Mining And Surface Certification (Pty) Ltd

2015/021934/07

THIS CERTIFICATE IS ISSUED AS AN I.A. CERTIFICATE IN TERMS OF THE MINE HEALTH AND SAFETY ACT, ACT NO 29 OF 1996 (AND REGULATIONS), THE OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993) AND REGULATION 17 OF THE ELECTRICAL MACHINERY REGULATIONS

IA CERTIFICATE	MASC S/20-9000X	**Issue**	1	
Issue Date	18 January 2023	**Expiry Date**	18 January 2026	
**** Based on Certificate No**	IECEx KIWA 19.0015X	**Issue / Variations / Amendment**		0
Requested by	VEGA Grieshaber KG, Am Hohenstein 113, 77761 Schiltach, Germany			
Manufacturer	VEGA Grieshaber KG, Am Hohenstein 113, 77761 Schiltach, Germany			
Additional Manufacturing sites	VEGA Americas, Inc., 3877 Mason Research Parkway, 45036 Mason, Ohio/USA			
Description	Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23 for use in explosive atmospheres caused by the presence of combustible gases or dusts, are used for monitoring and control of filling levels by means of microwave technology. The electronics, mounted in a plastic enclosure converts the reflected microwave echo, indicating the filling level, into a 2-wire 4...20mA HART signal. Operation and control of the sensor can either be through the wired connection or via smart phone and VEGA Tools-App (Bluetooth). Refer to Annex below for a full description			
Equipment	Radar sensors	**Type**	VEGAPULS 21, 31, C 21, C 22, C 23	
MARKING: **Original marking as per certificate ** remains applicable.** **IA number must be added.**	**Type:** **Ex Marking:**	VEGAPULS 21, 31, C 21, C 22, C 23 • VEGAPULS 21, 31: o Ex ia IIC T4 Ga or Ga/Gb • VEGAPULS C 21, C 22, C 23: o Ex ia IIC T4 Ga or Ga/Gb o Ex ia IIIC T134°C Da, Da/Db		
	IA Number: **Warnings:**	MASC S/20-9000X (To be additionally marked on equipment) See Base Certificate ** (original marking must be applied)		
Quality Assurance report (QAR) / Notification (QAN) **Expiry date:**	DE/TUN/QAR06.0002/12			

Compliance:

The equipment as described above has been allocated the rating Explosion Protected 'as above' utilizing the SANS/IEC Standards:

- SANS (IEC) 60079-0: 2019 (2017) Equipment - General requirements
- SANS (IEC) 60079-11: 2012 (2011) Equipment protection by Intrinsic Safety 'i'
- SANS (IEC) 60079-26: 2016 (2014) Equipment with Equipment Protection Level (ELP) Ga

Note: This certificate covers only the listed standards and does not imply compliance to any other standard, related or inferred. It is up to the manufacturer to ensure that the product complies to all relevant standards for the application.

Special conditions of safe use "X":

- Refer to Annex A below for more details.

Conditions of manufacture:

- Refer to Annex A below for more details.

Terine Orsmond
PROJECT MANAGER

Regardt Zeelie
TECHNICAL SPECIALIST

This certificate covers all units sold as long as the QAR/QAN remains valid.
According to the relevant requirements of the MHS Act and the OHS Act, production units of explosion protected equipment are required to comply with third party quality assurance (an approved mark scheme or batch testing by an accredited test laboratory).

Apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:
SANS 10086 requirements;
Any conditions mentioned in the above certificate;
Any relevant requirements of the MHS Act;
Any restrictions and conditions enforced by the chief inspector of mines, principal inspector (Group I equipment) or chief inspector of factories (Group II equipment).

Mining And Surface Certification (Pty) Ltd
Unit 5 Lelyta Park, 45 Jurg Avenue, Hennopspark, Ext 87
Centurion 0157

ANNEX A

This document is based on and must be read in conjunction with certificate IECEx KIWA 19.0015X

Description (According to Base Certificate) **

Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23 for use in explosive atmospheres caused by the presence of combustible gases or dusts, are used for monitoring and control of filling levels by means of microwave technology. The electronics, mounted in a plastic enclosure converts the reflected microwave echo, indicating the filling level, into a 2-wire 4...20mA HART signal. Operation and control of the sensor can either be through the wired connection or via smart phone and VEGA Tools-App (Bluetooth).

VEGAPULS 21 and 31 are electrically identical where type 21 is equipped without a display module and a blind cover and type 31 is equipped with a display module and a windowed cover.

Ambient temperature range for VEGAPULS 21, 31: -40°C to +70°C
Ambient temperature range for VEGAPULS C 21, C 22, C 23: -40°C to +80°C
Process temperature range: -40°C to +80°C

Electrical Data
VEGAPULS C 21, C 22, C 23:
Supply and output circuit (+ (Brown wire), - (Blue wire)):
in type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:
Ui = 30 V; Ii = 131 mA; Pi = 983 mW; Ci = 0.18 nF/m; Li =0.65 µH/m

VEGAPULS 21, 31:
Supply and output circuit (+ (terminals 1), - (terminal 2)):
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; Ci ≈ 0 nF; Li ≈ 0 µH

Routine tests (as per NL/KIWA/ExTR19.0017/00):
Radar sensors types VEGAPULS 21, 31 shall be subjected to inspection of the encapsulation process.

** Full description as per base certificate.

"Refer to description in Base Certificate ** (and any applicable schedules/issues/variations)."

Standard compliance	See Base Certificate ******
Special conditions of safe use ("X")	• For electrical and thermal data refer to Description above. • The equipment shall be installed and maintained such that hazards caused by electrostatic discharge are excluded.
Conditions of manufacture	• No additional conditions as may be applicable for the base certificate **
Conditions of Certification	• This IA Certificate covers all units sold from the date of this document to the expiry date of this certificate. • As per ARP 0108 / NcOP 2021 a maximum three yearly review is required on this IA Certificate (expiry is determined as per the QAR/QAN/QMS expiry date). • The apparatus must be additionally marked with the MASC marking details above. • This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date. • The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by the certificate on which this IA Certificate is based and any other conditions in this IA Certificate. • The certification on which this IA Certificate is based must remain valid. • The extent of the requirements in the ARP 0108 (or regulations), SANS 10108 and any other applicable regulations on the certification of the equipment must remain unchanged. • The Ex quality assurance notification/report for the equipment must remain valid.
Conclusion:	• From the above and the selective examination of the documentation, nothing contrary to the requirements of the applicable standards was found, provided that the equipment / component is used as described in the above document / certificate and according to the MASC conditions below. A MASC IA certificate is issued based on the work done as per the Base Certificate ******. • The routine tests for production units according to the Base Certificate ** must be complied with (if applicable).

GOVERNMENT APPROVED INSPECTION AUTHORITY

MASC

Mining And Surface Certification (Pty) Ltd

2015/021934/07

THIS CERTIFICATE IS ISSUED AS AN I.A. CERTIFICATE IN TERMS OF THE RELEVANT REGULATIONS OF THE MINERALS ACT (INCORPORATING THE MINE HEALTH AND SAFETY ACT) AND THE ELECTRICAL MACHINERY REGULATIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT.

IA CERTIFICATE	MASC S/20-9000X	**Issue**	0
Issue Date	23 January 2020	**Expiry Date**	23 January 2023
**** Based on Certificate No**	IECEx KIWA 19.0015X	**Issue / Variations / Amendment**	0
Requested by	VEGA Grieshaber KG, Am Hohenstein 113, 77761 Schiltach, Germany		
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		

Description

Radar sensors types VEGAPULS 21, 31, C 21, C 22, C 23 for use in explosive atmospheres caused by the presence of combustible gases or dusts, are used for monitoring and control of filling levels by means of microwave technology. The electronics, mounted in a plastic enclosure converts the reflected microwave echo, indicating the filling level, into a 2-wire 4...20mA HART signal. Operation and control of the sensor can either be through the wired connection or via smart phone and VEGA Tools-App (Bluetooth).

VEGAPULS 21 and 31 are electrically identical where type 21 is equipped without a display module and a blind cover and type 31 is equipped with a display module and a windowed cover.

Ambient temperature range for VEGAPULS 21, 31: -40°C to +70°C
Ambient temperature range for VEGAPULS C 21, C 22, C 23: -40°C to +80°C
Process temperature range: -40°C to +80°C

Electrical Data
VEGAPULS C 21, C 22, C 23:
Supply and output circuit (+ (Brown wire), - (Blue wire)):
in type of protection intrinsic safety Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:
Ui = 30 V; Ii = 131 mA; Pi = 983 mW; Ci = 0.18 nF/m; Li =0.65 µH/m

VEGAPULS 21, 31:
Supply and output circuit (+ (terminals 1), - (terminal 2)):
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; Ci ≈ 0 nF; Li ≈ 0 µH

Routine tests (as per NL/KIWA/ExTR19.0017/00):
Radar sensors types VEGAPULS 21, 31 shall be subjected to inspection of the encapsulation process.

** Full description as per base certificate.

Equipment	Radar sensors	**Type**	VEGAPULS 21, 31, C 21, C 22, C 23

MARKING: **Original marking as per certificate * remains applicable.** **IA number must be added.**	**Type:**	VEGAPULS 21, 31, C 21, C 22, C 23

	Ex Marking:	• VEGAPULS 21, 31:
		  ○ Ex ia IIC T4 Ga or Ga/Gb
		• VEGAPULS C 21, C 22, C 23:
		  ○ Ex ia IIC T4 Ga or Ga/Gb
		  ○ Ex ia IIIC T134°C Da, Da/Db

	IA Number:	MASC S/20-9000X (To be additionally marked on equipment)
	Warnings:	See Base Certificate ** (original marking must be applied)
Quality Assurance report (QAR) / Notification (QAN) Expiry date:		DE/TUN/QAR06.0002/09

Apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:
SANS 10086 requirements;
Any conditions mentioned in the above report
Any restrictions and conditions enforced by the chief inspector of mines or chief inspector of factories
Any relevant requirements of the MHS Act.

Mining And Surface Certification (Pty) Ltd
Unit 5 Lelyta Park, 45 Jurg Ave, Hennopspark Ext 87
Centurion, 0157

IA CERTIFICATE: MASC S/20-9000X

Equipment: Radar Sensors types VEGAPULS 21, 31, C 21, C 22, C 23

Compliance:
The equipment as described above has been allocated the rating Explosion Protected Ex ia IIC T4 Ga or Ga/Gb and Ex ia IIIC T134°C Da, Da/Db utilizing the SANS/IEC Standards:

- SANS (IEC) 60079-0: 2019 (2017) Equipment - General requirements
- SANS (IEC) 60079-11: 2012 (2011) Equipment protection by Intrinsic Safety 'i'
- SANS (IEC) 60079-26: 2016 (2014) Equipment with Equipment Protection Level (ELP) Ga

Special conditions of safe use "X":

- For electrical and thermal data refer to Description above.
- The equipment shall be installed and maintained such that hazards caused by electrostatic discharge are excluded.

Conditions of manufacture:

- No additional conditions as may be applicable for the base certificate **

Regardt Zeelie
TECHNICAL SPECIALIST

Roelof Viljoen
TECHNICAL SPECIALIST

This certificate covers all units sold as long as the QAR/QAN remains valid.
According to the relevant requirements of the MHS Act and the OHS Act, production units of explosion protected equipment are required to comply with third party quality assurance (an approved mark scheme or batch testing by an accredited test laboratory).

ANNEX A

This document is based on and must be read in conjunction with certificate IECEx KIWA 19.0015X

Description (According to Base Certificate *)	
"Refer to description in Base Certificate ** (and any applicable schedules/issues/variations)."	
Standard compliance	See Base Certificate *
Special conditions of safe use ("X")	• As above
Conditions of manufacture	• As above
Conditions of Certification	• This IA Certificate covers all units sold from the date of this document to the expiry date of this certificate. • As per ARP 0108 a maximum three yearly review is required on this IA Certificate (expiry is determined as per the QAR/QAN/QMS expiry date). • The apparatus must be additionally marked with the MASC marking details above. • This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date. • The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by the certificate on which this IA Certificate is based and any other conditions in this IA Certificate. • The certification on which this IA Certificate is based must remain valid. • The extent of the requirements in the ARP 0108 (or regulations), SANS 10108 and any other applicable regulations on the certification of the equipment must remain unchanged. • The Ex quality assurance notification/report for the equipment must remain valid.
Conclusion:	• From the above and the selective examination of the documentation, nothing contrary to the requirements of the applicable standards was found, provided that the equipment / component is used as described in the above document / certificate and according to the MASC conditions below. A MASC IA certificate is issued based on the work done as per the Base Certificate **. • The routine tests for production units according to the Base Certificate ** must be complied with (if applicable).

Mining and Surface Certification (Pty) Ltd Reg No: 2015/021934/07
Directors: Roelof Viljoen & Francoius du Toit
Unit #5, Lelyta Park, 45 Jurg Avenue, Hennopspark Ext 87, Centurion, 0157
P.O. Box 14344, Clubview, 0014
Tel: 012 653 2959 ◊ Fax: 086 605 8568
e-mail: **info@masc-ex.co.za**