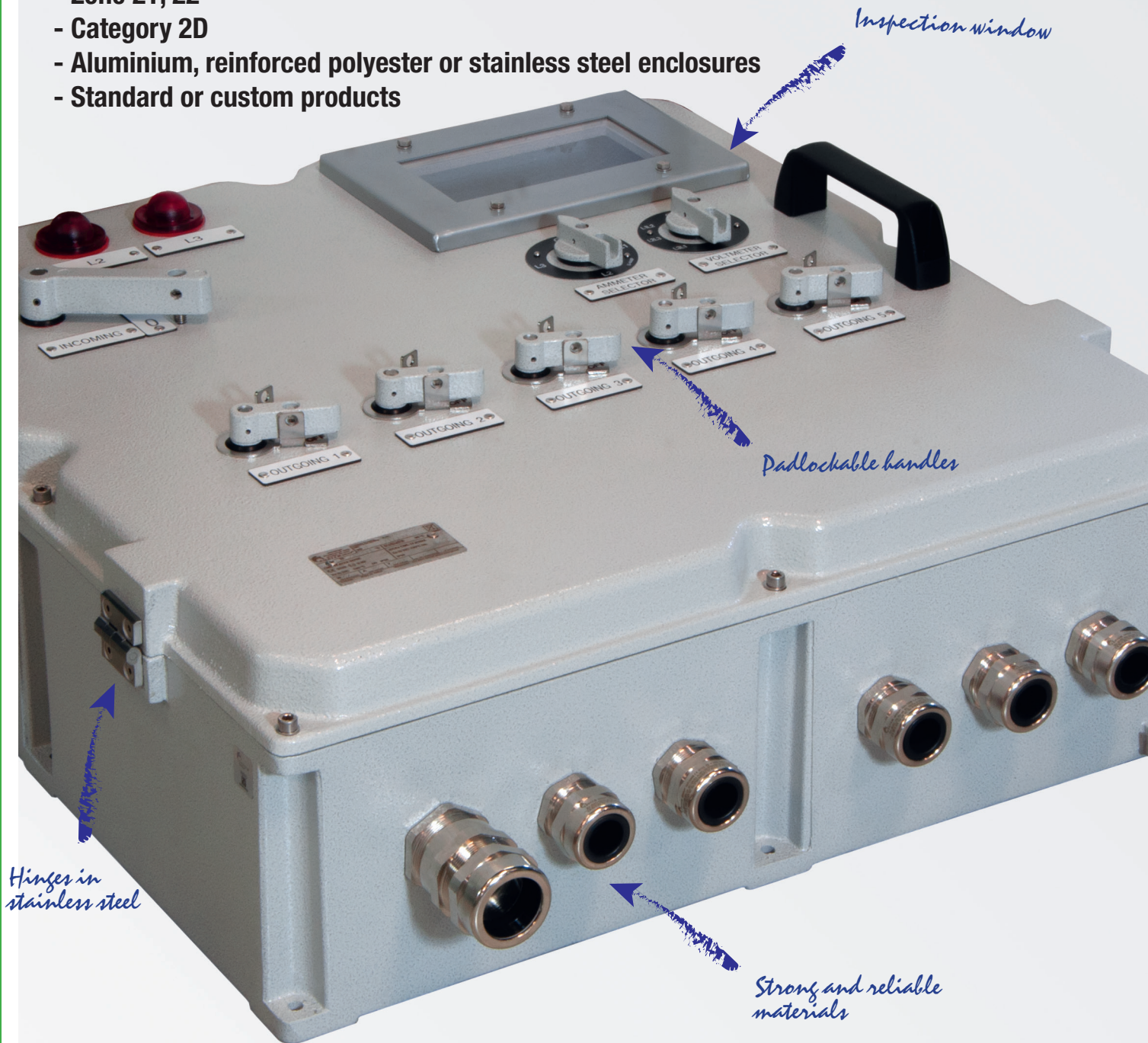
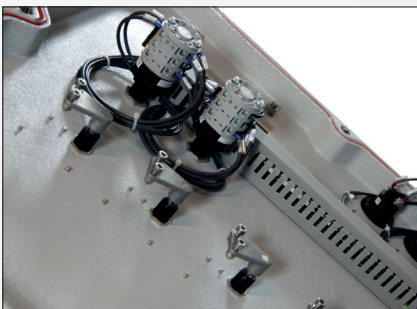


# Junction boxes for control, monitoring and control panel 'Ex tb'

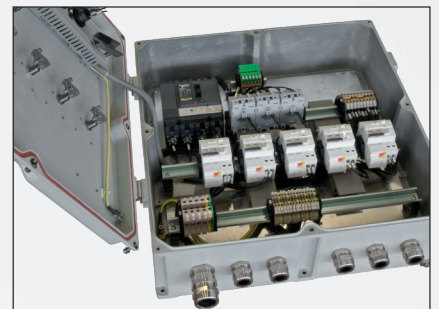
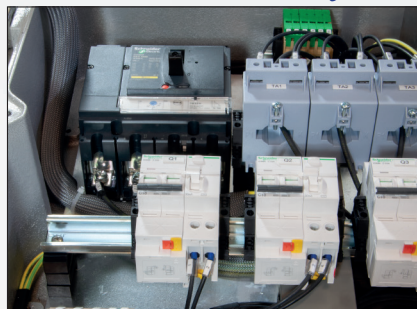
- Zone 21, 22
- Category 2D
- Aluminium, reinforced polyester or stainless steel enclosures
- Standard or custom products



*Quick-hook switches*



*Built-in /magnetothermal circuit breakers*



## Junction boxes for monitoring and control panel 'Ex tb'

The control, monitoring and signaling units SA, SA/P, CTB include a series of enclosures with "Ex tb" protection available in aluminum, polyester or stainless steel and in different measures.

According to the size and the material chosen, there are three maximum dissipation limits that correspond to each of the three maximum optional ambient temperatures: + 40° C, + 55° C and + 60° C.

Several IECEx/ATEX certified devices can be mounted on the enclosure faces and a glass or polycarbonate window can also be fixed to the lid. Various electronic devices can be installed internally with a total power dissipation within the limits defined for each housing such as terminals, analog and digital instruments, control and measurement devices, circuit breakers and IECEx / ATEX certified battery packs.

SA/SS series stainless steel command and control junction boxes may be provided for 'Ex tb' panels on request.

Cortem Group applies a tamper-evident holographic security label to its products, complete with a unique authentication numeric code, to combat the illegal sale of imitations and counterfeits, as well as guarantee the authenticity of its products. The failure to observe international standards involves serious hazards to the environment and, above all, personnel who work with the systems on a daily basis.



### Sectors of application:



Petroleum refineries



Chemical and petrochemical plants



Onshore plants



Offshore plants



Petroleum loading/unloading pontoons



Low temperatures



Mining operations



100% produced by Cortem

### CERTIFICATION DATA

#### Classification:

Group II

Category 2D

#### Installation: EN 60079.14

zone 21 - zone 22 (Dust)

#### Marking:

CE 0722 Ex II 2D Ex tb IIIC T80°C Db IP66

#### Certification:

ATEX CML 17 ATEX 3307X

IEC Ex CML 17.0162X

All IEC Ex certification data can be downloaded from [www.cortemgroup.com](http://www.cortemgroup.com)

#### Standards:

CENELEC EN 60079-0: 2012+A11:2013, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE  
IEC 60079-0: 2011, IEC 60079-31: 2013

#### Temperature class:



T80°C; T100°C; T135°C

#### Ambient temperature:



-40°C +40°C  
-40°C +55°C  
-40°C +60°C



When Cortem ammeters and/or voltmeters are installed on the cover, the enclosures shall be marked with a maximum ambient temperature no higher than +40°C.  
For details see max power dissipation table

#### Degree of protection:

IP66

# Junction boxes for monitoring and control panel 'Ex tb' SA

## ALLUMINIUM CONTROL HOUSINGS SA-SAG SERIES



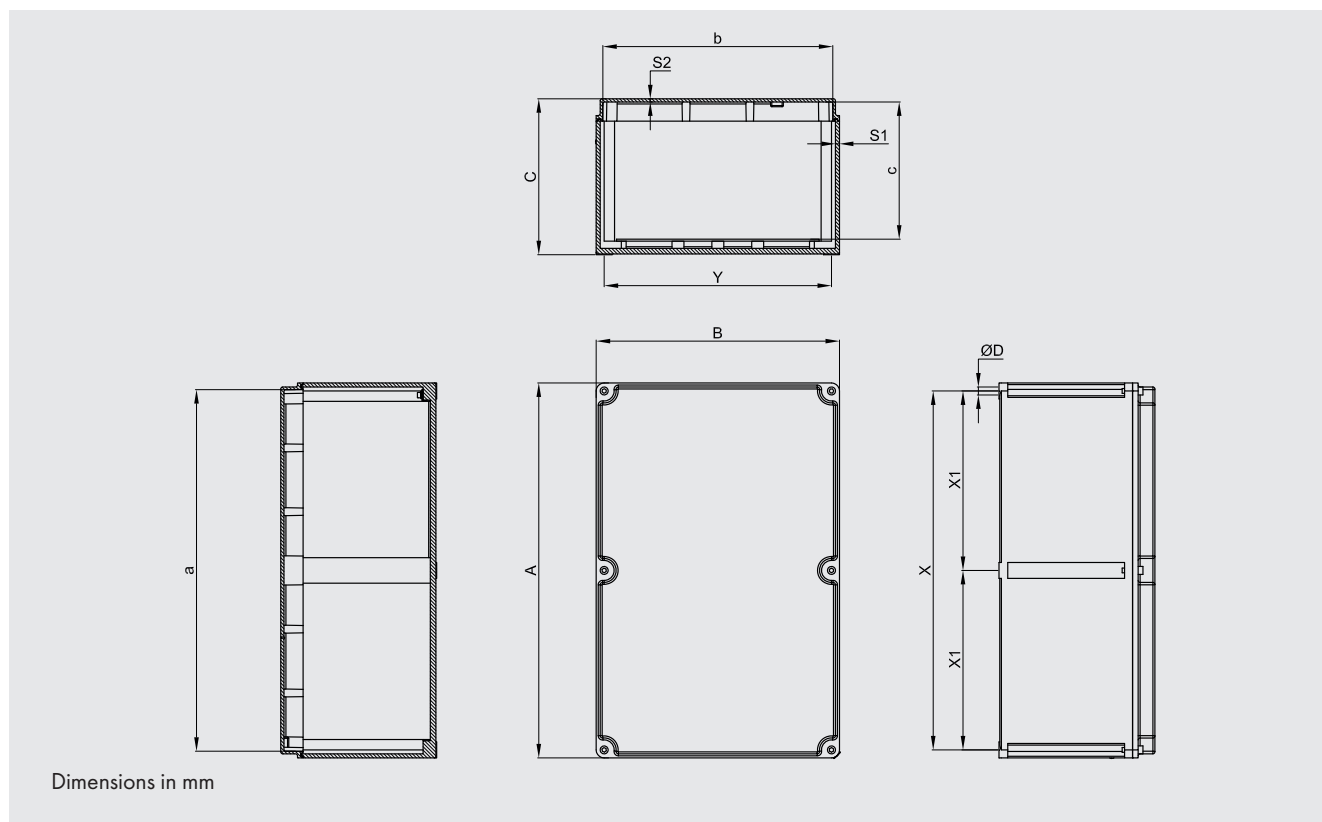
### MECHANICAL FEATURES

|                           |                                                                                                  |
|---------------------------|--------------------------------------------------------------------------------------------------|
| <b>Body and lid:</b>      | Low copper content aluminium alloy                                                               |
| <b>Gaskets:</b>           | Acid, hydrocarbon and high temperature resistant silicon positioned between the body and the lid |
| <b>Certificate plate:</b> | Aluminium label riveted                                                                          |
| <b>Screws:</b>            | Stainless steel                                                                                  |
| <b>Earth screw:</b>       | Stainless steel. On inside and outside of body complete with anti-rotation brackets              |
| <b>Mounting:</b>          | Cast aluminium lugs for M6 screw                                                                 |
| <b>Coating:</b>           | Polyester Ral 7035 (light grey)                                                                  |

### MAX POWER DISSIPATION

| Junction box | Power (W) - for T80°C |            |            | Power (W) - for T100°C |            |            |
|--------------|-----------------------|------------|------------|------------------------|------------|------------|
|              | T.a. +40°C            | T.a. +55°C | T.a. +60°C | T.a. +40°C             | T.a. +55°C | T.a. +60°C |
| SA111108     | 25,1                  | 14,2       | 10,9       |                        |            |            |
| SAG111108    | 21,8                  | 13,1       | 10,1       | 32,4                   |            |            |
| SA171108     | 21,8                  | 13,1       | 10,1       | 32,4                   |            |            |
| SAG171108    | 21,8                  | 13,1       | 10,1       | 32,4                   |            |            |
| SA141410     | 37,3                  | 21,6       | 16,2       | 55,3                   |            |            |
| SAG141410    | 38,3                  | 22,1       | 16,3       | 57,0                   |            |            |
| SA202012     | 37,3                  | 21,6       | 16,2       | 55,3                   |            |            |
| SA301410     | 37,3                  | 21,6       | 16,2       | 55,3                   |            |            |
| SAG301410    | 37,3                  | 21,6       | 16,2       | 55,3                   |            |            |
| SA302310     | 55,6                  | 34,4       | 27,9       | 83,0                   | 62,3       |            |
| SAG302310    | 52,0                  | 30,7       | 24,4       | 77,3                   | 57,8       | 52,0       |
| SA302318     | 55,6                  | 34,4       | 27,9       | 83,0                   | 62,3       |            |
| SAG302318    | 52,0                  | 30,7       | 24,4       | 77,3                   | 57,8       | 52,0       |
| SA473018     | 100,8                 | 59,1       | 47,0       | 154,2                  | 114,2      |            |
| SAG473018    | 100,8                 | 59,1       | 47,0       | 154,2                  | 114,2      |            |
| SAG623018    | 124,6                 | 75,9       | 60,7       | 190,2                  | 141,0      |            |
| SAG606018    | 100,8                 | 59,1       | 47,0       | 154,2                  | 114,2      |            |

## DIMENSIONAL DRAWING



## SELECTION CHART

| Code      | External dimensions |     |     | Inner dimensions |     |     |       |     | X   | Mounting |       | ØD  | Weight<br>Kg |
|-----------|---------------------|-----|-----|------------------|-----|-----|-------|-----|-----|----------|-------|-----|--------------|
|           | A                   | B   | C   | a                | b   | c   | S1    | S2  |     | Y        | X1    |     |              |
| 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         |

# Junction boxes for monitoring and control panel 'Ex tb' SA

Ex e

## BODY DRILLING DATA

THREAD COMPARISON CHART

| D               | 01   | 1    | 2     | 3   | 4      | 5      | 6     | 7      | 8   |
|-----------------|------|------|-------|-----|--------|--------|-------|--------|-----|
| Thread diameter |      |      |       |     |        |        |       |        |     |
| 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 |

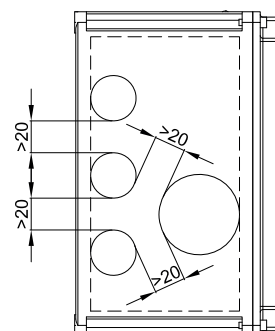
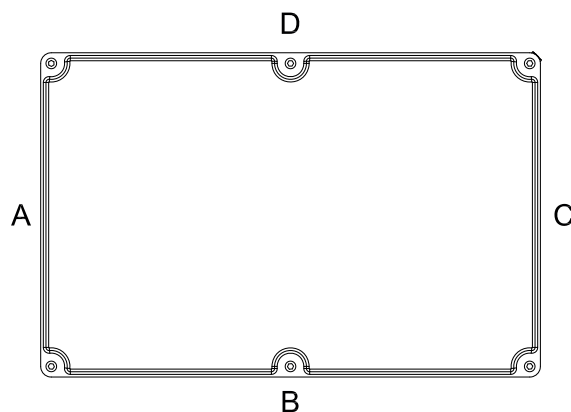
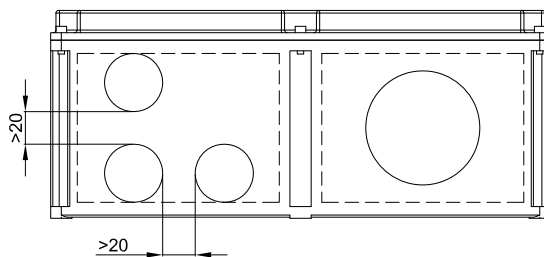
| D               | 01     | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Thread diameter |        |        |        |        |        |        |        |        |        |
| 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                | 01    | 1    | 2     | 3   | 4      | 5      | 6     | 7      | 8   |
|------------------|-------|------|-------|-----|--------|--------|-------|--------|-----|
| Thread diameter  |       |      |       |     |        |        |       |        |     |
| 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<br>ENCLOSURE | HOLE DRILLING IN BODY |                                |    |    |    |    |    |   |   |   |                     |                                |    |    |    |    |    |   |   |   |
|----------------------|-----------------------|--------------------------------|----|----|----|----|----|---|---|---|---------------------|--------------------------------|----|----|----|----|----|---|---|---|
|                      | Sides A and C         |                                |    |    |    |    |    |   |   |   | Sides B and D       |                                |    |    |    |    |    |   |   |   |
|                      | Drilling area<br>mm   | MAXIMUM QUANTITY PER HOLE TYPE |    |    |    |    |    |   |   |   | Drilling area<br>mm | MAXIMUM QUANTITY PER HOLE TYPE |    |    |    |    |    |   |   |   |
|                      |                       | 01                             | 1  | 2  | 3  | 4  | 5  | 6 | 7 | 8 |                     | 01                             | 1  | 2  | 3  | 4  | 5  | 6 | 7 | 8 |
| 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 | 1 | 258x140             | 24                             | 24 | 18 | 14 | 8  | 6  | 3 | 2 | 2 |
| SA/SAG473018         | 258x140               | 24                             | 24 | 18 | 14 | 8  | 6  | 3 | 2 | 1 | 380x140             | 36                             | 36 | 24 | 18 | 12 | 12 | 4 | 4 | 2 |
| SAG623018            | 250x140               | 24                             | 24 | 18 | 14 | 8  | 6  | 3 | 3 | 2 | 525x140             | 48                             | 48 | 36 | 28 | 16 | 12 | 6 | 4 | 4 |
| SAG606018            | 420x130               | 40                             | 40 | 30 | 25 | 12 | 12 | 4 | 4 | 4 | 420x130             | 35                             | 35 | 26 | 16 | 10 | 10 | 4 | 4 | 4 |



## LID DRILLING DATA

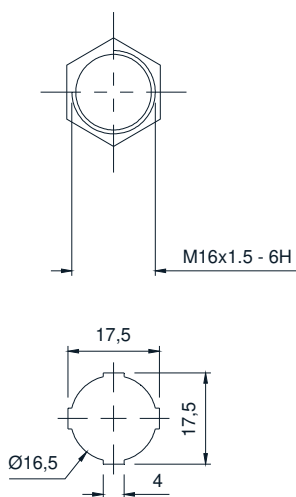
Ex e

| TYPE OF ENCLOSURE | Drilling area mm |
|-------------------|------------------|
| SA/SAG111108      | 90x90            |
| SA/SAG171108      | 90x150           |
| SA/SAG141410      | 127x127          |
| SA202012          | 180x180          |
| SA/SAG301410      | 127x285          |
| SA/SAG302310      | 210x285          |
| SA/SAG302318      | 210x285          |
| SA/SAG473018      | 285x450          |
| SAG623018         | 280x595          |
| SAG606018         | 505x505          |

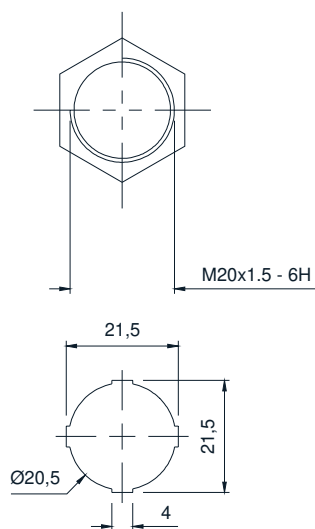


### TYPE OF HOLES

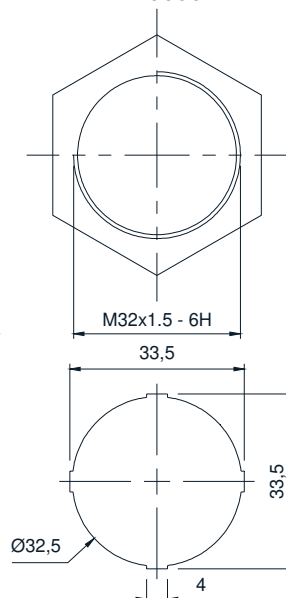
For handles  
M-0634/11 M-0634/12  
M-0634/13 M-0634/14  
M-0634/03 M-0634/06  
M-0634/07 M-0634/09



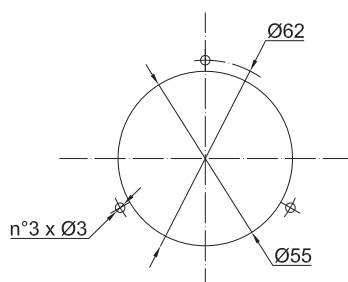
For handles  
M-0634/10  
M-0634/10L  
M-0634/01



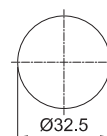
For handles  
M-0639 M-0638  
M-0637 M-0635  
M-0636



For ammeters and voltmeters



For indicator light



# Junction boxes for monitoring and control panel 'Ex tb' SA/P

## POLYESTER CONTROL HOUSINGS SA/P SERIES



### MECHANICAL FEATURES

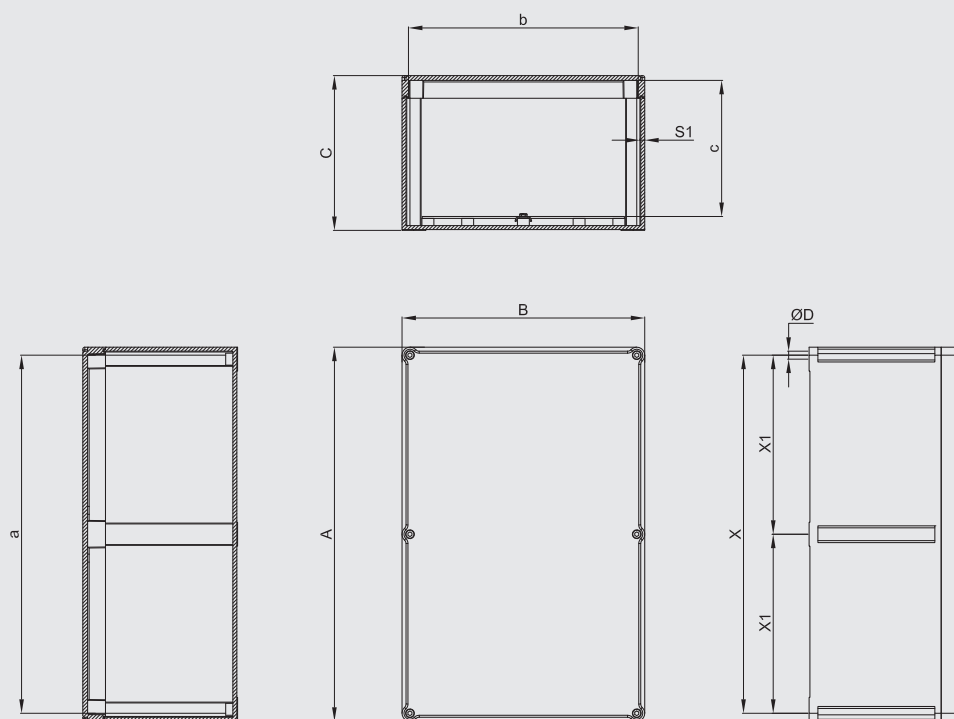
|                           |                                                                                                  |
|---------------------------|--------------------------------------------------------------------------------------------------|
| <b>Body and lid:</b>      | Black polyester resin with antistatic properties                                                 |
| <b>Gaskets:</b>           | Acid, hydrocarbon and high temperature resistant silicon positioned between the body and the lid |
| <b>Mounting:</b>          | Polyester lugs for M6 screws                                                                     |
| <b>Certificate plate:</b> | In aluminum riveted                                                                              |
| <b>Screws:</b>            | Stainless steel captive variety                                                                  |

### MAX POWER DISSIPATED

| Junction box | Power (W) - for T80°C |            |            |
|--------------|-----------------------|------------|------------|
|              | T.a. +40°C            | T.a. +55°C | T.a. +60°C |
| SA090907/P   | 7,7                   | 4,7        | 3,7        |
| SA111108/P   | 10,9                  | 6,6        | 5,3        |
| SA171108/P   | 14,3                  | 8,5        | 6,6        |
| SA141410/P   | 19,7                  | 11,5       | 8,9        |
| SA301410/P   | 26,9                  | 15,3       | 11,9       |
| SA302310/P   | 26,0                  | 15,6       | 12,0       |
| SA302318/P   | 50,2                  | 30,0       | 19,5       |
| SA473018/P   | 63,7                  | 38,7       | 29,7       |
| SA623018/P   | 58,1                  | 34,4       | 26,9       |

## DIMENSIONAL DRAWINGS

Ex e



Dimensions in mm

## SELECTION CHART

| Code       | External dimensions |     |     | Inner dimensions |     |     |     | Fixing |     |         |     | Weight<br>Kg |
|------------|---------------------|-----|-----|------------------|-----|-----|-----|--------|-----|---------|-----|--------------|
|            | A                   | B   | C   | a                | b   | c   | S1  | X      | Y   | X1      | ØD  |              |
| SA111108/P | 110                 | 110 | 83  | 104              | 104 | 65  | 3   | 94     | 94  | -       | 6,5 | 0,40         |
| SA171108/P | 170                 | 110 | 83  | 164              | 104 | 65  | 3   | 154    | 94  | -       | 6,5 | 0,80         |
| SA141410/P | 147                 | 147 | 100 | 135              | 135 | 79  | 3   | 131    | 131 | -       | 6,5 | 1,00         |
| SA301410/P | 305                 | 147 | 110 | 296              | 138 | 90  | 4,5 | 285    | 127 | -       | 6,5 | 1,90         |
| SA302310/P | 305                 | 230 | 110 | 296              | 221 | 90  | 4,5 | 285    | 210 | -       | 6,5 | 2,50         |
| SA302318/P | 305                 | 230 | 190 | 296              | 221 | 165 | 4,5 | 285    | 210 | -       | 6,5 | 3,10         |
| SA473018/P | 470                 | 305 | 195 | 460              | 295 | 175 | 5   | 450    | 285 | 225     | 6,5 | 4,70         |
| SA623018/P | 620                 | 305 | 185 | 608              | 293 | 160 | 5   | 560    | 285 | 260-300 | 8   | 6,30         |

# Junction boxes for monitoring and control panel 'Ex tb' SA/P

## BODY DRILLING DATA

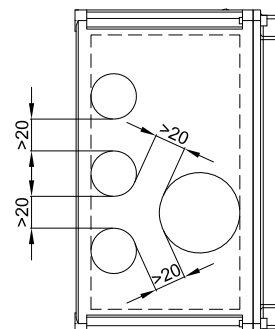
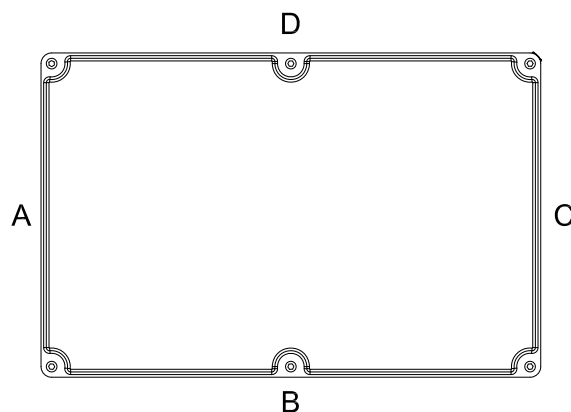
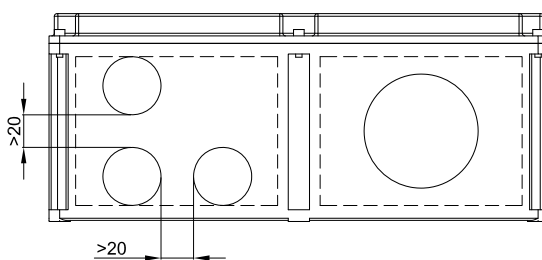
THREAD COMPARISON CHART

| D               | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8     |
|-----------------|--------|--------|--------|--------|--------|--------|--------|-------|
| Thread diameter | 20x1.5 | 25x1.5 | 32x1.5 | 40x1.5 | 50x1.5 | 63x1.5 | 75x1.5 | 85x2  |
| Through hole    | Ø20.5  | Ø25.5  | Ø32.5  | Ø40.5  | Ø50.5  | Ø63.5  | Ø75.5  | Ø85.5 |

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 |    |    |    |    |   |
|                   |                       | 1                              | 2  | 3  | 4 | 5 | 6 | 7 | 8 |                  | 1                              | 2  | 3  | 4  | 5  | 6 |
| SA111108/P        | 58x55                 | 2                              | 2  | 1  | 1 | 1 | - | - | - | 58x55            | Square box                     |    |    |    |    |   |
| SA171108/P        | 68x55                 | 2                              | 2  | 1  | 1 | 1 | - | - | - | 128x55           | 5                              | 3  | 2  | 2  | 2  | - |
| SA141410/P        | 100x65                | 6                              | 3  | 2  | 1 | 1 | 1 | - | - | 100x65           | Square box                     |    |    |    |    |   |
| SA301410/P        | 100x65                | 6                              | 3  | 2  | 1 | 1 | 1 | - | - | 255x65           | 12                             | 11 | 5  | 4  | 4  | 3 |
| SA302310/P        | 180x65                | 8                              | 7  | 5  | 3 | 2 | 2 | - | - | 260x65           | 12                             | 11 | 5  | 4  | 4  | 3 |
| SA302318/P        | 180x140               | 16                             | 14 | 9  | 8 | 5 | 4 | 2 | 2 | 258x140          | 24                             | 22 | 14 | 11 | 8  | 6 |
| SA473018/P        | 258x140               | 24                             | 18 | 14 | 8 | 8 | 6 | 3 | 2 | 380x140          | 36                             | 24 | 18 | 12 | 12 | 8 |
| SA623018/P        | 248x117               | 18                             | 15 | 10 | 8 | 6 | 3 | 2 | 2 | 434x117          | 32                             | 26 | 16 | 14 | 12 | 6 |



## LID DRILLING DATA

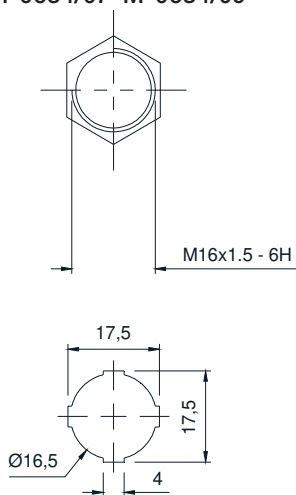
Ex e

| TYPE OF ENCLOSURE | Drilling area mm |
|-------------------|------------------|
| SA111108/P        | 90x90            |
| SA171108/P        | 90x150           |
| SA141410/P        | 127x127          |
| SA301410/P        | 127x285          |
| SA302310/P        | 210x285          |
| SA302318/P        | 210x285          |
| SA473018/P        | 285x450          |
| SA623018/P        | 596x280          |

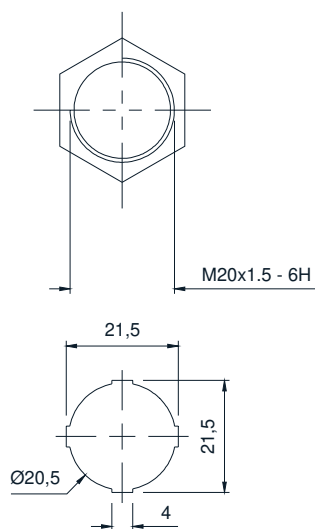


### TYPE OF HOLES

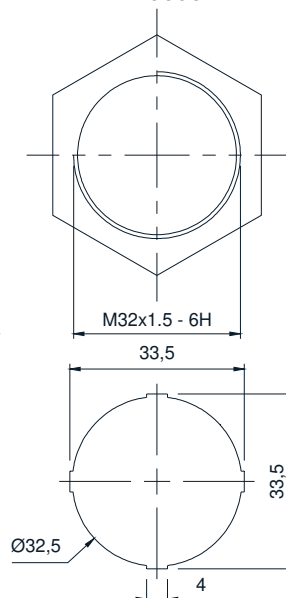
For handles  
M-0634/11 M-0634/12  
M-0634/13 M-0634/14  
M-0634/03 M-0634/06  
M-0634/07 M-0634/09



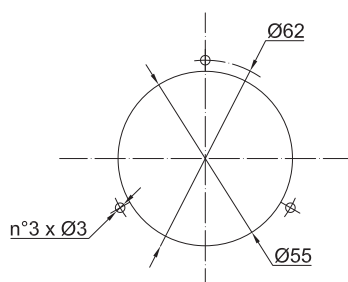
For handles  
M-0634/10  
M-0634/10L  
M-0634/01



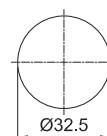
For handles  
M-0639 M-0638  
M-0637 M-0635  
M-0636



For ammeters and voltmeters



For indicator light



# Junction boxes for monitoring and control panel 'Ex tb' CTB

Ex e

## STAINLESS STEEL CONTROL HOUSINGS CTB SERIES



### MECHANICAL FEATURES

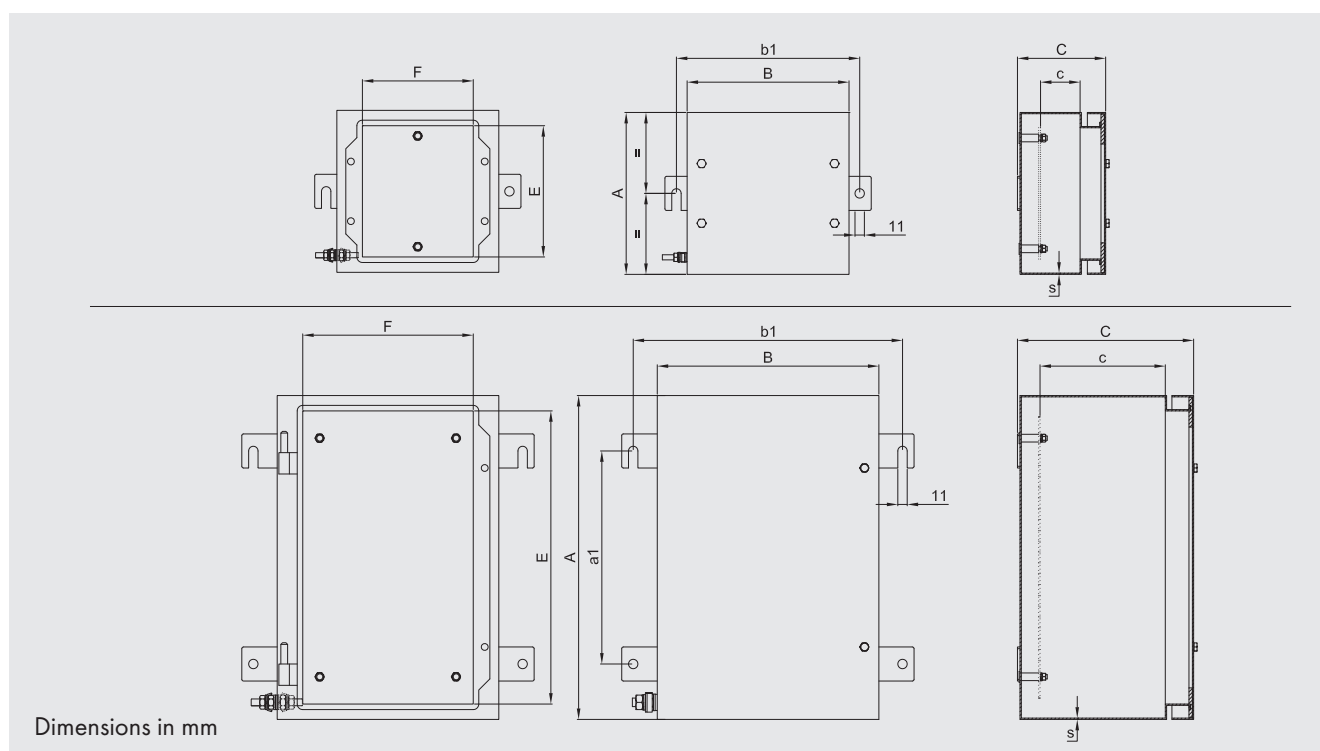
|                                |                                                                                                                                        |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Body and lid:</b>           | Stainless steel AISI 316L                                                                                                              |
| <b>Hinges:</b>                 | Stainless steel AISI 316L                                                                                                              |
| <b>Gaskets:</b>                | Resistant to acids, hydrocarbons and high temperatures, located between body and lid. Ensures consistent protection to IP66 during use |
| <b>Certificate plate:</b>      | Stainless steel riveted                                                                                                                |
| <b>Removable gland plates:</b> | Stainless steel thickness 30/10                                                                                                        |
| <b>Bolts and Screws:</b>       | Stainless steel captive variety                                                                                                        |
| <b>Earth screws:</b>           | Brass. On inside and outside of body complete with anti-rotation brackets                                                              |
| <b>Mounting:</b>               | Welded AISI 316L stainless steel lugs                                                                                                  |

### MAX POWER DISSIPATION

| Junction box | Power (W) - for T80°C |            |            | Power (W) - for T100°C |            |            | Power (W) - for T135°C |            |            |
|--------------|-----------------------|------------|------------|------------------------|------------|------------|------------------------|------------|------------|
|              | T.a. +40°C            | T.a. +55°C | T.a. +60°C | T.a. +40°C             | T.a. +55°C | T.a. +60°C | T.a. +40°C             | T.a. +55°C | T.a. +60°C |
| CSTB121208   | 8,9                   | 6,0        | 5,0        | 13,5                   | 9,9        | 8,9        | 21,3                   | 18,0       | 16,8       |
| CSTB151509   | 8,9                   | 6,0        | 5,0        | 13,5                   | 9,9        | 8,9        | 21,3                   | 18,0       | 16,8       |
| CSTB191910   | 8,9                   | 6,0        | 5,0        | 13,5                   | 9,9        | 8,9        | 21,3                   | 18,0       | 16,8       |
| CTB221513    | 8,9                   | 6,0        | 5,0        | 13,5                   | 9,9        | 8,9        | 21,3                   | 18,0       | 16,8       |
| CTB262616    | 18,6                  | 10,4       | 8,1        | 30,3                   | 21,4       | 18,6       | 48,9                   | 40,9       | 38,2       |
| CTB262620    | 18,6                  | 10,4       | 8,1        | 30,3                   | 21,4       | 18,6       | 48,9                   | 40,9       | 38,2       |
| CTB303016    | 18,6                  | 10,4       | 8,1        | 30,3                   | 21,4       | 18,6       | 48,9                   | 40,9       | 38,2       |
| CTB303020    | 18,6                  | 10,4       | 8,1        | 30,3                   | 21,4       | 18,6       | 48,9                   | 40,9       | 38,2       |
| CTB382616    | 18,6                  | 10,4       | 8,1        | 30,3                   | 21,4       | 18,6       | 48,9                   | 40,9       | 38,2       |
| CTB382620    | 20,5                  | 10,0       | 5,0        | 32,0                   | 23,3       | 20,5       | 51,3                   | 43,1       | 40,4       |
| CTB453816    | 25,0                  | 12,5       | 6,0        | 39,0                   | 28,4       | 25,0       | 62,6                   | 52,5       | 49,3       |
| CTB453820    | 34,0                  | 17,0       | 6,0        | 53,1                   | 38,7       | 34,0       | 85,1                   | 71,4       | 67,1       |
| CTB484816    | 31,0                  | 15,5       | 6,5        | 48,4                   | 35,2       | 31,0       | 77,6                   | 65,1       | 61,2       |
| CTB484820    | 43,0                  | 21,5       | 6,5        | 67,1                   | 48,9       | 43,0       | 107,6                  | 90,3       | 84,8       |
| CTB503516    | 26,0                  | 13,0       | 6,0        | 40,6                   | 29,6       | 26,0       | 65,1                   | 54,6       | 51,3       |
| CTB503520    | 35,0                  | 17,5       | 6,0        | 54,7                   | 39,8       | 35,0       | 87,6                   | 73,5       | 69,0       |
| CTB624516    | 38,0                  | 19,0       | 7,0        | 59,3                   | 43,2       | 38,0       | 95,1                   | 79,8       | 75,0       |
| CTB624520    | 55,0                  | 27,5       | 7,5        | 85,9                   | 62,5       | 55,0       | 137,7                  | 115,6      | 108,5      |
| CTB745520    | 77,0                  | 37,5       | 8,5        | 120,2                  | 87,5       | 77,0       | 192,8                  | 161,8      | 151,9      |
| CTB765020    | 77,0                  | 37,5       | 8,5        | 120,2                  | 87,5       | 77,0       | 192,8                  | 161,8      | 151,9      |
| CTB808030    | 77,0                  | 37,5       | 8,5        | 120,2                  | 87,5       | 77,0       | 192,8                  | 161,8      | 151,9      |
| CTB866420    | 99,0                  | 49,5       | 9,0        | 154,6                  | 112,6      | 99,0       | 247,8                  | 208,0      | 195,3      |
| CTB916120    | 103,0                 | 51,5       | 9,0        | 160,8                  | 117,1      | 103,0      | 257,9                  | 216,4      | 203,2      |
| CTB916130    | 103,0                 | 51,5       | 9,0        | 160,8                  | 117,1      | 103,0      | 257,9                  | 216,4      | 203,2      |
| CTB987420    | 125,0                 | 62,5       | 9,0        | 195,2                  | 142,1      | 125,0      | 312,9                  | 262,6      | 246,6      |

# Junction boxes for monitoring and control panel 'Ex tb' CTB

## DIMENSIONAL DRAWING



## SELECTION CHART

| Code      | External dimensions |     |     | E   | Inner dimensions |     |     | Fixing |     |
|-----------|---------------------|-----|-----|-----|------------------|-----|-----|--------|-----|
|           | A                   | B   | C   |     | F                | c   | s   | a1     | b1  |
| CTB221513 | 229                 | 152 | 130 | 169 | 92               | 75  | 1,5 | 152    | 208 |
| CTB262616 | 260                 | 260 | 160 | 224 | 200              | 100 | 1,5 | 170    | 316 |
| CTB262620 | 260                 | 260 | 205 | 224 | 200              | 145 | 1,5 | 170    | 316 |
| CTB303016 | 306                 | 306 | 160 | 270 | 246              | 100 | 1,5 | 203    | 361 |
| CTB303020 | 306                 | 306 | 205 | 270 | 246              | 145 | 1,5 | 203    | 361 |
| CTB382616 | 380                 | 260 | 160 | 344 | 200              | 100 | 1,5 | 250    | 316 |
| CTB382620 | 380                 | 260 | 205 | 344 | 200              | 145 | 1,5 | 250    | 316 |
| CTB453816 | 450                 | 380 | 160 | 414 | 322              | 100 | 1,5 | 305    | 437 |
| CTB453820 | 450                 | 380 | 205 | 414 | 322              | 145 | 1,5 | 305    | 437 |
| CTB484816 | 480                 | 480 | 160 | 444 | 420              | 100 | 1,5 | 327    | 535 |
| CTB484820 | 480                 | 480 | 205 | 444 | 420              | 145 | 1,5 | 327    | 535 |
| CTB503516 | 500                 | 350 | 160 | 464 | 290              | 100 | 1,5 | 350    | 406 |
| CTB503520 | 500                 | 350 | 205 | 464 | 290              | 145 | 1,5 | 350    | 406 |
| CTB624516 | 620                 | 450 | 160 | 584 | 390              | 100 | 2   | 450    | 506 |
| CTB624520 | 620                 | 450 | 205 | 584 | 390              | 145 | 2   | 450    | 506 |
| CTB745520 | 740                 | 550 | 205 | 704 | 490              | 145 | 2   | 540    | 606 |
| CTB765020 | 762                 | 508 | 205 | 726 | 448              | 145 | 2   | 508    | 564 |
| CTB808030 | 800                 | 800 | 305 | 725 | 725              | 245 | 2   | 510    | 855 |
| CTB866420 | 860                 | 640 | 205 | 824 | 580              | 145 | 2   | 696    | 570 |
| CTB916120 | 914                 | 610 | 205 | 878 | 550              | 145 | 2   | 666    | 559 |
| CTB916130 | 914                 | 610 | 305 | 878 | 550              | 245 | 2   | 666    | 559 |
| CTB987420 | 980                 | 740 | 205 | 944 | 680              | 145 | 2   | 700    | 769 |

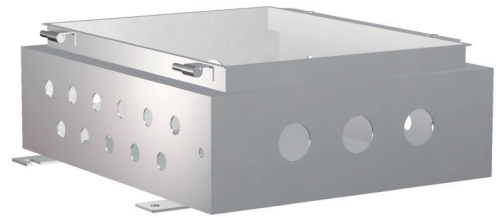
# Junction boxes for monitoring and control panel 'Ex tb' CTB

## BODY DRILLING DATA

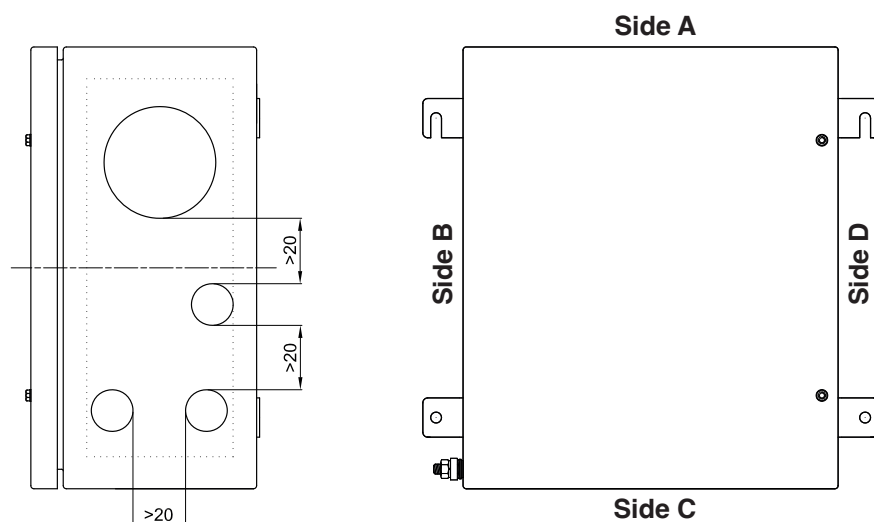
THREAD COMPARISON CHART

| D               | 01     | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Thread diameter | 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  | Ø90.5  |

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<br>mm   | MAXIMUM QUANTITY PER HOLE TYPE |    |    |    |    |    |    |   |   | Drilling area<br>mm | MAXIMUM QUANTITY PER HOLE TYPE |    |    |    |    |    |    |    |   |
|                   |                       | 01                             | 1  | 2  | 3  | 4  | 5  | 6  | 7 | 8 |                     | 01                             | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8 |
| CTB221513         | 105x55                | 5                              | 5  | 2  | 2  | 1  | -  | -  | - | - | 165x55              | 8                              | 8  | 3  | 3  | 3  | -  | -  | -  | - |
| CTB262616         | 195x80                | 10                             | 10 | 7  | 4  | 3  | 3  | 2  | - | - | 210x80              | 10                             | 10 | 8  | 4  | 3  | 3  | 2  | -  | - |
| CTB262620         | 215x125               | 15                             | 15 | 14 | 8  | 6  | 3  | 2  | 2 | 1 | 195x125             | 15                             | 15 | 12 | 6  | 6  | 3  | 2  | 2  | 1 |
| CTB303016         | 260x80                | 12                             | 12 | 10 | 9  | 8  | 3  | 2  | 2 | - | 245x80              | 12                             | 12 | 10 | 9  | 8  | 3  | 2  | 2  | - |
| CTB303020         | 260x125               | 18                             | 18 | 17 | 10 | 8  | 6  | 3  | 2 | 2 | 245x125             | 18                             | 18 | 15 | 10 | 8  | 6  | 3  | 2  | 2 |
| CTB382616         | 215x80                | 10                             | 10 | 10 | 7  | 3  | 3  | 2  | 2 | - | 315x80              | 16                             | 16 | 14 | 11 | 5  | 4  | 3  | 3  | - |
| CTB382620         | 215x125               | 15                             | 15 | 12 | 8  | 6  | 6  | 2  | 2 | 1 | 315x125             | 24                             | 24 | 21 | 12 | 10 | 8  | 3  | 3  | 2 |
| CTB453816         | 335x80                | 16                             | 16 | 14 | 6  | 5  | 4  | 3  | 2 | - | 385x80              | 20                             | 20 | 16 | 7  | 6  | 5  | 4  | 3  | - |
| CTB453820         | 335x125               | 24                             | 24 | 21 | 12 | 10 | 8  | 3  | 3 | 2 | 335x125             | 30                             | 30 | 24 | 14 | 12 | 10 | 4  | 3  | 3 |
| CTB484816         | 435x80                | 22                             | 22 | 18 | 8  | 7  | 6  | 4  | 3 | - | 405x80              | 20                             | 20 | 18 | 8  | 6  | 5  | 4  | 3  | - |
| CTB484820         | 435x125               | 32                             | 32 | 26 | 16 | 13 | 11 | 4  | 3 | 3 | 405x125             | 30                             | 30 | 26 | 14 | 12 | 10 | 4  | 3  | 3 |
| CTB503516         | 305x80                | 14                             | 14 | 12 | 5  | 4  | 4  | 3  | 2 | - | 440x80              | 22                             | 22 | 19 | 8  | 7  | 6  | 4  | 4  | - |
| CTB503520         | 305x125               | 21                             | 21 | 18 | 12 | 10 | 7  | 3  | 2 | 2 | 440x125             | 33                             | 33 | 27 | 16 | 14 | 11 | 4  | 4  | 3 |
| CTB624516         | 405x80                | 20                             | 20 | 18 | 7  | 6  | 5  | 4  | 3 | - | 555x80              | 28                             | 28 | 24 | 10 | 9  | 7  | 6  | 5  | - |
| CTB624520         | 405x125               | 30                             | 30 | 26 | 14 | 12 | 10 | 4  | 3 | 2 | 550x125             | 39                             | 39 | 36 | 20 | 18 | 15 | 6  | 5  | 3 |
| CTB745520         | 505x125               | 36                             | 36 | 32 | 16 | 16 | 13 | 5  | 4 | 3 | 670x125             | 50                             | 50 | 42 | 24 | 21 | 17 | 7  | 6  | 4 |
| CTB765020         | 465x125               | 33                             | 33 | 29 | 18 | 14 | 11 | 5  | 4 | 3 | 690x125             | 50                             | 50 | 44 | 26 | 22 | 18 | 7  | 6  | 4 |
| CTB866420         | 595x125               | 44                             | 44 | 38 | 22 | 18 | 15 | 6  | 5 | 4 | 780x125             | 57                             | 57 | 51 | 28 | 24 | 20 | 8  | 6  | 5 |
| CTB916120         | 565x125               | 41                             | 41 | 35 | 20 | 18 | 14 | 6  | 5 | 3 | 830x125             | 60                             | 60 | 53 | 30 | 26 | 22 | 9  | 7  | 5 |
| CTB916130         | 565X224               | 65                             | 65 | 60 | 40 | 27 | 21 | 12 | 9 | 3 | 833x228             | 80                             | 80 | 75 | 48 | 33 | 27 | 14 | 12 | 5 |
| CTB987420         | 700x125               | 50                             | 50 | 44 | 26 | 22 | 18 | 7  | 6 | 4 | 840x125             | 63                             | 63 | 59 | 34 | 28 | 24 | 9  | 8  | 6 |



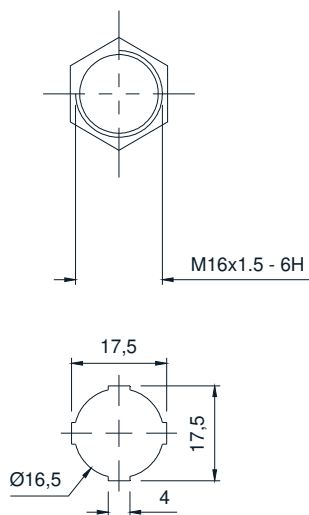
## LID DRILLING DATA

| TYPE ENCLOSURES | Drilling area mm |
|-----------------|------------------|
| CTB221513       | 150x75           |
| CTB262616       | 180x180          |
| CTB262620       | 180x180          |
| CTB303016       | 225x225          |
| CTB303020       | 225x225          |
| CTB382616       | 300x180          |
| CTB382620       | 300x180          |
| CTB453816       | 370x300          |
| CTB453820       | 370x300          |
| CTB484816       | 400x400          |
| CTB484820       | 400x400          |
| CTB503516       | 420x270          |
| CTB503520       | 420x270          |
| CTB624516       | 540x370          |
| CTB624520       | 540x370          |
| CTB745520       | 660x470          |
| CTB765020       | 680x425          |
| CTB866420       | 780x560          |
| CTB916120       | 835x530          |
| CTB916130       | 835x530          |
| CTB987420       | 900x660          |
| CTB808030       | 720x720          |

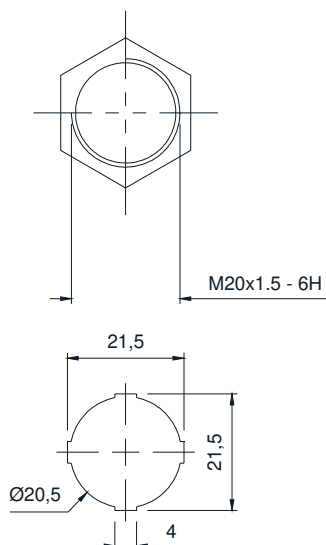


## TYPE OF HOLES

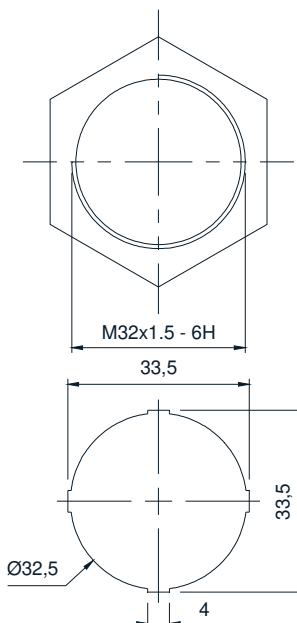
For handles  
M-0634/11 M-0634/12  
M-0634/13 M-0634/14  
M-0634/03 M-0634/06  
M-0634/07 M-0634/09



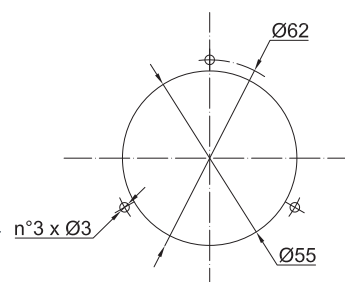
For handles  
M-0634/10  
M-0634/10L  
M-0634/01



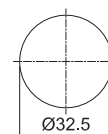
For handles  
M-0639 M-0638  
M-0637 M-0635  
M-0636



For ammeters and voltmeters



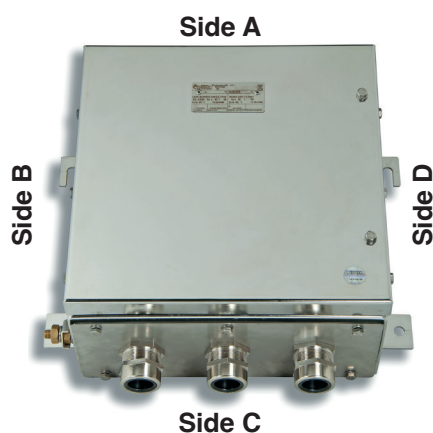
For indicator light



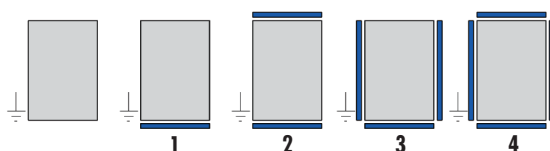
# Junction boxes for monitoring and control panel 'Ex tb' CTB

Ex e

## REMOVABLE GLAND PLATES ON CTB SERIES STAINLESS STEEL BOXES



Removable gland plate position coding



### Ordering code examples

#### 1) CTB503516S3

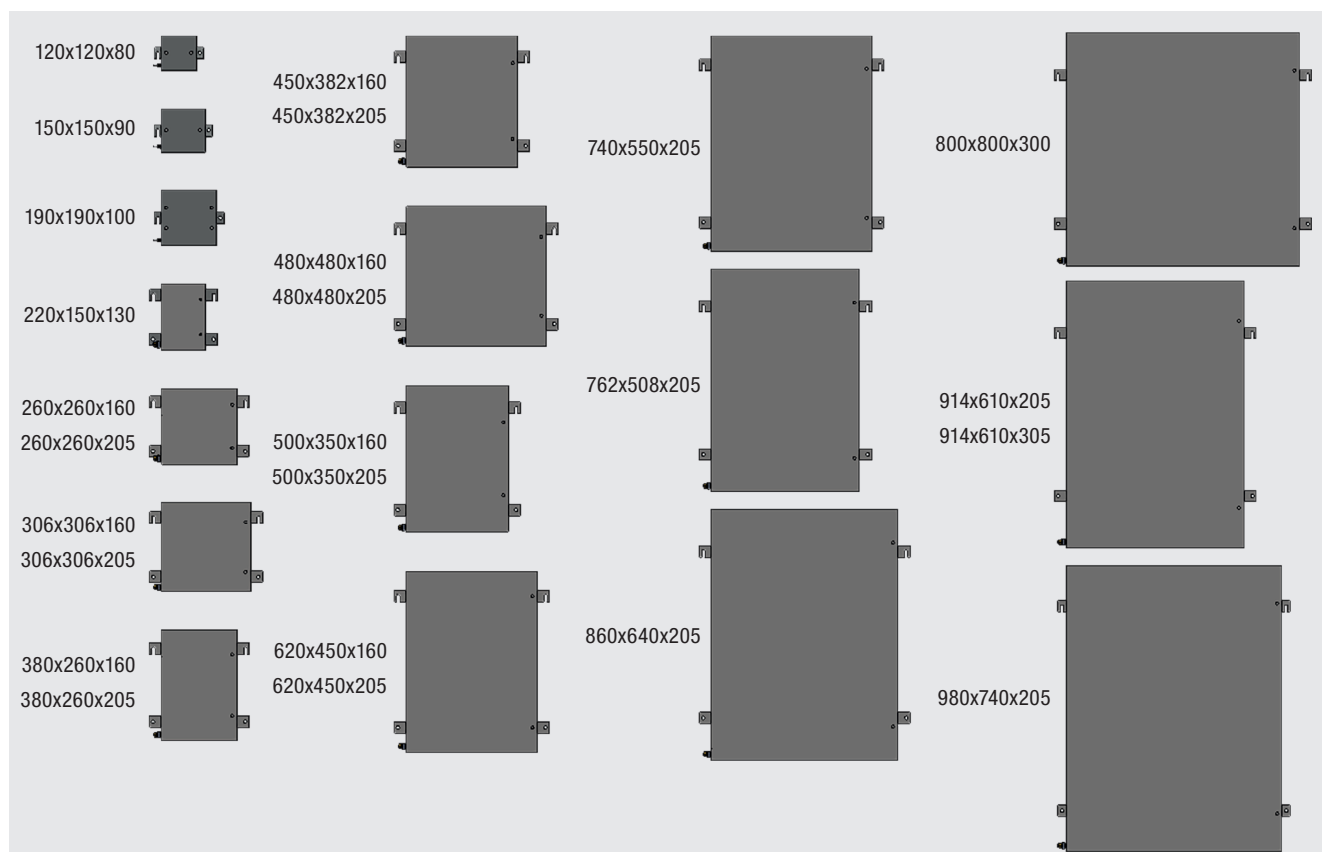
500x350x160 stainless steel box with 3 removable gland plates

#### 2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

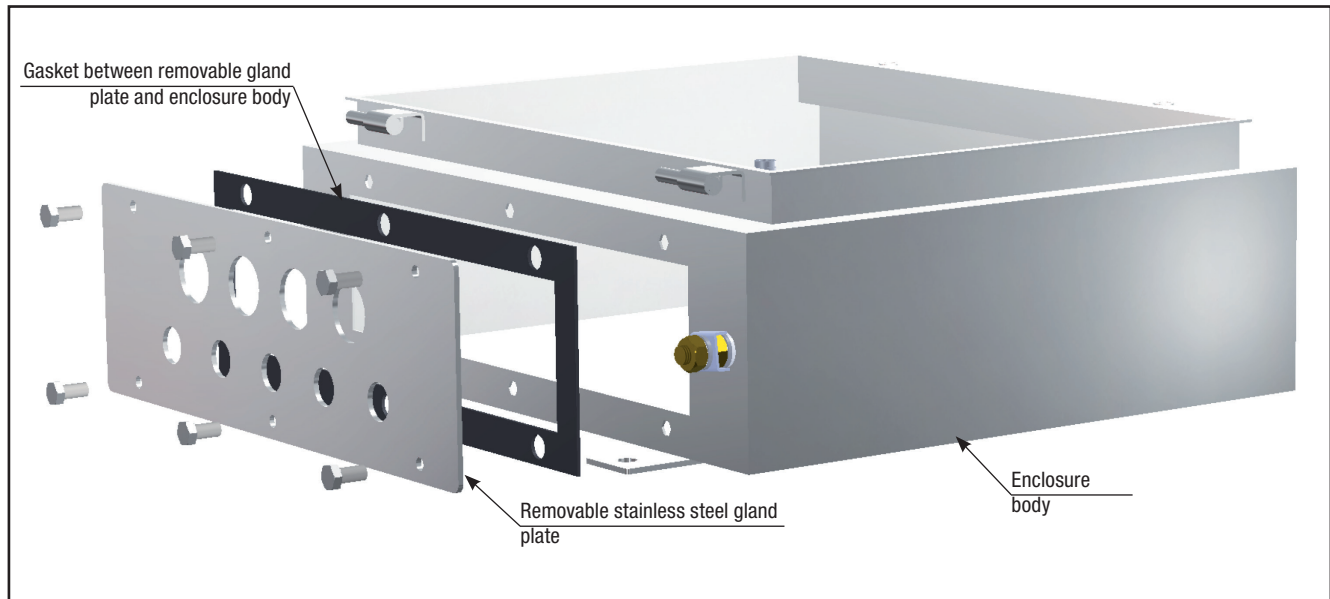
| Code         | Removable gland plate dimensions |              |         |              |
|--------------|----------------------------------|--------------|---------|--------------|
|              | Side A                           | Side B       | Side C  | Side D       |
| CTB221513S.. | 144x94                           | 144x94       | 144x94  | 144x94       |
| CTB262616S.. | 254x120                          | 154x120      | 254x120 | 154x120      |
| CTB262620S.. | 254x164                          | 154x164      | 254x164 | 154x164      |
| CTB303016S.. | 298x120                          | 254x120      | 298x120 | 254x120      |
| CTB303020S.. | 298x164                          | 254x164      | 298x164 | 254x164      |
| CTB382616S.. | 254x120                          | 298x120      | 254x120 | 298x120      |
| CTB382620S.. | 254x164                          | 298x164      | 254x164 | 298x164      |
| CTB453816S.. | 374x120                          | 374x120      | 374x120 | 374x120      |
| CTB453820S.. | 374x164                          | 374x164      | 374x164 | 374x164      |
| CTB484816S.. | 474x120                          | 444x120      | 474x120 | 444x120      |
| CTB484820S.. | 474x164                          | 444x164      | 474x164 | 444x164      |
| CTB503516S.. | 344x120                          | 444x120      | 344x120 | 444x120      |
| CTB503520S.. | 344x164                          | 444x164      | 344x164 | 444x164      |
| CTB624516S.. | 444x120                          | 544x120      | 444x120 | 544x120      |
| CTB624520S.. | 444x164                          | 544x164      | 444x164 | 544x164      |
| CTB745520S.. | 544x164                          | 634x164      | 544x164 | 634x164      |
| CTB765020S.. | 504x164                          | 594x124      | 504x164 | 594x124      |
| CTB808030S.. | 634x214                          | 634x214      | 634x214 | 634x214      |
| CTB866420S.. | 634x164                          | 740x164      | 634x164 | 740x164      |
| CTB916120S.. | 604x164                          | 740x164      | 604x164 | 740x164      |
| CTB916130S.. | 604x264                          | 740x264      | 604x264 | 740x264      |
| CTB987420S.. | 634x164                          | 444x164 (x2) | 634x164 | 444x164 (x2) |

## OVERVIEW OF SIZES



## Junction boxes for monitoring and control panel 'Ex tb' CTB

Example of enclosure body featuring removable gland plate on just one side.



| TYPE OF<br>ENCLOSURE | HOLE DRILLING IN REMOVABLE GLAND PLATES |                                |    |    |    |    |    |    |   |                     |                                |    |    |    |    |    |    |    |
|----------------------|-----------------------------------------|--------------------------------|----|----|----|----|----|----|---|---------------------|--------------------------------|----|----|----|----|----|----|----|
|                      | Sides A and C                           |                                |    |    |    |    |    |    |   | Sides B and D       |                                |    |    |    |    |    |    |    |
|                      | Drilling area<br>mm                     | MAXIMUM QUANTITY PER HOLE TYPE |    |    |    |    |    |    |   | Drilling area<br>mm | MAXIMUM QUANTITY PER HOLE TYPE |    |    |    |    |    |    |    |
|                      |                                         | 01                             | 1  | 2  | 3  | 4  | 5  | 6  | 7 |                     | 01                             | 1  | 2  | 3  | 4  | 5  | 6  | 7  |
| CTB221513            | 98x54                                   | 3                              | 3  | 2  | 1  | 1  | 1  | -  | - | 104x54              | 3                              | 3  | 2  | 1  | 1  | 1  | -  | -  |
| CTB262616            | 214x80                                  | 10                             | 10 | 8  | 4  | 3  | 2  | -  | - | 114x80              | 6                              | 6  | 3  | 2  | 1  | 1  | -  | -  |
| CTB262620            | 214x124                                 | 15                             | 15 | 12 | 8  | 6  | 3  | -  | - | 114x124             | 9                              | 9  | 6  | 4  | 2  | 1  | -  | -  |
| CTB303016            | 258x80                                  | 12                             | 12 | 10 | 4  | 4  | 3  | 2  | - | 214x80              | 10                             | 10 | 8  | 4  | 3  | 3  | 2  | -  |
| CTB303020            | 258x124                                 | 18                             | 18 | 13 | 8  | 4  | 3  | -  | - | 214x124             | 15                             | 15 | 10 | 8  | 3  | 2  | -  | -  |
| CTB382616            | 214x80                                  | 10                             | 10 | 8  | 4  | 3  | 3  | -  | - | 258x80              | 12                             | 12 | 9  | 4  | 3  | 3  | -  | -  |
| CTB382620            | 214x124                                 | 15                             | 15 | 12 | 8  | 6  | 4  | -  | - | 258x124             | 18                             | 18 | 15 | 8  | 5  | 3  | -  | -  |
| CTB453816            | 334x80                                  | 16                             | 16 | 14 | 6  | 5  | 4  | 3  | - | 334x80              | 16                             | 16 | 14 | 6  | 5  | 4  | 3  | -  |
| CTB453820            | 334x124                                 | 24                             | 24 | 20 | 12 | 8  | 4  | 3  | - | 334x124             | 24                             | 24 | 20 | 12 | 8  | 4  | 3  | -  |
| CTB484816            | 434x80                                  | 22                             | 22 | 18 | 7  | 5  | 5  | 4  | - | 404x80              | 20                             | 18 | 14 | 6  | 5  | 4  | 3  | -  |
| CTB484820            | 434x124                                 | 32                             | 32 | 24 | 14 | 12 | 5  | 4  | - | 404x124             | 29                             | 27 | 21 | 12 | 8  | 4  | 3  | -  |
| CTB503516            | 304x80                                  | 14                             | 14 | 12 | 5  | 4  | 4  | 3  | - | 404x80              | 19                             | 16 | 12 | 5  | 4  | 4  | 3  | -  |
| CTB503520            | 304x124                                 | 21                             | 21 | 17 | 10 | 8  | 4  | 3  | 2 | 404x124             | 29                             | 24 | 18 | 10 | 8  | 4  | 3  | 2  |
| CTB624516            | 404x80                                  | 19                             | 19 | 16 | 7  | 6  | 5  | 4  | - | 504x80              | 24                             | 22 | 16 | 7  | 6  | 5  | 4  | -  |
| CTB624520            | 404x124                                 | 29                             | 29 | 23 | 14 | 10 | 5  | 4  | 3 | 504x124             | 36                             | 33 | 24 | 14 | 12 | 5  | 4  | 3  |
| CTB745520            | 504x124                                 | 36                             | 36 | 30 | 16 | 13 | 7  | 5  | 4 | 594x124             | 42                             | 42 | 30 | 18 | 14 | 7  | 5  | 4  |
| CTB765020            | 464x124                                 | 33                             | 33 | 16 | 14 | 10 | 5  | 4  | 3 | 594x124             | 42                             | 42 | 22 | 22 | 16 | 8  | 5  | 5  |
| CTB866420            | 594x124                                 | 44                             | 44 | 36 | 20 | 16 | 8  | 6  | 5 | 700x124             | 51                             | 48 | 36 | 20 | 16 | 8  | 6  | 4  |
| CTB916120            | 564x124                                 | 41                             | 41 | 22 | 16 | 8  | 8  | 4  | 4 | 700x124             | 51                             | 48 | 22 | 22 | 8  | 8  | 5  | 5  |
| CTB916130            | 564x224                                 | 65                             | 65 | 60 | 40 | 27 | 21 | 12 | 9 | 700x224             | 80                             | 80 | 75 | 48 | 33 | 27 | 14 | 12 |
| CTB987420            | 594x124                                 | 44                             | 44 | 36 | 20 | 16 | 8  | 6  | 4 | 404x124 (x2)        | 58                             | 58 | 48 | 28 | 20 | 10 | 8  | 6  |

Ex e

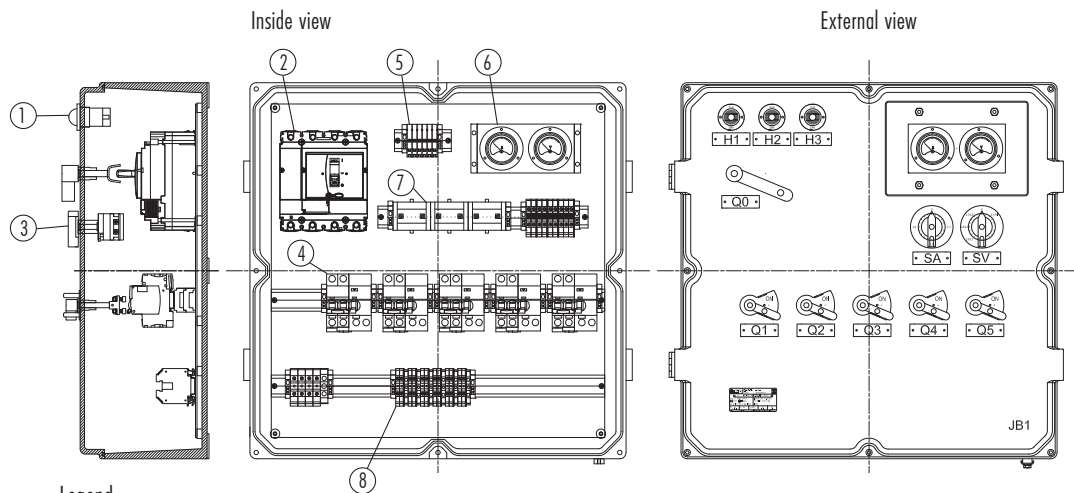
## Junction boxes for monitoring and control panel 'Ex tb'

### ELECTRICAL FEATURES

The command, control and signalling units SA, SA/P and CTB series junction boxes could mount certificated signal, control and command operators and maneuver on the lid while, internally, could mount analogic and digital instruments, electronic reactors/inverters, PLC, multiplexers, amplifier, measuring and control devices, automatic switches, fuses, relays, electronic control devices, contactors, timers, twilight relays capacitors, transformers, resistors, terminals, reactors, soft starter, heater, sensor boards, amperometer, battery pack.

|                            |                                              |
|----------------------------|----------------------------------------------|
| <b>Rated voltage max.:</b> | 1000 Vac/dc                                  |
| <b>Rated current max.:</b> | 312 A                                        |
| <b>Rated frequency:</b>    | 50/60 Hz                                     |
| <b>Terminal section:</b>   | da 1,5 mm <sup>2</sup> a 300 mm <sup>2</sup> |

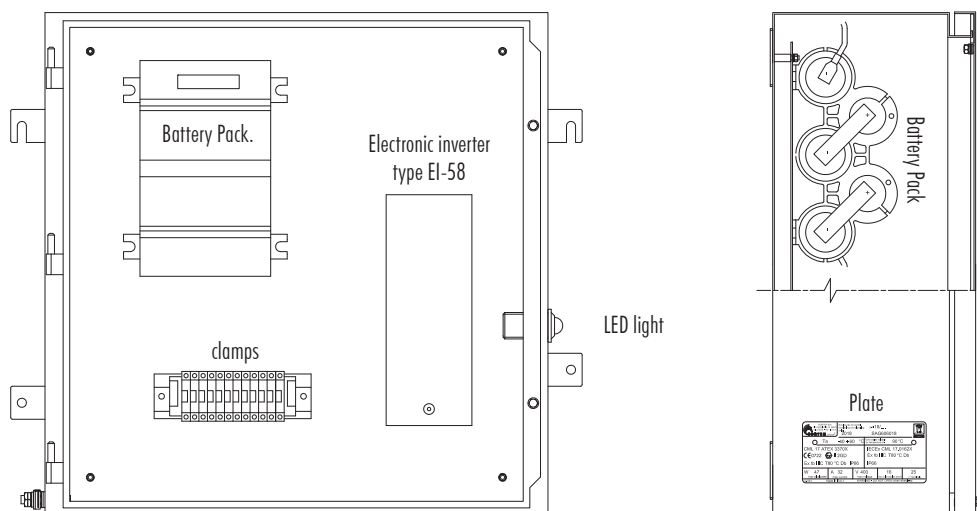
#### EXAMPLE OF TYPICAL DISPOSAL OF INTERNAL AND EXTERNAL ACCESSORIES



Legend:

- |                                                                                          |                                          |
|------------------------------------------------------------------------------------------|------------------------------------------|
| 1. Indicator lights M-0612 / 3R230                                                       | 5. Fuses 5x20 2A                         |
| 2. Maneuver M-0634/01 with 100A - 4 poles circuit breaker and thermal magnetic trip unit | 6. B-0140A ammeter and B-0140V voltmeter |
| 3. M-0634/10 maneuvers with switches                                                     | 7. 40 / 1A current transformers          |
| 4. M-0434 / V maneuvers with 2P 10A magneto-thermal switches and differential blocks     | 8. Terminals section 4mm <sup>2</sup>    |

#### EXAMPLE OF ASSEMBLING OF CORTEM G-0309 SERIES BATTERY UNIT



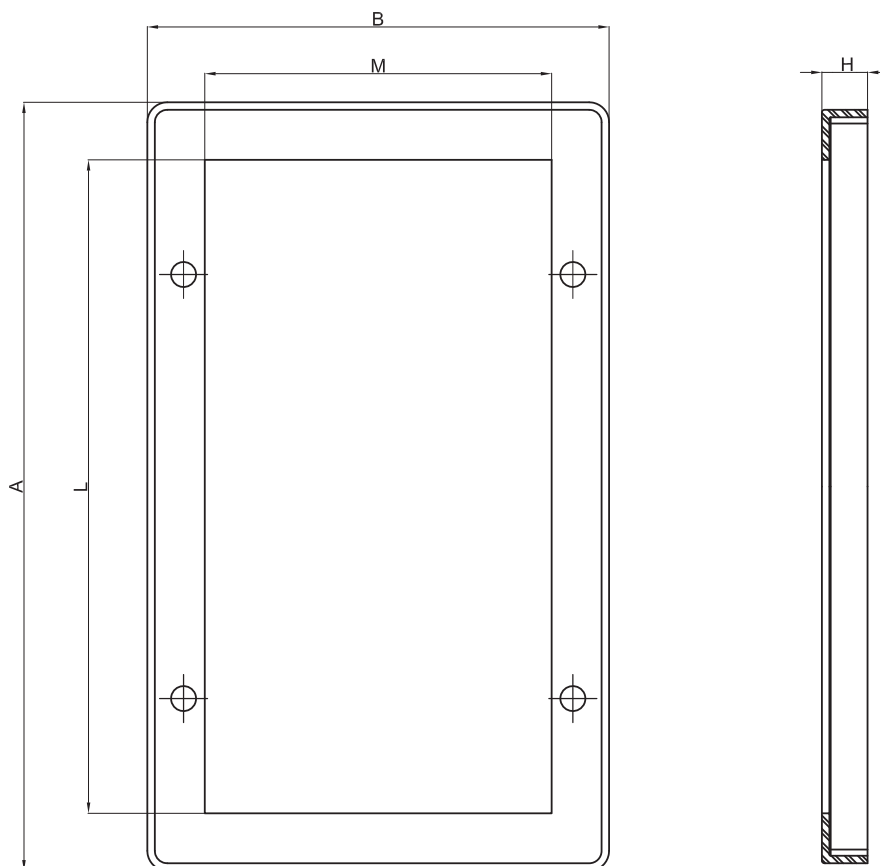
Special conditions for the use of the battery pack G-0309 .. and for the ammeter or voltmeter B-0140 ..:

- when the battery is installed (IECEx CES 13.0006U and CESI 00ATEX032U certificates), the maximum dissipated power must be reduced by 12.5% and the equipment must be marked with a minimum temperature not lower than -20° C;
- when the ammeter and/or the voltmeter (IECEx CES 12.0022U and CESI 04ATEX128U certificates) are installed, the equipment must be marked with a maximum temperature not higher than +40° C and the maximum power dissipated for an ambient with temperature +40° C is reduced by 31.25%.

## ENCLOSURES WITH TRANSPARENT GLASS OR POLYCARBONATE ON THE LID

According to customer's request, standard windows are available for the different type of enclosures for uses such as visualization of analog or digital instruments or indicators.

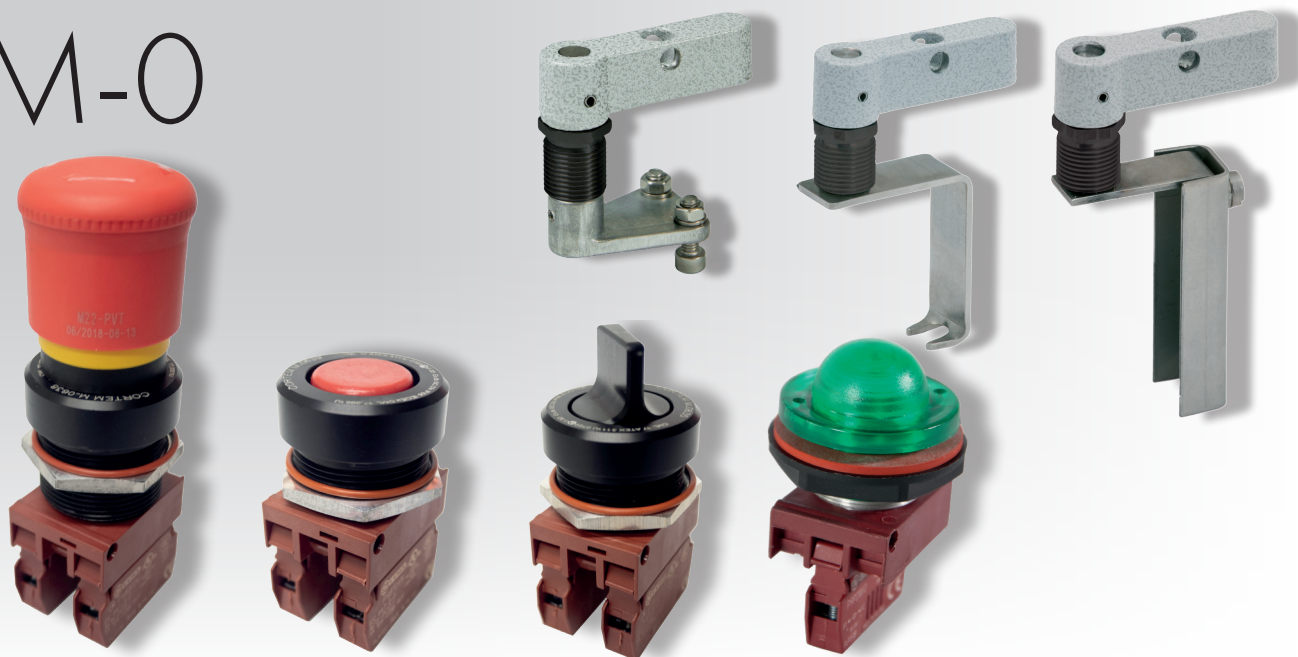
**DIMENSIONAL DRAWING BOXES WITH WINDOWS**



**SELECTION TABLE**

| Transparent | Gasket   | Ring      | Material      | H  | Dimensiones |     |     |     |
|-------------|----------|-----------|---------------|----|-------------|-----|-----|-----|
|             |          |           |               |    | A           | B   | L   | M   |
| K12-373P    | B12-446  | K12-372P  | polycarbonate | 9  | 118         | 118 | 45  | 45  |
| K151-373P   | B151-446 | K151-372P | polycarbonate | 9  | 149         | 118 | 76  | 45  |
| K15-373P    | B15-446  | K15-372P  | polycarbonate | 9  | 149         | 149 | 76  | 76  |
| K191-373P   | B191-446 | K191-372P | polycarbonate | 9  | 189         | 149 | 116 | 76  |
| K19-373P    | B19-446  | K19-372P  | polycarbonate | 9  | 189         | 189 | 116 | 116 |
| K22-373P    | B22-446  | K22-372P  | polycarbonate | 9  | 228         | 151 | 155 | 78  |
| K26-373P    | B26-446  | K26-372P  | polycarbonate | 9  | 257         | 257 | 184 | 184 |
| K12-373V    | B12-446  | K12-372V  | glass         | 12 | 118         | 118 | 45  | 45  |
| K151-373V   | B151-446 | K151-372V | glass         | 12 | 149         | 118 | 76  | 45  |
| K15-373V    | B15-446  | K15-372V  | glass         | 12 | 149         | 149 | 76  | 76  |
| K191-373V   | B191-446 | K191-372V | glass         | 12 | 189         | 149 | 116 | 76  |
| K19-373V    | B19-446  | K19-372V  | glass         | 12 | 189         | 189 | 116 | 116 |
| K22-373V    | B22-446  | K22-372V  | glass         | 12 | 228         | 151 | 155 | 78  |
| K26-373V    | B26-446  | K26-372V  | glass         | 12 | 257         | 257 | 184 | 184 |

# M-0



M-0 series control, monitoring and signalling devices are installed as external accessories on Cortem 'Ex d' enclosures used in any industrial environment where an explosive atmosphere may be present, classified as Zone 1, 2, 21, 22. M-0 control devices can be used to close or open electrical or mechanical devices fitted inside the 'Ex d' enclosures while the signalling devices feature lights to indicate their operating status. The control and signalling device components are made from stainless steel to deliver unbeatable efficiency under any environmental conditions. Levers are made from aluminium while the plastic parts on push-buttons are designed to provide lengthy service life even when used in a highly corrosive atmosphere. M-0 control and signalling devices have an IP66 protection degree.

## CERTIFICATION DATA FOR CONTROL DEVICES

|                           |                                                                                                                                |                                                                                                                   |  |  |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--|--|
| Classification:           | Group 2                                                                                                                        | Category 2D                                                                                                       |  |  |
| Installation: EN 60079.14 | zone 21 - zone 22 (Dust)                                                                                                       |                                                                                                                   |  |  |
| Marking:                  | CE 0722  II 2D Ex tb IIIC Db IP66           |                                                                                                                   |  |  |
| Certification:            | ATEX CML 17 ATEX 3111U                                                                                                         | All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a> |  |  |
|                           | IEC Ex CML 17.0051U                                                                                                            |                                                                                                                   |  |  |
| Standards:                | CENELEC EN 60079-0: 2012+A11:2013, EN 60079-31:2014 and EUROPEAN DIRECTIVE 2014/34/UE<br>IEC 60079-0: 2011, IEC 60079-31: 2013 |                                                                                                                   |  |  |
| Degree of protection:     | IP66                                                                                                                           |                                                                                                                   |  |  |

## MECHANICAL FEATURES OF CONTROL DEVICES

|                                 |                                                                                                                                                                       |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Outer body:</b>              | Aluminium                                                                                                                                                             |
| <b>Internal bush:</b>           | Stainless steel                                                                                                                                                       |
| <b>Internal pin:</b>            | Stainless steel                                                                                                                                                       |
| <b>Gaskets:</b>                 | Acid/hydrocarbon-resistant silicone                                                                                                                                   |
| <b>Push-button:</b>             | Coloured nylon                                                                                                                                                        |
| <b>Illuminated push-button:</b> | Clear coloured polycarbonate                                                                                                                                          |
| <b>Handle levers:</b>           | Aluminium                                                                                                                                                             |
| <b>Coating:</b>                 | Polyester coating RAL 7035 (Light grey), where this is an option                                                                                                      |
| <b>Device mounting:</b>         | Screws into lid                                                                                                                                                       |
| <b>Contact mounting:</b>        | Snap onto special flange, which assures quick connection of the whole contact block to the device or boxed type installed on DIN rails directly on the internal frame |

## ELECTRICAL FEATURES (Contact block for push-buttons)

|                                                    |                                                                                                                                                                                                                                          |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rated voltage:</b>                              | 600V                                                                                                                                                                                                                                     |
| <b>Rated current:</b>                              | 10A                                                                                                                                                                                                                                      |
| <b>Impulse withstand voltage:</b>                  | 4kV                                                                                                                                                                                                                                      |
| <b>Insulation category:</b>                        | Group C as per VDE 0110                                                                                                                                                                                                                  |
| <b>Degree of protection of terminals:</b>          | IP2x as per CENELEC EN 60529                                                                                                                                                                                                             |
| <b>Contact operation:</b>                          | <ul style="list-style-type: none"> <li>– slow acting</li> <li>– self-cleaning (wiping action)</li> <li>– NC contact forced opening</li> <li>– double movable bridge</li> <li>– four points of contact</li> <li>– double break</li> </ul> |
| <b>Contact resistance</b>                          |                                                                                                                                                                                                                                          |
| ≤ 25 mΩ as per IEC 255.7 category 3                |                                                                                                                                                                                                                                          |
| <b>Short-circuit protection</b>                    |                                                                                                                                                                                                                                          |
| 16A gG time-delay fuses as per IEC 269.1 and 269.3 |                                                                                                                                                                                                                                          |

### Electrical performance

Rated thermal current I<sub>th</sub> = 10 A

### Operational limits as per IEC 947.5.1:

| Category AC15              |     |     |    |      |      |     |     |     |
|----------------------------|-----|-----|----|------|------|-----|-----|-----|
| Voltage U <sub>e</sub> (V) | 24  | 48  | 60 | 110  | 220  | 380 | 500 | 600 |
| Current I <sub>e</sub> (A) | 10  | 10  | 10 | 6    | 3    | 2   | 1.5 | 1.2 |
| Category DC13              |     |     |    |      |      |     |     |     |
| Voltage U <sub>e</sub> (V) | 24  | 48  | 60 | 110  | 220  | 300 |     |     |
| Current I <sub>e</sub> (A) | 2.5 | 1.5 | 1  | 0.22 | 0.27 | 0.2 |     |     |

### Operational limits as per IEC 947.5.1:

|                  |        |
|------------------|--------|
| AC Heavy Duty    | (A600) |
| DC Standard Duty | (Q300) |

## ELECTRICAL FEATURES (CONTACT BLOCK FOR M-0553.. HANDLES)

### Alternating current

| Series                                                                     |                         |    | 10   | 16  | 20   | 32   | 40/63 |
|----------------------------------------------------------------------------|-------------------------|----|------|-----|------|------|-------|
| Rated voltage                                                              | U <sub>e</sub> VDE/IEC  | V  | 690  | 690 | 690  | 690  | 690   |
| Rated current                                                              | I <sub>th</sub> VDE/IEC | A  | 20   | 25  | 32   | 45   | 63    |
|                                                                            | 220V-240V               | kW | 2.2  | 4.5 | 5.5  | 7.5  | 15    |
|                                                                            | 380V-440V               | kW | 4.0  | 7.5 | 9.0  | 11.0 | 30    |
| AC3 VDE/IEC, Direct starting of squirrel cage motor, stop during operation | 660V-690V               | kW | 4.0  | 7.5 | 11.0 | 15.0 | 30    |
|                                                                            | 110V                    | kW | 0.4  | 1.5 | 1.5  | 2.5  | 2.5   |
|                                                                            | 220V-240V               | kW | 0.75 | 2.5 | 4.5  | 4.0  | 6     |
|                                                                            | 400V                    | kW | 1.3  | 4.0 | 5.5  | 5.5  | 7.5   |

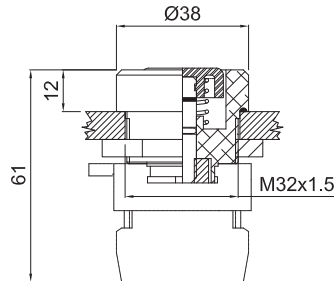
## M-O... control, monitoring and signalling devices

### ILLUSTRATION

### DIMENSIONS mm

### DESCRIPTION

### CODE



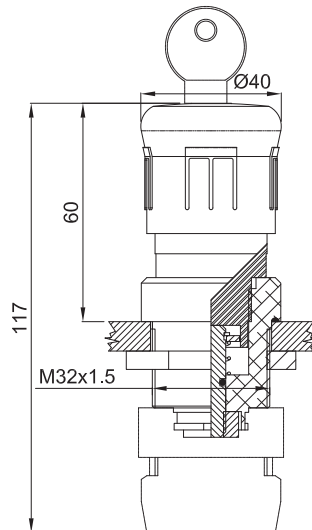
Normal push-button with standard 10A 600V  
1NO+1NC contacts.  
Button comes in choice of six colours.

|                   |                      |
|-------------------|----------------------|
| Blue <b>(B)</b>   | <b>M-0639../B..</b>  |
| White <b>(BI)</b> | <b>M-0639../BI..</b> |
| Yellow <b>(G)</b> | <b>M-0639../G..</b>  |
| Black <b>(N)</b>  | <b>M-0639../N..</b>  |
| Red <b>(R)</b>    | <b>M-0639../R..</b>  |
| Green <b>(V)</b>  | <b>M-0639../V..</b>  |

Add IN for stainless steel body

#### Note:

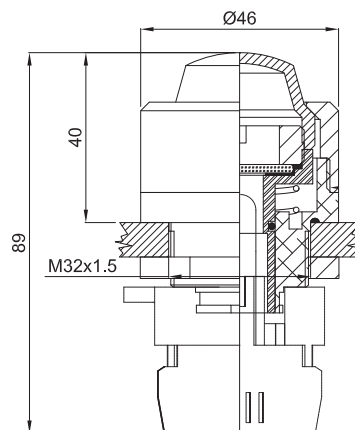
**For the padlockable push-button add  
CODE + L (e.g. M- 0639/RL)**



Normal push-button with standard 10A 600V  
1NO+1NC contacts.

|                                               |                   |
|-----------------------------------------------|-------------------|
| Emergency stop pushbutton with<br>release     | <b>M-0638</b>     |
| Black push-pull, stop push-button             | <b>M-0638../N</b> |
| Emergency stop pushbutton with key<br>release | <b>M-0638../K</b> |
| Push-pull, stop pushbutton                    | <b>M-0638../P</b> |

Add IN for stainless steel body



Illuminated push-button with standard 10A 600V  
1NO+1NC contacts. (lamps on request)  
Illuminated button comes in choice of five colours.

|        |                   |
|--------|-------------------|
| Blue   | <b>M-0637../B</b> |
| White  | <b>M-0637../I</b> |
| Yellow | <b>M-0637../G</b> |
| Red    | <b>M-0637../R</b> |
| Green  | <b>M-0637../V</b> |

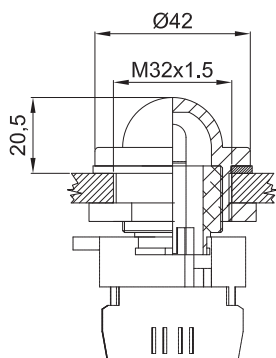
Add IN for stainless steel body

## ILLUSTRATION

## DIMENSIONS mm

## DESCRIPTION

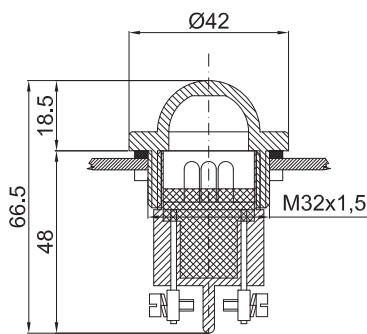
## CODE



Indicator light with 3W lamps (on request\*),  
12/240 Vac/dc.  
Lens comes in choice of five colours.

|        |                 |
|--------|-----------------|
| Blue   | <b>M-0636/B</b> |
| Yellow | <b>M-0636/G</b> |
| White  | <b>M-0636/I</b> |
| Red    | <b>M-0636/R</b> |
| Green  | <b>M-0636/V</b> |

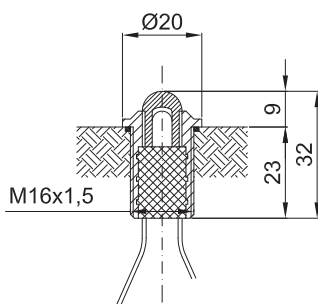
|        |       |                     |
|--------|-------|---------------------|
| * lamp | 12V:  | <b>LAMPBA9S12V</b>  |
|        | 24V:  | <b>LAMPBA9S24V</b>  |
|        | 110V: | <b>LAMPBA9S110V</b> |
|        | 240V: | <b>LAMPBA9S240V</b> |



Multi-LED indicators come with lenses in  
different colours. Reliability with a LED  
service life of 50,000 hours.

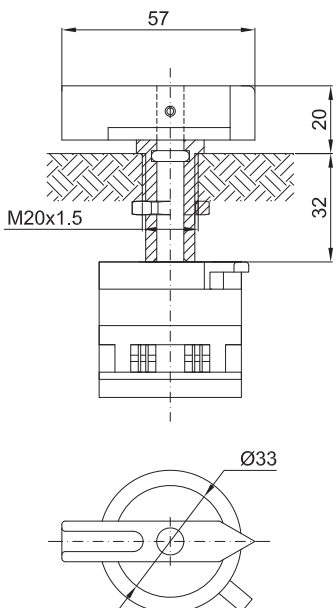
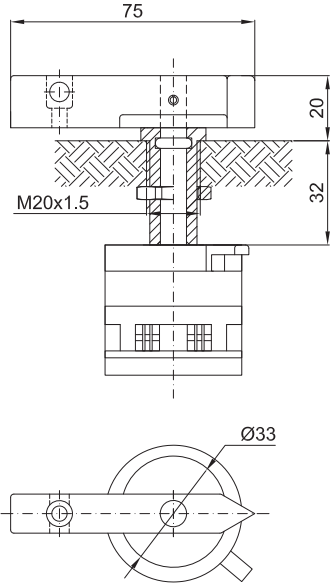
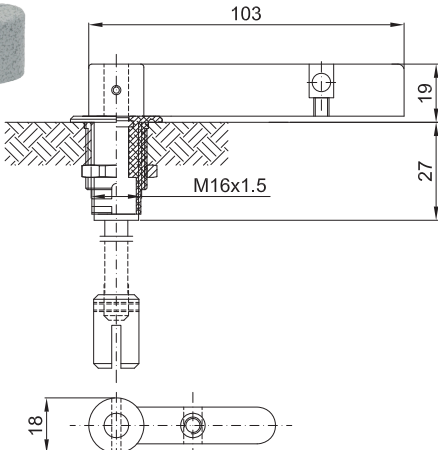
|            |                    |
|------------|--------------------|
| Blue       | <b>M-0612/3B..</b> |
| Yellow     | <b>M-0612/3G..</b> |
| Colourless | <b>M-0612/3I..</b> |
| Red        | <b>M-0612/3R..</b> |
| Green      | <b>M-0612/3V..</b> |

**Can be ordered in 4 possible voltages:**  
**110 Vac/dc** = **M-0612/..110**  
**12 Vac/dc** = **M-0612/..12**  
**230 Vac** = **M-0612/..230**  
**24 Vac/dc** = **M-0612/..24**

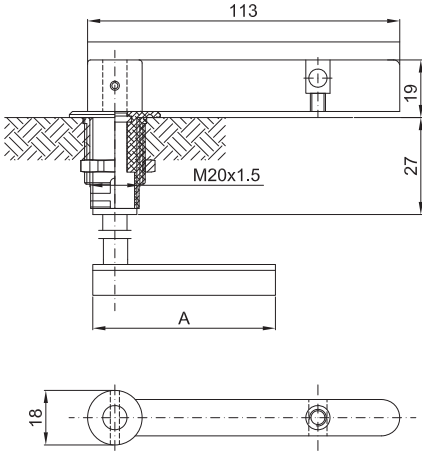
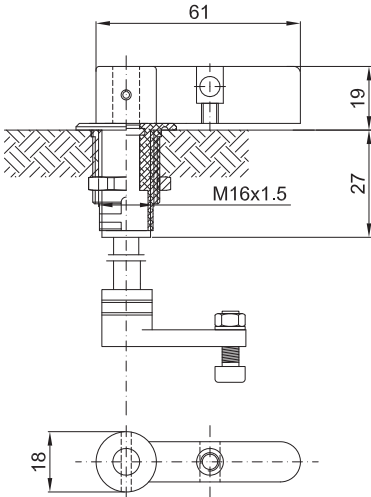
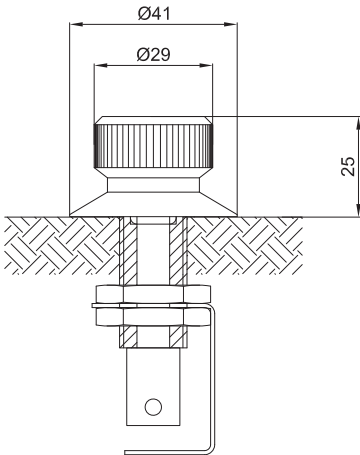


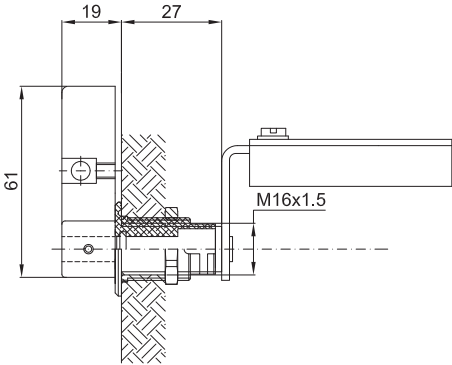
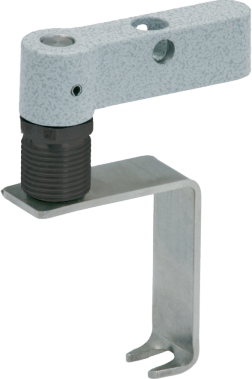
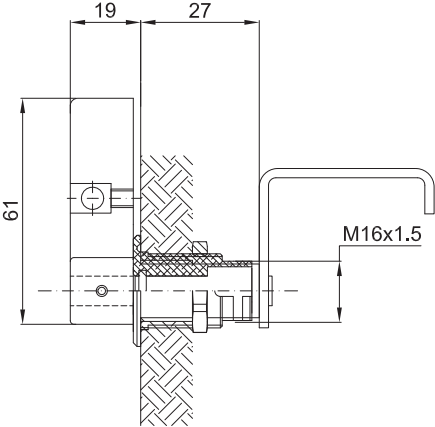
Indicator light with one high-brightness LED,  
for a consumption of 20 mA and estimated life  
of around 50,000 hours.  
LED in 5 colours available.  
Complete with locknut.

| Color   | If (mA) | Vf Tip. (V) | Vf max. (V) |                 |
|---------|---------|-------------|-------------|-----------------|
| Red     | 20      | 2.1         | 2.6         | <b>M-0487</b>   |
| Yellow  | 20      | 2.1         | 2.4         | <b>M-0487/G</b> |
| Clear   | 20      | 3.2         | 4.0         | <b>M-0487/I</b> |
| Green   | 20      | 3.2         | 4.0         | <b>M-0487/V</b> |
| Bicolor | 20      | 2.0         | 2.5         | <b>M-0487/1</b> |

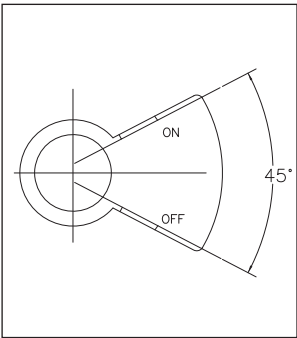
| ILLUSTRATION                                                                        | DIMENSIONS mm                                                                       | DESCRIPTION                                                                                                                                                                                                                                                                                             | CODE                                                  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
|    |    | <p>Quick-connect handle for cam or rotary switch.<br/>Fixed pin length.<br/>Complete with locknut.</p> <p>Add suffix <b>IN</b> for stainless steel body and handle</p> <p><b>Note:</b><br/>contact block is supplied on request.<br/>Please contact our sales department if you need advice</p>         | <b>M-0634/10..</b>                                    |
|  |   | <p>Quick-connect padlockable handle for cam or rotary switch.<br/>Fixed pin length. Complete with locknut.</p> <p>Add suffix <b>IN</b> for stainless steel body and handle</p> <p><b>Note:</b><br/>contact block is supplied on request.<br/>Please contact our sales department if you need advice</p> | <b>M-0634/10L..</b>                                   |
|  |  | <p>Padlockable handle for cam switch.<br/>Complete with locknut.</p> <p>Fixed pin length</p> <p>Variable pin length</p> <p>Add <b>IN</b> for stainless steel body and handle</p>                                                                                                                        | <p><b>M-0634../11F</b></p> <p><b>M-0634../11V</b></p> |

| ILLUSTRATION | DIMENSIONS mm | DESCRIPTION                                                                             | CODE                |
|--------------|---------------|-----------------------------------------------------------------------------------------|---------------------|
|              |               | Padlockable handle for special switches. (3RV motor protectors). Complete with locknut. |                     |
|              |               | Variable pin length                                                                     | <b>M-0634../12V</b> |
|              |               | Fixed pin length                                                                        | <b>M-0634../12F</b> |
|              |               | Add <b>IN</b> for stainless steel body and handle                                       |                     |
|              |               | Padlockable handle for switches with Ø6 shaft. Complete with locknut.                   |                     |
|              |               | Variable pin length                                                                     | <b>M-0634../13V</b> |
|              |               | Fixed pin length                                                                        | <b>M-0634../13F</b> |
|              |               | Add <b>IN</b> for stainless steel body and handle                                       |                     |
|              |               | Padlockable handle for enclosed circuit breakers. Complete with locknut.                |                     |
|              |               | Variable pin length<br>(size to order)                                                  | <b>M-0634../14V</b> |
|              |               | Fixed pin length                                                                        | <b>M-0634../14F</b> |
|              |               | Add <b>IN</b> for stainless steel body and handle                                       |                     |

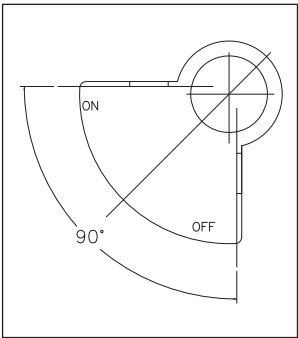
| ILLUSTRATION                                                                        | DIMENSIONS mm                                                                       | DESCRIPTION                                                                                | CODE                |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------|
|    |    | Padlockable handle for heavy-duty series enclosed circuit breakers. Complete with locknut. |                     |
|                                                                                     |                                                                                     | Variable pin length                                                                        | <b>M-0634../01V</b> |
|                                                                                     |                                                                                     | Fixed pin length                                                                           | <b>M-0634../01F</b> |
|                                                                                     |                                                                                     | Add <b>IN</b> for stainless steel body and handle                                          |                     |
|  |   | Padlockable handle for modular circuit breakers. Complete with locknut.                    |                     |
|                                                                                     |                                                                                     | Fixed pin length                                                                           | <b>M-0634../03F</b> |
|                                                                                     |                                                                                     | Variable pin length                                                                        | <b>M-0634../03V</b> |
|                                                                                     |                                                                                     | Add <b>IN</b> for stainless steel body and handle                                          |                     |
|  |  | Knob for potentiometers with Ø6 shaft                                                      | <b>M-0634/06</b>    |

| ILLUSTRATION                                                                       | DIMENSIONS mm                                                                      | DESCRIPTION                                                                 | CODE      |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------|
|   |   | Handle for enclosed circuit breakers. Wall mounting. Complete with locknut. | M-0634/07 |
|  |  | Handle for modular circuit breakers. Wall mounting. Complete with locknut.  | M-0634/09 |

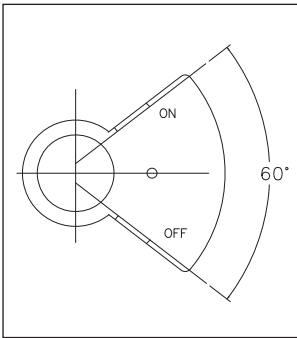
Type of handle padlocking devices



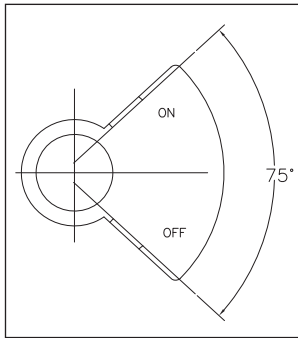
Code M-698/5



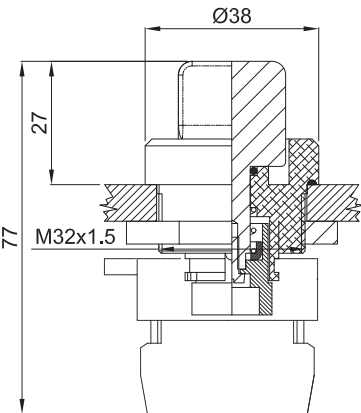
Code M-698/6

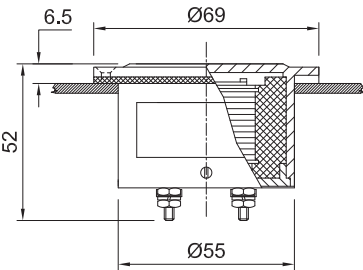


Code M-698/7



Code M-698/8

| ILLUSTRATION                                                                      | DIMENSIONS mm                                                                     | DESCRIPTION                             | CODE              |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------|-------------------|
|  |  | Selector with 0A 600V 1NO+1NC contacts. |                   |
|                                                                                   |                                                                                   | Selector R arrangement                  | <b>M-0635/R</b>   |
|                                                                                   |                                                                                   | Left selector RSX arrangement           | <b>M-0635/RSX</b> |
|                                                                                   |                                                                                   | Selector X arrangement                  | <b>M-0635/X</b>   |
|                                                                                   |                                                                                   | Selector 1C arrangement                 | <b>M-0635/1C</b>  |
|                                                                                   |                                                                                   | Selector 1I arrangement                 | <b>M-0635/1I</b>  |
|                                                                                   |                                                                                   | Selector 1M arrangement                 | <b>M-0635/1M</b>  |
|                                                                                   |                                                                                   | Selector 1W arrangement                 | <b>M-0635/1W</b>  |
|                                                                                   |                                                                                   | Selector 1Z arrangement                 | <b>M-0635/1Z</b>  |
|                                                                                   |                                                                                   | Selector 2C arrangement                 | <b>M-0635/2C</b>  |
|                                                                                   |                                                                                   | Selector 2I arrangement                 | <b>M-0635/2I</b>  |
|                                                                                   |                                                                                   | Selector 2W arrangement                 | <b>M-0635/2W</b>  |
|                                                                                   |                                                                                   | Selector 2Z arrangement                 | <b>M-0635/2Z</b>  |
|                                                                                   |                                                                                   | Selector 3I arrangement                 | <b>M-0635/3I</b>  |
|                                                                                   |                                                                                   | Selector 4I arrangement                 | <b>M-0635/4I</b>  |

|                                                                                     |                                                                                     |                                                                                                                                                                                                                                               |                |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|  |  | The Cortem certified ammeter and voltmeter are suitable for measuring electrical values when the situation demands the utmost accuracy. The internal faces featuring the measuring range scale are produced to the customer's specifications. |                |
|                                                                                     |                                                                                     | Ammeter                                                                                                                                                                                                                                       | <b>B-0140A</b> |
|                                                                                     |                                                                                     | voltmeter                                                                                                                                                                                                                                     | <b>B-0140V</b> |

Maximum voltage: 600 V  
 Nominal frequency: 40 ÷ 60 Hz  
 Precision class: 1.5  
 Dissipated power: 1.1 VA (B-0140A)  
 3.0 VA (B-0140V)

Measurement range - Direct measurement:

|            |           |
|------------|-----------|
| 0 ÷ 40 mA  | 0 ÷ 0.1 A |
| 0 ÷ 60 mA  | 0 ÷ 1.5 A |
| 0 ÷ 100 mA | 0 ÷ 2.5 A |
| 0 ÷ 250 mA | 0 ÷ 5 A   |
| 0 ÷ 400 mA | 0 ÷ 6 A   |
| 0 ÷ 600 mA | 0 ÷ 15 A  |

Measuring range - With current transformer:

|            |           |
|------------|-----------|
| 0 ÷ 2.5 mA | 0 ÷ 50 A  |
| 0 ÷ 5 mA   | 0 ÷ 60 A  |
| 0 ÷ 10 mA  | 0 ÷ 75 A  |
| 0 ÷ 15 mA  | 0 ÷ 100 A |
| 0 ÷ 20 mA  | 0 ÷ 150 A |
| 0 ÷ 25 mA  | 0 ÷ 200 A |
| 0 ÷ 30 mA  | 0 ÷ 300 A |
| 0 ÷ 40 mA  | 0 ÷ 400 A |

