

# Ship approvals and installation instructions

## VEGAPULS 21, 31

CCS - HB23PTB00028\_03

RINA - ELE112420XG

ClassNK - TA20396M

ABS - 20-2022469-PDA

DNV-GL - TAA00002VF

LR - LR2020655TA

BV - 65911/A0 BV



Document ID: 64874



# VEGA



## **Installation instruction**

VEGAPULS 21 and 31 must only be connected to controllers with appropriate ship approval and must not be powered directly from the onboard power supply.



中国船级社  
CHINA CLASSIFICATION SOCIETY

证书编号/Certificate No.  
HB23PTB00028\_03

## 型式认可证书 CERTIFICATE OF TYPE APPROVAL

兹证明本证书所述制造厂具备按照下列标准的要求生产本证书所列产品的能力和条件。

This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.

制造厂/Manufacturer

VEGA Grieshaber KG

地址/Address

Am Hohenstein 113, D-77761 Schiltach, Germany

产品名称/Product

物位传感器  
Level Sensor  
传感器  
Sensor

附加标志/Notations

无/Nil.

认可标准/Approval Standard

1. 中国船级社《钢质海船入级规范》(2022)及其变更通告 第4篇第1章, 第7篇第2章  
Part Four Chapter 1, Part Seven Chapter 2 of China Classification Society Rules for Classification of Sea-Going Steel Ships 2022 and its Change Notices

用于/Intended for

船舶与海上设施/Ships and Offshore Installations

产品明细/Product Description

传感器/Sensor (M001)

名称/Name	属性(值)/Value	单位/Unit
产品名称/Product Name	Level Sensor	
型号/Type	VEGAPULS 21 / 31	
电源/Power Source	see additional pages	

证书有效期至/This Certificate is valid until 2027年04月01日/ Apr. 01, 2027

发证机构/中国船级社汉堡分社  
Issued by CCS Hamburg Branch

签发日期 2023年07月17日  
Date Jul. 17, 2023

本证书根据中国船级社规范和相关法规签发, 附有证书页为一个整体, 必须同时使用。纸质证书每页均须由本社盖章方为有效, 电子证书含数字签名方为有效。本证书复印件无效。任何单位和个人不得篡改或伪造本证书的部分内容。有关方对所持证书的真实性有疑问时, 可向本社检验机构咨询。This Certificate is issued pursuant to the Rules of the Society and related regulation. All pages of the certificate are taken as a whole and are used simultaneously. No paper certificate page is valid without bearing the stamp of the Society, no electronic certificates is valid without the digital signature, and no copied form of the certificate is regarded as valid. Any part of the certificate is not to be extracted or obfuscated by any unit or individual in any form. Related parties who are doubtful about the authenticity of the certificate must inquire of the Society or its offices.

Form No. T01

联系方式/Contact Us, 见本社官方网站/See official web site of the Society (<http://www.ccs.org.cn>)

UTN:P023-54703881



第1页共3页/Page 1 of 3

**批准的图纸/Approved Drawings**

图纸批准号/ Drawings Approval No. : NP20PPP00879

**产品认可试验报告/ Approval Test Report**

试验报告编号/ Test Report No. : see additional pages  
试验报告日期/ Test Report Date :

**认可后的产品检验方式/ Method of Product Inspection after Approval**

按规范只认可不进行产品检验的产品/The product approved only in term of the rules:  
认可后的产品检验由制造厂按本社批准的产品检验计划进行检验, 经检验合格后由制造厂签发合格证明, 并连同该产品的本社认可证书复印件一并交付用户, 制造厂对产品符合公约、法规、本社规范和本社认可的标准规定负责。  
After approval, product inspection should be carried out by the Manufacturer in accordance with the product inspection scheme approved by the Society. Upon satisfactory inspection, and the Quality Certificate issued by the Manufacturer should be provided to the purchaser together with the copy of the approval certificate issued by the Society. The manufacturer should take responsibility for the product being in compliance with the convention, statutory regulation, the Society rules and the standard accepted by the Society.

**认可保持条件/ Maintenance Requirements of Approval**

- 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。  
After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.
- 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报本社批准。  
The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.
- 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。  
Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.
- 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件, 工厂应予以配合。  
Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.
- 如果属于获得型式认可B模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 证书获得者应接受本社每年一次的定期审核, 定期审核日为认可证书期满之日对应的每一周年日, 检查工作应在周年日的前后三个月内进行。  
If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The date of periodical audit shall be each anniversary date which corresponds to the date of expiry of the relevant certificate and the periodical audit shall be done within a time span of three months before and after the annual surveillance date.

**备注/Remarks**

本证书由原型式认可证书 (No. HB23PTB00010\_11) 变更并替代原证书。  
This Certificate is modified from and supersedes the previous Type Approval Certificate No. HB23PTB00010\_11.

本社已审核了产品厂无石棉声明, 但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。

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证书编号/Certificate No. **HB23PTB00028\_03**

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The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society. However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

Manufacturer/Address:

1. VEGA Grieshaber KG / Am Hohenstein 113, 77761 Schiltach, Germany
2. VEGA Americas, Inc. / 3877 Mason Research Parkway, Mason, OH 45036, USA

**中国船级社汉堡分社**

**CCS Hamburg Branch**

注：本证书含有附页，共1页

Note: The certificate is attached with additional 1 page(s)

**1. Product Description:**

Name	Level Sensor
Type	VEGAPULS 21 / 31
Power source	12...35 V DC
Description	Radar sensor for liquids and bulk solids Measuring range: 15m
Output signal	4...20 mA/HART
Applicable medium	liquids and bulk solids
Process temperature	Up to -40...+80°C
Process pressure	-1...+3 bar
Accuracy	Up to ± 2 mm
Firmware	1.xx
Degree of protection	Up to IP66/IP67
Explosion-Proof marking	It has IECEx etc. certificate, such as follow: Ex ia IIC T4 Ga or Ga/Gb IECEX Certificate of Conformity No.: IECEx KIWA 19.0015X Issuing Body: Kiwa Nederland B.V.

**2. Approval Test Report**

No	Test Report No.	Test Report Date	Laboratory / Address
1	1-03_PULS 31_F2_1	2019.6.11	VEGA Grieshaber KG / Am Hohenstein 113, 77761 Schiltach, Germany
2	1-04_PULS 31_F1_1	2019.3.6	
3	1-09_PULS 31H_F1_1	2019.4.8	
4	3-4_PULS 31_F1_1	2019.1.30	
5	20-12891A	2020.04.07	PAConsult GmbH / Birkenau 3, 22087 Hamburg, Germany
6	20-13294B	2020.06.22	
7	2001-0061601R01B	2020.05.14	Hansecontrol Zertifizierungsgesellschaft mbH / Schleidenstrasse 1, 22083 Hamburg, Germany

**3. Limitation/Application:**

Please see production operating instructions.

The Ex-Proof parameters of the approved products originate from Ex- Certificate received from manufacturer, not approved by CCS.

The above mentioned devices can be installed with an Ex-approval as well as without Ex-approval according to the field of application.

If the device is used for explosive-proof purposes, the explosion-proof certificate is essential, and the Type Approval Certification will be invalid if the Ex-approved products do not hold valid Ex Certificate. For Ex-devices it is absolutely necessary to affix the above ignition protection label to the device.

Whereas an application in non-explosive area does not require an Ex-certificate.




**TYPE APPROVAL CERTIFICATE**  
**No. ELE112420XG**

**This is to certify** that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	<b>Radar sensor for continuous level measuring</b>
<i>Type</i>	<b>VEGAPULS 21 and 31</b>
<i>Applicant</i>	<b>VEGA GRIESHABER KG Am Hohenstein 113 , 77761 Schiltach GERMANY</b>
<i>Manufacturer</i>	<b>VEGA GRIESHABER KG</b>
<i>Place of manufacture</i>	<b>Am Hohenstein 113 , 77761 Schiltach GERMANY</b>
<i>Reference standards</i>	<b>Rules for the classification of ships.- Part C - Machinery, systems and fire protection. - Ch.3, Sect. 6, Table 1.</b>

Issued in **HAMBURG** on **July 22, 2020**. This Certificate is valid until **July 21, 2025**

  
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**RINA Services S.p.A.**  
**Giuseppe Russo**

This certificate consists of this page and 1 enclosure



## TYPE APPROVAL CERTIFICATE

No. **ELE112420XG**

Enclosure - Page 1 of 1

**VEGAPULS 21 and 31**

### ...Product description:

The VEGAPULS 21/31 are radar level sensors for continuous level measuring.

### Main characteristics:

Operating voltage: 12 ... 35 V DC (24 V DC nom.)

Output signal: two-wire 4...20mA /HART

Ambient temperature range: -40°C to 70°C

Degree of protection: IP66/67

Certificates for use in hazardous areas\*:

IECEX KIWA 19.0015X:

Type of protection: Ex ia

### Process characteristics:

Max. measuring range: up to 15 m

Max. accuracy: ±2 mm

Max. process pressure: -1...+3 bar

Process temp.: -40°C ... +80°C

### Documents:

VEGAZW-6-64984

Drawings: BB1512-1; BB1540-3; GE4049,01; LP1512-1; LP1540-3; SB1512-1; SB1540-3;

### Test reports:

Hansecontrol Zertifizierungsgesellschaft mbH: - 2001-0061601R01B\_EMC;

Paconsult: - 20-12891A-BE-VEGAPULS (VEGA);

### Remarks:

- The products fulfill EC-Code: 31/41.

- The EMC requirements for installation on the Bridge and Deck Zones will be fulfilled by the equipment.

- For Passenger Vessels, level switches are not to be installed on flammable fluid tanks where they require tank wall penetration below the tank top.

- The sensing device is to be fitted with a valve or arranged such that it may be isolated and removed without emptying the tank or without impairing the integrity of pressurized system.

- Each particular application and installation is to be specifically approved in conjunction with the relevant system and tank arrangements.

- Wireless data communication used for vessel services (such as essential services, category I/II/III systems, etc.) will be specially considered provided the use of the wireless data communication results in an improvement in the safety of the vessel, compared to wired data communications.

\* For installation in hazardous areas the requirements of the applicable safety certificates are to be complied with.

**HAMBURG July 22, 2020**





## NIPPON KAIJI KYOKAI

### TYPE APPROVAL CERTIFICATE FOR LIQUID LEVEL GAUGE

Certificate No. TA20396M

**This is to certify** that the undernoted product(s) has/have been approved in accordance with the requirements specified in the Chapter 7, Part 6 and Chapter 4, Part 7 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" and the relevant Society's Rules.

This certificate is issued to

Manufacturer:	<b>VEGA Grieshaber KG</b>
Place of Manufacturing:	<b>Am Hohenstein 113, 77761 Schiltach, Germany</b>
Product description:	<b>Radar sensor for continuous measurement</b>
Model:	<b>VEGAPULS 21 / 31</b>

Approval No.:	<b>20LG003</b>
Valid until:	<b>29 July 2025</b>

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on 30 July 2020.



T. Shimada  
General Manager  
Machinery Department

Note: The manufacturer, if desired, is requested to apply to the Society for renewal prior to the expiration date.

NIPPON KAIJI KYOKAI

Attached sheet -1/2 to the Certificate No. TA20396M

### Specification & documents:

#### 1. Particulars:

Power Supply	: DC 12 ~ 35 V (DC24V nom.)
Ambient Temperature	: -40 ~ 70 °C
Process Temperature	: -40 ~ 80 °C
Process pressure	: -1 ~ +3 bar
Measuring Range	: 15 m
Accuracy	: ±2 mm
Output Signal	: 4-20mA / HART

#### 2. Components and reference drawings:

Technical description for VEGAPULS 21 and VEGAPULS 31	(VEGAZW-6-64984, 23 June 2020)
Operating Instruction VEGAPULS 21	(ID : 58351)
Operating Instruction VEGAPULS 31	(ID : 57820)
VEGAPULS 21/31	(GE4049)
PULS30-H	(SB1540-3, BB1540-3, LP1540-3)
BR-PL-2DIS (for VEGAPULS 31)	(SB1512-1, BB1512-1, LP1512-1)

#### 3. Documentation and test reports:

TEST REPORT No.20-12891A	(Environmental test, 6 April 2020)
TEST REPORT 2001-0061601R01B	(EMC test, 14 May 2020)
TEST REPORT No.20-13294B	(Flame retardant test, 22 June 2020)
Resistance to pressure	(Prüfbericht Nr. 1-4_Puls 31_F1_1, 6 March 2019)
Detailed development procedure	(Procedure instruction no.:04-04/A1, 3 Nov 2004)

- To be continued -

NIPPON KAIJI KYOKAI

Attached sheet -2/2 to the Certificate No. TA20396M

**Test items & approval conditions:**

1. Test items: (Applied testing items are marked with X.)

ENVIRONMENTAL TESTS (IACS UR E10 rev.7 basis)		Mark
External examination		X
Operation test and performance test		X
Electric power supply failure test		X
Power supply fluctuation test	Electric	--
	Pneumatic and Hydraulic	--
Insulation resistance test		X
High voltage test		X
Pressure test (Pneumatic and Hydraulic)		X
Dry heat test (Temperature 80°C × 16 hours)		X
Damp heat test		X
Vibration test (Acceleration ±0.7g × 1.5 hours)		X
Inclination test		--
Cold test (Temperature -40°C × 16 hours)		X
Salt mist test		--
Electrostatic discharge immunity test		X
Radiated radio frequency immunity test		X
Conducted low frequency immunity test		--
Conducted high frequency immunity test		X
Burst / Fast transient immunity test		X
Surge immunity test		--
Radiated emission test		X
Conducted emission test		--
Flame retardant test		X

2. Approval condition:

- 1) The following tests for individual products are to be carried out at the manufacturing plant combined with proper level indicating equipment.
  - (a) Visual Inspection
  - (b) Performance Test
- 2) Compatibility of construction material with intended cargos is to be checked on each vessel.

- The End -



CERTIFICATE NUMBER	20-2022469-PDA
EFFECTIVE DATE	18-Aug-2020
EXPIRY DATE	17-Aug-2025
ABS TECHNICAL OFFICE	Hamburg Engineering Department

## CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

### VEGA GRIESHABER KG

located at

ZERTIFIKATSWESEN, AM HOHENSTEIN 113, D-77761 SCHILTACH  
, Germany

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

#### Product Pulse-Radar Level Measurement System

Model VEGAPULS 21, 31

This Product Design Assessment (PDA) Certificate remains valid until 17/Aug/2025 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Efstratios Maliatsos, Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

Certificate of Product Design Assessment Rev.3  
of 1

Page 1

Sensitivity: Internal & Restricted

Electronically published by ABS Hamburg.  
Reference T2022469, dated 18-AUG-2020.

### VEGA GRIESHABER KG

ZERTIFIKATSWESEN

AM HOHENSTEIN 113

D-77761 SCHILTACH

Germany

Telephone: 49-7-836-50-0

Fax: 49-7-836-50-201

Email: info@vega.com

Web: www.vega.com

**Tier: 3 - Type Approved, unit certification not required**

**Product:** Pulse-Radar Level Measurement System

**Model:** VEGAPULS 21, 31

**Intended Service:**

Continuous level measurement of liquids on ACC, ACCU and ABCU Classed Vessels.

#### Description:

Non contact level measurement of running time of microwaves by high frequency microwave pulses in GHz range for monitoring of distance between sensor and surface of substance.

VEGAPULS 31 is equipped with display and transparent cover, VEGAPULS 21 is without display and blind cover.

#### Rating:

Measuring ranges:	up to 15 m;
Process pressure ranges:	-1 ... 3 bar;
Ambient temperature ranges:	-40°C ... 70°C;
Process temperature ranges:	-40°C ... 80°C
Output signals:	4 ... 20 mA/ HART®;
Operating voltage:	12...35V DC
Degree of protection:	IP66/IP67;
Optional:	Bluetooth 5.0;
Certified safe type:	Ex ia IIC T4 Ga or Ga/Gb (IECEx KIWA 19.0015X);

#### Service Restriction:

1. Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
2. Level sensing devices are to be arranged such that they may be removed without emptying tanks and without impairing the integrity of pressurized systems.
3. VEGAPULS 21 and 31 must only be connected to controllers with appropriate ship approval and must not be powered directly from the on board power supply.

#### Comments:

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. Each particular application and installation is to be specifically approved in conjunction with the relevant systems and tank arrangements.

#### Notes/Drawing/Documentation:

Drawing No. 1-03\_PULS 31\_F2\_1, Water Tightness of Housings (IP Code), Revision: 0, Pages: 3  
 Drawing No. 1-09\_PULS 31H\_F1\_1, flammability test, Vega Internal, 06.11.2019, Revision: 0, Pages: 5  
 Drawing No. 1-4\_PULS 31\_F1\_1, Resistance to pressure, Vega Internal, 06.03.2019, Revision: 0, Pages: 3  
 Drawing No. 20-12891A, Vegapuls 21,31, ENV Report, Paconsult, 06.04.2020, Revision: -, Pages: -  
 Drawing No. 20-13294B, Test Report Flammability, Vegapuls 31, Paconsult, 22.06.2020, Revision: 0, Pages: 15  
 Drawing No. 2001-0061601R01B, Test-Report EMC, Vegapuls 31, Hermes, 14.05.2020, Revision: B, Pages: 31  
 Drawing No. 3-4\_PULS 31\_F1\_1, temperature test, Revision: 0, Pages: 10  
 Drawing No. 57820-EN, Operating Instructions VEGAPULS 31, Revision: 0, Pages: 60  
 Drawing No. 58351-EN, Operating Instructions VEGAPULS 21, Revision: 0, Pages: 52  
 Drawing No. BB1512-1, Component layout BR-PL-2DIS, Revision: 1, Pages: 1  
 Drawing No. BB1540-3, Component layer PULS30-H, Revision: 3, Pages: 1  
 Drawing No. EPDM A-KJ 90-00, Flat gasket black EPDM, Revision: 0, Pages: 2  
 Drawing No. GE4049, VEGAPULS 21/31, Revision: 01, Pages: 1  
 Drawing No. HSK-K Metric, Cable gland black, Revision: 0, Pages: 1  
 Drawing No. IECEx KIWA 19\_0015x iss0, Ex certificate, Revision: -, Pages: -  
 Drawing No. Kynar 720, Process connection VEGAPULS 21/31, Revision: 0, Pages: 1

## VEGA GRIESHABER KG

ZERTIFIKATSWESSEN

AM HOHENSTEIN 113

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Germany

Telephone: 49-7-836-50-0

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Email: info@vega.com

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**Tier: 3 - Type Approved, unit certification not required**

Drawing No. LEXAN, Clear material for Cover, Revision: 0, Pages: 1  
Drawing No. LP1512-1, Trace Layout BR-PL-2DIS, Revision: 1, Pages: 1  
Drawing No. LP1540-3, Trace Layout PULS30-H, Revision: 3, Pages: 1  
Drawing No. Noryl, Electronic housing, Revision: 0, Pages: 1  
Drawing No. PEEK, NPT inlets PEEK, Revision: 0, Pages: 1  
Drawing No. PULS vs. SITRANS, Applicant vs. Privat Label List - VEGA/SIEMENS, Revision: 0, Pages: 4  
Drawing No. Presentation, Testing Program VEGAPULS 21/31, Revision: 1, Pages: 16  
Drawing No. Product Information, SYLGARD 517 Casting Compund, Revision: 0, Pages: 2  
Drawing No. SB1512-1, BR-PL-2DIS, Revision: 1, Pages: 1  
Drawing No. SB1540-3, PULS30-H, Revision: 3, Pages: 4  
Drawing No. TEO-T75/4T, Fla gasket G-thread FKM, Revision: 0, Pages: 1  
Drawing No. Testing Program, VEGAPULS-SITRANS LR, Revision: 0, Pages: 1  
Drawing No. VA04-11, Process description VEGA, Revision: 24, Pages: 1  
Drawing No. VALOX, Enclosure material, Revision: 0, Pages: 1  
Drawing No. VEGAZW-6-64984, Technical description VEGAPULS 21 and 31, Revision: 0, Pages: 15

### Terms of Validity:

This Product Design Assessment (PDA) Certificate remains valid until 17/Aug/2025 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

### STANDARDS

#### ABS Rules:

2020 Marine Vessel Rules: 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-6-2/9.11.3, 4-6-4/11.7, 4-6-4/13.5.6(d), 4-6-4/15.3.4(d), 4-8-3/1.7, 4-8-3/1.11, 4-8-3/13, 4-8-3/1.17.1, 4-9-9/13.1, 4-9-9/13.1

#### National:

NA

#### International:

NA

#### Government:

NA

#### EUMED:

NA

#### OTHERS:

NA

# TYPE APPROVAL CERTIFICATE

**This is to certify:**

**That the Level Transmitter**

with type designation(s)

**VEGAPULS 21, VEGAPULS 31**

Issued to

**VEGA Grieshaber KG  
Schiltach, Germany**

is found to comply with

**DNV GL rules for classification – Ships, offshore units, and high speed and light craft**

**Application :**

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

**Temperature D**  
**Humidity B**  
**Vibration A**  
**EMC B**  
**Enclosure B/D**

Issued at **Hamburg** on **2020-10-01**

This Certificate is valid until **2025-09-30**.

DNV GL local station: **Augsburg**

Approval Engineer: **Dariusz Lesniewski**



for **DNV GL**  
Digitally Signed By:  
Papanuskas, Joannis

**Joannis Papanuskas**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

**LEGAL DISCLAIMER:** Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2020-02

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## Product description

Radar sensor for non-contact level measurement of liquids or solids.

VEGAPULS 31 is equipped with display and transparent cover.

VEGAPULS 21 is without display and with blind cover.

Technical data:

Process temperature range:	-40 °C ... +80 °C
Measuring range:	15 m
Operating voltage	12 ... 35 V DC
Output signals:	4 ... 20 mA/HART
Process fitting:	G1½", 1½" NPT or R1½"
Process pressure:	-1 ... +3 bar
Degree of protection:	IP66/67/IP68 (5m)
Bluetooth 5.0	Optional, for configuration only

## Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

## Application/Limitation

To be supplied by type approved power supply.

## Type Approval documentation

As listed in the VEGA Reference Document: VEGAZW-6-64984 (Revision: 2020-06-23)

Type approval assessment report issued at Augsburg on 2020-05-26

## Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019.

## Marking of product

The products to be marked with:

- manufacturer name (VEGA)
- model name (VEGAPULS 21, VEGAPULS 31)
- serial number (s/n: xxxxxxxx)
- power supply ratings

## Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

## Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

<b>Manufacturer</b>	<b>Vega Grieshaber KG</b>	
<b>Address</b>	Am Hohenstein 113, Schiltach, 77761, Germany	
<b>Type</b>	Transmitters/Transducers	
<b>Description</b>	Radar sensor for continuous level measurement	
<b>Trade Name</b>	VEGAPULS 21 and VEGAPULS 31	
<b>Application</b>	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV5 as defined in Lloyd's Register Type Approval System, Test Specification Number 1 - March 2019.	
<b>Specified Standard</b>	Manufacturer's specification IACS unified requirements E10 (Rev.7 Oct 2018)	
<b>Ratings</b>	Rated supply voltage:	24 VDC
	Output:	4 ... 20 mA/HART
	Measuring range:	15 m
	Ambient temperature range device:	-40 °C ... +70 °C
	Ambient temperature range display:	-25 °C ... +80 °C
	Process fitting:	G1 ½", 1 ½" NPT or R1 ½"
	Process pressure:	-1 ... +3 bar
<b>Additional Tests</b>	Dry heat (+80°C/16h)	



**Thorsten Wolff**  
Senior Specialist to Lloyd's Register EMEA  
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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TA01 1.0.0



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Certificate No: LR2020655TA  
Issue Date: 05/10/2020  
Expiry Date: 04/10/2025

## Type Approval Certificate

<b>Other Conditions</b>	Low temperature (-40°C/16h) Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates. Power supply via suitable VEGA device or other device of an approved type.
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This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document No. HT5/ETS 40481-20/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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TA01 1.0.0





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 Certificate No: LR2020655TA  
 Issue Date: 05.10.2020  
 Expiry Date: 04.10.2025  
 Reference: HTS/ETS 40481-20/TW

**LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT**  
**ISSUED BY: HAMBURG TECHNICAL SUPPORT OFFICE (HPC2062017)**  
**ISSUED TO: VEGA GRIESHABER KG, SCHILTACH, GERMANY**  
**FOR: RADAR SENSOR FOR CONTINUOUS LEVEL MEASUREMENT**  
**TYPES VEGAPULS 21 AND VEGAPULS 31**

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 03 (July 2017) and this Design Appraisal Document forms part of the Certificate.

**APPROVAL DOCUMENTATION**

Unnumbered	Type Approval Application Checklist	04.03.2020
HPC2062017/39692-20/TW/KW	Request for Marine Services – Type Approval	30.03.2020
VEGAZW-6-64984	Technical description for VEGAPULS 21 and VEGAPULS 31 incl. documents listed in Section 12 "Additional submitted documents"	23.06.2020
04-04/A1	Verfahrensweisung Detaillierter Entwicklungsprozess	11.02.2020
HPC1862096	Production Quality Assessment Form	11.03.2019

  
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**Supplementary Type Approval Terms and Conditions**

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations. Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.

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Marine & Offshore

Certificate number: 65911/A0 BV  
 File number: AP4958  
 Product code: 3720H

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*  
**VEGA Grieshaber KG**  
 Schiltach - GERMANY

*for the type of product*  
**LEVEL GAUGE - ELECTRONIC TYPE**  
 Radar Level Sensor  
 VEGAPULS 21 / 31

**Requirements:**  
 Bureau Veritas Rules for the Classification of Steel Ships  
 EC Code: 31B / 41B

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 19 Apr 2026**

For Bureau Veritas Marine & Offshore,  
 At BV HAMBURG, on 19 Apr 2021,  
 Dirk Hoepfner



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: <http://www.veristarnb.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=itrp4ouasi>  
 BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION:

VEGAPULS 21 / 31 are a radar sensors for non-contact level measurement.  
VEGAPULS 31 is equipped with display and transparent cover.  
VEGAPULS 21 is without display and blind cover.

#### 1.1 - Main Characteristics:

Measuring Range:	Up to 15m
Process Temperature:	-40...80°C
Power Supply:	24V DC
Output Signal:	4-20mA / HART
Process Pressure:	-1 ... +3bar
Process fitting:	G1 1/2", 1 1/2"NPT or R1 1/2"
Ingress Protection Index:	IP66, IP67
Wireless connection:	Bluetooth, optional, for configuration only
Firmware Version:	1.01.xx

### 2. DOCUMENTS AND DRAWINGS:

- Operating instructions ID: 58351 dated 2020-04-28; 57820 dated 2020-04-28  
- GE4049 dated 16.04.2019; BB1512-1 dated 07.02.2019; BB1540-3 dated 24.07.2019  
- IECEx KIWA 19.0015X Issue:0 dated 2019-11-07

### 3. TEST REPORTS:

- paconsult: 20-12891A dated Apr 06, 2020; 20-13294B dated June 22, 2020  
- Hansecontrol: 2001-0061601R01B dated 14.05.2020

### 4. APPLICATION / LIMITATION:

4.1 - Bureau Veritas Rules and Regulations for the Classification of Steel Ships  
4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**  
4.3 - Bureau Veritas Environmental Category, **EC Code: 31B / 41B**  
4.4 - To be supplied by type approved power supply.  
4.5 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev7.  
4.6 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer is covered by this certificate.  
4.7 - Ex-certification is not covered by this certificate. Applications in hazardous areas are to be approved in each case according to the Rules and Conditions for Safe Use specified in a valid Ex-Certificate issued by a Notified or Recognised Certification Body.

### 5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above mentioned products are to be supplied by **VEGA Grieshaber KG** in compliance with the type described in this certificate.  
5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.  
5.3 - **VEGA Grieshaber KG** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products:

**VEGA Grieshaber KG**  
Am Hohenstein 113  
D-77761 Schiltach  
GERMANY

**VEGA Americas Inc.**  
4241 Allendorf Drive  
Cincinnati, OH 45209  
USA

### 6. MARKING OF PRODUCT:

- Maker's name or trademark  
- Equipment type or model identification  
- Date of manufacture and/or serial number  
- Ex marking, as relevant

The electronic version is available at: <http://www.veristarnb.com/veristarnb/jsp/viewPublicPdfType.jsp?id=itrp4ouasi>

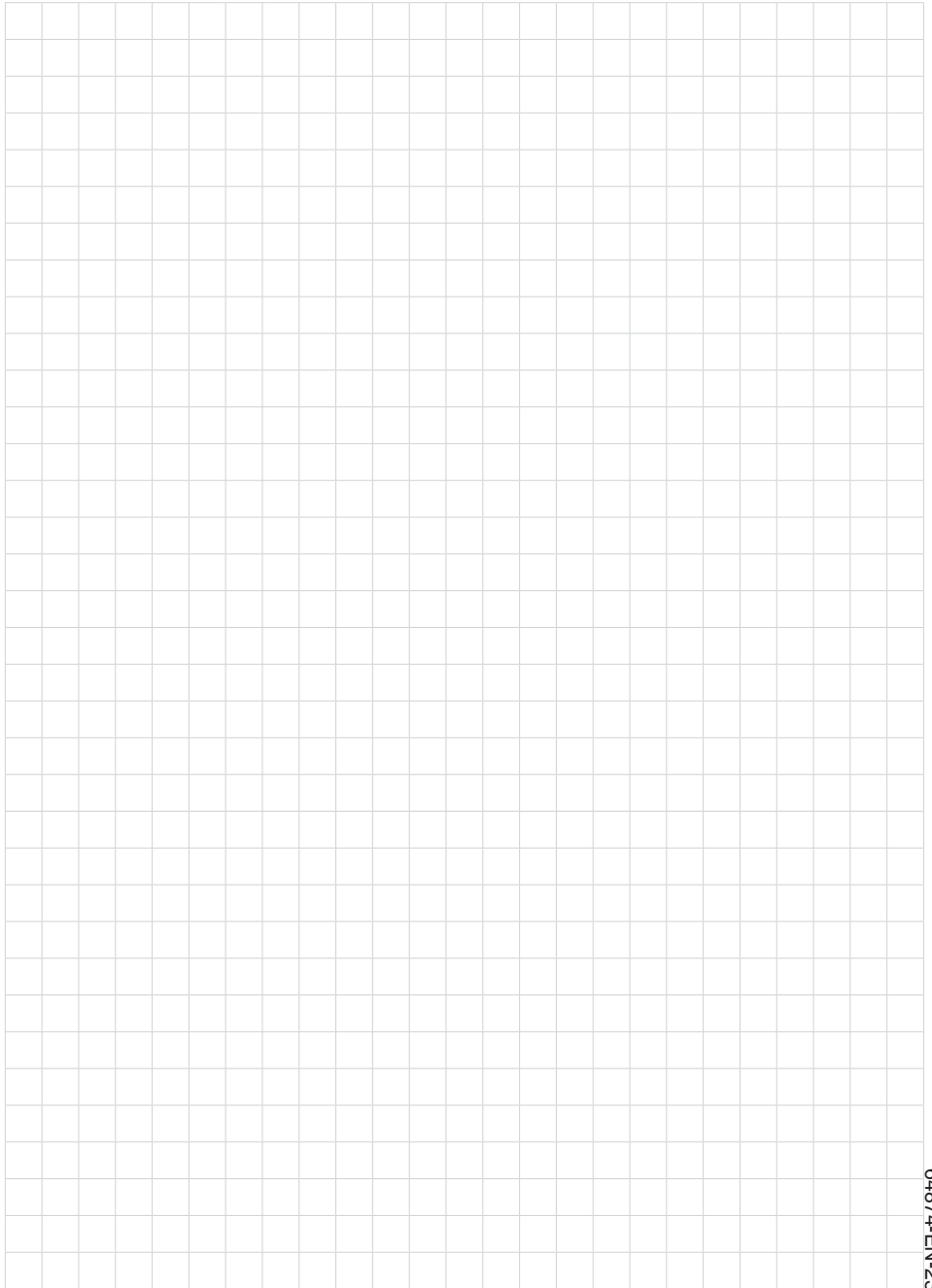
BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

**7. OTHERS:**

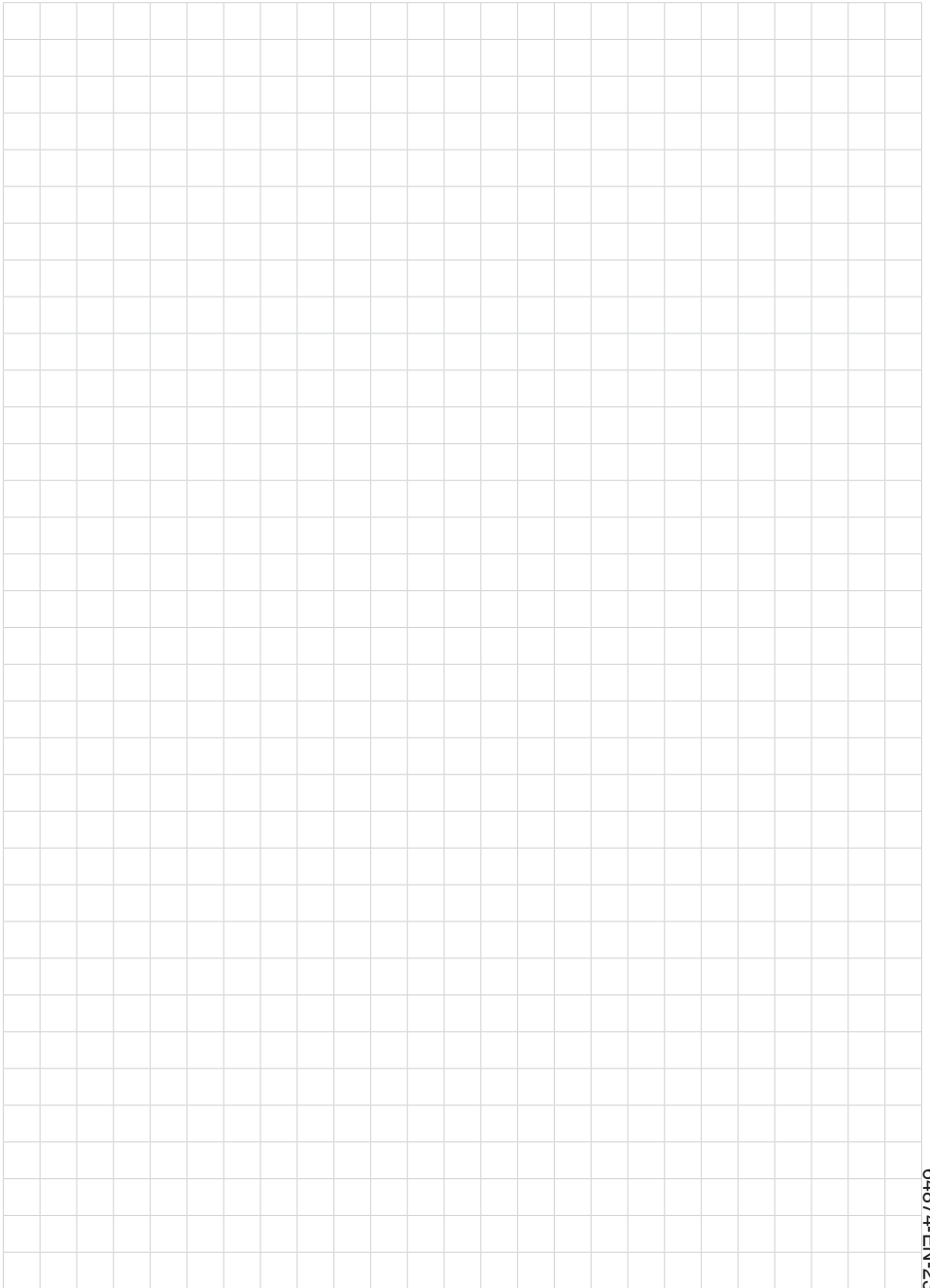
7.1 - It is the responsibility of VEGA Grieshaber KG - GERMANY to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

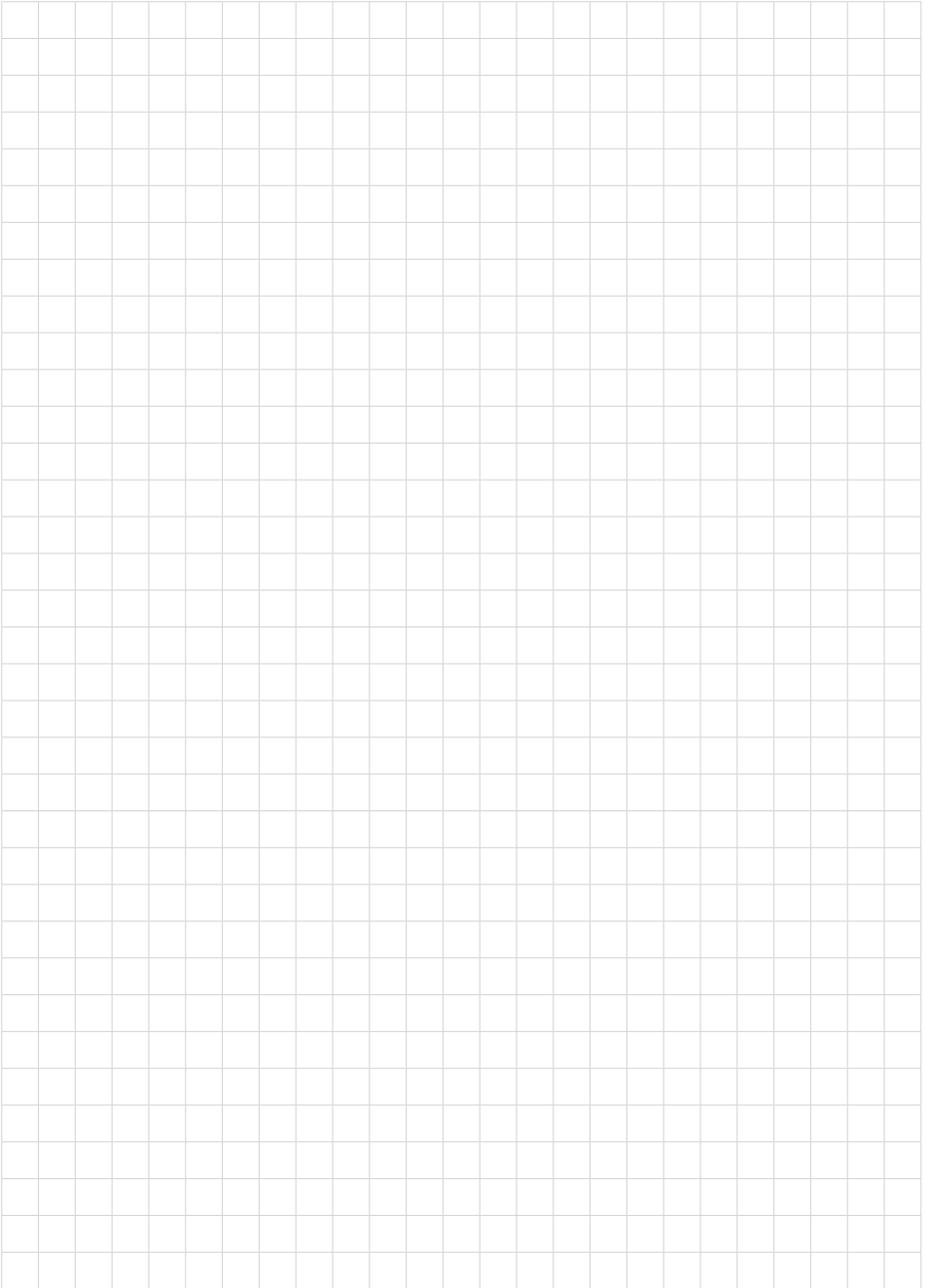
\*\*\* END OF CERTIFICATE \*\*\*











Printing date:

**VEGA**

All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

Subject to change without prior notice

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