



## PBR System

In 1968, TIW introduced the Packer-Bore Receptacle (PBR) — the petroleum industry's first successful method for creating a packerless, free-end, tubing-to-casing seal that maintained a total seal integrity. Since then, thousands of TIW PBRs have been used in wells around the world for meeting the special requirements of deep well completions.

The Packer-Bore Receptacle provides the maximum internal opening through the production tubing and sealing system. It allows tubing to lengthen and contract in response to pressure and/or temperature without affecting the integrity of the tubing-to-casing seal.

### Packer-Bore Receptacle Assembly

The PBR is actually an assembly composed of two parts: the Packer-Bore Receptacle and the Packer-Bore Receptacle Seal Assembly.

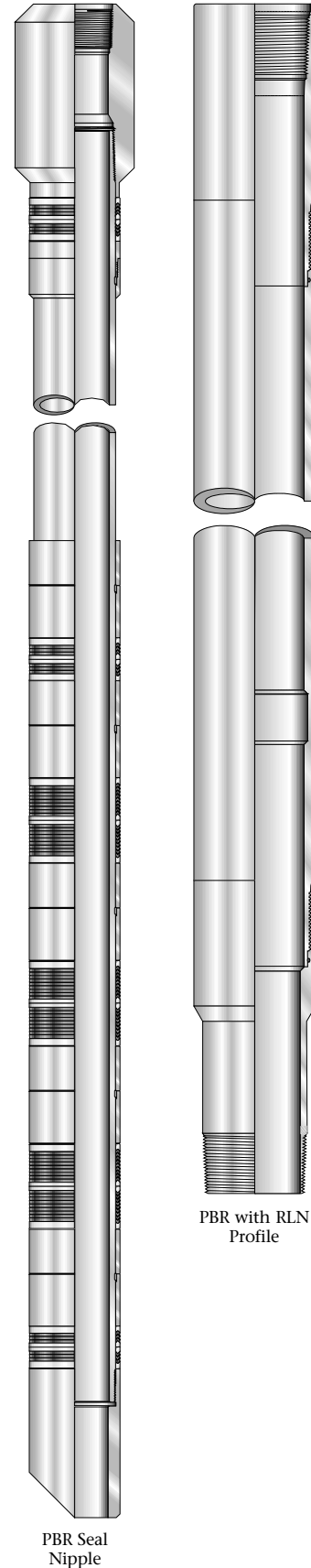
The first, the Packer-Bore Receptacle, is usually run as an integral part of the liner or casing string. It is a specially honed and coated receptacle that allows the tubing string to contract and/or expand in response to pressure and temperature, while maintaining the highest degree of sealing capability. The honed inside surface of the TIW PBR is Teflon®-coated to prevent cement or other material from adhering. This coating minimizes corrosion caused by metal-to-metal contact and well effluents.

The second part of the PBR is the Packer-Bore Receptacle Unitized Seal Assembly which connects to the end of the tubing string and mates into the PBR. To prevent leakage, the unitized seal assembly mandrel has no threaded connections or O-rings between seal units. Mounted on the outside of this assembly is a series of annular Chevron rings supported by back-up rings made of Teflon or other materials. The Chevron rings are available in several different materials. The sets of Chevron rings form an O.D. somewhat greater than the I.D. of the PBR and are resilient enough to be compressed into the polished, Teflon-coated bore. The number of sealing rings per set, the number of sets used and the materials used may vary with well conditions or applications.

### PBR System Components

To offer unmatched seal integrity, safety and versatility, TIW has engineered the following PBR system components:

- Packer-Bore Receptacle (PBR)
- Retrievable Landing Nipple (RLN™)
- Retrievable PBR with Positive Latch (patent pending)
- Dual-Flow PBR Assembly



PBR with RLN  
Profile

PBR Seal  
Nipple