



MATERIALS OF CONSTRUCTION
Models: NP1.5B, NP2F, NPH2F,
NP2.5F,
NPH2.5F, NP3F, NPH3F, NP4F, NPH4F

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NOTE: Temperature and viscosity ratings given below apply to individual components **Only**. For actual maximum temperatures and viscosities for the rated pump, see **"Operating Limits"** on backside.

PART NAME	STANDARD MATERIALS	AVAILABLE OPTIONS
Cylinder	NP1.5" – 3"	Cast Iron: ASTM A48
	NP4" and NPH2"-4"	Ductile Iron: ASTM 536
Heads	1.5"	Cast Iron: ASTM A48
	2"	Ductile Iron: ASTM 536
	2.5", 3", 4"	Ductile Iron: ASTM 536
Packing Follower	1.5"	Cast Iron
	2", 2.5", 3", 4"	Ductile Iron
Bearing Covers	1.5"	Cast Iron
	2", 2.5", 3", 4"	Steel
Bushing (Sleeve Bearing)	Metallized Carbon	
Rotor & Shaft	Open Rotor	Closed Rotor (2", 2.5", 3" & 4" only)
Rotor	Ductile Iron: ASTM 536	Ductile Iron: ASTM 536
Shaft	High Strength Steel	High Strength Steel
Relief Valve (R/V)	Cast Iron: ASTM A48	Nickel Plated Cast Iron
Relief Valve Cover	1.5" – 3"	Ductile Iron: ASTM 536 (with 200 psi RV spring only)
	4"	Ductile Iron: ASTM 536
Relief Valve Cap 2", 2.5", 3" 4"	1.5", 2", 2.5" 3", 4"	Steel Ductile Iron: ASTM 536
Relief Valve Spring	Plated Steel to 300°F (149°C)	Stainless Steel to 500°F (260°C)
R/V Spring Ranges	1.5", 2", 4" 2.5", 3"	51-75 psi (3.5-5.2 bar) 51-110 psi (3.5-7.6 bar)
O-Rings:	Fluorocarbon (FKM) to 400°F (204°C)	PTFE to 500°F (260°C) Buna-N to 240°F (115°C)
Gaskets: RV Cap 2", 2.5", 3" 4"	1.5", 2", 2.5" 3", 4"	Copper PTFE
Gaskets: NPT Flange	Composition to 500°F (260°C)	
Shaft Sealing	PTFE Packing to 500°F (260°C)	Lip Seal – Carbon Filled PTFE to 500°F (260°C) Commercial Options - See Page 2
Vanes	Duravane - Full Size with Stainless Steel Wear Plate to 240°F (115°C); 20,000 SSU (4,250 cP) Maximum. (NP4, NPH4: 150 psi maximum)	EC Laminate - Extra-Clearance with Stainless Steel Wear Plate to 350°F (176°C); 40,000 SSU (8,500 cP) Max. (Not avail. on 1.5" models.) EC Cast Iron - Extra-Clearance to 500°F (260°C); 500 SSU (105 cP) Minimum. (Not avail. on 2" models.) EC Bronze - Extra-Clearance to 500°F (260°C); 500 SSU (105 cP) Minimum.
Push Rods	Case Hardened Steel	
Gage Ports	1/4" NPT	

Models: NP1.5B, NP2F, NPH2F, NP2.5F, NPH2.5F, NP3F, NPH3F, NP4F, NPH4F

BLACKMER TRIPLE –LIP SEAL

PERFORMANCE		MATERIALS	
Pressure	Seal to 150 PSI (10 bar)	Metal Parts	316SS
Vacuum	Full vacuum when element is facing away from vacuum source	Set Screws	Hastelloy C
Temperature	To 300°F (150°C) Over 300°F Consult Factory	O-Rings	AFLAS®
Surface Speed	To 700 fpm (3.5 m/s) dry running; Over 700 fpm consult Factory	Seal Elements	PTFE
Runout	.005" T.I.R. (.13 mm)	Sleeve Coating	Chrome oxide standard
Axial end Play	Not Affected		

OPTIONAL COMMERCIAL MECHANICAL SEALS

1.5" only: John Crane #9 Max. Temperature: 350°F (176°C) Max. Viscosity: 7200 SSU (1500 cP) Ni-resist, Carbon, FKM	2" – 4" models: John Crane 5610 Max. Temperature: 400°F (204°C) Max. Viscosity: 7200 SSU (1500 cP) Single Cartridge, Sil-Car, Carbon, FKM
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PIPE COMPANION FLANGES

PUMP SIZE	STANDARD	OPTIONAL ¹
1.5"	1.5" NPT Tapped Ports	
2"	2" Cast Iron, ASTM A48, NPT Tapped	2" Steel Weld, ASTM A216 WCB 2" 150# RF ANSI compatible
2.5"	2.5" Cast Iron, ASTM A48, NPT Tapped	2.5" Steel Weld, ASTM A216 WCB 2.5" 150# RF ANSI compatible
3"	3" Cast Iron, ASTM A48, NPT Tapped	3" Steel Weld, ASTM A216 WCB 3" 150# RF ANSI compatible
4"	4" Cast Iron, ASTM A48, NPT Tapped	4" Steel Weld, ASTM A105 4" 150# RF ANSI compatible

OPERATING LIMITS

	STANDARD MATERIALS	OPTIONAL MATERIALS
Maximum Temperature	240°F (115°C)	500°F (260°C) With PTFE O-Rings, Metal Vanes, Stainless R/V Spring
Minimum Temperature	-25°F (-31°C)	
Maximum Viscosity	20,000 SSU (4,250 cP)	100,000 SSU (22,000 cP) with Metal Vanes & Open Rotor Consult Factory for Higher Viscosities
Maximum Jacketed Head Pressure	150 psi (10.3 Bar)	
Maximum Differential Pressure*	150 psi (10.3 Bar) – Open Rotor 125 psi (8.6 Bar) – Closed Rotor	200 psig (13.8 bar) with High Press. Relief Valve Option & Open Rotor. NP4 also requires Laminate, Bronze or Iron Vanes.
Maximum Working Pressure	175 psig (12.1 Bar)	225 psig (15.5 bar) with High Press. R/V Option and Mechanical Seal

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Centipoise (cP) = centistokes (cSt) at fluid specific gravity of 1.0.

* Maximum Relief Valve Setting

AFFF service pumps include: Nickel Plated. High Press. RV, 200 psi RV spring, Buna O-rings, Cylinder w/ Drain, Lip Seal & DuraVanes (1.5"-3") or EC Laminate Vanes (4").

