Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(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 03 ATEX 2015 X

(4) Equipment: Solenoid, type 3060 to 3063 and type 3066 to 3069

(5) Manufacturer: IMI Norgren-Herion Fluidtronic GmbH & Co.KG

(6) Address: Stuttgarter Straße 120, 70736 Fellbach, Deutschland

(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 03-23035.

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

EN 50014:1997 + A1 + A2 **EN 50028:1987**

(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 EEx m II T4 resp. T5

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, June 13, 2003

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2015 X

(15) Description of equipment

The valve magnets are intended for installation and operation in explosion hazardous areas. The coil assembly is plastic-sheathed, the terminal housing consists of glass-fibre-reinforced polyimide and is filled with casting compound. The breaking overvoltage is limited by a diode resp. a varistor connected in parallel to the coil. To protect the diodes against voltage peaks from the mains a varistor is connected in parallel to the supply terminal. The strain relief of the connecting cable is carried out by a cable tie which is completely potted.

Electrical data

type designation	3061 single coil
type of current	alternating current
nominal voltage	12 V...240 V tolerance ±10 %
rated current	0.392 A...0.023 A
maximum power	4.8 W
max. permissible ambient temperature	40 °C resp. 50 °C
temperature class	T4
frequency	40 Hz...60 Hz
single mounting	yes, ambient temperature max. 50 °C
butt mounting	yes, ambient temperature max. 40 °C

type designation	3067 double coil
type of current	alternating current
nominal voltage	12...240 V tolerance ±10 %
rated current	0.392 A...0.023 A
maximum power	4.8 W
max. permissible ambient temperature	60 °C
temperature class	T4
frequency	40 Hz...60 Hz
single mounting	yes
dimensions of the valve body	47 x 22 x 20 mm
material of the valve body	cast alloy with Mg content below 6 %
medium temperature	max. 60 °C
operating time	100 %, both magnet heads simultaneous

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type designation	3060 single coil
type of current	direct current
nominal voltage	6... 125 V tolerance ±10 %
rated current	0.83...0.04 A
maximum power	5 W
max. permissible ambient temperature	40 °C resp. 50 °C
temperature class	T4
single mounting	yes, ambient temperature max. 50 °C
butt mounting	yes, ambient temperature max. 40 °C

type designation	3066 double coil
type of current	direct current
nominal voltage	6...125 V tolerance ±10 %
rated current	0.83...0.04 A
maximum power	5 W
max. permissible ambient temperature	60 °C
temperature class	T4
single mounting	yes
dimensions of the valve body	47 x 22 x 20 mm
material of the valve body	cast alloy with Mg content below 6 %
medium temperature	max. 60 °C
operating time	100 %, both magnet heads simultaneous

type designation	3063 single coil
type of current	alternating current
nominal voltage	12...240 V tolerance ±10 %
rated current	0.19...0.01 A
maximum power	2.5 W
max. permissible ambient temperature	40 °C resp. 50 °C
temperature class	T5
frequency	40...60 Hz
single mounting	yes, ambient temperature max. 50 °C
butt mounting	yes, ambient temperature max. 40 °C

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type designation	3069 double coil
type of current	alternating current
nominal voltage	12...240 V tolerance ±10 %
rated current	0.19...0.01 A
maximum power	2.5 W
max. permissible ambient temperature	60 °C
temperature class	T5
frequency	40... 60 Hz
single mounting	yes
dimensions of the valve body	47 x 22 x 20 mm
material of the valve body	cast alloy with Mg content below 6 %
medium temperature	max. 60 °C
operating time	100 %, both magnet heads simultaneous

type designation	3062 single coil
type of current	direct current
nominla voltage	6...125 V tolerance ±10 %
rated current	0.45...0.02 A
maximum power	2.8 W
max. permissible ambient temperature	40 °C resp. 50 °C
temperature class	T5
single mounting	yes, ambient temperature max. 50 °C
butt mounting	yes, ambient temperature max. 40 °C

type designation	3068 double coil
type of current	direct current
nominal voltage	6...125 V tolerance ±10 %
rated current	0.45...0.02 A
maximum power	2.8 W
max. permissible ambient temperature	60 °C
temperature class	T5
single mounting	yes
dimensions of the valve body	47 x 22 x 20 mm
material of the valve body	cast alloy with Mg content below 6 %
medium temperature	max. 60 °C
operating time	100 %, both magnet heads simultaneous

(16) Test report PTB Ex Ex 03-23035

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(17) Special conditions for safe use

1. A fuse corresponding to its rated current (max. $3*I_{rat}$ according IEC 60127-2-1) or a motor protecting switch with short-circuit and thermal instantaneous tripping (set to rated current) shall be connected in series to each solenoid as short circuit protection. For very low rated currents of the solenoid the fuse of lowest current value according to the indicated IEC standard will be sufficient. The fuse may be accommodated in the associated supply unit or shall be separately arranged. The rated voltage to the fuse shall be equal to or greater than the stated rated voltage of the magnet coil. The breaking capacity of the fuse-link shall be as high as or higher than the maximum expected short circuit current at the location of the installation (usually 1500 A).

2. A maximum permissible ripple of 20 % is valid for all magnets of direct-current desin.

3. The magnets of double coil design may only be operated with the associated valve. A larger valve body with improved thermal conductivity may be mounted any time.

(18) Essential health and safety requirements

met by compliance with the standards mentioned above

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

Braunschweig, June 13, 2003

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1. S U P P L E M E N T

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

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2015 X

(Translation)

Equipment: Solenoid, type 3060 through 3063 and type 3066 through 3069

Marking: ⟨Ex⟩ **II 2 G EEx m II T4, T5**

Manufacturer: Norgren GmbH

formerly: IMI Norgren-Herion Fluidtronic GmbH & Co. KG

Address: Stuttgarter Straße 120, 70736 Fellbach, Germany

Description of supplements and modifications

The solenoids may be applied in areas where an explosive atmosphere consisting of dust/air mixtures is likely to occur.

The rectifier diodes and the interference suppression elements may be replaced by alternative types. An alternative agent may be used as well as an impregnating agent for the coil.

The "Special Conditions" are supplemented as follows:

4. The connecting cable shall be connected inside of an enclosure which complies with the requirements of an acknowledged type of protection according to EN 60079-0:2006 or EN 61241-0:2006 when the connection is carried out in the hazardous area.

5. The rectifier diodes and the interference suppression elements shall be utilized by only 2/3. The manufacturer has to ensure this requirement by appropriate measures.

In the future the equipment will be marked as follows:

⟨Ex⟩ **II 2 G Ex mb II T4 and T5**

and ⟨Ex⟩ **II 2 D Ex tD A21 IP 65 T95°C and T130°C**

All further specifications of the EC-type examination certificate apply without changes.

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1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2015 X

Applied standards

EN 60079-0:2006 **EN 60079-18:2004** **EN 61241-0:2006** **EN 61241-1:2004**

Assessment and test report: PTB Ex 10-20335

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, November 23, 2010

Dr.-Ing. U. Johannsmeyer
Direktor und Professor