

**POTVRDA O TIPNOM ODOBRENJU**
TYPE APPROVAL CERTIFICATE

Br /No 02-002339/024321

Potvrđuje se da je ovaj proizvod, u skladu s Pravilima za klasifikaciju brodova, Dio 1. - Opći propisi, Odjeljak 3. - Tipno odobrenje proizvoda, odobren za ugradnju na brodove i postrojenja pod nadzorom Hrvatskog registra brodova.

This is to certify that this product, on the basis of the Rules for the classification of ships, Part 1 - General requirements, Chapter 3 - Type approval of products, is approved for use on board ships and installations under supervision of the Croatian Register of Shipping.

TIP I OPIS PROIZVODA:

TYPE AND DESCRIPTION OF PRODUCT:

DIZEL MOTOR, četverotaktni, tip
DIESEL ENGINE, four-stroke, type**L16/24****PROIZVOĐAČ:**

MANUFACTURER:

MAN Diesel & Turbo

Teglholmsgade 41

DK-2450 COPENHAGEN SV

Denmark

PROIZVOD UDOVOLJAVA SLIJEDEĆIM PRAVILIMA/PROPISIMA:

THE PRODUCT MEETS FOLLOWING RULES/REGULATIONS:

HRVATSKI REGISTAR BRODOVA: Pravila za klasifikaciju brodova, Dio 9.-Strojevi**CROATIAN REGISTER OF SHIPPING:** Rules for the Classification of Ships, Part 9-Machines**DETALJI O PROIZVODU I UVJETIMA CERTIFIKACIJE DANI SU NA POLEĐINI.**

FURTHER DETAILS OF THE PRODUCT AND CONDITIONS FOR CERTIFICATION ARE GIVEN OVERLEAF.

ODOBRENJE VRIJEDI DO: 2022-03-03

APPROVAL IS VALID UNTIL:

Mjesto i datum: Split, 2018-03-26

Place and date:

M.P.

(Seal)

Marinko Popović, dipl.ing.

NAPOMENA: Ova potvrda nije valjana ako se proizvod ili način njegove proizvodnje promijenio u odnosu na tipno ispitani proizvod. Proizvođač treba obavijestiti Hrvatski registar brodova o bilo kojoj izmjeni na proizvodu kako bi ishodio valjanu potvrdu.

NOTE: This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Croatian Register of Shipping of any modification or changes to the product in order to obtain a valid certificate.

PODROBNJI OPIS PROIZVODA:

DETAILED PRODUCT DESCRIPTION:

Dizel motor, četverotaktni / Diesel engine, four-stroke

Tip / Type **L16/24**

Promjer cilindra / Cylinder bore 160 mm

Stapaj / Piston stroke 240 mm

Broj cilindara / Number of cylinders 5, 6, 7, 8, 9

PODRUČJE PRIMJENE / POSEBNI GRANIČNI UVJETI:

APPLICATION / LIMITATIONS:

Pomoćni uređaji (A)

Auxiliaries (A)

Tip motora / Engine type		L16/24	L16/24
Materijal koljenastog vratila (vidi dolje) Crankshaft material (see below)		42CrMo4V	42CrMo4V
Maksimalna trajna snaga po cilindru Maximum continuous output per cylinder	[kW/cyl]	95	110
Pri brzini vrtnje At engine speed	[min ⁻¹]	1000	1200
Srednji efektivni tlak Mean effective pressure	[bar]	23,6	22,8
Najveći tlak u cilindru Maximal cylinder pressure	[bar]	180	180
Najveće naizmjenično torzijsko naprezanje Maximal alternating torsional stress	[N/mm ²]	55,0	55,0

DOKUMENTACIJA ZA TIPNO ODOBRENJE:

TYPE APPROVAL DOCUMENTATION:

Odobrena od Hrvatskog registra brodova pismom br. (od):

Approved by the Croatian Register of Shipping with letter No.(dated):

021164 (2002-03-04)	883/TSv/NV-2351/022924 (2010-05-14)
13/TSv/NV-424/021734 (2005-01-05)	859/TSv/NV-2508/023109 (2011-05-02)
59/TSv/NV-612/021971 (2006-01-12)	113/TSv/NV-2586/023213 (2012-01-20)
613/TSv/NV-660/022055 (2006-03-30)	614/TSEv/KF/024321 (2018-03-26)

OZNAČAVANJE PROIZVODA:

MARKING OF PRODUCT:

- | | |
|-------------------------------|------------------------------------|
| - oznaka proizvođača | - manufacturer's mark |
| - mjesto i godina proizvodnje | - location and year of manufacture |
| - oznaka HRB | - CRS mark |

UVJETI ZA CERTIFIKACIJU:

CONDITIONS FOR CERTIFICATION:

Najmanja vlačna čvrstoća materijala koljenastog vratila: 800 N/mm² (42CrMo4V)
Minimal tensile strength of crankshaft material:

Proračun torzijskih vibracija mora se dostaviti za svaku instalaciju temeljem Pravila HRB
Torsional vibration calculation shall be submitted for each installation in accordance with the CRS Rules.

Sheme sustava cjevovoda sa svim podacima za odobrenje cjelovitog sustava moraju se dostaviti na odobrenje za svaki pojedini projekt.

Schematic diagrams of piping systems containing data necessary for approval of the entire system are to be submitted to consideration for each particular installation.