

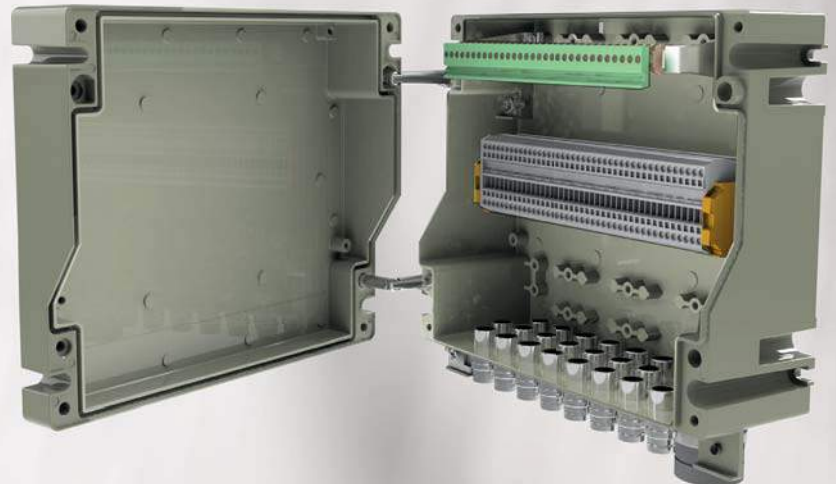
CEAG Products
Explosion protected energy distribution

CROUSE-HINDS
SERIES



GHG 71 Aluminium Enclosures - Ex-e and Industrial

Junction and terminal enclosures for harsh and hazardous applications



EATON

Powering Business Worldwide

GHG 71 Aluminium enclosures for harsh and hazardous applications

GHG 71 - 8 sizes for almost any application

Applications

Approved for use in harsh and hazardous areas, the GHG 71 series of enclosures offers a wide range of application possibilities, e.g.

- Chemical industry
- Heavy industry
- Petrochemical industry

Regardless of the industrial application, the outstanding feature of the enclosure is the high level of mechanical protection. It protects the integrated components reliably against dust and moisture.

Pressure die-cast aluminium enclosures with numerous configuration options

The modern aluminium die-casting method enables a large variety of product configurations with high quality surfaces and cost-efficient construction.

- Various mounting fixtures for terminal blocks or terminal rails
- Compared to conventional terminal enclosures, the low cut shape of the enclosure side walls make wiring easier when the cover is removed.
- Different component configurations to meet specific requirements

Terminal enclosures with a system

Eight compatible enclosure sizes provide solutions for a wide range of installation technology applications. Whether junction boxes for currents from 125 A or terminal enclosures for instrumentation with up to 190 terminal points – it is possible to fulfil almost every requirement.

Material

• AlSi alloy

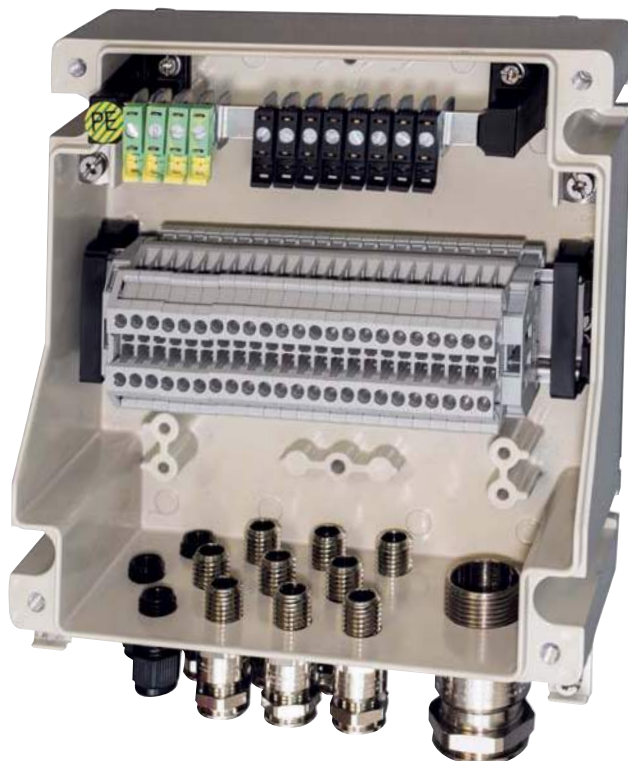
The Aluminium die-cast AlSi10Mg (Cu <0,1%) is a lightweight, high-strength material that is also extremely corrosion-resistant.

• Pressure die-casting

The parts are manufactured using the pressure die-casting method with extreme precision and with low tolerances. As a result, the enclosure cover and base always fit together perfectly.

Internal and external earth connection terminals are standard

Both internal and external earth connection terminals are a standard feature for all enclosure sizes and versions. Consequently, the terminal enclosure can be integrated in the equipotential bonding system without any further installation work.



Technical features

- Robust design to meet high impact strength requirements and withstand moisture, dust and aggressive ambient conditions
- Cost-saving installation due to the easy termination technique and the low-cut enclosure walls
- All metal fixing elements are made of V4A stainless steel
- Stainless steel cable entries (optional)
- Internal and external earth connection terminals are standard
- High degree of protection IP66 / IP67 / IP68 4) / IP69
- Large temperature range from -55 °C to + 55 °C
- High impact resistance IK 10 (up to 20 Joule)

Innovative technology for easy wiring

In the case of small enclosures in particular, the available space for the wiring is cramped and, as a result, the arrangement of the conductors is usually unclear.

Here, thanks to an optimized connection compartment with high performance terminals, this problem has been remedied.

- Conductors up to 2.5 mm² can be connected securely and clearly to 4 electrically isolated terminal points, each of which features two terminal screws. 2 potential can be connected by bridges.
- In addition, the two standard earth terminals inside the enclosure can each accommodate two conductors from 2.5 mm² up to 6 mm² (size 1/2) and from 2.5 mm² up to 10 mm² (size 3-5), so that it is even possible to connect and distribute three five-wire cables in a manner that is very clear and controllable at all times in the smallest size 1 enclosure.
- All the screw elements are made of V4A stainless steel external and V2A internal. This means: a high corrosion protection and a high mechanical strength.



PE bus bars

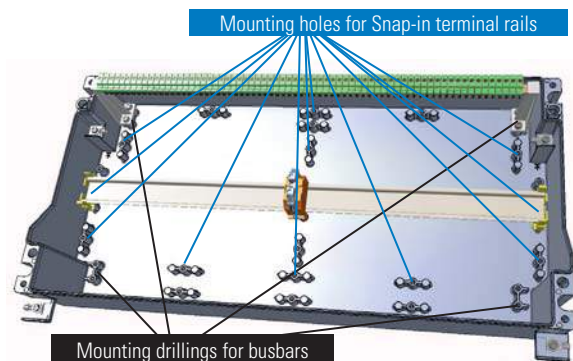
To make installation easy, there are PE bus bars mounted on raised mounting supports at the shallow end of the enclosure.

If required, the rails can also be mounted in the lower area of the enclosure. In this way, all the PE connections can be wired together, thus saving time.



Support and bus bar rails with a system

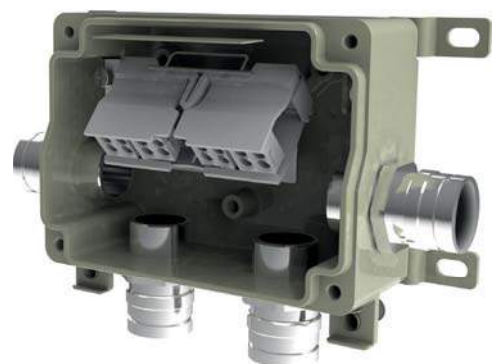
- From size 3: terminal bus bars for the neutral and the PE conductor
- Large number of mounting holes
- For rigid conductors up to 6 mm² and flexible conductors up to 4 mm²
- Snap-in terminal support rails
- Optional snap-in grid for flexible positioning



Plug-in terminal block (Wago PUSH WIRE®)

The terminal block with its 4x4 plug-in terminals is mounted at an angle to allow the easy connection of 16 cables up to 2.5 mm².

- Clear cable arrangement – even in confined spaces
- Connection of the stripped wires without a screwdriver



Pillar terminals for power distribution

The tried and tested pillar terminals can be used in sizes 2 and 3.

- Easy handling
- Cost savings during installation, as a large number of conductors can be connected in a very small area
- Large terminal capacity (up to 4 conductors up to 4 mm² per terminal; rated cross section-max. 10 mm²)
- Permanently safe electrical connections due to spring-loaded pressure elements



Simple and cost-saving installation

- Enclosure size 6-8: side cover hinges for easy opening of the enclosure cover facilitate installation, maintenance and rewiring
- Hinges made of stainless steel – protected against corrosion and not susceptible to aggressive process media

Optimized wall thickness for immediate bolting

The optimized wall thickness of the robust Aluminium pressure die-cast enclosures enables the screw-in of cable glands M12 up to M63 directly into the housing without lock nut.



The aluminium series supplements our product range

Ex junction and terminal enclosures for the distribution of electrical energy and process control in hazardous areas.

We can provide a suitable enclosure solution for any field of application:

Aluminium

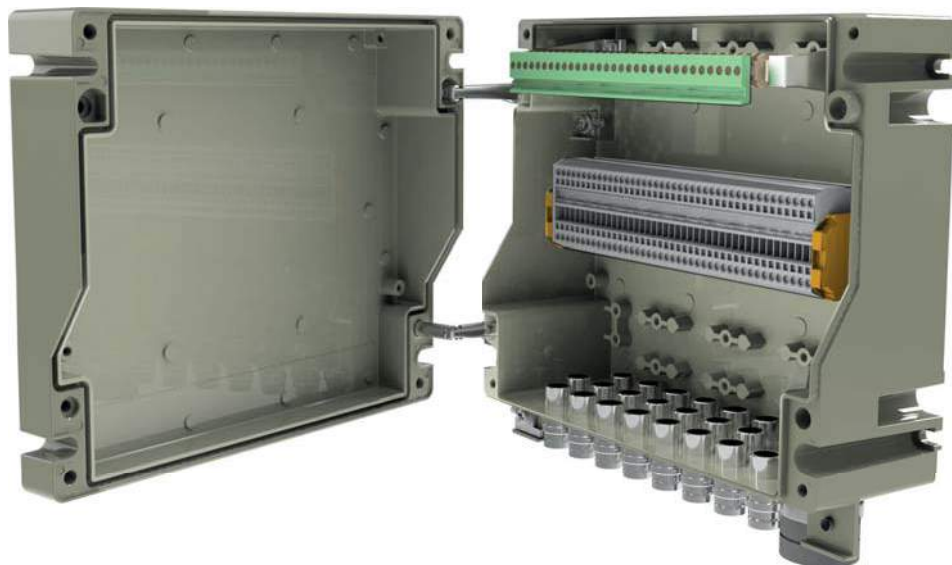
This enclosure material is not only extremely robust, but it is also light weight and can be used for challenging applications with a high chemical, climatic or mechanical stress.

Plastic

Cost-effective solution for most wiring tasks.

Stainless steel

Robust construction that ensures a high degree of safety under difficult conditions, e.g. offshore.



Painted enclosure solutions for Ex-i applications

Painted enclosures (RAL 5015) are available especially for instrumentation and control engineering Ex-i applications. This makes it possible to discern intrinsically safe installations from a distance.

Prefabricated or individually engineered terminal enclosures – all the advantages of a single-source solution

The junction and terminal enclosures of the GHG 71 series are available in eight sizes and provide optimized solutions for almost all requirements of a modern installation technology.

All advantages at a glance

- Extremely robust
- Very good thermal properties
- Corrosion protected
- Suited for all applications in the gas Ex zones 1 and 2 and the dust Ex zones 21 and 22
- Low maintenance
- Individual configurations
- Permanently safe connections
- Robust enclosure
- Low-cut side walls for easy installation
- High degree of protection IP66 / IP67 / IP68 / IP69
- Available in 8 sizes
- Suitable for metal and plastic glands
- Generously-dimensioned connection areas
- Clear terminal arrangement
- Screw elements made of V4A stainless steel
- High mechanical strength
- Large terminal capacity
- Easy handling
- High protection against electro-magnetic interferences



Product overview

GHG 71 enclosure

Technical data - all enclosure Types

	GHG 713 .. Empty enclosure Ex	GHG 711/712 .. Terminal/junction box Ex	GHG 716 .. (714/15) Industrial enclosures
EC-Type Examination Certificate	BVS 15 ATEX E 127 U	BVS 15 ATEX E 007	
IIEC-Ex Certificate of Conformity	IECEX BVS 15.1044 U	IECEX BVS 16.0007	
Permissible ambient temperature		-55 °C up to +55 °C ¹⁾	
Operating-temperature range	-55 °C up to + 95 °C		-55 °C up to + 95 °C
IK-class according to EN 50102	IK 10 ± 20 J	IK 10 ± 20 J	IK 10 ± 20 J
Rated voltage	up to 690 V AC / DC	up to 690 V AC / DC ¹⁾	up to 690 V AC / DC
Rated current	up to 125A ²⁾	up to 125 A ²⁾	up to 125A ²⁾
Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Enclosure material	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)
Enclosure colour	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, or unpainted (on request)
Degree of protection accd. to EN 60529	IP66 / IP67 / IP68 ⁴⁾ / IP69	IP66 ³⁾	IP66 / IP67 / IP68 ⁴⁾ / IP69

¹⁾ Depends on used components

²⁾ Depends on the configuration

³⁾ Standard; other degree of protection on request

⁴⁾ On request

Ordering key

Prefix	Application		size		Paint/other options		Configuration		
GHG71	X		X		XXX		R	XXXX	
Alumi-num enclosure product series	1	Junction Box hazardous area	1	size 1 (77 x 77 x 40mm)	101	paint colour grey RAL 7032	R	****	specific configuration option (see catalogue or on request)
	2	Terminal Box hazardous area	2	size 2 (83 x 111 x 60mm)	201	paint colour blue RAL 5015			
	3	Empty enclosure hazardous area	3	size 3 (128 x 128 x 80mm)	***	other paint/options on request			
	4	Junction Box Industrial	4	size 4 (128 x 223 x 80mm)					
	5	Terminal Box Industrial	5	size 5 (183 x 183 x 95mm)					
	6	Empty Enclosure Industrial	6	size 6 (233 x 283 x 110mm)					
			7	size 7 (283 x 283 x 110mm)					
			8	size 8 (283 x 569 x 110mm)					



The right choice

To help you make the right choice, the following pages show a large selection of prefabricated junction and terminal boxes and empty enclosures that can be equipped individually. If you require other configurations, then just ask us. We will supply you with an individually engineered solution.

Ordering details/dimension drawings

GHG 71*1 - size 1

Ordering details

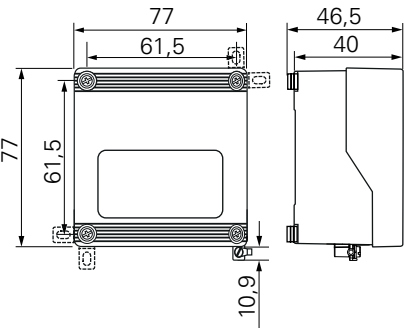
Type	Colour (RAL)	Order No.
Enclosures for industrial application		
GHG 716 1 SK	7032	GHG 716 1101 R0001
GHG 716 1 ZFKK	7032	GHG 716 1101 R0002
Enclosures component certified accd. to ATEX/IECEX		
GHG 713 1 SK	7032	GHG 713 1101 R0001
GHG 713 1 ZFKK	7032	GHG 713 1101 R0002
GHG 713 1 ZFKK	5015 ¹⁾	GHG 713 1201 R0001
GHG 713 1 ZFKK	5015 ¹⁾	GHG 713 1201 R0002

Type	Colour (RAL)	Terminal type	Cable glands ²⁾	Clamping range	Order No.
Configured devices accd ATEX/IECEX					
GHG 711 1	7032	SK - 4 x 2.5 mm ²	3 x M16	Ø 7 - 12 mm	GHG 711 1101 R0011
GHG 711 1	7032	ZFKK - 5 x 2.5 mm ²	3 x M16	Ø 7 - 12 mm	GHG 711 1101 R0012
GHG 711 1	5015 ¹⁾	SK - 4 x 2.5 mm ²	3 x M16	Ø 7 - 12 mm	GHG 711 1201 R0001
GHG 711 1	5015 ¹⁾	ZFKK - 5 x 2.5 mm ²	3 x M16	Ø 7 - 12 mm	GHG 711 1201 R0002

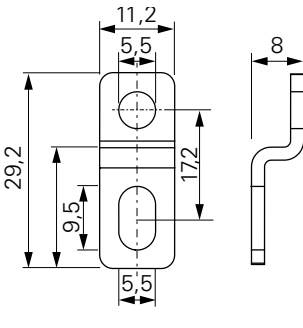
¹⁾ RAL 5015 (sky-blue) for Ex-i application
²⁾ Cable glands type Capri ADE 1F2
SK = Terminal block with screw-terminals
ZFKK= Cage-clamp
MK = Sheath terminals
RK = serial terminals

Dimension drawings

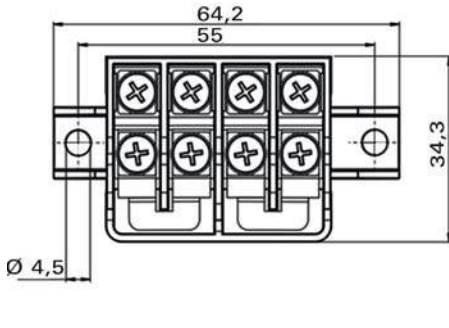
GHG 71 - size 1



Mounting flaps Size 1-2



Terminal block with screw-terminals



Dimensions in mm



Technical data

	GHG 713.. Empty enclosure Ex	GHG 711.. Junction box/terminal enclosure Ex	GHG 716 .. (714/15) Industrial enclosures
EC-Type Examination Certificate	BVS 15 ATEX E 127 U	BVS 16 ATEX E 007	
IIEC-Ex Certificate of Conformity	IECEX BVS 15.1044 U	IECEX BVS 16.0007	
Marking accd. to 94/9/EG	Ⓢ II 2 G Ex eb IIC Gb Ⓢ II 2 D Ex tb IIIC Db	Ⓢ II 2 G Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ⓢ II 2 D Ex tb IIIC T80° C (T95° C) Db	
Marking accd. to IECEx	Ex eb IIC Gb Ex tb IIIC Db	Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex tb IIIC T80° C (T95° C) Db	
Permissible ambient temperature		-55 °C up to +55 °C	-55 °C up to +95 °C
Operating-temperature range	-55 °C up to +95 °C		
IK-class according to EN 50102	IK 10 Δ 20 J	IK 10 Δ 20 J	IK 10 Δ 20 J
Rated voltage	up to 690 V AC / DC	up to 690 V AC / DC	up to 690 V AC / DC
Rated current	up to 20 A (depends on the configuration)	up to 20 A (depends on the configuration)	up to 20 A (depends on the configuration)
Max. power dissipation at Tu +40 °C	max. 3.8 W (T6) / max. 5.3 W (T5)	max. 3.8 W (T6) / max. 5.3 W (T5)	
Max. power dissipation at Tu +55 °C	max. 2.4 W (T6) / max. 3.8 W (T5)	max. 2.4 W (T6) / max. 3.8 W (T5)	
Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Terminals ³⁾			
Cage-clamp (ZFKK)		3 x 4 x 2.5 mm ² + 2 x 2 x 2.5 mm ²	3 x 4 x 2.5 mm ² + 2 x 2 x 2.5 mm ²
Screw plug (SK)		4 x 4 x 2.5 mm ²	4 x 4 x 2.5 mm ²
PE-terminal external	1 x 4-6 mm ²	1 x 4-6 mm ²	1 x 4-6 mm ²
PE-terminal internal	2 x 2.5-6 mm ²	2 x 2.5-6 mm ²	2 x 2.5-6 mm ²
Weight	0.25 kg	depends on the configuration	0.25 kg
Enclosure material	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)
Enclosure colour	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)
Cable glands / gland plates / enclosure drilling		M12 - M16 ADE 1F2 other types on request	
Degree of protection accd. to EN 60529	IP66 / IP67 / IP68 ⁴⁾ / IP69	IP66 ¹⁾	IP66 / IP67 / IP68 ⁴⁾ / IP69

Max. number of cable glands

Cable glands/Thread (max. number/side)	Bottom	Top ²⁾	Left	Right
M12	1	-	1	1
M16	1	-	1	1
M20	-	-	-	-
M25	-	-	-	-
M32	-	-	-	-
M40	-	-	-	-
M50	-	-	-	-
M63	-	-	-	-

¹⁾ Standard; other degree of protection on request

²⁾ In use of cable glands from the top please only use in dry rooms or mount protected against moisture.

³⁾ For Ex-e terminal boxes the max. current load must be observed

⁴⁾ On request

Max. number of conductors

Rated current (A)	Cable cross section (mm ²)									
	1.5	2.5	4	6	10	16	25	35	50	
6 A	12									In this range as many terminals can be added as physically fit the available mounting dimension and according to the instructions.
10 A	10	12								
16 A	4	11								
20 A		5								
25 A										
35 A										
50 A										
63 A										
80 A										
100 A										The terminal content in this range requires a power dissipation test report from the manufacturer.
125 A										

Ordering details/dimension drawings

GHG 71*2 - size 2



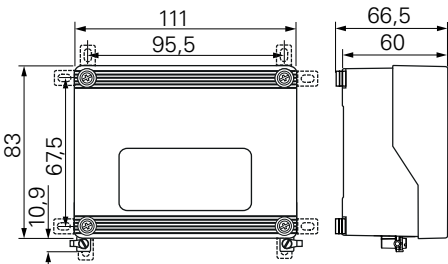
Ordering details

Type	Colour (RAL)	Order No.			
Enclosures for industrial application					
GHG 716 2	7032	GHG 716 2101 R0001			
Enclosures component certified accd. to ATEX/IECEX					
GHG 713 2	7032	GHG 713 2101 R0001			
GHG 713 2	5015 ¹⁾	GHG 713 2101 R0002			
Type	Colour (RAL)	Terminal type	Cable glands ²⁾	Clamping range	Order No.
Configured devices accd ATEX/IECEX					
GHG 711 2	7032	MK 4 x 4 mm²	2 x M20	Ø 10 - 16 mm	GHG 711 2101 R0002
GHG 711 2	7032	MK 4 x 4 mm²	4 x M20	Ø 10 - 16 mm	GHG 711 2101 R0003
GHG 711 2	5015 ¹⁾	MK 4 x 4 mm²	2 x M20	Ø 10 - 16 mm	GHG 711 2201 R0001
GHG 711 2	5015 ¹⁾	MK4 x 4 mm	4 x M20	Ø 10 - 16 mm	GHG 711 2201 R0002
GHG 712 2	7032	RK 6 x 4 mm²	1 x M20 1 x M20	Ø 4.5 - 8.5 mm Ø 10 - 16 mm	GHG 712 2101 R0001
GHG 712 2	7032	RK 6 x 4 mm²	2 x M12 1 x M20	Ø 4.5 - 8 mm Ø 10 - 16 mm	GHG 712 2101 R0002
GHG 712 2	7032	ZFKK 6 x 2.5 mm²	2 x M20	Ø 10 - 16 mm	GHG 712 2101 R0003
GHG 712 2	7032	ZFKK 6 x 2.5 mm²	2 x M12 1 x M20	Ø 4.5 - 8 mm Ø 10 - 16 mm	GHG 712 2101 R0004
GHG 712 2	5015 ¹⁾	RK 6 x 4 mm²	1 x M20 1 x M20	Ø 10 - 16 mm Ø 4.5 - 8.5 mm	GHG 712 2201 R0001
GHG 712 2	5015 ¹⁾	RK 6 x 4 mm²	2 x M12 1 x M20	Ø 4.5 - 8 mm Ø 10 - 16 mm	GHG 712 2201 R0002
GHG 712 2	5015 ¹⁾	ZFKK 6 x 2.5 mm²	2 x M20	Ø 10 - 16 mm	GHG 712 2201 R0003
GHG 712 2	5015 ¹⁾	ZFKK 6 x 2.5 mm²	2 x M12 1 x M20	Ø 4.5 - 8 mm Ø 10 - 16 mm	GHG 712 2201 R0004

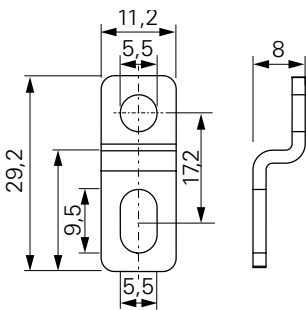
¹⁾ RAL 5015 (sky-blue) for Ex-i application
²⁾ Cable glands type Capri ADE 1F2
SK = Terminal block with screw-terminals
ST = Plug-in terminal
ZFKK= Cage-clamp
MK = Sheath terminals
RK = Serial terminals

Dimension drawings

GHG 71 - size 2



Mounting flaps Size 1-2



Dimensions in mm



Technical data

	GHG 713 .. Empty enclosure Ex	GHG 711/712 .. Terminal/junction box Ex	GHG 716 .. (714/15) Industrial enclosures
EC-Type Examination Certificate	BVS 15 ATEX E 127 U	BVS 16 ATEX E 007	
IIEC-Ex Certificate of Conformity	IECEX BVS 15.1044 U	IECEX BVS 16.0007	
Marking accd. to 94/9/EG	Ⓢ II 2 G Ex eb IIC Gb Ⓢ II 2 D Ex tb IIIC Db	Ⓢ II 2 G Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ⓢ II 2 D Ex tb IIIC T80° C (T95° C) Db	
Marking accd. to IECEx	Ex eb IIC Gb Ex tb IIIC Db	Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex tb IIIC T80° C (T95° C) Db	
Permissible ambient temperature		-55 °C up to +55 °C	
Operating-temperature range	-55 °C up to + 95 °C		-55 °C up to + 95 °C
IK-class according to EN 50102	IK 10 Δ 20 J	IK 10 Δ 20 J	IK 10 Δ 20 J
Rated voltage	up to 690 V AC / DC	up to 690 V AC / DC	up to 690 V AC / DC
Rated current	up to 25 A (depends on the configuration)	up to 32 A (with sheath terminals)	up to 25 A (with serial terminals)
Max. power dissipation at Tu +40 °C	max. 7.7 W (T6) / max. 10 W (T5)	max. 7.7 W (T6) / max. 10 W (T5)	
Max. power dissipation at Tu +55 °C	max. 4.8 W (T6) / max. 7.7 W (T5)	max. 4.8 W (T6) / max. 7.7 W (T5)	
Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Terminals ³⁾			
Cage-clamp (ZFKK)		3 x 4 x 2.5 mm ² + 2 x 2 x 2.5 mm ² (up to 20 A)	3 x 4 x 2.5 mm ² + 2 x 2 x 2.5 mm ²
Sheath terminal (MK)		4 x 4 mm ² - 2 x 8 x 6 mm ² (up to 32 A)	4 x 4 mm ² - 2 x 8 x 6 mm ²
Wago Plug-in terminal - small rail		4 x 4 x 2.5 mm ²	4 x 4 x 2.5 mm ²
serial terminal MXk4 or Mut 4 (RK)		2 x 2 x 2.5 mm ² - 10 mm ²	2 x 2 x 2.5 mm ² - 10 mm ²
PE-terminal external	2 x 6 mm ²	2 x 4 - 6 mm ²	2 x 4 - 6 mm ²
PE-terminal internal	2 x 4 mm ²	2 x 2 x 2.5 - 6 mm ²	2 x 2 x 2.5 - 6 mm ²
Weight	0.5 kg	depends on the configuration	0.5 kg
Enclosure material	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)
Enclosure colour	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)
Cable glands / gland plates / enclosure drilling		M12 - M63 ADE 1F2 other types on request	
Degree of protection accd. to EN 60529	IP66 / IP67 / IP68 ⁴⁾ / IP69	IP66 ¹⁾	IP66 / IP67 / IP68 ⁴⁾ / IP69

Max. number of cable glands

Cable glands/Thread (max. number/side)	Bottom	Top ²⁾	Left	Right
M12	7	5	2	2
M16	3	3	1	1
M20	2	2	1	1
M25	2	-	1	1
M32	-	-	-	-
M40	-	-	-	-
M50	-	-	-	-
M63	-	-	-	-

¹⁾ Standard; other degree of protection on request

²⁾ In use of cable glands from the top please only use in dry rooms or mount protected against moisture.

³⁾ For Ex-e terminal boxes the max. current load must be observed

⁴⁾ On request

Max. number of conductors

Rated current (A)	Cable cross section (mm ²)							
	1.5	2.5	4	6	10	16	25	35 50
6 A	30							
10 A	10	20						
16 A	4	11	22					
20 A		5	12					
25 A			3					
35 A								
50 A								
63 A								
80 A								
100 A								
125 A								

The terminal content in this range requires a power dissipation test report from the manufacturer.

Ordering details/dimension drawings

GHG 71*3 - size 3



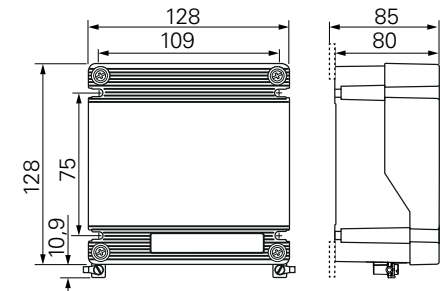
Ordering details

Type	Colour (RAL)	Order No.				
Enclosures for industrial application						
GHG 716 3	7032	GHG 716 3101 R0001				
Enclosures component certified accd. to ATEX/IECEX						
GHG 713 3	7032	GHG 713 3101 R0001				
GHG 713 3	5015 ¹⁾	GHG 713 3201 R0001				
Type	Colour (RAL)	Terminal type	No. of terminals/PE rail	Cable glands ²⁾	Clamping range	Order No.
Configured devices accd ATEX/IECEX						
GHG 711 3	7032	MK 8 x 4 mm ²	-	4 x M20	Ø 10 - 16 mm	GHG 711 3101 R0001
GHG 711 3	7032	MK 8 x 4 mm ²	-	4 x M25	Ø 13.5 - 20.5 mm	GHG 711 3101 R0002
GHG 711 3	5015 ¹⁾	MK 8 x 4 mm ²	-	4 x M20	Ø 10 - 16 mm	GHG 711 3201 R0001
GHG 711 3	5015 ¹⁾	MK 8 x 4 mm ²	-	4 x M25	Ø 13.5 - 20.5 mm	GHG 711 3201 R0002
GHG 712 3	7032	RK 12 x 2.5 mm ²	-	1 x M20 1 x M25	Ø 10 - 16 mm Ø 13.5 - 20.5 mm	GHG 712 3101 R0004
GHG 712 3	7032	RK 12 x 2.5 mm ²	-	4 x M12 1 x M20	Ø 4.5 - 8 mm Ø 10 - 16 mm	GHG 712 3101 R0005
GHG 712 3	7032	RK 1 x 4 mm ²	-	without thread	-	GHG 712 3101 R0006
GHG 712 3	7032	RK 12 x 2.5 mm ²	-	4 x M12 1 x M20	Ø 4.5 - 8 mm Ø 10 - 16 mm	GHG 712 3101 R0007
GHG 712 3	7032	RK 1 x 2.5 mm ²	6	without thread	-	GHG 712 3101 R0008
GHG 712 3	7032	RK 12 x 4 mm ²	6	without thread	-	GHG 712 3101 R0009
GHG 712 3	7032	RK 12 x 2.5 mm ²	6	4 x M20	Ø 10 - 16 mm	GHG 712 3101 R0010
GHG 712 3	7032	RK 1 x 4 mm ²	6	2 x M20 1 x M25	Drilling Thread	GHG 712 3101 R0011
GHG 712 3	7032	ZFKK 4 x 4 mm ² + 2 X 4mm ² PE	6	1 x M16 2 x M20	Ø 7 - 12 mm Ø 10 - 16 mm	GHG 712 3101 R0012
GHG 712 3	5015 ¹⁾	RK 12 x 2.5 mm ²	-	1 x M20 1 x M25	Ø 10 - 16 mm Ø 13.5 - 20.5 mm	GHG 712 3201 R0001
GHG 712 3	5015 ¹⁾	RK 12 x 2.5 mm ²	-	4 x M12 1 x M20	Ø 4.5 - 8 mm Ø 10 - 16 mm	GHG 712 3201 R0002
GHG 712 3	5015 ¹⁾	RK 1 x 4 mm ²	-	without thread	-	GHG 712 3201 R0003
GHG 712 3	5015 ¹⁾	ZFKK 12 x 2.5 mm ²	-	4 x M12 1 x M20	Ø 4.5 - 8 mm Ø 10 - 16 mm	GHG 712 3201 R0004
GHG 712 3	5015 ¹⁾	RK 1 x 2.5 mm ²	6	without thread	-	GHG 712 3201 R0005
GHG 712 3	5015 ¹⁾	RK 12 x 4 mm ²	6	without thread	-	GHG 712 3201 R0006
GHG 712 3	5015 ¹⁾	RK 12 x 2.5 mm ²	6	4 x M20	Ø 10 - 16 mm	GHG 712 3201 R0007
GHG 712 3	5015 ¹⁾	RK 1 x 4 mm ²	6	2 x M20 1 x M25	Drilling Thread	GHG 712 3201 R0008
GHG 712 3	5015 ¹⁾	ZFKK 4 x 4 mm ² + 2 x 4mm ² PE	6	1 x M16 2 x M20	Ø 7 - 12 mm Ø 10 - 16 mm	GHG 712 3201 R0009

¹⁾ RAL 5015 (sky-blue) for Ex-i application / ²⁾ Cable glands type Capri ADE 1F2 /
SK = Terminal block with screw-terminals / ZFKK= Cage-clamp / MK = Sheath terminals / RK = serial terminals

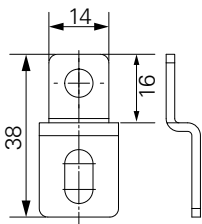
Dimension drawings

GHG 71 - size 3



Dimensions in mm

Mounting flaps Size 3





Technical data

	GHG 713 .. Empty enclosure Ex	GHG 711/712 .. Terminal/junction box Ex	GHG 716 .. (714/15) Industrial enclosures
EC-Type Examination Certificate	BVS 15 ATEX E 127 U	BVS 16 ATEX E 007	
IIEC-Ex Certificate of Conformity	IECEX BVS 15.1044 U	IECEX BVS 16.0007	
Marking accd. to 94/9/EG	Ex II 2 G Ex eb IIC Gb Ex II 2 D Ex tb IIIC Db	Ex II 2 G Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex II 2 D Ex tb IIIC T80° C (T95° C) Db	
Marking accd. to IECEx	Ex eb IIC Gb Ex tb IIIC Db	Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex tb IIIC T80° C (T95° C) Db	
Permissible ambient temperature		-55 °C up to +55 °C	
Operating-temperature range	-55 °C up to + 95 °C		-55 °C up to + 95 °C
IK-class according to EN 50102	IK 10 Δ 20 J	IK 10 Δ 20 J	IK 10 Δ 20 J
Rated voltage	up to 690 V AC / DC	up to 690 V AC / DC	up to 690 V AC / DC
Rated current	up to 125 A (depends on the configuration)	up to 30 A (depends on the configuration)	up to 125 A (depends on the configuration)
Max. power dissipation at Tu +40 °C	max. 13 W (T6) / max. 18 W (T5)	max. 13 W (T6) / max. 18 W (T5)	
Max. power dissipation at Tu +55 °C	max. 8.3 W (T6) / max. 13 W (T5)	max. 8.3 W (T6) / max. 13 W (T5)	
Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Terminals ³⁾			
Cage-clamp (ZFKK)		3 x 4 x 2.5 mm ² + 2 x 2 x 2.5 mm ²	3 x 4 x 2.5 mm ² + 2 x 2 x 2.5 mm ²
Sheath terminal (MK)		4 x 4 x 4 mm ² - 2 x 4 x 6 mm ²	4 x 4 x 4 mm ² - 2 x 4 x 6 mm ²
Wago Plug-in terminal		4 x 4 x 2.5 mm ²	4 x 4 x 2.5 mm ²
serial terminal (RK)		2.5 mm ² - 6 mm ²	2.5 mm ² - 6 mm ²
Max. number of PE-terminals on PE-rail		6	6
PE-terminal external	2 x 1,5 mm ² - 6 mm ² bis 10 mm ²	2 x 1,5 mm ² - 6 mm ² bis 10 mm ²	2 x 1,5 mm ² - 6 mm ² bis 10 mm ²
PE-terminal internal	2 x 2,5 mm ² bis 10 mm ²	2 x 2,5 mm ² bis 10 mm ²	2 x 2,5 mm ² bis 10 mm ²
Weight	1.0 kg	depends on the configuration	1.0 kg
Enclosure material	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)
Enclosure colour	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)
Cable glands / gland plates / enclosure drilling		M12 - M40 ADE 1F2 other types on request	
Degree of protection accd. to EN 60529	IP66 / IP67 / IP68 ⁴⁾ / IP69	IP66 ¹⁾	IP66 / IP67 / IP68 ⁴⁾ / IP69

Max. number of cable glands

Cable glands/Thread (max. number/side)	Bottom	Top ²⁾	Left	Right
M12	14	5	4	4
M16	8	-	3	3
M20	3	-	2	2
M25	2	-	1	1
M32	2	-	-	-
M40	1	-	-	-
M50	-	-	-	-
M63	-	-	-	-

Max. number of terminals³⁾

Alignment of the DIN-rails	horizontal	vertical
Number of rows	1	1
Useable length	1x 78 mm	1x 88 mm
Terminal dimension	maximum number of terminals	
2.5 mm ²	15	16
4 mm ²	12	14
6 mm ²	9	10
10 mm ²	-	-
16 mm ²	-	-
35 mm ²	-	-
50 mm ²	-	-

¹⁾ Standard; other degree of protection on request

²⁾ In use of cable glands from the top please only use in dry rooms or mount protected against moisture.

³⁾ For Ex-e terminal boxes the max. current load must be observed

⁴⁾ On request

Max. number of conductors

Rated current (A)	Cable cross section (mm ²)										
	1.5	2.5	4	6	10	16	25	35	50		
6 A	41	In this range as many terminals can be added as physically fit the available mounting dimension and according to the instructions.									
10 A	14										27
16 A	5										16
20 A		7	17	33							
25 A			5	13							
35 A											
50 A											
63 A											
80 A											
100 A			The terminal content in this range requires a power dissipation test report from the manufacturer.								
125 A											

The terminal content in this range requires a power dissipation test report from the manufacturer.

Ordering details/dimension drawings

GHG 71*4 - size 4

Ordering details

Type	Colour (RAL)	Order No.					
Enclosures for industrial application							
	GHG 716 4	7032	GHG 716 4101 R0001				
Enclosures component certified accd. to ATEX/IECEX							
	GHG 713 4	7032	GHG 713 4101 R0002				
	GHG 713 4	5015 ¹⁾	GHG 713 4201 R0001				
Type	Colour (RAL)	Terminal type	No. of terminals/PE rail	Cable glands ²⁾	Clamping range	Order No.	
Configured devices accd ATEX/IECEX							
	GHG 712 4	7032	RK 1 x 2.5 mm ²	15	without thread	-	GHG 712 4101 R0002
	GHG 712 4	7032	RK 24 x 4 mm ²	15	without thread	-	GHG 712 4101 R0003
	GHG 712 4	7032	RK 28 x 2.5 mm ²	15	6 x M20	Ø 10 - 16 mm	GHG 712 4101 R0004
	GHG 712 4	7032	ZFKK 4 x 4 mm ² 6 x 10 mm ² 2 x 10 mm ² PE	-	1 x M20 1 x M25 1 x M32	Ø 10 - 16 mm Ø 13.5 - 20.5 mm Ø 18 - 27.5 mm	GHG 712 4101 R0005
	GHG 712 4	5015 ¹⁾	RK 1 x 2.5 mm ²	15	without thread	-	GHG 712 4201 R0001
	GHG 712 4	5015 ¹⁾	RK 24 x 2.5 mm ²	15	without thread	-	GHG 712 4201 R0002
	GHG 712 4	5015 ¹⁾	RK 28 x 4 mm ²	15	6 x M20	Ø 10 - 16 mm	GHG 712 4201 R0003
	GHG 712 4	5015 ¹⁾	ZFKK 4 x 4 mm ² 6 x 10 mm ² 2 x 10 mm ²	15	1 x M20 1 x M25 1 x M32	Ø 10 - 16 mm Ø 13.5 - 20.5 mm Ø 18 - 27.5 mm	GHG 712 4201 R0004

¹⁾ RAL 5015 (sky-blue) for Ex-i application

²⁾ Cable glands type Capri ADE 1F2

SK = Terminal block with screw-terminals

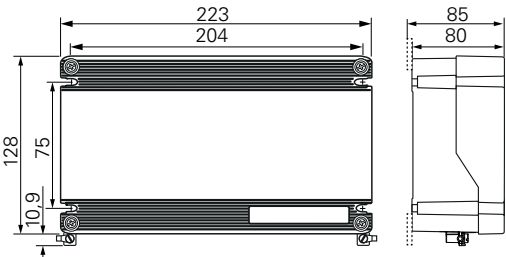
ZFKK= Cage-clamp

MK = Sheath terminals

RK = serial terminals

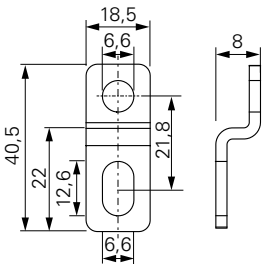
Dimension drawings

GHG 71 - size 4



Dimensions in mm

Mounting flaps Size 4-8





Technical data

	GHG 713 .. Empty enclosure Ex	GHG 712.. Junction box/terminal enclosure Ex	GHG 716 .. (714/15) Industrial enclosures
EC-Type Examination Certificate	BVS 15 ATEX E 127 U	BVS 16 ATEX E 007	
IIEC-Ex Certificate of Conformity	IECEX BVS 15.1044 U	IECEX BVS 16.0007	
Marking accd. to 94/9/EG	Ⓢ II 2 G Ex eb IIC Gb Ⓢ II 2 D Ex tb IIIC Db	Ⓢ II 2 G Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ⓢ II 2 D Ex tb IIIC T80° C (T95° C) Db	
Marking accd. to IECEx	Ex eb IIC Gb Ex tb IIIC Db	Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex tb IIIC T80° C (T95° C) Db	
Permissible ambient temperature		-55 °C up to +55 °C	
Operating-temperature range	-55 °C up to + 95 °C		-55 °C up to + 95 °C
IK-class according to EN 50102	IK 10 Δ 20 J	IK 10 Δ 20 J	IK 10 Δ 20 J
Rated voltage	up to 690 V AC / DC	up to 690 V AC / DC	up to 690 V AC / DC
Rated current	up to 50 A (depends on the configuration)	up to 50 A (depends on the configuration)	up to 50 A (depends on the configuration)
Max. power dissipation at Tu +40 °C	max. 21 W (T6) / max. 29 W(T5)	max. 21 W (T6) / max. 29 W(T5)	
Max. power dissipation at Tu +55 °C	max. 12 W (T6) / max. 21 W (T5)	max. 12 W (T6) / max. 21 W (T5)	
Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Terminals ³⁾ /serial terminal (RK)		max. 10 mm ² /2.5 mm ² - 10 mm ²	max. 10 mm ² /2.5 mm ² - 10 mm ²
Max. no. of PE-terminals on PE-rail		15	15
PE-terminal external	2 x 1.5 mm ² - 6 mm ² up to 10 mm ²	2 x 1.5 mm ² - 6 mm ² up to 10 mm ²	2 x 1.5 mm ² - 6 mm ² up to 10 mm ²
PE-terminal internal	2 x 2.5 mm ² up to 10 mm ²	2 x 2.5 mm ² up to 10 mm ²	2 x 2.5 mm ² up to 10 mm ²
Weight	1.5 kg	depends on the configuration	1.5 kg
Enclosure material	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)
Enclosure colour	RAL 7032 pebble grey. RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey. RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey. RAL 5015 (Ex-i application) or unpainted (on request)
Cable glands / gland plates / enclosure drilling		M12 - M40 ADE 1F2 other types on request	
Degree of protection accd. to EN 60529	IP66 / IP67 / IP68 ⁴⁾ / IP69	IP66 ¹⁾	IP66 / IP67 / IP68 ⁴⁾ / IP69

Max. number of cable glands

Cable glands/Thread (max. number/side)	Bottom	Top ²⁾	Left	Right
M12	19	8	4	4
M16	14	-	2	2
M20	8	-	1	1
M25	5	-	1	1
M32	3	-	-	-
M40	3	-	-	-
M50	-	-	-	-
M63	-	-	-	-

Max. number of terminals³⁾

Alignment of the DIN-rails	horizontal	vertical
Number of rows	1	1
Useable legth	1x 158 mm	1x 80 mm
Terminal dimension	Max. number of terminals	
2.5 mm ²	30	15
4 mm ²	25	12
6 mm ²	19	9
10 mm ²	-	7
16 mm ²	-	-
35 mm ²	-	-
50 mm ²	-	-

¹⁾ Standard; other degree of protection on request

²⁾ In use of cable glands from the top please only use in dry rooms or mount protected against moisture.

³⁾ For Ex-e terminal boxes the max. current load must be observed

⁴⁾ On request

Max. number of conductors

Rated current (A)	Cable cross section (mm ²)									
	1.5	2.5	4	6	10	16	25	35	50	
6 A	44									In this range as many terminals can be added as physically fit the available mounting dimension and according to the instructions.
10 A	15	29								
16 A	6	17	33							
20 A		8	18	36						
25 A			5	14	35					
35 A				2	11					
50 A					3					
63 A										
80 A										
100 A										The terminal content in this range requires a power dissipation test report from the manufacturer.
125 A										

Ordering details/dimension drawings

GHG 71*5 - size 5

Ordering details

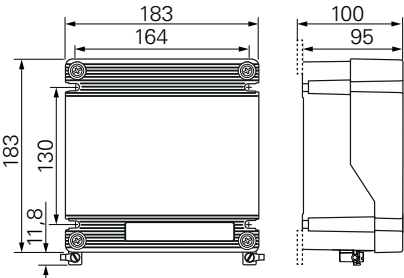
Type	Colour (RAL)	Order No.
Enclosures for industrial application		
GHG 716 5	7032	GHG 716 5101 R0001
Enclosures component certified accd. to ATEX/IECEX		
GHG 713 5	7032	GHG 713 5101 R0001
GHG 713 5	5015 ¹⁾	GHG 713 5201 R0001

Type	Colour (RAL)	Terminal type	No. of terminals/PE rail	Cable glands ²⁾	Clamping range	Order No.
Configured devices accd ATEX/IECEX						
GHG 712 5	7032	RK 24 x 2.5 mm ²	14	12 x M12 1 x M25	Ø 4.5 - 8 mm Ø 13.5 - 20.5 mm	GHG 712 5101 R0002
GHG 712 5	7032	RK 24 x 2.5 mm ²	14	12 x M16 1 x M25	Ø 7 - 12 mm Ø 13.5 - 20.5 mm	GHG 712 5101 R0003
GHG 712 5	7032	RK 1 x 4 mm ²	14	without thread	-	GHG 712 5101 R0004
GHG 712 5	7032	ZFKK 24 x 2.5 mm ²	14	12 x M16 1 x M25	Ø 7 - 12 mm Ø 13.5 - 20.5 mm	GHG 712 5101 R0005
GHG 712 5	5015 ¹⁾	RK 24 x 2.5 mm ²	14	12 x M12 1 x M25	Ø 4.5 - 8 mm Ø 13.5 - 20.5 mm	GHG 712 5201 R0001
GHG 712 5	5015 ¹⁾	RK 24 x 2.5 mm ²	14	12 x M16 1 x M25	Ø 7 - 12 mm Ø 13.5 - 20.5 mm	GHG 712 5201 R0002
GHG 712 5	5015 ¹⁾	RK 1 x 4 mm ²	14	without thread	-	GHG 712 5201 R0003
GHG 712 5	5015 ¹⁾	ZFKK 24 x 2.5 mm ²	14	12 x M16 1 x M25	Ø 7 - 12 mm Ø 13.5 - 20.5 mm	GHG 712 5201 R0004

¹⁾ RAL 5015 (sky-blue) for Ex-i application
²⁾ Cable glands type Capri ADE 1F2
SK = Terminal block with screw-terminals
ZFKK= Cage-clamp
MK = Sheath terminals
RK = serial terminals

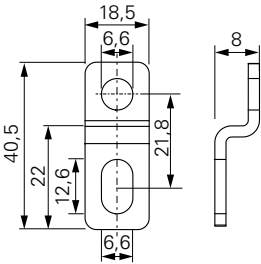
Dimension drawings

GHG 71 - size 5



Dimensions in mm

Mounting flaps Size 4-8





Technical data

	GHG 713 .. Empty enclosure Ex	GHG 712.. Junction box/terminal enclosure Ex	GHG 716 .. (714/15) Industrial enclosures
EC-Type Examination Certificate	BVS 15 ATEX E 127 U	BVS 16 ATEX E 007	
IIEC-Ex Certificate of Conformity	IECEX BVS 15.1044 U	IECEX BVS 16.0007	
Marking accd. to 94/9/EG	Ⓢ II 2 G Ex eb IIC Gb Ⓢ II 2 D Ex tb IIIC Db	Ⓢ II 2 G Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ⓢ II 2 D Ex tb IIIC T80° C (T95° C) Db	
Marking accd. to IECEx	Ex eb IIC Gb Ex tb IIIC Db	Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex tb IIIC T80° C (T95° C) Db	
Permissible ambient temperature		-55 °C up to +55 °C	
Operating-temperature range	-55 °C up to + 95 °C		-55 °C up to + 95 °C
IK-class according to EN 50102	IK 10 Δ 20 J	IK 10 Δ 20 J	IK 10 Δ 20 J
Rated voltage	up to 690 V AC / DC	up to 690 V AC / DC	up to 690 V AC / DC
Rated current	up to 63 A (depends on the configuration)	up to 63 A (depends on the configuration)	up to 63 A (depends on the configuration)
Max. power dissipation at Tu +40 °C	max. 25 W (T6) / max. 34 W(T5)	max. 25 W (T6) / max. 34 W(T5)	
Max. power dissipation at Tu +55 °C	max. 15 W (T6) / max. 25 W (T5)	max. 15 W (T6) / max. 25 W (T5)	
Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Terminals ³⁾ /serial terminal (RK)		max. 16 mm ² /2.5 mm ² - 16 mm ²	max. 16 mm ² /2.5 mm ² - 16 mm ²
Max. number of PE-terminals on PE-rail		14	14
PE-terminal external	2 x 16 mm ²	2 x 16 mm ²	2 x 16 mm ²
PE-terminal internal	2 x 16 mm ²	2 x 16 mm ²	2 x 16 mm ²
Weight	1.8 kg	depends on the configuration	1.8 kg
Enclosure material	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)
Enclosure colour	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)
Cable glands / gland plates / enclosure drilling		M12 - M40 ADE 1F2 other types on request	
Degree of protection accd. to EN 60529	IP66 / IP67 / IP68 ⁴⁾ / IP69	IP66 ¹⁾	IP66 / IP67 / IP68 ⁴⁾ / IP69

Max. number of cable glands

Cable glands/Thread (max. number/side)	Bottom	Top ²⁾	Left	Right
M12	26	9	8	8
M16	17	6	4	4
M20	10	3	3	3
M25	5	3	2	2
M32	3	-	-	-
M40	2	-	-	-
M50	-	-	-	-
M63	-	-	-	-

Max. number of terminals³⁾

Alignment of the DIN-rails	horizontal	vertical
Number of rows	1	1
Useable legth	1x 122 mm	1x 143 mm
Terminal dimension	Max. number of terminals	
2,5 mm ²	23	27
4 mm ²	19	23
6 mm ²	14	17
10 mm ²	11	14
16 mm ²	10	11
35 mm ²	-	-
50 mm ²	-	-

¹⁾ Standard; other degree of protection on request

²⁾ In use of cable glands from the top please only use in dry rooms or mount protected against moisture.

³⁾ For Ex-e terminal boxes the max. current load must be observed

⁴⁾ On request

Max. number of conductors

Rated current (A)	Cable cross section (mm ²)									
	1.5	2.5	4	6	10	16	25	35	50	
6 A	53									In this range as many terminals can be added as physically fit the available mounting dimension and according to the instructions.
10 A	18	35								
16 A	7	20	39							
20 A		9	22	43						
25 A			6	17	42					
35 A				2	13	35				
50 A					4	16				
63 A						6				
80 A										
100 A										The terminal content in this range requires a power dissipation test report from the manufacturer.
125 A										

Ordering details/dimension drawings

GHG 71*6 - size 6



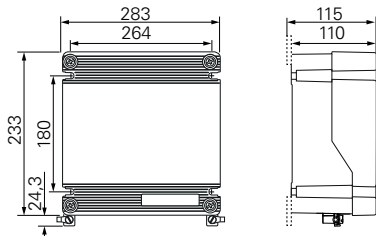
Ordering details

Type	Colour (RAL)	Order No.				
Enclosures for industrial application						
GHG 716 6	7032	GHG 716 6101 R0001				
Enclosures component certified accd. to ATEX/IECEx						
GHG 713 6	7032	GHG 713 6101 R0001				
GHG 713 6	5015 ¹⁾	GHG 713 6201 R0001				
Type	Colour (RAL)	Terminal type	No. of terminals/PE rail	Cable glands ²⁾	Clamping range	Order No.
Configured devices accd ATEX/IECEx						
GHG 712 6	7032	RK 1 x 2.5 mm²	31	without thread	-	GHG 712 6101 R0003
GHG 712 6	5015 ¹⁾	RK 42 x 2.5 mm²	31	21 x M16 1 x M32	Ø 7 - 12 mm Ø 18 - 27.5 mm	GHG 712 6201 R0001
GHG 712 6	5015 ¹⁾	RK 1 x 2.5 mm²	31	without thread	-	GHG 712 6201 R0002

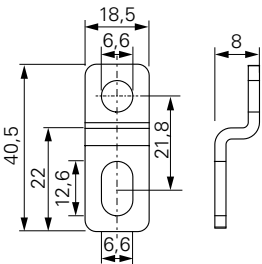
¹⁾ RAL 5015 (sky-blue) for Ex-i application
²⁾ Cable glands type Capri ADE 1F2
SK = Terminal block with screw-terminals
ZFKK= Cage-clamp
MK = Sheath terminals
RK = serial terminals

Dimension drawings

GHG 71 - size 6



Mounting flaps Size 4-8



Dimensions in mm



Technical data

	GHG 713 .. Empty enclosure Ex	GHG 712.. Junction box/terminal enclosure Ex	GHG 716 .. (714/15) Industrial enclosures
EC-Type Examination Certificate	BVS 15 ATEX E 127 U	BVS 16 ATEX E 007	
IIEC-Ex Certificate of Conformity	IECEX BVS 15.1044 U	IECEX BVS 16.0007	
Marking accd. to 94/9/EG	Ⓢ II 2 G Ex eb IIC Gb Ⓢ II 2 D Ex tb IIIC Db	Ⓢ II 2 G Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ⓢ II 2 D Ex tb IIIC T80° C (T95° C) Db	
Marking accd. to IECEx	Ex eb IIC Gb Ex tb IIIC Db	Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex tb IIIC T80° C (T95° C) Db	
Permissible ambient temperature		-55 °C up to +55 °C	
Operating-temperature range	-55 °C up to + 95 °C		-55 °C up to + 95 °C
IK-class according to EN 50102	IK 10 Δ 20 J	IK 10 Δ 20 J	IK 10 Δ 20 J
Rated voltage	up to 690 V AC / DC	up to 690 V AC / DC	up to 690 V AC / DC
Rated current	up to 125 A (depends on the configuration)	up to 125 A (depends on the configuration)	up to 125 A (depends on the configuration)
Max. power dissipation at Tu +40 °C	max. 46 W (T6) / max. 63 W (T5)	max. 46 W (T6) / max. 63 W (T5)	
Max. power dissipation at Tu +55 °C	max. 28 W (T6) / max. 46 W (T5)	max. 28 W (T6) / max. 46 W (T5)	
Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Terminals ³⁾ /serial terminal (RK)		max. 50 mm ² /2.5 mm ² - 50 mm ²	max. 50 mm ² /2.5 mm ² - 50 mm ²
Max. number of PE-terminals on PE-rail		28	28
PE-terminal external	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²
PE-terminal internal	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²
Weight	3.4 kg	depends on the configuration	3.4 kg
Enclosure material	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)
Enclosure colour	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)
Cable glands / gland plates / enclosure drilling		M12 - M63 ADE 1F2 other types on request	
Degree of protection accd. to EN 60529	IP66 / IP67 / IP68 ⁴⁾ / IP69	IP66 ¹⁾	IP66 / IP67 / IP68 ⁴⁾ / IP69

Max. number of cable glands

Cable glands/Thread (max. number/side)	Bottom	Top ²⁾	Left	Right
M12	48	24	12	12
M16	28	20	9	9
M20	17	9	5	5
M25	11	6	3	3
M32	5	5	2	2
M40	4	-	-	-
M50	3	-	-	-
M63	3	-	-	-

Max. number of terminals³⁾

Alignment of the DIN-rails	horizontal	vertical	
Number of rows	1	1	2
Useable legth	1x 238 mm	1x 177 mm	2x 177 mm
Terminal dimension	Max. number of terminals		
2,5 mm²	45	34	68
4 mm²	38	28	56
6 mm²	29	21	42
10 mm²	23	17	-
16 mm²	19	14	-
35 mm²	14	11	-
50 mm²	-	8	-

¹⁾ Standard; other degree of protection on request

²⁾ In use of cable glands from the top please only use in dry rooms or mount protected against moisture.

³⁾ For Ex-e terminal boxes the max. current load must be observed

⁴⁾ On request

Max. number of conductors

Rated current (A)	Cable cross section (mm ²)									
	1.5	2.5	4	6	10	16	25	35	50	
6 A	67									In this range as many terminals can be added as physically fit the available mounting dimension and according to the instructions.
10 A	23	45								
16 A	9	26	50							
20 A		12	28	55						
25 A			8	21	53					
35 A				3	17	44				
50 A					6	20	73			
63 A						8	23	82		
80 A							9	21	22	
100 A								8	22	
125 A									7	

The terminal content in this range requires a power dissipation test report from the manufacturer.

Ordering details/dimension drawings

GHG 71*7 - size 7

Ordering details

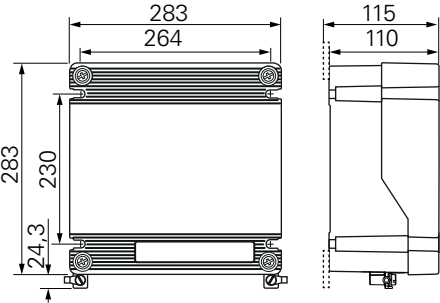
Type	Colour (RAL)	Order No.
Enclosures for industrial application		
GHG 716 7	7032	GHG 716 7101 R0001
Enclosures component certified accd. to ATEX/IECEx		
GHG 713 7	7032	GHG 713 7101 R0001
GHG 713 7	5015 ¹⁾	GHG 713 7201 R0001

Type	Colour (RAL)	Terminal type	No. of terminals/PE rail	Cable glands ²⁾	Clamping range	Order No.
Configured devices accd ATEX/IECEx						
GHG 712 7	7032	RK 60 x 2.5 mm ²	28	30 x M12 1 x M40	Ø 4.5 - 8 mm Ø 23 - 34 mm	GHG 712 7101 R0002
GHG 712 7	7032	RK 60 x 2.5 mm ²	28	18 x M16 1 x M40	Ø 7 - 12 mm Ø 23 - 34 mm	GHG 712 7101 R0003
GHG 712 7	5015 ¹⁾	RK 60 x 2.5 mm ²	28	30 x M12 1 x M40	Ø 4.5 - 8 mm Ø 23 - 34 mm	GHG 712 7201 R0001
GHG 712 7	5015 ¹⁾	RK 60 x 2.5 mm ²	28	18 x M16 1 x M40	Ø 7 - 12 mm Ø 23 - 34 mm	GHG 712 7201 R0002

¹⁾ RAL 5015 (sky-blue) for Ex-i application
²⁾ Cable glands type Capri ADE 1F2
SK = Terminal block with screw-terminals
ZFKK= Cage-clamp
MK = Sheath terminals
RK = serial terminals

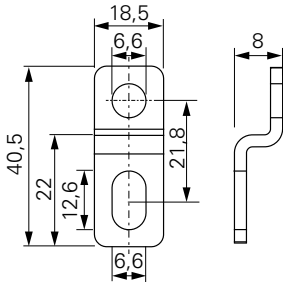
Dimension drawings

GHG 71 - size 7



Dimensions in mm

Mounting flaps Size 4-8





Technical data

	GHG 713 .. Empty enclosure Ex	GHG 712.. Junction box/terminal enclosure Ex	GHG 716 .. (714/15) Industrial enclosures
EC-Type Examination Certificate	BVS 15 ATEX E 127 U	BVS 16 ATEX E 007	
IIEC-Ex Certificate of Conformity	IECEX BVS 15.1044 U	IECEX BVS 16.0007	
Marking accd. to 94/9/EG	Ex II 2 G Ex eb IIC Gb Ex II 2 D Ex tb IIIC Db	Ex II 2 G Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex II 2 D Ex tb IIIC T80° C (T95° C) Db	
Marking accd. to IECEx	Ex eb IIC Gb Ex tb IIIC Db	Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex tb IIIC T80° C (T95° C) Db	
Permissible ambient temperature		-55 °C up to +55 °C	
Operating-temperature range	-55 °C up to +95 °C		-55 °C up to +95 °C
IK-class according to EN 50102	IK 10 Δ 20 J	IK 10 Δ 20 J	IK 10 Δ 20 J
Rated voltage	up to 690 V AC / DC	up to 690 V AC / DC	up to 690 V AC / DC
Rated current	up to 125 A (depends on the configuration)	up to 125 A (depends on the configuration)	up to 125 A (depends on the configuration)
Max. power dissipation at Tu +40 °C	max. 54 W (T6) / max. 74 W (T5)	max. 54 W (T6) / max. 74 W (T5)	
Max. power dissipation at Tu +55 °C	max. 33 W (T6) / max. 54 W (T5)	max. 33 W (T6) / max. 54 W (T5)	
Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Terminals ³⁾ /serial terminal (RK)		max. 50 mm ² /2.5 mm ² - 50 mm ²	max. 50 mm ² /2.5 mm ² - 50 mm ²
Max. number of PE-terminals on PE-rail		28	28
PE-terminal external	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²
PE-terminal internal	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²
Weight	3.8 kg	depends on the configuration	3.8 kg
Enclosure material	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)
Enclosure colour	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)
Cable glands / gland plates / enclosure drilling		M12 - M63 ADE 1F2 other types on request	
Degree of protection accd. to EN 60529	IP66 / IP67 / IP68 ⁴⁾ / IP69	IP66 ¹⁾	IP66 / IP67 / IP68 ⁴⁾ / IP69

Max. number of cable glands

Cable glands/Thread (max. number/side)	Bottom	Top ²⁾	Left	Right
M12	48	24	17	17
M16	28	20	13	13
M20	17	9	6	6
M25	11	6	4	4
M32	5	5	3	3
M40	4	-	-	-
M50	3	-	-	-
M63	2	-	-	-

Max. number of terminals³⁾

Alignment of the DIN-rails	horizontal	vertical		
Number of rows	1	2	1	2
Useable legth	1x 238 mm	1x 238 mm 1x 188 mm	1x 225 mm ²	2x 225 mm
Terminal dimension	Max. number of terminals			
2,5 mm ²	45	81	43	86
4 mm ²	38	68	36	72
6 mm ²	29	51	27	54
10 mm ²	23	18	22	44
16 mm ²	19	-	18	-
35 mm ²	14	-	14	-
50 mm ²	11	-	11	-

¹⁾ Standard; other degree of protection on request

²⁾ In use of cable glands from the top please only use in dry rooms or mount protected against moisture.

³⁾ For Ex-e terminal boxes the max. current load must be observed

⁴⁾ On request

Max. number of conductors

Rated current (A)	Cable cross section (mm ²)									
	1.5	2.5	4	6	10	16	25	35	50	
6 A	71									In this range as many terminals can be added as physically fit the available mounting dimension and according to the instructions.
10 A	24	47								
16 A	10	27	53							
20 A		13	30	58						
25 A			9	23	57					
35 A				3	18	47				
50 A					6	22	77			
63 A						8	24	87		
80 A							10	23	23	
100 A								9	23	
125 A									8	

Ordering details/dimension drawings

GHG 71*8 - size 8

Ordering details

Type	Colour (RAL)	Order No.				
Enclosures for industrial application						
GHG 716 8	7032	GHG 716 8101 R0001				
Enclosures component certified accd. to ATEX/IECEX						
GHG 713 8	7032	GHG 713 8101 R0001				
GHG 713 8	5015 ¹⁾	GHG 713 8201 R0001				
Type	Colour (RAL)	Terminal type	No. of terminals/PE rail	Cable glands ²⁾	Clamping range	Order No.
Configured devices accd ATEX/IECEX						
GHG 712 8	7032	RK 1 x 2.5 mm ²	65	without thread	-	GHG 712 8101 R0002
GHG 712 8	5015 ¹⁾	RK 1 x 2.5 mm ²	65	without thread	-	GHG 712 8201 R0001

¹⁾ RAL 5015 (sky-blue) for Ex-i application

²⁾ Cable glands type Capri ADE 1F2

SK = Terminal block with screw-terminals

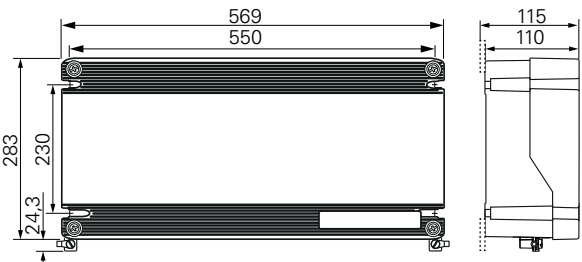
ZFKK= Cage-clamp

MK = Sheath terminals

RK = serial terminals

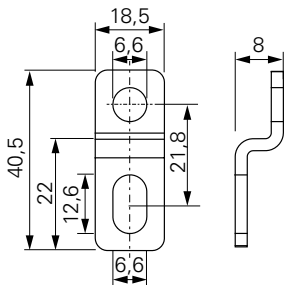
Dimension drawings

GHG 71 - size 8



Dimensions in mm

Mounting flaps Size 4-8





Technical data

	GHG 713 .. Empty enclosure Ex	GHG 712.. Junction box/terminal enclosure Ex	GHG 716 .. (714/15) Industrial enclosures
EC-Type Examination Certificate	BVS 15 ATEX E 127 U	BVS 16 ATEX E 007	
IIEC-Ex Certificate of Conformity	IECEX BVS 15.1044 U	IECEX BVS 16.0007	
Marking accd. to 94/9/EG	Ⓢ II 2 G Ex eb IIC Gb Ⓢ II 2 D Ex tb IIIC Db	Ⓢ II 2 G Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ⓢ II 2 D Ex tb IIIC T80° C (T95° C) Db	
Marking accd. to IECEx	Ex eb IIC Gb Ex tb IIIC Db	Ex [ia/ib] (d e mb) IIC T4/T5/T6 Gb Ex tb IIIC T80° C (T95° C) Db	
Permissible ambient temperature		-55 °C up to +55 °C	
Operating-temperature range	-55 °C up to + 95 °C		-55 °C up to + 95 °C
IK-class according to EN 50102	IK 10 Δ 20 J	IK 10 Δ 20 J	IK 10 Δ 20 J
Rated voltage	up to 690 V AC / DC	up to 690 V AC / DC	up to 690 V AC / DC
Rated current	up to 125 A (depends on the configuration)	up to 125 A (depends on the configuration)	up to 125 A (depends on the configuration)
Max. power dissipation at Tu +40 °C	max. 96 W (T6) / max. 132 W (T5)	max. 96 W (T6) / max. 132 W (T5)	
Max. power dissipation at Tu +55 °C	max. 60 W (T6) / max. 96 W (T5)	max. 60 W (T6) / max. 96 W (T5)	
Frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Terminals ³⁾ /serial terminal (RK)		max. 50 mm ² /2.5 mm ² - 50 mm ²	max. 50 mm ² /2.5 mm ² - 50 mm ²
Max. number of PE-terminals on PE-rail		65	65
PE-terminal external	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²
PE-terminal internal	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²	from 2,5 mm ² - 6 mm ² up to 70 mm ²
Weight	6.2 kg	depends on the configuration	6.2 kg
Enclosure material	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)	Aluminium die-cast AlSi10Mg (Cu <0,1%)
Enclosure colour	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)	RAL 7032 pebble grey, RAL 5015 (Ex-i application) or unpainted (on request)
Cable glands / gland plates / enclosure drilling		M12 - M63 ADE 1F2 other types on request	
Degree of protection accd. to EN 60529	IP66 / IP67 / IP68 ⁴⁾ / IP69	IP66 ¹⁾	IP66 / IP67 / IP68 ⁴⁾ / IP69

Max. number of cable glands

Cable glands/Thread (max. number/side)	Bottom	Top ²⁾	Left	Right
M12	133	50	17	17
M16	70	43	13	13
M20	47	23	6	6
M25	26	14	4	4
M32	12	10	3	3
M40	9	-	-	-
M50	6	-	-	-
M63	5	-	-	-

Max. number of terminals³⁾

Alignment of the DIN-rails	horizontal		vertical		
Number of rows	1	2	1	2	3
Useable legth	1x 524 mm	1x 478 mm 1x 524 mm	1x 226 mm	2x 226 mm	3x 226 mm
Terminal dimension	Max. number of terminals				
2,5 mm ²	100	191	43	86	129
4 mm ²	84	161	36	72	108
6 mm ²	63	121	27	54	81
10 mm ²	51	97	22	44	66
16 mm ²	42	-	18	36	-
35 mm ²	32	-	14	-	-
50 mm ²	26	-	11	-	-

¹⁾ Standard; other degree of protection on request

²⁾ In use of cable glands from the top please only use in dry rooms or mount protected against moisture.

³⁾ For Ex-e terminal boxes the max. current load must be observed

⁴⁾ On request

Max. number of conductors

Rated current (A)	Cable cross section (mm ²)									
	1.5	2.5	4	6	10	16	25	35	50	
6 A	81									In this range as many terminals can be added as physically fit the available mounting dimension and according to the instructions.
10 A	27	53								
16 A	11	31	60							
20 A		15	34	66						
25 A			10	26	64					
35 A				3	21	53				
50 A					7	24	87			
63 A						9	27	98		
80 A							11	26	26	
100 A								10	26	
125 A									9	

The terminal content in this range requires a power dissipation test report from the manufacturer.

Accessories and spare parts

GHG 71

Ordering details accessories/spare parts

Type	Order unit	Order No.
Accessories/spare parts terminal/junction box		
 Enclosure cover GHG71 RAL7032 Size1 with cover screws	1	GHG7101905R0001
Enclosure cover GHG71 RAL7032 Size2 with cover screws	1	GHG7101905R0002
Enclosure cover GHG71 RAL7032 Size3 with cover screws	1	GHG7101905R0003
Enclosure cover GHG71 RAL7032 Size4 with cover screws	1	GHG7101905R0004
Enclosure cover GHG71 RAL7032 Size5 with cover screws	1	GHG7101905R0005
Enclosure cover GHG71 RAL7032 Size6 with cover screws	1	GHG7101905R0006
Enclosure cover GHG71 RAL7032 Size7 with cover screws	1	GHG7101905R0007
Enclosure cover GHG71 RAL7032 Size8 with cover screws	1	GHG7101905R0008
 Enclosure cover GHG71 RAL5015 Size1 with cover screws	1	GHG7101905R0009
Enclosure cover GHG71 RAL5015 Size2 with cover screws	1	GHG7101905R0010
Enclosure cover GHG71 RAL5015 Size3 with cover screws	1	GHG7101905R0011
Enclosure cover GHG71 RAL5015 Size4 with cover screws	1	GHG7101905R0012
Enclosure cover GHG71 RAL5015 Size5 with cover screws	1	GHG7101905R0013
Enclosure cover GHG71 RAL5015 Size6 with cover screws	1	GHG7101905R0014
Enclosure cover GHG71 RAL5015 Size7 with cover screws	1	GHG7101905R0015
Enclosure cover GHG71 RAL5015 Size8 with cover screws	1	GHG7101905R0016
 Terminal block screw terminals GHG71 with fixing material	1	GHG7101906R0001
 Sheath terminals EAZK with fixing material	5	GHG7101906R0002
PE terminals for PE rail GHG71	10	GHG7101907R0001
PE rail set for GHG71 Size 3 (PE rail, holder and mounting material)	1	GHG7101907R0002
PE rail set for GHG71 Size 4 (PE rail, holder and mounting material)	1	GHG7101907R0003
PE rail set for GHG71 Size 5 (PE rail, holder and mounting material)	1	GHG7101907R0004
 PE rail set for GHG71 Size 6 (PE rail, holder and mounting material)	1	GHG7101907R0005
PE rail set for GHG71 Size 7 (PE rail, holder and mounting material)	1	GHG7101907R0006
PE rail set for GHG71 Size 8 (PE rail, holder and mounting material)	1	GHG7101907R0007
 Cable lug set for GHG71. comprising 2 cable lugs of each size	1	GHG7101908R0001
Mounting flaps GHG71 Size 4-8 Set, comprising 4 mounting flaps plus mounting material	1	GHG7101901R0002
Mounting flaps GHG71 Size 3 Set, comprising 4 mounting flaps plus mounting material	1	GHG7101901R0003
Mounting flaps GHG71 Size 1-2 Set, comprising 4 mounting flaps plus mounting material	1	GHG7101901R0001
 DIN rail holder GHG71	10	GHG7101903R0001
Terminal rail GHG71 Size 3 L=103 mm (DIN rail, suspended)	5	GHG7101909R0001
Terminal rail GHG71 Size 4 L=200 mm (DIN rail, suspended)	5	GHG7101909R0002
Terminal rail GHG71 Size 5 L=159 mm (DIN rail, suspended)	5	GHG7101909R0003
Terminal rail GHG71 Size 6 L=254 mm (DIN rail, suspended)	5	GHG7101909R0004
Terminal rail GHG71 Size 7 L=254 mm (DIN rail, suspended)	5	GHG7101909R0005
Terminal rail GHG71 Size 8 L=539 mm (DIN rail, suspended)	5	GHG7101909R0006
 GHG71 internal mounting plate size 3	1	GHG7101911R0001
GHG71 internal mounting plate size 4	1	GHG7101911R0002
GHG71 internal mounting plate size 5	1	GHG7101911R0003
GHG71 internal mounting plate size 6	1	GHG7101911R0004
GHG71 internal mounting plate size 7	1	GHG7101911R0005
GHG71 internal mounting plate size 8	1	GHG7101911R0006

Equipping of the DIN rail

Table: Maximum equipping of the DIN rail

		Size 3	Size 4	Size 5	Size 6	Size 7	Size 8
Horizontal single row	DIN rail: useable length	1 x 78 mm	1 x 158 mm	1 x 122 mm	1 x 238 mm	1 x 238 mm	1 x 524 mm
	Maximum terminal diameter	6 mm ²	6 mm ²	16 mm ²	35 mm ²	50 mm ²	50 mm ²
Horizontal double row	DIN rail: useable length	-	-	-	-	1 x 238 mm 1 x 188 mm	1 x 478 mm 1 x 524 mm ²
	Maximum terminal diameter	-	-	-	-	6 mm ² /10 mm ²	10 mm ²
Vertical single row	DIN rail: useable length	1 x 88 mm	1 x 80 mm	1 x 143 mm	1 x 177 mm	1 x 225 mm ²	1 x 226 mm
	Maximum terminal diameter	6 mm ²	10 mm ²	16 mm ²	50 mm ²	50 mm ²	50 mm ²
Vertical double row	DIN rail: useable length	-	-	-	2 x 177 mm	2 x 225 mm	2 x 226 mm
	Maximum terminal diameter	-	-	-	6 mm ²	10 mm ²	16 mm ²
Vertical triple row	DIN rail: useable length	-	-	-	-	-	3 x 226 mm
	Maximum terminal diameter	-	-	-	-	-	10 mm ²

Table: Maximum equipping of the DIN rail: Selection of the terminals²⁾

	Size 3		Size 4		Size 5		Size 6		Size 7				Size 8					
Ausr./	horizontal	vertical	horizontal	vertical	horizontal	vertical	horizontal	vertical	vertical	horizontal	horizontal	vertical	vertical	horizontal	horizontal	vertical	vertical	vertical
Anz. der Reihen	1	1	1	1	1	1	1	1	2	1	2	1	2	1	2	1	2	3
Useable length	1x 78 mm	1x 88 mm	1x 158 mm	1x 80 mm	1x 122 mm	1x 143 mm	1x 238 mm	1x 177 mm	2x 177 mm	1x 238 mm	1x 238 mm	1x 225 mm ²	2x 225 mm	1x 524 mm	1x 478 mm	1x 226 mm	2x 226 mm	3x 226 mm
											1x 188 mm				1x 524 mm			
Max. Size Klemme	6 mm ²	6 mm ²	6 mm ²	10 mm ²	16 mm ²	16 mm ²	35 mm ²	50 mm ²	6 mm ²	50 mm ²	6 mm ² 10 mm ²	50 mm ²	10 mm ²	50 mm ²	10 mm ²	50 mm ²	16 mm ²	10 mm ²
Terminal size - maximum number of terminals																		
2,5 mm ²	15	16	30	15	23	27	45	34	68	45	81	43	86	100	191	43	86	129
4 mm ²	12	14	25	12	19	23	38	28	56	38	68	36	72	84	161	36	72	108
6 mm ²	9	10	19	9	14	17	29	21	42	29	51	27	54	63	121	27	54	81
10 mm ²	-	-	-	7	11	14	23	17	-	23	18	22	44	51	97	22	44	66
16 mm ²	-	-	-	-	10	11	19	14	-	19	-	18	-	42	-	18	36	-
35 mm ²	-	-	-	-	-	-	14	11	-	14	-	14	-	32	-	14	-	-
50 mm ²	-	-	-	-	-	-	-	8	-	11	-	11	-	26	-	11	-	-