IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.:	**IECEx TUN 16.0036X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 2	Issue 1 (2018-10-09) Issue 0 (2016-12-09)
Date of Issue:	2021-03-19		

Applicant: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Equipment: **Differential pressure measuring device VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F******

Optional accessory:

Type of Protection: **Intrinsic safety "i"**

Marking: **Ex ia IIC T6…T1 Ga or**

Ex ia IIC T6…T1 Ga/Gb or

Ex ia IIC T6…T1 Gb

Approved for issue on behalf of the IECEx Certification Body: **Thomas Heinen**

Position: **Deputy Head of IECEx Certification Body**

Signature: (for printed version)

Date:

TÜV NORD

Digital unterschrieben von Heinen Thomas
Datum: 2021.03.19 14:51:20 +01'00'

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IECEx Certificate of Conformity

Certificate No.: **IECEx TUN 16.0036X** Page 2 of 4

Date of issue: 2021-03-19 Issue No: 2

Manufacturer: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Additional manufacturing locations: **VEGA Americas, Inc.**
4241 Allendorf Drive
Cincinnati, Ohio 45209
United States of America

VEGA India Level and Pressure Measurement Pvt. Ltd.
Plot No. 1
Gat No. 181
Village - Phulgaon
Tal. Haveli
Pune 412216
India

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 equipment 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 60079-0:2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11:2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26:2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga

This Certificate **does not** indicate compliance with 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:

Test Report:

DE/TUN/ExTR16.0048/02

Quality Assessment Report:

DE/TUN/QAR06.0002/10

IECEx Certificate of Conformity

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

Description:

The differential pressure measuring devices type VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** are used for differential pressure measurement of liquids and gases.

The Differential pressure measuring devices type VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** consist of an electronics housing, a differential pressure measuring element and the process connections.

Optionally, also an indication and operation module may be installed.

The following electronic versions are available:

VEGADIF DF85(*).*C/U/O/H*****Z******: 2 wire 4 ... 20 mA transmitters

VEGADIF DF85(*).*C/U/O/H*****H******: 2 wire 4 ... 20 mA transmitters with superposed HART signal

VEGADIF DF85(*).*C/U/O/H*****A******: 2 wire 4 ... 20 mA transmitters with superposed HART signal and additional SIL qualification

VEGADIF DF85(*).*C/U/O/H*****P******: With electronics for Profibus PA

VEGADIF DF85(*).*C/U/O/H*****F******: With electronics for Foundation Fieldbus

Type code:

VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F******

Electrical and thermal data:

See attachment to IECEx TUN 16.0036X issue 02

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The permissible ambient resp. medium temperature range depends on the variant of the apparatus and on the temperature class, for which the apparatus shall be used (see thermal data).
   The limits of the permissible ambient temperature range may be restricted by the used O-ring material. The used O-ring material is included in the marking. The permissible temperature ranges in dependence of the material are included in the manufacturer's instructions.
2. For use as Ga/Gb-apparatus:
   For functional reasons, the partition wall (membrane) to the wetted area has a wall thickness < 1 mm. In the application, it has to be ensured, that an impairment of the separation wall e.g. by aggressive media or mechanical hazards is excluded.
   For variants with standard process connections:
   The installation of the meter bodies shall provide as a minimum degree of protection IP67 according to IEC 60529 for the process connections and vents.
   For variants with capillary connections:
   The capillary connections are designed to be connected to a capillary with diaphragm seal.
   The filling holes are intended to bring in a fill fluid.
   To prevent a zone entrainment from Zone 0, the diaphragm seal resp. the diaphragm seal and capillary have to be suitably designed. The pressure transfer system has to be technically tight. The filling hole has to be tightly sealed.
3. At the plastic parts there is a danger of ignition by electrostatic discharge.
   Observe manual of the manufacturer and warning label.
4. At the metallic parts made of light metal there is a danger of ignition by impact or friction.
   Observe manual of the manufacturer.
5. For the execution with separate housing, potential equalization has to exist in the complete course of the erection of the connecting cable between the electronics housing and the measuring sensor housing.

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Subject of issue 02 of the CoC IEC TUN 16.0036X is the proof of conformity of the differential pressure measuring devices VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** to the current version of the standard IEC 60079-0:2017

The conformity of the differential pressure measuring devices VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** to the current versions of the standards IEC 60079-11:2011 and IEC 60079-26: 2014 has already been proved in the previous issue 01.

Annex:

Attachment to IECEx TUN 16.0036X issue 02.pdf

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Description:
The differential pressure measuring devices type VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** are used for differential pressure measurement of liquids and gases.
The Differential pressure measuring devices type VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** consist of an electronics housing, a differential pressure measuring element and the process connections.
Optionally, also an indication and operation module may be installed.

The following electronic versions are available:

VEGADIF DF85(*).*C/U/O/H*****Z******: 2 wire 4 ... 20 mA transmitters
VEGADIF DF85(*).*C/U/O/H*****H******: 2 wire 4 ... 20 mA transmitters with superposed HART signal
VEGADIF DF85(*).*C/U/O/H*****A******: 2 wire 4 ... 20 mA transmitters with superposed HART signal and additional SIL qualification
VEGADIF DF85(*).*C/U/O/H*****P******: With electronics for Profibus PA
VEGADIF DF85(*).*C/U/O/H*****F******: With electronics for Foundation Fieldbus

Type code:
VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F******

Electrical data:
VEGADIF DF85 with built-in electronics Z,H,A

Supply and signal circuit
(Terminals 1[+], 2[-] in the Ex-i electronics compartment, in the execution with 2 chamber housing in the terminal housing)

in type of protection „**I**ntrinsic Safety“ Ex ia IIC

Only for connection to a certified intrinsically safe circuit

Maximum values:
U_i = 30 V
I_i = 131 mA
P_i = 983 mW
The effective internal capacitance is negligibly small.
Effective internal inductance: 5 µH
In execution with the 2 chamber housing: 10 µH

In the execution with connection cable mounted fixed, the following values have to be observed additionally:
L_i` = 0.62 µH/m
$C_i`_{wire/wire}$ = 150 pF/m
$C_i`_{wire/shield}$ = 270 pF/m

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VEGADIF DF85 with built-in electronics P, F

Supply and signal circuit (Terminals 1[+], 2[-] in the Ex-i electronics compartment, in the execution with 2 chamber housing in the terminal housing)	in type of protection „**I**ntrinsic Safety“ Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: U_i = 17.5 V I_i = 500 mA P_i = 5.5 W The apparatus is suitable for connection to a field bus system according to the FISCO model (IEC 60079-11) or U_i = 24 V I_i = 250 mA P_i = 1.2 W The effective internal capacitance is negligibly small. The effective internal inductance, 1 chamber housing, is negligibly small. In execution with the 2 chamber housing: 5 µH In the execution with connection cable mounted fixed, the following values have to be observed additionally: L_i` = 0.62 µH/m $C_i$`$_{wire/wire}$ = 150 pF/m C_i`$_{wire/shield}$ = 270 pF/m

VEGADIF DF85 for installation in a 2 chamber housing with the electronics H/A and the additional electronics PLISZEZSA (2nd current output)

Supply and signal circuit I (Terminals 1[+], 2[-] in terminal housing)	in type of protection „**I**ntrinsic Safety“ Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: U_i = 30 V I_i = 131 mA P_i = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 5 µH In the execution with connection cable mounted fixed, the following values have to be observed additionally: L_i` = 0.62 µH/m $C_i$`$_{wire/wire}$ = 150 pF/m C_i`$_{wire/shield}$ = 270 pF/m

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Supply and signal circuit II (Terminals 7[+], 8[-] in terminal housing)	in type of protection „**I**ntrinsic Safety“ Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: U_i = 30 V I_i = 131 mA P_i = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 5 µH In the execution with connection cable mounted fixed, the following values have to be observed additionally: L_i` = 0.62 µH/m $C_i$`$_{wire/wire}$ = 150 pF/m C_i`$_{wire/shield}$ = 270 pF/m
Operation and indication circuit (Terminals 5, 6, 7, 8 in the housing for the electronics resp. in the terminal housing in the execution with 2 chamber housing)	in type of protection „**I**ntrinsic Safety“ Ex ia IIC Only for connection to the intrinsically safe circuit of the belonging external VEGA indication unit type VEGADIS61 or VEGADIS81 The rules for the interconnection of intrinsically safe circuits between the VEGADIF DF85 and the VEGADIS 61/ VEGADIS 81 are adhered to, if the complete inductance and capacitance of the connection cable between VEGADIF DF85 and the VEGADIS 61/ VEGADIS 81 does not exceed the following values: Electronics Z, H, A: L_{cable} = 330 µH C_{cable} = 1.98 µF Electronics P, F: L_{cable} = 212 µH C_{cable} = 1.98 µF If the connection cable supplied by the manufacturer is used, the following values have to be observed: Li` = 0.62 µH/m Ci`$_{wire/wire}$ = 150 pF/m Ci`$_{wires/shield}$ = 270 pF/m
Operation and indication module circuit …. (Spring contacts in the housing for the electronics and additionally in the terminal housing in the execution with 2 chamber housing)	in type of protection „**I**ntrinsic Safety“ Ex ia IIC Only for connection to the VEGA operation and indication module PLICSCOM or the interface adapter VEGACONNECT or an interface adapter with equal or less critical safety data

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The intrinsically safe circuits for external connections are safe galvanically separated from the parts which can be earthed.
The intrinsically safe circuits to the measuring sensor are galvanically connected with earth potential,

Thermal data:
If the differential pressure measuring devices are used in explosion hazardous areas for EPL Ga, Ga/Gb or Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Medium temperature range	Ambient temperature range
T6	-40 °C … +46 °C	-40°C … +46 °C
T5	-40 °C … +55 °C *	
T4	-40 °C … +85 °C	-40 °C … +80 °C
T3		
T2		
T1		

***** For the remote sensor variant; for medium temperatures above 46 °C, a sufficient thermal decoupling between medium and converter-unit has to be ensured.

Details of Change:

Subject of issue 02 of the CoC IEC TUN 16.0036X is the proof of conformity of the differential pressure measuring devices VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** to the current version of the standard IEC 60079-0:2017.

The conformity of the differential pressure measuring devices VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** to the current versions of the standards IEC 60079-11:2011 and IEC 60079-26: 2014 has already been proved in the previous issue 01.

Specific Conditions of Use:

1. The permissible ambient resp. medium temperature range depends on the variant of the apparatus and on the temperature class, for which the apparatus shall be used (see thermal data).
   The limits of the permissible ambient temperature range may be restricted by the used O-ring material. The used O-ring material is included in the marking. The permissible temperature ranges in dependence of the material have to be taken from the manufacturer's instructions.

2. For use as Ga/Gb-apparatus:
   For functional reasons, the partition wall (membrane) to the wetted area has a wall thickness <1 mm. In the application, it has to be ensured, that an impairment of the separation wall e.g. by aggressive media or mechanical hazards is excluded.
   For variants with standard process connections:
   The installation of the meter bodies shall provide as a minimum degree of protection IP67 according to IEC 60529 for the process connections and vents.
   For variants with capillary connections:
   The capillary connections are designed to be connected to a capillary with diaphragm seal.
   The filling holes are intended to bring in a fill fluid.
   To prevent a zone entrainment from Zone 0, the diaphragm seal resp. the diaphragm seal and capillary have to be suitably designed. The pressure transfer system has to be technically tight. The filling hole has to be tightly sealed.

3. At the plastic parts there is a danger of ignition by electrostatic discharge.
   Observe manual of the manufacturer and warning label.

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4. At the metallic parts made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer.

5. For the execution with separate housing, potential equalization has to exist in the complete course of the erection of the connecting cable between the electronics housing and the measuring sensor housing.

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 16.0036X	Issue No: 1	Certificate history:
			Issue No. 1 (2018-10-09)
Status:	**Current**		Issue No. 0 (2016-12-09)
		Page 1 of 5	
Date of Issue:	**2018-10-09**		

Applicant: **VEGA Grieshaber KG**
Am Hohenstein 113,
77761 Schiltach
Germany

Equipment: **Differential pressure measuring device VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F******

Optional accessory:

Type of Protection: **Intrinsic safety "i"**

Marking:
Ex ia IIC T6...T1 Ga, Ga/Gb, Gb

Approved for issue on behalf of the IECEx Certification Body: Christian Roder

Position: Head of Certification Body

Signature:
(for printed version)

Date: 2018-10-09

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IECEx Certificate of Conformity

Certificate No:	IECEx TUN 16.0036X	Issue No: 1
Date of Issue:	2018-10-09	Page 2 of 5
Manufacturer:	**VEGA Grieshaber KG** Am Hohenstein 113 77761 Schiltach **Germany**	

Additional Manufacturing location(s):

VEGA Americas, Inc.
4241 Allendorf Drive
Cincinnati, Ohio 45209
United States of America

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 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga

*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

Test Report:

DE/TUN/ExTR16.0048/00 DE/TUN/ExTR16.0048/01

Quality Assessment Report:

DE/TUN/QAR06.0002/08

IECEx Certificate of Conformity

Certificate No: IECEx TUN 16.0036X Issue No: 1

Date of Issue: 2018-10-09 Page 3 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The differential pressure measuring devices type VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F******

are used for differential pressure measurement of liquids and gases.

The Differential pressure measuring devices type VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** consist of an electronics housing, a differential pressure measuring element and the process connections.

Optionally, also the indication and operation module may be installed.

The following electronic versions are available:

VEGADIF DF85(*).*C/U/O/H*****Z******: 2 wire 4 ... 20 mA transmitters

VEGADIF DF85(*).*C/U/O/H*****H******: 2 wire 4 ... 20 mA transmitters with superposed HART signal

VEGADIF DF85(*).*C/U/O/H*****A******: 2 wire 4 ... 20 mA transmitters with superposed HART signal and additional SIL qualification

VEGADIF DF85(*).*C/U/O/H*****P******: With electronics for Profibus PA

VEGADIF DF85(*).*C/U/O/H*****F******: With electronics for Foundation Fieldbus

For further details see annexe.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Certificate No: IECEx TUN 16.0036X Issue No: 1

Date of Issue: 2018-10-09 Page 4 of 5

1. The permissible ambient resp. medium temperature range depends on the variant of the apparatus and on the temperature class, for which the apparatus shall be used (see thermal data).
   The limits of the permissible ambient temperature range may be restricted by the used O-ring material. The used O-ring material is included in the marking. The permissible temperature ranges in dependence of the material are included in the manufacturer's instructions.
2. For use as Ga/Gb-apparatus:
   For functional reasons, the partition wall (membrane) to the wetted area has a wall thickness < 1 mm. In the application, it has to be ensured, that an impairment of the separation wall e.g. by aggressive media or mechanical hazards is excluded.
   For variants with standard process connections:
   The installation of the meter bodies shall provide as a minimum degree of protection IP67 according to IEC 60529 for the process connections and vents.
   For variants with capillary connections:
   The capillary connections are designed to be connected to a capillary with diaphragm seal.
   The filling holes are intended to bring in a fill fluid.
   To prevent a zone entrainment from Zone 0, the diaphragm seal resp. the diaphragm seal and capillary have to be suitably designed.
   The pressure transfer system has to be technically tight. The filling hole has to be tightly sealed.
3. At the plastic parts there is a danger of ignition by electrostatic discharge.
   Observe manual of the manufacturer and warning label.
4. At the metallic parts made of light metal there is a danger of ignition by impact or friction.
   Observe manual of the manufacturer.
5. For the execution with separate housing, potential equalization has to exist in the complete course of the erection of the connecting cable between the electronics housing and the measuring sensor housing.

IECEx Certificate of Conformity

Certificate No: IECEx TUN 16.0036X Issue No: 1

Date of Issue: 2018-10-09

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

Issue 1

Modification of display and adjustment module PLICSCOM based on an upgrade of component certificate of PLICSCOM (IECEx TUN 16.0002 U issue 1).

Annex:

Annexe_VEGADIF85_TUN16.0036X_I1_.pdf

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TÜV NORD
Zertifizierung

Product:

VEGADIF DIF85(*) is a differential pressure transmitter for measurement of flow, level, differential pressure, density and interface.
VEGADIF DIF85(*) without/ with built-in display and adjustment module, called PLICSCOM, is an intrinsically safe instrument for installation in explosive gas atmospheres requiring equipment of category 1G (EPL Ga), 1/2G (EPL Ga/Gb) or 2G (EPL Gb).
VEGADIF DIF85(*) 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, 1/2G or 2G.

Details of Change:

1. Modification of display and adjustment module PLICSCOM based on an upgrade of component certificate of PLICSCOM (IECEx TUN 16.0002 U issue 1).

Technical Data:

Permissible ambient temperature range:
-40 °C ... +85 °C

Electrical Data:

The differential pressure measuring devices type VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** are used for differential pressure measurement of liquids and gases.
The Differential pressure measuring devices type VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F****** consist of an electronics housing, a differential pressure measuring element and the process connections.
Optionally, also the indication and operation module may be installed.

The following electronic versions are available:

VEGADIF DF85(*).*C/U/O/H*****Z******: 2 wire 4 ... 20 mA transmitters
VEGADIF DF85(*).*C/U/O/H*****H******: 2 wire 4 ... 20 mA transmitters with superposed HART signal
VEGADIF DF85(*).*C/U/O/H*****A******: 2 wire 4 ... 20 mA transmitters with superposed HART signal and additional SIL qualification
VEGADIF DF85(*).*C/U/O/H*****P******: With electronics for Profibus PA
VEGADIF DF85(*).*C/U/O/H*****F******: With electronics for Foundation Fieldbus

Electrical data

VEGADIF DF85 with built-in electronics Z,H,A

Supply and signal circuit ..... (Terminals 1[+], 2[-] in the Ex-i electronics compartment, in the execution with 2 chamber housing in the terminal housing)	in type of protection „Intrinsic Safety" Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: U_i = 30 V I_i = 131 mA P_i = 983 mW

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The effective internal capacitance is negligibly small.
Effective internal inductance: 5 µH
In execution with the 2 chamber housing: 10 µH

In the execution with connection cable mounted fixed, the following values have to be observed additionally:

L_i` = 0.62 µH/m
C_i`$_{wire/wire}$ = 150 pF/m
C_i`$_{wire/shield}$ = 270 pF/m

VEGADIF DF85 with built-in electronics P, F

Supply and signal circuit .....
(Terminals 1[+], 2[-] in the Ex-i electronics compartment, in the execution with 2 chamber housing in the terminal housing)

in type of protection „Intrinsic Safety" Ex ia IIC

Only for connection to a certified intrinsically safe circuit

Maximum values:
U_i = 17.5 V
I_i = 500 mA
P_i = 5.5 W
The apparatus is suitable for connection to a field bus system according to the FISCO model (IEC 60079-11)

or

U_i = 24 V
I_i = 250 mA
P_i = 1.2 W

The effective internal capacitance is negligibly small.

The effective internal inductance, 1 chamber housing, is negligibly small.
In execution with the 2 chamber housing: 5 µH

In the execution with connection cable mounted fixed, the following values have to be observed additionally:

L_i` = 0.62 µH/m
C_i`$_{wire/wire}$ = 150 pF/m
C_i`$_{wire/shield}$ = 270 pF/m

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TÜV NORD
Zertifizierung

VEGADIF DF85 for installation in a 2 chamber housing with the electronics H/A and the additional electronics PLISZEZSA (2nd current output

Supply and signal circuit I…….. (Terminals 1[+], 2[-] in terminal housing)	in type of protection „Intrinsic Safety" Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: U_i = 30 V I_i = 131 mA P_i = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 5 µH In the execution with connection cable mounted fixed, the following values have to be observed additionally: L_i` = 0.62 µH/m $C_i$`$_{wire/wire}$ = 150 pF/m C_i`$_{wire/shield}$ = 270 pF/m
Supply and signal circuit II…….. (Terminals 7[+], 8[-] in terminal housing)	in type of protection „Intrinsic Safety" Ex ia IIC Only for connection to a certified intrinsically safe circuit Maximum values: U_i = 30 V I_i = 131 mA P_i = 983 mW The effective internal capacitance is negligibly small. Effective internal inductance: 5 µH In the execution with connection cable mounted fixed, the following values have to be observed additionally: L_i` = 0.62 µH/m $C_i$`$_{wire/wire}$ = 150 pF/m C_i`$_{wire/shield}$ = 270 pF/m
Operation and indication circuit ……. (Terminals 5, 6, 7, 8 in the housing for the electronics resp. in the terminal housing in the execution with 2 chamber housing)	in type of protection „Intrinsic Safety" Ex ia IIC Only for connection to the intrinsically safe circuit of the belonging external VEGA indication unit type VEGADIS61 or VEGADIS81 The rules for the interconnection of intrinsically safe circuits between the VEGADIF DF85 and the

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TÜV NORD Zertifizierung

VEGADIS 61/ VEGADIS 81 are adhered to, if the complete inductance and capacitance of the connection cable between VEGADIF DF85 and the VEGADIS 61/ VEGADIS 81 does not exceed the following values:

Electronics Z, H, A:

L_{cable} = 330 µH
C_{cable} = 1.98 µF

Electronics P, F:

L_{cable} = 212 µH
C_{cable} = 1.98 µF

If the connection cable supplied by the manufacturer is used, the following values have to be observed:

L_i` = 0.62 µH/m
C_i` wire/wire = 150 pF/m
C_i` wires/shield = 270 pF/m

Operation and indication module circuit	in type of protection „Intrinsic Safety" Ex ia IIC
(Spring contacts in the housing for the electronics and additionally in the terminal housing in the execution with 2 chamber housing)	Only for connection to the VEGA operation and indication module PLICSCOM or the interface adapter VEGACONNECT or an interface adapter with equal or less critical safety data

The intrinsically safe circuits for external connections are safe galvanically separated from the parts which can be earthed.
The intrinsically safe circuits to the measuring sensor are galvanically connected with earth potential

Thermal data:

If the differential pressure measuring devices are used in explosion hazardous areas for EPL Ga, Ga/Gb or Gb applications, the permissible temperature range in the area of the electronics/at the measuring sensor dependent on the temperature class has to be taken from the following table:

Temperature class	Medium temperature range	Ambient temperature range
T6	-40 °C ... +46 °C	-40°C ... +46 °C
T5	-40 °C ... +55 °C *	
T4	-40 °C ... +85 °C	-40 °C ... +80 °C
T3		
T2		
T1		

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Hannover Office
Am TÜV 1
30519 Hannover
Germany

TÜV NORD
Zertifizierung

* For the remote sensor variant; for medium temperatures above 46 °C, a sufficient thermal decoupling between medium and converter-unit has to be ensured.

The measuring sensors and the electronics are allowed to be operated in an explosion hazardous area, only if atmospheric conditions exist
(temperature: -20 °C to +60 °C, pressure: 0.8 bar to 1.1 bar, air with normal oxygen content: typically 21 % v/v).
If no explosion hazardous atmospheres exist, the permissible operating temperatures and pressures have to be taken from the manufacturer's data (manual).

Special Conditions for Safe Use / Notes for Erection:

1. The permissible ambient resp. medium temperature range depends on the variant of the apparatus and on the temperature class, for which the apparatus shall be used (see thermal data).
   The limits of the permissible ambient temperature range may be restricted by the used O-ring material. The used O-ring material is included in the marking. The permissible temperature ranges in dependence of the material have to be taken from the manufacturer's instructions.

2. For use as Ga/Gb-apparatus:
   For functional reasons, the partition wall (membrane) to the wetted area has a wall thickness <1 mm. In the application, it has to be ensured, that an impairment of the separation wall e.g. by aggressive media or mechanical hazards is excluded.
   For variants with standard process connections:
   The installation of the meter bodies shall provide as a minimum degree of protection IP67 according to IEC 60529 for the process connections and vents.
   For variants with capillary connections:
   The capillary connections are designed to be connected to a capillary with diaphragm seal. The filling holes are intended to bring in a fill fluid.
   To prevent a zone entrainment from Zone 0, the diaphragm seal resp. the diaphragm seal and capillary have to be suitably designed. The pressure transfer system has to be technically tight. The filling hole has to be tightly sealed.

3. At the plastic parts there is a danger of ignition by electrostatic discharge.
   Observe manual of the manufacturer and warning label.

4. At the metallic parts made of light metal there is a danger of ignition by impact or friction.
   Observe manual of the manufacturer.

5. For the execution with separate housing, potential equalization has to exist in the complete course of the erection of the connecting cable between the electronics housing and the measuring sensor housing.

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 16.0036X issue No.:0	Certificate history:
Status:	**Current**	
Date of Issue:	**2016-12-09** Page 1 of 4	
Applicant:	**VEGA Grieshaber KG** Am Hohenstein 113, 77761 Schiltach **Germany**	
Equipment: *Optional accessory:*	**Differential pressure measuring device VEGADIF DF85(*).*C/U/O/H*****Z/H/A/P/F********	
Type of Protection:	**Intrinsic safety "i"**	
Marking:	Ex ia IIC T6...T1 Ga, Ga/Gb, Gb	
Approved for issue on behalf of the IECEx Certification Body:	Andreas Meyer	
Position:	Head of Certification Body	
Signature: *(for printed version)*		
Date:	2016-12-09	

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.

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IECEx Certificate of Conformity

Certificate No.: IECEx TUN 16.0036X

Date of Issue: **2016-12-09** Issue No.: **0**

Manufacturer: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Additional Manufacturing location(s):
VEGA Americas, Inc.
4241 Allendorf Drive
Cincinnati, Ohio 45209
United States of America

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 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2014-10 Edition: 3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga

*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

Test Report:
DE/TUN/ExTR16.0048/00

Quality Assessment Report:

DE/TUN/QAR06.0002/07

IECEx Certificate of Conformity

Certificate No.: IECEx TUN 16.0036X

Date of Issue: **2016-12-09** Issue No.: **0**

Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

The differential pressure measuring devices type VEGADIF DF85 (*).*C/U/O/H*****Z/H/A/P/F******
are used for differential pressure measurement of liquids and gases.
The Differential pressure measuring devices type VEGADIF DF85 (*).*C/U/O/H*****Z/H/A/P/F****** consist of an electronics housing, a differential pressure measuring element and the process connections.
Optionally, also the indication and operation module may be installed.

The following electronic versions are available:

VEGADIF DF85(*).*C/U/O/H*****Z******: 2 wire 4 ... 20 mA transmitters
VEGADIF DF85(*).*C/U/O/H*****H******: 2 wire 4 ... 20 mA transmitters with superposed HART signal
VEGADIF DF85(*).*C/U/O/H*****A******: 2 wire 4 ... 20 mA transmitters with superposed HART signal and additional SIL qualification
VEGADIF DF85(*).*C/U/O/H*****P******: With electronics for Profibus PA
VEGADIF DF85(*).*C/U/O/H*****F******: With electronics for Foundation Fieldbus

SPECIFIC CONDITIONS OF USE: YES as shown below:

For further details see annexe.

1. The permissible ambient resp. medium temperature range depends on the variant of the apparatus and on the temperature class, for which the apparatus shall be used (see thermal data).
   The limits of the permissible ambient temperature range may be restricted by the used O-ring material. The used O-ring material is included in the marking. The permissible temperature ranges in dependence of the material are included in the manufacturer's instructions.

   See also "Additional Information"

IECEx Certificate of Conformity

Certificate No.: IECEx TUN 16.0036X

Date of Issue: **2016-12-09** Issue No.: **0**

Additional information:

2. For use as Ga/Gb-apparatus:
For functional reasons, the partition wall (membrane) to the wetted area has a wall thickness
< 1 mm. In the application, it has to be ensured, that an impairment of the separation wall e.g. by aggressive media or mechanical hazards is excluded.
For variants with standard process connections:
The installation of the meter bodies shall provide as a minimum degree of protection IP67
according to IEC 60529 for the process connections and vents.
For variants with capillary connections:
The capillary connections are designed to be connected to a capillary with diaphragm seal.
The filling holes are intended to bring in a fill fluid.
To prevent a zone entrainment from Zone 0, the diaphragm seal resp. the diaphragm seal and capillary have to be suitably designed. The pressure transfer system has to be technically tight. The filling hole has to be tightly sealed.

3. At the plastic parts there is a danger of ignition by electrostatic discharge.
Observe manual of the manufacturer and warning label.

4. At the metallic parts made of light metal there is a danger of ignition by impact or friction.
Observe manual of the manufacturer.

5. For the execution with separate housing, potential equalization has to exist in the complete course of the erection of the connecting cable between the electronics housing and the measuring sensor housing.

Annex: _Annexe_VEGADIF85_TUN16.0036X.pdf