EXPLOLABS
Explosion Prevention Services
(Pty) Ltd
Reg No: 1999/027771/07

7 Spanner Rd / PO Box 467
Olifantsfontein
1665
Tel: +27 (11) 316 4601
Fax: +27 (11) 316 5670
E-mail: admin-mgr@explolabs.co.za

GOVERNMENT APPROVED TEST LABORATORY

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

IA CERTIFICATE

Date Issued: **06 Apr 2022**
*Expiry date: **06 Apr 2025**

Issue: 0

Ex – Type Examination Certificate

Certificate Number: **S-XPL/22.0447 X**
Equipment: **Capacitive level switch**
Model / Type: **VEGACAP CP6*.GI*****
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/22.0447 X

And as described in the Explolabs file number **XPL/22664/22.0447** 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 **IEC 60079-0: 2011 Ed 6**	Explosive atmospheres Part 0: Equipment — General requirements
SANS 60079-11: 2012 Ed 4 **IEC 60079-11: 2011 Ed 6**	Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"
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	TX°C
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	

1. GENERAL

The marking of the Capacitive level switch shall include the following:
Ex ia/tb IIIC TX °C Da/Db resp.
Ex ia tb IIIC TX °C Db

The capacitive level switches type VEGACAP CP6*.GI***** are used for monitoring or control of filling levels in explosion hazardous areas. The apparatus may be operated in explosion hazardous dust atmospheres.

Mechanical basic execution of the electrodes:

Type	Electrodes
VEGACAP CP62	partly insulated rod electrode
VEGACAP CP63	fully insulated rod electrode
VEGACAP CP64	fully insulated rod electrode for viscous and adherent filling materials
VEGACAP CP65	partly insulated cable electrode
VEGACAP CP66	fully insulated cable electrode

Technical data:

Thermal data:

Permitted process temperature at the probe (EPL Da or Db)
with PTFE-insulation - 50°C ... + 150 °C
with PE/PA –insulation - 40°C ... + 80 °C
with PTFE-insulation high temperature-version - 50°C ... + 200°C
Permitted ambient temperature range at the electronics enclosure (EPL Db) - 40°C ... + 60 °C

The capacitive level switch VEGACAP CP6*.GI ***** is marked with T65 °C for the max. permissible ambient temperature at the housing of $T_{amb,\ max.}$ = 60 °C and a temperature of the medium at the measuring sensor of T_{med} = 65 °C.

At higher temperatures of the medium at the measuring sensor of T_{Med} = 65 °C, the max. surface temperature of the complete capacitive level switch is equal to T_{med} .

For zone 20 applications in the area of the sensor:

The measuring sensor is 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).
Observe manual of the manufacturer for additional hints.

Electrical data:

Type VEGACAP CP 6* .GI**C** with built in electronics insert type CP60C	
Supply (Terminals 1,2)	AC 20 ... 253 V, 50/60 Hz or DC 20 ... 253 V, max. 1 W Um = 253 V AC
Output	contactless switch
Standby current	<3 mA
load current	Max. 400 mA

Type VEGACAP CP 6*.GI**R** with built in electronics insert type CP60R	
Supply (Terminals 1,2)	AC 20 ... 253 V, 50/60 Hz or DC 20 ... 72 V Um = 253 V AC
Power	1...8 VA, max. 1.6 W
Relay circuit	
(Terminals 3, 4, 5)	max. AC 253 V, 3 A, 500 VA
(Terminals 6, 7, 8)	max. DC 253 V, 1 A, 41 W

Type VEGACAP CP 6*.GI**T** with built in electronics insert type CP60T Supply (terminals 1,4) Power transistor output (Terminals 2, 3)	 DC 10 ... 55 V Um = 253 V AC max. 0.5 W max. 400 mA, DC 55 V

Type VEGACAP CP 6*.GI**Z** with built in electronics insert type CP60Z Supply and signal circuit (terminals 1 [+], 2 [-] in the electronics compartment or in the terminal compartment regarding the double chamber enclosure version)	in type of protection Intrinsic Safety Ex ia IIC only for connection to a certified intrinsically safe circuit Maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW Characteristic line: linear The effective internal capacitances and inductances are negligibly small.

Based on the following documentation: IECEx TUN 17.0013X Issue No.: 0

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. At the plastic parts of the capacitive level switches there is a danger of ignition by electrostatic discharge. Charge generating processes have to be avoided there.

ii. The cable entries and blanking elements in the housing have to be suitably certified for an operating temperature range of -40 °C to 80 °C or the cable entries and blanking elements of the manufacturer have to be used.

iii. At risks by pendulum or vibration the respective parts of the level switches have to be secured effectively against these dangers.

iv. The max. surface temperature for higher temperatures T_{med} = 65 °C has to be taken from the "Thermal data" mentioned above and from the manual of the manufacturer

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	: Capacitive level switch
Model/Type	: VEGACAP CP6*.GI*****
Serial No.	: ---
Ex Rating	: Ex ia/tb IIIC TX °C Da/Db resp. Ex ia tb IIIC TX °C Db
IA Certificate No	: S-XPL/22.0447 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:

L Odendaal
Technical Specialist
EXPLOLABS EXPLOSION PREVENTION SERVICES