

Version: 01	Stress test with Cordstrap triple container restraint system - QuickLash SD-R ¾ for ISO- sea containers (4-point-suspension) according to CTU-code			EUROSAFE Certificate no. 2020-06-001
Based on expertise no:	2018-08-001/Worms	Place of testing:	Oostrum*)	Test date: 09.04.2020
Client	Cordstrap B.V., Nobelstraat 1, 5807 GA Oostrum Netherlands	Persons present	Cordstrap B.V.: Reiner Gohlke, Perry van Berlo (Client) EUROSAFE GmbH: Wolfgang Neumann/EUROSAFE GmbH via Webex conference. Practical examination has already been carried out in 2018	

### 1. Basic / general

This certificate confirms the functionality and stability of the triple restraint system with a band width of Certificate confirms the functionality and stability of the triple restraint system with a belt width of 32 mm +/- 1 mm (horizontal belt) and 40 mm (vertical belt) of the Cordstrap B.V. by means of a laboratory load test in the overall system.

### 2. Impacts in relation to mode of transport (CTU:2014; Stand 04-2020)

Transport path	Road transport	Combined road/rail transport	Sea transport (area C)
<b>Acceleration C<sub>x</sub></b>	<b>0,8 x F<sub>G</sub></b>	<b>0,5 x F<sub>G</sub></b>	<b>0,4/0,8 x F<sub>G</sub></b>
Performance of the system with 4 lashing points per 1.000 daN <b>μ= 0,4</b> Charging weight: <b>20.000 kgs</b>			
	<b>Load securing in driving direction</b> Calculation basis according to CTU Appendix 7 / Chapter 4.2.3, EN 12195-1, VDI 2700 Sheet 2 <b>With form-fitting loading to the container door</b> and a friction of at least 0,4 (static), 1 lashing system with an MSL of 4.000 daN (4 lashing points) is enough.  <b>Result:</b> CTU requirements for cargo securing is fulfilled!	<b>In- and against driving direction</b> Basis of calculation according to CTU Appendix 7 / Chapter 4.2.3 <b>With form-fitting loading to the container door</b> and a friction of at least 0,4 (static), 1 lashing system with an MSL of 4.000 daN (4 lashing points) is enough.  <b>Result:</b> CTU requirements for cargo securing is fulfilled!	<b>Transversal to driving direction</b> Basis of calculation according to CTU Appendix 7 / Chapter 4.2.3 <b>In the case of form-fitting loading transversely to the direction of travel</b> , the load securing is sufficiently secured via form closure (congestion with airbags or pallets). <b>With form-fitting loading to the container door</b> and a friction of at least 0,4 (static), 1 lashing system with an MSL of 4.000 daN (4 lashing points) is enough. <b>Result:</b> CTU requirements for cargo securing is fulfilled!

**Note:** The calculation bases are taken from the 2014 CTU code. The lashing system must be mounted in such a way that the lashing tapes on the load are also adjacent to a normal load.

### Result

After 60 load changes, the overall system remained from 4.000 daN to 6.000 daN and back to 4.000 daN (each within 60 seconds) without any functional restriction. The slip on the connecting buckles was at < 2 mm after 60 cyclic impacts. With a maximum load of 6.000 daN, the load securing function is fully maintained. The test is deemed to have been passed. Further studies for the dynamic loads in the container in the combined transport of rail/road and road are available from 2018 (test certificate 2018-08-001/Worms) at Cordstrap B.V.

<b>Complete system tester:</b>	EUROSAFE GmbH, Wolfgang Neumann, certified expert according to DIN EN ISO/IEC 17024:2012 for road, rail and sea transport (incl. dangerous goods) for Load securing, packaging and load unit formation	<b>Tester certification number:</b>	ZN-20120507-0253 valid until 08/2022
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<b>Signature / stamp:</b>		<b>Location of issue:</b>
		Steinwingertstraße 27 D-63457 Hanau
		<b>Date of certificate issue:</b>
		27.05.2020

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