



# Safety instructions

## VEGASWING 61, 63

Intrinsic safety  
NAMUR



CE 0044



Document ID: 50660



# VEGA

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Supplementary documentation:

- Operating Instructions VEGASWING 61, 63
- EU-type approval certificate PTB 00 ATEX 2217 X, Issue 01 (Document ID: 50661)

Editing status: 2018-08-01

DE	Sicherheitshinweise für den Einsatz in explosionsgefährdeten Bereichen
EN	Safety instructions for the use in hazardous areas
FR	Consignes de sécurité pour une application en atmosphères explosibles
IT	Normative di sicurezza per l'impiego in luoghi con pericolo di esplosione
ES	Instrucciones de seguridad para el empleo en áreas con riesgo de explosión
PT	Normas de segurança para utilização em zonas sujeitas a explosão
NL	Veiligheidsaanwijzingen voor gebruik op plaatsen waar ontploffingsgevaar kan heersen
SV	Säkerhetsanvisningar för användning i explosionsfarliga områden
DA	Sikkerhedsforskrifter til anvendelse i explosionsfarlig atmosfære
FI	Turvallisuusohjeet räjähdysvaarallisissa tiloissa käyttöä varten
EL	Υποδείξεις ασφαλείας για τη χρησιμοποίηση σε περιοχές που υπάρχει κίνδυνος έκρηξης

DE	Die vorliegenden Sicherheitshinweise sind im Download unter <a href="http://www.vega.com">www.vega.com</a> standardmäßig in den Sprachen deutsch, englisch, französisch und spanisch verfügbar. Weitere EU-Landessprachen stellt VEGA nach Anforderungen zur Verfügung.
EN	These safety instructions are available as a standard feature in the download area under <a href="http://www.vega.com">www.vega.com</a> in the languages German, English, French and Spanish. Further EU languages will be made available by VEGA upon request.
FR	Les présentes consignes de sécurité sont disponibles au téléchargement sous <a href="http://www.vega.com">www.vega.com</a> en standard en allemand, en anglais, en français et en espagnol. VEGA met à disposition d'autres langues de l'Union Européenne selon les exigences.
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## 1 Area of applicability

These safety instructions apply to the vibrating level switches VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* according to EU type approval certificate PTB 00 ATEX 2217 X, issue 01 (certificate number on the type label) and for all instruments with the number of the safety instruction (50660) on the type label.

Subject of the evaluation of VEGASWING in the version with ignition protection type intrinsic safety "Ex i" are the types VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\*.

The versions VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* with the features "CA", "CM" and "CK" on the type label are certified version with ignition protection type intrinsic safety or flame proofing intrinsic safety also with a ship certificate/overflow protection or dust certificate.

Feature "CX" in the type code:	Certificate intrinsic safety Ex ia
Feature "CA" in the type code:	Certificate intrinsic safety but also overflow protection
Feature "CM" in the type code:	Certificate intrinsic safety but also ship certificate
Feature "CK" in the type code:	Certificate intrinsic safety but also dust certificate

The dust-explosion protection, the ship certificate and the certification as overflow protection are **not** subject of the assessment and evaluation acc. to the EU Type approval certificate PTB 00 ATEX 2217 X, issue 01.

## 2 General information

The VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* are used for monitoring and control of levels.

The measured products can also be combustible liquids, gases, mist or vapour.

The VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* are suitable for use in hazardous atmospheres of all combustible materials of explosion group IIA, IIB and IIC for applications requiring instruments of category 1G, category 1/2G or category 2G.

If the VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* are installed and operated in hazardous areas, the general Ex installation regulations EN 60079-14 as well as these safety instructions must be observed.

The operating instructions as well as the installation regulations or standards that apply for explosion protection of electrical systems must generally be observed.

The installation of explosion-endangered systems must always be carried out by qualified personnel.

### Category 1G instrument (EPL Ga instrument)

The VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* are installed in hazardous areas requiring an instrument of category 1G.

### Category 1/2G instrument (EPL Ga/Gb instrument)

The electronics housing is installed in hazardous areas requiring an instrument of category 2G. The process connection element is installed in the separating wall, which separates areas requiring instruments of category 2G or 1G. The antenna system with the mechanical fixing element is installed in hazardous areas requiring instruments of category 1G.

### Category 2G instrument (EPL Gb instrument)

The VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* are installed in hazardous areas requiring an instrument of category 2G.

### Ignition protection label

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

## Important specification in the type code

### VEGASWING SG61/63(\*).abcdefghij

Position		Feature	Description
ab	Approval	CX	ATEX II 1G, 1/2G, 2G Ex ia IIC T6 Ga, Ga/Gb, Gb
		CM	ATEX II 1G, 1/2G, 2G Ex ia IIC T6 Ga, Ga/Gb, Gb + Ship approval
		CA	ATEX II 1G, 1/2G, 2G Ex ia IIC T6 Ga, Ga/Gb, Gb + overfill protection (WHG)
		CK	ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + II 1/2D, 2D Ex tD
cde	Process fitting / Material	**	Process fittings acc. to industry standard
f	Adapter / Process temperature	*	
g	Housing / Protection / Cable gland	P	Plastic single chamber / IP 66/IP 67 / M20 x 1,5
		N	Plastic single chamber / IP 66/IP 67 / ½ NPT
		M	Aluminium single chamber / IP 66/IP 67 / M20 x 1,5
		7	Special colour Aluminium single chamber / IP 66/IP 67 / M20 x 1,5
		U	Aluminium single chamber / IP 66/IP 67 / ½ NPT
		4	Special colour Aluminium single chamber / IP 66/IP 67 / ½ NPT
		3	Aluminium single chamber / IP 66/IP 68 (1 bar) / M20 x 1,5
		V	Stainless steel single chamber (precision casting) / IP 66/IP 67 / M20 x 1,5
		A	Stainless steel single chamber (precision casting) / IP 66/IP 67 / ½ NPT
		5	Stainless steel single chamber (precision casting) / IP 66/IP 68 (1 bar) / M20 x 1,5
		8	Stainless steel single chamber (electropolished) / IP 66/IP 67 / M20 x 1,5
		9	Stainless steel single chamber (electropolished) / IP 66/IP 67 / ½ NPT
		*	Further housings with suitable plug connectors and special colours
h	Electronics	N	NAMUR signal
		W	NAMUR signal (250 ms)
i	Switching point	*	
j	Measurement loop identification label	*	

## 3 Technical data

### Electrical data

The VEGASWING61/63(\*).CX\*\*\*\*N/W\*\* have intrinsically safe circuits. These intrinsically safe circuits are connected to terminals which are located in an "Ex i" connection compartment.

## Supply and signal circuit

Terminals 1[+], 2[-]

In type of protection intrinsic safety Ex ia IIC/IIB

Only for connection to a certified, intrinsically safe circuit.

Maximum values:

- $U_i = 20 \text{ V}$
- $I_i = 103 \text{ mA}$
- $P_i = 516 \text{ mW}$
- $L_i = \text{negligibly small}$

In the version with fix mounted connection cable  $L_i' = 55 \mu\text{H/m}$ .

- $C_i = 2.2 \text{ nF}$

In the version with fix mounted connection cable  $C_{i \text{ wire/wire}} = 58 \text{ pF/m}$  and  $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$  must be also taken into account.

The intrinsically safe circuits are electrically separated from parts which can be grounded.

For applications requiring instruments of category 2G or 1/2G, the intrinsically safe power supply and signal circuit can correspond to protection class ia or ib. For connection to a circuit of category ib, the ignition protection type identification is Ex ib IIC T6 Gb.

For applications requiring instruments of category 1G, the intrinsically safe power supply and signal circuit must be in conformity with category ia.

For applications requiring instruments of category 1G the VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* is preferably connected to appropriate instruments with electrically isolated, intrinsically safe circuits.

## 4 Application conditions

### Permissible ambient temperatures

#### On the sensor, category 1G

Temperature class

- T6	-20 ... +51 °C
- T5, T4, T3, T2, T1	-20 ... +60 °C

#### On the sensor, category 1/2G

Temperature class

- T6	-20 ... +85 °C
- T5	-20 ... +100 °C
- T4	-20 ... +135 °C
- T3 without temperature adapter	-20 ... +150 °C
- T3 with temperature adapter	-20 ... +200 °C
- T2, T1 with temperature adapter	-20 ... +250 °C

If the sensors of VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* are operated at temperatures higher than those specified in the above table, please make sure by means of appropriate measures that there is no danger of ignition from hot surfaces. The temperature on the electronics/housing must not exceed the values specified in the above table.

Please make sure that the sensor (also in case of failure) does not generate heat itself. Responsibility for safe operation of the equipment, with respect to pressures/temperatures of the materials used, rests with the operator.

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## On the sensor, category 2G

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Temperature class

- T6	-40 ... +85 °C
- T5	-40 ... +100 °C
- T4	-40 ... +135 °C
- T3 without temperature adapter	-40 ... +150 °C
- T3 with temperature adapter	-50 ... +200 °C
- T2, T1 with temperature adapter	-50 ... +250 °C

If the sensors of VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* are operated at temperatures higher than those specified in the above table, please make sure by means of appropriate measures that there is no danger of ignition from hot surfaces. The temperature on the electronics/housing must not exceed the values specified in the above table.

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## On the electronics, category 1G

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Temperature class

- T6	-20 ... +51 °C
- T5, T4, T3, T2, T1	-20 ... +60 °C

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## On the electronics, category 1/2G or 2G

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Temperature class

- T6	-40 ... +67 °C
- T5	-40 ... +82 °C
- T4, T3, T2, T1	-40 ... +90 °C

## Permissible operating pressure in the area of the measuring probe Category 1G or 1/2G

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Under explosive atmosphere requiring instruments of category 1G: 0.8 ... 1.1 bar

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## Kategorie 2G

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Operating pressure	Vacuum ... 64 bar (when applicable, take nominal pressure of the process connection element into account)
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### Information:

The application conditions mentioned before also apply to VEGASWING63(\*).C\*\*\*\*\*N\*\* with lock fitting ARV-SG63.2\*\* ( $P_{max.}$  16 bar,  $T_{max.}$  150 °C) and lock fitting ARV-SG63.3\*\* ( $P_{max.}$  64 bar,  $T_{max.}$  250 °C).

## Permissible differing application conditions

The VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* (also with lock fitting ARV-SG63.2/3\*\*) can also be operated as category 1/2G instrument according to the conditions mentioned below.

Temperature class	Temperature on the sensor	Ambient temperature on the electronics	Process pressure
T4, T3, T2, T1	-20 ... +60 °C	-40 ... +90 °C	0 ... 6 bar



**Note:**

If the abovementioned application conditions in the area of the sensor are different when using VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* as category 1/2G instrument, please make sure that the sensor does not heat up (even in case of malfunctions). It is the responsibility of the plant operator to make sure the pressure/temperature of the processed materials presents no danger.

The permissible pressures and temperatures for operation are mentioned in the operating instructions manuals.

## 5 Electrostatic charging (ESD)

In case of instrument versions with electrostatically chargeable plastic parts, the danger of electrostatic charging and discharging must be taken into account!

The following parts can charge and discharge:

- Lacquered housing version or alternative special lacquering
- Plastic housing, plastic housing parts
- Metal housing with inspection window
- Plastic process fittings
- Plastic-coated process fittings and/or plastic-coated sensors
- Connection cable for separate versions
- Type label
- Isolated metallic labels (measuring point identification plate)

Take note in case of danger of electrostatic charges:

- Avoid friction on the surfaces
- Do not dry clean the surfaces

The instruments must be mounted/installed in such a way that the following can be ruled out:

- electrostatic charges during operation, maintenance and cleaning.
- process-related electrostatic charges, e.g. by measuring media flowing past

The warning label indicates danger:

WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS

### Non-grounded, metallic parts

Resistance between aluminium housing to metal measuring point identification plate is > 10<sup>9</sup> Ohm.

The capacitance of the metal measuring point identification plate was measured with 15 pF.

## 6 Installation/construction

The VEGASWING63(\*).C\*\*\*\*\*N/W\*\* must be mounted in a way that adequately ensures that the sensor tube will not oscillate, vibrate or bend due to the movements of other installations or the medium in the vessel.



## 7 Impact and friction sparks

The VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* must be mounted in such a way that sparks from impact and friction between aluminium and steel (except stainless steel, if the presence of rust particles can be excluded) cannot occur.

## 8 Use of an overvoltage arrester

If necessary, a suitable overvoltage arrester can be connected in front of the VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\*.

When used as category 1G or 1/2G instrument, as far as necessary analogue, a suitable over-voltage arrester must be connected in front as protection against voltage surges according to EN 60079-14.

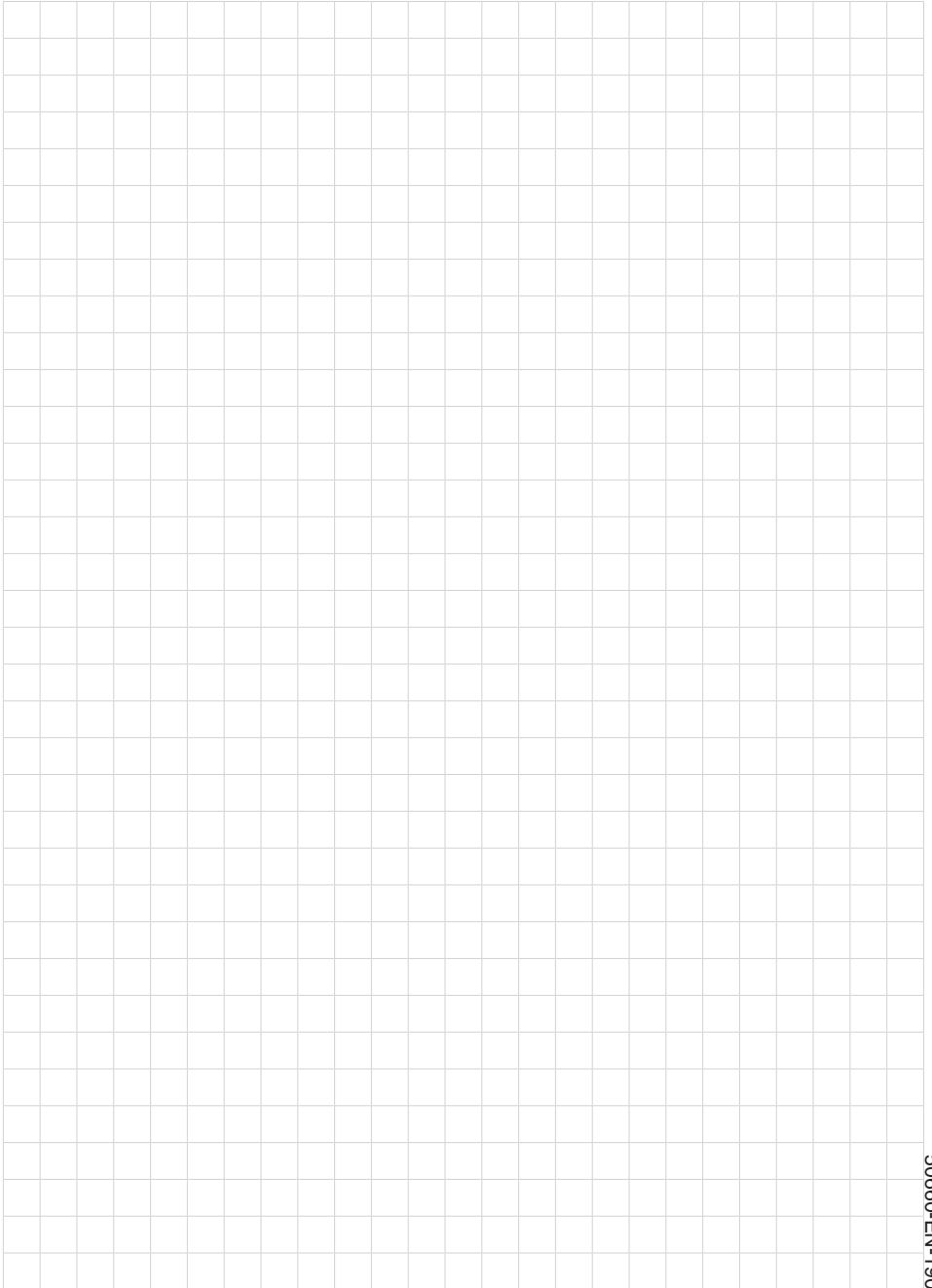
## 9 Material resistance

The VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* must only be used in media against which the materials of the wetted parts are sufficiently resistant.

The min. fatigue strength of the vibrating element is  $8.6 \times 10^{11}$  load changes with a max. amplitude of  $7.5 \mu\text{m}$ . The lifetime is minimum 20 years.

## 10 Grounding

The VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* must be grounded electrostatically (transfer resistance  $\leq 1 \text{ M}\Omega$ ), e.g. via the internal or external ground terminal on the housing. The metallic parts of the VEGASWING61/63(\*).CX\*\*\*\*\*N/W\*\* are electrically connected with the internal or external ground terminal on the housing.





Printing date:

**VEGA**

All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

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50660-EN-190528

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