Schlumberger

# KickStart

## Rupture disc valve

**Rated to 10,000 psi [69 MPa]**

**Rated up to 350 degF [177 degC]**

### APPLICATIONS

- Horizontal, deviated, and vertical wells
- Wells needing an alternative to CT- or tubing-conveyed perforating to initiate pumpdown operations
- Cemented wellbore with 4½-in, 5-in, or 5½-in casing inside 5⅞-in or larger open hole

### BENEFITS

- Reduces time and costs by eliminating the need for CT perforating
- Lowers fracture initiation pressure through a helical port design
- Enhances safety through ELEMENTAL* degradable technology, which enables the valve to open below the maximum casing test pressure

### FEATURES

- Ratings up to 20,000-psi [138-MPa] internal pressure and 350 degF [177 degC]
- Fully redundant rupture discs
- Robust torque rating to enable manipulation of casing string in extended-reach wells
- Conventional cementing system and procedure

The KickStart* rupture disc valve is the first tool in a multistage stimulation string. It eliminates the need for coiled tubing– or tubing-conveyed perforating in the first stage, providing a more efficient and cost-effective method of starting the fracturing process.

The valve is run to the toe of the well as part of the casing string. Increasing the casing pressure to a predetermined value causes the valve's rupture discs to burst, shifting a sliding sleeve and opening the valve, thereby exposing the formation to the fracturing fluid. The first stimulation treatment can begin and subsequent pumpdown operations can follow.

### Greater reliability through redundant rupture discs

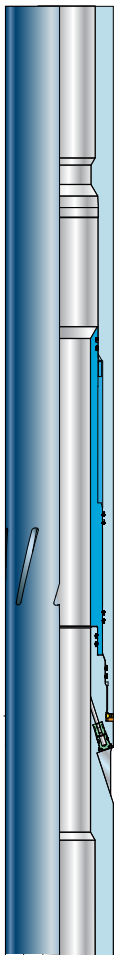
Each KickStart valve features two rupture discs, placed 180° apart. The system has full redundancy because only one of the two discs must rupture to activate the sliding sleeve. Rupture discs are available in 250- to 300-psi pressure increments and can be installed at the wellsite.

### Reduced fracture initiation pressure with helical port design

The valve's helical exit ports have been specifically designed to reduce the fracture initiation pressure and provide 360° coverage so that fractures are initiated in the preferred plane.

### Enhanced operational safety via dissolvable technology

For other valves, usually the casing is pressure tested and subsequently the pressure is increased further to burst the rupture discs. Introduction of ELEMENTAL degradable technology has enabled setting the valve opening pressure below the maximum casing test pressure. After the valve opens, a ball is dropped from surface to land on a seat above the valve, sealing off the valve so that the casing above can be tested to the desired pressure. The ball is made using ELEMENTAL technology and soon dissolves completely, enabling the fracturing operation to resume.



*KickStart rupture disc valve.*

**KickStart Valve Specifications**

| Size, in [mm] | Min. Openhole Size, in [mm] | Min. ID, in [mm] | Max. OD, in [mm] | Area Open to Flow, in$^2$ [cm$^2$] | Ball Size OD, in [mm] |
|---|---|---|---|---|---|
| 4.5 [114.3] | 5.875 [149.225] | 3.25 [82.55] | 5.625 [142.875] | 10.5 [67.7] | 3.657 [92.887] |
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| 5.5 [139.7] | 7.875 [200.025] | 4.25 [107.95] | 7.610 [193.294]† | 15.6 [100.6] | 4.533 [115.138] |
| 5.5 [139.7] | 7.000 [177.800] | 4.25 [107.95] | 6.835 [173.609] | 29.6 [191.0] | 4,533 [115.138] |

†Nominal OD is 7 in; max. OD only applies to two small sections on the valve that measure 3 in × 4.25 in each.

**KickStart Valve Operating Ratings**

| Size, in [mm] | Temperature Rating, degF [degC] | Differential Pressure Rating, psi [MPa] | Max. Internal Pressure, psi [MPa] | Max. External Pressure, psi [MPa] | Max. Torque Rating, lbf.ft [N.m] |
|---|---|---|---|---|---|
| 4.5 [114.3] | 350 [177] | 10,000 [69] | 20,000 [138] | 15,000 [103] | 10,000 [13,558] |
| 5 [127.0] | 350 [177] | 10,000 [69] | 20,000 [138] | 15,000 [103] | 10,000 [13,558] |
| 5.5 [139.7] | 325 [163] | 10,000 [69] | 20,000 [138] | 12,000 [83] | 15,000 [20,337] |
| 5.5 [139.7] | 350 [177] | 10,000 [69] | 15,000 [103] | 12,500 [86] | 15,000 [20,337] |