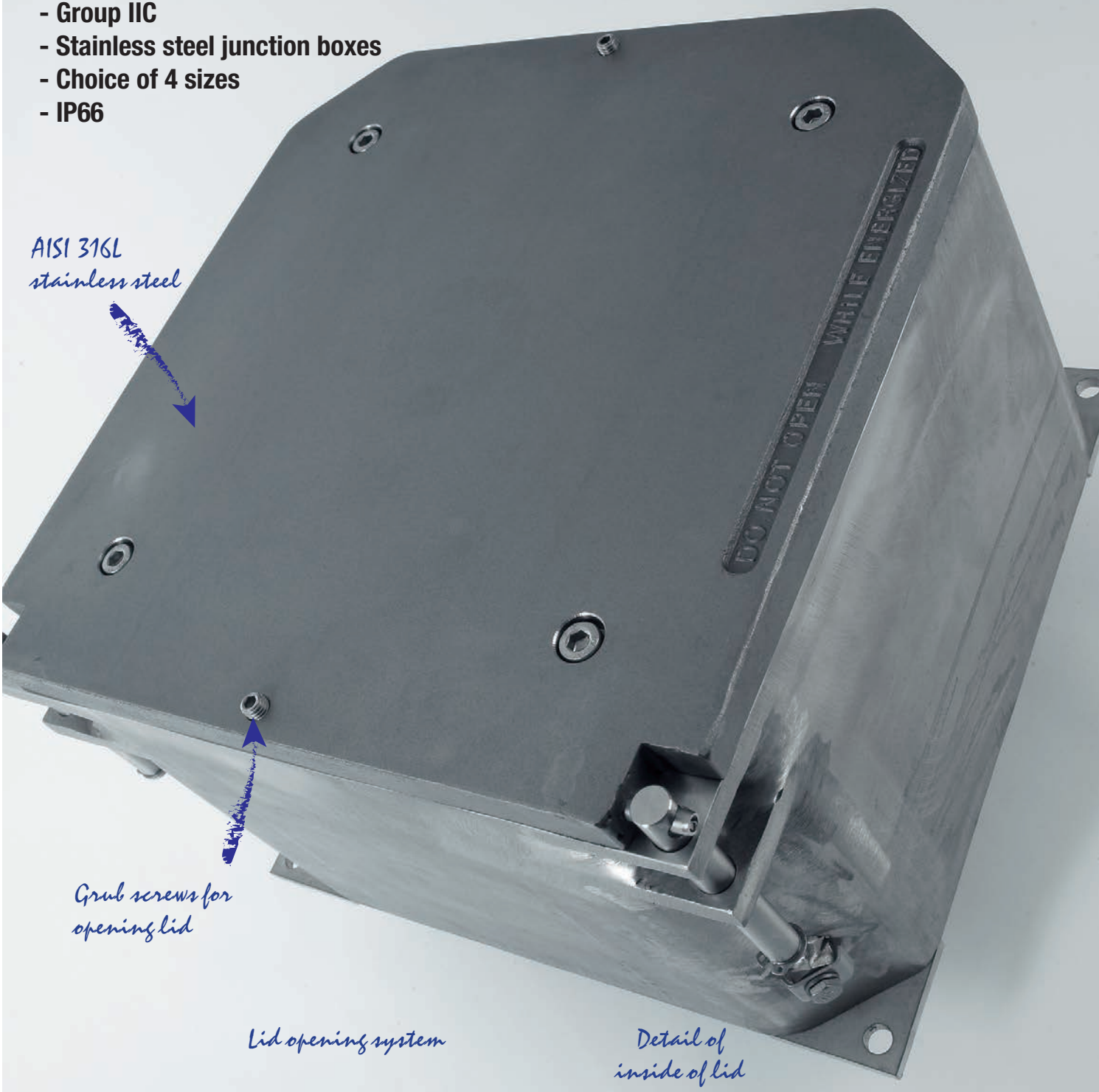
CCAI , CCAIF , CCAIF..H

- Zone 1, 2, 21, 22
- Group IIC
- Stainless steel junction boxes
- Choice of 4 sizes
- IP66



CCAI-... series Stainless steel junction boxes gas group IIC

CCAI series junction boxes are installed in industrial plants where there is a risk of explosion and fire, where combustible dust and group IIC gases are present, classified as Zone 1, 2, 21, 22. These enclosures are made from welded 316L sheet stainless steel and come complete with stainless steel screws and a silicone gasket running around the perimeter between the body and lid to provide the IP66 protection degree. The CCAI units are mostly used as junction boxes with relevant connection terminals, as enclosures for fuses, transformers and reactors, as monitoring and signalling boards, light and power boards or motor starter boxes with various configurations, which are custom made to the requirements of our customers worldwide.

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

Application sectors:


Mining


Offshore plants


Onshore plants


Oil refineries


Oil loading/ offloading wharfs

Presence of hydrogen


Low temperatures

100% Cortem product

CERTIFICATION DATA FOR EMPTY ENCLOSURES

Classification:	Group I/II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2 GD - Ex db IIC Gb - Ex tb IIIC Db - IP66			
	CE 0722 Ex I M2 - Ex db I Mb			
Certification:	ATEX CESI 01 ATEX 034U			
	IEC Ex CES 14.0012U	All IEC Ex, ECASEx, TR CU certification data can be downloaded from www.cortemgroup.com		
	ECASEx AVAILABLE			
	TR CU AVAILABLE			
Standards:	CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60439-1, EN 60079-31: 2009, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	-20°C +60°C	Standard temperature on all CCAI boxes.		
	-60°C +60°C	Special temperature.		
Degree of protection:	IP66			

CERTIFICATION DATA FOR ENCLOSURES WITH TERMINALS

Classification:	Group I/II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2 GD - Ex d IIC T6, T5 Gb - Ex tb IIIC T85, T100°C Db - IP66			
	CE 0722 Ex I M2 - Ex d I Mb			
Certification:	ATEX CESI 01 ATEX 036X			
	IEC Ex CES 16.0013X	All IEC Ex, TR CU, CCoE certification data can be downloaded from www.cortemgroup.com		
	TR CU AVAILABLE			
	CCoE AVAILABLE			
Standards:	CENELEC EN 60079-0: 2018 + A11: 2013, EN 60079-1: 2014, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	-50°C (-60°C) +40°C	With temperature class T6 and maximum surface temperature T85°C.		
	-50°C (-60°C) +55°C	With temperature class T5 and maximum surface temperature T100°C.		
Degree of protection:	IP66			

CERTIFICATION DATA OF ENCLOSURES FOR CONTROL, MONITORING AND SIGNALLING UNITS

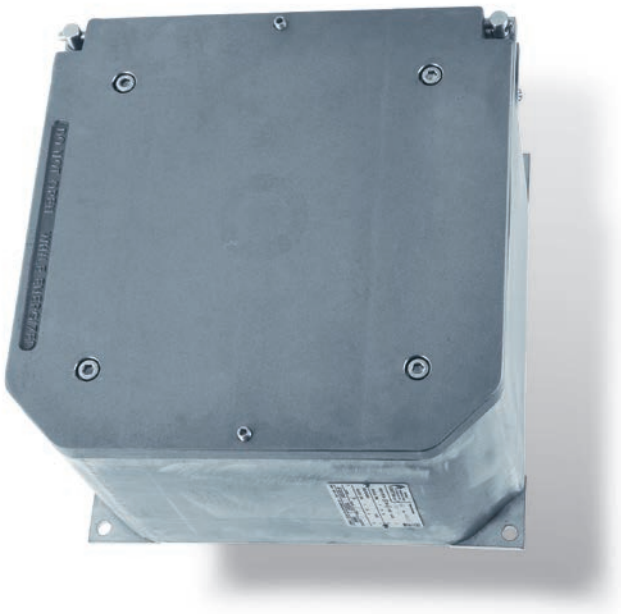
Classification:	Group I/II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db IIC T6, T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
	CE 0722 Ex I M2 - Ex db I Mb			
Certification:	ATEX CESI 01 ATEX 036X			
	IEC Ex CES 16.0013X	All IEC Ex, ECASEx, TR CU, CCC, INMETRO certification data can be downloaded from www.cortemgroup.com		
	ECASEx AVAILABLE			
	CCC AVAILABLE			
	BRAZILIAN TÜV 11.0161			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60439-1, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	-20°C +40°C	With temperature class T6 and maximum surface temperature T85°C.		
	-20°C +55°C	With temperature class T5 and maximum surface temperature T100°C.		
	-60°C on request. (Use indicator light series M-0457AL, M-0457AL/3, M-0457IN or M-0457IN/3)			
Degree of protection:	IP66			

CERTIFICATION DATA FOR ENCLOSURES SERVING SURGE ARRESTER FUNCTION

Classification:	Group I/II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2GD - Ex db IIC T6, T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
	CE 0722 Ex I M2 - Ex db I Mb			
Certification:	ATEX CESI 01 ATEX 036X			
	IEC Ex CES 16.0013X	All IEC Ex certification data can be downloaded from www.cortemgroup.com		
	TR CU AVAILABLE	All TR CU certification data can be downloaded from www.cortemgroup.com		
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60439-1, EN 60079-31: 2014, EN 60529: 1991 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	-20°C +40°C	With temperature class T6 and maximum surface temperature T85°C.		
	-20°C +55°C	With temperature class T5 and maximum surface temperature T100°C.		
	-60°C on request.			
Degree of protection:	IP66			

CERTIFICATION DATA OF ENCLOSURES SERVING INTERFACE UNIT CONTROL AND MONITORING FUNCTION

Classification:	Group I/II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II2(1)GD - Ex db [ia Ga] IIC T... Gb - Ex tb [ia Da] IIIC T...°C Db - IP66			
	CE 0722 Ex I M2 Ex db [ia Ma] I Mb			
Certification:	ATEX CESI 03 ATEX 174X			
	IEC Ex CES 16.0015X	All IEC Ex, ECASEx, TR CU, CCC certification data can be downloaded from www.cortemgroup.com		
	ECASEx AVAILABLE			
	CCC AVAILABLE			
Standards:	CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60079-11: 2007, EN 60079-26: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient Temp.:	-20°C +40°C	With temperature class T6 and maximum surface temperature T85°C.		
	-20°C +55°C	With temperature class T5 and maximum surface temperature T100°C.		
	-60°C on request. (Use indicator light series M-0457**AL**, M-0457**AL**/3, M-0457**IN** or M-0457**IN**/3)			
Degree of protection:	IP66			



MECHANICAL FEATURES

Body and lid:	AISI 316L stainless steel. Lid fitted with hinges for body coupling system incorporating cylindrical joint.
Hinges:	Stainless steel
Gasket:	Resistant to acids, hydrocarbons and high temperatures, located between body and lid
Certification label:	Adhesive label located inside on empty enclosures; stainless steel label riveted onto body on other versions
Bolts and screws:	Stainless steel
Earth screws:	Stainless steel. On inside and outside of body complete with anti-rotation brackets.
Mounting:	Stainless steel lugs.

ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

1.5mm-thick stainless steel internal mounting plate (code K...-265). See accessories section
Possible drilling of the enclosure bottom
Breather valve Code ECD-210S
Drain valve Code ECD-210S
Enclosures with windows on lid
Thread options:

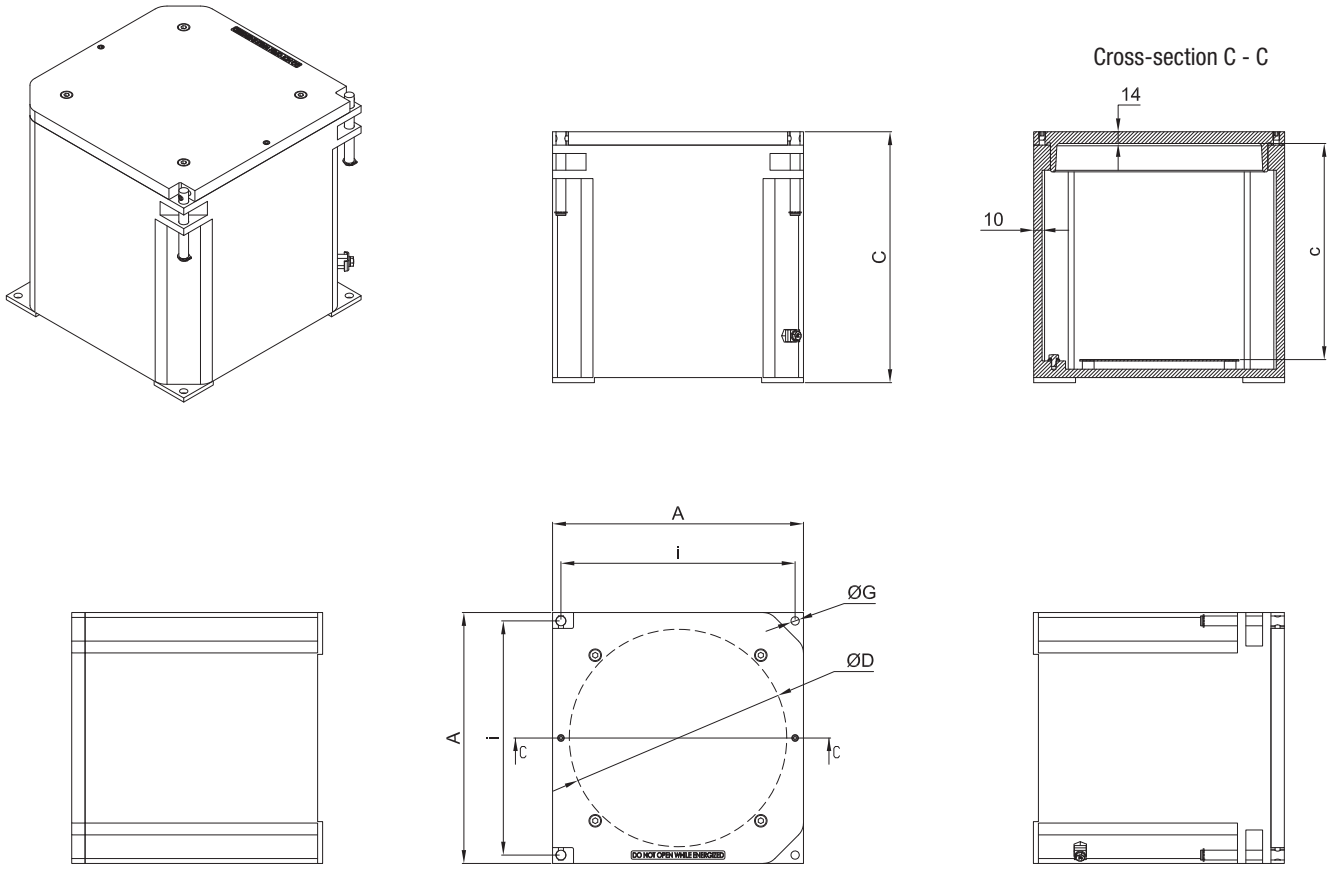
- NPT threads ANSI B1.20.1
- GAS UNI ISO 7-1 thread
- Metric threads ISO 261/965

Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

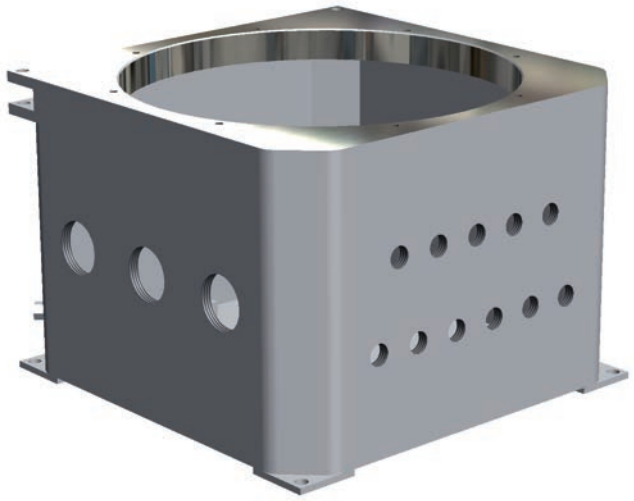
ENCLOSURE SELECTION CHART

Code	Outside dimensions		Inside dimensions		Mounting		Weight
	A	C	ØD	c	i	ØG	Kg
CCAI-2020	200	200	160	155	180	10	
CCAI-3020	300	200	260	155	280	10	
CCAI-3030	300	300	260	255	280	10	
CCAI-4030	400	300	360	255	380	12	

DIMENSIONAL DRAWING



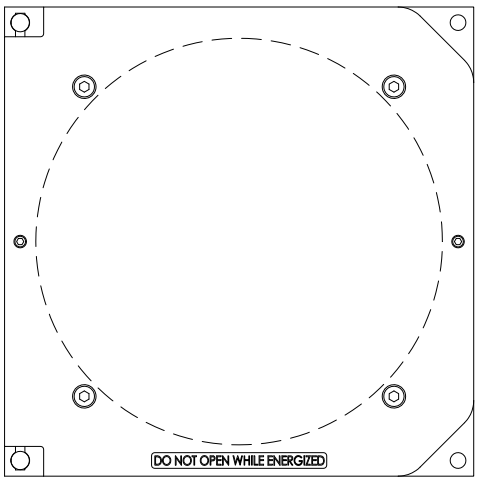
Dimensions in mm

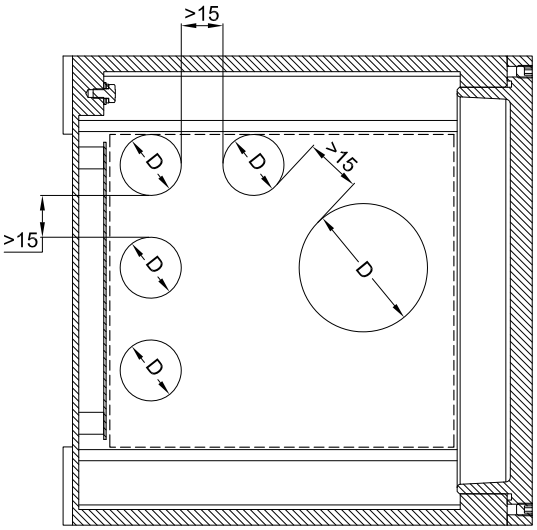


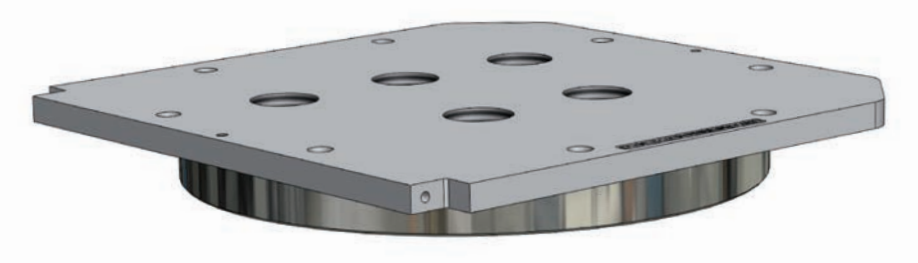
THREAD COMPARISON CHART									
ISO 7-1	1/2"	3/4"							
ANSI B.20.1 NPT	1/2"	3/4"							
ISO 261/965	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5	90x1,5	100x1,5
D Thread diameter	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**10**

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								
	One side								
	Drilling area mm	MAXIMUM QUANTITY PER HOLE TYPE							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**10**
CCAI-2020	115x125	6	6	4	4	2	1	1	1	1
CCAI-3020	205x120	12	8	6	6	5	3	2	1	1
CCAI-3030	200x220	20	16	12	9	6	6	4	3	1
CCAI-4030	290x225	28	25	20	12	12	6	6	4	2





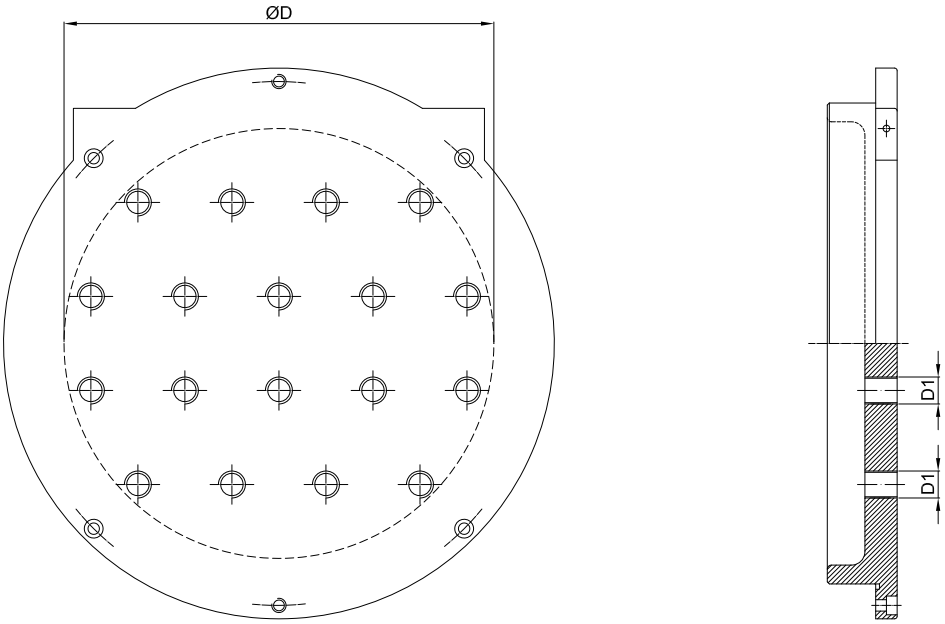


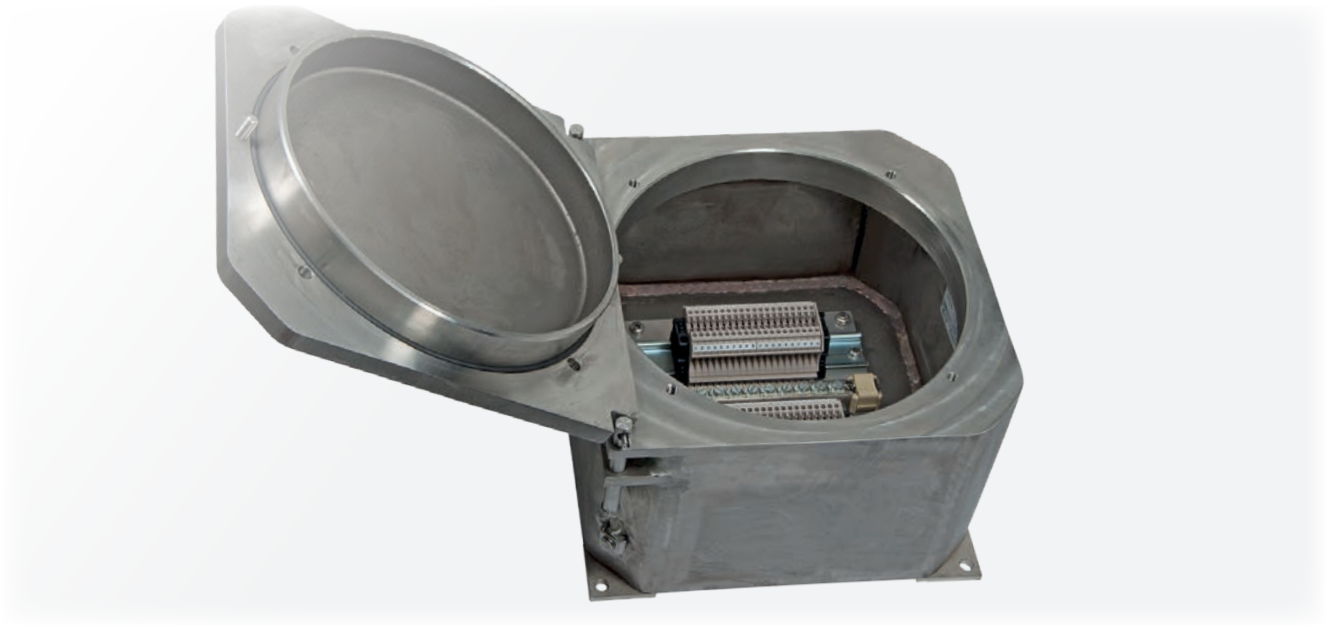
THREAD COMPARISON CHART								
D1	ISO 228	G 3/8"	G 1/2"	G 3/4"	-	-	-	-
	ISO 261/965	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M35x1.5	M40x1.5	M42x1.5

TYPE OF ENCLOSURE	HOLE DRILLING IN LID				
	ØD	MAXIMUM QUANTITY PER HOLE TYPE			
		3/8"	1/2"	3/4"	M32
CCAI-2020	135	4	6	6	6
CCAI-3020 CCAI-3030	230	7	9	9	9
CCAI-4030	330	18	18	18	18

Notes:

- Standard holes refer to mounting of Cortem control and signalling devices.
- 3/8" Ø holes for Cortem std. side-mounted handles centre-to-centre distance >70mm.
- 1/2" Ø holes for Cortem std. heavy-duty series side-mounted handles centre-to-centre distance >120mm.





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

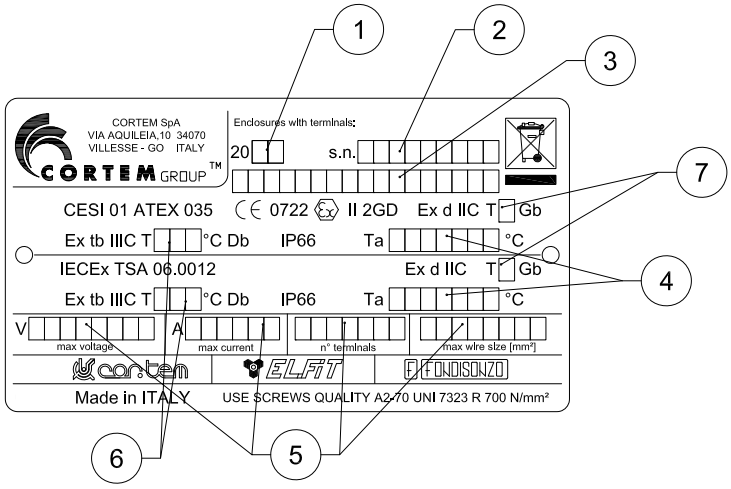
ELECTRICAL FEATURES

Rated voltage: 24 / 800 V
Rated frequency: 50 / 60 Hz

Modular terminals
Terminal cross-sectional area: 2.5; 4; 6; 10; 16; 25; 35; 70; 95; 120; 185; 240 [mm²]
Rated current: 12.5 - 400 [A]
Max. current density: 1.65 - 7 [A/mm²]

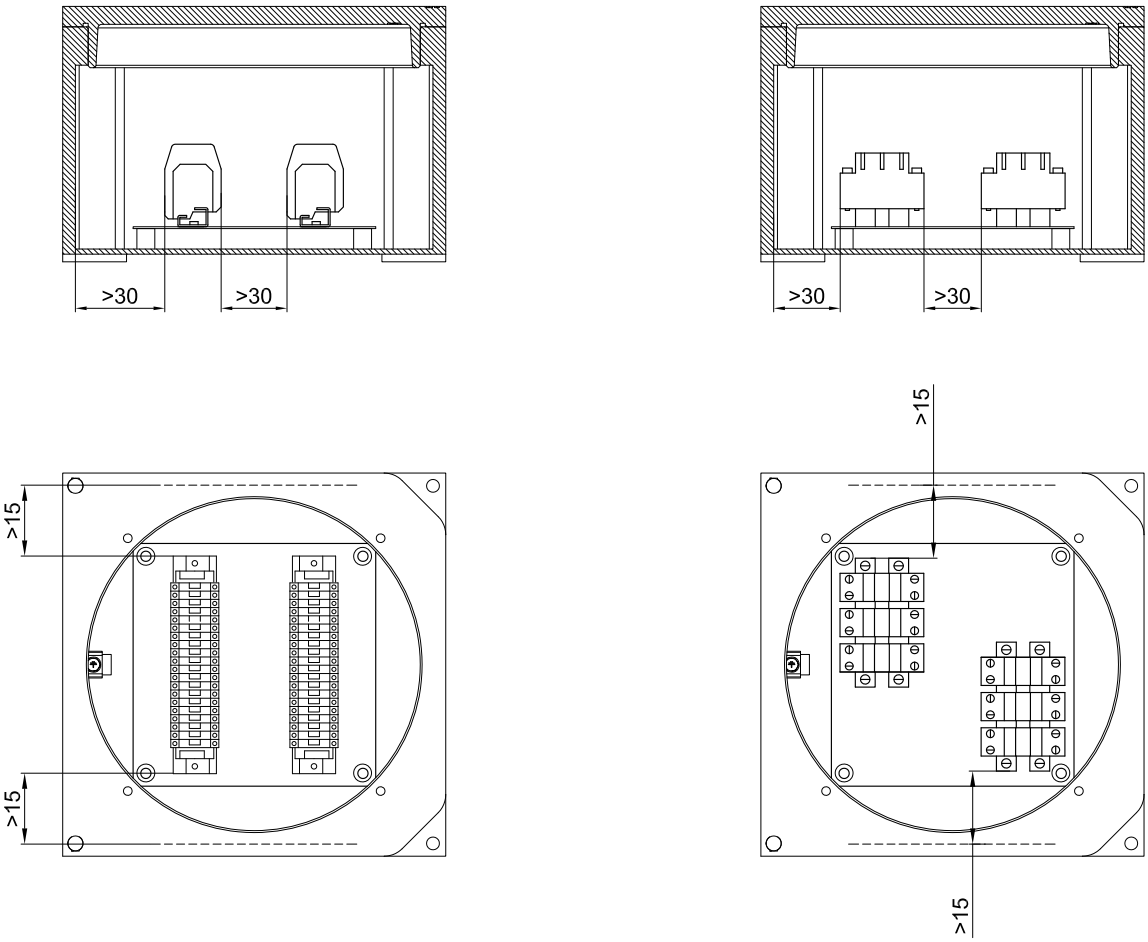
Multi-pole terminals
Terminal cross-sectional area: 3x16; 4x16; 3x25; 4x25; 3x40; 3x40; 4x40; 3x70; 4x70; 3x125; 3x200; 4x200; 3x315 [mm²]
Rated current: 48 - 252 [A]
Max. current density: 0.8 - 3 [A/mm²]

ATEX - IECEx label for terminal enclosures



Data filled in:
1. year of manufacture
2. serial number
3. product code
4. ambient temperature
5. electrical specs
6. maximum surface temperature
7. temperature class

Examples of terminal strips with minimum installation distances



TYPE OF ENCLOSURE	MAXIMUM NUMBER OF TERMINALS HOUSED								
	TERMINAL CROSS-SECTIONAL AREA								
	2.5	4	6	10	16	35	70	120	185
CCAI-2020	19	16	13	10	9	4	-	-	-
CCAI-3020	2x30	2x25	2x22	2x18	2x15	6	-	-	-
CCAI-3030	2x35	2x28	2x25	2x20	2x15	8	-	-	-
CCAI-4030	3x40	3x30	2x28	2x23	2x18	12	10	6	4

Eg. 3x40= 3 rows of 40 terminals (total 120 terminals). The maximum number of standard terminals refers to CABUR terminals

Features of junction boxes for control, monitoring and signalling units

Control, monitoring and signalling units are used to produce control boards that, when positioned near the electrical equipment being controlled, enable the electrical system to operate correctly and guarantee the safety of personnel when maintenance is being performed on the system. Because they are fitted with a Manual/Automatic selector, they allow operators to select the appropriate conditions to enable work to be performed entirely safely. They offer protection and control for electrical equipment and control circuits located in explosion hazard areas and in particularly aggressive environments. They are used to hold electrical equipment, such as switches, indicators, contactors, transformers, analogue and digital components, etc.... with the option of external control by using lid-mounted Cortem control and signalling devices, such as control levers, pushbuttons, indicator lights, etc.... Cortem designs, develops and supplies full cabling for one or more enclosures tailored to your specific requirements, producing panel boards - including even extremely complex solutions - and providing a full inspection and testing service on request.

ELECTRICAL FEATURES

Rated voltage: 24 / 1000 Vac 12 / 250 Vdc
Max. current on contacts: 650 A
Rated frequency: 50 / 60Hz
Max. wattage for lamps: 5W (for Ta +40°C)
3W (for Ta +55°C)

Features of equipment that can be installed inside enclosures to produce control and monitoring units.

Table of standard electrical features of components that can be installed in enclosures to produce control, monitoring and signalling units.
(The values refer to the catalogues of the leading manufacturers of electrical/electronic components available on the market)

COMPONENT TYPE	Max. V (Volts)	Max. I (Amperes)	Max. power (Watts)
Analogue and digital instruments	660	5	10
Electronic inverters/reactors	400	-	10
PLCs Multiplexers and amplifiers	240	-	80
Testing and measuring devices	240	-	100
Circuit breakers	660	650	-
Fuses	660	400	-
Relays	500	10	12
Electronic control devices	660	-	100
Contactors	660	650	30
Timers	240	10	5
Twilight relays	240	-	2
Capacitors	660	-	-
Transformers	660	-	200
Resistors	240	-	300
Terminals	660	-	-
Reactors	277	7.5	40

Minimum air gap between components

Component voltage (V ac)	Min. air gap (mm)
60 - 250	6
250 - 380	8
380 - 500	10
500 - 660	12
660 - 1000	20
Component voltage (V dc)	**Min. air gap (mm)**
12 - 250	6

Table with maximum power dissipation values for CCAI-...series enclosures.

The temperature classes and maximum surface temperatures of control and monitoring unit enclosures depend on the size of the enclosure, ambient temperature and power dissipation inside the enclosure.

Enclosure type	Maximum power dissipation (Watts) with ambient temperature of **+40°C**		
	T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed
CCAI-2020	30	35	42
CCAI-3020	50	54	68
CCAI-3030	80	85	120
CCAI-4030	105	112	170

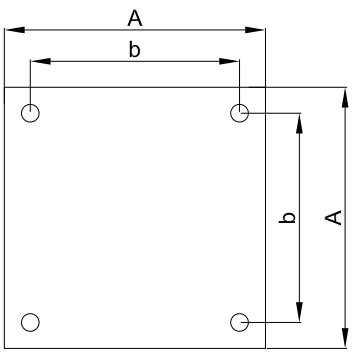
Enclosure type	Maximum power dissipation (Watts) with ambient temperature of **+55°C**		
	T6 class without indicator lights. Only indicator LEDs are allowed	T5 class with indicator lights and/or LEDs	T5 class without indicator lights. Only indicator LEDs are allowed
CCAI-2020	25	27	34
CCAI-3020	39	42	53
CCAI-3030	60	65	100
CCAI-4030	90	100	140

DON'T FORGET TO ORDER THE ACCESSORIES

Example: Enclosure type CCAI-3020 + Internal mounting plate K2-265 + Cable glands, unions + other...see key

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Internal mounting plates	CCAI-2020	Material: AISI 316L stainless steel	**K1-265**	
		CCAI-3020		**K2-265**	
		CCAI-3030		**K2-265**	
		CCAI-4030		**K3-265**	
	Breather and drain valve	thread Ø ISO 7-R 3/8"	Material: stainless steel	**ECD-210S**	
	Cable glands and unions		For models and codes, visit www.cortemgroup.com		
	Lid-mounted control and signalling devices		For control and signalling device models and codes, see control and monitoring device chapter		

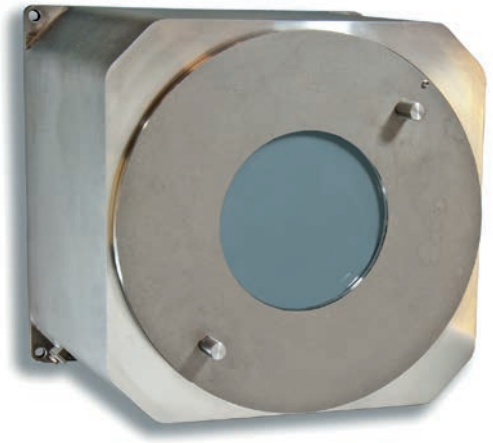
Enclosures	Internal mounting plates		
	A	b	Code
CCAI-2020	119	99	K1-265
CCAI-3020	190	170	K2-265
CCAI-3030	190	170	K2-265
CCAI-4030	260	240	K3-265



CCAIF-..., CCAIF...H Stainless steel junction boxes gas group IIC

CCAIF

CCAIF...H



CCAIF and CCAIF...H series junction boxes in stainless steel have a **screw cover** with or without round window. They are used either as junction boxes with/without terminals and the body and cover can be drilled and threaded according to customers' specification. In accordance with rules, Cortem only can perform the drilling.

CARATTERISTICHE MECCANICHE

Body and lid:	AISI 316L stainless steel.
Gasket:	Resistant to acids, hydrocarbons and high temperatures, located between body and lid
Certification label:	Adhesive label located inside on empty enclosures; stainless steel label riveted onto body on other versions.
Bolts and screws:	Stainless steel.
Earth screws:	Stainless steel. On inside and outside of body complete with anti-rotation brackets.
Mounting:	Stainless steel lugs.

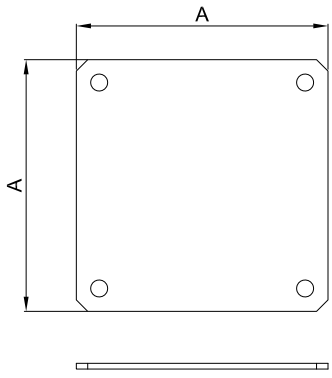
ACCESSORI A RICHIESTA / ESECUZIONI SPECIALI

Breather valve Code ECD-210S
Drain valve Code ECD-210S
Enclosures with windows on lid
Thread options:

- NPT threads ANSI B1.20.1
- GAS UNI ISO 7-1 thread
- Metric threads ISO 261/965

Cortem manufactures any type of custom-made products according to customer specifications and in compliance with the certification data.

1.5mm-thick stainless steel internal mounting plate



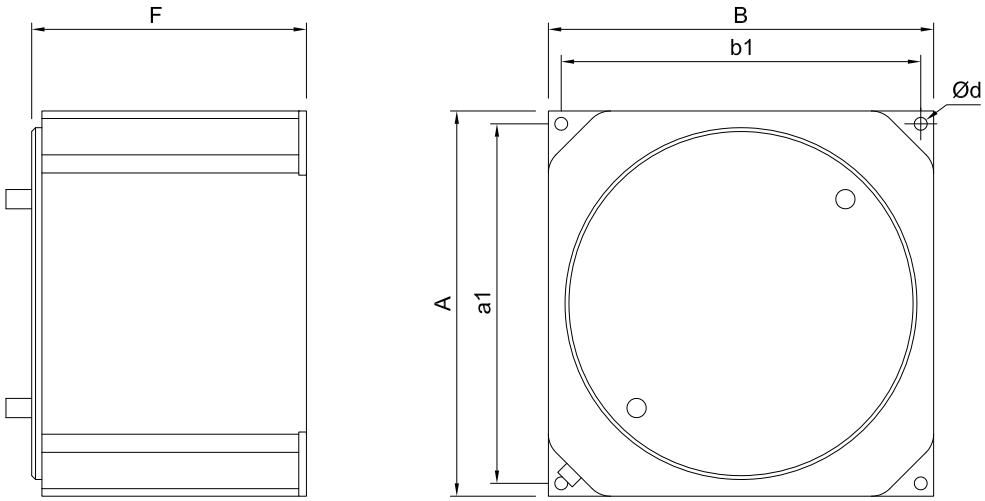
Code	Dimensions A	Box type
K2-349	110	CCAIF-2020..
K3-349	180	CCAIF-3020..
K4-349	260	CCAIF-4030..

ENCLOSURE SELECTION CHART

Code	Outside dimensions			Mounting			Weight
	A	B	F	a1	b1	Ød	Kg
CCAIF-2020	200	200	200	180	180	10	
CCAIF-3020	300	300	200	280	280	10	
CCAIF-4030	400	400	300	380	380	12	

DIMENSIONAL DRAWING

CCAIF



Code	Outside dimensions				Mounting			Weight
	A	B	F	D1	a1	b1	Ød	Kg
CCAIF-2020H	200	200	200	90	180	180	10	
CCAIF-3020H	300	300	200	140	280	280	10	
CCAIF-4030H	400	400	300	180	380	380	12	

DIMENSIONAL DRAWING

CCAIF...H