



CHINA CLASSIFICATION SOCIETY

Rule Change Notice For:
RULES FOR CLASSIFICATION OF
MOBILE OFFSHORE UNITS

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PART ONE PROVISIONS OF CLASSIFICATION

CHAPTER 2 SCOPE AND CONDITIONS OF CLASSIFICATION

Section 3 CHARACTERS OF CLASSIFICATION AND CLASS NOTATIONS

Class Notations

Table 2.3.2.5

Class notation	Description	Technical requirements to be complied with	
C Special systems and facilities notation			
PM	Position mooring system	Column stabilized units or surface type Mobile offshore units provided with positional mooring system are to be added this notation	Chapter 8, PART EIGHT of the Rules
PM-TA	Thruster assisted position mooring system	Column stabilized units or surface type Mobile offshore units provided with thruster assisted positional mooring system are to be added this notation	Chapter 8, PART EIGHT of the Rules

CHAPTER 5 SURVEYS AFTER CONSTRUCTION

Section 8 SURVEYS OF PROPELLER SHAFTS AND STERN TUBE SHAFTS

5.8.1 General requirements

5.8.1.1 Propeller shafts or stern tube shafts are to be surveyed in accordance with relevant provisions of Chapter 5, PART ONE of CCS Rules for Classification of Sea-Going Steel Ships. Due to low running hours of [propeller shaft](#) for units compared with conventional ships, intervals between [propeller shaft](#) surveys may be extended as appropriate to the satisfaction of the Surveyor and based on:

- (1) diver's external examination of outboard sealed areas including subsidence check as far as possible;
- (2) internal examination of the stern shaft area (inboard seals) in engine room(s);
- (3) confirmation of satisfactory lubricating oil records (oil loss rate, contamination);
- (4) shaft seal elements are examined/replaced in accordance with seal manufacturer's recommendations.

PART EIGHT MULTI-PURPOSE OFFSHORE UNITS AND SPECIAL SYSTEMS AND INSTALLATIONS

CHAPTER 3 CRANE/INSTALLATION AND MAINTENANCE UNITS

Section 3 STABILITY

3.3.1 General requirements

3.3.1.1 In addition to the applicable requirements in PART THREE of the Rules, the stability, subdivision and load lines of crane/installation and maintenance units are to comply with the requirements in this Chapter. For the non-column stabilized crane/installation and maintenance units with floating lifting function and operating in China sea area, they also need to meet the requirements of chapter 7, part 4 of the Domestic Maritime Ship Statutory Inspection Rules of Maritime Safety Administration of the People's Republic of China about the special stability requirements of lifting vessels during lifting operation.

3.3.1.2 Stability in different modes of operation is to be checked for crane/installation and maintenance units, including the stability in lifting operations.

3.3.1.3 The following documents are to be included in the operation manual:

- (1) The maximum overturning moment and corresponding counter ballast moment (if counter ballast system is provided) under each direction of boom. The counter ballast moment is to be related with the height of centre of gravity of the unit;
- (2) Loading conditions in all modes of lifting operations and the maximum permissible lifting loads;
- (3) Righting moment curves before and after load drop in each loading condition, as applicable;
- (4) Crane operation and/or ambient conditions restriction, including but not limited to the maximum design limit wind speed, wave height, and the maximum permissible angle of heel of the crane, if provided;
- (5) Operating instructions of the crane, including the operating instructions of counter ballast system (if counter ballast system is provided);
- (6) Instructions of righting of the unit after incidental load drop, including ballast and/or deballast procedures.

3.3.2 Floating stability of lifting operations

3.3.2.1 The requirements of this paragraph ~~only~~ apply to the column stabilized and other type crane/installation and maintenance units.

3.3.2.2 Intact stability and damage stability of the unit are to be checked for all loading conditions of lifting operations and to comply with the requirements in this paragraph.

3.3.2.3 Overturning moment of lifting weights (including overturning moment of the boom), wind heeling moment at the maximum design wind velocity for lifting operation and possible overturning moment of asymmetric loads are to be calculated for the full range of draughts corresponding to afloat modes of lifting operation, taking into account direction, range and elevation of boom as well as the full scope of lifting weights to find out the most unfavorable combination and the maximum deck cargo and equipment in the most unfavorable position as applicable. In general, the design wind speed for a lifting operation shall not be less than 25.8 m / s unless a lower maximum design limit wind speed for the operation of the floating lifting is defined in the operating manual or similar design data.

3.3.2.4 The wind force calculation of the lifting weights can be carried out according to the relevant requirements in Section 2, Part 2 of the Rules. The centre of the areas subject to wind loading of lifting weights is to be assumed as the suspending point of the lift hook. The area subject to wind loading named as A_f ,

could be calculated by the following formula when inconvenient to be finely estimated:

$$A_f = 2.78W^{0.556} \quad \text{m}^2$$

Where: W — weight of lifting, in t.

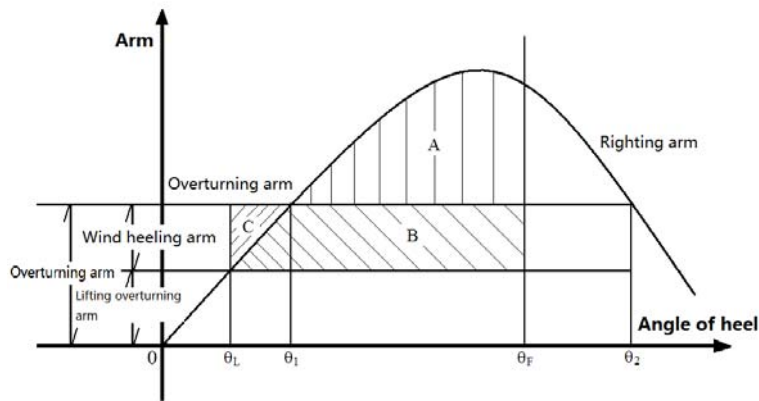
3.3.2.5 In the calculation of righting arm, in addition to the influence of the free surface of liquids in tanks being considered, the centre of gravity of lifting weights is to be assumed as the suspending point of the lift hook.

3.3.2.6 When the wind is applied under the most unfavorable direction, the intact stability of crane/installation and maintenance units in each loading condition of lifting operation is to meet the following criteria (Fig. 3.3.2.6), wherein the lifting overturning arm takes both lifting load and the asymmetric ballast into account, if any.

(1) The angle of heel corresponding to the first intercept of the overturning arm curve and righting arm curve is to be smaller than the submergence angle on the edge of the deck of the maximum permissible angle of heel for crane operations, whichever is the less.

(2) For column stabilized units, when wind is applied under the most unfavorable direction, the area under the righting arm curve from the angle of static equilibrium to the second intercept or angle of flooding, whichever is the less, is not to be less than 30% in excess of the area under the wind heeling arm curve to the same limiting angle, which is $(A+B) \geq 1.3(B+C)$ (Fig. 3.3.2.6).

(3) For other type units, the area between the righting arm curve and the lifting overturning arm curve from the first intercept of the overturning arm curve and the righting arm curve to the minimum of the second intercept, down flooding angle, and 40 degrees should not be less than 0.08 rad•m. And the area under the righting arm curve from the angle of static equilibrium to the second intercept or angle of flooding, whichever is the less, is not to be less than 40% in excess of the area under the wind heeling arm curve to the same limiting angle, which is $(A+B) \geq 1.4(B+C)$.



$$A+B \geq 1.3(B+C)$$

Fig. 3.3.2.6

θ_L — angle of static equilibrium, i.e. the angle of heel corresponding to the first intercept of the lifting overturning arm curve (including overturning arm of asymmetric loads) and the righting arm curve,

θ_F — angle of flooding,

θ_I — angle of heel corresponding to the first intercept of the overturning arm curve and righting arm curve,

θ_2 —angle of heel corresponding to the second intercept of the overturning arm curve and righting arm curve.

3.3.2.7 The damage stability of column stabilized crane/installation and maintenance units in lifting operation condition is to comply with the applicable provisions for ~~column-stabilized~~ units in PART THREE of the Rules. However, the wind heeling moment applied simultaneously with the overturning moment of the crane could be determined in accordance with the limited wind velocity for lifting operation stipulated in the operation manual.

3.3.2.8 If the crane/installation and maintenance unit is provided with counter ballast system, the influence of accident load drop on the intact stability in each loading and operating conditions is to be investigated and to comply with the following criteria:

- (1) The following requirements apply to the condition that the column stabilized crane/installation and maintenance unit is operating in favorable weather conditions, i.e. the influence of wind may not be taken into consideration;
- (2) The angle of static equilibrium θ_E before the loss of lifting weights (angle of heel corresponding to the first intercept of the lifting overturning arm curve and the righting arm curve before the loss of lifting weights) is to be smaller than the submergence angle on the edge of the deck in each loading condition;
- (3) The angle of static equilibrium θ_L after the loss of lifting weights (angle of heel corresponding to the first intercept of the righting arm curve after the loss of lifting weights and the overturning arm curve induced by counter ballast at the displacement without lifting weights) is not to exceed 15° ;
- (4) The residual area between the angle of the first intercept and the angle of flooding, or the second intercept or 30° , whichever is the least (area of A_1 in Fig. 3.3.2.8) is not to be less than 1.3 times of A_2 in Fig. 3.3.2.8, which is $A_1 \geq 1.3A_2$.

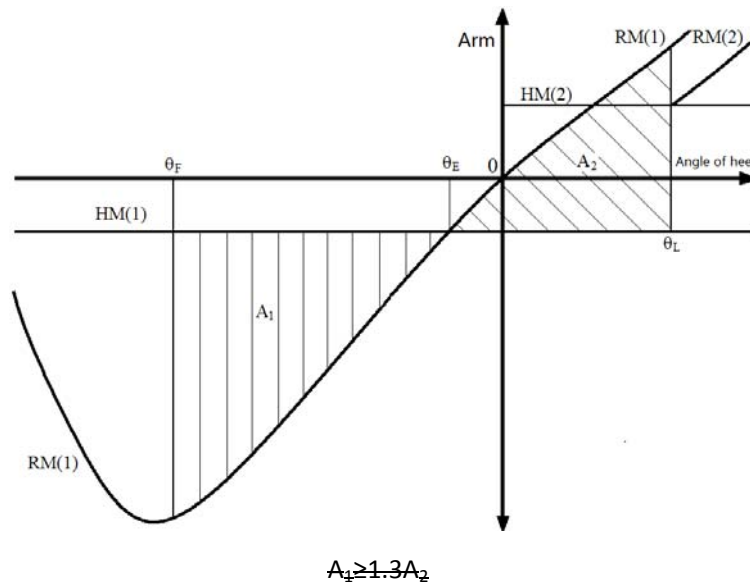


Fig. 3.3.2.8

RM(1)—the righting arm curve at displacement without lifting weights;

RM(2)—the righting arm curve at displacement with lifting weights;

HM(1)—the overturning arm introduced by counter ballast at displacement with lifting weights;

HM(2)—the overturning arm induced by forces combined of lifting weights and counter ballast at displacement with lifting weights;

θ_F —the angle of flooding, angle of heel corresponding to the second intercept or 30° , whichever is the least;

θ_L —angle of static equilibrium applied with the combination of lifting weights and counter ballast;

θ_E —angle of static equilibrium induced by counter ballast after the loss of lifting weights.

3.3.3 On-bottom stability of lifting operation

3.3.3.1 The anti-overturning stability of ~~self-elevating~~ crane/installation and maintenance units under standing and lifting operation condition is to comply with the requirements in 2.5.1 of PART THREE of the Rules. The overturning moment includes that of lifting, wind heeling moment at the maximum design wind velocity for lifting operation and possible overturning moment of asymmetric loads.

3.3.4 Deck cargo

3.3.4.1 The influence of deck cargo on the stability is to be considered for each operating condition, and analysis is to be carried out for all the possible deck cargo loads from zero to the maximum.

3.3.4.2 The free surface is to be corrected accordingly where the deck cargo intended to carry may accumulate water, such as open cargo bins or open pipes. And full considerations to the adverse effects to stability caused by the change of weight center of gravity of the unit are to be given.

3.3.4.3 It is to take into account the maximum deck cargo and equipment on the most unfavorable position as applicable in the stability calculation.

CHAPTER 8 POSITION MOORING SYSTEM

Section 1 GENERAL PROVISIONS

8.1.1 General requirements

8.1.1.1 This Chapter applies to position mooring systems normally fitted on ~~bottom stabilized or surface type~~ mobile offshore units with class notations as required in 8.1.2 of this Section, which only involve the ~~radiation type catenary position~~ spread mooring systems or thruster assisted position mooring systems.

8.1.2 Class notations

PM or PM-TA: to be assigned to the ~~drilling~~ mobile offshore units in compliance with the relevant provisions of this Chapter.