



TECHNICAL SPECIFICATION

COLD FULL HARD

GENERAL

1. PRODUCT

Full hard cold rolled steel coils, cold roll mill edge, no welds in thicknesses 0.23 – 2.35mm and widths 764 – 1528mm

1. DSP END USE

For cold rolled batch annealed and temper (CFIN) as well as hot dipped galvanized products (HDG).

2. DSP PROCESSES

CFIN - Batch annealing (Hi-con) then tempering

HDG – Continuous Hot dip galvanizing

3. SPECIFICATION

JIS G3141 SPCC-1B – Cold rolled commercial full hard quality grade (SAE1006/SAE1008) with matt finish (0.3 – 0.7µm Ra, aiming for 0.5µm Ra) is generally purchased but other grades listed in point 5 are also required.

SAE1006 - Aluminum killed steel Linz-Donawitz Steelmaking and Continuous Casting process, chemical composition (%) ASTM A1011-18a – Table 1 Chemical Composition:

Chemical Composition – maximum %					
C	Mn	P	S	Si	Al
0.06	0.15-0.30	0.025 aim ≤0.02	0.025 aim ≤0.02	0.03	0.02 - 0.08

Additional ratios...

- Cu + Ni + Cr + Mo combined typically 0.12% max
- Nb, V, Ti must be 0.008% max
- Al/N ratio ≥ 4

4. OTHER SPECIFICATIONS REQUIRED

DSP requires specific HRC grades to be utilized to ensure below listed final qualities can be achieved from the respective CRFH shipped.

HR STEEL GRADES	HDG FINAL QUALITY
SAE1008	S550GD
EN 10025 S275JR	S280GD
EN 10025 S355JR	S350GD / S450GD
EN10149 S420MC / S460MC	S450GD
EN 10111 DD13	DX52

5. DIMENSIONS (mm)

Width (mm) and Thickness (mm) as per order, do not add to order dimensions.

6. DIMENSIONAL AND WEIGHT TOLERANCES

- a. Thickness tolerance: 50% of JIS G3141:2017 (Table 15).

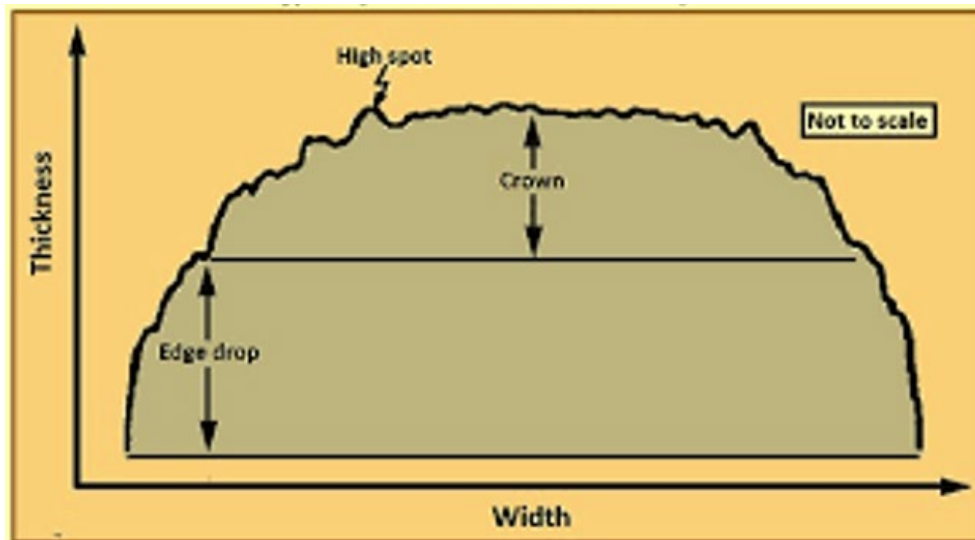
Revision: 5

Date: April 2026

- b. Off-gauge: no off gauge acceptable, off-gauge on front or tail ends to be removed prior shipping
- c. Width tolerance: mill edge after trimming (-0 / +2mm)
- d. Inside diameter (ID): 508 (+/- 10mm) preferred but 610mm acceptable
- e. Coil size: Coil mass 25t max **OR** max outer diameter (OD) 1930mm, coils exceeding max mass **OR** max od to be cut back prior shipping.

7. STRIP PROFILE

- Camber - JIS G3141:2017 (Table 23) for widths > 600mm and over.
- Edge wave 2mm maximum
- Center buckle 3mm, 14 units (i) maximum and no more than 2 waves/meter length.
- Crown 0.020mm minimum
- Edge Build - do not ship any coils with edge buildup.
- Peak (high spot): 10 μ m maximum



8. SURFACE REQUIREMENTS

- The strip surface shall be free from injurious defects such as corrosion (surface rust not acceptable), holes, roll marks, slivers, rolled in scale, laminations, scratches, or any other defect that affects the process and/or change the appearance of the final product. Emulsion stains are not acceptable.
- Superficial roughness - 0.3 – 0.7 μ m Ra Matt Finish; aiming for 0.5 μ m Ra.
- No rust preventative oil to be applied. Only residual rolling oil that's easy to remove during material processing (H2 batch annealing and continuous hot dip galvanizing). Must be suitable for Continuous Galvanizing Line without a cleaning section. (Please specify rolling oil used)
- Surface cleanliness - The maximum amount of cold rolling residue (oil) to be less than 300mg/m² total top and bottom surface. Iron fines must be 50mg/m² maximum total top and bottom surface.

9. EDGES

The coils must be supplied with mill edges after trimming at pickle line, free from injurious defects such as handling damage, tears, folds, saw edge and others edge defects that can injure the final width and the material processing at Continuous Lines.

10. HR ROLLING TEMPRETURES AND COLD REDUCTION

Hot roll finishing delivery temperature - 880°C +/-10° C

Hot roll coiling temperature - 650°C +/-10° C

Cold reduction - Must be more than 60% reduction.

11. COILING QUALITY

Revision: 5

Date: April 2026

- CRFH coiling tension: Should be appropriate to avoid collapsed coil
- Telescopicity: coils exceeding 10mm not to be shipped
- Coils with loose and protruding wraps not to be shipped
- Coils with collapsed ID is not to be shipped
- Welds is not acceptable and coils with welds is not to be shipped

12. **PACKING**

Packing must be suitable to withstand export shipping and handling conditions and protect the CRFH against oxidation of the material.

13. **IDENTIFICATION TAGS**

Position: 4 labels - one on each end of the ID and 2 on opposite side of the OD

Minimum information

- Coil identification number (as on pack list and test certificate)
- Coil weight (gross and net)
- Heat number
- Specification
- Dimensions (thickness and width)

14. **QUALITY MILL CERTIFICATE**

With the following information:

- Customer
- Product
- Sales order number
- Specification
- Dimensions (thickness and width)
- Edge condition (mill edge / cut edge)
- Coil number identification
- Coil weight (net)
- Heat number
- Chemical composition (all specified elements)
- Mechanical results
- Quality Mill Certificate number and date issued
- Cast and poured

Product must be certified to be free from radioactivity

15. **TECHNICAL INFORMATION**

Below technical information to be made available in excel electronic format prior arrival of the vessel in Saldanha.

1. Supplying mill sales contract number to DITH
2. DITH purchase contract with supplying mill
3. Thickness, width, weight (nett & gross)
4. Coil nr and position on the production program (casting, rolling)
5. Steel grade, cast analysis, cast number, heat number
6. Mechanical values if available
7. On request, diagrams of thickness, width, crown, roughing temperature, finishing rolling temperature, coiling temperature, cooling pattern, results of the surface inspection and of other tests executed on the coil

Revision: 5

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16. **CONTROLS BEFORE COLD PROCESSING**

HRC will be subject to the following checks before the cold processing begins:

1. Visual examination
2. Dimensional and weight control
3. Coil ID check
4. Mechanical properties (only for specific cases)

The supplier of the HRC **REMAINS** responsible for the non-conformities discovered by the end user or by the final customer that are due to hidden defects (that cannot be found by normal controls and normal tests performed prior and during the cold processing).