

## Aluminum Bronze Hanger Bearings for Searles Valley Minerals

### General Description of the Application

Searles Valley Minerals in Trona, CA processes brine solutions from Searles Lake to produce boric acid, sodium carbonate, sodium sulfate, several specialty forms of borax and salt. Bulk materials produced by Searles Valley Minerals are used to create products such as window glass and windshields. Soda ash is one of the ten highest volume minerals produced in North America and constitutes nearly 25-percent of every pound of glass manufactured.

Screw conveyors are used extensively in the soda ash manufacturing process at Searles Valley Minerals. These screw conveyors must run 24 hours per day and 7 days per week. Downtime can be very costly. Preventive maintenance is performed on a regular basis to prevent equipment failures. The screw conveyors utilized bronze internal hanger bearings that required constant replacement. Maintenance personnel needed a hanger bearing that would last much longer than the bronze bearings currently in use. KWS worked with Searles Valley Minerals to find the right solution.

### Design Parameters of Application

**Bulk Material:** Soda Ash

**Material Density:** 55 to 60 Lbs. per Cubic Foot

**Abrasiveness:** Moderately Abrasive

**Conveyor Capacity:** 100 to 200 Tons per Hour

**Duty:** 24 Hours per Day, 7 Days per Week

### Advantages Provided by KWS

Searles Valley Minerals contacted KWS to discuss their application and possible solutions. A replacement for bronze was needed that could stand up to the abrasion caused by conveying soda ash. After researching several different bearing materials, it was determined that aluminum bronze was superior to bronze for the hanger bearing application. Aluminum bronze is approximately 50-percent stronger and harder than bronze and would last longer.

KWS is the only screw conveyor manufacturer in the U.S. that manufactures and stocks all of the CEMA standard sizes as well as non-CEMA standard sizes 3-15/16, 4-7/16, and 4-15/16-inch. Since the aluminum bronze is a special non-stock material for hanger bearings, the new bearings had to be machined from raw stock. KWS has CNC machining capabilities and was able to provide Searles Valley Minerals with the exact internal hanger bearing that they needed.



#### KWS Manufacturing

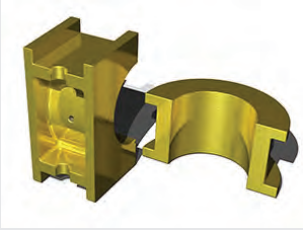
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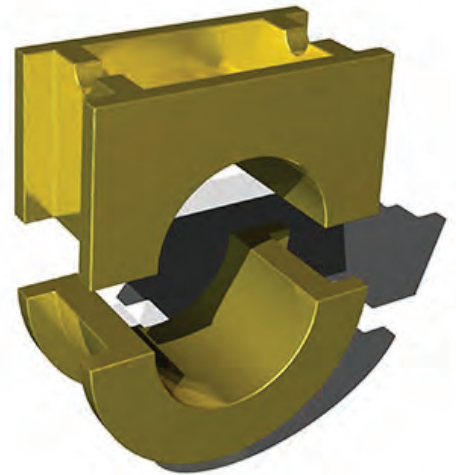
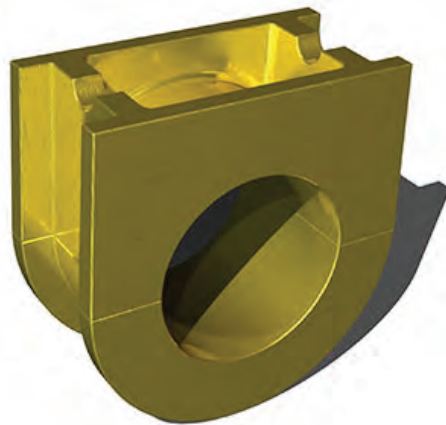


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## Special Features of KWS Design

KWS and Searles Valley Minerals researched different materials that would extend bearing life as well as reduce maintenance and downtime. Aluminum bronze C95400 was chosen because it provided superior strength and wear resistance when compared to bronze. Searles Valley Minerals had a very special bearing design that required special programming and CNC machining. KWS sent 3D models of the bearings to Searles Valley Minerals to confirm the dimensions of the non-CEMA sizes.

Aluminum bronze has proved to be the superior material and has more than doubled the life of the bearings, reducing maintenance and downtime. The cost savings have been significant and continue to grow. KWS is now assisting Searles Valley Minerals by looking at other areas of the operations where more cost savings can be achieved.



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