1. # EU-TYPE EXAMINATION CERTIFICATE

2. **Equipment or Protective System Intended for use in Potentially explosive atmospheres Directive 2014/34/EU**

3. EU-Type Examination Certificate Number: **EESF 21 ATEX 018X Issue 3**

4. Product: **Intelligent Valve Controller**

   Certified types: **NDX_ _ _0, NDX_ _ _1 and NDX_ _ _2**

5. Manufacturer: **Valmet Flow Control Oy**

6. Address: **Vanha Porvoontie 229, FI-01380 Vantaa, Finland**

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

8. Eurofins Electric & Electronics Finland Oy, Notified Body number 0537, 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 confidential report No. EUFI29-25001142-T1.

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

   EN IEC 60079-0:2018/A11:2024 **EN 60079-11:2012** **IEC 60079-11:2023 Edition 7.0**

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. 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 1G Ex ia IIC T6…T4 Ga
II 1D Ex ia IIIC T_{200}85 °C…T_{200}115 °C Da
IP66

or

II 2G Ex ib IIC T6…T4 Gb
II 2D Ex ib IIIC T_{200}85 °C…T_{200}115 °C Db
IP66

Espoo, 26.5.2025
Eurofins Electric & Electronics Finland Oy

Jenni Hirvelä
Senior Expert

Kari Koskela
Senior Expert

This document is digitally signed.

13. **Schedule**

14. **EU-Type Examination Certificate EESF 21 ATEX 018X Issue 3**

15. **Description of Product**

NDX valve positioners are intended for linear or rotary travel control valves. The NDX monitors valve position and controls the actuator of the device. NDX is connected to a control system (DCS) via 4 – 20 mA current loop which provides power supply to NDX and data communication between NDX and DCS utilizing HART communication protocol. The NDX includes floating 4 – 20 mA current transmitter/sink interface that can be used for indicating the valve position to the control system. Current loop for power supply and HART communication (mA loop) and current loop for Position Transmitter (PT loop) are separate I.S. circuits. NDX_ _ _1 and NDX_ _ _2 variant incorporates two current transmitter/sink interfaces complying with NAMUR standard.

The NDX produces pneumatic control signal for the actuator and monitors the pressure of air supply and actuator channel for diagnostic purposes. For valve position sensing, the NDX uses contactless measurement method based on sensing the direction of the magnetic field created by a target magnet on the valve shaft.

The NDX enclosures are made of cast aluminium and plastic (NDX_ _ _0/1) or cast aluminium entirely (NDX_ _ _2). LUI (Local User Interface) with LCD display and capacitive keypad is intended for controlling and monitoring valve and positioner operation locally.

Prestage unit in the device converts the electronic control signal from the main board to pneumatic control signal for the actuator.

The enclosure provides type of protection IP66 in accordance with EN60079-0.

The maximum input values of the NDX mA and PT loop interfaces are:

$U_i \leq 28$ V **$I_i \leq 120$ mA** **$P_i \leq 1$ W** **$C_i < 3.7$ nF** **$L_i < 10.9$ µH**

The maximum input values of NAMUR-DO1 and NAMUR-DO2 interfaces in NDX_ _ _1 and NDX_ _ _2 are:

Ui ≤ 16 V **Ii ≤ 25 mA** **Pi ≤ 100 mW** **Ci < 23.4 nF** **Li < 27.8 µH**

16. **Report Number:**

EUFI29-25001142-T1

17. **Specific Conditions of Use**

1. The maximum allowed ambient temperature ranges according to different T Classes are:
   Tamb -40 °C … +50 °C for temperature class T6 (IIC) or T_{200}85 °C for dust (IIIC)
   Tamb -40 °C … +65 °C for temperature class T5 (IIC) or T_{200}100 °C for dust (IIIC)
   Tamb -40 °C … +80 °C for temperature class T4 (IIC) or T_{200}115 °C for dust (IIIC)
2. The permissible ambient temperature range depends on the used configuration.
3. At an ambient temperature ≥ +70 °C, the temperature rating of the connection cable shall be in accordance with maximum ambient temperature range.
4. Temperature Classes for dust are based on measurement w.r.t. total immersion to dust required for category 1 D (EPL Da) equipment.
5. For Equipment category 1 G (EPL Ga), the enclosure parts or enclosures made of aluminium alloy shall not be subjected to friction or impacts due to spark ignition hazard.
6. For type NDX_ _ _0 the impact test was made according to low risk of mechanical danger. The device shall be protected from high-level impacts.
7. The non-conductive plastic covers, enclosure coating and attached non-metallic labels may be subject to electrostatic charging. therefore, all charge-generating mechanism, such as forcible rubbing, cleaning with pressurized air or high-pressure steam shall be avoided. The following warning is included in the manual: “Electrostatic Hazard: Clean only with damp cloth, etc.”.
8. The metallic marking labels are not earthed and have 56 pF capacitance with respect to earth. If a charge-generating mechanism is present, an incendive level of charge could migrate to unearthed metal
9. The valve controller shall be connected according to manufacturer’s instructions.

10. parts and subsequently discharge to earthed metal object if brought near to these parts. Precautions are required to avoid any charge-generation and/or discharge to earthed metal objects.
11. The equipment is provided with cable gland entries with or without an adapter. Entry devices must comply to applied ambient temperature range and conform to requirements of EN IEC 60079-0.
12. The valve controller shall be installed only by trained and qualified personnel.

18. **Essential Health and Safety Requirements**

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

19. **Drawings and Documents**

Drawings and documents are listed in the confidential report.

20. **Certificate History**

Issue	Date	Report No.	Comment
EESF 21 ATEX 018X	28.05.2021	EUFI29-21002944-T1	Prime certificate
Issue 1	30.11.2021	EUFI29-21005429-T1	Minor changes. Alternative IS components introduced.
Issue 2	30.1.2024	EUFI29-23005004-T1	New Prestage cover with non-metallic Exhaust introduced. Compliance to IEC 60079-11 Edition 7.0 verified. Manufacturer name changed.
Issue 3	26.5.2025	EUFI29-25001142-T1	New document revisions. IS description documents amended. Specific Conditions of Use amended.

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NDX HART Product Type Nomenclature:

1	**PRODUCT GROUP**
NDX	Neles Intelligent Valve Controller Series NDX
2	**PNEUMATIC ACTION**
1	Single Acting
2	Double Acting (Available with 5. sign 2, 5. sign 1)
3	**PNEUMATIC CAPACITY**
5	Normal Capacity (80 Nm3/h)
4	**FAIL ACTION**
1	Fail safe
5	**ENCLOSURE**
0	Compact - Aluminum with composite cover (Available with 2. sign 1)
1	Standard - Aluminum with composite cover
2	Flameproof/Explosion Proof - Aluminum
6	**COMMUNICATION / INPUT SIGNAL RANGE**
H	4-20 mA with HART
T	4-20 mA with HART + PT
N	4-20 mA (no HART)
M	4 - 20 mA + PT (no HART)
D	4-20 mA with HART + 2 x DO (Available with 5. sign 2., 5. sign 1)
L	4-20 mA with HART + PT + DO (Available with 5. sign 2., 5. sign 1)
F	FOUNDATION fieldbus, physical layer according to IEC 61158-2. (Available with 5. sign 2., 5. sign 1)
P	Profibus PA, physical layer according to IEC 61158-2. (Available with 5. sign 2., 5. sign 1)
7	**TEMPERATURE RANGE**
G	General: -40..+85 °C
8	
-	Standard; Ex i & I/O extension capable
9	**APPROVALS FOR HAZARDOUS AREAS (1/2)**
N	No approval
A	ATEX / IECEx Ex d IIB+H2 certification
X	ATEX / IECEx Ex i certification (Not available with 8. sign /)
E	ATEX / IECEx Ex d certification (Available with 5. sign 2)
U	cCSAus Ex i certification (Not available with 8. sign /)
F	cCSAus Ex d certification (Available with 5. sign 2)
C	CCC (China) Ex i certification
D	CCC (China) Ex d certification (Available with 5. sign 2)
Z	Inmetro (Brazil) Ex i certification
B	Inmetro (Brazil) Ex d certification
P	CCOE (India) Ex i certification
I	CCOE (India) Ex d certification
W	KOSHA (Korea) Ex i certification (Available with 5. sign 0 and 2)
K	KOSHA (Korea) Ex d certification (Available with 5. sign 2)
T	Japan Ex i certification
J	Japan Ex d certification (Available with 5. sign 2)
S	GOST (Russia) Ex i certification (Available with 5. sign 0 and 2)
R	GOST (Russia) Ex d certification (Available with 5. sign 2)
10	**APPROVALS FOR HAZARDOUS AREAS (2/2)**
N	No approval
A	ATEX / IECEx Ex d IIB+H2 certification
X	ATEX / IECEx Ex i certification (Not available with 8. sign /)
E	ATEX / IECEx Ex d certification (Available with 5. sign 2)
U	cCSAus Ex i certification (Not available with 8. sign /)

								F												cCSAus Ex d certification (Available with 5. sign 2)	
								C												CCC (China) Ex i certification	
								D												CCC (China) Ex d certification (Available with 5. sign 2)	
								Z												Inmetro (Brazil) Ex i certification	
								B												Inmetro (Brazil) Ex d certification	
								P												CCOE (India) Ex i certification	
								I												CCOE (India) Ex d certification	
								W												KOSHA (Korea) Ex i certification (Available with 5. sign 0 and 2)	
								K												KOSHA (Korea) Ex d certification (Available with 5. sign 2)	
								T												Japan Ex i certification	
								J												Japan Ex d certification (Available with 5. sign 2)	
								S												GOST (Russia) Ex i certification (Available with 5. sign 0 and 2)	
								R												GOST (Russia) Ex d certification (Available with 5. sign 2)	
									11											**PNEUMATIC CONNECTIONS & GAUGES**	
									0											1/4 NPT without gauges (no block, no gauges)	
									1											1/4 NPT with gauges (block with 1/4 NPT threads+ gauges)	
									2											G1/4 without gauges (block with G1/4 threads)	
									3											G1/4 with gauges (block with G1/4 threads + gauges)	
										12										**VARIANT**	
										N										Neles	
										C										Neles, Chinese ID plates (for non-approval version)	
										L										Neles, without Local User Interface	
										V										VVC Brand labeled (Applicable to 5. sign “0”)	
											13									**DIAGNOSTICS**	
											0									Advanced diagnostics	
											1									Premium diagnostics	
												14								**SPECIAL VERSION**	
												0								None	
												W								Cover without window for flameproof/explosion proof enclosure	
													15							**RESERVED (I/O EXTENSION)**	
													0							None	
														16						**RESERVED**	
														0						None	
															17						
															-					Characters 18-20 received for partner identification	
																*	*	*		Partner's identification – shall not affect hazardous area approvals.	
																				Special feature – shall not affect hazardous area approvals	
ND X	**2**	**5**	**1**	**2**	**T**	**G**	**-**	**X**	**N**	**0**	**N**	**0**	**0**	**0**	**0**	**-**	**6**	**6**	**8**	**Y**	**SAMPLE MODEL CODE (Char = 21)**

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