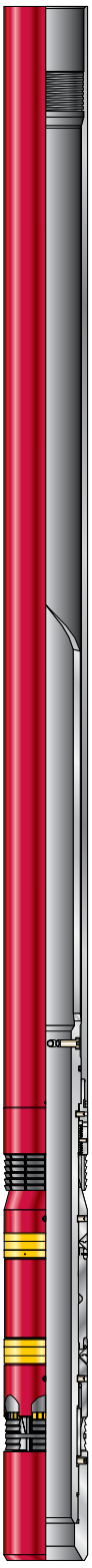
PakLatch™ Permanent Sealbore Packer



Weatherford's *PakLatch* permanent sealbore packer is a robust, high-performance, permanent whipstock packer designed for high-differential pressure in single- or multiple-zone applications in vertical to horizontal wellbores. Performance-rating envelopes developed for each size of the *PakLatch* packer display combination loading from pressure and axial loads.

The fully engineered *PakLatch* permanent sealbore packer has successfully passed rigorous testing and meets all ISO 14310 V3 requirements.

Weatherford has manufactured and installed packers in operations around the world for more than 40 years. As a result, Weatherford's packers and accessories provide reliable, consistent performance in a broad range of operating conditions.

Applications

- Designed for high-differential pressure in single- or multiple-zone applications in vertical to horizontal wellbores.

Features, Advantages and Benefits

- High-torque latch and packer assembly can withstand mill-loading thrust and rotational torque, ensuring that tools stay in place during operation.
- High-pressure/high-temperature design permits the isolation of high-pressure zones while milling or producing from multiple zones with elevated temperatures, saving costs by reducing the number of tools required.
- Large-bore IDs maximize production flow, thereby increasing re-entry options for remedial work.
- Designed for hostile environments, the *PakLatch* packer can withstand hydrogen sulfide (H_2S), high pressures, and high temperatures as required by ISO 14310 V3, enabling the tool to be used as a permanent datum point.
- Wireline and hydraulic-setting options for vertical or horizontal applications eliminate the time and cost associated with bringing additional equipment to the work site, thereby enhancing environmental safety and saving costs.

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Specifications

Pressure and Temperature Ratings

Packer Size (in./*mm*)	5-1/2 *140*	6-5/8 *168*	7 *178*	9-5/8 *245*
Casing weight (lb/ft, *kg/m*)	20 to 23 *29.8 to 34.2*	20 to 32 *29.8 to 47.6*	23 to 32 *31.7 to 47.6*	40 to 54 *55.3 to 73.9*
Pressure from above (psi/*kPa*)	5,000 *34,474*			
Pressure from below (psi/*kPa*)				
Minimum temperature (°F/°*C*)	150° *66°*			
Maximum temperature (°F/°*C*)	275° *135°*		350° *176°*	275° *135°*

Axial Release Pressure[a]

Packer Size (in./*mm*)	5-1/2 *140*	6-5/8 *168*	7 *178*	9-5/8 *245*
Nominal shear value[b] (lbf/*daN*)	60,000 *26,689*			
Piston area (in.²/*cm*²)	11 *71.0*		21 *132.9*	44 *285.2*
Pressure rating from below with standard shear ring[c] (psi/*kPa*)	5,435 *37,473*		2,912 *20,078*	1,357 *9,356*
Reduced shear-ring value for re-entry[d] (lbf/*daN*) (special order)	30,000 *11,345*			

[a] Values represent axial release of latch from packer using a standard shear mechanism. Axial release can be increased or decreased by adjusting the thickness of the shear mechanism.
[b] Higher shear values are available by special order.
[c] Pressure from below, working against the piston area, determines the axial release. This value is determined by dividing the nominal shear value by the piston area. Example: 60,000 lbf / 44.2 in.² = 1,363 psi
[d] Reduced shear-ring values are available by special order.

Formula for Determining Overpull Required for Releasing the Latch

Step	Formula	Example for Reservoir with Pressure of 1,000 psi (6,894.76 kPa)
1	$P_R \times A_P = SL_P$	1,000 psi × 44.2 in.² = 44,200 lbf *6,894.76 kPa × 0.01 × 285.16 cm² = 19,661 daN*
2	$SV - SL_P = OP$	60,000 – 44,200 lbf = 15,800 lbf overpull *26,689 – 19,661 daN = 7,028 daN overpull*

A_P = Piston area
P_R = Reservoir pressure from below
OP = Overpull
SL_P = Shear load resulting from pressure
SV = Shear value