

SUPER-CRITICAL FLUID EXTRACTION USING CO₂ POWERLOKTM LH6 SERIES BALL VALVES



INDUSTRY

Chemical and Pharmaceutical Industry

CUSTOMER

One of the leading manufacturer's of Super-Critical Fluid Extraction Machinery using CO₂.

BACKGROUND

Leading manufacturer of Machinery catering to multiple Applications like Automation, Brew Science and Process catering to a number of industries like Agro Process, Food, Automotive, Brewery/Distillery, Chemical and Pharmaceutical.

CHALLENGE FACED

This case was unique in a way because the existing valve used by the customer were not performing within the temperature and pressure parameters of the system. Not being familiar with compatible polymers/plastics does create serious challenges Being in the Super-Critical Fluid Extraction business, the challenge was to find the right polymer/plastic to be used in the seat of the Valves for CO₂ at low temperature and high pressures up to 400 bar. Earlier attempts to use UHMWPE and POM were not giving the desired result where either the valve would have leakage issues either from the Gland or the Seat. This was mainly due to non-compatible material being used for CO₂ in Super-Critical State.

OPERATING CONDITION:

Temperature : 2-3°C

Application : Super-Critical Fluid Co₂

Media : CO₂ in Super-Critical State

SOLUTION AND BENEFITS

Due to our knowledge in more than 400 grades of Advanced Engineering Plastics and close machining tolerances, we successfully replaced the existing valve with Thomas & Brian® range of LH6 Series Powerlok Ball Valve was developed to handle low temperatures of up to 2°C and 400 bar. The valve still works after 6 months of commissioning which has surpassed the service life of the earlier supply which would last only 1 month until the next seal kit replacement reducing down-time and in turn saving money.