1. INTRODUCTION

Vessel anti-collision device is a floating collision avoidance system to mitigate the damages caused by vessels/ships to and the bridge’s lower structures, piers and foundation.

Vessel anti-collision device is a floating system on the water level, hence the fixing bolts between this system and pier structure is not required. The bridge pier’s structure, therefore, is protected more comprehensively than other anti-collision systems. The anti-collision system operates on the principle that the impact energy is absorbed by the compression, bending, buckling of components in the structure of the system.
The anti-collision system is made of the composite structure with FRP reinforced walls. This is a new developed structure developed and being widely used in China: The structure consists of internal reinforcement ribs made of FRP material and steel, the outer surface of the device is covered with FRP layer. The empty compartments of the device is filled with PU foam. The device is manufactured based on FRP vacuum casting technology.

The anti-collision device is equipped with great advantages such as good corrosion resistance, good collision resistance, and low maintenance costs. However, the linking parts of the system are often not very strong and easy to get damaged in case of collision, which may affect the entire structure if they are not fixed promptly.