CERTIFICATE

(1) Type Examination

(2) **Product intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

(3) Type Examination Certificate Number: **KEMA 10ATEX0111 X** Issue Number: **10**

(4) Product: **Digital Mass Flow Meters/Controllers Type IN-FLOW Series, IN-FLOW CTA Series, Digital Electronic Pressure Transducers/Controllers Type IN-PRESS Series, Compact Coriolis Mass Flow Meters/Controllers Type CORI-FLOW M5x Series and mini CORI-FLOW M1x Series**

(5) Manufacturer: **Bronkhorst High-Tech B.V.**

(6) Address: **Nijverheidsstraat 1a, 7261 AK Ruurlo The Netherlands**

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

(8) DEKRA Certification B.V., 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 Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

The examination and test results are recorded in confidential test report no. 213510500-2 Issue 10.

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

EN IEC 60079-0 : 2018 **EN 60079-7 : 2015 + A1 : 2018** **EN 60079-31 : 2014**

except in respect of those requirements listed at item 18 of the Schedule.

(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 and not to the manufacturing process and its monitoring.

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

II 3 G **Ex ec IIC T4 Gc** and
II 3 D **Ex tc IIIC T70 °C Dc** or
II 3 G **Ex ec IIC T4 Gc (F-x4x...)**

Date of certification: 11 March 2022

DEKRA Certification B.V.

R. Schuller
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(13) # SCHEDULE

(14) **to Type Examination Certificate KEMA 10ATEX0111 X** Issue No. **10**

(15) **Description**
The Digital Mass Flow Meters/Controllers Type IN-FLOW Series and IN-FLOW CTA Series, convert a gas flow into an electrical signal using a thermal mass flow sensor.

The Digital Electronic Pressure Transducers/Controllers Type IN-PRESS Series, convert a gas pressure or a liquid pressure into an electrical signal using a pressure transducer.

The Coriolis Mass Flow Meters/Controllers Type CORI-FLOW M5x Series and mini CORI-FLOW M1x Series convert a liquid flow or a gas flow into an electrical signal using a Coriolis mass flow sensor.

In addition, instruments executed as controller, are equipped with an electromechanical valve that allows them to control the gas flow, pressure, or liquid flow. The valves can either be integrally or separately mounted, as an option.

Controller function in combination with fixed and electrical connected actuated valves with coils IIU / ITU / IUU / IVU / IIW / XC.

Ambient temperature range: 0 to +50 °C.

The enclosure provides a degree of protection of at least IP65 according to EN IEC 60079-0.

The type code of the instruments shall be taken from Annex 1 to Test report 213510500-2, Issue 10.

Electrical data

The electrical data shall be taken from Annex 1 to Test report 213510500-2, Issue 10.

Installation instructions

The instructions provided with the product shall be followed in detail to assure safe operation.

(16) **Report Number**

No. 213510500-2 Issue 10.

(17) **Specific conditions of use**

The equipment shall only be used in an area of not more than pollution degree 2, as defined in EN 60664-1.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. 213510500-2 Issue 10.

Annex 1 to Test report 213510500-2, Issue 10

Applicable Ex marking:
Ⓔx II 3G Ex ec IIC T4 Gc and
Ⓔx II 3D Ex tc IIIC T70°C Dc or
Ⓔx II 3G Ex ec IIC T4 Gc (F-x4x...)

Instruments and valves, in scope of this certificate, are listed in Table 1 on next pages.

Instruments can be executed with analog or serial communications including FLOW-BUS, Modbus, DeviceNet, CANopen and PROFIBUS, limited as to per applicable individual model key adder:

Communication (I/O)	
A	RS232 + analog (n/c control)
B	RS232 + analog (n/o control)
D	RS232 + DeviceNet™ (n/c control)
E	RS232 + DeviceNet™ (n/o control)
K	RS232 + CANopen® (n/c control)
L	RS232 + CANopen® (n/o control)
M	RS232 + Modbus-RTU/ASCII (n/c control)
N	RS232 + Modbus-RTU/ASCII (n/o control)
P	RS232 + PROFIBUS DP (n/c control)
Q	RS232 + PROFIBUS DP (n/o control)
R	RS232 + FLOW-BUS (n/c control)
S	RS232 + FLOW-BUS (n/o control)

All valves, including separately listed, shall only be used in combination with Bronkhorst Digital Mass Flow Meters, Electronic pressure transducers or Coriolis Mass Flowmeters.

MFM: Mass Flow Meter
EPT: Electronic Pressure Transducer
MFC: Mass Flow Controller with integrated or external control valve
EPC: Electronic Pressure Controller with external control valve
VALVE: Control Valve separated from MFM or EPT device

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Annex 1 to Test report 213510500-2, Issue 10

Table 1

Device	Family	Model	Part no	Ex-marking *	Ui	Imax
MFC	(mini) CORI-FLOW	M12 V10I/V11I VCR	7.11.136	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M12 V10I/V11I weld	7.11.134	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M12 V14I VCR	7.11.137	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M12 V14I weld	7.11.135	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M13 V10I/V11I VCR	7.11.060	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M13 V10I/V11I weld	7.11.058	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M13 V14I VCR	7.11.061	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M13 V14I weld	7.11.059	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M14 V10I/V11I VCR	7.11.105	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M14 V10I/V11I weld	7.11.103	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M14 V14I VCR	7.11.106	3G and 3D	15..24VDC	0.45A
MFC	(mini) CORI-FLOW	M14 V14I weld	7.11.104	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M12 VCR	7.11.133	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M12 weld	7.11.132	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M12 weld Hastelloy	7.11.209	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M13 VCR	7.11.056	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M13 weld	7.11.055	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M13 weld Hastelloy	7.11.185	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M14 VCR	7.11.102	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M14 weld	7.11.101	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M14 weld Hastelloy	7.11.210	3G and 3D	15..24VDC	0.45A
MFM	(mini) CORI-FLOW	M15	7.11.314	3G and 3D	15..24VDC	0.45A
MFM	CORI-FLOW	CORI-FLOW M54 ATEX CAT3	7.01.996	3G and 3D	15..24VDC	0.35A
MFM	CORI-FLOW	CORI-FLOW M55 ATEX CAT3	7.01.997	3G and 3D	15..24VDC	0.35A
VALVE	External	C0I	7.11.118	3G and 3D	15VDC	0.3A
VALVE	External	C1I	7.11.121	3G and 3D	15VDC	0.3A
VALVE	External	C2I	7.11.123	3G and 3D	15VDC	0.3A
VALVE	External	C5I	7.01.873	3G and 3D	15VDC	0.3A
VALVE	External	F-001AI / F-011AI n.c.	7.10.003	3G and 3D	15VDC	0.3A
VALVE	External	F-001AI / F-011AI n.o.	7.10.004	3G and 3D	15VDC	0.3A
VALVE	External	F-002AI / F-012AI	7.10.006	3G and 3D	15VDC	0.3A
VALVE	External	F-003AI /F-013AI	7.10.008	3G and 3D	15VDC	0.3A
VALVE	External	F-003BI / F-013BI n.c.	7.10.009	3G and 3D	15VDC	0.3A
VALVE	External	F-004AI	7.10.011	3G and 3D	15VDC	0.3A
VALVE	External	F-004BI	7.10.012	3G and 3D	15VDC	0.3A
VALVE	External	F-021AI	7.10.245	3G and 3D	15VDC	0.3A
VALVE	External	F-033CI n.c.	7.10.177	3G and 3D	15VDC	0.3A
VALVE	External	F-042CI	7.10.185	3G	15VDC	0.3A
VALVE	External	V30I	7.10.246	3G and 3D	15VDC	0.3A
MFC	IN-FLOW	F-200CI/F-210CI DMFC	7.10.028	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-200DI DMFC	7.10.035	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-201AI/F-211AI DMFC	7.10.030	3G and 3D	15..24VDC	0.35A

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Device	Family	Model	Part no	Ex-marking *	Ui	Imax
MFC	IN-FLOW	F-201CI/F-211CI DMFC	7.10.029	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-201DI DMFC	7.10.036	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-201EI DMFC	7.10.037	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-202AI/F-212AI DMFC	7.10.031	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-202DI DMFC	7.10.038	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-202EI DMFC	7.10.039	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-203AI/F-213AI DMFC	7.10.032	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-206AI DMFC	7.10.033	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-206BI DMFC	7.10.034	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-221MI DMFC	7.10.243	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-230MI DMFC	7.10.099	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-231MI DMFC	7.10.100	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-232MI DMFC	7.10.101	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW	F-240MI DMFC	7.10.102	3G	15..24VDC	0.35A
MFC	IN-FLOW	F-241MI DMFC	7.10.103	3G	15..24VDC	0.35A
MFC	IN-FLOW	F-242MI DMFC	7.10.104	3G	15..24VDC	0.35A
MFM	IN-FLOW	F-100DI DMFM	7.10.066	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-101DI DMFM	7.10.067	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-101EI DMFM	7.10.068	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-102DI DMFM	7.10.069	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-102EI DMFM	7.10.070	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-103DI DMFM	7.10.071	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-103EI DMFM	7.10.072	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-106AI DMFM	7.10.116	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-106BI DMFM	7.10.117	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-106CI DMFM	7.10.118	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-106DI DMFM	7.10.119	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-106EI DMFM	7.10.120	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-106FI DMFM	7.10.121	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-106GI DMFM	7.10.122	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107AI ANSI 150Lbs DMFM	7.10.133	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107AI ANSI 300Lbs DMFM	7.10.140	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107AI DIN PN40 DMFM	7.10.123	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107BI ANSI 150Lbs DMFM	7.10.134	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107BI ANSI 300Lbs DMFM	7.10.141	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107BI DIN PN40 DMFM	7.10.124	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107CI ANSI 150Lbs DMFM	7.10.135	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107CI ANSI 300Lbs DMFM	7.10.142	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107CI DIN PN40 DMFM	7.10.125	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107DI ANSI 150Lbs DMFM	7.10.136	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107DI ANSI 300Lbs DMFM	7.10.143	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107DI DIN PN40 DMFM	7.10.126	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107EI ANSI 150Lbs DMFM	7.10.137	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107EI ANSI 300Lbs DMFM	7.10.144	3G and 3D	15..24VDC	0.35A

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Device	Family	Model	Part no	Ex-marking *	Ui	Imax
MFM	IN-FLOW	F-107EI DIN PN16 DMFM	7.10.130	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107EI DIN PN40 DMFM	7.10.127	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107FI ANSI 150Lbs DMFM	7.10.138	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107FI ANSI 300Lbs DMFM	7.10.145	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107FI DIN PN16 DMFM	7.10.131	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107FI DIN PN40 DMFM	7.10.128	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107GI ANSI 150Lbs DMFM	7.10.139	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107GI ANSI 300Lbs DMFM	7.10.146	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107GI DIN PN16 DMFM	7.10.132	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-107GI DIN PN40 DMFM	7.10.129	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-110CI DMFM	7.10.058	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-111AI DMFM	7.10.061	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-111BI DMFM	7.10.060	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-112AI DMFM	7.10.062	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-113AI DMFM	7.10.063	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-116AI DMFM	7.10.064	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-116BI DMFM	7.10.065	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-117AI ANSI 600Lbs DMFM	7.10.151	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-117AI DIN PN100 DMFM	7.10.147	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-117BI ANSI 600Lbs DMFM	7.10.152	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-117BI DIN PN100 DMFM	7.10.148	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-117CI ANSI 600Lbs DMFM	7.10.153	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-117CI DIN PN100 DMFM	7.10.149	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-117DI ANSI 600Lbs DMFM	7.10.154	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-117DI DIN PN100 DMFM	7.10.150	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-120MI/F-130MI DMFM	7.10.092	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-121MI/F-131MI DMFM	7.10.093	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-122MI/F-132MI DMFM	7.10.094	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-123MI/F-133MI DMFM	7.10.095	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-126AI DMFM BSPP	7.10.247	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-126BI/F136BI DMFM AE	7.10.236	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-136AI DMFM AE	7.10.235	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-140MI DMFM	7.10.155	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-141MI DMFM	7.10.096	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-142MI DMFM	7.10.097	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW	F-143MI DMFM	7.10.098	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW CTA	T20	7.11.150	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW CTA	T21	7.11.151	3G and 3D	15..24VDC	0.35A
MFC	IN-FLOW CTA	T22	7.11.152	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW CTA	T10	7.11.148	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW CTA	T11	7.11.124	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW CTA	T12	7.11.125	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW CTA	T13	7.11.126	3G and 3D	15..24VDC	0.35A
MFM	IN-FLOW CTA	T14	7.11.127	3G and 3D	15..24VDC	0.35A

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Device	Family	Model	Part no	Ex-marking *	Ui	Imax
MFM	IN-FLOW CTA	T15	7.11.128	3G and 3D	15..24VDC	0.35A
EPT	IN-PRESS	P-502CI/P-512CI DEPM	7.10.191	3G and 3D	15..24VDC	0.35A
EPT	IN-PRESS	P-522CI/P-532CI DEPM	7.10.221	3G and 3D	15..24VDC	0.35A