

# Optimax™ Model WDB Wireline-Retrievable Subsurface Safety Valve (WRSSV)

Restores safety-valve functionality in wells with damaged safety-valve landing nipples or hone bores

## Applications

- Wells with groove- or gouge-damaged safety-valve landing nipples
- Wells with groove- or gouge-damaged hone bores in tubing-retrievable subsurface safety valves (TRSSV)
- Wells in which hone-bore debris or corrosion prevents conventional wireline-retrievable or insert-valve sealing
- Sour- and critical-well applications

## Features and Benefits

- Restores safety-valve functionality without a major workovers, which saves operational time and costs
- Seals hone bores with damage of up to 0.039 in. (1 mm) to American Petroleum Institute (API) standards
- Installs without additional accessory tools or special procedures, and the packing stacks do not energize until they are seated in the nipple
- Enables optimal production with a larger through-bore and flow area and does not reduce ID or restrict flow when installed
- Provides a metal-to-metal, through-the-flapper equalizing technology that effectively seals the wellbore
- Offers compatibility with third-party lock profiles
- Includes a dynamic seal system that includes a rod piston, proprietary Viton® elastomeric T-seal, and moly-filled Teflon® bearing backup rings
- Provides a reliable low-pressure seal with the Viton flapper soft seal

## Tool Description

The Weatherford Optimax Model WDB WRSSV restores safety valve functionality in wells with damaged safety valve systems, including those with damaged landing nipples or hone bores, without a major workover. Caused by running tools through the nipple and operations such as snubbing, hone-bore damage (including grooves, gouges, debris, and corrosion) can prevent conventional wireline and insert valves from functioning properly. This can result in well control loss, intermittent service, or possible damage to other insert equipment in the completion.

The tool features a standard valve-and-lock assembly and a patented packing mandrel, which provides effective sealing in damaged landing nipples. Applied force to the packing stacks significantly improves the sealing capabilities. Floating pistons energize the packing stacks and are activated by tubing pressure from one side and control-line pressure from the other. The Model WDB exceeds API 14A requirements and operates up to 10,000-psi (68.9-MPa) gas-differential pressure at 300°F (149°C).



*The Optimax Model WDB WRSSV enables standard installation and retrieval without additional tools. The valve optimizes production through a larger through-bore and flow area without reducing ID or restricting flow when installed.*



# Optimax™ Model WDB Wireline-Retrieveable Subsurface Safety Valve (WRSSV)

## Specifications

### Measurement

<b>Size</b>	2-7/8 x 2.313 in. (73.0 x 58.75 mm)	3-1/2 x 2.813 in. (89.9 x 71.45 mm)	4-1/2 x 3.437 in. (114.3 x 87.30 mm)	4-1/2 x 3.813 in. (114.3 x 96.85 mm)			5-1/2 x 4.562 in. (139.7 x 115.90 mm)
<b>Nipple profile</b>	X	B	DB-6	B	RRQ	DB-6	RRQ
<b>Maximum lock OD</b>	2.281 in. (57.94 mm)	2.868 in. (72.85 mm)	3.488 in. (88.60 mm)	3.860 in. (98.04 mm)	3.858 in. (97.00 mm)	3.860 in. (98.04 mm)	4.620 in. (117.35 mm)
<b>Minimum flowing ID</b>	1.180 in. (29.97 mm)	1.433 in. (36.40 mm)	1.630 in. (41.40 mm)	2.165 in. (55.00 mm)			2.465 in. (62.61 mm)
<b>Overall length</b>	47.50 in. (120.6 mm)	57.70 in. (146.6 mm)	55.35 in. 140.5 mm	59.05 in. (150.0 mm)	64.00 in. (162.6 mm)	59.05 in. (150.0 mm)	62.50 in. (158.7 mm)
<b>Working temperature</b>	30° to 300°F (-1° to 149°C)						
<b>Working pressure</b>	10,000 psi (68.9 MPa)						
<b>Operating pressure (full open)</b>	2,000 psi (13.8 MPa)						
<b>Operating pressure (full closed)</b>	1,000 psi (6.9 MPa)						
<b>Test pressure</b>	9,750 psi (67.2 MPa)	9,000 psi (62.1 MPa)	9,750 psi (67.2 MPa)			7,500 psi (51.7 MPa)	
<b>Fail-safe setting depth</b>	2,000 ft (610 m)						

### Materials

<b>Actuation system</b>	Rod piston, Viton elastomeric T-seal, and moly-filled Teflon bearing backup rings verified to 10,000 psi (68.9 MPa) gas differential pressure at 300°F (149°C)
<b>Flapper soft material</b>	Viton seal
<b>Lock and majority of safety-valve components</b>	Minimum 13Cr, 80,000 psi (551.6 MPa) MYS, heat treated
<b>Rod piston, flapper, seat</b>	INCOLOY® 925, heat treated
<b>Power spring, flapper pin, torsion spring</b>	MP35N, heat treated
<b>Design compliance</b>	API 14A
<b>Manufacturing compliance</b>	API Q1 and API 14A
<b>Class of service</b>	3S2

### Options

- The WDB(E) model includes a through-the-flapper self-equalizing feature.

