TYPE APPROVAL CERTIFICATE

Certificate No:
TAA0000081

This is to certify:

That the Pressure Transmitter

with type designation(s)
HDA4000 series

Issued to
HYDAC Electronic GmbH
Saarbrücken, Germany

is found to comply with
DNV GL rules for classification – Ships

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL

Location classes:

Temperature	**D**
Humidity	**B**
Vibration	**B**
EMC	**B**
Enclosure	**B / C (See product data sheet)**

This Certificate is valid until **2021-01-11**.

Issued at **Hamburg** on **2016-01-12**

for **DNV GL**

DNV GL local station: **Essen CMC Southern Germany**

Approval Engineer: **Dariusz Lesniewski**

Duy Nam Le
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.

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Job Id: **262.1-003415-6**
Certificate No: **TAA000008J**

Product description

The HDA 4000 is a series of pressure transmitters for measuring absolute- and relative pressure in hydraulic and pneumatic systems. The transmitters are available with ceramic cells (suitable for low pressure applications) and with thin film strain gauge (suitable for high pressure applications).

Model code	**Succeeding characters / Transmitter specification (character 5-18)**									
HDA4 (ceramic cell)	*5*	*6*	*7*	*8*	*9-13*	*14-16*	*17*	*18*	*19*	*20-21*
5 :	Accuracy and measuring method					(**1**= 1% FS max, absolute) (**3**= 1% FS max, relative)				
6 :	Mechanical connection type									
7 :	Electrical connection type									
8 :	Signal					(**A**= 4-20 mA)				
9-13 :	Measuring range				HDA**41xxx** HDA**43xxx**	0…4 bar (0…58 psi) -1…100 bar (-14,5…1450 psi)				
14-16 :	Modification number					(**Sxx**)				
17 :	Sealing material (in contact with media)									
18 :	Material (in contact with media)					(**1**= Stainless steel)				
19 :	PSI additional declaration for psi Version (escaped from bar version)									
20-21 :	Cable length (inch or m or cm)									

Model code	**Succeeding characters / Transmitter specification (character 5-19)**							
HDA4 (strain gauge)	*5*	*6*	*7*	*8*	*9-13*	*14-16*	*17*	*18-19*
5 :	Accuracy and measuring method					(**4**= 1% FS max, absolute) (**7**= 0,5% FS max, relative)		
6 :	Mechanical connection type							
7 :	Electrical connection type							
8 :	Signal					(**A**= 4-20 mA)		
9-13 :	Measuring range					-1…1600 bar (-14,5…23.000 psi)		
14-16 :	Modification number					(**Sxx**)		
17 :	PSI additional declaration for psi Version (escaped from bar version)							
18-19 :	Cable length (inch or m or cm)							

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNVGL, 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 DNVGL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, November 2015

Type Approval documentation

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