Mechanical Orientation Device

Weatherford's mechanical orientation device was developed for installation with a high-torque, openhole, screw-in whipstock to provide complete directional control to operators using a stuck fish as an anchor platform.

After the high-tensile box tap locates the fish top and achieves full torque during the thread-on process, the whipstock assembly is easily directed to the intended quadrant. A gyroscopic surveying instrument is run and stung into the universal bottomhole-orienting sub. The bottomhole assembly is then picked up to release the locking sleeve, and the work string is turned in the required direction. The sleeve is compressed and secured by slacking off the string, which is turned right to produce torque and verify that the device is securely closed.

Applications

- Openhole sidetracks using a fish as the anchoring device and requiring directional control
- Openhole sidetracks using a fish as the anchoring device and requiring cementing into position

Features, Advantages and Benefits

- The simple, robust design withstands rugged fishing situations and provides the high-tensile loading required during shearing.
- The releasable locking sleeve enables accurate four-quadrant mechanical orientation of the sidetrack for enhanced efficiency.
- The through-bore ID saves time and costs by enabling circulation if openhole restrictions are encountered.
- Instead of the box tap, the device can use a cut-lip screw-in sub, overshot, or taper tap to engage the fish, providing flexibility while enhancing operational efficiency.

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Mechanical Orientation Device

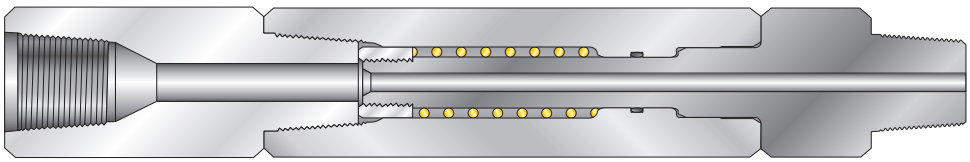
Specifications

Mechanical Orientation Device, J.D. Edwards Product 793088

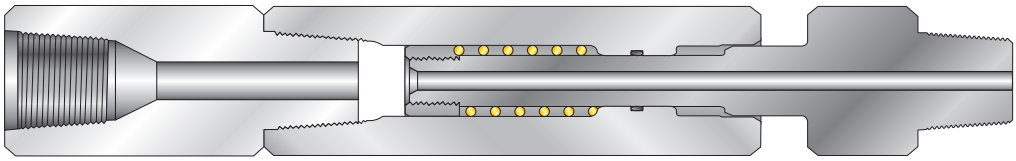
Concave OD (in./*mm*)	Open Hole (in./*mm*)	Running OD (in./*mm*)	IF Connection (in./*mm*)	Length (ft/m)	Tool ID (in./*mm*)
8 *203.2*	8-1/2 to 8-3/4 *215.90 to 222.25*	8 *203.2*	4-1/2 *114.3*	3.3 *1.0*	1.0 *25.4*
9 *228.6*	10-3/4 *273.05*				
10 *254.0*	11-3/4 *298.45*				

High-Tensile Box Tap, J.D. Edwards Product 792042, for an 8 3/4-in. (222.25-mm) Open Hole to Catch a 4 1/2-in. (114.3-mm) Drillpipe Tube

Concave OD (in./*mm*)	Open Hole (in./*mm*)	Running OD (in./*mm*)	IF Connection (in./*mm*)	Length (ft/*m*)	Tool ID (in./*mm*)	Catch Range (in./*mm*)
8 *203.20*	8-3/4 *222.25*	8-1/4 *209.55*	4-1/2 *114.30*	3.75 *1.14*	3-1/4 *82.55*	4.25 × 4.616 *107.950 × 117.246*



Spring tension retains the orientation device in the closed position during tripping in the well, preventing debris interference.



After the fish is engaged with the box tap, the device is picked up to pull the sleeve apart for orientation. After confirmation of the correct orientation, weight is slacked off to close the gap; torque is applied to verify that the sleeve is closed or locked; and the running tool is sheared off.

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