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 14 ATEX 1015 X

(4) Equipment: Cable gland, type GHG 960 **** * ****

(5) Manufacturer: COOPER Crouse-Hinds GmbH

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

(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 test report PTB Ex 14-14056.

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

EN 60079-0:2012, EN 60079-7:2007, EN 60079-31:2009

(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, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

II 2 G Ex e IIC Gb

II 2 D Ex tb IIIC Db

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Dipl.-Phys. U. Völkel

Braunschweig, June 27, 2014

ZSEx10100e.dotm

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 14 ATEX 1015 X

(15) Description of equipment

The GHG 960 **** * **** cable gland is made from polyamide and is used for entering permanently laid cables into stationary electrical equipment of Increased Safety "e" and Protection by Enclosure "tb" type of protection. The cable gland consists of adapter glands with two different thread lengths, different types of sealing rings and a cap nut. Accessories are a blanking plug, reducing gland, screwed multiple and expansion gland, and screwed flat-cable gland. To distinguish between Ex-e and Ex-i circuits, the cap nut is optionally provided in black and blue, respectively.

The cable glands are installed in enclosures with through-holes or threaded holes, with our without lock nut.

Technical data
Table 1

Designation	Clamp range dia. in mm Sealing ring 1 / Sealing ring 2		Service temperature	One pc.	Packing set
Cable gland, M12	Ø 5 – 7	---------	-20°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Cable gland, M16	Ø 7 – 10	---------	-20°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Cable gland, M20	Ø 7 – 9	Ø 9.5 – 13	-20°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Cable gland, M20	Ø 7 – 9	Ø 9.5 – 11	-40°C - +70°C	GHG 960 9248 P****	GHG 960 1955 R****
Cable gland, M25	Ø 10 – 13	Ø 13.5 – 17.5	-20°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Cable gland, M25	Ø 10 – 13	Ø 13.5 – 15	-55°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Cable gland, M32	Ø 14 – 17	Ø 17.5 – 21	-55°C - +70°C	GHG 960 9248 P****	GHG 960 1955 R****
Cable gland, M32	Ø 14 – 17	Ø 17.5 – 21	-20°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Cable gland, M40	Ø 19 – 22	Ø 22 – 28	-55°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Cable gland, M50	Ø 24 – 28	Ø 28 – 35	-55°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Cable gland, M63	Ø 29 – 35	Ø 36 – 41 *	-55°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Expansion gland, M16/M20X1.5	Ø 7 – 9	Ø 9.5 – 13	-20°C - +70°C	GHG 960 9244 P****	GHG 960 1956 R****
Expansion gland, M20/M25X1.5	Ø 10 – 13	Ø 13.5 – 17.5	-20°C - +70°C	GHG 960 9244 P****	GHG 960 1956 R****
Expansion gland, M25/M32X1.5	Ø 14 – 17	Ø 17.5 – 21	-55°C - +70°C	GHG 960 9244 P****	GHG 960 1956 R****
Expansion gland, M32/M40X1.5	Ø 19 – 22	Ø 22 – 28	-55°C - +70°C	GHG 960 9244 P****	GHG 960 1956 R****
Expansion gland, M40/M50X1.5	Ø 24 – 28	Ø 28 – 35	-55°C - +70°C	GHG 960 9244 P****	GHG 960 1956 R****
Expansion gland, M50/M63X1.5	Ø 29 – 35	Ø 36 – 41 *	-55°C - +70°C	GHG 960 9244 P****	GHG 960 1956 R****
Reducing gland, M16-M12			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M20-M12			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M20-M16			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M25-M12			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M25-M16			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M25-M20			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M32-M12			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M32-M16			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M32-M20			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M32-M25			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M40-M16			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M40-M20			-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****

Reducing gland, M40-M25		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M40-M32		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M50-M20		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M50-M25		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M50-M32		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M50-M40		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M63-M25		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M63-M32		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M63-M40		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Reducing gland, M63-M50		-55°C - +70°C	GHG 960 9237 P****	GHG 960 1946 R****
Multiple gland, M25X1.5 2-fold	Ø 4.5 – 7 ---------	-20°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Multiple gland, M32X1.5 4-fold	Ø 4.5 – 7 ---------	-20°C - +70°C	GHG 960 9235 P****	GHG 960 1955 R****
Flat-cable gland, M25X1.	G18 = 12.2 - 9 x 8 -5 G26 = 14- 11 x 8 - 6	-55°C - +70°C (+110°C)	GHG 960 9242 P****	
Cable gland, PG 16	**	-20°C - +70°C	GHG 960 9243 P****	
Cable gland, PG 16	**	-55°C - +70°C	GHG 960 9243 P****	
Blanking plug for M12	Ø 5	-55°C - +70°C	GHG 960 6107 P****	GHG 960 1944 R****
Blanking plug for M16	Ø 6	-55°C - +70°C	GHG 960 6107 P****	GHG 960 1944 R****
Blanking plug for M20	Ø 7	-55°C - +70°C	GHG 960 6107 P****	GHG 960 1944 R****
Blanking plug for M25	Ø 10	-55°C - +70°C	GHG 960 6107 P****	GHG 960 1944 R****
Blanking plug for M32	Ø 13	-55°C - +70°C	GHG 960 6107 P****	GHG 960 1944 R****
Blanking plug for M40	Ø 19	-55°C - +70°C	GHG 960 6107 P****	GHG 960 1944 R****
Blanking plug for M50	Ø 25	-55°C - +70°C	GHG 960 6107 P****	GHG 960 1944 R****
Blanking plug for M63	Ø 32	-55°C - +70°C	GHG 960 6107 P****	GHG 960 1944 R****
Blanking plug for multiple gland	Ø 5	-55°C - +70°C	GHG 960 6107 P****	GHG 960 1944 R****

* An additional seal for clamping range dia. 41mm to dia. 48mm is included
** Identical with M25 cable gland

Cable gland M20x1.5 options with slotted seal for the following cables:

Glass fibre cable	Record	PTB test report	Application
Cable dia. 6.4mm / Breakout inner cable / type: orange *	MI_0657a	PTB Ex 07-17154	-5°C - +45°C
Cable dia. 7.0mm / Ultra-Fox Plus / type: 903 AG 621 02 709*	MI_0657a	PTB Ex 07-17154	-20°C - +70°C
Cable dia. 6.8mm / Ehret / ICS 24 / type : 84 305 .. . . *	MI_0657a1	PTB Ex 07-17154	-20°C - +60°C
Cable dia. 2mm / fibre optic cable *	PTB letter	PTB Ex 07-17154	-20°C - +60°C

For use in Zone 1 and Zone 21

Cable gland with two different thread lengths
short = P/R****
long = P/R****

Cable gland with differently coloured cap nuts
black Ex-e version = P/R****
blue Ex- i version = P/R****

Ambient temperatures:
max. -55 °C to +70°C (110°C)*
see table 1
* 110°C for the sealing ring of the heating cable of the flat-cable gland

For use in equipment of group II with the following mechanical hazard levels:	Cable glands: M12 / -20°C = low M16 / -20°C = low M20 / -20°C = high M20 / -40°C = low M25 -M 63 = high PG16 = high Multiple gland: M25 / -20°C = high M32 / -20°C = high Expansion gland: M16/M20 / -20°C = high M16/M20 / -40°C = low M20/M25 - M50/M63 = high
To be installed in equipment with a wall thickness of	at least 1.5 mm
Protection against solid foreign objects, water and contact	IP 66

Nomenclature

GHG 960	****	*	****
1	2	3	4

1) Type
2) Design and versions, see table 1
3) P = single part
   R = packing set
4) Options, e.g. colour, thread length, gland with flameproof fastener, size, etc.

(16) Test Report PTB Ex 14-14056

(17) Special conditions for safe use

Only permanently installed cables may be entered through the glands. The operating company must ensure that adequate strain relief is provided.

The degree of protection (IP66) will only be met if seals and cable glands are properly fitted. The manufacturer's instructions must be followed.

The types with low impact energy have to be mounted in the enclosure, so they are mechanically protected against impact energy.

The GHG 960 6107 P*** and GHG 960 1944 R **** blanking plugs may only be used together with GHG 960 92** P**** and GHG 960 19** R**** cable glands.

The EC-Type-Examination Certificate and future supplements thereto shall at the same time be considered as supplements for EC Type Examination Certificates PTB 99 ATEX 3128 X and PTB 99 ATEX 3101 X.

(18) Essential health and safety requirements

Met by compliance with the afore-mentioned Standards.

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, June 27, 201

Dipl.-Phys. U. Völkel