Q-STAT™ - Slip-on Swell Packer

General Description:

Designed as a conventional slip-on swelling packer for simplified field installation onto production tubulars or casing. Reliable feasibility in vertical and horizontal well conditions as well as open hole and cased applications.

Multiple fluid reactive alternatives available such as water, oil, hybrid, or combination (water & oil).

Elastomers are color coded for easy identification (Blue as water swelling, Red as oil swelling, and Black as hybrid swelling).

The Q-STAT packer is bonded to a metal core to enable effective conveyance to setting depth while eliminating the risk of premature activation in extended reach horizontal laterals.

Lock rings, manufactured from stainless steel or low alloy carbon steel coated with zinc for corrosion protection, are externally anchored onto production tubulars with pre-installed set screws. Packers are installed by simply sliding the configuration over the base pipe to the desired position and torquing set screws to the required torque value. Detailed instructions can be found in the installation manual.

Reduced assembly overall length enables increased flexibility for selective placement for optimal zonal isolation where required.

A reliable and cost-effective solution with over 50,000 successful global installations in various applications (zonal isolation, water shut-off, cement assurance, sand management, coal bed methane wells) including wells with extreme dog leg severity and washouts for pressure ratings varying from 1,000 psi to 5,000 psi.

Specifications:

Available for most casing and tubing sizes (non-upset) from 2-7/8'' to 18-5/8'' with element lengths of 1ft, 1.5 ft and 3ft.

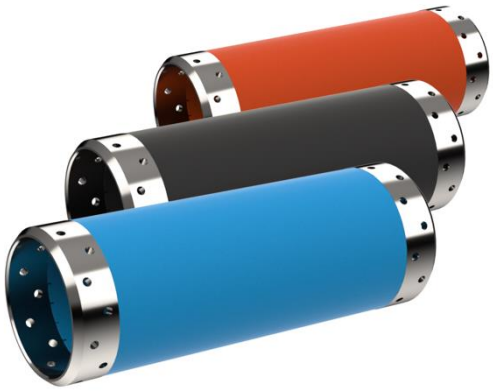
Bonded to a metal core by a chemical bonding agent. Additional mechanical bonding between inner and outer elastomer layers.

Q-STAT™ Slip-on Swell Packer

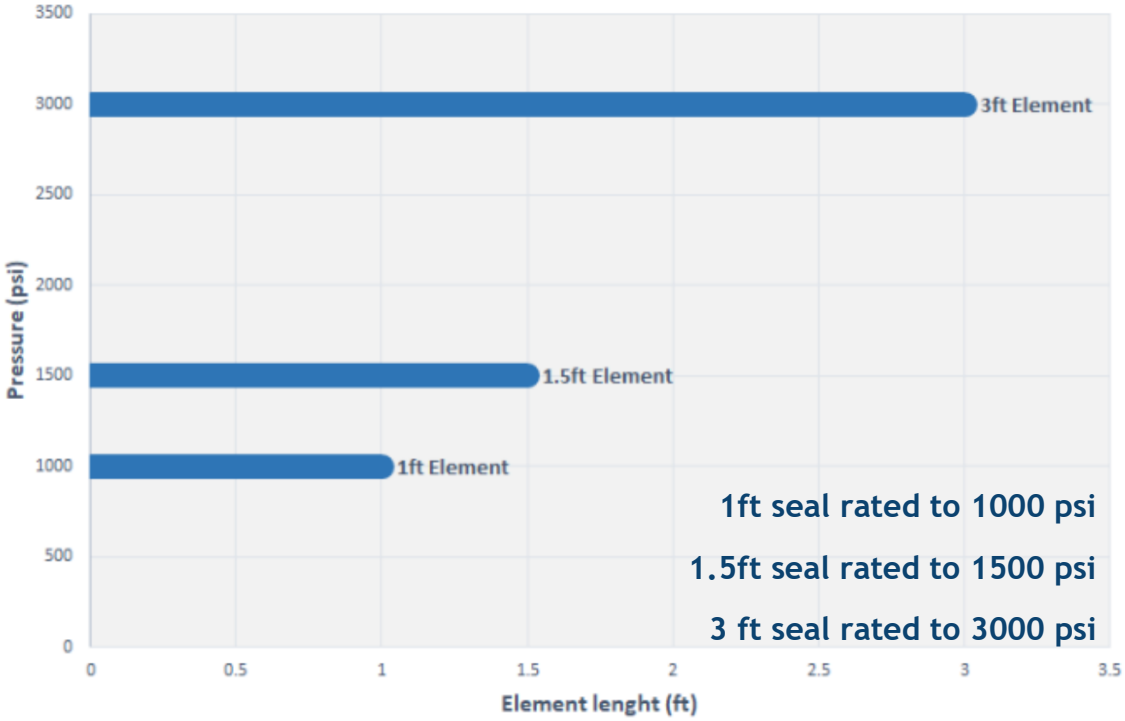
Lock rings are (each) equipped with 16 pieces of steel grub screws in size M12 for a holding force of 40,000 tons per assembly. Smaller and larger size packers are typically configured with M8 or M16 grub screws respectively.

Temperature Ratings

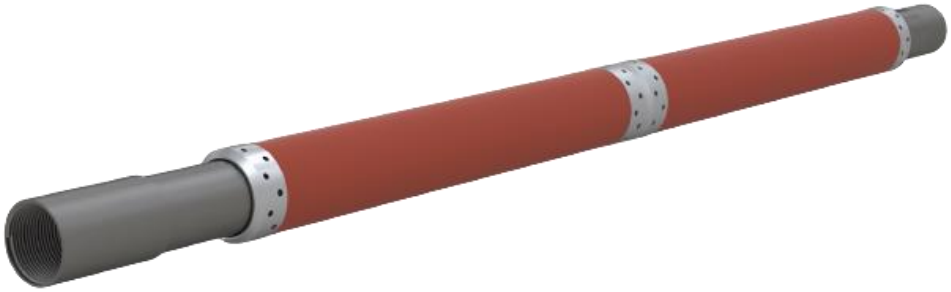
- Oil Swelling: From 4°C (39°F) up to 130°C (266°F)
- Hybrid Swelling: From 10°C (50°F) up to 220°C (428°F)
- Water Swelling: From 4°C (39°F) up to 160°C (320°F)



Differential Pressure vs. Effective Seal Length



Stacking Multiple Q-STAT™ for Increased Differential Pressure Ratings



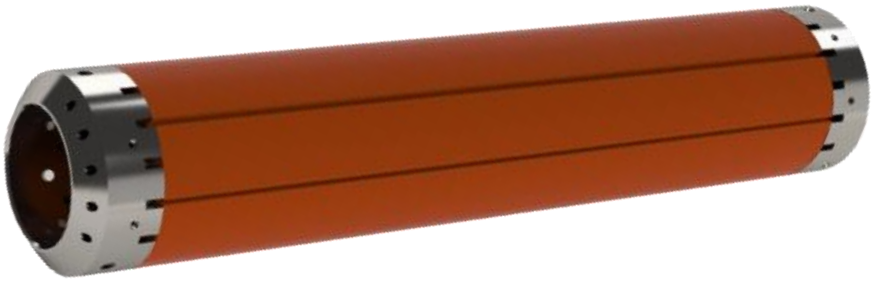
Stacking two 3-ft seal Q-STAT™ units provides increased differential pressure ratings.

Feedthrough Line Compatibility

Ruma Products' Q-STAT™ product line is an optimal solution for advanced well completions requiring the simplicity of a slip-on configuration combined with feedthrough control line compatibility. It provides high degree of operational simplification while eliminating the need for control-line splicing during rig up due to its capability of circumferential adjustment prior to grub-screw installation, which allows for direct alignment with feedthrough line reels located throughout the rig floor.

Previous successful installations include Q-STAT™ configurations mounted onto smart-well completions with up to five ¼" feedthrough lines.

Feedthrough Line Stops are available to create an effective seal throughout any unused feedthrough line slots in case of last minute changes after delivery.

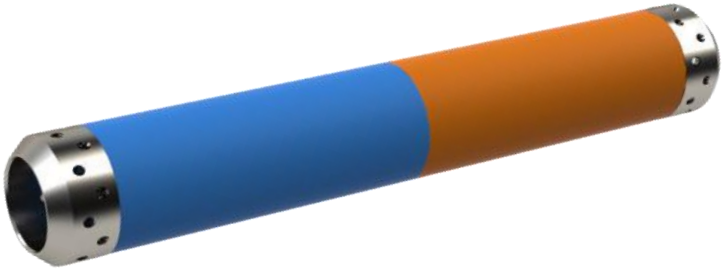


Q-STAT™ with Multiple Feedthrough Line Slots

Q-STAT™ with
Feedthrough Line Stops

Elastomer Combination Configuration

The Q-STAT™ product line can be configured with multiple types of elastomers depending on application parameters and downhole conditions. For applications requiring high degree of flexibility in multiple fluid mediums, the Q-STAT™ design can be manufactured with a combination of oil and water swelling elastomers merged within one single element seal.



Q-STAT™ configured with elastomer combination

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