Translation

1 # EU-Type Examination Certificate Supplement 12

2 **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU**

3 EU-Type Examination Certificate Number: **BVS 04 ATEX E 080 X**

4 Product: **Radar-Sensor type VEGAPULS**

5 Manufacturer: **VEGA Grieshaber KG**

6 Address: **Am Hohenstein 113, 77761 Schiltach, Germany**

7 This supplementary certificate extends EU-Type Examination Certificate No. BVS 04 ATEX E 080 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

8 DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of 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 Report No. BVS PP 04.2081 EU.

9 The Essential Health and Safety Requirements are assured in consideration of:

EN IEC 60079-0:2018	**General requirements**
EN 60079-31:2014	**Protection by Enclosure "t"**

Except in respect of those requirements listed under item 18 of the appendix.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified product. 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 1D Ex ta IIIC T see manual Da
II 1/2D Ex ta/tb IIIC T see manual Da/Db
II 1/3D Ex ta/tc IIIC T see manual Da/Dc
II 2D Ex tb IIIC T see manual Db

DEKRA Testing and Certification GmbH
Bochum, 2021-11-10

Signed: Jörg-Timm Kilisch

Managing Director

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

13 **Appendix**

14 **EU-Type Examination Certificate**
BVS 04 ATEX E 080 X
Supplement 12

15 **Product description**

15.1 **Subject and type**

Radar sensor VEGAPULS with type code (Hardware-Version ≥ 2.00; Software-Version ≥ 4.00)

PS 62(*). * * * * * * * *

adjustment / indication module
X = without
A = mounted
F = without PLICSCOM, cover with window
B = laterally mounted
K = mounted, with Bluetooth and magnet pin
U = mounted, with Bluetooth and magnet pin (battery)
L = laterally mounted, with Bluetooth and magnet pin
S = laterally mounted, with Bluetooth and magnet pin (battery)

cable entry
M = M20x1.5; N = 1/2"NPT
* other certified connection or cable gland suitable for the application

enclosure
A = aluminium enclosure IP66
H = aluminium enclosure IP66 in special colour
D = aluminium double chamber enclosure IP66
S = aluminium double chamber enclosure IP66 in special colour
V = stainless steel enclosure IP66
W = stainless steel double chamber enclosure IP66

electronics
H = 4...20 mA + HART
P = Profibus PA
F = Foundation Fieldbus
B,I = 4 wire electronics
D = 2 wire electronics 4...20 mA + HART, sensitive version
K = Profibus PA, sensitive version
L = Foundation Fieldbus, sensitive version
G,M = 4 wire electronics, sensitive version

sealing rings/process temperature

2 = FKM+ PTFE	-40 °C...+130 °C
3 = Kalrez 6375 + PTFE	-20 °C...+130 °C
4 = FKM (SHS FPM 70C3GLT) + PTFE not with steam	-40 °C...+200 °C
5 = FKM (Kalrez 6375) + PTFE	-20 °C...+200 °C
7 = FFKM (Kalrez 6230) + PTFE (FDA)	-15 °C...+130 °C
9 = FFKM (Kalrez 6230) + PTFE	-40 °C...+200 °C
B = FKM (SHS FPM 70C3GLT) + PP max 3 bar	-40 °C...+80 °C
D = FKM (Kalrez6375) + PP max 3 bar	-20 °C...+80 °C

process connection see manual

version / material
* = with horn antenna or with parabolic antenna / 316 L (1.4435) or Alloy C22 (2.4602)

certificate
RX = ATEX II 1D, 1/2D, 2D Ex ta, ta/tb IIIC IP66 T… Da, Da/Db, Db
DK = ATEX II 1/2G, 2G Ex d ia IIC T6 [1]
ATEX II 1D, 1/2D, 2D Ex ta, ta/tb IIIC IP66 T… Da, Da/Db, Db
CK = ATEX II 1G, 1/2G, 2G Ex ia IIC T6… Ga, Ga/Gb, Gb [1]
ATEX II 1D, 1/2D, 2D Ex ta, ta/tb IIIC IP66 T… Da, Da/Db, Db

optional version differentiation,
without relevance for explosion protection

[1] The assessment for use in explosive gas atmospheres is **not** part of this test report.

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

Radar sensor VEGAPULS with type code (Hardware-Version ≥ 2.00; Software-Version ≥ 4.00)

PS 63(*). * * ** * * * *

adjustment / indication module
X = without
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S = aluminium double chamber enclosure IP66 in special colour
V = stainless steel enclosure IP66
W = stainless steel double chamber enclosure IP66

electronics
H = 4...20 mA + HART
P = Profibus PA
F = Foundation Fieldbus
B,I = 4 wire electronics
D = 2 wire electronics 4...20 mA + HART, sensitive version
K = Profibus PA, sensitive version
L = Foundation Fieldbus, sensitive version
G,M = 4 wire electronics, sensitive version

process connection see manual

version / material
* = with hygienically encapsulated horn antenna

certificate
RX = ATEX II 1D, 1/2D, 2D Ex ta, ta/tb IIIC IP66 T… Da, Da/Db, Db
DK = ATEX II 1/2G, 2G Ex d ia IIC T6 [1]
ATEX II 1D, 1/2D, 2D Ex ta, ta/tb IIIC IP66 T… Da, Da/Db, Db
CK = ATEX II 1G, 1/2G, 2G Ex ia IIC T6… Ga, Ga/Gb, Gb [1]
ATEX II 1D, 1/2D, 2D Ex ta, ta/tb IIIC IP66 T… Da, Da/Db, Db

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Radar sensor VEGAPULS with type code (Hardware-Version ≥ 2.00; Software-Version ≥ 4.00)

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A = aluminium enclosure IP66
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D = aluminium double chamber enclosure IP66
S = aluminium double chamber enclosure IP66 in special colour
V = stainless steel enclosure IP66
W = stainless steel double chamber enclosure IP66

electronics
H = 4...20 mA + HART
P = Profibus PA
F = Foundation Fieldbus
B,I = 4 wire electronics

sealing rings/process temperature
5 = EPDM / -40 °C...+150 °C
2 = FKM / -40 °C...+150 °C
3 = Kalrez 6375/ -20 °C...+150 °C
G = graphite and ceramics / with temperature adapter -60 °C...+250 °C
H = graphite and ceramics/ with temperature adapter -60 °C...+400 °C

process connection see manual

version / material
* = with horn antenna or parabolic antenna / 316 L (1.4435) or Alloy C22 (2.4602)

certificate
RX = ATEX II 1D, 1/2D, 2D Ex ta, ta/tb IIIC IP66 T… Da, Da/Db, Db
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CK = ATEX II 1G, 1/2G, 2G Ex ia IIC T6… Ga, Ga/Gb, Gb [1]
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optional version differentiation, without relevance for explosion protection

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Radar sensor VEGAPULS with type code (Hardware-Version ≥ 2.00; Software-Version ≥ 4.00)

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L = laterally mounted, with Bluetooth and magnet pin
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D = aluminium double chamber enclosure IP66
S = aluminium double chamber enclosure IP66 in special colour
V = stainless steel enclosure IP66
W = stainless steel double chamber enclosure IP66

electronics
H = 4...20 mA + HART
P = Profibus PA
F = Foundation Fieldbus
B,I = 4 wire electronics

process connection / material see manual

version / material / process temperature
B = with plastic horn antenna ∅ 80 mm / PP / -40 °C ...+80 °C

certificate
RX = ATEX II 1D, 1/2D, 2D Ex ta, ta/tb IIIC IP66 T... Da, Da/Db, Db

optional version differentiation,
without relevance for explosion protection

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L = laterally mounted, with Bluetooth and magnet pin
S = laterally mounted, with Bluetooth and magnet pin (battery)

cable entry
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H = aluminium enclosure IP66 in special colour
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S = aluminium double chamber enclosure IP66 in special colour
V = stainless steel enclosure IP66
W = stainless steel double chamber enclosure IP66

electronics
H = 4...20 mA + HART
P = Profibus PA
F = Foundation Fieldbus
B,I = 4 wire electronics

sealing rings/process temperature

2 = FKM+ PTFE	-40 °C...+130 °C
3 = Kalrez 6375 + PTFE	-20 °C...+130 °C
4 = FKM (SHS FPM 70C3GLT) + PTFE not with steam	-40 °C...+200 °C
5 = FKM (Kalrez 6375) + PTFE	-20 °C...+200 °C
7 = FFKM (Kalrez 6230) + PTFE (FDA)	-15 °C...+130 °C
9 = FFKM (Kalrez 6230) + PTFE	-40 °C...+200 °C

process connection see manual

version / material
* = with horn antenna or parabolic antenna / 316 L (1.4435) or Alloy C22 (2.4602)

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Radar sensor VEGAPULS with type code (Hardware-Version ≤ 1.10; Software-Version ≤ 3.90)

PS 62(*). * * * * * * * *

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S = aluminium double chamber enclosure IP66 in special colour
V = stainless steel enclosure IP66
W = stainless steel double chamber enclosure IP66

electronics
H = 2 wire electronics 4...20 mA + HART
D = 2 wire electronics 4...20 mA + HART, sensitive version
V = 4 wire electronics 4...20 mA + HART
E = 4 wire electronics 4...20 mA + HART, sensitive version

sealing rings/process temperature

2 = FKM+ PTFE	-40 °C...+130 °C
3 = Kalrez 6375 + PTFE	-20 °C...+130 °C
4 = FKM (SHS FPM 70C3GLT) + PTFE not with steam	-40 °C...+200 °C
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7 = FFKM (Kalrez 6230) + PTFE (FDA)	-15 °C...+130 °C
9 = FFKM (Kalrez 6230) + PTFE	-40 °C...+200 °C
B = FKM (SHS FPM 70C3GLT) + PP max 3 bar	-40 °C...+80 °C
D = FKM (Kalrez6375) + PP max 3 bar	-20 °C...+80 °C

process connection see manual

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electronics
H = 2 wire electronics 4...20 mA + HART
D = 2 wire electronics 4...20 mA + HART, sensitive version
V = 4 wire electronics 4...20 mA + HART
E = 4 wire electronics 4...20 mA + HART, sensitive version

sealing rings/process temperature
1 = PTFE -40 °C...+ 150 °C
2 = PPH -40 °C...+ 80 °C

process connection see manual

version / material
* = with hygienically encapsulated horn antenna

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V = stainless steel enclosure IP66
W = stainless steel double chamber enclosure IP66

electronics
H = 2 wire electronics 4...20 mA + HART
V = 4 wire electronics 4...20 mA + HART

process connection / material see manual

version / material / process temperature
B = with plastic horn antenna ∅ 80 mm / PP / -40 °C…+80 °C

certificate
GX = ATEX II 1D, 1/2D, 2D Ex ta, ta/tb IIIC IP66 T… Da, Da/Db, Db

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electronics
H = 2 wire electronics 4...20 mA + HART
D = 2 wire electronics 4...20 mA + HART, sensitive version
V = 4 wire electronics 4...20 mA + HART
E = 4 wire electronics 4...20 mA + HART, sensitive version

sealing rings/process temperature

2 = FKM+ PTFE	-40 °C...+130 °C
3 = Kalrez 6375 + PTFE	-20 °C...+130 °C
4 = FKM (SHS FPM 70C3GLT) + PTFE not with steam	-40 °C...+200 °C
5 = FKM (Kalrez 6375) + PTFE	-20 °C...+200 °C
7 = FFKM (Kalrez 6230) + PTFE (FDA)	-15 °C...+130 °C
9 = FFKM (Kalrez 6230) + PTFE	-40 °C...+200 °C

process connection see manual

version / material
* = with horn antenna or parabolic antenna / 316 L (1.4435) or Alloy C22 (2.4602)

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15.2 **Description**

The Radar sensor VEGAPULS is used to measure the distance between the surface of combustible dust generating material and the sensor. It can be installed in any zone or partition wall.
The Radar sensor can operate with different electronic inserts protected by VA/AL-housing and connected antenna, antenna extensions and rinsing connections are possible.
The electronics enclosure is separately approved (BVS 14 ATEX E 121 U).

Reason for the supplement:

- Update to current harmonized standards
- Distinction between product name and type code
- Minor adaptation of drawings and documents
- VEGADIS-ADAPT added

15.3 **Parameters**

15.3.1 Hardware version ≥ 2.00; Software version ≥ 4.00

15.3.1.1 electrical data

PS62/63(*).RX***D/H/K/L/P/F***
PS67(*).RX**H/P/F***
PS66/68(*).RX***H/P/F***
PSSR68(*).RX***H/P/F***

Supply	
terminals 1 [+], 2 [-] in the electronics compartment or in the terminal compartment regarding the two cell enclosure version	U = 9.6 .... 30 V DC U_m = 30 V DC

PS62/63(*).RX ***B/G***
PS66/68(*).RX***B***
PSSR68(*).RX***B***
PS67(*).RX**B***

supply AC	90...253 V, 50/60 Hz
(terminals 1, 2 in the terminal compartment)	U_m = 253 V AC
output	4...20 mA with superposed HART-signal
(terminals 5[+], 7[-] in the terminal compartment)	
passive signal current, input	4...20 mA with superposed HART-signal
(terminals 6[+], 7[-] in the terminal compartment)	

PS62/63(*).RX***I/M***
PS66/68(*).RX***I***
PSSR68(*).RX***I***
PS67(*).RX**I***

supply	AC 20...42 V, 50/60 Hz or
(terminals 1, 2 in the terminal compartment)	DC 9,6...48 V U_m = 253 V AC

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

output (terminals 5[+], 7[-] in the terminal compartment)	4...20 mA with superposed HART-signal
passive signal current, input (terminals 6[+], 7[-] in the terminal compartment)	4...20 mA with superposed HART-signal

PS62/63(*).RX***D/H/K/L/P/F***
PS66/68(*).RX***H/P/F***
PSSR68(*).RX***H/P/F***
PS67(*).RX**H/P/F***

adjustment and indication circuit	in type of protection Intrinsic Safety Ex ia IIC (terminals 5, 6, 7, 8 in the electronicsonly for connection to the intrinsically safe circuit of the compartment via DIS-ADAPT) associated VEGA adjustment and indication unit VEGADIS81 according to PTB 02 ATEX 2136X and BVS 05 ATEX E 023 $L_{Kabel - cable} \leq$ 310 µH $C_{Kabel - cable} \leq$ 2.0 µF
adjustment and indication circuit (spring contacts in the electronics compartment)	in type of protection Intrinsic Safety Ex ia IIC only for connection to the intrinsically safe VEGA adjustment and indication unit (PLICSCOM) or VEGACONNECT4 (PTB 07 ATEX 2013X).

PS62/63(*).RX***G/M/B/I***
PS66/68(*).RX***B/I***
PSSR68(*).RX***B/I***
PS67(*).RX**B/I***

adjustment and indication circuit (spring contacts in the electronics compartment)	in type of protection Intrinsic Safety Ex ia IIC only for connection to the intrinsically safe VEGA adjustment and indication unit (PLICSCOM) or VEGACONNECT4 (PTB 07 ATEX 2013X).

15.3.1.2 Thermal data

15.3.1.2.1 Permitted process temperature at the probe

PS62(*).***X****

X:		
	2 = FKM(SHS FPM 70C3 GLT) + PTFE /	-40 °C...+130 °C
	3 = Kalrez 6375 + PTFE /	-20 °C...+130 °C
	6 = Kalrez 2035 + PTFE /	-15 °C...+130 °C
	7 = Kalrez 6230 + PTFE /	-15 °C...+130 °C
	A = FKM(SHS FPM 70C3 GLT)+PEEK /	-40 °C… +200 °C
	C = Kalrez 2035 + PEEK /	-15 °C… +210 °C
	E = Kalrez 6230 + PEEK /	-15 °C… +250 °C
	F = Kalrez 6375 + PEEK /	-20 °C… +250 °C
	H = graphite and ceramics /	-196 °C… +450 °C

PS63(*).*X*****

X:		
	N = PTFE /	-40 °C…+200 °C
	J = PTFE	-196 °C…+200 °C
	R = PTFE (8mm)	-40 °C…+200 °C
	L = PFA	-40 °C…+200 °C
	M = PFA (8mm)	-40 °C…+200 °C
	V = PTFE + FKM	-20 °C…+130 °C
	E = PTFE + EPDM	-40 °C…+130 °C
	U = PTFE (8mm)	-196 °C…+200 °C

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PS66(*).****X****

X:	2 = FKM (A+P GLT FPM 70.16-06) /	-40 °C…+150 °C
	3 = Kalrez 6375 /	-20 °C…+150 °C
	5 = EPDM /	-40 °C…+150 °C
	G = graphite and ceramics / with temperature adapter	-60 °C…+250 °C
	H = graphite and ceramics / with temperature adapter	-60 °C…+400 °C

PS67(*).*X*****

X:	B = PP /	-40 °C…+80 °C

PS68.***X****

X:	2 = FKM (SHS FPM 70C3 GLT) + PTFE /	-40 °C…+130 °C

PSSR68(*).***X****

X:	3 = Kalrez 6375 + PTFE /	-20 °C…+130 °C
	7 = Kalrez 6230 + PTFE /	-15 °C...+130 °C
	A = FKM (SHS FPM 70C3 GLT) + PEEK /	-40 °C...+200 °C
	C = Kalrez 2035 + PEEK /	-15 °C…+210 °C
	E = Kalrez 6230 + PEEK /	-20 °C…+250 °C
	F = Kalrez 6375 + PEEK /	-20 °C...+250 °C
	H = graphite and ceramics /	-196 °C...+450 °C

15.3.1.2.2 Permitted ambient temperature at the electronics enclosure -40 °C…+ 60 °C

15.3.1.2.3 Maximum surface temperature
The max. surfacetemperature is the higher one of the following:

Maximum surface temperature at the probe

process temperature + 2 K

Maximum surface temperature at the electronics enclosure for installation in zone 20

PS62/63(*).RX ***D/K/L***	ambient temperature + 86 K
PS62/63/66(*).RX ***H/P/F***	ambient temperature + 86 K
PS/PSSR68(*).RX ***H/P/F***	ambient temperature + 86 K
PS67(*).RX**H/P/F***	ambient temperature + 86 K
PS62/63(*).RX***G/M***	with thermo fuse limited to 102 °C
PS62/63/66(*).RX***B/I***	with thermo fuse limited to 102 °C
PS/PSSR68(*).RX***B/I***	with thermo fuse limited to 102 °C
PS67(*).RX**B/I***	with thermo fuse limited to 102 °C

Maximum surface temperature at the electronics enclosure for installation in zone 20/21, 20/22, 21

PS62/63(*).RX ***D/K/L***	ambient temperature + 36 K
PS62/63/66(*).RX ***H/P/F***	ambient temperature + 36 K
PS/PSSR68(*).RX ***H/P/F***	ambient temperature + 36 K
PS67(*).RX**H/P/F***	ambient temperature + 36 K
PS62/63(*).RX***G/M***	with thermo fuse limited to 102 °C
PS62/63/66(*).RX***B/I***	with thermo fuse limited to 102 °C
PS/PSSR68(*).RX***B/I***	with thermo fuse limited to 102 °C
PS67(*).RX**B/I***	with thermo fuse limited to 102 °C

15.3.1.3 Degrees of protection according to EN 60529 IP66

15.3.2 Hardware version ≤ 1.10; Software version ≤ 3.90

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

15.3.2.1 Electrical data

15.3.2.1.1 PS66/68.GX ***V***
PS62/63.GX ***E/V***
PS67.GX**V***

supply AC 20...253 V, 50/60 Hz or
(terminals 1, 2 in the terminal compartment)
DC 20...253 V
P_{max} ≤ 1 W

output
(terminals 3, 4 in the terminal compartment)

4...20 mA with superposed HART-signal

15.3.2.1.2 PS66/68(*).GK***H***
PS62/63(*).GK***D/H***

Supply and signal circuit
terminals 1 [+], 2 [-] in the electronics
circuit
compartment or in the terminal
compartment regarding the
two cell enclosure version

in type of protection Intrinsic Safety Ex ia IIC
only for connection to a certified intrinsically safe

with the following maximum values:
U_i = 30 V
I_i = 131 mA
P_i = 983 mW
linear characteristics
$L_i \cong 5\ \mu H$
C_i negligible

15.3.2.2 Thermal data

15.3.2.2.1 Permitted process temperature at the probe

PS62.***X****	X:	2 = Viton	-30 °C…+130 °C
PS62(*).***X****		3 = Kalrez 6375	-20 °C…+150 °C
		4 = Viton with temperature adapter	- 40 °C…+200 °C
		5 = Kalrez 6375 with temperature adapter	-20 °C…+200 °C
		7 = Kalrez 6230 + PTFE (FDA)	-15 °C...+130 °C
		9 = Kalrez 6230 + PTFE with temperature adapter	-15 °C...+200 °C
		B = FKM(SHS FPM 70C3 GLT)+PP	-40 °C…+80 °C max. 3 bar
		D = Kalrez 6375 + PP	-40 °C…+80 °C max. 3 bar
PS63.***X****	X:	N = PTFE /	-40 °C…+200 °C
PS63(*).***X****		J = PTFE	-196 °C…+200 °C
		R = PTFE (8 mm)	-40 °C…+200 °C
		U = PTFE (8 mm)	-196 °C…+200 °C
		A = TFM-PTFE(8 mm)	-40 °C…+150 °C
		P = TFM-PTFE	-40 °C…+150 °C
		G = Alloy 400 (2.4360), TFM-PTFE(8 mm)	-10 °C…+150 °C
		W = PCTFE(8 mm)	-40 °C…+200 °C
		* other horn antennas	
PS67.*X*****	X:	B = PP	-40 °C…+80 °C
PS67(*).*X*****		* other horn antennas	

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Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

PS66.****X****	X:	2 = Viton	-30 °C…+130 °C
PS66(*).****X****		3 = Kalrez 6375	-20 °C…+150 °C
		5 = EPDM (A+P 75.5/KW75F)	-40 °C…+150 °C
		G = graphite and ceramics with temperature adapter	-60 °C…+250 °C
		H = graphite and ceramics with temperature adapter	-60 °C…+400 °C
PS68.***X****	X:	2 = Viton	-40 °C…+130 °C
PS68(*).***X****		3 = Kalrez 6375	-20 °C…+150 °C
		4 = Viton with temperature adapter	-40 °C…+200 °C
		5 = Kalrez 6375 with temperature adapter	-20 °C…+200 °C
		7 = Kalrez 6230 + PTFE (FDA)	-15 °C...+130 °C
		9 = Kalrez 6230 + PTFE with temperature adapter	-15 °C...+200 °C

15.3.2.2.2 The max. surface temperature is the higher one of the following:

Permitted process temperature at the probe
process temperature +2 K

Permitted ambient temperature at the electronics enclosure

PS62/63/66/67/68.GX ****H****	ambient temperature + 43 K
PS62/63.GX ****D****	ambient temperature + 43 K
PS62/63/66/67/68.GX****V****	with thermo fuse limited to 98 °C
PS62/63.GX****E****	with thermo fuse limited to 98 °C

15.3.2.3 Degrees of protection according to EN 60529 IP66

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17 Special Conditions for Use

17.1 Variants of the radar sensor VEGAPULS for which aluminium is used shall be installed in such a way that sparking as a result of impact or friction between aluminium and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.

17.2 The radar sensor VEGAPULS shall be installed in such a way that contact between the measuring sensor and the tank wall will be excluded with sufficient safety considering the tank installations and the flow conditions inside the tank. This applies, in particular, to the measuring sensors which are more than 3 m long.

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
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18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, 2021-11-10
BVS-Hor/Mu A20210349

Managing Director

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com