Polyguard INDUSTRIES

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Knife Valves



Knife Valve — Design Description

Knife valves are designed for on/off isolation of slurry, powder, and viscous media in mineral processing, tailings, and oil sands pipelines. Their sharp-edged gate cuts cleanly through thick slurries and fibrous materials, preventing buildup and ensuring a tight bi-directional seal even under high pressure.

The polyurethane-lined body withstands highly abrasive and corrosive flows, extending service life in the most demanding environments. Ideal for applications requiring minimal pressure drop and reliable shutoff in systems handling dense or high-solids-content fluids.

Available in a range of sizes and pressure ratings, knife valves offer low maintenance, easy field replacement of wear parts, and full-bore flow when open — reducing turbulence and energy loss across the pipeline.

Technical Specifications

Valve Size Range: DN15 – DN 2000

Design Codes: EN 1171 / EN 1074-2, API 600, API 602, ASME B16.34, As per Design requirement

Pressure Rating: PN 10, PN 16, PN 25, PN 40, Class 150#- 2500 #

Typical Valve Temperature ranges

RESILIENT SEATED – EPDM:	- 10 to +120 °C
PTFE SEATED:	-20 to +120 °C
METAL SEATED CARBON STEEL:	-20 to +425 °C
STAINLESS STEEL METAL SEATED:	-46 to +538 °C
GRAPHITE PACKED HIGH TEMP:	UP TO 550 °C

Material Specifications

Component	Typical Materials
Body	Cast iron, ductile iron, carbon steel, stainless steels & suitable alloys
Knife Plate	Carbon steel, stainless steel, bronze; coated with various elastomers to suit design applications.
Stem	Stainless steel, carbon steel, bronze
Sealing Seat	Elastomers, stainless steels
Packing	Graphite, PTFE, or other approved packing
Handwheel	Cast iron, ductile iron, steel.
Actuator	Manual, air, electric and hydraulic.