IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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Certificate No.: **IECEx PTB 14.0011X**

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Certificate history:
Issue 2 (2017-07-04)
Issue 1 (2015-11-12)
Issue 0 (2014-04-11)

Status: **Current**

Issue No: 3

Date of Issue: 2024-09-16

Applicant: **R. STAHL Schaltgeräte GmbH**
Am Bahnhof 30
74638 Waldenburg
Germany

Equipment: **Cable gland type 8161/*-***-****-***-*****-*****-*****

Optional accessory:

Type of Protection: **Increased safety "eb", protection by enclosure "tb"**

Marking: Ex eb IIC Gb

Ex tb III C Db

Approved for issue on behalf of the IECEx Certification Body: **Dr. Ing. Detlev Markus**

Position: **Head of Department "Explosion Protection in Energy Technology"**

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
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Certificate issued by:

Physikalisch-Technische Bundesanstalt (PTB)
Bundesallee 100
38116 Braunschweig
Germany

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

IECEx Certificate of Conformity

Certificate No.: **IECEx PTB 14.0011X**

Date of issue: 2024-09-16 Issue No: 3

Manufacturer: **R. Stahl Schaltgeräte GmbH**
Am Bahnhof 30
74638 Waldenburg
Germany

Manufacturing locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

DE/PTB/ExTR14.0012/03

Quality Assessment Report:

DE/BVS/QAR10.0002/20

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The cable gland type 8161/*-***-****-***-*****-*****-***** is made from polyamide. It is used for permanently wired cables entering electrical equipment of Increased Safety "eb" and Protection by enclosure "tb" type of protection.

The cable gland is installed in enclosures with threaded holes and through-holes.

The cable entry consists of an adapter with connection thread; cap nut, elastomeric sealing insert and gasket at the connection thread.

Accessories are a multiple sealing insert, a blind plug and a nut with anti-kink-spiral.

Technical data and Nomenclature see Annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:
Only permanently wired cables may be entered. The user shall provide additional clamping of the cable to ensure that pulling is not transmitted to the terminations.

Degree of protection is ensured only when seals and cable entries are properly fitted. The manufacturer´s instructions must be followed.

The ambient temperature range of the cable glands type 8161/*-M12-****-***-*****-*****-***** and 8161/*-M12-****LT**-*****-*****-***** is restricted to +15 °C up to +65 °C.

Types suitable for a “low” risk (4 J) of mechanical danger shall be mounted in such a way that they are mechanically protected against impact force.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
1) New plastic material for the cap nut and new elastomeric materials for the sealing insert.
2) Updated to current editions of IEC 60079-0 (Ed. 7), IEC 60079-7 (Ed. 5.1), IEC 60079-31 (Ed. 2).

Annex:

COCA140011X-03_1.pdf

Applicant: R. STAHL Schaltgeräte GmbH
Am Bahnhof 30
74638 Waldenburg
Germany

Electrical Apparatus: Cable gland type 8161/*-***-****-***-*****-*****-*****

Description

The cable gland type 8161/*-***-****-***-*****-*****-***** is made from polyamide. It is used for permanently wired cables entering electrical equipment of Increased Safety "eb" and Protection by enclosure "tb" type of protection.

The cable gland is installed in enclosures with threaded holes and through-holes.

The cable entry consists of an adapter with connection thread; cap nut, elastomeric sealing insert and gasket at the connection thread.

Accessories are a multiple sealing insert, a blind plug and a nut with anti-kink-spiral.

Technical data

Connection thread size	Metric, EN 60423: M12x1.5 to M63x1.5
Connection thread length	9 mm to 18 mm
Minimum wall thickness of housing	Threaded hole, metal housing: 3 mm Threaded hole, plastic housing: 3 mm Through-hole, metal housing: 1 mm Through-hole, plastic housing: 2 mm
Suited for cable diameters	Subject to nominal size, between 1 mm and 48 mm
Suited for equipment with the mechanical risk level	Depends on the size and the ambient temperature. See list below
Ambient temperature range	Normal type -40 °C ≤ T_{amb} ≤ +75 °C LT type -60 °C ≤ T_{amb} ≤ +75 °C See table below
Ingress protection	IP66 / IP68 (5 bar, 30 min) according to IEC 60529

Sealing range [mm]	Type of cable gland (without reducing seal insert)	Reduced sealing range [mm]	Type of cable gland (with reducing seal in-sert)	Test torques [Nm]	
				Adapte r	Cap nut
3 - 6	8161/*-M12-0603-***	1 - 3	8161/*-M12-0601-***	2.0	2.0
4.5 - 9	8161/*-M16-0905-***	2 - 6	8161/*-M16-0902-***	1.8	1.3
7 - 13	8161/*-M20-1307-***	4 - 8	8161/*-M20-1304-***	2.3	1.5
10 - 17	8161/*-M25-1710-***	7 - 12	8161/*-M25-1707-***	3.0	2.0
13 - 21	8161/*-M32-2113-***	9 - 14	8161/*-M32-2109-***	4.5	3.0
17 - 28	8161/*-M40-2817-***	12 - 20	8161/*-M40-2812-***	11.0	10.0
23 - 35	8161/*-M50-3523-***	16 - 25	8161/*-M50-3516-***	13.0	12.0
34 - 48	8161/*-M63-4834-***	28 - 38	8161/*-M63-4828-***	17.0	16.0

Type,	Type of cable gland	Ambient temperature	Impact energy
Normal Ver-sion, Multiple Seal Insert Version	8161/*-M12-****-***-*****-*****-*****	+15 °C ≤ T_{amb} ≤ +65 °C	4 J
	8161/*-M16-****-***-*****-*****-*****	-40 °C ≤ T_{amb} ≤ +75 °C	4 J
	8161/*-M20-****-***-*****-*****-*****	-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M25-****-***-*****-*****-*****	-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M32-****-***-*****-*****-*****	-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M40-****-***-*****-*****-*****	-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M50-****-***-*****-*****-*****	-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M63-****-***-*****-*****-*****	-40 °C ≤ T_{amb} ≤ +75 °C	7 J

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Bundesallee 100, 38116 Braunschweig, Germany
Postfach 33 45, 38023 Braunschweig, Germany
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Type, LT Version	8161/*-M12-****-LT*	+15 °C ≤ T_{amb} ≤ +65 °C	4 J
	8161/*-M16-****-LT*	-40 °C ≤ T_{amb} ≤ +75 °C	4 J
	8161/*-M20-****-LT*	-60 °C ≤ T_{amb} ≤ +75 °C	4 J
		-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M25-****-LT*	-60 °C ≤ T_{amb} ≤ +75 °C	4 J
		-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M32-****-LT*	-60 °C ≤ T_{amb} ≤ +75 °C	4 J
		-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M40-****-LT*	-60 °C ≤ T_{amb} ≤ +75 °C	4 J
		-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M50-****-LT*	-60 °C ≤ T_{amb} ≤ +75 °C	4 J
		-40 °C ≤ T_{amb} ≤ +75 °C	7 J
	8161/*-M63-****-LT*	-60 °C ≤ T_{amb} ≤ +75 °C	4 J
		-40 °C ≤ T_{amb} ≤ +75 °C	7 J

Nomenclature

8161/	*	-	*	**	-	****	-	***	-	**	***	-	**	***	-	**	***
a	b	-	c	d	-	e	-	f		g	h		i	j		k	l

a	Designation of type
b	Type of protection: 7 = for apparatus in the type of protection Increased Safety “e” 8 = for apparatus in the type of protection Intrinsic Safety “i”, marked by a blue cap nut
c	Type of connection thread: M = metric connecting thread according to EN 60423
d	Nominal size of the connection thread, e.g.: 16 = metric thread M16x1.5 40 = metric thread M40x1.5
e	Clamping range: without reducing seal insert, e.g.: 0603, 0905, 1307, 1710, 2113, 2817, 3523, 4834 with reducing seal insert, e.g.: 0601, 0902, 1304, 1707, 2109, 2812, 3516, 4828 multiple seal insert, e.g.: see below
f	Optional specification: LT = low temperature configuration (-60 °C) L = long connection thread (only for metric thread) BP = with anti-kink-spiral MFD = multiple sealing insert
g	number of holes with only one size in multiple seal insert, e.g.:

	01 = 1 02 = 2 03 = 3
h	diameter of hole with only one size in multiple seal insert, e.g.: 050 = 5 mm
i	number of holes with two different sizes in multiple seal insert (optional – only used if multiple seal insert has more than one size of holes)
j	diameter of hole with two different sizes in multiple seal insert (optional – only used if multiple seal insert has more than one size of holes)
k	number of holes with three different sizes in multiple seal insert (optional – only used if multiple seal insert has more than two sizes of holes)
l	diameter of hole with three different sizes in multiple seal insert (optional – only used if multiple seal insert has more than two sizes of holes)

Cable glands with multiple seal insert

The multiple seal inserts are designed to be used for the ambient temperature range of -40 °C to +75 °C. Multiple seal insert may consist of holes with more than one size, e.g.: Type 8161/*-M12-****-MFD-02016-02030-*****. As it is defined in the nomenclature that MFD stands for multiple seal insert, followed by 5 digits, first two digits refer to the number of holes (e.g.: 02 = 2 holes) and next three digits refer the diameter of these holes (e.g.: 016 = 1.6 mm), followed by 5 digits again only if the multiple seal insert has more than one size of holes.

The clamping range for multiple seal insert is defined as follows:

Clamping range minimum = hole diameter – 10% of hole diameter (but not less than 1 mm)

Clamping range maximum = hole diameter

For example: 8161/*-M12-****-MFD-02020-*****-*****

Hole diameter = 2 mm

Clamping range minimum = 1.8 mm

Clamping range maximum = 2 mm

The cable glands with multiple seal insert can be extended to every possible diameter size and number of holes unless the distance between holes and thickness to wall is not less than 0.9 mm.

Specific Conditions of Use

Only permanently wired cables may be entered. The user shall provide additional clamping of the cable to ensure that pulling is not transmitted to the terminations.

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The ambient temperature range of the cable glands type 8161/*-M12-****-***-*****-*****-***** and 8161/*-M12-****LT**-*****-*****-***** is restricted to +15 °C up to +65 °C.

Types suitable for a “low” risk (4 J) of mechanical danger shall be mounted in such a way that they are mechanically protected against impact force.