Safety instructions
VEGAFLEX FX8*(*).CE/ Q****H/A*****

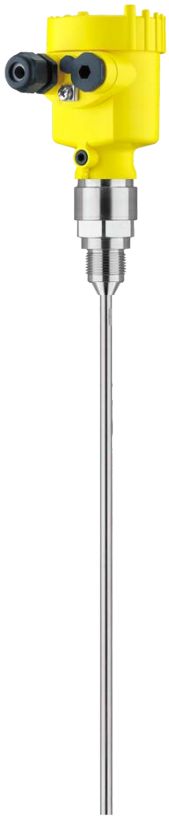
CSA No. 2515397 (LR 108043)

Ex d IIC Gb; Class I Zone 1 AEx d IIC Gb

CL I, DIV 1, GR A,B,C,D

CL II, DIV 1, GR E,F,G

CL III



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Please note:

These safety instructions are part of the documentation:

- VEGAFLEX Serie 80
  - 41824 - VEGAFLEX 81 - 4 … 20 mA/HART - Two-Wire
  - 42279 - VEGAFLEX 81 - 4 … 20 mA/HART - Two-Wire - Coaxial Measuring Probe
  - 41829 - VEGAFLEX 82 - 4 … 20 mA/HART - Two-Wire
  - 41844 - VEGAFLEX 86 - 4 … 20 mA/HART - Two-Wire
  - 42284 - VEGAFLEX 86 - 4 … 20 mA/HART - Two-Wire - Coaxial Measuring Probe
- 49453 - CSA Certificate 2515397 (LR 108043)

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1 Area of applicability

These safety instructions apply to Guided Wave Radar series VEGAFLEX FX8*(*).CE/Q****H/A***** according to CSA Certificate 2515397 (LR 108043)and for all instruments with the number of the safety instructions (46266) on the type label.

2 General information

The VEGAFLEX FX8*(*).CE/Q****H/A***** level measuring instruments as guided radar sensors are used to detect the distance between product surface and sensor by means of high-frequency microwave pulses in the GHz range. The instrument emits high-frequency microwave pulses, which are guided down a measuring cable or rod. The electronics uses the running time of the signals reflected by the product surface to calculate the distance to the product surface.

The VEGAFLEX FX8*(*).CE/Q****H/A***** consist of an "Ex-d" electronics housing with integrated two-wire HART electronics module, a process connection element and a sensor, the measuring cable or rod. Optionally also the display and adjustment module can be integrated.

The VEGAFLEX FX8*(*).CE/Q****H/A***** are suitable for applications in hazardous atmospheres of all combustible materials of explosion group IIA, IIB and IIC, for applications requiring EPL-Ga/Gb or EPL-Gb instruments. The products to be measured can also be combustible liquids, gases, mists or vapours.

If the VEGAFLEX FX8*(*).CE/Q****H/A***** are installed and operated in hazardous areas, the general Ex installation regulations IEC 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 always be observed.

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

Hazardous locations designation

Intrinsically Safe

- Ex d IIC Gb; Class I Zone 1 AEx d IIC Gb
- CL I, DIV 1, GP A,B,C,D
- CL II, DIV 1, GP E,F,G
- CL III

3 Technical data

Electrical data

VEGAFLEX FX8*(*).CE/Q**H/A***** (Electronics 4 … 20 mA/HART - Two-wire)**

Power supply and signal circuit: (terminals 1[+], 2[-])	In ignition protection type flameproof enclosure "d" U = 9,6 … 35 V DC Um = 253 V AC/DC
Indicating and adjustment circuit: (terminals 5, 6, 7, 8)	In ignition protection type flameproof enclosure "d" For connection to the circuit of thecorresponding external indicating unit VEGADIS 81in ignition protection flameproof enclosure "d".

The metallic parts of VEGAFLEX FX8*(*).CE/Q****H/A***** are electrically connected with the internal and external earth terminals.

4 Application conditions

The max. permissible ambient temperatures depending on the temperature classes are specified in the following tables.

EPL-Ga/Gb instrument

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics
T6, T5, T4, T3, T2, T1	-20 … +60 °C	-50 … +60 °C

For applications requiring EPL-Ga/Gb instruments the process pressure of the media must be between 0.8 … 1.1 bar. If the VEGAFLEX FX8*(*).CE/Q****H/A***** are operated at temperatures higher than those specified in the above table, please make sure through appropriate measures that there is no danger of ignition from the hot surfaces. The max. permissible temperature on the electronics/housing should not exceed the values specified in the above table. The application conditions during operation in areas with no explosive mixtures are stated in the manufacturer information.

EPL-Gb / Division 1 instrument

Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics
T6	-60 … +85 °C	-50 … +60 °C
T5	-60 … +100 °C	-50 … +60 °C
T4	-60 … +135 °C	-50 … +60 °C
T3	-60 … +200 °C	-50 … +60 °C
T2	-60 … +300 °C	-50 … +60 °C
T1	-60 … +450 °C	-50 … +60 °C

If the VEGAFLEX FX8*(*).CE/Q****H/A***** are operated at temperatures higher than those specified in the above table, please make sure through appropriate measures that there is no danger of ignition from the hot surfaces. The max. permissible temperature on the electronics/housing should not exceed the values specified in the above table. The permissible operating temperatures and pressures are stated in the manufacturer information.

VEGAFLEX FX86(*).CE/Q**A/H*****, low temperature version up to -196 °C**

EPL-Gb / Division 1 instrument

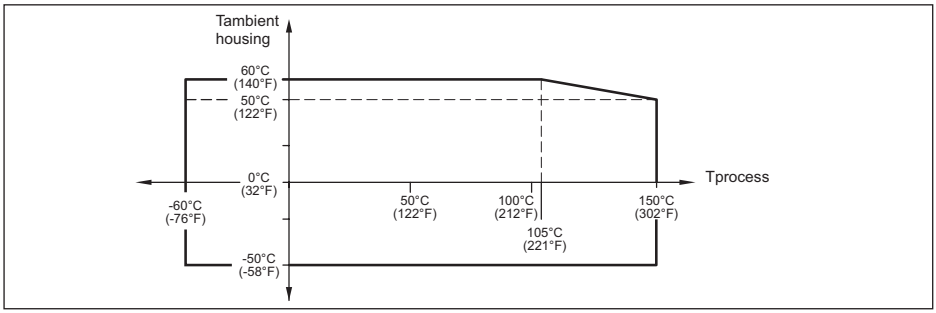
Temperature class	Temperature on the sensor (measuring cable, rod)	Ambient temperature on the electronics
T6	-196 … +85 °C	-50 … +60 °C
T5	-196 … +100 °C	-50 … +60 °C
T4	-196 … +135 °C	-50 … +60 °C
T3	-196 … +200 °C	-50 … +60 °C
T2	-196 … +300 °C	-50 … +60 °C
T1	-196 … +450 °C	-50 … +60 °C

If the VEGAFLEX FX86(*).CE/Q****A/H***** are operated at temperatures higher than those specified in the above table, please make sure through appropriate measures that there is no danger of ignition from the hot surfaces. The maximum temperature on the electronics/housing should not exceed the values specified in the above table. The permissible operating temperatures and pressures

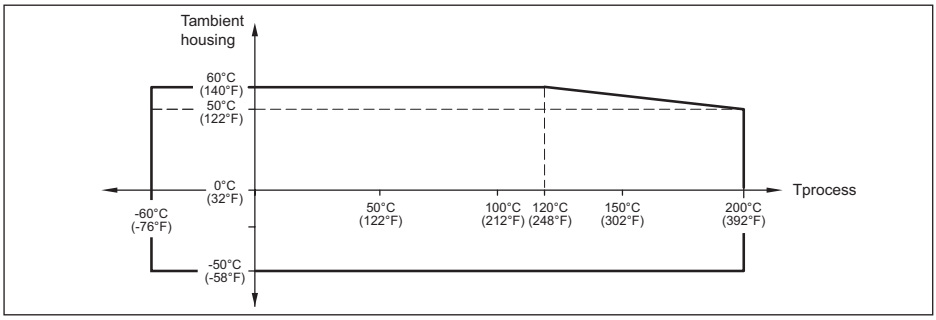
are stated in the manufacturer information.

Temperature derating for process temperatures up to +150 °C, +200 °C, +250 °C, +280 °C and -196 °C

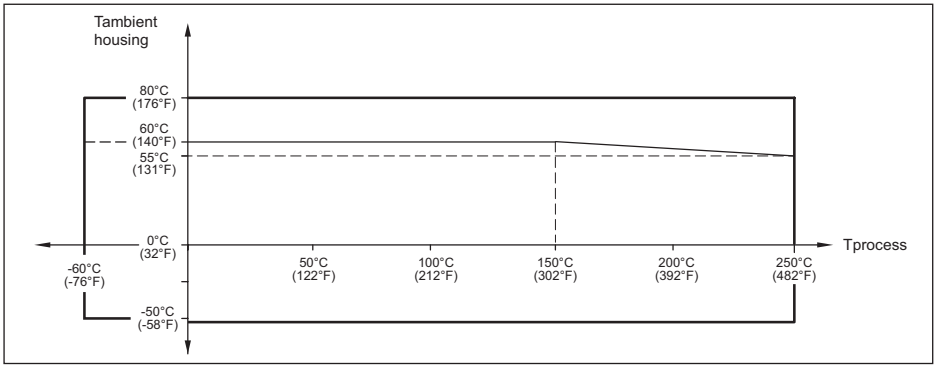
Versions for process temperatures up to +150 °C



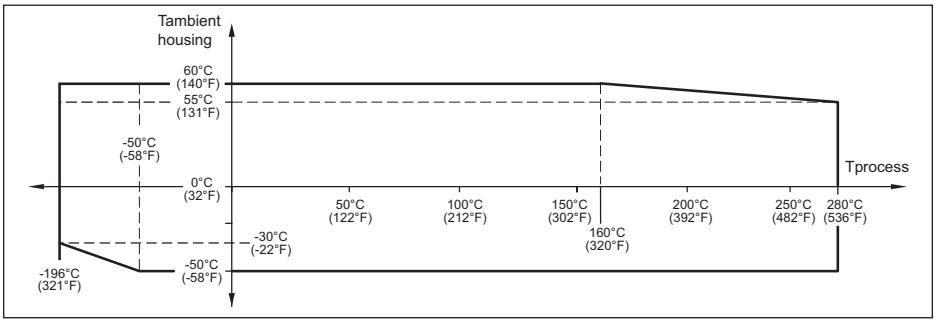
Versions for process temperatures up to +200 °C



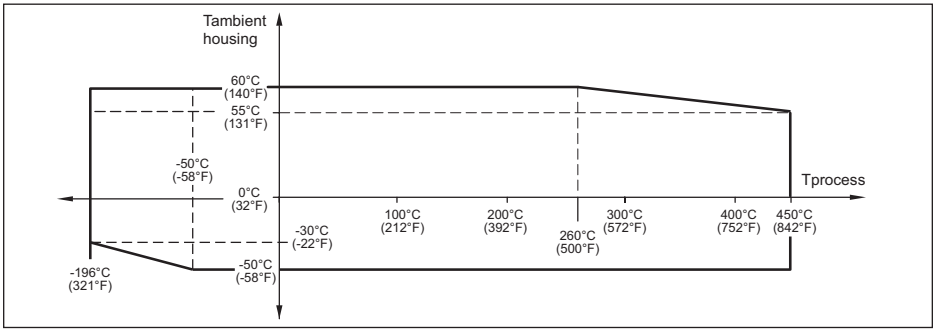
Versions for process temperatures up to +250 °C



Versions for process temperatures up to +280 °C



Versions for process temperatures up to +196 °C



5 Protection against static electricity

The VEGAFLEX FX8*(*).CE/Q****H/A***** in versions with electrostatically chargeable plastic parts, such as e.g. metal housing with inspection window or connection cable with the separated version, have a caution label pointing out the safety measures that must be taken with regard to electrostatic charges during operation.

Caution: Plastic parts! Danger of static charge!

- Avoid friction
- No dry cleaning
- Do not mount in areas with flowing, non-conductive products

6 Use of an overvoltage arrester

If necessary, a suitable overvoltage arrester can be connected in front of the VEGAFLEX FX8*(*).CE/Q****H/A*****.

When used as EPL-Ga/Gb instrument, as far as necessary analogue, a suitable overvoltage arrester must be connected in front as protection against voltage surges according to IEC 60079-14 chapter 12.3.

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7 Installation of the sensors

When used as EPL-Ga/Gb instruments, the sensors of VEGAFLEX FX8*(*).CE/Q****H/A***** should be mounted such that the measuring cable/rod is effectively secured against bending or touching the vessel wall, under consideration of other vessel installations and flow conditions in the vessel. This applies especially to measuring probes over 3 m long.

8 XX. versions with exchangeable cable or rod probe; versions with probe length "Length 0"

The following must be taken into account for VEGAFLEX FX8*(*).CE/Q****H/A***** versions with exchangeable cable or rod probe and for VEGAFLEX FX8*(*).CE/Q****H/A***** versions probe length "Length 0":

- On certified VEGAFLEX FX8*(*).CE/Q****H/A***** only original VEGA cable or rod probes must be mounted
- When mounting cable or rod probes, the torques specified in the respecitive operating instruction manuals must be maintained
- The mechanical connection must be ensured

9 Grounding

To avoid the danger of electrostatic charging of the metallic parts, the VEGAFLEX FX8*(*).CE/Q****H/A***** must be electrostatically (contact resistance ≤ 1 MΩ) connected to the local potential equalization, e.g. via the ground terminal.

10 Impact and friction sparks

When used as EPL-Ga/Gb instruments, the VEGAFLEX FX8*(*).CE/Q****H/A***** in aluminium/titanium versions must be mounted in such a way that sparks from impact and friction between aluminium/titanium and steel (except stainless steel, if the presence of rust particles can be excluded) cannot occur.

11 Material resistance

The VEGAFLEX FX8*(*).CE/Q****H/A***** must only be used in media against which the materials of the wetted parts are sufficiently resistant.

12 Type and size of the threads for the "Ex-d" cable entries

The "Ex-d" connection compartment of VEGAFLEX FX8*.CE/Q****H/A/**M** is with M20 x 1.5 threads for the cable entries or closing screws.

The "Ex-d" connection compartment of VEGAFLEX FX8*.CE/Q****H/A/**N** comes with ½-14 NPT threads for the cable entries or closing screws.

13 Tensile force on the measuring cable/ rod

The permissible tensile force is

- VEGAFLEX FX81.CE/Q****A/H*****
  - Diameter 4 mm: F = 2.5 kN
  - Diameter 2 mm: F = 1.5 kN
- VEGAFLEX FX82.CE/Q****A/H*****
  - Diameter 4 mm: F = 12 kN
  - Diameter 6 mm coated: F = 8 kN
  - Diameter 6 mm: F = 30 kN

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- Diameter 11 mm coated: F = 30 kN
- VEGAFLEX FX83.CE/Q****A/H*****
  - Diameter 4 mm: F = 2 kN
- VEGAFLEX FX86.CE/Q****A/H*****
  - Diameter 4 mm: F = 2.5 kN
  - Diameter 2 mm: F = 1.5 kN

14 Ignition protection type explosion proof proof enclosure

The terminals for connecting to the operating voltage, i.e. signal circuits, are integrated in the housing according to protection type explosion proof enclosure "d".

The gap between housing and cover is a flameproof gap.

The explosion proof housing is provided with a M20 x 1.5 or ½-14 NPT thread for connection to a certified "Conduit" system or for mounting of a certified explosion proof cable entry (only for zones applications). Cable entries of simple construction may not be used. When connecting to a "Conduit" system the appropriate seal facility must be located directly on the explosion proof connection compartment.

Unused openings must be sealed accordingly.

Before opening or in case of the lid of the explosion proof housing is open (e. g. during connection or service work), make sure that either the supply line is voltage free or no explosive atmosphere is present.

The flameproof terminal box of this equipment must be provided with cable entries and filter plugs resp. condits which are certified according to CAN/CSA E 60079-0: 02 and CAN/CSA E 60079-1: 07.

The connection cables, the cable entries and filter plugs resp. the conduits have to be suitable for the lowest ambient temperature.

When wiring the connection line to the explosion proof housing, it must be sufficiently secured against damage.

The cover of the explosion proof housing must be screwed in completely before commissioning and secured by screwing out the lid locking screw all the way to the stop.

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VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Phone +49 7836 50-0
Fax +49 7836 50-201
E-mail: info.de@vega.com
www.vega.com