



Tubing-Retrievable Gas-Lift Mandrels

CM Series

Weatherford's McMurry-Macco® CM series gas-lift mandrels are equipped with external lugs to receive tubing-retrievable gas-lift and orifice valves. CM series mandrels are available in standard and heavyweight tubing sizes. A full-bore drift ID enables installation of multiple mandrels in the tubing without impediment to post-completion operations. External guards are attached to the OD of the mandrels, surrounding the valves and providing protection during tubing running and pulling operations. The mandrels have threaded connections and form an integral part of the completion string.

Applications

- **CM series** mandrels are installed as part of the tubing string to carry tubing-retrievable gas-lift equipment, in single- or dual-string completions.
- The **CM-1** and **CM-2** mandrels are used for 1- and 1 1/2-in. OD gas-lift valves, respectively.
- The **CM-1F** and **CM-2F** mandrels are configured for annular-flow applications for 1- and 1 1/2-in. OD gas-lift valves, respectively.
- The **CM-3** mandrel is available for slim-hole and concentric pack-off installations for 5/8-in. OD gas-lift valves.

Features, Advantages and Benefits

- Full tubing ID enables installation of multiple mandrels without impediment to post-completion operations.
- Guard plates on the side of the mandrels protect gas-lift valves from damage as they are run in the hole.
- Various ported-lug configurations allow use of the mandrels in tubing or annular-flow applications, providing system design flexibility for individual applications.
- Concentric ID makes these mandrels suitable for use in combination gas lift-plunger lift applications.



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Gas-Lift Mandrel



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Specifications

Tubing Size (in.)	Mandrel Model	Assembly Number	Mandrel Lug ID		Dimension OD	Mandrel OD		Drift ID		Mandrel Length	
			(in.)	(mm)		(in.)	(mm)	(in.)	(mm)	(in.)	(mm)
2-3/8	CM-1	471X-XXX	1.0	25.4	A	3.783	96.09	1.901	48.29	51.00	1,295.4
					B	3.706	94.13				
	CM-1F	472X-XXX			A	4.096	104.04				
					B	4.019	102.08				
	CM-2	481X-XXX	1.5	38.1	A	4.283	108.79				
					B	4.206	106.83				
2-7/8	CM-1	471X-XXX	1.0	25.4	A	4.335	110.11	2.347	59.61	51.00	1,295.4
					B	4.231	107.47				
	CM-1F	472X-XXX			A	4.648	118.06				
					B	4.544	115.42				
	CM-2	481X-XXX	1.5	38.1	A	4.835	122.81				
					B	4.731	120.17				
3-1/2	CM-1	471X-XXX	1.0	25.4	A	5.063	128.60	2.867	72.82	51.00	1,295.4
					B	4.903	124.54				
	CM-2	481X-XXX	1.5	38.1	A	5.562	141.27				
					B	5.427	137.85				

A = Mandrel maximum running OD, standard collar

B = Mandrel maximum running OD, special-clearance collar

Options

- CM series mandrels are available in various materials for standard, corrosive hydrogen sulfide (H₂S), high-temperature, and high-pressure well environments.
- The mandrels are available in standard and heavyweight tubing sizes and connections to suit specific completion designs.