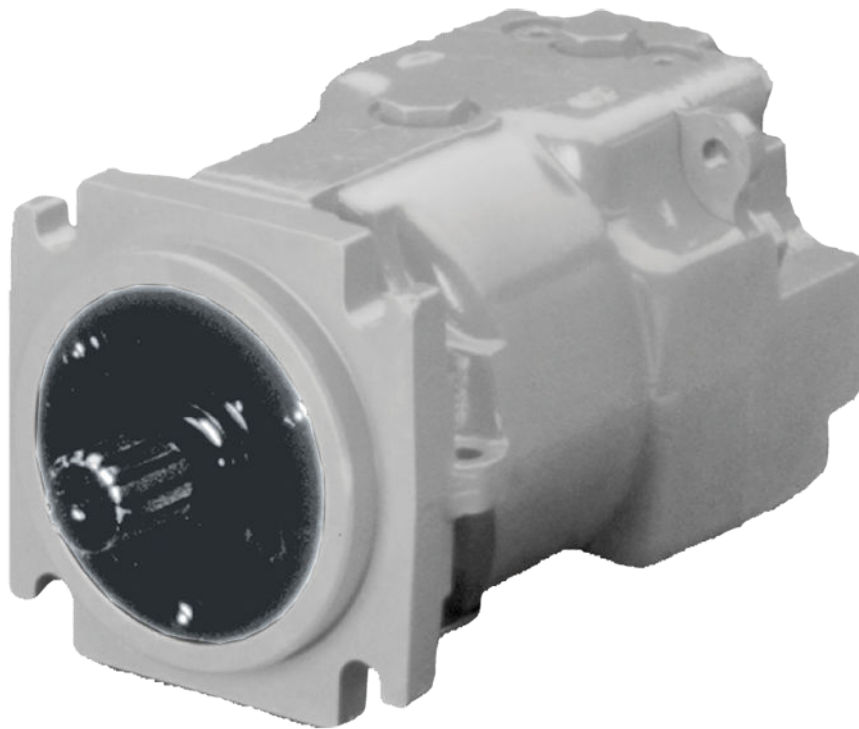


Series 90
Axial Piston Motors
Size 42-55-75-100-130 cm³



General Description

Series 90 Family of Pumps and Motors

Series 90 hydrostatic pumps and motors can be applied together or combined with other products in a system to transfer and control hydraulic power. They are intended for closed circuit applications.

Series 90 variable displacement pumps are compact, high power density units. All models utilize the parallel axial piston/slider concept in conjunction with a tiltable swashplate to vary the pump's displacement. Reversing the angle of the swashplate reverses the flow of oil from the pump and thus reverses the direction of rotation of the motor output.

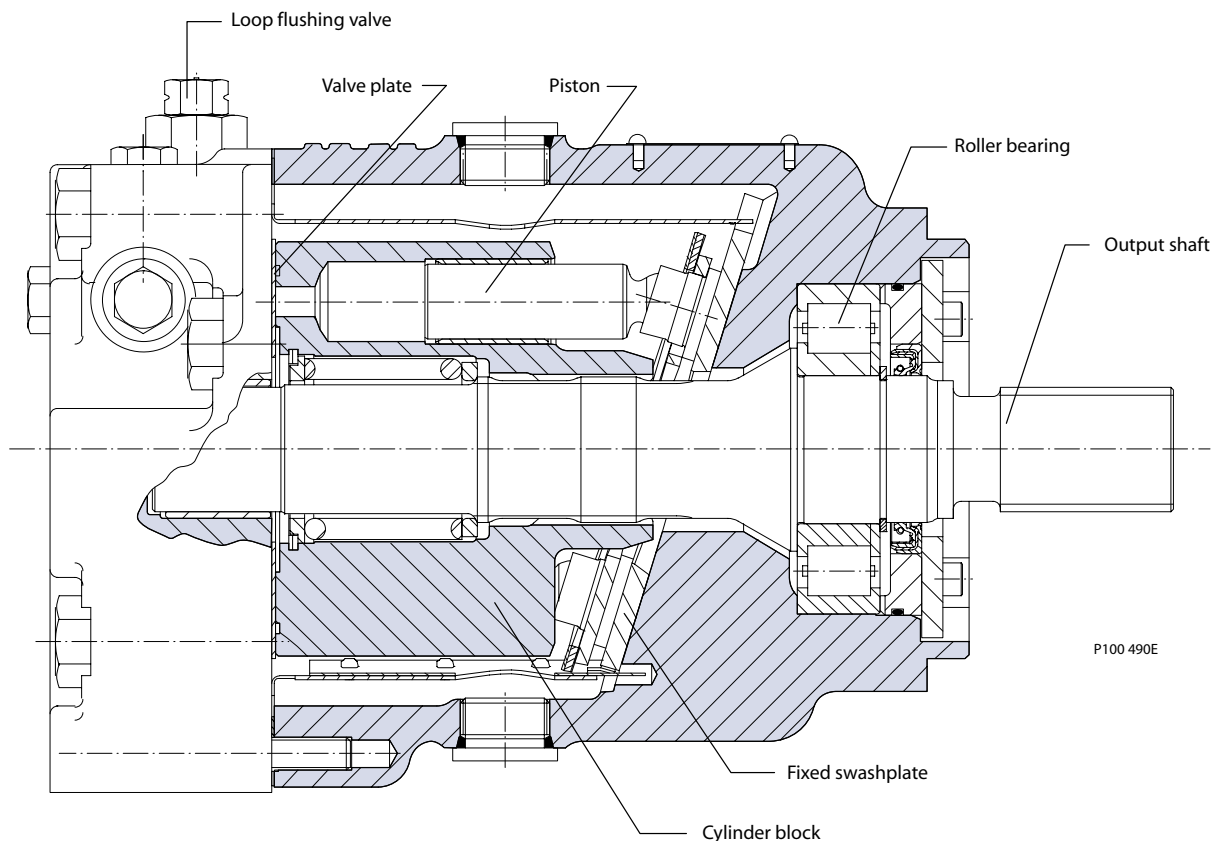
Series 90 pumps include an integral charge pump to provide system replenishing and cooling oil flow, as well as control fluid flow. They also feature a range of auxiliary mounting pads to accept auxiliary hydraulic pumps for use in complementary hydraulic systems. A complete family of control options is available to suit a variety of control systems (mechanical, hydraulic, electric).

Series 90 motors also use the parallel axial piston/slider design in conjunction with a fixed swashplate. They can intake/discharge fluid through either port; they are bidirectional. They also include an optional loop flushing feature that provides additional cooling and cleaning of fluid in the working loop.

- Series 90 – advanced technology today
- Seven sizes of variable displacement pumps
- Four sizes of fixed displacement motors
- SAE and cartridge mount configurations
- Efficient axial piston design
- Proven reliability and performance
- Compact, lightweight
- Worldwide sales and service

Fixed Displacement Motor, SAE Mount

Cross section



Features and Options

Motor type	In-line, axial piston, closed loop, positive displacement motors
Direction of rotation	Bi-directional, see outline drawings for rotation vs. flow direction information
Installation position	Discretionary: Housing must be filled with hydraulic fluid
Other system requirements	Independent braking system, overpressure protection, suitable reservoir, proper filtration

Parameter	055 MF	075 MF	100 MF	130 MF
Types of mounting (SAE flange size per SAE J744)	SAE C, cartridge	SAE C, cartridge	SAE C	SAE D
Port connections	Twin, axial	Twin, axial	Twin	Twin
Output shaft options	Spline, tapered, straight	Spline, tapered, straight	Spline, tapered, straight	Spline
Control options	—	—	—	—
Loop flushing	•	•	•	•
Speed sensor	o	o	o	o

- Standard
- o Optional
- Not available / not applicable

Specifications

Parameter	055 MF	075 MF	100 MF	130 MF	
Swashplate	Fixed	Fixed	Fixed	Fixed	
Max. displacement cm ³ /rev [in ³ /rev]	55 [3.35]	75 [4.57]	100 [6.10]	130 [7.90]	
Maximum corner power kW [hp]	187 [251]	237 [318]	292 [392]	354 [475]	
Theoretical torque N·m/bar [lbf·in/1000 psi]	0.88 [530]	1.19 [730]	1.59 [970]	2.07 [1260]	
Weight kg [lb]	SAE	22 [49]	26 [57]	34 [74]	45 [99]
	Cartridge	26 [57]	33 [72]	—	—
Mass moment of inertia kg·m ² [slug·ft ²]	0.0060 [0.0044]	0.0096 [0.0071]	0.0150 [0.0111]	0.0230 [0.0170]	

Operating Parameters

Parameter	Unit	055 MF	075 MF	100 MF	130 MF
Speed limits					
Continuous (max. disp.)	min ⁻¹ (rpm)	3900	3600	3300	3100
Maximum (max. disp.)		4250	3950	3650	3400
Continuous (min. disp.)		—	—	—	—
Maximum (min. disp.)		—	—	—	—

Technical Specifications

	Unit	055 MF	075 MF	100 MF	130 MF
System pressure					
Continuous		420 (6000)			
Maximum		480 [7000]			
Flow ratings					
Rated continuous	l/min [US gal/min]	215 [57]	270 [71]	330 [87]	403 [106]
Maximum		234 [62]	296 [78]	365 [96]	442 [117]
Case pressure					
Continuous	bar [psi]	3 [44]			
Maximum (cold start)		5 [73]			

Fluid Specifications

Viscosity mm ² /sec (cSt) [SUS]	
Minimum	7 [49]
Continuous	12-80 [70-370]
Maximum	1600 [7500]
Temperature °C [°F] (measured at the hottest point in the system, usually the case drain)	
Minimum	-40 [-40]
Continuous	104 [220]
Maximum	115 [240]
Filtration	
Cleanliness	22/18/13 or better per ISO 4406
Efficiency (suction filtration)	$\beta_{35-45}=75$ ($\beta_{10} \geq 2$)
Efficiency (charge filtration)	$\beta_{15-20}=75$ ($\beta_{10} \geq 10$)
Recommended inlet screen size	100-125 μm [0.0039-0.0049 in]

SAMER offers following services:

- Systems design with pumps and motors in closed and open loop circuits including valves, -Sale of hydraulic components and electronic devices.
- Commissioning and start up on machinery.
- Repair of hydraulic components

Series 40
Axial Piston Motors
Size 25-35-44 cm³



General description

Basic design

Series 40 is a family of hydrostatic pumps and motors for medium power applications with maximum loads of 345 bar [5000 psi]. These pumps and motors can be applied together or combined with other products in a system to transfer and control hydraulic power.

Series 40 transmissions (pump plus motor) provide an infinitely variable speed range between zero and maximum in both forward and reverse modes of operation. The pumps and motors each come in four frame sizes: M25, M35, M44, and M46.

Series 40 pumps are compact, high power density units. All models use the parallel axial piston / slipper concept in conjunction with a tiltable swashplate to vary the pump's displacement. Reversing the angle of the swashplate reverses the flow of fluid from the pump, reversing the direction of rotation of the motor output.

Series 40 M35, M44, and M46 pumps may include an integral charge pump to provide system replenishing and cooling fluid flow, as well as servo control fluid flow on M46 pumps. M25 pumps are designed to receive charge flow from an auxiliary circuit or from a gear pump mounted on the auxiliary mounting pad. Series 40 pumps feature a range of auxiliary mounting pads to accept auxiliary hydraulic pumps for use in complementary hydraulic systems.

Series 40 M46 pumps offer proportional controls with either manual, hydraulic, or electronic actuation. An electric three-position control is also available. The M25, M35, and M44 pumps include a trunnion style direct displacement control.

Series 40 motors also use the parallel axial piston / slipper design in conjunction with a fixed or tiltable swashplate. The family includes M25, M35, M44 fixed motor units and M35, M44, M46 variable motor units.

The M35 and M44 variable motors feature a trunnion style swashplate and direct displacement control. The M46 variable motors use a cradle swashplate design and a two-position hydraulic servo control.

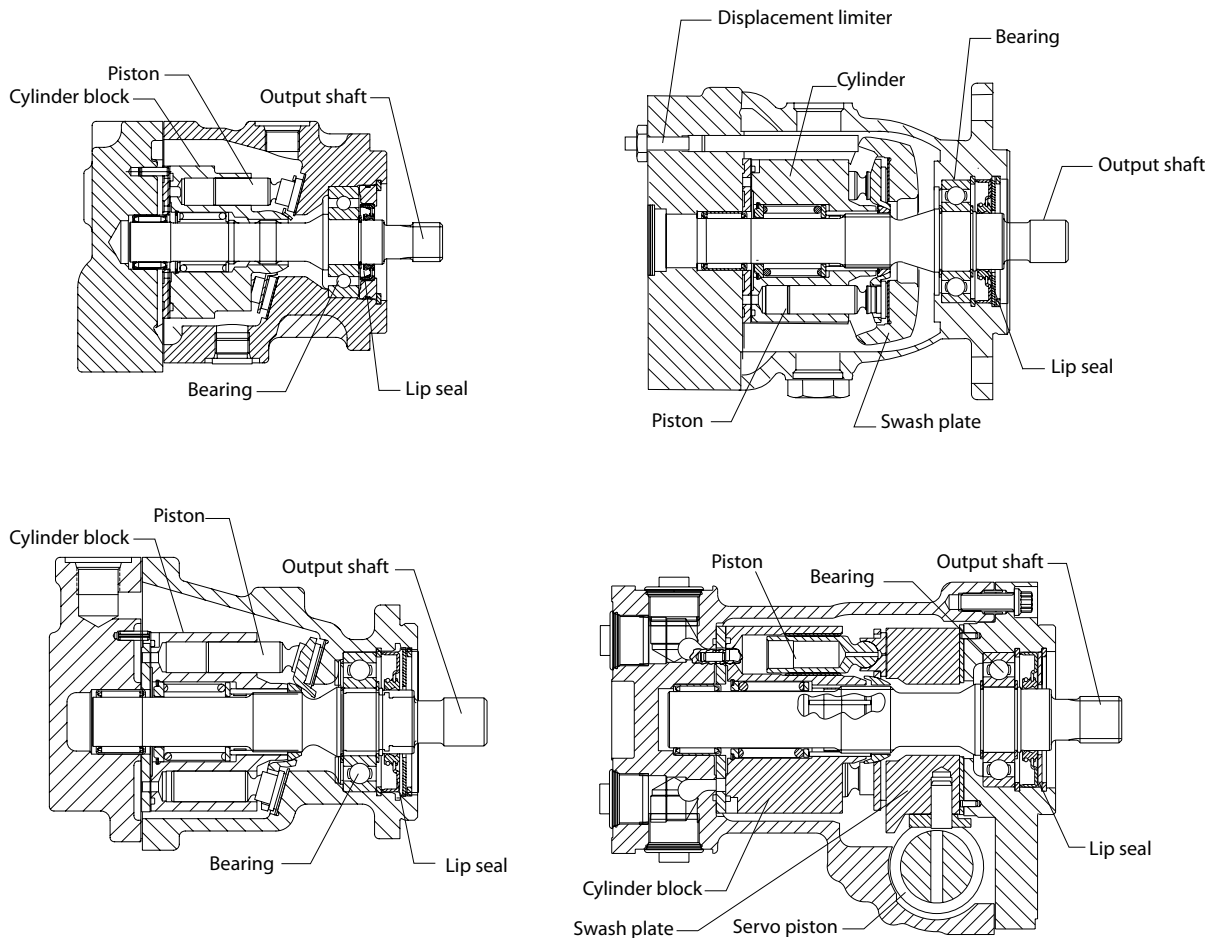
Key features

- 3 sizes of variable displacement motors
- 3 sizes of fixed displacement motors
- Efficient axial piston design
- Complete family of control systems
- Proven reliability and performance
- Compact, lightweight
- Worldwide sales and service

General description

Cross sections

M35/M44 variable motor (MV), M25 fixed motor (MF), M35/M44 fixed motor (MF), M46 variable motor (MV) (SAE flange)



P101738E

General

Product Line	Series 40 motors
Product Type	In-line, axial piston, fixed and variable, positive displacement motors
Direction of Rotation	Clockwise (CW) and counterclockwise (CCW)
Installation Position	Discretionary, the housing must be filled with hydraulic fluid before operation
Filtration Configuration	
Other System Requirements	

Features and options

Model	M25 MF	M35 MF	M44 MF	M35 MV	M44 MV	M46 MV
Type of mounting	SAE B	SAE B	SAE B	SAE B	SAE B	SAE B
Port connections	Twin, Axial	Side, Twin, Axial	Side, Twin, Axial	Twin	Twin	Side, Twin, Axial
Output shaft options	Splined, Tapered	Splined, Tapered, Straight Key	Splined, Tapered, Straight Key	Splined	Splined	Splined, Tapered
Control options	-	-	-	DDC	DDC	Hyd. 2-pos.
Loop flushing	Option	Option	Option	Option	Option	Option
Displacement limiters	-	-	-	Option	Option	Option
Speed sensors	Option	Option	Option	-	-	Option

Model	Unit	M25MF	M35 MF	M44 MF	M35MV	M44MV	M46 MV
Model configuration	-	Fixed	Fixed	Fixed	Variable	Variable	Variable
Type of mounting	-	SAE B	SAE B	SAE B	SAE B	SAE B	SAE B
Displacement	cm ³ /rev [in ³ /rev]	25 [1.50]	35 [2.14]	44 [2.65]	35 [2.14]	44 [2.65]	46 [2.80]
Weight	kg [lbf]	11 [26]	11 [26]	11 [26]	21 [47]	21 [47]	23 [51]
Mass moment of inertia	kg·m ² [slug·ft ²]	0.0018 [0.0013]	0.0033 [0.0024]	0.0032 [0.0023]	0.0033 [0.0024]	0.0032 [0.0023]	0.0050 [0.0037]

Operating parameters

Model	M25 MF	M35 MF	M44 MF	M35 MV	M44 MV	M46 MV
Case pressure bar [psi]						
Maximum working	1.7 [25]					
Maximum	5.2 [75]					
Speed limits min ⁻¹ [rpm]						
Rated @ max disp.	4000	3600	3300	3600	3300	4000

Model	M25 MF	M35 MF	M44 MF	M35 MV	M44 MV	M46 MV
Maximum @ max. disp.	5000	4500	4100	4500	4100	4100
Rated @ min. disp.	-	-	-	4200	3900	4500
Maximum @ min. disp.	-	-	-	5300	4850	5000
System pressure bar [psi]						
Maximum working	345 [5000]	380 [5511]	345 [5000]	380 [5511]	345 [5000]	345 [5000]
Maximum	385 [5584]	415 [6019]	415 [6019]	415 [6019]	415 [6019]	385 [5584]

Open Circuit Piston Motors

Reverse Displacement Motor (RDM)



For more than 40 years, Danfoss has been developing state-of-the-art components and systems for mobile machinery used in off-highway operations around the world. We have become a preferred supplier by offering the best of what really matters: the hardware inside your vehicle application.

The Reverse Displacement Motor (RDM) is designed for use in mobile open circuit applications. It offers reverse functionality without external valves, and provides system robustness with available anti-cavitation and shock valves. The RDM uses the existing and proven technology of the Danfoss L/K motor. These motors have been optimized with regard to options, life, package size and installed cost.

The RDM is a two-position reversing motor, with smooth, shift-on-the-go capability. The integrated proportional shifting valve uses system pressure. It allows reversing functionality without external valves and external pressure supply.

Features

Designed for Durability and Flexibility

- Especially designed for open circuit applications with a need for reverse functionality
- Five displacements allow the optimum selection of a hydraulic motor to fit your application
- Reliability - uses existing and proven technology of Danfoss L&K motors

Installation and Packaging benefits

- Short and compact
- High efficiency - nine piston rotating groups with an 18 degree maximum angle
- Uses system pressure for shifting – no external pressure supply needed
- Integrated shifting valve enables reversing – no external valves needed -less hoses - less losses - simple and clean installation
- 12 V_{DC} and 24 V_{DC} valves

Wide Range of Options

- **Fail Safe:** Without control signal, the motor is biased to maximum forward speed
- Damped shifting from reverse to forward
- Shaft options with dust seal protector
- Integrated system protection - anti-cavitation and shock valve
- High capacity bearings to withstand axial fan forces
- Complimentary to Danfoss Series 45 open circuit pumps with electronic proportional control
- PLUS+1[®] micro controller with fan drive software available
- This motor has the capability to be held at or near neutral for potential added system power savings or faster heating of the engine at start-up
- Variety of porting options allow for easier system configurations system configurations

- Metric O-Ring boss
- SAE O-Ring boss
- Split flange
- A speed sensor is available

Applications

- Fan Drives with reverse functionality
- Conveyers
- Etc.

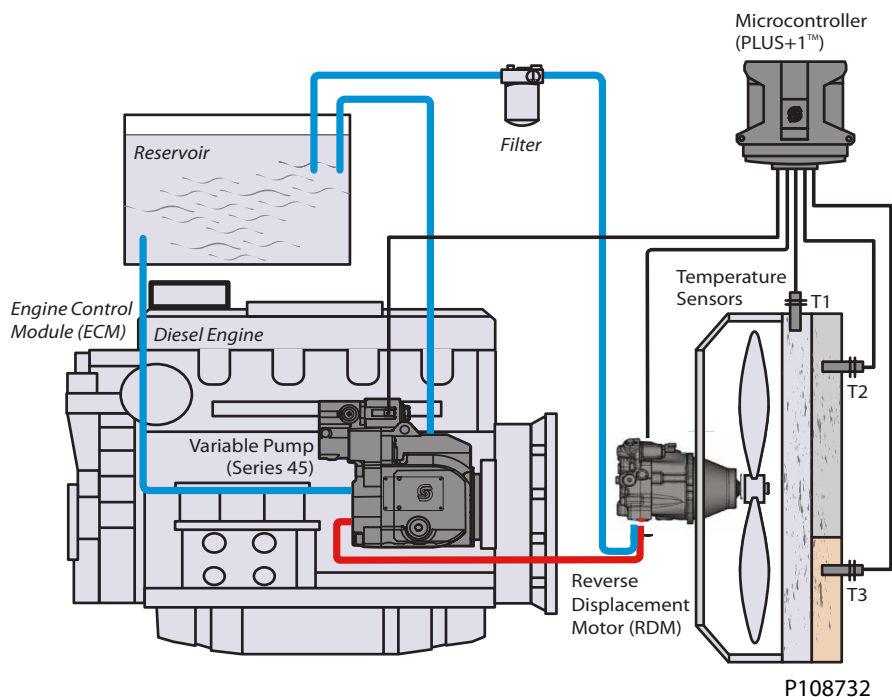


Technical Specifications

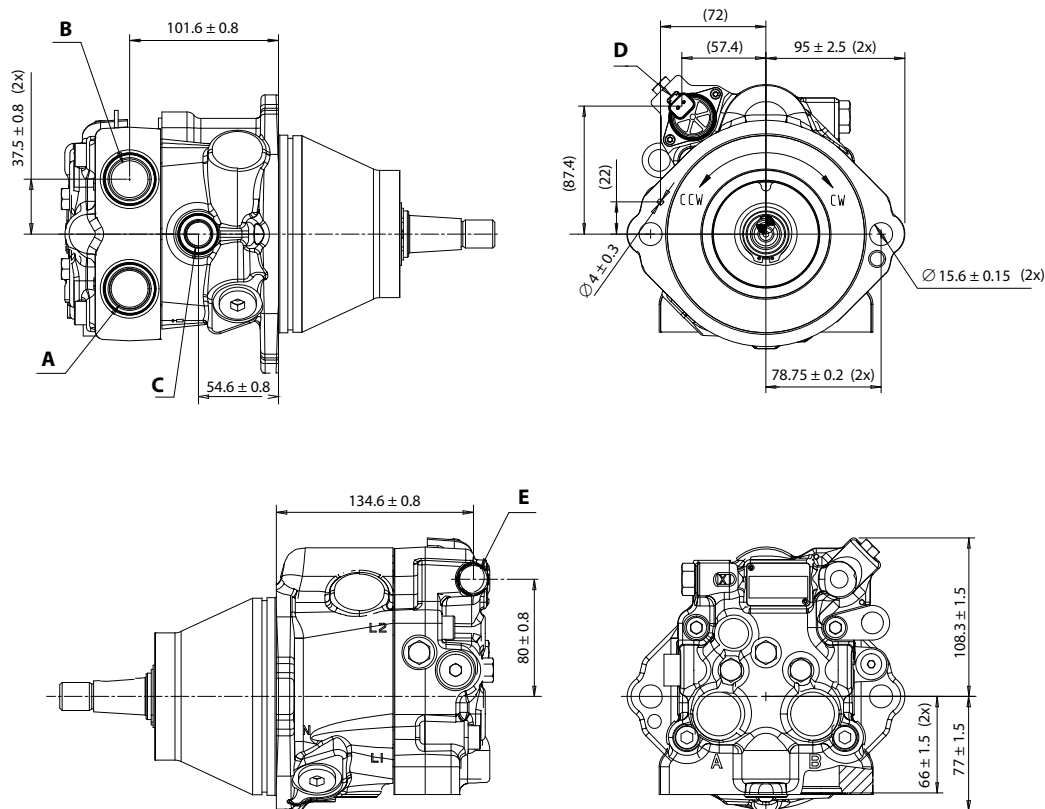
Parameter		Unit	LM25	LM30	LM35	KM38	KM45
Displacement (maximum)		cm ³ [in ³]	25 [1.50]	30 [1.83]	35 [2.14]	38 [2.32]	45 [2.75]
Weight		kg [lb]	17.5 [38.6]				
Theoretical torque		N·m/bar [lbf·in/1000 psi]	0.40 [244]	0.48 [293]	0.56 [347]	0.60 [366]	0.72 [439]
Output speed	Rated	min ⁻¹ (rpm)	3400	3500	3600	3600	3500
	Max.		3950	4150	4300	4000	3900
System pressure ⁽¹⁾	Max.	bar [psi]	350 [5075]	350 [5075]	325 [4715]	350 [5075]	350 [5075]
Case pressure	Rated	bar [psi]	0.5 [7] above outlet pressure, 2 [29] absolute pressure				
	Max.		2 [29] above outlet pressure, 6 [87] absolute pressure				
Voltage		V _{DC}	12, 24				
Current	12 V _{DC}	mA	1500				
	24 V _{DC}		750				
Connector		-	DEUTSCH connector DT04-2P				

⁽¹⁾ Refer to L and K Frame Variable Motors Technical Information 520L0627 for pressure definitions

Fan Drive Circuit



Dimensions



P109030

	Description	Metric	Inch
A/B	System port	ISO 6941-1, M 27x2	ISO 11926-1, 1-1/16-12
C	Case Drain	ISO 6941-1, M 18x1.5	ISO 11926-1, 3/4-16
D	Solenoid connector	DEUTSCH DT04-2P	
E	Control gauge port	ISO 6941-1, M 14x1.5	ISO 11926-1, 9/16-18

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- Sale of hydraulic components and electronic devices.
- Commissioning and start up on machinery.
- Repair of hydraulic components
- Postsale and service troubleshoot on phone

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