



# 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](http://www.iecex.com)

Certificate No.: IECEx ITA 12.0027X Issue No: 1 Certificate history:  
Status: **Current** Page 1 of 4 Issue No. 1 (2016-08-18)  
Date of Issue: **2016-08-18** Issue No. 0 (2012-11-21)

Applicant: **Wandfluh Hydraulik and Elektronik AG**  
Helkenstrasse 13  
Frutigen, CH - 3714  
**Switzerland**

Equipment: **Solenoid type MKY45/18x60...-L.-.**  
*Optional accessory:*

Type of Protection: **Flameproof, Protection by enclosure**

Marking:  
Ex d IIC T6 or T4 Gb  
Ex d I Mb  
Ex tb IIIC IP65 T80°C or T130°C Db

*Approved for issue on behalf of the IECEx  
Certification Body:*

Neil Wrightson

*Position:*

Certification Authority

*Signature:  
(for printed version)*

*Date:*

2016-08-18

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](http://www.iecex.com).

Certificate issued by:

**TUV Rheinland Australia Pty. Ltd**  
1/30 Kennington Drive  
Tomago NSW 2322  
Australia





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Manufacturer: **Wandfluh Hydraulik and Elektronik AG**  
Helkenstrasse 13  
Frutigen, CH - 3714  
**Switzerland**

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:

<b>IEC 60079-0 : 2007-10</b> Edition:5	Explosive atmospheres - Part 0:Equipment - General requirements
<b>IEC 60079-1 : 2007-04</b> Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
<b>IEC 60079-31 : 2008</b> Edition:1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"

*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/BVS/ExTR11.0070/00 DE/PTB/ExTR10.0020/00

##### Quality Assessment Report:

CH/SEV/QAR16.0001/00



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The solenoid, type MKY45/18x60-...-L...-..., 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 a – separately certified – direct cable entry or a – separately certified – conduit system. (Note: Conduit system not allowed for group I.)

The solenoid is designed to be mounted on an armature tube. Together it functions as an electromechanical actuator unit for hydraulic valves. The solenoid must not be used "standalone" due to the danger of overheating.

Technical Data, Nomenclature and Special conditions of use: see Attachment.

**CONDITIONS OF CERTIFICATION: YES as shown below:**

Special conditions of use: see Attachment.



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

Change of QAR provider to IECEx CB ElectroSuisse

Correction of name of applicant and manufacturer to Wandfluh Hydraulik and Elektronik AG

**Annex:**

[IECEX Certificate 12.0027X-1 Annex.pdf](#)

# IECEX Certificate of Conformity



## Annexe



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### Description:

The solenoid, type MKY45/18x60-...-L...-..., 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 a:

- separately certified direct cable entry or a
- separately certified conduit system. (Note: Conduit system not allowed for group I).

The solenoid is designed to be mounted on an armature tube. Together it functions as an electromechanical actuator unit for hydraulic valves. The solenoid must not be used “standalone” due to the danger of overheating.

### **Technical Data:**

#### **Group I**

<b>Rated voltage</b>	<b>Rated power</b>	<b>Ambient temperature</b>
<b>Standard variant</b>		
12 VDC $\leq$ UN < 20 VDC	$\leq$ 9 Watt	-25 °C ... +80 °C
12 VDC $\leq$ UN < 20 VDC	$\leq$ 12 Watt	-25 °C ... +70 °C
12 VDC $\leq$ UN < 20 VDC	$\leq$ 15 Watt	-25 °C ... +60 °C
12 VDC $\leq$ UN < 20 VDC	$\leq$ 18 Watt	-25 °C ... +50 °C
12 VDC $\leq$ UN < 20 VDC	$\leq$ 21 Watt	-25 °C ... +40 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 9 Watt	-25 °C ... +90 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 12 Watt	-25 °C ... +80 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 15 Watt	-25 °C ... +70 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 18 Watt	-25 °C ... +60 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 21 Watt	-25 °C ... +50 °C
<b>Variant M224</b>		
12 VDC $\leq$ UN < 20 VDC	$\leq$ 9 Watt	-40 °C ... +80 °C
12 VDC $\leq$ UN < 20 VDC	$\leq$ 12 Watt	-40 °C ... +70 °C
12 VDC $\leq$ UN < 20 VDC	$\leq$ 15 Watt	-40 °C ... +60 °C
12 VDC $\leq$ UN < 20 VDC	$\leq$ 18 Watt	-40 °C ... +50 °C
12 VDC $\leq$ UN < 20 VDC	$\leq$ 21 Watt	-40 °C ... +40 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 9 Watt	-40 °C ... +90 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 12 Watt	-40 °C ... +80 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 15 Watt	-40 °C ... +70 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 18 Watt	-40 °C ... +60 °C
20 – 230 VDC / 24 – 230 V VAC	$\leq$ 21 Watt	-40 °C ... +50 °C

Frequency 50 to 60Hz

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### Group II / Group III

Rated voltage	Ambient temperature	Rated power	Temperature class / Surface temperature
DC ≥ 12V	-40°C - +40°C	≤ 8W	T6 / T80°C
"	-40°C - +80°C	≤ 9W	T4 / T130°C
"	-40°C - +70°C	≤ 12W	T4 / T130°C
"	-40°C - +60°C	≤ 15W	T4 / T130°C
"	-40°C - +50°C	≤ 18W	T4 / T130°C
"	-40°C - +40°C	≤ 21W	T4 / T130°C
DC ≥ 12V AC ≥ 24V	-40°C - +40°C	≤ 9W	T6 / T80°C
"	-40°C - +90°C	≤ 9W	T4 / T130°C
"	-40°C - +80°C	≤ 12W	T4 / T130°C
"	-40°C - +70°C	≤ 15W	T4 / T130°C
"	-40°C - +60°C	≤ 18W	T4 / T130°C
"	-40°C - +50°C	≤ 21W	T4 / T130°C
Protection against contact, foreign bodies and water		IP65 in accordance with IEC 60529	

### Nomenclature:

M	K	Y	45/	18x60-	xxx-	Lxx-	xxxx-	xxxx-	#x
1	2	3	4	5	6	7	8	9	10

1.	Design	mobile	<b>M</b>
2.	Electrical junction	Klemmkasten (junction Box)	<b>K</b>
3.	Protection	flameproof encapsulation	<b>Y</b>
4.	Size	Housing width in mm	<b>45</b>
5.	Armature tube	Diameter x length in mm	<b>18x60</b>
6.	Voltage	<b>G</b> = Direct Current <b>R</b> = Alternate Current	<b>e.g. G24</b>
7.	Nominal Power in Watt	L+Power	<b>e.g. L15</b>
8.	Thread of cable gland	<b>blank</b> = M20x1.5 <b>M187</b> = ½" NPT	<b>M187</b>
9.	Lowest ambient temp	<b>blank</b> : -25 °C (Standard) <b>M224</b> -40 °C	<b>M224</b>
10.	Revision	<b># Index</b> consecutively numbered	<b>e.g. #2</b>

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### Conditions of Certification pertaining to Issue 0 of this Certificate:

1. 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<sub>rated</sub> 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.
2. Only a suitable separately certified cable gland or a suitable separately certified conduit sealing device can be utilised. (Conduit not applicable to group I)
3. Should a suitable separately certified conduit sealing device be utilised, the sealing device must be installed immediately adjacent to the equipment

### Drawing list pertaining to Issue 0 of this Certificate:

<b>Manufacturer's Documents</b>			
Title:	Drawing No.:	Rev. Level:	Date:
Artikelstückliste (2 sheets)	263.6457	8	2012-08-29
Technical Description of Solenoid Coils MKY45/18x60-...-L.-. (8 pages)	—	01	2012-08-02
Ex Scheibe MKY45/18x60 (2 sheets)	212.1664	07	2012-08-22
Ex Spulenkörper MKY45/18x60 (1 sheet)	201.4004	01	2012-08-29
Ex Verschlusschraube MKY45/18x60 (2 sheets)	239.2119	06	2012-08-29
Magnetspule komplett MKY45/18x60 (2 sheets)	263.6...	06	2012-08-22
Ex Gehäuse 4kt MKY45/18x60 (3 sheets)	088.1805	11	2012-08-29
Ex Gehäuse 4kt MKY45/18x60-M187 (3 sheets)	088.1806	11	2012-08-29
Typenschild ATEX+IECEx+MINING MKY45/18x60	TS MKY45 AUS	01	2012-09-25

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### **Variations permitted by Issue 1 of this certificate:**

Change of QAR provider to IECEx CB ElectroSuisse

Correction of name of applicant and manufacturer to Wandfluh Hydraulik and Elektronik AG

### **Conditions pertaining to Issue 1 of this certificate:**

No changes from the previous issue.

### **Drawings Associated with the Issue 1 of this Certificate:**

No changes from the previous issue.