



(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 12 ATEX 2022 X



(4) Equipment: Solenoid, type K0590...

(5) Manufacturer: GSR Ventiltechnik GmbH & Co.KG

(6) Address: Im Meisenfeld 1, 32602 Vlotho, Germany

(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 test report PTB Ex 12-22178.

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

EN 60079-0:2009, EN 60079-7:2007, EN 60079-18:2009, EN 60079-31:2009

(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 e mb IIC T4,T6 Gb and
II 2 D Ex tb mb IIIC T130°C,T80°C Db with IP65, IP67**

Zertifizierungssektor Explosionsschutz

On behalf of PTB:

Dr.-Ing. T. Horn



Braunschweig, October 1, 2012

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EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

(13)

SCHEDULE

(14)


EC-TYPE-EXAMINATION CERTIFICATE PTB 12 ATEX 2022 X


(15) Description of equipment

The solenoid of type K0590... is used for the control in installations and systems where the occurrence of explosive atmospheres consisting of gas/air or dust/air mixtures is to be assumed. It is comprised of a magnet coil, an armature system and mounting accessories.

Technical data

Type of voltage	Alternating voltage, 50 Hz to 60 Hz or direct voltage with max. 45% residual ripple
Voltage tolerance	-10 % ... +10 %
Butt mounting	yes, center-to-center distance \geq 55 mm

Type	K05904..						
Marking	 II 2 G Ex e mb IIC T4 Gb II 2 D Ex tb mb IIIC T130°C Db IP65, IP67						
Temperature class	T4						
Ambient temperature	-40°C ... +60°C						
Medium temperature	-40°C ... +70°C						
Type number	Rated voltage		Rated current		Limit power		Fusing [mA]
	AC $U_{N,AC}$ [V]	DC $U_{N,DC}$ [V]	AC $I_{N,AC}$ [mA]	DC $I_{N,DC}$ [mA]	AC $P_{G,AC}$ [W]	DC $P_{G,DC}$ [W]	
K0590405	12		898	990	7.54	8.93	1600
K0590410	24		439	486	7.71	9.20	1000
K0590414	36		291	322	7.77	9.29	600
K0590416	48		189	209	6.93	8.31	400
K0590430	110		90	100	7.58	9.10	200
	115	-	95	-	8.18	-	
	120	-	99	-	8.79	-	
K0590432	125		79	87	7.51	9.0	150
K0590490	220		47	53	7.90	9.51	100
	230	-	50	-	8.48	-	
	240	-	52	-	9.16	-	

Type	K05906..						
Marking	 II 2 G Ex e mb IIC T6 Gb II 2 D Ex tb mb IIIC T80°C Db IP65, IP67						
Temperature class	T6						
Ambient temperature	-40°C ... +50°C						
Medium temperature	-40°C ... +70°C						
Type number	Rated voltage		Rated current		Limit power		Fusing [mA]
	AC $U_{N,AC}$ [V]	DC $U_{N,DC}$ [V]	AC $I_{N,AC}$ [mA]	DC $I_{N,DC}$ [mA]	AC $P_{G,AC}$ [W]	DC $P_{G,DC}$ [W]	
K0590605	12		399	440	3.77	4.48	1000
K0590610	24		179	198	3.57	4.28	500
K0590614	36		108	119	3.30	3.97	250
K0590616	48		90	100	3.68	4.43	200
K0590630	110		40	44	3.74	4.51	100
	115	-	42	-	4.06	-	
	120	-	43	-	4.38	-	
K0590632	125		31	35	3.41	4.11	75
K0590690	220		20	22	3.74	4.52	50
	230	-	21	-	4.06	-	
	240	-	22	-	4.39	-	

(16) Test report PTB Ex.12-22178

(17) Special conditions for safe use

1. An external fuse (according to DIN 41571 or IEC 60127-2-1) corresponding to the type shall be connected in series to each solenoid as short circuit protection. Alternatively, a motor protecting switch with short circuit- and thermal instantaneous tripping can be connected in series. This shall be adjusted to the respective rated current of the solenoid. The rated voltage of the fuse shall be higher than or equal to the specified rated voltage of the magnet. The breaking capacity of the fuse link shall be equal to or higher than the prospective maximum short-circuit current (usually 1500 A). The fuse may be accommodated inside the associated supply unit or shall be connected in series separately.
2. Connecting cables and connecting lines shall be suitable for permanent application in a temperature range of -40 °C up to $+105\text{ °C}$.
3. When using silicone or silicone-containing cables for connection or cables which are not scratch-proof, these shall be protected against mechanical damage.
4. The armature tube should be subjected to a routine test with 1.5 fold the nominal operating pressure.

(18) Essential health and safety requirements

Met by compliance with the standards mentioned above.

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, October 1, 2012



Dr.-Ing. T. Horn

