



Nominal Sheet Steel Thicknesses and Thickness Tolerances

1 Scope

This specification covers metric sheet steel thicknesses and thickness tolerance requirements for engineering part drawings. This specification is applicable to continuous cast, cold, or hot rolled coated, or uncoated steel substrates specified in GMW2, GMW3032, GMW3399, and GMW14400 and supplied as coils or sheet. Thickness tolerances for coated substrates include the specified coating. Additional requirements or agreements shall be specified by local business units.

1.1 Material Description. Not applicable.

1.2 Symbols. Not applicable.

1.3 Applicability. Sheet metal parts consisting of uncoated and metallic coated low carbon and high strength steel substrates.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW2	GMW3032	GMW3399
GMW8	GMW3059	GMW14400

2.3 Additional References.

- Data Creation Standards (DSC) File Log.
- GM Release Engineering Drawing.
- TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

3.1 Requirements on Delivery.

3.1.1 Chemical Requirements. Not applicable.

3.1.2 Mechanical Requirements. Not applicable.

3.1.3 Physical Requirements. Thickness tolerances for coated substrates include the specified coating. The specified nominal thicknesses and tolerances for uncoated and coated low carbon and high strength steel sheet are detailed in Appendix A, Table A1, Table A2, Table A3, and Table A4. The nominal thickness tolerance is applicable to measurements at any point across the width not less than 40 mm from an edge. Deviations required for individual GM business units are listed in the Deviations Section at the end of this specification.

For blanks rolled with variable thickness, the tolerance is ± 0.05 mm for all thickness ranges and material grades.

3.1.3.1 Business regions may decide, in selective instances, to deviate from the tolerances required in this specification. When this occurs, the specified tolerance on the appropriate GM Release Engineering Drawing shall take precedence over this specification.

3.1.4 Additional Requirements. The rounding-off method shall be used when reporting thickness and thickness tolerances. Reported values shall be rounded to the nearest 0.01 mm and shall utilize the following procedure in 3.1.4.1.

3.1.4.1 Thickness and thickness tolerances shall be rounded to the nearest 0.01 mm (two (2) decimal places). If the third digit is five (5) or above, the second digit shall be rounded to the next highest number; if the third digit is four (4) or below, the second digit shall not be changed.

3.1.4.2 When employing the rounding method, two (2) or more successive rounding steps should be avoided.

3.2 Processing Requirements. Not applicable.

3.3 Performance Requirements. Not applicable.

3.4 Requirements on other Stages during Life Cycle. Not applicable.

3.5 Increment for Nominal Thickness. The preferred nominal thickness should follow the increments in Table 1.

Table 1: Nominal Thickness/Increments

Nominal Thickness	Increments
Up to 1.00 mm	0.05
1.0 mm up to 2.60 mm	0.10
2.60 mm up to 3.4 mm	0.20
3.5 mm and higher	0.50

4 Manufacturing Process

Not applicable.

5 Rules and Regulations

5.1 Legal Regulations. All materials must satisfy applicable laws, rules, regulations and recommendations valid in the country of usage.

5.2 Language. In the event of conflict between the English and domestic language, the English language shall take precedence.

5.3 Inspection and Rejection. Samples of components or materials released to a GM material specification shall be tested for conformity with the requirements of this material specification and approved by the responsible Engineering department prior to commencement of delivery of bulk supplies.

A new approval must be received for any changes, e.g., properties, manufacturing process, location of manufacture, etc. If not otherwise agreed, all testing and documentation normally required for initial release must be completed.

It is the responsibility of the supplier to inform the customer in a timely manner, without solicitation, and to include documentation of all modifications of materials and/or processes and to apply for a new release.

If not otherwise agreed, all release tests shall be repeated and documented by the supplier prior to commencement of delivery of non-conforming bulk supplies. In individual cases, a shorter test can be agreed to between the responsible Engineering department and the supplier.

5.4 Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS). For new product submissions, or when a change in chemical composition of an existing product has occurred, a complete copy of the Material Safety Data Sheet/Safety Data Sheet must be submitted in compliance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) requirements or other country-specific MSDS/SDS requirements. In addition, product MSDS/SDS submissions must be in compliance with specific country General Motors TMC003 Material Safety Data Sheet/Safety Data Sheet guidance documents where available.

5.5 All materials supplied to this standard must comply with the requirements of GMW3059, Restricted and Reportable Substances for Parts.

6 Approved Sources

Materials supplied to this specification must be approved by General Motors.

The appropriate GM Materials Engineering department(s) must confirm material as meeting the requirements of this specification. Any test data sheets of material submitted to General Motors for such confirmation (e.g., during Production Part Approval Process (PPAP)) under this material specification must list all properties and must apply corresponding test methods of this material specification.

7 Notes

7.1 Glossary.

MATSPC: Global repository of GM approved materials for corresponding GM Engineering Standards.

7.2 Acronyms, Abbreviations, and Symbols.

DCS	Data Creation Standards
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
MSDS	Material Safety Data Sheet
PPAP	Production Part Approval Process
SDS	Safety Data Sheet
YS	Yield Strength

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

Material per GMW3224

Example:

Gauge/Thickness: 1.00 mm

Thickness Tolerance: Per GMW3224

Material/Grade: GMW3032M-ST-S-340LA-HD60G60G-U

The appropriate Release Engineering Drawing may also contain the specified thickness and/or thickness tolerances.

When a deviation to GMW3224 occurs or the thickness and/or thickness tolerance is noted on the GM Release Engineering Drawing, the specified thickness and tolerance on the drawing shall take precedence over this specification.

Example:

Gauge/Thickness: 1.00 mm

Thickness tolerance: ± 0.04

Material/Grade: GMW3032M-ST-S-CR340LA-HD60G60G-U

Where:

GMW	= Validation Area (GM Worldwide)
3032	= Sequential Number
GMW3032	=Material Type (Base Material Specifications)
M	=Material Type: Metals
ST	=Category: Steel
S	=Subcategory: Sheet
CR	=Steel Product Type: Cold rolled
340	=Minimum Yield Strength (Megapascal)
LA	=Steel Type (Low Alloy – see GMW3032)
HD60G60G	=Coating Designation (see GMW8 for details)
U	=Surface Quality (GMW3032)