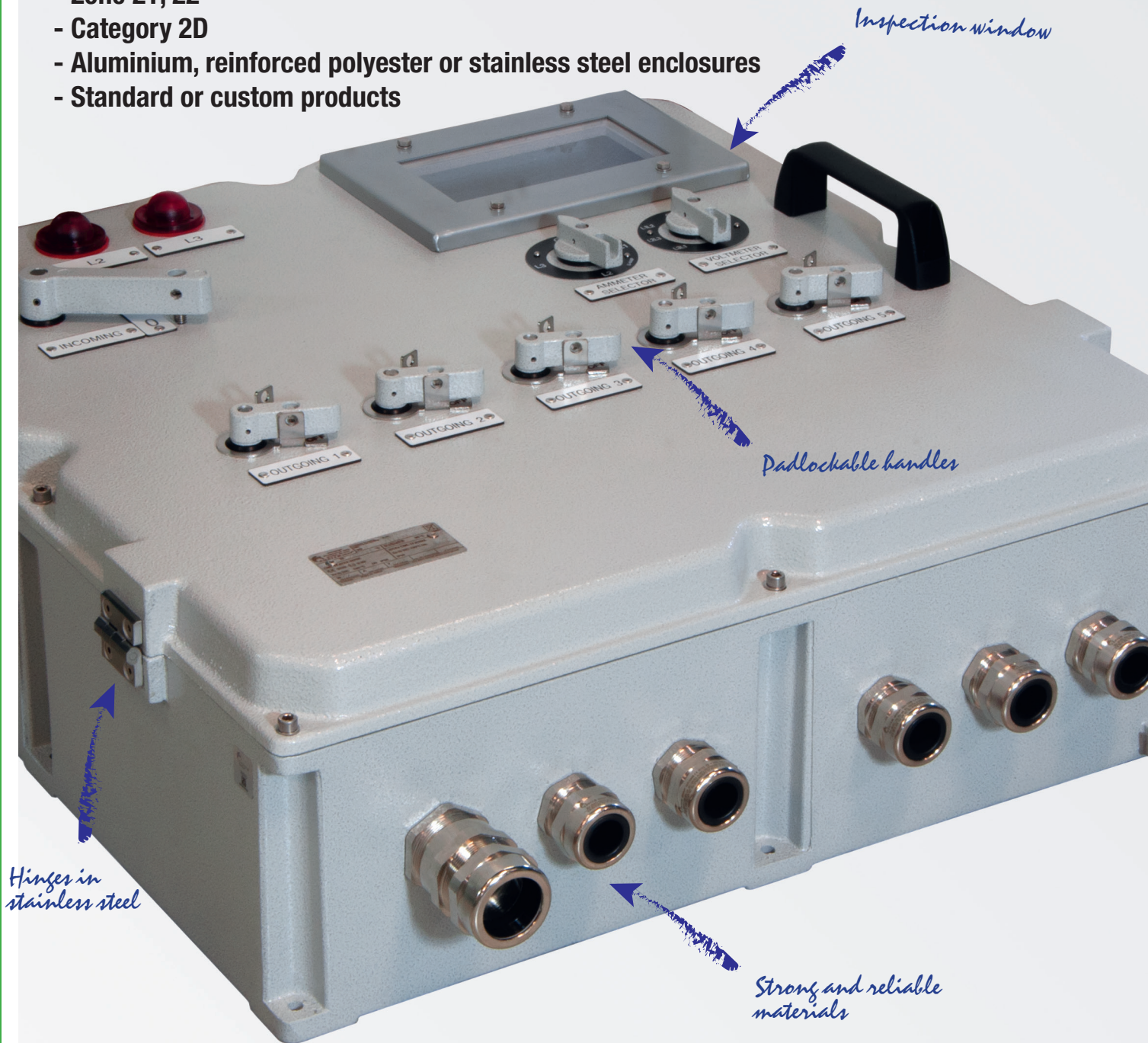
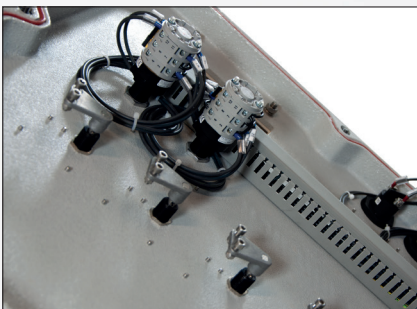


Junction boxes for control, monitoring and control panel 'Ex tb'

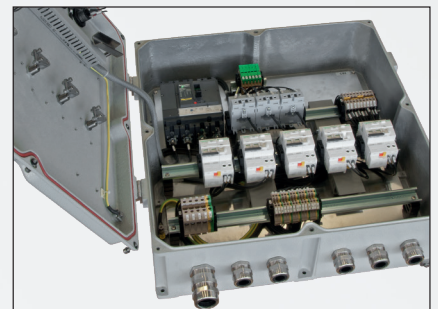
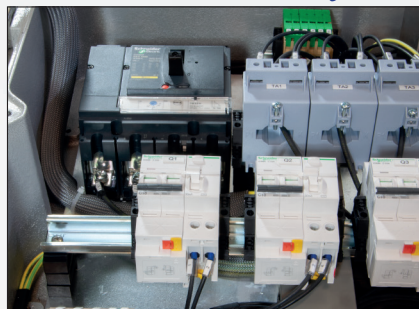
- Zone 21, 22
- Category 2D
- Aluminium, reinforced polyester or stainless steel enclosures
- Standard or custom products



Quick-hook switches



Built-in /magneto thermal 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

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:

80°C (T6)

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

ALUMINIUM CONTROL HOUSINGS SA-SAG SERIES



MECHANICAL FEATURES

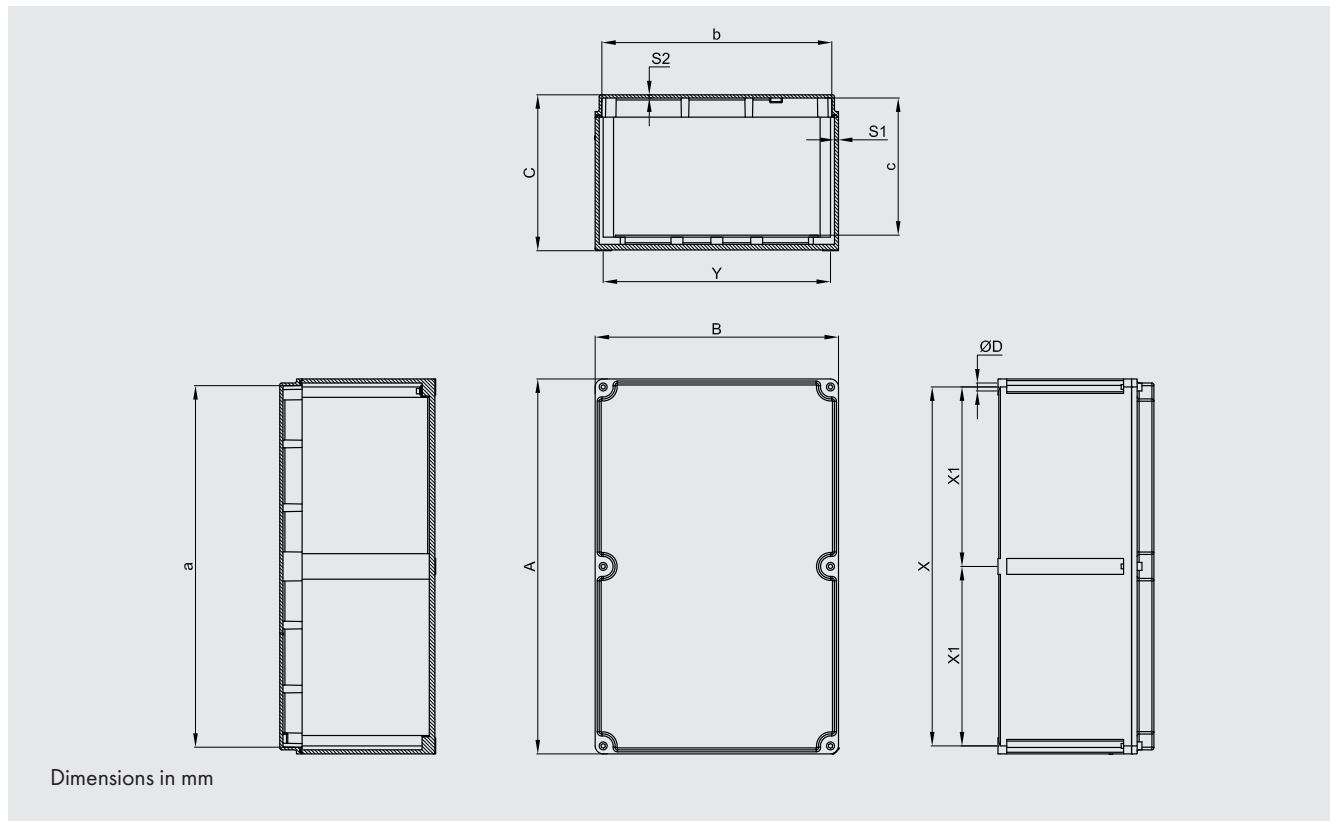
Body and lid:	Low copper content aluminium alloy
Gaskets:	Acid, hydrocarbon and high temperature resistant silicon positioned between the body and the lid
Certificate plate:	Aluminium label riveted
Screws:	Stainless steel
Earth screw:	Stainless steel. On inside and outside of body complete with anti-rotation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

MAX POWER DISSIPATION

Junction Box	Material	max power dissipation (w)		
		T.a. @ +40°C	T.a. @ +55°C	T.a. @ +60°C
SA111108	aluminium	22	12,5	9,5
SAG111108	aluminium	21	12	9,5
SA171108	aluminium	21	12	9,5
SAG171108	aluminium	21	12	9,5
SA141410	aluminium	37	21	16
SAG141410	aluminium	38	22	16
SA202012	aluminium	37	21	16
SA301410	aluminium	37	21	16
SAG301410	aluminium	37	21	16
SA302310	aluminium	55,5	34	28
SAG302310	aluminium	50,5	30,5	24
SA302318	aluminium	55,5	34	28
SAG302318	aluminium	50,5	30,5	24
SA473018	aluminium	100	59	47
SAG473018	aluminium	90	50	40
SAG623018	aluminium	124	74	59
SAG606018	aluminium	100	59	47

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

DIMENSIONAL DRAWING



SELECTION CHART

Code	External dimensions			Inner dimensions					X	Mounting		ØD	Weight 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

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

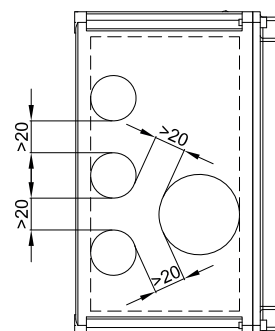
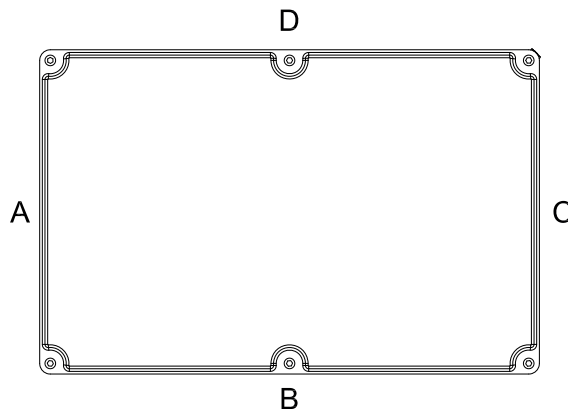
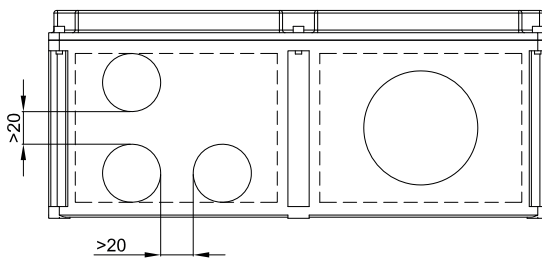
D	01	1	2	3	4	5	6	7	8
Thread diameter									
ISO 261/965	16x1,5	20x1,5	25x1,5	32x1,5	40x1,5	50x1,5	63x1,5	75x1,5	90x1,5
Through hole	Ø17	Ø20,5	Ø25,5	Ø32,5	Ø40,5	Ø50,5	Ø63,5	Ø75,5	Ø85,5

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 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	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	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



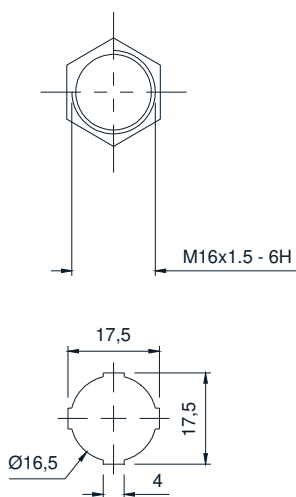
LID DRILLING DATA

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

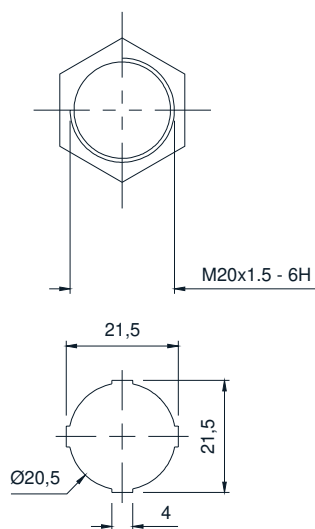


TYPE OF HOLES

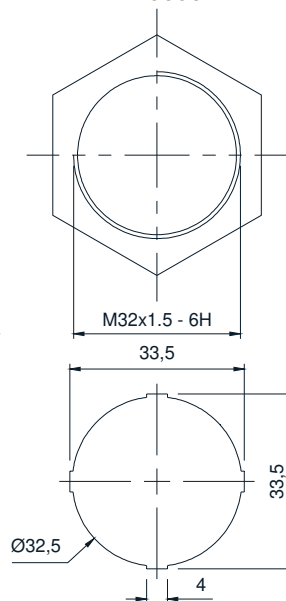
For handles
 M-0634/11 M-0634/12
 M-0634/13 M-0634/14
 M-0634/03 M-0634/06
 M-0634/07 M-0634/09



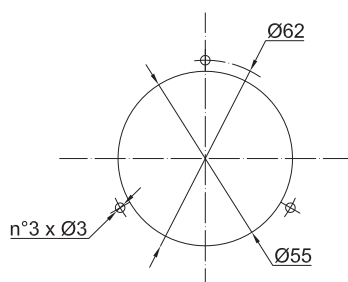
For handles
 M-0634/10
 M-0634/10L
 M-0634/01



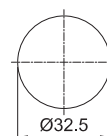
For handles
 M-0639 M-0638
 M-0637 M-0635
 M-0636



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

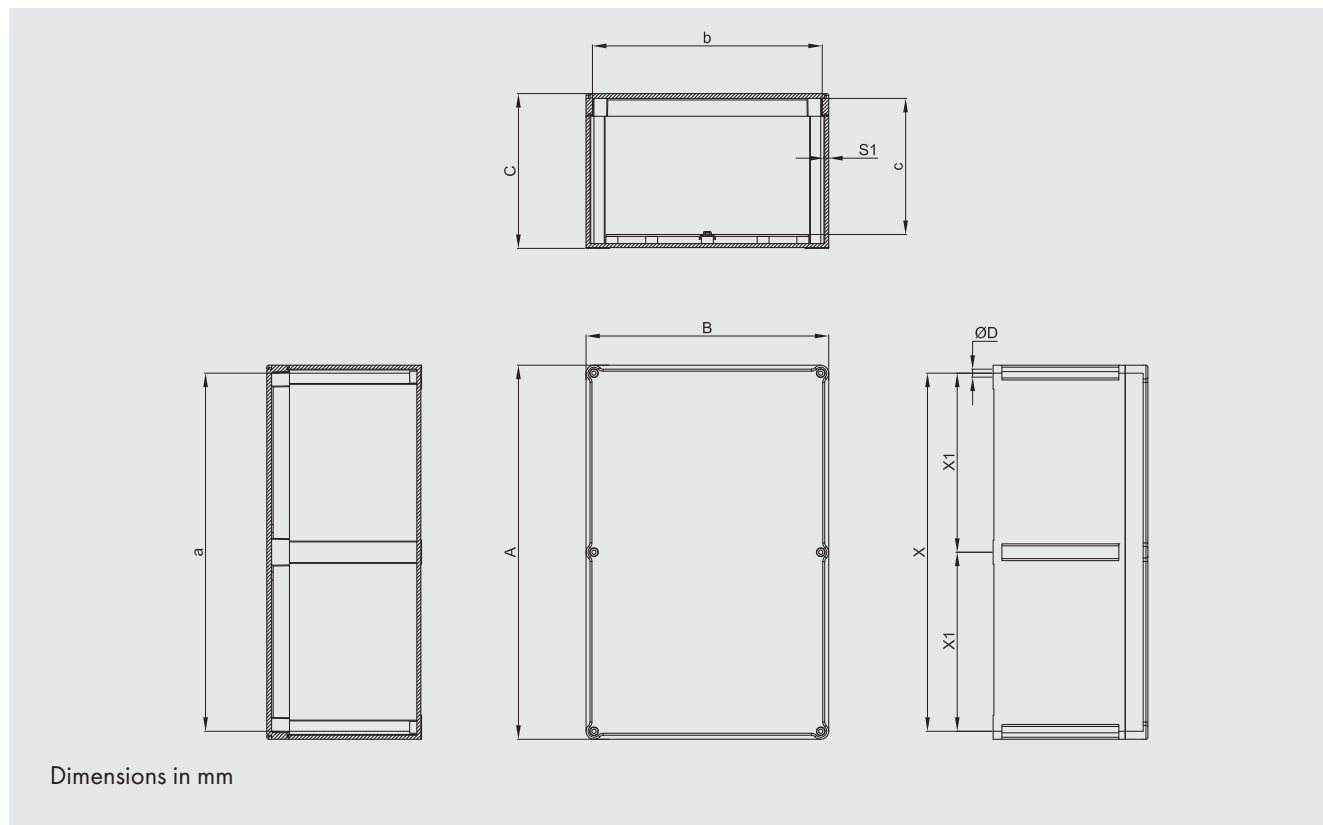
Body and lid:	Black polyester resin with antistatic properties
Gaskets:	Acid, hydrocarbon and high temperature resistant silicon positioned between the body and the lid
Mounting:	Polyester lugs for M6 screws
Certificate plate:	In aluminum riveted
Screws:	Stainless steel captive variety

MAX POWER DISSIPATED

Box	Material	max power dissipated (w)		
		T.a. @ +40°C	T.a. @ +55°C	T.a. @ +60°C
SA111108/P	polyester	9	5	4
SA171108/P	polyester	12	6,5	4,5
SA141410/P	polyester	17	9	6,5
SA301410/P	polyester	23	12	8,5
SA302310/P	polyester	22,5	12	8,5
SA302318/P	polyester	45	19,5	15
SA473018/P	polyester	56	29,5	22
SA623018/P	polyester	50	27	19,5

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

DIMENSIONAL DRAWINGS



SELECTION CHART

Code	External dimensions			Inner dimensions				Fixing				Weight Kg
	A	B	C	a	b	c	S1	X	Y	X1	$\varnothing D$	
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

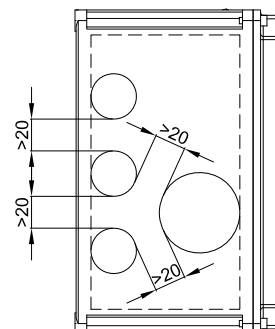
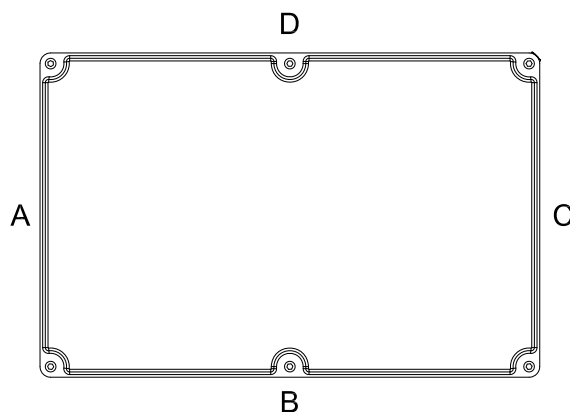
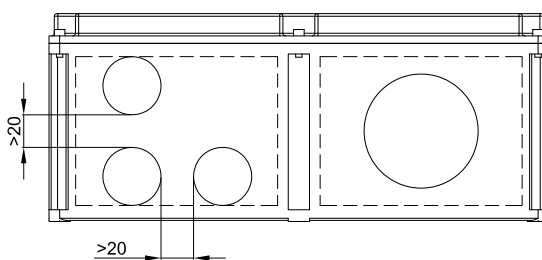
THREAD COMPARISON CHART

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	7	8	
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	3	2
SA473018/P	258x140	24	18	14	8	8	6	3	2	380x140	36	24	18	12	12	8	6	2
SA623018/P	248x117	18	15	10	8	6	3	2	2	434x117	32	26	16	14	12	6	4	4

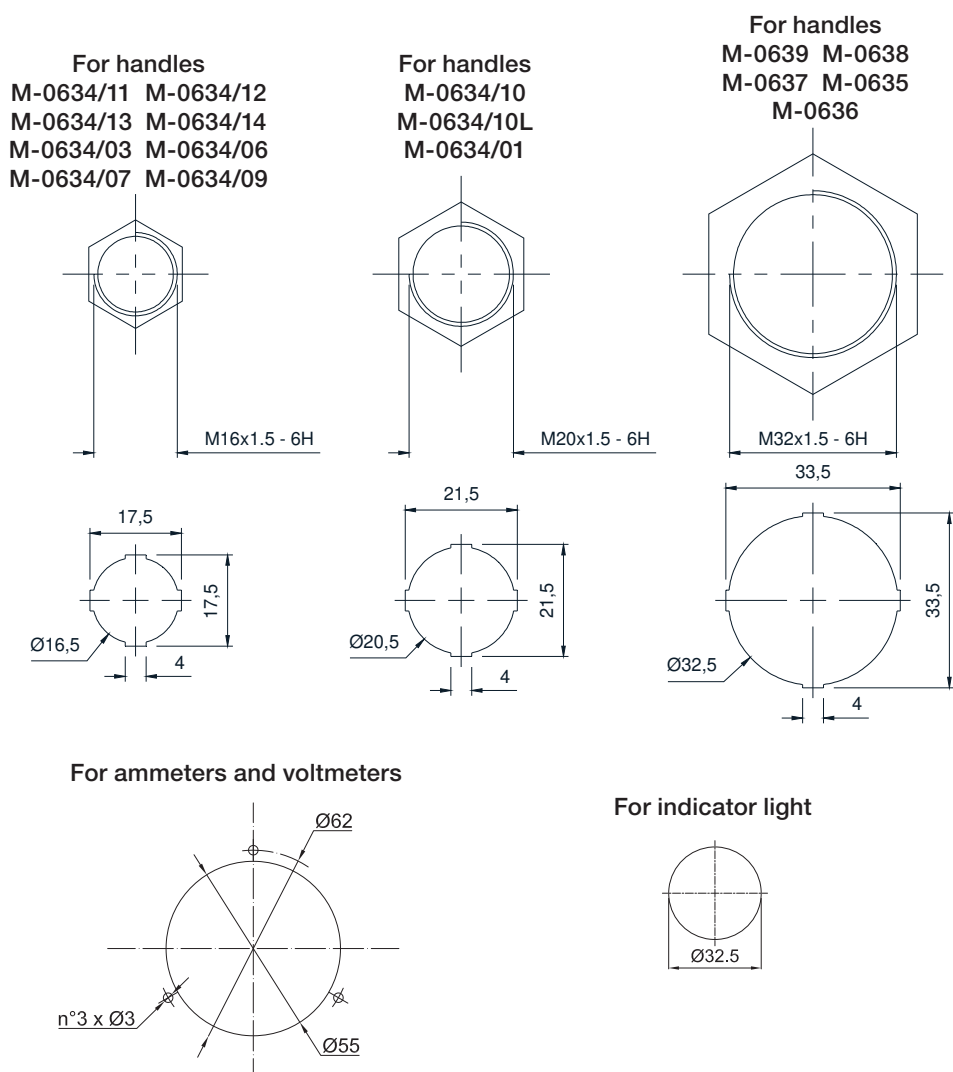


LID DRILLING DATA

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



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

STAINLESS STEEL CONTROL HOUSINGS CTB SERIES



MECHANICAL FEATURES

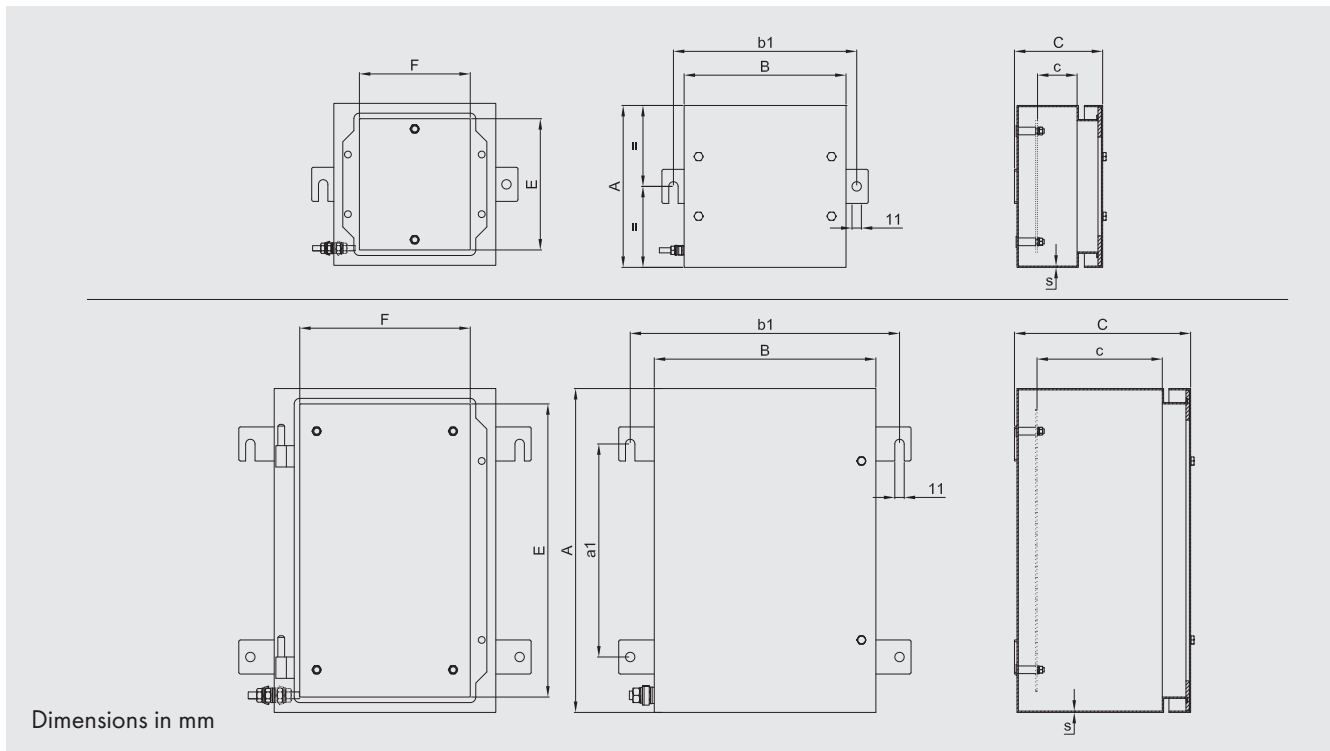
Body and lid:	Stainless steel AISI 316L
Hinges:	Stainless steel AISI 316L
Gaskets:	Resistant to acids, hydrocarbons and high temperatures, located between body and lid. Ensures consistent protection to IP66 during use
Certificate plate:	Stainless steel riveted
Removable gland plates:	Stainless steel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

MAX POWER DISSIPATION

Box	Material	max power dissipation (w)		
		T.a. @ +40°C	T.a. @ +55°C	T.a. @ +60°C
CTB221513	stainless steel	8	4	3
CTB262616	stainless steel	12	6	4
CTB262620	stainless steel	13	6,5	4
CTB303016	stainless steel	16	8	4
CTB303020	stainless steel	18,5	9	4
CTB382616	stainless steel	17	8,5	4
CTB382620	stainless steel	20,5	10	5
CTB453816	stainless steel	25	12,5	6
CTB453820	stainless steel	34	17	6
CTB484816	stainless steel	31	15,5	6,5
CTB484820	stainless steel	43	21,5	6,5
CTB503516	stainless steel	26	13	6
CTB503520	stainless steel	35	17,5	6
CTB624516	stainless steel	38	19	7
CTB624520	stainless steel	55	27,5	7,5
CTB745520	stainless steel	77	37,5	8,5
CTB765020	stainless steel	77	37,5	8,5
CTB808030	stainless steel	77	37,5	8,5
CTB866420	stainless steel	99	49,5	9
CTB916120	stainless steel	103	51,5	9
CTB916130	stainless steel	103	51,5	9
CTB987420	stainless steel	125	62,5	9

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

DIMENSIONAL DRAWING



SELECTION CHART

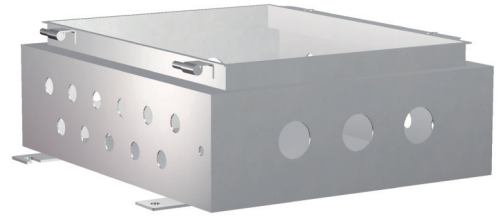
Code	External dimensions			E	Inner dimensions			Fixing	
	A	B	C		F	c	s	a1	b1
CTB221513	229	152	130	169	92	75	1,5	152	208
CTB262616	260	260	160	224	200	100	1,5	170	316
CTB262620	260	260	205	224	200	145	1,5	170	316
CTB303016	306	306	160	270	246	100	1,5	203	361
CTB303020	306	306	205	270	246	145	1,5	203	361
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

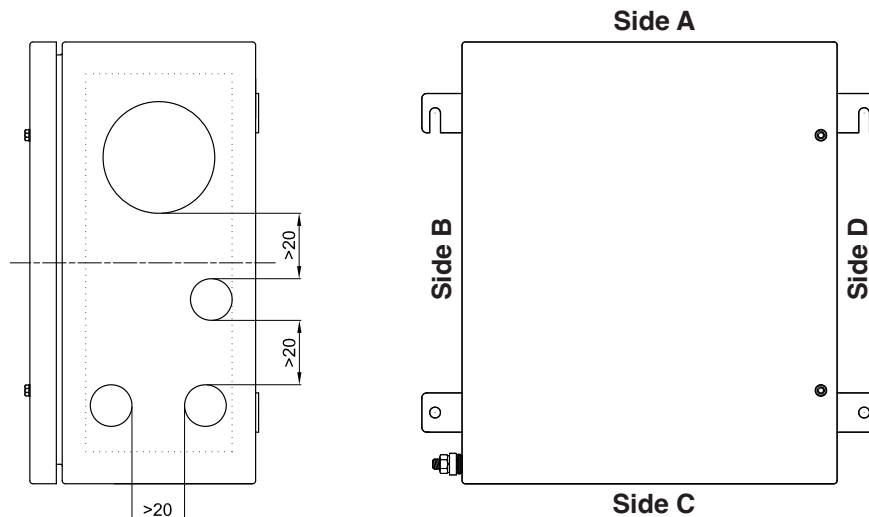
THREAD COMPARISON CHART

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 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	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

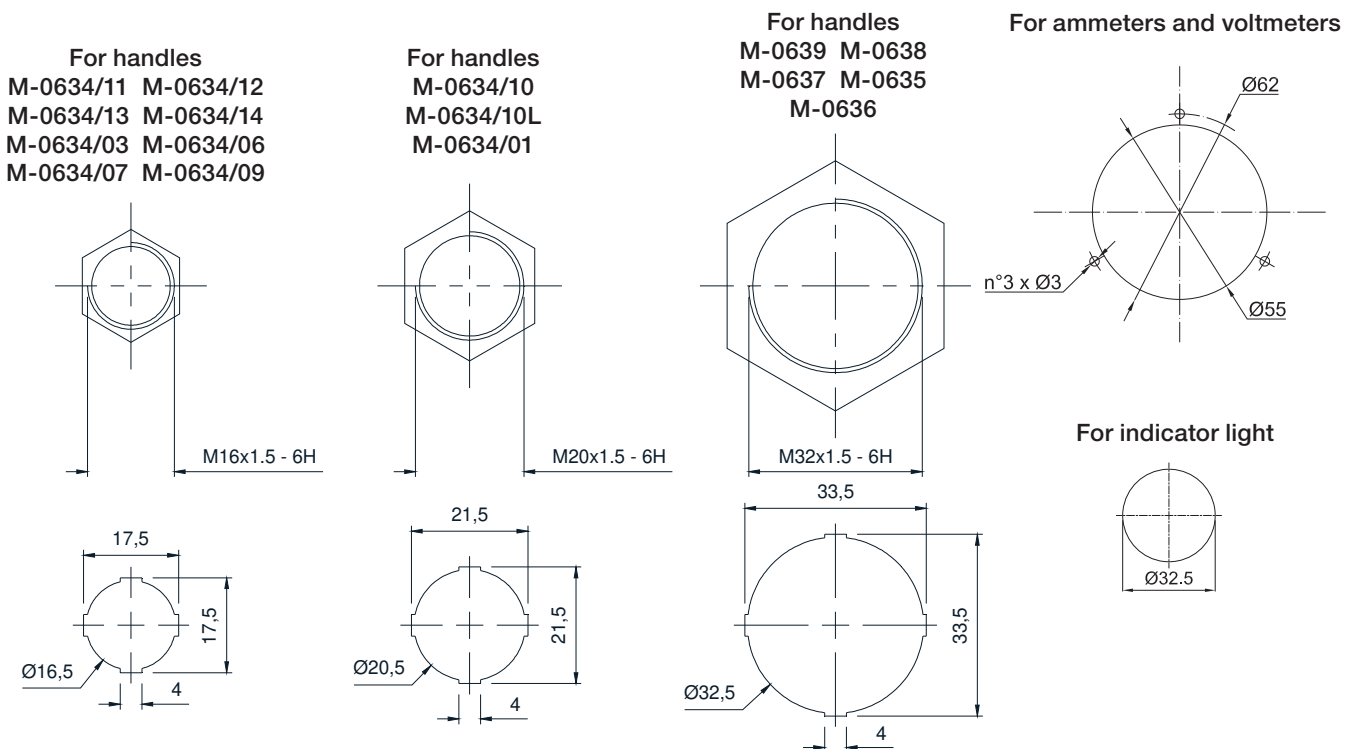


LID DRILLING DATA

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

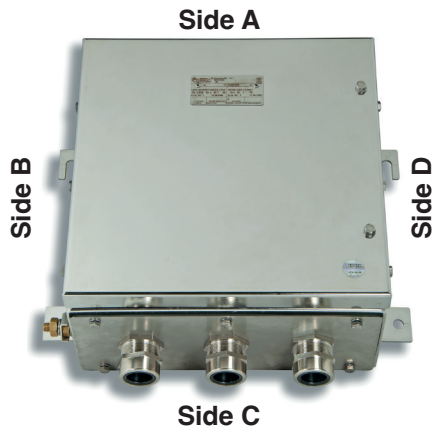


TYPE OF HOLES

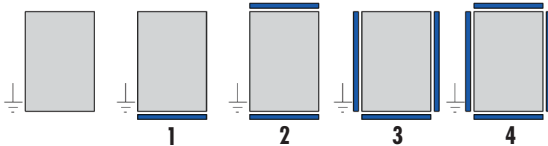


Junction boxes for monitoring and control panel 'Ex tb' CTB

REMOVABLE GLAND PLATES ON CTB SERIES STAINLESS STEEL BOXES



Removable gland plate position coding



Ordering code examples

1) CTB503516S3

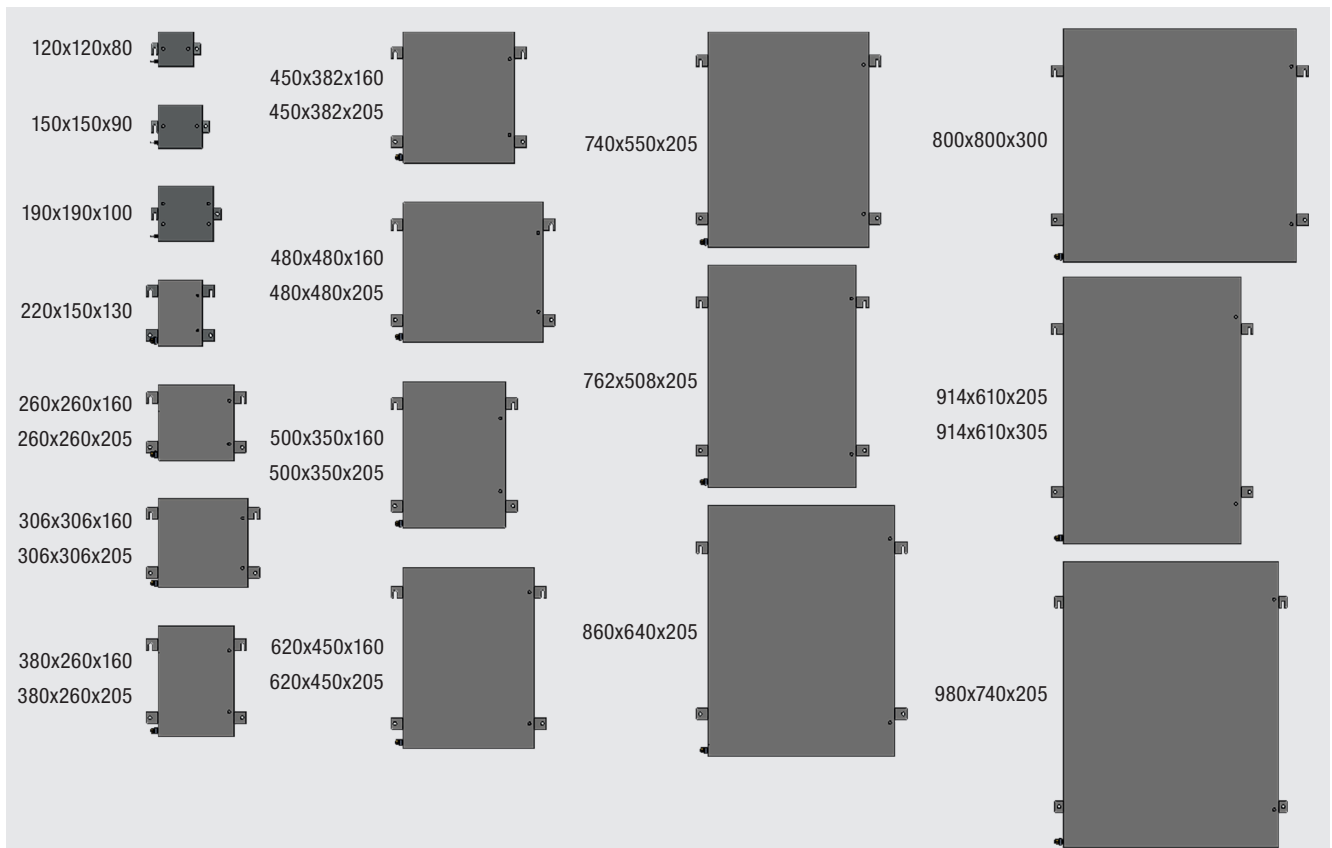
500x350x160 stainless steel box with 3 removable gland plates

2) CTB624520S4

620x450x205 stainless steel box with 4 removable gland plates

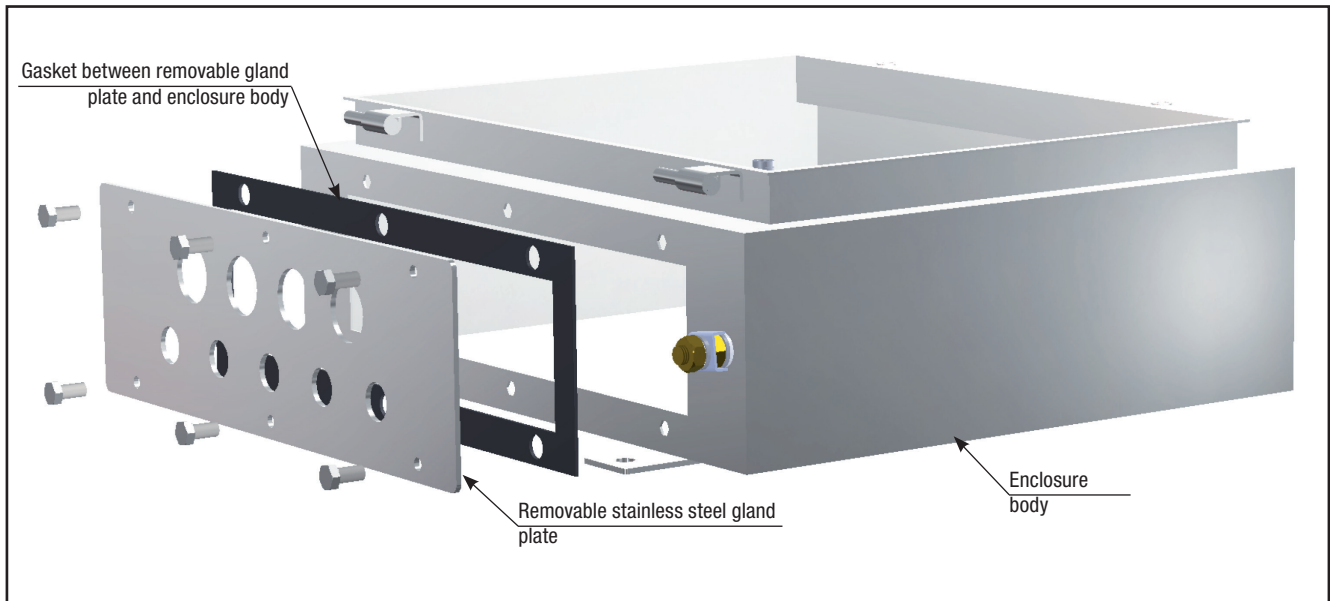
Code	Removable gland plate dimensions			
	Side A	Side B	Side C	Side D
CTB221513S..	144x94	144x94	144x94	144x94
CTB262616S..	254x120	154x120	254x120	154x120
CTB262620S..	254x164	154x164	254x164	154x164
CTB303016S..	298x120	254x120	298x120	254x120
CTB303020S..	298x164	254x164	298x164	254x164
CTB382616S..	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 ENCLOSURE	HOLE DRILLING IN REMOVABLE GLAND PLATES																	
	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	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

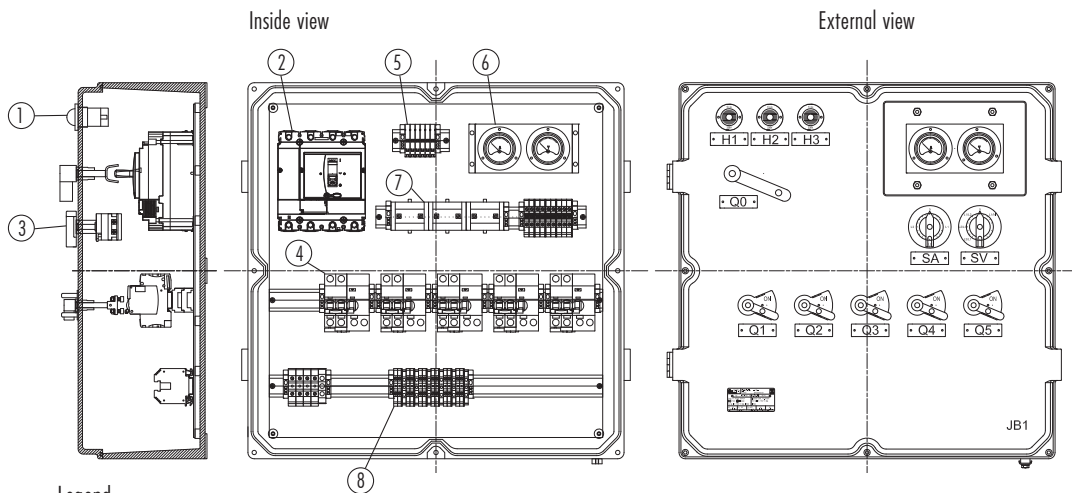
Junction boxes for monitoring and control panel 'Ex tb'

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.

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

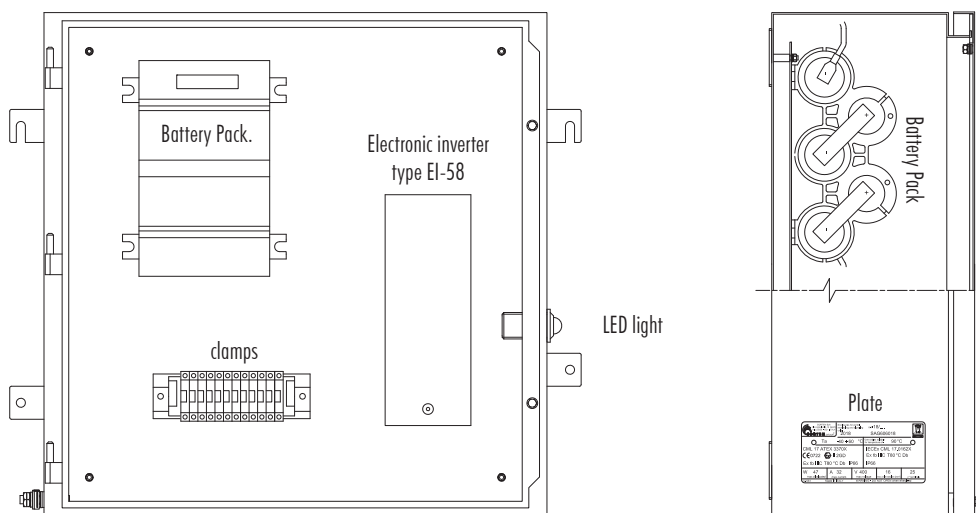
EXAMPLE OF TYPICAL DISPOSAL OF INTERNAL AND EXTERNAL ACCESSORIES



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 ² |

EXAMPLE OF ASSEMBLING OF CORTEM G-0309 SERIES BATTERY UNIT



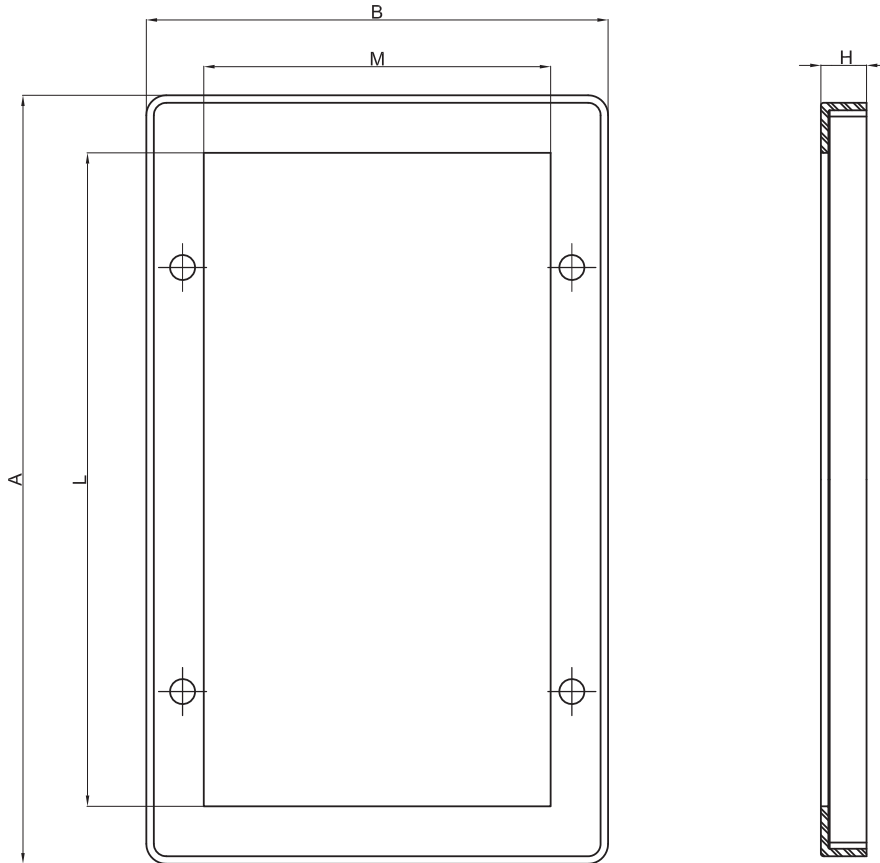
Special conditions for the use of the battery pack G-0309 .. and for the ammeter or voltmeter B-0140 ..:

- 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.

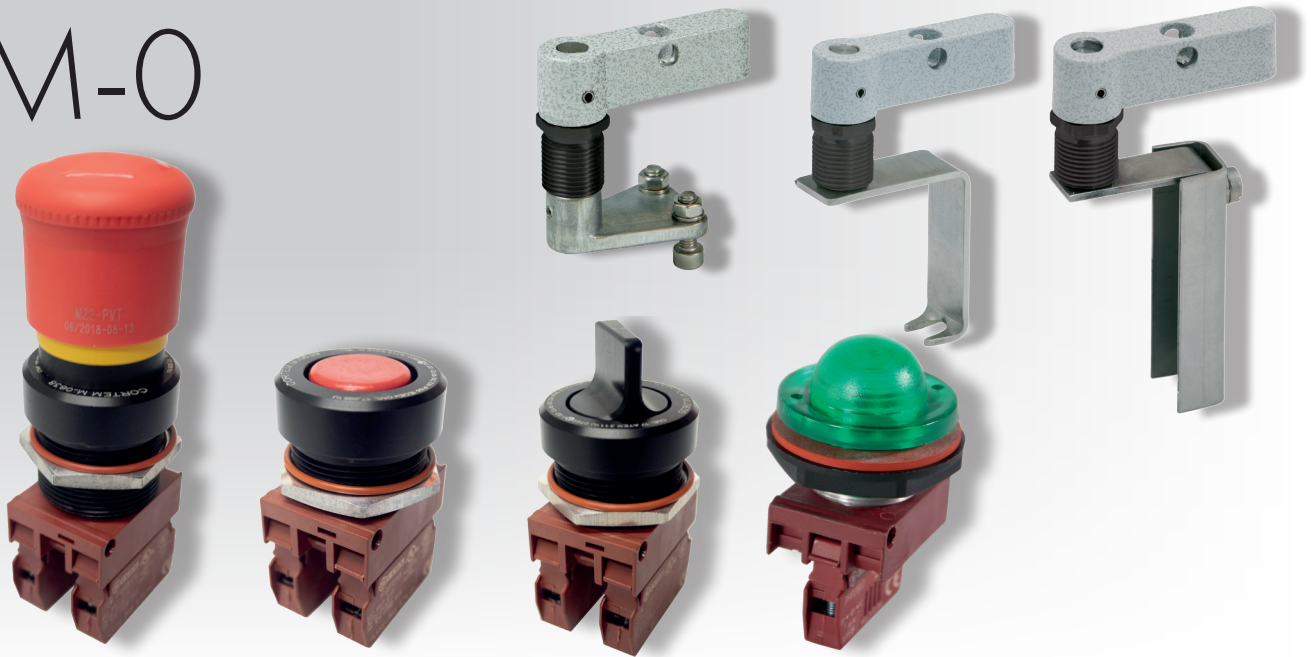
DIMENSIONAL DRAWING BOXES WITH WINDOWS



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 www.cortemgroup.com		
	IEC Ex CML 17.0051U			
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			
Degree of protection:	IP66			

MECHANICAL FEATURES OF CONTROL DEVICES

Outer body:	Aluminium
Internal bush:	Stainless steel
Internal pin:	Stainless steel
Gaskets:	Acid/hydrocarbon-resistant silicone
Push-button:	Coloured nylon
Illuminated push-button:	Clear coloured polycarbonate
Handle levers:	Aluminium
Coating:	Polyester coating RAL 7035 (Light grey), where this is an option
Device mounting:	Screws into lid
Contact mounting:	Snaps 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)

Rated voltage:	600V
Rated current:	10A
Impulse withstand voltage:	4kV
Insulation category:	Group C as per VDE 0110
Degree of protection of terminals:	IP2x as per CENELEC EN 60529
Contact operation:	<ul style="list-style-type: none"> - slow acting - self-cleaning (wiping action) - NC contact forced opening - double movable bridge - four points of contact - double break

Contact resistance
 $\leq 25 \text{ m}\Omega$ as per IEC 255.7 category 3

Short-circuit protection
 16A gG time-delay fuses as per IEC 269.1 and 269.3

Electrical performance

Rated thermal current $I_{th} = 10 \text{ A}$

Operational limits as per IEC 947.5.1:

Category AC15								
Voltage U_e (V)	24	48	60	110	220	380	500	600
Current I_e (A)	10	10	10	6	3	2	1.5	1.2
Category DC13								
Voltage U_e (V)	24	48	60	110	220	300		
Current I_e (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)

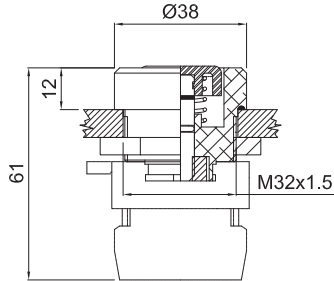
ELECTRICAL FEATURES (CONTACT BLOCK FOR M-0553.. HANDLES)

Alternating current

Series			10	16	20	32	40/63
Rated voltage	U_e VDE/IEC	V	690	690	690	690	690
Rated current	I_{th} 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-0... control, monitoring and signalling devices

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
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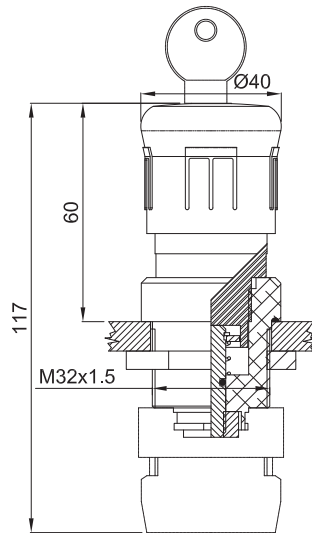


Normal push-button with standard 10A 600V
1NO+1NC contacts.
Button comes in choice of six colours.

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

Add IN for stainless steel body

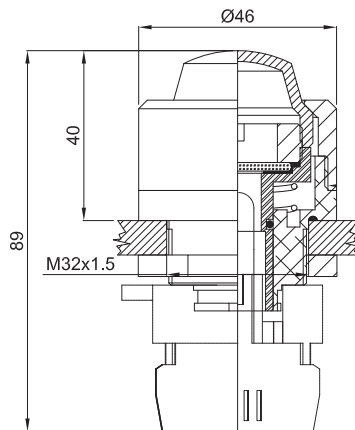
Note:
For the padlockable push-button add
CODE + L (e.g. M- 0639/RL)



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

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

Add IN for stainless steel body



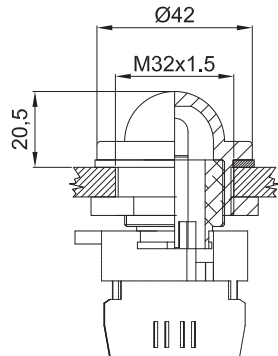
Illuminated push-button with standard 10A 600V
1NO+1NC contacts. (lamps on request)
Illuminated button comes in choice of five colours.

Blue	M-0637../B
White	M-0637../I
Yellow	M-0637../G
Red	M-0637../R
Green	M-0637../V

Add IN for stainless steel body

M-0... control, monitoring and signalling devices

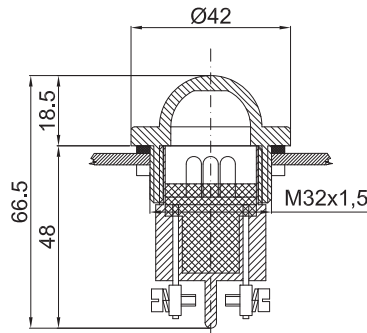
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
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Indicator light with 3W lamps (on request*), 12/240 Vac/dc. Lens comes in choice of five colours.

Blue	M-0636/B
Yellow	M-0636/G
White	M-0636/I
Red	M-0636/R
Green	M-0636/V

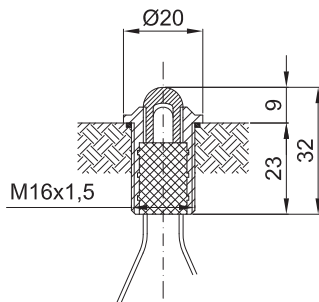
* lamp	12V:	LAMPBA9S12V
	24V:	LAMPBA9S24V
	110V:	LAMPBA9S110V
	240V:	LAMPBA9S240V



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

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


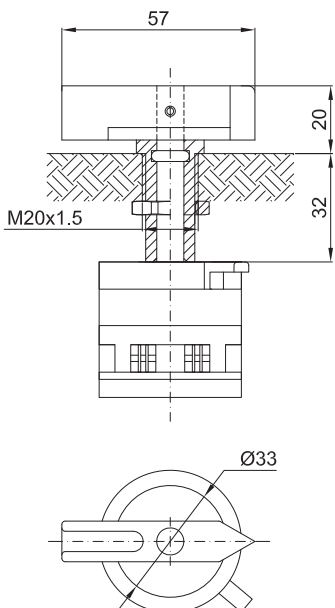

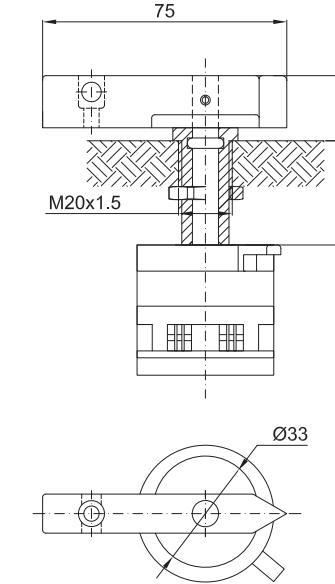

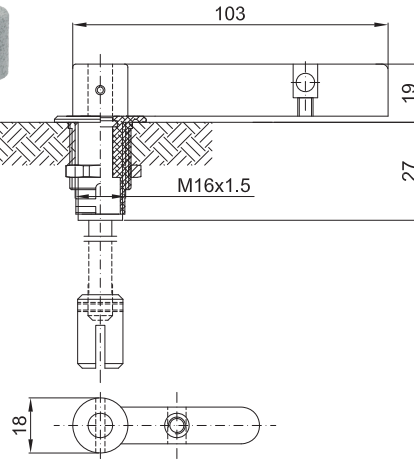
Can be ordered in 4 possible voltages:
110 Vac/dc = M-0612/..110
12 Vac/dc = M-0612/..12
230 Vac = M-0612/..230
24 Vac/dc = M-0612/..24




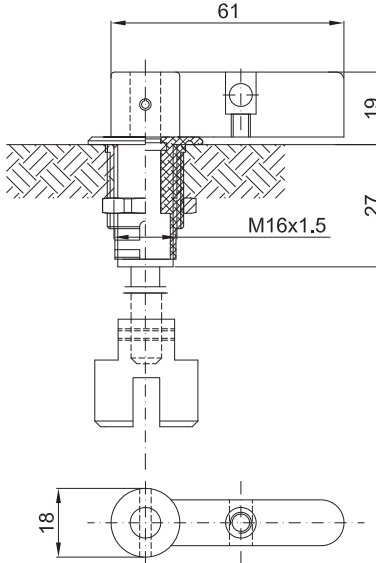

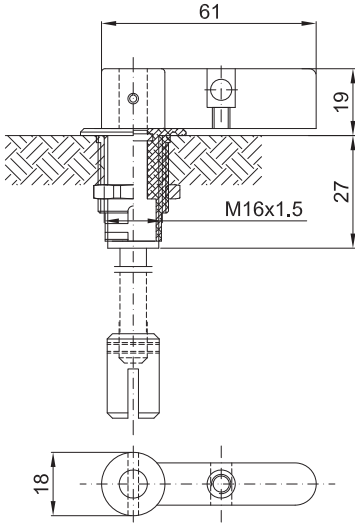
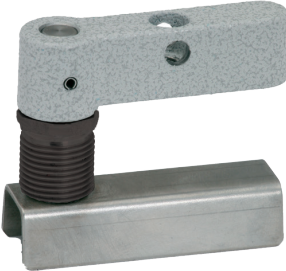
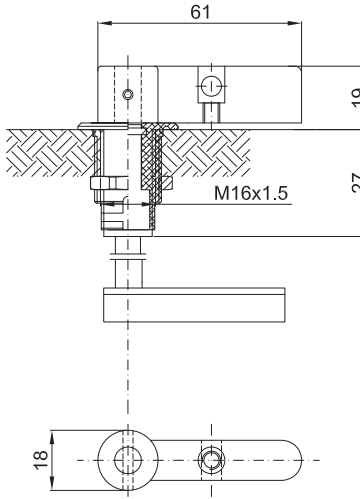
Indicator light with one high-brightness LED, for a consumption of 20 mA and estimated life of around 50,000 hours. LED in 5 colours available. Complete with locknut.

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


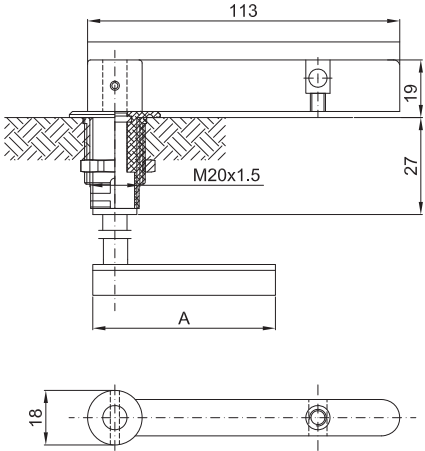
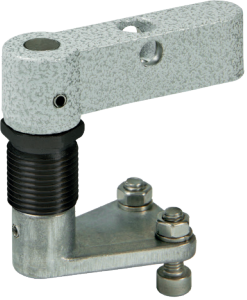
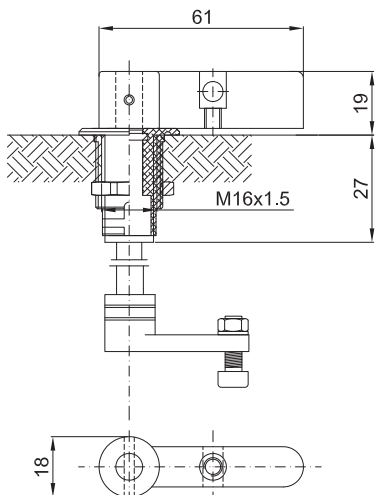

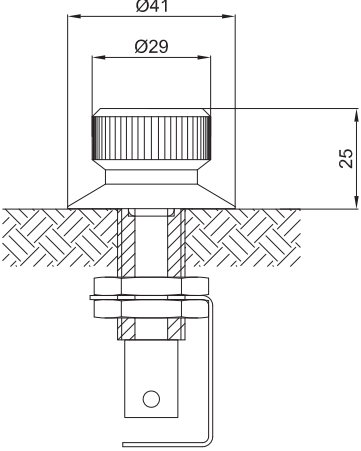
M-0... control, monitoring and signalling devices

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

M-0... control, monitoring and signalling devices

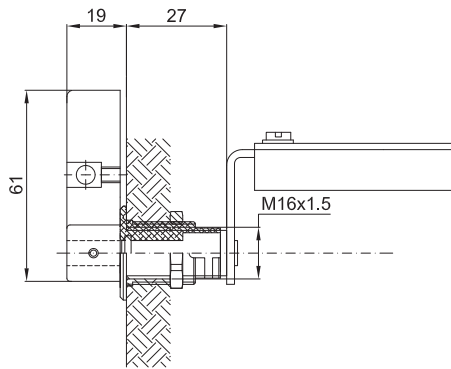
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		<p>Padlockable handle for special switches. (3RV motor protectors). Complete with locknut.</p> <p>Variable pin length</p> <p>Fixed pin length</p> <p>Add IN for stainless steel body and handle</p>	<p>M-0634../12V</p> <p>M-0634../12F</p>
		<p>Padlockable handle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

M-0... control, monitoring and signalling devices

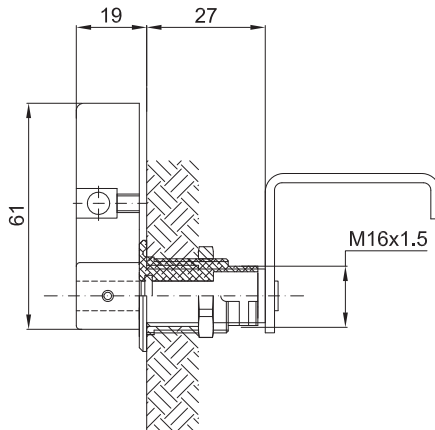
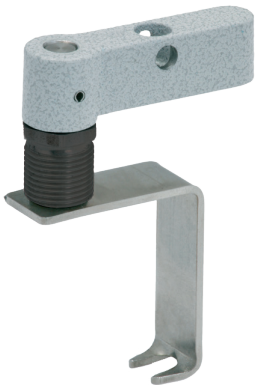
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		<p>Padlockable handle for heavy-duty series enclosed circuit breakers. Complete with locknut.</p> <p>Variable pin length</p> <p>Fixed pin length</p> <p>Add IN for stainless steel body and handle</p>	<p>M-0634../01V</p> <p>M-0634../01F</p>
		<p>Padlockable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

M-0... control, monitoring and signalling devices

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
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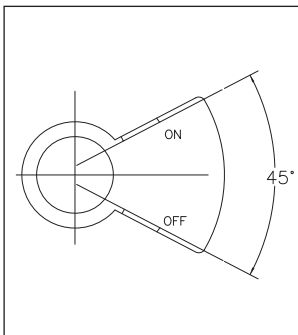


Handle for enclosed circuit breakers. **M-0634/07**
 Wall mounting. Complete with locknut.

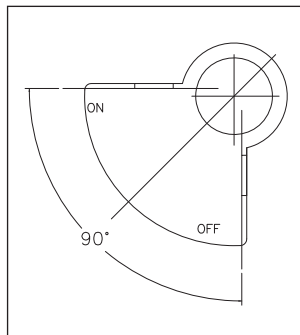


Handle for modular circuit breakers. Wall mounting. **M-0634/09**
 Complete with locknut.

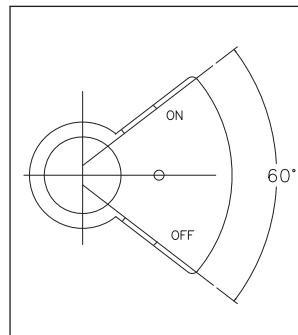
Type of handle padlocking devices



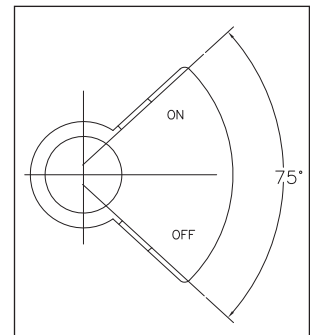
Code **M-698/5**



Code **M-698/6**


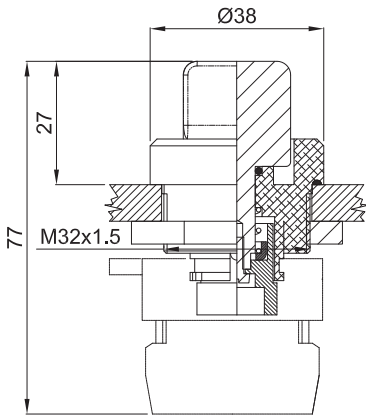



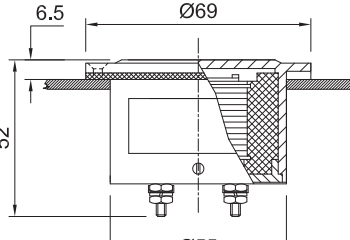
Code **M-698/7**



Code **M-698/8**

M-0... control, monitoring and signalling devices

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

		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-0140A
		voltmeter	B-0140V

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

