

GUBE, GUBE...H

Ex de

- Zones 1, 2, 21, 22
- Ex d and Ex e enclosures in stainless steel
- Different sizes
- IP66

*Ex d IIC enclosure
in stainless steel*

Mounting feet

*Ex e enclosure
in stainless steel*



Series GUBE, GUBE...H Control boards

Ex de

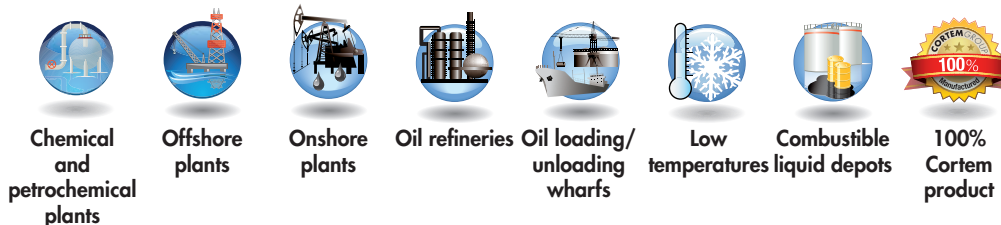
The control, monitoring and distribution boards in 'Ex de' execution of the GUBE and GUBE...H series, consisting of an enclosure in 'Ex execution and the standard enclosure in 'Ex e' execution in AISI316L stainless steel were designed to meet specific installation requirements in environments with an explosion risk. In fact they allow you to install electric components such as switches, inverters, fuses, relays, etc. in 'Ex d' enclosures to develop the control and signalling units, housing the auxiliary terminal board in intrinsically safe 'Ex e' enclosures.

GUBE and GUBE...H panel boards were specifically designed for especially difficult environments, such as marine and off-shore environments, which require greater protection against corrosion. 'Ex d' enclosures are mechanically linked to 'Ex e' enclosures by means of a flange and electrically linked by Cortem TP sealed bushings in nickel plated brass or in stainless steel. The number and diameter of the sealed bushings varies depending on the size of the enclosures and the number and cross-section of the cables. The IP protection between two enclosures is guaranteed by a flat silicone gasket resistant to acids, to hydrocarbons and to high and low temperatures. In GUBE...H series panel boards, the lids of the 'Ex d' enclosures can be supplied with a tempered glass window to see and monitor the electric equipment inside.

Cortem Group labels its products with a non-removable adhesive label featuring a hologram and an alphanumeric 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:



CERTIFICATION DATA GUBE, GUBE...H - ENCLOSURES FOR COMMAND, CONTROL AND SIGNALLING UNITS

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Execution:	CE 0722 Ex II 2 GD - Ex de IIC T6,T5 Gb - Ex tb IIIC T85°C, T100°C Db - IP66			
Certificate:	ATEX	CESI 12 ATEX 027		
	IEC Ex	IECEX CES 12.0023	All IEC Ex certification data can be downloaded at www.cortemgroup.com	
Standards:	CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE			
Ambient temperature:	-40°C + (40°C) 55°C		With polycarbonate indicator lights installed on the lid	
	-50°C + (40°C) 55°C		Without polycarbonate indicator lights installed on the lid	
Degree of protection:	IP66			

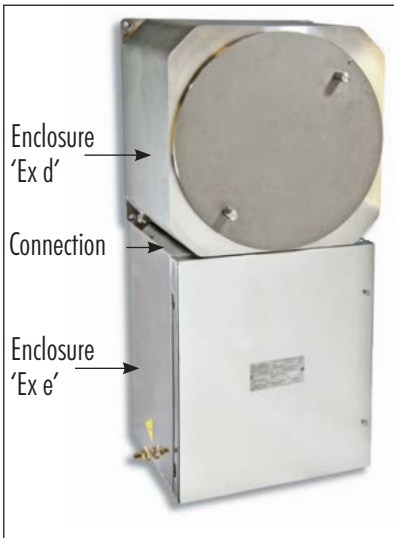
Stainless steel properties: The stainless steel used by Cortem to produce enclosures and accessories designed for use in cryogenic plants and highly corrosive environments is a very low carbon Iron-Chromium-Nickel-Molybdenum alloy. This alloy is highly resistant to intergranular (or intercrystalline) corrosion and to pitting corrosion. It is classified as an austenitic stainless steel UNI EN 10088-3 X 2 CrNiMo 17-12-2-E or AISI 316L according to the American Iron and Steel Institute. Its main quality is the spontaneous formation of a thin layer of chromium oxide on the surface that protects the metal underneath from corrosion attack. In addition, even if the metal is inadvertently damaged by abrasion or scratches, this film is self-renewing.

Series GUBE, GUBE...H Control boards

Ex de

MECHANICAL CHARACTERISTICS

GUBE



'Ex d' stainless steel enclosure:

Body and lid:

AISI 316L stainless steel. Screw-on lid for coupling system to body.

Gasket:

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid in riveted stainless steel

Certification label:

Stainless steel

Bolts and screws:

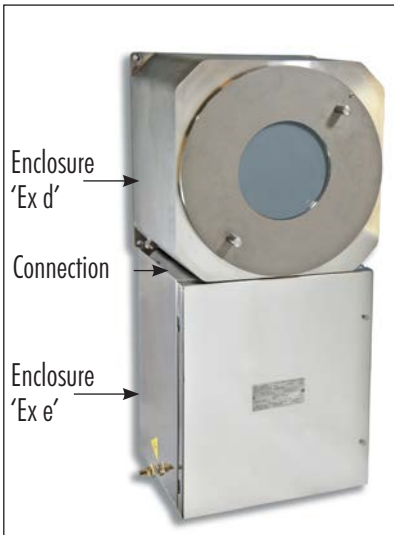
Stainless steel M6. On inside and outside of body and on lid complete with anti-rotation brackets

Earth screws:

Stainless steel feet

Mounting:

GUBE...H



'Ex d' stainless steel enclosure with window:

Body and lid:

In AISI 316L stainless steel. Screw-on lid for coupling system to body.

Glass:

Shock and high temperature resistant tempered glass

Gasket:

Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid in riveted stainless steel

Certification label:

Stainless steel

Bolts and screws:

Stainless steel M6. On inside and outside of body and on lid complete with anti-rotation brackets

Earth screws:

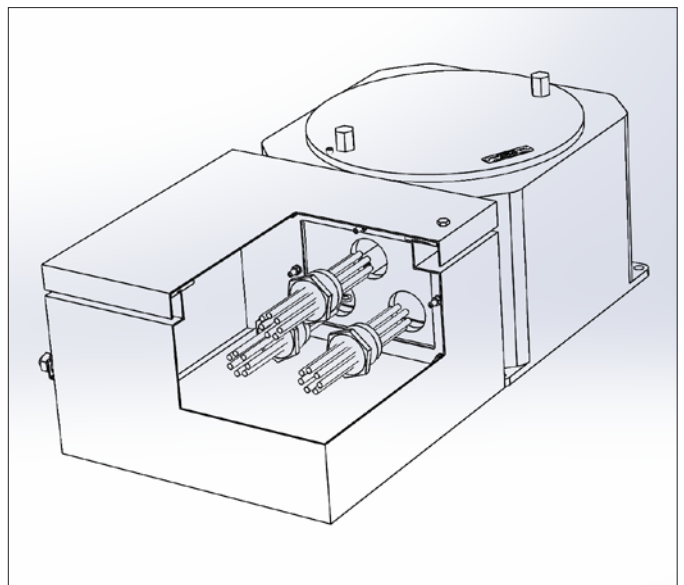
Stainless steel feet

Mounting:

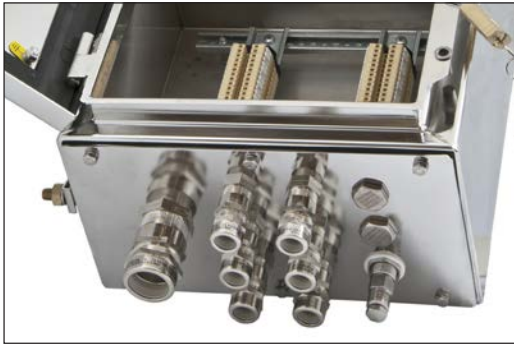
ENCLOSURE CONNECTION



Connection made with Cortem TP sealed bushings in nickel plated brass or stainless steel. The number and diameter of the sealed bushings are determined based on the number and cross-sections of the bushing cables. The IP protection between enclosures is guaranteed by a flat silicone gasket.



Series GUBE, GUBE...H Control boards



Ex e enclosure:

Body and lid:
Hinges:
Impact protection rating:
Gasket:

AISI 316L stainless steel
 AISI 316L stainless steel
 IK10
 Acid, hydrocarbon and high temperature-resistant silicone, located between body and lid.

Removable gland plates:
Bolts and screws:
Earth screws:

Stainless steel thickness 30/10
 Stainless steel captive variety
 Stainless steel. On inside and outside of body complete with anti-rotation brackets

Ex de

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

For stainless steel 'Ex d' enclosure:

Internal mounting plate in 25/10-thick stainless steel (code K...-349). See accessories section

Enclosures with windows on lid for instrument viewing / reading (see section Enclosures with windows for inspection and reading instruments)

For "Ex e" enclosure:

Internal anti-condensation coating RAL 2004 (pure orange)

External polyester coating in different colour (specify the RAL number)

Internal mounting plate: stainless steel (code B...-443)

Terminal block mounting rails (code OBO2060/S)

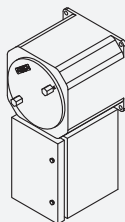
Padlocking system. Padlock (code VIRO552)

ATEX-CERTIFIED TERMINALS: terminals must be chosen from the list of approved manufacturers: Cabur, Phonix, ABB, Entrelec, Wago, Weidmuller. When supplied as an Ex i enclosure (for low-voltage instruments), it comes with suitably identified blue terminals. DIN rail.

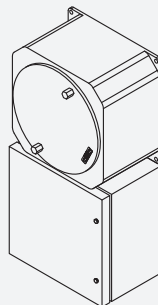
Hole options: through holes with no threading

Only use cable glands that meet ATEX, IECEx directive requirements. Use gaskets and lock nuts on entries to ensure IP66 protection.

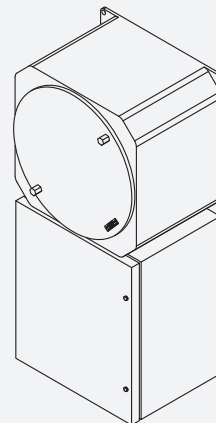
GUBE...enclosures



GUBE-2020

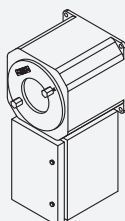


GUBE-3020

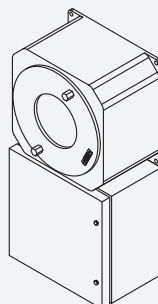


GUBE-4030

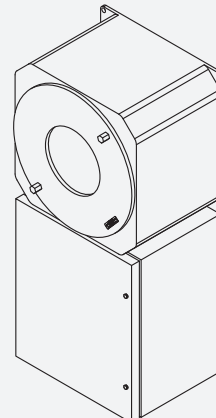
GUBE...H enclosures



GUBE-2020H



GUBE-3020H



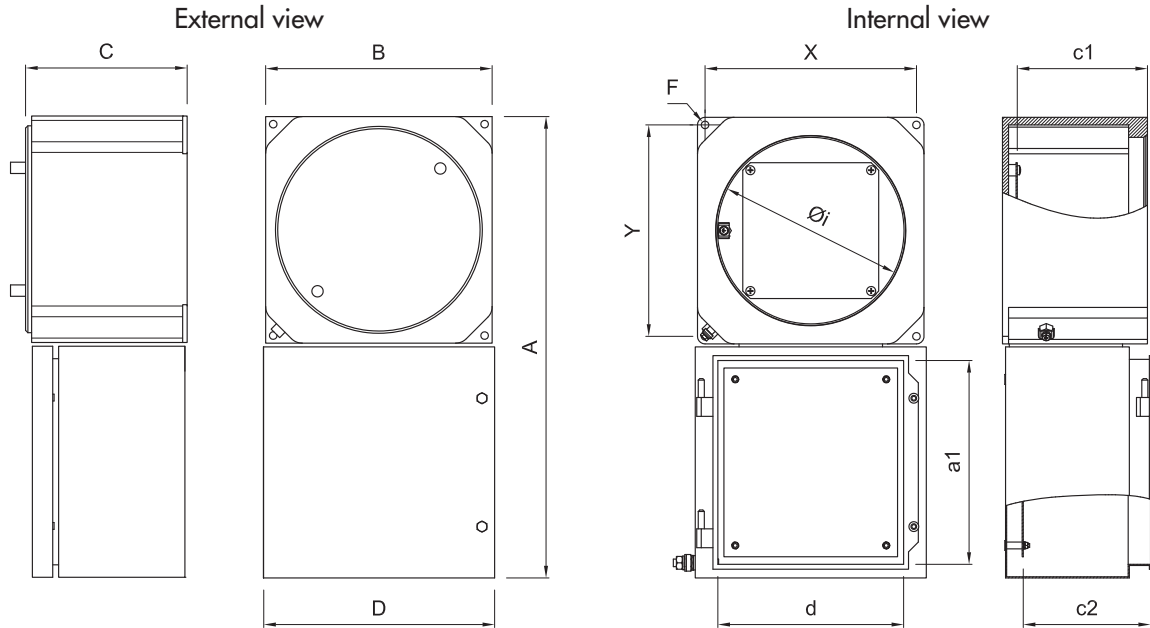
GUBE-4030H

Series GUBE, GUBE...H Control boards

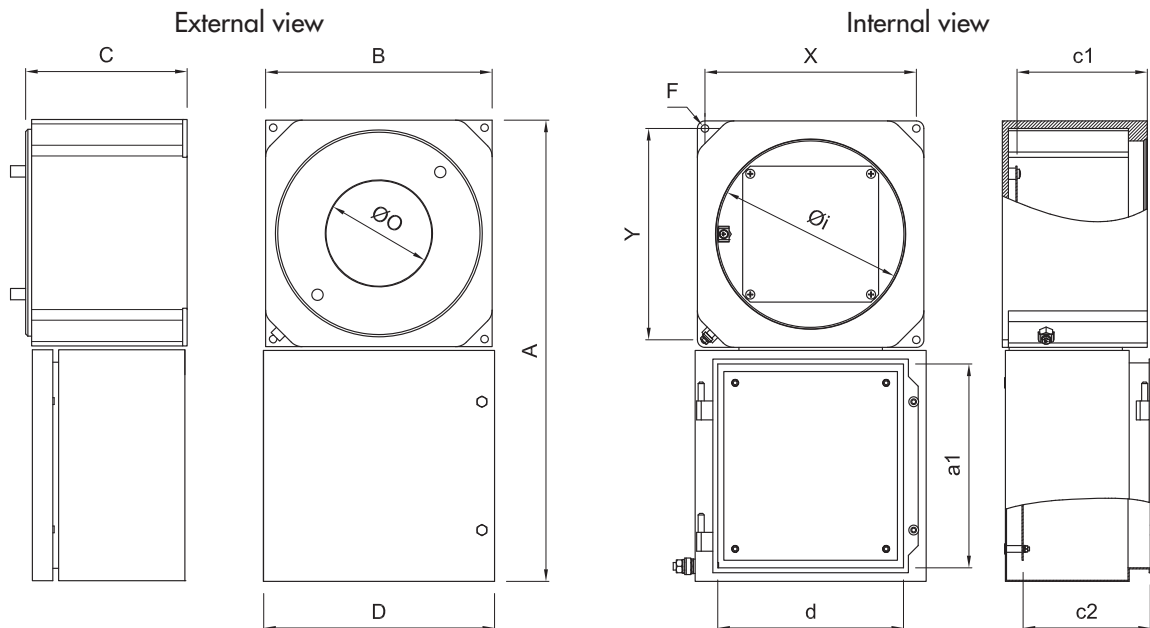
ENCLOSURE SELECTION CHART

Ex de

Code	Outside dimensions				Inside dimensions						Mounting			Weight Kg
	A	B	C	D	\varnothing_i	c1	d	a1	c2	X	Y	F		
GUBE-2020	433	200	200	152	150	150	92	169	142	170	170	10		
GUBE-3020	610	300	200	306	245	147	246	270	168	270	270	10		
GUBE-4030	855	400	300	382	355	245	322	414	268	368	368	12		



Code	Outside dimensions					Inside dimensions						Mounting			Weight Kg
	A	B	C	D	\varnothing_0	\varnothing_i	c1	d	a1	c2	X	Y	F		
GUBE-2020H	433	200	200	152	90	150	150	92	169	142	170	170	10		
GUBE-3020H	610	300	200	306	140	245	147	246	270	168	270	270	10		
GUBE-4030H	855	400	300	382	180	355	245	322	414	268	368	368	12		



Series GUBE, GUBE...H Control boards

BODY DRILLING DATA FOR 'Ex e' ENCLOSURE

THREAD COMPARISON CHARTS

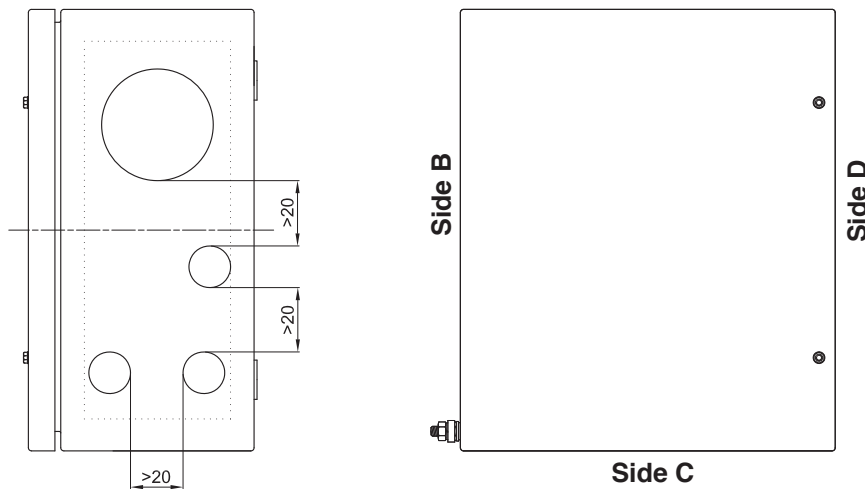
D	01	1	2	3	4	5	6	7
Thread diameter	16x1.5	20x1.5	25x1.5	32x1.5	40x1.5	50x1.5	63x1.5	75x1.5
Through hole	Ø17	Ø20.5	Ø25.5	Ø32.5	Ø40.5	Ø50.5	Ø63.5	Ø75.5



Ex de

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

TYPE OF ENCLOSURE	'Ex e' ENCLOSURE BODY DRILLING																	
	Side 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
GUBE-2020	108x58	6	3	2	1	1	1	-	-	108x58	6	3	2	1	1	1	-	-
GUBE-3020	261x124	32	24	12	10	4	3	0	0	261x124	32	15	10	8	3	2	0	0
GUBE-4030	337x124	44	27	21	12	8	4	3	0	337x124	44	27	21	12	8	4	3	0



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

Series GUBE, GUBE...H Control boards

'Ex d' ENCLOSURES ELECTRICAL FEATURES

Rated voltage: max. 690 Vac
 Rated current: 50 A
 Rated frequency: 50 ÷ 60Hz

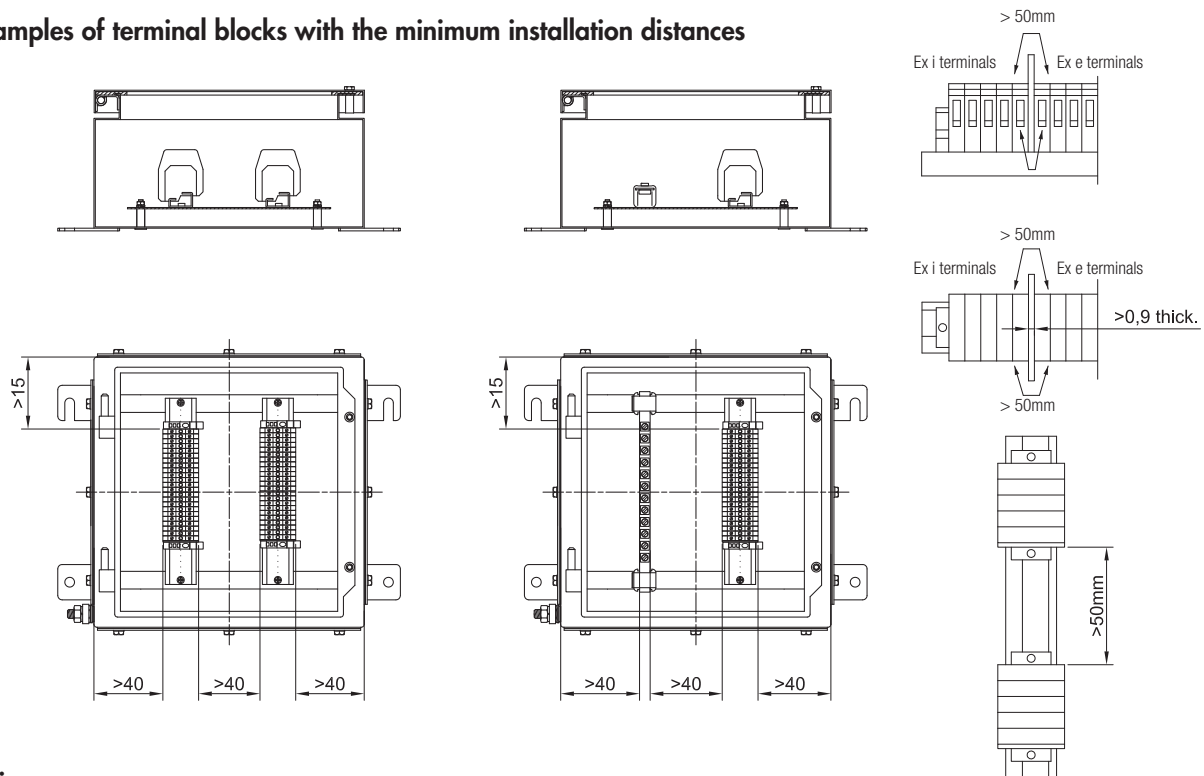
Code	Maximum power dissipation			
	Amb. T = +40°C		T amb. = +55°C	
	T6/T85°C	T5/T100°C	T6/T85°C	T5/T100°C
GUBE-2020	30 W	42 W	25 W	34 W
GUBE-3020	50 W	68 W	39 W	53 W
GUBE-4030	105 W	170 W	90 W	140 W

Ex de

'Ex e' ENCLOSURES ELECTRICAL FEATURES

Rated voltage: max. 690 Vac
 Rated current: 50 A
 Terminal cross-sectional area: from 1.5mm² to 16mm²

Examples of terminal blocks with the minimum installation distances



Note:

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

Series GUBE, GUBE...H Control boards

Ex de

TYPE OF ENCLOSURE	Terminals installed vertically							Maximum power dissipation	
								<i>T6 - Max amb. T 55°C</i>	<i>T6 - Max amb. T 40°C o T5 - Max amb. T 55°C</i>
	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	SAK 2.5	SAK 4.0		
GUBE-2020	1x21	1x21	1x17	1x13	1x10	1x17	1x17	2.9 W	8.0 W
GUBE-3020	2x36	2x36	2x30	2x23	2x18	2x30	2x30	4.1 W	18.5 W
GUBE-4030	3x67	2x67	2x56	2x42	2x33	3x56	3x56	5.8 W	34.0 W

TYPE OF ENCLOSURE	Terminals installed horizontally							Maximum power dissipation	
								<i>T6 - Max amb. T 55°C</i>	<i>T6 - Max amb. T 40°C o T5 - Max amb. T 55°C</i>
	WDU 1.5	WDU 2.5	WDU 4	WDU 6	WDU 10	SAK 2.5	SAK 4.0		
GUBE-2020	1x5	1x5	1x4	1x3	1x2	1x4	1x4	2.9 W	8.0 W
GUBE-3020	2x36	2x36	2x30	2x23	2x18	2x30	2x30	4.1 W	18.5 W
GUBE-4030	4x51	3x51	3x42	3x32	3x25	4x42	4x42	5.8 W	34.0 W

The data in the table are given as a rough guide only based solely on the size of the enclosures and the space taken up by the terminals.

Tables showing maximum number of conductors

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

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

GUBE-2020 (j.b. 'Ex e')

Current (A)	Cross-section in mm ²							
	1.5	2.5	4	6	10	16	25	35
8	63							
10	31							
12		46						
14		28						
16		20	79					
18			31					
20			23					
23				35				
25				25				
32					43			
35					24			
45						42		
50						20		
58								
63							33	
68								
75								
80								37

GUBE-3020 (j.b. 'Ex e')

Current (A)	Cross-section in mm ²							
	1.5	2.5	4	6	10	16	25	35
8	105							
10	51							
12		77						
14		46						
16		34	131					
18			52					
20			38					
23				57				
25				41				
32					71			
35					40			
45						69		
50						33		
58								
63							55	
68								
75								
80								62

GUBE-4030 (j.b. 'Ex e')

Current (A)	Cross-section in mm ²							
	1.5	2.5	4	6	10	16	25	35
8	121							
10	58							
12		88						
14		53						
16		39	151					
18			60					
20			44					
23				66				
25				48				
32					82			
35					46			
45						80		
50						38		
58								
63							63	
68								
75								
80								71