AXP Axial Piston Pump

The new Moog AXP Axial Piston Pump Series introduces a patented slipper-free, 15-piston floating configuration that merges internal gear and piston pump advantages. The innovative pump technology increases efficiency, service life, and smooth running – for low-noise operation and maximum dynamics. This makes the AXP a future-proof solution for demanding industrial applications and underscores Moog's role as a pioneer and reliable partner in fluid technology.

The AXP Series starts with the sizes 33, 63 and 100 with fixed displacement. This lays the foundation – but the product family will continue to grow: In addition to the size 145, variable displacement pumps and versions for four-quadrant operation are planned.

Applications

Construction machinery

Material handling

Injection molding and die casting

Metal forming and presses

General industrial machinery

Marine applications

Test benches

Features

Built to Last	Patented slipper-free design: significantly reducing sensitivity to low suction pressures. Exceptional resistance to cavitation and contamination—ideal for demanding applications.
Reduced Noise	15-piston setup, combined with sound-optimized case and flange reduces pulsation and noise for smooth, silent operation.
Versatile and Efficient	Zero-speed operation with unlimited pressure holding. Full-range variable speed with rapid acceleration/deceleration. Enables smaller pump/motor sizes, saving space and cost. Can be operated at maximum negative speed for active pressure control. 100% through-drive capability.
Smooth and Precise Motion	Floating piston design reduces pulsation, ensuring smooth, accurate motion.
Superior Performance-to-Price Ratio	A perfectly balanced pump solution—designed to maximize equipment performance and profitability.

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Technical Data

Size			**33**	**63**	**100**
Displacement, geometric, per revolution		cm^3	33 [1)]	63 [2)]	100 [3)]
Type of construction			Axial piston pump for open circuit and 2-quadrant operation, fixed displacement		
Type of mounting			SAE mounting flange to DIN 3019-1 (imperial dimensions)		
Mounting position			Any		
Weight	Without through drive	kg (lb)	21.0 (46.3)	37.7 (83.1)	48.9 (107.8)
	Double pump		43 (94.8)	79 (174.2)	103.2 (227.5)
Inertia	Single pump	kg cm2 (lb in2)	35.7 (12.2)	107.5 (36.7)	235.2 (80.4)
	Double pump		72.1 (24.6)	214.8 (73.4)	474.9 (162.3)
Direction of rotation			Clockwise (viewed on drive shaft)		
Pressure port	Maximum operating pressure	bar (psi)	350 (5,000)		
	Peak operating pressure	bar (psi)	380 (5,500)		
	Single operating period	ms	15		
	Maximum number of pressure peaks		1 million		
Suction port	Minimum inlet pressure permanent	bar (psi)	0.8 abs (12 abs)		
	Minimum inlet pressure at acceleration		0.6 abs (9 abs)		
	Maximum inlet pressure		25 abs (360 abs)		
Drain port L	Maximum housing pressure		2 abs (29 abs)		

[1)] 20 and 25 cm3 with same outer dimensions

[2)] 40 and 50 cm3 with same outer dimensions

[3)] 80 cm3 with same outer dimensions

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Size				33	63	100
Speed	Maximum speed at 1 bar (15 psi) inlet pressure		rpm	3,700	3,000	2,600
	Minimum speed			0 (up to 350 bar)		
Flow at maximum speed			l/min	122	189	260
Power at Δp = 350 bar and maximum speed			kW	71	110	152
Torque at Δp = 350 bar				197 (1,744)	375 (3,319)	595 (5,266)
Maximum permissible input torque on drive shaft	Keyed shaft	D	Nm (lbf in)	230 (2,035)	-	-
		E		-	440 (3,894)	-
		F		-	-	700 (6,196)
	Involute spline	L		394 (3,487)	-	-
		M		-	750 (6,638)	-
		N		-	-	1,190 (10,532)
Hydraulic fluid	Type			HLP mineral oil according to DIN 51524		
	Minimum temperature		°C (°F)	−15 (5)		
	Maximum temperature			80 (176)		
	Filtration			Class 20/18/15 according to ISO 4406		
Ambient temperature	Minimum		°C (°F)	−15 (5)		
	Maximum			80 (176)		

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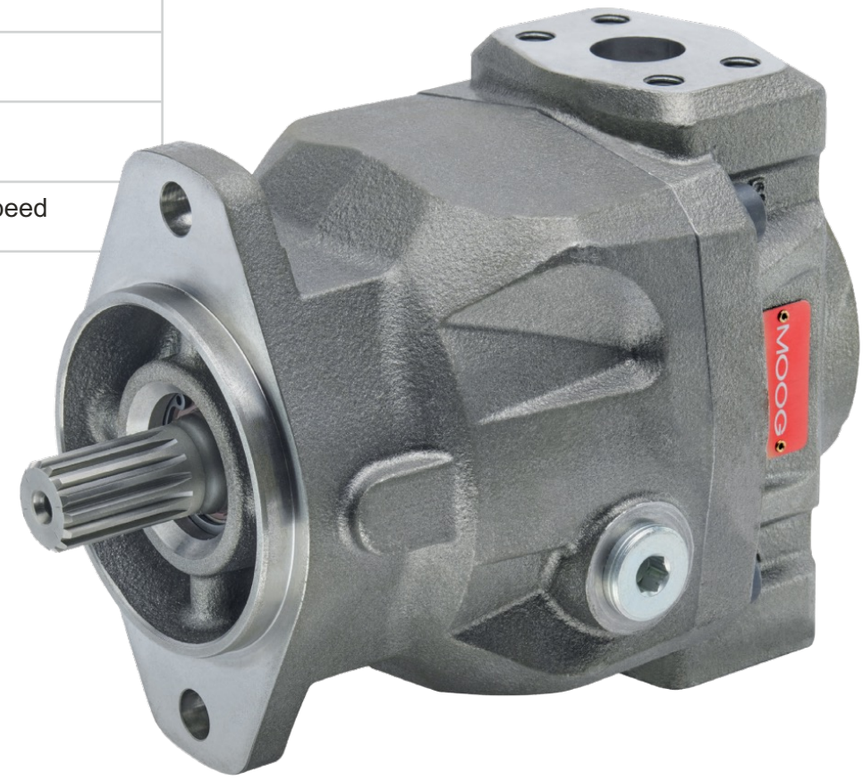
Viscosity

	Viscosity [mm²/s]	Temperature [°C (°F)]	Pressure [bar (psi)]	Rotational speed [rpm]
Cold start and warm-up phase I	1,600 to 1,000	≥ −15 (5)	≤ 30 (435)	≤ 1,000
Warm-up phase II	1,000 to 400		≤ 80 (1,160)	≤ 1,500
Permissible operating range	10 to 400	−15 to +80 (5 to 176)	≤ 350 (5,000)	2,000
Optimal viscosity range	35 to 130			≤ maximum speed



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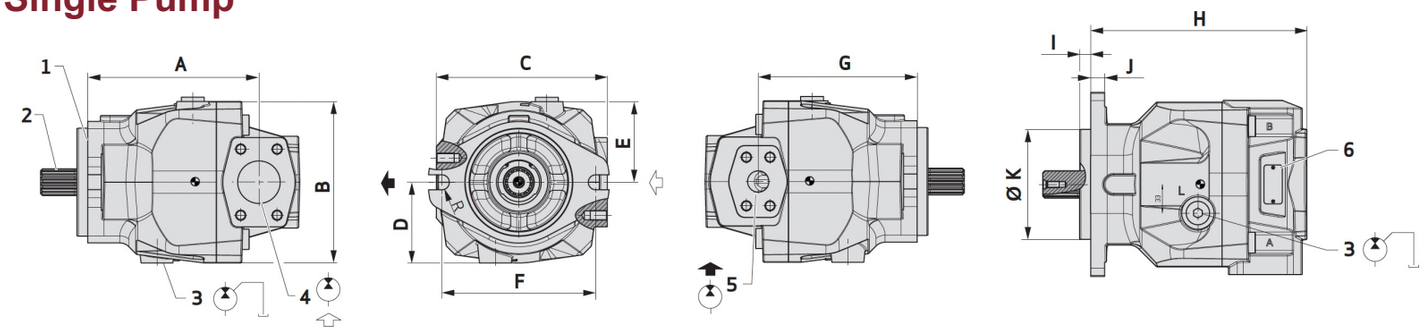
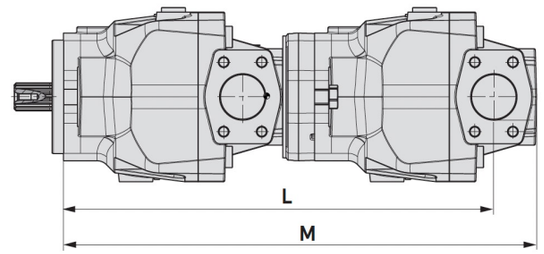
Dimensions

Single Pump



Double Pump of Equal Sizes



Size		33	63	100
A	mm (in)	161 (6.34)	201.4 (7.93)	216 (8.5)
B		152 (5.98)	190 (7.48)	215 (8.46)
C		176 (6.93)	201 (7.91)	230 (9.06)
D, E		76.5 (3.01)	95 (3.74)	106.5 (4.19)
F		146 (5.75)	181 (7.13)	228.8 (9.01)
G		157.5 (6.20)	186.9 (7.36)	216 (8.5)
H		201 (7.91)	249.4 (9.82)	261 (10.28)
I		9.7 (0.38)	12.7 (0.5)	12.7 (0.5)
J		13 (0.51)	16 (0.63)	20 (0.79)
Ø K		101.6 $^{0}_{-0.05}$ (4 $^{0}_{-0.002}$)	127 $^{0}_{-0.05}$ (5 $^{0}_{-0.002}$)	152.4 $^{0}_{-0.05}$ (6 $^{0}_{-0.002}$)
L		383 (15.08)	483.6 (19.04)	523.5 (20.61)
M		425 (16.73)	531.6 (20.93)	568.5 (22.38)

Size	33	63	100
1	SAE mounting flange DIN 3019-1		
2	Drive shaft: Keyed shaft 25 mm or involute spline 15T 16/32DP	Drive shaft: Keyed shaft 32 mm or involute spline 14T 12/24DP	Drive shaft: Keyed shaft 40 mm or involute spline 17T 12/24DP
3	Drain port G1/2		Drain port G3/4
4	Suction port SAE 1 1/2”; 3,000 psi	Suction port SAE 2”; 3,000 psi	Suction port SAE 2 1/2”; 3,000 psi
5	Pressure port SAE 1”; 3,000 or 6,000 psi		Pressure port SAE 1 1/2”; 6,000 psi
6	Nameplate		Nameplate on back flange

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