



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx TUN 05.0018X issue No.: 4

Status: Current

Date of Issue: 2008-10-17 Page 1 of 6

Applicant: **VEGA Grieshaber KG**
Am Hohenstein 13
77761 Schiltach
Germany

Certificate history:

Issue No. 4 (2008-10-17)
Issue No. 3 (2008-10-17)
Issue No. 2 (2007-11-22)
Issue No. 1 (2006-12-13)

Electrical Apparatus: **Capacitive Measuring Probe type VEGACAL CL6*.DI***H******
Optional accessory: --

Type of Protection: **Flameproof Enclosures and Intrinsic Safety**

Marking: **Zone 0/1 Ex d ia IIC T6**

Approved for issue on behalf of the IECEx
Certification Body:

Karl-Heinz Schwedt

Position:

Head of IECEx CB

Signature:
(for printed version)

Date:

2008-10-17

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
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Manufacturer: **VEGA Grieshaber KG**
Am Hohenstein 13
77761 Schiltach
Germany

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2003 Edition: 5	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosure 'd'
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2004 Edition: 1	Electrical apparatus for explosive gas atmospheres - Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

IECEx ATR:
DE/TUN/ExTR08.0035/00

File Reference:
08 204 554741



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The capacitive measuring probes type VEGACAL CL6*.DI**HD* are used for monitoring or control of filling levels in explosion
The measuring media are allowed to be combustible liquids, gases, mists or vapours.
The capacitive measuring probes type VEGACAL CL6*.DI**HD* consist of an electronic housing for the barriers
with an Ex-d connection room, an Ex-i connection room with inserted measuring electronics,
a process adapting element and a measuring sensor.
Mechanical execution of the capacitive measuring probes:

type	electrodes
CL62.DI**HD*	partly insulated electrode, optionally with screening tube or concentric tube
CL63.DI**HD*	fully insulated electrode, optionally plated
CL64.DI**HD*	fully insulated electrode, optionally with screening tube, concentric tube or plated
CL65.DI**HD*	partly insulated cable electrode optionally with additionally insulated cable
CL66.DI**HD*	fully insulated cable electrode

CONDITIONS OF CERTIFICATION: YES as shown below:

Only changes regarding the formatting; see annexe



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EQUIPMENT(continued):

Only changes regarding the formatting; see annexe



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

See annexe issue 3



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Additional information:

Only changes regarding the formatting; see annexe

IECEx TR:	File reference:
DE/TUN/ExTR08.0035/00	08 204 554741
IECEx QAR:	File reference:
DE/QAR/TUN/06.0002/00	QAR/TUN/QAR06.0002/00

The capacitive measuring probes type VEGACAL CL6*.DI***H**** are used for monitoring or control of filling levels in explosion hazardous areas.

The measuring media are allowed to be combustible liquids, gases, mists or vapours.

The capacitive measuring probes type VEGACAL CL6*.DI***H**** consist of an electronic housing for the barrier with an Ex-d connection room, an Ex-i connection room with inserted measuring electronics, a process adapting element and a measuring sensor.

The changes refer to the type designation mentioned above, the mechanical construction, the temperature range in the area of the electronics/of the medium, the electrical data, the special conditions for safe use and the marking.

The marking reads as follows: Zone 0/1 Ex d ia IIC Tx (see tables for temperature ranges).

Type designation and mechanical execution of the measuring probes:

Type	Electrodes
CL62.DI***H****	partly insulated electrode, optionally with screening tube or concentric tube
CL63.DI***H****	fully insulated electrode, optionally plated
CL64.DI***H****	fully insulated electrode, optionally with screening tube, concentric tube or plated
CL65.DI***H****	partly insulated cable electrode optionally with additionally insulated cable
CL66.DI***H****	fully insulated cable electrode
CL69.DI***H****	fully insulated 2-rod electrode

If the capacitive measuring probes are mounted in explosion hazardous areas of the zone 1, the permissible temperature range in the area of the electronics/of the medium dependent on the temperature class has to be taken from the following table:

Temperature class	Ambient temperature range on the electronics/housing	Medium temperature range for electrodes with PE-insulation	Medium temperature range for other electrodes
T6	- 40°C... + 57°C	- 40°C... + 80°C	-50°C ... +85 °C
T5	- 40°C... + 60°C	- 40°C... + 80°C	-50°C ... +100 °C
T4	- 40°C... + 60°C	- 40°C... + 80°C	-50°C ... +135 °C
T3*, T2*, T1*	- 40°C... + 60°C	- 40°C... + 80°C	-50°C ... +150 °C

* with temperature adapter for medium temperatures > 150°C ... 200°C

If the sensors of the capacitive measuring probes are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by these hot surfaces is excluded. The max. permissible temperature on the electronics/housing must not exceed the values as mentioned in the a.m. table.

If the capacitive measuring probes are mounted in the partition wall between explosion hazardous areas of the zone 0 (electrode) and zone 1 (electronics), the permissible temperature range in the area of the electronics/of the medium has to be taken from the following table:

Temperature class	Ambient temperature range	Medium temperature range
T6	-40 °C ... +57 °C	-20°C ... +60 °C
T5 ... T1	-40 °C ... +60 °C	-20°C ... +60 °C

The electrodes of the capacitive measuring probes are allowed to be operated in an explosion hazardous area of the zone 0, only if atmospheric conditions exist (pressure from 0.8 bar to 1.1 bar).

If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

If the sensors of the capacitive measuring probes are operated at higher medium temperatures as listed in the a.m. table, measures have to be taken, that the danger of ignition caused by these hot surfaces is excluded. The max. permissible temperature at the electronics/housing must not exceed the values as mentioned in the a.m. table.

Electrical data

Supply and signal circuit U = 20 ... 36 V d. c.
(Terminals KI1/1, KI1/2; Um = 253 V a. c.
Ex-d connection room)

PA terminal of the
capacitive measuring probe with barrier P2-
2LH Connection to the potential equalisation in the
(Screw terminal) explosion hazardous area

Operation and indication circuit in type of protection „Intrinsic Safety“ Ex ia IIC
(Terminals 5, 6, 7, 8 in the “i”-connection
room resp. plug connection)
only for connection to the intrinsically safe circuit of
the belonging external VEGA indication unit type
VEGADIS61 (IECEX PTB 06.0048)
The interconnection of the both intrinsically safe
circuits was taken into account.
maximum values of the connection cable:
Co = 2.4 µF
Lo = 160 µH

Operation and indication module circuit in type of protection „Intrinsic Safety“ Ex ia IIC
(Spring contacts in the “i”-connection
room) only for connection to the VEGA operation and
indication module (Plicscom)

Communication circuit in type of protection „Intrinsic Safety“ Ex ia IIC
(I²C bus in the “i”-connection room) only for connection to the intrinsically safe signal
circuit of the VEGA interface converter type
VEGACONNECT

If

- the VEGA interface converter type VEGACONNECT and
 - the external VEGA indication unit type VEGADIS61 (IECEX PTB 06.0048)
- are connected, the following maximum values of the connection cable to the VEGADIS61 do result:

$$\begin{array}{rcl} C_o = & 2.8 & \mu F \\ L_o = & 100 & \mu H \end{array}$$

A length of the triax cable resp. coax cable between the housing for the electronics and the terminal housing of 10 m is permissible.

All intrinsically safe circuits of the capacitive measuring probe with built-in barrier P2-2LH are galvanically connected with the earth potential (measuring circuit excluded)

Special conditions for safe use:

1. At the plastic parts of the capacitive measuring probes type VEGACAL CP6*.DI***H**** there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label.
2. For zone 0/1 applications and at risks by pendulum or vibration the respective parts of the capacitive measuring probes type VEGACAL CP65.DI***H**** and type VEGACAL CP66.DI***H**** have to be secured effectively against these dangers. Observe manual of the manufacturer.
3. For zone 0/1 applications, at the metallic electrode parts of the capacitive measuring probes type VEGACAL CP6*.DI***H**** made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer.
4. For zone 0/1 applications the medium tangent materials have to be resistant to the media.
5. The PA terminal of the capacitive measuring probes (internal or external screw terminal) has to be connected with the potential equalization of the explosion hazardous area.
6. The flameproof terminal box (Ex-d connection room) of this equipment must be provided with cable entries and filler plugs resp. conduits which are certified according to IEC 60 079-0 and IEC 60 079-1.
7. The connection cables, the cable entries and filler plugs resp. the conduits have to be suitable for the lowest ambient temperature.



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