

Ex-d Enclosures and Distributions

Series GHG 64: Modular design for almost any application IIB / IIB + H₂

The optimized solution

Regardless of whether for off-shore applications or for use in harsh environments found in chemical plants and refineries: thanks to the optimised selection of materials, combined with a high quality powder coating (> 100 µm) and the use of stainless fixing materials, the new flameproof light alloy enclosures of the series.

GHG 64 with flat flamepaths can be used in all areas. The modular design, the wider temperature range (-55 °C to +55 °C) and the compact design are further highlights of this product range.

The computer-optimised enclosure design with a significant weight reduction ensures a pressure resistance up to -55 °C.

The 11 different enclosure sizes are compatible and can, therefore, be combined to suit requirements. They are interconnected using flameproof bushings and, as a result, individual, large and complex customised solutions up to 1150 A can be assembled using enclosures in different sizes, e.g. a wide variety of control systems, as well as control devices, motors starters and trace heating distributions up to 1150 A.

A fast and economical distribution of high currents is also possible using a bus-bar system.

The special cost advantage: as they are built into Ex-d enclosures, not only low-priced, standard industrial built-in components, but also complex units (e.g. converters) can also be used in hazardous areas. The high dissipation loss of the enclosures ensures a high degree of flexibility when selecting components.

The result: solutions that suit your applications exactly!



Features

- Extract from our modular construction system:
- Enclosure in 11 different sizes
- Wide variety of Ex-d actuators for pushbuttons, circuit breakers, main switches, etc.
- Stainless steel or powder-coated sheet metal
- Ex-e enclosures
- Two busbar systems (Ex-d up to 1150 A and, standard version, Ex-e up to 630 A)
- Free choice of suitable cable entries (Ex-d and Ex-e), e.g. from CEAG and Capri
- Hinged cover with up to 110° opening angle
- Frameworks for wall and floor mounting
- Windows

Explosion protection made to measure!

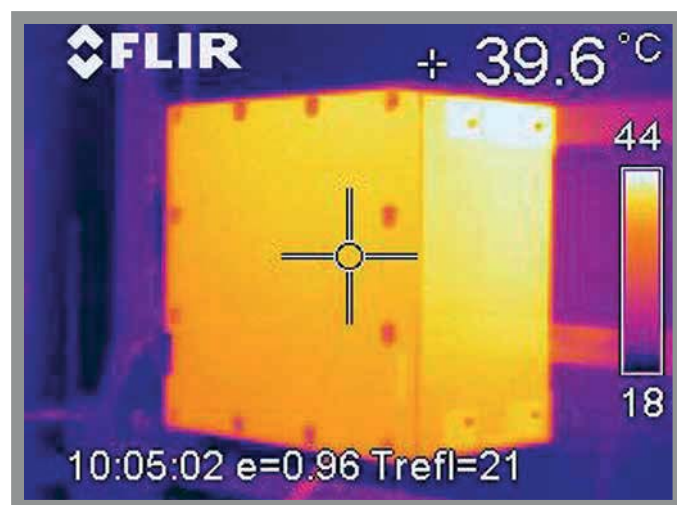
Optimised enclosure sizes enable us to meet the needs of the customer exactly as possible. A wide variety of industrial components, e.g. contactors, MCBs, RCDs, PLCs, WLAN, time elements, electronic components or terminals, can be operated in hazardous areas in a space-saving and safe manner using the 11 enclosure sizes that are now available.

The better the size of the enclosure suits the built-in components, the more convenient the mounting on site.

Optimum utilization of heat dissipation!

Optimum utilization is made possible by a complex assessment of the permissible heat dissipation in worst case situations, in combination with a simultaneous observance of the maximum surface temperature that must not exceed the permissible limiting temperature at any time. As a result, the permissible values are considerably higher than those normally given in the standard documentation.

Thus, a higher dissipation is possible in an enclosure of the same size, while the surface temperature stays within the permissible limits! This saves space and allows more flexibility during planning.



The following sizes are available:

- Size 11: 650 x 650 x 442 mm
- Size 10: 430 x 650 x 440 mm
- Size 9: 430 x 650 x 284 mm
- Size 8: 430 x 430 x 284 mm
- Size 7: 320 x 430 x 284 mm
- Size 6: 320 x 430 x 191 mm
- Size 5: 320 x 320 x 284 mm
- Size 4: 320 x 320 x 191 mm
- Size 3: 210 x 320 x 284 mm
- Size 2: 210 x 320 x 191 mm
- Size 1: 210 x 210 x 191 mm

In addition to the innovative overall concept, it is the many innovative details of the GHG 64 enclosure series that convince our customers.

Intelligent hinge technique

Optionally, the stainless steel hinges with their new technique make it possible to open enclosures even if they are mounted directly adjacent to each other. Once the captive screws have been undone, the cover can be swung open easily thanks to the spring-mounted pull/turn hinges.

This saves space, simplifies maintenance work and speeds up repairs and the replacement of built-in components – a cost factor that should not be underestimated!

The new integrated easy cover opening mechanism prevents mechanical damage of the flame path.

Cost-saving windows

The optional window embedded in the enclosure cover is a further useful detail. It makes it possible to monitor the display and switch states of the built-in components without additional, explosion-protected indicators that automatically increase costs.

Sealing system for low-maintenance flat flame paths.

With their optimised, low-maintenance, flat flamepaths, the standard GHG 64 enclosures feature the high degree of protection IP 65. This can be increased to IP 66 with the optional lip seal made of highly heat and weather-resistant silicone.

And that is not all! Thanks to this sealing system, the Ex-d flamepath has optimal, long-term protection against corrosion caused by the ingress of aggressive materials into the flamepath. This reduces maintenance costs and enhances safety! Enclosures protected in this way can also be used where extreme conditions may occur due to moisture, salt water, chemicals and dust, e.g. in harsh industrial environments, and offshore. Thanks to the optimised sealing, the enclosures are also ideally suited for use in areas where large amounts of dust occur, e.g. in flour and saw mills.

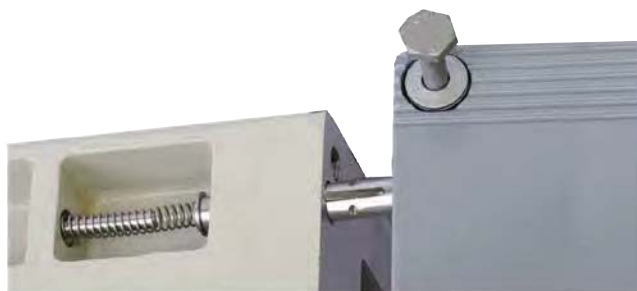
Hinge



closed



screw undone

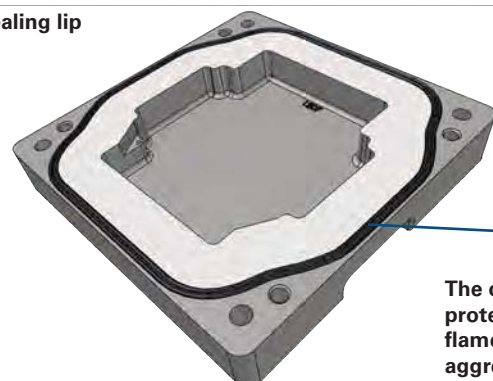


open

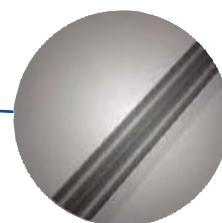
windows



sealing lip



The optional seal protects the flat flamepath from aggressive media



Excenter disk for easy opening



opening angle up to 110°



Size 5



Size 4



Size 3



Size 2



Size 1

Technical data empty enclosure GHG 64

Ex-d Light alloy empty enclosure GHG 64

Marking accd. to 2014/34/EU	Ex II 2 G Ex de IIB / IIB + H2 Gb / Ex t b IIIC Db
EC-Type Examination Certificate empty enclosure	PTB 08 ATEX 1042U
Application temperature ¹⁾	–20 °C up to +40 °C / –55 °C up to +60 °C (option)
Degree of protection accd. to EN 60529	IP65 (IP66 optional)
Weight	see ordering details
Enclosure material	die-cast aluminium alloy
Enclosure colour (optionally with salt-water resistant paint finish)	RAL 7032/7046

¹⁾ depends on the test pressure of the static overpressure test of the gas group

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Ordering details¹⁾/dimension drawing empty enclosure II B and IIB + H₂

Type	Dissipation ³⁾ (T _{amb.} = 40 °C) T6	T5	Weight kg	Dimensions L x B x T	Order No. ¹⁾ IIB and IIB+H ₂	Order- number key ¹⁾
Ex d light alloy empty enclosures, powder coated						
Size 1	94 W	134 W	10,5 kg	210 x 210 x 191 mm	GHG 640 1901 R02XX	XX 01 > IIB 02 > IIB+H ₂ ²⁾ 13 > IIB + hinge 14 > IIB+H ₂ + hinge ²⁾ 25 > IIB IP66 26 > IIB+H ₂ IP66 ²⁾ 37 > IIB IP66 + hinge 38 > IIB+H ₂ IP66 + hinge ²⁾
Size 2	112 W	158 W	14,0 kg	320 x 210 x 191 mm	GHG 640 1902 R02XX	
Size 3	140 W	195 W	17,0 kg	320 x 210 x 284 mm	GHG 640 1903 R02XX	
Size 4	152 W	214 W	18,0 kg	320 x 320 x 191 mm	GHG 640 1904 R02XX	
Size 5	197 W	280 W	21,0 kg	320 x 320 x 284 mm	GHG 640 1905 R02XX	
Size 6	240 W	335 W	22,0 kg	430 x 320 x 191 mm	GHG 640 1906 R02XX	
Size 7	270 W	390 W	27,0 kg	430 x 320 x 284 mm	GHG 640 1907 R02XX	
Size 8	270 W	390 W	35,0 kg	430 x 430 x 284 mm	GHG 640 1908 R02XX	
Size 9	390 W	430 W	53,0 kg	650 x 430 x 284 mm	GHG 640 1909 R02XX	
Size 10	470 W	640 W	73,0 kg	650 x 430 x 440 mm	GHG 640 1910 R02XX	
Size 11	470 W	640 W	105,0 kg	650 x 650 x 442 mm	GHG 640 1911 R02XX	

¹⁾ The mentioned order numbers are only for guidance and will change in case of an order, due to the fact that they describe the equipment as delivered.

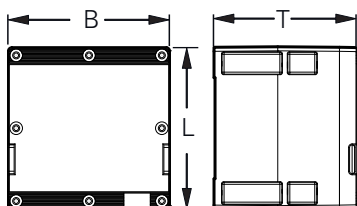
²⁾ H₂ option is not available for sizes 10 and 11

³⁾ Power loss to keep the temperature class. Operation temperature of the internal components has to be observed

Accessories

Type	Order No.
Mounting plates for components	on request

Dimension drawing



Connection and Bus-Bar Boxes

Ex-e connection and bus-bar boxes for GHG 64

A time-saving installation method

The time-proven Ex-e connection and bus-bar boxes are a meaningful addition to the GHG 64 range of enclosures. With these, the easy and safe realization of complex connections and current strengths of up to 630 A is standard.

Depending on customer requirements, these connection / busbar boxes, that have been adapted in an optimal way to the modular system of the flameproof enclosures, are available in stainless steel and powder-coated sheet steel and in 11 different sizes and can, therefore, be used in variable

ways for a wide variety of enclosure combinations.

The various circuits of the distribution can be connected quickly and economically using a bus-bar system. Currents up to 1150 A are possible.

According to your requirements, individually encapsulated devices, such as control and indicator units, e.g. as pushbutton, control switches or Ex-e measuring instruments and Ex-i digital indicating instruments can also be built into the Ex-e connection and bus-bar boxes.



Features

- Ex-e enclosures that have been adapted to the modular system
- Busbar boxes in both Ex-e and Ex-d design
- Through coupling of several enclosures using busbar rails
- Rugged Ex-e enclosure made of powder-coated sheet steel or stainless steel
- Ex-d enclosure made of die-cast aluminium alloy
- Easily accessible connection terminals or busbar rails
- Easy mounting of control and indicator units in cover



Terminal boxes



Busbar boxes

Technical data

Stainless steel / sheet steel connection box for GHG 64

Marking accd. to 2014/34/EU	Ex II 2 G Ex de ia/ib [ia/ib] IIC T4 - T6 / Ex II 2 D Ex tD A21 IP66 T80 °C, T95 °C, T100 °C
EC-Type Examination Certificate	PTB 00 ATEX 1073
Permissible ambient temperature	-55 °C up to +55 °C
Rated voltage	690 V
Rated current	630 A
Connecting terminals	up to 300 mm ²
Degree of protection accd. to EN 60529	IP54 (IP65 on request)
Enclosure material	stainless steel / sheet steel
Enclosure colour	natural stainless steel / finish polyester powder coating in RAL 7032

Stainless steel / sheet steel-bus-bar box for GHG 64

Marking accd. to 2014/34/EU	Ex II 2 G Ex de ia/ib [ia/ib] IIC T4 - T6 / Ex II 2 D Ex tD A21 IP66 T80 °C, T95 °C, T100 °C		
EC-Type Examination Certificate	PTB 00 ATEX 1073		
Permissible ambient temperature	-55 °C up to +55 °C		
Rated voltage	690 V		
Rated current	250 A	400 A	630 A
Rated short-circuit current	35 kA	53 kA	59.2 kA
Rated thermal short-time current	9.4 kA (1s) ¹⁾	10.7 kA (1s) ¹⁾	13.2 kA (1s) ¹⁾
Terminal cross section	up to 300 mm²		
Degree of protection accd. to EN 60529	IP54 (IP66 on request)		
Enclosure material	stainless steel / sheet steel		
Enclosure colour	natural stainless steel / finish polyester powder coating in RAL 7032		

¹⁾ Other values on request

Dimensions Ex-e connection and bus-bar boxes

Content	Module size	Length of – terminal rail	Weight	Dimensions in mm L x B x T
Sheet steel-connection box				
AK 1-1	1	1 x 190 mm	3.0 kg	126 x 215 x 128
AK 1-2	1	1 x 190 mm	4.3 kg	233 x 215 x 126
AK 2-1	2	1 x 300 mm	4.5 kg	150 x 325 x 128
AK 2-2	2	2 x 200 mm	7.0 kg	307 x 325 x 126
AK 4-1	4	3 x 300 mm	9.5 kg	307 x 325 x 252
AK 5-1	5	3 x 410 mm	11.5 kg	307 x 435 x 252
AK 6-1	6	3 x 630 mm	23.5 kg	407 x 655 x 252
AK 7-1	7	¹⁾ 300 mm	15.8 kg	600 x 325 x 254
AK 8-1	8	¹⁾ 410 mm	18.7 kg	600 x 435 x 254
AK 9-1	9	¹⁾ 630 mm	31.8 kg	600 x 655 x 254
AK 10-1	10	¹⁾ 190 mm	5.1 kg	452 x 215 x 128
Sheet steel-bus-bar box				
SSK 1	1	1 x 295 mm	11.0 kg	450 x 325 x 252
SSK 2	2	2 x 405 mm	15.0 kg	450 x 435 x 252
SSK 3	3	2 x 625 mm	23.0 kg	450 x 655 x 252
SSK 4	4	2 x 845 mm	31.0 kg	450 x 875 x 252

(Order No.
on request)

(Order No.
on request)

¹⁾ Number of rails dependent on terminal type

