

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000DY
Revision No:
2

This is to certify:

That the Diesel Engine

with type designation(s)
STEYR / BUKH + STEYR 4 and 6 cylinder diesel engines

Issued to
Steyr Motors Betriebs GmbH
Steyr, Oberösterreich, Austria

is found to comply with
IMO Resolution MSC. 81(70) Testing of Lifesaving Appliances
DNV standard DNV-ST-E406 – Design of free-fall lifeboats

Application :

The approval is valid for propulsion of free fall lifeboats.

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

Rating See page 2

Issued at **Høvik** on **2022-03-10**

for **DNV**

This Certificate is valid until **2027-01-09**.

DNV local station: **Essen**

Approval Engineer: **Dag Harald Williksen**

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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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Four stroke diesel engine

Cylinder bore : 85 mm
 Piston stroke : 94 mm
 No. of cylinders : 4 and 6 in line

| Engine Model | Rating (kW) | Engine speed (RPM) | Gearbox |
|----------------------------------|-------------|--------------------|--|
| 4 Cylinder Marine Engines | | | |
| MO54NA33 | 40 | 3300 | ZF25, ZF25A, ZF45-1, ZF45A, ZF45C, ZF45IV, ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A, MerCruiser Bravo I-II-III |
| MO84K32 | 55 | 3200 | |
| MO94K33 | 66 | 3300 | |
| MO114K33 | 81 | 3300 | |
| MO144M38 | 106 | 3800 | ZF45-1, ZF45A, ZF45C, ZF45IV, ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A, MerCruiser Bravo I-II-III |
| MO144V38 | 106 | 3800 | |
| MO164M40 | 120 | 4000 | |
| MO174V40 | 125 | 4000 | |
| SE114E33 | 81 | 3300 | ZF25, ZF25A, ZF45-1, ZF45A, ZF45C, ZF45IV, ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A, MerCruiser Bravo I-II-III |
| SE144E38 | 106 | 3800 | ZF45-1, ZF45A, ZF45C, ZF45IV, ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A, MerCruiser Bravo I-II-III |
| SE164E40 | 120 | 4000 | |
| SE174S40 | 125 | 4000 | |
| 6 Cylinder Marine Engines | | | |
| MO126M28 | 90 | 2800 | ZF45-1, ZF45A, ZF45C, ZF45IV, ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A, MerCruiser Bravo I-II-III |
| MO166M28 | 120 | 2800 | |
| MO196K35 | 140 | 3500 | |
| MO236K43 | 156 | 4300 | |
| MO236K42 | 170 | 4200 | |
| MO256K43 | 184 | 4300 | |
| MO256H45 | 184 | 4500 | |
| MO286H43 | 205 | 4300 | ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A, MerCruiser Bravo I-II-III |
| MO306H43 | 215 | 4300 | ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A |
| SE126E25 | 88 | 2500 | ZF45-1, ZF45A, ZF45C, ZF45IV, ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A, MerCruiser Bravo I-II-III |
| SE126E32 | 88 | 3200 | |
| SE156E26 | 110 | 2600 | |
| SE156E32 | 110 | 3200 | |
| SE156E34 | 110 | 3400 | |
| SE186E38 | 129 | 3800 | |
| SE196E35 | 140 | 3500 | |
| SE236E40 | 170 | 4000 | |
| SE236S36 | 170 | 3600 | ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A, MerCruiser Bravo I-II-III |
| SE266E40 | 195 | 4000 | |
| SE266S36 | 195 | 3600 | |
| SE286E40 | 205 | 4100 | ZF63, ZF63A, ZF63C, ZF63IV, ZF68, ZF68A, ZF68IV, ZF220, ZF220A |
| SE306J38 | 215 | 3800 | |

Application/Limitation

The approval is valid for propulsion of free fall lifeboats according to DNVGL-ST-E406, Section 7.3.3, 7.5.4 and 11.1.11.

Type Approval documentation

| | |
|---------------|---|
| 2178578/0 | Engine longitudinal section |
| 2178578/1 | Engine cross section |
| E100105/4 | Inboard down angle |
| E100041/3 | View exhaust side |
| Z001022/0 | Operators manual |
| Z011798/0 | Spare parts catalogue TACM 126 |
| Z011797/0 | Spare parts catalogue TACM 166 |
| Z011799/0 | Spare parts catalogue TACM 196 |
| Z011796/1 | Spare parts catalogue TACM 236K43 |
| Z011796/2 | Spare parts catalogue TACM 236K42 |
| Z011810/0 | Spare parts catalogue TACM 256 |
| LOS 1 | Lube oil scheme |
| CS 1 | Cooling system, |
| FS 1 | Fuel system |
| 2181156-0 | SE306J38+ZF63 |
| 2181157-0 | SE306J38 Bobtail |
| 2181166-0 | Engine longitudinal section |
| 2181167-0 | Engine cross section |
| 2181160-0 | Lubrication system scheme |
| 2181161-0 | Cooling system scheme |
| 2181158-0 | Fuel system scheme |
| P/N Z001140-0 | Operation-, maintenance & warranty manual |
| P/N Z001138-0 | Service manual |
| P/N Z011840-0 | Spare Parts catalogue SE 306J38 |
| P/N Z001015-0 | Spare Parts catalogue MO / SE 164M40 |

List of applicable engine models received September 2020

Tests carried out

Test Report No. 1509 - M14TCAM Type 144/164, Date : 21st through 23rd April 1999
Test Report No. 1509 - M16TCAM Type 236/246, Date : 21st through 23rd April 1999
Test Report No. 1511 - SOLAS Test of the Steyr Marine 2012 SE Series, dated 22nd December 2011
Test Report No. 1700 – DNV-OS-E406 Certification Test, dated 22nd August 2012.
Test Report No. 1751 – DNV-OS-E406 Certification Test, dated 15th July 2012.
Test Report No. 3326 – 600hrs SOLAS durability run, dated 13th August 2020.

Marking of product

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

Periodical assessment

For retention of the type approval, a DNV surveyor shall perform an assessment after 2 years and after 3.5 years to verify that the conditions of the type approval are complied with. A renewal assessment will be performed at renewal of the 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.

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.

END OF CERTIFICATE