

Standards on stowage and securing
of strip coils by steel band lashing

THE IRON AND STEEL INSTITUTE OF JAPAN

This "Standards on stowage and securing of strip coils by steel band lashing" has been reviewed and approved jointly by the Iron & Steel Institute of Japan, Japanese Shipowner's Association, and the Japan Marine Surveyors & Sworn Measurers' Association.

1994.7

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Standards on stowage and securing of strip coils by steel band lashing

1. General standard

1-1. Stowage

- 1) Similar to the case of their wire lashing, a steel band lashing of strip coils shall be performed in a proper, prescribed manner.
- 2) The standard stowage of coils shall be as shown in items 2-2, 2-3, 2-4 and 2-5 below.
- 3) Concerning the actual style of stowage of coils and regarding the procedure, etc. of tiering, in particular, the captain of the ship concerned shall determine them by considering the constraints of stevedoring schedules or of product quality control ; hull strength ; stowage factors relative to other cargoes, etc. Concerning the ship's hull strength, in general, weight per unit area is calculated from the projected area (m^2) and total cargo weight (W) in the cargo stowage plan for the cargo holds and if, on this basis, the weight per unit area is within allowable load limits, then the hull strength shall be considered to be without problems.

1-2. Lashing

- 1) The purpose of steel band lashing is to lash units of coils with a steel band of a small elongation percentage and a sufficient strength ; integrate them in rows, and to thereby effectively prevent the coils from shifting during transport.
- 2) In steel band lashing, normally, coils are not chocked off between individual coils or between coil rows.
Provided, however, that when superheavy coils of 22 tons or over are stowed in the square compartments, or when end hatches are used for coil stowing, coils shall be chocked off between rows (of coils) and shall be further lashed in fore-and-aft direction of the ship.
- 3) In steel band lashing, caution must be exercised not to allow acute angled points (1.75R and below) to occur.
- 4) Steel band lashing is practiced in a variety of methods, depending on the pattern of stowage, on the unit weight of coils, on the compartments of stowage, etc. Their detail shall be as given in Sections 2 and 3 to follow.

1-3. Dunnage and wedge

- 1) Dunnage and wedge shall be the same as in the case of wire lashing.

2. Standards on stowage and securing in the square compartments

2 - 1. Basic stowage patterns by steel band lashing

Unit weight of coils	Lashing methods by basic stowage patterns									Generic name of lashing methods
	1-1	1-2	2-1	2-2	2-3	3-1	3-2	3-3	3-4	
Less than 6 tons	H* type <H* = Horizontal>									Light coil method
From 6 tons to less than 15 ton	H type	V* type <V* = Vertical>								Middle coil method
From 15 tons up to 22 tons inclusive	H type + Key coil is double lashed.	(a)			/				Heavy coil method	
More than 22 tons		(b)							Superheavy coil method	

(a) HV* type + Side key coils are double lashed.

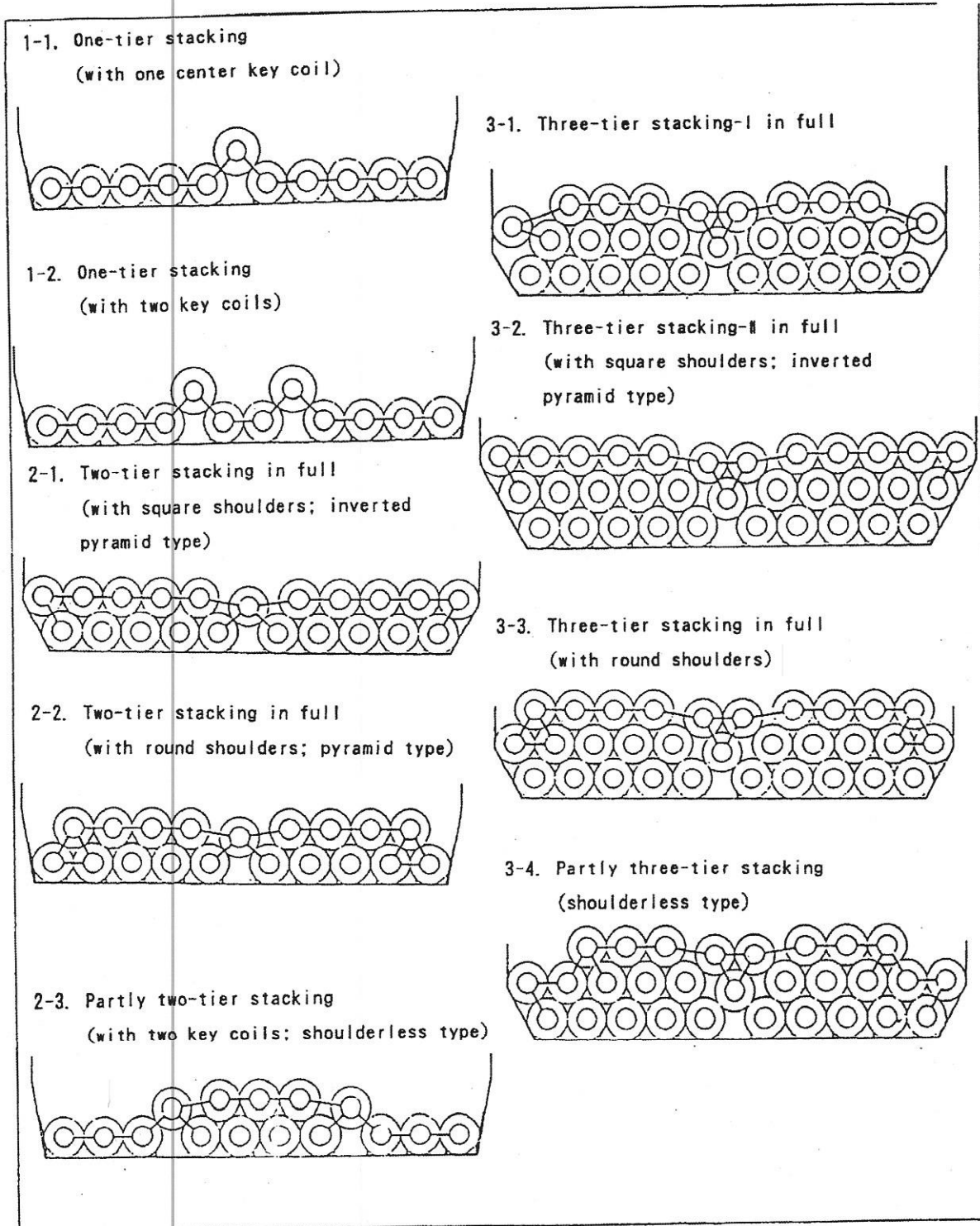
(b) HV - type method + Double lashing of side key coils + Between - row chocking + Pitching*
Pitching* = Securing of coils edge to edge by putting a steel band through their eyes to blind the coils together.

<Stowage patterns>

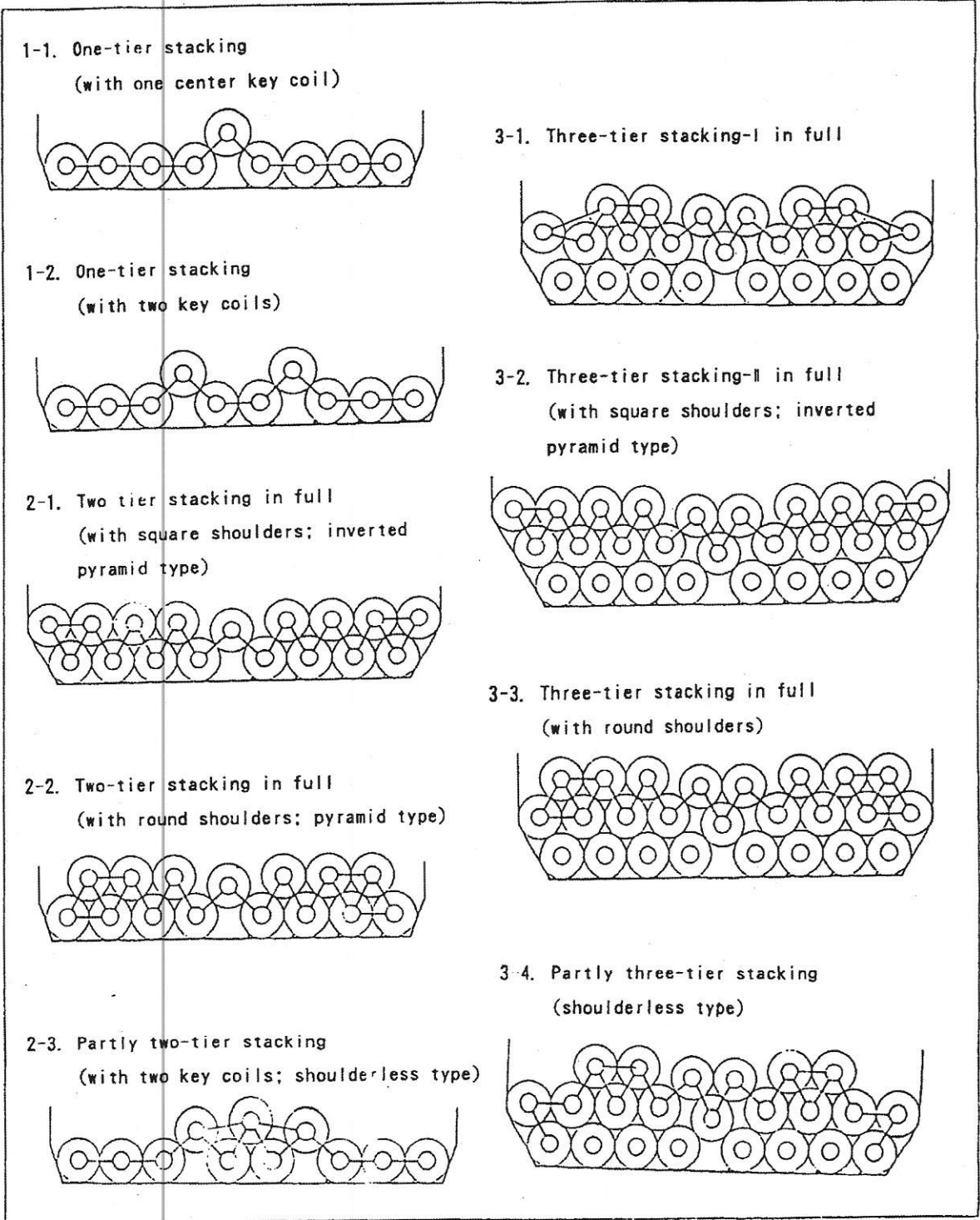
- 1-1 : One - tier stacking (with one center key coil)
- 1-2 : One - tier stacking (with two key coil)
- 2-1 : Two - tier stacking in full (with square shoulders* ; inverted pyramid type)
- 2-2 : Two - tier stacking in full (with round shoulders* ; pyramid type)
- 2-3 : Partly two - tier stacking (with two key coils ; shoulderless type)
- 3-1 : Three - tier stacking - I in full
- 3-2 : Three - tier stacking - II in full (with square shoulders ; inverted pyramid type)
- 3-3 : Three - tier stacking - in full (with round shoulders)
- 3-4 : Partly three - tier stacking (shoulderless type)

Note : Square shoulder* ; Top - tier coils are stowed fully to the extreme wings.
Round shoulder* ; Top - tier coils leave void spaces on both ends.

2-2 Basic patterns of steel band lashing methods
 - for unit coil weight of less than 6 tons : light coil type

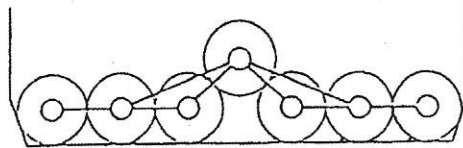


2-3 Basic patterns of steel - band lashing methods
- for unit coil weight of 6 tons to less than 15 tons : middle coil type

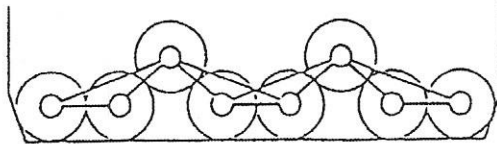


2-4 Basic patterns of steel - band lashing methods
- for unit coil weight of 15 tons to 22 tons inclusive : heavy coil type

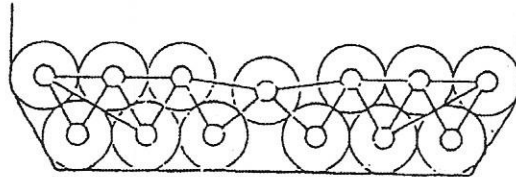
1-1. One-tier stacking
(with one center key coil)



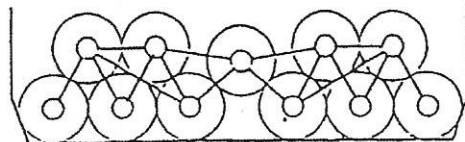
1-2. One-tier stacking
(with two key coils)



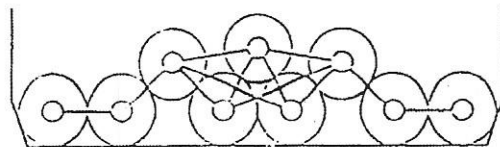
2-1. Two-tier stacking in full
(with square shoulders; inverted pyramid type)



2-2. Two-tier stacking in full
(with round shoulders; pyramid type)

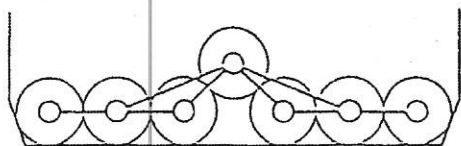


2-3. Partly two-tier stacking
(with two key coils; shoulderless type)

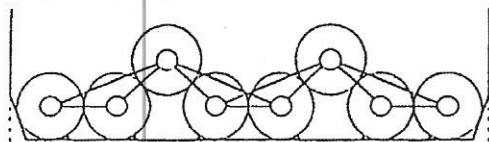


2-5 Basic patterns of steel - band lashing methods
 - for unit coil weight in excess of 22 tons : superheavy coil type

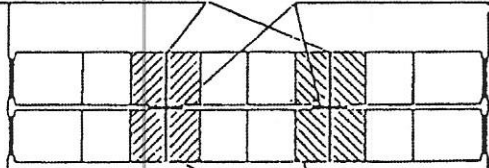
1-1. One-tier stacking
 (with one center key coil)



1-2. One-tier stacking
 (with two key coils)

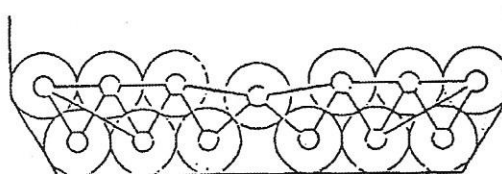


Fore-and-aft lashing Between-row chocking

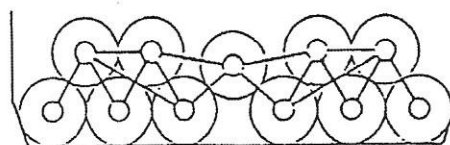


Key coils

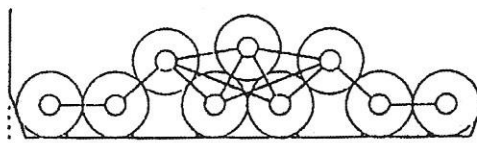
2-1. Two-tier stacking in full
 (with square shoulders; inverted pyramid type)



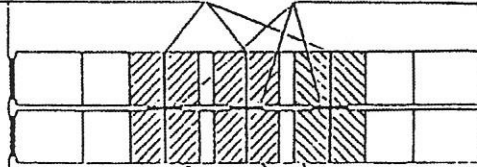
2-2. Two-tier stacking in full
 (with round shoulders; pyramid type)



2-3. Partly two-tier stacking
 (with two key coils; shoulderless type)



Fore-and-aft lashing Between-row chocking



Second tier coils

3. Standards on stowage and securing at end hatches

3 - 1. Basic stowage patterns by steel band lashing

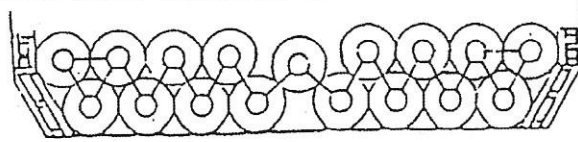
Unit weight of coil	Stacking patterns	1-1	1-2	2-1	2-2	2-3	3-1~4
12 tons and below (fig.3-2)	Lashing method	H type	H type	V type	V type	V type	(e)
	(a)	(b)		(c)	(d)		
	(f)	(g)		(h)			
15 tons and below (fig.3-3)	Lashing method	H type	H type	HV type + SKC* double lashing	HV type + SKC* double lashing	HV type + SKC* double lashing	(e)
	(a)	(i)		(i)	(i)		
	(f)	(i)		(i)			
15 tons and over	Not to be loaded						

SKC* = Side key coil

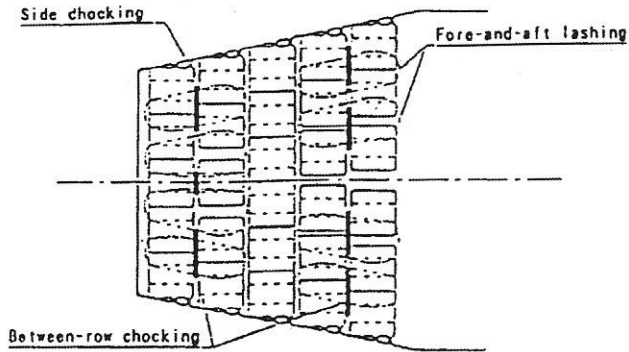
- (a) Lashing in fore-and-aft direction of ship, and chocking
- (b) No lashing nor chocking (the same as in the square compartments)
- (c) As a rule, lashing in fore-and-aft direction of ship is not performed, nor is chocking of coils between rows.
- (d) Side key coils on the upper row are lashed in the ship's fore-and-aft direction. When they are lashed, coils are also chocked between rows.
- (e) Stacking of coils in three or more tiers is not performed in the end hatch sections.
- (f) Void* - related actions' (void* = clearance between coil edges')
- (g) No actions are taken (Same as above)
- (h) However, where the end coils of the stowage are likely to fall ahead or back, coils in the last two rows should be lashed in fore-and-aft direction with sufficient chocking in between.
- (i) The same as with coil unit weight of 12 tons and below.

3-2. Basic patterns of steel band lashing methods -- end hatches, coil unit weight: 12 tons and below

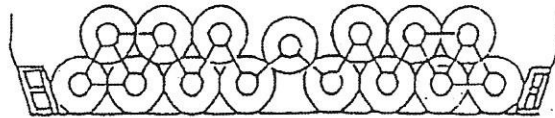
2-1. Two-tier stacking in full
(with square shoulders; inverted pyramid type)



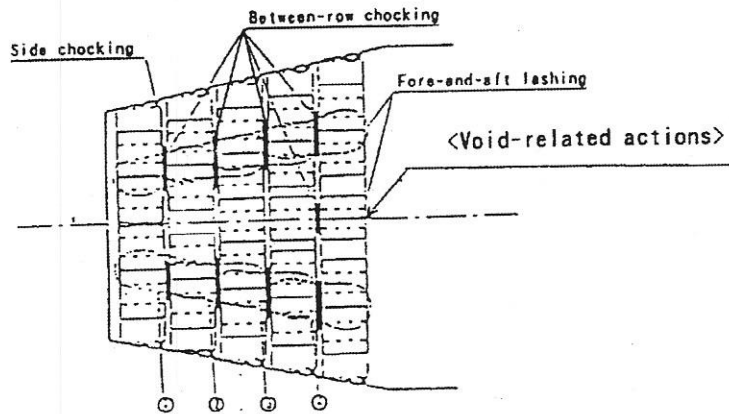
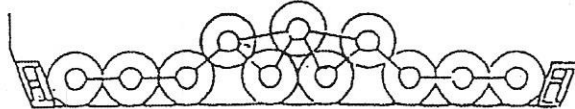
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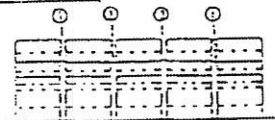
2-2. Two-tier stacking in full
(with round shoulders; pyramid type)



2-3. Partly two-tier stacking
(with two key coils; shoulderless type)

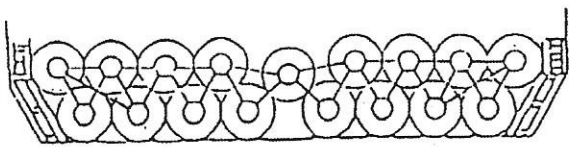


Working drawing of lashing in fore-and-aft direction of ship

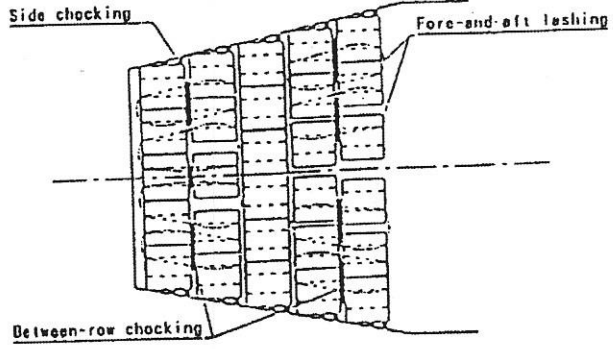


3-3. Basic patterns of steel band lashing methods — end hatches, coil unit weight: 15 tons and below

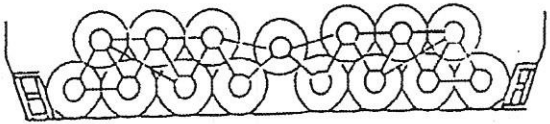
2-1. Two-tier stacking in full
(with square shoulders; inverted pyramid type)



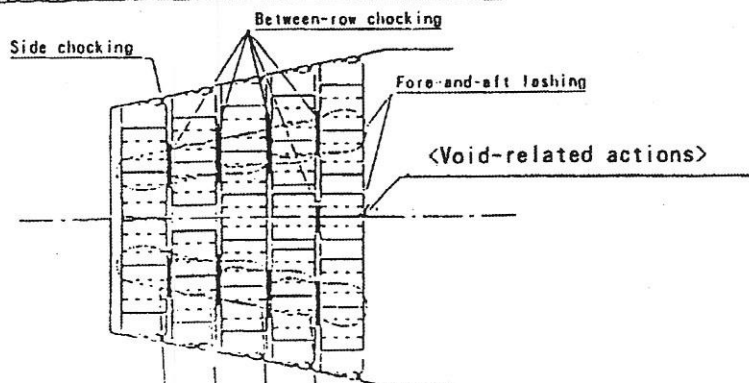
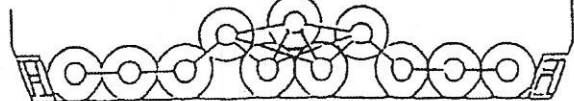
<Void-related actions>



2-2. Two-tier stacking in full
(with round shoulders; pyramid type)



2-3. Partly two-tier stacking
(with two key coils; shoulderless type)



Working drawing of lashing in fore and aft direction of ship

