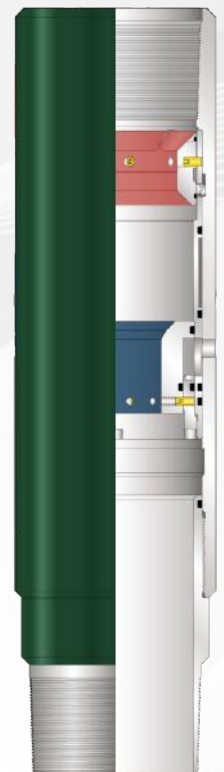


MDVX Stage Cementing Collar Hydraulic Type (two stage)

Applications & Features

- MDVX Stage Cementing Collar can be made from material grades up to 135,000 psi minimum yield, including material suitable for sour gas service.
- Common steel grades i.e. J-55, K-55, L-80, P-110 form standard manufacturing steel grades, how ever other grades are available upon request.
- API & Premium connections are available upon request.
- No welds are used on any portion of the tool.
- The MDVX could be used successfully as secondary stage when placed above External Casing Inflatable Packers.
- The seals providing internal and external pressure integrity are housed in the stage collar body and remain stationary throughout operation, minimizing chances of their being damaged.
- The pressure-relief design prevents fluid trapping and compression between the opening device and the closing plug during the closing phase of the tool's operation.
- The closing sleeve is held in the closed position by an internal lock ring.
- Both the opening and closing sleeves lock against rotation for easy drill-out.
- A minimum amount of aluminum and rubber are the only materials encountered during drill-out.



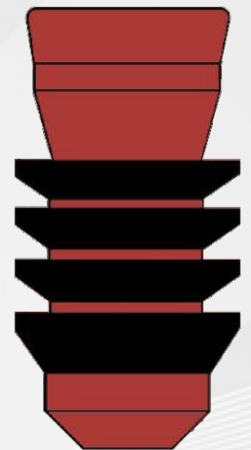
MDVX Stage Cementing Collar Hydraulic Type (two stage)

Two-Stage Cementing with MDVX Stage Cementing Collar using:

- I. Baffle Plate
- II. Shut-off Plug, and
- III. Closing Plug

Sequence of Events:

- Float shoe along with Baffle Plate and the MDVX Stage Cementing Collar, are installed in the casing string and the casing is run to bottom.
- Circulation is established and first-stage cement is mixed and pumped.
- When the first-stage shutoff plug lands on the shutoff baffle, increased internal casing pressure hydraulically opens the stage tool, enabling circulation and then second-stage cement to pass through the ports into the annulus above the tool.
- The closing plug when released, wipes the casing ID clean of cement before bumping on a closing seat.
- Increased pressure shifts the closing seat downward, releasing locking lugs and closing the tool. A snap ring locks the sleeve in position, ensuring the stage tool remains locked.



MDVX Stage Cementing Collar Hydraulic Type (two stage)

Specification Tables

Size (in.)	Grade	Wt. Range (Lbs.)	Max. O.D.	Max. Drill-Out I.D.	Overall Length (in.)	Hydraulic Sleeve I.D. (in.)	Closing Seat I.D. (in.)	Opening Pressure (psi/bar)	
					BTC			Per Screw	Range
5-1/2	L80	14.0 to 17.0	6.625	4.897	31.5	3.000	4.062	440 30.3	880 to 3,520 60.6 to 242.7
	L80	15.5 to 20.0		4.835					
	P110	17.0 to 23.0		4.777					
7	L80	20.0 to 26.0	8.200	6.341	32.5	3.750	5.000	340 23.4	680 to 3,400 46.9 to 234.0
	L80	26.0 to 32.0		6.161					
	P110			6.161					
9-5/8	L80	32.3 to 40.0	11.125	8.855	38.8	6.125	7.750	600 41.4	1,200 to 3,600 82.8 to 248.2
	L80	40.0 to 47.0		8.689					
	P110	43.5 to 53.5		8.609					
10-3/4	L80	40.5 to 51.0	12.312	9.904	38.8	7.250	8.875	630 43.4	1,260 to 3,780 86.8 to 260.6
	P110	51.0 to 60.7		9.704					
13-3/8	L80	61.0 to 72.0	15.000	12.375	38.8	9.250	11.000	500 34.5	1,000 to 3,000 69.0 to 207.0
	P110			12.375					

