



(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 07 ATEX 1023

(4) Equipment: Solenoid, type MKY45/18-....

(5) Manufacturer: Wandfluh Hydraulik + Elektronik AG

(6) Address: Helkenstrasse 13, 3714 Frutigen, Switzerland

(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 07-17020.

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

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

(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 d IIC T6 or T4

II 2 D Ex tD A21 IP65 T 80°C or T130°C

Zertifizierungsstelle Explosionsschutz

Braunschweig, July 20, 2007

By order



Dr.-Ing. M. ...
Oberregierender ...

(13) **SCHEDULE**

(14) **EC-TYPE-EXAMINATION CERTIFICATE PTB 07 ATEX 1023**

(15) Description of equipment

The solenoid, type MKY45/18-....., designed to Flameproof Enclosure "d" type of protection is used for valve operation. It consists of a steel enclosure and the coil. The coil body is made from plastics and forms part of the flameproof wall. Connection is by means of – separately certified – direct cable entry or a – separately certified – conduit system.

Technical data

	Temperature class	Type of current	Rated voltage	Rated frequency	Rated power
MKY45/16x60-G...	T6	DC	12 V to 230 V	-	≤ 6 W
MKY45/16x60-G...	T4	DC	12 V to 230 V	-	≤ 12 W
MKY45/16x60-R...	T6	AC	24 V to 230 V	50 Hz to 60 Hz	≤ 6 W
MKY45/16x60-R...	T4	AC	24 V to 230 V	50 Hz to 60 Hz	≤ 12W

Ambient temperature range:max. -25 °C to +40 °C, T6 at ≤ 6 W rated power
max. -25 °C to +90 °C, T4 at ≤ 6 W rated power
max. -25 °C to +70 °C, T4 at ≤ 12W rated power

Protection against contact, foreign bodies and water IP65 in accordance with EN 60529

(16) Test report PTB Ex 07-17020

(17) Special conditions for safe use

None

Notes for manufacturing and operation

Each solenoid must be provided on the line side with a short-circuit protection in the form of a fuse designed to meet the solenoid current rating (max. $3xI_{rated}$ in compliance with IEC 60127-2-1) or a thermal overload trip with instantaneous short-circuit and thermal release (adjusted to match the current rating). For details, see instructions for operation.

The solenoid must be connected by means of suitable cable glands or conduit systems, which meet the requirements of EN 60079-1, sections 13.1 and 13.2, and for which a separate examination certificate has been issued.

Cable glands and sealing plugs of simple design must not be used. Should the solenoid be connected by means of a conduit gland which has been approved for this purpose, the required sealing device has to be provided immediately at the terminal box.

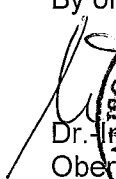
(18) Essential health and safety requirements


Met by compliance with the afore-mentioned Standards.

Zertifizierungsstelle Explosionsschutz

Braunschweig, July 20, 2007

By order:


Dr.-Ing.
Oberregierungsrat



1st SUPPLEMENT


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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 07 ATEX 1023

(Translation)

Equipment: Solenoid, type MKY45/18-....

Marking:  II 2 G Ex d IIC T6, T4

 II 2 D Ex tD A21 IP65 T 80°C, T130°C

Manufacturer: Wandfluh Hydraulik + Elektronik AG

Address: Helkenstrasse 13, 3714 Frutigen, Switzerland

Description of supplements and modifications

The "-40 °C" version of solenoid, type MKY45/18-....., designed to Flameproof Enclosure "d" type of protection, can optionally be rated for a minimum ambient temperature of -40 °C.

Technical data

	Temperature class	Type of current	Rated voltage	Rated frequency	Rated power
MKY45/ 18x60-G...	T6	DC	12 V to 230 V	-	≤ 6 W
MKY45/ 18x60-G...	T4	DC	12 V to 230 V	-	≤ 12 W
MKY45/ 18x60-R...	T6	AC	24 V to 230 V	50 Hz to 60 Hz	≤ 6 W
MKY45/ 18x60-R...	T4	AC	24 V to 230 V	50 Hz to 60 Hz	≤ 12 W

Ambient temperature range

"-40 °C" version: -40 °C to +40 °C, T6 at ≤ 6 W rated power
..... -40 °C to +90 °C, T4 at ≤ 6 W rated power
..... -40 °C to +70 °C, T4 at ≤ 12W rated power

Protection against contact, foreign

bodies and water IP65 in accordance with EN 60529

Notes for manufacturing and operation

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

Applied standards

EN 60079-0:2006

EN 60079-1:2004

EN 61241-0:2006

EN 61241-1:2004

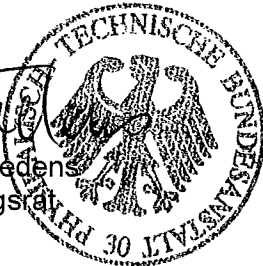
Test report: PTB Ex 08-17267

Zertifizierungsstelle Explosionsschutz

Braunschweig, March 12, 2008

By order:


Dr.-Ing. M. Thedens
Oberregierungsrat



2nd SUPPLEMENT

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 07 ATEX 1023

(Translation)

Equipment: Solenoid, type MKY45/18-.....

Marking:  II 2 G Ex d IIC T6, T4

 II 2 D Ex tD A21 IP65 T 80°C, T130°C

Manufacturer: Wandfluh Hydraulik + Elektronik AG

Address: Helkenstrasse 13, 3714 Frutigen, Switzerland

Description of supplements and modifications

The type name is changed into: solenoid, type MKY45/18x60-...-L-..

The solenoid, type MKY45/18x60-...-L-.., designed to Flameproof Enclosure "d" type of protection, can be operated with the ratings listed in the table below:

Technical data

Rated voltage	Ambient temperature	Rated power	Temperature class/ Surface temperature
DC ≥ 12 V	-40 °C - +40 °C	≤ 8 W	T6 / T 80°C
"	-40 °C - +80 °C	≤ 9 W	T4 / T 130 °C
"	-40 °C - +70 °C	≤ 12 W	T4 / T 130 °C
"	-40 °C - +60 °C	≤ 15 W	T4 / T 130 °C
"	-40 °C - +50 °C	≤ 18 W	T4 / T 130 °C
"	-40 °C - +40 °C	≤ 21 W	T4 / T 130 °C
DC ≥ 20 V AC ≥ 24 V	-40 °C - +40 °C	≤ 9 W	T6 / T 80°C
"	-40 °C - +90 °C	≤ 9 W	T4 / T 130 °C
"	-40 °C - +80 °C	≤ 12 W	T4 / T 130 °C
"	-40 °C - +70 °C	≤ 15 W	T4 / T 130 °C
"	-40 °C - +60 °C	≤ 18 W	T4 / T 130 °C
"	-40 °C - +50 °C	≤ 21 W	T4 / T 130 °C

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2nd SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 07 ATEX 1023

Protection against solid foreign
objects, water and contact IP 65 acc. to EN 60529

Notes for manufacturing and operation

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

Applied standards

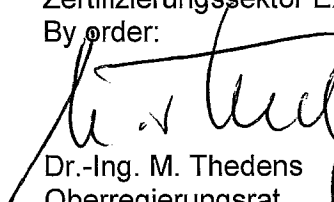
EN 60079-0:2006 EN 60079-1:2007 EN 61241-0:2006 EN 61241-1:2004

Assessment and test report: PTB Ex 09-18236

Zertifizierungssektor Explosionsschutz

Braunschweig, August 7, 2009

By order:



Dr.-Ing. M. Thedens
Oberregierungsrat

