



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **M-12428**

This is to certify that the
Diesel Engine

with type designation(s)
VOLVO PENTA D5A T/TA, D7A T/TA, D7C TA, D5A-BTA, D7A-BTA, D7C-BTA

Issued to
DEUTZ AG
Köln, Germany

is found to comply with
Det Norske Veritas' Rules for Classification of Ships/High Speed and Light Craft

Application
The approval is valid for propulsion, auxiliary and emergency duty.

Rating see page 2 of the certificate

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-01-15**

for **Det Norske Veritas AS**

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

Approval Engineer: **Tage Olav Alexander Strøm**

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Oddvar Deinboll
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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

Four stroke diesel engine

Piston stroke : 130 mm
 Cylinder bore : 108 mm
 No.of cylinders : 4 and 6 in-line

Place of production

Deutz AG, Plant Köln, Germany
 Deutz AG, Plant Ulm – Donautal, Germany

Application/Limitation

General engine data:

Max. cylinder pressure, D5A T/TA, D7A T/TA 129 bar
 Max. cylinder pressure, D7C TA 134 bar

Ratings for propulsion, auxiliary and emergency applications, variable speed applications:

Rated speed [rpm]	Rated Power [kW]		Rated Power [kW]		Rated Power [kW]
	D5A T	D7A T	D5A TA	D7A TA	
2300	95	145	118	174	195
2100	89	134	110	162	182
1900	83	126	103	153	169
1800	81	123	100	149	163
1500	74	111	91	134	142

Ratings for auxiliary, emergency applications, constant speed applications:

Rated speed [rpm]	Rated Power [kW]		Rated Power [kW]	
	D5A T	D7A T	D5A TA	D7A TA
1800	85	128	105	155
1500	81	122	97	146

General engine data:

Max. cylinder pressure, D5A –BTA, D7A-BTA 129 bar
 Max. cylinder pressure, D7C -BTA 134 bar

Ratings for propulsion, auxiliary and emergency applications, variable speed applications:

Rated speed [rpm]	Rated Power [kW]		Rated Power [kW]
	D5A-BTA	D7A-BTA	
2300	118	174	195
2300	110	148	166
2100			182
1900	103	153	169
1900	100	130	146

Ratings for auxiliary, emergency applications, constant speed applications:

Rated speed [rpm]	Rated Power [kW]	
	D5A-BTA	D7A-BTA
1800	100	148
1500	92	139

Type Approval documentation

The following crankshaft drawings

0425 6964 UA 0131-05 0, 1 sheet

0420 9224 UA 0131-05 4, 3 sheets

0425 6943 UA 0131-05 0, 1 sheet

0420 9230 UA 0131-05 4, 3 sheets

Kurbelwelle BF 4M 1013, Rohteil

Kurbelwelle BF 4M 1013, Fertigteil

Kurbelwelle BF 6M 1013, Rohteil

Kurbelwelle BF 6M 1013, Fertigteil

and other drawings mentioned in covering letter MTP373/WILLIK/262-J-20356 with appendix A and B, all dated 2001-12-14, and documentation regarding inclination angles, received with e-mail from Deutz AG dated 04-02-27.

Tests carried out

Type test according to Type Test Report dated 2001-08-29/30.

Marking of product

The product to be marked with manufacturer's name or trademark and type number identification.

Periodical Assessment

For retention of the Type Approval, DNV shall perform a Periodical Assessment every second year and before the expiry date of this certificate.

The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval certificate was issued.

The main scope of the assessment normally includes:

- Verification of the company's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the TA documentation and that this is still used as basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking.

In cases where the Type Approved product is manufactured at other companies, the Periodical Assessment shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore Periodical Assessment shall be carried out randomly at these companies.

Other conditions

Foundation arrangement to be submitted for each installation according to the Rules, Pt. Ch.3 Sec.1 A500 – Documentation of arrangement.

Torsional vibration calculations to be submitted for each installation according to the Rules Pt.4, Ch.3, Sec.1, G - Vibration.

Signboards according to the Rules Pt.4, Ch.3, Sec.1, C 406.

Flexible hoses for flammable fluids to be type approved by DNV.

Engine safety, control and monitoring systems, including sensors and actuators are not covered by this type approval certificate. Documentation for engine safety, control including speed governing and monitoring systems shall be submitted for approval according to Pt.4 Ch.9 Sec.1 Table C2 and/or as listed in relevant type approval certificates.

Electric cables and installation of this is not covered by this approval and must be verified to comply with the requirement of DNV Rules for Ships/ High, Speed Light Craft and Naval Surface Craft Pt.4 Ch.8 - Electrical Installation.

The approval does not include driven member.

NV product certificate is not required for engines intended for emergency/auxiliary duty. The engine shall be delivered with makers statement of compliance with the Type Approval.

END OF CERTIFICATE