

Mining Case Study



Background

Applications in mining are challenging because mining facilities are located mostly in harsh environments with high altitude, high or low temperatures and acid mist. Additionally, mining processes handle corrosive fluid, such as sulfuric acid. Asahi Yukizai's corrosion-resistant thermoplastic valves and actuators and piping system products have performed under these difficult conditions for more than four decades in mines around the world.



Problem

A major copper mining company in the US was constructing a new drain header from the solvent extraction/electro-winning (SX/EW) plant. The drain pipe typically uses HDPE, but HDPE valves are not commercially available to handle these applications. The copper is plated onto stainless steel sheets to a desired thickness through the SX/EW process. After, the 99+% copper is broken off the sheets to go to further refining processes and used for wires, pipes or sold as raw material.

Solution

The customer selected Asahi's ASAHI AV industrial valves because they needed valves that would perform in the mine's harsh conditions. The copper mine installed over 300 Type-21 ball valves and over a hundred Type-57 butterfly Valves in their new electro-winning system.



Thermoplastic ball valves' corrosion resistant properties make it the ideal valve to handle the harsh copper sulfate solution present in the electro-winning process.

Thermoplastic butterfly valves are well suited to this application and are often used because of their lightweight properties. A thermoplastic butterfly valve weighs considerably less than its metal counterpart. The weight differences were very important during the transport and installation of the product.

Although thermoplastic valves are lightweight, they are not fragile. Materials such as PVC-U, PVC-C, PP, and PVDF are used to provide ruggedness as well as corrosion resistance to meet customers' requirements.

Ideal Applications

- Heap leach irrigation system
- Solvent extraction and electro-winning (SX/EW)

Asahi Advantages

- Low-cost maintenance and installation
- Lightweight
- Leak-free performance
- Excellent corrosion resistance
- Project assistance services



Ball Valve Type 21



Standard Features

- Pressure rated up to 16 bars (1.6 MPa)
- True union design for easier installation or repairs without expanding the pipe system

Size

- Lever: DN15 – 100
(1/2" - 4")

Body Materials

- PVC-U
- PVC-C
- PP
- PVDF

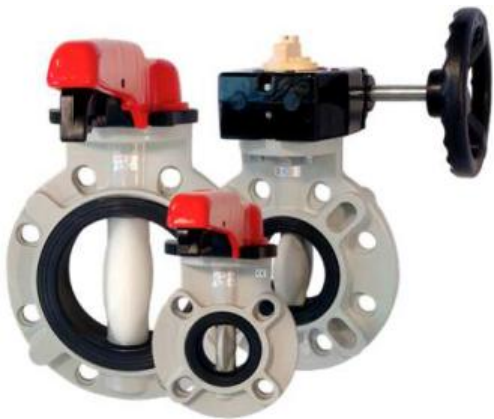
Connection

- Socket
- Flange
- Threaded
- Spigot

Sealing Materials

- EPDM
- FKM
- FKM-F
- FKM-C
- NBR

Butterfly Valve Type 57



Standard Features

- Stainless steel 403 stem with full disc engagement
- Full seat design eliminates gaskets
- Highly visible 0° full closed to 90° full open position indicator on full-plastic gear box

Size

- Lever: DN40 – 200
(1 1/2" - 8")
- Gear: DN40 – 350
(1 1/2" - 14")

Body/Disc Materials

- PVC-U
- PP
- PVDF

Connection

- Wafer style

Operation

- Lever
- Gear

Sealing Materials

- EPDM
- FKM
- FKM-F
- FKM-C
- NBR

Stems

- Stainless steel 403
- Stainless steel 316
- Stainless steel 316L
- Alloy C-276

Thermoplastic Ball and Butterfly Valves

Asahi's thermoplastic valves provide a dependable and economical way to handle corrosive chemicals, including sulfuric and hydrofluoric acid, nitric acid, oxidizing chemicals, caustics, solvents, halogens, and various other hostile fluids. They perform at temperatures up to 120°C and pressures up to 16 bars (1.6 MPa).

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