

## DOUBLE ACTING TYPE ..... DKHL



### Features

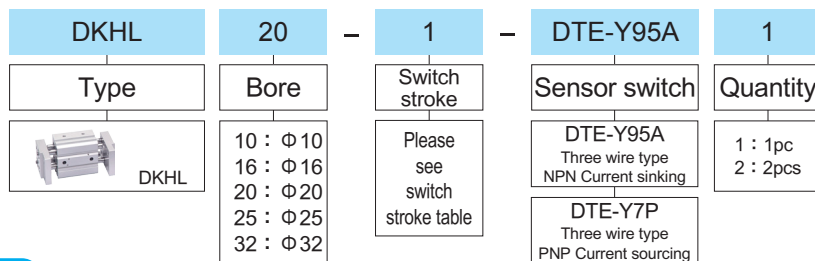
- Rack and pinion construction enable synchronisation of both jaws enabling smooth and consistent gripping force.
- Wide range of strokes available.
- Dust seals protect all internal parts from ingress of dirt.
- Proximity and reed switches can be used with this unit.

### Specification

Type	DKHL				
Bore	Φ 10、16、20、25、32				
Power fluid	Filtered air with or without lubrication				
The range of pressure	Φ 10 : 1.5 ~ 6.1 kgf/cm <sup>2</sup> / Φ 16 ~ Φ 32 : 1 ~ 6.1 kgf/cm <sup>2</sup>				
The range of temperature	-10 ~ +60 °C (No freezing)				
Stroke tolerance	±0.2 mm				
Clamping force *When pressuer 0.5 MPa	Φ 10 : 14N	Φ 16 : 45N	Φ 20 : 74N	Φ 25 : 131N	Φ 32 : 228N

※Clamping position, when bore 10、16、20、25 = 40mm and bore 32 = 80MM.

### How to order

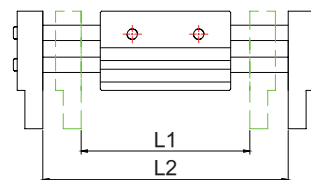


### Switch stroke table

Bore	Φ 10	Φ 16	Φ 20	Φ 25	Φ 32
No code	20	30	40	50	70
1	40	60	80	100	120
2	60	80	100	120	160

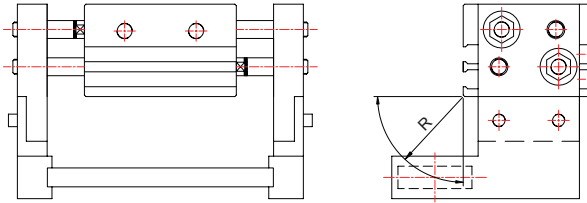
### Stroke table

Type	Bore mm	Max. operating frequency c.p.m	Switch stroke mm(L2 - L1)	Close extent mm(L1)	Open extent mm(L2)	Weight g
DKHL-10	10	60	20	56	76	280
DKHL-10-1		40	40	78	118	345
DKHL-10-2		40	60	96	156	425
DKHL-16	16	60	30	68	98	585
DKHL-16-1		40	60	110	170	795
DKHL-16-2		40	80	130	210	935
DKHL-20	20	60	40	82	122	1025
DKHL-20-1		40	80	142	222	1495
DKHL-20-2		40	100	162	262	1690
DKHL-25	25	60	50	100	150	1690
DKHL-25-1		40	100	182	282	2560
DKHL-25-2		40	120	200	320	2775
DKHL-32	32	30	70	150	220	2905
DKHL-32-1		20	120	198	318	3820
DKHL-32-2		20	160	242	402	4655



**Clamping point**

- Clamping point of work piece in clamping force diagram, the pressure use in the limited extent .
- Clamping point of work piece length longer than the curve expressed, partial load of gripper and guide place would be too big and make gripper life problem. It might cause gripper shaking and life problems.

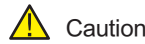
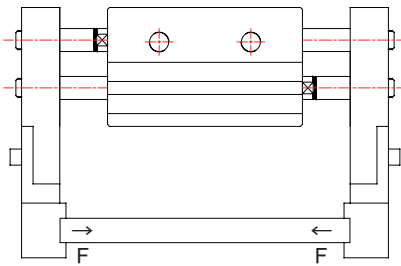


R : Clamping point mm  
 1N ≅ 0.102 kgf  
 1MPa ≅ 10.2 kgf / cm<sup>2</sup>

**Clamping force**

- Effectiveness of that method of clamping force

Clamping force in right diagram is curve expressed, two grippers and accessories all contact work piece and we using F to represent trust of one gripper.



**Caution**

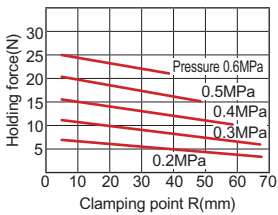
Specific product precautions

Before servicing this unit read this entire product information sheet.

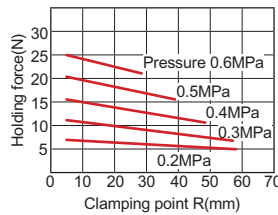
When work piece is used on hanging accessories, do not impact too much in the beginning and end of the removal. It might cause work piece deviation and falling.

**Check holding force**

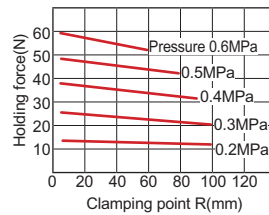
DKHL10



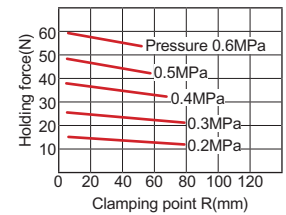
DKHL10-1/2



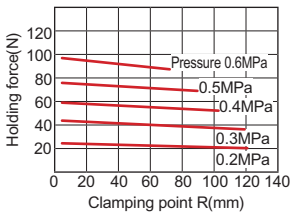
DKHL16



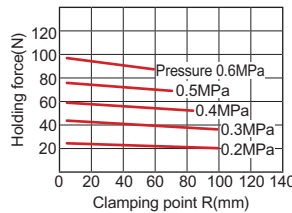
DKHL16-1/2



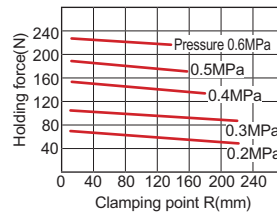
DKHL20



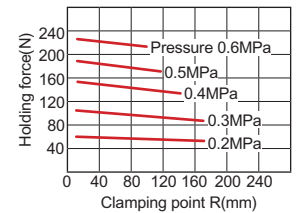
DKHL20-1/2



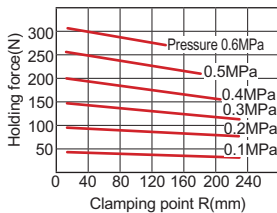
DKHL25



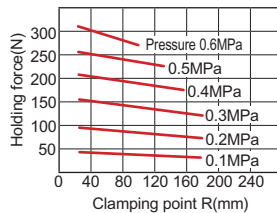
DKHL25-1/2



DKHL32



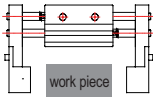
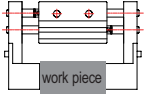
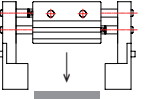
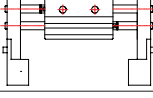
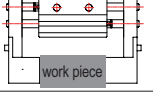
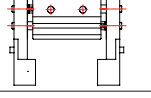
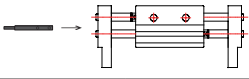
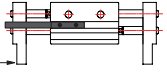
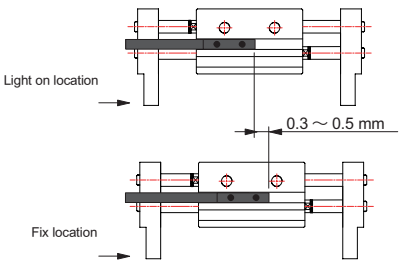
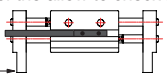
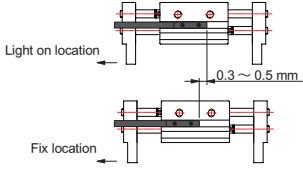
DKHL32-1/2



DKHL

Sensor switch mounting and setting sensing position

1. Test when clamping diameter of work piece

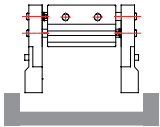
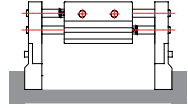
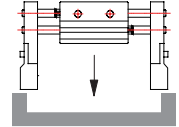
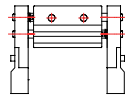

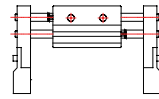
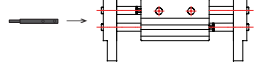
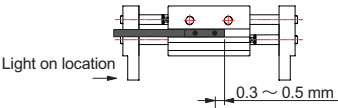
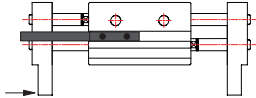
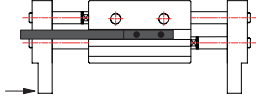
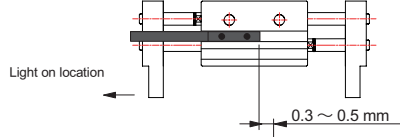
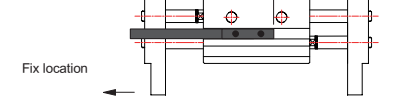
Example		1. Want to check gripper back	2. Want to check work piece when clamping	3. Want to check work piece when not clamping
Sensing location		When gripper fully open 	When clamping work piece 	When gripper fully open 
Sensor switch action		Sensor switch ON when gripper back (Light on)	Sensor switch ON when clamping work piece (Light on)	When clamping work piece (Normal) Sensor switch OFF (Light off) When not clamping work piece (Abnormal) Sensor switch ON (Light on)
Test combination	Set one sensor switch	●	●	●
	Need two sensor switch	●—●	●—●	●—●
		●—●	●—●	●—●
<b>Set sensor switch fix location sequence</b>  「No pressure or low pressure will power on the sensor switch and follow the sequence to set.」		<b>Step 1</b> Fully open gripper. 	<b>Step 1</b> Set gripper on clamping work piece location. 	<b>Step 1</b> Set gripper on fully close location. 
		<b>Step 2</b> Let sensor switch mounting in sensor groove (see right diagram) 		
		<b>Step 3</b> Let sensor switch move along the direction of the allow until the light on. 	<b>Step 3</b> Let sensor switch move along the direction of the arrow from the light on location about 0.3 ~ 0.5mm. 	
		<b>Step 4</b> Let sensor switch move along the direction of the allow to check light off. 		
		<b>Step 5</b> Let sensor switch move along opposite direction of the allow from light on location 0.3~0.5mm. 		

※ Suggested clamping work piece near the gripper stroke center.

※ When clamping work piece near the gripper switch stroke, differential induction of sensor switch will be limited on the test combination table.

Sensor switch mounting and setting sensing position

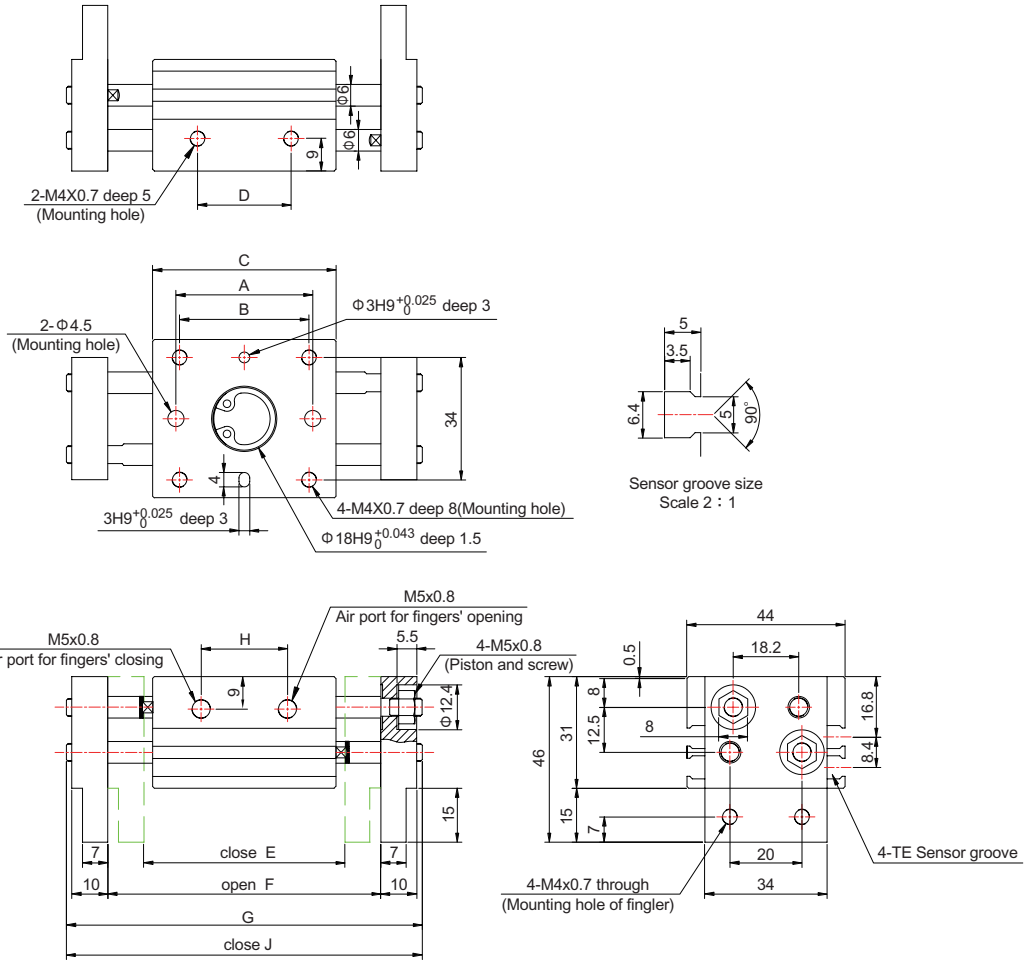
2. When clamping diameter

Example		1. Want to check gripper back	2. Want to check work piece when clamping	3. Want to check work piece when not clamping
Sensing location		When gripper fully open 	When clamping work piece 	When gripper fully open 
Sensor switch action		Sensor switch ON when gripper back (Light on)	Sensor switch ON when clamping work piece (Light on)	When clamping work piece(Normal) Sensor switch OFF(Light off) When not clamping work piece(Abnormal) Sensor switch ON(Light on)
Test combination	Set one sensor switch	●	●	●
	Need two sensor switch	●—————●	●—————●	●—————●
		●—————●	●—————●	●—————●
<b>Set sensor switch fix location sequence</b>  「No pressure or low pressure will power on the sensor switch and follow the sequence to set.」		<b>Step 1</b> Fully close gripper. 	<b>Step 1</b> Set gripper on clamping work piece location. 	<b>Step 1</b> Set gripper on fully close location. 
		<b>Step 2</b> Let sensor switch mounting in sensor groove (see right diagram) 		
		<b>Step 3</b> Let sensor switch move along opposite direction from the light on location of the arrow 0.3 ~ 0.5 mm. 	<b>Step 3</b> Let sensor switch move along the direction until light on. 	
		<b>Step 4</b> Let sensor switch move along the direction to check light off. 		
		<b>Step 5</b> Let sensor switch move back along opposite direction from light on location of arrow 0.3 ~ 0.5mm. 	<b>Step 5</b> Let sensor switch move back along opposite direction from light on location of arrow 0.3 ~ 0.5mm. 	

※ Suggested clamping work piece near the gripper stroke center.

※ When clamping work piece near the gripper switch stroke, differential induction of sensor switch will be limited on the test combination table.

DKHL Bore  $\Phi 10$  / Dimensional features



Dimensional table

Mark Bore	A	B	C	D	E	F	G	H	J
DKHL-10	38	36	51	26	56	76	100	24	80
DKHL-10-1	54	52	67	42	78	118	142	40	108
DKHL-10-2	72	70	85	60	96	156	180	58	146

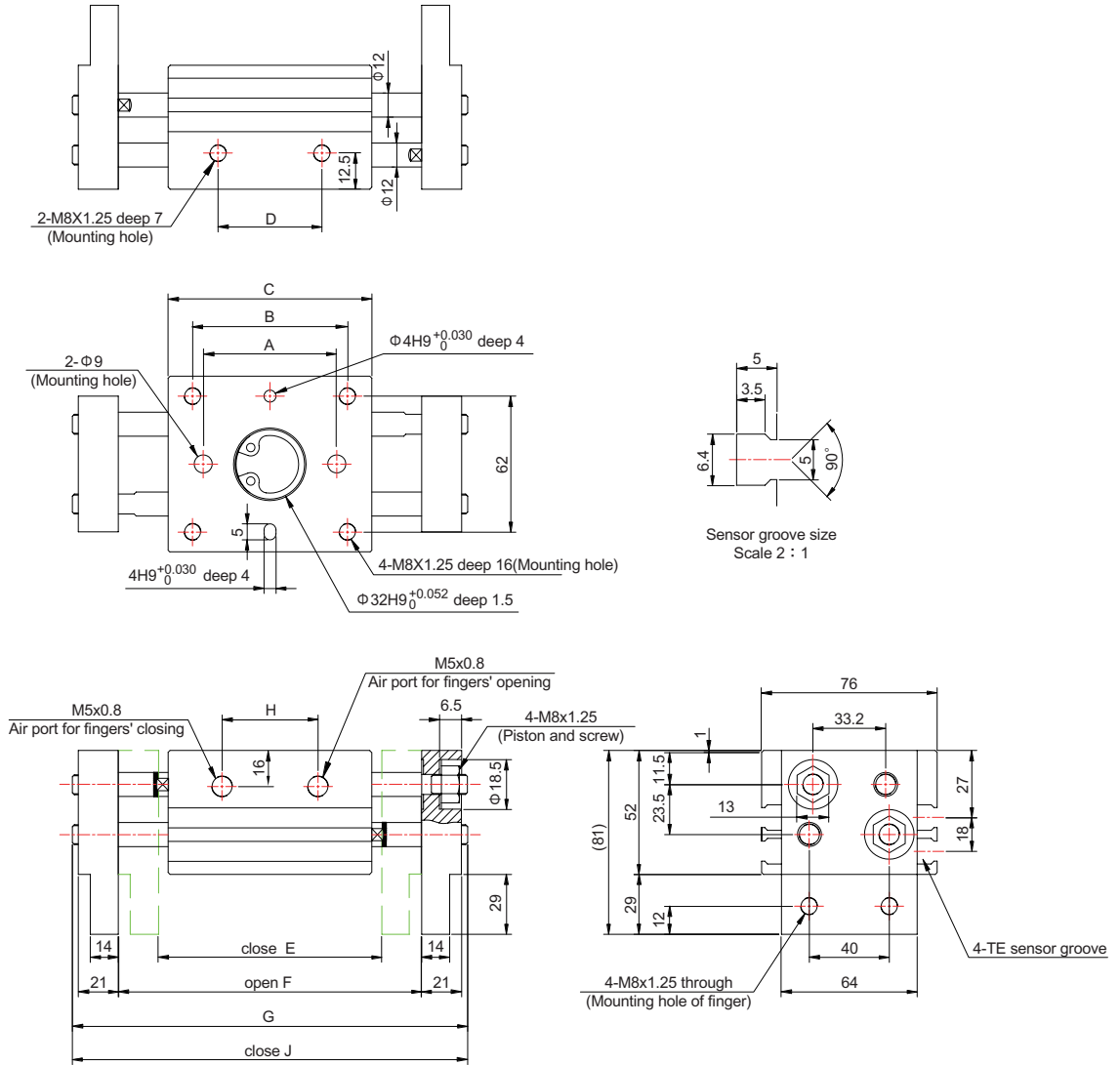
※ Mark J means the size when fully close.

※ Axis exposed by the gripper shaft when gripper D1 \ D2 close, the valve is different from J after G subtract stroke.





**DKHL** Bore  $\Phi 25$  / Dimensional table



**Dimensional table**

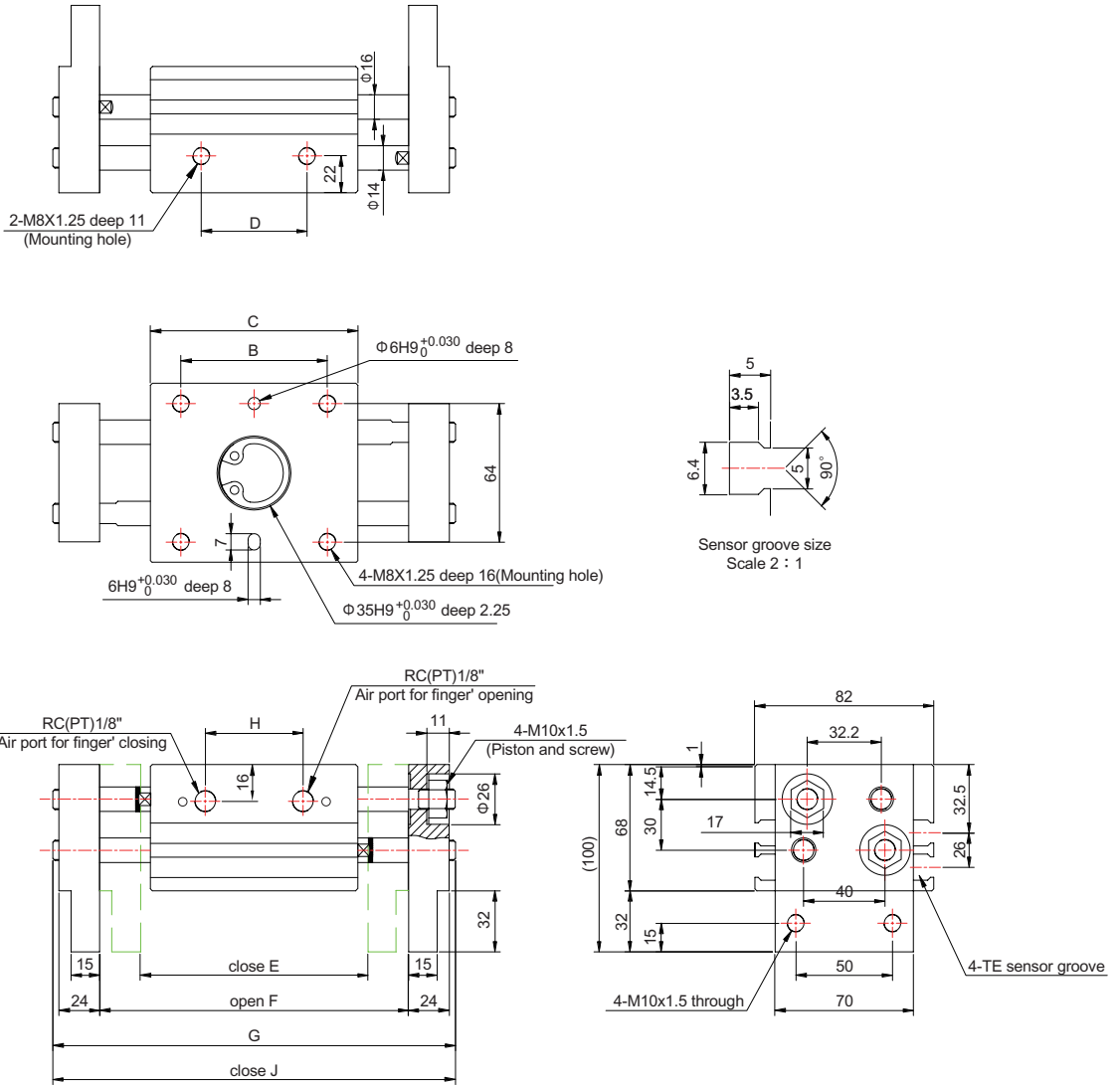
Mark Bore	A	B	C	D	E	F	G	H	J
DKHL-25	66	70	88	48	100	150	196	38	146
DKHL-25-1	120	124	142	102	182	282	328	86	244
DKHL-25-2	138	142	160	120	200	320	366	104	282

※ Mark J means the size when fully close.

※ Axis exposed by the gripper shaft when gripper D1 \ D2 close, the valve is different from J after G subtract stroke.



DKHL Bore  $\Phi 32$  / Dimensional features



Dimensional table

Mark Bore	A	B	C	D	E	F	G	H	J
DKHL-20	86	110	60	60	150	220	272	56	202
DKHL-20-1	134	158	108	108	198	318	370	104	282
DKHL-20-2	178	202	152	152	242	402	454	148	366

※ Mark J means the size when fully close.

※ Axis exposed by the gripper shaft when gripper D1 \ D2 close, the valve is different from J after G subtract stroke.