



VALVE, VALVE SEATS AND PLUGS

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Ceramic valves are precision-engineered components used to regulate, restrict, or isolate fluid flow. In particular ceramic Valve Bodies handle full pressure and fluid load, ceramic Valve Seats provide a precise sealing interface, ceramic Plugs are used in plug valves to control flow direction or shut-off. These components are used in both linear (e.g., piston, diaphragm valves) and rotary (e.g., plug, ball valves) mechanisms, particularly where metal components corrode or wear out too quickly.

MATERIAL DIVERSITY

Zirconia (Y-TZP / MgO-PSZ) | Zirconia Toughened Alumina (ZTA) | Alumina (Al_2O_3)

Each component is isostatically pressed, sintered, and precision ground to ensure tight tolerances and smooth sealing surfaces.

INDUSTRIES SERVED

- Chemical and Petrochemical Processing
- Pharmaceutical and Life Sciences
- Pulp and Paper Industry
- Mining and Mineral Slurry Handling
- Food and Beverage Processing
- Water Treatment and Desalination Plants
- Semiconductor and Electronics Manufacturing
- Battery and Energy Storage Systems

APPLICATION

- Rotary plug valves in chemical reactors and dosing systems
- High-pressure valve seats in reciprocating pumps
- Corrosion-resistant plugs in acid/alkali distribution lines
- Zero-leakage valve assemblies in pharma filling machines
- Slurry control valves in mining or wastewater filtration units
- Precision flow metering in analytical equipment

KEY ADVANTAGES

- Unmatched Wear Resistance – With hardness over 9 on the Mohs scale, ceramics outperform metals in abrasive media.
- Chemical Inertness – Suitable for strong acids, alkalis, and solvents; no risk of corrosion or leaching.
- Stable Sealing Under Pressure – Maintains dimensional stability and sealing performance under fluctuating load and temperature.
- Excellent Thermal Properties – Withstand rapid thermal cycling and high continuous operating temperatures.
- Long Service Life – Reduced downtime, lower replacement frequency, and minimal maintenance costs.
- Contamination-Free – Ideal for pharmaceutical and ultra-pure fluid handling systems.

CONCLUSION

When process integrity, reliability, and longevity are non-negotiable, ceramic valves, valve seats, and plugs deliver the performance needed in the most hostile operating environments. At CeramForge, our deep material knowledge, precision engineering, and industry-focused designs ensure that your critical flow systems run smoother, longer, and more reliably.