

TECHNICAL SPECIFICATIONS OF HELO TRAVERSING SYSTEM

1. **Description and Functioning of the System.** The general requirements of the Hello Traversing System are as follows: -
 - (a) Picking up the helicopter, landed and locked with fixed harpoon, at any position on the landing grid, in any case of straight, oblique, diagonal and across landing, and transferring to the hangar.
 - (b) Return from its position in hangar to the landing grid whenever necessary.
 - (c) The Helicopter Traversing System should work on the principle of steel wire ropes being attached to the helicopter's strong points from widely displaced points, creating a secure web with the helicopter at the centre. The traversing system shall utilize one winch wire connected to the hangar winch and two winch wires, each on port and starboard towards the aft of the ship to create a secure web.
 - (d) The helicopter should be smoothly manoeuvred in a safe and controlled manner between the flight deck and the hangar and vice versa. The helicopter should not be subjected to shock loads during the maneuvering.
 - (e) The design should take into account economical loading of system during calm sea conditions, avoiding overloading of system by providing minimum back tension.
 - (f) The handling of Hello by use of this system at sea should not require more than 02 personnel.
 - (g) The changeover of the system at sea from nose wheel configuration to tail wheel configuration should not exceed 20 minutes with not more than 02 persons.
 - (h) The wires that are used to haul the helicopter should remain under controlled tension throughout the traversing operation and provide security and safety against the helicopter sliding, topping or swerving.
 - (j) The helicopter traversing system should be attached to existing strong points on the helicopter after the aircraft has landed. When ready, the aircraft should be brought securely into the hangar under the primary control of the operator located at the Control console.
 - (k) The location of the control console should be such that the helicopter traversing operation is clearly visible without obstructing the operation.
 - (l) The controlling and monitoring equipment provided shall monitor and provide the correct tension in the traversing wires.

(m) In addition to the winch wires that traverse the helicopter, the system shall be fitted with restraining winches on port and starboard to control the helicopter by restraining wires using reverse tension.

2. **Operating Condition.** The system shall be capable of performing satisfactorily under following operating conditions:-

- (a) Helicopter Weight -As specified
- (b) Sea conditions- -Upto Sea State 5.
- (c) Operating Limits -The system shall be capable of moving the helicopter under following condition:-
 - (i) Rolling Max± 20°
 - (ii) Pitching ± 5°
 - (iii) Yaw Athwart Ship ± 10°
 - (iv) Wind Speed 40 Knots.
 - (v) Maximum Heave ±2 Mts

(d) Operating Limits without Traverse: The System shall be capable of holding the helicopter securely and under following conditions:-

- (i) Rolling Max± 30°
- (ii) Pitching ±8°
- (iii) yaw Athwart ship ± 10°
- (vi) Wind Speed 60 Knots.
- (vii) Maximum Heave ±2 Mts
- (viii) Maximum Vertical Acceleration 0.25g
- (ix) Maximum Horizontal Acceleration 0.25g

(e) Speed of Traversing. The system shall be capable of performing satisfactorily with a variable traversing speed of 0 to 0.3 Metres/sec.

(f) Usable Grid Area. The system shall be capable of picking up helicopter satisfactorily from any position on the landing grid, in both normal and across landing scenario

3. **System Components.** The Helo Traversing System mainly consists of following components: -

(a) Controls. The system control should be provided by a programmable logic controller housed in a single location. The system shall be provided with an override controls to allow the safety officers or flight deck officer to control operations from remote.

(b) Hangar Winch Assembly. It comprises of Hydraulically powered winch & dedicated Hydraulic Pump & positioned at each Hangar.

(c) Deck Winch Assembly. The deck winch assembly is located at the aft of flight deck, it consists of Hydraulic Winch & Hydraulic Power.

(d) Spooling Unit. Facility is to be provided to ensure proper spooling of wire. The SS drum machined with lebus groove shall be provided to ensure uniform winding in several layers.

(e) Through Deck Sheaves. Aft through deck sheaves should be provided & mounted as necessary to accept the wire from each winch & reel.

(f) Snatch Block & Naval Pad Eye. The Snatch block should be mounted as necessary to the deck via Naval pad eye.

(g) Deflector Roller. The deflector rollers are to be mounted to ensure that the wire ropes are clear of Hangar doors.

4. Safety. The helicopter traversing system shall have multiple levels of redundancy allowing for continuous operation in the event of individual or substantial system change.