

Chockfast®

Reliable, High Performance Chockfast® Red Grouting Compound Connects Deep Space Telescope

Problem

The Communication Antenna, DSS-55, is an Azimuth-Elevation Telescope participating in the Madrid Deep Space Communication Network (MDSCC). The Deep Space Network interacts with the interplanetary space probes such as the International Space Station, the Voyager program and Martian Rovers. The antenna was originally built in 2003 and after nearly two decades of service, the asset required a renovation.

Specifications of the Telescope required a transition grouting material between the raceway and perimeter wall. This grouting material was required to help maintain a high precision alignment, reduce signal interfering vibrations, and transfer stress between the rail and foundation.

Application Conditions

- Wind Resistance: up to 160 Km/h (100mph)
- Weight: 358 tons
- Base Diameter: 34 m (111 ft)

Solution

Chockfast Red grout was selected for this application because of its extensive and successful track record of installations involving precision engineering. The traverse rails were prepared by removing the original grouting material and concrete, drying the surface, and ensuring the area was clean of dust and debris. Formwork was constructed around the rails including headboxes, troughs, and expansion joints. The Chockfast Red grout was mixed and poured into the forms and left to cure for 24 hours.



Antenna DSS-55



Damage along the concrete track



Completed repair of track with Chockfast Red

Chockfast

Project Outcome

Telescope rail tracks were repaired allowing for continued communication with the Deep Space Network.

Long Term Reliability

- Chockfast Red grout provides a strong foundation surface for the Telescope resulting in additional use for the coming decades.

High Precision Critical Alignment

- With a tolerance of 0.010° , these improved rails with Chockfast Red grout will ensure that the Telescope stays within its critical alignment even in a dynamic environment. When the Telescope is operating, it's subject to 160 Km/h winds. Chockfast Red grout will transfer these forces into the foundation, allowing the sensitive equipment to continue their critical mission.

The Deep Space Network continuously observes and communicates with interplanetary spacecraft as Earth rotates. These complexities make this network the largest and most sensitive telecommunications system in the world.

The ultra-tough Chockfast Red grouting system is the solution that's so dependable, its benefits are out of this world.



Side view of repaired track with Chockfast Red



Anchor bolts aiding in the transfer of vibration