CAP HORN

RÉGULATEUR D'ALLURE

How to measure

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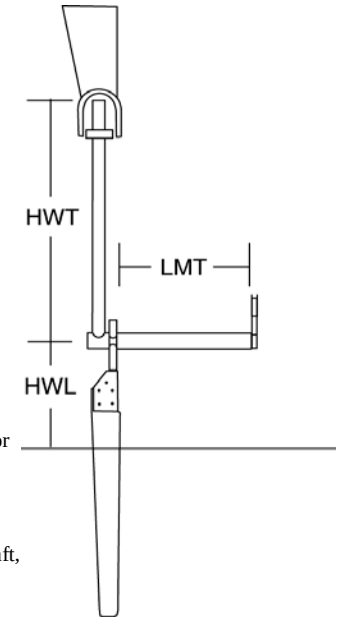

To build a **CapeHorn** to the ideal dimensions for a given boat, we need four dimensions:

Length of Mounting Tube (**LMT**)
Height of Windvane Tower **(HWT**)
Height of horizontal axle above WaterLine (**HWL**)
Average height and width of boat's rudder

LMT

Before measuring LMT, exact location of CapeHorn control arm (or quadrant) inside lazarettte needs to be determined.

To connect the control lines to the boat's steering gear at the forward end of the horizontal axle, you have a choice between a control arm or a quadrant; when the first pair of blocks is near the level of the top (or bottom) of the control arm, this option is preferable, as you do not need to line up the first pair of blocks so precisely. If the first pair of blocks is some distance above or below the top (or bottom), you will prefer a quadrant; but the blocks will need to be more precisely positioned so that the lines fall into the groove of the quadrant.

The control arm or quadrant can be mounted either above or below the axle, whichever is more convenient; however, if it is above, the lines are led directly to blocks on the boat's steering quadrant when it is forward of the rudder post. If it is pointing aft, lines need to be crossed. Conversely, control arm below, lines direct to steering quadrant when pointing aft or crossed when pointing forward.

Control arm (or quadrant) radius is : - **Spray** : 11", – 280 mm, (1,25" - 32 mm thick)
- **JdS** : 8,25", – 210 mm, (1" - 25 mm thick).

Arm (or quadrant) needs to be allowed to pivot through 360 degrees.
Cutting a cardboard disk - dia. 22,5"- 560 mm for Spr, - 16,5" - 420 mm for JdS
makes it easier to materialize the space needed for the arm or quadrant. In locating it, you need to take into consideration the lead of the control lines and the location of the first pair of turning blocks, which need to be in line with the groove if you use a quadrant.

Once the location of the CapeHorn arm or quadrant is determined with precision, you can start measuring, using a plumb bob. Since one end of the mounting tube is inside and the other end outside, you will need a baseline which is accessible both from the inside and outside by dropping your plumb bob through an opening in the deck (the hole for the emergency tiller is often convenient).

1: Measure inside (horizontally and parallel to the fore and aft line) from the aft face of the arm or quadrant to the baseline (plumb bob)

2: Measure outside from the aftermost point of the hull (or its appendages) to the plumb bob.

3: The sum - or difference if the baseline is located forward of the arm or quadrant - between those two dimensions is your LMT. Measure again, to make sure.

HWT

Ideally, the windvane tower should be **tall enough** to allow the **vane to receive an undisturbed wind**. If the boat has a dodger or a bimini, the tower can reach that level. Measure vertically from the **level of the horizontal axle** to where you want the **base of the vane** to be. (The light air vane itself extends 24 inches – 610 mm above the top of the tower, and the heavy weather vane, 17" – 432 mm for all models).

Ketch or Yawl

On a ketch or yawl with mizzen boom extending much past the rail, the tower is measured short enough to allow the vane to work under the boom. However, if this does not allow the vane to receive a clear wind, all is not lost. The tower is made tall enough to clear the rail; the consequences in that case is that when you tack or jibe, the mizzen boom will tilt the vane out of its way, and the wind and counterweights will bring it back up. Of course, performance when hard on the wind with the mizzen sheeted flat will be affected, as the mizzen may deflect the wind received by the vane. But as soon as the sheets are eased and the wind moves towards the beam, this problem disappears. (Hard on the wind, most ketches or yawls steer themselves anyway or do not use their mizzen.) Alternately, the horizontal axle can be made longer to allow the vane to clear the end of the boom; the only consequence is to make the boat longer and the vane harder to reach.

HWL

Measure from the level of the horizontal axle down to the waterline. This dimension, combined with the average height and width of the boat's rudder, allows to make a servo-pendulum proportional to the boat's rudder area so that it provides adequate power to steer each boat.