TASNEEF
هيئة الإمارات للتصنيف
EMIRATES CLASSIFICATION SOCIETY

Amendments to the "Rules for the Certification of the Bollard Pull of Tugs"

Tasneef/RFP/011/AMN/01
Effective from 1 July 2019

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The additions are underlined and deletions stricken through.

Amendments to the Rules for the Certification of the Bollard Pull of Tugs effective from 1/7/2019

Modify the items as follows:
(Reason: Amendments to address tugs with hybrid propulsion)

3 DEFINITIONS AND ABBREVIATIONS

3.1 Bollard Pull (BP)

Bollard Pull is the average value of the bollard pull measured during the test and is that obtained by the tug with:

- its main propulsion engine(s) generating the ~~maximum continuous power (~~classification power~~);~~
- its propulsion motors - to be considered only when supported by the main source of electrical power - generating the rated power; and ~~with~~
- the pitch of the propeller(s) set in the angular position where the maximum thrust is developed (for controlled pitch propellers).

This value is the mathematical average of five values. Each one of these values is to be calculated as the mathematical average of the readings measured in a period of at least five minutes during which the pull of the tug and the pull direction are kept almost constant.

3.2 Maximum Bollard Pull (MBP)

Maximum Bollard Pull is the mathematical average of the maximum values that are recorded during the above-mentioned periods of at least 5 minutes taken into consideration for the determination of the Bollard Pull (BP).

When the propulsion machinery allows the use of a power higher than the Maximum continuous power (e.g. Battery Powered Hybrid propulsion ships), the maximum bollard pull is calculated as above but using maximum values recorded during tests with:

- its main propulsion engine(s) generating the classification power;
- its propulsion motors generating the rated power; and
- the pitch of the propeller(s) set in the angular position where the maximum thrust is developed (for controlled pitch propellers).

4 DOCUMENTATION TO BE SENT

In order for the test to be carried out, the Interested Parties are to send Tasneef the following drawings, details and information:

a) trial site (place where it is intended to execute the test)
b) detailed plan of the layout of the trial site
c) details of the measuring equipment to be used during the test
d) recording procedure for the values measured (data)
e) main dimensions and characteristics of the tug submitted to the test
f) block coefficient of the tug at the draft corresponding to the full load condition
g) draft corresponding to the full load condition (maximum draft)
h) draft and trim of the tug at the loading condition expected for the test
i) type of the main propulsion engine(s) and motors
j) maximum continuous power (power on the basis of which classification of the tug has been requested) and corresponding revolutions per minute (RPM) of the main propulsion engine(s) and motors
k) reduction ratio of the reduction gear(s)

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5 CHARACTERISTICS OF THE TRIAL SITE AND VESSEL REQUIREMENTS

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5.2 Vessel requirements

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5.2.2 All machinery and deck equipment used during the test is to be in good working condition.

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5.2.4 The engine(s) and motors shall be kept at the maximum continuous power stated by the engine/motor Manufacturer, on the basis of which the classification of the tug has been requested, throughout the bollard pull test.
All auxiliary machinery components, such as pumps, auxiliary generators, etc., driven by the main propulsion engine(s) or by the shafting line(s) during normal service are to be kept in operation throughout the trial.

5.2.5 If the Interested Parties request the execution of a test with the main propulsion engine(s) kept in overload condition, the trial is to be carried out with the engine(s) generating the overload power which, according to the engine Manufacturer's specifications, can be maintained for one hour.
If the Interested Parties request the classification of bollard pull in a Hybrid mode, the trial is to be carried out with the engine(s) generating the classification power and the motors developing the rated power.

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7 TEST PROCEDURE

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7.5 During each period of not less than 5 (five) minutes as per 7.3, the values of the power generated by the main propulsion machinery ~~engine(s)~~ and the relevant revolutions per minutes (RPM) shall be measured.

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8 TEST REPORT AND ISSUE OF THE BOLLARD PULL STATEMENT

8.1 Test Report

Upon completion of the bollard pull test, the Tasneef Surveyor will prepare a Test Report containing the following information:

a) Characteristics of the tug submitted to the test and in particular:
   1) name of the tug
   2) name of the Owner of the tug
   3) shipyard that built the tug, hull number and Tasneef number
   4) gross and net tonnage
   5) length overall, breadth, moulded depth and draft

b) Characteristics of the main propulsion engine(s):
   1) maker, type, model, number of the main propulsion engine(s) and motors
   2) maximum continuous power of main engine(s) and associated revolutions per minute (RPM) (power for which the classification has been requested)
   3) rated power of propulsion motors
   ~~3~~ 4) reduction ratio of the reduction gear(s)
   ~~4~~ 5) list of machinery components driven by the main propulsion engine(s) or by the shafting line(s), if any, and associated absorbed power
   ~~5~~ 6) maker, type and number of the propellers (solid blades or controllable pitch) and their characteristics (blade number, diameter, pitch and, in the case of controllable pitch propellers, the pitch, or angular position, where the maximum thrust is generated).
   7) the type and capacity of the batteries, in case of battery powered hybrid propulsion.
   Note: The information required in item b) is to be provided according to the type of propulsion (e.g. Shottel type, Voith type, etc.).

c) General information relevant to the test, and in particular:
   1) date and place of the test
   2) depth of the sea at the trial site
   3) distance between the towing hook of the tug and the jetty or pier
   4) height from sea level to the bollard used to hold the towline ashore
   5) height from sea level to the holding point of the towline on the tug (towing hook)
   6) velocity and direction of the sea current
   7) speed and direction of the wind
   8) sea state (wave height).

d) Information relevant to the tug set-up at the trial, and in particular:
   1) fore and aft draft
   2) average draft
   3) trim of the tug

4) displacement
5) start and finish time of the test
6) draft of the ends of the propeller blades, expressed as a percentage of the propeller blade diameter
7) correlation between the measured pull values and the operational data of the main propulsion machinery ~~engine(s)~~; see 5.2.5 and 7.5.

e) Characteristics of the measuring instruments used during the test, and in particular:
1) maker and type of the measuring instrument(s)
2) date of last calibration and details of the relevant calibration certificate.

f) Characteristics of the towline used during the test, and in particular:
1) length of the towline (free length and length between the towing hook and the pier bollard)
2) minimum breaking load.

8.2 Bollard Pull Statement

On the basis of the Testing Report, as per 8.1, Tasneef will issue a Bollard Pull Statement containing the following information:
- date and place of the test
- details of the tug
- details of the main propulsion ~~engine(s)~~machinery
- trial site details
- measured BP (see 3.1), value of the corresponding average power generated by the main engine(s) during the test (see 7.5) and MBP (see 3.2).

The Bollard Pull Statement will include any notes relevant to the specific test conditions (see, for example, 7.6) as well as the results of any particular tests required by the Interested Parties, such as bollard pull tests using main propulsion engine(s) in overload condition or the bollard pull and expected battery duration using a battery powered hybrid propulsion (see 5.2.5).

The Bollard Pull Statement is to be kept on board together with the ship documents.

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