



2.2.1

V40D SERIES

Swash-plate Type
Axial Piston Variable Displacement Pump

V40D series variable axial piston pump with swashplate design for hydrostatic drives in closed circuit, high pressure, high speed, high reliability, low noise, can be applied in engineering machinery, mobile machinery and agricultural machinery.

Applied in medium pressure closed circuit
Size: 23
Rated pressure (bar): 250
Max. pressure (bar): 300



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Features

- Variable axial piston pump of swashplate design for hydrostatic drives in closed circuit.
- The flow is proportional to the drive speed and displacement. The flow increases as the angle of the swashplate is adjusted from zero to its maximum value.
- Flow direction changes smoothly when the swashplate is moved through the neutral position.
- Two pressure-relief valves are provided on the high pressure ports to protect the hydrostatic transmission (pump and motor) from overload.
- The integrated charge pump can provide system replenishing and cooling fluid flow.
- High reliability, long working lifetime
- Compact structure, high power density.

Technical data

Size		23
Displacement (cc/ ev)		23
Speed	Rated (pm)	3300
	Max. (pm)	3600
	Min. (pm)	500
P essu e	Rated (ba)	250
	Max. (ba)	300
	Minimum low loop p essu e (ba) (Above cha ge pump)	10
Cha ge pump displacement (cc/ ev)		5.3/9.4
Cha ge p essu e (elative to Cha ge pump)	Max. (ba)	30
Casting p essu e	Rated (ba)	1.5
	Max. (ba)(Sho t-time peak p essu e)	2.5
Suction p essu e (Absolute p essu e)	Rated (ba)	0.8
	Oil viscosity ≤ 30mm ² /s	
	Max. (ba)	2
Oil viscosity (mm ² /s)		10~1000, Best ange -16~36
Oil tempe atu e (°C)		-20~95
Oil cleanliness		ISO 4406 Class 20/18/15 o highe
Weight (w/o auxilia		

Technical data

Pe missible input and th ough-d ive to ques			

Type introduction

V40	D	S	23	H5	A		/	R	N	A1	4	FF	A1	9	S	-	
①	②	③	④	⑤	⑥	⑦		⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮		⑯

Product series

①	Variable piston pump of swashplate in closed circuit	V40
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Nominal pressure

②	nominal pressure 250 bar	D
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Variable mechanism

		23	Code
③	With servo piston	●	Blank
	Without servo piston (manual variable)	●	S

Size

④	Size	23
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Control mode

		23	Code
⑤	Optional control (electic U = 12 V DC)	●	E1
	Optional control (electic U = 24 V DC)	●	E2
	Hydraulic control of direct operated – optimized for hydraulic control	●	H3
	Manual direct displacement control	●	H5

Remark: V40D23 when selecting without servo piston (manual variable), please choose manual direct variable control as the control method.

DA control valve

		23	Code
⑥	Without swivel DA control valve	●	Blank
	Swivel DA control valve	●	A

Pressure cut-off

		23	Code
⑦	Without pressure cut-off	●	Blank

Type introduction

Rotation

		23	Code
⑧	Right hand (clockwise)	●	R
	Left hand (counterclockwise)	○	L

Mounting flange and input shaft

	Mounting flange	Input shaft	23	Code
⑩	SAE A J744-82-2	ANSI B92.1b 5/8 in 9T 16/32 DP	●	A1
	SAE B J744-101-2	ANSI B92.1b 7/8 in 13T 16/32DP	●	B1

Working port

Boost pump and rotary group configuration

	Standard output, without boost pump			K
⑫	Standard output, boost pump integrated	Change pump displacement (cc/rev)	23	Code
		5.3	●	FF
		9.4	●	FG

Through drive option

⑬	Through drive		23	Code
	Without through drive		●	Blank
	External gear pump		●	G0
	Flange	Splined shaft		
	SAE A J744-82-2	ANSI B92.1b 5/8 in 9T 16/32 DP	●	A1

Relief valve

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16	Standard ve sion	23	Code
		●	Blank

Rema k: ● = Available; ○ = On request

Hydraulic fluid

Fine filtration improves the cleanliness of the hydraulic fluid, thereby extending the life of rotating parts. A cleanliness of at least 20/18/15 (ISO 4406) should be maintained. When the viscosity of the hydraulic fluid is less than 10mm²/s (e.g. due to high temperatures during short-term operation, a cleanliness level of at least 19/17/14 (ISO 4406) is required.

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E - Electrical displacement control

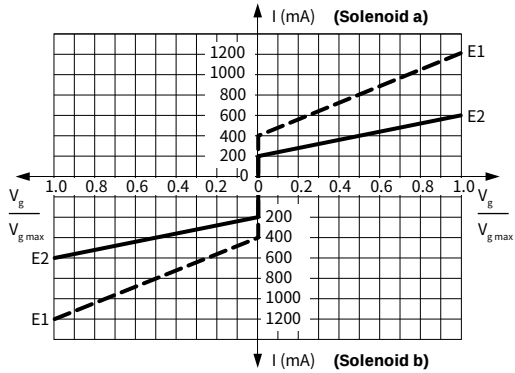
•Electrical displacement control principle

The output flow of the pump is infinitely variable between 0 and 100%, proportional to the electrical current supplied to solenoid a or b.

The electrical energy is converted into a force acting on the control spool.

This control spool then directs control oil into and out of the stroking cylinder to adjust pump displacement as required.

A feedback lever connected to the stroking piston maintains the pump flow for any given current within the control range.



Standard:

Proportional solenoid without manual emergency operation.

Supply as required:

Proportional solenoid with manual emergency operation and spring return.

Technical data, solenoid

Cont ol		E1	E2
Voltage		12 V (±20%)	24 V (±20%)
Cont ol cu ent	Sta t of cont ol at V _g =0	400 mA	200 mA
	End of cont ol at V _g max	1200 mA	600 mA
Cu ent limit		1540 mA	840 mA
Nominal esistance (at 68 °F (20°C))		5.5 Ω	21.7 Ω
Dithe f equency		100Hz / 120Hz (120Hz only fo the V40E175 closed pumps)	
Duty cycle		100%	
Type of p otection		See connecto ve sion	

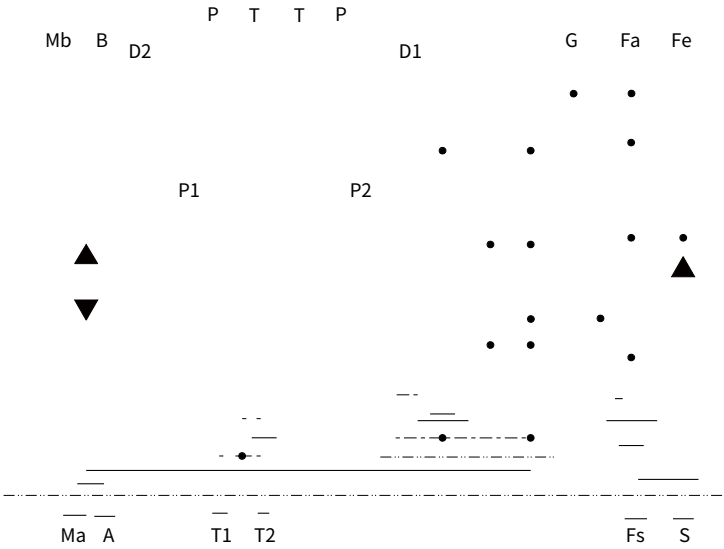
Note:

The spring-return device in the control module is not a safety device

The control module may be stuck in an unsafe position by internal impulses (hydraulic oil impulses, system component wear or sediment). As a result, the controller can no longer respond correctly to the instruction from the operator.

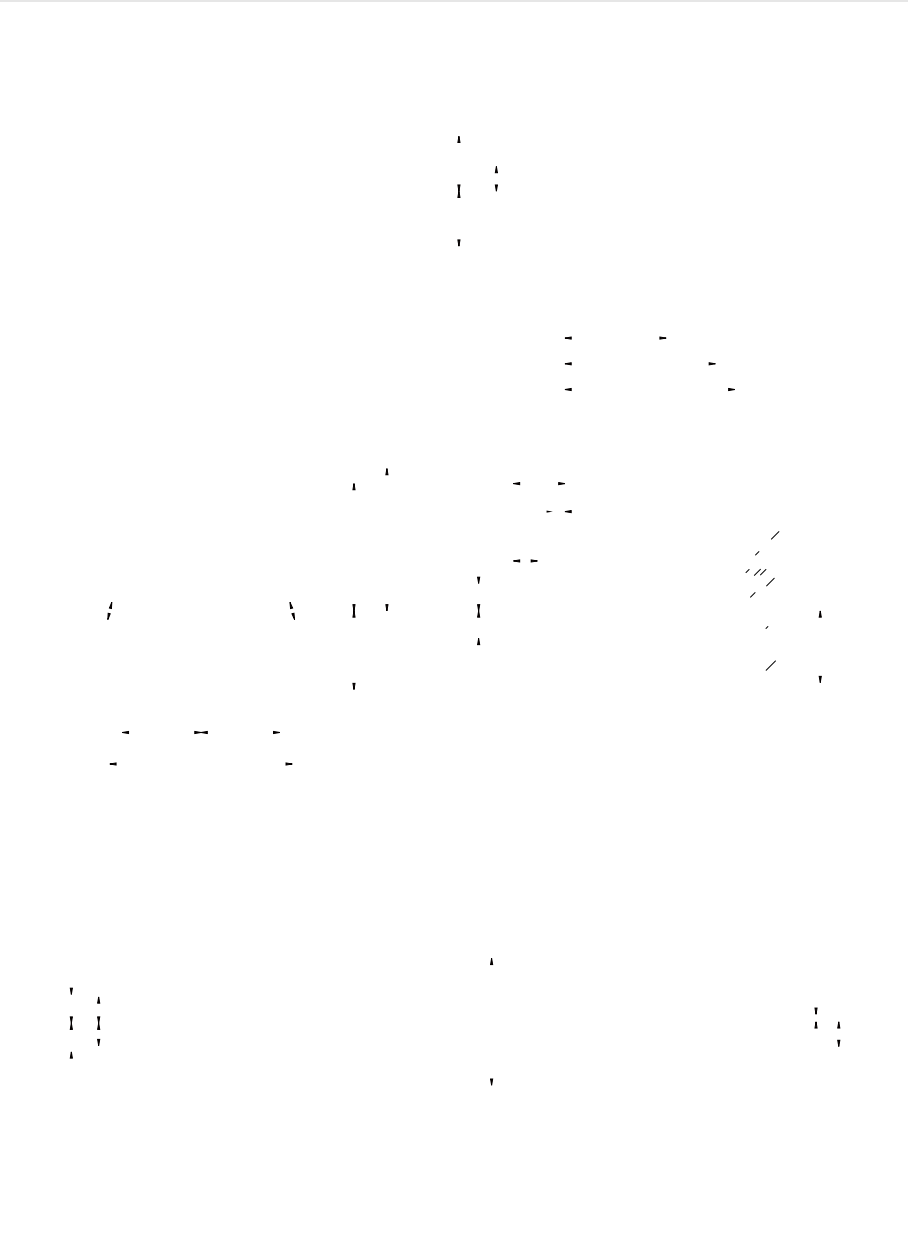
Check whether additional safety measures are required on your machine to move the drive actuator to a controlled safe position (emergency stop). When necessary, please ensure that these operations are implemented correctly.

V40D23 Pump principle



Installation size

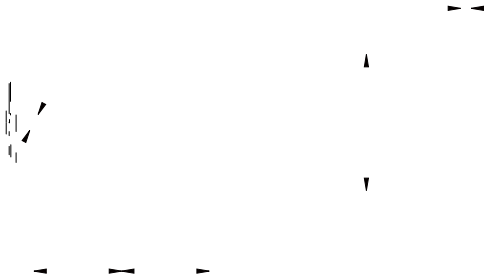
V40D23 installation size



Installation size

·V40D23Port details

Port	Port Name	Port Size and Description	Tightening Torque(N.m)	Maximum pressure (bar)
A, B	Work lines	ISO 1179-1	G 1/2 (depth 15)	250
Ma, Mb	Outlet pressure	ISO 1179-1	G 1/4 (depth 12.5)	250
P1, P2	Control chamber pressure	ISO 1179-1	G 1/4 (depth 12.5)	30
S	Oil suction line	ISO 1179-1	G 1/2 (depth 15)	5
T1, T2	Oil drain line	ISO 1179-1	G 1/2 (depth 15)	3
G	Top-up pressure	ISO 1179-1	G 1/4 (depth 12.5)	30
Fe	Oil replenishment pressure outlet	ISO 1179-1	G 1/4 (depth 12.5)	30
Fa	Oil replenishment pressure inlet	ISO 1179-1	G 1/4 (depth 12.5)	30
Fs	Oil suction pressure	ISO 1179-1	G 1/8 (depth 8)	3



-0.036
-0.071

