# 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

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|---|---|---|---|
| Certificate No.: | **IECEx EESF 19.0019X** | Page 1 of 6 | Certificate history: |
| Status: | **Current** | Issue No: 3 | Issue 2 (2020-06-11)<br>Issue 1 (2020-05-20)<br>Issue 0 (2020-04-20) |
| Date of Issue: | 2022-12-12 | | |

Applicant: **Valmet Flow Control Oy**
Vanha Porvoontie 229
Vantaa FI-01301
**Finland**

Equipment: **ND7100, SD7100, ND9100, SD9100, ND7200, SD7200, ND9200, SD9200, ND7300, SD7300, ND9300, SD9300, ND7400, SD7400, ND9400, SD9400, SG9200 and SG9300 series**

Optional accessory: See Annex

Type of Protection: **I.S., "nA" and Dust protection by enclosure "t"**

Marking: ND7100, SD7100, ND9100, SD9100, ND7200, SD7200, ND9200, SD9200, ND7300, SD7300, ND9300, SD9300, SG9200 and SG9300:

Ex ia IIC T6…T4 Ga and Ex ia IIIC T90 °C…T120 °C Da / Ex ta IIIC T90 °C…T120 °C Da, or

Ex ib IIC T6…T4 Gb and Ex ib IIIC T90 °C…T120 °C Db / Ex tb IIIC T90 °C…T120 °C Db. or

Ex ic IIC T6…T4 Gc and Ex ic IIIC T90 °C…T120 °C Dc / Ex tc IIIC T90 °C…T120 °C Dc, or

Ex nA IIC T6…T4 Gc and Ex ic IIIC T90 °C…T120 °C Dc / Ex tc IIIC T90 °C…T120 °C Dc

ND7400, SD7400, ND9400, SD9400: Ex ia IIC T6…T4 Ga, or Ex ib IIC T6…T4 Gb, Ex ic IIC T6…T4 Gc or Ex nA IIC T6...T4 Gc

Approved for issue on behalf of the IECEx Certification Body: **Jenni Hirvelä**

Position: **Senior Expert**

Signature: (for printed version)

Date: (for printed version) 2022-12-12

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2. This certificate is not transferable and remains the property of the issuing body.
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Certificate issued by:

**Eurofins Electric & Electronics Finland Oy**
**Kivimiehentie 4**
**Espoo FI-02150**
**Finland**

# IECEx Certificate of Conformity

Certificate No.: **IECEx EESF 19.0019X** 

Date of issue: 2022-12-12 

Manufacturer: **Valmet Flow Control Oy**
Vanha Porvoontie 229
Vantaa FI-01301
**Finland**

Manufacturing locations:

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

IEC 60079-15:2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:4

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

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:

FI/EESF/ExTR19.0021/01

Quality Assessment Report:

NO/DNV/QAR09.0008/13

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**EQUIPMENT:**
Equipment and systems covered by this Certificate are as follows:

ND7100, SD7100, ND9100, SD9100, ND7200, SD7200, ND9200, SD9200, ND7300, SD7300, ND9300, SD9300, ND7400, SD7400, ND9400 and SD9400 series Intelligent Valve Controllers and SG9200 and SG9300 series ON/OFF Valve Controllers are used for valve positioning. Product coding indicates the communication protocol and equipment category. Letter H, F or P indicates communication protocol used in the controller e.g. type ND9_H is equipped with HART communication protocol, type ND9_F has Foundation Fieldbus and type ND9_P has Profibus PA communication protocol. With Ex ia IIC Ga versions natural gas can be used as pneumatic fluid. Valve controllers may be equipped with optional ATEX/IECEx certified limit switches. Configuration and calibration of the device can be done remotely or by using Local User Interface (LUI). The HART protocol uses 4 – 20 mA dc loop current with overlaid digital signal. An optional position transmitter position for versions HXT and uses 4-20 mA dc current output signal. The position transmitter needs an external power supply. The intrinsically safe supply and input circuit and the intrinsically safe position output circuit have an infallible galvanic isolation up to maximum voltage of 60 V.

**SPECIFIC CONDITIONS OF USE: YES as shown below:**

1. For EPL´s Ga, Da, Gb and Db, the maximum allowed ambient temperature ranges according to different Temperature Classes are:
   - Tamb -40 °C ... +50 °C for temperature class T6 or T90 °C for dust
   - Tamb -40 °C ... +65 °C for temperature class T5 or T105 °C for dust
   - Tamb -40 °C ... +80 °C for temperature class T4 or T120 °C for dust
2. For EPL´s Gc and Dc, the maximum allowed ambient temperature ranges according to different Temperature Classes are:
   - Tamb -40 °C ... +60 °C for temperature class T6 or T90 °C for dust
   - Tamb -40 °C ... +75 °C for temperature class T5 or T105 °C for dust
   - Tamb -40 °C ... +85 °C for temperature class T4 or T120 °C for dust
3. For EPL´s Ga, Da, Gb and Db, the maximum allowed ambient temperature ranges for ‘Cold Version (Option C)’ applicable solely to ND9200, ND 9300, SD9200 and SD9300 series equipment are:
   - Tamb -55 °C ... +50 °C for temperature class T6 or T90 °C for dust
   - Tamb -55 °C ... +65 °C for temperature class T5 or T105 °C for dust
   - Tamb -55 °C ... +80 °C for temperature class T4 or T120 °C for dust
4. For EPL´s Gc and Dc, the maximum allowed ambient temperature ranges for ‘Cold Version (Option C)’ applicable solely to ND9200, ND 9300, SD9200 and SD9300 series equipment are:
   - Tamb -55 °C ... +60 °C for temperature class T6 or T90 °C for dust
   - Tamb -55 °C ... +75 °C for temperature class T5 or T105 °C for dust
   - Tamb -55 °C ... +85 °C for temperature class T4 or T120 °C for dust
5. Temperature Classes for dust are based on measurement w.r.t. total immersion to dust required for EPL Da equipment.
6. The permissible ambient temperature range depends on the used configuration. The ambient temperature range is marked on the identification plate.
7. At an ambient temperature ≥ +70 °C, a connection cable shall have a temperature rating in accordance with the maximum ambient temperature range.
8. When the apparatus is used in a potentially explosive atmosphere requiring EPL Ga apparatus, to avoid ignition caused by electrostatic discharge, the plastic enclosure may only be cleaned with damp or wet cloth.
9. To avoid hazardous sparking, the aluminium enclosures or enclosure parts made of aluminium shall not be subjected to friction or impacts, when they are used in potentially explosive atmospheres where EPL Ga equipment are required.
10. The valve controller shall be connected according to the manufacturer’s instructions.
11. Selected cable gland shall not invalidate the type of protection.
12. The valve controller shall not be installed in a place where it can be subject to prolific charge generating mechanism by dust.
13. For type of protection "nA", provision shall be made to provide the transient protection at a level not exceeding 40% of the rated voltage of the supply and the position output circuit.

**Equipment (continued):**

The maximum input values of the supply and input circuit (terminals + and -) for “nA” device of the HART versions are:

**U ≤ 30 Vdc; I = 152 mA**

The maximum input values of the supply and input circuit (terminals PT+ and -) of the position transmitter for “nA” device in HART versions are:

**U ≤ 30 Vdc; I = 152 mA**

The maximum input values of the limit switches (terminals 11- and 13+ or terminals 14- and 16+) for “nA” device in HART versions are:

**U ≤ 25 V**

The maximum input values of the supply and input circuit (terminals + and -) for “ic” device of the HART versions are:

**$U_i$ = 30 V; $I_i$ = 152 mA; $C_i$ = 13.5 nF; $L_i$ = 53 µH**

The maximum input values of the supply and input circuit (terminals PT+ and -) of the position transmitter for “ic” device in HART versions are:

**$U_i$ = 30; $I_i$ = 152 mA; $C_i$ = 13.5 nF; $L_i$ = 53 µH**

The maximum input values of the Foundation Fieldbus version and Profibus PA version circuit input (terminals 1 and 2) for “nA” device are:

**U ≤ 24 Vdc**

The maximum input values of the Foundation Fieldbus version and Profibus PA version circuit input (terminals 1 and 2) for “ic” device are:

**$U_i$ = 32 V; $I_i$ = 380 mA; $P_i$ = 5.32 W; $C_i$ = 5 nF; $L_i$ = 10 µH**

# IECEx Certificate of Conformity



**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**
Documentation updated, company name changed to Valmet Flow Control Oy and editorial corrections.

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**Additional information:**
The maximum input values of the supply and input circuit (terminals + and -) for "ia" and "ib" HART versions are:

**$U_i$ = 28 V; $I_i$ = 120 mA; $P_i$ = 1 W; $C_i$ = 13.5 nF; $L_i$ = 53 µH**

The maximum input values of the supply and input circuit (terminals PT+ and -) for "ia" and "ib" position transmitter in HART versions are:

**$U_i$ = 28 V; $I_i$ = 120 mA; $P_i$ = 1 W; $C_i$ = 13.5 nF; $L_i$ = 53 µH**

The maximum input values of the limit switches (terminals 11- and 13+ or respectively 14- and 16+) for "ia" and "ib" are:

**$U_i$ = 16 V; $I_i$ = 52 mA; $P_i$ = 169 mW; $C_i$ = 90 nF; $L_i$ = 150 µH**

The maximum input values of the Foundation Fieldbus version and Profibus PA version circuit input (terminals 1 and 2) for "ia" and "ib" are:

**$U_i$ = 24 V; $I_i$ = 380 mA: $P_i$ = 5,32 W; $C_i$ = 5 nF; $L_i$ = 10 µH**

These parameters comply with the requirements for FISCO Field devices in accordance with standard EN 60079-11 (2012).

**Annex:**

Annex to IECEx EESF 19.0019X Issue 3.pdf

## Product type marking nomenclature:

| Brands | Diagnostic variants: | Enclosures: | Spool valve sizes: | Communication: | Approval | Options: | Limit switch type: |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| ND -> Neles<br>SD -> StoneL<br>SG -> Neles SwitchGuard | 7 -> Digital Valve controller<br>9 -> Intelligent Valve controller | 1 -> PC/ Die cast Aluminum<br>2 -> Flameproof aluminium<br>3 -> Stainless steel<br>4 -> PC/ Stainless steel | **(ND or SD:)**<br>02 -> low<br>03 -> medium<br>06 -> high<br>**(SG:)**<br>12 -> Restricted capacity<br>15-> Standard capacity.<br>35 ->High capacity.<br>37 -> Extended capacity. | H -> Hart<br>F -> Foundation Fieldbus<br>P -> Profibus PA | X -> IECEx / ATEX cert.<br>(X1…4 refer to old marking methods used in prior issues) | J -> External Junction box (Table 1.)<br>C -> Cold version (ND9200, ND9300, SD9200 and SD9300 only).<br>R -> Remote mounting (Note! Only applicable for Option 5. HART) position sensor solely for “ia” / “ib” added (Table 3.)<br>T -> Internal Position Transmitter<br>L1 -> Extension housing<br>P -> Partial Stroke Test device<br>Vxx V01…V99 (branded model) for OEM distributors"<br>G-> Exhaust adapter<br>Y-> Special feature – shall not affect Ex approvals | Ref. Table 2. |

Table 1. Option J Junction Box types by International Metal Engineering Pte

| IME 7080AM-03-22 or IME 7080TM-03-22 (IECEx SIR 07.0111U Issue 3.) |
|---|
| Ex d IIC Gb<br>Ex tb IIIC Db IP68<br>Ta = -40°C to +85° |

## Table 2. Optional Inductive Limit Switch types for the certified types:

Note! Limit switch's temperature range and electrical data must be verified from its certificate

| Neles type code | Manufacturer of switch | Type of switch | ATEX and IECEx certifications of switch | | Classification | Electrical data | | | | | $T_{amb}$ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ui (V) | Ii (mA) | Pi (mW) | Li (µH) | Ci (nF) | $T_{min}$ (C) | T6 (C) | T5 (C) | T4 (C) |
| I02 | Pepperl+Fuchs | NJ2-12GK-SN (2 pcs) | PTB 00 ATEX 2049X | IECEx PTB 11.0092X | II 1 G Ex ia IIC T6...T1 Ga | 16 | 25 | 64 | 150 | 50 | -40 | 50 | 64 | 80 |
| | | | | | II 2 G Ex ia IIC T6...T1 Gb | 16 | 52 | 169 | 150 | 50 | -40 | 50 | 65 | 80 |
| I09 | Pepperl+Fuchs | NCB2-12GM35-N0 (2 pcs) | PTB 00 ATEX 2048X | IECEx PTB 11.0037X | II 1 G Ex ia IIC T6...T1 Ga | 16 | 25 | 64 | 100 | 90 | -25 | 50 | 65 | 80 |
| | | | | | II 2 G Ex ia IIC T6...T1 Gb | 16 | 52 | 169 | 100 | 90 | -25 | 50 | 65 | 80 |
| I41 | Pepperl+Fuchs | NJ4-12GK-SN (2 pcs) | PTB 00 ATEX 2049X | IECEx PTB 11.0092X | II 1 G Ex ia IIC T6...T1 Ga | 16 | 25 | 64 | 150 | 70 | -50/-40 (2 | 50 | 64 | 80 |
| | | | | | II 2 G Ex ia IIC T6...T1 Gb | 16 | 52 | 169 | 150 | 70 | -50/-40 (2 | 50 | 65 | 80 |
| I45 | Pepperl+Fuchs | NJ3-18GK-S1N (2 pcs) | PTB 00 ATEX 2049X | IECEx PTB 11.0092X | II 1 G Ex ia IIC T6...T1 Ga | 16 | 25 | 64 | 200 | 70 | -25 | 50 | 64 | 80 |
| | | | | | II 2 G Ex ia IIC T6...T1 Gb | 16 | 52 | 169 | 200 | 70 | -25 | 50 | 65 | 80 |
| I57 | Pepperl+Fuchs | NJ2-V3-N (2 pcs) | PTB 00 ATEX 2032X | IECEx PTB 11.0021X | II 1 G Ex ia IIC T6...T1 Ga | 16 | 25 | 64 | 50 | 40 | -25 | 49 | 61 | 80 |
| | | | | | II 2 G Ex ia IIC T6...T1 Gb | 16 | 52 | 169 | 50 | 40 | -25 | 45 | 60 | 80 |
| I58 | Pepperl+Fuchs | NJ2-V3-N (4 pcs) | PTB 00 ATEX 2032X | IECEx PTB 11.0021X | II 1 G Ex ia IIC T6...T1 Ga | 16 | 25 | 64 | 50 | 40 | -25 | 49 | 61 | 80 |
| | | | | | II 2 G Ex ia IIC T6...T1 Gb | 16 | 52 | 169 | 50 | 40 | -25 | 45 | 60 | 80 |
| I60 | Pepperl+Fuchs | NCB2-12GM40-E2-3G-3D (2 pcs) | PF 15CERT3754 X | n/a | II 3 G Ex nA IIC T6...T1 Gc | 30 | 50 | n/a | n/a | n/a | -20 | 53 | 53 | 53 |
| R02 1) | StoneL | Maxx-Guard M, SPDT (2 pcs) | n/a | n/a | n/a | 30 | 100 | 2000 | 800 | 66 | -40 | 50 | 65 | 80 |
| T01 1) | Neles | External position transmitter | n/a | n/a | n/a | 30 | 120 | 1000 | 100 | 66 | -40 | 45 | 60 | 80 |
| Y | Turck | BI2-P12-Y1X/S97 (2 pcs) | KEMA 02 ATEX 1090X | IECEx KEM 06.0036X | II 2 G Ex ia IIC T4...T6 Gb | 20 | 20 | 200 | 150 | 150 | -40 | 50 | 65 | 80 |

1) StoneL Maxx-Guard M reed switch proximity sensors (R02) and External position transmitter (T01) have been assessed for the certified valve controller types in the related ExTR.
2) -50 Cold version, only available with ND and SD

Table 3. Output values for the “ia” / “ib” Option R, Remote position sensor interface are: **Uo≤ 3.53 V; Io ≤ 12.6 mA; Po ≤ 11.1 mW; Co < 10 nF; Lo < 10 µH**