

DUAL WALL PUMPABLE CRIBS

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INTERNALLY REINFORCED CRIB BAGS**OVERVIEW**

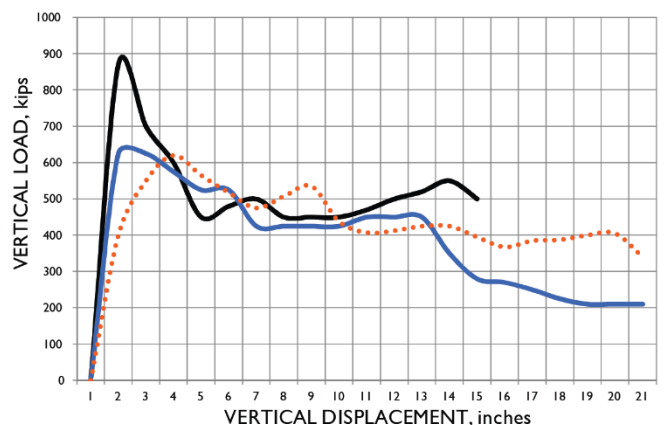
DSI Crib Bag utilizes a smaller diameter mesh inner bag, reinforced with steel wire, that is centred within a larger diameter outer crib bag. As the inner mesh bag is filled with DSI's Pumpable Crib Grout, the cement is able to flow through the mesh into the outer bag. This process encapsulates the inner bag with cement, and the wire and mesh forms an internal reinforcement, much like rebar in other cement structures. The inner mesh bag selectively lets lower strength grout to fill the annulus with material of lower modulus. This allows greater convergence without inducing point loading to the outer wall or tearing the bag.

Suited to remote areas that are inaccessible to mine haulage equipment and roadways susceptible to high levels of gas.

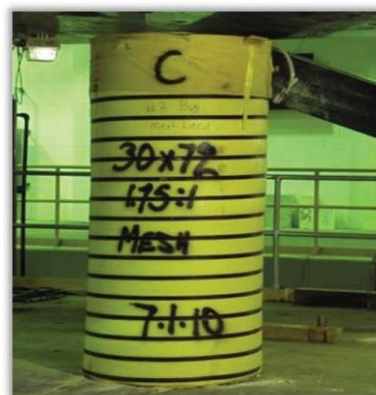
- Consists of a high strength, dual wall textile bag suspended from the roof in underground roadway and filled with a cementitious based product
- Typical installation crew consists of 6 men. 2 at underground installation site, and 4 at pump site
- Installation rate of over 50 x 30" pumpable crib bags per shift is achievable
- 85% of final compressive strength within 24 hours
- Provides full contact with mine roof and floor, allowing pre-stressing
- Two component system can also be used to pump seals rated up to 120psi and 18m bulk heads

ADVANTAGES

- The only internally reinforced pumpable roof support
- The system is the only Pumpable Roof Support that provides internal reinforcement to the CSA (calcium sulphoaluminate) cement column. The internal reinforcement acts like rebar (reo) in achieving a support that is 40% stronger than other systems currently on the market. As a result, similar support strength can be reached with a smaller diameter and more cost-effective support.
- Non-shrink CSA -based system uses all of the mix-water in the hydration process.
- Needle-like crystalline microstructure (CSA cement forms an ettringite crystal structure) yields gradually, predictably, and controllably.
- Far greater pumping distance. The system has been utilized on projects with pumping distances up to 5,000 meters.
- Higher Safety Pumping Environment: Unlike other cement systems with accelerator, the lower pH of CSA-based cement systems reduces the risk of chemical burns.
- Superior Height-to-Diameter Ratio: The aspect ratio of the CSA-based system is generally 5:1 or less, allowing utilization of smaller diameter cribs.
- DSI's 30" Crib Bag support is as strong as some competitors 36" systems currently on the market.



— Heintzmann 36" Hardcore Support — Heintzmann 30" Hardcore Support
 ●●● Competitor 36" Double-Walled Bag



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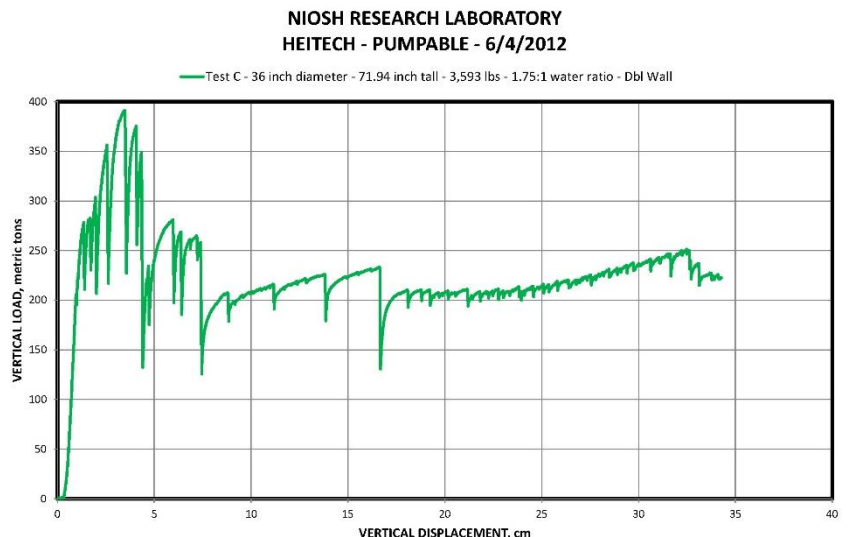
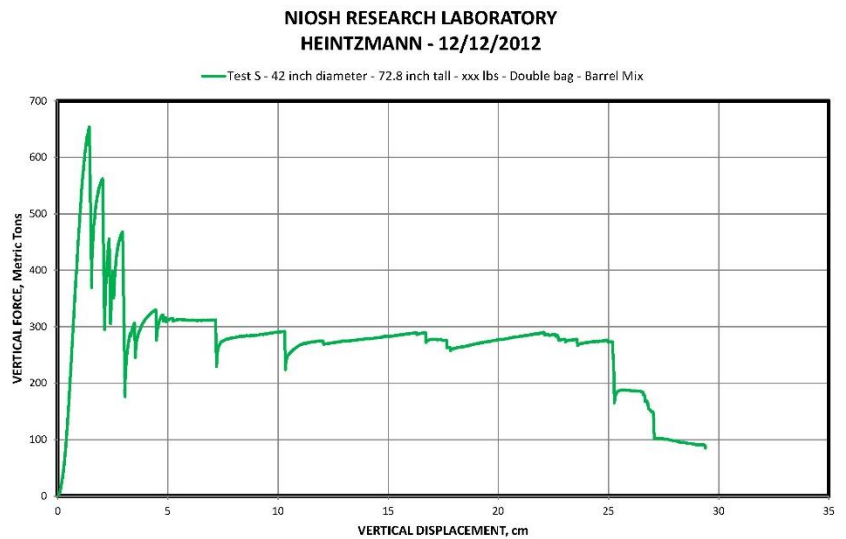
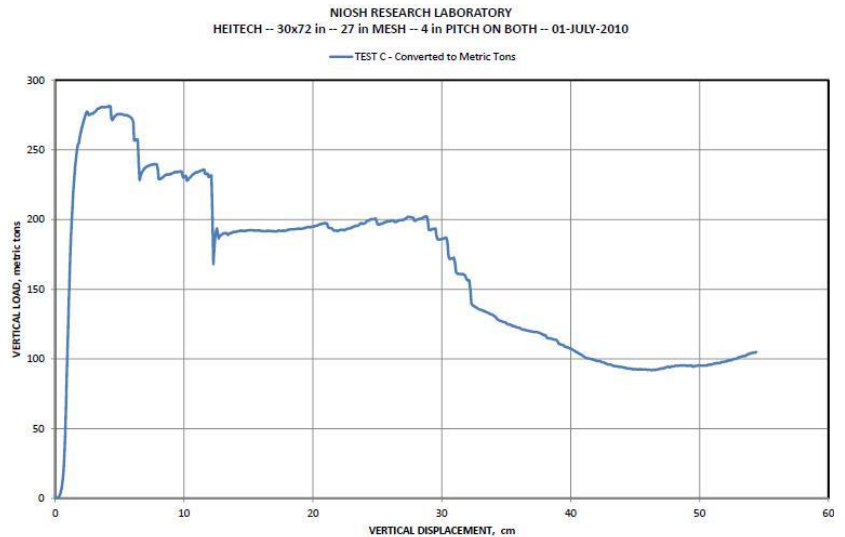
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INTERNALLY REINFORCED CRIB BAGS

PRODUCT STATS & PERFORMANCE

Excellent for longwall tailgate and bleeder supports where timing and material handling are critical

- Available in 30", 36", and 42" diameters (Custom diameters also available upon request)
- Installed over 700,000 pumpable cribs throughout United States
- Installed over 5,000 pumpable crib supports throughout Australia
- Two component system allows long pumping distances and quick installation
- Pumping distances of up to 5km
- Pump station can be setup on the surface, or underground
- Eliminates the need to hand carry materials underground by up to 95%



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INTERNALLY REINFORCED CRIB BAGS**STANDARD SIZES & PRODUCT CODES**

Product Code	Description	Net Weight (kg)
SS-CB3011SWDW	30"x11' Steel Wire Crib Bag	15
SS-CB3012PVDW	30"x12' Plastic Wire Crib Bag	16
SS-CB3012SWDW	30"x12' Steel Wire Crib Bag	16
SS-CB30145PVDW	30"x14.5' Plastic Wire Crib Bag	17
SS-CB30145SWDW	30"x14.5' Steel Wire Crib Bag	17
SS-CB3611PVDW	36"x11' Plastic Wire Crib Bag	19
SS-CB3611SWDW	36"x11' Steel Wire Crib Bag	19
SS-CB3612PVDW	36"x12' Plastic Wire Crib Bag	22
SS-CB3612SWDW	36"x12' Steel Wire Crib Bag	22
SS-CB36145PVDW	36"x14.5' Plastic Wire Bag	23
SS-CB36145SWDW	36"x14.5' Steel Wire Crib Bag	23
SS-CB4212PVDW	42"x12' Plastic Wire Crib Bag	40
SS-CB4212SWDW	42"x12' Steel Wire Crib Bag	40
SS-CB42145PVDW	42"x14.5 Plastic Wire Crib Bag	42
SS-CB42145SWDW	42"x14.5' Steel Wire Crib Bag	42

NOTES

- ▶ DSI Underground is Quality Assured to ISO 9001:2008, Registration No.QMS 41328