



Reg No: 1999/027771/07

(Pty) Ltd

7 Spanner Rd / PO Box 467
Olifantsfontein
1665

Tel: +27 (11) 316 4601

Fax: +27 (11) 316 5670

E-mail: admin-mr@explolabs.co.za

GOVERNMENT APPROVED TEST LABORATORY
IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

IA CERTIFICATE

Date Issued: **08 Apr 2022**
*Expiry date: **08 Apr 2025**
Page 1 of 6
Issue: 1

Ex – Type Examination Certificate

Certificate Number: **S-XPL/19.0134 X**
Equipment: **Differential Pressure Measuring Device**
Model / Type: **VEGADIF DF85(*).*C/U/O/H****Z/H/A/P/F*******
Applicant: **Vega Instruments (Pty) Ltd**
PO Box 692
Wilgeheuwels
1736

Manufacturer: **VEGA Grieshaber KG**

Serial No: All serial numbers imported between issued- and expire date and all serial numbers covered by a valid report or acceptable product certification mark.

Supplied by
Vega Instruments (Pty) Ltd
Identified by Inspection Authority number
S-XPL/19.0134 X

And as described in the Explotlabs file number **XPL/20262/19.0134 Issue 1** is hereby certified "Explosion Protected (Refer to clause 1, for Ex Rating)", having been examined and inspected in accordance with the relevant requirements of South African Standards.

SANS 60079-0: 2012 Ed 5 Explosive atmospheres Part 0: Equipment — General requirements
IEC 60079-0: 2011 Ed 6

SANS 60079-11: 2012 Ed 4 Explosive atmospheres Part 11: Equipment protection by intrinsic safety
IEC 60079-11: 2011 Ed 6 "i"

IEC/SANS 60079-26: 2015 Explosive atmospheres – Part 26: Equipment with equipment protection level (EPL) Ga

Risk of ignition provided:

Protection afforded	Equipment Protection Level (EPL)	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
	Group			
Very high	Ga Group II	Two independent means of protection or safe even when two faults occur independently of each other	Equipment remains functioning in zones 0, 1 and 2	T1 (450°C) to T6 (85°C)
High	Gb Group II	Suitable for normal operation and frequently occurring disturbances or equipment where faults are normally taken into account	Equipment remains functioning in zones 1 and 2	T1 (450°C) to T6 (85°C)

DOCUMENT No: XPL0213 | RELEASE DATE: 29/05/2018 | REV: 7

This certificate supersedes all previous documents bearing the reference no XPL/20262/19.0134.



1. GENERAL

The marking of the Differential Pressure Measuring Device shall include the following:
Ex ia IIC T6...T1 Ga or Ga/Gb or Gb

Description of product

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***** consists 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...20mA transmitters

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

VEGADIF DF85(*).*C/U/O/H*****A***** : 2 Wire 4...20mA 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 dataVEGADIF 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 = 30V

I_i = 131mA

P_i = 983mW

The effective internal capacitance is negligibly small.

Effective internal inductance: 5µH

In execution with the 2 chamber housing: 10µH

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

L_i = 0.62µH/m

C_{i wire/wire} = 150pF/m

C_{i wire/shield} = 270pF/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 = 17.5V

I_i = 500mA

P_i = 5.5W

The apparatus is suitable for connection to a field bus system according to the FISCO model (IEC/SANS 60079-11)

Or

U_i = 24V

I_i = 250mA

P_i = 1.2W

The effective internal capacitance is negligibly small.

DOCUMENT No: XPL0213	RELEASE DATE: 29/05/2018	REV: 7
----------------------	--------------------------	--------

This certificate supersedes all previous documents bearing the reference no XPL/20262/19.0134.

Effective internal inductance, 1 chamber housing, is negligibly small
In execution with the 2 chamber housing: 5 μ H

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

Li	= 0.62 μ H/m
Ci wire/wire	= 150pF/m
Ci wire/shield	= 270pF/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 the terminal housing

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

Maximum values:

Ui=	30V
Ii=	131mA
Pi=	983mW

The effective internal capacitance is negligibly small.
Effective internal inductance: 5 μ H

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

Li	= 0.62 μ H/m
Ci wire/wire	= 150pF/m
Ci wire/shield	= 270pF/m

Supply and signal circuit II

(Terminals 7[+], 8[-] in the terminal housing

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

Maximum values:

Ui	= 30V
Ii	= 131mA
Pi	= 983mW

The effective internal capacitance is negligibly small.
Effective internal inductance: 5 μ H

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

Li	= 0.62 μ H/m
Ci wire/wire	= 150pF/m
Ci wire/shield	= 270pF/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 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 μ H
C _{cable}	= 1.98 μ F

DOCUMENT No: XPL0213	RELEASE DATE: 29/05/2018	REV: 7
----------------------	--------------------------	--------

This certificate supersedes all previous documents bearing the reference no XPL/20262/19.0134.

Electronics P. F:L_{cable} = 212μHC_{cable} = 1.98μF

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

L_i = 0.62μH/mC_{wire/wire} = 150pF/mC_{wires/shield} = 270pF/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 Intrinsic Safety Ex ia IIC Only for connection to 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		

* 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).

Based on the following documentation: TÜV 16 ATEX 190806X Issue: 01

2. INSTALLATION INSTRUCTIONS

It is the manufacturer's responsibility to supply installation instructions with each unit offered for sale as required by IEC/SANS 60079-0 Clause 30.

3. SPECIAL CONDITIONS FOR SAFE USE (denoted by "X" after certificate number)

- i. 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.
- ii. For use as Ga/Gb-apparatus:
For functional reasons, the partition wall (membrane) to the wetted area has a wall thickness <1mm. In the application, it has to be ensured, that an impairment of the separation wall e.g. by

DOCUMENT No: XPL0213	RELEASE DATE: 29/05/2018	REV: 7
----------------------	--------------------------	--------

This certificate supersedes all previous documents bearing the reference no XPL/20262/19.0134.

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/SANS 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.

- iii. At the plastic parts there is a danger of ignition by electrostatic discharge. Observe manual of the manufacturer and warning label.
- iv. At the metallic parts made of light metal there is a danger of ignition by impact or friction. Observe manual of the manufacturer.
- v. 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.

4. SCHEDULE OF LIMITATIONS (denoted by "U" after certificate number)

None.

5. CONDITIONS OF CERTIFICATION

All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.

6. MARKING

The following (or similar) information have to be clearly and permanently marked on all units:

Supplier : Vega Instruments (Pty) Ltd
 Manufacturer : VEGA Grieshaber KG
 Equipment : Differential Pressure Measuring Device
 Model/Type : VEGADIF DF85(*) *C/U/O/H*****Z/H/A/P/F*****
 Serial No. : ---
 Ex Rating : Ex ia IIC T6...T1 Ga or Ga/Gb or Gb
 IA Certificate No : S-XPL/19.0134 X

This certification indicates compliance with R10.1 of the Mines Health and Safety Act and/or EMR 9(2) of the Occupational Health and Safety Act, provided that the apparatus is used as relevant in accordance with:

- i) SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
 - ii) Any conditions mentioned in the above report;
 - iii) Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
 - iv) Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- A revision certificate replaces all previous version of the certificate.

* - Only covers equipment imported between the "Issued" and "Expire" dates.

If and when your QAN (Quality Assurance Notification) Certificate for your equipment manufacturer expires during the valid period of the IA Certification (issued for your equipment) and a new certificate is not submitted the existing IA Certification will then be cancelled. It is thus the client's responsibility to always submit the updated and valid QAN certificate(s) to Explolabs (Pty) Ltd

Responsible Testing Officer:

L Odendaal**Technical Specialist****EXPLOLABS EXPLOSION PREVENTION SERVICES**

This report/certificate shall not be reproduced except in full without the written approval of the company Explolabs (Pty) Ltd shall not be liable for any losses or damages sustained on account of any failure or omission to properly perform our duties in terms of any contract undertaken by us. This disclaimer is immutable and automatically incorporated in any contract undertaken by us; notwithstanding anything to the contrary, save for the express written waiver of our managing director. By marking the equipment in accordance with the documentation/standard, the manufacturer attests on his own responsibility that the equipment has been constructed in accordance with the applicable requirements of the relevant standards and that the routine verifications and tests have been successfully completed and that the product complies with the documentation and standard(s). The contents of electronic reports/certificates cannot be guaranteed. Original certification documents will be kept on file at Explolabs (Pty) Ltd

