

WR-VOi™ Variable Orifice Safety Valve with HiFlo™ Lock



Wireline Retrievable Sub-Surface Controlled Injection Safety Valve

Applications:

- Injection operations
- Subsurface controlled safety valve operations

Benefits:

- Surge protection
- Passive autonomous control
- Minimize pressure drop over a range of injection rates
- Eliminates orifice size change-outs
- Unlimited setting depth
- Reduced flow turbulence
- 20-year design life
- Simple installation/ recovery
- Bubble tight seal

Features:

- Variable orifice design controlled by flow rate
- Debris barrier for recovery
- Integral equalization feature
- Large variability of orifice response to flow
- Constant velocity profile regardless of flow rate
- Erosion resistant ceramic materials
- Wireline retrievable with standard GS Pulling Tools

Description:

The Tejas WR-VOi™ Variable Orifice Safety Valve is an API-14A, V3 rated safety valve designed specifically for injection operations. It can be deployed within either a Tubing Retrievable Injection Valve (TRIV™) or within a tubing nipple lock profile.

It is recommended to deploy the WR-VOi with the Tejas HiFlo™ Lock (shown) to provide the greatest longevity and lowest injection differential pressure during operation. Improved pumping efficiency is achieved with the smooth, large inside diameter. An integral outside debris barrier and equalization feature ensure that the lock can be retrieved safely and reliably.

The WR-VOi and HiFlo Lock together allow for normal wireline running procedures and standard post-installation pressure testing. The variable orifice safety valve incorporates a “Torpedo” that has a bubble tight seal that prevents potential formation damaging “surge” within the well when injection stops.

The unique variable orifice design proportionally opens in response to injection flow and maintains a constant pressure drop regardless of the injection flow rate. The WR-VOi™, eliminates the need for costly wireline orifice change-outs required for flapper-style safety valves when the injection rate changes over time. Also, the internal components are highly erosion resistant and have greater longevity than traditional flapper-style injection safety valves.



WR-VOi™ Running Tool

Tubing Size in [mm]	Polished Bore Diameter in [mm]	Max Tool OD in [mm]	Min ID in [mm]	Internal Fishing Neck in [mm]	Maximum Injection Rate* bbl/day
2.875 [73.0]	2.250 [57.15]	2.220 [56.39]	1.400 [35.56]	2.500 [63.50]	12,500
	2.312 [58.72]				
3.500 [88.9]	2.750 [69.85]	2.720 [69.09]	1.800 [45.72]	3.000 [76.20]	18,500
	2.812 [71.42]				
4.500 [114.3]	3.750 [95.25]	3.720 [94.49]	2.500 [63.50]	4.000 [101.60]	40,000
	3.812 [96.82]				
5.500 [139.7]	4.313 [109.55]	4.283 [108.79]	3.125 [79.38]	5.000 [127.00]	65,000
	4.562 [115.87]				

* Maximum Injection Rate depends on the anticipated solids loading expected during operation

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† Engineering data illustrates the product scope and is not all inclusive. Additional sizes are available upon request.

[Direct request for quotations to: product.sales@tejasre.com](mailto:product.sales@tejasre.com)