

Certificates: overview and specifications

Green Pin® Shackles



Test method	Certificate	Details	Test type
Visual inspection	CE	CE Declaration of Conformity in accordance with annex IIA of the machine directive 2006/42/EC	Non Destructive
	2.1	Statement of compliance with the order	
	2.2	Statement of compliance with the order, stating the results of non-specific inspection	
Material specific inspection	3.1	<p>Chemical analysis: Check material contents of load bearing components (pin, shackle body) by using wet chemical- or spectral analysis.</p> <p>Tensile test: Check yield strength, tensile strength and elongation of the material. Test method according to EN ISO 6892-1.</p> <p>Charpy V: Check toughness of the material and indicate the resulting Charpy V value at a defined test temperature. Test method according to EN ISO 148-1.</p>	Destructive
Proof Load test	MTC ^a Sample tested	Check if the final product withstands the specified overload	
	MTC ^b 100% tested		
Magnetic Particle Inspection	MPI ^a Sample tested	Check if the surface is free of harmful indications by using magnetisation and a wet suspension. Techniques according to EN 10288-1 or EN 1369.	
	MPI ^b 100% tested		
Ultrasonic Inspection	US ^a Sample tested	Check if the product is free of internal harmful indications by using ultrasonic sound signals. Techniques according to EN 10288-3.	Non Destructive
	US ^b 100% tested		
DNV GL type approval	DNV GL 2.7-1 ^a 100% tested	Green Pin® Standard Shackles and Green Pin® Polar Shackles are DNV GL type approved to certification Note 2.7-1, lifting sets for offshore containers. DNV GL Type approval certificates S-7593 and S-7732.	
DNV GL type approval	DNV GL 2.7-1 ^b Sample tested	Statement of compliance with the order, of Green Pin® Standard Shackles and Green Pin® Polar Shackles, DNV GL type approved to certification Note 2.7-1, lifting sets for offshore containers. Stating the results of proof load testing samples of a production batch.	
DNV GL type approval	DNV GL 2.22 100% tested	Green Pin® Standard Shackles and Green Pin® Polar Shackles are DNV GL type approved to DNV GL Standard for Certification No 2.22, Lifting Appliances – Application – Loose gear for offshore cranes. DNV GL Type approval certificate S-7925.	
Break Load test	BL For type approval purposes only	Check if the minimum Break Load of the product is achieved by overloading the product until it breaks. Verification to check if the safety factor is achieved.	Destructive
Fatigue test	For type approval purposes only	Check the lifetime expectation of the product by cycle testing on a varying load from 3 kN to 1.5 times the WLL. The minimum required number of cycles for load rated shackles is 20.000.	Destructive
X-Ray test	For type approval purposes only	Check if the product is free of internal harmful indications by using X-rays.	Non Destructive

Some of these tests can be performed under witness of a third party. Ask our sales team for further information. The mentioned certificates are compliant with EN 10204, for more information see page 9 of the Van Beest catalogue 2016.