IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.: **IECEx PTB 06.0046**

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Certificate history:
Issue 2 (2012-02-08)
Issue 1 (2007-09-03)
Issue 0 (2006-06-30)

Status: **Current**

Issue No: 3

Date of Issue: 2021-03-22

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

Equipment: **Terminal box type 8146/1***-* and 8146/2***-***

Optional accessory:

Type of Protection: **"db", "eb", "ia", "mb", "op pr", "tb"**

Marking: 8146/1: Ex db eb ia mb op pr IIC, IIB, IIA T6, T5, T4 Gb
Ex tb IIIC T80 °C, T95 °C, T130 °C Db
8146/2: Ex ia IIC T6, T5, T4 Gb
Ex tb IIIC T80 °C, T95 °C, T130 °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:

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 www.iecex.com or use of this QR Code.

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 (Württ.)
Germany

Additional 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 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

IEC 60079-28:2015 Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
Edition:2

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/ExTR06.0061/04

Quality Assessment Report:

DE/BVS/QAR10.0002/16

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

Description
The Terminal Box type 8146/1***-* and 8146/2***-* consists of enclosures out of polyester resin in the type of protection Increased Safety "eb" and Protection by Enclosure “tb”, which may be provided with Ex-type certified flanges. Several boxes can be combined with each other. The connection is made by Ex-cable entries.
The Terminal Box is equipped with terminals for circuits in the type of protection Increased Safety "eb" or Intrinsic Safety "ia" or combinations of both. It may optionally be provided with isolating terminals and fuses. The components for intrinsically safe circuits are marked, e.g. in light blue.
Stud terminals connected to busbars can also be installed.
The empty enclosures as well as all mounted and attached components have been tested and certified under an IECEx examination certificate.

Electrical Datas, Nomenclature and Notes for manufacturing and operation: see Annex.

SPECIFIC CONDITIONS OF USE: NO

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
1) Additional Ex components added to list of components
2) Standard update to latest IEC standards
3) New Certification Instruction

Annex:

COCA060046-03.pdf

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

Electrical Apparatus: Terminal box type 8146/1***-* and 8146/2***-*

Description

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Nomenclature

8146	/	*	*	*	*	-	*
a	/	b	c		d	-	e

a Type series

b Design:
1 – Terminal Box Ex e (or combined Ex e and Ex i)
2 – Terminal Box Ex i

c Enclosure length x width [mm]:
00 – Combination
03 – 112.5 x 112.5
04 – 170.0 x 112.5
24 – 227.0 x 112.5
05 – 170.0 x 170.0
06 – 227.0 x 170.0
07 – 340.5 x 170.0
B7 – 340.5 x 170.0
S7 – 340.5 x 170.0
08 – 340.5 x 340.5
09 – 681.5 x 340.5

d Enclosure height [mm]:
0 – Combination
1 – 91 (Enclosure height 76 mm, Cover height 15 mm)
2 – 131 (Enclosure height 76 mm, Cover height 55 mm)
3 – 150 (Enclosure height 135 mm, Cover height 15 mm)
4 – 171 (Enclosure height 76 mm, Cover height 95 mm)
5 – 190 (Enclosure height 135 mm, Cover height 55 mm)
6 – 230 (Enclosure height 135 mm, Cover height 95 mm)
7 – 104 (Enclosure height 76 mm, Cover height 28 mm)

e Further information without relevance to explosion protection

Electrical data

Rated voltage*	Max 1100 V AC/DC
	Max. 750 V with bolt-type screw terminals
Rated current*	Max. 500 A
	Max. 315 A for T6 with bolt-type screw terminals
	Max. 400 A for T5 with bolt-type screw terminals
Rated cross section (conductor)*	Max. 300 mm²
	Max. 185 mm² with bolt-type screw terminals and connection with cable lugs
*) depending on terminal type and Ex components used	

Ambient temperature range

Ambient temperature range dependent on the gasket:

Gasket 1 (D0075)	-60 °C to +100 °C
Gasket 2 (D00121)	-20 °C to +60 °C

Ingress protection according to IEC 60079-0, IEC 60079-7 and IEC 60079-31: depends on the assembled Ex components or Ex equipments

The rated values are maximum values, the actual electrical values depend on the electrical equipment incorporated. Within the scope of these maximum permissible values and with due regard to the standards, the manufacturer specifies the final rated values dependent on the system conditions, mode of operation, utilization category, etc. The characteristic values of the intrinsically safe circuits are to be given by the manufacturer on his own responsibility.

The maximum permissible ambient temperature range of the terminal enclosure can be limited by the maximum permissible service temperature ranges of the separately certified components.

The composition of the type of protection marking will be based on the types of protection of components actually used.

Notes for manufacturing and operation

Components attached or installed have to be of a technical standard that complies with the specifications on the cover sheet. They must be suited for the operating conditions and have a separate examination certificate. The special conditions specified for the components must be complied with and may have to be included in the type test. This also applies to components already specified in the technical description.

The maximum number of conductors per enclosure size depending on the cross-section and the permissible continuous current can be found in the supplementary sheets.

The maximum number of terminal blocks is specified in the supplementary sheets using a calculation program.

In order to ensure the ingress protection IP, the cover of the empty enclosure, the flange enclosure, the sealing frame and other Ex-components must be properly installed and with the appropriate torque.

When additionally equipped with isolating terminals and fuses, the temperature class is determined depending on the self-heating at the rated thermal current and the ambient temperature.

Equipment of the type of protection intrinsic safety “i” is to be installed in such a way that the distances, creepage distances and clearances between intrinsically safe circuits and non-intrinsically safe circuits comply with the requirements of IEC 60079-11.
When more than one intrinsically safe circuit is used, the rules for interconnection are to be observed.

When components are installed into the empty enclosure, clearance and creepage distances specified in the standard IEC 60079-7 and IEC 60079-11 shall duly be complied with.

The Terminal box with a coating of polyester powder must not be used in areas affected by charge-producing processes, mechanical friction and separation processes, electron emission (e.g. in the vicinity of electrostatic coating equipment), and pneumatically conveyed dust.