

**TYPE APPROVAL CERTIFICATE****This is to certify:****That the Flow Transmitter**with type designation(s)  
**FLUXUS® F/G721**

Issued to

**FLEXIM Flexible Industriemeßtechnik GmbH**  
**Berlin, Germany**

is found to comply with

**DNV GL rules for classification – Ships, offshore units, and high speed and light craft****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

<b>Temperature</b>	<b>D</b>
<b>Humidity</b>	<b>B</b>
<b>Vibration</b>	<b>A/B*</b>
<b>EMC</b>	<b>A</b>
<b>Enclosure</b>	<b>Required protection according to the Rules shall be provided upon installation on board.*</b>

**\* see Application/Limitation**Issued at **Hamburg** on **2018-05-18**for **DNV GL**This Certificate is valid until **2023-05-01**.DNV GL local station: **Hamburg**Approval Engineer: **Heinz Scheffler****Joannis Papanuskas**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Job Id: **262.1-027499-1**  
Certificate No: **TAA00001SR**  
Revision No: **1**

## Product description

The FLUXUS® F/G721 is an ultrasonic clamp-on flow measurement of liquids and gases.

FLUXUS® F/G721 contains of:

- Flow transmitter
- Transducers
- Transducers mounting fixture
- Junction boxes
- Temperature probe
- Mounting clamps

### Flow transmitter

TF7 - **X**721GP - **Y Z S 2**

**X** = Medium:

- F = Liquid
- G = Gas

**Y** = EX-Certification:

- NN0 = None
- F20 = FM Div.2 none intrinsic safety
- A20 = ATEX/IECEX Zone 2/21 none intrinsic safety

**Z** = Number of flow measuring channels:

- 1
- 2

Power supply flow transmitter:

- 20...32 V DC

Physical quantities:

- Volumetric / mass flow rate
- flow velocity and heat flow (if temperature inputs are installed)

Totalizer:

- volume
- mass

Calculation functions:

- average,
- difference,
- sum (2 measuring channels necessary)

HART Current output

- range 4...20 mA
- active output  $U_{int} = 24\text{ V}$  and passive output  $U_{ext} = 10...24\text{ V}$

Temperature input

- type Pt100/Pt1000
- connection 4-wire

Housing material:

- stainless steel 316L (1.4404)

### Transducers

- FS\*-NA2TS
  - ATEX/IECEEx zone 2/21
  - direct connection or connection via junction box
- FS\*-NA2TS/OS
  - ATEX/IECEEx zone 2/21
  - direct connection or connection via junction box
  - housing with stainless steel 316
- FS\*-NF2TS
  - FM Class I Div. 2
  - direct connection or connection via junction box
- FS\*-NF2TS/OS
  - FM Class I Div. 2
  - direct connection or connection via junction box
  - housing with stainless steel 316
- FS\*-NNNTS
  - not explosion proof
  - direct connection or connection via junction box
- FS\*-NNNTS/OS
  - not explosion proof
  - direct connection or connection via junction box
  - housing with stainless steel 316

\* transducer frequency: M= 1MHz; P= 2MHz; Q= 4MHz

### Transducers mounting fixture

- VLM (transducers with transducer frequency 1 MHz/2MHz)
- VLQ (transducers with transducer frequency 4 MHz)

### Junction Box

- JBT2, JBT3 (for temperature probe connection)
- JBP2, JBP3 (for transducer with terminal connection)
- JB01, JB02, JB03, JB04 (for transducer with SMB connection)

### Temperature probe

- Pt100, 4- wire connection
  - PT12N
  - PT12N with connector
  - PT12N (ATEX zone 2)

### Mounting clamps

- Ratchet lock with metal mounting strap ½" V4A length depending on the pipe diameter
- Gear clamp - quick release LAS-248 V4A
- Screw lock 540R/10- with perforated steel band 501R/10

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## Application/Limitation

Location class:

- \* Enclosure: Flow transmitter IP66; Junction Box IP67; Transducers IP67; Temperature probe IP66/67
- \* Vibration class B: Transducers; Temperature probe

Especially for cabling and installation of the equipment the Manual is to be observed.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

## Type Approval documentation

Test Reports: 20180301-015; FT20180404.027; Pb1370818; U172238E1; U171540E1; E170581E1.pdf  
Documents: User-Manual UMFLUXUSF721BV1-1EN, 2017-01-23; User-Manual UMFLUXUS\_G721BV1-1EN, 2017-01-23; Technical Specification TSFLUXUS\_F721V2-1-2EN\_Leu, 2017-04-28; Technical Specification TSFLUXUS\_G721V2-1-2EN\_Leu, 2017-04-28; Documents overview\_172236\_02.05.2018

## Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

## Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

## Periodical assessment

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE