



## PROJECT DELIVERABLE REPORT



Introducing advanced ICT  
and Mass Evacuation Vessel design  
to ship evacuation and rescue systems

### **PALAEMON MASS EVACUATION VESSEL** **D4.7 Manufacturing and integration of inflatables on** **MEV-I**

A holistic passenger ship evacuation and rescue ecosystem

MG-2-2-2018

Marine Accident Response

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## Revision History

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0.1	2022/09/15	Markus Schwarz	Iflatables delivered to ASTANDER
0.2	2022/11/01	Elias Chatzidouros	Completion of Preliminary tests and instillation

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## 1 Summary

In this deliverable the installation of the inflatables on the MEV-I demo, which will be tested at the premises of ASTADNER shipyard, is shown. The MEV-I demo and related inflatables are a scaled prototype of the MEV-I, which is used for trial testing in the premises of ASTANDER shipyard.

## 2 Introduction

The PALAEMON project's premise is the creation of mass evacuation vessels (MEVs) that can carry a lot more people than standard lifeboats while taking up about the same space and volume onboard the ship. The inflatables are a crucial ingredient of the MEV concept, as they take up very little room when they are stored prior to the MEV's launch and when they are inflated after the MEV's launch, they can provide increased stability for seakeeping in the event of an emergency. The inflatables were manufactured at the premises of SURVITEC company in Gemrany and shipped at ASTANDER where they were installed on the MEV I demo. The installation procedure and particulars are described below.

## 3. Attachment points

The drawings provided by the company SURVITEC of the floats have been always considered. (D4.6).

For the attachment points and according to the drawings provided, 8 plates (4 for each of the floats) are manufactured in sheet 8 mm thick. Its dimensions are 82 x 240 mm with 4 thread holes of 12 mm in diameter and a countersink of 26 mm in diameter.

The smaller boxes are supplied by SURVITEC.



The plates are installed on the attachment points as shown in the *Imagen 1*.



*Figure 1: Installing plates over the lashing points*

#### **4 INSTALLATION PROCEDURE.**

It starts with the port side (where the entrance door is located).

First, the good condition of the floats is checked and inflated with compressed air (*Figures 2 and 3*).



*Figure 2: Stretched float*



*Figure 3: Inflated float*

Once inflated, the float is positioned over its final position (*Figure 4*).



*Figure 4: Float over its final position*

At this point, the ASTANDER team detects that two of the planned attachment points are outside the reinforcements and the other two, on the reinforcements. In addition, to access the side where the floats must be moored, it is necessary to make records on the double fiber bottom. To avoid performing this operation (it is considered that it can be detrimental to the MEV-I in its functionality and aesthetics) and in order to distribute the loads evenly it is considered that the best option is to make a structure from the existing one that gives continuity to the efforts of the floats on the MEV-I. For this reason, plates 4 mm thick and 50 mm wide are welded to the sheets between each of the attachment points (*Figures 6 and 7*). This new structure is treated with a primer to ensure its correct conservation.



Figure 6: Lashing structure (1)



Figure 5: Lashing structure (2)

Once the structure and the new defined attachment points have been made, we proceed to mark on the MEV-I (Figure 8). Subsequently, the 13 mm holes are made on the hull of the MEV, they are made as accurately as possible to avoid possible water ingress (Figure 7).



Figure 7: Holes 13mm



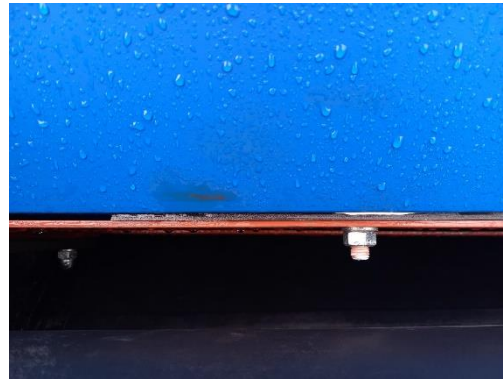
Figure 8: Fastening screw marks



4 mm thick plates are designed and manufactured for the interior of the MEV-I (*Figure 10*), these minimize the risks of Structural damage distributing the loads that occur from the attachment points. Its dimensions are detailed in Annex and are called "Interior attachment plates" (*Figure 10*). As can be seen in *Figure 9*, rubber gaskets of the same dimensions are manufactured, and they are installed on the outside of the MEV-I to ensure tightness and not damage the helmet.



*Figure 10: Inner attachment plates*



*Figure 9: Installation of structure and joint on the outside of the MEV*

The floats are approached, with the structure already installed in them, to their final position, the upper chamber is deflated to facilitate access to the attachment points. We proceed to install the rubber gasket and insert a screw M12:50mm in the holes made previously. The screw is coated with sealing silicone to prevent water from entering. Add the gasket and washer and nut.

The tightness is checked, and a visual inspection of the final situation is carried out, finally, it is considered to be ready for the navigation test.





*Figure 11: Inflatables attached ot MEV I demo*

## **5 POSITIONING OF CLAMPING SCREWS FLOAT-MEV STRUCTURE**

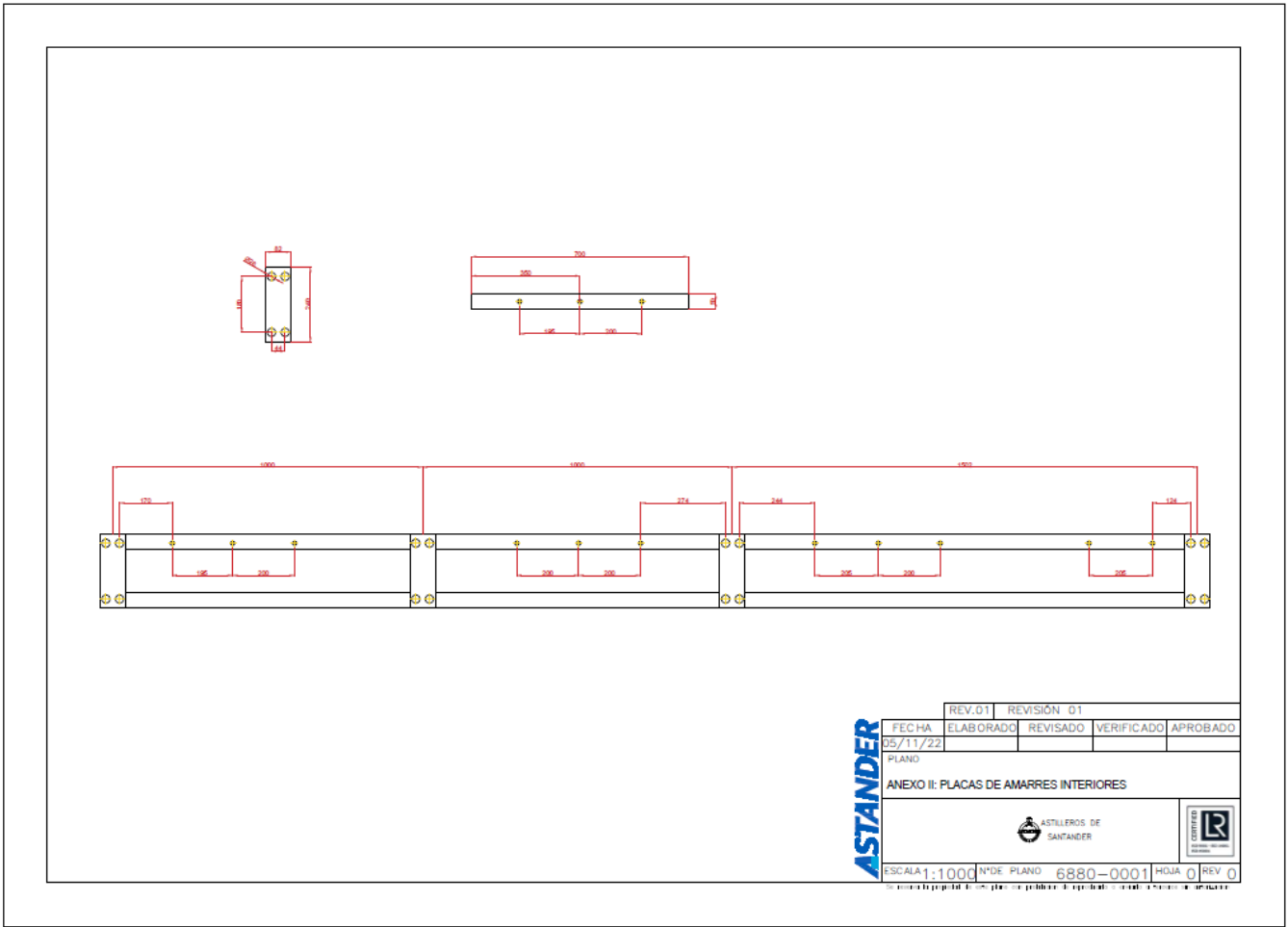
The attachment screws (float-MEV) are 12 mm, the holes made on the MEV-I are 13 mm.

The positioning of the attachment screws (float-MEV-I) is detailed in Annex (“external attachment structure”). It should be noted that the attachment points are not located in the reinforcements, since drilling these can negatively affect the structure of the boat. Instead, a total of 13 screws per belt are positioned, which secure and hold the float to the MEV-I, on the hull of the MEV-I.

## **6 Conclusion.**

The installation of the inflatables on the MEV I demo vehicle was described in this deliverable. Inflatables fitting as well as attachment points were showcased. The MEV along with the inflatables will be tested in ASTANDER premises and results presented in D8.3.

**ANNEX**



REV.01	REVISIÓN	01		
FECHA	ELABORADO	REVISADO	VERIFICADO	APROBADO
05/11/22				
PLANO				
ANEXO II: PLACAS DE AMARRES INTERIORES				
ASTILLEROS DE SANTANDER				
ESCALA 1:1000	Nº DE PLANO	6880-0001	HOJA	0
REV. 0				

