Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 99 ATEX 3101 X

(4)	Equipment:	Cable and conduit entry, type GHG 960 923. P.... size M12 x 1,5 and M16 x 1,5
(5)	Manufacturer:	CEAG Sicherheitstechnik GmbH
(6)	Address:	Neuer Weg Nord 49, D-69412 Eberbach

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 99-30113.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50 014:1997 EN 50 019:1994

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:

II 2 G EEx e II

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Engel
Regierungsdirektor

Braunschweig, November 16, 1999

(13) # S C H E D U L E

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3101 X

(15) Description of equipment

The cable entry, type GHG 960 923. P... made of polyamide serves to introduce permanently laid cables into electrical equipment of the type of protection Increased Safety "e". The cable entry is composed of intermediate glands, a sealing ring of different materials and a cap nut. Accessoire is a blanking element. They are installed in enclosures with through-holes or threaded holes, with or without lock nut.

Technical data

Nominal size	to be used for cable and conduit diameters
M 20 x 1,5 (with long internal thread)	from 5,5 mm to 13,0 mm
M 12 x 1,5	from 4,0 mm to 7,0 mm
M 16 x 1,5	from 5,5 mm to 10,0 mm
Range of temperatures of use, normal:	-20 °C to +70 °C
Expanded range of temperatures of use, depending on material of sealings:	neoprene: -30 °C to +70 °C nitrile rubber NBR: -40 °C to +70 °C silicone: -55 °C to +70 °C evoprene: -50 °C to +70 °C
Suitable for equipment of group II with a degree of mechanical hazard:	low
Installation in equipment with wall thicknesses of:	at least 1,5 mm
Protection against contact, foreign matter and water:	at least IP 54 acc. to EN 60 529:1991

(16) Report PTB Ex 99-30113

(17) Special conditions for safe use

Only permanently laid cables and conduits may be entered. The user must guarantee suitable clamping.

The maximum thermal load of the cables and conduits entered is to be taken into account.

The cable entries may be used only in places where they are protected against the influence of mechanical danger.

(18) Essential health and safety requirements

The degree of protection - at least IP 54 according to EN 60529:1991 - will be guaranteed only by adequate selection od cable and conduit entries, of the sealings tested and by proper installation of the cable and conduit entries into the electrical apparatus.

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Engel
Regierungsdirektor

Braunschweig, November 16, 1999

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1st S U P P L E M E N T

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3101 X

(Translation)

Equipment: Cable entry, type GHG 960 923. P....
sizes M12 x 1.5 and M16 x 1.5

Marking: ⟨Ex⟩ **II 2 G EEx e II**

Manufacturer: CEAG Sicherheitstechnik GmbH

Address: Neuer Weg Nord 49
69412 Eberbach, Germany

Description of supplements and modifications

The cable entry, type GHG 960 923. P...., sizes M12 x 1.5 and M16 x 1.5, may optionally also be made from the plastic material Frianyl.

Technical data

Nominal size	Conductor cross section	Suited for mechanical risk level	Maximum operating temperature range
M 12 x 1.5	4.0 mm to 7.0 mm	low	-20 °C to + 70 °C
M 16 x 1.5	5.5 mm to 10.0 mm	low	-20 °C to + 70 °C

Installed in units of the following wall thickness:	1.5 mm as a minimum
Shock protection, protection against solid bodies, and protection against ingress of water:	IP 54 according to EN 60529 as a minimum

Special conditions

The special conditions specified shall also apply to this supplement.

Test report: PTB Ex 02-12278

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Braunschweig, September 06, 2002

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2nd S U P P L E M E N T

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3101 X

(Translation)

Equipment: Cable entry, type GHG 960 923. P....
sizes M12 x 1.5 and M16 x 1.5

Marking: ⟨Ex⟩ **II 2 G EEx e II**

Manufacturer: CEAG Sicherheitstechnik GmbH

Address: Neuer Weg Nord 49
69412 Eberbach, Germany

Description of supplements and modifications

Standard applied: EN 50281-1-1:1998

The cable entry, type GHG 960 923. P...., sizes M12 x 1.5 and M16 x 1.5, may also be employed in areas in which explosive atmospheres with dust/air mixtures have to be expected to occur. The marking, therefore, changes to read:

⟨Ex⟩ **II 2 G/D EEx e II IP 66**

Special conditions for safe use

The special conditions shall also apply to this supplement.

Test report: PTB Ex 03-13279

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Braunschweig, September 25, 2003

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

3rd S U P P L E M E N T

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3101 X

(Translation)

Equipment: Cable entry fitting, type GHG 960 923. P...., sizes M12 x 1.5 and M16 x 1.5

Marking: **II 2 G EEx e II**

II 2 D IP66

Manufacturer: Cooper Crouse-Hinds GmbH

Address: Neuer Weg Nord 49, 69412 Eberbach, Germany

Description of supplements and modifications

Cable entry fitting, type GHG 960 923. P...., sizes M12 x 1.5 and M16 x 1.5, is renamed to :
Type GHG 960 ....:

The cable entry fitting has been re-inspected on the basis of standards EN 60079-0, EN 60079-7, EN 61241-0, and EN 61241-1.

The marking thus changes to:

II 2 G Ex e II

II 2 D Ex tD A21 IP 66

Technical data

Nominal size	Conductor size	Degree of mechanical risk	Maximum working temperature range	Tightening torque
M 12 x 1.5	4.0 mm to 7.0 mm	Low	-20 °C to + 70 °C	2.5 Nm
M 16 x 1.5	5.5 mm to 10.0 mm	Low	-20 °C to + 70 °C	3.75 Nm

Installed in devices with wall thickness:	Min. 1.5 mm
Shock protection and protection against ingress of solid foreign bodies and water	IP 66 in compliance with EN 60529

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

3rd SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3101 X

Special conditions

The cable entry fittings may only be installed in locations in which they are protected against the effects of mechanical hazards.

Only permanently wired cables may be entered. The user must provide the required strain relief.

The degree of protection will only be safeguarded when suitable cable entry fittings and tested seals are used, and when the fittings are installed in the electrical equipment in a workmanlike manner.

When selecting the tested sealing elements, the maximum thermal loading capacity of cables entered must be considered.

Applied standards

EN 60079-0:2006 **EN 60079-7:2007** **EN 61241-0:2006**

EN 61241-1:2004

Test report: PTB Ex 07-17337

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. M. Thedens
Oberregierungsrat

Braunschweig, December 11, 2007

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 99 ATEX 3128 X

(4) Equipment: Cable and conduit entry, type GHG 960 92.. P....

(5) Manufacturer: CEAG Sicherheitstechnik GmbH

(6) Address: Neuer Weg Nord 49, D-69412 Eberbach

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 99-30091.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50 014:1997 EN 50 019:1994

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:

II 2 G EEx e II

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Engel
Regierungsdirektor

Braunschweig, September 20, 1999

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

(15) Description of equipment

The cable entry, type GHG 960 92.. P.... made of polyamide serves to introduce permanently laid cables into electrical equipment of the type of protection Increased Safety "e". The cable entry is composed of intermediate glands with two different widths of threaded joint, a sealing ring of different designs and a cap nut. Accessories are: blanking element, reducing gland and expansion gland. They are installed in enclosures with through-holes or threaded holes, with or without lock nut.

Technical data

Nominal size	to be used for cable and conduit diameters
M 20 x 1,5 (with long internal thread)	from 5,5 mm to 13,0 mm
M 20 x 1,5	from 5,5 mm to 13,0 mm
M 25 x 1,5	from 8,0 mm to 17,0 mm
M 32 x 1,5	from 12,0 mm to 21,0 mm
M 40 x 1,5	from 17,0 mm to 28,0 mm
M 50 x 1,5	from 22,0 mm to 35,0 mm
M 63 x 1,5	from 27,0 mm to 48,0 mm
Expansion gland M16/20 x 1,5	from 5,5 mm to 13,0 mm
Expansion gland M25/32 x 1,5	from 12,0 mm to 21,0 mm
Expansion gland M32/40 x 1,5	from 17,0 mm to 28,0 mm
Expansion gland M50/63 x 1,5	from 27,0 mm to 48,0 mm

Range of temperatures of use, normal:	-20 °C to +70 °C	
Expanded range of temperatures of use, only for sizes M 25 x 1,5 to M 63 x 1,5 depending on material of sealings:	neoprene:	-30 °C to +70 °C
	nitrile rubber NBR:	-40 °C to +70 °C
	silicone:	-55 °C to +70 °C
	evoprene:	-50 °C to +70 °C
Suitable for equipment of group II with a degree of mechanical hazard:	high	
Installation in equipment with wall thicknesses of:	at least 1,5 mm	
Protection against contact, foreign matter and water:	at least IP 54 acc. to EN 60 529:1991	

(16) Report PTB Ex 99-30091

(17) Special conditions for safe use

Only permanently laid cables and conduits may be entered. The user must guarantee suitable clamping.

The maximum thermal load of the cables and conduits entered is to be taken into account.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

(18) Essential health and safety requirements

The degree of protection - at least IP 54 according to EN 60529:1991 - will be guaranteed only by adequate selection od cable and conduit entries, of the sealings tested and by proper installation of the cable and conduit entries into the electrical apparatus.

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, September 20, 1999

Dr.-Ing. U. Engel
Regierungsdirektor

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1st SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

(Translation)

Equipment: Cable entry, type GHG 960 92.. P....

Marking: Ⓔx **II 2 G EEx e II**

Manufacturer: CEAG Sicherheitstechnik GmbH

Address: Neuer Weg Nord 49
69412 Eberbach, Germany

Description of supplements and modifications

The cable entry of type GHG 960 92.. P.... is extended by the bolted joints of size M20/M25 and M40/M50.

Technical data

Nominal size	Conductor size	Tightening torque
M20/M25 x 1.5	from 8 mm to 17 mm	5 Nm
M40/M50 x 1.5	from 22 mm to 35 mm	16 Nm

All other specifications remain unaffected by the modification.

Special conditions for safe use

The special conditions also apply to this supplement.

Test report: PTB Ex 02-12040

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, March 12, 2002

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2nd SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

(Translation)

Equipment: Cable entry, type GHG 960 92.. P..

Marking: ⟨Ex⟩ **II 2 G EEx e II**

Manufacturer: CEAG Sicherheitstechnik GmbH

Address: Neuer Weg Nord 49
D-69412 Eberbach, Germany

Description of supplements and modifications

The cable entry, type GHG 960 92.. P...., may optionally also be made from the plastic material Frianyl.

Nominal size	Conductor cross section	Suited for mechanical risk level	Maximum operating temperature range
M 20 x 1.5	5.5 mm to 13.0 mm	low	-55 °C to +70 °C
M 20 x 1.5	5.5 mm to 13.0 mm	high	-20 °C to +70 °C
M 32 x 1.5	12.0 mm to 21.0 mm	high	-55 °C to +70 °C
M 40 x 1.5	17.0 mm to 28.0 mm	high	-55 °C to +70 °C
M 50 x 1.5	22.0 mm to 35.0 mm	high	-55 °C to +70 °C
M 63 x 1.5	27.0 mm to 48.0 mm	high	-55 °C to +70 °C

Operating temperature range depending on type of sealing:	Neoprene:	-30 °C to +70 °C
	Nitrile rubber NBR:	-40 °C to +70 °C
	Silicone:	-55 °C to +70 °C
	Evoprene:	-50 °C to +70 °C
Installed in units with the following wall thickness:	1.5 mm as a minimum	
Shock protection, protection against solid bodies, and protection against ingress of water:	IP 54 according to EN 60529 as a minimum	

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2nd SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

Special conditions

The special conditions specified shall also apply to this supplement.

Test report: PTB Ex 02-12238

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, September 06, 2002

Dr.-Ing. U. Klausmeyer
Regierungsdirektor

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

3rd SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

(Translation)

Equipment: Cable entry, type GHG 960 92.. P....

Marking: ⟨Ex⟩ **II 2 G EEx e II**

Manufacturer: CEAG Sicherheitstechnik GmbH

Address: Neuer Weg Nord 49
69412 Eberbach, Germany

Description of supplements and modifications

Standard applied in addition: EN 50281-1-1:1998

The cable entry of type GHG 960 92.. P.... may also be employed in areas in which explosive atmospheres with dust/air mixtures have to be expected to occur.

The marking, therefore, changes to read:

⟨Ex⟩ **II 2 G/D EEx e II IP 66**

The cable entry, the extension entry and the reducer of nominal size M 25 x 1.5 may optionally also be made from the plastic material Frianyl.

The inside diameter of the cable entry of nominal size M 20 x 1.5 has been changed to 15.5 mm, and the range of ambient ternperatures has been extended.

Technical data

Nominal size	Conductor cross section	Suited for mechanical risk level	Maximum operating temperatures
M 25 x 1.5 Frianyl	8 mm to 17.5 mm	High	-25 °C to +70 °C
M 25 x 1.5 Frianyl	8 mm to 15.5 mm	Low	-55 °C to +70 °C
M 20 x 1.5 Polyamide	8 mm to 15.5 mm	Low	-55 °C to +70 °C

Protection against contact, foreign matter and water: IP 66 in compliance with EN 60529

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

3rd SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

Special conditions for safe use

The special conditions also apply to this supplement.

Test report: PTB Ex 03-13053

Zertifizierungsstelle Explosionsschutz
By order:

Dipl.-Phys. U. Völkel

Braunschweig, October 10, 2003

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

4th S U P P L E M E N T

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

(Translation)

Equipment: Cable entry, type GHG 960 92.. P....

Marking: ⟨Ex⟩ **II 2 G/D EEx e II IP 66**

Manufacturer: Cooper Crouse-Hinds GmbH (previously CEAG Sicherheitstechnik GmbH)

Address: Neuer Weg Nord 49, 69412 Eberbach, Germany

Description of supplements and modifications

For the cable entry, type GHG 960 92.. P.... , made from Frianyl, nominal size M20 x 1.5, sealing ring of type M20 x1.5 /18.2X23.5X1.0, the mechanical risk level as well as the ambient temperature change.

Technical data

Nominal size	Conductor cross section	Suited for mechanical risk level	Maximum operating temperatures
M 20 x 1.5 Frianyl	8 mm to 15.5 mm	High	-40 °C to +70 °C

Protection against contact, foreign matter and water: IP 66 in compliance with EN 60529

Special conditions

The special conditions shall also apply to this supplement.

Test report: PTB Ex 04-14102

Zertifizierungsstelle Explosionsschutz
By order:
Dipl.-Phys. U. Völkel

Braunschweig, April 28, 2004

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

5th SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

(Translation)

Equipment: Cable entry, type GHG 960 ....

Marking: **II 2 G EEx e II**

II 2 D IP66

Manufacturer: Cooper Crouse-Hinds GmbH

Address: Neuer Weg Nord 49, 69412 Eberbach, Germany

Description of supplements and modifications

Cable entry GHG 960 92.. P .... has been re-inspected on the basis of Standards EN 60079-0, EN 60079-7, EN 61241-0, and EN 61241-1.

The marking will thus change to:

II 2 G Ex e II

II 2 D Ex tD A21 IP66

Cable entry GHG 960 92.. P .... has been re-named. Its product name now is cable entry, type GHG 960 ....

The cable entry is complemented by a new version with a slotted sealing ring made from Evoprene.

Nominal size	Conductor cross section	Suited for mechanical risk level	Maximum working temperatures
M 20 x 1.5	7 mm to 13 mm	High	-40 °C to +70 °C
Frianyl		Low	-50 °C to + 70 °C

Protection against contact, foreign matter and water: IP 66 in accordance with EN 60529

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

5th SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 99 ATEX 3128 X

Applied standards

EN 60079-0:2004 **EN 60079-7:2003** **EN 61241-0:2006** **EN 61241-1:2004**

Test report: PTB Ex 07-17154

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, May 31, 2007

Dipl.-Phys. U. Volkel