

**TECHNICAL SPECIFICATION DOCUMENT (HOT-DIP GALVANIZING (HDG))****PRODUCT / SERVICE DESCRIPTION**

Meklet “Hot-Dip Galvanizing” (HDG) is a corrosion-protection service for fabricated mild-steel articles. The fabricated steel is immersed in molten zinc by an approved specialist galvanizing subcontractor, forming a metallurgically bonded zinc / zinc-iron coating that provides both barrier and sacrificial protection.

Service route: Fabrication and QA control by Meklet Metal Technology (Pvt) Ltd. -> HDG by approved subcontractor (LTL Galvanizers) -> receiving inspection, coating-thickness verification and release by Meklet, as required by the project specification.

INTENDED USE AND EXPOSURE

- [1] Outdoor and industrial mild-steel fabrications require durable corrosion protection, including cable containment, brackets, frames, supports, bases and fabricated enclosure components.
- [2] Commonly specified for C3-C5 atmospheric corrosivity environments. Actual service life depends on zinc thickness, local corrosion rate, drainage/detailing, damage, maintenance and the project exposure conditions.
- [3] Where unusually long service life or severe exposure requires a thicker zinc coating or duplex system, the requirement shall be agreed before fabrication and galvanizing.

SUBSTRATE AND MATERIAL LIMITATIONS

Applicable Substrate	Mild Steel (MS) only.
Minimum Meklet Material Thickness	2.0 mm and above (recommended minimum for handling, dimensional stability and galvanizing quality).
Non-Applicable Materials	Stainless steel, aluminium and non-ferrous substrates are outside this TDS.
Geometry	Coating build, drainage, appearance and distortion are influenced by part geometry, welds, steel chemistry and fabrication method.
Final Feasibility	Subject to galvanizer review, bath capacity, lifting / jiggling requirements and safe venting / drainage.

TYPICAL PROCESS FLOW (BY GALVANIZER)

Degreasing -> Pickling -> Fluxing -> Hot-Dip Galvanizing -> Quenching / Passivation

Exact chemical concentrations, times, temperatures and after-treatment are controlled by the galvanizer according to its approved operating process.

FABRICATION REQUIREMENTS BEFORE HDG

- [1] Articles shall be substantially free from oil, grease, paint, excessive rust, weld slag, spatter and incomplete welds before dispatch for galvanizing.
- [2] Hollow sections, sealed boxes and overlapping enclosed areas shall have correctly located vent and drain holes. Galvanizing shall not proceed with unsafe sealed cavities.

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- [3] Drainage paths and hanging / lifting points shall be considered during design. Zinc traps, narrow gaps and inaccessible pockets shall be avoided where practicable.
- [4] Threads, precision fits, earth studs, masking areas and dimensional tolerances requiring special treatment shall be identified on the drawing / purchase order before galvanizing.
- [5] Thin, asymmetrical or highly welded fabrications may distort during galvanizing. Meklet may recommend stiffening, sequence changes or customer acceptance of distortion risk before processing.

STANDARD, COATING THICKNESS AND COMPLIANCE

Primary standard: BS EN ISO 1461:2022 - Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods.

Article / Steel Thickness	Min Local Thickness (um)	Min Local Mass (g/m ²)	Min Mean Thickness (um)	Min Mean Mass (g/m ²)
Steel < 1.5 mm*	35	250	45	325
Steel >= 1.5 mm to <= 3.0 mm	45	325	55	395
Steel > 3.0 mm to <= 6.0 mm	55	395	70	505
Steel > 6.0 mm	70	505	85	610

* Shown for standard completeness. Meklet's normal HDG fabrication requirement under this TDS is MS thickness >= 2.0 mm.

COATING THICKNESS MEASUREMENT AND ACCEPTANCE

Measurement instrument	Elcometer 456 - magnetic method (non-destructive) or approved calibrated equivalent.
Reference areas	Selected in accordance with BS EN ISO 1461:2022, Table 2 / Clause 6.2.3, considering article size and geometry.
Acceptance basis	Local and mean coating thickness / mass are assessed against the applicable steel-thickness category in Table 3 / Table 4, as applicable.
Compliance clause	BS EN ISO 1461:2022, Clause 6.5.
Coating mass conversion	Where calculated from thickness, nominal zinc density is taken as 7.2 g/cm ³ (approximately 7.2 g/m ² per micrometer of zinc coating).

EXAMPLE COATING THICKNESS COMPLIANCE RECORD

Illustrative Meklet inspection result supplied for a 3.0 mm MS plate. This example demonstrates the reporting format and is not guaranteed coating thickness for every article.

Item	MS t (mm)	Mean (um)	Mean Mass	Local (um)	Local Mass	Min Mean	Min Local	Result
75 x 140 mm Plate	3.0	72	518 g/m ²	57	410 g/m ²	55 um / 395 g/m ²	45 um / 325 g/m ²	PASS

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**TECHNICAL SPECIFICATION DOCUMENT (HOT-DIP GALVANIZING (HDG))****APPROVED GALVANIZER CAPABILITY - INDICATIVE**

Approved Subcontractor	LTL Galvanizers (Pvt) Ltd.
Indicative Bath Clearance	6.8 m x 1.1 m x 1.8 m.
Indicative Maximum Straight-Piece Length	Up to 12.5 m, subject to article geometry, safe handling and galvanizer confirmation.
Quality Certificate	Coating-thickness certificate / report may be requested as a project deliverable. Requirement should be stated at quotation / order stage.

APPEARANCE AND WORKMANSHIP

- [1] HDG is an industrial corrosion-protection company. Surface appearance may be bright, spangled, dull grey or locally varied depending on steel chemistry, section thickness and cooling history; appearance variation alone does not define coating performance.
- [2] The finished article shall be free from gross uncoated areas, harmful sharp zinc projections and defects that prevent intended use, subject to the acceptance provisions of BS EN ISO 1461:2022.
- [3] Runs, drainage marks, touch marks and small localized finish variations can occur on complex fabricated articles and shall be assessed against functional and standard acceptance criteria rather than decorative paint-finish expectations.
- [4] Wet-storage stains (white rust) can occur when newly galvanized articles are stored wet with restricted air circulation. Dry, ventilated storage and suitable separation are recommended.

HANDLING, STORAGE AND POST-GALVANIZING WORK

- [1] Use slings, spacers and handling methods that minimize coating damage. Avoid prolonged contact with standing water, aggressive chemicals or dissimilar metals unless the project design addresses galvanic compatibility.
- [2] Cutting, grinding or welding after galvanizing removes local protection and requires an approved repair method in accordance with the project specification and BS EN ISO 1461 requirements.
- [3] For components that will be painted or powder coated after HDG (duplex coating), the subsequent coating system and surface preparation shall be specified separately and confirmed as compatible with galvanized steel.

QUALITY DOCUMENTATION AND TRACEABILITY

- [1] Meklet job / production reference and customer PO or drawing revision, where applicable.
- [2] Material thickness and article description are used to select the applicable minimum coating criteria.
- [3] Galvanizer delivery / job reference and subcontractor certificate when specified.
- [4] Meklet receiving / coating-thickness inspection record using calibrated equipment where required.
- [5] Nonconformance and repair records, if any, linked to the job before product release.

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ORDERING / SPECIFICATION STATEMENT

Recommended specification text: "Fabricated mild-steel article, hot-dip galvanized after fabrication to BS EN ISO 1461:2022. Minimum coating thickness to suit the steel thickness category. HDG to be carried out by Meklet Metal Technology (Pvt) Ltd. through an approved galvanizing subcontractor, with coating-thickness verification / certificate where specified."

DISCLAIMER

This TDS provides Meklet's standard technical basis for HDG work. Project drawings, customer specifications and approved purchase-order requirements take precedence where they are more stringent. Coating thickness is principally influenced by steel thickness, steel chemistry and process reaction; values above the standard minimum may occur and are generally acceptable unless otherwise specified. Final feasibility, bath loading, hanging method and distortion risk are confirmed by article geometry.

SUBCONTRACTOR / REFERENCE PRODUCT INFORMATION

LTL Galvanizers (Pvt) Ltd

Blocks 03 & 04,
LINDEL,
Sapugaskanda, Sri Lanka.

- [1] BS EN ISO 1461:2022 - Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods.
- [2] LTL Galvanizers (Pvt) Ltd. - hot-dip galvanizing quotation / capability information supplied to Meklet (2026).
- [3] Meklet Metal Technology (Pvt) Ltd. - coating-thickness inspection example provided for this TDS.

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