

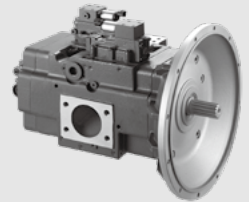


V90N SERIES

Swash-plate Type Axial Piston Double Pump

V90N variable axial piston double pump is designed for the high pressure open circuit.

Displacement (cc/rev)	130 × 2	180 × 2
Nominal pressure (bar)	380	380
Maximum pressure (bar)	420	420



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Features

- Variable axial piston double pump design for the open circuit.
- Various controllers available: hydraulic and electrical control design available, which can combined the different controllers of flow control, pressure control and power control.
- High working pressure (380 bar) and long lifetime
- High efficiency, excellent self-priming performance
- 1 inlet and 2 outlets
- Special pump housing structure design meets the low noise requirements.
- More suitable for mobile machinery like excavators, cranes, drilling rigs and so on.

Technical data

Size		V90N130	V90N180
Displacement(cc/rev)		130×2	180×2
Speed	Rated speed (rpm) ^{*1}	2200	2100
	Maximum speed (rpm) ^{*2}	2500	2400
	Minimum speed (rpm)	600	600
Pressure	Rated pressure (bar)	380	380
	Maximum pressure (bar)	420	420
Maximum torque (N.m) @Vgmax and Δp=380bar		786	1120
Case volume (L)		2.8	3.4
Suction port pressure (abs bar)		0.7 ~ 2	
Drain pressure (bar)		1	
Max. drain pressure (bar)		3	
Mass (Kg)		166	174
Temperature range (°C)		-20 ~ 95	
Hydraulic fluid viscosity range (mm ² /s)		10 ~ 1000 ^{*3} (optimum viscosity range 16 ~ 36)	

- 1 Steady state suction pressure should be 0 bar and above (at normal condition);
- 2 If suction pressure less than 0 bar, Boost pressure should be required;
- 3 In case of 200-1000mm²/s, please allow system to warm up before using machine.

Type introduction

V90N	130	V	R	E2	/	F3	J1	NN	K0	G	M	
①	②	③	④	⑤		⑥	⑦	⑧		⑨	⑩	⑪

Product series

①	Double pump, variable swashplate design, open circuit	V90N
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Displacement

②	Displacement cc/rev	130	180
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Seals

③	FKM	●	V
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Direction rotation

④	Clockwise	●	R
	Counter-clockwise	○	L

Control type

⑤	Electric proportional displacement	Pilot-operated electro-proportional displacement control, positive displacement control, 24V	●	E1
	Negative displacement control	Hydraulic pilot negative flow + Electro-proportional power control (proportional decreasing type)+ (total power control)	●	H1
		Hydraulic pilot negative flow + Electro-proportional power control (proportional increasing type)+ (total power control)	●	H2
		Hydraulic pilot negative flow +divided power control	●	H3

Mounting flange

⑥		130	180	Code
	SAE J617 N0.3 flywheel flange, see "Installation size"	●	●	A
	SAE J617 N0.3 flywheel flange, see "Installation size"	●		B
	SAE J617 N0.2 flywheel flange		●	C
	SAE J617 N0.1 flywheel flange		●	D

Type introduction

Input shaft

	Input shaft size	130	180	Code
⑦	SAE J744-44-4 13T 8/16	○		S5
	JIS D2001 40×14×2.5 (short)	●		J0
	JIS D2001 40×14×2.5	●		J1
	JIS D2001 47.5×17×2.5	●	●	J2
	JIS D2001 40×14×2.5 (long)	●		J3

Through drive and pilot pump

⑧	None	●	NN
	SAE A 82-2 SAE J744-16-4 9T 16/32DP	○	A1
	SAE A 82-2 SAE J744-19-4 11T 16/32DP	○	A2
	SAE B 101-2 SAE J744-22-4 13T 16/32DP	○	B1
	SAE B 101-2 SAE J744-25-4 15T 16/32DP	○	B2
	With pilot gear pump and pressure relief valve (only for none through drive)	●	K0

Connection type (except inlet and outlet port)

⑨	UNC port, ISO11926	○	A
	Metric port, ISO 6149	○	M
	BSPP G thread, JIS B2351	●	G

Thread type of Flange Port

⑩	UNC threads (only for UNC port)	○	A
	Metric thread	●	M

Standard version/Special version

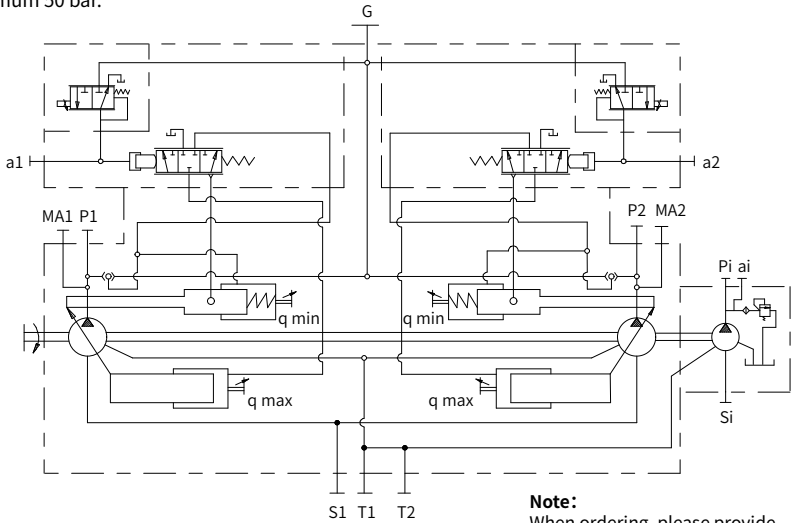
⑪	Standard version	●	Blank
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Note: Marked with "○" means under development.

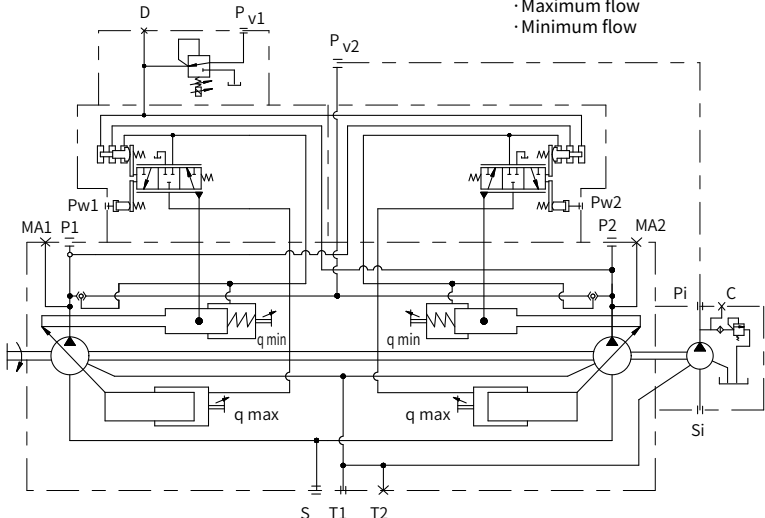
Control principle

•E1 Electro-proportional displacement control principle

Electro-proportional displacement control: With pilot-pressure-related control, the pump displacement is adjusted in proportion to the pilot pressure. Basic position without pilot signal is $V_{g\ min}$, which includes the mechanically depressurized basic position $V_{g\ min}$. With increasing pilot pressure the pump swivels to a larger displacement. The necessary control power is taken from the operating pressure or the external control pressure applied to port P. If the pump is to be adjusted from the zero basic setting or from a low operating pressure, port P must be supplied with an external control pressure of at least 30 bar, maximum 50 bar.

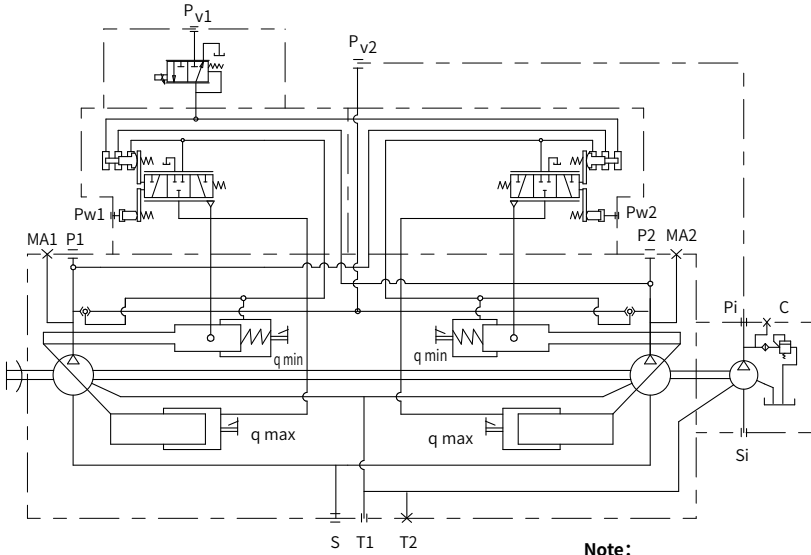


•H1 Negative flow control schematic



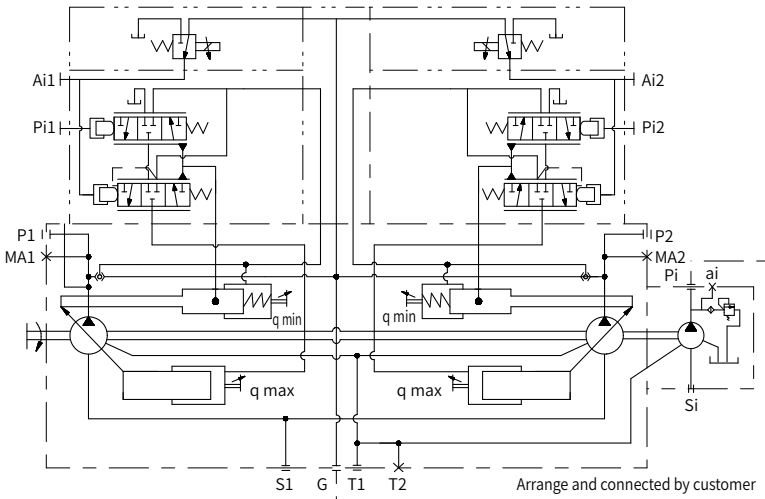
Control principle

· H2 Negative flow control schematic



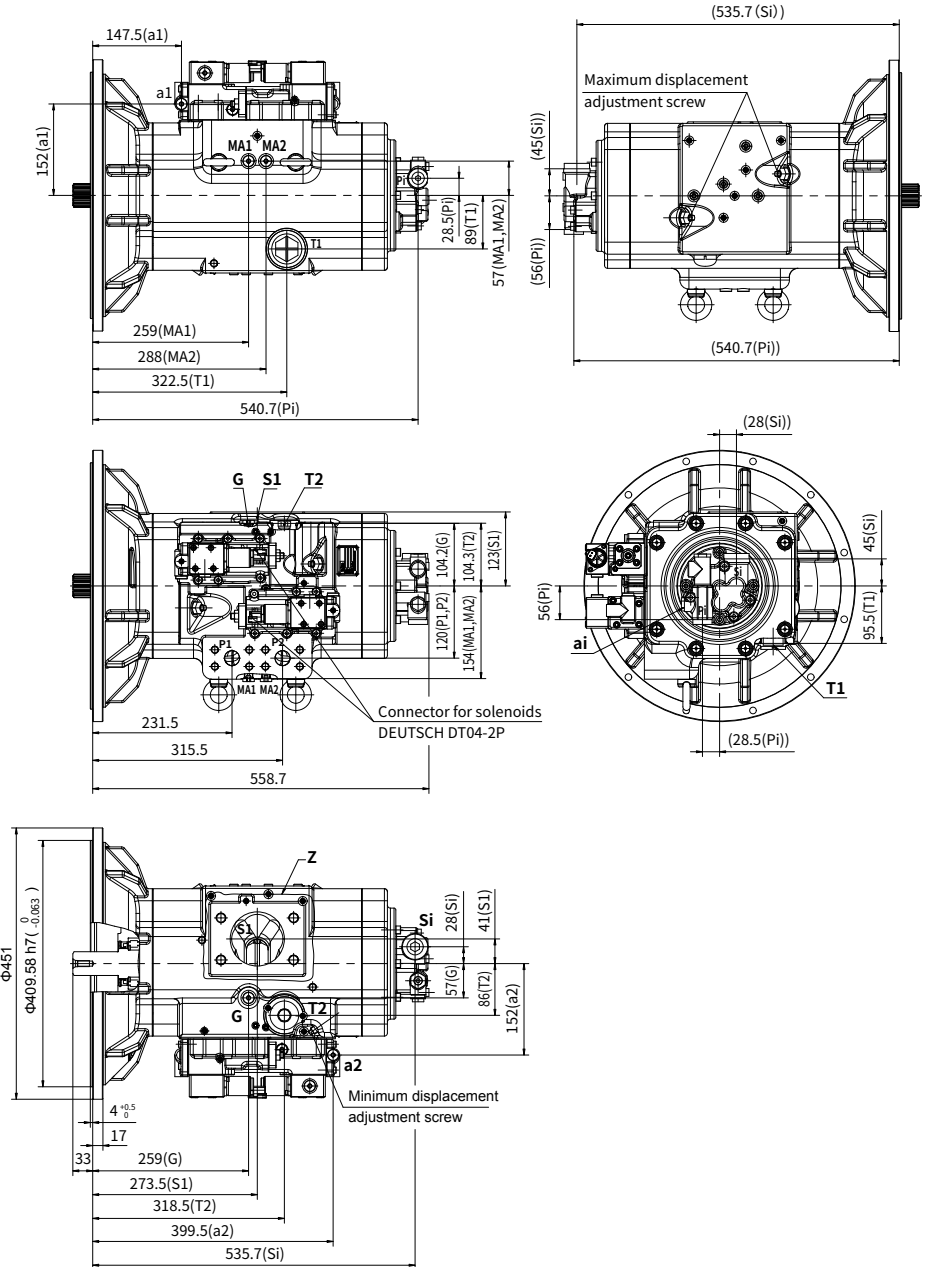
Note:
 When ordering, please provide the information as below:
 · Working pressure
 · Maximum flow
 · Minimum flow

· H3 Negative flow control schematic



Installation size

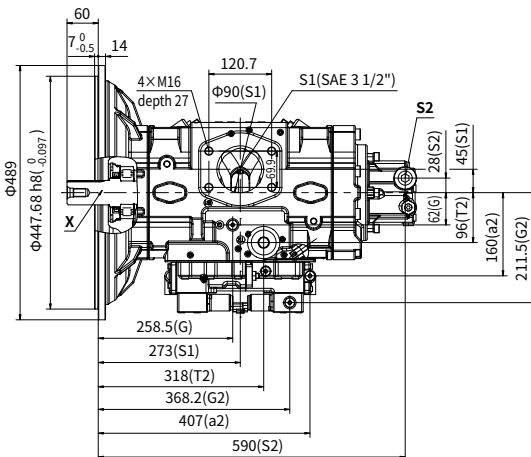
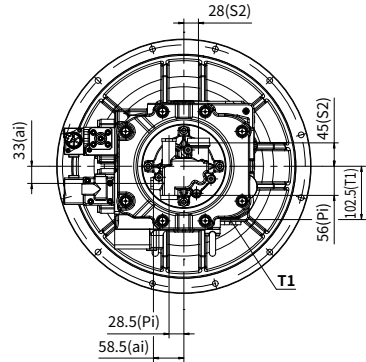
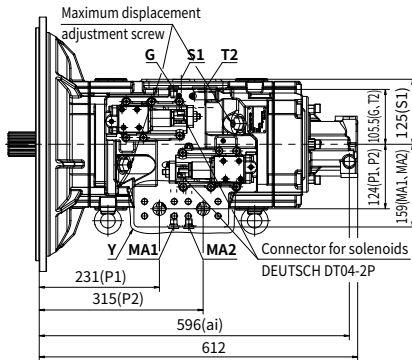
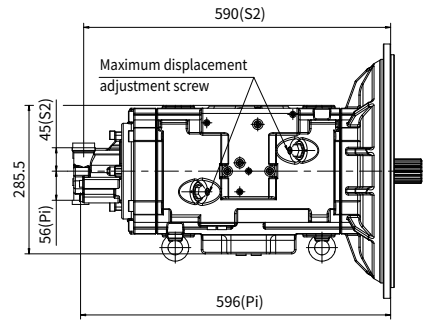
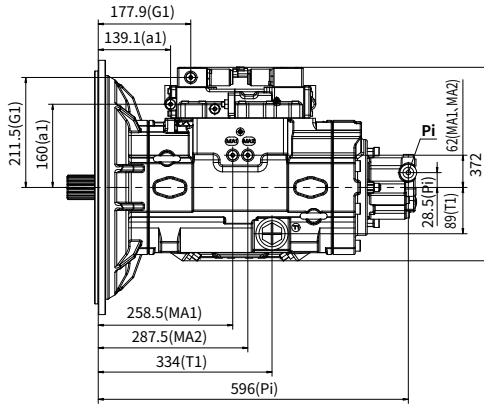
•V90N 130 type



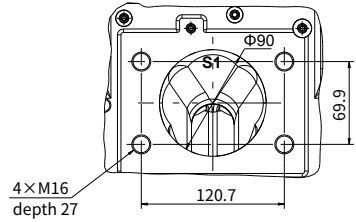
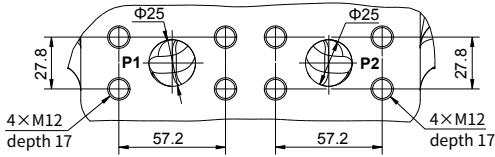
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Installation size

·V90N 180 type



Installation size



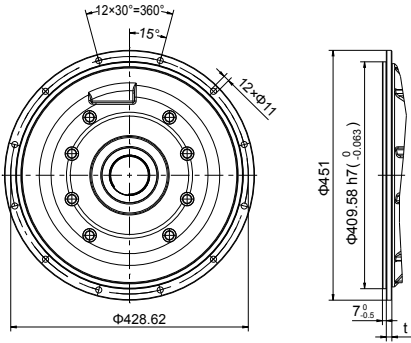
Port Details

	Port Name	Port Size and Description
P1、 P2	Output Port	1" SAE J518C Code 62 (6000psi)
		4×M12 depth 17mm
S1	Input Port	3-1/2" SAE J518C Code 61 (500psi)
		4×M16 depth 27mm
T1、 T2	Drain Port	G1 1/4
G	External Control Pressure Port	G 1/4
MA1, MA2	Pressure Measureing	G 1/4
Pi	Output Port	G 1/2
Si	Input Port	G 3/4

Installation size

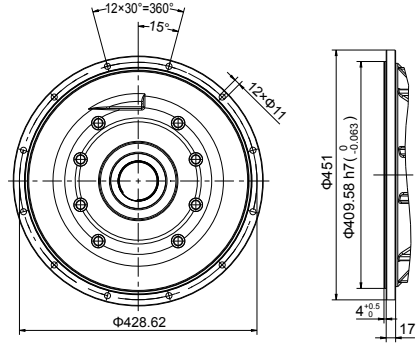
• Flywheel flange

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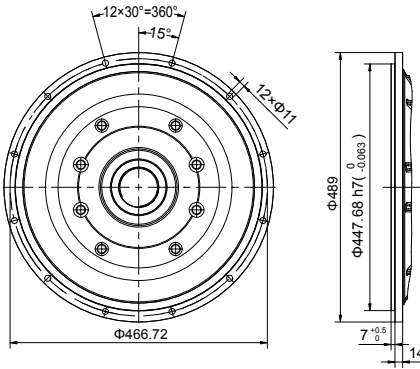


A Type

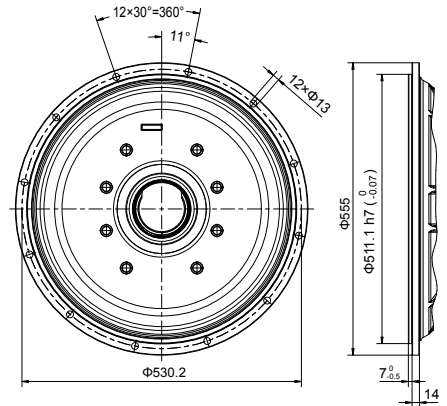
Note: V90N130 t=10
V90N180 t=14



B Type



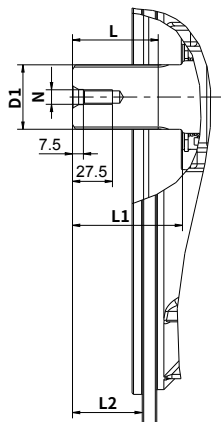
C Type



D Type

Installation size

• Input shaft



Size		D1	L	L1	N	L2			
						A	B	C	D
130	S5	44.45	58	74.9	M10	48	33	—	—
	J1	39.5							
	J2	47	53	68.9		42	27	—	—
	J0	39.5				62	47	—	—
	J3	39.5							
180	J2	47	63	81.8	M16	—	—	60	63
		47	48	66.8		43	—	58	—

04