Type 778 MC Mechanical Stage Cementing Collar

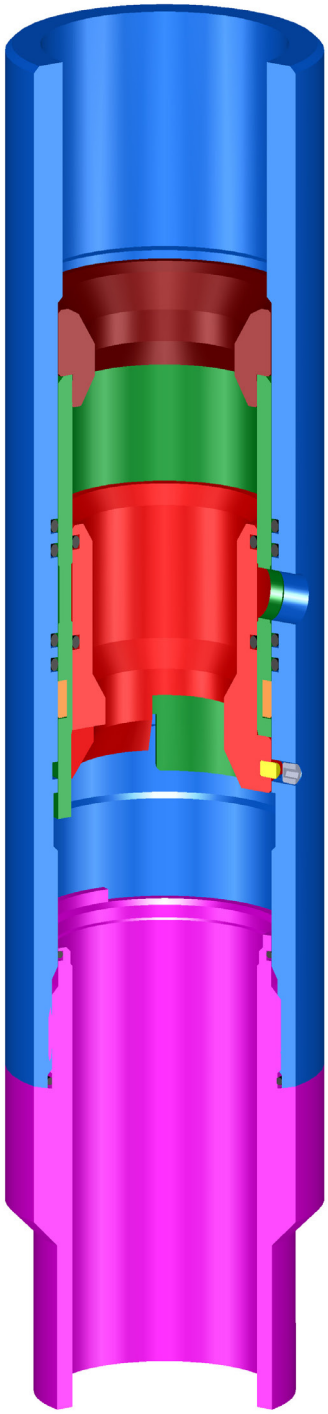
Davis-Lynch™ Casing Equipment

For over 20 years, Forum stage cementing collars have helped operators achieve faster drill-out times, greater PDC bit drillability, and better metal-to-metal sealing. Forum offers three stage collar designs: a mechanically opened tool, a hydraulically opened tool, and a mechanically opened tool with a built-in inflatable packer.

Our Davis-Lynch™ mechanical stage collars offer customers both 2 or 3-stage cementing solutions even for the world's the most toughest well conditions.

Forum 778 MC Stage Cementing Collar features include:

- Tools made from material grades up to 150,000 psi minimum yield, including material suitable for sour gas service.
- All parts custom fitted and subjected to extensive quality control standards, for maximum performance downhole.
- The connection that adjoins the stage collar body and the bottom sub affects a metal-to-metal seal and engages a back-up elastomer seal, the two of which are designed to provide gas-tight pressure integrity.
- No welds are used on any portion of the tool.
- The reduced length of the tool minimizes the effect of bending stresses.
- 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. Plug sets for four different cementing applications are available.



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Downhole

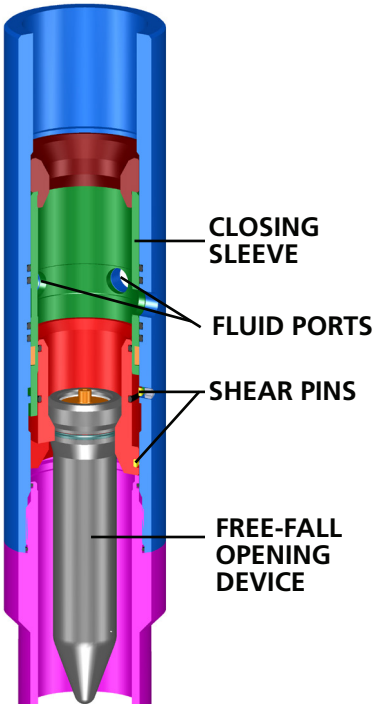
As a trusted and proven tool, our **Type 778 MC Mechanical Stage Cementing Collars** are available in a variety of casing sizes and able to withstand extreme conditions and depths.

Nominal Casing Size (In.)	Maximum Diameter	Weight Range (Lbs.)	Drill-Out I.D. (In.)	Overall Length (In.)	Opening		Closing		Opening Seat ID (In.)	Closing Seat ID (In.)
					Pressure (PSI)	Force (Lbs.)	Pressure (PSI)	Force (Lbs.)		
2-7/8	3.660	6.4 - 7.8	2.440	24.75	1000	4,676	1500	9,636	1.750	2.125
3-1/2	4.380	7.7 - 14.1	2.930	24.75	1200	8,107	1500	15,481	1.750	2.125
4-1/2	5.562	9.5 - 13.5	3.950	27.25	1200	21,000	1500	25,000	2.750	3.062
5	6.090	11.5 - 15.0	4.300	27.25	1200	26,000	1500	33,000	2.750	3.250
5-1/2	6.625	14.0 - 17.0	4.892	27.38	1200	32,000	1500	39,000	3.750	4.062
		20.0 - 23.0	4.810							
6-5/8	7.875	20.0 - 28.0	6.030	28.50	1200	45,000	1500	57,000	4.625	5.000
7	8.275	17.0 - 23.0	6.276	28.50	1200	49,000	1500	62,000	4.625	5.125
		26.0 - 29.0	6.200							
		32.0 - 38.0	6.004							
7-5/8	8.937	26.4 - 33.7	6.825	28.88	1200	59,000	1500	74,000	4.750	5.500
8-5/8	10.125	24.0 - 32.0	8.000	29.00	1000	71,000	1200	85,000	5.750	6.750
9-5/8	11.125	32.3 - 40.0	8.921	29.50	1000	78,000	1200	94,000	7.000	7.750
		43.5 - 53.5	8.600							
10-3/4	12.375	40.5 - 55.5	9.950	30.88	1000	100,000	1200	120,000	8.000	8.750
11-3/4	13.375	42.0 - 54.0	10.825	30.88	1000	114,000	1200	137,000	8.000	8.750
13-3/8	15.000	54.5 - 61.0	12.515	30.88	900	133,000	1000	148,000	10.500	11.250
		68.0 - 72.0	12.415							
16	18.000	65.0	15.125	32.38	500	90,000	700	126,000	13.125	14.000
		75.0 - 84.0	14.880							
18-5/8	20.800	87.50	17.755	32.88	400	99,000	600	149,000	14.500	16.000
20	22.000	94.0 - 133.0	18.730	32.88	400	110,000	600	165,000	16.000	17.500
22	24.000	114.8 - 170.2	20.500	34.63	400	135,000	600	228,000	18.000	19.000

Note: 4 1/2" thru 6 5/8" have 4–1" Ports. 7" thru 13 3/8" have 6–1 1/8" Ports. 16" thru 20" have 10–1 1/8" Ports. 22" has 12–1 1/8" Ports.

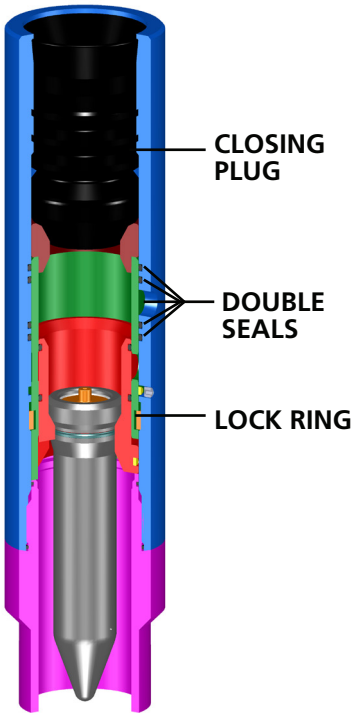
Opened Position

Once the opening device has landed and pressure is applied, the lower set of shear mechanisms yield and the sleeve shifts downward to uncover the fluid ports, allowing pumping operations to be conducted through the stage collar.



Closed Position

The closing plug has landed and pressure is applied, the upper set of shear mechanisms yield and the sleeve shifts downward, shutting off the fluid ports. The double seals above and below the ports provide pressure integrity.



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