

klampTM

Efficient workholding



Centric Power Blocks

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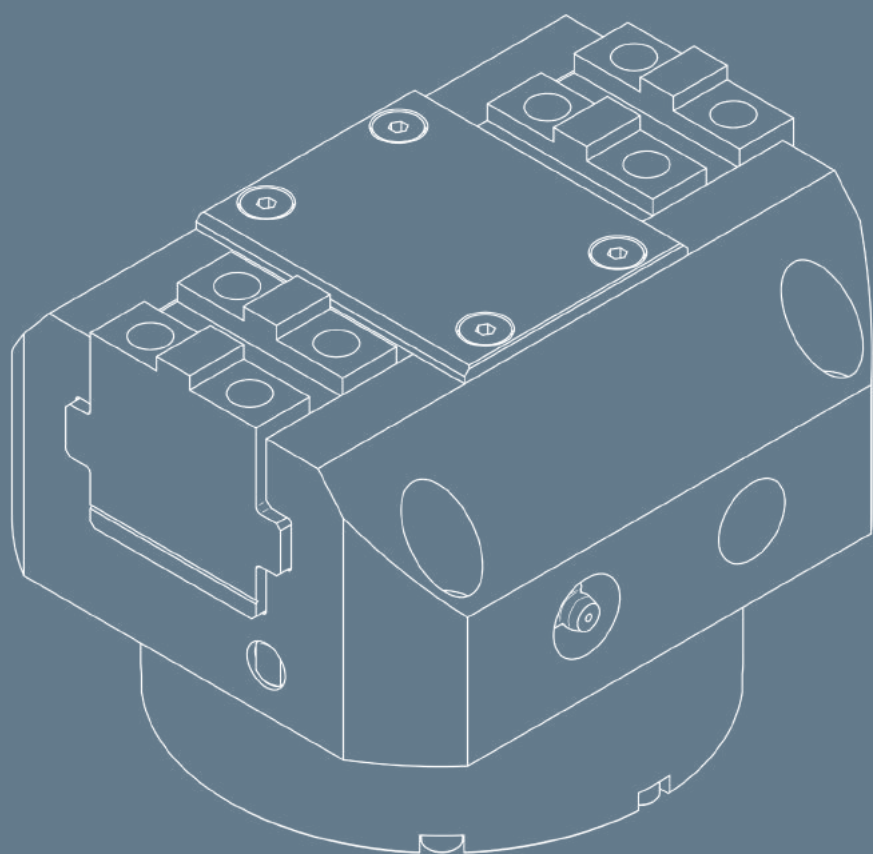
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Centric Power Blocks

KFWD Series

Centric Power Blocks
KFWD Series



Pneumatic centering vice with a built in check valve

High power or long stroke option

High-accuracy

High-pneumatic power

Best for automation

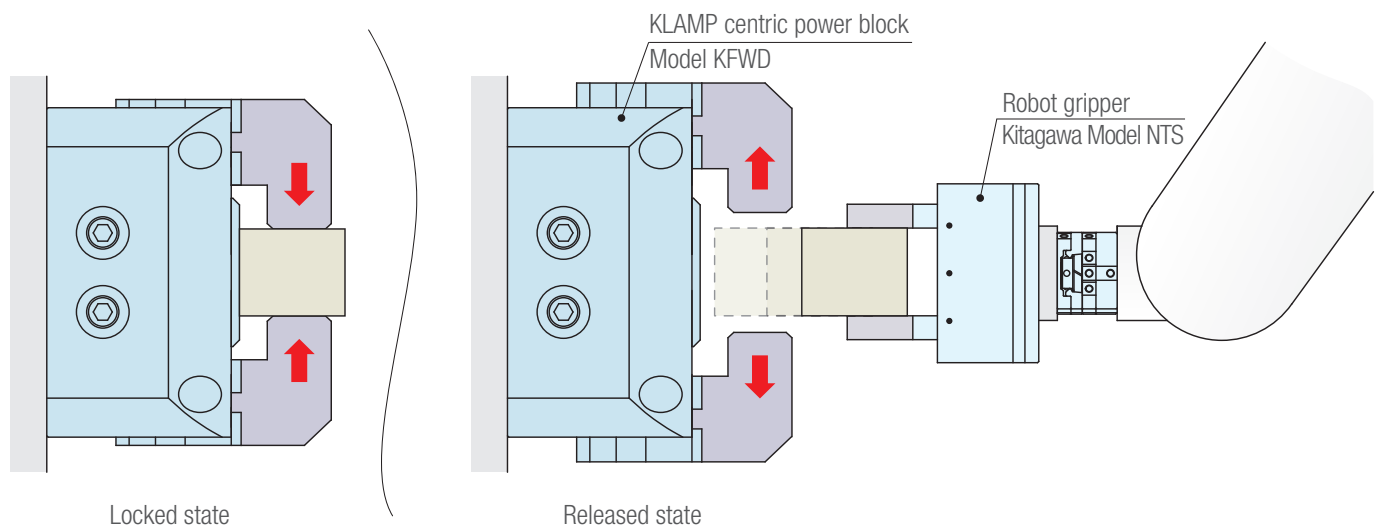
Built-in safety function & action confirmation



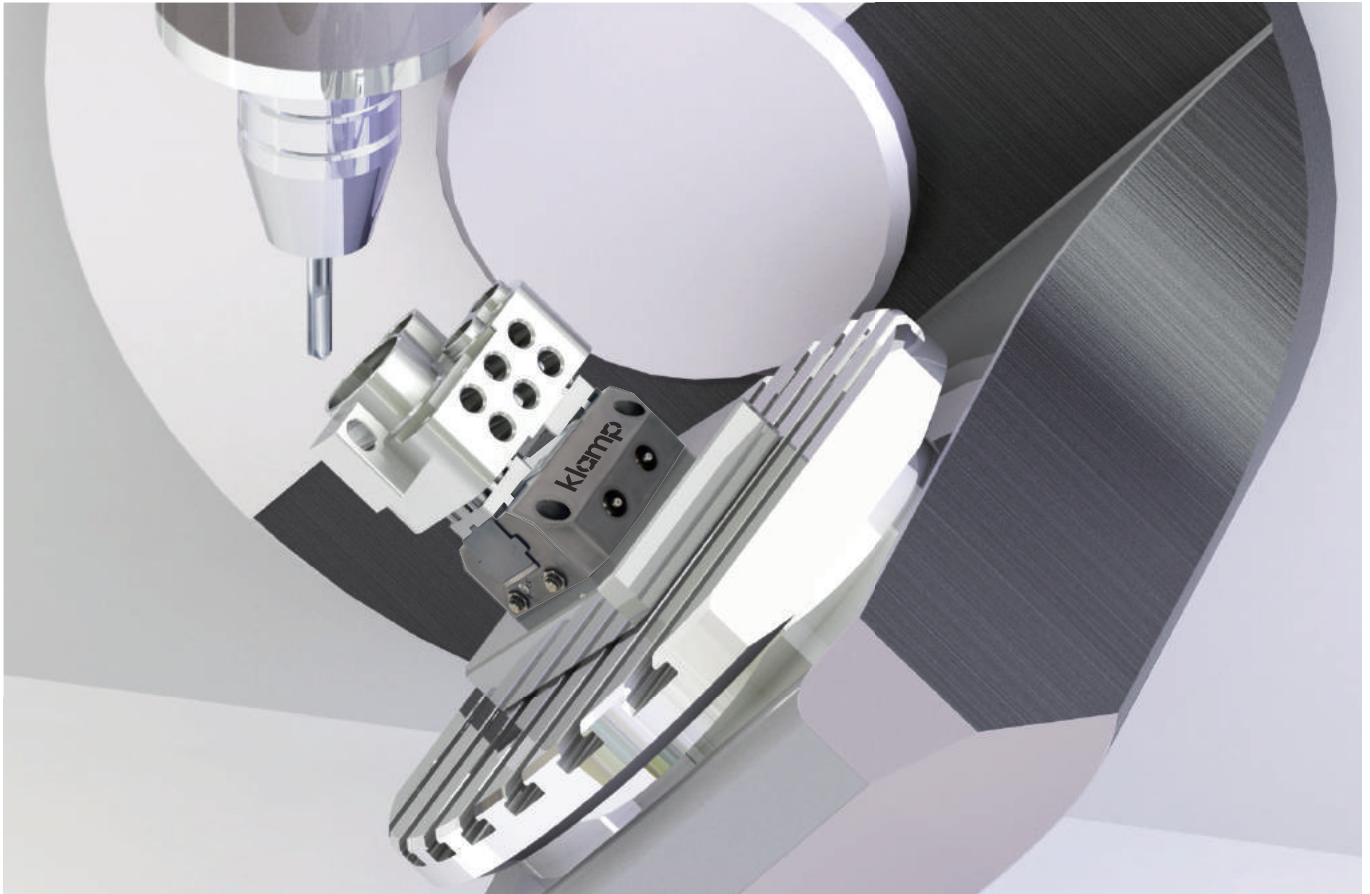
	Model KFWD	Model KFWD-L
Classification	Centric power block	
	High Power	Long Stroke
Cross section		
Features	High accuracy and high power	High accuracy and long stroke
Repeatability (X-axis direction)	$\pm 0.01\text{mm}$	
Jaw Stroke (per jaw)	2.5mm	7mm
Accessories	BZW-B speed control valve	

Application Examples

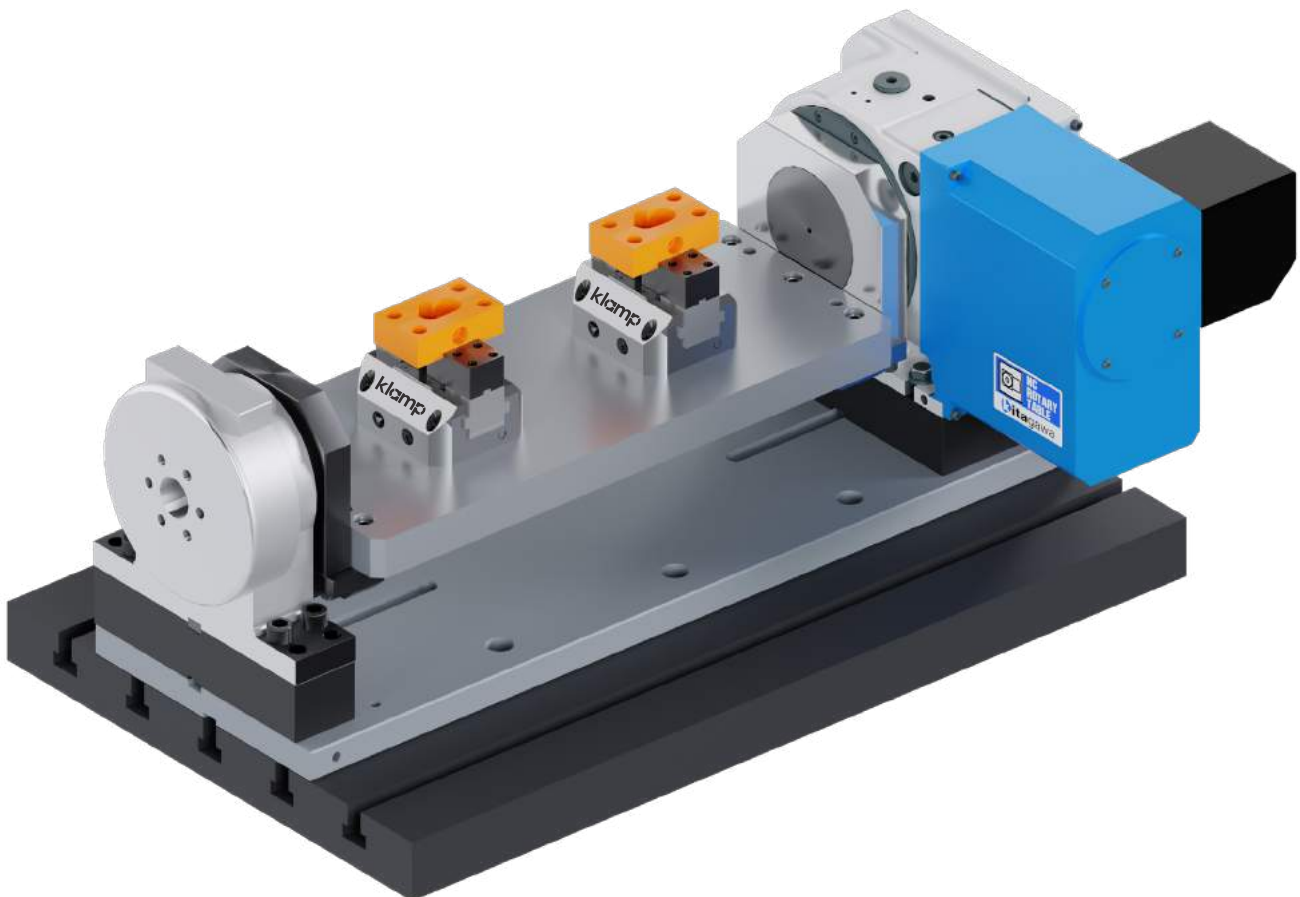
For automatic transfer with robot



5-Axis machining with a KFWD centric power block

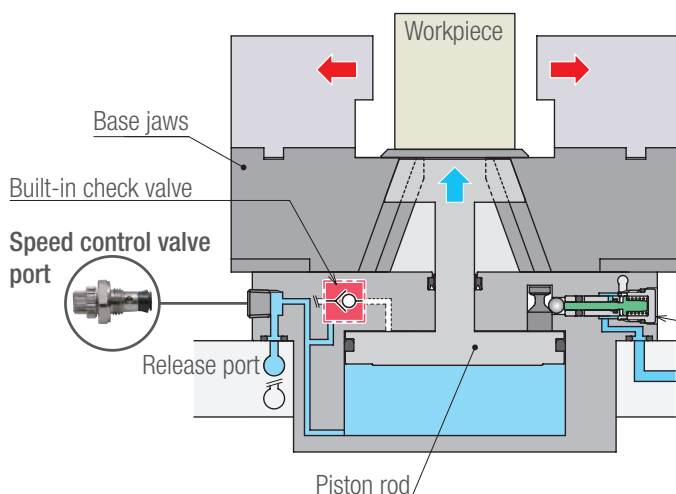


KFWD Centric power block with a Kitagawa production system



Actuation description

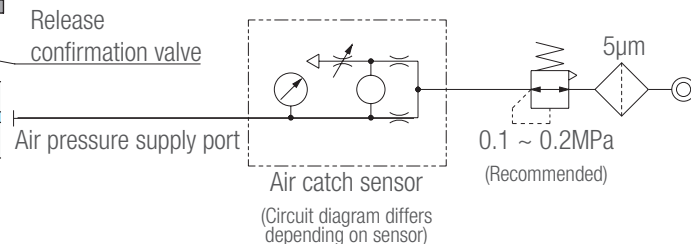
Unclamp



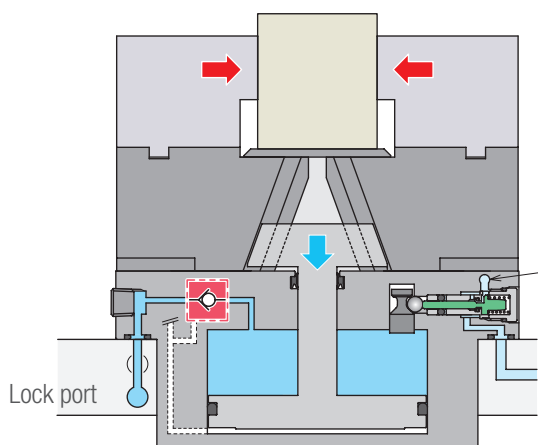
Unclamp Action

The piston rod ascends to open the base jaws by supplying air pressure to the release port.

Air Pressure		Air catch sensor release confirmation
Lock Air Pressure	Release air pressure	
OFF	ON	ON



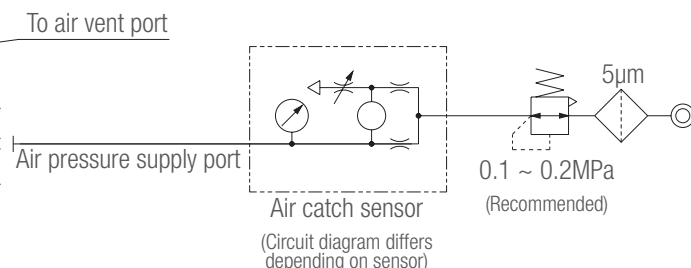
Clamp



Clamp Action

The piston rod descends to close the base jaws by supplying air pressure to the lock port.

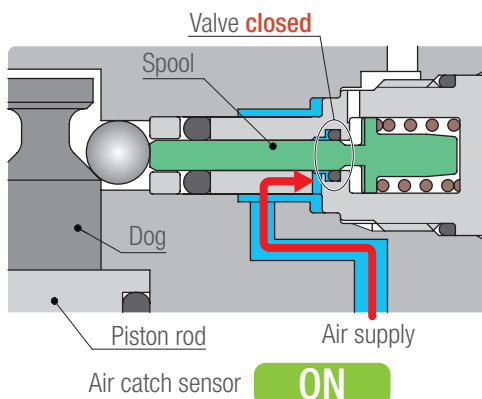
Air Pressure		Air catch sensor release confirmation
Lock Air Pressure	Release air pressure	
ON	OFF	OFF



Release confirmation valve

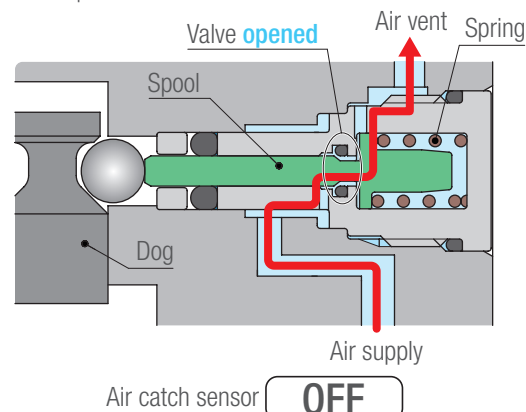
Unclamped - at full stroke

The spool is pushed back when the dog is pushed by the piston rod which closes the valve.



Clamped

The spool is pushed forward by the internal spring which opens the valve.

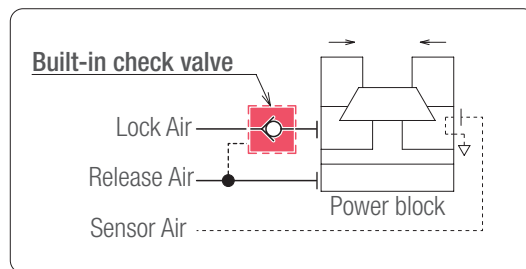


Encompassing technology to ensure safety and reliability

Maintains the locked state even when air pressure is cut off.

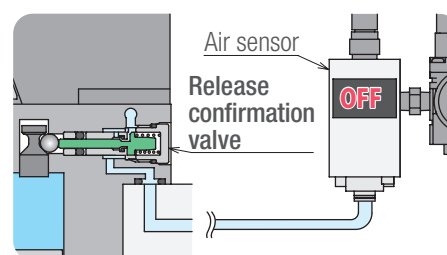
The built-in check valve maintains internal locking air pressure until air is supplied to the release port. This maintains the locked state even when locking air pressure is temporarily cut off, ensuring safety

Please supply the air pressure of Lock Air Pressure $\times$ 0.5 (MPa) or more to the release side (pilot pressure of built-in check valve)



Release Action Confirmation

Built-in release confirmation valve enables to confirm release action with an air sensor.



High Accuracy

The slide block design enables high repeatability and is suitable for high-accuracy applications.

Repeatability (X-axis Direction) ± 0.01 mm

Excellent Maintainability

The grease nipple is equipped for lubricating internal parts. (Lubrication ports are also available for grease filling)

Equipped with Dust Cover

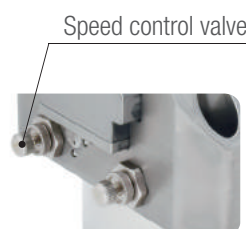


Easy to Machine the Machining Surface of Clamp Lever

Only slot and bolt hole need to be machined for mounting the clamp lever. Complicated serration machining is not required.

Secure Locking of Workpiece with Powerful Gripping Force

Able to Mount Speed Control Valve (model BZW-B)



Use of the air catch sensor

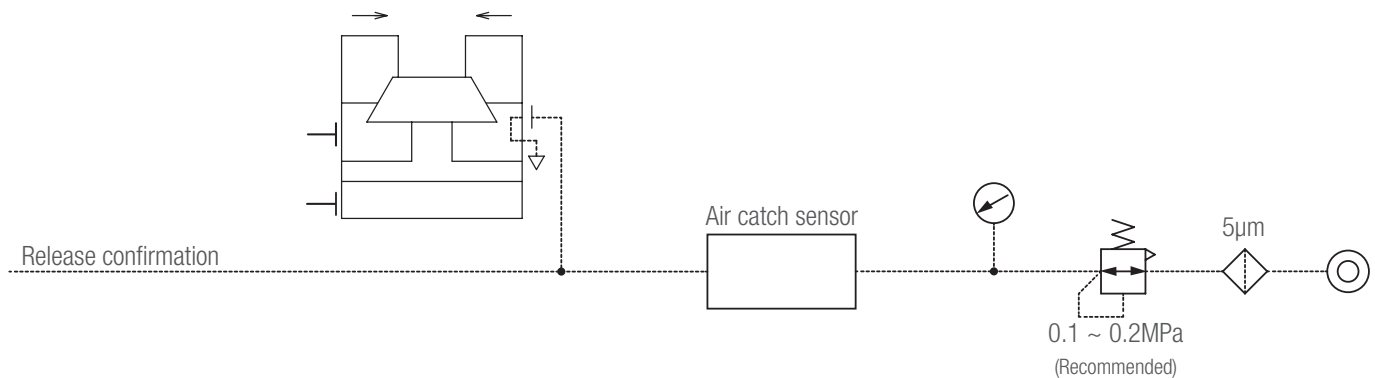
Action confirmation is done by detecting differential pressure with the air catch sensor

About Air Catch Sensor

- The air catch sensor is necessary for action confirmation.
Sensing can be done by air catch sensor with a small amount of air flow (recommended model in the list below).

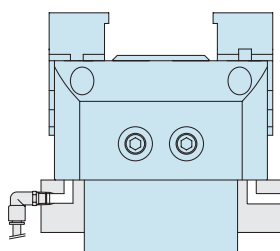
Recommended air catch sensor manufacturer	SMC	CKD
Name	Air Catch Sensor	Gap Switch
Model	ISA3-G	GPS3-E

- Recommended Operating Air Pressure: 0.1-0.2 MPa.
- Please refer to manufacturer's catalog etc. for the detail of the air sensor.
- The supply air pressure to the air catch sensor should be 0.1 ~ 0.2MPa.
- Continuously supply air pressure when in use.
- Refer to the drawing below for the air circuit structure.

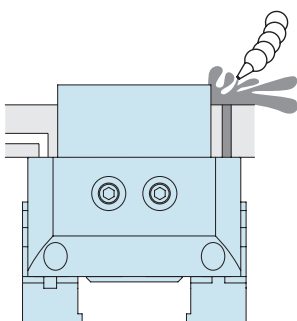


Installation and operating instructions of the air catch sensor

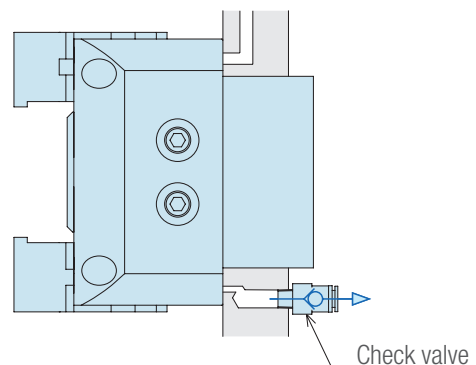
- Please keep the sensor air vent port in a clear condition and prevent coolant and chips from entering the port. The air catch sensor can malfunction if the air vent port is blocked.
- Continuously supply air pressure to the air port for sensing when in use.
- Set a check valve with low cracking pressure to the detection port of the air sensor. (Recommended Check Valve: SMC-made AKH series, cracking pressure: 0.005MPa)



○ Keep the sensor air vent port in a clear condition



✗ Do not let coolant and chips enter the sensor air vent port

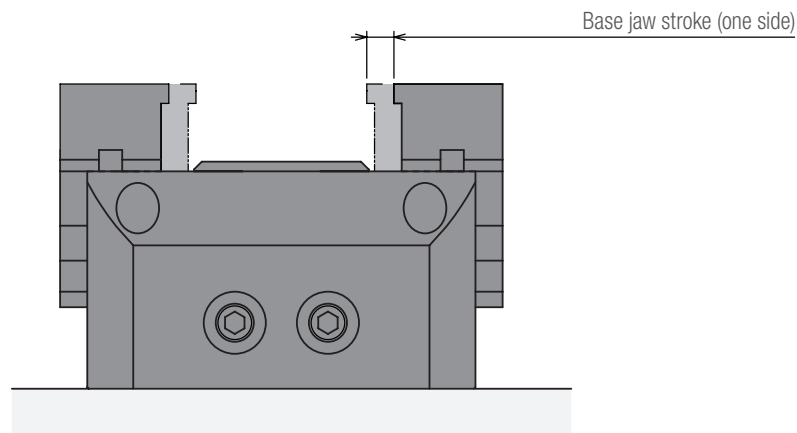
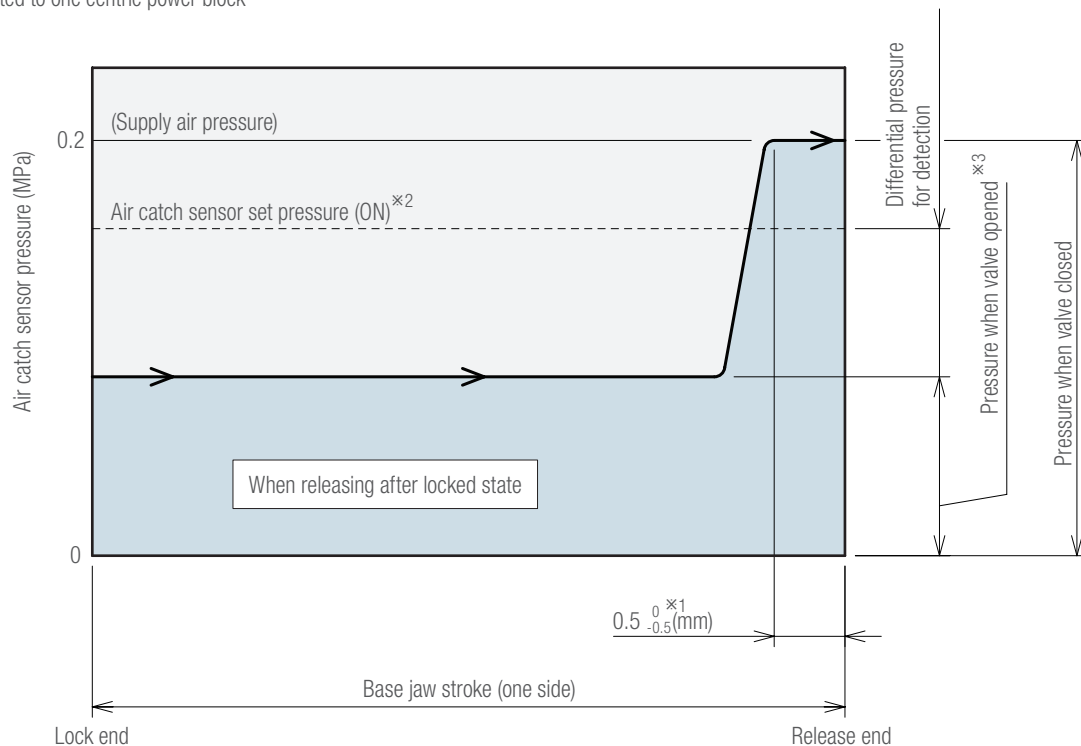


Check valve

Use of the air catch sensor

Air sensing chart

When connected to one centric power block



Notes :

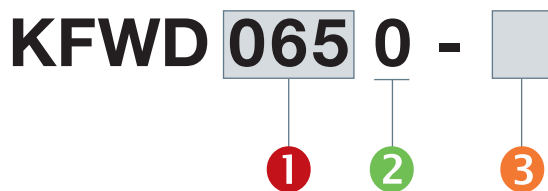
- The sensing chart shows the relationship between the slider stroke and the air catch sensor pressure.
- The specifications may vary depending on the air circuit. The hose length should be as short as possible. (Suggest less than 5m).

※1 There is certain tolerance with regard to the position where the pressure for closing the valve is reached depending on the cylinder structure. (Refer to the sensing chart.)

※2 The position where the air catch sensor turns ON signal output varies depending on the sensor setting.

※3 The sensor pressure when the valve is opened differs depending on a sensor. In case of a sensor with large air consumption, the sensor pressure when the valve is opened increases and differential pressure decreases.

Model number indication & specifications



1 Cylinder Inner Diameter

065 : Cylinder Inner Diameter Ø65
 085 : Cylinder Inner Diameter Ø85
 100 : Cylinder Inner Diameter Ø100

2 Design Number

0 : Revision Number

3 Stroke Code

Blank : Standard Stroke
 L : Long Stroke

Specifications

Model No.		KFWD0650-□	KFWD0850-□	KFWD1000-□
Base jaw stroke (One side)	mm	2.5		
		7		
Maximum clamping height (At 1 MPa)	mm	35	45	55
		75	100	125
Cylinder diameter ^{※1}	mm	65	85	100
Rod diameter ^{※1}	mm	12	16	20
Cylinder area	cm ²	32.1	54.7	75.4
		33.2	56.7	78.5
Cylinder capacity	cm ³	64.1	109.5	150.8
		66.4	113.5	157.1
Maximum operating pressure	MPa	1.0		
Maximum operating pressure ^{※2}	MPa	0.2		
Withstanding Pressure	MPa	1.5		
Recommended Air Catch Sensor Pressure	MPa	0.1 ~ 0.2		
Recommended Air Catch Sensor		ISA3-G (made by SMC) / GPS3-E(made by CKD)		
Repeatability (X- axis Direction) ^{※3}	mm	± 0.01		
Operating Temperature	°C	0 ~ 70		
Usable Fluid		Dry Air		
Weight	Kg	3.5	5.4	7.4

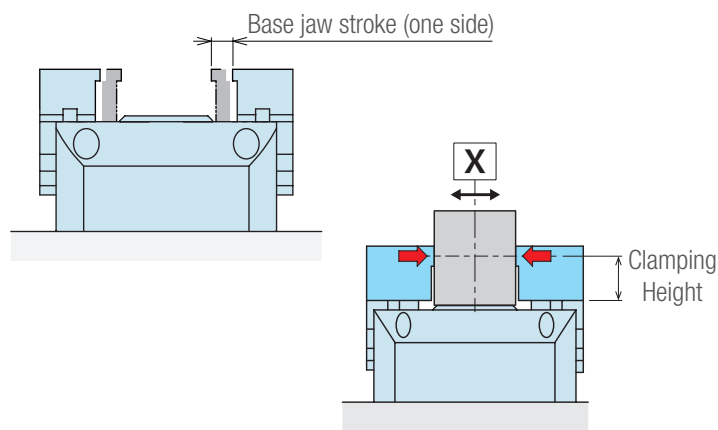
Notes:

- Excessively fast operating speed of the centric power block may lead to wear-out or damage internal components. Adjust the operating speed so that the base jaw fully strokes within the following time period.
 Standard Stroke: 0.5 - 1.0 sec
 Long Stroke: 1.0 - 1.5 sec
- Secure the extra stroke of 1mm or more.

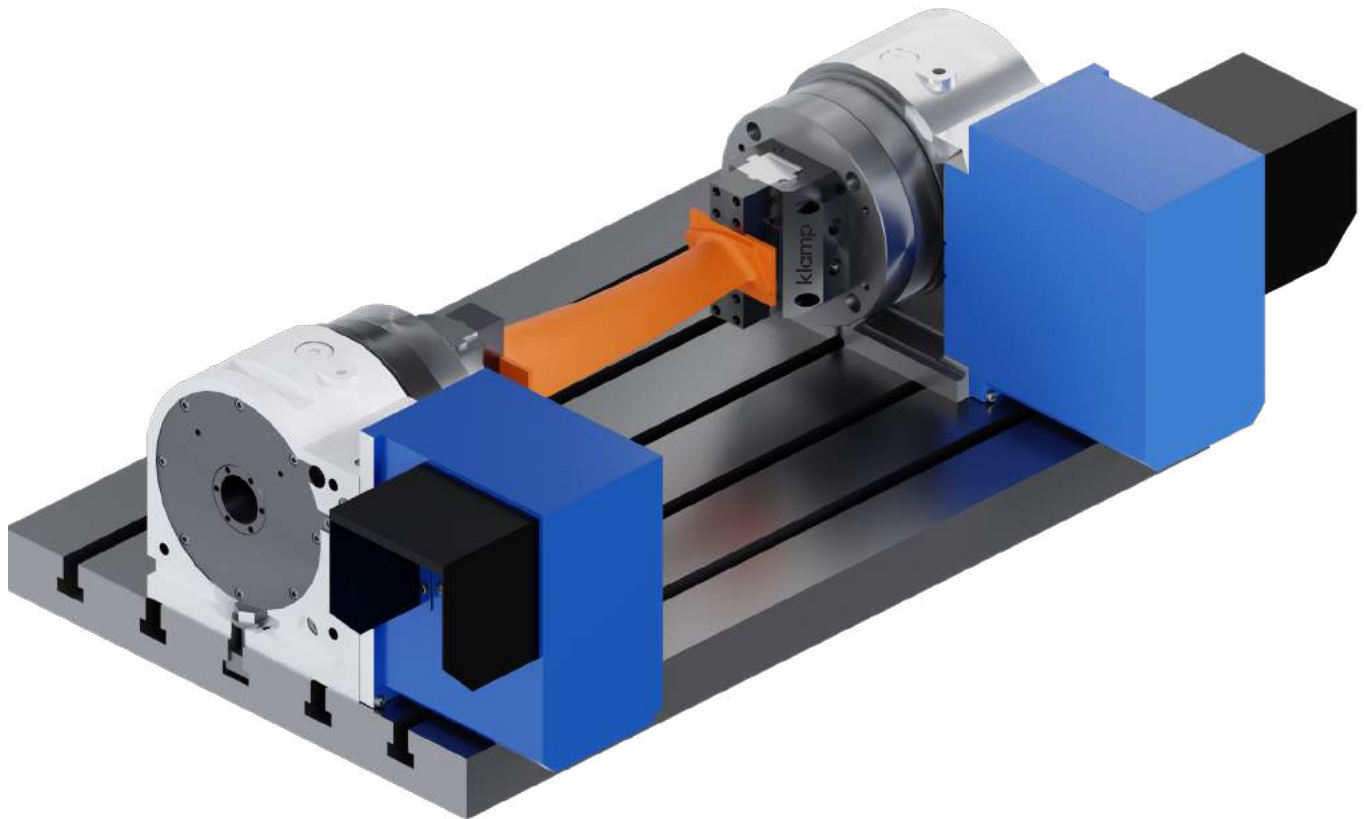
※1 Clamping force cannot be calculated from the cylinder inner diameter and rod diameter. Please refer to the clamping force curve.

※2 Supply the air pressure of **【Lock Air Pressure × 0.5 (MPa)】** or more to the release side (pilot pressure of built-in check valve).

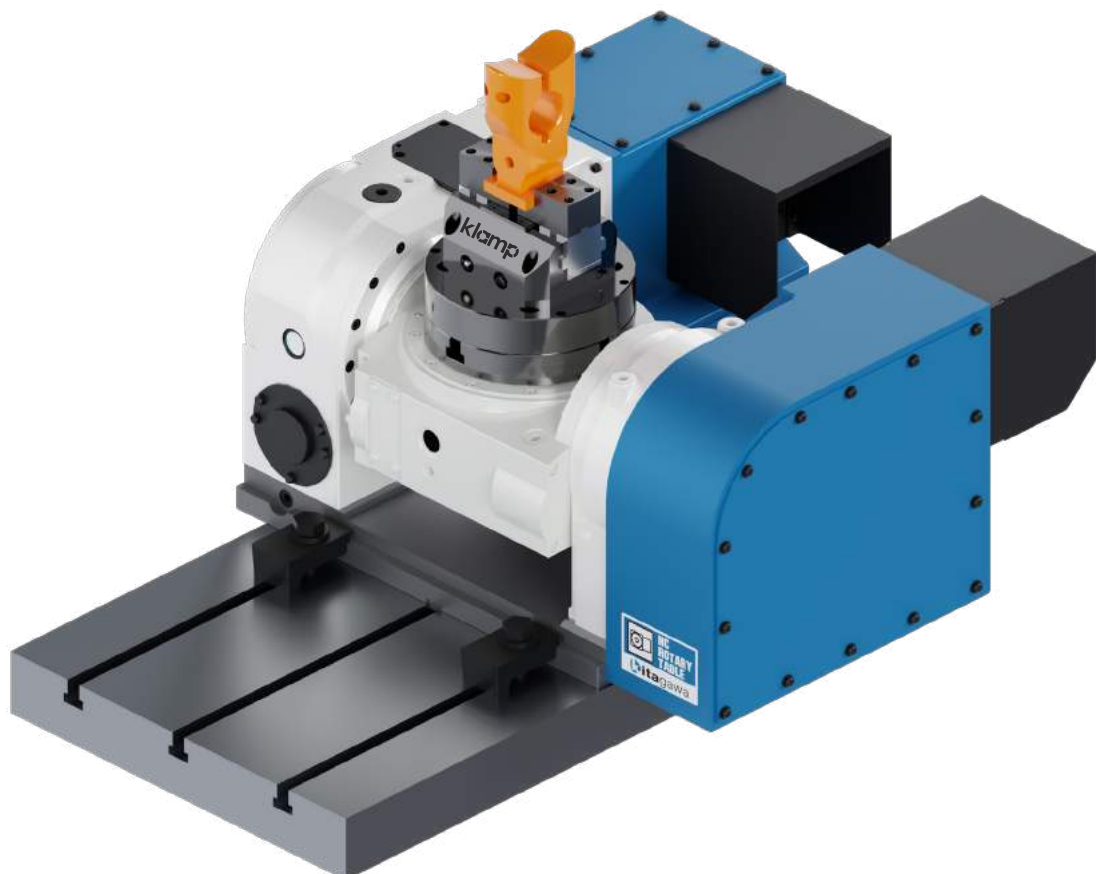
※3 Repeatability under the same condition.



KFWD Centric power blocks set up to machine turbine blades with Kitagawa rotary tables



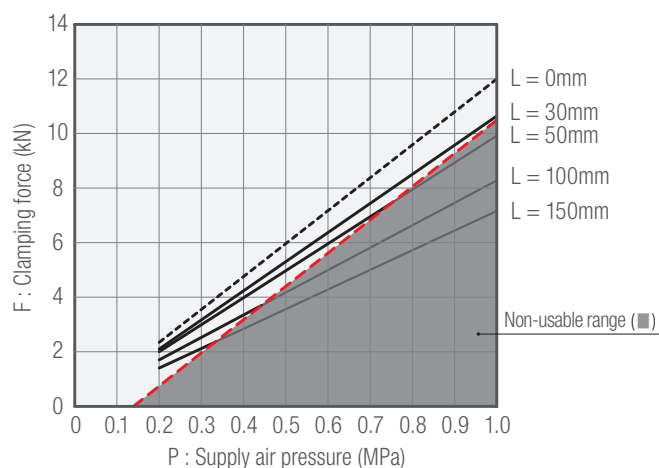
KFWD Centric power block installed on a Kitagawa 5th axis rotary table



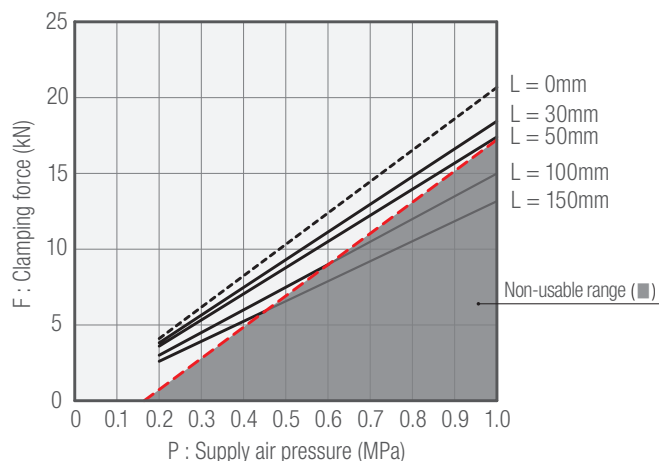
Clamping force curve

KFWD Standard Stroke

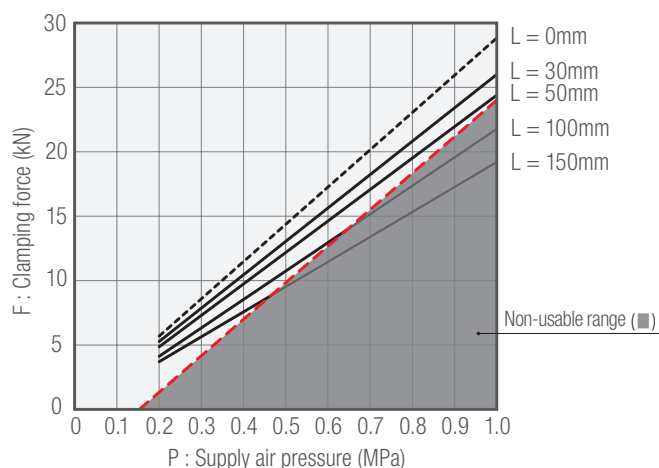
KFWD0650						
Calculation formula ※2 (kN)			F = (2650 x P) / (220+L)			
Clamping Force (kN)			Non-Usable Range(■)			
Air Pressure (MPa)	Clamping Height L (mm)					
	0	30	50	100	150	
1.0	12.0	10.6				
0.9	10.8	9.5				
0.8	9.6	8.5				
0.7	8.4	7.4	6.9			
0.6	7.2	6.4	5.9			
0.5	6.0	5.3	4.9			
0.4	4.8	4.2	3.9	3.3		
0.3	3.6	3.2	2.9	2.5	2.1	
0.2	2.4	2.1	2.0	1.7	1.4	



KFWD0850					
Calculation formula ^{※2} (kN)			F = (2650 x P) / (220+L)		
Clamping Force (kN)			Non-Usable Range (■)		
Air Pressure (MPa)	Clamping Height L (mm)				
	0	30	50	100	150
1.0	20.7	18.6	17.4		
0.9	18.6	16.7	15.6		
0.8	16.5	14.9	13.9		
0.7	14.5	13.0	12.2		
0.6	12.4	11.1	10.4		
0.5	10.3	9.3	8.7	7.5	
0.4	8.3	7.4	7.0	6.0	5.3
0.3	6.2	5.6	5.2	4.5	4.0
0.2	4.1	3.7	3.5	3.0	2.6



KFWD1000						
Calculation formula ^{※2} (kN)			F = (2650 x P) / (220+L)			
Clamping Force (kN)			Non-Usable Range (■)			
Air Pressure (MPa)	Clamping Height L (mm)					
	0	30	50	100	150	
1.0	28.7	26.0	24.5			
0.9	25.8	23.4	22.1			
0.8	22.9	20.8	19.6			
0.7	20.1	18.2	17.2			
0.6	17.2	15.6	14.7	12.9		
0.5	14.3	13.0	12.3	10.7		
0.4	11.5	10.4	9.8	8.6	7.6	
0.3	8.6	7.8	7.4	6.4	5.7	
0.2	5.7	5.2	4.9	4.3	3.8	

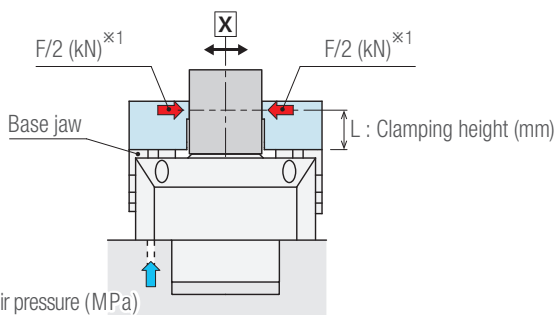


Notes:

- This table and graph show the relationship among F: Clamping Force(kN), P: Supply Air Pressure(MPa), and L: Clamping Height (mm).
- Using in the non-usable range may damage the product and lead to fluid leakage.
- When load is applied from the same direction with the slider(x-axis direction), please consider it referring to F/2 clamping force on one side.

※1 F indicates the total value of clamping force (kN) on both sides.

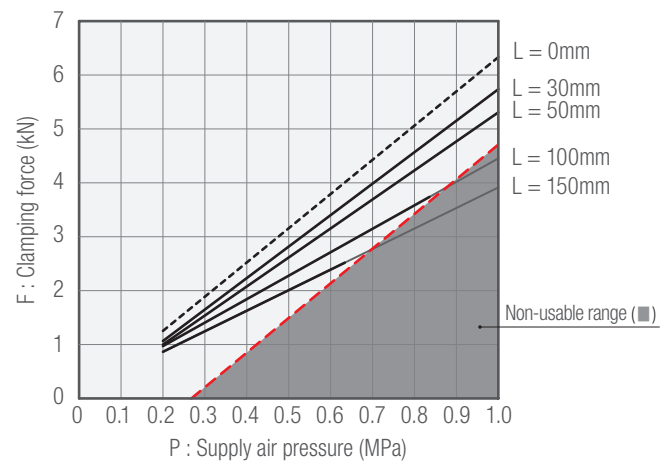
※2 F: Clamping Force(kN), P: Supply Air Pressure(MPa), and L: Clamping Height (mm).



Clamping force curve

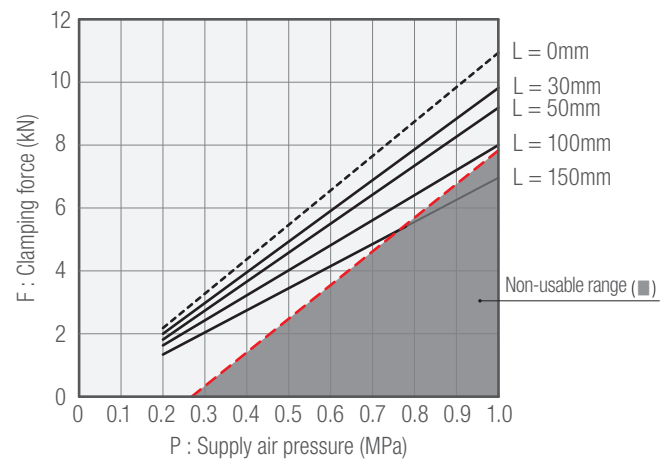
KFWD-L Long Stroke

KFWD0650-L						
Calculation formula ※2 (kN)			F = (2650 x P) / (220+L)			
Clamping Force (kN)			Non-Usable Range(■)			
Air Pressure (MPa)	Clamping Height L (mm)					
	0	30	50	100	150	
1.0	6.4	5.6	5.2	■	■	
0.9	5.7	5.1	4.7	■	■	
0.8	5.1	4.5	4.2	3.5	■	
0.7	4.5	3.9	3.7	3.1	■	
0.6	3.8	3.4	3.1	2.7	2.3	
0.5	3.2	2.8	2.6	2.2	1.9	
0.4	2.5	2.3	2.1	1.8	1.5	
0.3	1.9	1.7	1.6	1.3	1.1	
0.2	1.3	1.1	1.0	0.9	0.8	



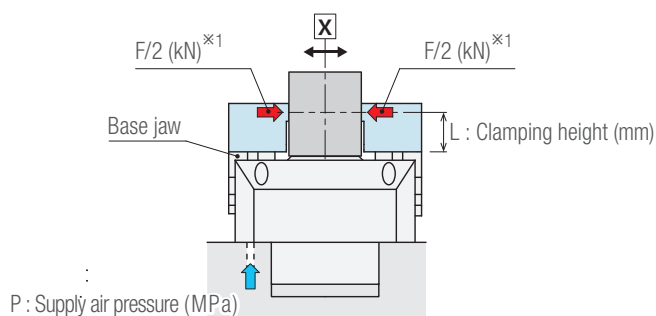
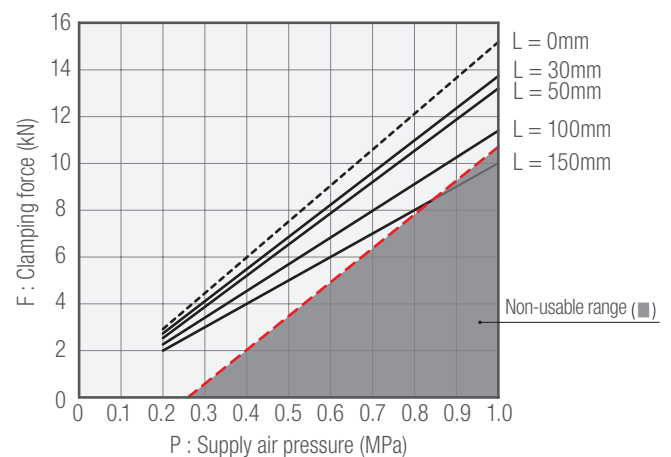
KFWD0850-L

Calculation formula ^{※2} (kN)		F = (2650 x P) / (220+L)				
Clamping Force (kN)		Non-Usable Range(■)				
Air Pressure (MPa)	Clamping Height L (mm)					
	0	30	50	100	150	
1.0	10.9	9.8	9.2	8.0		
0.9	9.8	8.9	8.3	7.2		
0.8	8.7	7.9	7.4	6.4		
0.7	7.6	6.9	6.5	5.6	4.9	
0.6	6.6	5.9	5.5	4.8	4.2	
0.5	5.5	4.9	4.6	4.0	3.5	
0.4	4.4	3.9	3.7	3.2	2.8	
0.3	3.3	3.0	2.8	2.4	2.1	
0.2	2.2	2.0	1.8	1.6	1.4	



KFWD1000-L

Calculation formula ※2 (kN)		F = (2650 x P) / (220+L)				
Clamping Force (kN)		Non-Usable Range(■)				
Air Pressure (MPa)	Clamping Height L (mm)					
	0	30	50	100	150	
1.0	15.2	13.8	13.1	11.4		
0.9	13.7	12.5	11.8	10.3		
0.8	12.2	11.1	10.4	9.1	8.1	
0.7	10.7	9.7	9.1	8.0	7.1	
0.6	9.1	8.3	7.8	6.9	6.1	
0.5	7.6	6.9	6.5	5.7	5.1	
0.4	6.1	5.5	5.2	4.6	4.1	
0.3	4.6	4.2	3.9	3.4	3.0	
0.2	3.0	2.8	2.6	2.3	2.0	



Notes:

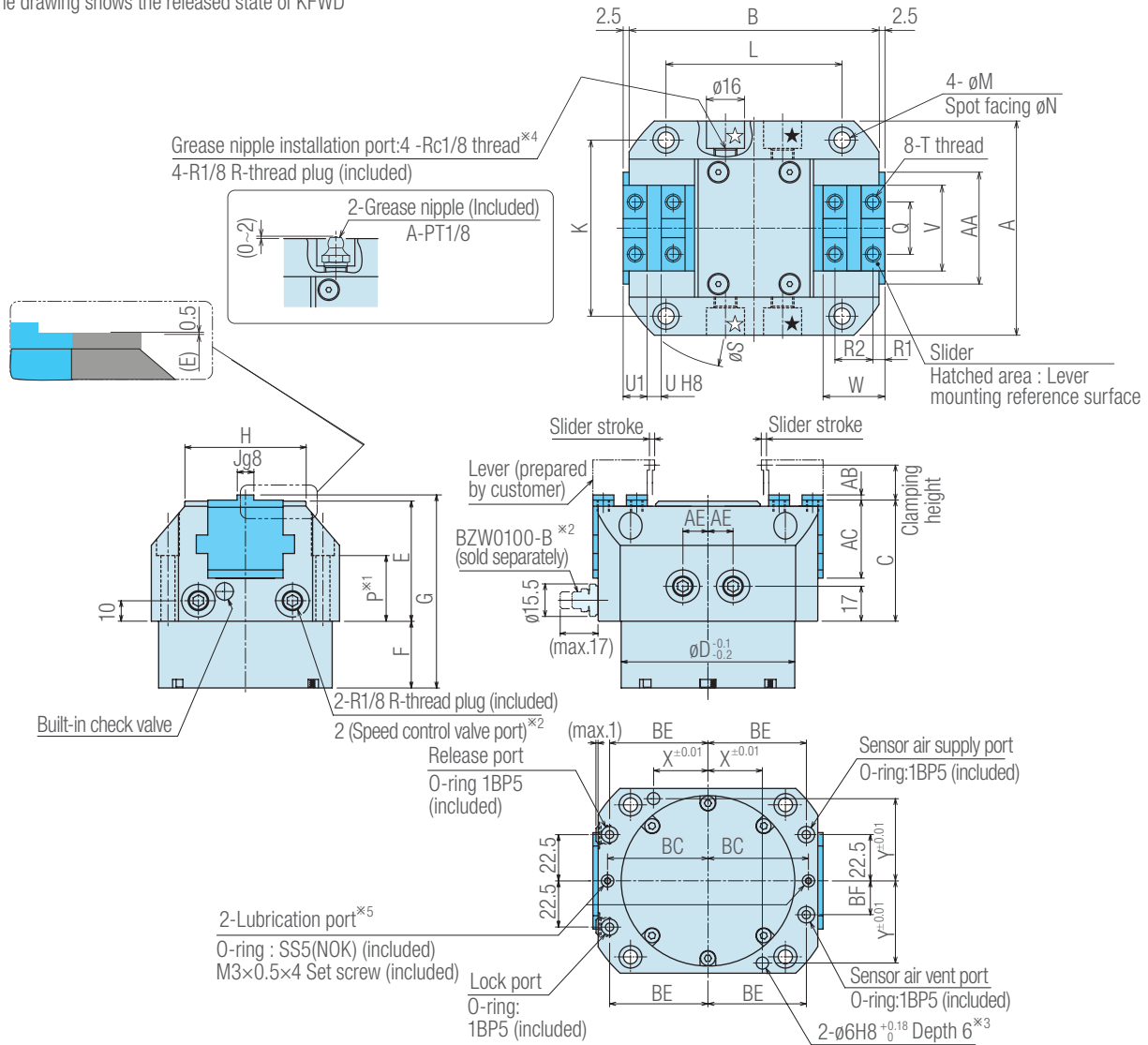
- This table and graph show the relationship among F: Clamping Force(kN), P: Supply Air Pressure(MPa), and L: Clamping Height (mm).
- Using in the non-usable range may damage the product and lead to fluid leakage.
- When load is applied from the same direction with the slider(x-axis direction), please consider it referring to F/2 clamping force on one side.

※1 F indicates the total value of clamping force (kN) on both sides.

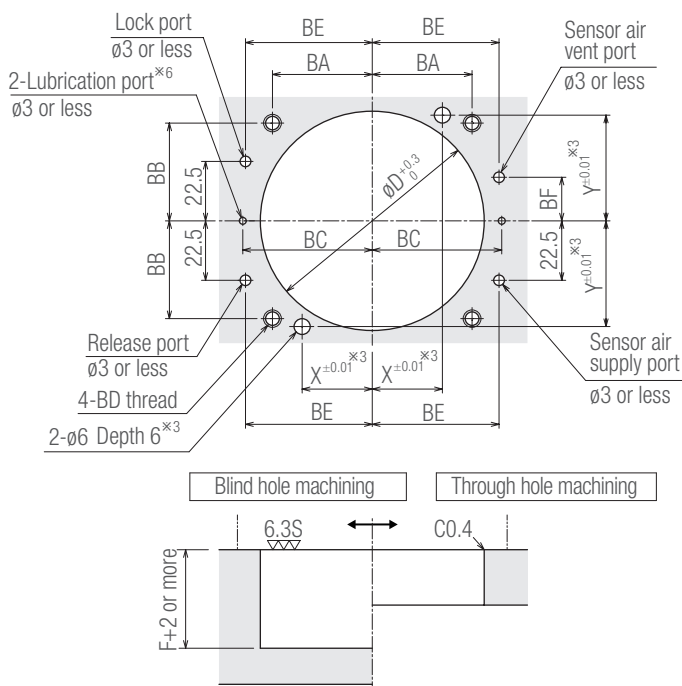
※2 F: Clamping Force(kN), P: Supply Air Pressure(MPa), and L: Clamping Height (mm).

External dimensions : KFWD Standard stroke

※ The drawing shows the released state of KFWD



Machining Dimensions of Mounting Area



Notes:

- Roughness of mounting surface should be 6.3S or better.
- Install top jaws on the top of the base jaw when in use.
- Please keep clear condition at the sensor air vent port, and prevent coolant and chips from entering the port.

※1 Mounting bolts are not provided with the product. Please prepare them according to the mounting height referring to dimension 'P'.

※2 Speed control valve is sold separately. Refer to P.19 for further information.

※3 Able to locate the body of centering vise by using ø6 hole. Please consider X, Y dimension tolerance and ø6 hole tolerance according to a locating pin. Locating pin is not included.

※4 When shipping, R-thread plugs are mounted to the grease nipple installation port. Select one port each from ☉ and ★ ports and install the grease nipples to the selected ports.

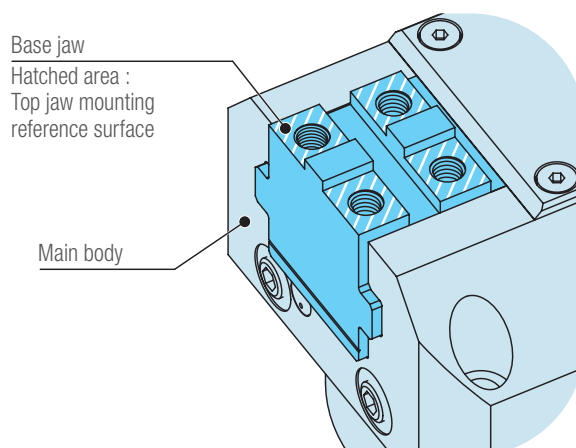
※5 The lubrication port enables to fill grease without using the grease nipple. When using the lubrication port, remove the set screws.

※6 This machining is required only when using the lubrication port.

KFWD Standard stroke external dimensions and machining dimensions for mounting

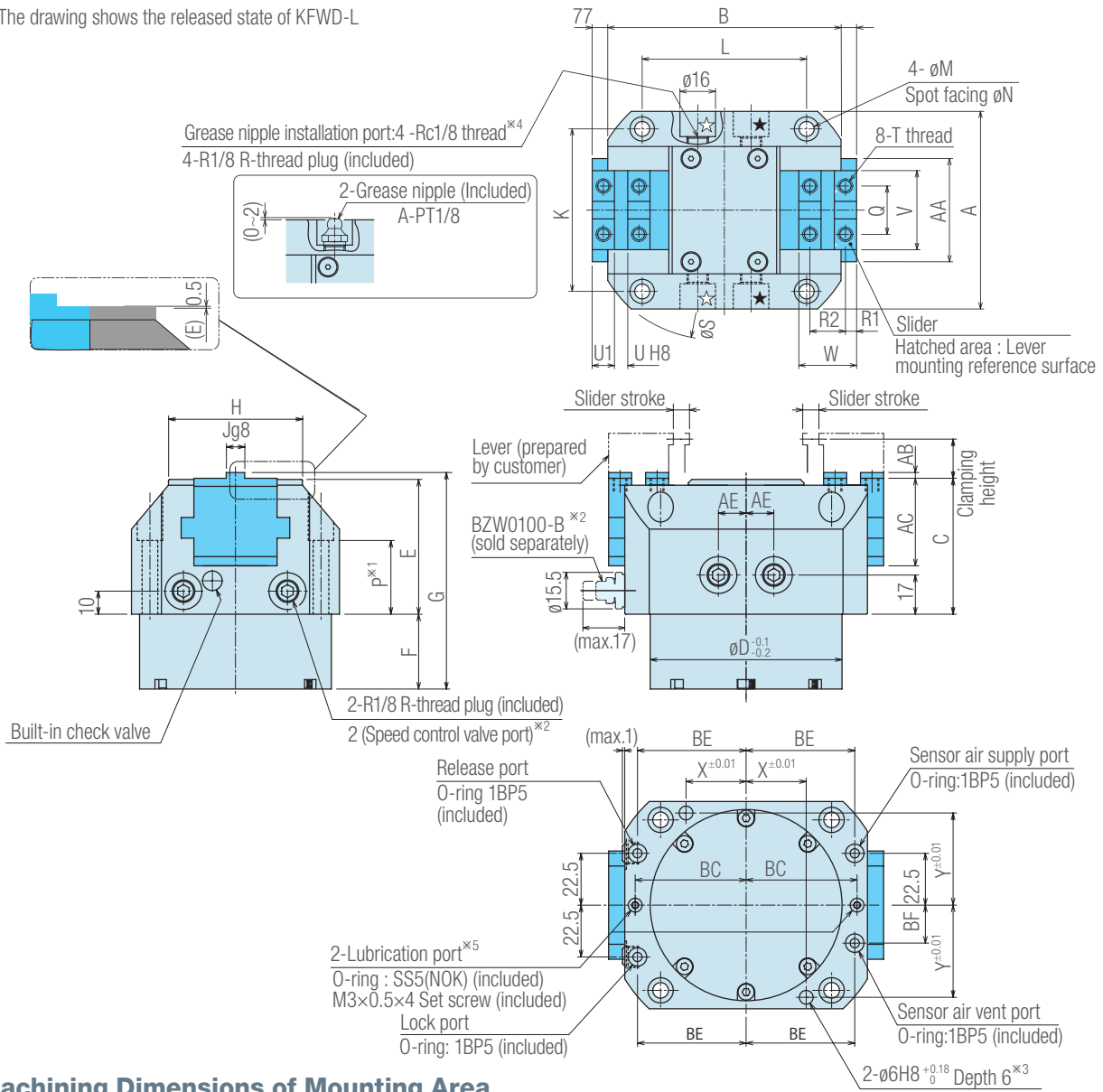
Model No.	KFWD0650 mm	KFWD0850 mm	KFWD1000 mm
A	90	110	125
B	105	125	140
C	59	61.5	63.5
D	83	103	118
E	58.5	61	63
F	32.5	34	39.5
G	94	98.5	106
H	58	65	80
J	8 ^{-0.005 -0.027}	8 ^{-0.005 -0.027}	10 ^{-0.005 -0.027}
K	74	92	100
L	74	92	105
M	6.8	9	11
N	11	14	17.5
P	32	26	28
Q	22	24	26
R1	5	6.5	8
R2	16	21	24
S	123	147	167
T (Nominal x Pitch x Depth)	M6 x 1 x 10	M8 x 1.25 x 12	M10 x 1.5 x 15
U	6 ^{+0.018 0}	8 ^{+0.022 0}	8 ^{+0.022 0}
U1	10	13	16
V	36	40	45
W	26	34	40
X	26	35	41
Y	40	47.5	55
AA	47	52	59
AB	2.5	3	3
AC	38	40.5	42.5
AE	12	20	27.5
BA	37	46	52.5
BB	37	46	50
BC	48	58	65.5
BD (Nominal x Pitch x Depth)	M6 x 1 x 10	M8 x 1.25 x 12	M10 x 1.5 x 15
BE	47	57	64.5
BF	16.5	20	22.5

Top jaw mounting

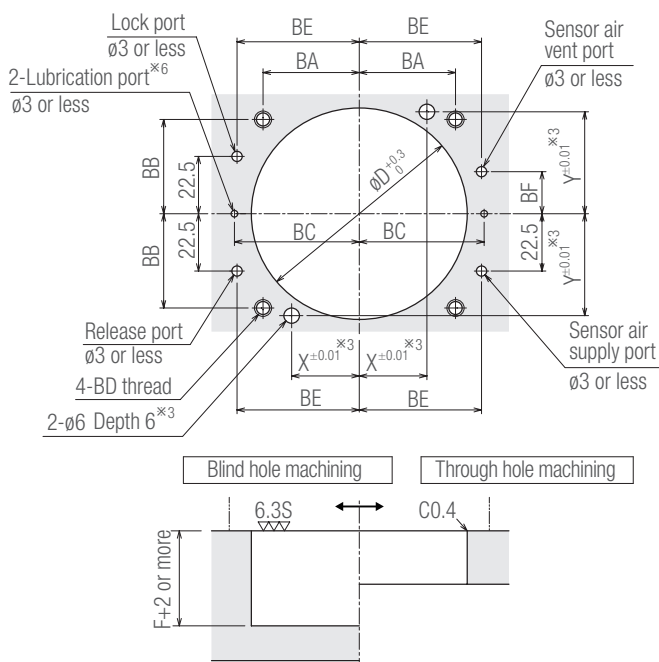


External dimensions : KFWD-L Long stroke

※ The drawing shows the released state of KFWD-L



Machining Dimensions of Mounting Area



Notes:

- Roughness of mounting surface should be 6.3S or better.
- Install top jaws on the top of the base jaw when in use.
- Please keep clear condition at the sensor air vent port, and prevent coolant and chips from entering the port.

※1 Mounting bolts are not provided with the product. Please prepare them according to the mounting height referring to dimension 'P'.

※2 Speed control valve is sold separately. Refer to P.19 for further information.

※3 Able to locate the body of centering vise by using ø6 hole. Please consider X, Y dimension tolerance and ø6 hole tolerance according to a locating pin. Locating pin is not included.

※4 When shipping, R-thread plugs are mounted to the grease nipple installation port. Select one port each from ☉ and ★ ports and install the grease nipples to the selected ports.

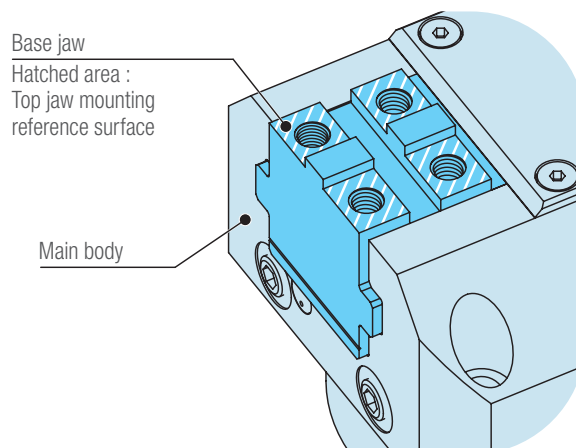
※5 The lubrication port enables to fill grease without using the grease nipple. When using the lubrication port, remove the set screws.

※6 This machining is required only when using the lubrication port.

KFWD-L Long stroke external dimensions and machining dimensions for mounting

Model No.	KFWD0650-L mm	KFWD0850-L mm	KFWD1000-L mm
A	90	110	125
B	105	125	140
C	59	61.5	63.5
D	83	103	118
E	58.5	61	63
F	32.5	34	39.5
G	94	98.5	106
H	58	65	80
J	8 ^{-0.005 -0.027}	8 ^{-0.005 -0.027}	10 ^{-0.005 -0.027}
K	74	92	100
L	74	92	105
M	6.8	9	11
N	11	14	17.5
P	32	26	28
Q	22	24	26
R1	5	6.5	8
R2	16	21	24
S	123	147	167
T (Nominal x Pitch x Depth)	M6 x 1 x 10	M8 x 1.25 x 12	M10 x 1.5 x 15
U	6 ^{+0.018 0}	8 ^{+0.022 0}	8 ^{+0.022 0}
U1	10	13	16
V	36	40	45
W	26	34	40
X	26	35	41
Y	40	47.5	55
AA	47	52	59
AB	2.5	3	3
AC	38	40.5	42.5
AE	12	20	27.5
BA	37	46	52.5
BB	37	46	50
BC	48	58	65.5
BD (Nominal x Pitch x Depth)	M6 x 1 x 10	M8 x 1.25 x 12	M10 x 1.5 x 15
BE	47	57	64.5
BF	16.5	20	22.5

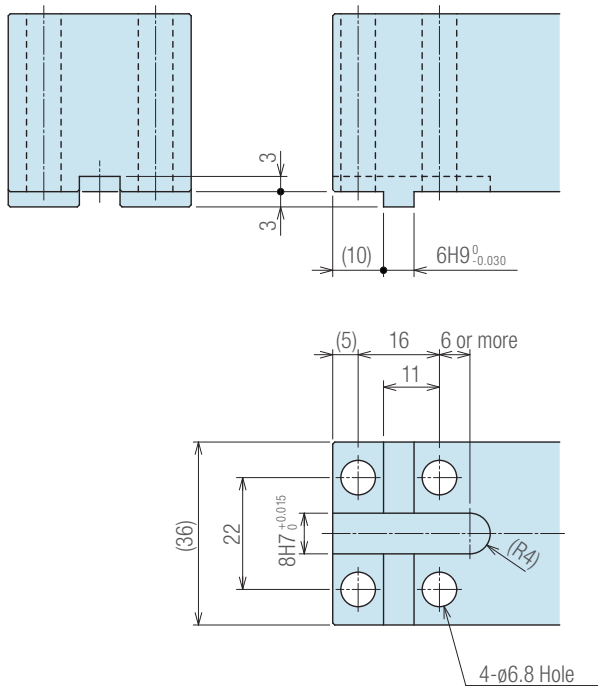
Top jaw mounting



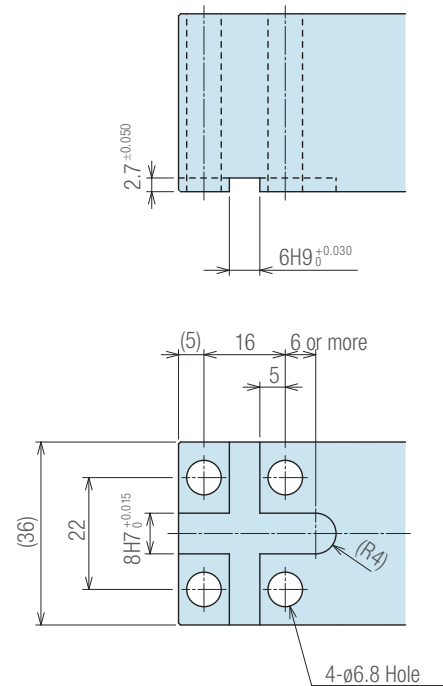
Top jaw design dimensions

Corresponding model number - KFWD0650 / KFWD0650-L

Top jaw with raised tenon key shape

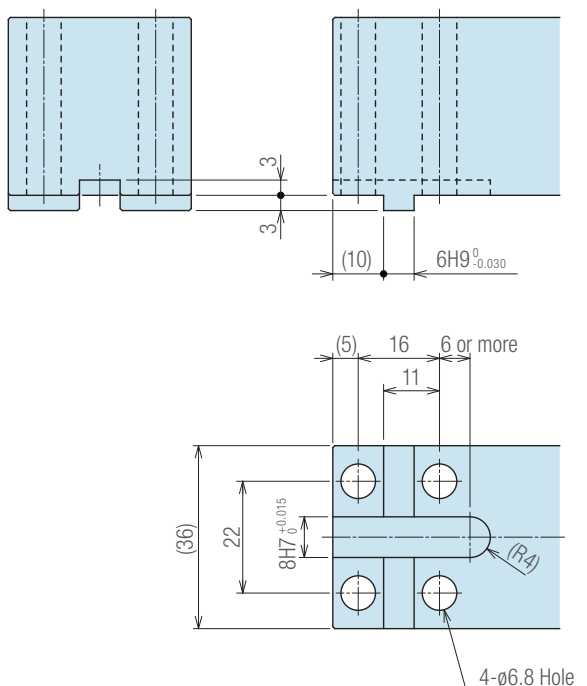
Top jaw with recess tenon key shape
(Parallel Key Required)

※Applicable Parallel Key: 6 x 6 x 35mm

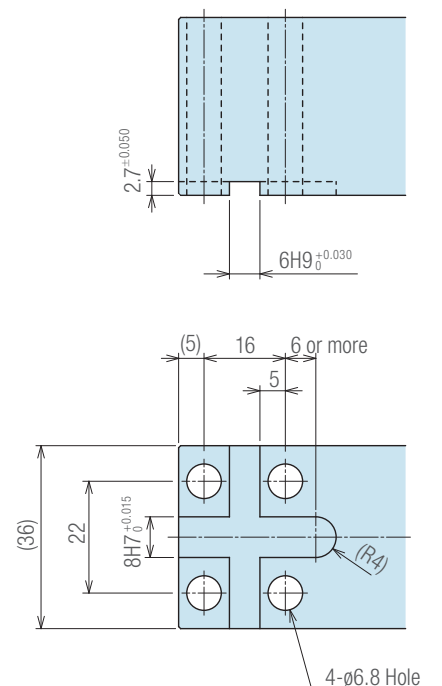


Corresponding model number - KFWD0850 / KFWD0850-L

Top jaw with raised tenon key shape

Top jaw with recess tenon key shape
(Parallel Key Required)

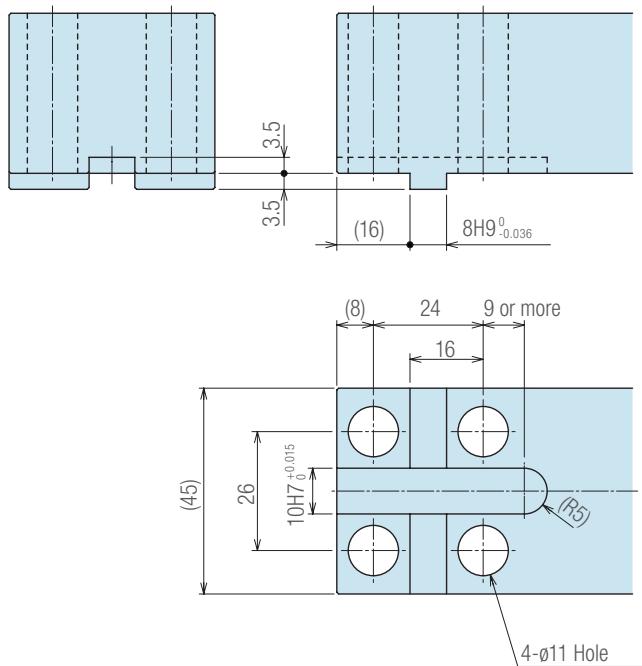
※Applicable Parallel Key: 8 x 7 x 40mm



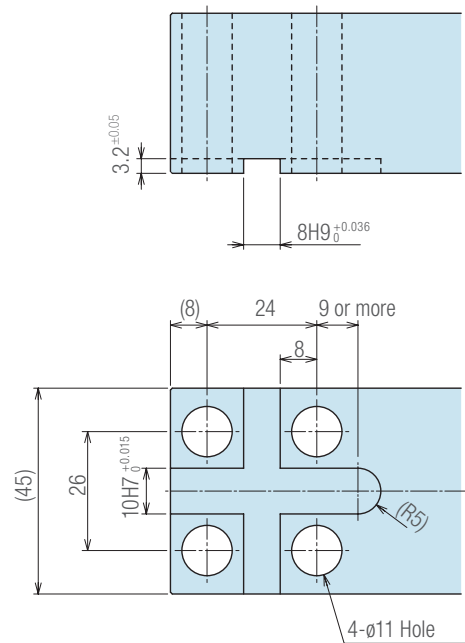
Top jaw design dimensions

Corresponding model number - KFWD1000 / KFWD1000-L

Top jaw with raised tenon key shape

Top jaw with recess tenon key shape
(Parallel Key Required)

※Applicable Parallel Key: 8 x 7 x 45mm



Notes:

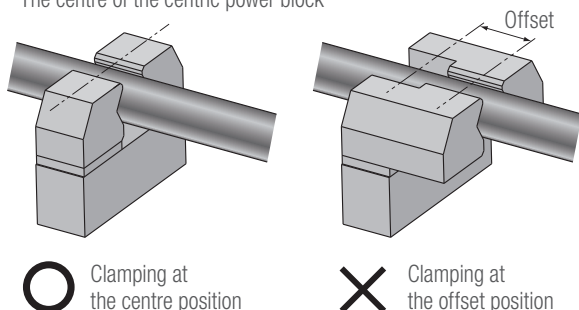
- This drawing shows the design dimensions of the left side top jaw facing the product.
- The tolerance of the key slot is a reference. Please change it if necessary.
- KFWD Centric power block does not include parallel keys. Parallel keys need to be prepared by customer in case of Top jaw with concave parallel key shape.

Cautions

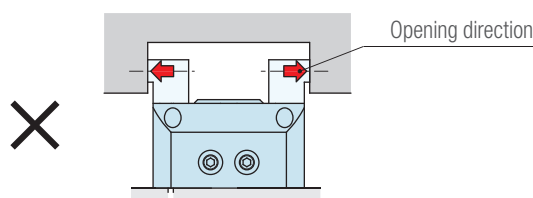
Notes for design

1. Check Specifications
 - Please use each product according to the specifications.
2. Notes for Circuit Design
 - Please design the air circuit properly and review the circuit design in advance in order to avoid malfunction or breakage of the device.
 - Ensure there is no possibility of supplying air pressure to the lock port and the release port simultaneously.
3. Do not apply impact on the top jaw (prepared by customer) when loading a workpiece.
 - Otherwise, it leads to malfunction or damage to the top jaw.
4. Clamp the workpiece at the center of the vise
 - KFWD is not applicable for offset clamping.

The centre of the centric power block



5. Do Not Clamp in Opening Direction/internal clamping
 - KFWD is NOT designed to clamp in opening direction / internal clamping as shown below



Installation notes

1. Check the fluid to use.
 - Please supply filtered clean dry air.
 - Oil supply with a lubricator etc. is unnecessary.
2. Preparation for piping
 - The pipeline, piping connector and fixture circuits should be cleaned and flushed thoroughly. The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
 - There is no filter provided with this product for prevention of contaminants in the air circuit.
3. Applying Sealing Tape
 - Wrap with tape 1 to 2 times following the screwing direction. Wrapping in the wrong direction will cause leaks and malfunction.
 - Pieces of the sealing tape can lead to air leaks and malfunction.
 - When piping, be careful that contaminant such as sealing tape does not enter in products.
4. Filling the Grease
 - Before use, fill the grease from the grease nipple or the lubrication port, and operate the centering vise 2 or 3 times without a workpiece. Use the grease of lithium soap thickened, mineral oil grease fortified with MoS₂. (Recommended Grease: MOLYKOTE BR-2 Plus made by Toray, DOW CORNING)
 - If too much grease is applied it may be overflowed from the gap of the product body and the slider during operation.
5. Installation/ Removal of the top jaw (Prepared by Customer)
 - Use hexagonal socket bolts for mounting (with tensile strength of 12.9) and tighten them with the torque shown in the following list. Installation failure causes the deformation of top jaw and decrease of clamping force.

Model No.	Mounting Bolt Size	Tightening Torque (N.m)
KFWD0650 KFWD0650-L	M6×1	10
KFWD0850 KFWD0850-L	M8×1.25	25
KFWD1000 KFWD1000-L	M10×1.5	50

6. Installation of the Centering Vise
 - When mounting the centering vise, use hexagonal socket bolts as multiple bolt holes for mounting (with tensile strength of 12.9) and tighten them with the torque shown in the following list. Tighten with greater torque than recommended can depress the seating surface or break the bolt.

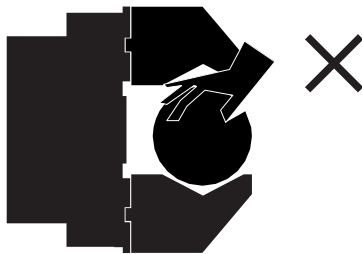
Model No.	Mounting Bolt Size	Tightening Torque (N.m)
KFWD0650 KFWD0650-L	M6×1	10
KFWD0850 KFWD0850-L	M8×1.25	25
KFWD1000 KFWD1000-L	M10×1.5	50

7. Operating Speed Adjustment
 - Excessively fast operating speed of the centering vise may lead to wear-out or damage internal components. Adjust the operating speed so that the slider fully strokes within the following time period.
Standard Stroke: 0.5 - 1.0 sec
Long Stroke: 1.0 - 1.5 sec
 - Install a flow control valve and gradually control the flow rate from low-speed side (small flow) to the designated speed. Controlling from high-speed side (large flow) causes excessive surge pressure or overload to the centering vise leading to damage of a machine or device.

Cautions

Notes on handling

1. It should be operated by qualified personnel.
 - Hydraulic and/or pneumatic machines and devices should be operated and maintained by qualified personnel.
2. Do not operate or remove the product unless the safety protocols are ensured.
 - The machine and equipment can only be inspected or prepared when it is confirmed that the safety devices are in place.
 - Before removing the product, make sure that the above-mentioned safety devices are in place. shut off the pressure and power source, and make sure no pressure exists in the air circuits.
 - After stopping the product, do not remove until the temperature drops.
 - Make sure there is no trouble/issue in the bolts and respective parts before restarting the machine or equipment.
3. Do not touch the centering vise while it is working. Otherwise, your hands may be injured.



4. Do not disassembly or modify.
 - If the product is taken apart or modified, the warranty will be voided even within the warranty period.

Maintenance and inspection

1. Removal of the product and shut-off of pressure source
 - Before removing the product, make sure that safety devices and preventive devices are in place. Shut off the pressure and power source, and make sure no pressure exists in air circuits.
 - Make sure there is no abnormality in the bolts and respective parts before restarting.
2. Regularly tighten pipes, mounting bolts, nuts and others to ensure proper use.
3. Make sure there is a smooth action without any irregular noise.
 - Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.
4. The product should be stored in the cool and dark place without direct sunshine or moisture.
5. Regularly fill the grease from the grease nipple or the lubrication port(recommended:once a month or every five-thousand cycles).
Use the grease of lithium soap thickened, mineral oil grease fortified with MoS2.(Recommended Grease: MOLYKOTE BR-2 PLUS made by TORAY DOW CORNING
If too much grease is applied it may be overflowed from the gap of the product body and the slider during operation.
6. Please contact us for overhaul and repair.

Warranty

1. Warranty Period
 - The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.
2. Warranty Scope
 - If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense.

Defects or failures caused by the following are not covered.

- If the stipulated maintenance and inspection are not carried out.
- Failure caused by the use of the non-confirming state at the user's discretion.
- If it is used or handled in inappropriate way by the operator.
- (Including damage caused by the misconduct of the third party.)
- If the defect is caused by reasons other than our responsibility.
- If repair or modification are carried out by anyone other than Klamp, or without our approval and confirmation, it will void warranty.
- Other caused by natural disaster or calamities not attributable to deterioration.
- Parts or replacement expenses due to parts consumption and (such as rubber, plastic, seal material and some electric components.)
- Damages excluding from direct result of a product defect shall be excluded from the warranty.

Air flow control valve

Model BZW

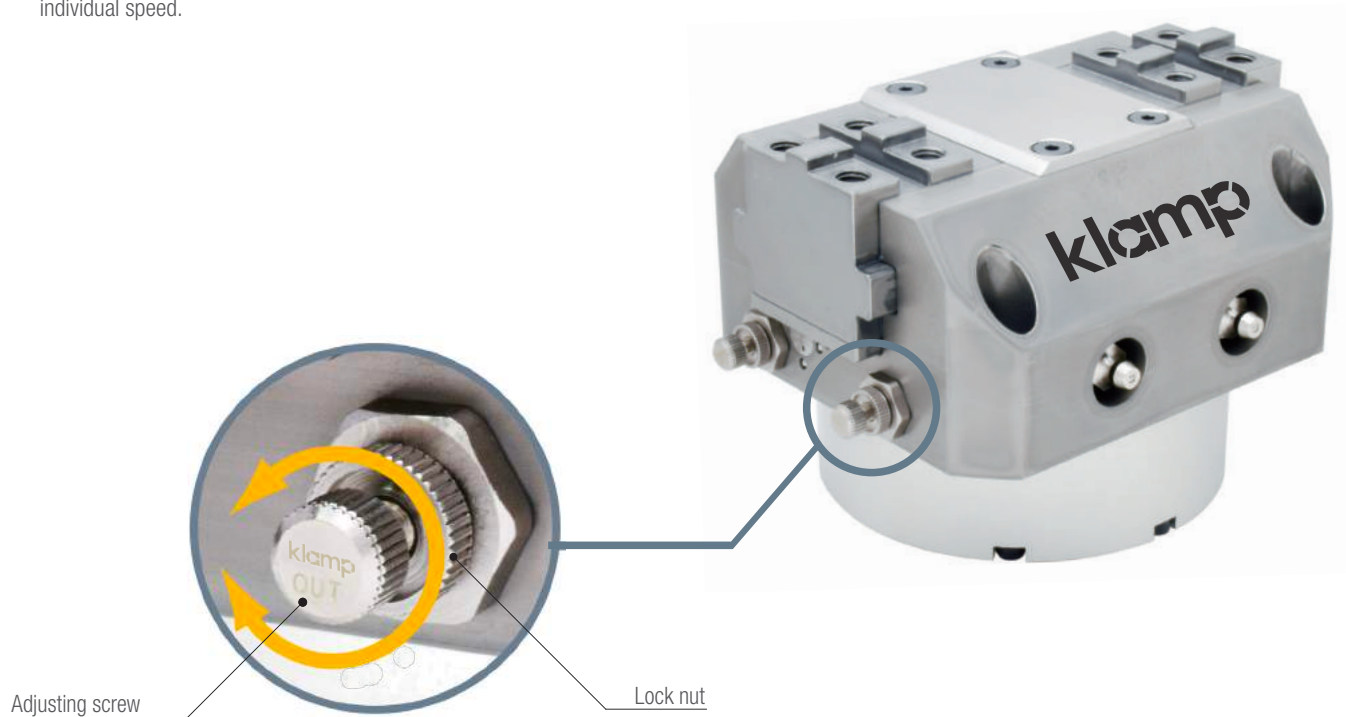
Directly mounted to the pneumatic centering vise
Enables one-touch speed adjustment



Directly mounted to the pneumatic centering vise

BZW is the flow control valve for Rc thread enable to mount to KFWD.

It is best used in a circuit where a flow control valve cannot be mounted or if necessary to synchronize individual speed.



Model Number Indication

BZW 010 0 - B

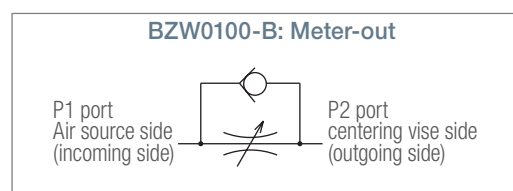
Control method
B : Meter-out
 Design number
0 : Revision number
 R Thread size
010 : Rc1/8

Air flow control valve

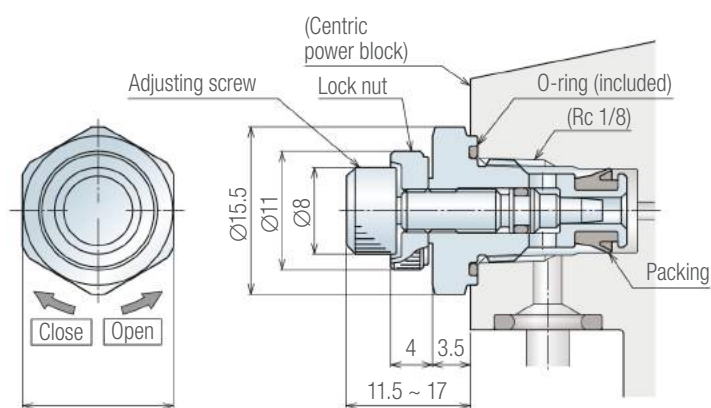
Specifications

Model No.	BZW0100-B
Control method	Meter-out
Operating pressure MPa	0.1 ~ 1.0
Withstanding pressure MPa	1.5
Adjusting screw number of rotations	10
Tightening torque N.m	5 ~ 7
Weight g	13
Corresponding model number	KFWD / KFWD-L

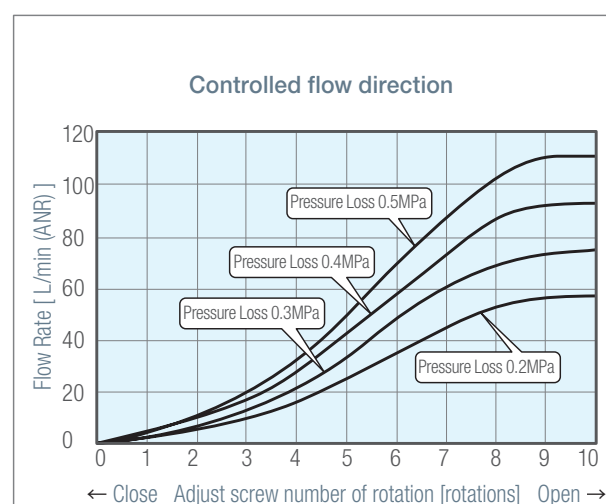
Circuit symbol



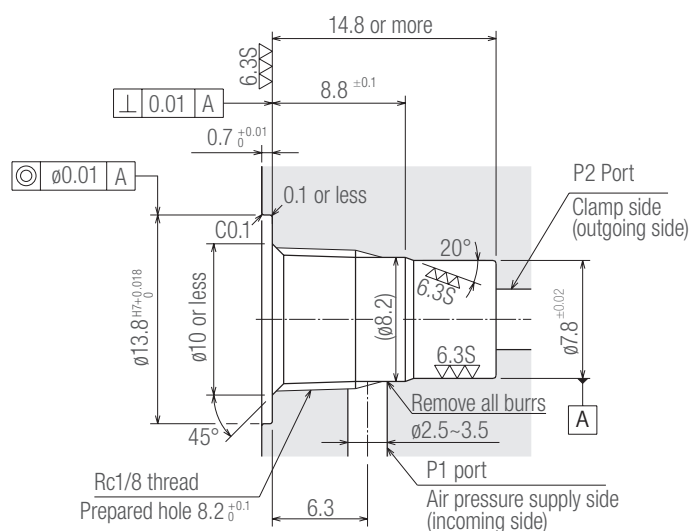
External dimensions



Flow rate graph

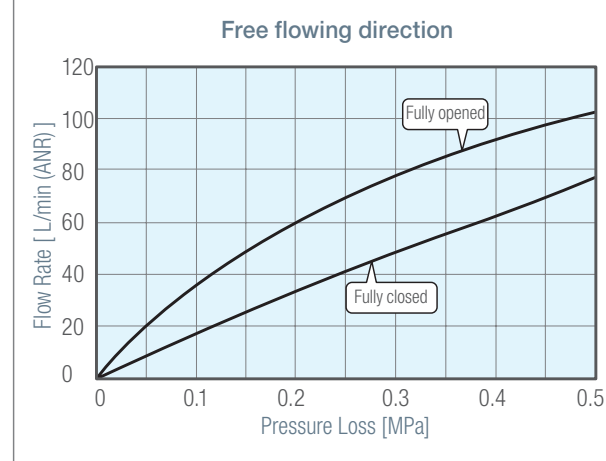


Machining Dimensions of Mounting Area



Notes :

- Since the ▽▽ area is sealing part, be careful not to damage it.
- No cutting chips or burr should be at the tolerance part of machining hole.
- As shown in the drawing, P1 port is used as the air pressure supply side and P2 port as the centering vise side.





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