

CR-1 Pump-Through Sub

The CR-1 pump-through sub is a completion accessory tool used to form a temporary tubing bridge below a hydraulic-set packer.

APPLICATION

- Temporary tubing bridge below a hydraulic-set packer in single and dual completions

BENEFITS

- Low cost
- Simple design
- Reliable operation

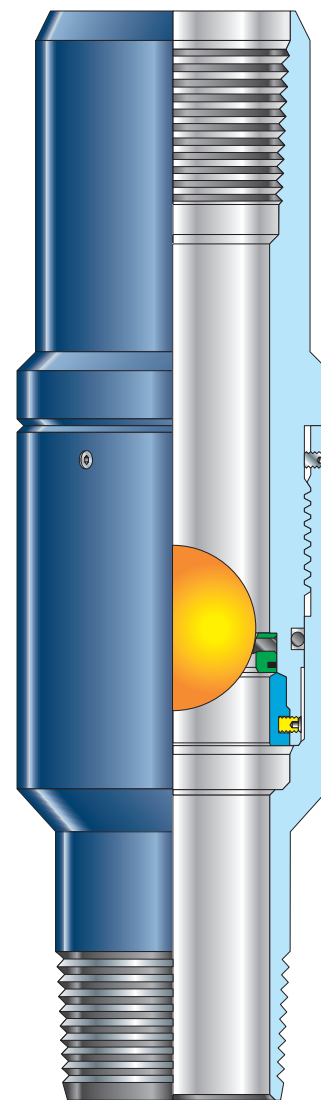
FEATURES

- Fullbore after actuation
- Available in standard and premium materials
- Allows circulation prior to ball dropping
- Optional bronze or phenolic balls

Since it retains fullbore tubing dimensions after pump through and is threaded on both ends, the pump-through sub can be placed anywhere in the tubing string below a hydraulic-set packer. The plug utilizes a unique C-ring-type metal pumpout seat. Upon shearing, the seat moves downward and expands into and is captured by a lower recess in the housing. The setting ball is pumped through the expanded seat and falls to the bottom. The sub assembly is provided with ten shear screw locations. Each shear screw is rated to 500-psi [3,448-kPa] differential pressure across the ball and seat.

DESCRIPTION AND OPERATION

The CR-1 pump-through sub is installed below a hydraulic-set packer. A ball is dropped in the tubing string that lands on the seat inside the CR-1, creating a temporary bridge that can be removed by applying pressure to the tubing that exceeds the preset shear value. When sheared, the seat moves downward and expands outward into a recess, leaving a full ID, while the ball drops to the bottom of the wellbore.



CR-1 Pump-Through Sub Specifications

Tubing		Pump-Through Sub			
OD (in. [mm])	Weight (lbm/ft)	Max. OD (in. [mm])	ID of Shear Seat (in. [mm])	Dropping Ball OD (in. [mm])	ID of Tool After Shear (in. [mm])
2.375 [60.3]	4.7	3.625 [92.1]	1.625 [41.3]	1.750 [44.5]	1.906 [48.4]
2.875 [73.0]	6.5	4.188 [106.4]	2.188 [55.6]	2.250 [57.2]	2.375 [60.3]
3.500 [88.9]	9.3	5.000 [127.0]	2.625 [66.7]	2.750 [69.9]	2.906 [73.8]
4.500 [114.3]	12.8	6.125 [155.6]	3.000 [76.2]	3.500 [88.9]	3.833 [97.4]
5.500 [139.7]	17.0	6.625 [168.3]	4.000 [101.6]	4.250 [108.0]	4.562 [115.9]