

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pressure Transmitter

with type designation(s)
OPTIBAR PM / PC 5060 C

Issued to

KROHNE Pressure Solutions GmbH
32423 Minden, 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.

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	C / D*

***depending on the order code 'I'**

Issued at **Hamburg** on **2018-01-05**

This Certificate is valid until **2023-01-04**.

DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Dariusz Lesniewski**

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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: **262.1-026887-1**
Certificate No: **TAA00001K4**

Product description

Process pressure transmitter suitable for pressure measurement of gases, vapours and liquids.
Measurement of gauge pressure, absolute pressure or vacuum.

Pressure Transmitter

Type: **OPTIBAR PC 5060 C VGK54** a b c d e f g h i j k l m n
OPTIBAR PM 5060 C VGK64 a b c d e f g h i j k l m n

a	Scope: A, W, F, C or others
b	Approval: M, N, O, P, 6
c	Process fitting / Material: 2-digit alphanumeric code for TRI- CLAMP, DN or ASME industry type flange with pressure ratings and any complying with an international or national standard
d	1-digit alphanumeric code for OPTIBAR PC 5060 C sealing concept: Single, Double resp. Form Seal for OPTIBAR PM 5060 C: diaphragm material, fill fluid
e	Process seal / Process temperature: 1-digit alphanumeric code for FKM, EPDM, FFKM - seal for temperatures -40...150 °C (depending on version)
f	Pressure: A Absolute, G Relative
g	Measuring range: 1-digit alphanumeric code for pressure range -1...100.0 bar (-100...10000kPa) or other national standard units (depending on version)
h	Accuracy class: H 0.075%, E 0.1 %, S 0.2%
i	Electronics: Z Two-wire 4...20mA H Two-wire 4...20mA/HART® A Two-wire 4...20mA/HART® with SIL – Qualification S Slave electronics for electronic differential pressure T Slave electronics for electronic differential pressure with SIL-Qualification P Profibus PA
j	Supplementary Electronics: X without , Z additional current output
k	Housing: K Plastic, A Aluminum, D Aluminum double chamber, V Stainless steel (precision casting) 316L W Stainless steel double chamber (precision casting), R Plastic double chamber
l	Housing Version/Protection: I, D*,P, N*, M*, A, S, K, L, 1 (*Enclosure location class: D)
m	Cable Entry/Connection: M, S, T, K, U, V, L, O, D, 6, N, 8, P, C, B, F, G, H, W, Z, 1, 7
n	Display / Adjustment module: X without display/adjustment module A with display/adjustment module F without display/adjustment module; lid with inspection window B laterally mounted; with display/adjustment modul K with display/adjustment module; with Bluetooth; magnetic pen operation L laterally mounted; with display/adjustment module; with Bluetooth; magnetic pen operation

Approval conditions

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

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for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Application/Limitation

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

Type Approval documentation

Tests carried out

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

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE