Parker O-Ring Polymer Families, Compounds, and Material Test Reports

Note: ***To view a test report,*** click on the specific compound number you are inquiring about. A pdf will pull up that can be viewed, downloaded to your desktop and/or printed off. If there is not a blue box around a compound, then we do not currently have a material test report available via the site. Please contact Applications Engineering for details and a test report in this instance by calling 859-335-5101.

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Parker O-Ring Compound Numbering Systems

Note: There are two types of nomenclature used to reference Parker O-Ring products. See tables below for description of these types.

TYPE I		
N	0674	-70
Polymer Code (Single Letter)	Sequence Number (four digits)	Durometer Indicator (two digits)

TYPE II			
A	A	150	-70
Polymer Code (Single Letter)	Special Property Description (Single Letter)	Sequence Number (three digits)	Durometer Indicator (two digits)

Polymer Codes

- A Polyacrylate
- B Butyl
- C Chloroprene (Neoprene®)
- E Ethylene Propylene
- F Parofluor ULTRA™
- H Hifluor™
- K HNBR
- L Fluorosilicone
- N Nitrile (Buna N) and HNBR
- P Polyurethane
- S Silicone
- V Fluorocarbon, AFLAS®, Hifluor™, Parofluor™
- Z Exotic Polymers

Special Property Descriptions

- A General Purpose
- B Low Compression Set
- E Ethylene Acrylate or (Vamac®)
- F Fuel Resistant or Fully Fluorinated
- G Higher Fluorine Content
- J NSF / FDA / WRAS Approvals
- L Internally Lubed
- M Mil/ AMS Specifications
- P Low Temperature Flexible or (AFLAS)
- W Non-Black Compound
- X Carboxylated

Durometer Indicators (Hardness)

-40	40 ±5	Shore A Durometer
-45	45 ±5	Shore A Durometer
-50	50 ±5	Shore A Durometer
-55	55 ±5	Shore A Durometer
-60	60 ±5	Shore A Durometer
-65	65 ±5	Shore A Durometer
-70	70 ±5	Shore A Durometer
-75	75 ±5	Shore A Durometer
-80	80 ±5	Shore A Durometer
-85	85 ±5	Shore A Durometer
-90	90 ±5	Shore A Durometer
-95	95 ±5	Shore A Durometer

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COMPOUND NO.	RECOMMENDED FOR	TEMP. RANGE (Degrees° F)	COLOR

POLYACRYLATE (ACM)

ACM (acrylic rubber) has good resistance to mineral oil, oxygen and ozone. The water compatibility and cold flexibility of ACM are considerably worse than with NBR.

AA150-70 (12307)	Engines & Transmissions	-5 to 350	Black
AA154-75 (12358)	Engines & Transmissions	-5 to 350	Black

ETHYLENE ACRYLATE (AEM)

Ethylene acrylate is a mixed polymer of ethylene, methyl acrylate and a small amount of carboxylated cure-site monomer. Developed as a lower-temperature version of Polyacrylate, but swells slightly more. Polymer is sold under the tradename VAMAC®.

AE152-70 (12897)	Transmissions	-40 to 325	Black
AE153-75 (12917)	Transmissions, Internally Lubed	-40 to 325	Black
AE154-75 (12867)	Vamac, Transmission Applications	-40 to 325	Black

BUTYL RUBBER (IIR)

Butyl rubber (isobutylene-isoprene rubber or IIR) has a very low permeability rate and good electrical properties, but poor short-term rebound.

B0318-70	AMS 3238	-75 to 250	Black
B0612-70	Vacuum, General Purpose	-75 to 250	Black
B1167-80	Vacuum, General Purpose	-75 to 250	Black

POLYCHLOROPRENE RUBBER (CR)

Also known by the tradename Neoprene®, polychloroprene was the first synthetic rubber and exhibits generally good ozone, aging, and chemical resistance. It has good mechanical properties over a wide temperature range.

C0267-50	MIL-G-1149 Ty I Cl I AMS 3208, Low Temp.	-60 to 250	Black
C0557-70	Drive Belt Applications	-35 to 250	Black
C0873-70	General Purpose	-35 to 225	Black
C0944-70	General Purpose	-35 to 250	Red
C1124-70	AMS 3209, Low Temp.	-60 to 250	Black
C1276-70	Low Compression Set	-35 to 250	Black

Note: Compound numbers in (XXXXX) are the obsolete Wynn's Precision compound numbering system.

COMPOUND NO.	RECOMMENDED FOR	TEMP. RANGE (Degrees° F)	COLOR
CL172-70 (2347)	Internally Lubed	-35 to 225	Black
C1278-80	Low Compression Set	-35 to 250	Black
CB173-80 (2598)	Good Retained Resilience	-35 to 250	Black

ETHYLENE PROPYLENE RUBBER (EPM, EPR, EPDM)

EPM (EPR) is a copolymer of ethylene and propylene. EPDM is a terpolymer of ethylene, propylene, and a diene third monomer used for cross-linking.

E1100-50	General Purpose	-70 to 250	Black
EA454-50 (3575)	UL Listed	-70 to 250	Black
E1157-60	General Purpose	-70 to 250	Black
E1561-60	NSF 61, KTW, WRAS	-70 to 250	Black
E0751-65	Drive Belt Applications	-70 to 250	Black
E0603-70	General Purpose	-70 to 250	Black
E0667-70	Auto Disc Brakes	-70 to 250	Black
E0803-70	General Purpose	-70 to 250	Black
E1022-70	Internally Lubed, Brakes	-70 to 250	Black
E1028-70	FDA	-70 to 250	Black
E1244-70	NSF 61, Internally Lubed	-70 to 250	Black
E1257-70	Chloramine Resistant, NSF 61	-70 to 250	Black
E1512-70	Chloramine Resistant, NSF 61, Internally Lubed	-70 to 250	Black
E1514-70	Chloramine Resistant	-70 to 250	Black
E1549-70	NSF 61, WRAS, KTW, FDA	-70 to 250	Black
E1570-70	NSF 61, Internally Lubed	-70 to 250	Black
E1571-70	NSF 61	-70 to 250	Black
E1583-70	NSF 51, NSF 61, Internally Lubed	-70 to 250	Black
E3609-70	NSF 51, NSF 61, WRAS, KTW, FDA, USP Class VI	-70 to 250	Black
EB152-70 (3407)	General Purpose	-70 to 250	Black
EJ273-70	Chloramine Resistant	-70 to 250	Black
EJ274-70	Internally lubed, NSF 61 Chloramine Resistant	-70 to 250	Black
EJ280-70	USP VI, FDA, Animal-Free	-70 to 250	Black
E0692-75	Steam, High Temp. Water	-70 to 250	Black
E0740-75	Nuclear Applications	-70 to 250	Black
E0515-80	NAS 1613 Rev 2	-70 to 250	Black
E0540-80	General Purpose	-70 to 250	Black
E0893-80	General Purpose	-70 to 250	Purple

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COMPOUND NO.	RECOMMENDED FOR	TEMP. RANGE (Degrees° F)	COLOR
E1267-80	NAS 1613 Rev 5	-70 to 250	Black
E0652-90	General Purpose, Back-Up Rings	-60 to 250	Black
E0962-90	Excellent Steam to 500° F, ED Resistant	-60 to 250	Black

FLUOROSILICONE (FVMQ)

Fluorosilicone is a silicone polymer chains with fluorinated side-chains for improved oil and fuel resistance. The mechanical and physical properties are very similar to those of silicone.

LM151-50 (11645)	General Purpose	-100 to 350	Blue
LM152-60 (11646)	General Purpose	-100 to 350	Blue
LM158-60	AMS-R-25988, TY 1, CL 1, GR 60, AMS 3325	-100 to 350	Blue
LM153-70 (11647)	General Purpose	-100 to 350	Blue
LM159-70	AMS-R-25988, TY 1, CL 1, GR 70	-100 to 350	Blue
L1120-70	AMS-R-25988, TY I, CL I, GR 70, UL listed	-100 to 350	Blue
LM161-70 (11847)	General Purpose	-100 to 350	Blue
L1077-75	AMS-R-25988, TY I, CL III, GR 75	-90 to 350	Blue
LM155-80 (11648)	General Purpose	-90 to 350	Blue
LM160-80	AMS-R-25988, TY 1, CL 1, GR 80	-90 to 350	Blue
L1218-80	AMS-R-25988, TY I, CL I, GR 80	-90 to 350	Blue
L1186-80	PTFE Loaded	-85 to 350	Rust

ACRYLONITRILE-BUTADIENE (NBR)

Nitrile rubber (NBR) is the general term for acrylonitrile-butadiene terpolymer. The acrylonitrile content of nitrile sealing compounds varies considerably (18 to 50%.) Polymers with higher ACN content exhibit less swell in gasoline and aromatic solvents, while lower ACN polymers exhibit better compression set and low temperature flexibility. Polymer is also called Buna-N.

N0545-40	AMS 3201	-45 to 225	Black
N0299-50	AMS 3205, UL listed	-55 to 225	Black
NL151-50 (8315)	Internally Lubed	-55 to 225	Black
N0406-60	General Purpose	-40 to 225	Black

Note: Compound numbers in (XXXXX) are the obsolete Wynn's Precision compound numbering system.

COMPOUND NO.	RECOMMENDED FOR	TEMP. RANGE (Degrees° F)	COLOR
N0525-60	AMS 3212, AMS 3220	-25 to 250	Black
N1219-60	NSF 51, FDA	-30 to 225	Black
NF284-60 (1053)	Fuel Resistant	-25 to 250	Black
NF162-65 (1106)	Fuel Resistant	-25 to 250	Black
NM506-65	AMS 7271	-70 to 180	Black
NX352-70 (7727)	Carboxylated	-25 to 250	Black
NJ253-70 (7077)	FDA	-35 to 212	Black
NF153-70 (7657)	Fuel Resistant, UL Listed SAE 120R1 Class II	-35 to 180	Black
NA151-70 (8307)	General Purpose	-30 to 250	Black
NL153-70 (8317)	Internally Lubed	-30 to 250	Black
47-071	AMS-R-7362	-60 to 180	Black
N0103-70	Low Temp.	-55 to 225	Black
N0287-70	Synthetic Lubricant Resistant, AMS 7272	-35 to 250	Black
N0497-70	Low Swell, SAE 120R1 CL ll UL listed	-35 to 212	Black
N0602-70	General Purpose, AMS-P-5315, Low Temp.	-70 to 180	Black
N0674-70	General Purpose MIL-G-21569, Cl I, UL listed	-30 to 250	Black
N0757-70	NSF 61, UL Listed	-30 to 225	Black
N0818-70	Internally Lubed	-30 to 250	Black
N0828-70	Internally Lubed, Low Set	-30 to 225	Black
N1069-70	FDA	-30 to 180	Black
N1220-70	NSF 51, FDA	-30 to 225	Black
N1470-70	General Purpose	-40 to 225	Black
N1499-70	General Purpose, UL	-30 to 250	Black
N1510-70	NSF 61	-30 to 225	Black
N1517-70	NSF 61	-30 to 225	Black
N1527-70	UL Listed	-30 to 225	Black
NW163-70 (40601)	Internally Lubed	-30 to 225	Rust
NM156-75 (7377)	Good Low Temp.	-65 to 225/250	Black
N0304-75	MIL-P-25732	-65 to 225/250	Black
N0508-75	FDA, USDA	-30 to 180	Black
N0756-75	AMS-P-83461	-65 to 250/275	Black
N0951-75	High Temp, Low Compression Set	-25 to 275	Black
N1500-75	Low Swell, UL Listed, Fuel applications	-35 to 212	Black

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COMPOUND NO.	RECOMMENDED FOR	TEMP. RANGE (Degrees° F)	COLOR
N1565-75	UL Listed	-30 to 225	Black
N1591-75	UL Listed	-30 to 225	Black
NA155-80 (7538)	Abrasion Resistant	-25 to 250	Black
N0750-80	Carboxylated	-25 to 250	Black
N1090-85	"ELF" Pneumatic, Carboxylated	-25 to 225	Black
NB107-90 (1929)	Extrusion Resistant	-25 to 225	Black
N0300-90	Back Up Rings	-40 to 180	Black
N0507-90	AMS-P-5510, Low Temp.	-65 to 180	Black
N0552-90	General Purpose	-30 to 250	Black
N0702-90	Low Compression Set	-30 to 275	Black
N1059-90	Low Compression Set	-30 to 275	Black
N1444-90	Parbaks only	-30 to 250	Black
N1490-90	General Purpose	-30 to 250	Black
NB194-90	Low Extrusion Set, Extrusion Resistant	-30 to 250	Black

HYDROGENATED NITRILE (HNBR, HSN)

Hydrogenated nitrile was developed as an air-resistant variant of nitrile rubber. In HNBR, the carbon-carbon double bonds in the main polymer chain are saturated with hydrogen atoms in a process called "hydrogenation" that improves the material's thermal stability and oxidation resistance.

KB190-50 (21705)	Automotive Applications	-25 to 300/325	Black
KA170-55 (21105)	UL Listed	-25 to 300/325	Black
KB181-60 (21926)	Diesel Applications	-25 to 300/325	Black
N1173-70	General Purpose	-25 to 300/325	Black
N1195-70	Refrigerants	-25 to 300/325	Green
N1206-70	Low Temp.	-40 to 300/325	Green
N1239-70	Refrigerants	-25 to 300/325	Red
KA157-70 (21407)	General Purpose	-30 to 300/325	Black
KB161-70 (21377)	High Temp. Hydraulics	-25 to 300/325	Black
KA174-75 (21107)	75 Duro, General Purpose	-25 to 300/325	Black
N1231-80	Explosive Decompression	-25 to 300/325	Black
KA453-80 (21508)	Low Swell, ED Resistant	-25 to 300/325	Black
KB162-80 (21378)	High Temp. Hydraulics	-25 to 300/325	Black
KA183-85	Low Temp.	-55 to 300/320	Black
KB163-90 (21379)	High Temp. Hydraulics ED Resistant	-25 to 300/325	Black
N4007-95	Extrusion Resistant, ED Resistant	-25 to 300/325	Black

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COMPOUND NO.	RECOMMENDED FOR	TEMP. RANGE (Degrees° F)	COLOR

POLYURETHANE (AU, EU)

Polyurethane elastomers have excellent wear resistance, high tensile strength and high elasticity in comparison with any other elastomers. Permeability is good and comparable with butyl. Millable urethanes should not be confused with thermoplastic urethanes, which are generally harder, less flexible, and have slightly better wear resistance.

P0642-70	Drive Belt Applications, Millable Type	-40 to 180	Black

SILICONE RUBBER (VMQ, PVMQ)

Silicones possess good insulating properties and tends to be physiologically neutral. However, silicone elastomers have relatively low tensile strength, poor tear and wear resistance.

S0469-40	AMS 3301	-75 to 400	Rust
S0802-40	FDA	-60 to 400	White
S0595-50	AMS 3302	-70 to 400	Rust
S0899-50	ZZ-R-765 CL 1a, 1b, 2a, 2b GR 50	-103 to 400	Rust
SM151-50 (11355)	UL	-70 to 400	Rust
S1538-55	FDA, USP CL VI	-60 to 450	Trans
S0317-60	FDA, USDA, USP CL VI	-103 to 450	Rust
S0613-60	ZZ-R-765 Cl 2b, Gr 60, AMS 3303	-60 to 450	Rust
SM152-60 (11356)	UL	-60 to 450	Rust
S0383-70	ZZ-R-765 Cl 1a, 1b, Gr 70, AMS 3337	-175 to 400	Rust
S0455-70	High Temp.	-65 to 450/500	Rust
S0604-70	ZZ-R-765 Cl 2a, 2b, Gr 70 AMS 3304, AMS 3357 MIL-G-21569	-65 to 450	Rust
S1138-70	FDA	-60 to 400	Rust
S1224-70	ZZ-R-765 Cl 2a, 2b, Gr 70 AMS 3304, AMS 3357 MIL-G-21569	-65 to 450	Rust
SM153-70 (11357)	UL Listed	-60 to 450	Rust
S0355-75	AMS 7267, FDA, USDA	-60 to 450	Rust
S0614-80	ZZ-R-765 Cl 2a, 2b Gr 80, AMS 3305	-65 to 450	Rust

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COMPOUND NO.	RECOMMENDED FOR	TEMP. RANGE (Degrees° F)	COLOR

FLUOROCARBON (FKM, FPM)

Fluorocarbon (FKM) has excellent resistance to high temperature and a broad range of chemicals. Permeability and compression set are excellent.

V0986-50	General Purpose	-15 to 400	Brown
V0763-60	General Purpose	-15 to 400	Brown
V0769-60	General Purpose	-15 to 400	Black
VA150-65 (19356)	General Purpose	-15 to 400	Black
V1262-65	Low Swell - Flex Fuel Blends UL listed	-15 to 400	Black
VW252-65	Low Swell	-15 to 400	Green
V0680-70	FDA, USDA, NSF 51	-15 to 400	Red
VB185-70	Acid Resistant	-15 to 400	Black
V1033-70	General Purpose	-15 to 400	White
V0747-75	AMS-R-83248, TY I, CL I, UL listed	-15 to 400	Black
V0848-75	PTFE Loaded	-15 to 400	Black
V0884-75	General Purpose, UL listed	-15 to 400	Brown
V1163-75	"GFLT Type", UL listed, E85	-35 to 400	Black
V1164-75	Low Set, AMS 7276, AMS-R-83248, TY I, CL I	-15 to 400	Black
V1226-75	Low Set, AMS 7276, UL listed, AMS-R-83248, TY I, CL I	-15 to 400	Brown
V1260-75	Very Chemically Resistant "Viton Extreme" Type	-15 to 400	Black
V1263-75	Low Swell - Flex Fuel Blends UL listed, E85	-15 to 400	Black
V1274-80	No Metal Oxides "GF" Type, Low Swell, Steam, USP VI	-15 to 400	Black
V1289-75	Low Temp.	-50 to 400	Black
VA203-75 (16737)	Extrusion Resistant, Diesel Fuel Injectors	-15 to 400	Black
VB153-75 (19717)	Good Compression Set, Fuels	-15 to 400	Black
VG162-75 (19727)	Good Fuel Resistance	-15 to 400	Black
VW153-75 (16207)	General Purpose	-15 to 400	Brown
VW173-75 (19457)	Automotive Applications	-15 to 400	Green
V1436-75	General Purpose, UL Listed	-15 to 400	Black
V1475-75	General Purpose	-15 to 400	Black

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COMPOUND NO.	RECOMMENDED FOR	TEMP. RANGE (Degrees° F)	COLOR
V1476-75	General Purpose	-15 to 400	Brown
VA151-75 (19357)	General Purpose, UL	-15 to 400	Black
VM835-75	AMS-R-83485, "GLT Type"	-40 to 400	Black
VA163-80 (19318)	Internally Lubed	-15 to 400	Black
VP104-85	Sour Gas Resistant	+10 to +400	Black
V0709-90	AMS-R-83248, TY I, Cl II AMS 7259	-15 to 400	Black
V0894-90	General Purpose	-15 to 400	Brown
V1411-90	General Purpose	-15 to 400	Black
V1412-90	General Purpose	-15 to 400	Brown
VA153-90 (19359)	General Purpose	-15 to 400	Black
VW155-90 (16129)	General Purpose	-15 to 400	Green
V1238-95	Extrusion Resistant, Explosive Decompression Resistant	-15 to 400	Black
VA154-95 (16949)	Extrusion Resistant	-15 to 400	Black

TETRAFLUOROETHYLENE - PROPYLENE (AFLAS)

This material is a copolymer of TFE and propylene. Its chemical resistance is excellent across a wide range of aggressive media. Polymer is sold under the tradename Aflas®.

V1006-75	AMS 7255	25 to 450	Black
VP101-80 (20018)	General Purpose	25 to 450	Black
VP102-80	Good Compression Set Resistance	15 to 450	Black
V1041-85	ED Resistant	15 to 450	Black
VP103-90 (20019)	Sour Service	25 to 450	Black

HIGHLY FLUORINATED ELASTOMER (HiFluor)

Hifluor is Parker's tradename for high performance fluoroelastomers – materials that "bridge the gap" between traditional fluorocarbon and perfluoroelastomer.

V3819-75	Chemically Resistant, Low Compression Set	-15 to 400	Black
V8534-90	Chemically Resistant, Extrusion Resistant	-15 to 400	Black

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COMPOUND NO.	RECOMMENDED FOR	TEMP. RANGE (Degrees° F)	COLOR

PERFLUOROELASTOMER (Parofluor)

Perfluoroelastomer is a rubber version of PTFE. Available from Parker under the tradenames Parofluor™ and Parofluor ULTRA™.

V1266-65	Plasma, Low Closure Force	5 to 572	White
V8545-75	AMS 7257, High Temp., FDA	5 to 572	Black
V8562-75	Low Leachables, FDA	5 to 572	White
V8581-90	Plasma, Low Outgassing	5 to 572	White
V8588-90	Chemically Resistant, Extrusion & ED Resistant	5 to 572	Black

PERFLUOROELASTOMER (Parofluor ULTRA)

Perfluoroelastomer is a rubber version of PTFE. Available from Parker under the tradenames Parofluor™ and Parofluor ULTRA™.

FF354-65	Low Closure Force	5 to 608	White
FF102-75	Acid Resistant	5 to 525	Black
FF200-75	Low Comp Set, AMS7257 FDA	5 to 608	Black
FF350-75	Plasma, High Purity, FDA USP Class VI	5 to 608	White
FF352-75	General Purpose, Clean	5 to 608	White
FF370-75	Thermal Etch, Plasma, Low Extractables, and Low particle generation	5 to 608	Opaque Black
FF500-75	Broad Chemical Resistance, FDA	5 to 525	Black
FF202-90	Extrusion Resistant, Low Compression Set	5 to 608	Black

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