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GOVERNMENT APPROVED TEST LABORATORY

IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

IA CERTIFICATE

Date Issued: **24 May 2023**
*Expiry date: **24 May 2026**

Issue: 4

Ex – Type Examination Certificate

Certificate Number:	**S-XPL/13.0475 X**
Equipment:	**Vibrating Level Switch**
Model / Type:	**VEGAVIB VB6(*).*******
Applicant:	**VEGA Grieshaber KG** **Am Hohenstein 113, 77761 Schiltach** **Germany**
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 Grieshaber KG
Identified by Inspection Authority number
S-XPL/13.0475 X

And as described in the Explolabs file number **XPL/14126/13.0475 Issue 4** 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: 2019 Ed 6 **IEC 60079-0: 2017 Ed 7**	Explosive atmospheres Part 0: Equipment — General requirements
SANS 60079-31: 2014 Ed 2 **IEC 60079-31: 2013 Ed 2**	Explosive atmospheres Part 31: Equipment dust ignition protection by enclosure "t"

Risk of ignition provided:

Protection afforded	Equipment Protection Level (EPL) Group	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
Very high	Da Group III	Two independent means of protection or safe even when two faults occur independently of each other	Equipment remains functioning in zones 20, 21 and 22	See manual
High	Db Group III	Suitable for normal operation and frequently occurring disturbances or equipment where faults are normally taken into account	Equipment remains functioning in zones 21 and 22	

This certificate supersedes all previous documents bearing the reference no XPL/14126/13.0475 Issue 3.

1. GENERAL

The marking of the Vibrating Level Switch shall include the following:

Ex ta IIIC T* Da or
Ex ta/tb IIIC T* Da/Db or
Ex tb IIIC T* Db
IP66
***see manual**

Subject and type:
Vibrating level switch type
VEGAVIB VB6*(*). * * * * * * *

Further criteria, without relevance for explosion protection

Cable entry
M = M20x1.5
N = 1/2NPT
* additional suitable cable glands and plug connections

Enclosure – type of protection
A = aluminium enclosure IP66
* = special color

Electronics
C = contactless switch AC/DC 20…253 V
R = relay output DC 20…72 V / AC 20….253 V
T = floating transistor (NPN/PNP) DC 10…55 V
Z = two-wire (intrinsic safety version)
N = NAMUR EN60947-5-7-6

Process connection see manual

Version/temperature range / material
A = standard/-40°C…150°C/1.4435(316L)
B = with adapter/-40°C…250°C/1.4435(316L)
C = detection of solids in water/-40°C…150°C/1.4435(316L)
E = with Carbocer coating; minimizing buildup, no protection against corrosion/abrasion/-40°C…150°C
F = with Carbocer coating; minimizing buildup, no protection against corrosion/abrasion/-40°C…250°C
G = detection of solids in water, with Carbocer coating; Minimizing buildup, no protection against corrosion/ abrasion/-40°C…150°C

CK = Surface, Zone 0 gas, Zone 0/1 gas, Zone 1 gas Ex ia IIC T6[1] Surface, Zone 20 dust, Zone 20/21 dust, Zone 21 dust Ex ta, ta/tb, tb IIIC T…IP66
GX = Surface, Zone 20 dust, Zone 20/21 dust, Zone 21 dust Ex ta, ta/tb, tb IIIC T…IP66
LK = Surface, Zone 0/1 gas, Zone 1 gas Ex ia IIC T6[1] Surface, Zone 20 dust, Zone 20/21 dust, Zone 21 dust Ex ta, ta/tb, tb IIIC T…IP66

Optional version differentiation,
Without relevance for explosion protection

1, 3, 5, 7

[1] The assessment for use in explosive gas atmospheres is not part of this certificate.

Vibrating level switch type
VEGAVIB VB6*(*). * * * * * * *

- Further criteria, without relevance for explosion protection
- Cable entry
  - M = M20x1.5
  - N = 1/2NPT
- Enclosure – type of protection
  - A = aluminium enclosure IP66
  - * = special color
- Electronics
  - C = contactless switch AC/DC 20…253 V
  - R = relay output DC 20…72 V / AC 20…253 V
  - T = floating transistor (NPN/PNP) DC 10…55 V
  - Z = two-wire (intrinsic safety version)
  - N = NAMUR EN60947-5-7-6
- Process connection see manual
- Version/temperature range / material
  - T = rope PUR/-40°C…80°C/1.4435(316L)
  - C = detection of solids in water/-20°C…80°C
  - K = cable PUR/-20°C…80°C/with Carbocer coating; minimizing buildup, no protection against corrosion/abrasion
  - L = cable FEP/-40°C…+150°C/with Carbocer coating; minimizing buildup, no protection against corrosion/abrasion
  - M = detection of solids in water/-20°C…+80°C/ with Carbocer coating, minimizing buildup, no protection against corrosion/abrasion
- CK = Surface, Zone 0 gas, Zone 0/1 gas, Zone 1 gas Ex ia IIC T6[1] Surface, Zone 20 dust, Zone 20/21 dust, Zone 21 dust Ex ta, ta/tb, tb IIIC T…IP66
- GX = Surface, Zone 20 dust, Zone 20/21 dust, Zone 21 dust Ex ta, ta/tb, tb IIIC T…IP66
- Optional version differentiation, Without relevance for explosion protection
- 2, 6

[1] The assessment for use in explosive gas atmospheres is not part of this certificate.

Description

With this supplement the certificate is changed to Directive 2014/34/EU.
(Annotation: In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the data of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

Reason for the supplement

Change to Directive 2014/34/EU
Update to standard IEC 60079-0: 2018
Change of marking
Change of drawing details
Slight Change of electronic components

Description of Product

The Vibrating Level Switch type VEGAVIB VB6*(*).******* is used for level monitoring, controlling and regulating in silos with dust generating material.
The probe of the Vibrating Level Switch vibrates at its mechanical resonant frequency. In case the probe is covered with material, the vibration is damped and a signal is generated.

PARAMETERS

Electrical data

Type VEGAVIB VB6*.GX/LK**C**
with electronics insert VB60C built in

supply voltage	DC/ AC 20...253V
output	contactless switch
current	< 5m A
load current	min. 10m A
	max. 400 mA
Maximum short circuit current I_{cn}	100 A

Type VEGAVIB VB6*.GX/LK**R**
with electronics insert VB60R built in

supply voltage	AC 20...253 V (3A)
or	DC 20...72 V
power consumption	1...8 VA, max.1,6 W
relay circuit	
max. values:	250 V, 3 A, 500 VA
	250 V, 1 A, 41 W
Maximum short circuit current I_{cn}	35 A

Type VEGAVIB VB6*.GX/LK**T**
with electronics insert VB6OT built in

supply voltage	DC 10...55 V
power consumption	max. 0,5 W
load current	max. 400 mA
Maximum short circuit current I_{cn}	100 A

Type VEGAVIB VB6*.GX/CK**Z**
with intrinsically safe electronics insert VB60Z built in

Supply and signal circuit — in type of protection Intrinsic Safety Ex ia IIC
only for connection to a certified intrinsically safe circuit with the following maximum values:

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

effective internal capacitance negligible
effective internal inductance negligible

Type VEGAVIB VB6*.GX/CK**N**
with intrinsically safe electronics insert VB60N built in

Supply and signal circuit — in type of protection Intrinsic Safety Ex ia IIC/IIB
or Ex ib IIC/IIB
only for connection to a certified intrinsically safe circuit with the following maximum values:

Ui = 20 V
Li = 103 mA
Pi = 516 mW

effective internal capacitance negligible
effective internal inductance Li < 5µH

Thermal data

The max. surface temperature is the higher one of the values listed below.

Permitted process temperature at the probe	
Type VEGAVIB VB61/3/5/7(*).GXA/C****	-40 °C...+150 °C
Type VEGAVIB VB61/3/5/7(*).GXB****	-40 °C...+250 °C
Type VEGAVIB VB61/3/5/7(*).GXE/G****	-40 °C...+150 °C
Type VEGAVIB VB61/3/5/7(*).GXF****	-40 °C...+250 °C
Type VEGAVIB VB62/6(*).GXT****	-40 °C...+80 °C
Type VEGAVIB VB62/6(*).GXC/K/M****	-20 °C...+80 °C
Type VEGAVIB VB62/6(*).GXL****	-40 °C...+150 °C
Max. surface temperature T at the probe	process temperature + 6K
Permitted ambient temperature at the electronics enclosure Zone 20 or Zone 21 dust	-40 °C...+60 °C
Maximum surface temperature at the electronics enclosure Zone 20 dust	
Type VEGAVIB VB6*(*).GX**C/R/R** With thermos fuse limited to	98°C
Type VEGAVIB VB6*(*).GX**N***	ambient temperature +23K
Type VEGAVIB VB6*(*).GX**Z***	ambient temperature +43K
Maximum surface temperature at the electronics enclosure Zone 21 dust	
Type VEGAVIB VB6*(*).GX**C/R/T** With thermos fuse limited to	98°C
Type VEGAVIB VB6*(*).GX**N***	ambient temperature +23K
Type VEGAVIB VB6*(*).GX**Z***	ambient temperature +36K
Degree of protection according to IEC/SANS 60529	IP66

Based on the following documentation: BVS 04 ATEX E 079 Supplement 4

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 OF USE (X)

The prospective short-circuit current I_{cn} must not exceed the specified value.

In case of extremely ignitable dusts (MIE < 3 mJ) the equipment must not be used in areas where intensive charging processes are to be expected.

4. CONDITIONS OF CERTIFICATION

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

5. 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	: Vibrating Level Switch
Model/Type	: VEGAVIB VB6(*).*******
Serial No.	: ---
Ex Rating	: Ex ta IIIC T* Da or Ex ta/tb IIIC T* Da/Db or Ex tb IIIC T* Db IP66 *see manual
IA Certificate No	: S-XPL/13.0475 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.
v) A revision certificate replaces all previous version of the certificate.
vi) * - Only covers equipment Imported between the "Issued" and "Expire" dates.
vii) 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:

D Maree
Technical Specialist
EXPLOLABS EXPLOSION PREVENTION SERVICES