



(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 00 ATEX 1059

(4) Equipment: Cable gland, type 18^{***.**.*.*} and sealing plug, type 8710.^{**}

(5) Manufacturer: AGRO AG

(6) Address: CH-5502 Hunzenschwil

(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 00-10119.

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

EN 50014:1997

EN 50018:1994

EN 50281:1998

(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/D EEx d II T4/T6 IP 68 T 80 °C resp. 160 °C

Zertifizierungsstelle Explosionsschutz

Braunschweig, November 30, 2000

By order:

In the absence of Dr. Ing.-U. Klausmeyer
Regierungsdirektor



SCHEDULE

(13)

(14) **EC TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 1059**

(15) Description of equipment

The cable gland of type 18***.**.** is used as an entry fitting for permanent and non-permanent cables entering flameproof electrical apparatuses.

The sealing plug of type 8710.** is to close any cable entry openings that are not used.

Technical data

Rated cable diameter	7 to 44 mm
Type and size of thread	M16 x 1.5 to M 63 x 1.5 Conduit thread 9 to 48 NPT 3/8" to 1½ 3/8" to 2"
Type and size of sealing plug thread	M12 x 1.5 to M 63 x 1.5 Conduit thread 7 to 36

Max. local operating temperature of the cable entry for normal operation of the electrical apparatus

Sealing ring NBR	-20 °C to 80 °C or
Sealing ring FPM	-20 °C to 160 °C

The maximum ampacity of the cables shall be determined on the basis of the heating rate of the cables and that of the electrical apparatus at the field site, starting from the maximum admissible ambient temperature; due consideration shall also be given to the sealing ring temperatures under operating conditions **and** the cable quality.

(16) Test report PTB Ex 00-10119

(17) Special conditions for safe use

None

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 1059

Notes for safe use

The tapped holes receiving the cable glands and the threaded sealing plug shall meet the minimum requirements as set forth in EN 50 018, section 5.3 (table 3). These cable entries are suited for use in electrical apparatuses designed to type of protection Flameproof Enclosure "d" of groups IIA, IIB or IIC.

In the event that the reference pressure should exceed 20 bar, the cable gland and the sealing plug shall be included in the type test according to EN 50 018, section 15.1.3 (overpressure test), due regard being given to the classification of the electrical apparatus in question (grouping IIA, IIB, oder IIC).

The sealing ring used for the cable gland has to match the cable diameter; screw-down nut and clamping jaws to be tightened at the torque specified in the instructions for operation.

The cable gland and the sealing plug shall be fixed in the electrical apparatus in such a way that rotation and accidental loosening will be prevented.

The way in which temperature ranges will have to be associated with the temperature class of the cable gland and the sealing plug shall be specified in the type test of the electrical apparatus in question.

(18) Essential health and safety requirements

The tests and the favourable results these have produced reveal that the cable gland and the sealing plug meets the requirements of directive 94/9/EC as well as those of the standards quoted on the cover sheet.

Zertifizierungsstelle Explosionschutz

By order:



In the absence of Dr.-Ing. U. Klaus Meyer
Regierungsdirektor



Braunschweig, November 30, 2000

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1st SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 1059

(Translation)

Equipment: Cable gland, type 18.** . ** . **.**, and plug, type 8710 . **

Marking:  II 2 G EEx d II T4/T6
 II 2 D IP 68 T 80 °C and T 160 °C

Manufacturer: AGRO AG

Address: Korbackerweg 7, CH-5502 Hunzenschwil, Switzerland

Description of supplements and modifications

The cable gland, type 18.** . ** . **.**, and the plug, type 8710 . **, have been re-inspected on the basis of Standards EN 60079-0, EN 60079-1, EN 61241-0 and EN 61241-1.

The marking will thus change to:

 II 2 G Ex d IIC

 II 2 D Ex tD A21 IP 68

The ambient temperature range for sealing rings made from TPE and NBR is extended to a range of -40 °C ... +100 °C, and for sealing rings made from FPM to -40 °C... +200 °C.

Technical data

Nominal cable diameter7mm to 44mm
Type and size of threadM16 x 1.5 to M63 x 1.5
.....Pg 9 to Pg 48
.....NPT 3/8" to 1 1/2"
.....Inches G3/8" to G2"
Plug: type and size of threadM12 x 1.5 to M63 x 1.5
.....Pg 7 to Pg 36

Max. working temperature at the location of the
cable gland for normal operation of the
electrical apparatus

Sealing ring NBR-40 °C to +100 °C
Sealing ring FPM-40 °C to +200 °C

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The maximum current carrying capacity of cables has to be established on the basis of the self-heating rate and the heating rate of the installed electrical apparatus, starting from the maximum permissible ambient temperature; due consideration must also be given to the working temperatures of the sealing ring and to the quality of the cable.

Notes for safe operation

The tapped holes receiving the cable gland and the plug with its screw thread have to meet the minimum requirements as set forth in EN 60079-0, section 5.3 (table 3). These cable entry fittings are suited for use in electrical apparatus designed to type of protection Flameproof Enclosure "d" of groups IIA, IIB or IIC.

If the reference pressure exceeds 20 bar, the cable gland and the plug must be included in the type test of EN 60079-1, section 15.1.3 (overpressure test) as required for I, IIA, IIB or IIC classification of the corresponding operator/apparatus.

The sealing ring selected for the cable gland must match the cable diameter, and the forcing nut / the jaws must be tightened with the torque specified in the manual.

The cable gland and the plug must be fixed in the electrical apparatus so that accidental loosening and rotation will be prevented.

The assignment of the temperatures to the temperature class of the cable gland and the plug must be determined when type testing the corresponding electrical apparatus.

Applied standards

EN 60079-0:2006

EN 60079-1:2004

EN 61241-0:2006

EN 61241-1:2004

Test report: PTB Ex 08-18042

Zertifizierungsstelle Explosionsschutz

By order:



Dr.-Ing. M. Thedens
Oberregierungsrat

Braunschweig, March 27, 2008

2nd SUPPLEMENT
according to Directive 94/9/EC Annex III.6
to EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 1059
(Translation)

Equipment: Screwed cable gland, type 18.**. **. **.**. and sealing pin, type 8710. **. **

Marking: II 2 G Ex d IIC
 II 2 D Ex tD A21 IP 68

Manufacturer: AGRO AG

Address: Korbackerweg 7, CH-5502 Hunzenschwil, Switzerland

Description of supplements and modifications

The screwed cable gland, type 18.**. **. **.**, and the sealing pin, type 8710. **, are supplemented to include cable gland type 8710.xx.96, made from A2 steel, and type 8710.xx.98, made from A4 steel.

Technical data

Sealing pin, type and size of thread M12 x 1.5 to M 63 x 1.5
..... Pg 7 to Pg 48
Max. operating temperature -40 °C to 200 °C

Notes for manufacturing and operation

The "notes for manufacturing and operation" shall also apply to this supplement.

Applied standards

EN 60079-0:2006 EN 60079-1:2004 EN 61241-0:2006 EN 61241-1:2004

Test report: PTB Ex 08-18334

Zertifizierungssektor Explosionsschutz

By order:

Dr.-Ing. M. Thedens
Oberregierungsrat



Braunschweig, 16 January 2009

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3rd SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 1059

(Translation)

Equipment: Screwed cable gland, type 18**. **. **. **, and plug stud, type 8710. **. **

Marking:  II 2 G Ex d IIC
 II 2 D Ex tD A21 IP68

Manufacturer: AGRO AG

Address: Korbackerweg 7, CH-5502 Hunzenschwil, Switzerland

Description of supplements and modifications

The screwed cable glands, type 18**. **. **. **, and the plug studs, type 8710. **. **, are modified in the following respects:

- 1) The ambient temperature is changed to a range of -40 °C to +100 °C.
- 2) The screwed cable glands and the plug studs have been re-examined on the basis of standards EN 60079-0:2012, EN 60079-1:2007 and EN 60079-31:2009.

The marking therefore changes to:

 II 2 G Ex db eb IIC

 II 2 D Ex ta IIIC

Technical data

Screwed cable gland

Nominal diameter of cables 7 to 44 mm
Type and size of thread M 16 x 1.5 to M 63 x 1.5
Pg 9 to Pg 48
NPT 3/8" to 1½"
Zoll 3/8" to 2"
Torque 7 Nm to 65 Nm
Ambient temperature -40 °C to +100 °C
Degree of protection IP68

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Final product digits	Cable ø		Tightening torque		
	min (mm)	max (mm)	Pressure nut (Nm)	Adapter socket (Nm)	Clamping-jaw bolts (Ncm)
.09.26	7	9	10	10	95
.11.26	9	11	10	10	95
.13.26, .16.26, .16.27	11	13	16	16	100
.21.26	13	16.5	20	20	100
.21.27	16.5	20	24	24	100
.29.26	20	24	30	30	145
.29.27	24	28	35	35	155
.36.26	28	32	44	44	220
.36.27	32	36	60	60	270
.48.26	36	40	60	60	320
.48.27	40	44	65	65	320

Plug stud

Type and size of thread

M 12 x 1.5 to M 63 x 1.5
Pg 7 to Pg 36

Ambient temperature

O ring FPM

-40 °C to +100 °C

NPT thread (w/o O ring)

-40 °C to +200 °C

Degree of protection

IP68

Metric thread		Pg thread		NPT thread	
Size	Tightening torque (Nm)	Size	Tightening torque (Nm)	Size	Tightening torque (Nm)
8710.12	6	8710.07	6	8710.3/8NPT	9
8710.17	9	8710.09	9	8710.1/2NPT	16
8710.20	16	8710.11	12	8710.3/4NPT	20
8710.25	20	8710.13	16	8710.1/NPT	30
8710.32	30	8710.16	16	8710.11/4NPT	35
8710.40	35	8710.21	20	8710.11/2NPT	45
8710.50	45	8710.29	25		
8710.63	60	8710.36	35		

Notes for manufacturing and operation

The cable gland and the plug stud are suited for installation in electrical equipment that is designed to Increased safety "e", Flameproof Enclosure "d" and Protection by Enclosure "ta" type of protection. For use in equipment designed to Flameproof Enclosure "d" type of protection, the threaded holes must conform with the minimum requirements specified in EN 60079-1.

If the reference pressure exceeds 20 bar, the screwed cable gland and the plug stud shall be included in the type test in accordance with EN 60079-1 (overpressure test), as required the IIA, IIB or IIC classification of the corresponding electrical equipment.

The pressure nut and the clamping jaws must be tightened with the torque that is specified in the operating instructions.

The screwed cable gland and the plug stud must be fixed in the electrical equipment so that rotation and accidental loosening will be prevented.

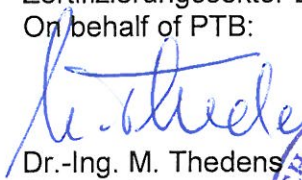
Applied standards

EN 60079-0:2012, EN 60079-1:2007, EN 60079-31:2009

Test report: PTB Ex 13-12120

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, June 4, 2013


Dr.-Ing. M. Thedens
Oberregierungsrat



4. SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 1059

(Translation)

Equipment: Screwed cable gland, type 18^{**.**.*}, and plug stud, type 8710^{**.**}

Marking:  II 2 G Ex db eb IIC
II 2 D Ex ta IIIC

Manufacturer: AGRO AG

Address: Korbackerweg 7, CH-5502 Hunzenschwil, Switzerland

Description of supplements and modifications

The screwed cable glands, type 18^{**.**.*}, and the plug studs, type 8710^{**.**}, are modified in the following respects:

A new sealing material No. 2 used for the sealing ring is approved for the screwed cable gland of type 18^{**.**.*}.

The technical data apply without changes.

Notes for manufacturing and operation

The cable gland and the plug stud are suited for installation in electrical equipment that is designed to Increased safety "e"; Flameproof Enclosure "d" and Protection by Enclosure "ta" type of protection. For use in equipment designed to Flameproof Enclosure "d" type of protection, the threaded holes must conform with the minimum requirements specified in EN 60079-1.

If the reference pressure exceeds 20 bar, the screwed cable gland and the stud shall be included in the type test in accordance with EN 60079-1 (overpressure test), as required the IIA, IIB or IIC classification of the corresponding electrical equipment.

The pressure nut and the clamping jaws must be tightened with the torque that is specified in the operating instructions.

The screwed cable gland and the plug stud must be fixed in the electrical equipment so that rotation and accidental loosening will be prevented.

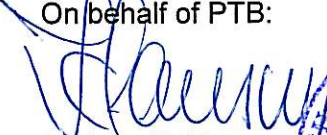
Applied standards

EN 60079-0:2012, EN 60079-1:2007, EN 60079-31:2009

Test report: PTB Ex 14-13113

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, February 17, 2014


Dr.-Ing. U. Klausmeyer
Direktor und Professor

