

Steel Coil Container Stowage and Securing Specifications

I. Basis of Compilation

These Specifications are strictly compiled in accordance with the IMO Code of Safe Practice for Cargo Stowage and Securing (CSS Code), IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units (CTU Code), Chapter VI of the SOLAS Convention, Guidelines for the Preparation of the Cargo Securing Manual by China Classification Society (CCS), and relevant domestic technical regulations for cargo carriage by sea. They apply to the entire process of packing, stowage, dunnaging, securing, and acceptance of steel coils in 20GP/40GP standard dry cargo containers.

II. General Operating Principles

1. Center of Gravity Compliance Principle

Strictly enforce the industry 60/50 center-of-gravity rule: 60% of the total cargo weight must be concentrated within the central 50% of the container length. End-heavy loading, partial loading, or imbalance with one end empty and the other heavily loaded, or any end-weight imbalance at the door end or front end is strictly prohibited. The lateral center of gravity must be centered; one-sided partial loading is prohibited.

2. Independent Load-Bearing Principle

The container side walls and door panels are strictly prohibited from bearing any

lateral thrust or sideway pressure. All transverse and longitudinal forces must be borne by timber battens, corner posts, and the main structural framework of the container.

3. Triple Securing Principle

All steel coils must simultaneously satisfy: base load distribution + chock limiting/anti-roll + lashing/tension securing. None of the three may be omitted. It is prohibited to dunnage without lashing, or to lash without chocking.

4. Zero Suspension, Zero Looseness Principle

The bottom of every steel coil must be fully supported with no suspension; after installation, all chocks, rigging, and fillers must exhibit no shaking, no gaps, and no slack.

III. Stowage and Placement Standards

1. Placement Orientation (Priority Execution)

Recommended Method (Optimal Compliance): The coil eye faces the container door, with the steel coil axis placed longitudinally along the container. This provides the best resistance to ship rolling and is the universally accepted method by shipping companies and ports.

Restricted Method: The coil eye faces the side wall (transverse placement). An integral fixed V-shaped wooden saddle must be installed; direct floor placement is prohibited.

2. Single-Layer / Multi-Layer Loading Requirements

Single-layer loading is preferred, offering the highest safety factor.

If double-layer loading is necessary: The upper-layer coils must fit precisely into the recess between two lower-layer coils; direct vertical stacking (coil-on-coil) is strictly forbidden. Full-width hardwood battens must be laid between layers for leveling, and both upper and lower layers must have independent chocks and lashings.

3. Spacing and Blocking Requirements

Steel coils shall be tightly arranged to form an integral rigid body; minor gaps between coils need not be addressed. Where cumulative gaps exceed 15 cm, they must be solidly blocked with hardwood battens. Sole reliance on inflatable dunnage bags as the primary securing material is prohibited; they may only be used as supplementary fillers.

IV. Standard for Dunnage and Cargo Securing Chock

1. Requirements for Bottom Timber Sleeper

All heavy steel coils must be laid on transverse bottom timber battens (perpendicular to the container bottom cross members) to distribute concentrated loads and prevent penetration of the container floor.

- Material: Hard solid wood, no cracks, no decay , no mildew, and no insect damage.
- Dimensions: Cross-section not less than 10 cm × 10 cm.
- Laying: Full-length laying for integral load bearing; splicing short pieces for

single-point bearing is prohibited.



2. Requirements for Anti-Roll Wooden Chocks / V-Shaped Saddle

- Each steel coil must have triangular chocks on both the left and right sides, tightly against the curved bottom, fully wedged and locked in position.
- Chocks must be fastened to the bottom timber battens with long nails; each chock shall have no fewer than 3 long nails to prevent loosening or shifting during voyage.
- Transversely placed steel coils must use an integral fixed V-shaped wooden saddle to form an anti-roll trough structure.

V. Standardized Securing and Lashing Procedures (Core)

1. Standards for Lashing Materials

- Steel Wire Rope: Diameter ≥ 7.7 mm, no broken wires, no corrosion, no kinking; tensile strength must satisfy heavy-load requirements.
- High-strength lashing straps: Industrial-grade heavy-duty polyester webbing,

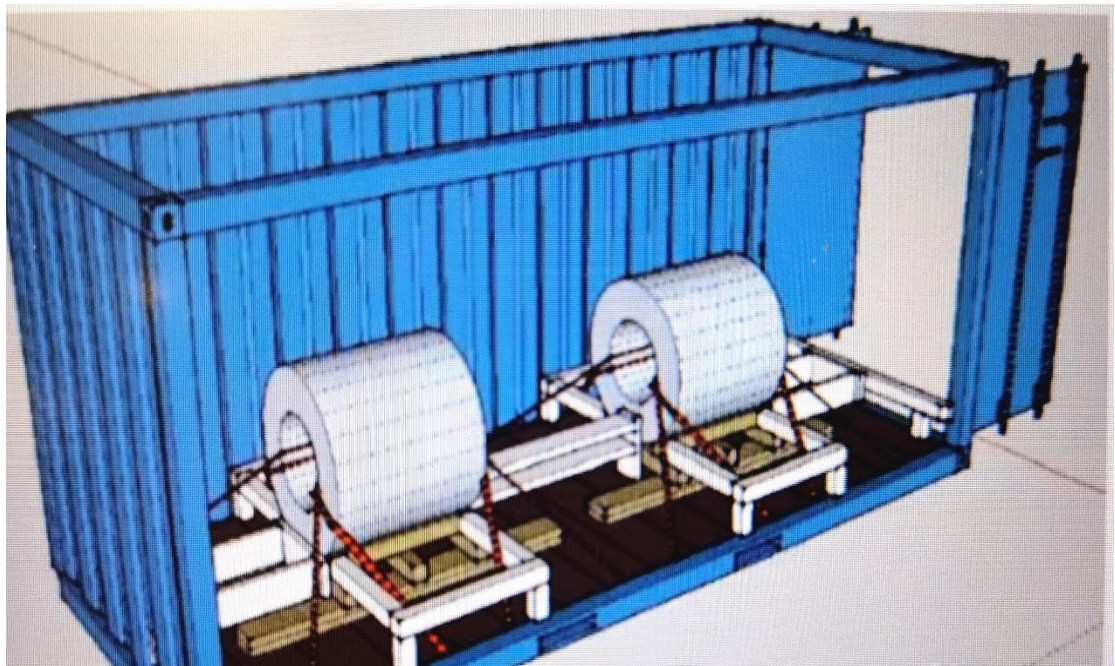
no abrasion or cuts.

- Mandatory Accessories: Full coverage of edge protectors. All rigging contact points at the edges/corners of steel coils must be fitted with edge protectors to prevent cutting and breakage.

2. Lashing Angle and Method

- The angle between lashing rigging and the coil end face shall be strictly controlled within 30°–60°, providing optimal force distribution and the strongest anti-shifting effect.
- Single Independent Coil: No fewer than 2 crossed lashings, passing through the coil bore or wrapping around the coil body, diagonally fixed to the securing rings on both sides of the container to form diagonal tension.
- Multiple Coils in Group Stowage: Fixed as an integral cluster; the outer coils at both ends shall be subject to focused cross-lashing, while the middle coils rely on the overall rigidity for positioning, with outer coils providing bottom-hold tension resistance.

Refer to the illustrative diagrams below.





3. Door-End Special Reinforcement

For steel coils near the container door, a transverse compression-resistant timber barrier must be added to transmit cargo thrust to the container corner posts. Direct contact between cargo and the container door is strictly prohibited, to prevent door deformation, bursting open, and cargo damage/leakage during

voyage.

4. Lashing and Securing Acceptance Criteria

- All rigging fully tensioned, no slack, no rebound reserve.
- Chocks fully wedged with no shaking; manual pushing of the steel coil results in no rolling or sliding.
- Wooden chocks shall be wedged firmly in place with no movement; manual push test on steel coils shall show no rolling or shifting.
- The overall securing arrangement shall form a three-dimensional integrated restraint system comprising: Base support via bottom sleepers + Anti-roll chocking + Lashing Tension

VI. Red-Line Prohibited Operations

1. It is prohibited to place steel coils directly on the container floor without timber battens or load distribution.
2. It is prohibited to install chocks without lashing, or to lash without installing limiting chocks.
3. It is prohibited to rely on side walls or the door to withstand lateral impact forces.
4. It is prohibited to have center-of-gravity offset, fore-aft partial loading, or one-sided heavy loading.
5. It is prohibited to install chocks without nailing, or to install them loosely with

voids.

6. It is prohibited to use damaged, broken-wire, or unprotected rigging.

7. It is prohibited to perform double-layer vertical stacking without recess fitting, or without interlayer padding.

VII. Stowage and Lashing Self-Inspection Checklist

☒ Bottom timber battens laid in compliance, perpendicular to bottom cross members, solid and intact.

☒ Triangular chocks on both sides of every coil complete, nailed firmly in place, with no looseness.

☒ Steel coil placement orientation compliant, center of gravity centered, no partial loading.

☒ Large gaps solidly blocked with hardwood battens.

☒ Adequate number of lashings, standard angles, complete edge protectors, tensioned with no slack.

☒ Door-end independent timber reinforcement in place, no pressure on the container door.

☒ Push the cargo as a whole – no rolling, sliding, or shaking.

VIII. Steel Coil Acceptance Requirements

Loading is limited to 20-foot containers only. The weight of a single steel coil inside the container shall not exceed 5 metric tons; a single container shall carry

a maximum of 4 steel coils. The number and weight of coils shall be adjusted according to actual conditions, with the total container+cargo weight controlled not to exceed 28 metric tons. Container packing photos and securing photos must be provided. The shipper shall provide an original Letter of Indemnity. Also, an inspection report issued by a third-party company recognized by the competent authority after inspection is recommended.