



(1) **EU-TYPE-EXAMINATION CERTIFICATE**
(Translation)

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

PTB 00 ATEX 2216 X

Issue: 01

- (4) Product: Vibration limit switches, type series VEGASWING 61/63(*).C*****Z**
- (5) Manufacturer: VEGA Grieshaber KG
- (6) Address: Am Hohenstein 113, 77761 Schiltach, Germany
- (7) This product 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 product 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 17-25248.
- (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 product 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 product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product shall include the following:

 **II 1 G, 1/2G, 2G Ex ia IIC T6...T1 Ga Ga/Gb, Gb**

Konformitätsbewertungsstelle, Sektor Explosionsschutz

Braunschweig, May 4, 2017

On behalf of PTB:


Dr.-Ing. F. Lienesch
Regierungsdirektor



(13)

SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 00 ATEX 2216 X, Issue: 01**

(15) Description of Product

The vibration limit switches, type series VEGASWING 61/63(*).C*****Z**, are used for level monitoring or control in potentially explosive atmospheres. They consist of an electronics housing, the process connection element and the sensor. Locking screw connections, type series ARV-SG63.2** resp. ARV-SG63.3** may alternatively be used as fixing elements.

Extract from the type key

VEGASWING 61/63(*). $\frac{C^*}{ab}$ $\frac{***}{cde}$ $\frac{*}{f}$ $\frac{*}{g}$ $\frac{*}{h}$ $\frac{*}{i}$ $\frac{*}{j}$

ab: area of validity

CX = ATEX II 1G, 1/2G, 2G Ex ia IIC T6
 CA = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + WHG
 CM = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + Schiffzulassung
 CK = ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + II 1/2D, 2D Ex tD
 CI = IECEX Ex ia IIC T6

cde: process connection / material

f: adapter / process temperature

g: enclosure / protection / cable gland

h: electronics

Z = Zweileiter (8/16 mA) 12...36V DC

N = NAMUR-Signal

W = NAMUR-Signal (250ms)

i: switch point

j: measuring location label

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

Operating as Category-1 apparatus

The vibration limit switches are installed in potentially explosive atmospheres for category-1 apparatus.

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Operating as Category-1/2 apparatus

The electronics enclosure is installed in potentially explosive atmospheres requiring category 2 apparatus. The process connectors are installed in the partition separating areas requiring category-2 or category-1 apparatus. The measuring sensor is installed in potentially explosive areas requiring category-1 apparatus.

Operating as Category-2 apparatus

The vibration switches are installed in potentially explosive atmospheres for category-2 apparatus.

For the relationship between the temperature class and the maximum permissible temperature at the measuring sensor as well as the maximum permissible ambient temperature for the electronics, reference is made to the tables below.

Category-1 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T6	-20 ... +45 °C	-20 ... +45 °C
T5	-20 ... +56 °C	-20 ... +56 °C
T4, T3, T2, T1	-20 ... +60 °C	-20 ... +60 °C

Using the vibration limit switches, type series VEGASWING type 61/63.C*****Z** resp. even at usage of type series VEGASWING 63.C*****Z** with locking screw connections, types ARV-SG63.2/3**, the media process pressure for applications requiring category-1 equipment, has to be between 80 kPa (0,8 bar) ... 110 kPa (1,1 bar).

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

Category-1/2 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T6	-20 ... +85 °C	-40 ... +60 °C
T5	-20 ... +100 °C	-40 ... +75 °C
T4	-20 ... +135 °C	-40 ... +90 °C
**T3	-20 ... +200 °C	-40 ... +90 °C
**T2, T1	-20 ... +250 °C	-40 ... +90 °C

** as from 150 °C with temperature adapter

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Using the vibration limit switches, type series VEGASWING type 61/63.C*****Z** resp. even at usage of type series VEGASWING 63.C*****Z** with locking screw connections, types ARV-SG63.2/3**, the media process pressure for applications requiring category-1 equipment, has to be between 80 kPa (0,8 bar) ... 110 kPa (1,1 bar).

When the sensor elements of the vibration switch VEGASWING 61/63.C*****Z** 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 plant owner 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 is made to the specifications provided by the manufacturer.

Category-2 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T6	-40 ... +85 °C	-40 ... +60 °C
T5	-40 ... +100 °C	-40 ... +75 °C
T4	-40 ... +135 °C	-40 ... +90 °C
**T3	-50 ... +200 °C	-40 ... +90 °C
**T2, T1	-50 ... +250 °C	-40 ... +90 °C

** Temperature adapter as from measuring sensor temperatures ≥ 150 °C and/or ≤ -40 °C

When the sensor elements of the vibration switch VEGASWING 61/63.C*****Z** 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.

When using the vibration switches VEGASWING 63.C*****Z** with locking screw connections types ARV-SG63.2/3** during operation the conditions of use as well as the permissible temperatures and pressures specified by manufacturer can be found in the manufacturer's instructions.

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Electrical data

Supply and signal circuit
(terminals 1[+] & 2[-])

type of protection Intrinsic Safety Ex ia IIC
only for connection to a certified intrinsically safe
circuit.

Maximum values:

$$\begin{array}{ll} U_i = 29 \text{ V} & \text{or} & U_i = 24 \text{ V} \\ I_i = 116 \text{ mA} & & I_i = 131 \text{ mA} \\ P_i = 841 \text{ mW} & & P_i = 786 \text{ mW} \end{array}$$

L_i negligibly low

For the version with fixed cable additionally $L_i' = 55$
 $\mu\text{H/m}$ is to be considered.

C_i negligibly low

For the version with fixed cable additionally $C_i'_{\text{core/core}} =$
 58pF/m and $C_i'_{\text{core/screen}} = 270\text{pF/m}$ is to be
considered.

Modifications to the EC-Type-Examination Certificate:

The changes concern the application of the mentioned standards, changing the mechanical
construction as well as modification of the type code.

(16) Test Report PTB Ex17-25248

(17) Specific conditions of use

1. Some of the surfaces of the VEGASWING 61/63.C*****Z** resp. VEGASWING 63.C*****Z**
with locking screw connections, types ARV-SG63.2/3**, with plastic enclosure or metal
enclosure with plastic parts and/or plastic-coated or enamelled measuring sensors can be
charged electrostatically. A warning label shall point to this danger.
2. When used as category-1 equipment, the vibration switches that include aluminium shall be
installed in such a way that sparking as a result of impact or friction between aluminium and
steel (with the exception of stainless steel if the presence of rust particles can be excluded)
will positively be excluded.
3. When used as category-1 or category-1/2 equipment, the vibration switches shall be
electrostatically (contact resistance $\leq 1\text{M}\Omega$) connected to the equipotential bonding conductor
(e.g. using the ground terminal).

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4. Additional tests have shown that the vibration switches type series VEGASWING 61/63.C*****Z** or VEGASWING 63.C*****Z** with locking screw connections, types ARV-SG63.2/3**, may also be operated under the following conditions:

Category-1/2 equipment

Temperature class	Temperature at the measuring sensor	Ambient temperature for the electronics
T4, T3, T2, T1	-20 ... +60 °C	-40 ... +90 °C

For applications requiring category-1/2 equipment, the process pressure of the media has to range from 0 to 600 kPa (6 bar). Should the above mentioned conditions not be met at the measuring sensor, it shall be considered that the measuring sensor (even in case of failure) does not show any self-heating and that the plant owner is responsible for the safe operation of the plant regarding the pressures/temperatures of the materials used.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, May 4, 2017


Dr.-Ing. F. Lienesch
Regierungsdirektor



