

Ship approvals and installation instructions

VEGASWING 51

LR - LR2445025TA

ABS - 22-2305099-PDA

CCS - HB23PTB00010_10

RINA - ELE114623XG

DNV - TAA00000RB

BV - 22102/C0 BV



Document ID: 29356



VEGA



Page 1 of 2
 Certificate No: LR2445025TA
 Issue Date: 07/05/2024
 Expiry Date: 03/05/2029

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.

Manufacturer	Vega Grieshaber KG
Address	Am Hohenstein 113, Schiltach, 77761, Germany
Place of Production	Vega Grieshaber KG Am Hohenstein 113, Schiltach, 77761, Germany
Place of Production	VEGA Americas, Inc. 3877 Mason Research Parkway, Mason, OH, 45036, United States
Type	Switches - Level
Description	Level Switch Type VEGASWING SG51.XM S ab c P d ab = process fitting: thread c = electronics C contact less switch T transistor outlet d = electrical connection M M12x1 V(*Q) - acc. to ISO 4400 (*QuickOn) P M12x1 incl. 5 m cable (IP 68 (0.2 bar))

Thorsten Wolff
 Electrical & Control - 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 2.0

29356-EN-240521



Page 2 of 2
 Certificate No: LR2445025TA
 Issue Date: 07/05/2024
 Expiry Date: 03/05/2029

Type Approval Certificate

K 4-pole plug connection ISO4400, with hinged lid (IP65)

Trade Name	VEGASWING 51
Application	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2, ENV3, ENV4 and ENV5 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 - 2002.
Specified Standard	Manufacturer's specification IACS unified requirements E10 (Rev.8 Feb 2021)
Ratings	Power supply: 9.6 to 35 V DC for transistor outlet 20 to 253 V DC for contactless switch 20 to 253 V AC, 50/60Hz for contactless switch Output: max. 250 mA
Additional Tests	Low temperature (-40°C/16 h) Enclosure test IP 66/67 and IP 68 (0.2 bar) Dry heat (80°C/16 h)

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.

Previous Version: 04/20029 (E5)

The Design Appraisal Document HPC1462031-24/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 2.0

29356-EN-240521



Page: 1 of 2
 Certificate No: LR2445025TA
 Issue Date: 07.05.2024
 Expiry Date: 03.05.2029
 Reference: HPC1462031-24/TW

LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT

ISSUED BY: HAMBURG TECHNICAL SUPPORT OFFICE

ISSUED TO: VEGA GRIESHABER KG

FOR: LEVEL SWITCH

TYPES VEGASWING 51

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 04 (September 2020) and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Unnumbered	Type Approval Application Checklist	13.03.2024
HTS/ETS 38154-19	Design Appraisal Document for previous LR Type Approval certificate no. 04/20029 (E5)	04.05.2019
PRJ11100390052-2	Production Quality Assessment Form (Schiltach)	12.10.2022
PRJ11100411583-2	Production Quality Assessment Form (USA)	25.05.2023
1035865	Safety-relevant operating instruction for ship approval VEGASWING 51	20.02.2024

TEST REPORTS

2101-0046103R04A	EMC test report	17.05.2021
2101-0046103R05A	EMC test report	17.05.2021



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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.

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Page: 2 of 2
 Certificate No: LR2445025TA
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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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Confirmation of Product Type Approval

Company Name: VEGA GRIESHABER KG

Address: PRODUCT COMPLIANCE & QMAM HOHENSTEIN 113 Germany

Product: Level Switch

Model(s): VEGASWING 51

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	22-2305099-PDA	02-NOV-2022	01-NOV-2027
Manufacturing Assessment (MA)	20-4249376	21-APR-2020	20-APR-2025
Product Quality Assurance (PQA)	NA	NA	NA

Tier

3 - Type Approved, unit certification not required

Intended Service

Level detection of liquids in tanks on ACC, ACCU and ABCU classed vessels.

Description

VEGASWING 51 is a universal vibrating level switch in all liquids. The 38 mm long tuning fork is piezoelectrically energised and vibrates at its mechanical resonance frequency of approx. 1100 Hz. When the tuning fork is submerged in the product, the frequency changes. This change is detected by the integrated electronics module and converted into a switching command. Typical applications are overfill and dry run protection.

VEGASWING 51 is available with contactless electronic switch (C-Version) or transistor output PNP (T-Version).

Ratings

Maximum pressure range: -1 ... 64 bar;

Ambient temperature ranges: -40°C ... 80°C;

Process temperature ranges: -40°C ... 100°C;

Output signals: maximum 250 mA;

Power supply by approved unit, 20 ... 253V(DC or AC) for C-Version, 9.6 ... 35V (DC) for T-Version ;

Degree of protection: IP 66/67; IP68 (0.2 bar)

Service Restrictions

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 fitted with valves or arranged such that they may be isolated and removed without emptying tanks or without impairing the integrity of pressurized systems.
3. For passenger vessels, level switches are not to be installed on flammable oil tanks where they require tank wall penetration below the tank top.

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, Drawings and Documentation

Drawing No. 40552, Operating instruction VEGASWING 51 Transistor (PNP)

Drawing No. 41045, Operating instruction VEGASWING 51 Contactless electronic switch

Drawing No. VEGAZW-6-82328, Technical description for VEGASWING 51

Drawing No. E121562, UL-yellow card ULTEM 1000 plastic main enclosure

Drawings & Schematics

Drawing No. DS38874-1-00-0BBTop_BBBot, SWING 51-T, Revision: 0

Drawing No. DS38874-1-00-0IN1_IN2, SWING 51-T, Revision: 0

Drawing No. DS38874-1-00-0TOP_LST, SWING 51-T, Revision: 0

Drawing No. DS39529-1-00-0BBTop_BBBot, SWING 51-C, Revision: 0

Drawing No. DS39529-1-00-0BOT_LSB, SWING 51-C, Revision: 0

Drawing No. DS39529-1-00-0IN1_IN2, SWING 51-C, Revision: 0

Drawing No. DS39529-1-00-0TOP_LST, SWING 51-C, Revision: 0

Drawing No. MB2083_1_02, SWING 51 G A, Revision: 0

Drawing No. MB2084_1_02, SWING 51 G1A, Revision: 0

Drawing No. MB2085_1_02, SWING 51 NPT, Revision: 0

Drawing No. MB2086_1_02, SWING 51 1 NPT, Revision: 0

Drawing No. MB2364_1_01, SWING 51 Tri-Clamp##, Revision: 0

Drawing No. MB2411_1_03, SWING 51 G1A HT, Revision: 0

Drawing No. MB2443_04_1_SWING51 G1A, SWING 51 G1A dimensional drawing, Revision: 0

Drawing No. MB4619_Ausfuehrung Ventilstecker, SWING 51 version valve connector, Revision: 0

Drawing No. MB4621_Ausfuehrung_M12, SWING 51 M12x1, Revision: 0

Drawing No. ZB3202, SWING 51 G3/4A, Revision: 0

Drawing No. SB1377, SWING 51-T, Revision: 0

Drawing No. SB1384, SWING 51-C, Revision: 0

Test Reports

Drawing No. 11-3658, Climatic & Vibration Test Report, Paconsult, 25.07.2011

Drawing No. 11-L-01717-01, C Contactless Switch, EMC Test Report, Hermes Hansecontrol, 29.08.2011

Drawing No. 11-L-01718-01, T Transistor (PNP), EMC Test Report, Hermes Hansecontrol, 29.08.2011

Drawing No. 2101-0046103R04A, T Transistor (PNP), EMC Test Report (6GHz), Hermes Hansecontrol, 15.03.2021

Drawing No. 2101-0046103R05A, C Contactless Switch, EMC Test Report (6GHz), Hermes Hansecontrol, 12.03.2021

Drawing No. K 162-04, Salt Mist Tet Report, Institut für Werkstoffkunde und Schweisstechnik, 11.02.2004

Drawing No. 1-03_SWING51_F1_1, VEGA Inhouse Test Report (IP), 07.07.2011

Drawing No. 1-04_SWING51T_F1_1, VEGA Inhouse Test Report (Pressure), 14.07.2011

Drawing No. 1-05_SWING51C_F1_1, VEGA Inhouse Test Report (4g), 14.07.2011

Drawing No. 1-05_SWING51T_F1_2, VEGA Inhouse Test Report (4g), 26.07.2011

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 01/Nov/2027 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.

ABS Rules

2022 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, 4-8-3/1.17.1, 4-9-9/13.1, 4-9-9/Table 1

2022 Mobile Offshore Units Rules: 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-2-3/3.7, 4-2-4/13.7.6, 4-3-1/11, 4-3-1/15, 4-3-1/17.1

International Standards

IACS UR E10 Rev.8

EU-MED Standards

NA

Certificate Number: 22-2305099-PDA

National Standards

NA

Government Standards

NA

Other Standards

NA



Joseph W. Hill

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 07-Nov-2022 4:23

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

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 prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that, whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.



中国船级社
CHINA CLASSIFICATION SOCIETY

证书编号/Certificate No.
HB23PTB00010_10

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

液位开关
Liquid Level Switch
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 (M0001)

名称/Name	属性(值)/Value	单位/Unit
产品名称/Product Name	Liquid Level Switch	
型号/Type	VEGASWING 51	
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/Issued by 中国船级社汉堡分社
CHINA CLASSIFICATION SOCIETY Hamburg Branch

签发日期/Date 2023年03月22日
Mar. 22, 2023

本证书根据中国船级社规范和相关规定签发, 所有证书作为一个整体, 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。任何单位和个人不应摘录或节录本证书的部分内容。在美方对所持证书的真实性负责的同时, 可以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 abridged by any unit or individual in any form. Related parties who are doubtful about the authenticity of the certificate may 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:P023-46593132

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.: HB19PPP2004

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

1. 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.
2. 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.
3. 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.
4. 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.
5. 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. HB18PTB00002_16) 换新并替代原证书。
This certificate is renewed from and supersedes the previous Type Approval Certificate No. HB18PTB00002_16.

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。

证书编号/Certificate No. **HB23PTB00010_10**

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.

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	Liquid Level Switch
Type	VEGASWING 51
Power source	20...253 V AC, 50/60 Hz, 20...72 V DC 9.6...35 V DC
Description	Vibrating level switch for liquids
Output signal	Contactless electronic switch Transistor (PNP)
Firmware	1.xx
Applicable medium	Liquids with a density from 0,5 to 2,5 g / cm ³
Process temperature	Up to -40...+150°C
Process pressure	Up to -1...+64 bar
Degree of protection	Up to IP65/IP68 (0,2 bar)

2. Approval Test Report

No	Test Report No.	Test Report Date	Laboratory / Address
1	11-3658	2011.07.25	PAConsult GmbH / Birkenau 3, 22087 Hamburg, Germany
2	11-L-01717-01	2011.09.08	Hansecontrol Zertifizierungsgesellschaft mbH / Schleidenstrasse 1, 22083 Hamburg, Germany
3	11-L-01718-01	2011.09.08	
4	2101-0046103R04A	2021.05.17	
5	2101-0046103R05A	2021.05.17	
6	2101-0046103R06A	2021.05.17	Institut für Werkstoffkunde und Schweißtechnik / Zuernkamp 23, 21217 Seevetal, Germany
7	K162-04	2004.03.10	

3. Limitation/Application:

Please see production operating instructions.

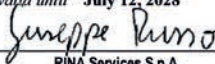


TYPE APPROVAL CERTIFICATE
No. ELE114623XG

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>	Electronic level switch with vibrating forks
<i>Type</i>	VEGASWING 51
<i>Applicant</i>	VEGA GRIESHABER KG Am Hohenstein 113, 77761 Schiltach GERMANY
<i>Manufacturer</i>	VEGA GRIESHABER KG
<i>Place of manufacture</i>	Am Hohenstein 113, 77761 Schiltach GERMANY
<i>Reference standards</i>	Rules for the classification of ships.- Part C - Machinery, systems and fire protection. - Ch.3, Sect. 6, Table 1.

Issued in **HAMBURG** on **July 13, 2023**. This Certificate is valid until **July 12, 2028**


RINA Services S.p.A.
Giuseppe Russo

This certificate consists of this page and 1 enclosure

TYPE APPROVAL CERTIFICATE

No. **ELE114623XG**

Enclosure - Page 1 of 1

VEGASWING 51

Product description:

The VEGASWING 51 series are point level sensor with tuning fork for level detection.

Order code: SG 51.XM S/T ab c P d (e)

ab = process fitting: thread G1/2A, 1/2NPT, G3/4A, 3/4 NPT, G1A, 1NPT

c = electronic: C; T

d = electrical connection: M; Q; P; V

e = switching point (option): L; K; S

Main characteristics:

Power supply: - 9.6 ... 36 VDC (T variant); 20 ...253 VAC 50/60Hz or 20...253VDC (C variant)

Output current: 250mA max load

Degree of protection: IP66 / 67 , IP68 (0.2 bar)

Signal lamps:

- Green - in operation

- Yellow - switching status

- Red - failure

Documents:

Operating Instructions: 41045-EN and 40552-EN

Drawing: - SB1377-1-01-0; SB1384-1-01-0; MB4804, MB 4805

Test Reports:

VEGA: - 1-04_SWING51T; 1-05_SWING51_F1_1; IP x8 0.2 bar _ 10/10/2007; SWING50T/C-4.7(-2.3,-F2)

Paconsult: - 11-3658

Hansecontrol: - 11-L-01717-01, 11-L-01718-01, 2101-0046103R04A,EMC, 2101-0046103R05A,EMC,

2101-0046103R06A,EMC

TÜV: - 09.0029 (10.00)

Hamburg University of Applied Sciences: - K162-04

Additional Place of manufacture:

VEGA Americas, Inc.

3877 Mason Research Pkwy

Mason, OH 45036

USA

Remarks:

- The products fulfill EC-Code: **3a3/43**.

- This certificate replace the certificate no.: ELE228118XG.

HAMBURG July 13, 2023

Giuseppe Russo

RINA Services S.p.A.
Via Corsica, 12 - 16128 Genova
Tel +39 010 53551
Fax +39 010 5351000

29356-EN-240521



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00000RB
Revision No:
1

This is to certify:

That the Level Switches

with type designation(s)
VEGASWING 51

Issued to

VEGA Grieshaber KG
Schiltach, Germany

is found to comply with

DNV 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.

Location classes:

Temperature	D
Humidity	B
Vibration	B
EMC	B
Enclosure	B, C, D

Issued at **Hamburg** on **2021-08-26**

This Certificate is valid until **2026-08-25**.

DNV local station: **Augsburg**

Approval Engineer: **Dariusz Lesniewski**



for DNV

Digitally Signed By: Rinkel, Marco

Location: DNV GL SE Hamburg, Germany

Signing Date: 27.08.2021 , on behalf of

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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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: 2021-03

www.dnv.com

Page 1 of 3



Job Id: 262.1-005243-8
 Certificate No: TAA00000RB
 Revision No: 1

Product description

Use for detecting of liquid levels in vessels by tuning fork principle.

Type designation: VEGASWING 51 type: SG51(*)XM S/T ab c P d (e)

- (*) = 1 to 3-digit(s) alphanumeric code for customer specific labelling (optional)
 ab = process fitting: thread G3/4A, 3/4NPT, G1A, 1 NPT, G1/2A, 1/2 NPT
 c = electronics:
 C - contact less switch
 T - transistor output
 d = electrical connection / protection
 M - M12x1 / IP67
 V - acc. to ISO 4400 including plug / IP65
 Q - acc. to ISO 4400 including plug with QuickOn connection / IP67
 P - M12x1 incl. 5m cable / IP68 (0.2 bar)
 e = switching point (optional):
 L - switching point as SWING71A (none-standard length)
 K - switching point according to drawing No. MB2443
 S - switching point according to drawing No. ZB3202

Power supply: 9.6...35V DC (c = T)
 20...253V AC 50/60 Hz or 20...253V DC (c = C)

Output: max. 250mA load current

Signal lamps: green (in operation), yellow (switching status), red (failure)

Process pressure: max. 64bar

Process temperature: -40...+150°C (for version 'S' max. temp. +100°C)

Ambient temperature range: -40°C...70°C (derating has to be observed)

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, 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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

Test Reports: No. 11-3658 of paconsult

Test Protocol: No. K 162-04

Test Reports: No. 11-L-01717-01 and No. 11-L-01718-01 of Hansecontrol Zertifizierungsgesellschaft mbH

Test Reports: No. 1-04_SWING51T_F1_1 and No. 1-05_SWING51_F1_1 of VEGA

Test Reports: Nos. SWING50T/C-4.7(-2.3,-1.5-F2) of VEGA

Test Reports: Hansecontrol Zertifizierungsgesellschaft mbH No. 2101-0046103R04A, No. 2101-0046103R05A

Construction drawings; Operating Instructions 40552-EN-191122, 41045-EN-191122

Drawings: No. MB2443 Rev. 04, No. ZB3202 Rev. 02, SB1377-1-01-0, SB1384-1-01-0

VEGA Document "Technical description for VEGASWING 51" VEGAZW-6-74483 Rev. 00

Type approval renewal assessment report issued at Augsburg on 2021-06-14

Tests carried out

Applicable tests according to Class Guidance DNV-CG-0339, August 2021.

Marking of product

VEGASWING SG51

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



Job Id: 262.1-005243-8
 Certificate No: TAA00000RB
 Revision No: 1

- 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.

END OF CERTIFICATE



Marine & Offshore

Certificate number: 22102/C0 BV

File number: AP 4019

Product code: 3840H

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

www.veristar.com

TYPE APPROVAL CERTIFICATE

This certificate is issued to
VEGA Grieshaber KG
 Schiltach - GERMANY

for the type of product
LEVEL SWITCH
 VEGASWING 51 Series.

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

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 Dec 2024

For Bureau Veritas Marine & Offshore,
 At BV HAMBURG, on 19 Dec 2019,
 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=iy2yvfh3e2>
 BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

29356-EN-240521

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

VEGASWING 51 Series are level switches intended for detecting tank over-filling or for surveying dry spaces.

1.1 - Type:

Sensor Type: VEGASWING SG 51. XM S ab c P d

ab= Process Fitting:

Thread G1/2A; G3/4A; G1A; 1/2NPT; 3/4NPT, 1 NPT; Clamp 1½"; Clamp 1"; Clamp 2"; PN 16 DIN 32676; ISO 2852/316L; bolting DN 25 PN 40; bolting DN 40 PN 40; bolting DN 50 PN 25; SMS DN 38 PN 6

c= Electronics:

C, T

d= Electrical Connection:

M, P, V (*Q)

1.2 - Main characteristics:

Power Supply: Transistor version: 24VDC, (9.6 to 35VDC)
Contactless version: 24VDC, 230VAC, (20 to 253V AC/DC)
Output: 250mA max.
Process pressure: 64bar max.
Process temperature: -40 to +100°C
Degree of protection: IP 66/67, IP 68 (0.2bar)

2. DOCUMENTS AND DRAWINGS:

- MB2083 Rev. 02 dated 02.03.2010;
- MB2084 Rev. 02 dated 02.03.2010; MB2085 Rev. 02 dated 02.03.2010; MB2086 Rev. 02 dated 02.03.2010;
- MB2359 Rev.01 dated 11.07.2006; MB2364 Rev. 01 dated 11.07.2006; MB2411 Rev. 03 dated 02.03.2010;
- SB1377-1-00-0 dated 09.06.2011; SB1384-1-00-0 dated 08.06.2011;
- SWING50-NT-C DS2780STOP INDEX: 1-00-00; SWING50-NT-T DS27806TOP INDEX: 1-00-00;
- SWING50-OSZ DS27807TOP INDEX: 1-00-00
For C0 version:
- 40552-EN-191122 dated 2019-11-21; 41045-EN-191122 dated 2019-11-21;

3. TEST REPORTS:

- VEGA Grieshaber KG: 1-04_SWING51T_F1_1 dated 14.07.11; SWING 51C-1.3-N2-1 dated 14.01.04.
- Paconsult GmbH: 11-3658 dated 25 July 2011; 267-03D.
- Hansecontrol Zertifizierungsgesellschaft mbH: 11-L-01717-01 dated 8 Sept. 2011; 11-L-01718-01 dated 8 Sept. 2011
- TÜV Rheinland Anlagentechnik: 09.0029, dated 31.10.2000.
- Institut für Werkstoffkunde und Schweisstechnik: K 162-04 dated 18.12.2003.

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: 31/41S
4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zone and Deck Zone.
4.5 - May not be used for flammable oil tanks in passenger ships where penetration below tank top would be necessary.
4.6 - Equipment is to be supplied with manual(s) for installation, use and maintenance.

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

6. MARKING OF PRODUCT:

- Maker's name or trademark
- Equipment type or model identification
- Date of manufacture and/or serial number

7. OTHERS:

7.1 - It is the responsibility of **VEGA Grieshaber KG** 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.

7.2 - This certificate supersedes the Type Approval Certificate N° 22102/B0 BV issued on 11 Nov 2014 by the Society.

*** 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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29356-EN-240521

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