



EU-TYPE-EXAMINATION CERTIFICATE

(Translation)

- (1) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**
- (3) EU-Type Examination Certificate Number:

PTB 17 ATEX 2015 X

Issue: 00

- (4) Equipment: Vibration level switch, type series VEGAWAVE WE6*(*)CX***N***
- (5) Manufacturer: VEGA Grieshaber KG
- (6) Address: Am Hohenstein 113, 77761 Schiltach, Germany
- (7) This equipment and any acceptable variation thereto is 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 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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 17-26118.

- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012+A11:2013 EN 60079-11:2012 EN 60079-26:2015
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to the Specific Conditions of Use specified in the schedule to this certificate.
- (11) This EU-Type Examination Certificate relates only to the design and construction of the specified equipment in accordance to the Directive 2014/34/EU. 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 1 G oder 1/2 G oder 2 G Ex ia IIC T6...T1 Ga, Ga/Gb, Gb

Konformitätsbewertungsstelle, Sektor Explosionsschutz Braunschweig, September 25, 2017

On behalf of PTB:



Dr.-Ing. T. Horn
Oberregierungsrat



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EU-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) **EU-Type Examination Certificate Number PTB 17 ATEX 2015 X, Issue: 00**

(15) Description of Equipment

The vibration level switches of type series VEGAWAVE WE6*(*)CX***N*** are used for level measurement in potentially explosive gas atmospheres requiring category-1 or category-1/2 or category-2 equipment.

They consist of an electronics housing with the corresponding evaluation electronic, the process connectors and the sensor.

Extract from the type key

<u>VEGAWAVE WE6*(*)</u>	C*	*	**	*	*	*	*
* = 1, 2, 3	ab	c	de	f	g	h	i

ab: Area of validity

CX = ATEX II 1G, 1/2G, 2G Ex ia IIC T6..T1 Ga, Ga/Gb, Gb

CK = ATEX II 1G, 1/2G, 2G Ex ia IIC T6..T1 Ga, Ga/Gb, Gb +

ATEX II 1D 1/2D 2D Ex ta/tb/tc/tc IIC T... Da Da/Db Db IP66

c: Adapter / process temperature / cable

de: Process connection / material

f: Electronics

N = NAMUR-Signal

g: Enclosure / protection

h: Cable gland / plug connection

i: Additional equipment

The full type code can be found in the safety instructions.

Category-1 equipment

The vibration level switches are installed in potentially explosive atmospheres requiring category-1 equipment.

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Category-1/2 equipment

The electronics housing is installed in potentially explosive atmospheres requiring category-2 equipment. The process connectors are installed in the partition separating areas requiring category-2 or category-1 equipment. The sensor is installed in potentially explosive atmospheres for category-1 equipment.

Category-2 equipment

The vibration level switches are installed in potentially explosive atmospheres requiring category-2 equipment.

For the relationship between the temperature class and the maximum permissible temperature at the sensor and the maximum permissible ambient temperature for the evaluation electronic, reference is made to the following table.

Category-1 equipment

temperature class	permissible temperature for the electronic system	permissible ambient temperature at the sensor
T6	-20 ... +45 °C	-20 ... +45 °C
T5	-20 ... +57 °C	-20 ... +57 °C
T4, T3, T2, T1	-20 ... +60 °C	-20 ... +60 °C

For applications requiring category-1 equipment, the media process pressure has to be between 0.8 bar and 1.1 bar. The permissible ambient temperatures specified are based on the 80% rule in section 6.4.2 of EN 1127-1. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-1/2 equipment

temperature class	permissible temperature for the electronic system	permissible ambient temperature at the sensor of the VEGAWAVE WE62***	permissible ambient temperature at the sensor of the VEGAWAVE WE61/63***	
			without temperature adapter	with
T6	-40 °C ... +61 °C	-20 °C ... +54 °C	-50 °C...+ 85 °C	-50 °C ... + 85 °C
T5	-40 °C ... +76 °C	-20 °C ... +60 °C	-50 °C...+100 °C	-50 °C ... +100 °C
T4	-40 °C ... +80 °C	-20 °C ... +60 °C	-50 °C...+135 °C	-50 °C ... +135 °C
T3	-40 °C ... +80 °C	-20 °C ... +60 °C	-50 °C...+150 °C	-50 °C ... +200 °C
T2, T1	-40 °C ... +80 °C	-20 °C ... +60 °C	-50 °C...+150 °C	-50 °C ... +250 °C

For applications requiring category-1 equipment, the media process pressure of the vibration level switches of type series VEGAWAVE WE62.CX***N*** has to be between 0.8 bar and 1.1 bar. For the type series VEGAWAVE WE62.CX***N*** the specified permissible ambient temperatures are based on the 80% rule in section 6.4.2 of EN 1127-1. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

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When the vibration level switches of type series VEGAWAVE WE61.CX***N*** and VEGAWAVE WE63.CX***N*** are operated with higher temperatures than indicated in the table above, it shall be guaranteed by suitable measures that no ignition hazard is caused by such hot surfaces. In this case the temperature at the electronics housing shall not exceed the respective values of the table above. In the process it shall be considered that the measuring sensor (even in case of failure) does not show any self-heating and that the operator is responsible for the safe operation of the plant regarding the pressures / temperatures of the materials used.

For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-2 equipment

temperature class	permissible temperature for the electronic system	permissible ambient temperature at the sensor of the VEGAWAVE WE62***	permissible ambient temperature at the sensor of the VEGAWAVE WE61/63***	
			without temperature adapter	with temperature adapter
T6	-40 °C ... +61 °C	-40 °C ... +70 °C	-50 °C...+ 85 °C	-60 °C ... + 85 °C
T5	-40 °C ... +76 °C	-40 °C ... +80 °C	-50 °C...+100 °C	-60 °C ... +100 °C
T4	-40 °C ... +80 °C	-40 °C ... +80 °C	-50 °C...+135 °C	-60 °C ... +135 °C
T3	-40 °C ... +80 °C	-40 °C ... +80 °C	-50 °C...+150 °C	-60 °C ... +200 °C
T2, T1	-40 °C ... +80 °C	-20 °C ... +80 °C	-50 °C...+150 °C	-60 °C ... +250 °C

When the vibration level switches of type series VEGAWAVE WE61.CX***N*** and VEGAWAVE WE63.CX***N*** are operated with higher temperatures than indicated in the table above, it shall be guaranteed by suitable measures that no ignition hazard is caused by such hot surfaces. In this case the temperature at the electronics housing shall not exceed the respective values of the table above. In the process it shall be considered that the measuring sensor (even in case of failure) does not show any self-heating and that the operator is responsible for the safe operation of the plant regarding the pressures / temperatures of the materials used.

For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Electrical data

Supply and signal circuit (terminals 1 [+], 2 [-] in the electronic compartment, for the 2-cell enclosure version in the terminal compartment)

Type of protection Intrinsic Safety Ex ia IIC
For connection to a certified intrinsically safe circuit.

Maximum values:

$U_i = 20 \text{ V}$

$I_i = 103 \text{ mA}$

$P_i = 516 \text{ mW}$

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C_i negligibly low or in the version with fixed connected cable VEGAWAVE type series WE6*(*).CX***N3/5**,
 $C_{i\text{Core/Core}} = 58 \text{ pF/m}$, $C_{i\text{Core/Screen}} = 270 \text{ pF/m}$
 $L_i < 5 \text{ }\mu\text{H}$ or in the version with fixed connected cable VEGAWAVE type series WE6*(*).CX***N3/5**, $L_r = 0.55 \text{ }\mu\text{H/m}$.

The metal elements of the vibration level switches VEGAWAVE are electrically connected to the earth terminals.

The intrinsically safe supply and signal circuit is safely electrically isolated from elements that may be earthed.

(16) Test Report PTB Ex17-26118

(17) Specific conditions of use

1. When used as a category-1 equipment, the vibration level switches of type series VEGAWAVE WE6*(*).CX***N***, which include the material aluminum, shall be installed in such a way that sparking as a result of impact or friction between aluminum and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.
2. The vibration level switches with plastic enclosure, with metal enclosure with display window as well as coated sensors, carrying cable or distance pipe include surfaces that can become charged electrostatically (note warning label).
3. When used as category-1 or category-1/2 equipment, the vibration level switches shall be connected to the equipotential bonding conductor (contact resistance $\leq 1\text{M}\Omega$) (e.g. using the earthing terminal) in order to prevent metal elements from being charged electrostatically.
4. The vibration level switches shall be installed in such a way that contact between the measuring sensor and the tank wall will be excluded with sufficient safety, considering the tank installations and the flow conditions inside the tank. This applies, in particular, to cable and distance pipes exceeding the length of 3 m.
5. For applications where equipment of category 1 or category 1/2 is required, all parts of the vibration level switches VEGAWAVE which are in contact with the medium must only be used in such media, against which they are sufficiently resistant.

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6. Further examinations showed, that the vibration level switches of type series VEGAWAVE WE61.CX***N*** and VEGAWAVE WE63.CX***N*** may also be used as category-1/2 equipment in hazardous areas which deviate from the atmospheric conditions (0.8 bar...1.1 bar and -20 °C ...+60 °C). For permissible operating temperatures and pressures for the operation reference is made to the manufacturer's specifications. In this process, it shall be considered that the measuring sensors (even in case of fault) do not show any self-heating and that the owner is responsible for the safe operation of the system as regards the pressures/temperatures of the media used.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, September 25, 2017



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