

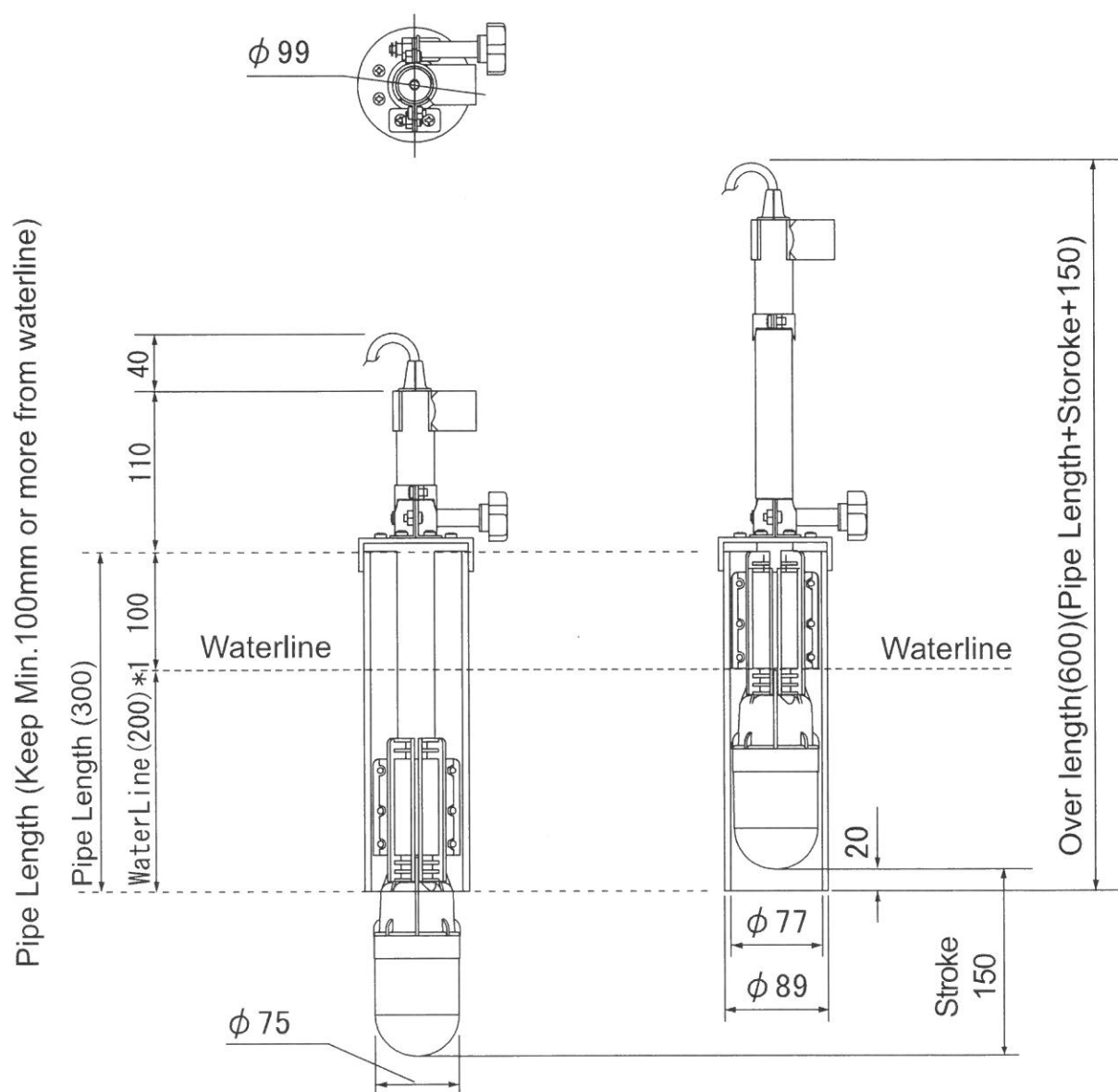
## HULL UNIT DIMENSION

※Please refer to operation manual supplied with auto hull unit for auto hull unit.

Unit : mm

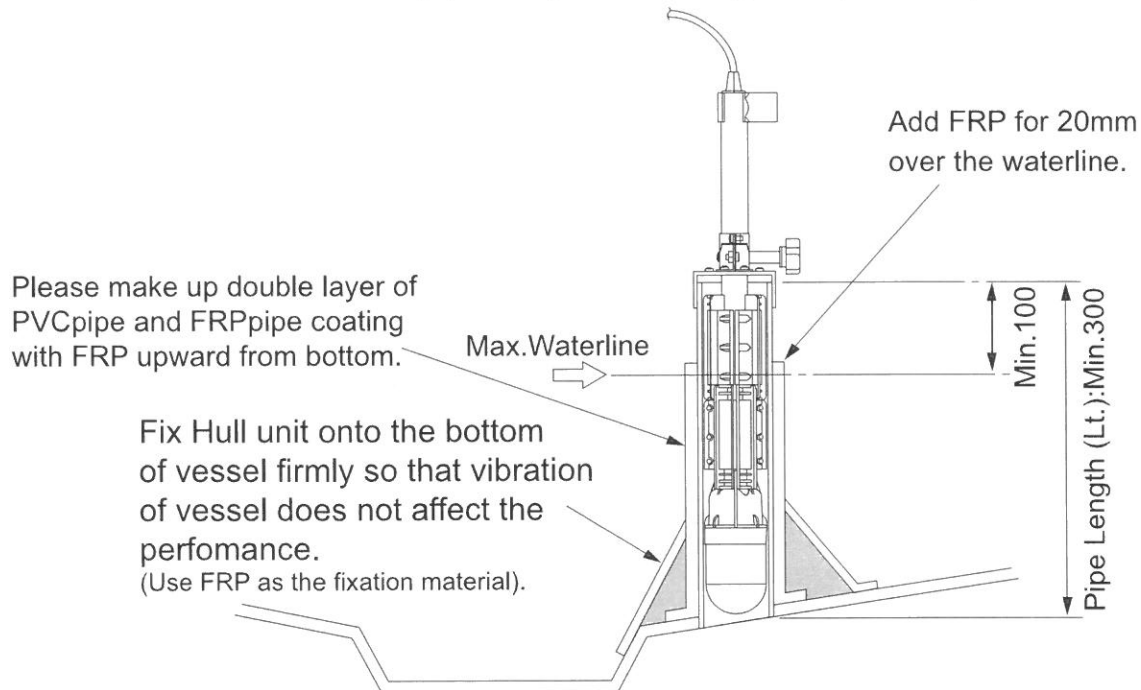
Case of minimum-size drawing when the waterline is 200mm.

\*1:Keep the pipe length of 300mm or more even if waterline is below 250mm.

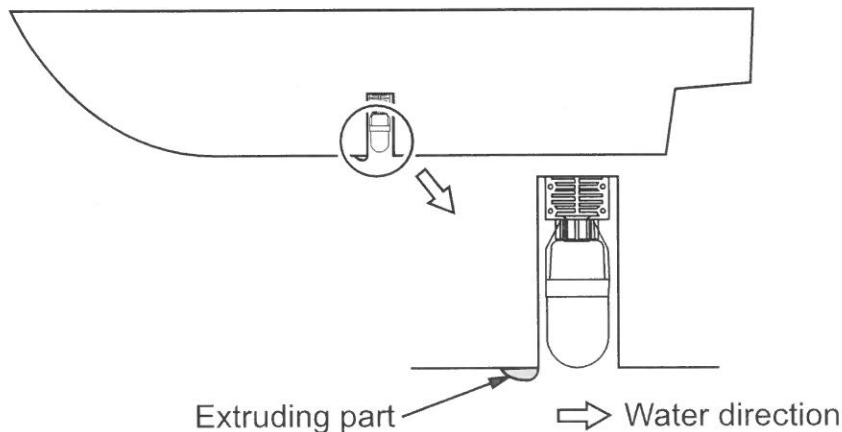


## 2. Hull Unit

Please make sure to choose the proper location of hull unit to be installed. The important points to be concerned are safety (intensity and water tightness) and easy maintenance.



Add an extruding part of approx. 5mm with FRP for the purpose of reducing the water pressure inside the pipe while sailing.



Pipe Length : Lt

The installation method defines the pipe length accordingly. Cut off the unnecessary parts. Also, take a note for the pipe length as the reference figure of adjusting upper/lower shafts.

Be sure to keep the room for the hull unit.

**Pipe Length: Lt : Min.300mm (Stroke: 150mm)**

(Full-loaded water line + Min.100mm at least)

※Min.300mm pipe length is required even when waterline is 200mm or less.

**Remaining Length Yt: Min.70mm**

**Shaft Length: Pipe Length (Lt) + Stroke + Remaining Length (Yt) – 130mm**

## HULL UNIT INSTALLATION

※Please refer to operation manual supplied with auto hull unit for auto hull unit.

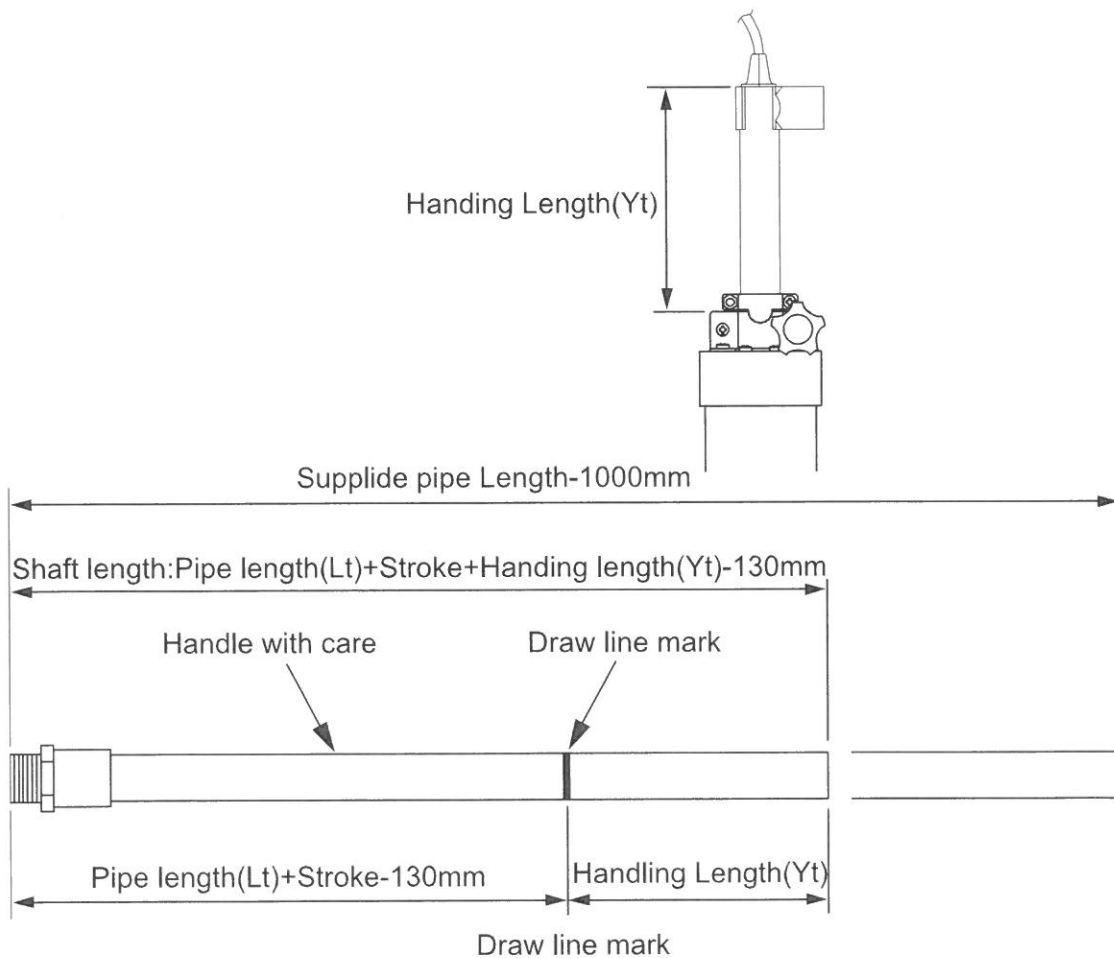
1. Cut off Upper/Lower shafts according to pipe length Lt and remaining length Yt.

**Shaft Length : Pipe Length (Lt) + Stroke + Handling Length (Yt) – 130mm**

Standard Length : 1000mm

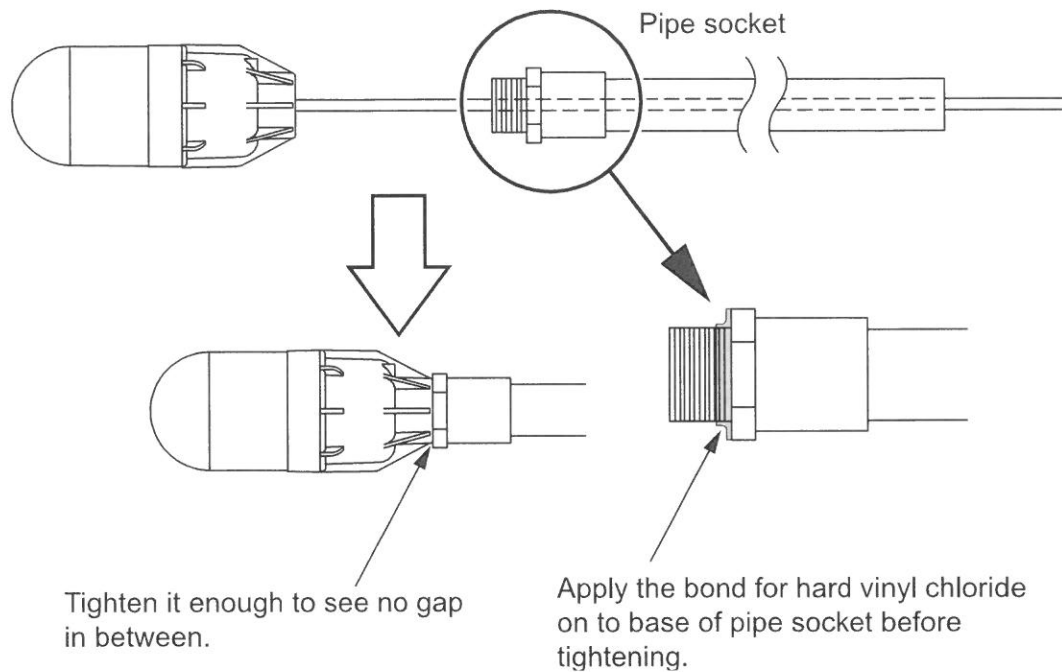
2. Put the marking at lowest position of Upper/Lower shaft  
(excluding the remaining length).

**Marking Position : Pipe Length (Lt) + Stroke – 130mm**

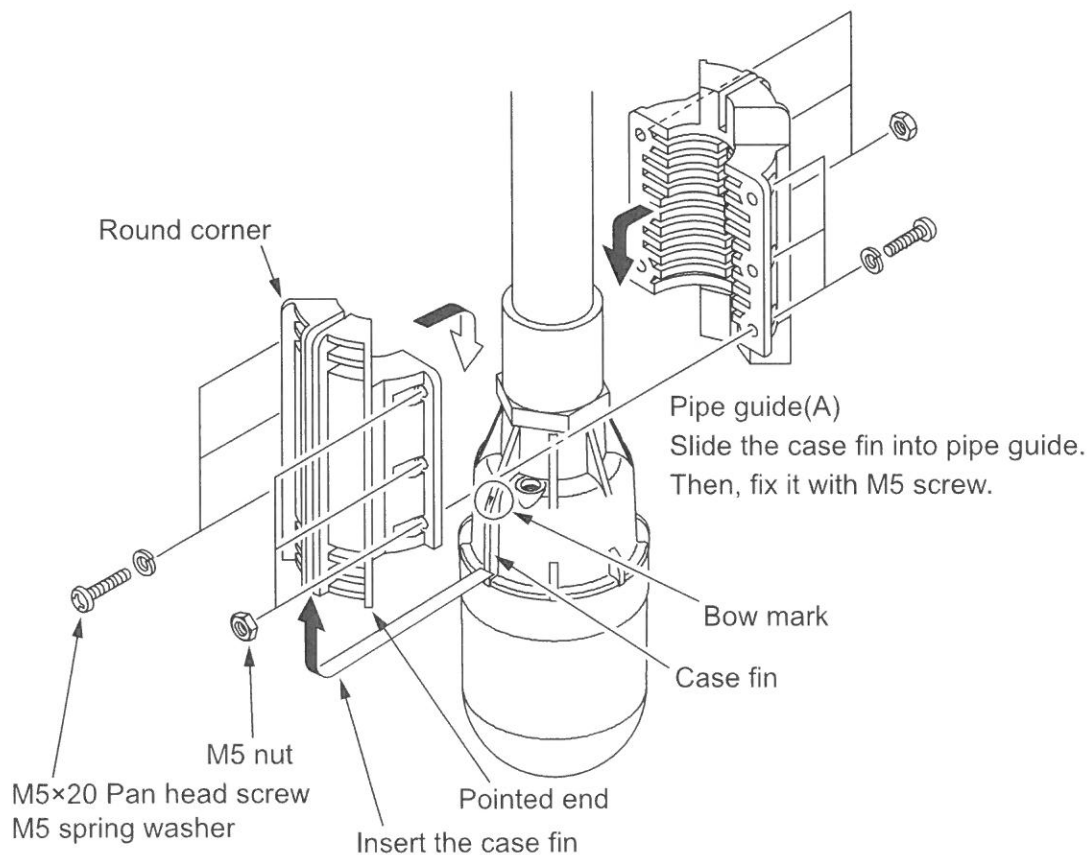


3. Let Tx/Rx cable through Upper/Lower shaft.

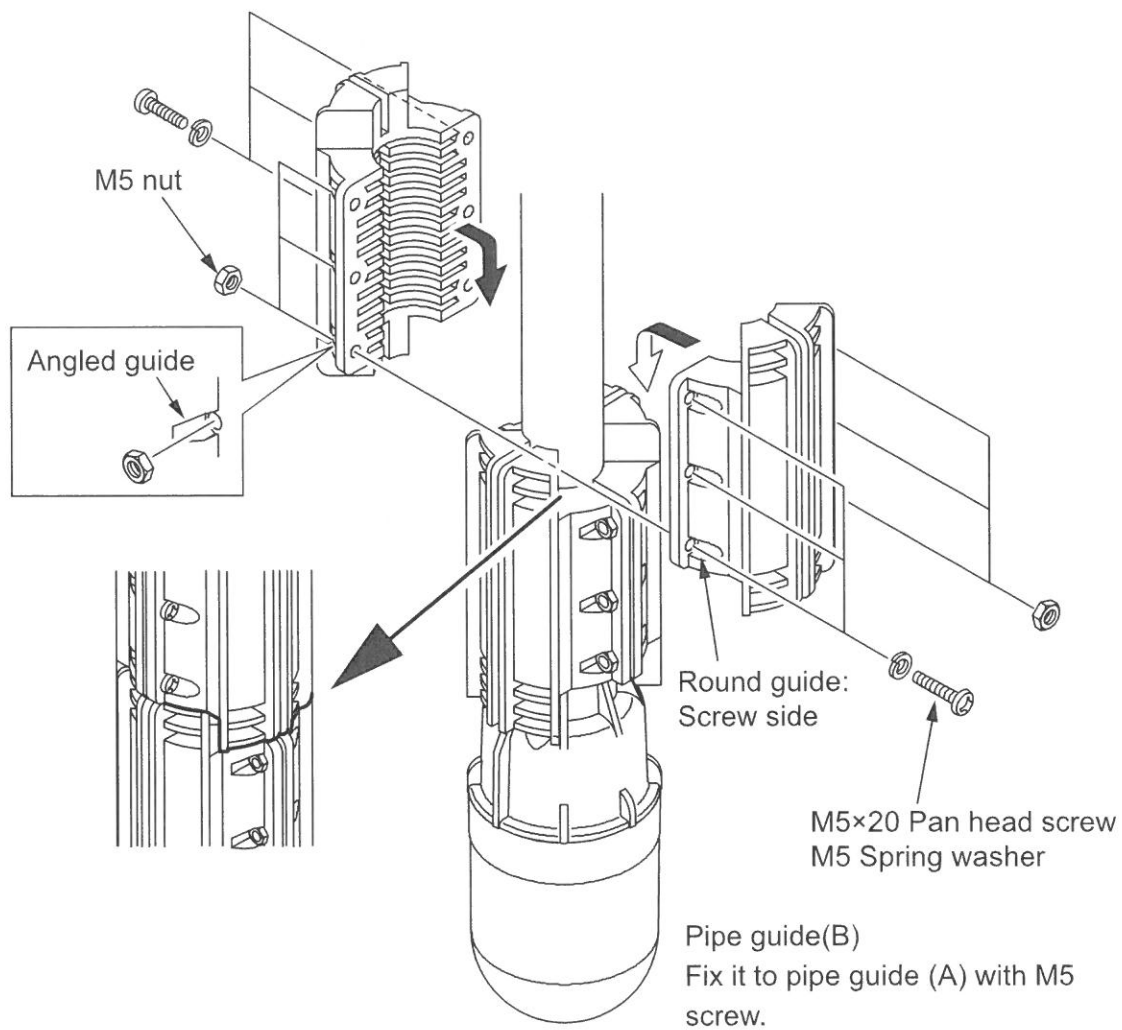
4. Apply the adhesive bond for polyvinyl-chloride pipe onto the slid of pipe socket for one rotation. Tighten the pipe socket and transducer.  
(Proper level of clamping torque: 8~10kgf.m)



5. Fix Upper/Lower shaft and transducer with pipe(tank) guide(A).

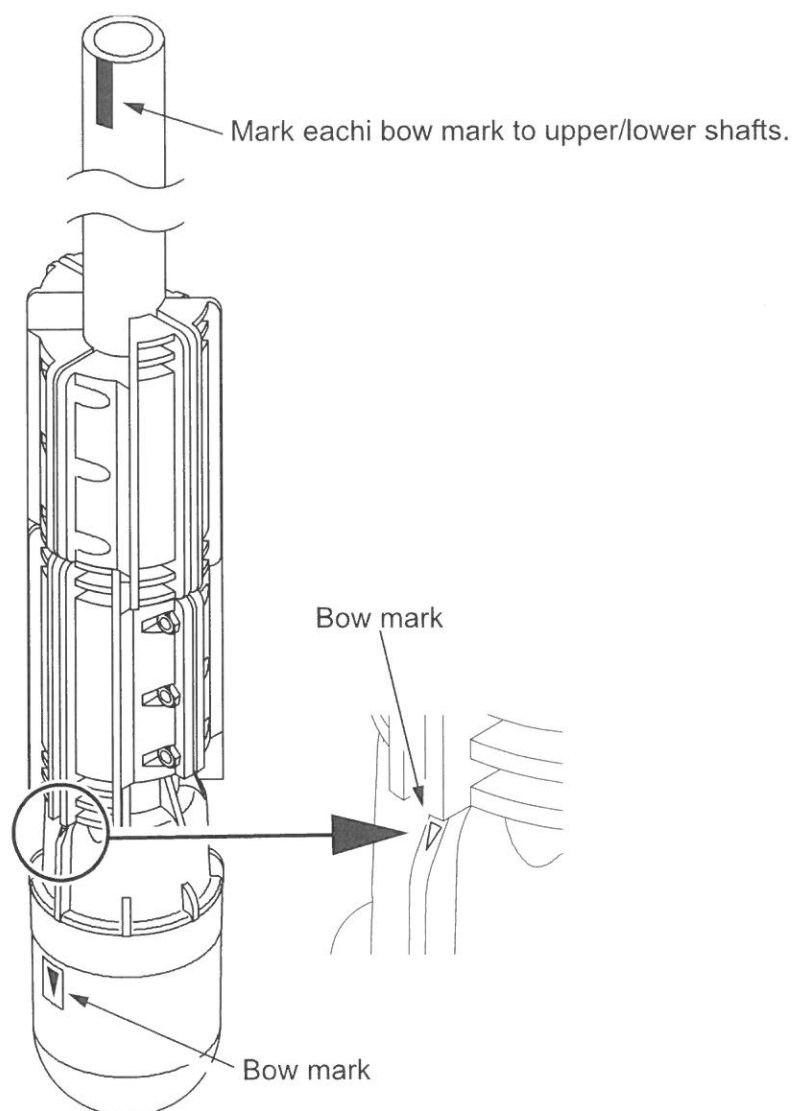


6. Use and fix it with Pipe(tank) guide (B) when pipe length is 410mm or more.

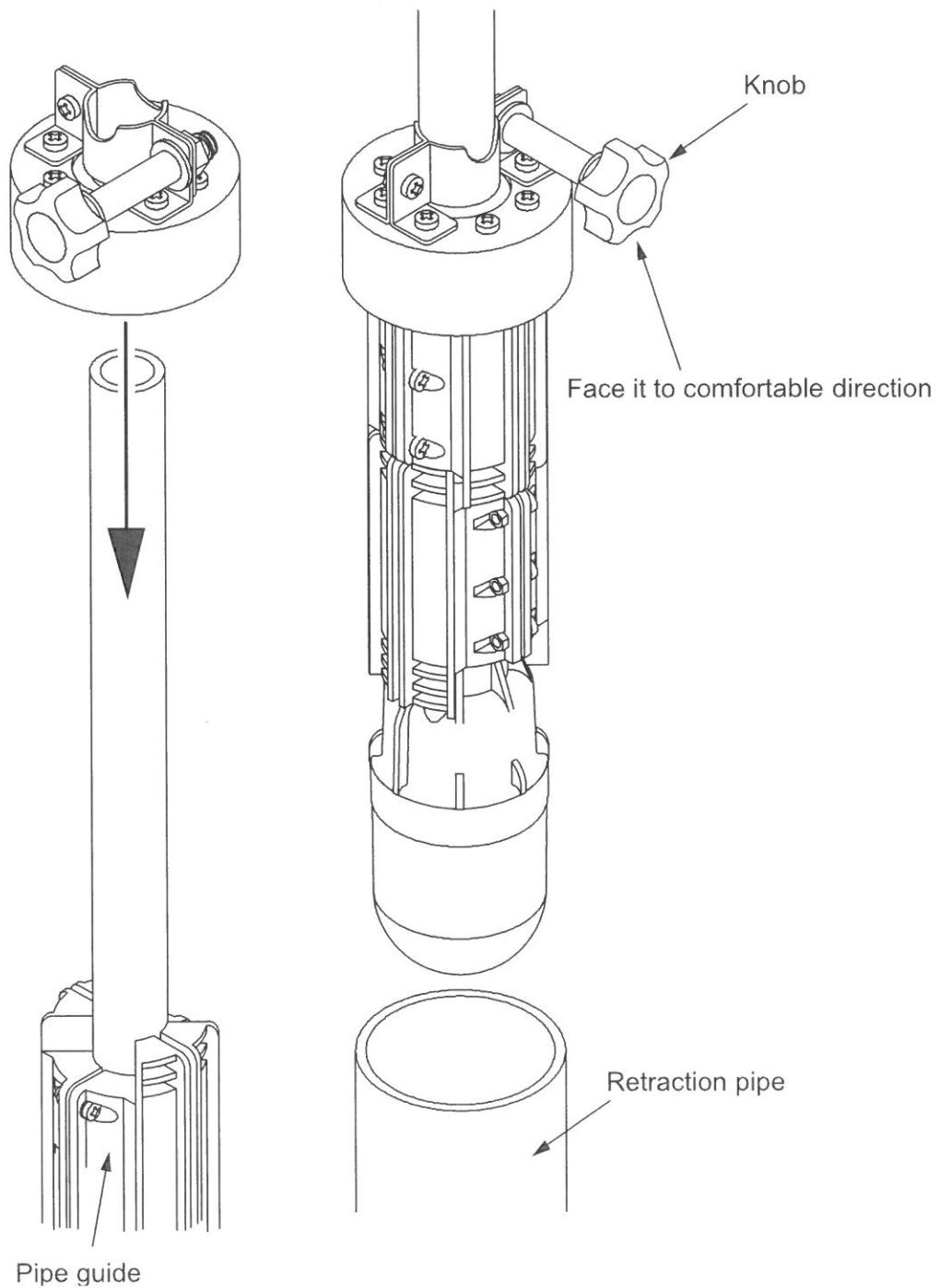


※No need to use pipe(tank) guide (B) if pipe length is less than 410mm.

7. Confirm the bow mark on transducer and put the marking onto Upper/Lower shaft.



8. Loosen the knob of storage pipe cover so that the shaft goes through it.

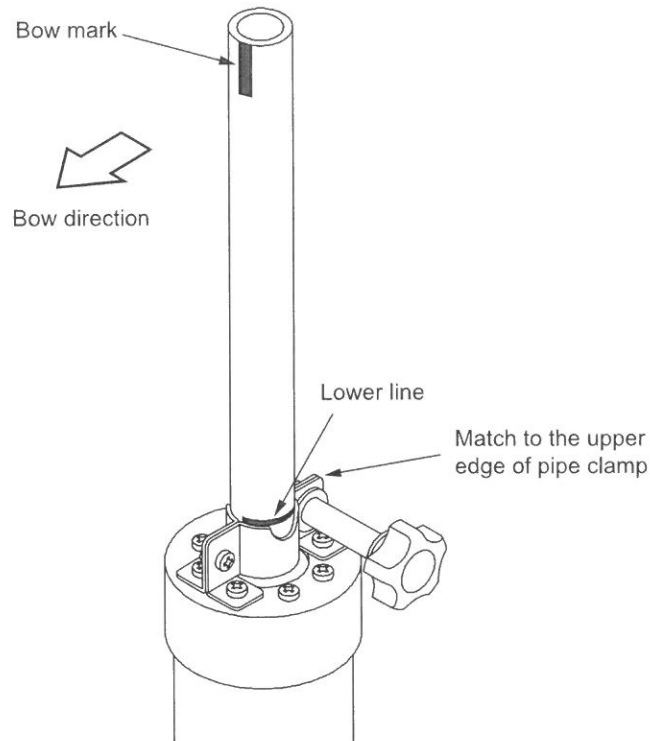


9. Lower the storage pipe cover until it hits the tank guide followed by tightening the knob.

10. Make sure not to cause any scratches to transducer dome when shifting the Upper/Lower shaft into storage pipe.

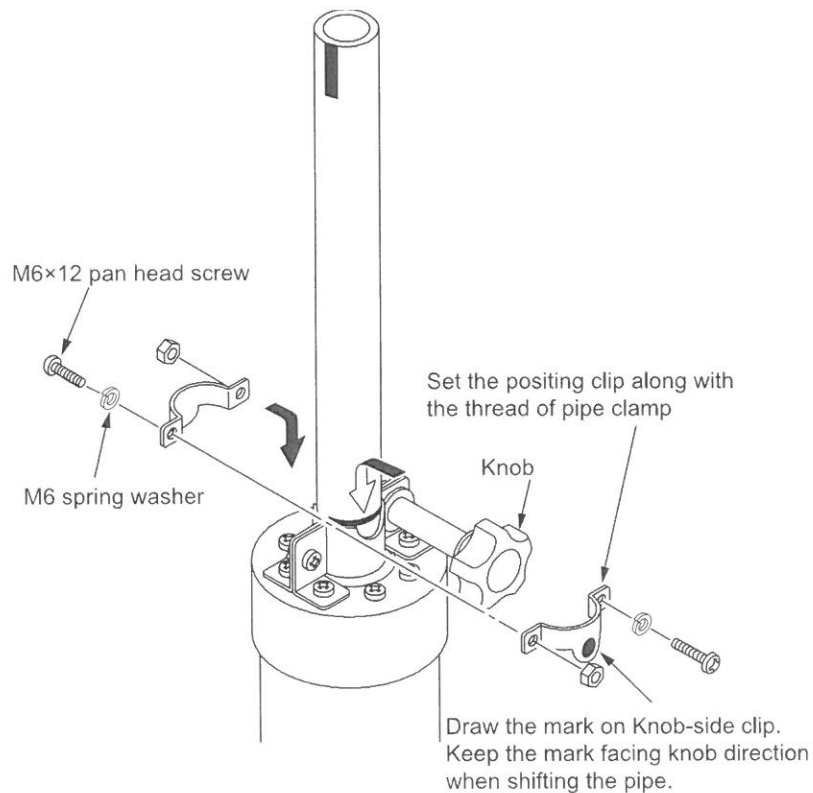
11. Adjust the direction of knob of the pipe cover for easier operation before the fixation.

12. Lower Upper/Lower shaft slowly with holding the edge of the shaft. Make sure to match the levels of the lower line and pipe clamp's upper edge. Face the bow mark to bow direction. Lastly, tighten the knob to fix the shaft.



13. Fix the positioning clip.

Put the marking on knob-side clip so that it always faces toward knob direction. If it faces the other way, sonar direction is 180deg opposite.

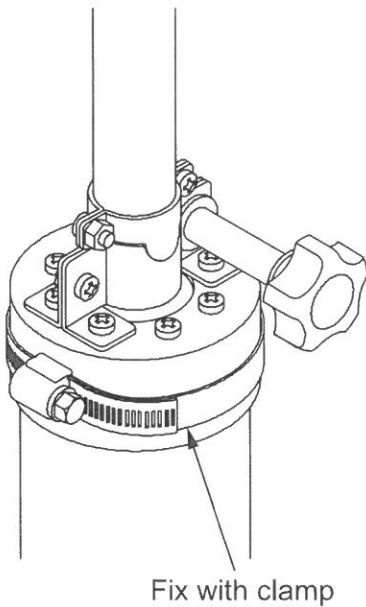




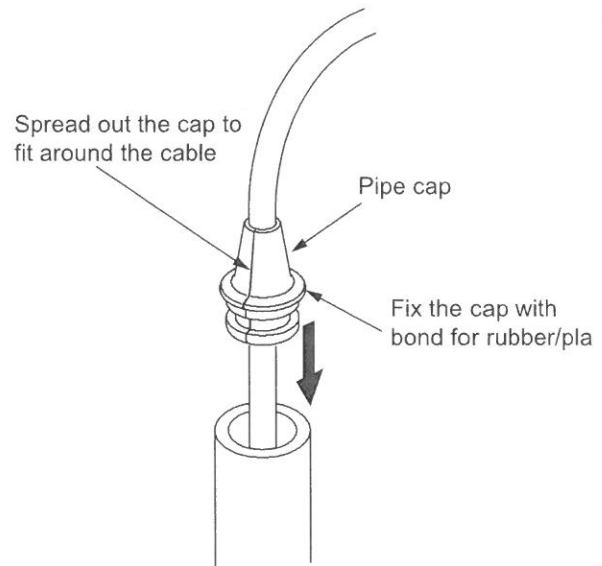
14. Sliding movement check.

Loosen the knob to confirm if the movement of Upper/Lower shaft is smooth from the top to the bottom. When stiff movement or locking occurs, remove the elements inside the pipe.

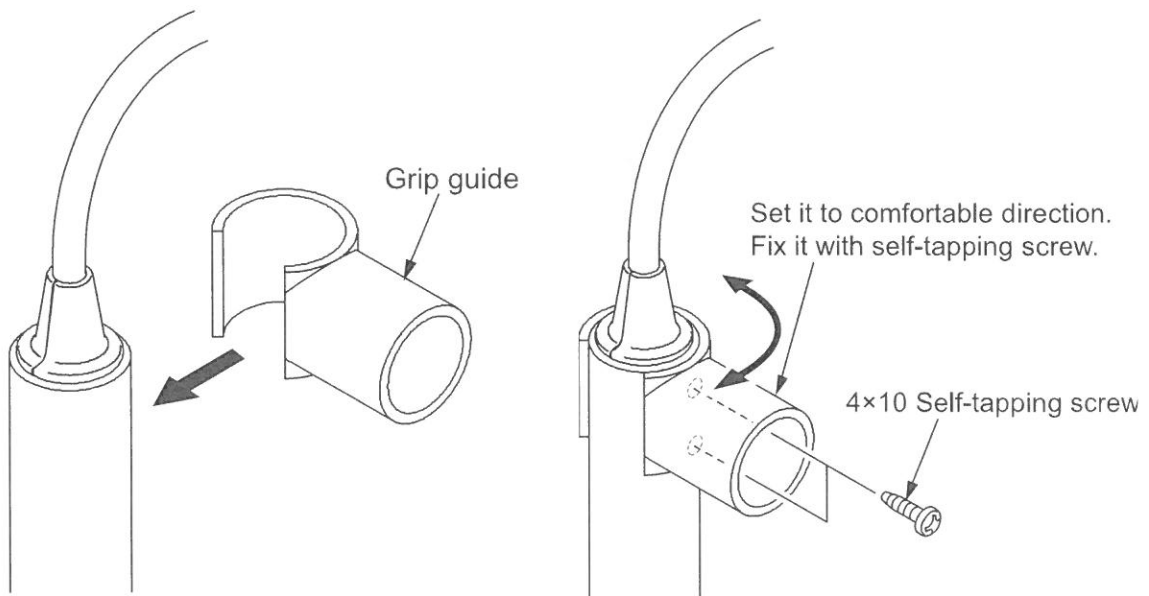
15. Fix the pipe cover with clamping.



16. Seal with a pipe cap.



17. Fix the handling guide with 4x10 screw to comfortable direction.



18. After the completion of installation, confirm the operating condition for the hull unit.

① Firstly, loosen the knob of storage pipe cover followed by moving the unit up and down.

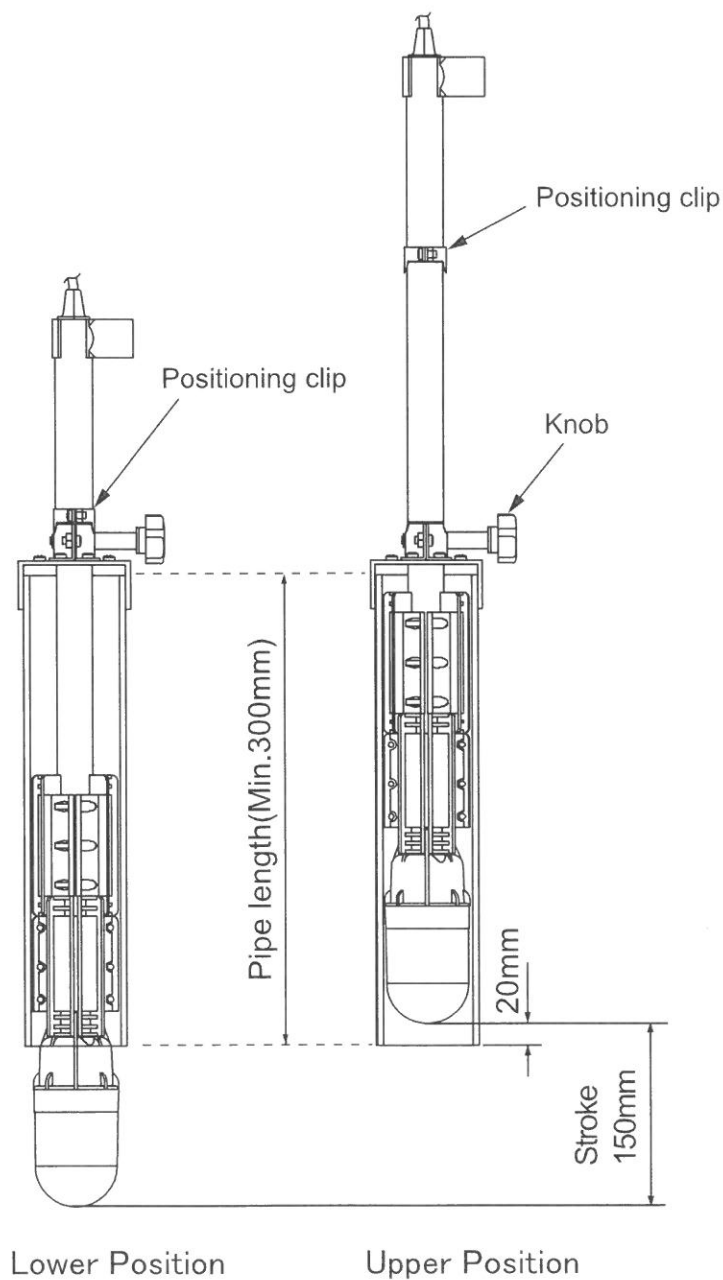
② After deciding the unit location, tighten the knob and fix the pipe.

The positioning clip matches to the pipe clamp at the lower limit position.

③ Like the drawing below, the hull unit location is within the specified range.

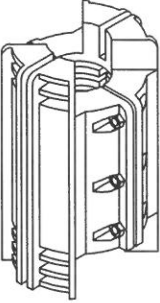
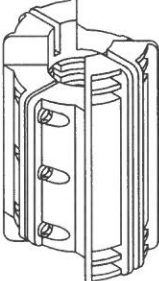

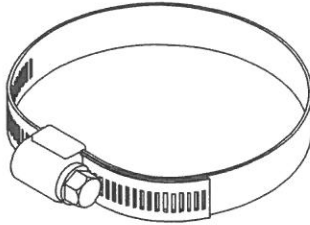
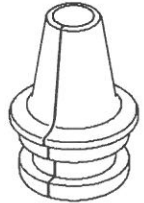
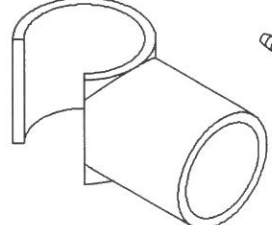
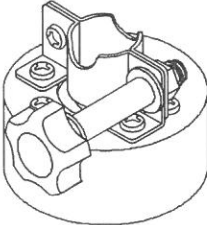
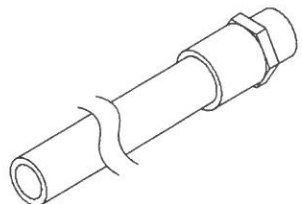
Lower position: Stroke 150mm

Upper position: Transducer is stored inside the pipe 20mm or more.



# MANUAL HULL UNIT STANDARD COMPOSITIONS

※Please refer to operation manual supplied with auto hull unit for auto hull unit.

<p>Pipe Guide-A x2</p>  <ul style="list-style-type: none"> <li>M5x20 SUS Screw x6</li> <li>M5 SUS Spring Washer x6</li> <li>M5 SUS Nut x6</li> </ul>	<p>Pipe Guide-B x2</p>  <ul style="list-style-type: none"> <li>M5x20 SUS Screw x6</li> <li>M5 SUS Spring Washer x6</li> <li>M5 SUS Nut x6</li> </ul>
<p>Positioning Clip x2</p>  <ul style="list-style-type: none"> <li>M6x12 SUS Flat Screw x2</li> <li>M6 SUS Nut x2</li> <li>M6 SUS Spring Washer x2</li> </ul>	<p>Clamp(PK01)</p> 
<p>Pipe Cap</p> 	<p>Handling Guide</p>  <ul style="list-style-type: none"> <li>4x10 SUS x2</li> </ul>
<p>Storage Pipe Cover</p> 	<p>Joint pipe/with socket</p>  <p>Polyvinyl Chloride Pipe HI-VP VP25 1m Pipe Socket HI-VS VP25 x1</p>