



(1) EU-TYPE EXAMINATION CERTIFICATE (Translation)

(2) Equipment or Protective Systems Intended for Use in
 Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 13 ATEX 4003 X

Issue: 2

(4) Product: Liquid-ring vacuum pump, type VU, VH, VHC, VHD and VZ

(5) Manufacturer: SPECK PUMPEN Vakuumtechnik GmbH

(6) Address: Regensburger Ring 6-8, 91154 Roth, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 20-49009.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN ISO 80079-36:2016,

EN ISO 80079-37:2016

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:



II 1/2G Ex h IIB/IIC T4...T1 Ga/Gb

or



II 1/2G Ex h IIB+H2/IIC T4...T1 Ga/Gb

Konformitätsbewertungsstelle, Sektor Explosionsschutz
 On behalf of PTB:

Braunschweig, April 28, 2020

Dr.-Ing. M. Beyer
 Direktor und Professor



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EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

(13)

SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 13 ATEX 4003 X, Issue: 2**

(15) Description of Product

Speck liquid-ring vacuum pumps of

- two-stage design, types VH0020, VH0040, VH0060, VH0110, VH0140, VH0180, VH0300, VH0350, VH0400, VH0500, VH0600, VH0800, VH1200 und VH1600,
- two-stage design, types VZ0110, VZ0140 und VZ0180,
- two-stage design, types VHC0110, VHC0140, VHC0180, VHC0300, VHC0350, VHC0400, VHC0500, VHC0600, VHC0800, VHC1200 und VHC1600,
- two-stage design, types VHD0110, VHD0140, VHD0180, VHD0300, VHD0350, VHD0400, VHD0500, VHD0600, VHD0800, VHD1200 und VHD1600 und
- single-stage design, types VU0020, VU0040, VU0080, VU0140, VU0220, VU0300, VU 351, VU0450, VU 451, VU0500, VU0600, VU0800, VU1200 und VU1600,

intended for conveying potentially explosive gas/air or vapour/air mixtures from zone 0. The liquid-ring vacuum pumps shall be used to extract flammable gas/air or vapour/air mixtures of explosion group IIA/IIB or IIA/IIB including hydrogen, classified into temperature classes T1 to T4.

The liquid-ring vacuum pumps are intended for the operation in hazardous areas of zone 1 where flammable gas/air or vapour/air mixtures of explosion groups IIA, IIB and IIC and temperature classes T1 to T4 can occur.

The liquid-ring vacuum pumps of types VU, VH, VHC, VHD and VZ are equipped with several monitoring devices.

Type series VHD was supplemented in addition to the liquid-ring vacuum pumps of types VU, VH, VHC and VZ.

The liquid-ring vacuum pumps of types VU, VH, VHC, VHD and VZ have been adapted to the specifications of DIN EN 80079-36 and DIN EN 80079-37.

Requirements to explosion protection:

Internal suction and delivery pipe:	Requirements according to category 1
Environment of the vacuum pump:	Requirements according to category 2

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 13 ATEX 4003 X, Issue: 2

(16) Test Report PTB Ex20-49009

Result: The liquid-ring vacuum pumps of types VU, VH, VHC, VHD and VZ comply with the requirements of Directive 2014/34/EU for equipment group II, category 1/2 G inside the connected pipelines of category 1G and to the surrounding atmosphere of category 2G). The definition of the explosion groups and the temperature classes results from the respective designs specified in Test Report PTB Ex 20-49009 for the liquid-ring vacuum pumps of the types VU, VH, VHC, VHD and VZ.

(17) Specific conditions of use

The operator shall not put the vacuum pump into service before the monitoring devices specified in the additional ATEX-user-manual have been properly installed and the specified switching conditions have been provided in the control system according to the specified MSR-flow charts.

For permissible operating data of the liquid-ring vacuum pumps of types VU, VH, VHC, VHD and VZ reference is made to the additional ATEX-user-manual. The operator shall observe the limiting temperatures for the service liquid and the mixture as well as the pressure values for the suction and the delivery sides as specified in the additional ATEX-user-manual.

A cavitation compensation unit or a pressure compensation unit shall ensure that the pump pressure inside the liquid-ring vacuum pump is at least 20 mbar higher than the steam pressure of the service liquid.

Before the liquid-ring vacuum pumps of types VU, VH, VHC, VHD and VZ are put into service for the first time an equipotential bonding system shall be consistently installed for the complete system in accordance with DIN EN ISO 80079-36.

(18) Essential health and safety requirements

The essential requirements of Directive 2014/34/EU are met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, April 28, 2020


Dr.-Ing. M. Beyer
Direktor und Professor



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