



### *TSP5 Liner-Top Packer*

Weatherford's TSP5 liner-top packer is run as an integral part of the liner hanger assembly to provide a reliable, high-integrity seal that isolates the gap between the liner OD and the host casing ID. This reliable liner-top packer isolates the cement, preventing gas migration or flow while the cement sets. The TSP5 also incorporates the profile for the running tool and is the means by which the running tool connects to the liner.

The design of this packer builds on the success of Weatherford's TSP4 liner-top packer with the addition of a helical lock wire that mechanically locks the polished bore receptacle (PBR) to the packer. This refinement eliminates the possibility of the PBR backing off, making the TSP5 ideal for drill-down applications.

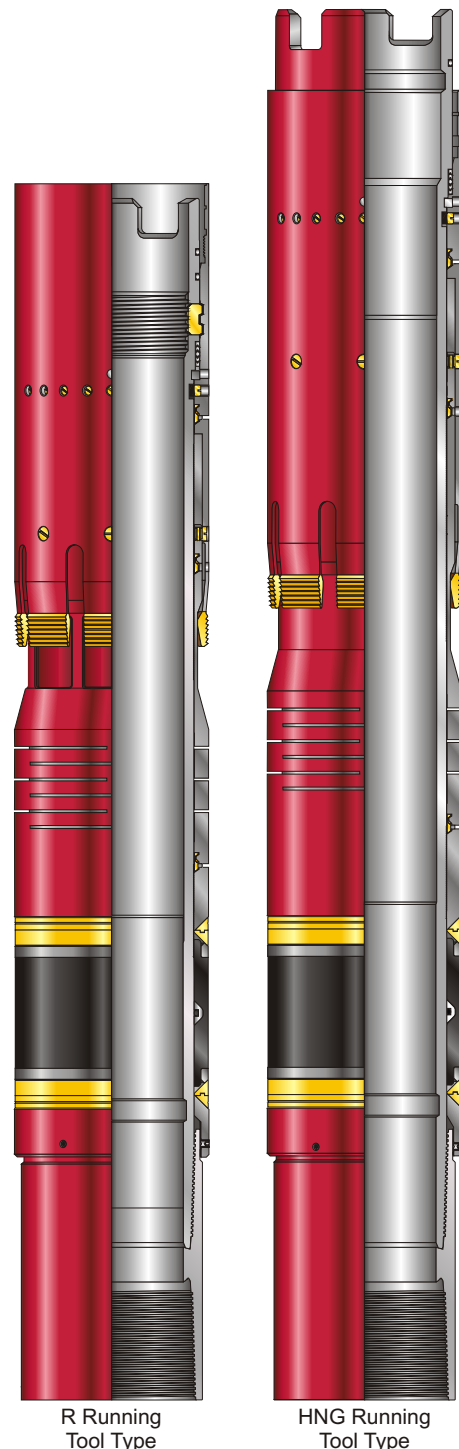
The packer is normally set by setting down weight on the TSP5 tie-back PBR with the packer actuator after the running tool is released. The weight is transferred to the TSP5 liner-top packer, setting the element and the holddown slips.

#### *Applications*

- Any cemented liners
- Uncemented liners for which a seal between the liner OD and the host casing ID is necessary or advantageous
- Tie-back packers
- Drill-down liners
- Liners that must be reamed down

#### *Features, Advantages and Benefits*

- Peroxide cured HNBR packing element creates a reliable seal that prevents gas migration in the cement, saving the cost of a liner-top squeeze.
- One-piece packing element is resistant to swabbing to enable high circulation rates past the liner-top packer assembly, aiding removal of debris during well cleaning and improving the quality of cement displacement.





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### *Features, Advantages and Benefits (continued)*

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- The PBR and slips ring are locked together by a helical lock wire. This feature prevents the PBR from backing off, even as the liner is being vigorously rotated.
- Unique shear system includes three shears to prevent shear screws from shearing under excessive torsional forces during heavy rotation. This feature ensures optimal element performance.
- Integral beam spring stores an internal force that helps boost the setting load on the element under dynamic loading conditions, such as temperature or pressure changes, maintaining seal integrity.
- High-torque, one-piece mandrel is equipped with premium connections that meet or exceed the torque of the liner connections.
- XYLAN<sup>®</sup> coated backup rings reduce the setting force required for energizing the packing element. This advantage is particularly useful in applications (such as extended-reach wells) that present a challenge to getting enough weight down to set the liner-top packer.
- Mechanical locking mechanism is available in most models and ensures that the liner-top packer cannot be set until the liner running tool has been released. This feature dramatically reduces the potential for nonproductive time.
- Holddown slips and internal body lock-ring ratchet system positively lock in the applied setting forces to ensure that the packer does not become unset.
- The TSP5 liner-top packer incorporates the profile and seal bore for Weatherford's RSM retrievable cement packoff. This feature eliminates the need for—and cost of—a separate assembly. It also ensures easy retrieval of the packoff because the packoff does not have to be retrieved through a premium connection.

### *Options*

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- The TSP5 liner-top packer is available with a running profile for either the R running tool or the HNG running tool.
- Standard metallurgies in most sizes are L-80 and P-110 (125 KSI); other metallurgies are available on request.
- Standard connection is VAM<sup>®</sup> TOP<sup>®</sup> HT in most sizes; other connections are available on request.

### *Specifications*

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Contact an authorized Weatherford representative.

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