

SD1 Series

Cast-iron body



C621-E005A

◆ Model number

SD1 - 32 27 E 1 H 1 - L XXX

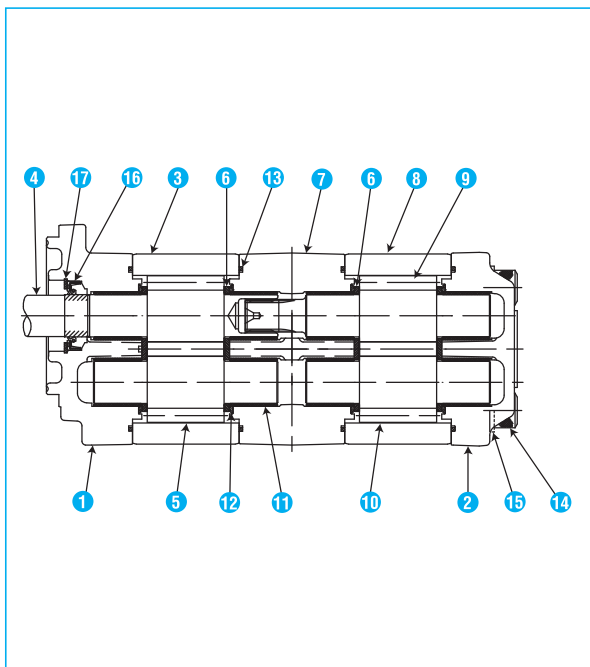
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

- | | | | |
|---|---|---|--|
| ① Series number
SD1 series | ⑤ Position of ports
E : side ports (double suction port)
F : side ports (single suction port) | ⑦ Mounting
H : horizontal 2 bolts | ⑨ Rotation viewing from shaft end
L = counterclockwise
R = clockwise |
| ② Mounting spigot diameter
- : $\phi 82_{-0.036}^{0.036}$
A : $\phi 82.55_{-0.25}^{0.25}$ | ⑥ Port configuration
1 : flange port
2 : G screw thread | ⑧ Shaft end
1 : SAE Spline 13 teeth
5 : SAE Spline 10 teeth | ⑩ Code number in 3 figures |
| ③ No.1 Pump Size | | | |
| ④ No.2 Pump Size | | | |

◆ Specifications

	Size	Displacement		Rated pressure			Max. peak pressure			Speed min ⁻¹			
		cm ³	in ³	MPa	bar	psi	MPa	bar	psi	MIN.	MAX.		
No.1 Pump No.2 Pump	16	16.2	0.988	20.6	206	2987	24.5	245	3553	500	4000		
	18	18.3	1.116										
	20	20.4	1.244										
	23	23.7	1.446										
	25	24.9	1.519										
	27	27.8	1.696										
		30	29.9							1.824	400	3500	
		32	33.2							2.025			3000
		34	34.1							2.080			
36		36.6	2.233	22.6	226	3277							

◆ Typical assembly



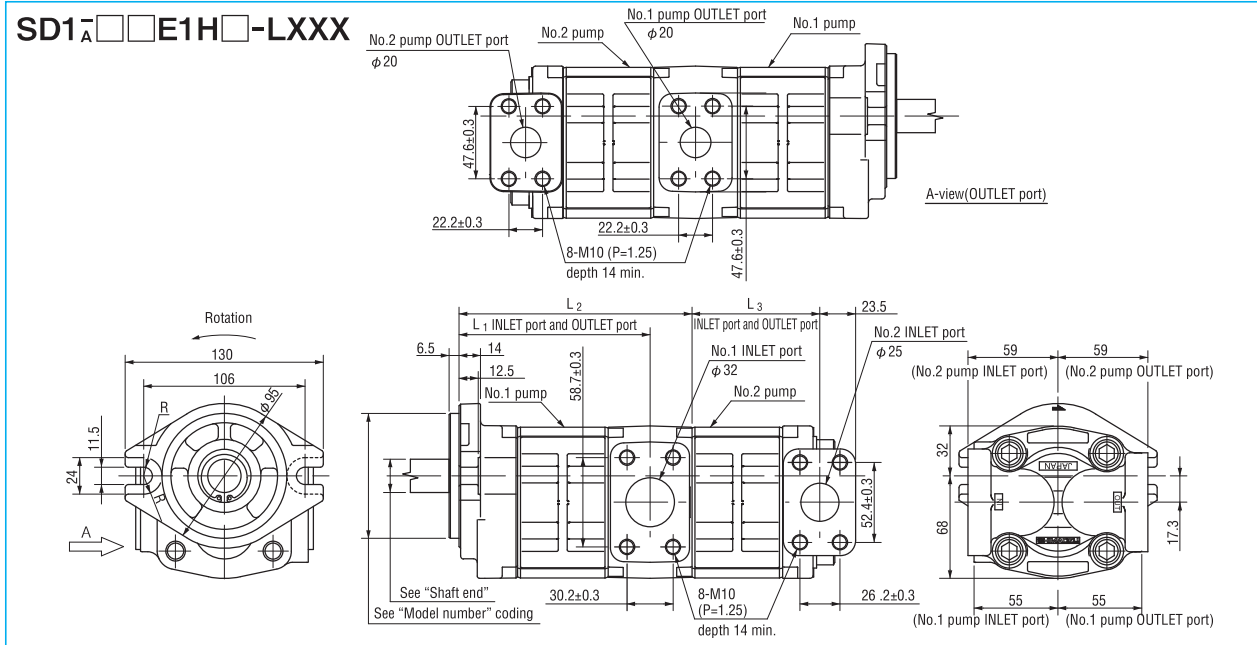
Item No.	Name	QTY	Material
①	Front cover	1	Aluminum alloy
②	Rear cover	1	Aluminum alloy
③	No.1 Body	1	Cast iron
④	No.1 Drive gear	1	Alloy steel
⑤	No.1 Driven gear	1	Alloy steel
⑥	Side plate	4	Special alloy steel
⑦	Adapter plate	1	Aluminum alloy
⑧	No.2 Body	1	Cast iron
⑨	No.2 Drive gear	1	Alloy steel
⑩	No.2 Driven gear	1	Alloy steel
⑪	Bush	8	Special alloy steel
⑫	Gasket	4	Nitrile rubber
⑬	Gasket	4	Nitrile rubber
⑭	Bolt	4	Alloy steel
⑮	Washer	4	Carbon steel
⑯	Oil seal	1	Nitrile rubber
⑰	Retainer ring	1	Carbon steel

NOTES : "QTY" shows the amount per one

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◆ Outline dimensions

dimensions in mm



NOTE 1. Figure shown indicated counterclockwise rotation "L" viewing from shaft end. Clockwise rotation "R" is mirror image of this.
2. Unless otherwise specified, tolerance on dimension are ±1.0 mm.

Size	L ₁	L ₂	L ₃
16	100.8	128.3	59.5
18	103.3	130.8	62.0
20	105.8	133.3	64.5
23	109.8	137.3	68.5
25	111.3	138.8	70.0
27	114.8	142.3	73.5
30	117.3	144.8	76.0
32	121.3	148.8	80.0
34	122.3	149.8	81.0
36	125.3	152.8	84.0

◆ Combination of double pump

1. **Limitation in maximum delivery pressure due to PQ value.**
Calculate the PQ value, using the following equation, and use the pump at the pressure range lower than the value shown in Table-1.

Input shaft	$PQ1 > P1 \times Q1 + P2 \times Q2$
Intermediate joint	$PQ2 > P2 \times Q2$

P1, P2 : Delivery pressure (MPa) of No.1, No.2 pump.
Pr1, Pr2 : Rated pressure (MPa) of No.1, No.2 pump.
Q1, Q2 : Displacement volume (cm³) of No.1, No.2 pump.
• P1 < Pr1 • P2 < Pr2

Table-1 Allowable PQ value

	PQ1 Input shaft	PQ2 Intermediate joint
SAE spline 13T	1471	638
SAE spline 10T	638	638

2. **Limitation in maximum rotating speed due to suction flow.**
It is advised to use the pump at the rotating speed lower than the value, which is satisfied with the equation in Table-2.

Table-2 Limitation in maximum rotating speed

For single suction port	$N \times (Q1 + Q2) \pm 1000 < 143 \text{ (L/min)}$
φ32	
For double suction port	Lower value of the max. speed.

N: Maximum allowable rotating speed (min⁻¹).

◆ Shaft end

SAE Spline (Some dimensions are different form SAE standard.)	
SAE Spline 10 teeth	SAE Spline 13 teeth
<p>No. of teeth : 10 D.P. : 16/32 Pressure angle : 30° Over pin dia. : 20.263~ 20.193 Pin dia. : φ3.048</p>	<p>No. of teeth : 13 D.P. : 16/32 Pressure angle : 30° Over pin dia. : 24.891~ 24.819 Pin dia. : φ3.048</p>

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The appearances and specifications are subject to change for reasons of improvement without notice.