Mooring line base design certificate

This form demonstrates that the product has been manufactured, tested and documented following the guidelines in appendix B of the *Mooring Equipment Guidelines, Fourth Edition*. The base design performance indicators should be reviewed with reference to the *Guidance on performance indicator interpretation* table below.

Certification does not indicate approval or certification by OCIMF.

General information

Issue date:
Expiry date:
Line manufacturer:
Independent inspection agency:
Line design designation (product name):
Material type and grade:
Line construction:
Jacketed? ☐ Yes ☐ No
Design range:

Base design performance indicators

Performance Indicators	Smallest Diameter		Largest Diameter	
Diameter	**Design:**	**Measured:**	**Design:**	**Measured:**
Line Design Break Force (LDBF)				
Line Linear Density (LLD)				
Load Bearing Linear Density (LBLD)				
Line Tenacity (LT)				

	D/d Ratio: 5	D/d Ratio: 10
Angled Break Force* (ABF) % Avg NSBF		
Angled Endurance* (AE) % Avg NSBF		

	-20°C	0°C	20°C	40°C	60°C	80°C
Temperature (T) % BF at 20°C**						

Axial Compression Resistance* (ACR)	**% Avg NSBF**

	% LDBF: 10	% LDBF: 20	% LDBF: 30	% LDBF: 40	% LDBF: 50
Average Immediate Strain* (e)					

Splice type	
Maximum Line Tenacity	

**Performance indicators are tested on diameter mooring line*

*** Temperature indicator performed at yarn level*

Name and address of manufacturing facility:

Independent inspector: **Completion date:**

Address of independent inspector:

Base design testing information

Name and address of test facility:

Address of independent inspector:

Completion date:

Independent inspector:

Date of issue:

Base design sample and product documentation reviewed

Independent inspector:

Base design sample manufacturing report: ☐

Base design sample manufacturing ITP: ☐

Base design sample test report: ☐

Material test report: ☐

Design specification: ☐

Date of review:

Manufacturer's discard and inspection criteria: ☐

Splicing instructions: ☐

Jacketed line internal inspection report: ☐

Procedures for testing and inspection of retired mooring lines: ☐

Equivalent documents from other type approval programmes (list)

STAMP OF INDEPENDENT INSPECTOR

Guidance on performance indicator interpretation for mooring lines

Name	Indicator	Unit of Measurement	Description	Guidance to the Line Selector
Line Design Break Force New Straight Break Force	LDBF NSBF	t kN lb	The tensile force that can be sustained by a product sample without rupture when tested with terminations and in laboratory conditions. LDBF is a rating assigned by the manufacturer, NSBF is the result of an individual test.	Tested NSBF values must be greater than the LDBF. The LDBF will normally be between 100% and 105% of the ship design MBL. A greater LDBF or NSBF for a given diameter or LLD does not necessarily indicate a superior product. For line designs of the same material and size, NSBF should be compared using both LT and LDBF but need not be identical. The force at which a line breaks in service may be lower than the NSBF, due to the influence of geometry (D/d), temperature, loading rates and amplitudes, and line wear over time.
Line Linear Density Load Bearing Linear Density	LLD LBLD	kg/m lb/ft	The linear mass of the line (LLD) or the load bearing structure (LBLD) measured at reference tension.	A higher LBLD results in reduced material stress for a fixed LDBF. Linear density includes the mass of any coatings applied directly to the load bearing structure as well as the linear mass of the material itself. LBLD is only comparable when the load bearing material is of the same type. For jacketed lines, LLD is greater than LBLD and includes material mass of jackets which is non-load bearing.
Line Tenacity	LT	t/kg/m lb/lb/ft	Material stress at break.	LT represents material stress at the LDBF. For a given line size and material type, a line of lower LT offers increased resistance to the majority of fatigue and wear modes. LT of lines of different materials should not be compared. The maximum tenacity is defined as the tenacity of the smallest size tested.
Angled Break Force	ABF	% NSBF (average)	The tensile force that can be sustained by a new line when bent around a pin and tested in laboratory conditions.	ABF indicates the instantaneous loss of break force caused by a line passing around mooring hardware. For comparative purposes, a standardised wrap angle of 180 degrees and D/d ratios of five and ten are used. However, a variety of geometries are found on ships and where the D/d is lower, or wrap angle greater than that tested, the user should confirm the performance of the line with the manufacturer. The effect on line life of lines passing over mooring equipment is not assessed by ABF.

Name	Indicator	Unit of Measurement	Description	Guidance to the Line Selector
Angled Endurance	AE	% NSBF (average)	A line's resistance to angled tension-tension fatigue.	AE indicates the reduction in NSBF after 17,000 tension cycles to the line WLL for a section of line passing around equipment of the stated D/d. For comparative purposes, a standardised wrap angle of 180 degrees and D/d ratios of five and ten are used. AE is relevant to the points where mooring lines contact mooring equipment. AE resistance is influenced by line design, material choice, coating choice, average load, load range, load rate, ambient temperature, past exposure to both tension-tension and AE degradation modes and ship geometry. The interpolation or extrapolation of AE values to determine a discard point is not recommended.
Temperature	T	% material break force at 20°C	The ratio of material break force at ambient conditions (20°C) to material break force at varied temperature.	T indicates the break force of the material when tested at the stated temperature. Both a line's instantaneous and long-term performance may be affected by extreme temperatures and the line temperature may be higher or lower than ambient temperature due to cooling, heat transfer and heat generation while working.
Axial Compression Resistance	ACR	% NSBF (average) (Inspection report)	Line structure's resistance to compression fatigue.	ACR represents the ability of the line to withstand compressive forces generated by low mean load cyclic loading. Jacketed lines are at higher risk from the effects of this load response, due to the restrictive nature of the jacket and the difficulty of in service inspections. Users of jacketed lines should verify the long-term influence of compression fatigue through staged retirement and inspection and testing of retired lines.
Average Immediate Strain	e	% elongation at stated % of LDBF	The percentage elongation of the mooring line when exposed to a stated percentage of LDBF.	Elongation is affected by material content, material type and line structure. The elongation of the mooring line will act in combination with the elongation of the mooring tail to control peak and mean tensions in the mooring system. Users should ensure that the elongation of the mooring line matches the elongation properties used in any mooring analysis.