



MATERIALS of CONSTRUCTION
 Models: MLN4B, MRLN4B¹

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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
Casing, Heads, Hubs	Ductile Iron: ASTM 536, 18%	
Liner	Ductile Iron: ASTM 536, 18%	
Discs	Cast Iron: ASTM A48	
Optional Jacketed Heads	Ductile Iron: ASTM 536, 18% 150 psi (1034 kPa) Max. Pressure	
Bearing Covers	Ductile Iron: ASTM 536, 18%	
Bearings	Internal Sleeve Bearing: Metal Impregnated Graphite	
Rotor & Shaft		
Rotor	Hardened Ductile Iron: ASTM 536, 18%	
Shaft	High Strength Steel	
Optional Relief Valve (R/V)	Cast Iron	
Relief Valve Body, Cap, Cover	Ductile Iron: ASTM 536, 18%	
Blanking Plates – Standard	Ductile Iron: ASTM 536, 18%	
Relief Valve Spring	Chrome Vanadium 400°F (204°C)	
R/V Spring Ranges	76-125 psi (5.2-8.6 Bar)	Optional springs range from 45-200 psi (3.1-13.8 Bar) - See Parts List.
O-Rings: Other than Mechanical Seal	Fluorocarbon (FKM) to 400°F (204°C)	PTFE to 500°F (260°C)
Gasket: R/V Cap	Composition	
Vanes	Maxvane - Full Size with Stainless Steel Wear Plate to 240°F (115°C); 30,000 SSU (6,300 cP) Maximum.	EC Bronze - Extra-Clearance to 500°F (260°C); 500 SSU (105 cP) Minimum. EC Cast Iron - Extra-Clearance to 500°F (260°C); 500 SSU (105 cP) Min. EC Laminate - Extra-Clearance to 350°F (176°C); with 100 psi (689 kPa) Max., 40,000 SSU (8,500 cP) Max. EC Hardened Ductile Iron - Extra-Clearance to 400°F (204°C); 500 SSU (105 cP) Minimum.
Push Rods	Case Hardened Steel	

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

¹ MRLN4 has a Low Displacement Liner – flow rate and horsepower are 75% of published characteristic curves.

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PART NAME	STANDARD MATERIALS	AVAILABLE OPTIONS
Mechanical Seals		John Crane Single (Type 59U): 350°F (176°C) Max. 10,000 SSU (2,200 cP) Max.
Shaft Packing	PTFE to 400°F (204°C)	Optional Triple-Lip Seal
Packing Follower	Ductile Iron: ASTM 536, 18%	
Gage Ports	1/4" NPT	
Flanges	4" 150lb Flat Face ANSI Compatible, Ductile Iron	

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		

OPERATING LIMITS

	STANDARD MATERIALS	OPTIONAL MATERIALS
Maximum Temperature	240°F (115°C)	400°F (204°C) with FKM or PTFE O-rings and Metal Vanes
Maximum Viscosity	30,000 SSU (6,300 cP)	500,000 SSU (108,000 cP) Max. with Metal Vanes 40,000 SSU (8,500 cP) Max. with EC Laminate Vanes 500 SSU (105 cP) Minimum with Metal Vanes
Maximum Differential Pressure *	150 psi (10.3 Bar)	200 psi (13,8 Bar) with Mechanical Seals, Non-abrasive Lubricating Fluid with Viscosities from 500 to 20,000 SSU (105 to 4,250 cP) Only.
Maximum Working Pressure	175 psi (12.1 Bar)	225 psi (13,8 Bar) with Mechanical Seals, Non-abrasive Lubricating Fluid with Viscosities from 500 to 20,000 SSU (105 to 4,250 cP) Only.

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* Maximum Relief Valve Setting

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

