IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx PTB 14.0011X

Issue No: 2

Certificate history:
Issue No. 2 (2017-07-04)
Issue No. 1 (2015-11-12)
Issue No. 0 (2014-04-11)

Status: **Current**

Date of Issue: **2017-07-04**

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: Uwe Voelkel

Position: Department "Explosion Protection in Energy Technology"

Signature:
(for printed version)

Date:

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.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

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

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

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

Additional Manufacturing location(s):

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 electrical apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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/ExTR14.0012/02

Quality Assessment Report:

DE/BVS/QAR10.0002/10

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Schedule

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 blanking plug, a locknut and a nut with anti-kink-spiral. Technical data and Nomenclature see Annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Only specified wired cables may be entered. The user shall provide for the required strain relief.

Degree of protection will be safeguarded only when sealing and cable entry fittings are properly fitted. The manufacturer's instructions have to 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.

The types with low impact energy are suitable in the approved ambient temperature range for installation in apparatus with the risk of mechanical hazard "low" of groups II and III. Outside of this ambient temperature range these types must be mounted into an apparatus in such a way that they are adequately protected against mechanical hazard.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

1) Addition of multiple sealing insert
2) The type reference is changed to type 8161 / *-***-****-***-*****-*****-*****
3) The cable gland has been retested according to IEC 60079-7:2015 Ed. 5.

Annex:

COCA140011X-02.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 "e" and Protection by enclosure "tb" type of protection.

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

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

Accessories are a multiple sealing insert, a blanking plug type 8161 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/EN 60529

Sealing range / Anchorage range [mm]	Type of cable gland (without reducing seal insert)	Reduced sealing range / Anchorage range [mm]	Type of cable gland (with reducing seal insert)	Test torques [Nm]	
				Adapter	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 Version, 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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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

Conditions of Use

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

Degree of protection will be safeguarded only when sealing and cable entry fittings 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.

The types with low impact energy are suitable in the approved ambient temperature range for installation in apparatus with the risk of mechanical hazard "low" of group II and III.

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