40’HC DD EOD
TECHNICAL SPEC. BULLBOX

STEEL DRY
CARGO CONTAINER
ISO 40’ HC DD- 40’ × 8’ × 9´6”

MODEL:
BULLBOX 40’HC DD EOD ISO STANDARD
DATE OF ISSUE**: July 2025**

Contenedores y Embalajes Normalizados S.A.
P.I. Silvota, Peñasanta 12, Llanera. 33192, Asturias- Spain
T +34 985 265 095 *bullbox@bullbox.com*
www.bullbox.com

SECCIÓN/TÍTULO/PÁGINA

1. General **3**
2. Dimensions and Ratings **4**
3. Materials **5**
4. Construction **6**
5. Surface Preservation **10**
6. Markings **11**
7. Testing **12**
8. Guarantee **14**

1. General

This specification will cover the design, construction, materials, testing and inspection performances of 40'x8'x9'6" ISO. 1AA type steel dry cargo containers.

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 Classification Society, Lloyd's Register of Shipping, American Bureau of Shipping,…).

The container will be designed and constructed for carriage of general cargo by marine (on or below deck), road and rail throughout the world. All materials used in the construction will be to withstand extremes of temperature range from -40ºC to +70ºC without effect on the strength of the basic structure and watertightness.

The container will satisfy the following requirements and regulations, unless otherwise mentioned.

***ISO Container Standards**:* ISO 668, ISO 830, ISO 1161, ISO 1496-1, ISO 6346.

***T.I.R. Certification**:* All the containers will be certified and complied with "The Customs Convention on the International Transport of Goods under the cover of T.I.R. Carnets." or "The Customs Convention on Containers.".

C.S.C. Certification: All the containers will be certified and complied with the requirements of the "International Convention for the Safe Containers."

***T.C.T. Certification**:* All exposed wooden components used for container will be treated to comply with the requirements of "Cargo Containers-Quarantine Aspects and Procedures" of the Commonwealth Department of Health, Australia.

U.I.C. Registration: All the containers will be registered and complied with the "International Union of Railways."

1.2 Handling and transportation

The container will be constructed to be capable of being handled without any permanent deformation under the following conditions:

a) Lifting, full or empty, at top corner fittings vertically by means of spreaders fitted with hooks, shackles or twistlocks.
b) Lifting, full or empty, at bottom corner fittings using slings with terminal fittings at any angles between vertical and 30 degrees to the horizontal.

c) Lifting, full or empty, at forklift pockets using forklift truck.

The container will be constructed to be suitable for transportation in the following modes:

a) Marine: In the ship cell guides of vessels, seven (7) high stacked.
On the deck of vessels, four (4) high stacked and secured by vertical and diagonal wire lashings.

b) Road: On flat bed or skeletal chassis, secured by twistlocks or equivalent at the bottom corner fittings.

c) Rail: On flat cars or special container cars secured by twistlocks or equivalent at the bottom corner fittings.

2. Dimensions and ratings

External

Length	12,192 + 0 mm
	-10 mm
Width	2,438 + 0 mm
	-5 mm
Height	2,896 + 0 mm
	-5 mm

Internal

Length	11,978 mm
Width	2,350 mm
Height	2,695 mm

Door opening dimensions

Width	2,338 mm
Height	2,585 mm

Internal cubic capacity (nominal)

75.9 cu.m	2,680 cu.ft

Gooseneck tunnel

Length	3,262 mm
Width	1,029 +3 mm
Height	120 mm

Ratings

Max. Gross Weight (R)	30,480 kg	67,200 lb
Tare Weight (design) (T)	3,890 kg	8,576 lb
Max. Payload (P)	26,590 kg	58,621 lb

Dimensions and ratings are subject to small variations depending on the batch.

3. Materials

The following materials will be used in the construction of containers:

3.1. Part specification

Parts	Materials
1) All steel except screws, rivets, bolts/nuts, door hardwares and other shown on drawings and specification.	Anti-corrosive steel. SPA-Hor equivalent Y.P.: 35 kg/ mm^2 T.S.: 49 kg/ mm^2
2) Rear corner posts (inner)	Rolled high tensile Steel SM50A/490A Y.P.: 33 kg/mm^2 T.S.: 50 kg/mm^2
3) Door hinges	S25C Y.P.: 27kg/mm^2 T.S.: 45 kg/mm^2
4) Door locking bars	STK41 Y.P.: 27 kg/mm^2 T.S.: 41 kg/mm^2
5) Corner fittings	Casted weldable steel SCW49/480 Y.P.: 28 kg/mm^2 T.S. : 49 kg/mm^2
6) Locking gear cams and keepers	S20C Y.P.: 23 kg/mm^2 T.S.: 44 kg/mm^2
7) Door hinge pins **Gasket retainers** **Huck bolts**	Stainless steel
8) Door gasket	EPDM
9) Floor board	Hardwood plywood
10) Ventilator	ABS resin labyrinth type

* Note:
Y.P. - Yielding Point
T.S. - Tensile Strength

4.1 Construction

The container will be constructed with steel frames, fully vertical-corrugated steel sides and front wall, horizontal-corrugated steel double doors at rear end, diestamped steel roof and corner fittings.

All welds of exterior including the base frames will be continuous welding using CO_2 gas.

Interior welds - when needed - will be stitched with a minimum length of 15 mm.

Gaps between adjacent components to be welded will not exceed 3 mm or the thickness of the parts being welded.

Chloroprene sealant is to be applied at periphery of floor surface and inside unwedded seams, butyl sealant is used to caulk at invisible seam of floor joint area and between door gasket and frame.

The wooden floor will be fixed to the base frames by zinc plated self-tapping screws.

4.2 Protrusion

The plane formed by the lower faces of all transverse members shall be positioned by 12.5 mm +5/-1.5 mm above the plane formed by the lower faces of the bottom corner fittings.
The top corner fittings are to protrude 6mm above the highest point of the roof.
The outside faces of the corner fittings will protrude from the outside faces of the corner posts by nominal 4mm.
The outside faces of the corner fittings will protrude from the outside faces of the sides by nominal 8mm.
Under maximum payload, no part of the container will protrude below the plane formed by the lower faces of the bottom corner fittings at the time of maximum deflection.
Under 1.8 x maximum gross weight, no part of the container will protrude more than 6.0mm below the plane formed by the lower faces of the bottom corner fittings at the time of maximum deflection.

4.3 Corner Fittings

The corner fittings will be designed in accordance with ISO 1161 and manufactured at the works approved by classification society.

4.4 Base Frame structure

Base frame will be composed of two bottom side rails, twenty-eight cross members, and a gooseneck tunnel.
Each bottom side rail is built of a 50x162x30x4.5 mm thick cold formed channel section steel made in one piece.
The floor guide rails of 2.3 mm thick pressed angle section steel are provided to the bottom side rails by staggered stitch welding.

The lower flange of the bottom side rail is outward so as to facilitate easy removal of the cross members during repair and of less susceptible corrosion.
Reinforcement plates to be made of 4.0 mm thick flat steel is welded to bottom corner Fitting

The cross members are made of pressed channel section steel with a dimension of 45x122x45x3.5 mm for the normal areas and 75x122x45x4.0 mm for the floor butt joints. The large one is reinforced by three 4.0 mm thick gussets.

The cross members are placed fully to withstand floor strength and welded to each bottom side rail.

The gooseneck tunnel consists of 4.0 mm thick one piece pressed hat section tunnel plate, twelve 4.5 mm thick pressed channel section bows, one 4.0 mm thick enclose section tunnel rear bolster, and sixteen 3.5 mm thick tunnel outriggers. The gooseneck tunnel is designed in accordance with ISO requirements

4.5 Flooring

The floor will consist of six pieces plywood boards, floor center rail, and self-tapping screws.

The wooden floor to be constructed with 28 mm thick hardwood plywood boards are laid longitudinally on the transverse members between 50X4.0 mm thick flat bar floor center rail and the 2.3 mm thick pressed angle section steel floor guide rails stitched welded to the bottom side rails.

The floor boards are tightly secured to each transverse member by self-tapping screws, and all butt joint areas and peripheries of the floor boards are caulked with sealant.

1) Wood species: Apitong or Hardwood.
2) Glue: Phenol-formaldehyde resin.
3) Treatment:
    a) Preservative: Meganium or equivalent, in accordance with Australian Health Department Regulations.
    b) Average moisture content will be 12% before installation.
4) The top surface of floorboard will be coated with PSF

Each floor board is fixed to the transverse members by zinc plated self-tapping screws that are 8.0 mm dia. shank x 16 mm dia. head x 45 mm length, and fastened by four screws per cross member but five screws at joint areas.
Screw heads are to be countersunk with about 2 mm below the floor top surface.

4.6 Rear frame structure

The rear frame will be composed of one door sill, two corner posts, one door header and four corner fittings, which will be welded together to make the door-way.

The door sill to be made of a 4.5 mm thick pressed open section steel is reinforced by four internal gussets at the back of each locking cam keeper location.
The upper face of the door sill has a 10 mm slope for better drainage. There is cut out at each end of the door sill and reinforced by a 200x75x9.0 mm channel steel as a protection against handling equipment damages.

Each rear corner post of hollow section is fabricated with 6 mm thick pressed steel outer part and 40x113x12 mm thick hot rolled channel section steel inner part, which are welded continuously together to ensure a maximum width of the door opening and to give a sufficient strength against stacking and racking forces.
Four (4) sets of hinge pin lugs are welded to each rear corner post.

The door header is constructed with a 4.0 mm thick pressed "U" section steel lower part having four internal gussets at the back of each locking cam keeper location and a 3.0 mm thick pressed steel upper part, which are formed into box section by continuous welding.

4.7 Door

Each container will have double wing doors at each end frame, and each door will be capable of swinging approximately 270 degrees.

Each door is constructed with two 3.0 mm thick pressed channel section steel horizontal frames for the top and bottom, two 100x50x3.2 mm thick rectangular hollow section vertical frames for the post and center side of door, 1.6 mm thick horizontally corrugations steel door panel, which are continuously welded within frames.

Two sets of galvanized "SJ-88" or equivalent bolt on model locking assemblies with forged steel handles are fitted to each door using zinc plated steel bolts and Huck bolts according to TIR requirements. Locking bar retainers are fitted with nylon bushings at the top, bottom and intermediate bracket.

Locking gears should be assembled after painting of container. The left hand door can not be opened without opening the right hand door when the container is sealed in accordance with TIR requirements

The door hold-back of nylon rope is provided to the center locking bar on each door and a hook of steel bar is welded to each bottom side rail.

Each door is suspended by four hinges being provided with stainless steel pins, self-lubricating nylon bushings and the stainless steel washers. which are placed at the hinge lugs of the corner posts.

The door gasket to be made of an extruded double lip type (J- type for top & side, C-type for bottom) EPDM rubber is installed to the door peripheral frames with stainless steel gasket retainers which must be caulked with butyl sealant before installation of gasket, and fastened by stainless steel rivets at a pitch of 150 mm.

4.8 Roof Structure

The roof will be constructed with five five-corrugated (die-stamped) steel panels and four corner protection plates.

The roof panel is constructed with 1.6 mm thick die-stamped steel sheets having about 5.0 mm upward smooth camber, which are welded together to form one panel and continuously welded to the top side rails and top end rails. All overlapped joints of inside unwedded seams are caulked with chloroprene sealant.

Each corner of the roof in the vicinity of top corner fitting is reinforced by 3.0 mm thick rectangular steel plate to prevent the damage caused by the mishandling of lifting
equipment.

4.9 Top side rail

Each top side rail is made of a 60x60x3.0 mm thick square hollow section steel.

4.10 Side Wall

The trapezium section side wall is constructed with 1.6 mm thick fully vertically continuous-corrugated steel outer panels near the each post and 1.6 mm thick intermediate inner panels, which are butt welded together to form one panel and continuously welded to the side rails and corner posts

4.11 Front structure

The front end structure will be composed of the same as rear frame and door except following content

A) Front door sill The upper part of the front door sill to be made of a 30x113x12 mm thick hot rolled channel section steel with 4.5 mm thick cover steel plate, the lower parts are made of two 4.0 mm thick "U" section steel rails which separated into "L" and flat section, and two 4.0 mm thick floor board supports, which are welded together. There is cut out at each end of the door sill and reinforced by a 200x75 mm channel steel as a protection against handing equipment damage.

B) Locking gears, The lower part of locking gear at the front door sill above gooseneck tunnel will be special lock cam and lock cam keeper (smaller)

4.12 Special feature

Customs seal and padlock provisions are made on each locking handle retainer to cover the sealed area in accordance with TIR requirements.

Ten (10) lashing hoop rings are welded to each top and bottom side rail at recessed corrugations of side panels but not extruded any cargo space (total 40 rings).
Each lashing point is designed to provide a "1,500 kgs pull load in any direction" without any permanent deformation of lashing ring and surrounding area.

Three (3) lashing rods are welded to each corner post at the position of 150 mm higher from the floor and 200 mm lower from the bottom surface of top corner fitting and middle of the corner post.
Each lashing rod on the corner post is designed to provide a "1,000 kgs pull load in any direction" without any permanent deformation.

A shoring slot, having a size of 60 mm width x 40 mm depth is provided on each rear corner post so that 2 1/4" thick battens can be arranged to be able to prevent doors from damage due to shifting cargo.

Each container will have 14 labyrinth type small plastic ventilators.
Each ventilator is fixed to the right- and left-hand upper part of each side wall by three 5.0 mm dia. Stainless steel Huck bolts in accordance with TIR requirements after drying of top coating, and caulked with sealant around the entire periphery except underside to prevent the leakage of water.

5.1 Surface preparation

1) All steel surfaces - prior to forming or after - will be fully abrasive shot blasted conforming to Swedish Standard SA 2 1/2 to remove all rust, dirt, mill scale and all other foreign materials.

The shot blasted surface profile shall be have a maximum peak to valley height not exceeding 50 microns and average peak to valley height of about 25 microns.

2) All door hardwires will be hot-dipping zinc galvanized with approximately 75 microns thickness.

3) All fasteners such as self-tapping screws and bolts, nuts, hinges, cam keepers and lashing fittings will be electro-galvanized with approximately 13 microns thickness.

5.2 Coating

Coating specifications will be provided on request.

6. Marking

The containers will be marked in accordance with ISO, TCT, UIC, CSC and TIR requirements, owner's marking specifications and other required regulations.

Materials

1) Decal: - Self-adhesive, high tensile PVC film for seven (7) years guarantee without peeling off, tenting or colour fading.

2) Certification plate: Stainless steel plates to be chemically etched by acid.

Specifications

1) Identification plates such as consolidated data plate consisting of CSC, TIR and TCT will be riveted on the door permanently by stainless steel blind rivets. The entire periphery except underside will be caulked with sealant.

2) The owner's serial numbers and manufacturer's serial numbers will be stamped on top face of the bottom corner fitting.

7. Testing

The prototype container manufactured in accordance with this specification will be tested by manufacturer under the supervision of classification society.

Test & loads	*Test methods*
a) Stacking Internal load: 1.8R-T Test load: 86,400 kg/post.	Hydraulic cylinder load will be applied to each corner post through top corner fittings. Offset: 25.4 mm lateral, 38.0 mm longitudinal Time duration: 5 minutes
b) Lifting (from top corner fitting) Internal load: 2R-T	Lifting vertically. Time duration: 5 minutes
c) Lifting (from bottom corner liftings) Internal load: 2R-T	Lifting 30 deg. to the horizontal. Time duration: 5 minutes
d) Restraint (longitudinal) Internal load: R-T bottom side rails. Test load: 2R	Hydraulic cylinder load will be applied to the bottom side rails. Two times for pulling and pushing. Time duration: 5 minutes
E) Floor strength. Test load: 5,460 kgs (12,000 lbs)	Use of a special truck. Total contact area: 284 cm2 Wheel width: 180 mm Wheel centre: 760 mm
F) Wall strength (front) Test load: 0.6 (R-T) = 0.6 P	Compressed air bag will be used on one side only
G) Wall strength (side) Test load: 0.4(R-T) = 0.4P	Compressed air bag will be used.
H) Wall strength (door) Test load: 0.4 (R-T) = 0.4 P	Same as front Wall strength test
I) Roof strength (weakest part) Test load: 300 kg	Applied area will be 600x300 mm longitudinal and transverse.
J) Racking (transverse) Test load: 15,240 kg	Hydraulic cylinder load will be applied to the header rail through top corner fittings.
K) Racking (longitudinal) Test load: 7,620 kg	Hydraulic cylinder load will be applied to the top side rail through top corner fitting on one side only. Two times for pulling and pushing.

L) Operation of door	After completion of test, the operation of doors, locks, hinges, etc. will be checked
M) Dimensions and weight	After completion of test, the dimensions and weight will be checked.
N) Weatherproofness	Inside dia. of nozzle: 12.5mm. Distance: 1.5 m. Speed: 100 mm/sec Pressure: 1 kg/cm2

* Note: R - Maximum Gross Weight
T - Tare Weight
P - Maximum Payload

8. Guarantee

Structure

All the containers shall be guaranteed by manufacturer to be free from defects in materials, workmanship and structure for a period of one (1) year from the date of acceptance of the container by the buyer.

Painting

The paint system coated on the container surface shall be guaranteed to be free from corrosion and failure for a period of three (3) years from the date of acceptance of the container by the buyer.

Corrosion is defined as rusting which exceeds RE3 (European Scale of degree of Rusting) on at least ten (10) percent of the total container surface, excluding that resulting from impact or abrasion damage, contact with solvents or corrosive chemicals and abnormal use.

If the corrosion exceeds RE3 as defined above within the guarantee period, inspection of the corrosion shall be carried out by the buyer, and paint manufacturer to detect the cause.

As the result of the inspection, if it is mutually agreed and accepted that the defective paint quality and/or poor workmanship have caused the corrosion, and/or paint manufacturer shall correct the defect on their accounts.

Decals

Decals applied on the container shall be guaranteed for a period of seven (7) years without peeling off, tenting or colour fading.

BULLBOX

Contenedores y Embalajes Normalizados S.A.
P.I. Silvota, Peñasanta 12, Llanera. 33192, Asturias- Spain
T +34 985 265 095 *bullbox@bullbox.com*
www.bullbox.com