



Simple and compact linear clamp

Model Representation Upper flange installation

HDBA ① - ② ③ (Example: HDBA-CS)

① Dimension (refer to specification sheet) ② Piping method ③ Stroke code

HDBA	0250	B: External piping type (G thread) C: Plate connection type (with G thread plug)	S: full stroke 25mm
	0320		M: full stroke 50mm
	0400		
	0500		

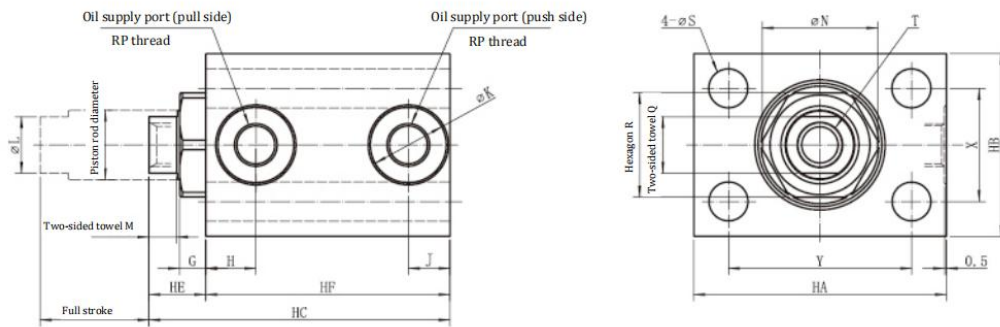
Specification

Model			HDBA0250		HDBA0320		HDBA0400		HDBA0500	
Stroke code			S	M	S	M	S	M	S	M
Full stroke	mm		25	50	25	50	25	50	25	50
Clamp area	Push side	cm ²	4.9		8.0		12.6		19.6	
	Pull side		2.9		4.9		7.7		11.6	
Clamping output force (calculation formula)	Push side	kN	P×0.49		P×0.80		P×1.26		P×1.96	
	Pull side		P×0.29		P×0.49		P×0.77		P×1.16	
Clamp capacity	Push side	cm ³	12.3	24.5	20.1	40.2	31.4	62.8	49.1	98.2
	Pull side		7.3	14.5	12.3	24.5	19.1	38.3	29.0	58.0
Clamp inner diameter	mm		Φ25		Φ32		Φ40		Φ50	
Piston rod diameter	mm		Φ16 f7		Φ20 f7		Φ25 f7		Φ32 f7	
Maximum operating pressure	MPa		35.0							
Minimum operating pressure	MPa		1.0							
Withstand pressure	MPa		42.0							
Operating temperature	°C		0~70							
Operating fluid			Equivalent to ISO viscosity grade ISO-VG-32 general hydraulic oil							
Weight	kg		1.1	1.5	1.7	2.3	2.3	3.0	3.8	5.0

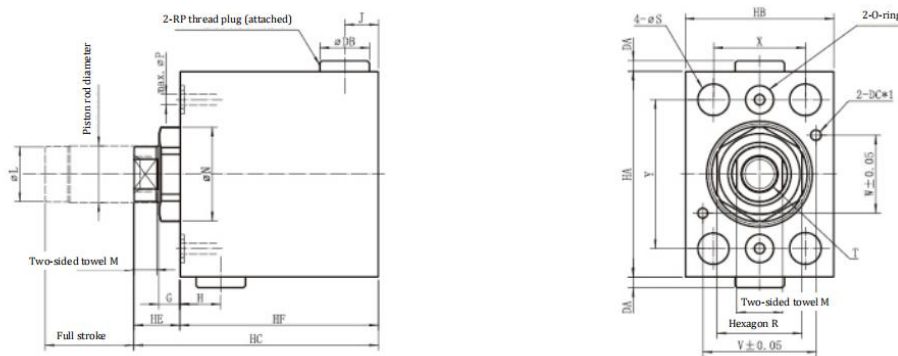
Precautions 1. P in the clamp output (calculation formula) is the supplied oil pressure (MPa).

Overall dimension

HDBA□0-B: external piping type



HDBA□0-C□: plate connection type



Model	HDBA0250		HDBA0320		HDBA0400		HDBA0500		
	S	M	S	M	S	M	S	M	
Stroke code									
HA	58		70		80		100		
HB	42		50		55		65		
HC	69.1	94.1	78.1	103.1	86.1	111.1	92.1	117.1	
HE	13		15		17		18		
HF	56	81	63	88	69	94	74	99	
G	6		6.5		7		7		
H	11.5		15		17		18		
J	9.5		10		12		13		
K	17.5		17.5		21		21		
L	15.5		19.5		24.3		31.3		
M	6.5		8		9.3		10.3		
N	26.5		33		40		50		
P	3		5		5		5		
Q	13		17		21		27		
R	24		30		36		46		
S	9		11		11		13.5		
T	M10 thread depth 15		M12 thread depth 18		M16 thread depth 23		M20 thread depth 28		
V	32		38		44		52		
W	22		26		32		44		
X	26.1		30.1		35.1		42.1		
Y	42.1		50.1		60.1		76.1		
DA	3		3		4		4		
DB	14		14		19		19		
DC※1	φ 3 deep 5		φ 5 deep 5		φ 5 deep 5		φ 5 deep 5		
Oil supply port	Type -B	RP1/8		RP1/8		RP1/4		RP1/4	
RP thread plug	Type -C	RP1/8		RP1/8		RP1/4		RP1/4	
O-seal ring	4.8×1.9		6.8×1.9		6.8×1.9		6.8×1.9		

Precautions 1.- C: the surface roughness of the plate connection installation surface shall be 6.3S. ※ 1. It is possible to use DC hole and spring pin to position the clamp.

Model Representation

Flange side installation

HDBC ① - ② ③ (Example: HDBC0250-CS)

① Dimension (refer to specification sheet) ② Piping method ③ Stroke code

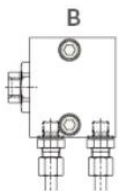
HDBC	0250	B: External piping type (G thread)	S: full stroke 25mm
	0320		
	0400	C: Plate connection type (with G thread plug)	M: full stroke 50mm
	0500		

Specification

Model		HDBC0250		HDBC0320		HDBC0400		HDBC0500	
Stroke code		S	M	S	M	S	M	S	M
Full stroke	mm	25	50	25	50	25	50	25	50
Clamp area	Push side	4.9		8.0		12.6		19.6	
	Pull side	2.9		4.9		7.7		11.6	
Clamping output force (calculation formula)	Push side	P×0.49		P×0.80		P×1.26		P×1.96	
	Pull side	P×0.29		P×0.49		P×0.77		P×1.16	
Clamp capacity	Push side	12.3	24.5	20.1	40.2	31.4	62.8	49.1	98.2
	Pull side	7.3	14.5	12.3	24.5	19.1	38.3	29.0	58.0
Clamp inner diameter	mm	Φ25		Φ32		Φ40		Φ50	
Piston rod diameter	mm	Φ16 f7		Φ20 f7		Φ25 f7		Φ32 f7	
Maximum operating pressure	MPa	35.0							
Minimum operating pressure	MPa	1.0							
Withstand pressure	MPa	42.0							
Operating temperature	°C	0~70							
Operating fluid		Equivalent to ISO viscosity grade ISO-VG-32 general hydraulic oil							
Weight	kg	1.1	1.5	1.7	2.3	2.3	3.0	3.8	5.0

Precautions 1. P in the clamp output (calculation formula) is the supplied oil pressure (MPa).

Piping method



External piping type

G thread
Non-plate
connection port

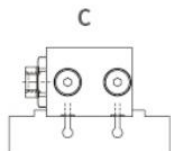
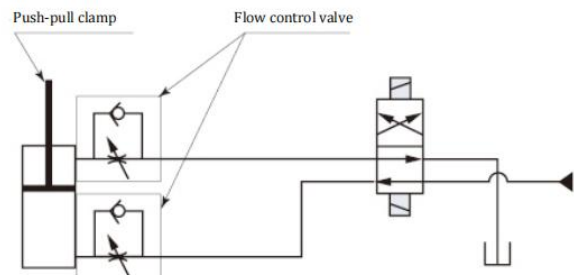


Plate connection type

With G thread plug
Speed control valve can
be installed

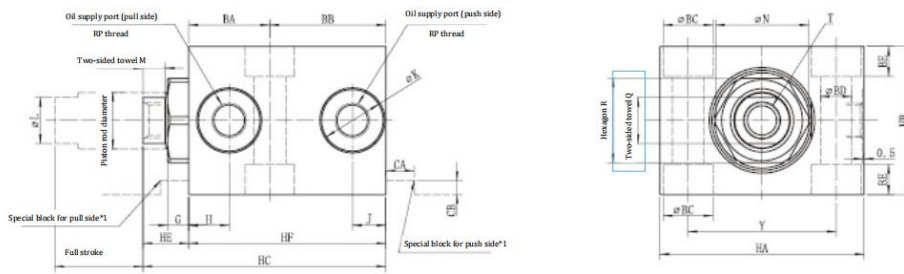
Oil pressure circuit (reference)



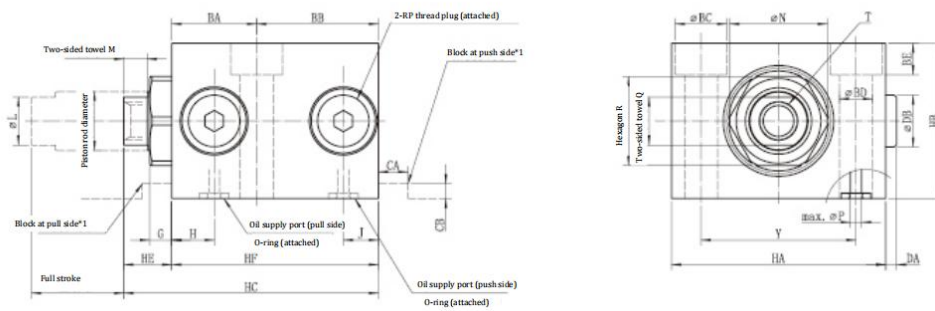
It is recommended to use the oil inlet throttle control mode for the flow control valve. If the oil outlet throttle control mode is adopted, the back pressure will be generated due to the area difference, resulting in high pressure and system fault. Therefore, pay attention to it when designing the circuit.

※ The speed control valve (BZL) shall be purchased separately by the user. It is only used under the service pressure of 7MPa. Please refer to page 80.

HDBC□0-B□: external piping type



HDBC□0-C□: plate connection type



Model	HDBC0250		HDBC0320		HDBC0400		HDBC0500	
	S	M	S	M	S	M	S	M
Stroke code								
HA	58		70		80		100	
HB	42		50		55		65	
HC	69.1	94.1	78.1	103.1	86.1	111.1	92.1	117.1
HE	13		15		17		18	
HF	56	81	63	88	69	94	74	99
G	6		6.5		7		7	
H	11.5		15		17		18	
J	9.5		10		12		13	
K	17.5		17.5		21		21	
L	15.5		19.5		24.3		31.3	
M	6.5		8		9.3		10.3	
N	26.5		33		40		50	
P	3		5		5		5	
Q	13		17		21		27	
R	24		30		36		46	
T	M10 thread depth 15		M12 thread depth 18		M16 thread depth 23		M20 thread depth 28	
Y	42.1		50.1		60.1		76.1	
BA	23		27		32		34	
BB	33	58	36	61	37	62	40	65
BC	14		17.5		17.5		20	
BD	9		11		11		13.5	
BE	8.5		10.5		10.5		12.5	
CA	8		8		10		13	
CB	4		5		5		5	
DA	3		3		4		4	
DB	14		14		19		19	
Oil supply port	Type-B	RP1/8	RP1/8	RP1/8	RP1/4	RP1/4	RP1/4	RP1/4
RP thread plug	Type-C	RP1/8	RP1/8	RP1/8	RP1/4	RP1/4	RP1/4	RP1/4
O-seal ring	4.8×1.9		6.8×1.9		6.8×1.9		6.8×1.9	

Precautions 1. - C: the surface roughness of the plate connection installation surface shall be 6.3S.

※1. Please set the brake as shown in this figure when using the speculated over 15MPa of the linear clamp at push side and over 25MPa of the linear clamp at pull side.

Precautions for Design

1. Specification confirmation

Please confirm the specifications of each product before use.

2. Precautions for circuit design

When designing the hydraulic circuit, reasonably design the hydraulic circuit. The wrong design of hydraulic circuit will lead to the malfunction and damage of the machine.

When designing the circuit, it is forbidden to supply oil pressure to the push side and pull side at the same time.

3. Precautions for piping design

It is recommended to select large-diameter piping as much as possible. The back pressure is proportional to the piping diameter. If the piping diameter is too small, the release time and clamping time will be prolonged.

4. Please protect the sliding surface of the piston rod when using it on the welding fixture

If the splashed solution splashes on the sliding surface, it will lead to poor operation, oil leakage and other faults. In this regard, the time will be extended.

5. Bearing direction of piston rod

Do not apply any force other than that for the axial direction of the piston. The use method shown in the following figure (Figure "X" on the left) will cause great bending stress on the piston rod, which must be absolutely prohibited.

6. When clamping the inclined surface of the workpiece

When clamping the inclined surface of the workpiece, the clamp and the clamped surface shall be kept horizontal, that is, the clamped surface and the installation surface of the clamp shall be kept parallel.

The clamping of the inclined plane will cause the workpiece to deviate or the piston rod to slip. (if the workpiece is a cast part, it is recommended to use nail attachment to fix it at the part with large inclination)

7. Installation of speed control valve

HDBA □ 0-C □ and HDBC □ 0-C □ external piping linear clamp can be installed with those listed in the following table

Low-pressure special speed control valve
It is forbidden to use the high-pressure special speed control valve

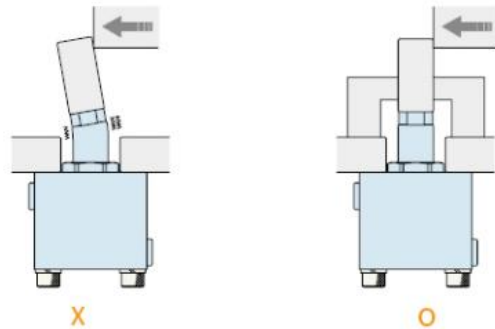
Model	Speed control valve model	Maximum pressure at HBZL installation
HDBA/HDBC0250-C	HBZL0100-B	7MPa
HDBA/HDBC0320-C	HBZL0100-B	7MPa
HDBA/HDBC0400-C	HBZL0200-B	7MPa
HDBA/HDBC0500-C	HBZL0200-B	7MPa

8. HDBC: brake setting

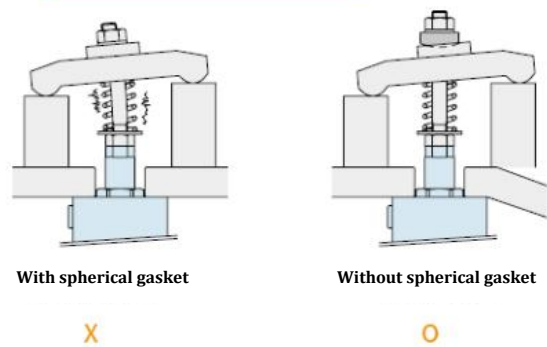
At the push side, please set the special brake for push side when it is used above 25MPa.

At the pull side, please set the special brake for pull side when it is used above 25MPa. Please refer to the overall dimension drawing for the dimensions of the brake.

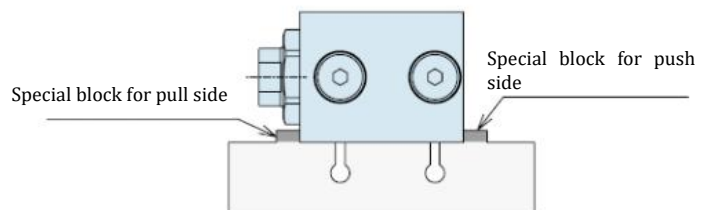
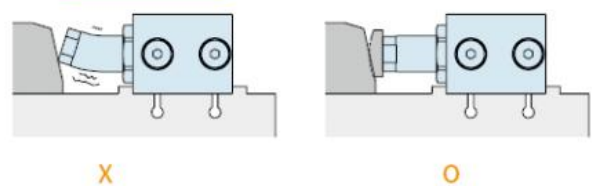
When the piston is subjected to non-axial force



When clamping workpieces with different heights



When clamping the inclined plane



Precautions for installation

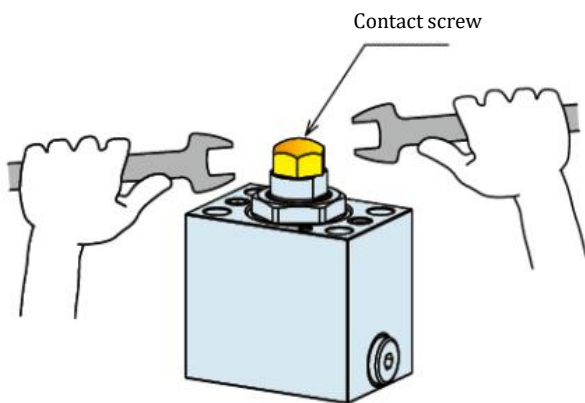
1. Please confirm to use fluid and select appropriate hydraulic oil.
2. Body installation

When installing the body, please use 4 hexagon socket bolts (strength grade 12.9) and install with the torque specified in the following table. If the installation torque exceeds the recommended tightening torque, the foundation will be sunken and the bolts will be hot-adhered.

Model	Installation bolt nominal	Number of installation bolts	Tightening torque (N · m)
HDBA0250	M18	4	25
HDBA0320	M10	4	50
HDBA0400	M10	4	50
HDBA0500	M12	4	80
HDBC0250	M18	2	25
HDBC0320	M10	2	50
HDBC0400	M10	2	50
HDBC0500	M12	2	80

3. Installation and removal of contact bolts

When installing and removing the contact bolt, be sure to use a wrench to fix the two-sided towel at the front end of the piston rod to prevent the piston rod bolt. Tighten the contact bolts according to the torque in the table below



Model	Thread size	Tightening torque (N · m)
HDBA/HDBC0250	M10	50
HDBA/HDBC0320	M12	100
HDBA/HDBC0400	M16	200
HDBA/HDBC0500	M20	315

4. Speed adjustment

Please adjust the speed according to the standard of push and pull side movement below 100mm per second. If the clamping action is fast, it will accelerate the wear damage of each component and cause fault.

The air in the circuit must be drained before speed adjustment.

It is impossible to adjust the speed accurately when the circuit is mixed with air.

When adjusting the speed, please slowly adjust the speed control valve from the low-speed side (small flow) to the high-speed side (large flow).