



## ◆ Model number

**SD B 32 27 E 1 H 1 - L XXX**

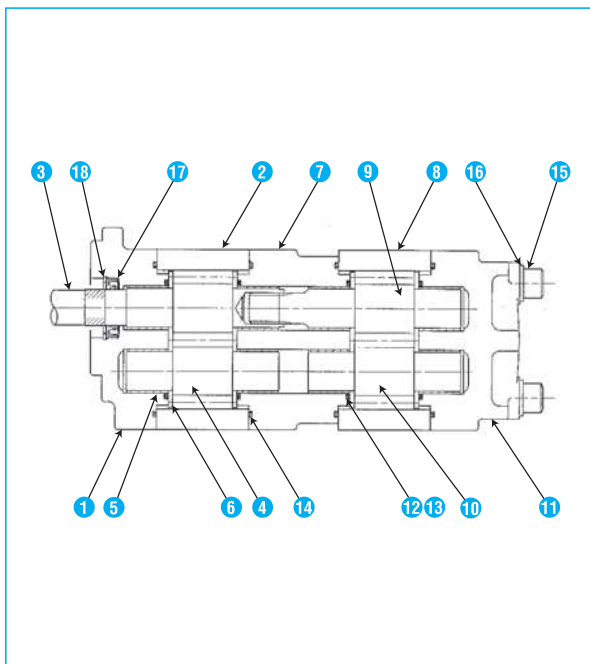
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

- |   |  |  |  |
|---|--|--|--|
| ① Series number<br>SD series  | ④ No.2 Pump Size<br>⑤ Position of ports<br>F : side ports (single suction port)<br>E : side ports (double suction ports) | ⑦ Mounting<br>H : horizontal 2 bolts   | ⑨ Rotation viewing from shaft end<br>L = counterclockwise<br>R = clockwise |
| ② Mounting spigot diameter<br>- : $\phi 82_{-0.090}^{+0.036}$ Z : $\phi 102_{-0.090}^{+0.036}$<br>A : $\phi 82.55_{-0.05}^{+0.036}$ B : $\phi 101.6_{-0.05}^{+0.036}$ | ⑥ Port configuration<br>1 : flange port  | ⑧ Shaft end<br>1 : SAE Spline 13 teeth | ⑩ Code number in 3 figures   |
| ③ No.1 Pump Size  |  |  |  |

## ◆ Specifications

	Size	Displacement		Rated pressure			Max. peak pressure			Speed min <sup>-1</sup>							
		cm <sup>3</sup>	in <sup>3</sup>	MPa	bar	psi	MPa	bar	psi	MIN.	MAX.						
No.1 Pump	20	20.3	1.238	24.5	245	3553	29.4	294	4263	400	3000						
	23	23.3	1.421														
	25	25.3	1.543														
	27	27.4	1.671														
No.2 Pump	32	32.5	1.989	22.6	226	3277	27.5	275	3988	400	2500						
	36	36.5	2.227								2300						
	40	40.6	2.477								206	206	2987	245	245	3553	2300
	44	44.7	2.727								18.6	186	2697	22.6	226	3277	2300
	48	48.8	2.977								17.2	172	2494	20.6	206	2987	2200
	52	52.8	3.221														

## ◆ Typical assembly

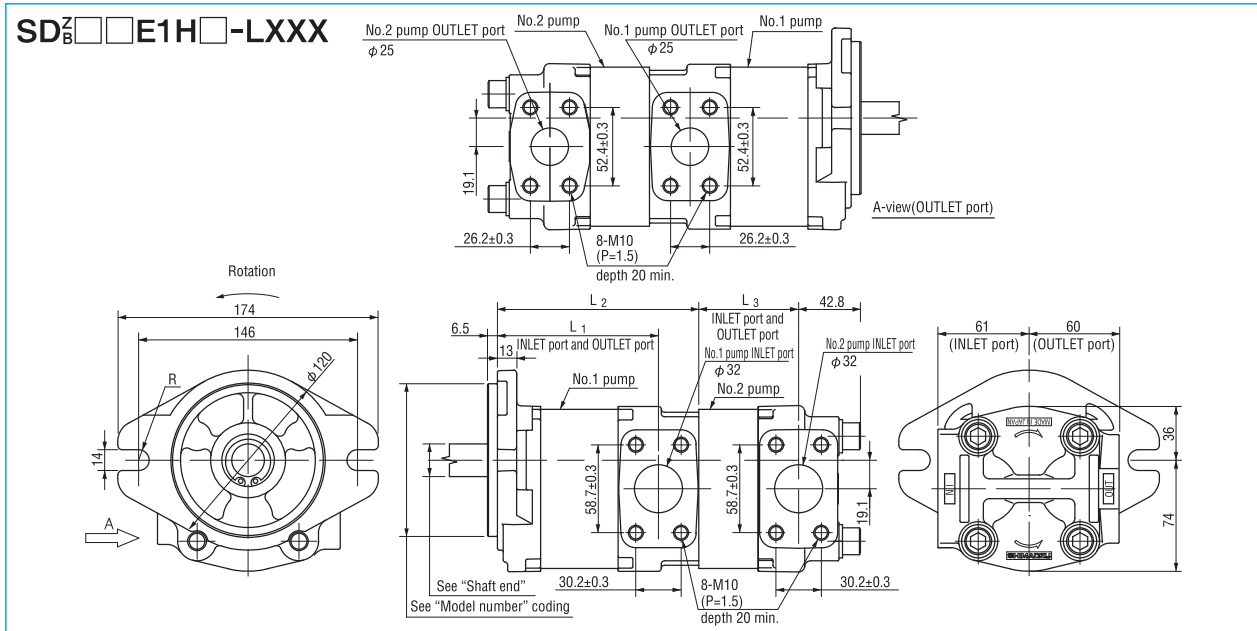


Item No.	Name	QTY	Material
①	Front cover	1	Aluminum alloy
②	No.1 Body	1	Cast iron
③	No.1 Drive gear	1	Alloy steel
④	No.1 Driven gear	1	Alloy steel
⑤	Bush	8	Special alloy steel
⑥	Side plate	4	Special alloy steel
⑦	Adapter plate	1	Aluminum alloy
⑧	No.2 Body	1	Cast iron
⑨	No.2 Drive gear	1	Alloy steel
⑩	No.2 Driven gear	1	Alloy steel
⑪	Rear cover	1	Aluminum alloy
⑫	Back-up	4	Synthetic resin
⑬	Gasket	4	Nitrile rubber
⑭	Gasket	4	Nitrile rubber
⑮	Bolt	4	Alloy steel
⑯	Washer	4	Carbon steel
⑰	Oil seal	1	Nitrile rubber
⑱	Retainer ring	1	Carbon tool steel

NOTES : "QTY" shows the amount per one

## ◆ 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  $\pm 1.0$  mm.

Size	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>
20	95.6	122.6	66.6
23	98.6	125.6	69.6
25	100.6	127.6	71.6
27	102.6	129.6	73.6
32	107.6	134.6	78.6
36	111.6	138.6	82.6
40	115.6	142.6	86.6
44	119.6	146.6	90.6
48	123.6	150.6	94.6
52	127.6	154.6	98.6

## ◆ 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 (cm<sup>3</sup>) 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	785

### 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	$\phi 32$ : $N \times (Q1 + Q2) \div 1000 < 143$ (L/min)
For double suction port	Lower value of the max. speed.

N: Maximum allowable rotating speed (min<sup>-1</sup>).

## ◆ Shaft end

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