

1. **TYPE EXAMINATION CERTIFICATE**
2. **Equipment or Protective System Intended for use in Potentially explosive atmospheres
Directive 2014/34/EU**
3. Type Examination Certificate Number: **EESF 21 ATEX 019X 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, Certification Body No. S063 accredited by the Finnish Accreditation Service (FINAS), 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 2014/34/EU of February 2014.

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
IEC 60079-11:2023 Edition 7.0

EN 60079-11:2012
EN 60079-7:2015/A11:2024
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 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 3 G Ex ic IIC T6...T4 Gc
II 3 G Ex ec IIC T6...T4 Gc
II 3 D Ex ic IIIC T85 °C...T115 °C Dc
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. **Type Examination Certificate EESF 21 ATEX 019X 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:

$$U_i \leq 28 \text{ V} \quad I_i \leq 120 \text{ mA} \quad P_i \leq 1 \text{ W} \quad C_i < 3.7 \text{ nF} \quad L_i < 10.9 \text{ }\mu\text{H}$$

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

$$U_i \leq 16 \text{ V} \quad I_i \leq 25 \text{ mA} \quad P_i \leq 100 \text{ mW} \quad C_i < 23.4 \text{ nF} \quad L_i < 27.8 \text{ }\mu\text{H}$$

The maximum input values for type of protection “ec” are:

$$U \leq 28 \text{ V} \text{ (mA and PT loop interfaces)}$$

$$U \leq 16 \text{ V} \text{ (NAMUR-DO1 and NAMUR-DO2 interfaces)}$$

16. **Report Number**

EUF129-25001142-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 T85 °C for dust (IIIC)
Tamb -40 °C ... +65 °C for temperature class T5 (IIC) or T100 °C for dust (IIIC)
Tamb -40 °C ... +85 °C for temperature class T4 (IIC) or T115 °C for dust (IIIC)
2. The permissible ambient temperature range depends on the used configuration.
3. At an ambient temperature $\geq +70$ °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. The impact test of NDX__ _0 enclosure was made according to low risk of mechanical danger. The device shall be protected from high-level impacts..
6. 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.”.
7. The valve controller shall be connected according to manufacturer’s instructions.

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 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.
9. The equipment is provided with cable gland entries with or without an adapter. Entry devices must comply to applied ambient temperature range.
10. Provisions shall be made to provide the transient protection at a level not exceeding 40% of the rated supply voltage.
11. 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 019X	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 60079-11:2022 verified. Manufacturer name changed.
Issue 3	26.5.2025	EUFI29-25001142-T1	New document revisions. IS descriptions amended.

NDX HART Product Type Nomenclature:

1		PRODUCT GROUP
N		Neles Intelligent Valve Controller Series NDX
D		
X		
2		PNEUMATIC ACTION
1		Single Acting
2		Double Acting (Available with 5. sign 2, 5. sign 1)
3		PNEUMATIC CAPACITY
5		Normal Capacity (80 Nm ³ /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.
P		(Available with 5. sign 2., 5. sign 1) 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																		
N D X	2	5	1	2	T	G	-	X	N	0	N	0	0	0	0	-	6	6	8	Y	SAMPLE MODEL CODE (Char = 21)