Downhole Power Tool (DHPT)

Provides reaming, drilling, and hole-cleaning capabilities in a unified system

Applications

- Casing recovery
- Liner-hanger retrieval
- BHA fishing
- Drilling BHA retrieval
- Shifting sleeves
- Packer/plug pulling

Features and Benefits

- Avoids jarring operations
- Avoids excessive overpull at surface
- Causes less wear and tear on rig equipment and workstring
- Enables unlimited strokes/cycles in the same run
- Provides precision load control
- Large slip contact area prevents damage to host casing
- No extreme loads at surface, HSE enhancement

Efficiency Gains

- Extreme pulling force applied directly to stuck fish
- Applied overpull is controlled with certainty
- Pressure indication shows when fish has moved
- Application of force allowed beyond rig capacity and workstring strength without well friction

Tool Description

The Weatherford Downhole Power Tool (DHPT) facilitates application of extreme forces downhole directly into any type of stuck fish, such as casing, drillpipe, tubing, drilling BHAs, packers, or plugs. By running the tool downhole and keeping all tensile forces off the workstring and rig surface equipment, the DHPT enhances safety and operations efficiency. Because the DHPT is directly positioned above the stuck casing and/or fish, this eliminates the frictional forces that occur due to wellbore geometry cush as sections of high dogleg severity and deviation. It also facilitates use of smaller rigs and reduced tensile strength on the workstring—expanding their respective capabilities while lowering overall costs and rig footprint. By deploying the DHPT closer to the stuck point, recovery capabilities are enhanced.

The Weatherford Downhole Power Tool enhances safety and operations efficiency by running the tool downhole, thereby protecting the drillpipe and rig surface equipment from the high overpulls and other forces associated with tubular recovery.

Weatherford®

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Specifications

Nominal OD*	Casing Size	Casing Weights	Casing ID Range	Cage OD	Slip Segments	Stroke Length	Tool Weight
4.44 in. (112.78 mm)	5-1/2 in. (139.70 mm)	15.5 to 23 lb-ft (23.06 to 34.22 kg-m)	4.950 to 4.670 in. (125.73 to 118.62 mm)	4.440 in. (112.76 mm)	4	3 ft (0.91 m)	1,188 lbs (539 kg
5.750 in. (146.05 mm)	7 in. (177.80 mm)	20 to 38 lb-ft (29.76 to 52.08 kg-m)	5.920 to 6.456 in. (150.37 to 163.98 mm)	5.750 in. (146.05 mm)	5	2 ft (0.60 m)	2,184 lbs (993 kg)
	7-5/8 in. (193.68 mm)	29.7 to 39 lb-ft (44.19 to 58.03 kg-m)	6.875 to 6.625 in. (174.63 to 168.28 mm)				
	8-5/8 in. (219.08 mm)	60.6 lb-ft (90.18 kg-m)	7.185 in. (182.50 mm)				
8.125 in. (206.38 mm)	9-5/8 in. (244.48 mm)	36 to 43.5 lb-ft (64.73 to 69.94 kg-m)	8.921 to 8.755 in. (226.60 to 222.38 mm)	8.125 in. (206.38 mm)	8	2 ft (0.60 m)	4,630 lbs (2,100 kg)
	9-5/8 in. (244.48 mm)	47 to 53.5 lb-ft (69.94 to 79.61 kg-m)	8.681 to 8.535 in. (220.50 to 216.79 mm)				
	10-3/4 in. (273.05 mm)	55.5 to 65.7 lb-ft (82.59 to 97.77 kg-m)	9.760 to 9.560 in. (247.90 to 242.82mm)	9.250 in. (234.95 mm)			4,740 lbs (2,150 kg)
	11-3/4 in. (298.45 mm)	54.0 to 66.7 lb-ft (80.36 to 99.26 kg-m)	10.656 to 10.88 in. (270.66 to 276.35 mm)	10.125 in. (257.18 mm)			5,070 lbs (2,300 kg)
		77.6 lb-ft (115.48 kg-m)	10.46 in. (265.68 mm)				
11.250 in. (285.75 mm)	13-3/8 in. (339.73 mm)	61 to 72 lb-f (90.78 to 107.15 kg-m)	12.515 to 12.347 in. (317.88 to 313.61 mm)	11.500 in. (292.10 mm)	5	3 ft (0.91 m)	8,155 lbs (3,700 kg)
	13-5/8 in. (346.08 mm)	79.1 to 88.2 lb-f (117.56 to 131.26 kg-m)	12.491 to 12.375 in. (317.27 to 314.33 mm)				
	14 in. (355.60 mm)	86 to 100 lb-ft (127.98 to 148.82 kg-m)	12.613 to 12.413 in. (320.37 to 315.29 mm)		6		8,270 lbs (3,750 kg)
	16 in. (406.40 mm)	65 to 146 lb-ft (96.73 to 217.27 kg-m)	15.250 to 14.189 in. (387.35 to 360.40 mm)	13.500 in. (342.90 mm)			9,260 lbs (4,200 kg)
	18-5/8 in. Slim (473.08 mm)	87.5 to 100.5 lb-ft (130.21 to 149.56 kg-m)	17.755 to 17.586 in. (450.98 to 446.68 mm)	16.000 in. (406.40 mm)		2 ft (0.60 m)	10,140 lbs (4,600 kg)
	18-5/8 in. x 20 in. Combo (473.06x 508 mm)	87.5 to 100.5 lb-ft (130.21 to 149.56 kg-m)		17.000 in. (431.80 mm)			
	20 in. (508 mm)	106.5 to 133 lb-ft (158.49 to 197.93 kg-m)	19.000 to 18.730 in. (482.60 to 475.74 mm)				

*Maximum hard OD dependent on gauge ring configuration.

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Specifications (continued)

Power Section OD	4.440 in. (112.76 mm)	5.750 in. (146.05 mm)	8.125 in. (206.38 mm)	11.250 in. (285.75 mm)
Force Generation (Working)	221,933 lbs (101 tons)	412,653 lbs (187 tons)	801,737 lbs (364 tons)	1,433,250 lbs (650 tons)
Maximum Pressure (Working)	6,632 psi (457 bar)	5,022 psi (346 bar)	5,420 psi (374 bar)	4,887 psi (337 bar)
Piston Area	33.462 in.² (215.88 cm²)	82.173 in.² (530.14 cm²)	147.932 in.² (954.39 cm²)	293.273 in.² (1,892.08 cm²)
Power Section ID	1.50 in. (38.10 mm)	1.50 in. (38.10 mm)	2 in. (50.80 mm)	1.50 in. (38.10 mm)
Total Length	36.29 ft (11.1 m)	39.75 ft (12.12 m)	44.25 ft (13.5 m)	44.24 ft (13.5 m)
Top Connection/ MUT	NC 26 Box 4,600 ft-lbs (6.24 kNm)	NC 38 Box 9,900 ft-lbs (13.42 kNm)	6-5/8 API Full Hole Box 45,800 ft-lbs (62.10 kNm)	6-5/8 Reg Box 48,000 ft-lbs (65.08 kNm)
Bottom Connection/ MUT	NC 26 Pin 4,600 ft-lbs (6.24 kNm)	NC 38 Pin 9,900 ft-lbs (13.42 kNm)	NC 50 Pin 25,000 ft-lbs (33.90 kNm)	6-5/8 in. Reg Pin 48,000 ft-lbs (65.08 kNm)
Force Generation (Yield)	277,417 lbs (126 tons)	515,816 lbs (234 tons)	1,002,172 lbs (454 tons)	1,739,261 lbs (789 tons)
Maximum Pressure (Yield)	8,291 psi (572 bar)	6,277 psi (433 bar)	6,775 psi (467 bar)	5,931 psi (409 bar)

Strengths and dimensions for reference only.