20' OFFSHORE TECHNICAL SPEC BULLBOX

OFFSHORE CARGO CONTAINER
20'OFFSHORE - 20' × 8' × 8´6"

MODELO NO: BULLBOX 20' × 8' × 8´6" OFFSHORE
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1. General

The offshore container is designed and manufactured for the transportation of goods or wastes, handled in open seas, to, from or between fixed and/or floating installations and ships.

These containers specified herein will be manufactured by Contenedores y Embalajes Normalizados, S.A (hereinafter referred to BULLBOX) under strict quality control by BULLBOX and be **approved by the classification society** (Bureau Veritas, China Clasification Society, Lloyd's Register of Shipping, American Bureau of Shipping...)

The design temperature will be -20º to -40º dependent upon the customer requirements, and the impact testing in each instance, for the materials of construction will be in accordance with DNV 2.7-1,Table 3-1 /EN12079 for the design temperature specified

2. Standards and regulation

The offshore container is designed, manufactured and tested in accordance with requirements of the following latest editions standards and regulations.

DNV2.7-1 - Offshore containers

EN 12079 - Offshore containers - Design, construction, testing, inspection and marking.

ISO 1161 - Specification of corner fittings for series 1 freight containers.

3. Handling

The offshore container is constructed to be capable of being handled and operated without any damage under the following conditions.

a. They are lifted by crane hook attached to top link of 4 legs lifting set through pad eyes at a maximal 45°from the vertical.

b. They are lifted by fork lift arms through fork lift pockets fitted in the bottom structure on container, whenever being empty or fully loaded.

4. Dimensions and ratings

External

Length	6,058	+ 0 mm - 5 mm
Width	2,438	+ 0 mm - 5 mm
Height	2,591	+ 0 mm - 5 mm

Internal

Length 5,888 mm

Width 2,318 mm

Height 2,199 mm

Door opening dimensions

Width 2,146 mm

Height 2,180 mm

Internal cubic capacity (nominal)

30.01 cu.m

Ratings

Max. Gross Weight (R)	20,000 kg
Tare Weight (design) (T)	4,100 kg
Max. Payload (P)	15,900 kg

Lifting leg angle from the vertical 45°maximum.

5. Properties of Steel material

The properties of steel material used in construction are as follows.

Material	Y.P Min (Mpa)	T.S.Min (Mpa)	E.Min. %
JIS SPA-H	345	480	22
JIS SCW480	275	480	20
JIS S25C	275	450	24
GB Q345D	325	470	21
GB E36	355	490	21
JIS SUS304	205	520	40
GB Q235B	235	335	19

* Y.P. : Yield point
T.S. : Tensile Strength
E.: Elongation

6. Construction

6. 1 Base structure

The base frame will be composed of two (2) bottom side rails, a number of crossmembers and a pair of fork pockets, which are welded together as a sub-assembly.

Bottom side rails:
Material : JIS SPA-H
Gauge : 6 mm
Geometry : Rectangle tube 200x100x6.0mm.

Crossmembers:
Material : JIS SPA-H
Gauge : 145x50x50x4.5mm channel
Geometry : Pressed "C" section.

Fork Pocket:
One pair of fork pocket will be fitted in the bottom structure for loaded handling. Each fork pocket is constructed with two adjacent crossmembers, a top plate and 3 bottom plates. 3 pieces of channel stiffeners and 2 protectors will be welded on top and both ends of each fork pocket .

External fork pocket:
Top plate : 6.0 mm Thk.
Bottom plate : 6.0 mm Thk. Depth : 300 mm
Stiffener channel :100x45x45x4.5
Protector : 6.0 mm Thk.

Inner fork pocket:
Pocket Channel : 312x106x6.0, Pressed "C" section
Bottom plate : 6.0 mm Thk.,
Stiffener Channel : 40X40X3.0 RHS

6. 2 Floor

Material : GB Q235B
Gauge : 6.0 mm thickness, chequer plate.
Assembly : The floor plates are welded to the top of the base frame.

6. 3 Front end

The front end will be composed of corrugated end wall and front end frame, which are welded together as a sub-assembly. Front end frame is consists of top and bottom rails, two corner posts and two bottom corner fittings.

Corner post:
Material : JIS SPA-H
Geometry : 6mm thick section steel.
Assembly : Fully penetration welded to the corner castings at bottom end.

Top rail:
The front top rail is constructed of one 100x100x4.0mm square tube.
Material : JIS SPA-H

Bottom rail:
Material : JIS SPA-H - Bottom rail & gusset.
Gauge : Bottom rail - 200x100x6.0mm Rectangle tube
Gusset - 6.0mmAssembly : Fully welded on both side to each corner posts.

End panel:
Material : JIS SPA-H
Gauge : 3.0mm
Geometry : 45.6mm depth, 110mm exterior flat, 18mm slop and 104mm interior flat.
Assembly : Panels are butt welded together and fully welded to front rails and corner posts.

6. 4 Rear end

Rear end is composed of rear end frame which consists of one door sill, two corner posts, one rear header with header plate and four corner fittings, which are welded together as a sub-assembly, and Door Systems with locking devices.

Corner post:
Gauge : Outer – 8.0 mm thick pressing. Inner– 6.0 mm thick pressing
Geometry : Rectangular box section composed of outer and inner.
Assembly: Continuous welding.

Door sill:
Material : JIS SPA-H
Geometry : Bottom rail - 200x117x6.0mm “C” shaped pressing section with a slop upper face.
Gusset - 6.0mm.
Features : The door sill is built of a special channel section Steel pressing with internal gussets as stiffeners at the back of each cam keeper.

Door Header:
The door header is constructed from a lower part of a " U " shaped steel pressing with internal stiffener ribs at the location of the back of cam keeper and an upper part of steel rear header plate, they are welded together to form a box section to provide a high rigidity.

Material : SPA-H
Header lower : 4.0 mm thick
Upper plate : 4.0 mm thick
Gusset : 6.0 mm thick

6. 5 Door system

Doors will consist of two door leaves, each leaf with two (2) locking devices, four hinges and pins, seal gaskets, protection hollow sections and door holders. The doors will be installed by hinge pins to the rear end frame and capable of swinging about 270 degrees.

Door Leaves:
Each door leaf consists of door panels, steel door frame which consists of horizontal and vertical members. They are welded together to form the rectangular door leaf. The door are so arranged that the left leaf can not be opened without displacement of the right leaf. A set of protection hollow sections will be fitted on the door frame to protect the locking system against damages from impact load.

1) Door panel : corrugation plate
Depth : 44 mm
Inner face : 70 mm
Slope : 32 mm
Panel Thickness: 3.0mm

2) Door frame :
a) Horizontal door member: 150 x 50 x 4.0 mm, channel section,
b) Vertical door member:100x50x4.0 mm RHS

3) Protection construction : 60x35x3.0 mm RHS

Hinges and Pins:
Four forged hinges, providing with bushed hole, are welded to each door leaf. Each door is installed by hinge pins, washers and bushings.

Washer - Material : Stainless steel .
Location : Under the bottom of hinge
Bushing - Bronze
Pin - Material : Stainless steel .

Locking Devices:
Two locking bars are of steel tube with handles, anti-racking rings and cam ends, and fixed to each door leaf with bolts and nuts, by top and bottom bearing brackets and bar guide brackets. The bars are suspended in bearing brackets with bush of self-lubricating synthetic material.

The EPDM shim will be placed over the holes on the door for fastener. Cam keepers are welded to the door header and sill.
Locking bars treatment : Hot-Dip galvanized.

Door Holder and Receptacle:
A door holder, made of steel bar, is fixed to the door frame. The receptacle is welded to corresponding bottom side rail to remain the door at the open position.

Seal Gaskets:
The door seal gaskets (black colour) are of E.P.D.M rubber assembled by rivets,using strip retainers and adhesive sealant on the back.

Gasket's shape : "J - C" Type
Retainer : Stainless steel
Rivet : Stainless steel

6. 6 Side

Top side rail
Material : JIS SPA-H
Geometry : Square tube.
Size : 100x100x4.0mm

Panel:
Material : JIS SPA-H
Gauge : 3.0mm
Geometry : 36mm depth, 72mm exterior flat, 68mm slop and 70mm interior flat.
Assembly : Panels are butt welded together and fully welded to exterior of container frame, stitch welded to interior of corner posts.

6. 7 Roof

Material : JIS SPA-H
Gauge : 3.0 mm
Geometry : Panel
Assembly : Continuous welding.
Features : Roof panel will be cylindrically cambered with approx. 5mm at center to ensure complete water drainage.

Roof stiffener rail:
Two pieces of stiffener rails are fitted under the transverse way of the roof panels to give a additional reinforcement.
Material : JIS SPA-H
Geometry : Rectangle tube.
Size: 60 x 35 x 3.0 mm

6. 8 *Corner fitting*

Material : SCW 480
Geometry : ISO 1161 – 1984

6. 9 Internal Lashing point

Twelve (32) lashing rings are welded onto the top and bottom side rails and on the top and bottom rail of front end which are of forged "D" shape and hinged type. Each ring is capable to withstand a force of 1,500 kg.

6. 10 Pad eye

Material : E36
Gauge : 45 mm
Geometry : 1 pcs pad(45mm). Bolt hole diameter is 36.5mm.
Assembly: Pad eyes are fully penetration welded to corner posts.

7. Preservation

7. 1 Surface preparation of the steel work

Prior to assembly
1) Each part will be completely inspected to remove any weld spatter, weld slag or contamination.

2) All steel components, prior to fabricating, will be shot blasted to Swedish
Standard SA 2 1/2 to remove rust, mill scale and painted zinc primer approximately 10 microns.

After assembly
1) All welding slags, spatters and other foreign matters are removed.

2) Welded area on the surfaces are shot blasted.

3) Remove of all loose grit and dust will be accomplished with clean compressed air before painting.

7. 2 Painting

The paint to be applied within two hours after shot blasting is as follows.

Outside
Epoxy zinc primer Barrier 77 CN 50 m
Epoxy paint Penguard express 100 m
Top coating: Hardtop xp(RAL5010) 50 m

Inside
Primer : Barrier 77 CN 50 m
Top coating: Penguard express 100 m
Total D.F.T.: 150 m.

8. Markings and Data Plate

8.1 Safety marking

The container shall be marked with a 100mm wide painting band of yellow color (RAL 1023) round the roof perimeter.

8.2. Identification markings

Owner's code and serial number issued by the owner shall be displayed on all sides and roof of the container. These code and number is to be white color and selfadhesive kiss-cut film.

8.3 Information markings

A rating decal is to be attached to the door panel, which is white color and selfadhesive kiss-cut film. It shall include maximum gross mass, tare mass and payload. A matt black board decal is to be fitted to the door panel.

8.4 Other markings

Society emblem will be attached to the door. The manufacturer's serial number in 50mm high digits weld on the front face of the door sill.

8.5 Data and inspection plate

Data and inspection plate and CSC plate are made of stainless steel shall be fitted to the door by stainless steel rivet.

8.6 Welded identification

Stamped the certification's serial number in 10mm high digits on the top face of the right hand rear lower corner fitting

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