

MMRG Series Side Pocket Mandrels

Premium side pocket mandrels for 1.5-in [38.1-mm] valves

APPLICATIONS

- Normal and corrosive service
- Single-string completions

BENEFITS

- Enables precise alignment and insertion of side pocket devices, minimizing the opportunity for hang-up during slickline operations
- Optimizes production with unique design features to facilitate operations

FEATURES

- Positioning sleeve orientation system
- Machined tool discriminator that deflects large tools into the tubing bore
- Single-piece machined pocket
- Superior design and construction, including no longitudinal welds
- Pressure and tensile rating near or equal to that of the parent tubing

Camco gas lift MMRG series side pocket mandrels are made up as part of the tubing string when preparing a well for gas lift production, chemical injection, waterflood, or other special applications. MMRG mandrels are designed with a round body construction and are available in a variety of tubing sizes and connection thread types. They incorporate all the standard design features of Camco side pocket mandrels.

MMRG mandrels feature an integral, one-piece pocket and a tool discriminator that keeps larger slickline tools from entering the pocket area whilst guiding the smaller side pocket devices into the pocket. An orienting sleeve helps ensure precise alignment of positive kickover tools in highly deviated wells.

Design variations

The following mandrels have variations that configure them for specific production applications and are available in a full range of sizes.

- MMRG-4 series
 - The ends of this mandrel are lengthened to accommodate the remaining of connecting threads.
- MMRG-5 series
 - This mandrel has integral guard devices to protect chemical injection conduits being run simultaneously with the mandrel.

MMRG-LTS series has an integral connection extending from the surface wellhead connection. This standard connection is a 1/8-in [3.2-mm] box that accepts a 1/4-in [6.4-mm] OD injection conduit. LTS mandrels are used when two or more fluids being injected into the well must be kept separate until they are commingled in the flow stream. In this type of installation, the LTS mandrel leaves the annulus free for other production uses. In chemical injection applications, injected chemicals enter the mandrel pocket through the injection conduit and flow through the chemical injection valve and into the tubing.

MMRG series mandrels are available in a range of fully traceable materials and can be heat treated to comply with NACE specification MR0175 for stress-cracking resistant metallic materials.



MMRG series side pocket mandrel.

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Engineering Data for MMRG Series Side Pocket Mandrels

Tube size,† in [mm]	Type†	Major OD, in [mm]	Minor OD, in [mm]	External Drift, in [mm]	Internal Drift, in [mm]	Test Pressure (Internal), psi [kPa]‡	Test Pressure (External), psi [kPa]‡	Latch Type	Kickover Tool
2.875 [73.0]	MMRG	5.261 [133.6]	5.261 [133.6]	5.376 [136.5]	2.347 [59.6]	10,000 [68,948]	10,000 [68,948]	RK, RK-1, RKP	OM, TP
3.500 [88.9]	MMRG	5.968 [151.6]	5.968 [151.6]	6.059 [153.9]	2.867 [72.8]	10,000 [68,948]	10,500 [72,395]	RK, RK-1, RKP	OM, TP
4.500 [114.3]	MMRG	7.25 [184.15]	7.25 [184.15]	7.386 [187.6]	3.833 [97.4]	8,000 [55,158]	7,500 [51,711]	RK, RK-1, RKP	OM, TP
5.000 [127.0]	MMRG	7.25 [184.15]	7.25 [184.15]	7.386 [187.6]	3.833 [97.4]	8,000 [55,158]	7,250 [49,987]	RK, RK-1, RKP	OM, TP
5.500 [139.7]	MMRG	7.982 [202.7]	7.982 [202.7]	8.379 [212.8]	4.653 [118.2]	7,740 [53,365]	6,280 [43,299]	RK, RK-1, RKP	OM, TP
7.000 [177.8]	MMRG	9.414 [239.1]	9.414 [239.1]	9.504 [241.4]	5.812 [147.6]	5,700 [39,300]	5,300 [36,542]	RK, RK-1, RKP	OM, TP

†Additional sizes and pressure ratings are available upon request.

‡Test pressures listed are all for low-alloy steel, heat treated for normal or corrosive conditions. These pressures may be reduced because of end connection limitations.

§Use a spacer bar with the pulling tool and all OM series kickover tools above.

Guide to MMRG Series Side Pocket Accessories

Gas Lift Valve	Equalizing Dummy Valves	Dummy Valves	Shear Orifice Valves	Circulating Valves	Chemical Injection Valves	Waterflood Flow Regulator Valves
R-20-02	CEV	RD	S02-30R	RGR-2, RKFS, RCS, RG-1, RG-2	C-31R, RCB	RWF-B, RWFD
R-25P	CEV	RD	S02-30R	RGR-2, RKFS, RCS, RG-1, RG-2	C-31R, RCB	RWF-B, RWFD
RP-6	CEV	RD	S02-30R	RGR-2, RKFS, RCS, RG-1, RG-2	C-31R, RCB	RWF-B, RWFD
RDO-20	CEV	RD	S02-30R	RGR-2, RKFS, RCS, RG-1, RG-2	C-31R, RCB	RWF-B, RWFD
O21-R	CEV	RD	S02-30R	RGR-2, RKFS, RCS, RG-1, RG-2	C-31R, RCB	RWF-B, RWFD
O2-30R	CEV	RD	S02-30R	RGR-2, RKFS, RCS, RG-1, RG-2	C-31R, RCB	RWF-B, RWFD
NOVA-15	CEV	RD	S02-30R	RGR-2, RKFS, RCS, RG-1, RG-2	C-31R, RCB	RWF-B, RWFD

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