



QuantiCast® Chocking Compound

APPLICATION GUIDE



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1. Introduction to QuantiCast

QuantiCast Chocking Compound is a two-part epoxy system compound used for the installation of ship propulsion and auxiliary machinery and other industrial equipment. It achieves 100% surface profile coverage, maintain precise equipment alignment, have high compressive strength and long-term durability.

QuantiCast has been specifically developed for chocking precise aligned equipment as main propulsion engines and other propulsion machinery.

Other shipboard applications include stern tube and strut bearings, pintle and rudder bearings, pedestal bearings, steering gears, stern winches, engine room pumps, cargo pumps, cable penetrations, large ball or roller bearings, bow thrusters and anchor windlasses.

2. Advantages of QuantiCast Chocking Compound

Epoxy compounds have many advantages compared with traditional cast iron chock:

- No need for precise surface machining and preparation
- Ease of use
- Shortens construction time
- High compressive and impact strength
- More durable and non-corrosive
- Maintains precise alignment
- Decreases considerably operating machine noise and shock

3. Design Criteria and Applications

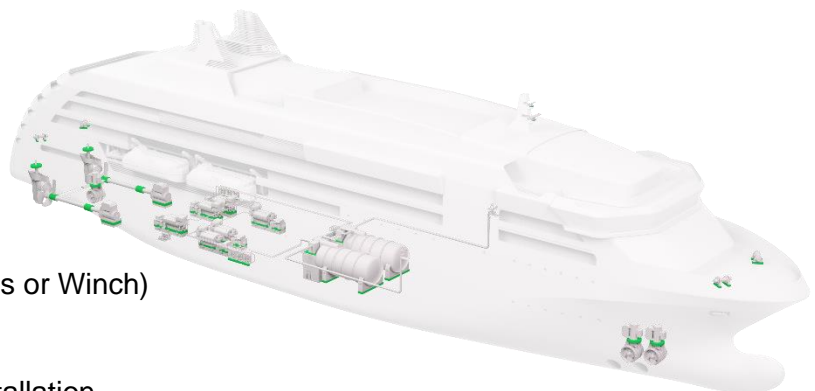
A chocking plan is needed to determine the correct chock area and size for a specific machinery or equipment.

In order to meet the requirements set by classification societies, pressure on the epoxy chocks and bolts tension also need to be calculated.

The recommended chock thickness is between 20 mm and 60 mm of height. If the chock thickness is outside this range, chocking is still possible but an approval from QuantiServ is required to proceed (MIN/MAX range = 10/100 mm).

Typical applications:

- Main Engine
- Auxiliary Machines
- Gear Box
- Neck Bearing
- Stern Shaft Tube
- Pintle Bush
- Freight Crane
- Deck Machines (Wind Lass or Winch)
- Bow/Stern Propeller
- Single Point Mooring
- LNG/LPG Liquid Tank Installation
- Propulsion Shaft Coating



4. Application Guide

4.1 Materials required

1. QuantiCast Chocking Compound: resin and hardener
(The amount required for the chocking activity has to be calculated according to chocking plan, including 15-20% of resin safety amount in case of leaks.)
2. Damming materials
 - a) Open cell flexible foam strips
 - b) Front metal plate (4-6 mm thickness)
 - c) Silicone sealant
 - d) Epoxy putty
3. Epoxy solvent
4. Release agent
5. Non-melt grease
6. Non-hardening putty
7. Bolt holes protection foam (Neoprene, Armaflex)
8. Mixer or variable speed drill capable of 200-300 rpm
9. Mixing blade
10. Certified IR thermometer for surfaces temperature
11. Barcol measuring instrument for chock hardness
12. Safety equipment: goggles and protective gloves
13. Heaters/air conditioning

4.2 Preliminary checks

1. Ensure all material needed are available on site. Determine the right amount of QuantiCast chocking compound according to the chocking plan (chock area + 15%).
2. Store QuantiCast Chocking Compound (resin and hardener) at 23-25 °C for at least 24 hours before use.
3. If resin contact metal surface temperature is below 15 °C use heaters (tungsten, lamp, heater, and canvas) to increase it to 20-25 °C.
4. If resin contact metal surface temperature is above 28 °C use air conditioning to reduce it to 25 °C.
5. After sanding to near white metal, clean all resin contact surfaces to be free of oil, grease, water, rust, thick paint or fine particles.
6. After final cleaning by Epoxy solvent, a thin layer of epoxy primer can be applied on resin contact surfaces in order to prevent rust and corrosion. Please contact QuantiServ for instruction about epoxy primer to be used.
7. After the equipment is correctly aligned, drill the bolt holes.

4.3 Damming procedure

The pictures to the right show the general damming procedure. The damming needs to be installed according to the chocking plan for the specific machine.

Insert open cell foam strip on 3 sides, in the back and on the sides of the chock. Foam height has to be 6 mm higher than the chock thickness in order to ensure compression and maintain it firmly in place.

Cut the foam 25 mm off the bedplate edge and spray the chock area with release agent.

The exposed bolt holes have to be plugged by grease-covered protective foam to prevent them from filling up.

Install the front metal plate by tack welding and use silicone to seal or use epoxy putty.

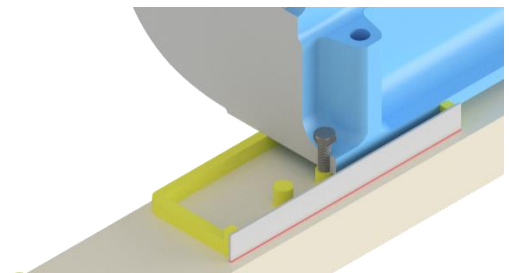
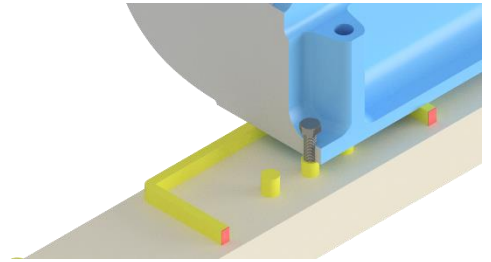
Put it in position at 16-19 mm from the bedplate edge.

Metal plate height must be at least 40 mm greater than chock thickness.

Install 2 pieces of foam to seal the front plate on the sides to prevent QuantiCast to overflow.

Spray the inside face of the front metal plate with release agent.

Make sure to seal with silicone all possible leaking spot of the damming.



4.4 Mixing and pouring

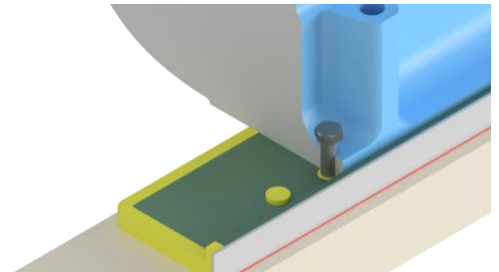
1. Ensure the damming is completed and sealed well.
2. Ensure there is enough QuantiCast Chocking Compound on site at a temperature between 23 °C and 25 °C.
3. Check the temperature of the chocking area and determine the right amount of hardener (B) to be added to resin (A) according to below table:

		Temperature °C																
		<-1	-1-2	2-4	4-7	7-10	10-13	13-16	16-18	18-21	21-24	24-27	27-29	29-32	32-35	35-38	38-41	41-43
Chock thickness, mm	<13																	
	13-19														1/4	1/4	1/4	1/4
	19-25												1/4	1/4	1/2	1/2	1/2	1/2
	25-32										1/4	1/4	1/2	1/2	1/2	3/4	3/4	3/4
	32-38										1/4	1/4	1/2	3/4	3/4	3/4	Full	Full
	38-44									1/4	1/4	1/2	3/4	3/4	Full	Full	Layers	Layers
	44-51						1/4	1/4	1/4	1/2	3/4	3/4	Full	Full	Full	Layers	Layers	Layers
	51-57						1/4	1/2	1/2	1/2	3/4	3/4	Full	Full	Layers	Layers	Layers	Layers
	57-64	1/4	1/4	1/4	1/4	1/4	1/2	3/4	3/4	3/4	Full	Full	Full	Full	Layers	Layers	Layers	Layers
	64-70	1/2	1/2	1/2	1/2	1/2	3/4	Full	Full	Full	Full	Full	Layers	Layers	Layers	Layers	Layers	Layers
	70-76	Full	Full	Full	Full	Full	Full	Full	Layers	Layers	Layers	Layers	Layers	Layers	Layers	Layers	Layers	Layers
>76	Full	Full	Full	Full	Full	Full	Full	Layers	Layers	Layers	Layers	Layers	Layers	Layers	Layers	Layers	Layers	

No reduction
 1/4 reduction
 1/2 reduction
 3/4 reduction
 Full reduction
 Layered pours

Note: Due to many variables of chocking area like size, thickness, surfaces temperature and heat diffusion, the amount of hardener can vary. The QuantiCast Qualified Installer will determine the right amount of hardener to be used according to the specific condition. The table shown above is for reference only.

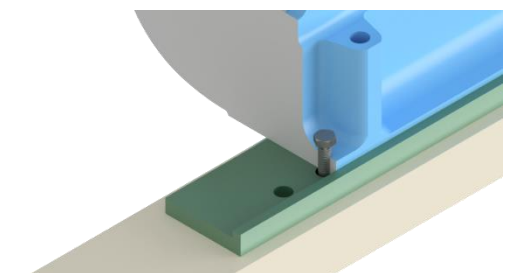
- Put on the protective gear (gloves and eye protection).
- Mix the resin (A) at 150 rpm for 1-2 minutes keeping the blade below the liquid surface to avoid formation of air bubbles.
- Stop mixing and add the required amount of hardener (B).
- Resume mixing slowly and increase the speed to 300 rpm. Mix for 3-4 minutes, moving the blade into the can to ensure homogenous mixing.
- Pour the chock immediately after mixing slowly and always in the same spot at a height of 0,3-0,4 m. Do not scrape out the residue from the sides and bottom of the can.
- Check for leaks and use putty to seal them.
- Fill the front plate at least 15 mm higher than the chock thickness. Do not fill it completely.
- Prepare sample chocks for hardness test if requested.
- Check and refill the front plate if the resin level decreases.



4.5 Curing and final checks

- Keep watching for leaks until all chocks have become hard.
- Make sure the temperature is at least 15 °C. Keep heating for the time indicated to ensure the epoxy cures completely. After complete curing, remove the heater and allow the cured chock to return to ambient temperature.
- Remove the front metal plate. Abrade off the sharp edge of the chock.
- Release the adjusting bolts.
- Tighten the hold down and fitted bolts to the required torque according to calculated bolt tension.
- Test the hardness of the chocks (and/or the samples) for reporting to marine classification society and customer.
- Check the alignment after chocking. The maximum resin lowering after curing is 0.02 mm/cm.

15 °C	36 hours
21 °C	24 hours
26 °C	16 hours
32 °C	11 hours



5. Physical Properties of QuantiCast

QuantiCast Chocking Compound	
Packaging size	9.8 kg (21.5 lbs) kit
Net Volume	6.2 L
Color	Green
Maximum Temperature	121 °C (250 °F)
Specific Gravity	Resin 1.64 kg/Ltr Hardener 0.98 Kg/Ltr
Hardness –Barcol ASTM D-2583	>35
Compressive Modulus ISO604	2,760 N/mm ² (400,000 psi)
Compressive Strength ISO604	150 N/mm ² (22,000 psi)
Tensile Strength ISO527-2	38 N/mm ² (5,500 psi)
Pot Working Life	10-15 min @ 25 °C
Cure time (Approximately)	24 hours @ 21 °C
Approvals	DNV, Lloyds, Rina

CONTACT INFORMATION

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