



Certificate No.: 02113101-3492288-002

Port of : Cilegon, Indonesia.

Date : 04 May 2018

BOLLARD PULL TEST CERTIFICATE

THIS IS TO CERTIFY

That the undersigned Surveyors to this Bureau did, at the request of the Owner's representative, attend the steel motor vessel

Name: ENC RHAYDENClass Number: 02113101IMO Number : 9277694in order to witness the Steady Bollard Pull test carried out at PT. Samudera Marine Indonesia Dockyard

in accordance with Part 5 Chapter 11 of "ABS Rules for Building and Classing Steel Vessels Under 90 Meters" Appendix 2 .

An average bollard force was computed as the average of evenly spaced load cell recordings taken over a sustained pull interval of a minimum of three (3) minutes for each recorded pull at the rated engine horsepower and speed as follows:

ABS Approved Maximum Continuous Rated Power: 1324 kWABS Approved Rated Speed (RPM): 900

The Static Bollard Pull (BP) at ABS approved Maximum Continuous Rated Power and RPM:

40 Metric Tonnes

Electronically Signed By
Widyanto, Herry, PT ABS Indoclass Pratama Jakarta Operations
Surveyor, American Bureau of Shipping

Sriyadi,, PT ABS Indoclass Pratama Jakarta Operations
Surveyor, American Bureau of Shipping

This Certificate evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Certificate is a representation only that the structure, item of material, equipment, machinery or any other item covered by this Certificate has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping as of the date of issue. Parties are advised to review the Rules for the scope and conditions of classification and to review the survey records for a fuller description of any restrictions or limitation on the vessel's service or surveys. The validity, applicability and interpretation of this Certificate is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Certificate or in any notation made in contemplation of this Certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied.

Vessel Data

Vessel Type: TUGBOAT

Length (LOA) M/Ft: 27 m

Owners / Managers: PT PELAYARAN EKANURI INDRA PERKASA

Propellers:

Number: Two (2) Manufacturer: Kawasaki Heavy Industries Ltd. Type: Fixed Pitch

Diameter: 1950 mm Pitch: 2000 mm Number of blades: Four (4)

Material: Cast Ni-Al-Bronze

Main Engines:

Number: Two (2) Manufacturer: Yanmar Diesel Engine Co.

Type/Model: 8N21A-EN

ABS Approved Maximum Continuous Rating: 2 x 1324 kW @ RPM: 900

Number of main engines per shaft: One (1)

Overspeed RPM setting: 990

Test Data

Vessel's heading: 54 degree (Gyro Compass Reading)

Length of towing wire: 108 Meters

Drafts measured in Meters: (Forward) 3.5, (Aft) 3.5 & (Amidships) 3.5

Maximum allowable draft (LL): 3.812 Meters

Ballast on board: 21.8 Metric Tonnes Total Capacity: 59.7 Metric Tonnes

Fuel on board: 20.2 Metric Tonnes Total Capacity: 138.7 Metric Tonnes

Wind direction: North Speed: 2.57 M/S

Current setting: Calm Speed: 0.4 M/S

Air temperature: 30 °C Sea water temperature: 33 °C

Pull Sequence Numbers	Engine Speed (RPM)	Time of Pull (minutes)	Observed Average Force lbs/Kg	Drag Effect lbs/Kg	Steady Bollard Metric/Long/Short/Tons
1	900	5	-	-	40MT Ahead

Note: This Certificate evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Certificate is a representation only that the structure, item of material, equipment, machinery or any other item covered by this Certificate has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping as of the date of issue. Parties are advised to review the Rules for the scope and conditions of classification and to review the survey records for a fuller description of any restrictions or limitation on the vessel's service or surveys. The validity, applicability and interpretation of this Certificate is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Certificate or in any notation made in contemplation of this Certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied.

02113101-3492288-002

[illegible]

Note: This Certificate evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Certificate is a representation only that the structure, item of material, equipment, machinery or any other item covered by this Certificate has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping as of the date of issue. Parties are advised to review the Rules for the scope and conditions of classification and to review the survey records for a fuller description of any restrictions or limitation on the vessel's service or surveys. The validity, applicability and interpretation of this Certificate is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Certificate or in any notation made in contemplation of this Certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied.

