

SPECIALTY COMPOUNDS

FOR RECIPROCATING COMPRESSOR VALVES

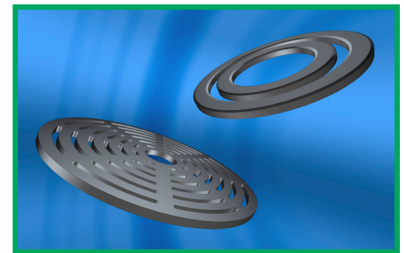
- ▶ PEEK, PPS and PA compounds for reciprocating compressor plates and poppet valves
- ▶ Temperature and chemical resistance for demanding applications
- ▶ Engineered for use in high speed and high differential pressure applications

KEY CONCEPTS

- The operation of a compressor is closely linked to the performance of its valves
- The cost of valve failures can be significant
- Total cost includes the potential cost of damage to related equipment, non-productive time and valve repair
- RTP Company's compounds are custom engineered to meet processing and application requirements
- With over 30 years of experience supporting the oil industry, RTP Company has industry leading knowledge and expertise

Imagine compounds specially designed for reliability and efficiency to meet ever-evolving performance expectations of compressor manufacturers and operators. At RTP Company, we not only imagined them, we've made them a reality.

Compressor plate and poppet valves are used in a wide range of compressor applications across different gas compositions, temperature ranges, chemical environments, and differential pressures. This makes compressor valve applications one of the most demanding applications for any material.



Thermoplastic plate and poppet valves have become the material of choice over metal valves, due to their improved corrosion resistance, reduced wear on mating surfaces, improved sealing capabilities and lighter weight (higher lift capabilities). When selecting a compressor valve material, the characteristics to consider include: temperature capabilities, chemical resistance, impact properties, wear performance and fatigue resistance.



Resin	Temperature	Chemical	Impact	Wear
PA 6/6	+	++	++++	++
PA 4/6	+++	+++	++++	+++
PPS	+++	++++	++	++++
PEEK	++++	++++	+++	++++

RTP Company has developed thermoplastic compounds for reciprocating compressor valve applications that deliver performance, efficiency and reliability.

Standard Compounds	Ultra Performance Compounds
RTP 205 PA 6/6	RTP 205 RC HS
RTP 205 G	RTP 205 G RC HS
RTP 1305 P-1	RTP 1305 UP
RTP 2205 PEEK	RTP 2205 UP PEEK
RTP 2285 PEEK	RTP 2285 UP PEEK

For assistance in selecting the right thermoplastic compound, contact your local RTP Company sales representative.



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SPECIALTY COMPOUNDS

FOR RECIPROCATING COMPRESSOR VALVES

Standard Compounds

Description Primary Additive Base Resin			RTP 205	RTP 205 RC HS	RTP 205 G HS	RTP 205 G RC HS	RTP 1305 P-1	RTP 2205 LF	RTP 2285
			30% Glass Fiber		30% Glass Fiber		30% Glass Fiber	30% Glass Fiber	30% Carbon Fiber
			Nylon 6/6		Nylon 4/6		PPS	PEEK	
Property	Units	ASTM							
Specific Gravity	g/cc	D792	1.36	1.37	1.42	1.42	1.58	1.52	1.41
Izod Notched	ft-lbs/in	D256	1.5	2.2	1.5	2.2	1.5	2.2	1.5
Izod Unnotched	ft-lbs/in	D4812	15.0	N/A	16.0	N/A	9.0	17.0	12.0
Tensile Strength	PSI	D638	23000	28000	26500	28000	23000	25000	39000
Tensile Elongation	%	D638	3 %	3 %	3.7 %	3.5 %	1.8 %	2.5 %	2.0 %
Tensile Modulus	x10 ⁶ PSI	D790	1.35	1.45	1.40	1.45	1.80	1.70	4.00
Flexural Strength	PSI	D790	37000	42000	42000	45000	31000	37000	53000
Flexural Modulus	x10 ⁶ PSI	D790	1.25	1.35	1.30	1.35	1.70	1.60	3.60
HDT @ 264psi	°F	D648	460 °F	475 °F	545 °F	545 °F	510 °F	600 °F	600 °F

Ultra Performance Structural Compounds

Description Primary Additive Base Resin					RTP 1305 UP		RTP 2205 HF UP		RTP 2285 HF UP	
					30% Glass Fiber		30% Glass Fiber		30% Carbon Fiber	
					PPS		PEEK			
Property	ASTM Units		ISO Units		ASTM	ISO	ASTM	ISO	ASTM	ISO
Specific Gravity	D792	g/cm ³	1183	g/cm ³	1.58		1.52		1.41	
Izod Notched	D256	ft-lbs/in	180/1A	kJ/m ²	1.6	8	2	10	1.6	8
Izod Unnotched	D4812	ft-lbs/in	180/1U	kJ/m ²	12	55	22	60	18	60
Tensile Strength	D638	PSI	527	MPa	26000	180	28500	195	43000	295
Tensile Elongation	D638	%	527	%	2.4 %		2.6 %		1.5 %	
Tensile Modulus	D790	x10 ⁶ PSI	527	MPa	1.90	13000	1.8	12500	4.4	30500
Flexural Strength	D790	PSI	178	MPa	39000	270	43500	300	68000	435
Flexural Modulus	D790	x10 ⁶ PSI	178	MPa	1.80	12500	1.6	1100	3.9	27000

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