Boston Gear
Altra Industrial Motion

Application Profile

Product Modified Worm Gear Set

Application **Motorized Valves**

Highlights

- 5” Diameter bronze gear and mated low carbon steel worm
- 80:1 ratio
- Gear hub length reduced to fit small footprint
- Smooth, quiet operation

Adjusting a valve to control the flow of gases or liquids is no great chore. Simply grab the hand wheel and give it a turn to open or close the valve for the amount of flow desired. However, there are a variety of refinery and beverage processes where it is impractical to have an operator go to a specific valve and make the adjustment.

What if that valve is controlling the flow of live steam? The hand wheel and the components around it may be extremely hot to the touch. So it was with a manufacturer of engines that convert excess steam pressure into electricity. They needed a gear-set that would allow remote adjustment of a rotary valve and hold the valve in position when the motor is turned off.

By channeling excess steam through a valve, the steam can drive a turbine which in turn drives a generator. A steam valve can be a simple rotary valve, but by the nature of its work, it will be hot. Manually adjusting the valve would require added safety measures including the use of thermal gloves and safety glasses. By using a small servo motor and worm gear set the valve can be adjusted remotely. Further, by using a gear set with a high ratio it is possible for the motor and gearing to prevent the valve from back-driving out of position.

Boston Gear was contacted to provide worm gear sets for use in this high-temperature application. An 80:1 ratio was achieved with a 5” diameter bronze gear and mated motor-driven low carbon steel worm. The standard gear hub length was reduced to meet the customer’s small footprint requirement.

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