



SBRO-DVX Side-Pocket Gas-Lift Mandrel

Weatherford's patented SBRO-DVX side-pocket gas-lift mandrel features unique dual external valves, which prevent corrosive well fluids and gas from entering the casing annulus through the gas-lift valves or through empty side-pocket mandrel pockets.

The SBRO-DVX mandrel's unique dual external valves provide a true second barrier, protecting the casing string against high pressures, hydrogen sulfide (H₂S), carbon dioxide (CO₂), and other hazards. External placement of the valves enhances safety, protects the casing string and the environment, and makes the SBRO-DVX mandrel ideal for use in severe well conditions.

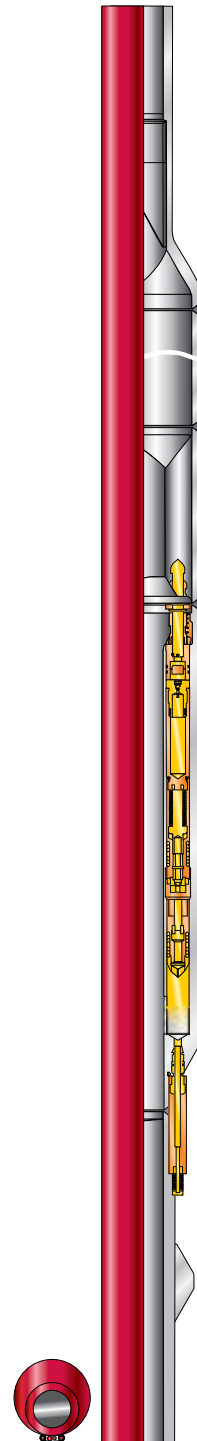
Weatherford is the first company to offer the industry 4 1/2-in. side-pocket mandrels certified to ISO 17078-1, Levels V1, E1, F1, and Q1.

Applications

- Any well completion incorporating standard side-pocket gas-lift mandrels
- Deepwater, high-pressure, and/or highly corrosive well environments
- Reduction of well production losses after wireline change-out of gas-lift valve

Features, Advantages and Benefits

- Dual external valves prevent wellbore fluids from entering the casing annulus and protect the casing string from high pressures and corrosive fluids. Safety and environmental integrity are greatly enhanced. The external dual-valve design also:
 - eliminates the need for a positive check valve within the gas-lift valve, which reduces the required pressure drop at gas-lift valve depth. Thus, utilization of higher injection pressure lowers operating depth and improves system efficiency.
 - avoids the problem of tubing communication with casing that occurs during gas-lift valve change-out with standard side-pocket mandrels. External valves prevent tubing flow into the casing when the gas-lift valve is removed from the pocket.
 - reduces downtime in well production because complete unloading of the casing annulus and tubing after gas lift change-out is not required.
 - removes the necessity of an internal check valve in single-barrier applications, thus providing more design options for any special gas-lift valves.





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Features, Advantages and Benefits (continued)

- Industry standard pocket configuration accepts 1.0- and 1.5-in. OD gas-lift valves and latches from other manufacturers. No additional gas-lift equipment has to be purchased for the upgrade to SBRO-DVX mandrels.
- Custom mandrel design is available for premium threads and weights, special running OD clearance, premium metallurgy (such as 13Cr, S13Cr, and 718 INCONEL®), and special protective rails (single or multiple data/chemical injection lines).

Specifications

Valve Size (OD) (in./mm)	Tubing Size		Nominal ID Drift		Nominal OD		Internal Pressure Rating ^a		External Pressure Rating ^a		Nominal Length	
	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(PSI)	(kPa)	(PSI)	(kPa)	(in.)	(mm)
1.0 25.4	2.375	60.325	1.901	48.285	4.081	103.657	8,540	58,881	8,090	55,779	97.75	2,482.85
	2.875	73.025	2.347	59.613	4.657	118.288	11,140	76,808	9,730	67,086	83.50	2,120.90
	3.500	88.900	2.867	72.821	5.968	151.587	10,670	73,567	10,500	72,395	111.50	2,832.10
	4.500	114.300	3.833	97.358	6.390	162.306	9,500	65,500	8,940	61,639	91.50	2,324.10
1.5 ^b 38.1	2.875	73.025	2.347	59.614	4.870	123.698	8,500	58,605	8,000	55,158	99.00	2,514.60
	3.500	88.900	2.867	72.822	5.968	151.587	11,200	77,221	10,500	72,395	122.00	3,098.80
	4.500 ^b	114.300	3.833	97.358	7.100	180.340	7,760	53,503	7,300	50,332	120.00	3,084.00
	5.500	139.700	4.767	121.082	8.000	203.200	6,920	47,712	6,540	45,092	127.00	3,225.80
	7.000	177.800	6.059	153.899	9.200	233.680	7,000	48,263	6,730	46,402	120.00	3,084.00

Note: Dimensions and pressure ratings will change for custom-design mandrels with special thread connections, special rails, and special metallurgy.

^a Pressure ratings listed are for 4130 high-heat-treat (HHT) alloy steel, the standard material for the SBRO-DVX side-pocket gas-lift mandrel.

^b This mandrel is certified to ISO 17078-1 Side-Pocket Mandrels, Levels V1, E1, F1, and Q1.

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