PrimeShip
Total Ship Care

TORRES

Shaft Torsional Vibration Analysis Service

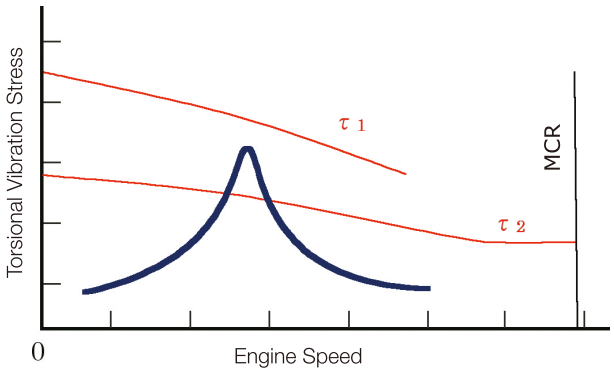
Key Features

- **Shaft torsional vibration analysis service using the new TORRES (TORsional vibration RESponese analysis) calculation program**
- **Analysis based on both NK Rules and IACS UR M68**

Evaluation of torsional vibration is essential for shafting system design. This is especially true for diesel engine driven shafting systems, as diesel engines generate exciting torque due to the internal combustion in each cylinder. ClassNK's PrimeShip-TORRES is a service for carrying out torsional vibration analysis and evaluation.

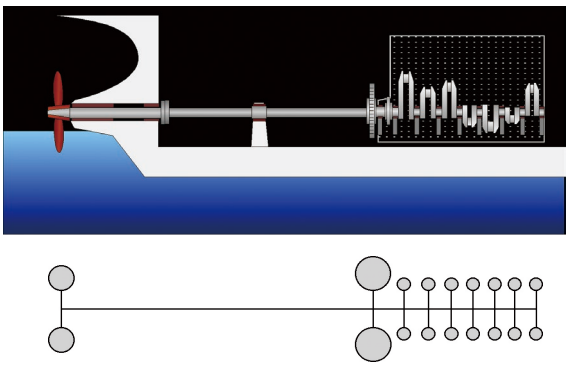
Evaluation criterion

PrimeShip-TORRES is an analysis and evaluation service developed based on the wealth of knowledge contained in the ClassNK rules. PrimeShip-TORRES can be used to evaluate torsional vibration both at the design stage and during shafting system modification,
e.g. replacement of the propeller etc. This service is a vital tool for preventing damage caused by torsional vibration.



Evaluation of essential items relevant to torsional vibration

Evaluations are provided for all essential items related to torsional vibration, including torsional vibration stress, barred speed range and gear chattering, among other items.



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Rule based evaluation criteria

All evaluations are carried out in accordance with Chapter 8, Part D of the ClassNK Rules and Guidance, as well as IACS UR M68.

Comprehensive analysis reports

After the evaluations are completed, comprehensive analysis reports will be provided. Reports include diagrams of the torsional vibration stress and the engine speeds at which torsional vibration stress is generated, are diagrammatically as well as information on allowable stresses.

TORSIONAL VIBRATION

NK COMPUTER SERVICE 1/1

CONDITION of CALCULATION : Case 2 Disengaged condition

MASS No.	MASS NAME
1	VIB. DAMPER
2	FLANGE
3	FLANGE
4	#1 CRANKTHROW
5	#2 CRANKTHROW
6	#3 CRANKTHROW
7	#4 CRANKTHROW
8	#5 CRANKTHROW
9	#6 CRANKTHROW
10	#7 CRANKTHROW
11	#8 CRANKTHROW
12	FLYWHEEL
13	FLEX. COUPLING
14	FLEX. COUPLING
15	FLEX. COUPLING
16	FLANGE
17	GEAR
18	GEAR

1ST MODE	F(1) = 1084.98 [C.P.M.]		2ND MODE	F(2) = 2815.46 [C.P.M.]		3RD MODE	F(3) = 3701.59 [C.P.M.]	
ORDER	STRESS [N/mm²]	SHAFT	ORDER	STRESS [N/mm²]	SHAFT	ORDER	STRESS [N/mm²]	SHAFT
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
4TH MODE	F(4) = 4390.1 [C.P.M.]		5TH MODE	F(5) = 8617.31 [C.P.M.]		6TH MODE	F(6) = 17010.6 [C.P.M.]	
ORDER	STRESS [N/mm²]	SHAFT	ORDER	STRESS [N/mm²]	SHAFT	ORDER	STRESS [N/mm²]	SHAFT
4.0	15.36	CRANK	4.0	6.31	CRANK	7.0	1.09	CRNK
3.0	6.03	CRANK	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

: 4 Node
: 5 Node
: 6 Node

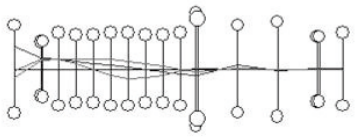
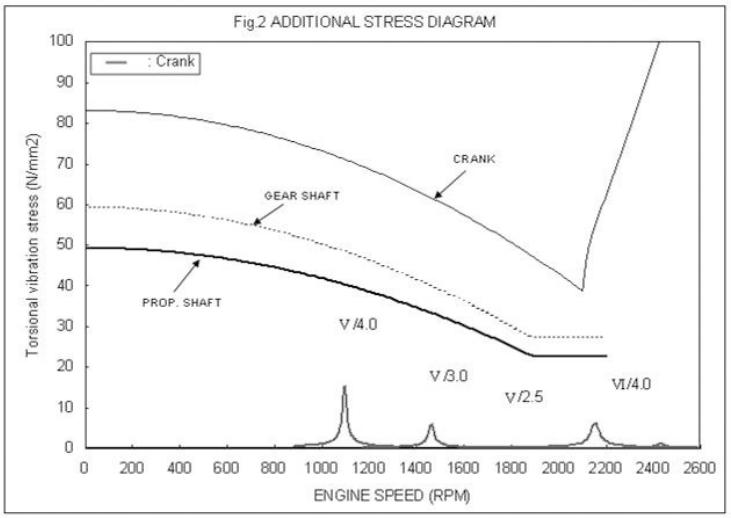


Fig.1 NOMAL ELASTIC CURVE



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