



Dailey® Lubricated Bumper Sub

The Weatherford *Dailey* lubricated bumper sub complements the *Dailey* hydraulic fishing jar and the *Dailey® HyPulse Jar Slinger®* fishing tool, providing better control of the fishing string and greatly reducing bottomhole assembly (BHA) vibration. Providing a more subdued upward or downward bump to the fishing string, the bumper sub also aids in disengaging a fish after retrieval.

This easily transported bumper sub can be used in high-angle, shallow or deep wells, including high-temperature and high-pressure formations. The bumper sub is useful in recovery of BHAs, drillpipe, tubing, and packers in a cased or open hole.

With the field-proven Weatherford single-piece mandrel and the same torque- and debris-isolation system used in the *Dailey* hydraulic fishing jar and *Dailey HyPulse Jar Slinger* fishing tool, this reliable bumper sub is a world-class performer.

Applications

- Any application (for example, fishing, coring, and washover) that requires a downward blow to a stuck point or tight spot to release fishing tools, activate shearing mechanisms, or break off a core before retrieving it. The bumper sub can also deliver an upward blow to a stuck point.
- The bumper sub allows the operator to “feel” for the top of a fish without applying excess weight. When the bumper sub is used with a milling/cutting tool, its sliding-sleeve effect allows adjustment of the weight to the cutting tool to prevent overloading or stalling. The fishing string can be manipulated, taking advantage of the string rebound, to increase upward or downward impact.

Features, Advantages and Benefits

- Rugged, durable construction for reliability and longer tool life.
- Sliding-sleeve effect for weight adjustment to milling/cutting tool and prevention of overloading or stalling.
- Single-piece involute spline for maximum torque capacity with minimal backlash.
- Fluid-isolated chamber for protection against formation cuttings, sand, and other downhole debris.



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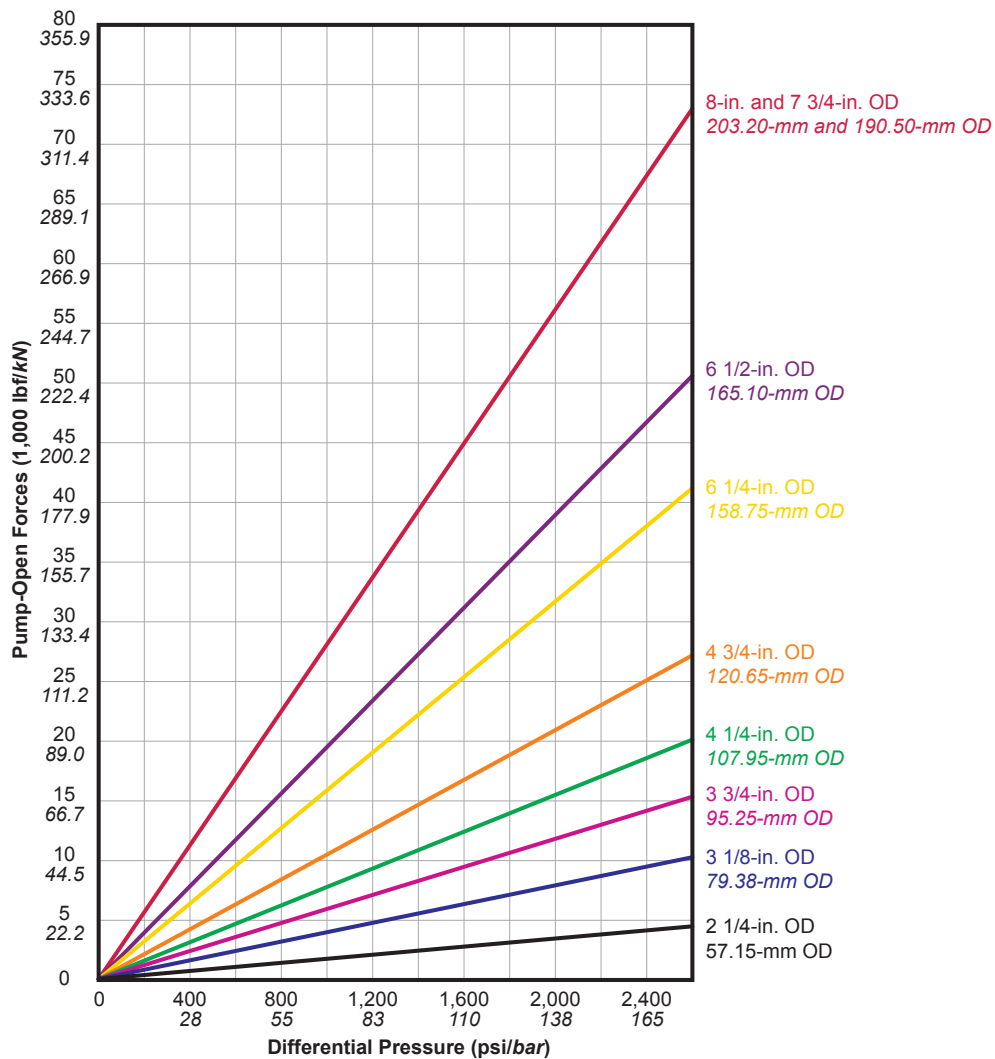
Specifications

OD (in./ mm)	ID (in./ mm)	Tool Joint Size (API)	Tensile Yield* (× 1,000 lbf) (× 1,000 N)	Torsional Yield* (× 1,000 lbf-ft) (× 1,000 N·m)	Length Closed (ft./m)	Weight (lb/kg)	Total Stroke (in./ mm)	Maximum BHT (°F/°C)	Pump Open Area (in. ² /cm ²)	Circulating Pressure (psi/bar)	Hydrostatic Pressure (psi/bar)
1-13/16 46	1/2 13	1-13/16 WFJ	75 334	1.60 2.2	7.50 2.3	50 23	12 305	400° 204°	1.1 7.1	5,000 345	None
2-1/8 54	11/16 17	1-1/2 AMMT	86 383	0.85 1.2	4.58 1.4	40 18	9-1/2 241		1.2 7.7		
2-1/4 57	11/16 17	1-1/4 Reg.	110 489	2.50 3.4	7.83 2.4	100 45	12 305		1.8 11.6		
2-7/8 73	13/16 21	2-3/8 PAC	106 472	2.60 3.5	4.08 1.2	90 41	9-1/2 241		2.1 13.5		
3-1/8 79	1-1/4 32	2-3/8 Reg.	250 1,112	5.00 6.8	9.17 2.8	180 82	16 406		4.0 25.8		
	1-1/2 38	2-7/8 PAC	200 890		9.33 2.8						
3-3/4 95	1-1/2 38	2-3/8 IF, EUE	328 1,459	9.50 12.9	9.33 2.8 10.50 3.2	270 123	16-1/8 410		5.9 38.1		
	1-3/4 44	2-3/8 IF	260 1,157	7.80 10.6		220 100					
	1-15/16 49	2-3/8 EUE				230 104					
4-1/4 108	2-1/8 54	2-7/8 IF	325 1,446	15.00 20.3	9.00 2.7	290 132	16 406		7.7 49.7		
4-3/4 121	2-1/4 57	3-1/2 IF	500 2,224	20.00 27.1	11.33 3.5	440 200	15 381		10.3 66.5		
6-1/4 159	2-1/4 57	4-1/2 IF	1,000 4,448	49.30 66.8	12.25 3.7	1,000 454	16-1/2 419		15.9 102.6		
6-1/2 165	2-3/4 70	4-1/2 IF	1,000 4,448	56.20 76.2	13.33 4.1	900 408	17 432		19.6 126.5		
7-3/4 197	3 76	6-5/8 Reg.	1,600 7,117	100.00 135.6	14.92 4.6	1,900 862	19-1/2 495		28.3 182.6		
8 203	3 76	6-5/8 Reg.	1,600 7,117	105.00 142.4	14.92 4.6	2,000 907	19-1/2 495		28.3 182.6		

*Tensile and torsional values are calculated per API RP7G, based on nominal dimensions and the published yield strength of the material, and do not constitute a guarantee, actual or implied.

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Pump-Open Force Chart



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Operation

Delivery to Location

Weatherford delivers the *Dailey* lubricated bumper sub to location with the mandrel in the *closed* position. The fully *closed* position leaves an approximate 1-in. (2.54-cm) gap between the bottom of the box end of the mandrel and the top of the upper housing. This design feature prevents debris from the wellbore fluid from being driven into the upper seals when the bumper sub is completely closed.

Note: Check for any visible indications of leakage.

Note: All service breaks on the bumper sub are pre-torqued at the Weatherford Service Center and do not require further tightening before the tool is run in the hole.

Note: Never tie on to only one end of the bumper sub, which can allow the mandrel to extend unexpectedly. Do not use the gap at the top of the bumper sub as a tie-on point when picking up or laying down the bumper sub. If necessary, use a tailing rope to control motion.

Note: Do not break any connections when laying down the bumper sub. Use thread protectors while handling the bumper sub to prevent abuse to the pin or box connections. Abuse can lead to improper makeup torque on the connections, galling of the threads, or washing out of the connections.

Picking Up and Laying Down

The bumper sub is a sliding mandrel in a sleeve. Pick up and lay down the bumper sub as other jarring tools, except for the following special guidelines:

Install two equally spaced slings around the body of the bumper sub, ensuring that the bumper sub is balanced as it is being hoisted to or lowered from the rig floor.

Positioning in the Fishing String

For fishing operations, Weatherford recommends running the bumper sub directly above the fishing tool and immediately below the fishing jar for maximum effectiveness.



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Operation (continued)

Installing in the Fishing String

1. Install the bumper sub in the string in the same manner as other BHA components, with pin connection down and box connection up.
2. Tighten only the box and pin connections that connect the bumper sub to the other components of the BHA or fishing assembly.

Note: All service breaks are pretorqued to Weatherford's recommended values.

Note: Always unlock the rotary and use two pairs of tongs when making up the bumper sub in the string or breaking it out of the string. Never use the rotary to break the torque on the connection or to back into the tool when making it up in the string. Install a drill collar safety clamp on the bumper sub, above the slips, if the tool is left unsupported in the rotary table. This step prevents the bumper sub from sliding through the slips.

Note: When making up the bumper sub or breaking it out of the string, position it as low in the slips as possible, still leaving enough room to install the drill collar safety clamp, and grasp the bumper sub with the tongs. Conventional makeup and breakout tongs exert lateral forces that can bend or break the tool. Use of power tongs eliminates this risk; however, if using conventional tongs, position the bumper sub as low in the slips as possible, leaving enough room to install the drill collar safety clamp, and grasp the bumper sub with the tongs.

Weatherford does not recommend racking back the bumper sub in the derrick while the string is out of the hole. In fishing applications, when the string is out of the hole and the tool will not remain suspended in the elevators, remove the bumper sub from the string and lay it down.

Downhole Operation

Raise or lower the string to activate the bumper sub downhole. The impact generated by the bumper sub depends on the speed at which the string is raised or lowered. Careful manipulation of the spring tendency of the drill string can dramatically increase the upward or downward impact generated by the bumper sub.

Routine Maintenance in the String

The *Dailey* lubricated bumper sub is a rugged, dependable downhole tool that requires very little on-the-job maintenance. For optimal performance, Weatherford recommends the following procedure every trip out of the hole:

1. Use a water hose to wash off the mandrel of the bumper sub and the top of the upper housing where the mandrel goes through the upper seals.
2. Unscrew the tool from the BHA and wash the inside diameter of the pin and the area around the compensating piston with water.

Standback Procedure