



EXPLOSION PROTECTION

CERTIFICATE OF CONFORMITY

Cert NO.GYJ17.1343X

This is to certify that the product

Vortex flow meter

manufactured by Chengde Rehe-Krohne Meters Co., Ltd.

(Address:High-tech Development Zone, Chengde, Hebei Province)

which model is OPTISWIRL 4200...Ex

Ex marking See attachment to this certification

product standard /

**drawing number APPR GD 821107-01 Rev._、 APPR GD 821107-02 Rev._、
APPR GD 821107-03 Rev._**

has been inspected and certified by NEPSI, and that it conforms

**to GB 3836.1-2010,GB 3836.2-2010,GB 3836.3-2010,GB 3836.4-2010,
GB 3836.8-2014,GB 12476.1-2013,GB 12476.4-2010,GB 12476.5-2013**

This Approval shall remain in force until 2022.09.03

Remarks

- 1.Conditions for safe use are specified in the attachment to this certificate.
- 2.Symbol "X" placed after the certification number denotes specific conditions of use, which are specified in the attachment to this certificate.
- 3.Model designation is specified in the attachment to this certificate.
- 4.Safe parameters specified in the attachment to this certificate.
- 5.This certificate also covers the Vortex flow meter with the same type manufactured by KROHNE Messtechnik GmbH (Address: Ludwig-Krohne Strasse 5,D-47058 Duisburg, Germany).

Director

**National Supervision and Inspection Centre for
Explosion Protection and Safety of Instrumentation**

Issued Date 2017.09.04

This Certificate is valid for products compatible with the documents and samples approved by NEPSI.

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国家级仪器仪表防爆安全监督检验站

National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation

(GYJ17.1343X)

(Attachment I)

Attachment I (Translation)

Vortex flow meters, type OPTISWIRL 4200...Ex series, manufactured by Chengde Rehe-Krohne Meters Co., Ltd. or Krohne Messtechnik GmbH, including convertor and sensor, with two option mounting types which is integral version or remote version, have been approved in accordance with the following standards by National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation (NEPSI):

- GB3836.1-2010 Explosive atmospheres – Part 1: Equipment – General requirements
- GB3836.2-2010 Explosive atmospheres – Part 2: Equipment protection by flameproof enclosure “d”
- GB3836.3-2010 Explosive atmospheres – Part 3: Equipment protection by increased safety “e”
- GB3836.4-2010 Explosive atmospheres – Part 4: Equipment protection by intrinsic safety “i”
- GB12476.1-2013 Electrical apparatus for use in the presence of combustible dust
– Part 1: Equipment – General requirements
- GB12476.4-2010 Electrical apparatus for use in the presence of combustible dust
– Part 4: Protection by intrinsic safety “iD”
- GB12476.5-2013 Electrical apparatus for use in the presence of combustible dust
– Part 5: Protection by enclosures “tD”

The certificate number is GYJ17.1343X.

The types, mounting type and Ex marking to this certificate are as below:

Type	Mounting type		Ex marking
OPTISWIRL 4200C..Ex	Integral version		Ex d ia IIC T2~T6 Gb Ex d e ia IIC T2~T6 Gb Ex nA ic IIC T2~T6 Gc Ex tD A21 IP66/IP67 iaD 21 T70°C~T240°C
OPTISWIRL 4200F..Ex	Remote version	VFC 200F..020 Ex Converter	Ex d [ia] IIC T6 Gb Ex d e [ia] IIC T6 Gb Ex nA [ic] IIC T6 Gc Ex tD A21 IP66/IP67 [iaD 21] T70°C
		OPTISWIRL 4000F Sensor	Ex ia IIC T2~T6 Gb Ex ic IIC T2~T6 Gc Ex iaD 21 T70~T240
	A maximum length of 50m special connecting cable is applied to connect between the converter and the sensor		

The maximum ambient temperature range: -40~+65 (°C)

The minimum process temperature: -40°C

The relations between the maximum ambient temperature, the nominal diameter, the maximum process temperature and the temperature class are as below:

Mounting position: Converter or terminal box of sensor on the top of the measuring tube

the maximum process temperature (°C)												
Nomial diameter	T6		T5		T4		T3			T2		
	60	65	60	65	60	65	40	60	65	40	60	65
DN15 ~ 25	80	65	100	100	135	135*	200	200*	165*	240	200*	165*
DN40 ~ 50	80	65	100	100	135	135*	200	175*	150*	240	175*	150*
DN60 ~ 100	80	65	100	100*	135*	130*	200	150*	130*	235*	150*	130*
DN100 ~ 300	75	65	100	100	135	135*	200	185*	155*	240	185*	155*

Mounting position: Converter or terminal box of sensor on the side or the bottom of the measuring tube

the maximum process temperature (°C)												
Nomial diameter	T6		T5		T4		T3			T2		
	60	65	60	65	60	65	40	60	65	40	60	65
DN15 ~ 25	85	65	100	100	135	135	200	200	200*	240	240	240*
DN40 ~ 50	80	65	100	100	135	135	200	200	200*	240	240	240*
DN60 ~ 100	85	65	100	100	135	135*	200	200*	200*	240	240*	240*
DN100 ~ 300	80	65	100	100	135	135	200	200	200*	240	240	240*

Mounting position: Painted converter or terminal box of sensor on the top of the Painted measuring tube

the maximum process temperature (°C)												
Nomial diameter	T6		T5		T4		T3			T2		
	60	65	60	65	60	65	40	60	65	40	60	65
DN15 ~ 25	70	65	100	95*	120*	115*	120	120*	115*	120	120*	115*
DN40 ~ 50	70	65	100	95*	115*	105*	120	115*	105*	120	115*	105*
DN60 ~ 100	70	65	100*	90*	105*	95*	120	105*	95*	120	105*	95*
DN100 ~ 300	65	65	95	90*	120*	110*	120	120*	110*	120	120*	110*

Mounting position: Painted converter or terminal box of sensor on the side or the bottom of the painted measuring tube

the maximum process temperature (°C)												
Nomial diameter	T6		T5		T4		T3			T2		
	60	65	60	65	60	65	40	60	65	40	60	65
DN15 ~ 25	65	65	95	90	120	120*	120	120	120*	120	120	120*
DN40 ~ 50	65	65	85	80	120*	120*	120	120*	120*	120	120*	120*
DN60 ~ 100	65	65	95	90*	120*	120*	120	120*	120*	120	120*	120*
DN100 ~ 300	65	65	85	85	120	120*	120	120	120*	120	120	120*

* Remark: Continuous working temperature of connecting cable and cable gland is 80°C at least.

I . SPECIAL CONDITIONS FOR SAFE USE

1.1 For the details on the dimensions of the flameproof joints, the manufacturer shall be contacted.

1.2 When the product is used in explosive atmospheres, the earthing terminal shall be connected reliably to be included the equipotential bonding system.

1.3 When the enclosure is with the paint layer, friction should be avoid in case there will cause the ignition by electrostatic accumulation.

II . SPECIAL REQUIREMENTS

2.1. Electrical parameters:

Type	Terminal code	Electrical parameters
OPTISWIRL 4200C..Ex VFC 200F..020 Ex	C1, C2	$U_n = 12 \sim 32 \text{ V}; I_n = 4 \sim 20 \text{ mA}$
	M1, M2 / M4	$U_n = 8 \text{ V} \sim 32 \text{ V}; I_n \leq 100 \text{ mA}$
	M3, M2 / M4	$U_n = 8 \text{ V}; I_n \leq 1 \text{ 或 } \geq 3 \text{ mA}$
	I1, I2	$U_n = 9 \sim 32 \text{ V}; I_n = 4 \sim 20 \text{ mA}$
OPTISWIRL 4200C FF Ex OPTISWIRL 4200C PA Ex VFC 200F FF020 Ex VFC 200F PA020 Ex	A1, A2 B1, B2	$U_n = 9 \sim 32 \text{ V}; I_n = 20 \text{ mA.}$

Type	Terminal	Max.input voltage Ui (V)	Max.input current Ii (mA)	Max.input Power Pi (mW)	Max. internal parameter	
					Ci (μF)	Li (mH)
OPTISWIRL 4000F	1~7	7	1107	650	0	0
Type	Terminal	Max.output voltage Uo (V)	Max.output current Io (mA)	Max.output power Po (mW)	Max. external parameters	
					Co (μF)	Lo (μH)
VFC 200F..020 Ex	1~7	6.65	1107	650	2.5	73

2.2 Do not open the cover when the converter is located in Explosive atmospheres

2.3 The enclosure shall be kept from the dust, but the dust shall not be blown by compressed air.

2.4 Users are forbidden to change the configuration to ensure the explosion protection performance of the equipment. Any faults shall be settled with experts from the manufacturer.

2.5 During installation, operation and maintenance, users shall comply with the relevant requirements of the product instruction manual, GB3836.13-2013 "Explosive atmospheres-Part 13: Equipment repair, overhaul and reclamation", GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous areas (other than mines)", GB3836.16-2006 "Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)", GB15577-2007 "Safety regulations for dust explosion prevention and protection", GB12476.2-2010 "Electrical apparatus for use in the presence of combustible dust Part 2: Selection and installation" and GB50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

III. MANUFACTURER'S RESPONSIBILITY

3.1 The instruction manual shall include all the clauses mentioned above.

3.2 The manufacturer shall exactly conform to the documents approved by NEPSI.

3.3 The nameplate shall add the following:

3.3.1 Identification of NEPSI.

3.3.2 Certificate No.

**National Supervision and Inspection Centre
For Explosion Protection and Safety of Instrumentation**
September 4, 2017