

## SlimTech

Reduced-OD, tubing-retrievable, surface-controlled safety valves



Rated up to 10,000 psi [69 MPa]



Rated to 177 degC [350 degF]

### APPLICATIONS

- Sweet to severely corrosive environments
- High-rate gas production or injection wells

### BENEFITS

- Minimizes risk with fewer potential leak paths
- Reduces workover costs by enabling rigless workovers with simplified slickline lockout procedure, including optional hydraulic communication for secondary safety valve contingency
- Improves production or injection rates with lower pressure drops and flow velocities
- Increases workover flexibility with thru-tubing access for large-bore intervention tools and accessories

### FEATURES

- Large-bore ID
- Optimized geometry of the unique, reliable INCONEL® 718 curved flapper mechanism with full metal-to-metal seal
- Slam closure at extreme flow rates
- Rod-piston hydraulic system
- Metal-seal communication and lockout mechanism
- Low-pressure gas migration (LGM) available on hydraulic system

The SlimTech\* reduced-OD, tubing-retrievable, surface-controlled safety valve series comprises well control barriers with maximum reliability and operational flexibility. The SlimTech safety valves meet API and ISO standards; feature rod-piston actuation, metal-to-metal seal body joints, and a rugged flapper-closure mechanism; and minimize the number of critical, static, and dynamic seals.

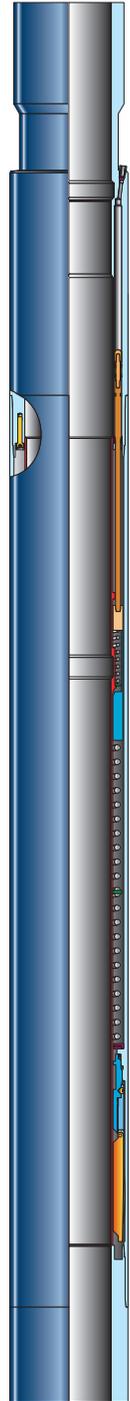
Each SlimTech valve relies on a single rod piston with reliable spring-energized, filled Teflon® sealing elements; a static, fully closed, metal-to-metal seal; and a static, fully open seal and centralizing system. For maximum reliability, every SlimTech valve has only two body joints and makes a reliable metal-to-metal seal. The premium flapper mechanism in each SlimTech valve also has full metal-to-metal sealing and a secondary soft seat. The flapper mechanism substantially exceeds API and ISO leakage-acceptance criteria.

All SlimTech valves incorporate a patented system that simplifies secondary communication. For optimal valve OD, the SlimTech valve features the unique Camco curved flapper-closure system.

Because of their modular design, SlimTech valves are available with a wide range of material and design options, including many nipple profiles, to cost-effectively fit specific applications and operating environments. Valves are available with a self-equalizing mechanism, working pressure ratings up to 10,000 psi [68,950 kPa], and setting depths from 0 to 8,000 ft [2,438 m].

### High-flow version for high-rate gas wells

The high-flow version is a premium, large-bore, compact tool designed to reliably seal the wellbore in high-rate gas wells. A low-pressure gas migration system includes design enhancements to ensure sealing at low differential pressures during dynamic and static operation. Additionally, this valve features patented technology to simplify secondary communication. Design and qualification meet or exceed the requirements defined in API Specification 14A (ISO 10432). The safety valve satisfies the requirements of API Class 2 Sandy Service and can display the API Monogram.



*SlimTech safety valve.*

## Equalized pressure to survive erosion

The SlimTech valves' flapper-mounted equalizing system is an industry-recognized, proven method of equalizing the pressure across the flapper. The ports in the equalizing dart provide a dedicated flow path for wellbore fluid. For optimal wear, Schlumberger manufactures the equalizing system components from erosion-resistant materials and coatings. This design has been rigorously tested with sand slurry to ensure reliable operation in any well condition.

## Reduced risk with durable seals

Within the valve's chamber housing, the rod piston consists of a stepped OD and a compliant downstop of a polyetheretherketone polymer. As the operating piston reaches the fully open position, it contacts the static full-open seal and protects the dynamic operating piston from produced

fluids. The polymer sealing element provides a compliant surface to avoid incomplete sealing caused by particulate matter. All of the premium piston system components are manufactured from wear-resistant materials for maximum durability.

## Easier, more reliable operations

SlimTech safety valves are normally closed. They are opened by applying hydraulic pressure through a control line that extends from the safety valve through the wellhead to the control panel. For slickline operations, a simple procedure permanently locks out the valve and initiates secondary hydraulic communication.

### SlimTech Safety Valve Specifications

Tubing Size, in [mm] <sup>†</sup>	SlimTech Valve Type	Max. OD, in [mm]	Nipple Bore, in [mm]	Working Pressure, psi [MPa]	Max. Tensile Load, lbf [kg] <sup>‡</sup>
7.000 [177.8]	5-DS	8.375 [212.7]	5.937 [150.8]	5,000 [34.475]	676,092 [306,670]
7.000 [177.8]	5E-DS	8.375 [212.7]	5.937 [150.8]	5,000 [34.475]	676,092 [306,670]
7.000 [177.8]	10-DS	9.271 [235.5]	5.937 [150.8]	10,000 [68.950]	1,015,390 [460,573]

<sup>†</sup> The engineering data provided illustrate the scope of this product offering but are not all-inclusive. Additional sizes and pressure ratings are available upon request.

<sup>‡</sup> Tensile ratings are given for specific example valves; higher-strength materials affect this value. Tensile ratings shown are exclusive of end connection (EOEC) and at ambient temperature.

### SlimTech High-Flow Safety Valve Specifications

Tubing Size, in [mm] <sup>†</sup>	SlimTech Valve Type	Max. OD, in [mm]	Nipple Bore, in [mm]	Working Pressure, psi [MPa]	Max. Tensile Load, lbf [kg] <sup>‡</sup>
7.000 [177.8]	10E-DS	9.271 [235.5]	5.937 [150.8]	10,000 [68.950]	1,015,390 [460,573]
7.000 [177.8]	7.5-HF	9.100 [231.14]	6.000 [152.40]	7,500 [51.711]	722,400 [327,675]
7.000 [177.8]	7.5-HF	9.100 [231.14]	6.000 [152.40]	7,500 [51.711]	960,350 [435,607]

<sup>†</sup> The engineering data provided illustrate the scope of this product offering but are not all-inclusive. Additional sizes and pressure ratings are available upon request.

<sup>‡</sup> Tensile ratings are given for specific example valves; higher-strength materials affect this value. Tensile ratings shown are exclusive of end connection (EOEC) and at ambient temperature.