
Tel : +44 (0) 208 594 2747
Fax : +44 (0) 208 594 2848
info@ThornAirfieldLighting.co.uk



**LIGHTING
FIXTURES
FOR LED AND HID
SODIUM LAMPS
UP TO 200W
EVde ... SERIES**

INERIS 01 EX-M

MODE OF PROTECTION

EX-M de IIB T4 /
T200°C EEx de IIB T4 /
T135°C Tamb. - 50°C /
55°C
- 50°C / 60°C

IP 65
compliance with European Standards:
EN 50014
EN 50018
EN 50019
EN 50281-1-1
EN 60529

suitable for Zone 1 (gas)
and Zone 21 (dusts)

CE 0080  II 2GD
according to European Directive
94/9/EC (ATEX)

**APPARECCHI
ILLUMINANTI
PER LED LAMP
HID ED ALOGENE
FINO A
200W-SERIE EVde ...**


INERIS 01EX-M

MODO DI PROTEZIONE

EX-M de IIB T4 /
T200°C EEx de IIB T4 /
T135°C Tamb. - 50°C /
55°C
- 50°C / 60°C

IP 65 in conformità alle Norme
Europee: EN 50014
EN 50018
EN 50019
EN 50281-1-1
EN 60529

idonee per Zona 1 (gas)
e Zona 21 (polveri)

CE 0080  II
2GD
in accordo alla Direttiva Europea
94/9/CE (ATEX)



OMP-070 ...

OMP-100

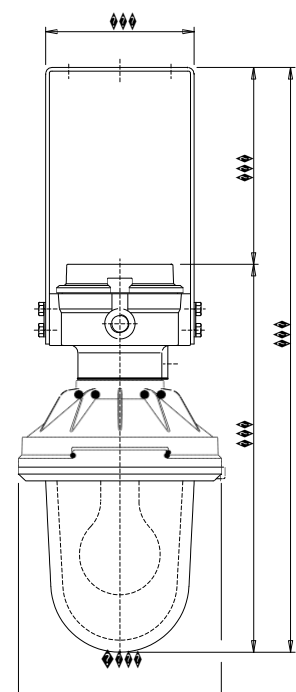
OMP-150

OMP-200

Bully Cage Industrial Lamp from ZAOS

The lamp is made of Aluminum, equipped with a safety cage thick gauze, making it extremely hardwearing. The lamp is Easy to install and is equipped with an adapter from E40 to E27

Plug Type	European Plug (up to 250V)
SKU	UMK-329843
Materials	Antiqued Glass, Steel
Color	Brown
Height / Dia	33 cm / 22 cm



Technical Offer For Cables Generally to IEC 60502-1

General Information:

-Short Description:	CU/MICA/XLPE/LSHF
-Voltage:	0.6 / 1 (1.2) Kv
-Conductor:	Stranded Plain Copper Conductor according to IEC 60228 Class 2/Compacted for 10mm ² and 16mm ²
-Insulation / Temperature:	MICA + Cross Linked Polyethylene according to IEC 60502-1 / 90°C
-Sheathing Material / Temp. / Color:	Low smoke Halogen Free / 90°C / Black

Cable Marking: = EL SEWEDY CABLES = No. of cores x size mm² CU/MICA/XLPE/LSHF 0.6/1 Kv Manufacturing Year Meter Marking

Printing Type: Ink Jet (Printing)

Core Identification:

- 2 Cores: Red, Black
- 3 Cores: Red, Yellow, Blue
- 4 Cores: Red, Yellow, Blue, Black
- 5 Cores: Red, Yellow, Blue, Black, G/Y
- > 5 Cores: Black Coloured Cores With White Numbers
- Binder tape(s) and/or fillers may be used when necessary according to manufacturing process

Packing:

- Cable shall be supplied in lengths as indicated in technical schedule on non returnable wooden reels up to the manufacturer.
- Both ends of the cable shall be sealed to prevent the ingress of moisture during transportation and storage.
- Each reel shall be marked with type, size and length of Cable, and weight.
- This information shall be written on metallic tag nailed properly to the flange.
- Cutting lengths is 500 m ± 5% on each reel for 19 cores cables and above, and 1000 m ± 5% for other cables.
- Metering on cable outer sheath will be started from "X" to "X+999" m for 1000m cutting lengths and to "X+499" m for 500m cutting lengths

Cable Properties:

- Outer sheath will be flame retardant according IEC 60332 Part 3 CAT C
- Cable will be fire resistant according to IEC 60331 (temp. 750 C for 1.5 hr)
- Cable smoke emission will be according to IEC 61034-2
- Cable acid gas emission will be according to IEC 60754-1

Tests:

- Routine tests generally to IEC 60502-1 are performed on the cables and test certificate will be supplied on request.
- Electrical Resistance of the conductors shall be tested on IEC 60228.
- Voltage Test: No breakdown of The insulation shall be occurred, The applied Voltage and duration will be according to IEC 60502-1
- Hot Set Test for XLPE insulation according to IEC 60502-1

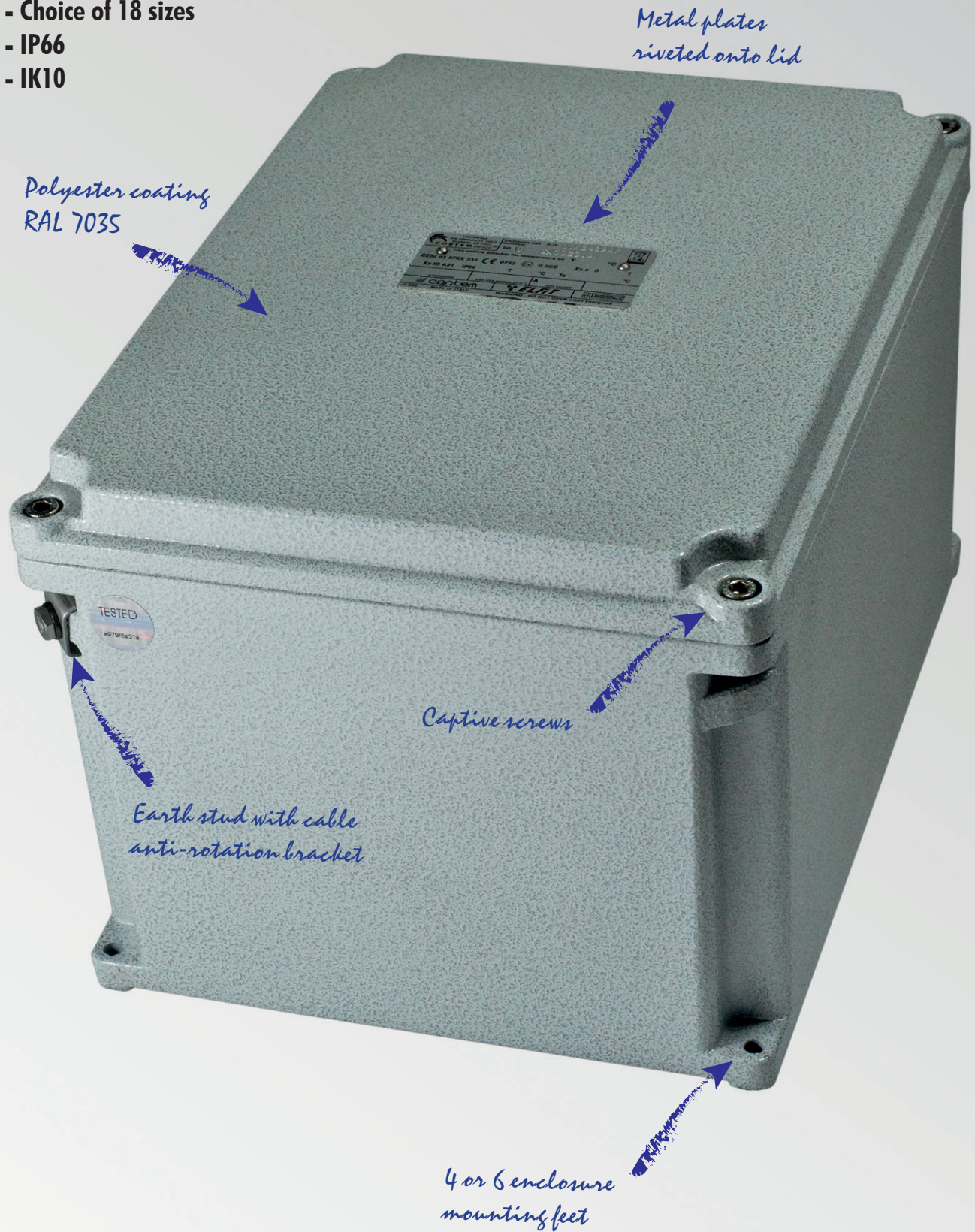
Specifications:

No. of Cores	Size (mm ²)	Approx. Outer Diam. (mm)	Approx. Cable Weight (Kg/Km)	Min. Bending Radius (mm)	Max. Conductor DC Resistance at 20 °C (Ω/Km)	Conductor AC Resistance at Max. Operating Temp. and 50Hz (Ω/Km)
4	6	15.5	420	310	3.08	3.93

-The above data is approximate and subjected to manufacturing tolerance.

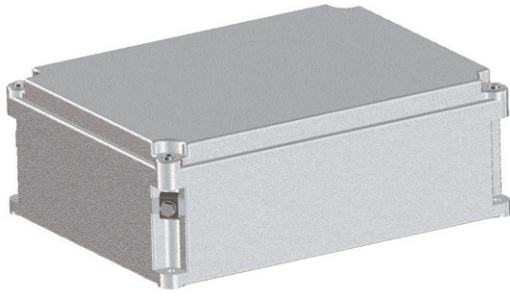
SA, SAG

- Zone 1, 2, 21, 22
- Aluminium enclosures
- Choice of 18 sizes
- IP66
- IK10



SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

Ex e



Zone 1,2,21,22.
Degree of protection IP66.
Aluminium alloy body and lid.
Silicone gasket.
Stainless steel bolts and screws.
Polyester coating RAL 7035.
Impact protection IK10.

Ordering details

Standard aluminium enclosure: **SA302310**

Width/Depth/Height: **305/230/109mm**

Certification data for enclosures with terminals

Group II Category 2GD

Zone 1 - Zone 2 (Gas) Zone 21 - Zone 22 (Dust)

II 2GD Ex eb IIC T.. Gb - Ex tb IIIC T.. Db IP66

II 2GD Ex ia IIC T.. Gb - Ex ia IIIC T.. Db IP66

II 2GD Ex eb ia IIC T.. Gb - Ex tb ia IIIC T.. Db IP66

Ambient temperature: -40°C +55°C (+40°C)

Certification:

CESI 03 ATEX 333 (ATEX)

IEC Ex CES 13.0001 (IECEX)

Russian (TR CU)

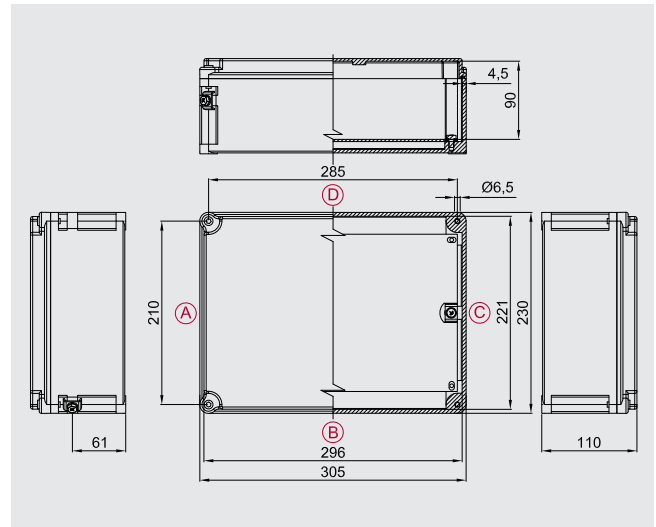
Brazilian (INMETRO)

Accessories

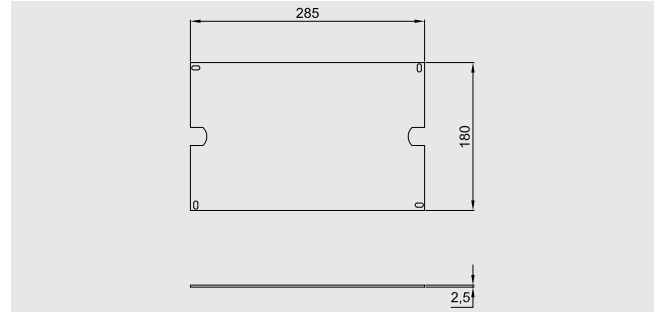
Internal mounting plate:	CODE
2.5mm-thick aluminium:	B32-229
2.5mm-thick galvanized steel:	B32-229AC
2.5mm-thick stainless steel:	B32-229IN
Hinges (two each type):	B-0106
Breather and drain valve:	ECD-210S

Other:

Internal anti-condensation coating
External polyester coatings in different colour
Terminals
Cable glands

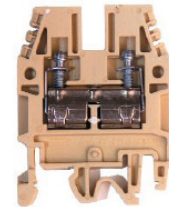


Internal mounting plate dimensions



Max. number of terminals

X-SECT.	QTY.
2.5 mm ²	2x48
4 mm ²	2x40
6 mm ²	2x30
10 mm ²	2x24
16 mm ²	2x20
25 mm ²	15
70 mm ²	-
120 mm ²	-
185 mm ²	-



Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals. The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

Number of cable glands

Hole type	A/C	B/D
M16	10	14
M20	10	12
M25	7	9
M32	3	5
M40	3	4
M50	2	3
M63	-	-



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

Research conducted using Cortem's new REV- and REVD-series cable glands.

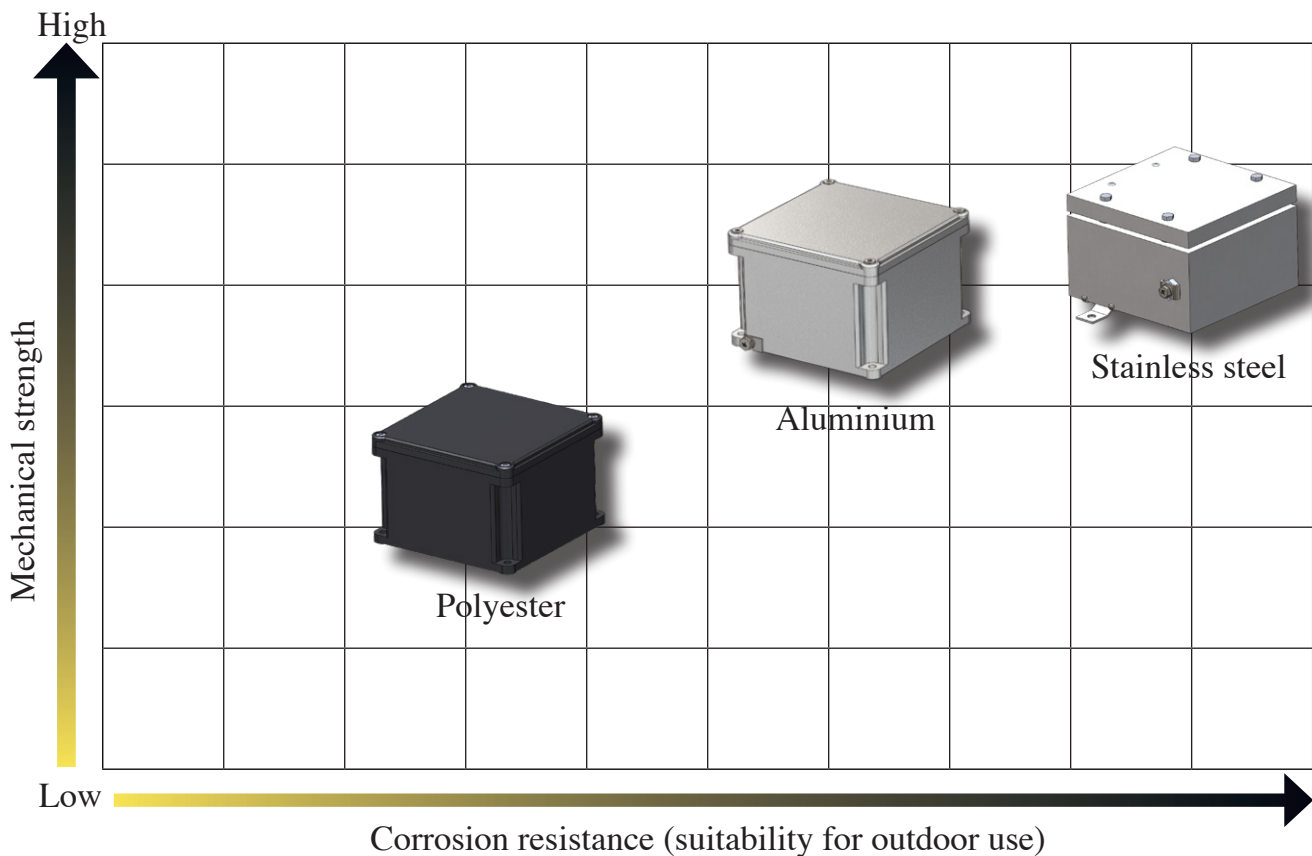
SA series junction boxes: criteria for choosing the right product

When it comes to deciding on an increased safety enclosure, there is a whole series of essential data to be taken into account if you are to make the right choice: the mechanical strength of the materials, corrosion resistance, the IP protection rating and IK impact protection rating in the case of enclosures for watertight/ industrial use.

Mechanical strength

Properties	Unit	Stainless steel	Aluminium	Polyester
Density	g/cm ³	8.0	2.65	1.7
Tensile strength	MPa	500-700	80-110	130
Elongation	%	60-40	4-10	2
Modulus of elasticity	GPa	193	79	11
Yield strength	MPa	≥ 200	80-165	-
Coeff. of thermal expansion (20-100°C)	10 ⁻⁶ K ⁻¹	16	21	-
Resistivity	Ωm	7.5x10 ⁻⁷	4.8x10 ⁻⁸	-
Electrical conductivity	Ω ⁻¹ m ⁻¹	1.33x10 ⁶	2.08x10 ⁷	-

The graph below gives an overview of what use the various materials are suitable for based on the mechanical stress and harshness of the environmental conditions likely to be encountered.




























Protection ratings

IP PROTECTION RATINGS (IEC 529, EN 60529-4, CEI 70-1 ed. 11/92)

The table gives protection ratings in accordance with standard CEI 70-1 ed. 11/92. Ratings are identified by the acronym IP followed by 2 digits, to which 2 letters may be added, indicating the degree to which persons are protected against access or other properties. There is some variation in the application of ratings 7 and 8 relating to the ingress of liquids, with these ratings not always meaning that the item is suitable for lower levels (whereas IP rating x4 also covers the lower levels).

IMPACT PROTECTION RATINGS

This classification shows the acceptable level of strength, when evaluating a product's safety, and is mainly employed in relation to testing on electromechanical products.

1ST DIGIT PROTECTION AGAINST SOLID OBJECTS	2ND DIGIT PROTECTION AGAINST MOISTURE	PROTECTION AGAINST EXTERNAL MECHANICAL IMPACT *
0 Not protected 	0 Not protected 	IK00 Not protected 
1 Protected against solid objects greater than 50mm in Ø 	1 Protected against vertically falling drops of water 	IK01 0.25 kg 5.6 cm Protected against impact energy of 0.15J 
2 Protected against solid objects greater than 12mm in Ø 	2 Protected against rain when tilted up to 15° 	IK03 0.25 kg 14 cm Protected against impact energy of 0.35J 
3 Protected against solid objects greater than 2.5mm in Ø 	3 Protected against rain when tilted up to 60° 	IK05 0.25 kg 28 cm Protected against impact energy of 0.7J 
4 Protected against solid objects greater than 1mm in Ø 	4 Protected against splashing water 	IK06 0.25 kg 40 cm Protected against impact energy of 1J 
5 Protected against dust 	5 Protected against jets of water from all directions 	IK07 0.5 kg 40 cm Protected against impact energy of 2J 
6 Totally protected against the ingress of dust 	6 Protected against heavy seas 	IK08 1.7 kg 30 cm Protected against impact energy of 5J 
ADDITIONAL LETTER**	7 Protected against the effects of immersion 	IK09 5 kg 20 cm Protected against impact energy of 10J 
A Protected against access with the back of the hand	8 Protected against the effects of continuous immersion 	IK10 5 kg 40 cm Protected against impact energy of 20J 
B Protected against access with a finger		
C Protected against access with a tool		
D Protected against access with a wire		
OPTIONAL LETTER		
H High-voltage device		
M Tested against the harmful effects of water ingress with the equipment running		
S Tested against the harmful effects of water ingress with the equipment not running		
W Suitable for use in specified atmospheric conditions		

* As per IEC EN 50102: 1996-05; IEC EN 60078-2-7-5: 1998-09.

** Optional letter describing protection against access by persons. Only used if protection against access to hazardous parts is greater than that indicated by the first digit, or if only protection against access to hazardous parts is given and an X is used in place of the first digit.

SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

SA...SAG series junction boxes are made from aluminium alloy and given an electrostatically applied polyester coating containing stainless steel particles that is then baked at 200°C. This treatment ensures good UV as well as thermal stability, providing mechanical impact resistance and excellent resistance when exposed either to salt mist or to marine and other damp environments. SA and SAG series junction boxes are usually installed in industrial plants where there is a risk of explosion and fire, classified as Zone 1, 2, 21, 22; they are mainly used as junction boxes and/or for routing cables to control rooms for analogue or digital signals and for control, monitoring and signalling associated with equipment such as motors, pumps...etc., or for giving physical readings such as flow rate, level, temperature, pressure, etc.... The thickness of its walls (7mm) means the SAG series is suitable for direct connection with pipes and fittings featuring tapered threads. Cortem's custom solutions offer ATEX- and IECEx-certified components and application solutions devised for use in explosion hazard areas. The expert Cortem team endeavours to meet all customer requests.

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumerical univocal code, as a safety measure against the illegal sale of fakes so that all the products are guaranteed as original. Non-compliance with the International standards entails serious risks for the environment, especially for those working daily on the plants.



TYPE AND APPLICATION

Choosing an appropriate container is a key step in the project development process, making it essential to approach the decision systematically, evaluating all variables methodically: where our equipment is being installed, the environmental conditions on site, what degree of protection it must have, what space is available and how it is due to be set up. Once you have processed all this information, you should be able to determine which product best suits the design requirements in question.

ENVIRONMENTAL CONDITIONS

The first factor to consider is what environmental conditions the equipment is going to be installed in, whether it will be indoors or outside, and what environments it is required to operate in: pharmaceutical, chemical, petrochemical, food, shipbuilding, agricultural industries...

DIMENSIONS

The size of the space available for inserting the enclosure and its components must be determined early on in the process.

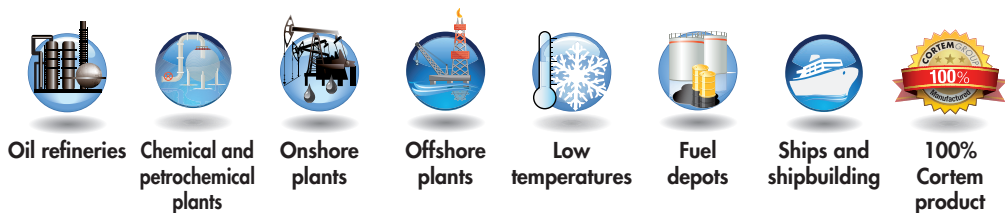
DESIGN

Taking into account the technical aspect, product design and appearance is also important in ensuring the equipment to be installed in the enclosure is integrated seamlessly. A Cortem team of experts is on hand every day to address your questions and come up with the best solutions.

Cortem enclosures have passed:

- IP protection testing;
- IK strength testing;
- vibration and impact resistance testing;
- salt mist testing for corrosion resistance;
- heat resistance testing;
- low temperature resistance testing.







Application sectors:



SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

Ex e

CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS

Classification:	Group II	Category 2GD		
Installation: EN 60079-14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722  II 2GD Ex eb IIC T6/T5/T4 Gb - Ex tb IIIC T75°C/T1 10°C Db IP66 CE 0722  II 2GD Ex e ia IIC T6/T5/T4 Gb - Ex ia IIIC T75°C/T1 10°C Db IP66 CE 0722  II 2GD Ex eb ia IIC T6/T5/T4 Gb - Ex tb ia IIIC T75°C/T1 10°C Db IP66			
Certification:	ATEX CESI 03 ATEX 333			
	IEC Ex CES 13.0001	All IEC Ex, TR CU and INMETRO certification data can be downloaded from www.cortemgroup.com		
	TR CU AVAILABLE			
	INMETRO DNV 15.0119			
Standards:	CENELEC EN 60079-0: 2012+A11:2013, EN 60079-7: 2015, EN 60079-11: 2012, EN 60079-31: 2014 ed alla DIRETTIVA EUROPEA 2014/34/UE IEC 60079-0: 2011, IEC 60079-7: 2015, IEC 60079-11: 2011, IEC 60079-31: 2013			
 Ambient Temp.:	 See "ambient temperature range" table 			
Degree of protection:	IP66			

AMBIENT TEMPERATURE RANGE

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +40°C	T6	T75°C	+80°C
-40°C +55°C	T5	T75°C	+95°C

LOW AND HIGH TEMPERATURE RANGE (accordingly with the temperature allowed by the terminals)

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-60°C +40°C	T6	T75°C	+80°C
-60°C +55°C	T5	T75°C	+95°C
-60°C +65°C**	T5	T75°C	+95°C

** For this temperature range the maximum dissipated power shall be reduced by 25% and the nominal current by 15%

TEMPERATURE RANGE FOR SIGNALING (max. 1 A for not Ex i circuits, max. 100 mA for 'Ex i' circuits)

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-40°C +60°C	T6	T75°C	+80°C








TEMPERATURE RANGE FOR SIGNALING (max. 10 A for not Ex i circuits, max. 100 mA for 'Ex i' circuits)

AMBIENT TEMPERATURE	TEMPERATURE CLASS	MAXIMUM SURFACE TEMPERATURE	MAXIMUM TERMINAL OPERATING TEMPERATURE
-60°C +85°C	T4	T110°C	+120°C








SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

Ex e

CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722  II2GD - Ex de IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66			
	CE 0722  II2GD - Ex e IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66 (When on the box is installed only ammeter or voltmeter type B-0140)			
Certification:	ATEX CESI 03 ATEX 115			
	IEC Ex CES 11.0032	All IEC Ex, TR CU and INMETRO certification data can be downloaded from www.cortemgroup.com		
	TR CU AVAILABLE			
	INMETRO DNV 15.0125			
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007, N 60079-31: 2009, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011-06, IEC 60079-7: 2006-07, IEC 60079-11: 2008-11, IEC 60529: 2001			
 Ambient Temp.:	 -40°C +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -40°C +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
Degree of protection:	IP66			

CERTIFICATION DATA OF ENCLOSURES WITH EQUIPMENT (FIELD BUS, PROXIMATOR, HEATER...)

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722  II2GD - Ex eb IIC T6/T5 Gb - Ex tb IIIC T85°C/T100°C Db - IP66			
	CE 0722  II2(1)GD - Ex eb ib mb [ia Ga] IIC T4 Gb - Ex tb [ia Da] IIIC T85°C Db IP66			
Certification:	ATEX CML 16 ATEX 3163X			
	IEC Ex CML 16.0074X	All IEC Ex certification data can be downloaded from www.cortemgroup.com		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-7: 2015, EN 60079-28: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011-06, IEC 60079-7: 2015, IEC 60079-28: 2015, IEC 60079-31: 2013			
 Ambient Temp.:	 -40°C (-50°C) +40°C 	With temperature class T6 and maximum surface temperature T85°C.		
	 -40°C (-50°C) +55°C 	With temperature class T5 and maximum surface temperature T100°C.		
Degree of protection:	IP66			

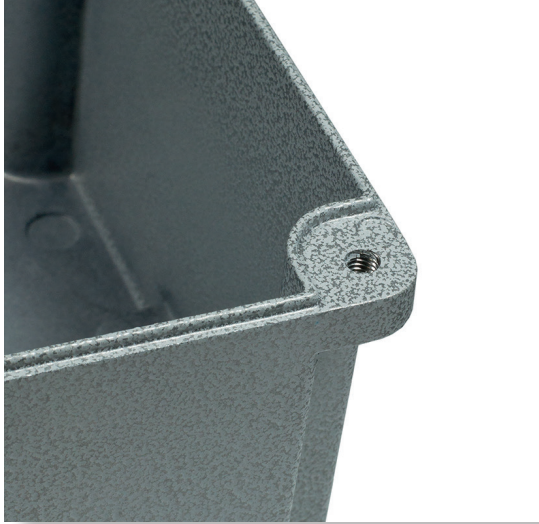
SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

Ex e

SA and SAG SERIES ENCLOSURES

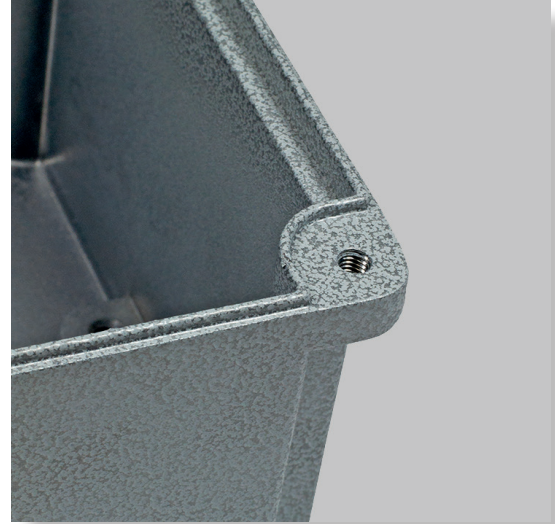
Models from SA-...series (lightweight series)
Thinner walls

The body can only accommodate through holes with no threading



Models from SAG-...series (heavy-duty series)
Extra-thick walls

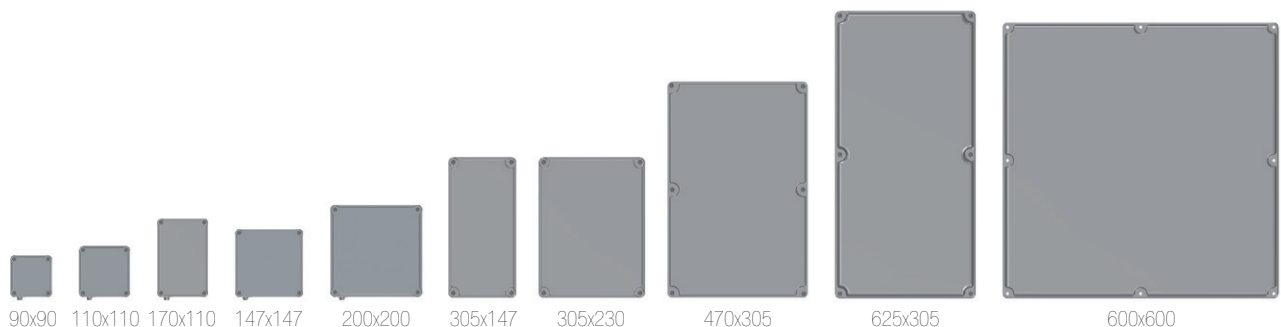
The body can also accommodate threaded holes



GENERAL MECHANICAL PROPERTIES

Body and lid:	Low copper content aluminium alloy
Impact protection rating:	IK10
Gasket:	Acid-, hydrocarbon- and high temperature-resistant silicone, located between body and lid
Certification label:	Aluminium plate riveted onto lid
Bolts and screws:	Stainless steel captive variety
Earth screws:	Stainless steel. On inside and outside of body complete with anti-rotation brackets
Mounting:	Cast aluminium feet for M6 screw
Coating:	Polyester RAL 7035 (Light grey) for Exe or RAL 5015 (Sky blue) for Exi
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN 60068-2-30 (hot/humid cycles) and EN 60068-2-11 (salt mist tests)

OVERVIEW OF SIZES



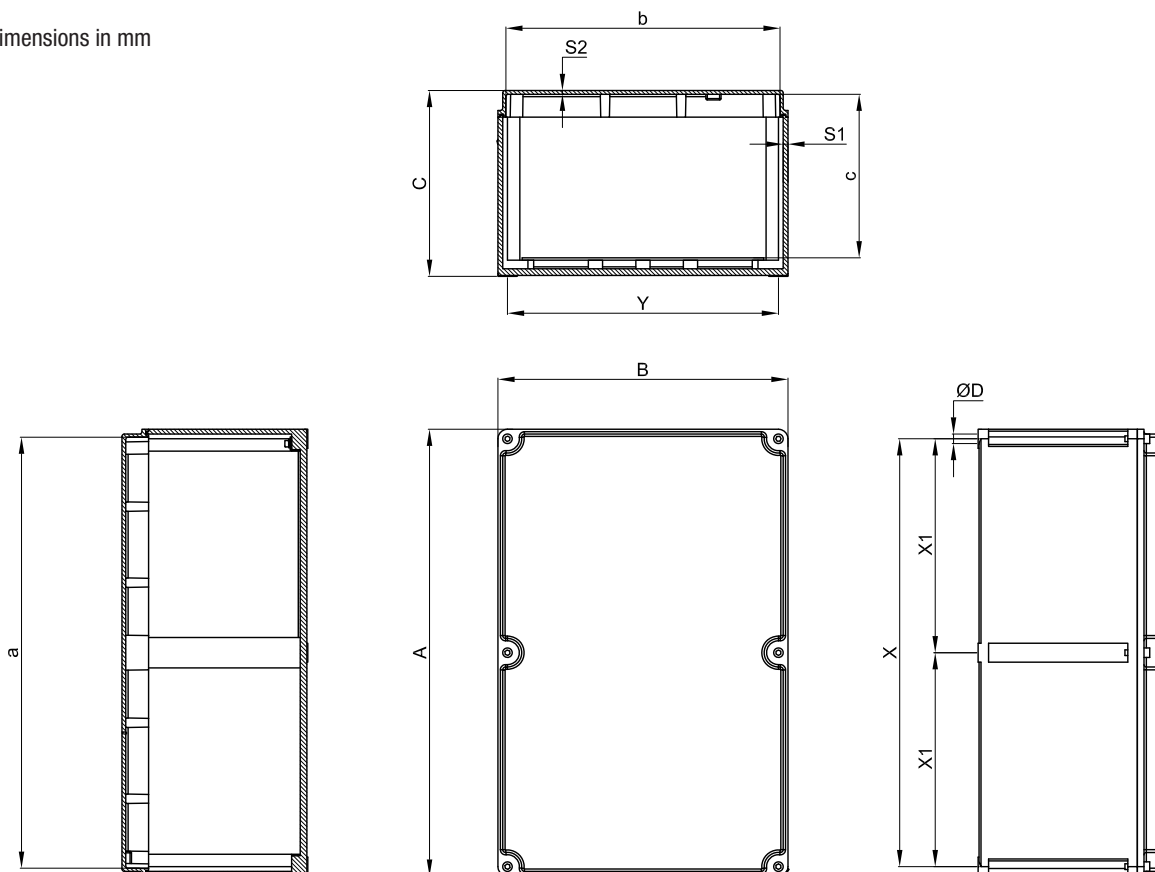
SA, SAG... series (Ex e) and (Ex i) aluminium junction boxes

Ex e

ENCLOSURE SELECTION CHART

Code	External dimensions			Inner dimensions					Fixing				Weight Kg
	A	B	C	a	b	c	S1	S2	X	Y	X1	ØD	
SA090907	90	90	73	84	84	54	3	2.5	74	74	-	6.5	0.40
SA111108	110	110	83	104	104	64	3	2.5	94	94	-	6.5	0.50
SAG111108	110	110	83	96	96	64	7	2.5	94	94	-	6.5	0.75
SA171108	170	110	83	164	104	65	3	2.5	154	94	-	6.5	0.80
SAG171108	170	110	83	156	96	65	7	2.5	154	94	-	6.5	1.55
SA141410	147	147	100	141	141	80	3	2.5	131	131	-	6.5	0.80
SAG141410	147	147	100	133	133	80	7	2.5	131	131	-	6.5	1.40
SA202012	200	200	120	192	192	98	4	3	180	180	-	6.5	1.70
SA301410	305	147	110	296	138	90	4.5	3	285	127	-	6.5	2.00
SAG301410	305	147	96	291	133	75	7	4	285	127	-	6.5	2.70
SA302310	305	230	110	296	221	90	4.5	3	285	210	-	6.5	2.80
SAG302310	305	230	100	291	216	75	7	4	285	210	-	6.5	3.40
SA302318	305	230	190	296	221	165	4.5	3	285	210	-	6.5	3.50
SAG302318	305	230	180	291	216	155	7	4	285	210	-	6.5	5.30
SA473018	475	305	195	465	295	174	5	4	450	285	225	6.5	6.50
SAG473018	475	305	195	461	294	174	7	4	450	285	225	6.5	8.90
SAG623018	625	305	195	613	293	174	6	5	605	285	302.5	6.5	11.3
SAG606018	600	600	205	584	584	177	10-13	5	580	580	290	8	27.0

Dimensions in mm



SA, SAG... series Body drilling data

Ex e

THREAD COMPARISON CHART

D Thread diameter	01	1	2	3	4	5	6	7	8
ISO228	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
Through hole	Ø17	Ø22	Ø27.5	Ø34	Ø43	Ø48.5	Ø60.5	Ø76	Ø89

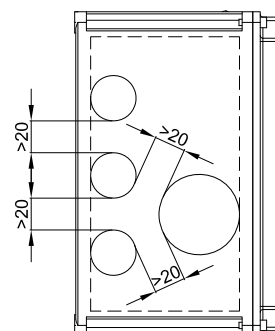
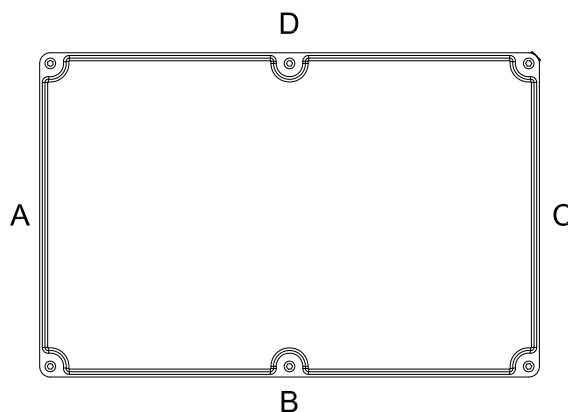
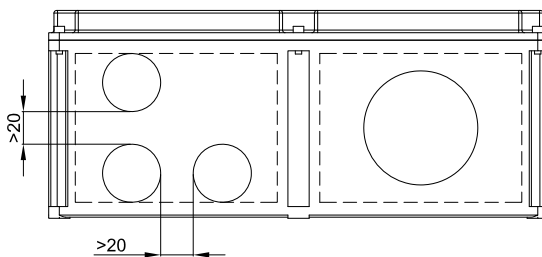
D Thread diameter	01	1	2	3	4	5	6	7	8
ISO 261/965	16x1,5	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1.5
Through hole	Ø17	Ø20.5	Ø25.5	Ø32.5	Ø40.5	Ø50.5	Ø63.5	Ø75.5	Ø85.5

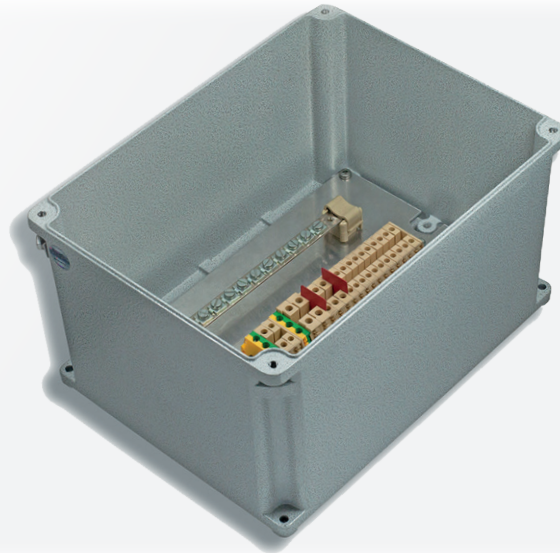
D Thread diameter	01	1	2	3	4	5	6	7	8
ANSI B.20.1 NPSM	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
Through hole	Ø17.5	Ø22	Ø27.5	Ø34	Ø43	Ø48.5	Ø60.5	Ø76	Ø89



As required by the current standard, holes can be drilled by Cortem or by authorized partners who hold a production notification in accordance with ATEX Directive .

TYPE OF ENCLOSURE	HOLE DRILLING IN BODY																		
	Sides A and C									Sides B and D									
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE								
		01	1	2	3	4	5	6	7		8	01	1	2	3	4	5	6	7
SA090907	48x45	1	1	1	-	-	-	-	-	48x45	Square box								
SA/SAG111108	58x55	3	2	1	1	-	-	-	-	58x55	Square box								
SA/SAG171108	68x55	3	2	1	1	-	-	-	-	128x55	5	5	3	2	2	2	-	-	-
SA/SAG141410	100x65	6	6	3	2	1	-	-	-	100x65	Square box								
SA202012	145x75	8	7	6	3	2	1	-	-	145x75	Square box								
SA/SAG301410	90x65	6	4	3	1	1	1	-	-	250x65	14	12	9	5	4	3	-	-	-
SA/SAG302310	180x65	10	10	7	3	3	2	-	-	255x65	14	12	9	5	4	3	-	-	-
SA/SAG302318	180x140	18	18	12	9	6	4	2	1	258x140	24	24	18	14	8	6	3	2	2
SA/SAG473018	258x140	24	24	18	14	8	6	3	2	380x140	36	36	24	18	12	12	4	4	2
SAG623018	250x140	24	24	18	14	8	6	3	3	525x140	48	48	36	28	16	12	6	4	4
SAG606018	420x130	40	40	30	25	12	12	4	4	420x130	35	35	26	16	10	10	4	4	4





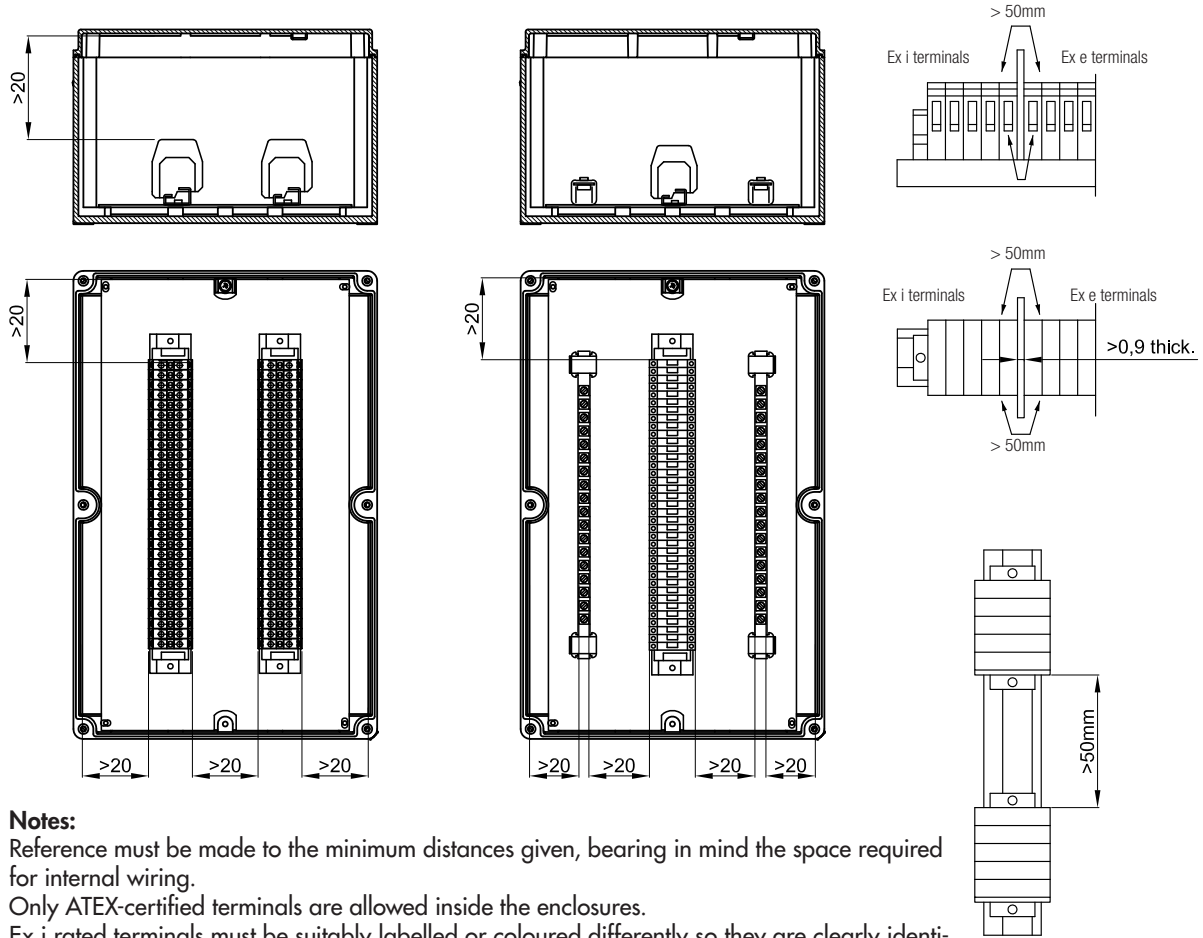
These enclosures are customized based on size, on the number of terminals or cables they are due to accommodate, or taking into account the number of cable entries and cabling requirements inside a system. Hence we can produce tailor-made solutions as long as you provide us with the appropriate parameters required at the quote request stage, such as the number of cable glands, unions or sealing fittings to be installed, so that we can determine the most suitable size of enclosure. All terminals can be fitted with your requested accessories and mounted on special rails that are fastened to the enclosure's internal mounting frames. Terminal strips can be arranged in various ways, as specified by the customer and always within the limits allowed by the certificate. The options are vertical, horizontal, in a number of rows, or on different levels using suitable spacers.

ELECTRICAL FEATURES

	Standard applications	Signal circuits applications	
		T6/T75°C max. Tamb +60°C	T4/T100°C max. Tamb +85°C
Rated voltage:	1000 Vac/dc	-	-
Rated current:	312 A	1 A for exec. Ex eb 100 mA for exec. Ex ia	10 A for exec. Ex eb 100 mA for exec. Ex ia
Rated frequency:	50/60 Hz	-	-
Terminal section:	1.5 ÷ 300 mm ²	-	-

Marking	Terminal type	Description
Ex II 2GD Ex eb IIC T... Gb - Ex tb IIIC T... Db IP66	Ex e terminals only	Enclosures containing increased safety terminals to standard EN 60079-7
Ex II 2GD Ex ia IIC T... Gb - Ex ia IIIC T... Db IP66	Ex e and Ex i terminals	Enclosures containing increased safety terminals and intrinsic safety terminals to standards EN 60079-7 and EN 60079-11
Ex II 2GD Ex eb ia IIC T... Gb - Ex tb ia IIIC T... Db IP66	Ex i terminals only	Enclosures containing intrinsic safety terminals to standard EN 60079-11; enclosures are still category 2

Examples of terminal strips with minimum installation distances



Notes:

- Reference must be made to the minimum distances given, bearing in mind the space required for internal wiring.
- Only ATEX-certified terminals are allowed inside the enclosures.
- Ex i rated terminals must be suitably labelled or coloured differently so they are clearly identifiable.
- Ex i cable entries must be suitably identified with either labelling or blue markings on cable glands or the enclosure's sides.

TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED															
	TERMINAL CROSS-SECTIONAL AREA															
	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
SA090907	11	7	6	5	-	-	-	-	-	-	-	-	-	-	-	-
SA/SAG111108	16	11	9	7	5	-	-	-	-	-	-	-	-	-	-	-
SA/SAG171108	32	22	19	14	11	9	-	-	-	-	-	-	-	-	-	-
SA/SAG141410	26	18	15	11	9	7	5	-	-	-	-	-	-	-	-	-
SA202012	2x40	2x28	2x23	17	13	11	8	-	-	-	-	-	-	-	-	-
SA/SAG301410	69	48	40	30	24	20	14	-	-	-	-	-	-	-	-	-
SA/SAG302310	2x70	2x48	2x40	2x30	2x24	2x20	15	-	-	-	-	-	-	-	-	-
SA/SAG302318	2x70	2x48	2x40	2x30	2x24	2x20	15	15	13	11	-	-	-	-	-	-
SA/SAG473018	2x116	2x81	2x68	2x51	2x40	2x33	2x25	2x25	2x22	2x19	14	12	12	11	11	-
SAG623018	2x159	2x111	2x93	2x69	2x55	2x46	2x34	2x34	2x30	2x27	20	17	17	15	15	-
SAG606018	5x142	5x99	5x83	5x62	5x49	5x41	4x31	4x31	3x27	3x24	18	15	15	13	13	-

Eg. 2x22= 2 rows of 22 terminals (total 44 terminals). The maximum number of standard terminals refers to the mounting of CABUR and/or WEIDMULLER terminals.
The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

The permissible maximum power dissipation, in order to retain a T6 temperature class with an ambient temperature up to 40°C or T5 class with an ambient temperature of 55°C, is not to exceed the values given in the tables below. For an ambient temperature of +60°C or +65°C, maximum power dissipation must be reduced by 25%, and rated current reduced by 15%.

The maximum current values for terminal boxes used for low current circuits (signals) with temperature class T6 and maximum ambient temperature +60°C or T4 and maximum ambient temperature +65°C and +85°C are always as given below:

1A for Ex e circuits;

100 mA for Ex ia circuits.

On the following pages, the table values refer to the maximum number of conductors allowed for a conductor with a given cross-sectional area and subject to a given maximum current. All incoming wires and internal links (made by wires) count as wires; earth connections do not count.

When mounting rails are installed on the internal mounting plate (and not directly on internal ribs of boxes), the number of terminals may be slightly less than the number indicated in the tables.

Other types of terminals can be used up to the space limit of the box. Whatever the case, the terminals used shall be ATEX and/or IECEx certified. Size 35mm² terminals can be used for conductors with a cross-sectional area of 25mm².

The maximum number of terminals and the maximum number of rows shown in the tables is an indicative value; pay attention to the cable entries installed on the sides of boxes. The internal overall dimensions of cable glands and the overall dimensions of conductors must be taken into consideration to allow for wiring.

In some cases, it may be necessary to reduce the number of terminals or the number of rows.

Example for the calculation of the maximum number of conductors.

Refer to table for SA141410: 6 conductors with 6mm² cross-section with 26A continuous current is the limit of this box. Consequently, SA141410 is suitable for containing 3 x 6mm² terminals (2 conductors for each terminal) with a max. current of 26A. There is space for 11 x 6mm² terminals in the box. The remaining 8 terminals (11-3) can be added and used for low current circuits indicated in area "yellow" of the table (in this case max. 8-10A).

Combined mounting for electrical circuits with different sized cables is possible provided the values given are used proportionally.

For example:

Nominal X-sect. area (mm ²)	Current (A)	Quantity	Capacity
2,5	8	16 (di 46)	34,8%
4	11	12 (di 36)	33,3%
10	26	4 (di 13)	30,8%
		Total	98,9% <100%

SA, SAG... series Features of junction boxes with terminals

Ex e

Table showing maximum power dissipation and current for ambient temperature +40°C and +55°C


Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm ²															
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
SA090907	5.6	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA111108	7.5	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA171108	8.8	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA141410 SA202012	7.8	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA301410	15	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA302310	16	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SA302318	17.5	11	15	21	26	37	49	67	80	98	122	147	175	196	196	196	227
SA473018	42	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
SAG090907	5.6	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG111108	7.5	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG171108	8.8	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG141410 SAG202012	7.8	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG301410	15	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG302310	16	11	15	21	26	37	49	67	-	-	-	-	-	-	-	-	-
SAG302318	17.5	11	15	21	26	37	49	67	80	98	122	147	175	196	196	196	227
SAG473018	42	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312
SAG623018 SAG606018	52	11	15	21	26	37	49	67	80	98	122	147	175	196	227	270	312


Table showing maximum power dissipation and current for ambient temperature +60°C and +65°C

Enclosure	P [W]	Maximum current [A] per conductor cross-sectional area in mm ²															
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300
SA090907	4.2	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA111108	5.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA171108	6.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA141410 SA202012	5.8	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA301410	11.2	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA302310	12	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SA302318	13.1	9	12	17	22	31	41	57	68	83	103	125	148	166	166	166	193
SA473018	31.5	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
SAG090907	4.2	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG111108	5.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG171108	6.6	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG141410 SAG202012	5.8	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG301410	11.2	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG302310	12	9	12	17	22	31	41	57	-	-	-	-	-	-	-	-	-
SAG302318	13.1	9	12	17	22	31	41	57	68	83	103	125	148	166	166	166	193
SAG473018	31.5	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265
SAG623018 SAG606018	39	9	12	17	22	31	41	57	68	83	103	125	148	166	193	229	265

SA, SAG... series Features of junction boxes with terminals

Instructions for determining which enclosure is best suited based on the planned number of conductors and terminals.

 : In this unfilled area, provided the relevant instructions are followed and the permitted measurements given for devices housed inside the enclosure are complied with, any number of terminals can be added up to the space limit of the box.

 : Fitting in this unfilled area is not covered by this certification.

“C. No.” row: values shown in the cells define the maximum number of CABUR terminals physically allowed inside the relevant enclosure. These values are expressed as a product of the rows multiplied by the number of terminals on each row.

“W. No.” row: the same as above, but referred to the Weidmuller terminals.

The terminal brands are mentioned just to give an idea of the number of terminals that can be installed inside the enclosures.

The other values shown in the cells along the table’s diagonal define the maximum number of conductors allowed, depending on their cross-sectional area and the maximum current that flows through them.

Tables showing maximum number of conductors

$$\left(N^{\circ} \text{ of terminals} = \frac{n^{\circ} \text{ of conductors}}{2} \right)$$

SA090907

Current (A)	Cross-sectional area in mm ²						
	1.5	2.5	4	6	10	16	25
1							
8	17						
10	11						
11	9	15					
15		8	11				
21			6	7	10		
26				5	7	9	
37					3	4	6
49						3	3
67							2
C. No.							
W. No.	11	7	6	5			

Maximum power dissipation with T6 temperature class must not exceed 5.6W

SA111108, SAG111108

Current (A)	Cross-sectional area in mm ²						
	1.5	2.5	4	6	10	16	25
1							
8	19	32					
10	12	20	29				
11	10	17	24				
15		9	13	17			
21			6	9	12		
26				6	8	11	
37					4	5	7
49						3	4
67							2
C. No.							
W. No.	16	11	9	7	5		

Maximum power dissipation with T6 temperature class must not exceed 7.5W

SA141410, SAG141410

Current (A)	Cross-sectional area in mm ²						
	1.5	2.5	4	6	10	16	25
1							
8	19	32					
10	12	20	29				
11	10	17	24	32			
15		9	13	17	25		
21			7	9	13	18	23
26				6	8	11	15
37					4	6	7
49						3	4
67							2
C. No.		16	14	11	9	7	5
W. No.	26	18	15	11	9	7	5

Maximum power dissipation with T6 temperature class must not exceed 7.8W

SA171108, SAG171108

Current (A)	Cross-sectional area in mm ²						
	1.5	2.5	4	6	10	16	25
1							
8	21	35					
10	14	23	32				
11	11	19	27	36			
15		10	14	19	28	38	
21			7	10	14	19	26
26				6	9	13	17
37					5	6	8
49						4	5
67							3
C. No.							
W. No.	32	22	19	14	11	9	

Maximum power dissipation with T6 temperature class must not exceed 8.8W

SA202012

Current (A)	Cross-sectional area in mm ²						
	1.5	2.5	4	6	10	16	25
1							
8	19	32					
10	12	20	29				
11	10	17	24	32			
15		9	13	17	25		
21			7	9	13	18	23
26				6	8	11	15
37					4	6	7
49						3	4
67							2
C. No.		2x25	2x21	17	13	11	8
W. No.	2x40	2x28	2x23	17	13	11	8

Maximum power dissipation with T6 temperature class must not exceed 7.8W

SA301410, SAG301410

Current (A)	Cross-sectional area in mm ²						
	1.5	2.5	4	6	10	16	25
1							
8	27	46	67				
10	18	29	43	59	90		
11	15	24	36	49	74		
15		13	19	26	40	56	79
21			10	13	20	29	40
26				9	13	19	26
37					7	9	13
49						5	7
67							4
C. No.		43	37	30	24	20	14
W. No.	69	48	40	30	24	20	14

Maximum power dissipation with T6 temperature class must not exceed 15W

SA302310, SAG302310

Current (A)	Cross-sectional area in mm ²						
	1.5	2.5	4	6	10	16	25
1							
8	27	46	68	94	142		
10	18	29	43	60	91		
11	15	24	36	50	75	107	
15		13	19	27	41	58	81
21			10	14	21	29	41
26				9	13	19	27
37					7	9	13
49						5	8
67							4
C. No.		2x44	2x37	2x30	2x24	2x20	15
W. No.	2x70	2x48	2x40	2x30	2x24	2x20	15

Maximum power dissipation with T6 temperature class must not exceed 16W

مجموعة البدرى للتنمية والاستثمار

مجموعة شركات متخصصة

BADRY
GROUP

BADRY GROUP for Development & Investment
(BADRY GROUP)

BADRY
Lighting

شركة البدرى للإضاءة المتخصصة
إحدى شركات مجموعة البدرى للتنمية والاستثمار
BADRY Lighting



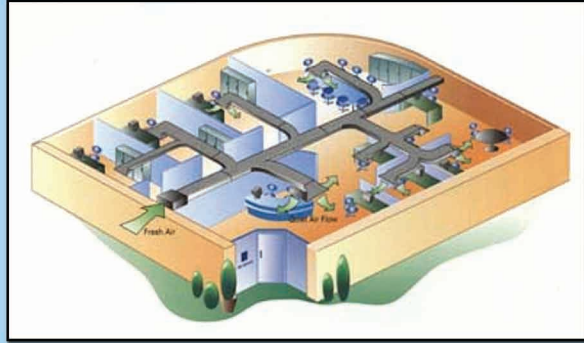
BADRY
Construction

شركة البدرى للإنشاءات المتخصصة
إحدى شركات مجموعة البدرى للتنمية والاستثمار
BADRY Construction



BADRY
HVAC

شركة البدرى لأعمال التهوية والتبريد والتكييف والتدفئة
إحدى شركات مجموعة البدرى للتنمية والاستثمار
BADRY HVAC



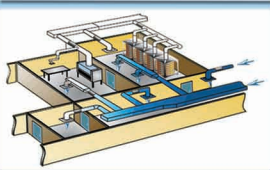
BADRY
Transformers

شركة البدرى للمحولات الكهربائية
إحدى شركات مجموعة البدرى للتنمية والاستثمار
BADRY Transformers Co.



BADRY
MEP

شركة البدرى للأعمال الكهروميكانيكية
إحدى شركات مجموعة البدرى للتنمية والاستثمار
BADRY Electro-Mechanical Works Co.
BADRY MEP



BADRY
Courts

شركة البدرى لإنشاء الملاعب الرياضية
إحدى شركات مجموعة البدرى للتنمية والاستثمار
BADRY Courts



6B, SIXth October St., Manshiet Al Sad Al Aaly. Al-Salam, Cairo, Egypt.

Tel : +202 21906401 - +202 21906823

Fax: +202 21906823 - Cell: +20 100 57 43 852

E-mail: Badry@Badrygroup.com Web: www.Badrygroup.Com

BADRY
GROUP

Completed...
ON TIME. ✓
ON BUDGET.