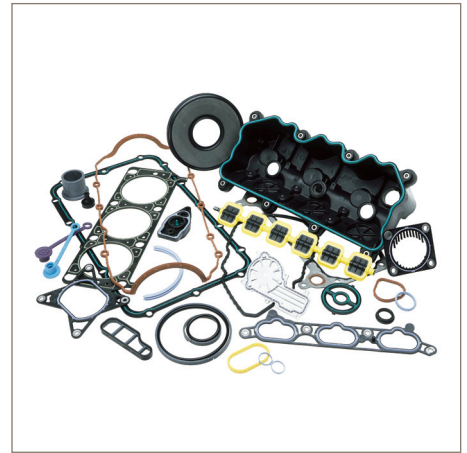


Material Selection

Plastic retainer material options



Our four standard plastic retainer materials are listed in the table below, along with compatibility information for select media. Our experienced engineers can work with you to specify the most effective and cost efficient material for your application.

Material Type	ASTM Designation	Common Trade Names	Maximum Continuous Use Temperature	Burn Rate	Motor Oil	Brake Fluid	ATF	Gasoline	Methanol	Ethanol	Engine Coolant @125°C	Water to 100°C	Steam to 150°C	Ozone
Polyamide 6/6	PA66	Zytel® Ultramid® Minlon®	150°C	slow to heavy burning	A	A	A	A	C	B	C	B	C	B
Polyphthalamide	PPA	Zytel HTN® Amodel®	175°C	heavy burning	A	A	A	A	B	B	B	B	B	B
Polyphenylene Sulfide	PPS	Ryton® Cetex®	250°C	self-extinguishing to non-burning	A	A	A	A	A	A	A	A	A	B
Polytetrafluoroethylene	PTFE	Teflon® Algoflon®	260°C	non-burning	A	A	A	A	A	A	A	A	A	A

A = Recommended, B = Satisfactory, C = Not Recommended

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Contact Information:

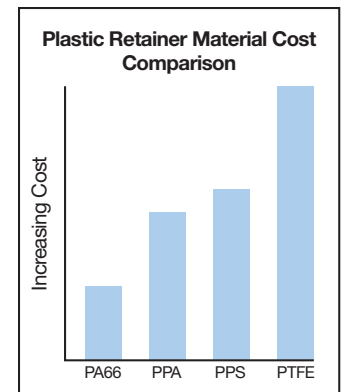
Parker Hannifin Corporation
Integrated Sealing Systems Division
 3700 Mayflower Drive
 Lynchburg, VA 24501

phone 434 846 6541
 fax 434 847 2725

www.parkerseals.com

Additional Material Facts:

- Nylon 6/6 has good overall mechanical properties; stiffness, strength and toughness.
- Our standard Nylon 6/6 is 33% glass filled, heat stabilized and hydrolysis resistant. Several other grades of nylon are also available.
- PPA offers improved heat and chemical resistance over standard nylon 6/6, while bridging the gap between conventional and specialty plastics.
- PPS is extremely rigid, resists creep and exhibits short and long term thermal stability. PPS also has useful dielectric and insulating properties.
- PTFE is resistant to high temperatures, chemical reaction, corrosion and stress cracking. It is also characterized by mechanical toughness and low friction.



ENGINEERING YOUR SUCCESS.

Polymer Material Selection and Compatibility Chart

	Polyacrylate (ACM)	Ethylene Acrylic (AEM)	Hydrogenated Nitrile (HNBR)	Silicone (VMQ)	Fluorocarbon (FKM)
Compatible Fluids	ATF Petroleum Oils	ATF Petroleum Oils	Petroleum Fluids Water/Steam to 300°F Ethylene Glycol	High Temperature Dry Heat Low Temperature High Analine Point Oils	Petroleum Fluids Aromatic Hydrocarbons Fuel
Non-Compatible Fluids	Steam Brake Fluids Acids	Fuels Brake Fluids	Phosphate Esters Brake Fluids Strong Acids MeOH/EtOH Blends	Water/Steam > 250°F Acids and Alkalis Hydrocarbon Duels Aromatic Hydrocarbons	Brake Fluids Low Molecular Weight Acids Amines Steam

Physical Properties of Drop-in-Place Elastomers

Material		AA451-70	AE163-75 (0708)	KB161-70 (21377)	SW475-70	VW452-70 (6731)
Polymer Type		ACM	AEM	HNBR	VMQ	FKM
Temperature Range		-40 to 160°C	-40 to 150°C	-40 to 150°C	-60 to 200°C	-30 to 200°C
Original Properties	Method					
Specific Gravity, g/cc	D297	1.29	1.28	1.19	1.57	1.98
Hardness, Shore "A" pts.	D2240	67	73	72	66	72
Tensile, MPa	D412	8.9	13.5	24.8	7.8	10.7
Elongation, %	D412	209	222	196	175	192
100% Modulus, MPa	D412	3.1	7.6	8.5	4.2	6.2
Tear Strength (Die C), kN/m	D624	26.0	45.1	33.8	13.0	31.7
Compression Set - 70 hrs @ 150°C (Plied Disc)						
% Deflection	D395 Method B	21.3	24.0	15.1	22.0	14.4
ASTM #1 Oil - 70 hrs @150°C						
Hardness Change, pts.	D471	+5	-1	+1	-3	-1
Tensile Change, %	D471	-4.4	+8.9	-8.6	-15.7	+15.0
Elongation Change, %	D471	-3.2	-5.2	-11.2	-16.4	+13.4
Volume Change, %	D471	-3.5	-1.6	-1.4	+2.8	+1.2
IRM - 903 Oil - 70 hrs @ 150°C						
Hardness Change, pts.	D471	-14	-15	-4	-14	0
Tensile Change, %	D471	-13.1	-27.9	-23.4	-25.9	-4.8
Elongation Change, %	D471	-4.2	-11.3	-8.2	-15.3	-1.6
Volume Change, %	D471	+23.6	+39.0	+12.0	+33.1	+2.8
Low Temperature Transition						
TR-10, °C	D1329	-30.5	-28.4	-21.1	-53.0	-15.2

Additional elastomer types are available to custom fit your needs.

