



# Weatherford®

Re-Entry Services

## *Shallow-Angle QuickCut™* *Casing Exit System* *PHS\*-Type Anchor*

Weatherford's shallow-angle *QuickCut* casing exit system with PHS-type anchor is a single-trip, permanent-packer, 2°-whipstock system with a hydraulically actuated sealing anchor. The efficient, cost-effective packer anchor is used for the zonal isolation of a parent wellbore or for a required second abandonment barrier. The anchor with the high-performance, shallow-angle *QuickCut* milling system provides improved milling, gauge retention, and formation drilling.

The robust chassis is tested to 20,000 lb/ft (27,116 N•m) of torque in 9 5/8-in. casing and 25,000 lb/ft (33,895 N•m) in 13 3/8-in. casing.

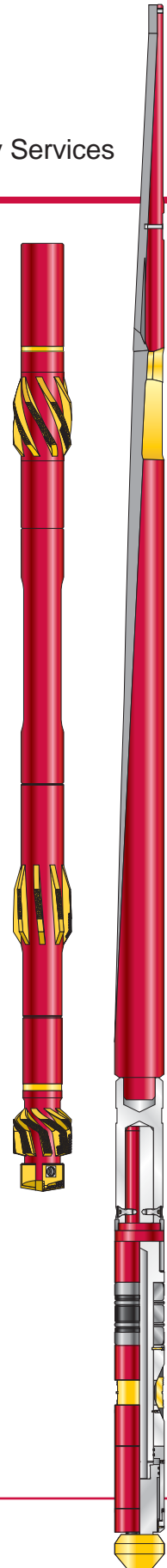
### *Applications*

- Wells in which zonal isolation requires a high-torque, high-differential packer for harsh operating environments
- Extended-reach wells to minimize doglegs
- Abandonment plug without the need for multiple plugs
- Wells requiring exits to accommodate long rotary steerable drilling systems
- Wells running complex completion strings and expandables

### *Features, Advantages and Benefits*

- Weatherford's patented AccuSet™ hydraulic actuation device inside the lead mill provides reliable packer actuation.
- The bottomhole assembly (BHA) is open ended, enabling continuous flow for well control, and for logging and measurement while drilling before activating the packer.
- The aggressive lead mill geometry improves the rates of penetration and gauge retention.

* ANCHOR		
Retrievable or Permanent	Hydraulic or Mechanical	Sealing or Non-Sealing
Permanent	Hydraulic	Sealing





## Shallow-Angle QuickCut™ Casing Exit System

### PHS\*-Type Anchor

### Features, Advantages and Benefits (continued)

- The shear value for the mill attachment bolt can be adjusted for varying well profiles.
- The unique lug technology protects the whipstock during cut-out and accurately directs the mill into the casing wall.
- The window can be oriented, anchored, and milled in one efficient trip.
- The 2°, single-angle concave creates a smooth transition from the parent bore into the lateral section, preventing interference from other BHAs run into the lateral.
- The system includes a QuickChange™ shear disconnection, providing debris management, as well as the capability to change from one anchor type to another.
- The permanent packer has been qualified to 275° F (135°) and to 5,000 psi (34,474 kPa) under API 11D1, ISO 14310 V3 specifications.

### Specifications

#### Milling Assemblies

Casing		Concave OD (in./mm)	Lead Mill			Secondary Mill		Flex Mandrel Connection Box x Pin	Steering Mill	
OD (in./mm)	Weight (lbm/ft, kg/m)		OD (in./mm)	Pilot OD (in./mm)	Box Connection (in.)	OD (in./mm)	Connection Box x Pin		OD (in./mm)	Connection Box x Pin
9-5/8 244.5	36.0 53.6	8 203.2	8-3/4 222.3	7 177.8	4-1/2 Reg	8-3/4 222.3	4-1/2 IF 4-1/2 Reg	4-1/2 IF	8-3/4 222.3	4-1/2 IF
	40.0 59.5		8-5/8 219.1			8-5/8 219.1			8-5/8 219.1	
	43.5* 64.7		8-1/2* 215.9	6-3/8* 161.9		8-1/2* 215.9			8-1/2* 215.9	
	47.0* 69.9									
	53.5* 79.6									
	58.4* 86.9		8-1/4* 209.5			8-1/4* 209.5			8-1/4* 209.5	
13-3/8 339.7	48.0 71.4	11-1/2 292.1	12-1/4 311.2	10 254.0	6-5/8 Reg	12-1/4 311.2	6-5/8 Reg	6-5/8 Reg	12-1/4 311.2	6-5/8 Reg
	54.5 81.1									
	72.0 107.1									

\*Heavyweight assemblies



# Shallow-Angle QuickCut™ Casing Exit System

## PHS\*-Type Anchor

### Specifications (continued)

#### Packers

Casing				Permanent Packer Performance Specifications			
OD (in./mm)	Weight (lb/ft, kg/m)	ID (in./mm)		Maximum OD (in./mm)	Temperature (°F/°C)	Differential Pressure (psi/kPa)	Torque (lb/ft, N·m)
		Minimum	Maximum				
9-5/8 244.4	36.0 53.6	8.297 210.744	9.050 229.870	8 203.2	275 135	3,000 20,684	20,000 27,116
	40.0 59.5						
	43.5* 64.7						
	47.0* 69.9						
	53.5* 79.6						
	58.4* 86.9						
13-3/8 339.7	48.0 71.4	12.347 313.614	12.715 322.961	11-7/8 301.6	275 135	3,500 24,132	25,000 33,895
	54.5 81.1						
	61.0 90.8						
	68.0 101.2						
	72.0 107.1						

\*Heavyweight concave

