

Höganäs, Sweden, 2022-10-03

**Cordstrap AnchorLash® 105.2 double bottom lashing solution  
Certification of the compliance with the CTU Code  
MariTerm AB Certificate CS202203**

MariTerm AB, Höganäs, Sweden, has on behalf of Cordstrap BV, Oostrum, the Netherlands, evaluated the strength and efficiency of the Cordstrap AnchorLash® 105.2 double bottom lashing solution according to the principles of the IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units (CTU Code).

Securing values are based on practical calculations excluding the MSL values of the anchor points and container roof lashing points. The evaluation has been based on the following properties and strengths in the equipment:

- Lashing length and elongation
- Lashing angles
- Principles from practical tests

A Cordstrap AnchorLash® 105.2 double bottom lashing solution has the following component strengths:

- SnapHooks in horizontal parts: BS 3.000 daN (6,744 lbf); MSL 1.500 daN (3,372 lbf)
- Lashings: BS: 2.402 daN (5,400 lbf), in a system: BS 3.000 daN (6,744 lbf); MSL 2.250 daN (5,058 lbf)
- Buckles: BS 8.000 daN (17,985 lbf); MSL 4.000 daN (8,992 lbf)

**Disclaimer (for excluding strength of lashing points)**

The determination of the maximum cargo weight, as included in this document, does not consider the strength of the lashing points of the container. The CTU Code (Code of Practice for Packing of Cargo Transport Units, 2014), states in paragraph 6.2.5 that most general-purpose freight containers have (a limited number of) lashing rings or bars, which have a maximum securing load (MSL) of *at least* 10 kN in any direction for anchor points in the bottom area. Lashing points at the top rail have an MSL of *at least* 5 kN. The same paragraph also states that 'recently built freight containers have, in many cases, anchor points with a MSL of 20 kN'. If the minimum strengths of the lashing points are taken into account, this will affect the cargo weight that can be secured.

## Disclaimer (for calculations)

Calculations are based on a standardized loading configuration and container construction. The max cargo weight that can be secured may differ as a result of differences in height of lashings at cargo front, position of cargo front, position of lashing points, variances in lashing angles and variances in or changing of friction coefficients. A deviation of  $\pm 10\%$  is assumed to be reasonable.

It is hereby certified that the Cordstrap AnchorLash® 105.2 double bottom lashing solution is an acceptable securing arrangement and fully complies with the CTU Code for the securing of the cargo weights given in the tables below. The calculations underlying these tables can be found in CS202203-A AnchorLash 105.2 double bottom lashing – Appendix to certificate CS202203.



Sven Sökjer-Petersen, CEO  
MariTerm AB



**Lashing tables**

The lashing tables below are based on the following modes of transport and accelerations:

Mode of transport	Horizontal acceleration	Vertical acceleration
Road (doors to the rear) and rail transport (doors in any direction)	0,5 g	1,0 g
Road transport (doors to the front)	0,8 g	1,0 g
Sea transport (sea area C – unrestricted)	0,4 g	1 ± 0,8 g

**AnchorLash® 105.2 double bottom lashing – 20ft CTU**

**Metric units**

Friction factor, $\mu$	Secured cargo weight in ton		
	Road (Doors to rear) & Rail	Road (Doors to front)	Sea area C
0,0	11,4	7,1	14,3
0,1	13,5	7,9	14,9
0,2	16,3	8,8	15,5
0,3	20,8	9,9	16,1
0,4	28,6	11,4	16,8
0,45	35,2	12,4	17,2
0,5	no slide	13,5	17,6
0,6	no slide	16,3	18,4
0,7	no slide	20,8	19,4



**Imperial units**

Friction factor, $\mu$	Secured cargo weight in lbs		
	Road (Doors to rear) & Rail	Road (Doors to front)	Sea area C
0.0	25,210	15,756	31,513
0.1	29,659	17,386	32,740
0.2	36,015	19,392	34,068
0.3	45,837	21,922	35,507
0.4	63,025	25,210	37,074
0.45	77,570	27,254	37,910
0.5	no slide	29,659	38,785
0.6	no slide	36,015	40,662
0.7	no slide	45,837	42,729



**AnchorLash® 105.2 double bottom lashing – 40ft CTU**

**Metric units**

Friction factor, $\mu$	Secured cargo weight in ton		
	Road (Doors to rear) & Rail	Road (Doors to front)	Sea area C
0,0	11,4	7,1	14,3
0,1	13,5	7,9	14,9
0,2	16,3	8,8	15,5
0,3	20,8	9,9	16,1
0,4	28,6	11,4	16,8
0,45	35,2	12,4	17,2
0,5	no slide	13,5	17,6
0,6	no slide	16,3	18,4
0,7	no slide	20,8	19,4



**Imperial units**

Friction factor, $\mu$	Secured cargo weight in lbs		
	Road (Doors to rear) & Rail	Road (Doors to front)	Sea area C
0.0	25,210	15,756	31,513
0.1	29,659	17,386	32,740
0.2	36,015	19,392	34,068
0.3	45,837	21,922	35,507
0.4	63,025	25,210	37,074
0.45	77,570	27,254	37,910
0.5	no slide	29,659	38,785
0.6	no slide	36,015	40,662
0.7	no slide	45,837	42,729



**Notes regarding the application of the Cordstrap AnchorLash® 105.2 solution**

Soft or deformable cargo should be adequately protected against breakage, damage or significant deformation, e.g. by applying edge protection and/or blocking boards. Appropriate measures should be applied to keep the lashing in the right position.

Please note that the values of secured cargo weight might differ slightly for specific solutions with different dimensions.