

MATERIALS OF CONSTRUCTION GUIDE



MATERIAL	*TEMPERATURE RANGE	PRICE	AVAILABILITY			CONDITIONS				SPECIFIC GRAVITY	COLOR	NOTES
			SEAT	BALL	DIAPHRAGM	**MILD CHEMICALS	**AGGRESSIVE CHEMICALS	*HIGH TEMPERATURE	ABRASIVES			
POLYPROPYLENE	32° to 150°F (0° to 66°C)	\$	X	X		X				NA	White	Wide chemical compatibility. General purpose.
G.E.T. (Graco Engineered Thermoplastic)	-40° to 180°F (-40° to 82°C)	\$	X	X	X	X			X	0.97	Black	Good abrasion resistance. Approximately same chemical compatibility as Buna.
EPDM	-60° to 275°F (-51° to 135°C)	\$			X	X		X		NA	Black	High heat resistance. Good resistance to gas permeability and to steam. OK with caustic solutions, dilute acids, ketones and alcohols. Recommended for use with CIP Sanitizing Agent OXONIA.
TPE (HYTREL)	-20° to 150°F (-29° to 66°C)	\$	X	X	X	X			X	1.19	Cream	Good low temperature properties. Good abrasion resistance.
ACETAL	10° to 180°F (-12° to 82°C)	\$	X	X		X			X	1.32	Orange or White	Wide range of solvent resistant and withstands extreme fatigue. Good level of abrasion resistance. Not for use with acids or bases.
ALUMINUM	-100° to 400°F (-73° to 204°C)	\$	X			X		X	X	NA	Silver	Medium corrosion and abrasion resistance. Not for use with halogenated hydrocarbons.
SANTOPRENE	-40° to 180°F (-40° to 82°C)	\$\$	X	X	X	X			X	0.84	Blue	Good abrasion and chemical resistance. OK for use with some solvents, (e.g. MEK, acetone) caustic solutions, dilute acids, and alcohols. Often substituted for EPDM or EPR.
UHMWPE	-40° to 158°F (-40° to 70°C)	\$\$	X			X	X		X <i>recommended</i>	NA	White	Best option for abrasion resistance — high level of chemical resistance.
STANDARD POLYCHLOROPRENE (NEOPRENE)	0° to 180°F (-18° to 82°C)	\$\$		X	X	X			X	1.42	Black	High resilience. Good with whiskey, wine, beer and natural gas. Good with animal and vegetable oil, moderate chemicals, fats and greases. Not for use with strong oxidizing acids, esters, ketones, chlorinated aromatic and nitro hydrocarbons.
OVERMOLDED POLYCHLOROPRENE	0° to 180°F (-18° to 82°C)	\$\$\$			X	X			X	NA	Black	Longer life than standard polychloroprene. Great in abrasive applications. High resilience.
BUNA N (NITRILE/NBR)	10° to 180°F (-12° to 82°C)	\$\$	X	X	X	X				1.43	Black w/ yellow dot	Good for petroleum-based fluids, water, oils, hydrocarbons and MILD chemicals (e.g. mineral spirits). Not for use with strong solvents or chemicals (e. g. acetone, MEK, ozone, chlorinated hydrocarbons, and nitro hydrocarbons).
PVDF (KYNAR)	10° to 225°F (-12° to 107°C)	\$\$\$	X			X	X	X		NAW	Milky White	Strong chemical resistance: Acids and bases. Good abrasion resistance. High temperature resistance.
FKM (VITON)	-40° to 320°F (-40° to 160°C)	\$\$\$	X	X	X	X	X	X <i>recommended</i>		1.80	Black	High heat resistance. Good resistance to aggressive chemicals including acids and some solvents (e. g. Xylene and mineral spirits). Good resistance to steam as well as animal, vegetable and petroleum oils. Resists unleaded fuels. Not for use with ketones, low molecular weight ester and nitro containing compounds.
PTFE	40° to 212°F (4° to 100°C)	\$\$\$	X	X	X	X	X <i>recommended</i>	X		2.16	White	Widest chemical compatibility, extreme corrosion resistance, very low frictional coefficient, non-adhesive, high heat resistance. Poor abrasion resistance.
OVERMOLDED PTFE	14° to 180°F (-10° to 82°C)	\$\$\$			X	X	X	X	X	NA	Blue	Overmolded design improves wear and diaphragm life with no exposed diaphragm plate on the fluid side. Longer diaphragm life in more abrasive applications that still require PTFE. Available for sanitary and industrial diaphragm pumps.
STAINLESS STEEL	-40° to 920°F (-40° to 493°C)	\$\$\$	X	X		X	X	X	X	7.95	Silver	High level of corrosion and abrasion resistance. Passivated 316 grade.
WEIGHTED POLYCHLOROPRENE (NEOPRENE)	0° to 180°F (-18° to 82°C)	\$\$\$		X		X			X	9.42	Black	High resilience. Good with whiskey, wine, beer and natural gas. Good with animal and vegetable oil, moderate chemicals, fats and greases. Not for use with strong oxidizing acids, esters, ketones, chlorinated aromatic and nitro hydrocarbons.

*Temperature limits are based on mechanical stress only. Certain chemicals will further limit the fluid temperature range. Stay within the temperature range of the most-restricted wetted component. Operating at a fluid temperature that is too high or too low for the components of your pump may cause equipment damage.

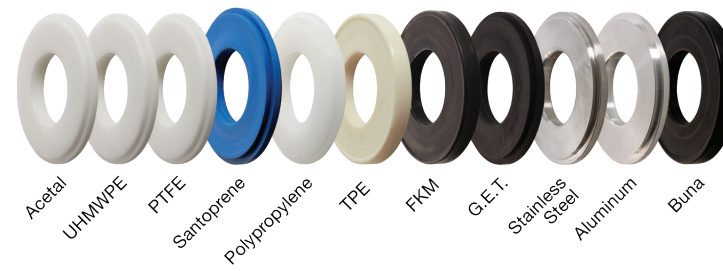
**Consult Graco's [Chemical Compatibility Guide](#). This guide is intended to be used as a general guideline for pump material selection. If you are unsure of the compatibility of your chemical, we recommend testing a sample of the material in question with the chemical.

***The specific gravity of a liquid or solid is defined as the ratio of the weight of a given volume of the material to the weight of an equal volume of water: s.g. = (weight of a given volume of a material) / (weight of an equal volume of water)

QUESTIONS? CONTACT US.

Call: 866-348-3188

E-Mail: industrialcs@graco.com



TEN QUESTIONS TO ASK: PUMP SELECTION

POPULAR PUMP CONFIGURATIONS

WHY BUY GRACO DIAPHRAGM PUMPS

1. What material is being pumped?
 - a) What is the material make up in terms of solid content?
 - b) What is the material's pH level?
 - c) What is the material's viscosity (cps)?
 - d) Is the material abrasive?
 - e) Specific gravity?
2. What is the desired flow rate?
3. Where is the feed tank relative to the pump?
 - a) Overall suction length?
 - b) Vertical rise?
4. What is the discharge distance?
5. What is the inlet and outlet hose diameter?
6. What is the material temperature?
7. What is the desired price range?
8. What is the shop air pressure?
9. What certifications are required?
10. Other installation requirements?

Application	Size	Fluid Section	Seats	Balls	Diaphragms
General Fluid	1/4"	Polypropylene	Polypropylene	Polypropylene	Santoprene
Diluted Chemicals	1/4"	Polypropylene	Polypropylene	Polypropylene	PTFE
Diluted Chemicals	1/4"	Polypropylene	PVDF	PVDF	PTFE
Diluted Chemicals	1/4"	Acetal	Acetal	Acetal	PTFE
Diluted Chemicals	3/8"	Polypropylene	Polypropylene	PTFE	PTFE
General Fluid	3/8"	PVDF	Polypropylene	Santoprene	Santoprene
Diluted Chemicals	1/2"	Polypropylene	Polypropylene	PTFE	PTFE
General Fluid	1/2"	PVDF	Polypropylene	Santoprene	Santoprene
Concentrated Chemicals	1/2"	PVDF	PVDF	PTFE	PTFE
Petroleum Based Products	3/4"	Aluminium	Acetal	Buna	Buna
Water	1"	Polypropylene	G.E.T.	G.E.T.	G.E.T.
Petroleum Based Products	1"	Aluminium	TPE	Acetal	TPE
Abrasives	1"	Aluminium	G.E.T.	G.E.T.	G.E.T.
Concentrated Chemicals	1"	Polypropylene	Polypropylene	PTFE	PTFE
Concentrated Chemicals	1"	Polypropylene	Polypropylene	PTFE	PTFE
Diluted Chemicals	1"	Polypropylene	Polypropylene	Santoprene	Santoprene
Diluted Chemicals	1"	Polypropylene	Polypropylene	Santoprene	Santoprene
Petroleum Based Products	1.5"	Aluminium	TPE	Acetal	TPE
Abrasives	1.5"	Aluminium	G.E.T.	G.E.T.	G.E.T.
Concentrated Chemicals	1.5"	Polypropylene	Polypropylene	PTFE	PTFE
Diluted Chemicals	1.5"	Polypropylene	Santoprene	Santoprene	Santoprene
Diluted & Concentrated Chemicals	1.5"	Polypropylene	Polypropylene	PTFE	2-Piece PTFE
Diluted & Concentrated Chemicals	1.5"	Polypropylene	Polypropylene	PTFE	PTFE Overmolded
Water	2"	Polypropylene	Polypropylene	G.E.T.	G.E.T.
Petroleum Based Products	2"	Aluminium	TPE	Acetal	TPE
Abrasives	2"	Aluminium	G.E.T.	G.E.T.	G.E.T.
Concentrated Chemicals	2"	Polypropylene	Polypropylene	PTFE	PTFE
Diluted Chemicals	2"	Polypropylene	Santoprene	Santoprene	Santoprene
Concentrated Chemicals	2"	Polypropylene	Polypropylene	PTFE	PTFE Overmolded
Diluted Chemicals	2"	Polypropylene	Polypropylene	PTFE	2-Piece PTFE
Diluted Chemicals	2"	Polypropylene	Santoprene	Santoprene	Santoprene
Petroleum Based Products	3"	Aluminium	TPE	Acetal	TPE
Abrasives	3"	Aluminium	G.E.T.	G.E.T.	G.E.T.
Diluted Chemicals	3"	Polypropylene	Santoprene	Santoprene	Santoprene
Concentrated Chemicals	3"	Polypropylene	Polypropylene	PTFE	PTFE
Concentrated Chemicals	3"	SST	SST	PTFE	PTFE

- > Reduce labor and repair costs by 75% with externally servicable air valves
- > 100% pump testing prior to shipping
- > The pumps work - 0.2% warranty rate in 2019
- > Complete AODD pump offering 1/4" to 3" sizes paired with EODD selection ranging from 1" to 2"
- > Wide variety of materials to cover virtually any application
- > Aggressive chemical handling utilizing PTFE pumps
- > Unique plastic pump design allows for lighter, more compact profile
- > 3x longer diaphragm life utilizing overmolded PTFE diaphragms on 1/2" to 3" pumps versus standard diaphragms
- > Low startup pressures reduce energy costs
- > 4x safety factor means your pump is built to last
- > QUANTM EODDs deliver ~25% reduction in sound pressure vs. pneumatic pumps
- > Electric pumps save up to 80% on energy costs when compared to AODD