



TANK CONNECTION

CANADA

DRY BULK STORAGE TANK AND DOME



Employee Owned | American Made | Global Leaders

SI	SI	SI	SI	
MM	MANWAY/PIV	24	270	15C-6P
DI	SI - INT. FLO	6'0"	150	11C-6P
TI	TARGET BOX	12'	210"	24S
LI	SI - INT. FLO	12'	210"	24S
SI	SI - INT. FLO	12'	210"	24S

DESIGN DATA

- 1) SILO DESIGNED FOR CENTER FILL AND CENTER FLOW
- 2) SILO DESIGNED FOR MASS FLOW
- 3) SILO DESIGNED FOR STORAGE OF FREE FLOWING PEBBLE LIME WITH A COMPACTED DENSITY OF 90# PER CU FT
- 4) SILO DESIGNED FOR 200' WIND LOADING SPEC-100

Project Data Sheet 7530

SPECIFICATIONS

Location	Newfoundland, Canada	
Application	Fluorspar ore	
Tank Type	Bolted RTP + aluminum geodesic dome	
Design Features	Bolted RTP panel construction, bulk storage aluminum geodesic dome cover, 20' x 20' drive through	
Quantity	1	
Dimensions (Diameter x Height)	120 feet x 48.44 feet	36.57 meters x 14.76 meters
Working Capacity	N/A	N/A
Interior Coating	DRY FUSION 5500 FBE™	
Exterior Coating	DRY FUSION 5500 FBE™ + EXT FUSION SDP™	

PROJECT OVERVIEW

Tank Connection stores the minerals that move the world forward.

Reliable storage solutions, quality, innovation and customer service have become synonymous with our employee owned company the world over.

When asked to provide uniquely specified containment for strategic mining materials in Canada, Tank Connection engineering developed a sound and innovative solution to the request. The project called for the dry stockpile storage containment of in-process fluorspar ore. The client had previously relied on a fabric building for their product storage. However; due to the temperamental weather and strong winds of the North Atlantic coast, the fabric building was destroyed within the first year of use. Tank Connection worked with the client exploring various options. The design team had to take into consideration that the storage structure needed to accommodate an existing stacker belt. A drive through into the storage structure was also necessary so that a front end loader could access the material being stored. The end result was to utilize Tank Connection's bolted RTP (Rolled, Tapered Panel) tank design that would support an aluminum geodesic dome.

The tank and dome combination is a free standing structure designed to receive material via a fixed, cantilever stacking conveyor. The stored material is reclaimed by a front-end loader as the process requires. The dome structure was designed to Aluminum Design Manual (ADM) 2010/2015 specifications. Tank Connection's bulk storage product serves the client's facility by providing a permanent, all-weather enclosure for the fluorspar ore. The storage package ensures the preservation of the stockpile from weatherization. It also plays an important environmental role by mitigating dust emissions. Downstream applications of the fluorspar processed here will be used in a variety of fluorine gases with the most common being freon gas used in HVAC systems.

Challenges

Designing an aluminum dome cover for dry bulk storage presented different engineering challenges than those associated with liquid storage dome covers. One of the issues encountered during the concept stage was how to build around the existing, in-ground reclaim conveyors. Due to the reclaim conveyor footprint, the best option available was to proceed with the combination Bolted RTP and APEX Domes package. After initial material fabrication and shipment, the client requested the center section to be redesigned to accommodate a different opening for their chute/fill location. Tank Connection was able to quickly provide a revised design and the necessary materials for this adjustment in the dome structure.

Safety Performance

Tank Connection utilizes a synchronized jack system that allows installation crews to remain safely at grade level while installing the tank. This method commands the highest ratings in the industry for safety and quality control. Dome construction is typically installed during the initial phase of the tank construction at ground level as well.

Product Performance

Approaching the concept with bolted steel panel walls rather than field-welded or concrete structures provides many advantages to the client. The application of bolted RTP construction offers flexibility and the option for the entire project to be supplied in full by one provider. Among the many advantages of bolted RTP design is that it installs in a third of the time of a field-weld tank. Tank Connection's factory-applied coating technology has a proven track record of outperforming all other coatings in the industry. The modular tank design that allows for quick and easy installation at grade level. Bolted RTP is a heavy tank design, and is recognized as a replacement for field-welded tank construction. The inflexibility of concrete storage construction makes it susceptible to cracks and other structural issues caused by freeze/thaw cycles over time. Concrete can also be very expensive and involve prolonged construction periods. Bolted RTP tanks excel in these areas where concrete tanks waiver.

The capabilities of Tank Connection's bolted RTP results in a robust, reliable and cost efficient bulk storage solution that will stand the test of time and the elements. The geodesic aluminum dome covering the bolted RTP structure is manufactured by APEX Domes. This Tank Connection product line features specialized component designs that increases strength and flexibility. APEX Domes are routinely used in Tank Connection's liquid field for new construction or retrofit applications. For bulk storage containment, APEX Domes are custom designed for bulk handling and miscellaneous equipment loads. The strong clear span design minimizes foundation loads and maximizes storage capacity.

INSTALLATION IMAGES



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