Seal Bore Tubing Accessories

The NOV Seal Bore Tubing Accessories are offered in s variety of materials and seal assemblies to allow the operator to design a well system compatible with well conditions. Well bore temperature, pressure differential, hostile elements, (CO_2, H_2S, Oil concentration, etc.) and seal movement must be considered.

The Thread Latch Anchor is used to latch the seal assembly in the top of a seal bore packer. This is used in cases where upward tubing movement due to temperature and pressure does not present a problem.

The Locator Sub is used in applications where tubing movement due to temperature and pressure is expected. The Locator Sub lands on the top of a seal bore packer and prevents downward movement from this point. The Locator assembly allows the seals to move up without overloading the tubing. Additional seals and seal bore extensions are common when using the Locator seal assembly to ensure a seal between the tubing and packer seal bore during tubing movement.

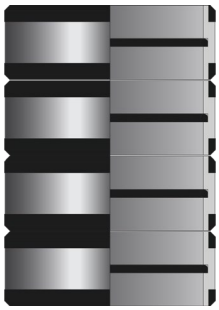
All types of SEAL Assemblies are easily converted from one type to another with interchangeable components. Seal units, spacer tubes, mule shoe guide, indexing mule shoe may be added to seal assembly for maximum versatility.

Two basic seal types available, molded or bonded and Vee Seals. These seals are available in a varity of materials including NBR, HNBR, Viton™, etc. Vee Seals available in NBR, HNBR, Viton™, Teflon™, Aflas™, Ryton™, KMR, etc.

Seal configurations

Bonded Seal Stack – Also known as Molded Seals come in sets of three and four, standard in NBR for temperatures up to 250° F (121,11° C) & HNBR for temperatures up to 325° F (162,78° C).

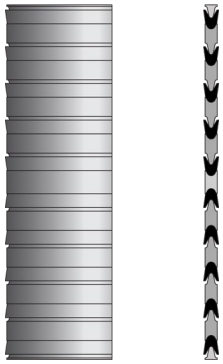
Molded seal stack



Standard Seal Stack – NBR Vee type seals and metal spacer rings, recommended for temperatures up to 175° F (79,44° C) in non-H_2S environments.

Debris Barrier – Similar to standard seal stack except Molyglass seals are used in place of NBR seals. This stack is often used as the top two or three stacks on long KMR Seal Assembly to prevent debris from entering the packer bore. This stack may also be used a primary seal stack in environments containing high percentages of oxygen.

Vee seal



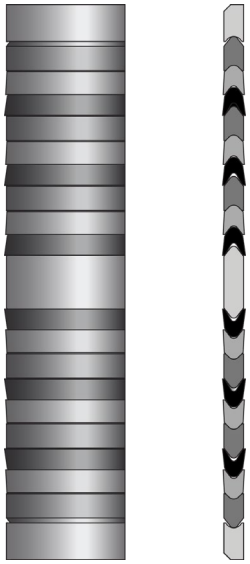
Seal Bore Tubing Accessories

Premium A Seal Stack – Composed of Viton Vee Seals backed up by Molyglass Vee Seals for use in sour or hostile environments at temperatures up to 400° F (204° C).

Premium B Seal Stack – Similar to the Premium A Stack except Aflas Vee Seals are substituted for the Viton Vee Seals. Good for temperatures up to 350° F (177° C).

KMR Seal Stack – Composed of Kalrez Vee Seals backed up by Molyglass and Ryton Vee Seals for use in high temperature hostile environments. Good for temperatures up to 500° F (260° C).

Premium seals



Viton is registered trademark of Dupont Company.
Aflas is a registered trademark of Ashi Glass.
Teflon is registered trademark of the Dupont Company.
Ryton is registered trademark of the Phillips Petroleum Company.
Kalrez is registered trademark of Dupont Company.
Molyglass is the trade name for reinforced Teflon.

Seal Assembly Materials include:

- Alloy Steel meeting N.A.C.E. specification MR-01-75 for standard and H_2S service
- High Strength Alloy Steel for high pressure applications, not suitable for H_2S exposure, hardness exceeds R.C. 22
- 9Cr 1Mo Alloy Steel used in containing high percentages of H_2S and CO^2. Material supplied complies with N.A.C.E. specification.

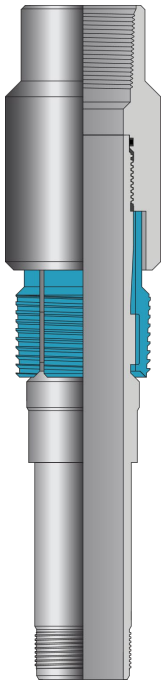
Thread Latch Anchor

The NOV Thread Latch is used to anchor the seal assembly to a seal bore packer. Seals stacks are ordered separately to match well environment.

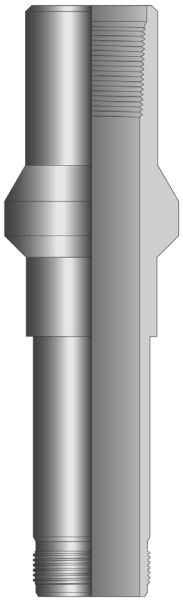
Locator

The NOV Locator is used as top sub of seal assembly when it is not necessary to anchor seal assembly to the seal bore packer. Seals stacks are ordered separately to match well environment.

Thread latch anchor



Locator seal mandrel

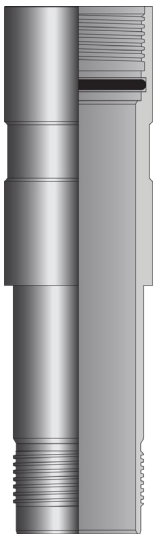


Seal Bore Tubing Accessories

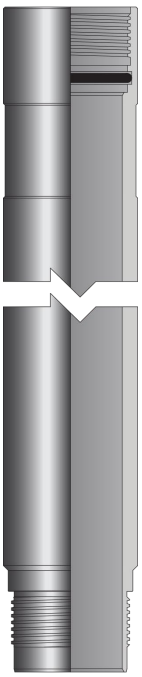
One Foot Seal Mandrel

The NOV Single Seal Assembly is used as top set of seals when only one set of seals is required. Seals stacks are ordered separately to match well environment.

1 ft Seal Mandrel



Seal Spacer Tube



Spacer Tube

The NOV Spacer Tube is used to space out seal units in long locator type seal assemblies keeping the seal units inside the seal bore during expansion and contraction due to temperature and pressure.

Mule Shoe Guide

The NOV Mule Shoe Guide is used as the bottom cap of most seal assemblies to guide the seals into the seal bore of seal bore packers. The guide also has a bevel inside the guide to guide wireline tools back into the tubing string when pulling out of the wellbore.

Mule Shoe Guide

Pin Down Sub

Pin Down Sub

The NOV Pin Down Sub is used as the bottom of most seal assemblies where it is desired to run tubing below the seal bore packer. It may be used to allow the installation of profile nipples below the seals.

Seal Bore Tubing Accessories

Production Tube

The NOV Production Tube is used in permanent and retrievable seal bore packers to extend the tubing flow path below the bottom of the packer. When used with retrievable seal bore packers, the production tube allows flow to enter the tubing string well below the release mechanism.

Indexing Mule Shoe

The NOV Indexing Mule Shoe is used as the bottom cap on most seal assemblies. The indexing shoe facilitates entry into the packer seal bore or a liner top by rotating the mule shoe without turning the tubing. Each time the tubing is set down and picked up the bottom of the guide rotates ¼ to align with the top of the packer or liner top.