Translation

1 # EU-Type Examination Certificate Supplement 3

Change to Directive 2014/34/EU

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

3 EU-Type Examination Certificate Number: **BVS 05 ATEX E 056 X**

4 Product: **Radar sensor VEGAPULS type PS6*(*).TX***(*)*****and VEGAPULS PSSR68(*).TX***(*)H/P/F****

5 Manufacturer: **VEGA Grieshaber KG**

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

7 This supplementary certificate extends EC-Type Examination Certificate No. BVS 05 ATEX E 056 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 05.1019 EU.

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

EN 60079-0:2012 + A11:2013	**General requirements**
EN 60079-11:2012	**Intrinsic Safety "i"**

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:

Ex **I M2 Ex ia I Mb**

DEKRA Testing and Certification GmbH
Bochum, 2019-04-24

Signed: Jörg-Timm Kilisch

Managing Director

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
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13 **Appendix**

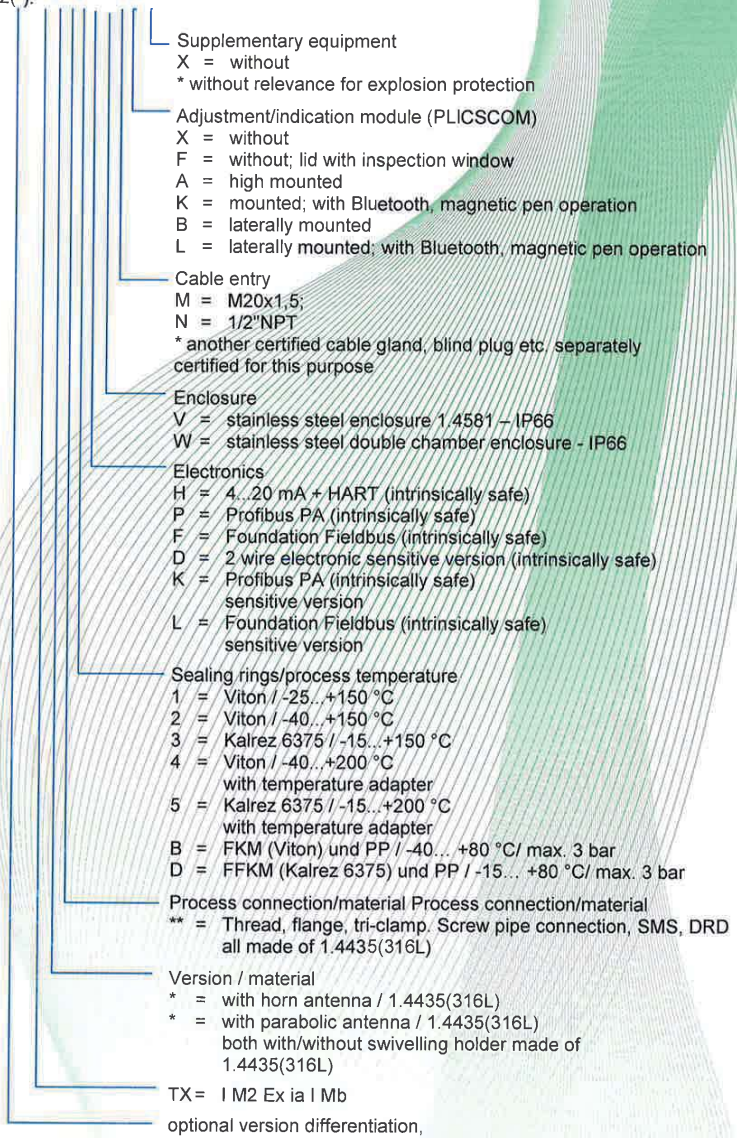
14 **EU-Type Examination Certificate**

BVS 05 ATEX E 056 X
Supplement 3

15 **Product description**

15.1 **Subject and type**

Radar Sensor
VEGAPULS PS 62(*). * * * * * * * * *



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VEGAPULS PS 63* * * * * * * * *

Supplementary equipment
X = without
1 = Antenna system DD-laquered
* without relevance for explosion protection

Adjustment/indication module (PLICSCOM)
X = without
F = without; lid with inspection window
A = high mounted
K = mounted; with Bluetooth, magnetic pen operation
B = laterally mounted
L = laterally mounted; with Bluetooth, magnetic pen operation

Cable entry
M = M20x1.5;
N = 1/2"NPT
* another certified cable gland, blind plug etc. separately certified for this purpose

Enclosure
V = stainless steel enclosure 1.4581 – IP66
W = stainless steel double chamber enclosure - IP66

Electronics
H = 4...20mA + HART (intrinsically safe)
P = Profibus PA (intrinsically safe)
F = Foundation Fieldbus (intrinsically safe)
D = 2 wire electronic sensitive version (intrinsically safe)
K = Profibus PA (intrinsically safe) sensitive version
L = Foundation Fieldbus (intrinsically safe) sensitive version

Process connection / material
** = Thread, Tri-Clamp. Screw pie connection, SMS, DRD all made of 1.4571(316Ti)

Version / material / process temperature
* = with encapsulated horn antenna with several process separations PTFE, PFA (up to 200 °C)

TX = I M2 Ex ia I Mb

optional version differentiation, without relevance for explosion protection

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VEGAPULS PS 66(*), * * * * * * * * *

Supplementary equipment
X = without
* without relevance for explosion protection

Adjustment/indication module (PLICSCOM)
X = without
F = without; lid with inspection window
A = high mounted
K = mounted; with Bluetooth, magnetic pen operation
B = laterally mounted
L = laterally mounted; with Bluetooth, magnetic pen operation

Cable entry
M = M20x1,5;
N = 1/2"NPT
* another certified cable gland, blind plug etc. separately certified for this purpose

Enclosure
V = stainless steel enclosure 1.4581 – IP66
W = stainless steel double chamber enclosure - IP66

Electronics
H = 4...20mA + HART (intrinsically safe)
P = Profibus PA (intrinsically safe)
F = Foundation Fieldbus (intrinsically safe)

Sealing rings/process temperature
1 = Viton / -25...+150 °C
2 = Viton / -40...+150 °C
3 = Kalrez spectrum / -15...+150 °C
5 = EPDM / -40...+150 °C
G = graphite and ceramic / -60...+250 °C with temperature adapter
H = graphite and ceramic / -60...+400 °C with temperature adapter

Process connection / material
** = Flange, 1.4435 (316L)

Version / material
* = Horn antenna /stand pipe / 1.4435 (316L)

TX = I M2 Ex ia I Mb

optional version differentiation, without relevance for explosion protection

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VEGAPULS PS 68(*). * * * * * * * * *

Supplementary equipment
V = rinsing connection with reflux valve
1 = antenna elongation
* without relevance for explosion protection

Adjustment/indication module (PLICSCOM)
X = without
F = without; lid with inspection window
A = high mounted
K = mounted; with Bluetooth, magnetic pen operation
B = laterally mounted
L = laterally mounted; with Bluetooth, magnetic pen operation

Cable entry
M = M20x1,5;
N = 1/2"NPT
* another certified cable gland, blind plug etc. separately certified for this purpose

Enclosure
V = stainless steel enclosure 1.4581 – IP66
W = stainless steel double chamber enclosure - IP66

Electronics
H = 4...20mA + HART (intrinsically safe)
P = Profibus PA (intrinsically safe)
F = Foundation Fieldbus (intrinsically safe)

Sealing rings /process temperature
2 = Viton / -40...+130 °C
3 = Kalrez 6375 / -40...+130 °C
4 = Viton / -40...+200 °C with temperature adapter
5 = Kalrez 6375/ -40...+200 °C with temperature adapter
A = FKM (Viton) / -40...+200 °C
E = FFKM (Kalrez 6230) / -15...+250 °C
F = FFKM (Kalrez 6375) / -20...+250 °C
H = Ceramic graphite / -196...+450 °C

Process connection / material
** = Thread, flange, clamp, screw pipe, SMS, Neumo; 1.4435(316L)

Version / material
* = Horn antenna / parabolic antenna, swivelling holder/1.4435(316L

TX= I M2 Ex ia I Mb

optional version differentiation,
without relevance for explosion protection

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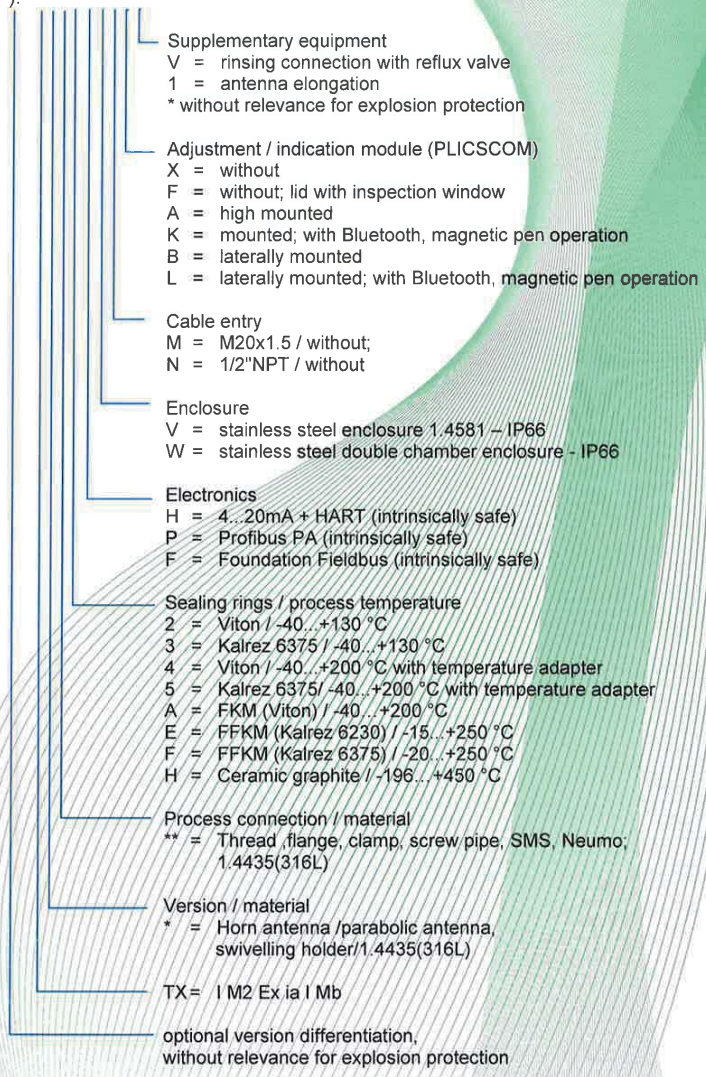
VEGAPULS PSSR 68(*). * * * * * * * * *



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15.2 **Description**

The Radar sensor type VEGAPULS PS6*(*).TX***H/P/FV** serves the purpose of recording the distance between the surface of bulk solids and the sensor, i.e. the antenna, by means of high-frequency microwaves in the GHz-area. Using an antenna, the radar sensors emit high-frequency electromagnetic waves. The apparatus is intended for use in subsurface buildings of mines as well as their plants above ground for which danger due to firedamp and/or combustible, dust-generating bulk solids exists.

They consist of a sensor, the transmitting and receiving antenna, a process connecting element and a metal enclosure of stainless steel; the sensors are apparatus of category M2.

The connection of the Radar sensor with other equipment must be separately tested and certified.

Reasons for the supplement:
- change to the directive 2014/34/EU
- updating to the current standards (as well the separate certificates for Intrinsic Safety)
- changes in nameplates
- adjustment/indication module PLICSCOM3 according to TÜV 15 ATEX 161127 U added
- sealing materials are added
- modifications in type code

15.3 **Parameters**

15.3.1 Electrical data

15.3.1.1 VEGAPULS PS6*(*).TX***(*)D/H****
VEGAPULS PS68/PSSR68(*).TX****H****

Supply and signal circuit (terminals 1 [+], 2 [-] in the electronics compartment or in the terminal compartment regarding the double chamber enclosure)

in type of protection Intrinsic Safety Ex ia/ib I only for connection to a certified intrinsically safe circuit with the following maximum values:

Ui	=	30	V
Ii	=	131	mA
Pi	=	983	mW

linear characteristics

Li	≤	5	µH
Ci		negligible	

15.3.1.2 VEGAPULS PS6*(*).TX***(*)K/L/P/F****
VEGAPULS PS68/PSSR68(*).TX****P/F****

Supply and signal circuit (terminals 1 [+], 2 [-]in the electronics compartment)

in type of protection Intrinsic Safety Ex ia/ib I only for connection to a certified intrinsically safe circuit with the following maximum values:

Ui	=	17.5	V
Ii	=	500	mA
Pi	=	5.5	W

The equipment is suitable for connection to a Fieldbus system according to the FISCO model, e.g. PROFIBUS-PA or foundation fieldbus

or

Ui	=	24	V
Ii	=	250	mA
Pi	=	1.2	W
Li	≤	10	µH
Ci		negligible	

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15.3.1.3 VEGAPULS PS6*(*).TX***(*)D/H/K/L/P/F**** and VEGAPULS PS68/PSSR68(*).TX****H/P/F****
with electronics insert type PS60**

Adjustment and indication circuit (terminals Nr. 5, 6, 7, 8) in type of protection Intrinsic Safety Ex ia I with the following maximum values:

Uo	=	6.0	V
Io	=	214	mA
Po	=	321	mW
Li		negligible	
Ci		negligible	
Co	=	8.1	µF
at simultaneous			
Lo	=	8.5	mH

linear characteristics

15.3.1.4 VEGAPULS PS6*(*).TX***(*)D/H/K/L/P/F**** and VEGAPULS PS68/PSSR68(*).TX***H/P/F****
with electronics insert type PS60**

Frequency range of all sensors	5 up to 26 GHz	
Max. radiant power at nominal rating	20	µW
Max. radiant power at failure rating (double fault - ia)	300	mW

15.3.2 Thermal data

15.3.2.1 Permitted process temperature at the probe -40 °C...+70 °C

15.3.2.2 Permitted ambient temperature at the electronics enclosure -40 °C...+70 °C

15.3.3 Type of protection according to EN 60529

electronics enclosure, category M2	IP 66
probe, category M2	IP 68

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16 **Report Number**

BVS PP 05.1019 EU, as of 2019-04-24

17 **Special Conditions for Use**

17.1 The radar sensors, if manufactured in the versions sing antenna or swivelling holder extensions, have to be installed in a way which prevents the sensor from hitting the container wall or any metallic parts with sufficient certainty. This installation, which is especially necessary for installation lengths exceeding 3 m, has to consider the container fixtures as well as the flow properties.

17.2 The radar sensors, if manufactured in the swivelling holder version, have to be installed in such way that the alignment position cannot be changed once the antenna has been aligned by means of the swivelling holder and the wheel flange has been screwed.

17.3 The metal elements of the radar sensors are electrically connected to the earth terminals. The intrinsically safe supply and signal circuit is safely electrically isolated from earthed elements.

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, 2019-04-24
BVS-Hk/VKA A20180379

Managing Director

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Translation

(1) 2. Supplement to the EC-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC
Supplement accordant with Annex III number 6

(3) No. of EC-Type Examination Certificate: **BVS 05 ATEX E 056 X**

(4) Equipment: **Radar sensor type VEGAPULS PS68(*).TX***H/P/F****, VEGAPULS PS6*(*).TX***D/H/K/L/P/F**** and VEGAPULS PSSR68(*).TX***H/P/F****

(5) Manufacturer: **VEGA Grieshaber KG**

(6) Address: **77757 Schiltach, Germany**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this supplement.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the test and assessment report BVS PP 05.1019 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2009 / General requirements
EN 60079-11:2007 Intrisic safety i

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This supplement to the EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

⟨Ex⟩ **I M2 Ex ia I Mb**

DEKRA EXAM GmbH
Bochum, dated 16. February 2011

Signed: Dr. Eickhoff — Certification body

Signed: U. Hauke — Special services unit

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(13) Appendix to

(14) **2. Supplement to the EC-Type Examination Certificate**
BVS 05 ATEX E 056 X

(15) 15.1 Subject and type

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

Supplementary equipment
X = none

Adjustment/indication module (PLICSCOM)
X = without
A = high mounted
B = side mounted

Cable entry
A = M20x1.5
B = 1/2"NPT

Enclosure
V = stainless steel enclosure / 1.4581 / IP66
W = stainless steel double chamber enclosure / IP66

Electronics
H = 4...20 mA + HART (intrinsically safe)
P = Profibus PA (intrinsically safe)
F = Foundation Fieldbus (intrinsically safe)
D = 2 wire electronic sensitive version (intrinsically safe)
K = Profibus PA (intrinsically safe)
sensitive version
L = Foundation Fieldbus (intrinsically safe)
sensitive version

Sealing rings/process temperature
1 = Viton / -25...+150 °C
2 = Viton / -40...+150 °C
3 = Kalrez 6375 / -15...+150 °C
4 = Viton / -40...+200 °C
with temperature adapter
5 = Kalrez 6375 / -15...+200 °C
with temperature adapter
B = FKM (Viton) und PP / -40...+80 °C / max. 3 bar
D = FFKM (Kalrez 6375) und PP / -15...+80 °C /
max. 3 bar

Process connection/material
thread, flange, tri-clamp, Screw pipe connection, SMS, DRD all made of 1.4435(316L)

Version / material
* = with horn antenna / 1.4435(316L)
* = with parabolic antenna / 1.4435(316L)
both with/without swivelling holder made of 1.4435(316L)

TX = I M2 Ex ia I Mb

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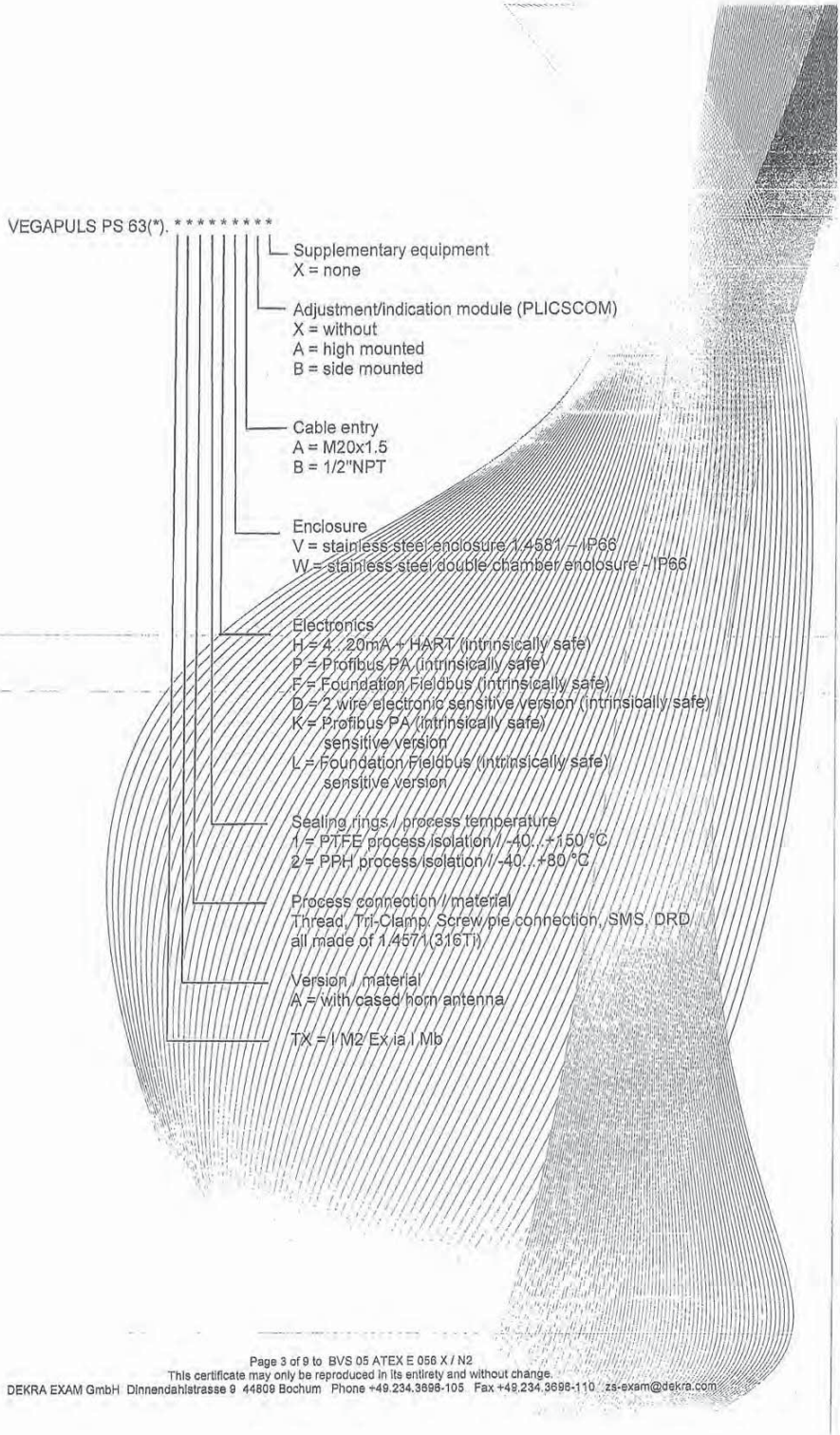

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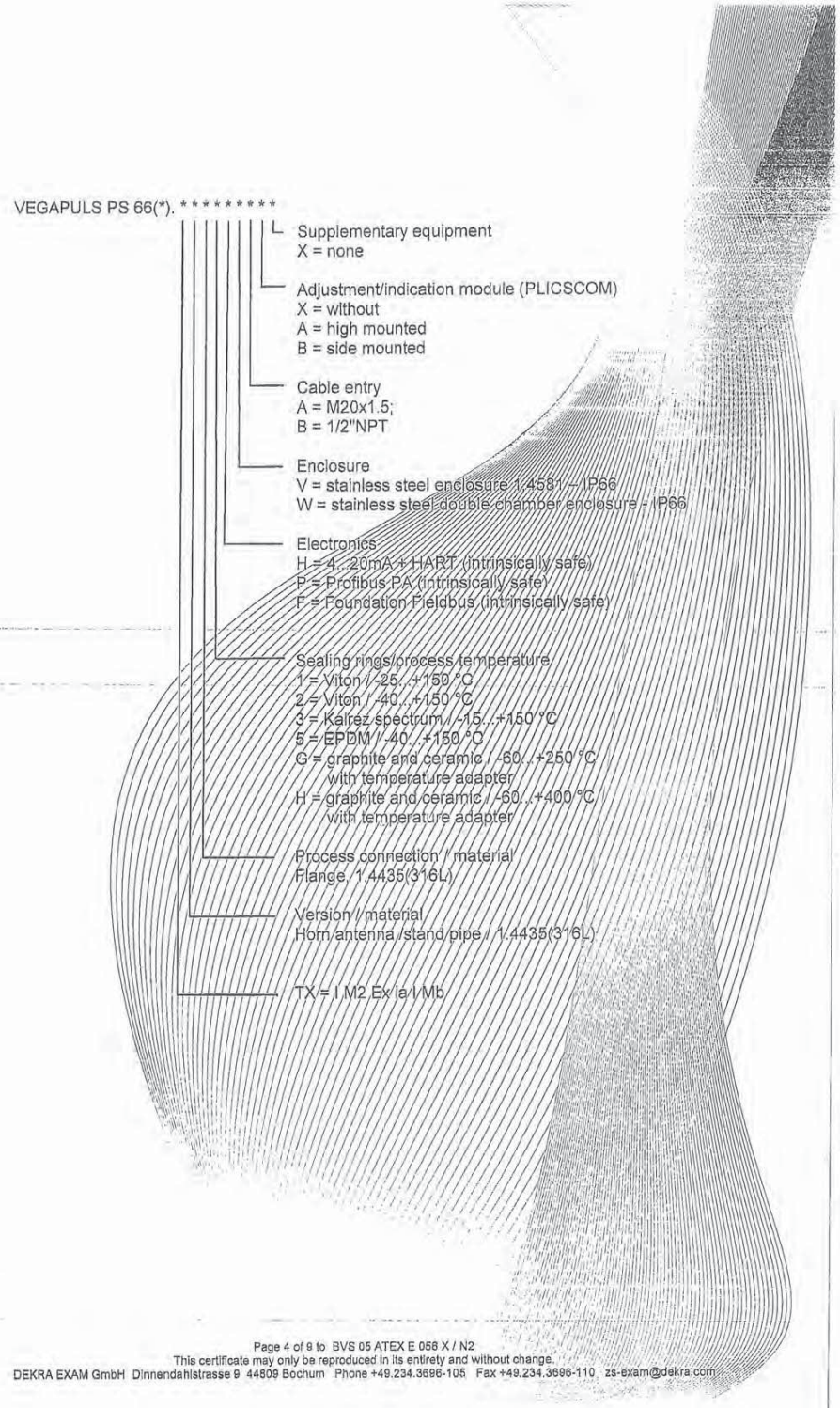

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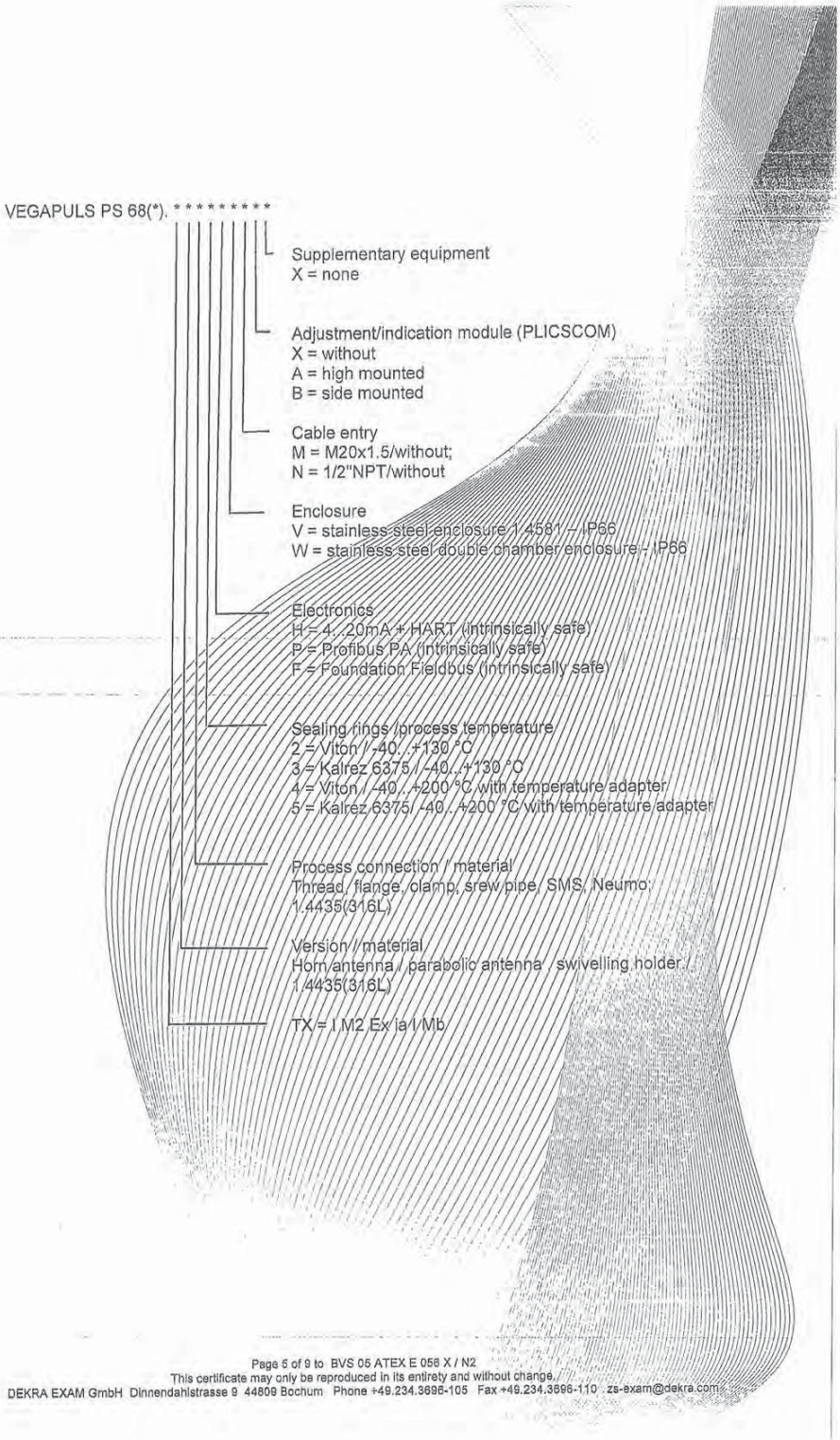

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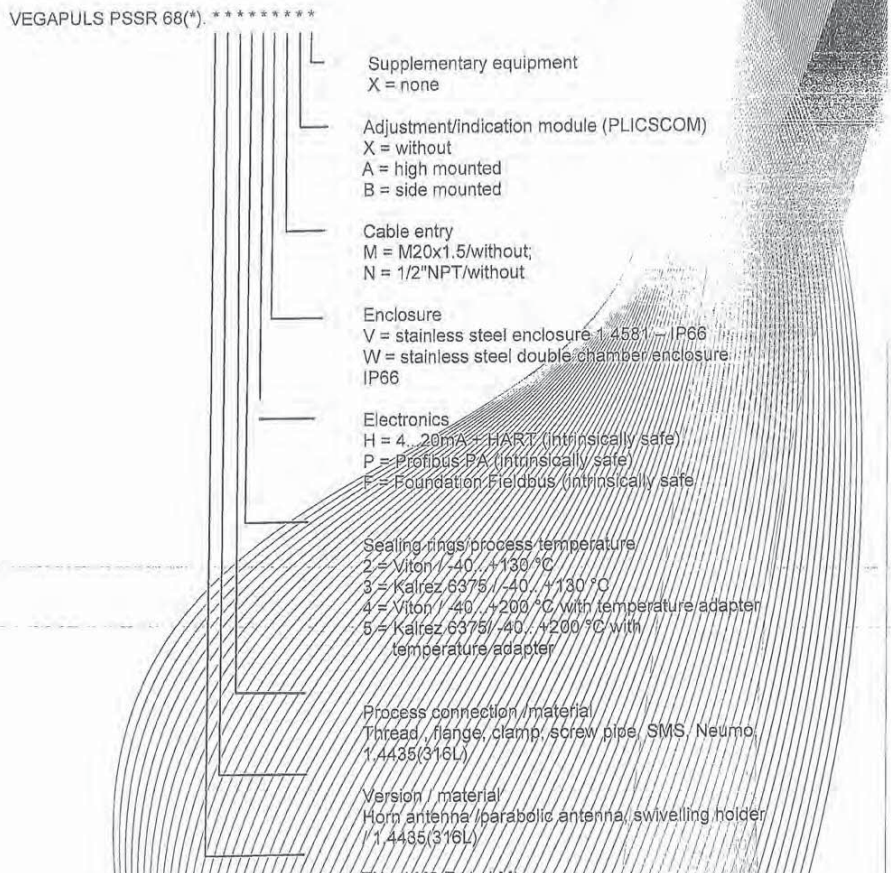

15.2 Description

The Radar sensor type VEGAPULS PS6*(*).TX***D/H/K/L/P/F**** and VEGAPULS PSSR68(*).TX***H/P/F**** consists of a sensor, the transmitting and receiving antenna, a process connecting element and a metal enclosure of stainless steel; the sensors are apparatus of category M2.

The electronic inserts type PS60HC, PS60HK, PS60HS, PS60PA/FFC, PS60PA/FFK and PS60PA/FFS are modified.

Other swivelling holders made of stainless steel can be used according to the certificate PTB 03 ATEX 2060 X 6. Supplement.

The Radar sensor VEGAPULS PS6*(*).TX***D/H/K/L/P/F**** and VEGAPULS PSSR68(*).TX***H/P/F**** can also be produced with a stainless steel double chamber enclosure. For details of this enclosure see test report BVS PP 02.2113.

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The Radar sensor type VEGAPULS PS 68(*).TX***H/P/F**** constructed in the same way is marketed as well under the name Radar-Sensor type VEGAPULS PSSR68(*).TX***H/P/F****.

15.3 Parameters

15.3.1 Electrical data

15.3.1.1 Type VEGAPULS PS6*(*).TX***D/H****
Type VEGAPULS PS68/PSSR68(*).TX***H****

Supply and signal circuit (terminals 1 [+], 2 [-] in the electronics compartment)

in type of protection Intrinsic Safety Ex ia/ib only for connection to a certified intrinsically safe circuit with the following maximum values:

Ui = 30 V
Ii = 131 mA
Pi = 983 mW
linear characteristics
Li ≤ 5 µH
Ci negligible

Supply and signal circuit (terminals 1 [+], 2 [-]by the double chamber enclosure in the terminal compartment)

in type of protection Intrinsic Safety Ex ia/ib only for connection to a certified intrinsically safe circuit with the following maximum values:

Ui = 30 V
Ii = 131 mA
Pi = 983 mW
linear characteristics
Li ≤ 5 µH
Ci negligible

15.3.1.2 Type VEGAPULS PS6*(*).TX***K/L/P/F****
Type VEGAPULS PS68/PSSR68(*).TX***P/F****

Supply and signal circuit (terminals 1 [+], 2 [-] in the electronics compartment)

in type of protection Intrinsic Safety Ex ia/ib only for connection to a certified intrinsically safe circuit with the following maximum values:

Ui = 17.5 V
Ii = 500 mA
Pi = 5.5 W

The equipment is suitable for connection to a Fieldbus system according to the FISCO model, e.g. PROFIBUS-PA or foundation fieldbus.

or

Ui = 24 V
Ii = 250 mA
Pi = 1.2 W
Li ≤ 5 µH
Ci negligible

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15.3.1.3 VEGAPULS PS6*(*).TX***D/H/K/L/P/F**** and
VEGAPULS PS68/PSSR68(*).TX***H/P/F****
with electronics insert type PS60**

Adjustment and indication circuit (terminals Nr. 5, 6, 7, 8), in type of protection Intrinsic Safety Ex ia

with the following maximum values:

Uo = 6.0 V
Io = 214 mA
Po = 321 mW

Li negligible
Ci negligible

Co = 8.1 µF at simultaneous Lo = 8.5 mH

linear characteristics

15.3.1.4 VEGAPULS PS6*(*).TX***D/H/K/L/P/F**** and
VEGAPULS PS68/PSSR68(*).TX***H/P/F****
with electronics insert type PS60**

Frequency range of all sensors	5 up to 26 GHz
Max. radiant power at nominal rating	20 µW
Max. radiant power at failure rating (double fault - ia)	300 mW

15.3.2 Thermal data

15.3.2.1 Permitted process temperature at the probe -40 °C ... +70 °C

15.3.2.2 Permitted ambient temperature at the electronics enclosure -40 °C ... +70 °C

15.3.3 Type of protection according to EN 60529

Electronic enclosure, category M2 IP 66

Probe, category M2 IP 68

(16) Test and assessment report

BVS PP 05.1019 EG, as of 16.02.2011

DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Phone +49.234.3696-105 Fax +49.234.3696-110 zs-exam@dekra.com

(17) Special conditions for safe use

17.1 The radar sensors, if manufactured in the versions using antenna or swivelling holder extensions, have to be installed in a way which prevents the sensor from hitting the container wall or any metallic parts with sufficient certainty. This installation, which is especially necessary for installation lengths exceeding 3 m, has to consider the container fixtures as well as the flow properties.

17.2 The radar sensors, if manufactured in the swivelling holder version, have to be installed in such way that the alignment position cannot be changed once the antenna has been aligned by means of the swivelling holder and the wheel flange has been screwed.

17.3 The metal elements of the radar sensors are electrically connected to the earth terminals. The intrinsically safe supply and signal circuit is safely electrically isolated from earthed elements.

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 EXAM GmbH
44809 Bochum, 22. February 2011
BVS-Ha/Her A 20100809

Certification body

Special services unit

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DEKRA

Translation

1st Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate
BVS 05 ATEX E 056 X

Equipment: Radar sensor type VEGAPULS PS*.TX***H/P/FV**

Manufacturer: VEGA Grieshaber KG

Address: 77761 Schiltach, Germany

Description
The radar sensors can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report and shall then be marked as follows:

VEGAPULS PS 62.TX***H/P/FV**

VEGAPULS PS 62.TX***DV**	2-wire electronic sensitive version (intrinsically safe?) with electronics insert PS60HS built in
VEGAPULS PS 62.TX***KV**	Profibus PA sensitive version (intrinsically safe) with electronics insert PS60PAS built in
VEGAPULS PS 62.TX***LV**	Foundation fieldbus sensitive version with electronics insert PS60FFS built in

VEGAPULS PS 63.TX***H/P/FV**

VEGAPULS PS 63.TX***DV**	2 wire electronic sensitive version (intrinsically safe?) with electronics insert PS60HS built in
VEGAPULS PS 63.TX***KV**	Profibus PA sensitive version (intrinsically safe) with electronics insert PS60PAS built in
VEGAPULS PS 63.TX***LV**	Foundation fieldbus sensitive version with electronics insert PS60FFS built in

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Overall, this results in the following versions of the radar sensors:

VEGAPULS PS 62. * * * * * * * *

adjustment / indication module (PLICSCOM)
X without and M built in

cable entry
A = M20x1.5
B = 1/2"NPT

enclosure
V = stainless steel enclosure 1.4581 – IP66

electronics
H = 4...20mA + HART (intrinsically safe)
P = Profibus PA (intrinsically safe)
F = Foundation Fieldbus (intrinsically safe)
D = 2 wire electronic sensitive version (intrinsically safe)
K = Profibus PA (intrinsically safe)
sensitive version
L = Foundation fieldbus (intrinsically safe)
sensitive version

sealing rings/process temperature
1 = Viton / - 25...+ 150 °C
2 = Viton / - 40...+ 150 °C
3 = Kalrez 6375 / - 15...+ 150 °C
4 = Viton / - 40...+ 200 °C
with temperature adapter
5 = Kalrez 6375 / - 15...+ 200 °C
with temperature adapter

process connection / material
thread, flange, tri-clamp. Screw pipe connection, SMS, DRD
all made of 1.4435(316L)

version / material
* = with horn antenna / 1.4435(316L)
* = with parabolic antenna / 1.4435(316L)
Both with/without swivelling holder made of
1.4435(316L)

TX = ATEX I M2 EEx ia I

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VEGAPULS PS 63. * * * * * * * * *

adjustment / indication module (PLICSCOM)
X without and M built in

cable entry
A = M20x1.5/without; B = 1/2"NPT/ without

enclosure
V = stainless steel enclosure 1.4581– IP66

electronics
H = 4...20mA + HART (intrinsically safe)
P = Profibus PA (intrinsically safe)
F = Foundation Fieldbus (intrinsically safe)
D = 2 wire electronic sensitive version (intrinsically safe)
K = Pofibus PA (intrinsically safe) sensitive version
L = Foundation Fieldbus (intrinsically safe) sensitive version

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

process connection / material
thread, flange, tri-clamp. Screw pipe connection, SMS, DRD
all made of 1.4571(316Ti)

version / material
A = with cased horn antenna

TX = ATEX I M2 EEx ia I

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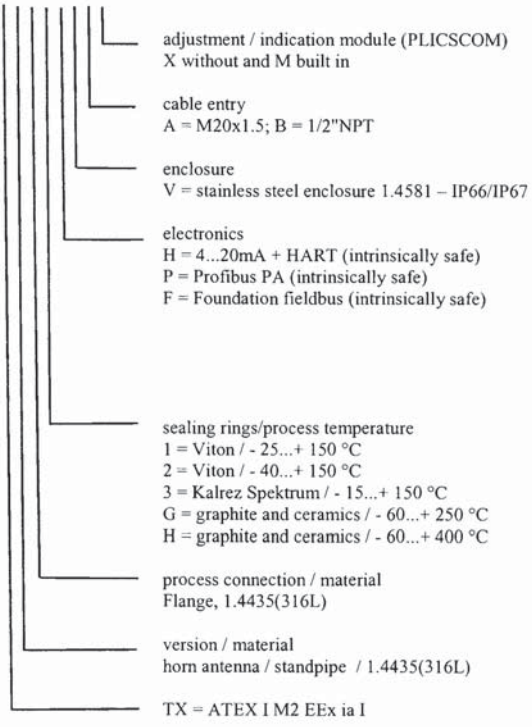
VEGAPULS PS 66. * * * * * * * *



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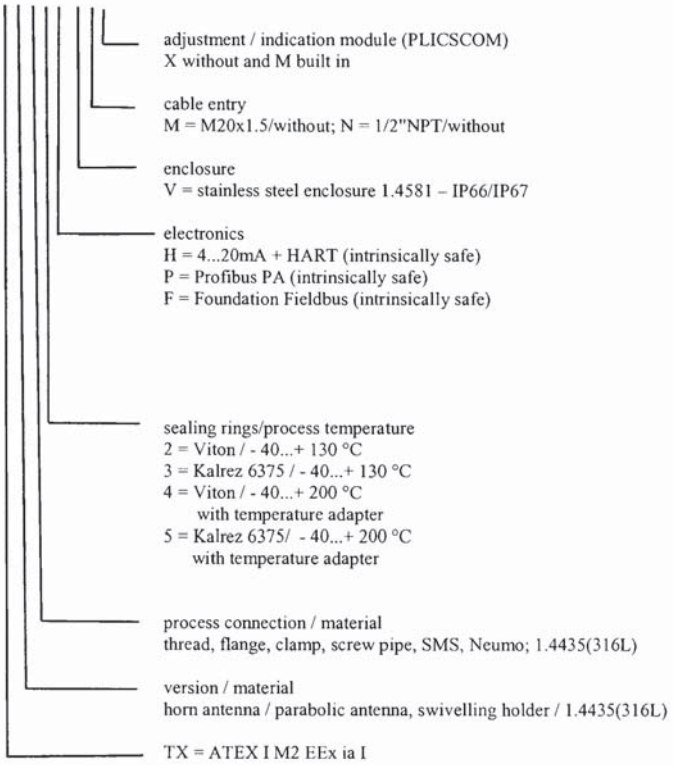
VEGAPULS PS 68. * * * * * * * *



The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997 + A1 – A2 General requirements
EN 50020:2002 Intrinsic safety 'i'

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Parameters

1 Electrical data

1.1 Type VEGAPULS PS6*.TX***HV**
with electronics insert type PS60HC, PS60HK built in
Type VEGAPULS PS6*.TX***DV**
with electronics insert type PS60HS built in

Supply and signal circuit (terminals 1 [+], 2 [-] in the electronics compartment)	in type of protection Intrinsic Safety EEx ia/ib I only for connection to a certified intrinsically safe circuit with the following maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW linear characteristics Li negligible Ci negligible

1.2 Type VEGAPULS PS6*.TX***P/FV** with electronics insert PS60** built in

VEGAPULS PS6*.TX***PV** with electronics insert type PS60PAC or PS60PAK built in.

VEGAPULS PS6*.TX***KV** with electronics insert type PS60PAS built in.

VEGAPULS type VEGAPULS PS6*.TX***FV** with electronics insert type PS60FFC or PS60FFK built in.

VEGAPULS PS6*.TX***LV** with electronics insert type PS60FFS built in.

Supply and signal circuit (terminals 1 [+], 2 [-]in the electronics compartment)	in type of protection Intrinsic Safety EEx ia/ib I only for connection to a certified intrinsically safe circuit with the following maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 W The equipment is suitable for connection to a Fieldbus system according to the FISCO model, e.g. PROFIBUS-PA or foundation fieldbus or Ui = 24 V Ii = 250 mA Pi = 1.2 W Li ≤ 5 µH Ci negligible

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1.3 Type VEGAPULS PS6*.TX***H/P/FV** with electronics insert type PS60** built in
Type VEGAPULS PS6*.TX***D/K/LV** with electronics insert type PS60** built in (sensitive version)

Adjustment and indication circuit (terminals Nr. 5, 6, 7, 8),	in type of protection Intrinsic Safety EEx ia I with the following maximum values: Uo = 6.0 V Io = 464.2 mA Po = 331.7 mW Li negligible Ci negligible Co = 2,8 µF at simultaneous Lo = 100 µH linear characteristics

1.4 Type VEGAPULS PS6*.TX***H/P/FV** with electronics insert type PS60** built in

Type VEGAPULS PS6*.TX***D/K/LV** with electronics insert type PS60** built in (sensitive version)

Frequency range of all sensors	5 up to 26 GHz
Max. radiant power at nominal rating	20 µW
Max. radiant power at failure rating (double fault - ia)	300 mW

2 Thermal data

2.1	Permitted process temperature at the probe	- 40 °C...+70 °C
2.2	Permitted ambient temperature at the electronics enclosure	- 40 °C...+70 °C

3	Type of protection according to EN 60529	
	electronics enclosure, category M2	IP 66
	Probe, category M2	IP 68

The marking of the equipment shall include the following:

I M2 EEx ia I

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Special conditions for safe use

The radar sensors, if manufactured in the versions using antenna or swivelling holder extensions, have to be installed in a manner which prevents the sensor from hitting the container wall or any metallic parts with sufficient certainty. This installation, which is especially necessary for installation lengths exceeding 3 m, has to consider the container fixtures as well as the flow properties.
The radar sensor, if manufactured in the swivelling holder version, have to be installed in such manner that the alignment position cannot be changed once the antenna has been aligned by means of the swivelling holder and the wheel flange has been screwed.

Test and assessment report
BVS PP 05.1019/N1 EG as of 29.05.2006

EXAM BBG Prüf- und Zertifizier GmbH
Bochum, dated 30. May 2006

Signed: Dr. Jockers	Signed: Dr. Eickhoff
Certification body	Special services unit

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.

44809 Bochum, 29.10.2007
BVS-Ha/Ar E 1434/07

DEKRA EXAM GmbH

Certification body	Special services unit

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(until 31.03.2007 EXAM BBG Prüf- und Zertifizier GmbH)

Translation

(1) # EC-Type Examination Certificate

(2) **- Directive 94/9/EC -**
Equipment and protective systems intended for use in potentially explosive atmospheres

(3) ## BVS 05 ATEX E 056 X

(4) **Equipment:** **Radar sensor type VEGAPULS PS*.TX***H/P/FV****

(5) **Manufacturer:** **VEGA Grieshaber KG**

(6) **Address:** **77757 Schiltach, Germany**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.

(8) The certification body of EXAM BBG Prüf- und Zertifizier GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results are recorded in the test and assessment report BVS PP 05.1019 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 50014:1997 + A1 – A2 General requirements
EN 50020:2002 Intrinsic safety 'i'

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate

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

I M2 EEx ia I

EXAM BBG Prüf- und Zertifizier GmbH
Bochum, dated 14. April 2005

Signed: Dr. Jockers
Certification body

Signed: Dr. Wittler
Special services unit

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(13) Appendix to

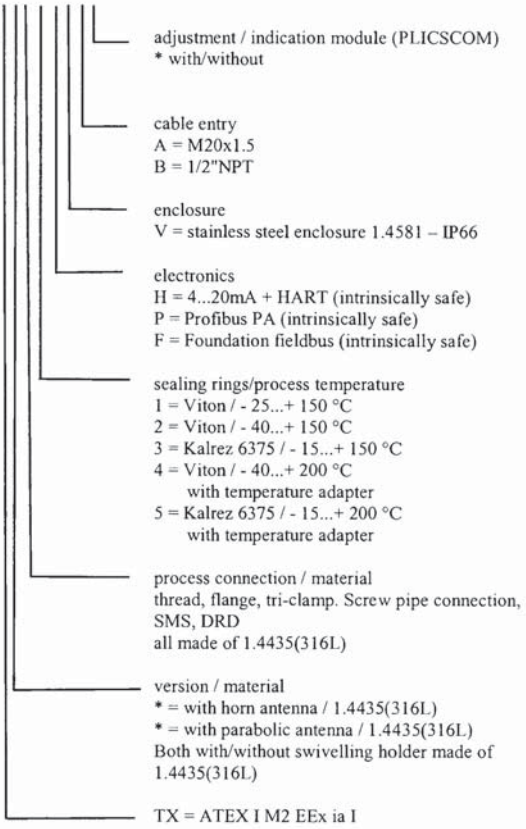
(14) # EC-Type Examination Certificate

BVS 05 ATEX E 056 X

(15) 15.1 Subject and type

Radar sensor type VEGAPULS PS6*.TX***H/P/FV**

VEGAPULS PS 62. * * * * * * * *



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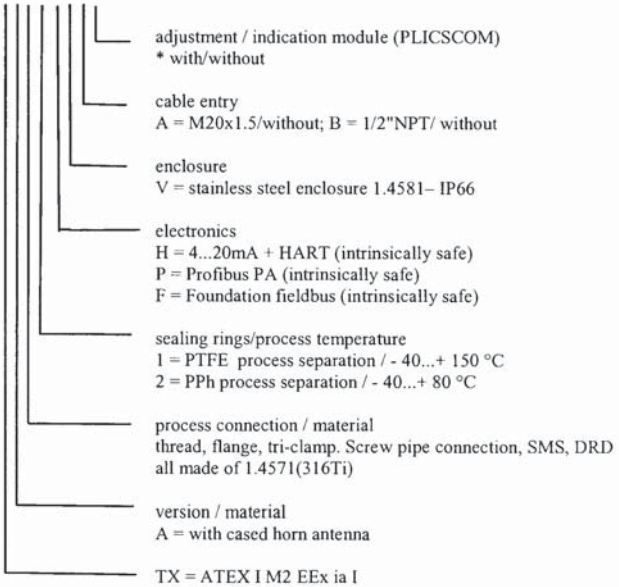
VEGAPULS PS 63. * * * * * * * *



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VEGAPULS PS 66. * * * * * * * *

adjustment / indication module (PLICSCOM)
* with/without

cable entry
A = M20x1.5; B = 1/2"NPT

enclosure
V = stainless steel enclosure 1.4581 – IP66/IP67

electronics
H = 4...20mA + HART (intrinsically safe)
P = Profibus PA (intrinsically safe)
F = Foundation fieldbus (intrinsically safe)

sealing rings/process temperature
1 = Viton / - 25...+ 150 °C
2 = Viton / - 40...+ 150 °C
3 = Kalrez Spektrum / - 15...+ 150 °C
G = graphite and ceramics / - 60...+ 250 °C
G = graphite and ceramics / - 60...+ 400 °C

process connection / material
Flange, 1.4435(316L)

version / material
horn antenna/standpipe/ 1.4435(316L)
TX = ATEX I M2 EEx ia I

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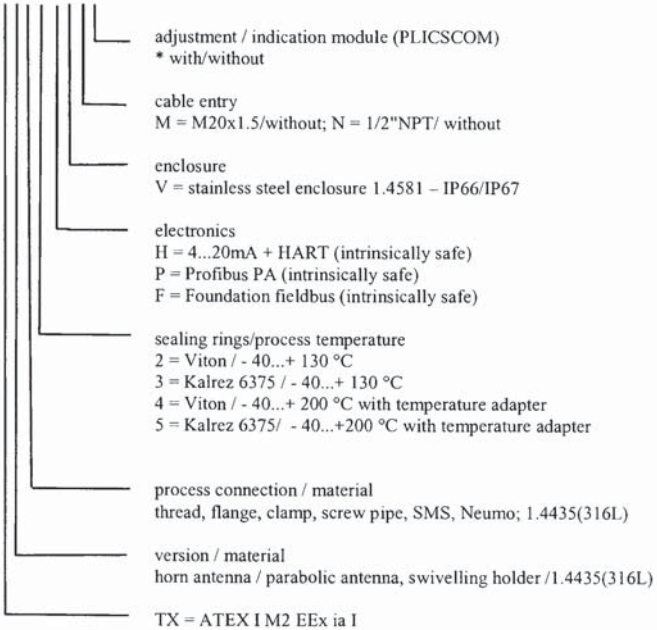
VEGAPULS PS 68. * * * * * * * *



15.2 Description

The fill level radar sensors of type VEGAPULS PS6*.TX***H/P/FV** serve the purpose of recording the distance between the surface of bulk solids and the sensor, i.e. the antenna, by means of high-frequency microwaves in the GHz-area. Using an antenna, the radar sensors emit high-frequency electromagnetic waves. The apparatus is intended for use in subsurface buildings of mines as well as their plants above ground for which danger due to firedamp and/or combustible, dust-generating bulk solids exists.

The sensors type VEGAPULS PS6*.TX***H/P/FV** consist of a sensor, the transmitting and receiving antenna, a process connecting element and a metal enclosure of stainless steel; the sensors are apparatus of category M2.

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15.3 Parameters

15.3.1 Electrical data

15.3.1.1 Type VEGAPULS PS6*.TX***HV**
with electronics insert type PS60HC, PS60HK or PS60HS built in

Supply and signal circuit (terminals 1 [+], 2 [-] in the electronics compartment)	in type of protection Intrinsic Safety EEx ia/ib I only for connection to a certified intrinsically safe circuit with the following maximum values: Ui = 30 V Ii = 131 mA Pi = 983 mW linear characteristics Li negligible Ci negligible

4.1.2 Type VEGAPULS PS6*.TX***P/FV** with electronics insert PS60** built in
VEGAPULS PS6*.TX***PV** with electronics insert type PS60PAC, PS60PAK or PS60PAS built in.
VEGAPULS type VEGAPULS PS6*.TX***FV** with electronics insert type PS60FFC, PS60FFK or PS60FFS built in.

Supply and signal circuit (terminals 1 [+], 2 [-]in the electronics compartment)	in type of protection Intrinsic Safety EEx ia/ib I only for connection to a certified intrinsically safe circuit with the following maximum values: Ui = 17.5 V Ii = 500 mA Pi = 5.5 W The equipment is suitable for connection to a fieldbus system according to the FISCO model, e.g. PROFIBUS-PA or Foundation Fieldbus or Ui = 24 V Ii = 250 mA Pi = 1.2 W Li ≤ 5 µH Ci negligible

4.1.3 Type VEGAPULS PS6*.TX***H/P/FV** with electronics insert PS60** built in

Adjustment and indication circuit (terminals Nr. 5, 6, 7, 8),	in type of protection Intrinsic Safety EEx ia I with the following maximum values:
	Uo = 6.0 V Io = 464.2 mA Po = 331.7 mW
	Li negligible Ci negligible
	Co = 2.8 µF at simultaneous Lo = 96 mH
	linear characteristics

4.1.4 Type VEGAPULS PS6*.TX***H/P/FV** with electronics insert PS60** built in

Frequency range of all sensors	5 up to 26 GHz
Max. radiant power at nominal rating	20 µW
Max. radiant power at failure rating (double fault - ia)	300 mW

4.2	Thermal data		
4.2.1	Permitted process temperature at the probe	- 40 °C... +	70 °C
4.2.2	Permitted ambient temperature at the electronics enclosure	- 40 °C... +	70 °C
4.3	Type of protection according to EN 60529 electronics enclosure, category M2 Probe, category M2		 IP 66 IP 68

(16) Test and assessment report
BVS PP 05.1019 EG as of 14.04.05

(17) Special conditions for safe use

The microwave sensors, if manufactured in the versions using antenna or swivelling holder extensions, have to be installed in a manner which prevents the sensor from hitting the container wall or any metallic parts with sufficient certainty. This installation, which is especially necessary for installation lengths exceeding 3 m, has to consider the container fixtures as well as the flow properties.

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(until 31.03.2007 EXAM BBG Prüf- und Zertifizier GmbH)

DEKRA

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.

44809 Bochum, 29.10.2007
BVS-Ha/Ar E 1434/07

DEKRA EXAM GmbH

Certification body

Special services unit

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