

Permanent Packers



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PERMAPAK PACKER - SINGLE BORE

The **Permapak Seal Bore Packer** can be used for single or multiple zone completions. It is designed for wells where high pressure/temperatures and corrosive fluids are present and it is available in a variety of elastomers and seal bore materials to meet a wide range of hostile downhole environments. This packer is recommended for injection stimulation and testing or can become a temporary bridge plug when used with our knock-out or pump-out bottom assembly (refer to Permapak Packer

Tubing and Accessories product sheet). The Permapak Seal Bore Packer comes with a complete line of tubing seal accessories and elastomers.

Special Features

- Electric line, hydraulic or mechanical set
- Components keyed for milling
- Anti-extrusion rings expand to casing ID to prevent rubber extrusion
- Full circle slips allow for faster run time



Product Specifications - Single Bore

Casing		Recommended Hole Size (inches)	Tool OD (inches)	Packer Bore (inches)	Min ID Thru Seals (inches)	Part Number
Size (inches)	Weight (lbs/ft)					
3-1/2	7.7 - 10.2	2.922 - 3.068	2.750	1.750	1.187	67235
4	9.5 - 11.6	3.428 - 3.548	3.281	1.750	1.187	67240
	11.6 - 14.8	3.240 - 3.428	3.090	1.750	1.187	67241
4-1/2	9.5 - 13.5	3.920 - 4.090	3.750	2.500	1.910	67045
				2.688	1.938	67245
	15.1	3.826	3.600	2.500	1.910	67246
5	15.0 - 21.4	4.126 - 4.408	3.968	2.500	1.910	67050
				2.688	1.938	67250
5-1/2	13.0 - 17.0	4.892 - 5.044	4.532	2.688	1.938	67055
				3.000	2.375	67255
	17.0 - 23.0	4.670 - 4.892	4.438	2.688	1.938	67056
				3.000	2.375	67256
	23.0 - 26.0	4.548 - 4.670	4.250	2.688	1.938	67057

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Permapak Single Bore Product Specifications (continued)

Casing		Recommended Hole Size (inches)	Tool OD (inches)	Packer Bore (inches)	Min ID Thru Seals (inches)	Part Number
Size (inches)	Weight (lbs/ft)					
6	18.0 - 26.0	5.132 - 5.424	4.875	3.000	2.375	67260
6-5/8	17.0 - 32.0	5.675 - 6.135	5.468	3.250	2.416	67065
7	17.0 - 23.0	6.366 - 6.538	6.000	3.250	2.406	67070
				4.000	3.000	67270
	23.0 - 32.0	6.094 - 6.366	5.813	3.250	2.406	67071
				4.000	3.000	67271
	32.0 - 38.0	5.920 - 6.094	5.625	3.250	2.406	67072
				4.000	3.000	67272
7-5/8	24.0 - 39.0	6.625 - 7.025	6.250	3.250	2.416	67075
				4.000	3.000	67275
8-5/8	24.0 - 32.0	7.921 - 8.097	7.625	4.000	3.000	67085
				5.250	4.250	67286
9-5/8	36.0 - 53.5	8.535 - 8.921	8.125	3.250	2.416	67093
				4.000	3.000	67094
				4.750	3.500	67095
				6.000	4.750	67295
10-3/4	40.5 - 55.5	9.760 - 10.050	9.496	4.000	3.000	67010
			9.300	6.000	4.750	67210
	45.5 - 60.7	9.660 - 9.950	9.300	4.000	3.000	67010-9.3
11-3/4	42.0 - 65.0	10.682 - 11.084	10.430	6.000	4.750	67211
13-3/8	54.5 - 77.0	12.275 - 12.615	12.000	9.000	8.000	67213

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



PERMAPAK PACKER - DUAL BORE

The **Dual Bore Permapak Packer** is a highly versatile packer which has a large upper sealbore to allow for a large bore through the packer. This packer may be set on wireline or hydraulically and can be used for single or multiple zone completions. This packer is designed for wells where high flow rates, high pressure, high temperatures and corrosive fluids are present. This packer is available in a variety of elastomers and seal bore materials to meet a wide range of hostile downhole environments. This packer is recommended for production, injection, stimulation and testing or can become a temporary plug when used with the Knock-Out or Pump-Out Bottom Assembly.

The Dual Bore Permapak Packer comes with a complete line of accessories and elastomers. Contact sales for more information.

Special Features

- Large packer through bore
- Large seal mandrel through bore
- Proven Permapak Packer design



Product Specifications

Casing		Recommended Hole Size (inches)	Tool OD (inches)	Seal Bore		Min ID Thru Seals (inches)	Part Number
Size (inches)	Weight (lbs/ft)			Upper (inches)	Lower (inches)		
4	9.5 - 11.6	3.428 - 3.548	3.281	2.688	1.750	1.750	67340
	11.6 - 14.8	3.240 - 3.428	3.090	2.688	1.750	1.750	67341
5	15.0 - 21.0	4.154 - 4.408	3.968	3.000	2.688	2.375	67350
5-1/2	17.0 - 23.0	4.670 - 4.892	4.438	4.000	3.000	3.000	67355
7	23.0 - 32.0	6.094 - 6.366	5.813	4.750	4.000	3.500	67371
				5.000	4.000	4.000	67371X
	26.0 - 29.0	6.184 - 6.276	5.900	5.250	4.375	4.250	67373
7-5/8	24.0 - 39.0	6.625 - 7.025	6.250	5.000	4.000	4.000	67375X
9-5/8	36.0 - 53.5	8.535 - 8.921	8.125	7.000	6.000	4.750	67395
13-3/8	54.5 - 77.0	12.275 - 12.615	12.000	10.000	9.000	8.000	67313

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



HYDRAULIC PERMAPAK PACKER

The **Hydraulic Permapak Packer** is a hydraulic set seal bore packer and is the hydraulic set equivalent of the Permapak Seal Bore Packer. The full range of Permapak Seal Bore Accessories may be used with the Hydraulic Permapak.

Pressure sets the packer via a setting chamber built into the tool. Pressure enters the setting chamber via holes in the polished bore of this packer. These holes can be isolated with a ball-operated sub so other hydraulic operated tools can be functioned before setting the packer.

Special Features

- Uses proven Permapak components
- Compatible with Permapak options
- Optional upper sealbore available
- Single bore or dual bore option

Product Specifications - Single Bore

Casing		Recommended Hole Size (inches)	Tool OD (inches)	Packer Bore (inches)	Min ID Thru Seals (inches)	Part Number
Size (inches)	Weight (lbs/ft)					
7	23.0 - 32.0	6.094 - 6.366	5.875	4.000	3.000	68371
	32.0 - 38.0	5.920 - 6.094	5.813	4.000	3.000	68372
9-5/8	36.0 - 53.5	8.535 - 8.921	8.125	4.750	3.500	68393
				5.000	4.750	68395

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.

Product Specifications - Dual Bore

Casing		Recommended Hole Size (inches)	Tool OD (inches)	Seal Bore		Min ID Thru Seals (inches)	Part Number
Size (inches)	Weight (lbs/ft)			Upper (inches)	Lower (inches)		
7	17.0 - 23.0	6.366 - 6.538	6.000	5.250	4.000	4.000	68170
	23.0 - 32.0	6.094 - 6.366	5.875	5.250	4.000	4.000	68171
9-5/8	36.0 - 53.5	8.535 - 8.921	8.250	7.500	6.000	6.000	68195

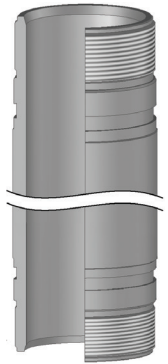
NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Permanent Packers

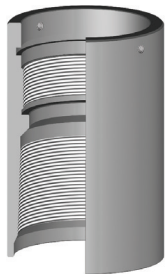


PERMAPAK ACCESSORIES



Seal Bore Extension

A **Seal Bore Extension** is used in installations where floating seals are required due to tubing contractions. This packer accessory allows for a continuous seal bore and is available in lengths up to twenty feet.



Seal Bore to Mill-Out Coupling

A **Seal Bore to Mill-Out Coupling** is used to connect mill-out extensions to seal bore extensions.



Concentric Bottom

A **Concentric Bottom** is used to connect a seal bore extension to a packer.



Knock-Out Plug Bottom

When a **Knock-Out Bottom** is run below the packer, the knock-out plug allows a packer to serve as a bridge plug holding pressure from above and below.



Knock-Out Plug

A **Knock-Out Plug** is knocked out when the production string is landed.



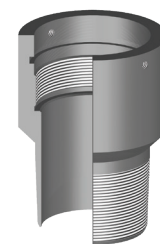
Mill-Out Extension

A **Mill-Out Extension** is used in installations where floating seals are required due to tubing contractions. In addition, this packer accessory provides a larger ID between a packer bore and a seal bore extension allowing a packer plucker when a packer is milled out.



Pump Out Plug

A **Pump-Out Plug** is available with a choice of threads allowing the pump-out plug to be attached to a packer, seal bore extension, mill-out extension or tailpipe and hold pressure from below after the packer is set. Once the production string is landed, pressure is applied to the tubing and the pump-out plug is removed to allow full opening.



Mill-Out Bottom

A **Mill-Out Bottom** is used to connect a mill-out extension to a packer.



Concentric Coupling

A **Concentric Coupling** is used to connect seal bore extensions to increase length.



Wireline Re-Entry Bottom

A **Wireline Re-Entry Bottom** is used as the packer bottom when an extension below a packer is not required.



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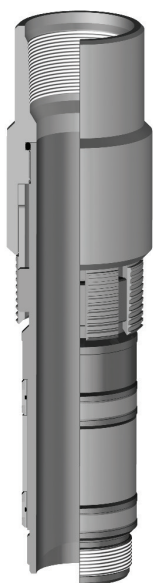
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PERMAPAK ACCESSORIES



Anchor Latch Assembly

The **Anchor Latch Seal Assembly** is used when floating seals are not required. This assembly allows the tubing string to be in tension or compression. Upon set down the anchor latches into the packer and can be removed with eight to ten right-hand turns.



Snap Latch Assembly

The **Snap Latch Seal Assembly** latches into the packer upon set down (like our Anchor Latch Seal Assembly). It can be removed with straight pull of 10,000 to 12,000 lbs. above tubing weight. The Snap Latch Seal Assembly is used where a mechanical indication is required to verify the seal assembly is properly positioned in the packer bore.



Seal Unit

The standard **Seal Unit** is furnished with bonded nitrile rings and a 12-inch make-up length. These units may be ordered in various lengths and with severe service seal rings for high temperature and corrosive environmental conditions.



Locator Seal Assembly

The **Locator Seal Assembly** is used in installations which require floating seals. Once landed, the seal locator prevents downward movement of the tubing while allowing the seal to move with tubing contraction.



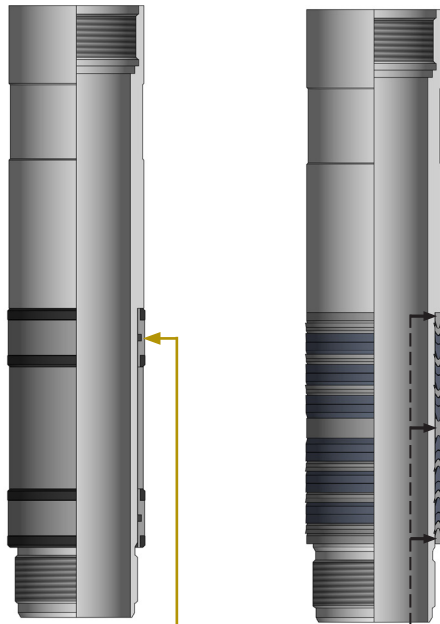
Half Mule Shoe Guide

The **Half Mule Shoe Guide** is standard with the Seal Assembly to allow for easy entry into the packer bore.

Permanent Packers



SEAL INFORMATION SHEET



CHEVRON SEAL STACKS ARE AVAILABLE FOR HIGH TEMPERATURE SEALING CAPABILITY.

A collection of seals and spacers provides high pressure sealing capability at higher temperatures. The seal stacks are arranged in opposing pairs that allow them to seal from both directions using multiple redundant seals.



CHEVRON SEALS, OR "V" SEALS

are seals designed to have an interference fit with the Seal Mandrel and a sealing surface so seals develop at the points of interference. The seal is only present when pressure comes from the direction of the "V". This is why Chevron Seals are usually used in opposing directional sets. They are made from rubber to take advantage of the elastomeric properties needed to form a low pressure (and high pressure) seal. Chevron seals are available in Viton and Aflas.



TEFLON SEALS

are a soft plastic seal with a slight interference with the Seal Mandrel and sealing surface. They act as a secondary seal to Chevron Seals and as an anti-extrusion device for the elastomer seal above them in a seal stack.

RYTON SPACERS

are a hard plastic spacer that provides extrusion resistance to the elastomeric and plastic seals above them in a seal stack. They do not form a seal but help restrict damaging extrusion to the seals.

SEAL SPACERS

hold the seals in the proper arrangement and keep the seal sets from interfering with one another. Seal Spacers are generally made from carbon steel but can be made from other steels where needed.

BONDED SEALS ARE DESIGNED TO BE GENERAL PURPOSE SEALS.

Rubber bonded to the seal is designed to have an interference fit with a sealing surface so a seal develops at the point of interference. The Bonded Seals also have an O-ring inside to eliminate any leak path under the Bonded Seal. Generally there are two Bonded Seals to a seal unit but this can be changed if desired. Bonded Seals are available in Nitrile, HNBR (HSN), and Viton with the O-ring matching the rubber type.

SEAL	TEMPERATURE RATING	OPERATING ENVIRONMENT(S)
Bonded Nitrile	250 ° F	General Duty, Seal Unloading, Wiper Seal
Bonded HSN (HNBR)	300° F	Medium Duty, Seal Unloading, ED Applications
Bonded Viton	350° F	Heavy Duty, Seal Unloading, ED Applications
VTR Stack	350° F	Heavy Duty, Corrosive Environments, ED Applications
ATR Stack	400° F	HT/HP, Corrosive Environments

*Elastomers available up to 650° F.

SEAL MANDRELS	ENVIRONMENT
Standard Steels	Oil/Gas, Steam, <.2% H ₂ S/CO ₂
Nickle Plated Standard Steels	Oil/Gas, Steam, Disposal Water, < .4% H ₂ S/CO ₂
Stainless/ Duplex Stainless Steels	Oil/Gas, Steam, Disposal Water, < 5% H ₂ S/CO ₂
Nickle Based Alloys	Oil/gas, Steam, Disposal Chemicals, < 25% H ₂ S/CO ₂

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Viton is a registered trademark of Dupont Performance Elastomers | RYTON is a registered trademark of Chevron Phillips Chemical Company



WIRELINER ADAPTER KIT – FOR PERMAPAK PACKER

The **Wireline Adapter Kit (WLAK) – for Permapak Packer** is designed to set Permapak Seal Bore Packers with industry standard wireline pressure setting assemblies or comparable equipment.

This setting equipment can also be used with hydraulic setting tools that are configured like the standard setting tool. The setting equipment is designed so the outer sleeve can be adjusted to provide a proper make up to the packer.

Product Specifications

Setting Tool Size	Setting Tool OD (inches)	External Threads	Internal Threads	Packer Sizes
05	1.718	1-1/4" UNS	5/8" UNF	2-3/8" 2-7/8" 3-1/2"
10	2.750	2-1/2" ACME	1" UNC	4" 4-1/2" 5"
20	3.800	3-1/2" STUB ACME	2" ACME	5-1/2" & LARGER

NOTE: All pricing includes standard Nitrile trim. Other sizes and connections available upon request.



Permanent Packers

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