

Technical Specification
For
8'x2200x2260 1DD Type
Dry Cargo Steel Container
(CR CONTAINER)
WITH
TWO HIGH LOCKING GEAR

Specification No.	:	ST001YS08G1
Drawing No.	:	T001YS08G1G
Date of Issue	:	Mar. 2, 2020

This specification is used in all factories of
Shanghai CIMC Yangshan Logistics Equipment Co., Ltd.

Scope

This specification covers design, construction, materials, testing, inspection & prototype container. The container is built in accordance with the requirements of 8'x2200x2260 Type steel dry freight containers by Shanghai CIMC Yangshan Logistics Equipment Co., Ltd. (hereinafter referred to SYLE).

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1. General

1.1 Operational Environment

The container will be designed and constructed for the transportation of general cargo on sea (above or under deck) and on land (road or rail) throughout the world, and will be suitable for the environmental conditions imposed by those modes of transport. All materials used in the construction will be able to withstand extreme temperature ranging from -40°C (-40°F) to 70°C (158°F) without effect on container's strength and watertightness.

2. Approval and Certificates

2.1 T.C.T Certificate

Certificate of timber treatment to the latest requirement of Australia Department of Health.

3. Handling

The container will be constructed to be capable of being handled without any permanent deformation, which will render it unsuitable for use or any other abnormality during the following conditions:

- 1) Lifting, full or empty, at the top corner fittings vertically by means of spreaders fitted with hooks, shackles or twistlocks.
- 2) Lifting, full or empty, at the bottom corner fittings using slings with appropriate terminal fittings at slings angle of sixty (60) degrees to horizontal.
- 3) Lifting, full or empty, at forklift pockets using forklift truck.

4. Dimensions and Ratings

4.1 Dimension

	<u>External Dimensions</u>	<u>Internal Dimensions</u>
Length	2,438 (0, -5) mm	2,287 (0, -5) mm
Width	2,200 (0, -5) mm	2,112 (0, -5) mm
Height	2,260 (0, -5) mm	2,062 (0, -5) mm

No part of the container will protrude beyond the external dimensions mentioned above.

Maximum allowable differences between two diagonals on any one of the following surfaces are as follows:

Roof, Bottom and Side Diagonals		10 mm
Front and Rear Diagonals		10 mm.

4.2 Door Opening

Width		2,106 (0, -5)	mm
Height		1,949 (0, -5)	mm

4.3 Fork pocket

Width		320	mm
Height		115	mm
Center distance		820(±50)	mm

4.4 Inside Cubic Capacity

9.95 cu.m 351 cu.ft

4.5 Rating

Maximum Gross Weight	6,000 kg	13,230 lbs
Maximum Payload	5,100 kg	11,250 lbs
Tare Weight (±2%)	900 kg	1,980 lbs

5. Construction

5.1 General

The container will be constructed with steel frames, fully vertically corrugated steel side and end walls, die-stamped corrugated steel roof, wooden flooring, corrugated double hinged doors and ISO corner fittings at eight corners. All steelworks will be built up by means of automatic and semi-automatic CO2 gas arc welding. All exterior weldings including that on base structure will be continuous to give perfect watertightness, Interior welds will be intermittent with a minimum bead length of 25 mm for every 250 mm. All the welds, even spots, will have penetration without undercutting or porosity. The tolerance of steel plate thickness will obey JIS standard G3193-1990, table 4.

5.2 Corner Fittings

Corner fittings will be designed in accordance with ISO/1161 standard, and manufactured at the workshops approved by the classification society.

5.3 Base Frame

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

5.3.1 Bottom Side Rail

Each bottom side rail is built of a 3.0 mm thick pressed open section steel made in one piece.

5.3.2 Crossmember

The crossmembers are composed of a number of small pressed channel section

Shape : " C " section
Small one : 122 x 45 x 30 x 3.0 mm, Qty. : 5

5.3.3 Fork Pocket

Each fork pocket is constructed with one omega crossmembers and two bottom end plates.

Shape : "Ω" section
Small one : 30x122 x 320 x 122x30 x 3.0
Bottom plate : 6.0 mm Thick

5.4 Front End

The front end will be composed of corrugated end wall and front end frame, which are welded together as a sub-assembly.

5.4.1 Front End Wall

The front end wall is composed of steel sheet fully vertically corrugated into trapezium section, butt joint together to form one panel by means of automatic welding.

Thickness: 1.6 mm
Corrugation dimension- Outerface: 72 mm , Depth: 36 mm
Interface: 70 mm , Slope: 68 mm

5.4.2 Front End Frame

The front end frame will be composed of one front sill, two corner posts, one front header and four corner castings.

5.4.2.1 Front Sill

The front sill is made of special "C" section steel pressed with vertical webs as the stiffener.

Front rail : 3.0 mm Thk.
Web : 4.0 mm Thk. Qty.: 2 Pcs.

5.4.2.2 Corner Post

Post is made of a 3 mm thick section to ensure suitable strength and easy maintenance.

5.4.2.3 Front Header

The front header is constructed with steel square tube lower part and steel plate upper part. The upper part is extended inwards of the container certain distance with full width from front part of top corner fittings.

Lower rail : 60 x 60 x 3.0 mm RHS
Upper part : 3.0 mm thick

5.5 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.

5.5.1 Door Sill

The door sill is built of a special channel section steel pressing with internal ribs as stiffeners at the back of each cam keeper. The upper face has a slope for better drainage and the highest part is on the same level to the upper face of the wooden floor.

a) Door sill : 4.0 mm thick Slope : 1:10 approx.
b) Stiffener ribs : 3.0 mm thick Qty. : 4 Pcs.

5.5.2 Corner Post

Each corner post is constructed from an inner part of channel shaped hot-rolled section steel and an outer part of steel pressing, welded together to form a hollow section to ensure the door opening and suitable strength against the stacking and racking force. Three (3) sets of hinge pin lugs are welded to each outer part of the corner post.

Inner part	: 3.0 mm thick
Outer part	: 3.0 mm thick.

5.5.3 Door Header

The door header is constructed from a lower "U" shaped steel pressing, with internal stiffener gussets located behind cam keeper, and an upper steel pressing header plate. They are welded together to form a highly rigid box section.

Rear header	: 3.0 mm thick
Header plate	: 3.0 mm thick
Gussets	: 3.0 mm thick, Qty. : 4

5.5.4 Door Systems

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

5.5.4.1 Door Leaves

Each leaf consists of door panel, steel door frame which consists of horizontal (upper & lower) and vertical (inner & outer) members. They are welded together to form the rectangular door leaves. The doors are so arranged that the left leaf cannot be opened without displacement of the right leaf.

- 1) Door Panel: With 2 corrugations

Depth	: 36 mm	Slope	: 68 mm
Width	: 72 mm	Panel thickness	: 1.6 mm
- 2) Door frame:
 - a) Horizontal door member: 150 x 50 x 3.0 mm, channel section
 - b) Vertical door member: 100 x 50 x 3.2 mm RHS (inner & outer)

5.5.4.2 Hinges and Pins

Three forged hinges, providing with bushed hole, are welded to each door leaf. Each door is installed by hinge pins, washers and bushings. Brass grease nipple will be applied to every hinge blade.

Washer	- Stainless steel, under the bottom of hinge
Bushing	- Self-lubricating nylon
Pin	- SUS304

5.5.4.3 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 / nuts and six huck bolts at TIR locations, by top and bottom bearing brackets and bar guide brackets. The bars are suspended in bearing brackets with bush of self-lubricating synthetic material. Cam-keepers are welded to the door header and sill.

- a) Locking device type: HaiHang with secure cam/keeper.
- b) Locking bars treatment: Hot-Dipped galvanized (75 Microns)
- c) Cam keeper treatment: Electro zinc plated.

5.5.4.4 Door Holder and Receptacle

A door holder per door, made of mixed nylon rope, is tied to the center side locking

rod & the receptacle (door hook) is welded to each bottom side rail to remain the door at the open position.

5.5.4.5 Seal Gaskets

The black door seal gaskets are of "J-C" type EPDM rubber. They are attached to the door frame with stainless steel rivets and stainless steel retainer strips. The door gasket middle upper corner is overlap to left door area with wider outer lip. The gasket is set with adhesive sealant on the back.

5.5.4.6 Shim

The E.P.D.M shim will be placed over the holes on the door for fastener.

5.6 Side Wall Assembly

5.6.1 Top Side Rails

Each top side rail is used a square steel pipe.

Rail: 60 x 60 x 3.0 mm RHS

5.6.2 Side Walls

Each side wall will be composed of a number of sheets for the intermediate (inner) parts and outer panels at each end of side wall, fully vertically corrugated into trapezium section, butt welded together to form one panel by automatic welding.

panel : 1.6 mm Thk. , Qty. : 2Pcs/Each side

Trapezium:

Outer face	: 72 mm ,	Slope	: 68 mm
Inner face	: 70 mm ,	Depth	: 36 mm
Pitch	: 278 mm ,		

5.7 Roof

The roof will be constructed by several die-stamp corrugated steel sheets with a certain upwards camber at the center of each trough and corrugation, these sheets are butt jointed together to form one panel by automatic welding.

Corrugation Shape	- Depth	: 20 mm ,	Pitch	: 209 mm
	Inter face	: 91 mm ,	Slope	: 13.5 mm
	Outer face	: 91 mm ,		
	Camber upwards	: 5 mm		

Panel thickness : 1.6 mm

Sheet Qty. : 2 Pcs.

5.8 Floor

5.8.1 The Floor Boards

The floor consists of plywood. The plywood is treated with wood preservative containing according to the latest requirement of the Commonwealth Department of Health, Australia.

Plywood thickness	: 28 mm
Plywood moisture content	: Less than 14%
Plywood ply number	: Min. 19 plies
Plywood material	: Hardwood / Bamboo & wood composite floor

5.8.2 Arrangement and Fixing

The plywood boards are longitudinally laid on the crossmember with a pre-blasted painted and free floating flat steel at the center. The plywood boards are tightly secured to each crossmember with countersunk self-tapping electro-zinc plated steel screws. These heads of the floor screws are countersunk below the level of the upper surface of the floor by 2.0 mm to 2.5 mm.

Screws	: M8 x 45 x Φ 16(head), Electro zinc plated
Screws' Qty.	: 10 pcs/ each
Flat bar	: 50 x 4.0 mm, painted with epoxy zinc topcoat

5.9 Special Features

5.9.1 Customs Seal Provision

Customs seal provisions are made on each locking handle and retainer in accordance with TIR requirements.

5.9.2 Lashing rings

- 1) Lashing rings are welded to each bottom and top side rail at corresponding recessed area of side wall.
Lashing ring Qty. / Each bottom or top side rail: 3 Total: 12
- 2) Lashing rods are welded on each rear & front corner post slot.
Lashing rods Qty. / Each front corner post: 2, Total: 4
Lashing rods Qty. / Each rear corner post: 2, Total: 4
- 3) Capabilities of pull load of every lashing point are as following:
 - a) Lashing rings on the side rails: 1,500 kg/each
 - b) Lashing rods on the corner posts: 1,000 kg/each
- 4) Treatment of lashing ring / bar: Electro zinc plated

5.9.3 Ventilators

Two ventilators with E.P.D.M seal gasket is supplied at upper and lower of each side wall when facing the outside of container, fixed by aluminum huck bolts, the seal is to be applied on the edges except the bottom side of the ventilator, after the completion of paint.

Quantity: 4 (2 at upper of each side wall)
Material: ABS Labyrinth Type.

6. Preservation

6.1 Surface Preparation of the Steelwork

- 1) All the steel surfaces prior to forming or after will be degreased and shot blasted to Swedish Standard SA 2.5 to obtain the surface roughness at 25 to 35 microns which can result in the removal of all the rust, dirt, mill scale and all other foreign materials.
- 1) Locking rod assemblies, which are welded with gear cams, bars holder and handle hinges, are hot dipping galvanized (Thickness: 75 microns). Bolt to be H.D.G.

- 2) All fasteners such as nuts, washers, self-tapping screws, which are not mentioned in this Spec. will be electro zinc plated to 13 Microns.
- 3) Hinges and cam keepers will be electro zinc plated to 13 Microns.
- 4) Sealant

Each perimeter of the floor, all the overlapped joints of inside, all the holes for bolts and nuts and all the places where may leak water will be sealed to give prevention against water entry.

Sealant Materials:

- a. Waterborne sealant (All inside area)
- b. Chloroprene(All outside area)
- c. Butyl (Hidden parts)

6.2 Coating

6.2.1 Prior to Assembly

All the steel surfaces will be coated with primer paint immediately after shot-blasting.

6.2.2 After Assembly

All the weld joints will be shot-blasted to remove all the welding fluxes, spatters, burnt primer coatings caused by welding heat, and other foreign materials, and followed with the secondary paint operation immediately.

6.2.3 All the surface of the assembled container will have coating system as follows:

Process	Paint Name	DFT (μ)
Exterior Surface Colour: as per the contract	Epoxy zinc rich primer	10
	Water-borne epoxy zinc primer	20
	Water-borne epoxy midcoat	40
	Waterborne Acrylic topcoat:	40
	Total : 110	
Interior Surface Colour: RAL7035	Epoxy zinc rich primer	10
	Water-borne epoxy zinc primer	20
	Waterborne Epoxy topcoat	40
	Total: 70	
Under Structure	Epoxy zinc rich primer	10
	Water-borne epoxy zinc primer	20
	Waterborne undercoating	140
	Total: 170(steel parts)	

7. Markings

7.1 Lettering

The markings will be designed decal and arranged according to buyer's requirement. The markings consist of the following contents:

- 1) Owner's emblems according to owner's design.
- 2) Owner's code , serial number and check digit (outside & inside)
- 3) Size and type code (outside)
- 4) Weight details (on door)
- 5) Material of marking: Vinyl film.

8. Documents Submission

8.1 When Contracting

SYLE shall submit the specification with following drawing (3 sets):

General arrangement	Side wall assembly
Base assembly	Front end assembly
Rear end assembly	Roof assembly
Marking arrangement	

8.2 When delivery

The owner shall inform SYLE all the documents needed two weeks before the date of delivery and SYLE will be submit them to the owner.

9. Guarantee

The guarantee period will commence at the day of technical acceptance.

9.1 Paint Guarantee

The paint system applied to the container surface shall be guaranteed against corrosion and/or paint failure for a period of three (3) years. The guarantee shall be applied to all the kinds of faults / failures affecting more than 10 % of any given part of the container, and partial or total repainting shall be assured for the container(s) at the manufacturer's expense. Normal wear/tear, or corrosion caused by acid, alkaline solution or result from damages by abrasion impact or accident are excluded. Corrosion is defined as the rusting exceeding RE3 (European scale of degree of rusting).

9.2 Other Guarantee

All containers shall be guaranteed against any defects or omissions in construction, poor workmanship, or defective materials for a period of one (1) year. Any damages caused by mis-handling, mis-securing, mis-loading, impact and other natures of accident are excluded. The self-adhesive film decal shall be guaranteed seven (7) years.

10. Materials

The main materials used in construction are as follows or approved equivalent:

Where used	Materials
<u>Front End Assembly</u>	
Front corner post	Corten A (or SPA-H)
Front sill	Corten A(or SPA-H)
Front panel	Corten A(or SPA-H)
Front header	Corten A(or SPA-H)
<u>Base Assembly</u>	
Bottom side rail	Corten A(or SPA-H)
Crossmember	Corten A(or SPA-H)
Fork pocket assembly	Corten A (or SPA-H)
Floor center rail	Corten A(or SPA-H)

Rear End Assembly

Rear corner post (outer)	Corten A(or SPA-H)
Rear corner post (inner)	SM490YA (or SS50)
Rear header cap	Corten A(or SPA-H)
Door header lower	Corten A(or SPA-H)
Door sill	Corten A(or SPA-H)
Door panel frame	Corten A(or SPA-H)
Door panel	Corten A(or SPA-H)
Door hinge	S20C, Electro zinc plated
Door hinge pin	SUS304
Locking cam keeper	S20C, Electro zinc plated
Locking cam	S20C, H.D.G.
Locking rod	STK41, H.D.G.
Door gasket	E.P.D.M
Gasket retainer	SUS304
Washer	SUS304
Rivet	SUS304
Shim	E.P.D.M.
Corner fitting	SCW480

Side Wall Assembly

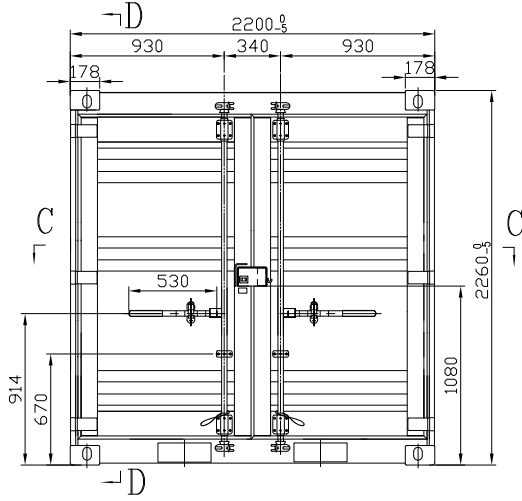
Side panel	Corten A(or SPA-H)
Top side rail	Corten A(or SPA-H)
Lashing bar, lashing ring	SS41, Electro zinc plated
Ventilator	A.B.S

Roof

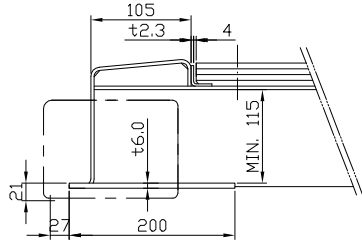
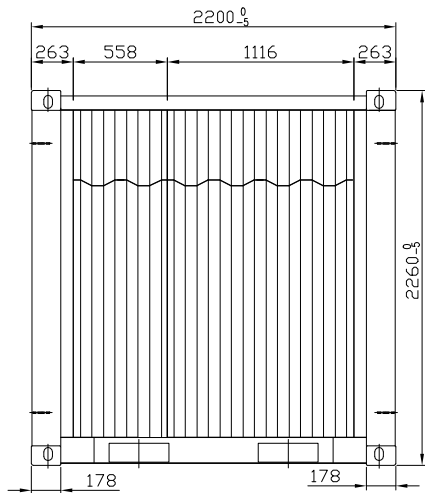
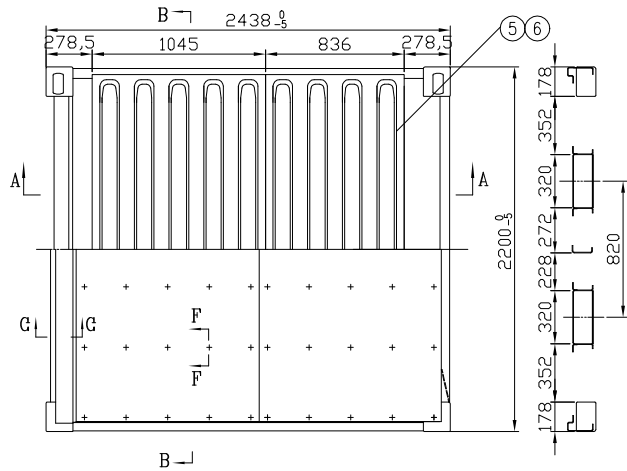
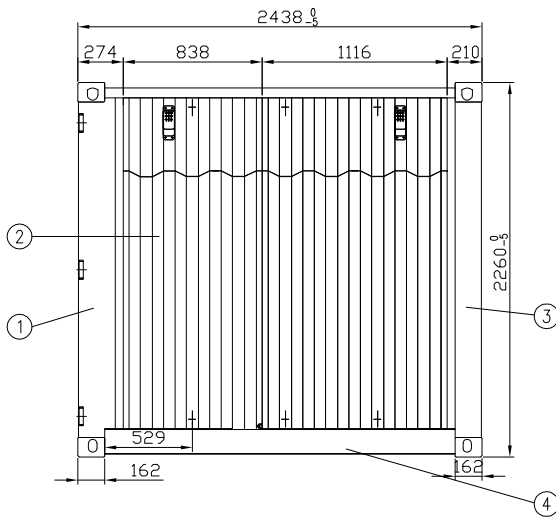
Roof corner gusset	Corten A(or SPA-H)
Roof panel	Corten A(or SPA-H)

Note:

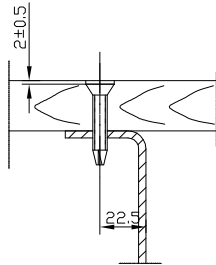
Material	Yield point (Kg/sq.mm)	Tensile strength (Kg/sq.mm)
SS41	25	41
JIS SCW49	28	49
SS50	29	50
S20C	25	42
SM490YA	37	50
Corten A(or SPA-H)	35	49



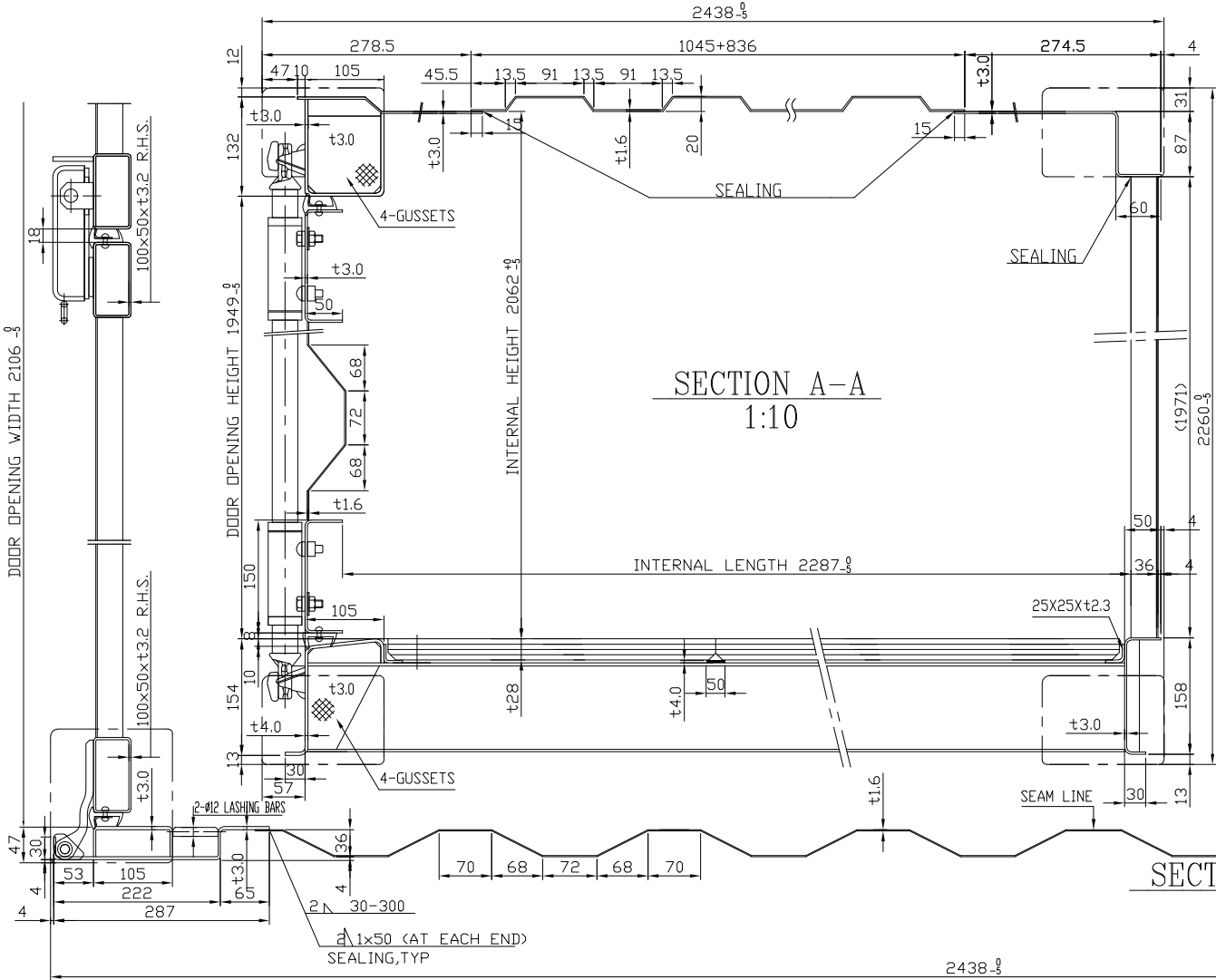
SECTION D-D
1:1



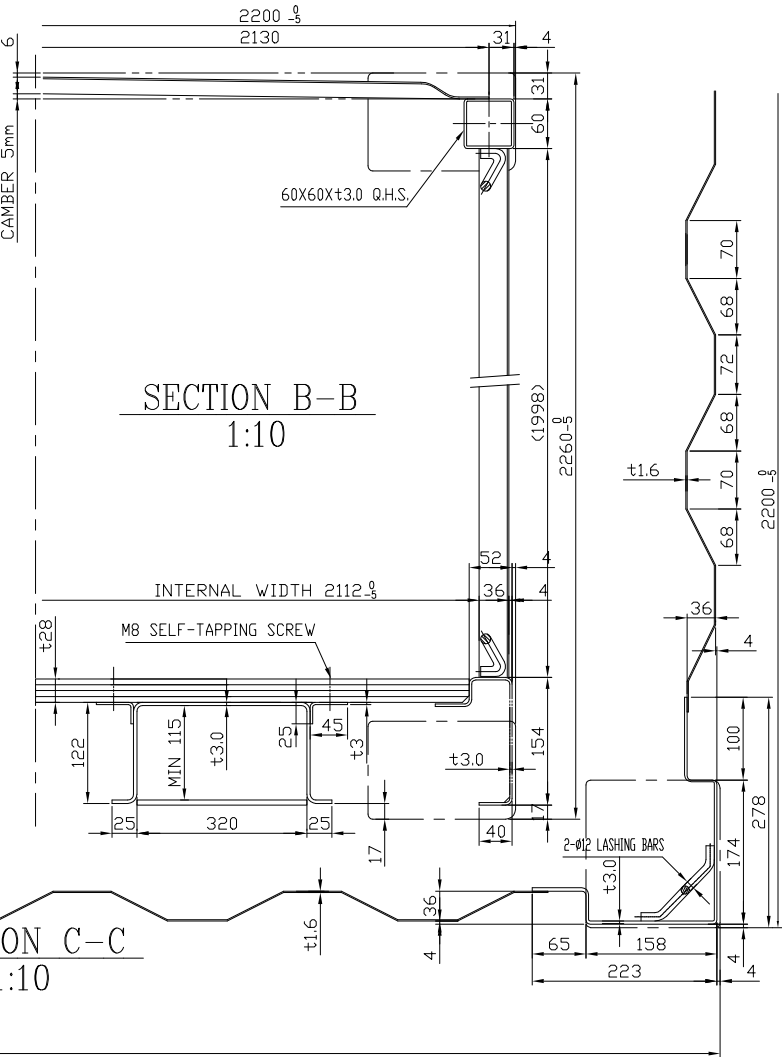
SECTION G-G
1:10



SECTION F-F
1 : 5



SECTION A-A
1:10



SECTION B-B
1:10

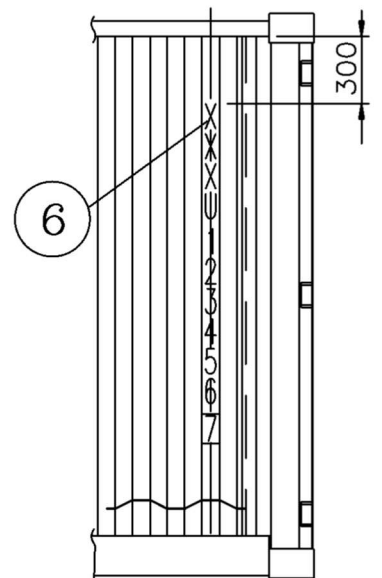
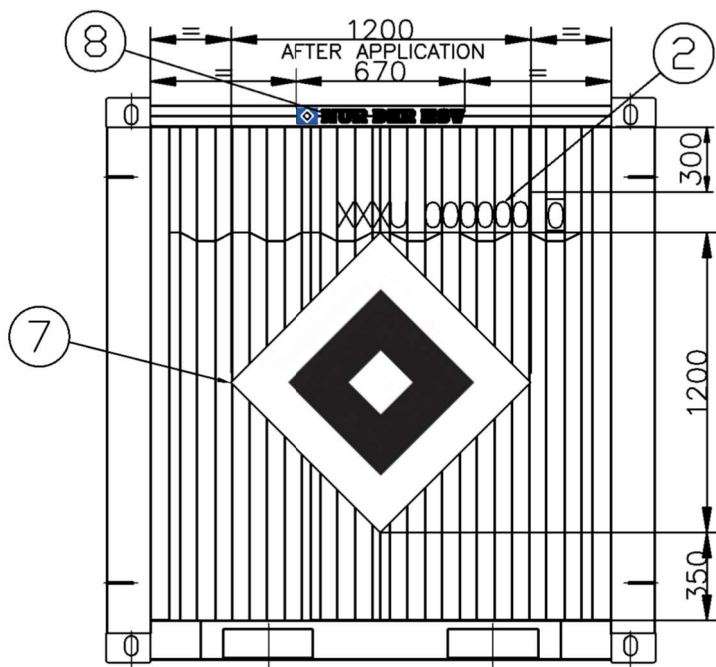
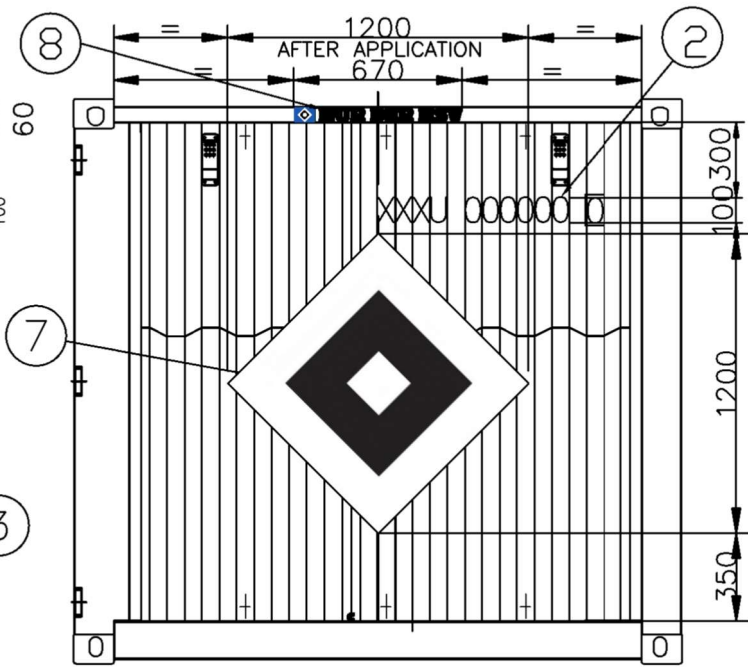
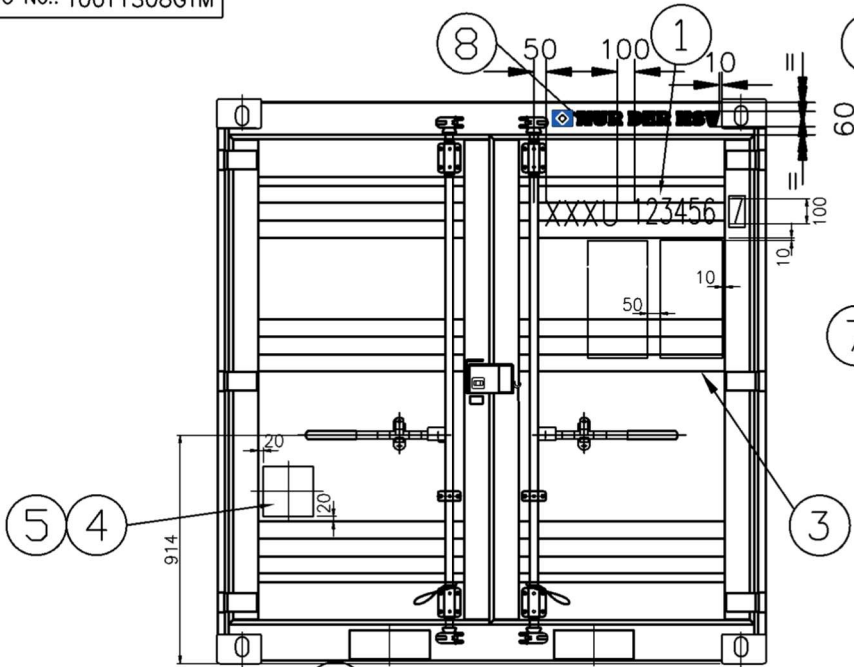
SECTION C-C
1:10

CLASSIFICATION		DIMENSION			
EXTERNAL	LENGTH	2,438	⁰ _{-5mm}	8' 0"	⁰ _{-3/16"}
	WIDTH	2,200	⁰ _{-5mm}	7' 2 5/8"	⁰ _{-3/16"}
	HEIGHT	2,260	⁰ _{-5mm}	7' 5"	⁰ _{-3/16"}
INTERNAL	LENGTH	2,287	mm	7' 6 1/16"	⁰ _{-3/16"}
	WIDTH	2,112	mm	6' 11 1/8"	⁰ _{-3/16"}
	HEIGHT	2,062	mm	6' 9 3/16"	⁰ _{-3/16"}
DOOR OPENING	WIDTH	2,106	⁰ _{-5mm}	6' 10 15/16"	⁰ _{-3/16"}
	HEIGHT	1,949	⁰ _{-5mm}	6' 4 3/4"	⁰ _{-3/16"}
INTERNAL CUBIC CAPACITY		9.95	cu.m	351	cu.ft

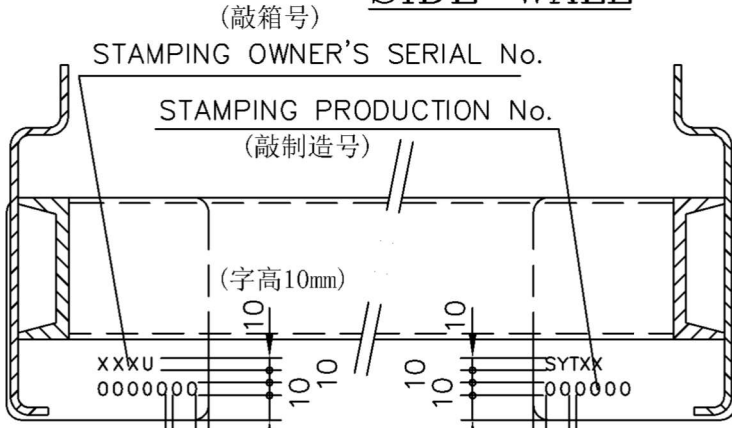
MAX GROSS WEIGHT	6000 kg	13230 lb
TARE WEIGHT	900 kg	1980 lb
MAX PAY LOAD	5100 kg	11250 lb

6	MARKING ARRANGEMENT	商标布置	T001YS08G1M		1
5	ROOF ASSEMBLY	顶板装配	T001YS08G1R		1
4	BASE ASSEMBLY	底架装配	T001YS08G1B		1
3	FRONT END ASSEMBLY	前端装配	T001YS08G1F		1
2	SIDE WALL ASSEMBLY	侧板装配	T001YS08G1S		2
1	REAR END ASSEMBLY	后端装配	T001YS08G1E		1

ITEM	DESCRIPTION	DWG NO.	ISSUE	QTY.
TITLE: 8'x2200x2260 GENERAL ARRANGEMENT				总装配
CUSTOMER: 8GP		SCALE: 1 : 50		
DESIGNED BY:		WEIGHT: KG. QTY.: 1		
CHECKED BY:		DWG No.: T001YS08G1G		
APPROVED BY:				
SHEET 1	OF 1	SHEETS	ISSUE:	20E-01



(箱内右侧板)
**INSIDE RIGHT
SIDE WALL**



**REAR END BOTTOM
CORNER FITTING**

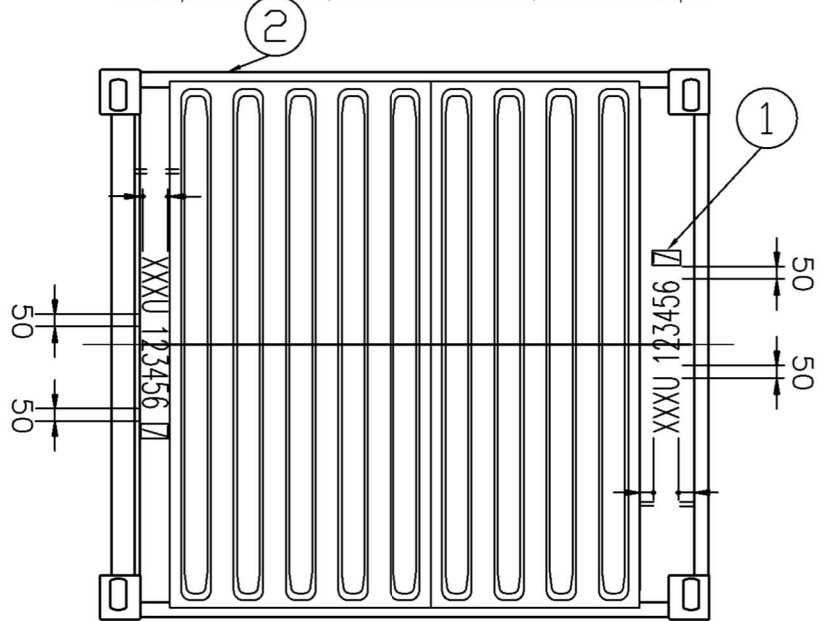
(门端底角件)

REMARK
1. DECAL WARRANTY: 7 YEARS

8	SIDE LOGO 2	箱主侧板标 2				5
7	SIDE LOGO 1	箱主侧板标 1				3
6	OWNER'S CODE AND SERIAL NUMBERS (INSIDE)	箱主代码和序列号		BLACK KISSCUT		1
5	RIVET (GB/T12618-90)	抽芯铆钉	Ø4.8x7.0, OPEN TYPE	SUS304		4
4	CONSOLIDATED PLATE (T=0.8mm)	垫板		SUS304		1
3	WEIGHT DECAL	重量标		KISSCUT		1ST
2	OWNER'S CODE AND SERIAL NUMBERS (FRONT, SIDE)	箱主代码和序列号		KISSCUT		3
1	OWNER'S CODE AND SERIAL NUMBERS	箱主代码和序列号		KISSCUT		3
ITEM 序号	DESCRIPTION (名称)	DWG No. (图号)	MATERIAL (材料)	TH. (厚度)	QTY. (数量)	

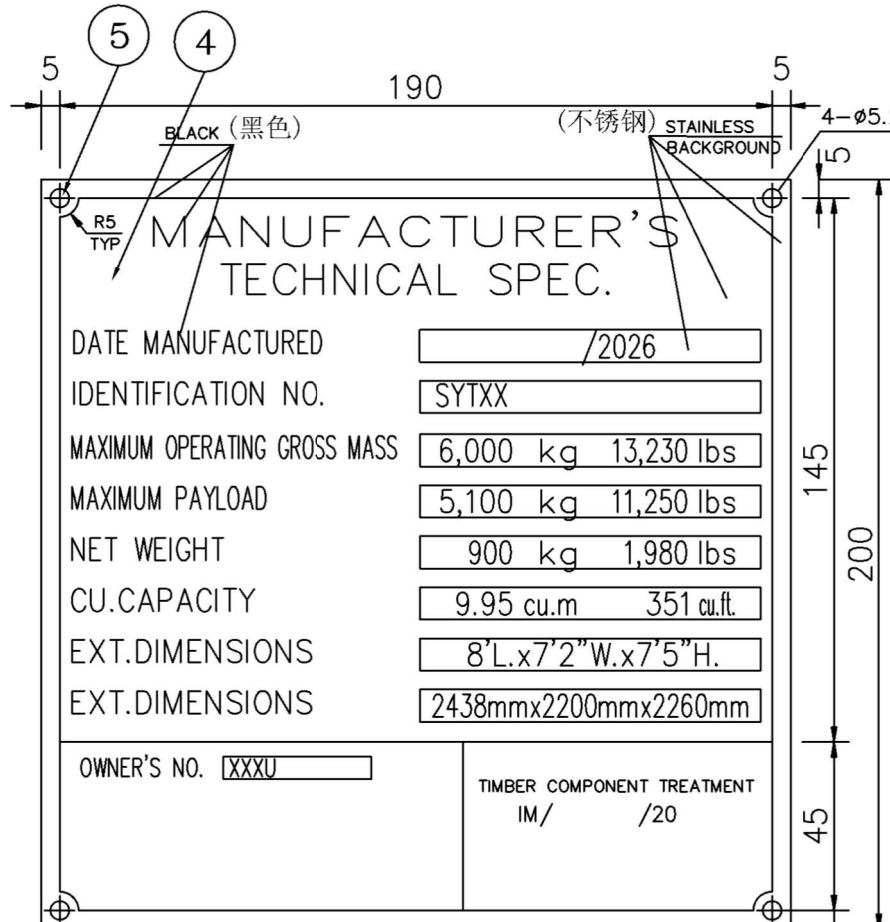
TITLE: MARKING ARRANGEMENT		商标布置	
CUSTOMER: CR CONTAINER 8GP		SCALE: 1 : 25	
DESIGNED BY:		WEIGHT: KG. QTY.: 1	
CHECKED BY:		DWG No.: T001YS08G1M	
APPROVED BY:			
SHEET 1	OF 1	SHEETS	ISSUE: 25A-01

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MAX GROSS	6,000	kg	50
TARE	900	kg	10
PAYLOAD	5,100	kg	470
CU.CAP.	9.95	cu.m.	
	351	cu.ft.	
240	50	250	

DETAIL 3



DETAIL 8

1. HSVU 080000-080009 (10箱), NCS S 3560-R80 B, WHITE KISSCUT;
TYPE:Hardwood with PSF by CIMC