



## GHG 64 System Solutions with flameproof enclosures

 **COOPER** Crouse-Hinds



# Solutions from one source

**Our name stands for  
safety - worldwide!**

We, Cooper Crouse-Hinds, do not only provide the know-how of a company with a long tradition, but also the support of a global service provider.

Thanks to our global presence, we are able to help you quickly and reliably anywhere in the world. With commercial service and technical expertise, with prompt deliveries and, last but not least, with our local infrastructure: we are always there where our customers need us.

**We engineer, configure and produce explosion-protected electrical equipment for your safety.**

It goes without saying that all our functional areas are certified according to the latest quality standard DIN EN ISO 9001:2008 and, in addition, to DIN EN 13980 / IECEx OD005 for explosion protection.

We engineer and manufacture explosion-protected solutions for your production processes tailored to your particular requirements. We put your specifications into effect systematically and in accordance with the latest directives and technical standards.

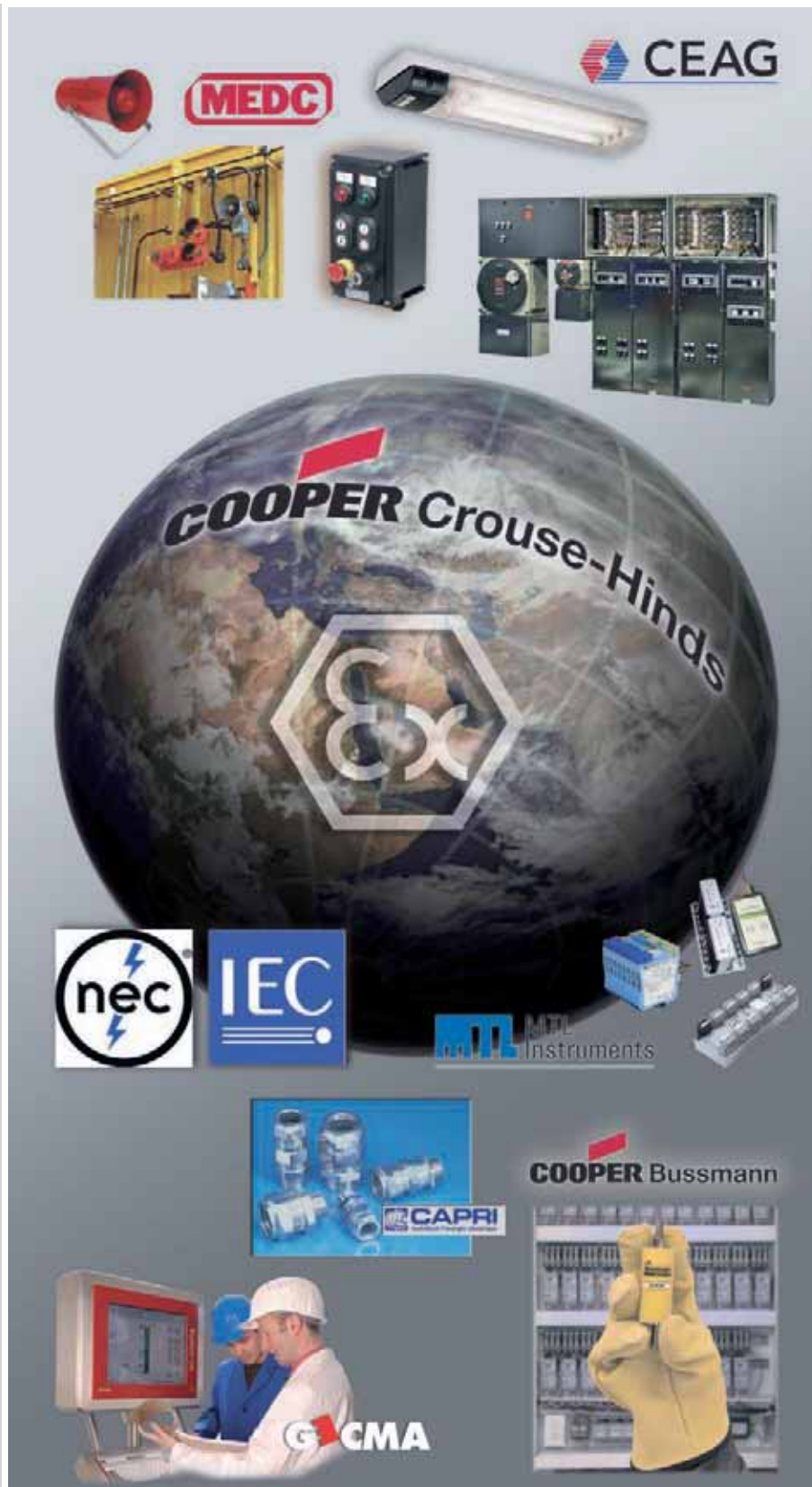
In addition to the European directives 94/9/EC on explosion protection, international approvals, such as IECEx, Nepsu (China), UL or cUL (America), CSA (Canada), and Cepel (Brazil), and approvals of Eastern European testing authorities, such as Gost, PCC, and many others are available for our products.

The global player Cooper Crouse-Hinds not only supplies series products, but also specially engineered solutions with all the required test certificates.

With the traditional CEAG brand we offer you high quality products that, day after day, are in use throughout the world and demonstrate their reliability and safety, and have been doing so for more than 100 years!

Being part of the Cooper Industries network, we are also able to supply components not included in our own product range from other Cooper organizations that operate all over the world, fast, competently and in a timely fashion.

Why not make use of the many advantages of the system solutions of a global partner!





## Compatible enclosure series for different applications

### The all-rounder GHG 66

- IIC applications
- -20 °C up to +55 °C
- IP 65



### The compact series GHG 64

- IIB+H<sub>2</sub> applications
- -55 °C up to +55 °C
- IP 65/IP 66



### The basic version EJB

- IIB Applicationen
- -20 °C up to +55 °C
- IP 65



**IIC    IIB+H<sub>2</sub>    IIB**

### Safety can also be flexible

In our comprehensive product range you can find enclosure solutions in metal for a wide variety of applications. CEAG distributions with approvals for use in Zones 1, 21, 2 and 22 can be used for the implementation of applications in individual enclosures as well as in comprehensive complete distributions. According to customer requirements, the flameproof enclosures can be designed for either direct cable entry or conduit connection or with a built-on Ex-e connection box with the so-called “indirect” cable entry option. When engineering complex distributions, the supply of individual flameproof enclosures via a bus bar system is possible. Depending on the respective product family or application, versions are available for the explosion groups IIB, IIB +H<sub>2</sub> and IIC. A complete range of CEAG Ex-d distributions is available for the gas explosion groups IIB, IIB +H<sub>2</sub> and IIC. The products can, of course, also be used for gas group IIA.

Provided that the power dissipation and the space requirements are taken into account, all standard industrial switchgear that gives off arcs or sparks during operation can be built into these flameproof enclosures. In case of distributions for explosion group IIC (enclosure series GHG 66), wiring between flameproof enclosures is carried out in the factory, whereby it is standard to use enclosures in the type of protection “Increased Safety” (Ex-e enclosures). The use of Ex-e enclosures is also standard for connection by the customer.

In case of distributions for explosion groups IIB and IIB+ H<sub>2</sub> (enclosure series GHG 64), enclosures are wired in the factory directly using flameproof cable entries between the Ex-d enclosures or indirectly using Ex-e enclosures. Connection by the customer is either carried out directly using Ex-d cable entries or indirectly using Ex-e enclosures.

Our EJB enclosure series for explosion group IIB are connected to each other using direct cable entries. The use of Ex-d cable entries or Ex-d conduits is standard for connection by the customer.

Thanks to the optimal geometry of the enclosures and the well-thought-out modular system, with the GHG 64 enclosure series you can fulfil both simple and complex tasks in an optimal way and create space-saving and safe solutions to suit your indivi-

# The modular enclosure concept

## Modular design for almost any application

### The optimised solution

Regardless of whether for offshore 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 ( $> 100 \mu\text{m}$ ) and the use of stainless fixing materials, the new flame-proof light alloy enclosures of the series GHG 64 with flat flamepaths can be used in all areas. The modular design, the wider temperature range ( $-55^\circ\text{C}$  to  $+55^\circ\text{C}$ ) 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  $-55^\circ\text{C}$ . 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 busbar 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!

### 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  $110^\circ$  opening angle
- Frameworks for wall and floor mounting
- Windows



## Industrial components in optimised Ex-d enclosures

### 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.

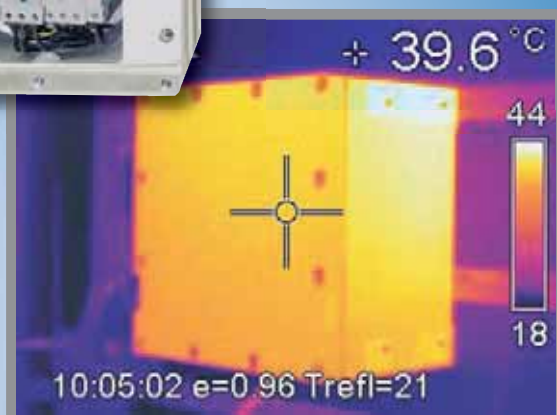
### Optimum utilization of heat dissipation!

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:

|                 |                           |
|-----------------|---------------------------|
| <b>Size 11:</b> | <b>650 x 650 x 442 mm</b> |
| <b>Size 10:</b> | <b>430 x 650 x 437 mm</b> |
| <b>Size 9:</b>  | <b>430 x 650 x 284 mm</b> |
| <b>Size 8:</b>  | <b>430 x 430 x 284 mm</b> |
| <b>Size 7:</b>  | <b>320 x 430 x 284 mm</b> |
| <b>Size 6:</b>  | <b>320 x 430 x 191 mm</b> |
| <b>Size 5:</b>  | <b>320 x 320 x 284 mm</b> |
| <b>Size 4:</b>  | <b>320 x 320 x 191 mm</b> |
| <b>Size 3:</b>  | <b>210 x 320 x 284 mm</b> |
| <b>Size 2:</b>  | <b>210 x 320 x 191 mm</b> |
| <b>Size 1:</b>  | <b>210 x 210 x 191 mm</b> |





# GHG 64 enclosure series

## With an eye to detail: Innovative and well-thought-out

In addition to the innovative overall concept, it is the many innovative details of the GHG 64 enclosure series are 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 flat flamepath is protected against damage.

### 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, longterm 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.

- Temperature range -55 °C to +55 °C
- Gas: Ex-d IIB (Ex-d IIB + H2 optional)
- Dust: tD
- Rated voltage, standard, up to 690 V
- Rated current up to 1150 A
- Degree of protection IP 65 (IP 66 optional)



## Technical data, ordering details and dimension drawings for empty enclosures GHG 64

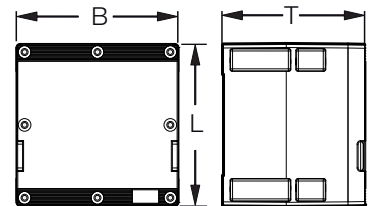


### Technical data empty enclosures GHG 64

#### Ex-d light alloy enclosure GHG 64

|                                                                      |                                                             |
|----------------------------------------------------------------------|-------------------------------------------------------------|
| Marking to 94/9/EC                                                   | Ex II 2 G Ex de IIB / IIB + H <sub>2</sub> / Ex tD A21 IP66 |
| EC-Type Examination Certificate empty enclosure                      | PTB 08 ATEX 1042U                                           |
| Permissible ambient temperature                                      | -20 °C up to +40 °C<br>-55 °C up to +55 °C (option)         |
| Degree of protection acc. to EN 60529                                | IP65 (IP66 as option)                                       |
| Weight                                                               | see ordering details                                        |
| Enclosure material                                                   | die-cast aluminium alloy                                    |
| Enclosure colour (optionally with salt-water resistant paint finish) | RAL 7032/7022                                               |

### Ordering details<sup>1)</sup>/dimensions drawing empty enclosures II B und IIB + H<sub>2</sub>

| Type                                            | Dissipation<br>(T <sub>amb.</sub> = 40 °C) |       | Weight   | Dimensions         | Order-No. <sup>1)</sup><br>IIB and<br>IIB+H <sub>2</sub> | Order<br>number<br>code <sup>1)</sup>                                                                                                                                                                                     | Dimensions drawing                                                                    |
|-------------------------------------------------|--------------------------------------------|-------|----------|--------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                                 | T6                                         | T5    | kg       | L x B x T          |                                                          |                                                                                                                                                                                                                           |                                                                                       |
| Empty Ex-d light alloy enclosure, powder-coated |                                            |       |          |                    |                                                          |                                                                                                                                                                                                                           |                                                                                       |
| Size 1                                          | 94 W                                       | 134 W | 10.5 kg  | 210 x 210 x 191 mm | GHG 640 1901 R00XX                                       | <b>XX</b><br>01 → IIB<br>02 → IIB+H <sub>2</sub><br>13 → IIB + hinge<br>14 → IIB+H <sub>2</sub> + hinge<br>25 → IIB IP66<br>26 → IIB+H <sub>2</sub> IP66<br>37 → IIB IP66 + hinge<br>38 → IIB+H <sub>2</sub> IP66 + hinge |  |
| Size 2                                          | 112 W                                      | 158 W | 14.0 kg  | 320 x 210 x 191 mm | GHG 640 1902 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |
| Size 3                                          | 140 W                                      | 195 W | 17.0 kg  | 320 x 210 x 284 mm | GHG 640 1903 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |
| Size 4                                          | 152 W                                      | 214 W | 18.0 kg  | 320 x 320 x 191 mm | GHG 640 1904 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |
| Size 5                                          | 197 W                                      | 280 W | 21.0 kg  | 320 x 320 x 284 mm | GHG 640 1905 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |
| Size 6                                          | 240 W                                      | 335 W | 22.0 kg  | 430 x 320 x 191 mm | GHG 640 1906 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |
| Size 7                                          | 270 W                                      | 390 W | 27.0 kg  | 430 x 320 x 284 mm | GHG 640 1907 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |
| Size 8                                          | 270 W                                      | 390 W | 35.0 kg  | 430 x 430 x 284 mm | GHG 640 1908 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |
| Size 9                                          | 390 W                                      | 430 W | 53.0 kg  | 650 x 430 x 284 mm | GHG 640 1909 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |
| Size 10                                         | 470 W                                      | 640 W | 73.0 kg  | 650 x 430 x 437 mm | GHG 640 1910 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |
| Size 11                                         | 470 W                                      | 640 W | 105.0 kg | 650 x 650 x 442 mm | GHG 640 1911 R00XX                                       |                                                                                                                                                                                                                           |                                                                                       |

<sup>1)</sup> 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.

### Accessories

| Type           | Order-No.<br>on request |
|----------------|-------------------------|
| Mounting plate |                         |

# Connection and busbar boxes

## Ex-e connection and busbar boxes for GHG 64

The time-proven Ex-e connection and busbar 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 busbar system. Currents up to 1150 A are possible.

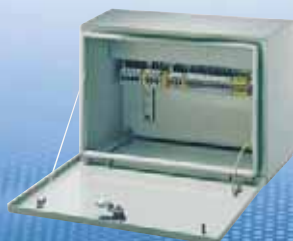
According to your requirements, individually encapsulated devices, such as control and indicator units, e.g. as pushbuttons, control switches or Ex-e measuring instruments and Ex-i digital indicating instruments can also be built into the Ex-e connection and busbar boxes.

- 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





## Ex-e connection and busbar boxes for GHG 64



Terminal boxes



Busbar boxes

### Technical data terminal/busbar boxes

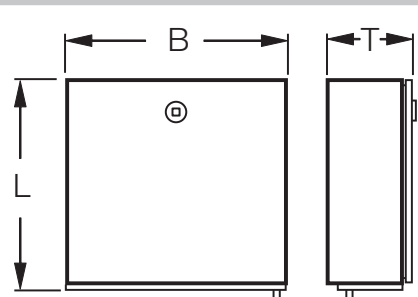
#### Ex-e terminal box for GHG 64

|                                       |                                                                                            |
|---------------------------------------|--------------------------------------------------------------------------------------------|
| Marking to 94/9/EC                    | Ⓔ II 2 G Ex de ia/ib [ia/ib] IIC T4 - T6 / Ⓔ 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 +40 °C                                                                        |
| Rated voltage/current                 | 690 V/630 A                                                                                |
| Connection terminals                  | up to 240 mm <sup>2</sup>                                                                  |
| Degree of protection acc. to EN 60529 | IP54 (IP66 on request)                                                                     |
| Enclosure material                    | Sheet steel, powder-coated (RAL 7032) or stainless steel                                   |

#### Ex-e busbar box für GHG 64

|                                       |                                                                                            |              |              |
|---------------------------------------|--------------------------------------------------------------------------------------------|--------------|--------------|
| Marking to 94/9/EC                    | Ⓔ II 2 G Ex de ia/ib [ia/ib] IIC T4 - T6 / Ⓔ 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 +40 °C                                                                        |              |              |
| Rated voltage/current                 | 690 V/250 A                                                                                | 690 V/400 A  | 690 V/630 A  |
| Rated short-circuit current           | 35 kA                                                                                      | 53 kA        | 59.2 kA      |
| Thermal rated short-time current      | 9,4 kA (1s)                                                                                | 10.7 kA (1s) | 13.2 kA (1s) |
| Connection terminals                  | up to 240 mm <sup>2</sup>                                                                  |              |              |
| Degree of protection acc. to EN 60529 | IP54 (IP66 on request)                                                                     |              |              |
| Enclosure material                    | Sheet steel, powder-coated (RAL 7032) or stainless steel                                   |              |              |

### Dimensions Ex-e connection and busbar boxes

| Type                            | Size | Length of terminal rail | Weight  | Dimensions in mm<br>L x B x T | Dimensions drawing                                                                    |
|---------------------------------|------|-------------------------|---------|-------------------------------|---------------------------------------------------------------------------------------|
| 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    | <sup>1)</sup> 300 mm    | 15.8 kg | 600 x 325 x 254               |                                                                                       |
| AK 8-1                          | 8    | <sup>1)</sup> 410 mm    | 18.7 kg | 600 x 435 x 254               |                                                                                       |
| AK 9-1                          | 9    | <sup>1)</sup> 630 mm    | 31.8 kg | 600 x 655 x 254               |                                                                                       |
| AK 10-1                         | 10   | <sup>1)</sup> 190 mm    | 5.1 kg  | 452 x 215 x 128               |                                                                                       |
| Stahlblech-Sammelschienenkasten |      |                         |         |                               | (Order-No. on request)                                                                |
| 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               |                                                                                       |

<sup>1)</sup> Number of rails dependent on terminal type

# GHG 64 components for cover mounting

## Variable mounting of windows, control devices and signal lamps

In addition to the use of familiar bus bar and connection boxes for built-in components, e.g. windows, switches, indicating devices, actuators and switch blocks, a direct use of flameproof enclosures for Ex-d cover-mounting devices is also possible. The result is a multitude of possible combinations for the configuration of complex controls.

In accordance with your specifications, threaded Ex-d holes for accommodating the desired screw-in components are drilled into enclosure covers in our works.

Thanks to the modular design of the pushbuttons, switch contact blocks can be exchanged at a later point in time. By simply undoing a bayonet connection inside the enclosure, individual contacts such as NC or NO can easily be replaced by multiple contact blocks without affecting the explosion protection. Here the extension of individual contacts to multiple contacts with up to four NC or NO contacts is possible.

Longlife LED lamps ensure safe operation on a lasting basis. Windows allow the monitoring of the built-in components. Ex-d actuating elements for various circuit breakers, such as mushroom-head pushbuttons, key-operated switches or photocell inserts, complete the product range.

- Variable mounting of windows, actuators and signal lamps
- Rotary switches for main switch
- Pushbuttons with up to four contacts
- Pushbuttons with Emergency Stop function
- Key-operated switches/pushbuttons
- Signal lamp in various colours
- Padlocking facilities
- Nameplates
- Actuating elements for circuit breakers (MCBs)



## Ex-d components for cover mounting



### Technical data components for cover mounting

#### Built-in Ex d control units/ indicator elements / actuators for GHG 64

|                                  |                                                     |
|----------------------------------|-----------------------------------------------------|
| Marking to 94/9/EC               | Ex II 2 G Ex d II                                   |
| EC-Type Examination Certificate  | PTB 06 ATEX 1009U                                   |
| Permissible ambient temperature  | -20 °C up to +40 °C<br>-55 °C up to +55 °C (option) |
| Rated voltage switch base        | up to 690 V                                         |
| Rated voltage indicator lamp     | 230 V                                               |
| Rated current switch base        | up to 63 A                                          |
| Degree of protection to EN 60529 | IP65 (IP66 on request)                              |
| Fixing thread Ex-d               | M22 x 1,5                                           |

### Ordering details

| Type                                                                               | Version     | Order-No.          |
|------------------------------------------------------------------------------------|-------------|--------------------|
|  | 1 NO        | GHG 640 9617 P0001 |
|                                                                                    | 1 NC        | GHG 640 9617 P0002 |
|                                                                                    | 1NO + 1NC   | GHG 640 9617 P0003 |
|                                                                                    | 2 NO        | GHG 640 9617 P0004 |
|                                                                                    | 2 NC        | GHG 640 9617 P0005 |
|                                                                                    | 2 NO + 1 NC | GHG 640 9617 P0006 |
|                                                                                    | 1 NO + 2 NC | GHG 640 9617 P0007 |
|                                                                                    | 2 NO + 2 NC | GHG 640 9617 P0008 |
|                                                                                    | 3 NO + 1 NC | GHG 640 9617 P0009 |
|                                                                                    | 1 NO + 3 NC | GHG 640 9617 P0010 |
|                                                                                    | 4 NO        | GHG 640 9617 P0011 |
|                                                                                    | 4 NC        | GHG 640 9617 P0012 |

| Type                                                                                | Version     | Order-No.          |
|-------------------------------------------------------------------------------------|-------------|--------------------|
|  | yellow      | GHG 660 9607 P0001 |
|                                                                                     | blue        | GHG 640 9607 P0002 |
|                                                                                     | red         | GHG 640 9607 P0003 |
|                                                                                     | green       | GHG 640 9607 P0004 |
|                                                                                     | white       | GHG 640 9607 P0005 |
|                                                                                     | black       | GHG 640 9607 P0006 |
| <b>Key-operated Pushbutton</b>                                                      |             |                    |
|  | with 2 keys | GHG 640 9608 P0001 |

| Type                                                                               | Version | Order-No.          |
|------------------------------------------------------------------------------------|---------|--------------------|
|  | green   | GHG 640 9614 P0001 |
|                                                                                    | red     | GHG 640 9614 P0002 |
|                                                                                    | yellow  | GHG 640 9614 P0003 |
|                                                                                    | blue    | GHG 640 9614 P0004 |
|                                                                                    | clear   | GHG 640 9614 P0005 |

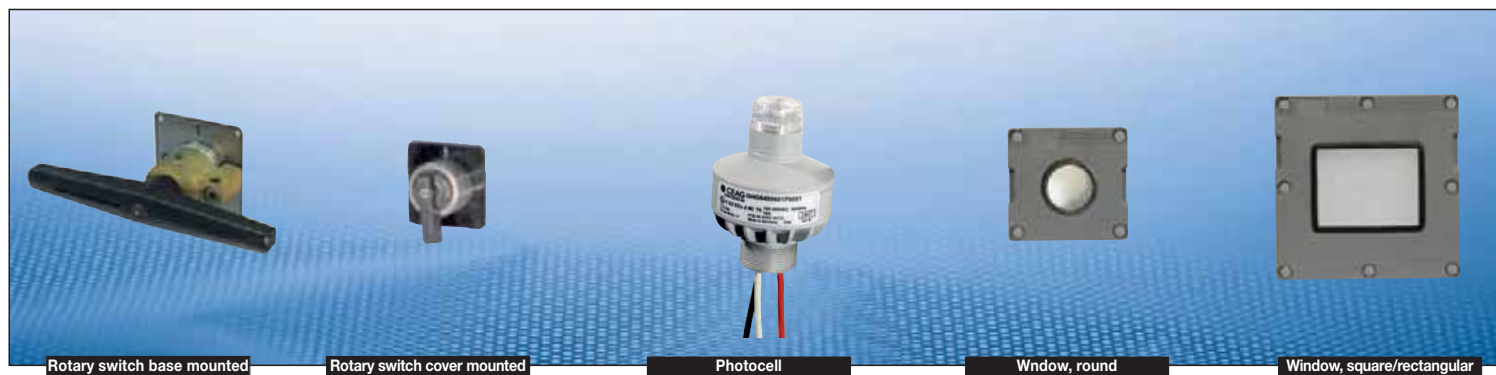
| Type                                                                                | Version               | Order-No.          |
|-------------------------------------------------------------------------------------|-----------------------|--------------------|
| <b>Mushroom-head/EMERG.STOP pushbutton</b>                                          |                       |                    |
|  | D 36 mm with lock     | GHG 640 9603 P0001 |
|                                                                                     | D 50 mm with lock     | GHG 640 9603 P0002 |
|                                                                                     | with twist-release    | GHG 640 9604 P0001 |
|                                                                                     | EMERG.STOP pushbutton | GHG 640 9606 P0001 |

Ex-d(e) control units, control switches, terminal boxes and distributions can be built in accordance with EC-Type Examination Certificate PTB 08 ATEX 1043X.



# GHG 64 components for cover mounting

## Ex-d components for mounting in covers Technical data



### Ordering details

| Type                                                                                                                          | Version                        | Order-No.                  |
|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------|
| <b>Main switch<br/>up to 1000 A</b><br><br> | <b>Rotary switch for cover</b> |                            |
|                                                                                                                               | Switch 20 A/ 32-63 A           | <b>GHG 640 9612 P0001</b>  |
|                                                                                                                               | Switch 20 A/ 63-100 A          | <b>NOR 000 001 170 030</b> |
|                                                                                                                               | Switch 20 A/ 100-250 A         | <b>NOR 000 001 170 031</b> |
|                                                                                                                               | Switch 20 A/ 250-1000 A        | <b>NOR 000 001 170 032</b> |

| Type                                                                                                     | Version                   | Order-No.         |
|----------------------------------------------------------------------------------------------------------|---------------------------|-------------------|
| <b>Window</b><br><br> | square, 60 x 60 mm        | <b>on request</b> |
|                                                                                                          | rectangular, 140 x 60 mm  | <b>on request</b> |
|                                                                                                          | rectangular, 140 x 180 mm | <b>on request</b> |
|                                                                                                          |                           |                   |

| Type                                                                                                                         | Version  | Order-No.                |
|------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------|
| <b>Rotary switch<br/>actuator</b><br><br> | for MCBs | <b>GHG 6409602 P0001</b> |
|                                                                                                                              |          |                          |

| Type                                                                                                     | Version        | Order-No.         |
|----------------------------------------------------------------------------------------------------------|----------------|-------------------|
| <b>Window</b><br><br> | round, Ø 80 mm | <b>on request</b> |
|                                                                                                          |                |                   |

| Type                                                                                                       | Version        | Order-No.                 |
|------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| <b>Photocell</b><br><br> | 250 VAC / 10 A | <b>GHG 640 9601 P0001</b> |
|                                                                                                            |                |                           |

| Type                                                                                                                      | Version                  | Order-No.                 |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------|
| <b>Padlocking<br/>facility</b><br><br> | Pushbutton depressed     | <b>GHG 640 9614 P0001</b> |
|                                                                                                                           | Pushbutton not depressed | <b>GHG 640 9614 P0002</b> |
|                                                                                                                           | MCB actuator             | <b>GHG 640 9614 P0003</b> |
|                                                                                                                           |                          |                           |

# Solutions of your own choice

**COOPER** Crouse-Hinds

## You can choose: Complete solutions or individual components

### With us you have the choice

With us you always have the possibility of choosing between fully configured standard and customised equipment with direct cable entries, flameproof connection compartments or Ex-e connection compartments according to your requirements.

### Customised solutions

We can supply you with an individual solution customised according to your wishes. We deliver individual units, combinations on wall or floor-mounting frameworks or freestanding for operation from both sides that are ready for connection to any place in the world.

Based on your specific requirements, we put together all the necessary components, assemble them with your specific built-in components, test all the functions and deliver them within the agreed time to the specified location. It goes without saying that the Cooper Crouse-Hinds CE Declaration of Conformity also observes and takes the built-in industrial components into consideration and, what is more, our customised solutions are also covered by other available national approvals, thus allowing you to concentrate fully on your core business.

### Our standard solution

As with the GHG 66 enclosure series, we also supply the GHG 64 enclosure series with fully assembled products, e.g. manual motor starters for direct, reversing and star-delta switching, as well as safety switches for up to 800 A, four-pole, and standard distributions with circuit breakers. These units have their own order numbers, have been fully tested and can be supplied at short notice.



# Variable GHG 64 enclosure concept

## Variable enclosure concept for optimised customer solutions

You have your specific requirements for which we provide the appropriate solution:

- **Ex low-voltage distributions**
- **Ex motor controls**
- **Ex lighting circuit distribution systems**
- **Ex heating circuit distribution systems**
- **Ex instrumentation applications**
- **Ex wireless LAN**

Depending on the task in hand and taking the specified size and technology or specific ambient conditions into consideration, e.g. aggressive media, harsh industrial conditions or offshore applications, we engineer the optimum GHG 64 Ex-d distribution system for you as a solution for the most cost-effective, local control/power distribution in a hazardous area.

With this modular system, all enclosure sizes are fully compatible, thus making it possible to flange several smaller enclosures onto the large enclosures, whereby they are flush with all the adjacent areas. Thus, any distribution required can be realized using flameproof connections or connection and busbar boxes.

We can, of course, also integrate customer-specific functional units, such as frequency converters or electronic sub-assemblies, into our Ex-d solution as built-in apparatus.

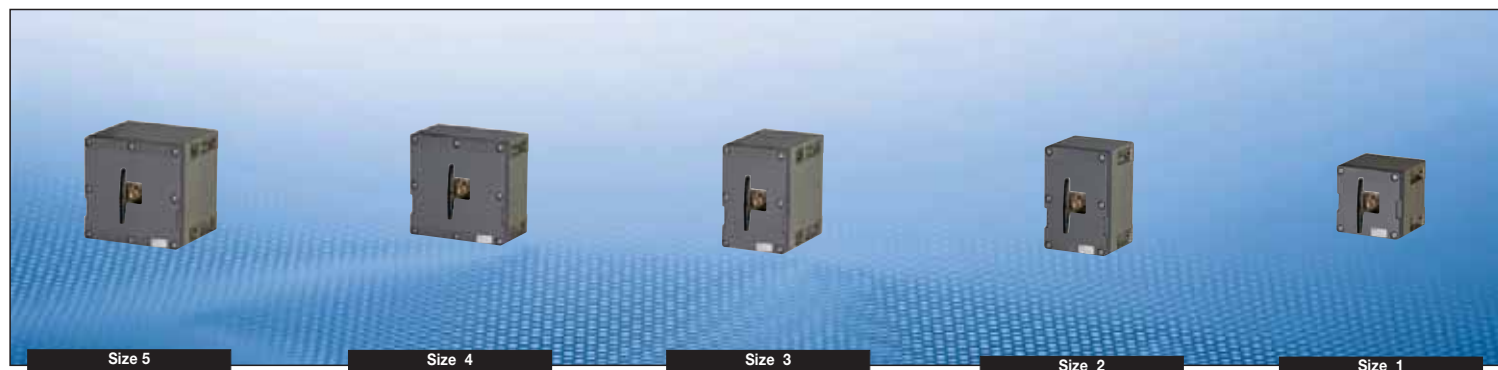
According to your inquiry, we submit an optimum solution proposal for your required application.

- **Compact design**
- **IIB + H2 applications**
- **Cost optimization thanks to low maintenance flat flamepaths and the compact design**
- **Can be used in extreme ambient temperatures from -55°C to +55°C**
- **Wide range of actuators**
- **Copper-free aluminium with high quality powder coating**
- **Up to IP 66 to EN 60529**





## Technical data and ordering details for motor starters GHG 64



### Technical data

#### Ex-d manual motor starter

|                                  |                                                                                                 |
|----------------------------------|-------------------------------------------------------------------------------------------------|
| Marking to 94/9/EC               | $\text{Ex}$ II 2 G Ex de IIB / IIB + H <sub>2</sub> T5, T6<br>$\text{Ex}$ II 2 D Ex tD A21 IP66 |
| EC-Type Examination Certificate  | PTB 08 ATEX 1043X                                                                               |
| Permissible ambient temperature  | -20 °C to +40 °C<br>-55 °C to +55 °C (Option)                                                   |
| Rated voltage                    | up to 690 V                                                                                     |
| Rated current                    | up to 100 A                                                                                     |
| Connection terminals             | up to 400 mm <sup>2</sup>                                                                       |
| Degree of protection to EN 60529 | IP65 (IP66 als Option)                                                                          |
| Weight                           | see ordering details                                                                            |
| Enclosure material               | die-cast aluminium                                                                              |
| Enclosure colour                 | RAL 7032/7022                                                                                   |

### Ordering details

| Version<br>Motor capacity to AC 3 | Main<br>switch | Cable<br>entry    | Weight<br>ca. | Order-No.  |
|-----------------------------------|----------------|-------------------|---------------|------------|
| 11 kW                             | 25 A           | 3 x M25           | 13.0 kg       | on request |
| 15 kW                             | 25 A           | 2 x M32 / 1 x M25 | 23.0 kg       | on request |
| 22 kW                             | 40 A           | 2 x M40 / 1 x M25 | 35.5 kg       | on request |
| Reversing starter                 |                |                   |               |            |
| 11 kW                             | 25 A           | 3 x M25           | 13.5 kg       | on request |
| 15 kW                             | 25 A           | 2 x M32 / 1 x M25 | 23.5 kg       | on request |
| 22 kW                             | 40 A           | 2 x M40 / 1 x M25 | 36.0 kg       | on request |
| Star-delta starter                |                |                   |               |            |
| 7.5 kW                            | 40 A           | 4 x M25           | 23.5 kg       | on request |
| 12.5 kW                           | 40 A           | 4 x M25           | 24.0 kg       | on request |
| 18.5 kW                           | 40 A           | 3 x M32 / 1 x M25 | 37.0 kg       | on request |
| 30.0 kW                           | 63 A           | 3 x M32 / 1 x M25 | 38.0 kg       | on request |
| 37.0 kW                           | 100 A          | 1 x M40 / 2 x M32 |               |            |
|                                   |                | 1 x M25           | 63.0 kg       | on request |
| 55.0 kW                           | 100 A          | 1 x M40 / 2 x M32 |               |            |
|                                   |                | 1 x M25           | 63.0 kg       | on request |

# Solutions for your safety

## Controls for your applications

### Complex requirements for local explosion-protected controls

In addition to the stringent enclosure requirements, in the case of controls special emphasis is placed on the clear arrangement of the control and indicating elements.

For example, in the case of marine applications. The illustrated control unit is used for the operation of two electric motors of the hydraulic pump of the ship loading arm in a hazardous area that is classified as Group IIB.

This is a challenging task, as the components in the required compact design always have to be easily accessible. Here we were able to offer the customer an optimised solution that completely fulfils the given specifications using the GHG 64 concept.

Further applications of this kind, where a high degree of protection and compact design are required, are not only found in the oil and gas industries in installations for loading operations onshore and on offshore platforms or on oil or gas tankers, but also in pharmaceutical plants, at suppliers and in areas with Ex dust applications, e.g. in areas where sacks are emptied, mills and mixers, filling installations, etc.



■ Robust version for maritime applications

■ Low space requirement when mounting in control boxes

■ Clear arrangement of indicating and control elements

## Intelligent instrumentation for hazardous areas

### Intelligent instrumentation

Thanks to the GHG 64 enclosure concept, it is possible to combine the reliable safety of a modular, explosion-protected enclosure concept with the advantages of a continuous communications infrastructure between the main, control and process levels. Here, for example, Ethernet-based communication systems can also be used in hazardous areas. This allows the use of a modern information architecture and, at the same time, the efficient adherence to all the explosion protection criteria.

### Wireless solutions for the processing industry

New radio systems make reliable wireless communication for measuring and control applications possible. The demand for solutions in the processing industry is growing all the time. The range of possible applications even covers the equipment/field level. Here we are working together closely with MTL, the leading manufacturer of industrial radio systems, and can supply you with complete solutions on the basis of our GHG 64 enclosure system. This means that you can use various systems with open interfaces. The requirement profiles for the hardware are complex.

Depending on the application, the main differentiating factors are:

- Wireless I/O, transmission of standard electric signals
- Wireless gateways for Profibus, Modbus, etc.
- Wireless modems, radio connection from serial protocols only, Ethernet, RS232/485





# Solutions for your safety

## Optimised distributions, local and explosion-protected

### Optimised distributions

If electrical equipment that can give off arcs or sparks during operation is to be used in hazardous areas, it shall be protected in accordance with EN 60079 ff by special constructive measures.

The GHG 64 series of explosion-protected enclosures with its flameproof encapsulation (Ex-d) provides optimum protection. Thanks to the modular design concept, enclosures of all sizes can be combined according to customer requirements, whereby the enclosures are joined together directly using flameproof bushings or indirectly using Ex-e connection boxes. The optional flanged-on connection and busbar boxes in the types of protection Ex-e and Ex-d allow the easy connection of the distribution.

When installing electrical components, in addition to the explosion protection, the limiting temperatures of the components shall also be taken into consideration in order to ensure their safe functioning. The heat generated in the enclosure must be dissipated in such a way that the temperature of the external surface does not exceed the limit set by the respective temperature class.

By using computer-assisted simulation calculation programs for the heat rise, we can not only ensure the explosion protection, but also the safe functioning.

Electrical components (circuit breakers, safety switches, etc.) are assembled on a mounting plate.

Thanks to their optimised design, distributions of the GHG 64 enclosure series are low maintenance and space saving.



# Uncompromising quality

**COOPER** Crouse-Hinds

**When it comes to quality,  
we do not accept compromises**



## **Certification: the basis for safety**

Safety is our most important asset! In addition to conformity with standards, the approvals for products from so-called “notified bodies” (Directive 94/9/EC) are part of our day-to-day business. Along with other tests and test certificates, these EC-Type Examination Certificates issued by the notified bodies are the basis for the issue of the “Declaration of Conformity”, which assures you, that all the requirements of the EC directives that are applicable for the respective product have been fulfilled, far in excess of the requirements for explosion protection only.

This legally binding document according to the EC directive is documented on the product by the CE marking and verifies that the product / installation complies with the relevant EU regulations.

With us you have a strong and competent partner for all matters of explosion protection with individual solutions for operation all over the world.

## **Uncompromising quality**

Comprehensive quality assurance systems – certified, of course, to the latest directives ISO 9001-2008 and EN 13980 – are the basis of our quality system.

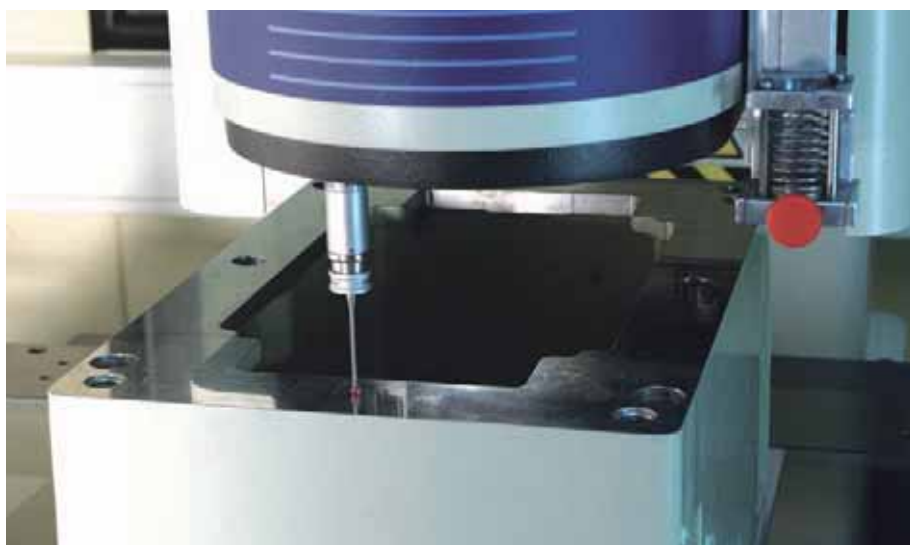
Before our products are made available to you, we make sure that they fulfil even the most stringent requirements.

After all, in the event of an emergency you must be able to rely on them.

The inspection of the flat flamepaths of our flameproof enclosures is only one of the quality assurance measures taken by us to provide you with highest safety standards.

Quality has top priority for our highly qualified employees and governs their actions.

This pays off over and over again, because our products have to remain fully functional at all times, even under the most adverse ambient conditions. For this reason, for decades now, our products and solutions are in use in locations where utmost reliability is crucial.



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