

HPT Stack



“MAKE THE SHIFT”

The HPHT sealing stack that is reliable,
easy to install, and easy on the bottom line.

Description

The HPT Stack is a three-piece, HPHT, doubling acting piston or rod seal. Commonly used as a multi-vee seal stack replacement, such as the ATR or VTR sealing stacks. The HPT stack offers superior sealing performance and has good adaptation possibilities for diverse temperatures and media by selection of suitable materials. The seal stack can hold 15,000 psi at 400°F (204°C) with passing ports at shifting pressures of 1,500 psi.

Applications

Primary application:

- Sliding Sleeves

Can also be used in:

- Liner hangers
- Valve Stems
- Stinger assemblies
- Gas lift valves and mandrels
- Frac sleeves
- Polished bore receptacle
- Completion packers

Features

- Significant reduction in cost when compared with VTR/ATR, as well as other multi-component sealing Stacks
- 3-piece design with split guiding elements enables easy installation.
- Allows for reduced groove width
- Proven to operate at 15,000 psi at 400°F (204°C)
- Large element “lead-in” reduces risk of damage while traversing ports.
- Pre-load can be modified to suit customer requirements.

Technical Data

Temperature Range: -40°C to 232°C (-38.2°F to 400°F)

Max Pressure: 20000 PSI

Max Surface Speed: 2.3 fps (0.7m/s)

HPT Stack

Available Materials

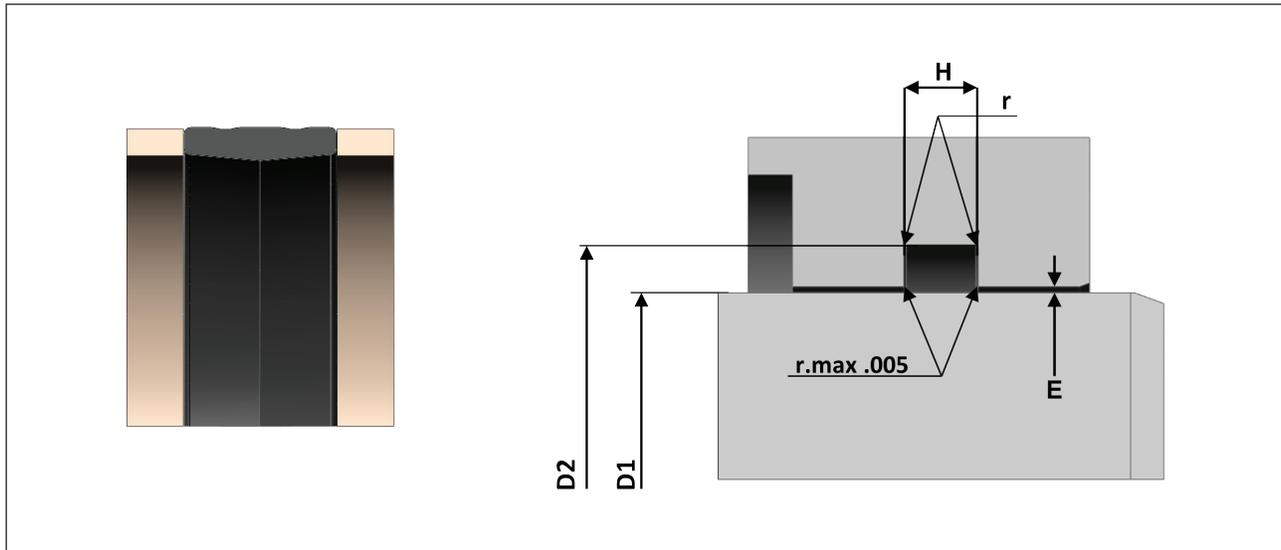
Elastomer Sealing Element				
Material	Description	Temperature Range	Data Sheets	Material Code
General Purpose Viton®	FFKM type A commercial grade compound. Off the shelf, low cost, and highly accessible Viton® compound.	-20°C to +205°C -4°F to 400°F		V
Aflas®	Aflas® is becoming more and more of a staple in the oil and gas sector. Mostly because of its excellent steam resistance. Aflas® also resists acids and bases, amines, H2S resistance, Ozone and highly reactive organic and inorganic chemicals.	-4 to 232°C 25°F to 450°F		A
General Purpose HNBR	A general applications HNBR compound. HNBR provides good chemical resistance to crude oil, lubricating agents and oil additives with superior resistance to carbon dioxide, water, drilling mud and amine corrosion inhibitors. HNBR is off the shelf, low cost, and highly accessible compound.	-40°C to 160°C -40°F to 325°F		H
Standard Grade NBR (BUNA)	Low-cost, general-purpose compound. Nitrile offers good resistance to compression set and tear/abrasion. Nitrile is resistant to many petroleum oils/greases, hydraulic fluids, alcohol, ambient water, silicone greases, Diester base lubricants and ethylene-glycol based fluids.	-35°C to +120°C -30°F to +250°F		N
Anti-Extrusion Ring				
Material	Description	Temperature Range	Data Sheets	Material Code
Unfilled PEEK	Virgin PEEK. Offers good toughness and impact performance, with high elongation properties. Certified to ISO 23936/NORSOK M-710 for high sour fluid aging.	-70°C to 260°C -94°F to 500°F		P
Glass Filled PEEK	Glass Filled PEEK. Same features as virgin PEEK, but with higher tensile strength than virgin PEEK, as well as increased shear strength.	-70°C to 260°C -94°F to 500°F		GP

Other materials are available upon request.
Please contact KC Seals for more information info@kcseals.ca

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HARDWARE AND PART NUMBER INFORMATION

Hardware Dimensions For Rod Applications



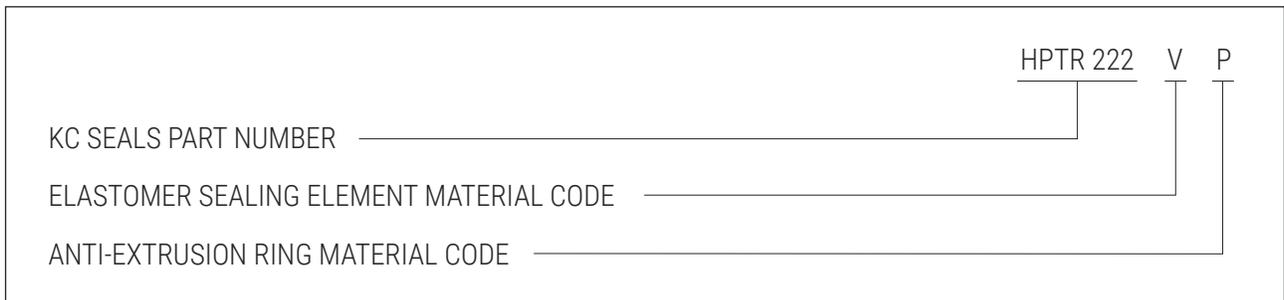
Dimensional table. Rod-Inch

K.C. Seals Part Number	Rod D1 Tol: +/- .002	Groove D2 Tol: +/- .004	Groove Width H	Corner Radii r	Radial Clearance *E _{max.}		
					10.000 psi (70 MPa)	15.000 psi (103 MPa)	20.000 psi (138 MPa)
HPTR 500	.500	1.000	.497/.505	.005/.015	.004	.003	.002
HPTR 1000	1.000	1.500	.497/.505	.005/.015	.004	.003	.002
HPTR 1250	1.250	1.750	.497/.505	.005/.015	.004	.003	.002
HPTR 1500	1.500	2.000	.497/.505	.005/.015	.004	.003	.002
HPTR 1750	1.750	2.250	.497/.505	.005/.015	.004	.003	.002
HPTR 2000	2.000	2.500	.747/.755	.010/.025	.004	.003	.002
HPTR 2250	2.250	2.750	.747/.755	.010/.025	.004	.003	.002
HPTR 2500	2.500	3.000	.747/.755	.010/.025	.006	.004	.003
HPTR 2750	2.750	3.250	.747/.755	.010/.025	.006	.004	.003
HPTR 3000	3.000	3.500	.747/.755	.010/.025	.006	.004	.003
HPTR 3250	3.250	3.750	.747/.755	.010/.025	.006	.004	.003
HPTR 3500	3.500	4.000	.747/.755	.010/.025	.006	.004	.003
HPTR 3750	3.750	4.250	.747/.755	.010/.025	.006	.004	.003
HPTR 4000	4.000	4.500	.997/1.005	.020/.035	.006	.004	.003
HPTR 4250	4.250	4.750	.997/1.005	.020/.035	.008	.006	.003

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HPTR 4500	4.500	5.000	.997/1.005	.020/.035	.008	.006	.003
HPTR 5000	5.000	5.500	.997/1.005	.020/.035	.008	.006	.003
HPTR 5250	5.250	5.750	.997/1.005	.020/.035	.008	.006	.003
HPTR 5500	5.500	6.000	.997/1.005	.020/.035	.008	.006	.003
HPTR 5750	5.750	6.250	.997/1.005	.020/.035	.008	.006	.003
HPTR 6000	6.000	6.500	1.497/1.505	.020/.035	.008	.006	.003
HPTR 6250	6.250	6.650	1.497/1.505	.020/.035	.008	.006	.003
HPTR 6500	6.500	7.000	1.497/1.505	.020/.035	.008	.006	.003
HPTR 6750	6.750	7.250	1.497/1.505	.020/.035	.008	.006	.003
HPTR 7000	7.000	7.500	1.497/1.505	.020/.035	.008	.006	.003
HPTR 7500	7.500	8.000	1.497/1.505	.020/.035	.008	.006	.003
HPTR 8000	8.000	8.500	1.997/2.005	.020/.035	.008	.006	.003

Rod HPT Stack Part Numbering System



Custom Dimensions

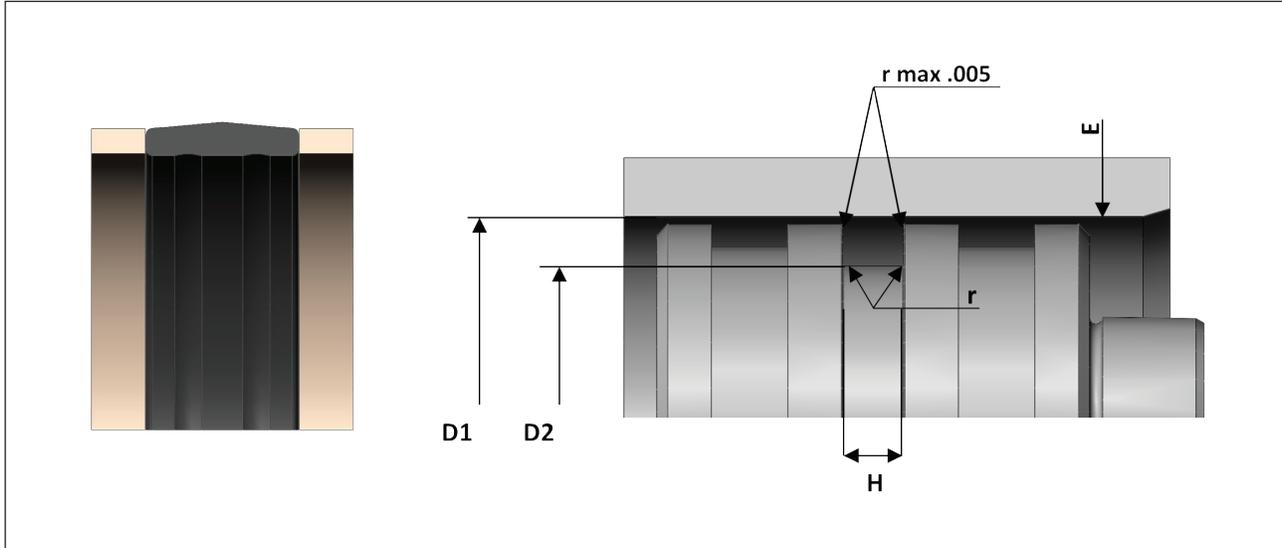
For dimensions that are not listed, KC Seals would either require your metal work dimensions, or ideally, a drawing of your metal work.

The HPT Stack is highly adaptable, and we frequently make HPT Stacks to non-standard sizes.

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Hardware Dimensions For Piston Applications



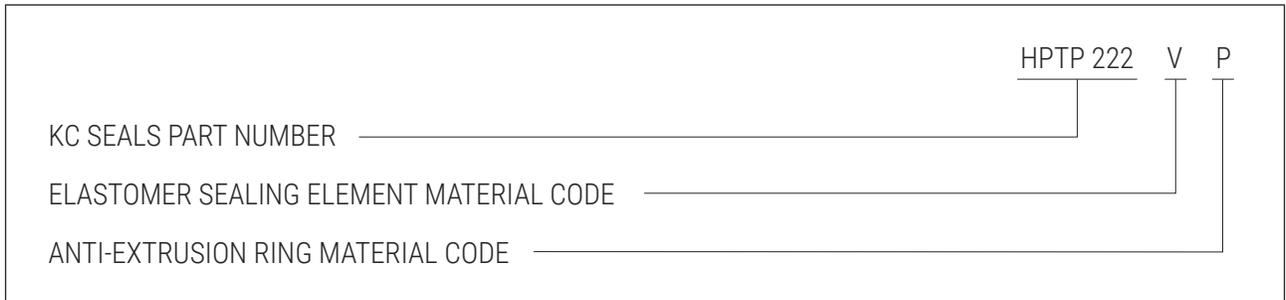
Dimensional table. Piston-Inch

K.C. Seals Part Number	Bore D1 Tol: +/- .002	Groove D2 Tol: +/- .004	Groove Width H	Corner Radii r	Radial Clearance *E _{max.}		
					10.000 psi (70 MPa)	15.000 psi (103 MPa)	20.000 psi (138 MPa)
HPTP 500	1.000	.500	.497/.505	.005/.015	.004	.003	.002
HPTP 1000	1.500	1.000	.497/.505	.005/.015	.004	.003	.002
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HPTP 2500	3.000	2.500	.747/.755	.010/.025	.006	.004	.003
HPTP 2750	3.250	2.750	.747/.755	.010/.025	.006	.004	.003
HPTP 3000	3.500	3.000	.747/.755	.010/.025	.006	.004	.003
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HPTP 3500	4.000	3.500	.747/.755	.010/.025	.006	.004	.003
HPTP 3750	4.250	3.750	.747/.755	.010/.025	.006	.004	.003
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HPTP 7000	7.500	7.000	1.497/1.505	.020/.035	.008	.006	.003
HPTP 7500	8.000	7.500	1.497/1.505	.020/.035	.008	.006	.003
HPTP 8000	8.500	8.000	1.997/2.005	.020/.035	.008	.006	.003

Piston HPT Stack Part Numbering System



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