

Corrigendum 01

1. Corrigendum 01 Details for GeM Tender No-GEM/2025/B/6634962 dtd 03.09.2025 for Fabrication and Supply (including transportation and transit insurance, Outfitting, Blasting & Painting) DNV class duly inspected Hatch Covers and Twin Deck Panels / Grain Bulkheads as per drawings and Scope of Work for Y-21001 to Y-21006 for MPV Project.
2. The Painting Scheme (**Enclosure 08**) uploaded with the original technical specification has been revised to Amended Paint Scheme which is referred/attached herewith.
3. Bidders are requested to quote as per the revised Paint Scheme.
4. The revised Painting Scheme (**Enclosure 08**) is attached as a ATC document since there is no provision of uploading the revised drawing in the technical specification document.
5. All other terms & conditions of the tender and terms of ATC document will remain the same.
6. The revised Paint Scheme is attached as below:

Paint Scheme for Hatch Cover & Grain Bulkhead Enclosure 08



MAZAGON DOCK SHIPBUILDERS LTD.

PROCEDURES FOR PRIMARY & SECONDARY SURFACE PREPARATION,
APPLICATION OF SHOP PRIMER / PAINT AND COATING INSPECTION FOR
STEEL PLATES AND PROFILE FOR HATCH COVER & GRAIN BULKHEAD
FABRICATION

PROJECT	:	FABRICATION OF HATCH COVER & GRAIN BULKHEAD FOR 7500 DWT MULTI-PURPOSE DRY CARGO VESSEL
SHIPYARD		MAZAGON DOCK SHIPBUILDERS LTD.
YARD NO	:	MDL YD No.21001/21002/21003/21004/ 21005/21006
CLIENT	:	NAVI MERCHANTS
DOCUMENT NO	:	MPV / PSP (Rev. 0)

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CLASS	:	DNV
DWT	:	7500 DWT

1. PREFACE

All the paints are used for all 6 ships are from M/s PPG Asian Paints Pvt. Ltd. Hence to maintain uniformity and ease of paint repair work in future, the Shop primer (Inorganic Zinc Silicate) and all the paints to be used for Hatch Covers and Grain bulkhead shall be from M/s. PPG Asian Paint Pvt. Ltd. only.

2. DEFINITIONS

- 2.1 Dew point is the temperature at which air is saturated with moisture.
- 2.2 DFT is dry film thickness.
- 2.3 Dust is loose particle matter present on a surface prepared for painting, arising from blast cleaning or other surface preparation processes, or resulting from the action of the environment.
- 2.4 Edge grinding is the treatment of edge before secondary surface preparation.
- 2.5 "GOOD" condition is the condition with minor spot rusting.
- 2.6 Hard coating is a coating that chemically converts during its curing process or a nonconvertible air-drying coating which may be used for maintenance purposes. Can be either inorganic or organic.
- 2.7 NDFT is the nominal dry film thickness. 90/10 practice means that 90% of all thickness measurements shall be greater than or equal to NDFT and none of the remaining 10% measurements shall be below 0.9 x NDFT.
- 2.8 Primer coat is the first coat of the coating system applied in the shipyard after shop primer application.
- 2.9 Shop-primer is the prefabrication primer coating applied to steel plates, often in automatic plants (and before the first coat of a coating system).
- 2.10 Stripe coating is painting of edges, welds, hard to reach areas, etc., to ensure good paint adhesion and proper paint thickness in critical areas.
- 2.11 Target useful life is the target value, in years, of the durability for which the coating system is designed.
- 2.12 Technical Data Sheet is paint manufacturers' Product Data Sheet which contains detailed technical instruction and information relevant to the coating and its application.

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3. PRIMARY SURFACE PREPARATION (PSP), SHOP PRIMER APPLICATION AND INSPECTION

All steel plates and sections equal to or greater than 6 mm in thickness shall be salt free and shot blasted and primed immediately with one coat of shop primer inorganic zinc silicate to 15-25 microns as given below:

3.1 PRIMARY SURFACE PREPARATION (PSP) – Blasting

- a. Structural steel plates, which will be painted later, shall be shot blasted to ISO Sa 2 .5 with anchor pattern of average 30-75 microns with the comparators and replica tape.
- b. Blasting shall not be carried out when the relative humidity of blasting cell is above 85% or the surface temperature of steel is less than 3°C above the dew point. Relative humidity 85% limit refers to the humidity inside the blasting chamber (cell).
- c. The steel surface cleanliness and roughness profile shall be checked at the end of the surface preparation and before the application of the shop primer, in accordance with the coating manufacturer's recommendation.
- d. The primary surface preparation inspection requirements shall be satisfied by periodic spot checks (once per week, in general) and this procedure shall be documented considering followings:
 - (i) Primary surface preparation is carried out at a facility where environmental condition and quality level do not change substantially.
 - (ii) Primary surface preparation and shop priming are carried out by automation. Shop primer is applied immediately after blasting.
 - (iii) Considering the contamination of the foreign matter, blasting abrasive is typically controlled through a QA system.
 - (iv) Checking of the steel surface cleanliness and roughness profile shall be carried out at the end of the surface preparation and before the application of the primer, in accordance with the manufacturer's recommendations.

3.2 Inspection requirements for the coating inspector

- a. The surface temperature of steel, the relative humidity and the dew point shall be measured and recorded before the blasting process starts and at times of sudden changes in weather.
- b. The surface of steel plates shall be tested for soluble salts and checked for oil, grease and other contamination.
- c. The cleanliness of the steel surface shall be monitored in the shop primer application process.

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- d. The results of inspection related to this section are to be recorded by the QA inspector.

3.3 Shop Primer Application

- a. Just after the primary surface preparation, one (1) coat of average 15-25 µm DFT of Zn Silicate shop primer from M/s PPG Asian Paints Pvt. Ltd shall be applied on steel plates and members in order to prevent the surface temporarily from re rusting.
- b. Magnetic or electromagnetic dry film thickness gauges shall be used to measure dry film thickness.
- c. Maximum total dry film thickness shall be in according to the coating manufacturer's detailed specifications. Care shall be taken to avoid increasing the thickness in an exaggerated way.
- d. Thinner shall be applied as per coating manufacturer's recommendation.
- e. Records - The results of inspection related to this section are to be recorded by the QA inspector.

3.4 Inspection

3.4.1 Inspection Procedure:

- (i) QA inspectors shall inspect surface preparation and coating application during the coating process by carrying out, as a minimum, those inspection items identified in this practice. Measurement of DFT of shop primer in smooth plate (ii) Zero the electromagnetic gauge on the smooth steel substrate.
- (iii) Calibrate the gauge using a maximum 25 micron (1.0 mil) calibrated shim placed on the smooth steel substrate.
- (iv) Place test plates in at least three locations; for flat panels this should be at the middle and both edges. The test plates should be large enough to measure areas where fans overlap. It is recommended that the smooth steel test pieces are approximately 600mmx100mm (24"x4") in size. Alternatively, Q panels can be used but must be placed so that the DFT of the overlaps are determined.
- (v) Measure the DFT a number of times and record the highest, lowest and mean values.
- (vi) The reading should be more or less equal along the plate, if not, then the overlap or spray pattern is incorrect and requires adjustment. Be careful of erroneous results due to dry spray or clumps of pigment.

3.5 Weather condition monitoring

Coating shall be carry out if a. %RH<=85

b. Steel Temperature-Dew point >=3 degree

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Weather condition shall be taken prior to coating and regular intervals of coating.

4. Secondary Surface Preparation of Hatch Cover & Grain Bulkhead Members

Steel surface shall be cleaned prior to painting by disc sander and/or wire brushes manually according to the Builder's practice.

4.1 Before the first coat is applied, damages by welding, burning, rubbing, etc. and rusted steel surface shall be prepared in accordance with the following table:

Area		
Hatch cover	Outside	St 3
	underneath	St 3
Grain bulkhead panels		St 3
Other Outfitting Items		St 3

Surface Cleaning Before Over-Coating

The surfaces to be cleaned of oil, moisture, dust, salt and other foreign materials with thinner, fresh water, wire brush, or dry compressed air prior to coating.

4.2 Surface Preparation Of Outfitting And Piping

Surfaces of steel pipes which, are to be coated with the specified paint shall be chemically cleaned just before the application of the first coating except those to be galvanized. Welded or damaged parts of pipe shall be cleaned by power tools/hand tools and the cleaning grade shall be in accordance with the specification.

After fabrication of the outfitting, damaged portions of shop primer shall be cleaned with power tools just before the application of the first coating.

The cleaning grade shall be in accordance with the Builder's standard approved by Buyer. The touching surface between pipe and it's support and or clamps in exposed areas / tank outfit items shall be pre-coated prior to installing such pipes.

The cleaning grade of pipe support shall be in accordance with paint supplier's recommendation and Builder's standard approved by the Buyer.

5. PAINT APPLICATION

- a. After surface preparation and before applying painting, the surface shall be cleaned by vacuum cleaner, air blow or solvent wash as required.

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- b. Painting shall be carried out by airless spraying as far as possible. However, air spray hand brush or roller brush painting may be used where it is more suitable than spray.
- c. Coating condition: Painting interval, atmospheric temperature and humidity, necessary drying time, mixing, stirring and thinning ratio etc., shall be in accordance with the paint manufacturer's instructions.
- d. Enough ventilation must be available for all enclosed spaces such as tanks, void space, engine room and cargo hold.
- e. Touch-up coating: Joints on the outside shell shall be applied with touch-up coating just after the secondary surface preparation, with the first anti-corrosive paint. Other places shall be applied with the specified first coat without touch up coating just after the secondary surface preparation.
- f. Stripe coating: Two (2) coats of stripe coating shall be applied to free edges, welding beads, underside of flanges, access holes, drain holes, slots and scallop holes in all areas. Stripe coating of all welds and edges shall be done by using brushes; rollers can only be used for scallops and small holes (draining / air / lightening / key holes). The stripe coating shall be followed by full coating.
- g. Painting of Hatch Cover shall be carried out only after completion of all welding on internal surfaces of shell plating and after inspection by Buyers.

6. Paints and Their Dry Film Thickness

- a. The specified dry film thickness (D.F.T.) is to indicate average dry film thickness subject to the following - the lower film thickness should not be less than 90% of the specified DFT at more than 10% of the measured locations.
- b. The paint D.F.T. shall be checked / confirmed by yard's QA inspector and paint maker.
- c. Regular reports for all painting inspections / works carried out (with photographs) shall be submitted to Buyers by shipyard/paint maker.

7. Painting Scheme for Hatch Cover and Grain Bulkhead

Painting scheme in general shall be as given below.

ITEM	LOCATION	GENERIC NAME / TYPE OF PAINT	No: of Coats (**)	D.F.T (micron)	FINAL PAINT COPLOUR	M/S PPG ASIAN PAINT PRODUCT	NAME OF THINNER
1	CH Hatch covers underneath surface/grain bulkhead panels	Anti-abrasive/aluminum pigmented, two component epoxy Inside of hatch cover/grain bulkhead panels to be stripe coated 2 times	1	125	Grey	Sigma cover 350 (Red Brown)	91-92

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		Anti-abrasive/aluminum pigmented, two component epoxy Inside of hatch cover/grain bulkhead panels to be stripe coated 2 times	1	125		Sigma cover 350 (Grey RAL 7035)	91-92
2	CH Hatch covers exposed surface (TOP SIDE)	Two component, solvent-borne, selfcuring, inorganic zinc rich silicate, antiabrasive	1	75	CM green RAL 140 20 10	Sigma Zinc 158 (Grey)	90-93
		Antiabrasive/selfpriming, two component epoxy/polyamide adduct harder	1	125		Sigma cover 350 (Grey)	91-92
		Two component glossy acrylic polyurethane, cured with aliphatic isocyanate	1	50		Sigma dur 550 (CM green RAL 140 20 10)	21-06
3	CH Hatch covers Internal Surface Area (Before Closing)	ST-3 surface preparation and application of one coat	1	125	Grey	Sigma cover 350 (Grey)	91-92

8. Galvanizing

Hot-dipped galvanizing shall be applied to the all the Pipes.

8.1 Procedure for galvanizing.

- Visual inspection of pipes for deposition of lumps.
- Check galvanizing as per treatment mentioned in material Dispatch note.
- First the items are to be efficiently & satisfactorily cleaned and thereafter hot dip galvanized to B.S.S 729/ASTM A-153 or latest solvent specification or specified by CM/OIC
- Giving coating of 2 to 2.503 OZ /SQFT (HG Zinc 99.975%).
- Effectively and satisfactorily check deposition of excess/deficient zinc layer all around. 6) Inspection of galvanizing film as per following specification

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SPECIFICATION	THICKNESS	AVERAGE COATING	INSPECTION AUTHORITY
BSS-729	UPTO 2 MM	335 g/m2 (46 micron)	Yards Internal QA
ASTM-A123	2MM TO 5MM	460 g/m2 (64 micron)	Yards Internal QA
ASTM-A153	ABOVE 5MM	610 g/m2 (85 micron)	Yards Internal QA