



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx BVS 16.0083X** Page 1 of 4 [Certificate history:](#)
Issue 0 (2016-12-21)

Status: **Current** Issue No: 1

Date of Issue: 2020-04-15

Applicant: **Micro Motion Inc.**
7070 Winchester Circle
Boulder, Co. 80301
United States of America

Equipment: **Sensor type HPC010P*****I***** and HPC015P*****I*******

Optional accessory:

Type of Protection: **Equipment protection by intrinsic safety "i"**

Marking: Ex ib IIC T6...T1 Gb
Ex ib IIIC T*°C Db

Approved for issue on behalf of the IECEx
Certification Body:

Jörg Koch

Position:

Head of Certification Body

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
On the safe side.



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Manufacturer: **Micro Motion Inc.**
7070 Winchester Circle
Boulder, Co. 80301
United States of America

Additional manufacturing locations: **F-R Tecnologías De Flujo, S.A. de C.V**
Ave. Miguel de Cervantes 111
Complejo Industrial
Chihuahua, Chihuahua, 31136
Mexico

Emerson Process Management Flow B.V.
Neonstraat 1
6718 WX Ede
Netherlands

Emerson Process Management Flow Technologies Co., Ltd.
111, Xing Min South Road, Jiangning District,
Nanjing
Jiangsu Province
211100
China

Flow Measurement Emerson SRL
Cluj Flow Technology Center
Str. Emerson, nr. 4
Parcul Industrial Tetarom 2
400641, Cluj-Napoca
Romania

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[DE/BVS/ExTR16.0092/01](#)

Quality Assessment Report:

[NO/PRE/QAR16.0031/01](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Model Designation

See Annex

Description

See Annex

Parameters

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Updating to the standard IEC 60079-0:2017

Addition of a new HPC Sensor type HPC015*****|*****

Annex:

[BVS_16_0083X_MicroMotion_Annex_issue1.pdf](#)



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Copy of Marking Plate:

The name and the address of the manufacturer.

Year of construction

Serial number

Certificate number

Marking per table below:

Type	Type of protection	Ambient temperature range ²⁾
HPC010****[R,H,S,T]*I**** HPC015****[R,H,S,T]*I****	Ex ib IIC T6...T1 Gb Ex ib IIIC T ¹⁾ °C Db IP66/IP67	- 40°C ≤ Ta ≤ +80°C
HPC010****[2,3,4,5,6,7,8,9]*I**** HPC015****[2,3,4,5,6,7,8,9]*I****	Ex ib IIC T5...T1 Gb Ex ib IIIC T ¹⁾ °C Db IP66/IP67	- 40°C ≤ Ta ≤ +60°C
HPC010****[J,U]*I**** HPC015****[J,U]*I****	See "Specific Conditions of Use"	- 40°C ≤ Ta ≤ +60°C
HPC010****F*I**** HPC015****F*I****	See "Specific Conditions of Use"	- 40°C ≤ Ta ≤ +65°C

1. For dust temperature ratings, see temperature graphs. Dust only with stainless steel type label.
2. Maximum surface temperature T for dust, see temperature graphs and manufacturer's instructions.



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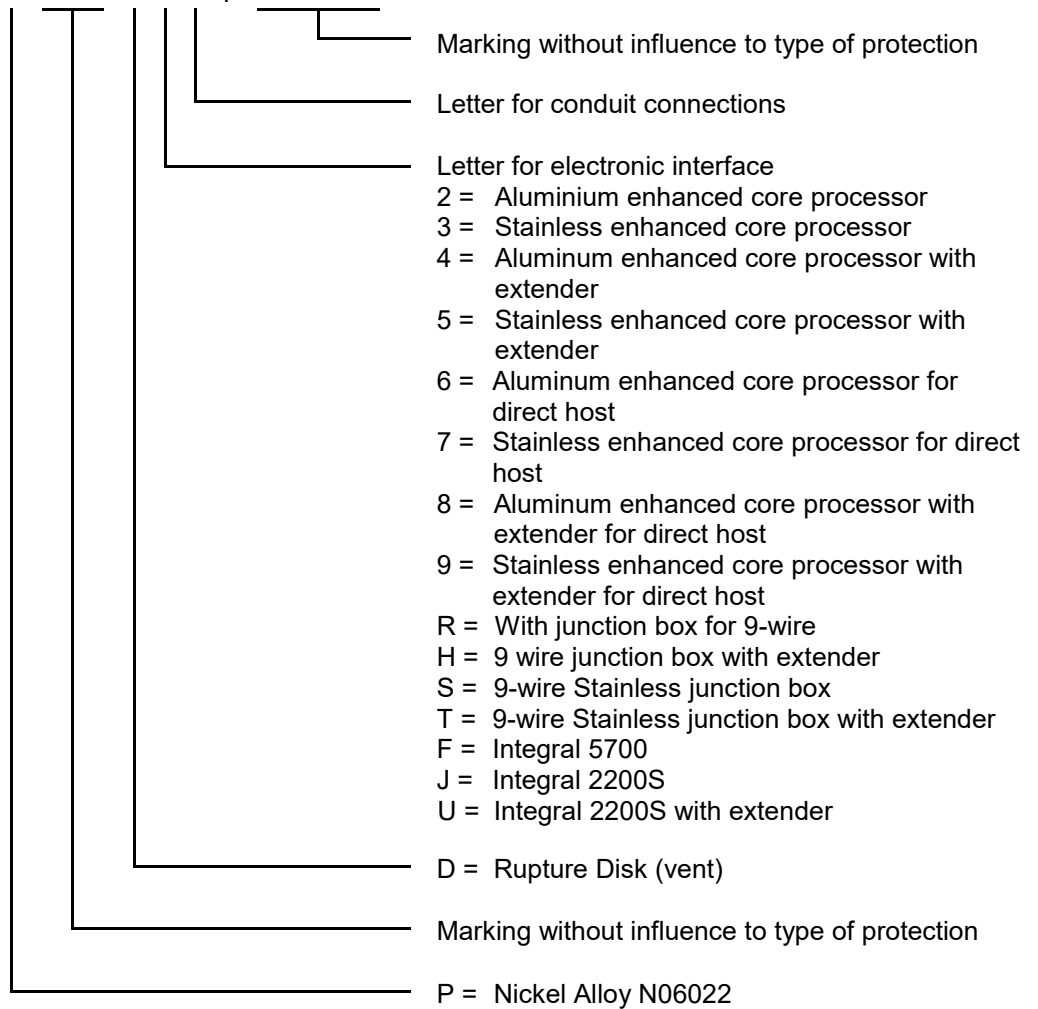
General product information:

1. Model Designation

Sensor type HPC010*****|***** or HPC015*****|*****

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the following variations:

H P C 0 1 0 * * * * * | * * * * *
H P C 0 1 5 * * * * * | * * * * *



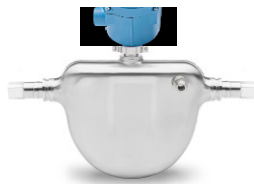
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2. Description:

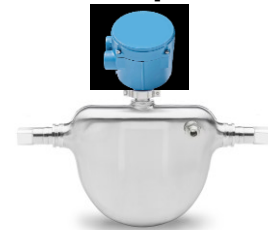
The flow sensor in combination with a transmitter is used for flow measurement.

The flow sensor, which consists of magnetically excited oscillating tubes, contains as electrical components coils, resistors, temperature sensors and terminals and connectors.

When used with an integral junction box (IECEX BVS 09.0022U), the variation gets the denomination type HPC010 ***** [S,T] *I***** / HPC15 ***** [S,T] *I***** for a SS enclosure and HPC010 ***** [R,H] *I***** / HPC15 ***** [R,H] *I***** for an aluminum enclosure.



When used with an integral mounted enhanced signal processing device type 800 (IECEX BVS 05.0010U), the variation gets the denomination type HPC010*****[3, 5, 7 or 9]*I***** / HPC15 *****[3, 5, 7 or 9]*I***** for a SS enclosure and HPC010 *****[2, 4, 6 or 8]*I***** / HPC15 *****[2, 4, 6 or 8]*I***** for an aluminum enclosure.



When used with an integral transmitter type 2200S***** (IECEX BVS 08.0038X), the variation gets the denomination type HPC010 ***** [J,U] *I ***** / HPC15 ***** [J,U] *I *****.



When used with an integral transmitter type 5700*1***** (IECEX BVS 14.0090X), the variation gets the denomination type HPC010***** F *I ***** / HPC15 ***** F *I *****.




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3. Parameters

3.1 Type HPC010****[R, H, S or T]*I**** or HPC015****[R,H,S,T]*I**** with J-box


3.1.1 Drive circuit (connections 1 - 2 or wires red and brown)

Voltage	U_i	DC	10.5	V
Current (instantaneous)	I_i		2.45	A
Current (steady state)	I_i		0.272	A
Power	P_i		2.54	W
Effective internal capacitance	C_i		Negligible	
Effective internal inductance	L_i		Per following table:	

Sensor type		Inductance (mH)	Coil Resistance (Ω)	Series Resistor (Ω)	Minimum Fluid Temp ($^{\circ}\text{C}$)
HPC010****[R,H,S,T]*I**** HPC015****[R,H,S,T]*I****	(IIC)	0.22	12.17	118.63	-50 $^{\circ}\text{C}$

3.1.2 Pick-off circuit (pin connections 5-9 and 6-8, wires green/white & blue/gray)

Voltage	U_i	DC	21.13	V
Current	I_i		18.05	mA
Power	P_i		45	mW
Effective internal capacitance	C_i		Negligible	
Effective internal inductance	L_i		Per following table:	

Sensor type		Inductance (mH)	Coil Resistance (Ω)	Series Resistor (Ω)	Minimum Fluid Temp ($^{\circ}\text{C}$)
HPC010****[R,H,S,T]*I**** HPC015****[R,H,S,T]*I****	(IIC)	4.16	115.39	569.20	-50 $^{\circ}\text{C}$

3.1.3 Temperature circuit (pin connections 3-4 and 7, wires orange, yellow and violet)


Voltage	U_i	DC	21,13	V
Current	I_i		26	mA
Power	P_i		112	mW
Effective internal capacitance	C_i		Negligible	
Effective internal inductance	L_i		Negligible	

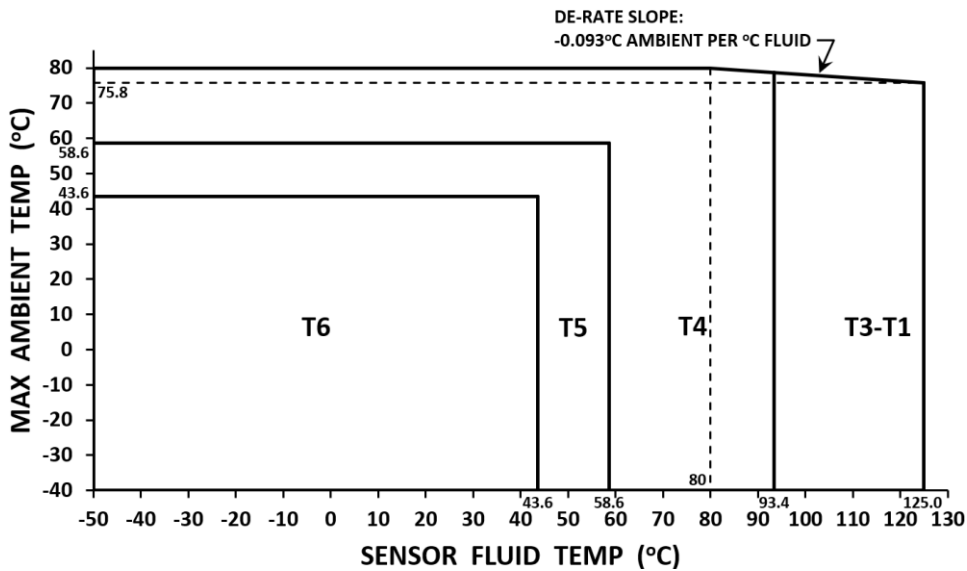
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3.1.4 Temperature class / maximum surface temperature T

The classification into a temperature class / determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs:

HPC with J-box

Sensor type		
With J-box	HPC010*****[R,H,S,T]***** HPC015*****[R,H,S,T]*****	(IIC)



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T6: T 80 °C, T5: T 95 °C, T4: T 130 °C, T3...T1: T 163.7 °C.

Ambient temperature range: T_a -40 °C to +80 °C

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3.2 Type HPC010*****[2,3,4,5,6,7,8,9]*I***** or HPC015*****[2,3,4,5,6,7,8,9]*I***** with integral core processor type 800


3.2.1 Input circuits (terminals 1-4)

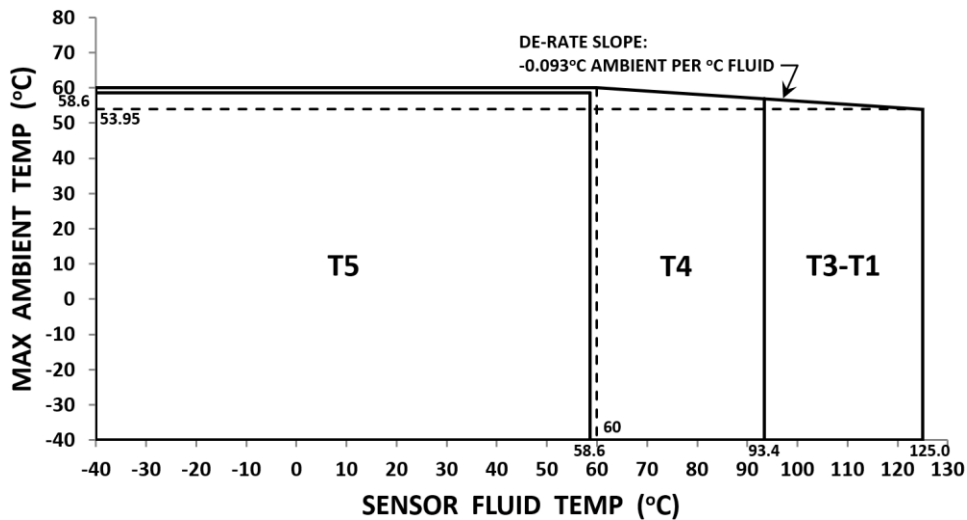
Voltage	U _i	DC	17.3	V
Current	I _i		484	mA
Power	P _i		2.1	W
Effective internal capacitance	C _i		2200	pF
Effective internal inductance	L _i		30	μH

3.2.2 Temperature class / maximum surface temperature T

The classification into a temperature class / determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs:

HPC with integral core processor type 800

Sensor type		
With integral core	HPC010*****[2,3,4,5,6,7,8,9]*I***** HPC015*****[2,3,4,5,6,7,8,9]*I*****	(IIC)



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T5: T 95 °C, T4: T 130 °C, T3...T1: T 163.7 °C.

Ambient temperature range: T_a -40 °C to +60 °C

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3.3 Type HPC010****[J or U]*I**** or HPC015****[J or U]*I**** with 2200S transmitter

3.3.1 Input circuits (terminals 1-2)

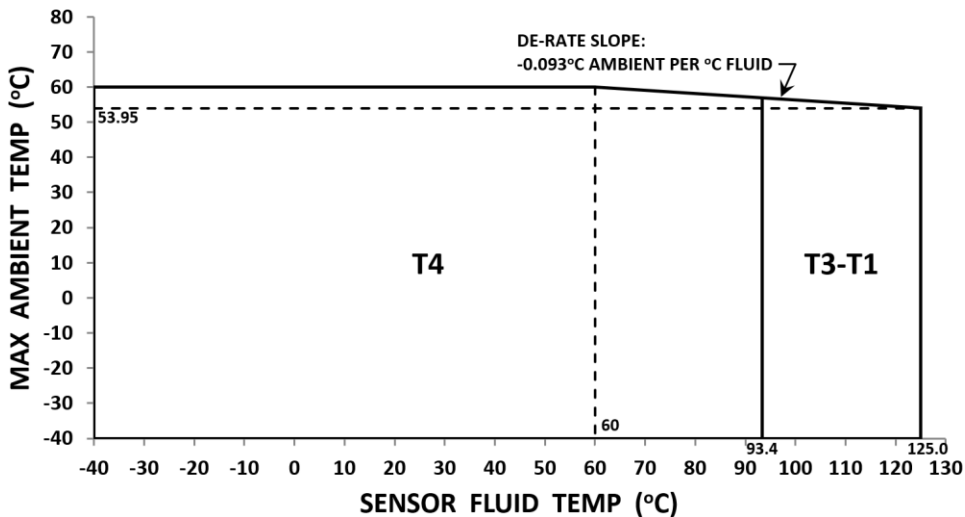
Voltage	U_i	DC	28	V
Current	I_i		120	mA
Power	P_i		0.84	W
Effective internal capacitance	C_i		2200	pF
Effective internal inductance	L_i		45	μ H

3.3.2 Temperature class / maximum surface temperature T

The classification into a temperature class / determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs:

HPC with integral 2200S:

Sensor type		
With 2200	HPC010****[J,U]*I**** HPC015****[J,U]*I****	(IIC)



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T4: T 130 °C, T3...T1: T 163.7 °C.

Ambient temperature range: T_a -40 °C to +60 °C

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3.4 Type HPC010****F*|**** or HPC015****F*|**** with integral 5700 transmitter

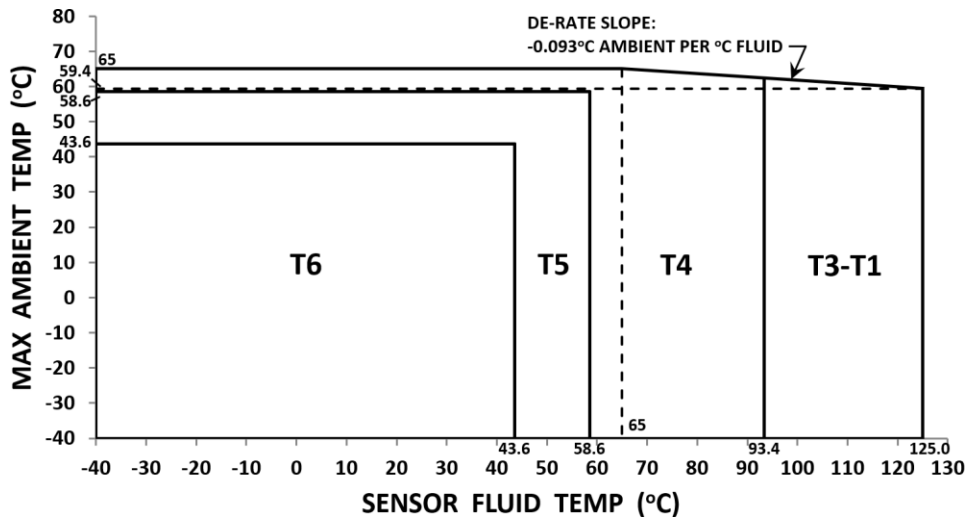
3.4.1 Electrical parameters see IECEx BVS 14.0090 X for the transmitter type 5700*****

3.4.2 Temperature class / maximum surface temperature T

The classification into a temperature class / determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs:

HPC with integral 5700

Sensor type		
With 5700	HPC010****F* **** HPC015****F* ****	(IIC)



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6: T 80 °C, T5: T 95 °C, T4: T 130 °C, T3...T1: T 163.7°C.

Ambient temperature range: T_a -40 °C to +65 °C



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Specific Conditions of Use

By mounting the sensor type HPC010 *****[J or U]*I***** or HPC015 *****[J or U]*I***** directly to the transmitter 22**S***** the use of the unit will be modified according to the following:

	HPC010 *****[J,U]*I***** HPC015 *****[J,U]*I*****
Transmitter type 2200S*[H,K]*1*****	Ex ib IIC T4...T1
Transmitter type 2200S*[5,6]*1*****	Ex ib IIC T4...T1

By mounting the sensor type HPC010*****F*I***** or HPC015*****F*I***** directly to the transmitter 5700 the use of the unit will be modified according to the following:

	HPC010*****F*I***** HPC015*****F*I*****
Transmitter type 5700112[A,C,N]*IA***	Ex db [ib] IIB + H ₂ T6...T1 Gb Ex tb [ib] IIIC T ¹⁾ °C Db IP66/IP67
Transmitter type 570011[3,5][A,C,N]*IA***	Ex db [ib] IIC T6...T1 Gb Ex tb [ib] IIIC T ¹⁾ °C Db IP66/IP67
Transmitter type 5700112[A,N]*EA***	Ex db eb [ib] IIB + H ₂ T6...T1 Gb Ex tb [ib] IIIC T ¹⁾ °C Db IP66/IP67
Transmitter type 570011[3,5][A,N]*EA***	Ex db eb [ib] IIC T6...T1 Gb Ex tb [ib] IIIC T ¹⁾ °C Db IP66/IP67
Transmitter type 5700112E*IA***	Ex db [ia Ga] [ib] IIB + H ₂ T6...T1 Gb Ex tb [ia Da] [ib] IIIC T ¹⁾ °C Db IP66/IP67
Transmitter type 570011[3,5]E*IA***	Ex db [ia Ga] [ib] IIC T6...T1 Gb Ex tb [ia Da] [ib] IIIC T ¹⁾ °C Db IP66/IP67
Transmitter type 5700112E*EA***	Ex db eb [ia Ga] [ib] IIB + H ₂ T6...T1 Gb Ex tb [ia Da] [ib] IIIC T ¹⁾ °C Db IP66/IP67
Transmitter type 570011[3,5]E*EA***	Ex db eb [ia Ga] [ib] IIC T6...T1 Gb Ex tb [ia Da] [ib] IIIC T ¹⁾ °C Db IP66/IP67

¹⁾ Maximum surface temperature T for dust for types HPC010*****F*I***** or HPC010*****F*I***** see temperature graphs and manufacturer's instruction. Dust only with stainless steel type label.