

# High-Power Pneumatic Pallet Clamp

Model WVS



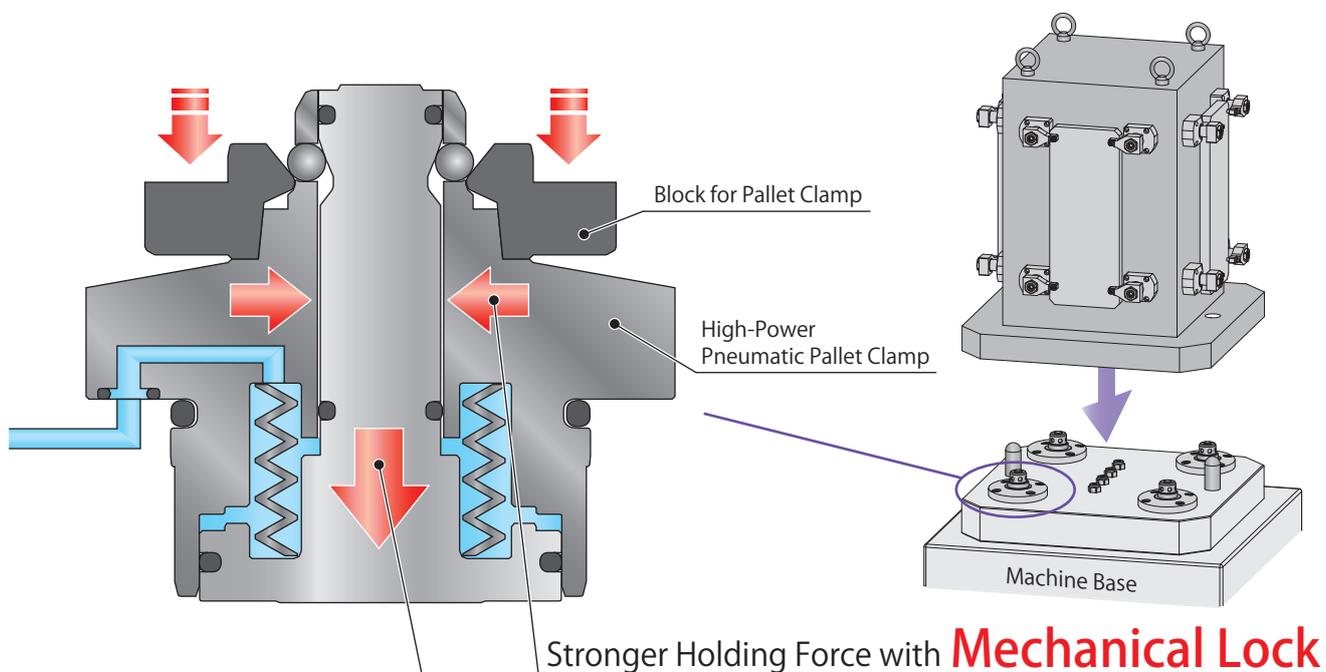
Clamping force which replaces hydraulic clamp

Development of high power pneumatic pallet clamp

PAT.

Available in four body sizes cylinder output force is

**4kN / 6kN / 10kN / 16kN**



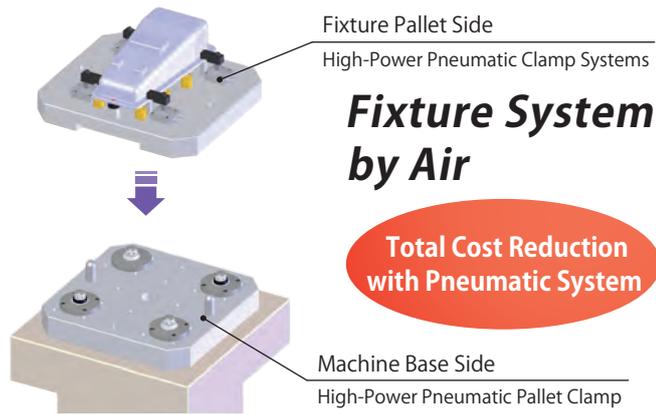
**With Mechanical Lock Function**

Clamping force which replaces hydraulic clamp

※Clamping force varies depending on the operating pressure.  
※This drawing is images. The parts constitution is different.

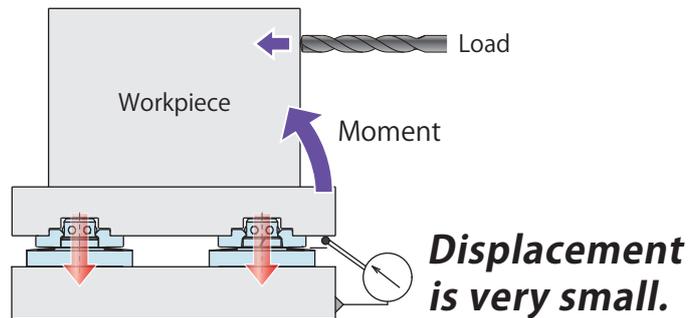
## Without Hydraulics

The hydraulic power pack and clamping systems can be eliminated by using pneumatic systems.



## High Rigidity

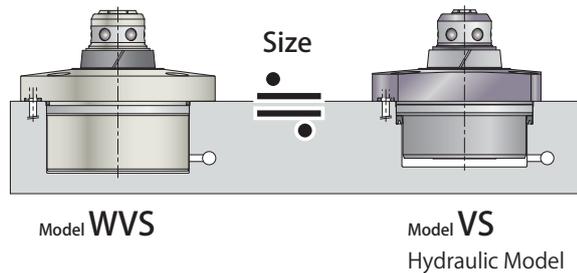
Clamping force is suppressed to necessary minimum by the powerful holding force beyond clamping force.



## Compact

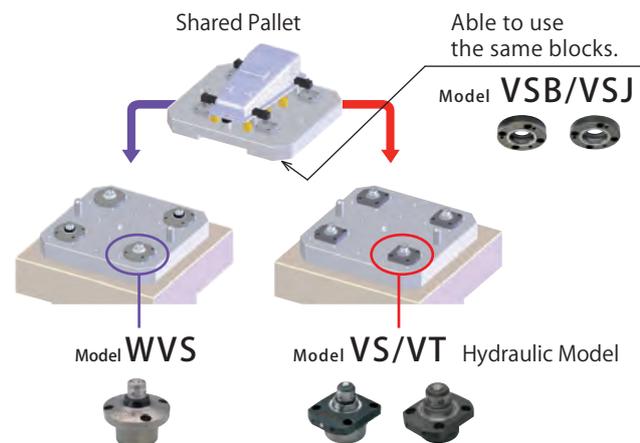
WVS has the same body size as a hydraulic clamp (model VS), yet exerts equivalent clamping force. It withstands high cutting load.

※ Please contact us for transverse load data.



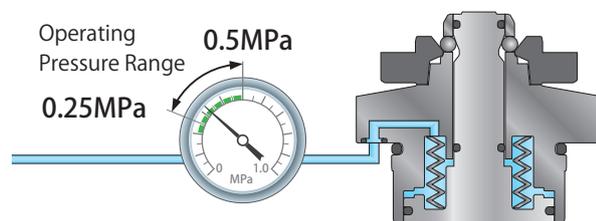
## Shared Pallets

The blocks attached to the pallet side can be used for both pneumatic pallet clamp (WVS) and hydraulic pallet clamp (VS/VT).



## Energy Saving

Exerts higher clamping force even with low operating pressure. No need to use air booster.



**High-Power Series**

- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

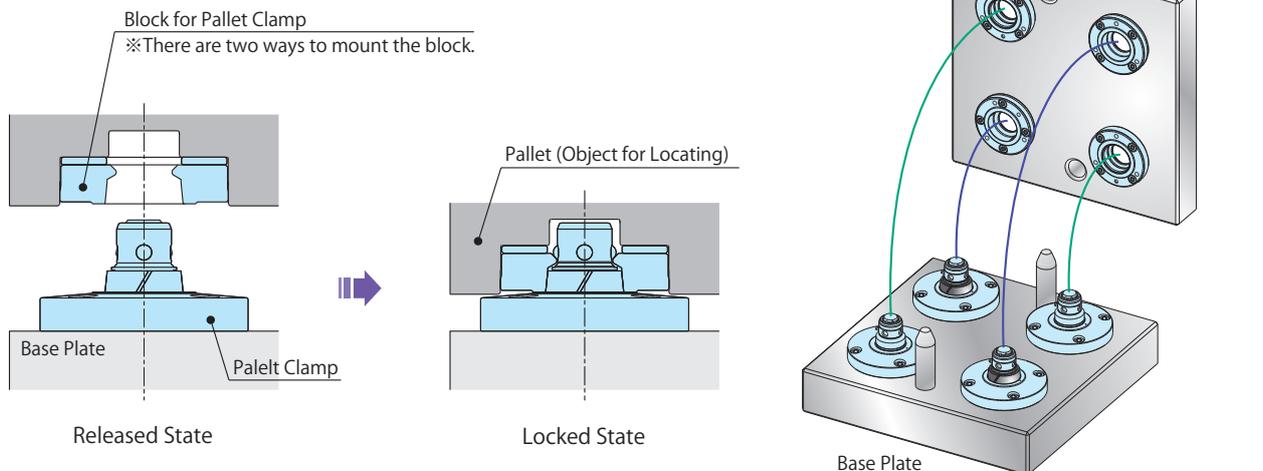
- High-Power Hydraulic Swing Clamp
  - LHE
- High-Power Hydraulic Link Clamp
  - LKE
- High-Power Pneumatic Hole Clamp
  - SWE
- High-Power Pneumatic Swing Clamp
  - WHE
- High-Power Pneumatic Link Clamp
  - WCE
- High-Power Pneumatic Work Support
  - WNC
- Rodless Hollow Pneumatic Work Support
  - WNA

**High-Power Pneumatic Pallet Clamp**

- WVS

## Function Description

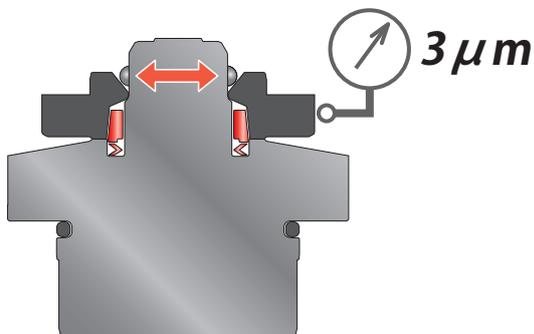
※Refer to P.211 for details.



## Repetitive Locating with High Accuracy

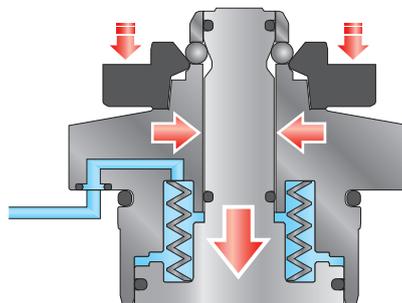
Locating Repeatability :  $3\ \mu\text{m}$

Fixture alignment inspection is eliminated in the machining center.



## Clamping Function

Clamping force is ranged from 2.4kN ~ 15.7kN.  
Strong clamping force.

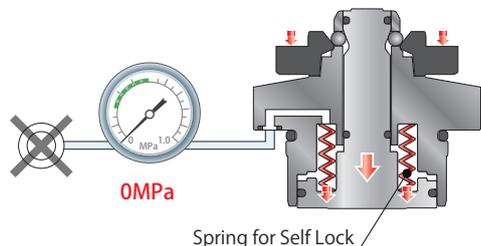


## Self Lock (Safety) Function

(Holding force when air pressure becomes zero)

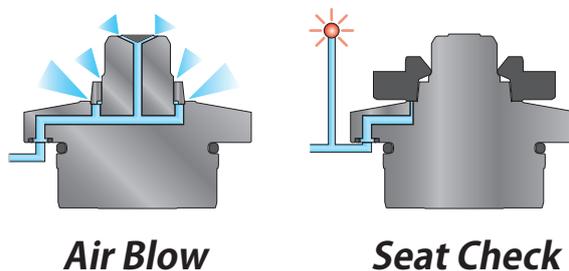
The internal mechanical lock operates and clamping force and holding force achieved. When pneumatic pressure is at zero, it will stay locked due internal mechanical lock.

***It will stay locked with internal mechanical lock.***



## Air Blow and Seat Check

Foreign substance is removed by air blow. Seating surface is provided with the air hole, seat check is possible if gap sensor is used.



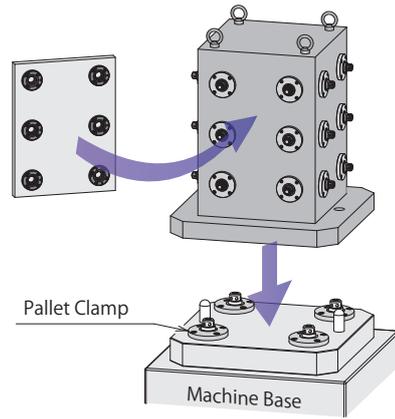
## Advantages

### Setup Improvement Enhances Productivity

High-Power Pallet Clamp locates with high accuracy and clamps simultaneously.

(Fixture alignment and inspection are eliminated.)

Fixture change over is faster and easier, thus by eliminating alignment inspection for accuracy which is done in many different ways.



Pallet and Fixture Change Over on Machining Center

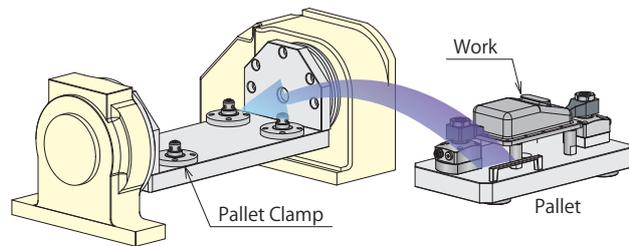
Preparation Time

# Substantial Reduction

### Efficient use of machine by eliminating non-productive time like fixture setting etc is done outside.

Since the fixture setting is outside, the machine idle time is reduced.

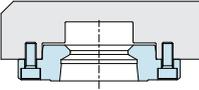
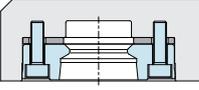
Pallet sharing system is very efficient for many variants with small batch production requirements.



Manual Pallet Change

Pallet alignment is

# Instant

	 Model <b>WVS</b> → P.221	 Model <b>VSJ</b> → P.225	 Model <b>VSB</b> → P.223
Classification	Double Action Air Lock / Air Release	Flange Shaped Block	Embedded Block
Operating Pressure Range	0.25~0.5MPa	—	—
Features	<ul style="list-style-type: none"> <li>Strong Clamping Force with Mechanical Lock</li> <li>With Self Lock by Spring</li> </ul>	 Simple Mounting	 Straight Mounting
Accessories	—	—	Level Adjustment Collar (VSB Only) VZ-VSC → P.223

- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

Rodless Hollow Pneumatic Work Support

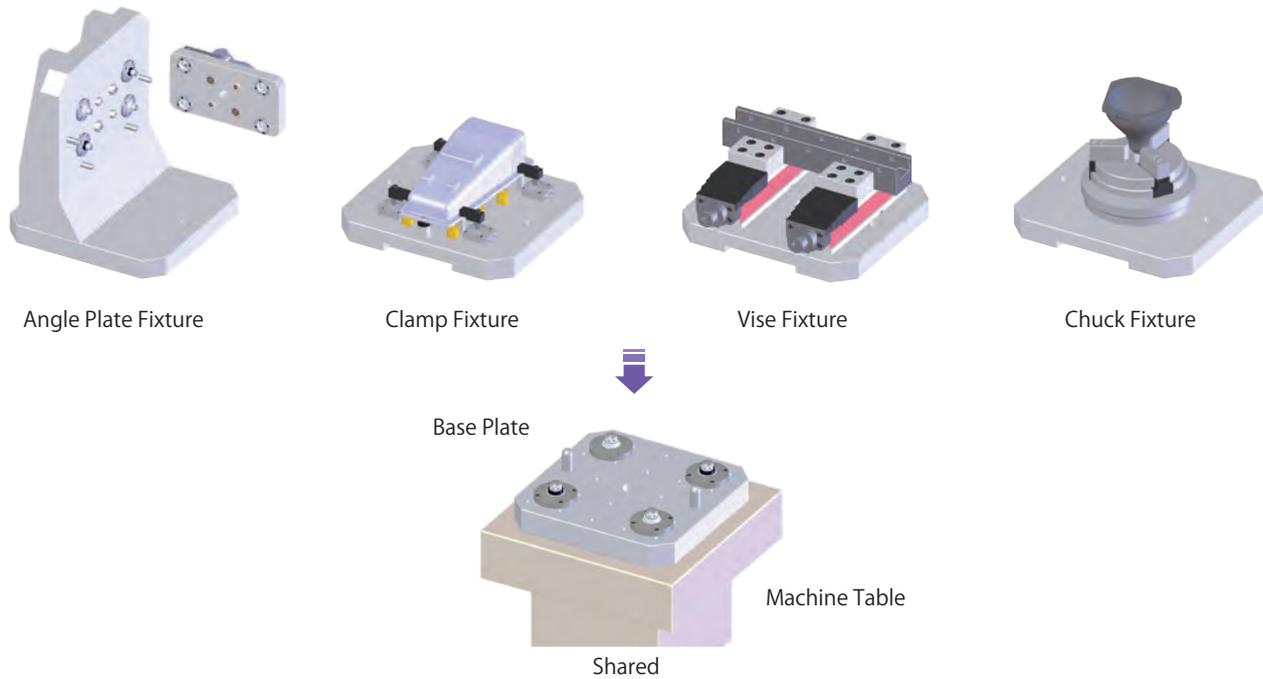
WNA

High-Power Pneumatic Pallet Clamp

**WVS**

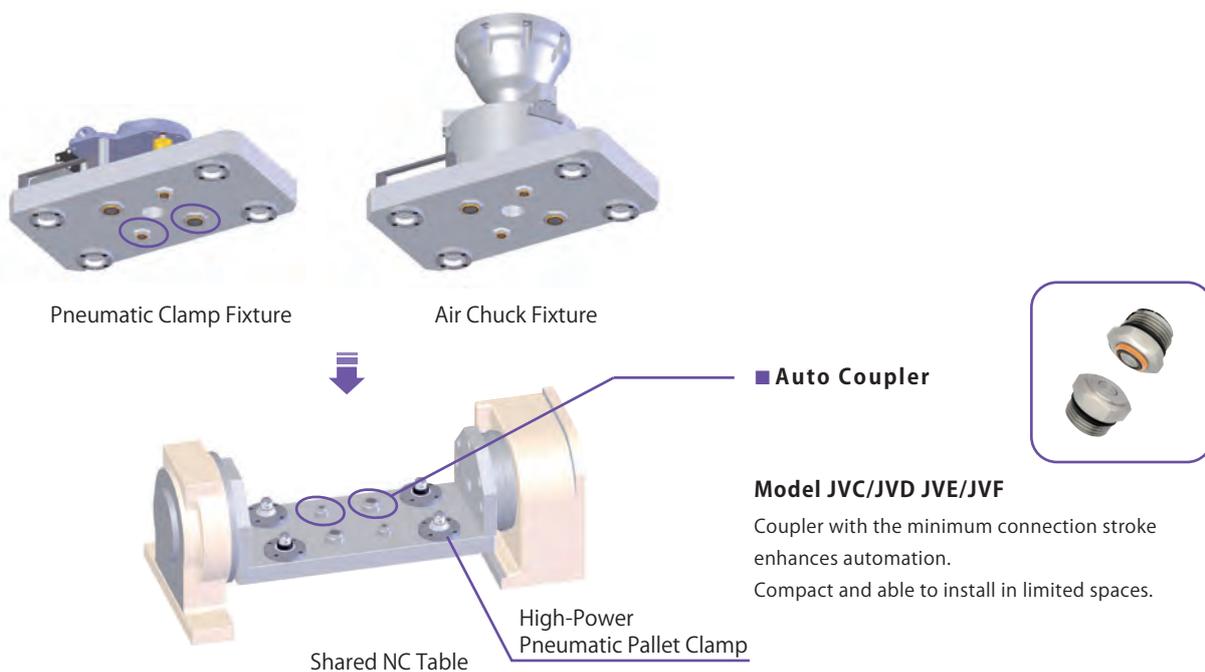
## ● Installation Example on the Machining Center

- With combination of machining center and pallet clamp, multiple fixtures and works become easily interchangeable.
- Internal setup time can be reduced with high precision repetitive positioning of pallet clamp + one touch clamping.
- If common layouts are used, fixture count and required machines can be minimized saving cost and space.



## ● Installation Example on NC Table

- With combination of NC table and pallet clamp, multiple fixtures and works become easily interchangeable.
- Hydraulic pressure, air pressure and coolant can be supplied to the fixture side by Auto Coupler with zero reaction force when setting a pallet (Refer to JVC/JVD and JVE/JVF).



● Selectable from 3 pallet clamp models (WVS / VS / VT) according to application.

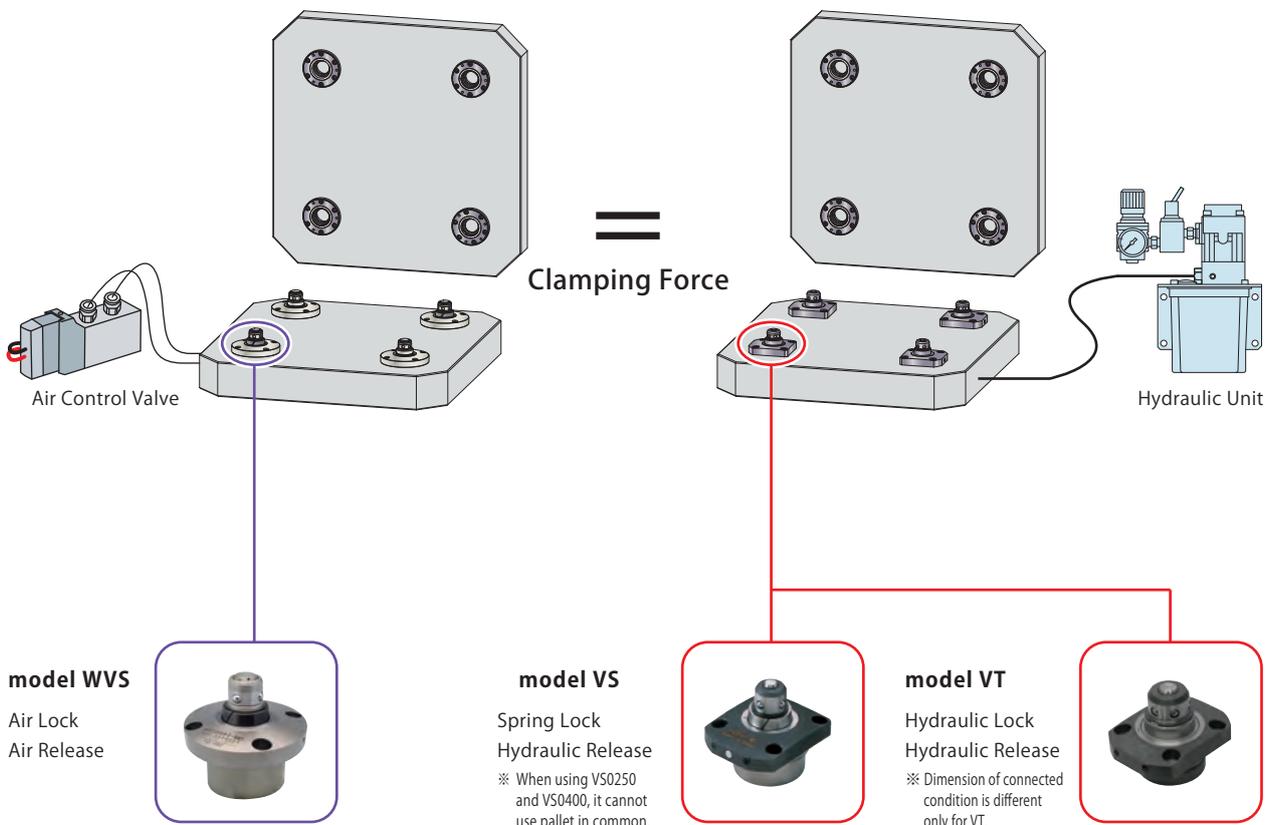
- The block attached to the pallet side is common with WVS clamp and hydraulic clamp (VS/VT). Hence, Spring of pallet with the WVS, VS or VT clamps attached becomes easy and compatible. Appropriate clamp can be selected depending on the application.

All Pneumatic Systems

- For the condition that is not allowed to use oil
- For the manufacturing process that is operated by high cutting load
- For inspection and assembly line

Hydraulic Systems

- For the condition that is allowed to use oil
- For the manufacturing process that is operated by high cutting load



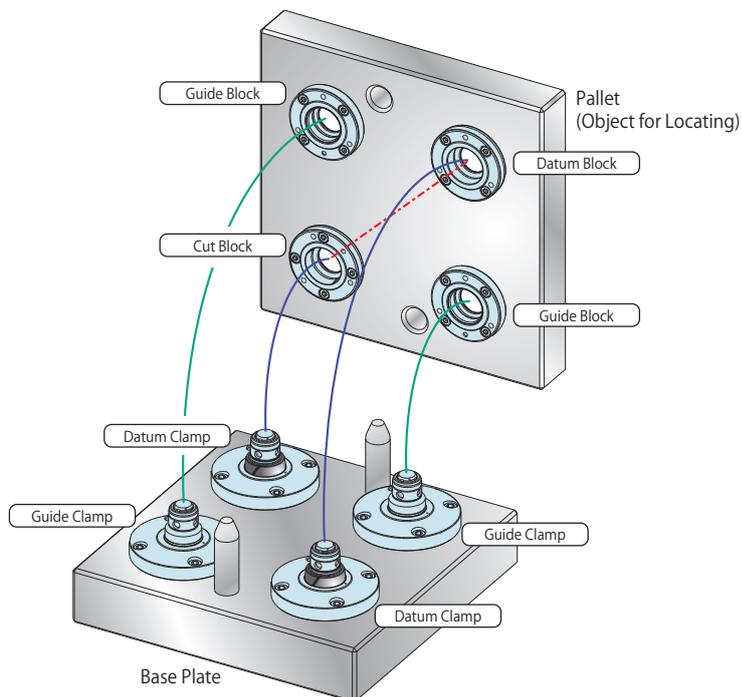
※ The detail form for combination is described at WVT(VS/VT)-VSB/VSJ block compatible table (P.215).

- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

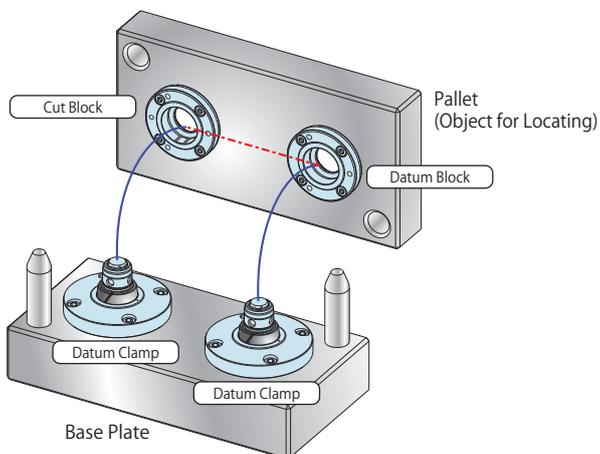
- High-Power Hydraulic Swing Clamp
  - LHE
- High-Power Hydraulic Link Clamp
  - LKE
- High-Power Pneumatic Hole Clamp
  - SWE
- High-Power Pneumatic Swing Clamp
  - WHE
- High-Power Pneumatic Link Clamp
  - WCE
- High-Power Pneumatic Work Support
  - WNC
- Rodless Hollow Pneumatic Work Support
  - WNA
- High-Power Pneumatic Pallet Clamp
  - WVS

## System References

### When Using 4 Pallet Clamps



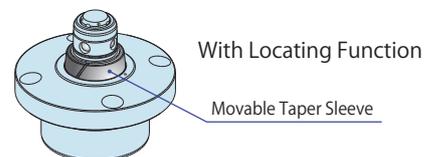
### When Using 2 Pallet Clamps



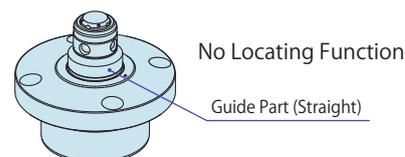
## Products and Functions

※ For the combination of clamps and blocks, please refer to P.215.

### Datum Clamp



### Guide Clamp



### Datum Block



### Cut Block



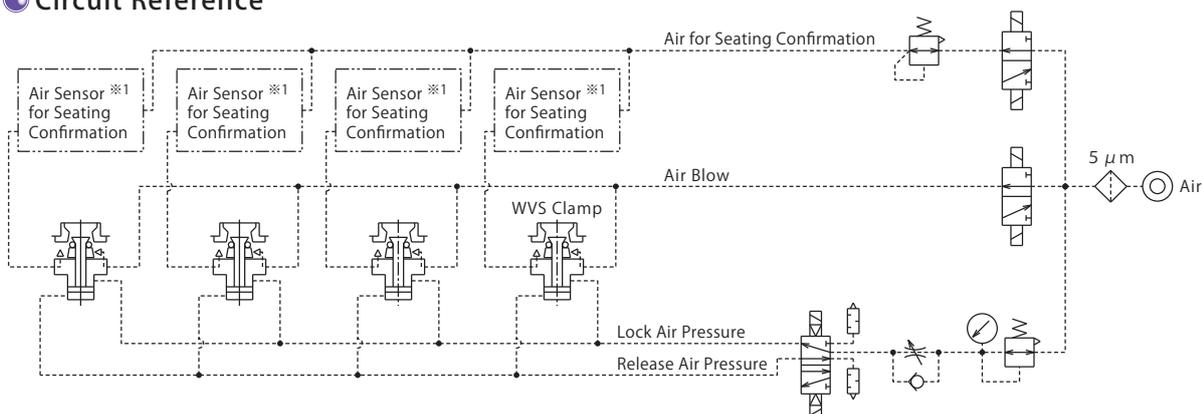
※ In the case of installation, only cut block requires attention in phase. Please refer for the details separately.

### Guide Block



※ Free block do not have a guide function.

## Circuit Reference



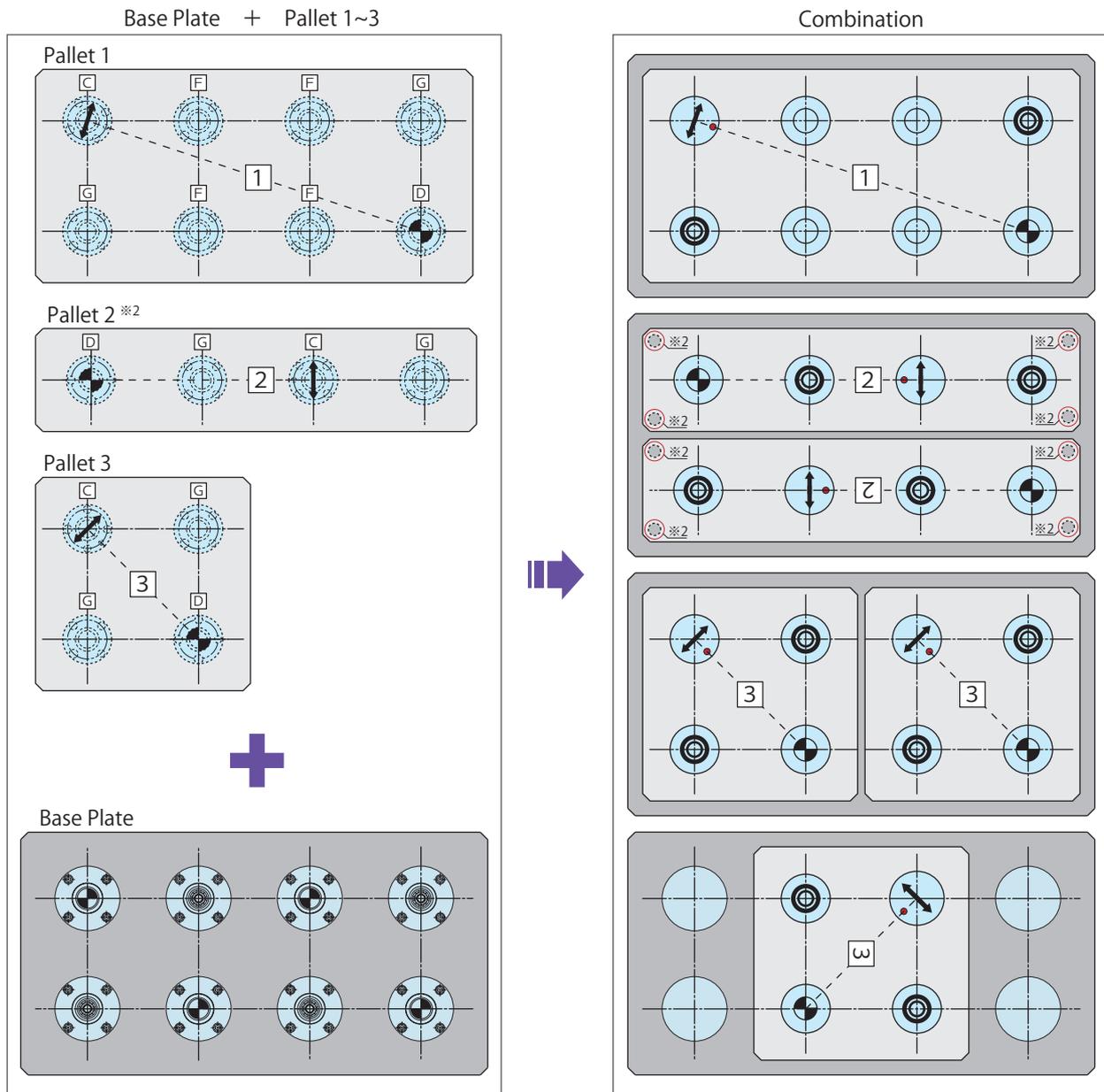
Notes: 1. Air blow passage should be  $\phi 6$  or more for an effective air blow. Please supply filtered clean dry air.

※1. Please refer to the list on the right for recommended air sensors for seating confirmation.

Maker	SMC	CKD
Name	Air Catch Sensor	Gap Switch
Model No.	ISA3-G	GPS3-E

### Configuration Sample of Pallets with Different Sizes

In case there are a variety of pallets with different sizes for the base plate, the clamp and block can be combined for use.



- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

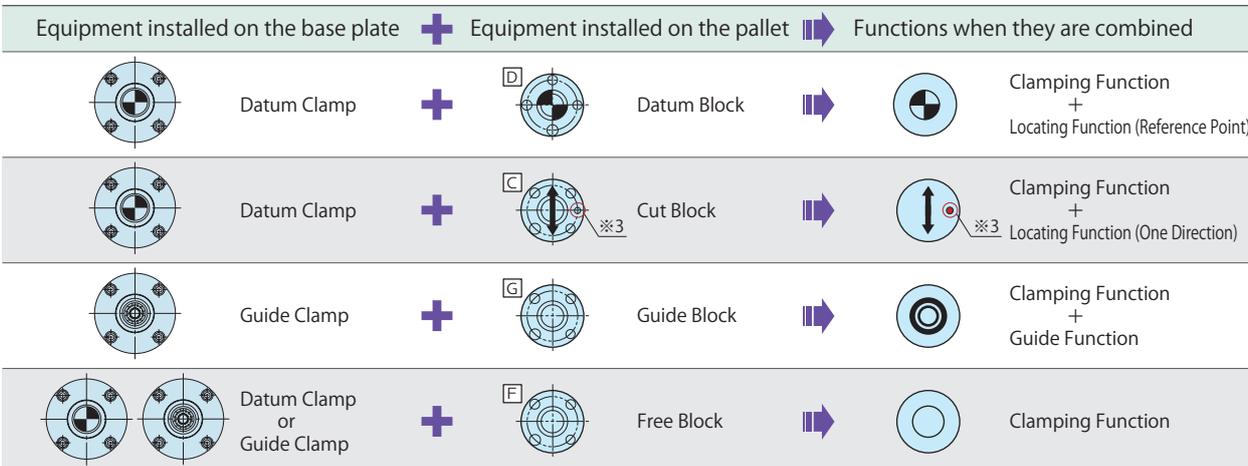
Rodless Hollow Pneumatic Work Support

WNA

High-Power Pneumatic Pallet Clamp

WVS

### Combination of Clamp and Block



Notes :

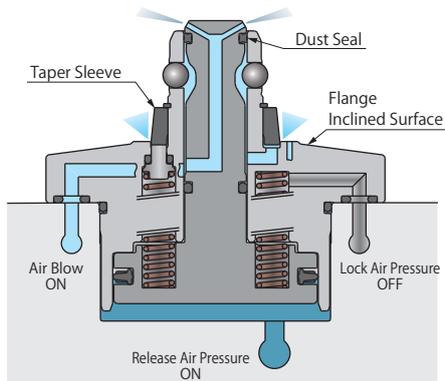
※2. In case the clamp/block configuration is linear, it is recommended to provide additional supports for stability.

※3. The spring pin position is indicated. With the datum block as reference, unidirectional positioning is done via the cut block.

The cut block positioning plane must be tangent to the datum block.

(The spring pin is positioned on the line connecting the centers of the datum block and cut block.)

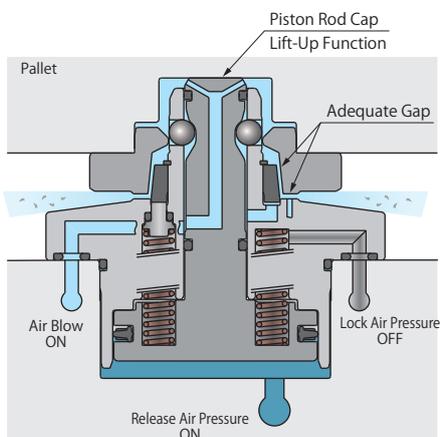
**Action Description** ※ This is a simplified drawing. Actual components are different.



Before Loading the Pallet

- Air blow prevents debris contamination.
- Dust seal prevents contamination and keeps the steel ball area clean.
- The flange top is designed as inclined surface so that cutting chips and cutting oil can flow easily.
- The slitting part of taper sleeve (one place) is protected with lever plate to prevent invasion of cutting chips.

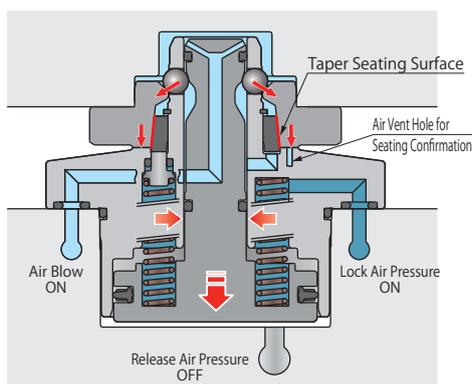
After Unloading the Pallet



When Loading the Pallet

- When loading the pallet,
- The pallet is set on the raised piston rod cap. At this time, the lift-up function makes an adequate gap between the taper reference surface and the seating surface. This allows to remove cutting chips and fluid effectively, and prevent damage on the clamp during pallet loading.
- When unloading the pallet,
- The lift-up force releases the close contact of the taper seating surface and the seating surface.

When Unloading the Pallet



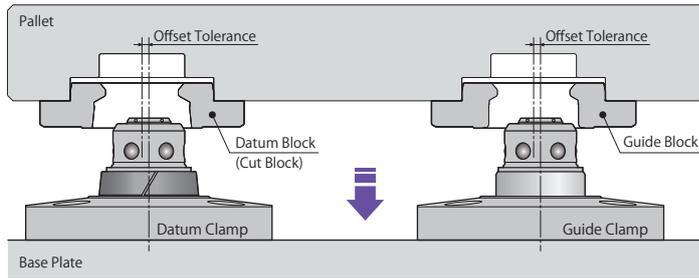
When Clamped

- When release air pressure is OFF and lock air pressure is ON, the air pressure, the spring force, and the mechanical lock mechanism lower the piston rod and the steel balls engage the block bringing it to the seating surface. (It maintains the condition by mechanical lock function.)
- The pallet is positioned with high precision via the taper sleeve as it contacts the taper surface of the block.
- The seating surface includes an air vent for seating confirmation (via air catch sensor).

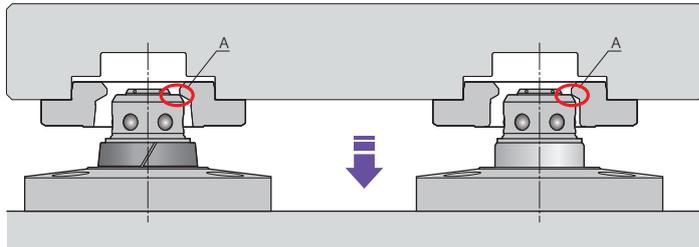
When Clamped

## Action Description during Loading/Unloading

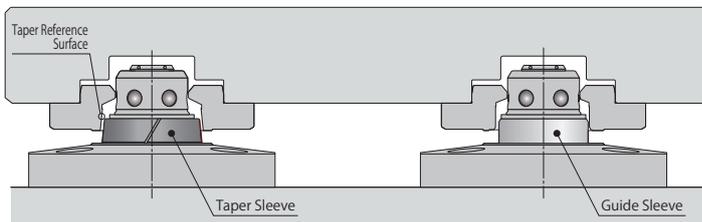
1. Air pressure releases the clamp. Position of pallet while loading must be kept within the offset tolerance. Continuously supply air pressure to the air blow port.



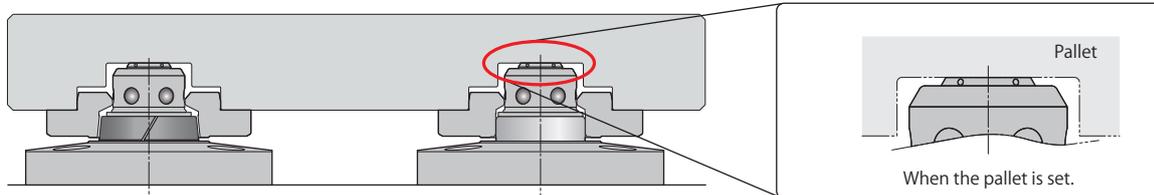
2. When the pallet is lowered, it should be positioned so the blocks contact the rod as shown on A.



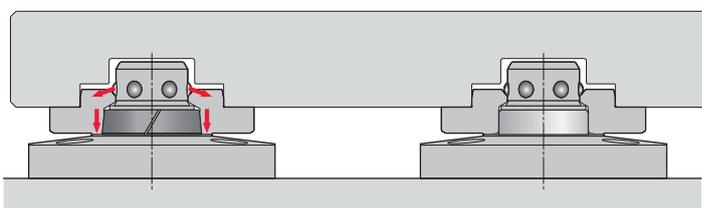
3. As the pallet is further lowered, it is positioned within 0.2mm of the reference axis by the guide sleeve and guide block. (Guide Function) The guide function prevents interference by allowing a gap between the datum clamp and taper reference surface.



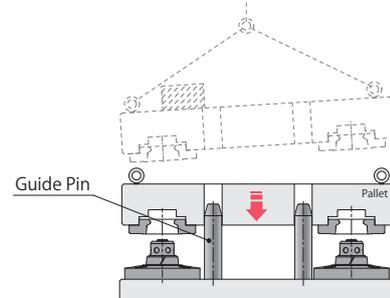
4. Pallet setting is completed when the pallet rests on the piston rod. At this time, there is appropriate clearance between the taper reference surface and seating surface created by lift up function, which makes air blow more effective to remove cutting chips and fluid.



5. When release air pressure is OFF and lock air pressure is ON, the block is pressed onto the seating surface with air pressure, spring force and mechanical lock. As the block is pressed, the taper reference surface is contacted for locating.



The fixture pallet must be level when lowering or lifting from the pallet clamps. If necessary, provide guide pins (rough guide) to keep the pallet level during loading and unloading.



### High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler  
Hydraulic Unit

Manual Operation  
Accessories

Cautions / Others

High-Power Hydraulic  
Swing Clamp

LHE

High-Power Hydraulic  
Link Clamp

LKE

High-Power Pneumatic  
Hole Clamp

SWE

High-Power Pneumatic  
Swing Clamp

WHE

High-Power Pneumatic  
Link Clamp

WCE

High-Power Pneumatic  
Work Support

WNC

Rodless Hollow  
Pneumatic Work Support

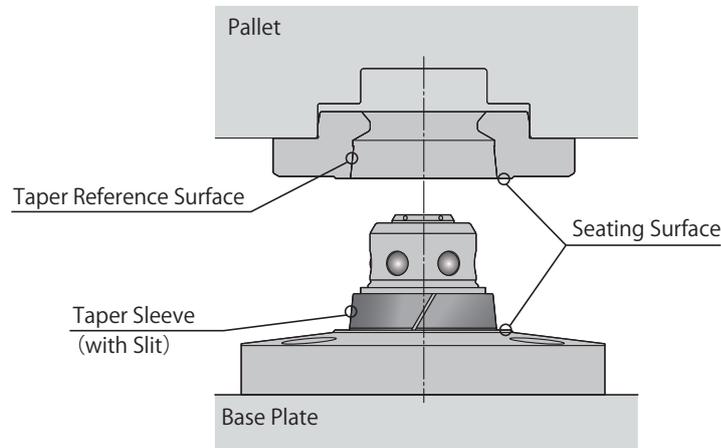
WNA

High-Power Pneumatic  
Pallet Clamp

WVS

## ● Description of Movable Taper Sleeve

Locating Method: Dual Surface with Movable Taper Sleeve



### The Benefits of Movable Taper Sleeve

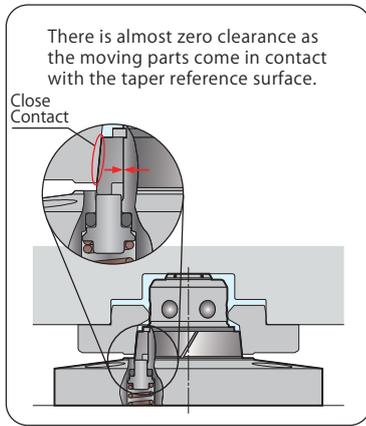
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With marginal error absorbed by the moveable taper sleeve, the clearance between the clamp unit, taper sleeve and block is eliminated enabling the repetitive location accuracy and stabilized clamping force.

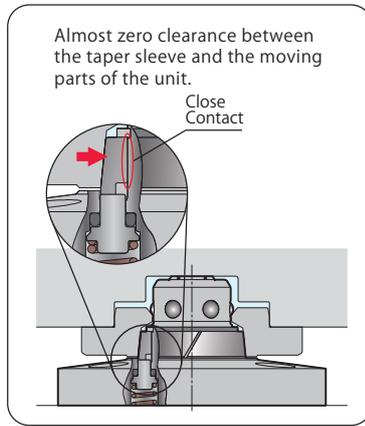
- ① Absorbs tolerance variations in each location clamp and block .
- ② Absorbs wear of locating part due to long time use.
- ③ Absorbs space variations of mounting holes.
- ④ Absorbs space variations due to temperature change.

## Movement and Error Absorbed by the Movable Taper Sleeve (①/②)

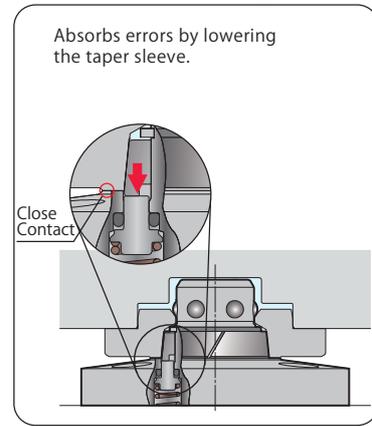
### Starting of Action for Locating



### XY Locating



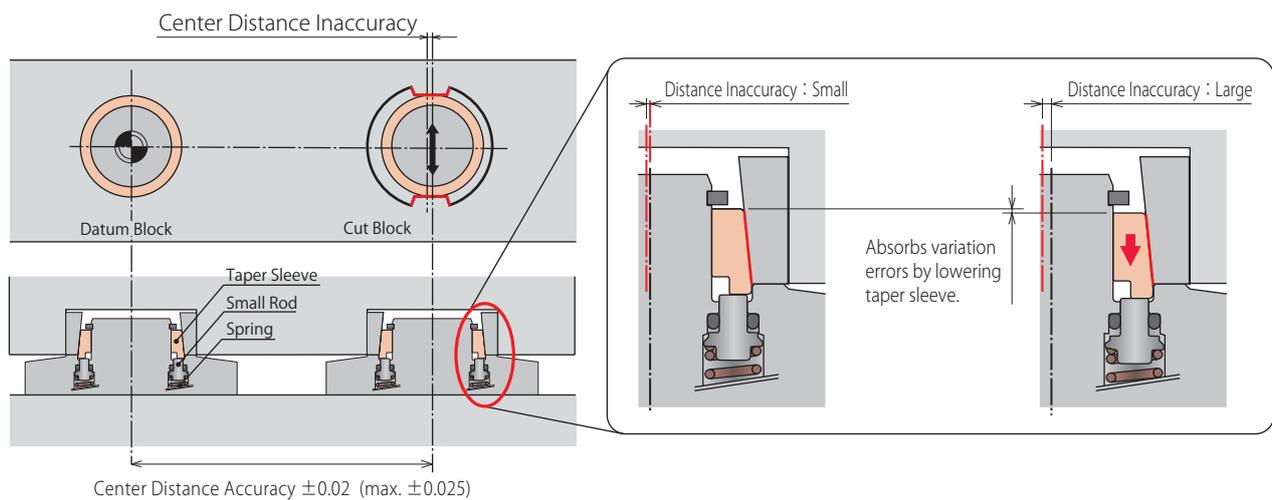
### XYZ Locating



## Movable taper sleeve absorbs distance error. (③/④)

Absorbs distance variations minimizing the wear of locating parts and prevents deformation of clamp/block.

※The precision assurance function is absolutely necessary especially for pallet transfer and/or multiple fixture changeover.



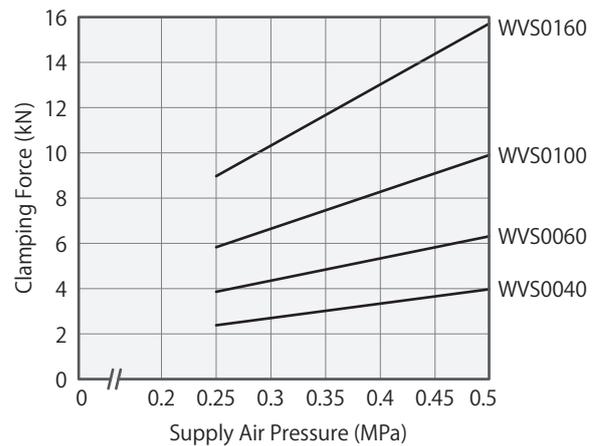
## Model No. Indication (Clamp)

**WVS 0 06 0 - M D**

1   2   3

### 1 Clamping Force

- 04** : Clamping Force 4.0kN (Air Pressure 0.5MPa)
  - 06** : Clamping Force 6.3kN (Air Pressure 0.5MPa)
  - 10** : Clamping Force 9.9kN (Air Pressure 0.5MPa)
  - 16** : Clamping Force 15.7kN (Air Pressure 0.5MPa)
- ※ Refer to the clamping force shown on the right. Refer to the Performance Curve and Specification for detailed specifications.

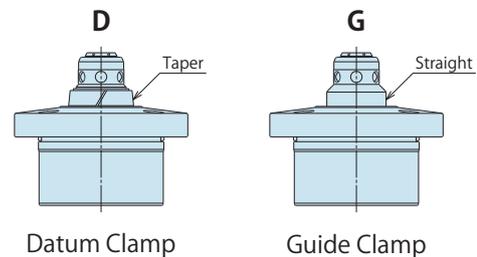


### 2 Design No.

- 0** : Revision Number

### 3 Functions

- D** : Datum Clamp (Especially Used for Locating)
- G** : Guide Clamp (Especially Used for Guide)



## Combination of Clamp and Block

Clamp model	Block model	Function
WVS-MD (Datum Clamp)	VSB□-D / VSJ□-D (Datum Block)	Clamping + Locating at a Reference Point
WVS-MD (Datum Clamp)	VSB□-C / VSJ□-C (Cut Block)	Clamping + One Direction Locating
WVS-MG (Guide Clamp)	VSB□-G / VSJ□-G (Cut Block)	Clamping + Guide
WVS-M□ (Datum / Guide Clamp)	VSB□-F / VSJ□-F (Free Block)	Clamping

Note :

1. Please refer to the following [ WVS (VS/VT) - VSB/VSJ Block Compatible Lists] for the detailed form of the combination.

## WVS (VS/VT) - VSB/VSJ Block Compatible Lists

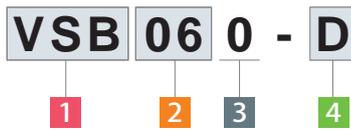
Clamp Model	WVS0040	WVS0060	WVS0100	WVS0160
Block Model	VSB020	VSB060	VSB100	VSB160
(Material : SCM)	VSJ020	VSJ060	VSJ100	VSJ160
(Hydraulic Clamp Model No.)	(VS0040) (VT0040)	(VS0060) (VT0060)	(VS0100) (VT0100)	(VS0160) (VT0160)

Notes :

1. Please refer to the above "Combination of Clamp and Block" for functions.
2. WVS and Block (VSB/VSJ) for Hydraulic Clamp (VS/VT) are common.

## Model No. Indication (Block)

VSJ : Flange Shaped Block



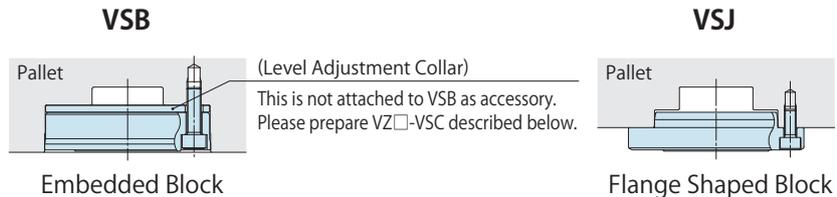
VSJ : Flange Shaped Block



### 1 Shape of Block

**VSJ** : Flange Shaped Block

**VSB** : Embedded Block



### 2 Accommodate WVS/VS/VT Clamp Model

**02** : WVS0040 / VS0020 / VS0040 / VT0040

**06** : WVS0060 / VS0060 / VT0060

**10** : WVS0100 / VS0100 / VT0100

**16** : WVS0160 / VS0160 / VT0160

Note :

- VS/VT is hydraulic model.

### 3 Design No.

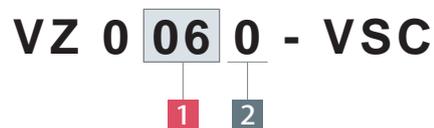
**0** : Revision Number

### 4 Functions

- D** : Datum Block (Especially Used for Reference Locating)
- C** : Cut Block (Especially Used for One Direction Locating)
- G** : Guide Block (Especially Used for Guide)
- F** : Free Block (Shared by Multiple Pallets with Different Sizes)

## Model No. Indication (Level Adjustment Collar)

※This product is only for VSB's embedded block.



### 1 Accommodate VSB Block Model No.

**02** : VSB020-□

**06** : VSB060-□

**10** : VSB100-□

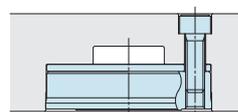
**16** : VSB160-□

### 2 Design No.

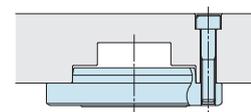
**0** : Revision Number

## Other Mounting Examples (Reference)

※ Please contact us for mounting methods as shown in the drawing below.



VSB Block : Bolt Mounting from the Upper Side



VSJ Block : Bolt Mounting from the Upper Side

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

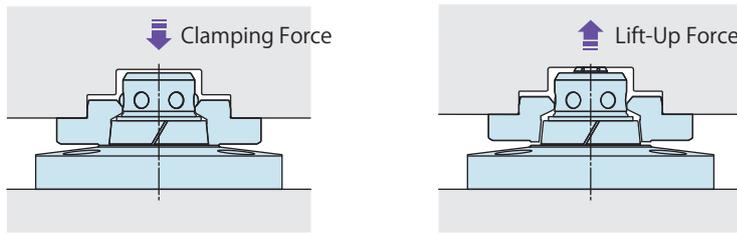
Rodless Hollow Pneumatic Work Support

WNA

High-Power Pneumatic Pallet Clamp

WVS

## Clamping Force / Lift-Up Force

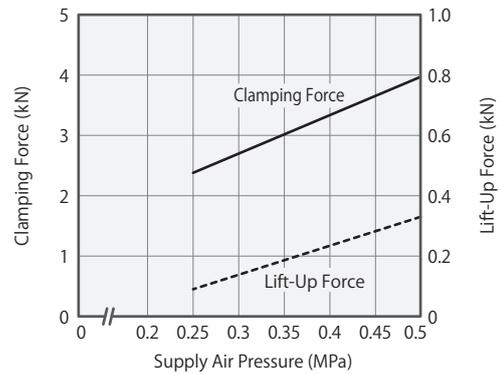


(Example)

In case of WVS0060-M□  
When supply air pressure is 0.4MPa,  
clamping force becomes about 5.3kN  
and lift-up force becomes about 0.34kN.

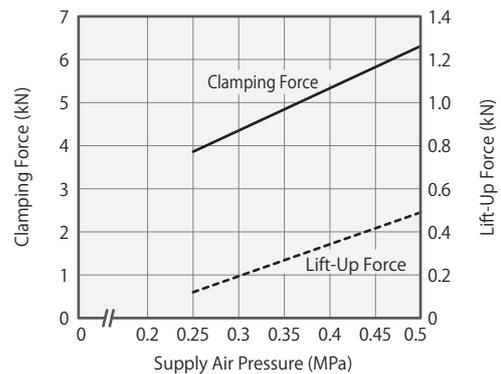
### WVS0040-M□

Supply Air Pressure (MPa)	Clamping Force(kN)	Lift-Up Force (kN)
0.5	4.0	0.33
0.45	3.6	0.28
0.4	3.3	0.23
0.35	3.0	0.19
0.3	2.7	0.14
0.25	2.4	0.09
Holding Force at 0 MPa ※1	0.8	-
Operating Pressure Range (MPa)	0.25 ~ 0.5	



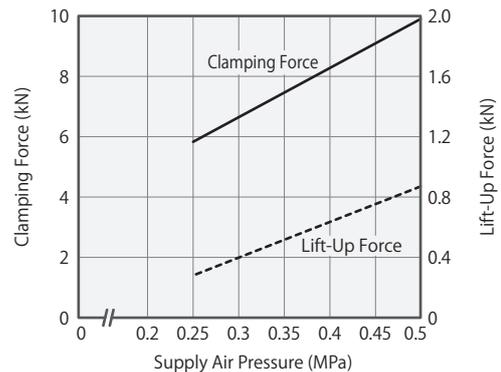
### WVS0060-M□

Supply Air Pressure (MPa)	Clamping Force(kN)	Lift-Up Force (kN)
0.5	6.3	0.49
0.45	5.8	0.42
0.4	5.3	0.34
0.35	4.8	0.27
0.3	4.4	0.20
0.25	3.9	0.12
Holding Force at 0 MPa ※1	1.4	-
Operating Pressure Range (MPa)	0.25 ~ 0.5	



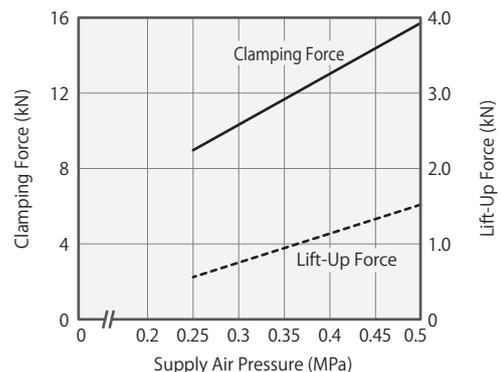
### WVS0100-M□

Supply Air Pressure (MPa)	Clamping Force(kN)	Lift-Up Force (kN)
0.5	9.9	0.87
0.45	9.1	0.75
0.4	8.3	0.64
0.35	7.5	0.52
0.3	6.6	0.40
0.25	5.8	0.28
Holding Force at 0 MPa ※1	1.8	-
Operating Pressure Range (MPa)	0.25 ~ 0.5	



### WVS0160-M□

Supply Air Pressure (MPa)	Clamping force(kN)	Lift-up force (kN)
0.5	15.7	1.52
0.45	14.4	1.33
0.4	13.0	1.14
0.35	11.7	0.94
0.3	10.3	0.75
0.25	9.0	0.56
Holding Force at 0 MPa ※1	2.2	-
Operating Pressure Range (MPa)	0.25 ~ 0.5	



Notes :

1. This graph shows the value for single clamp.
2. This graph shows the relationship between Supply Air Pressure and Clamping Force (solid line) / Lift-Up Force (dotted line).

※1. It shows holding force at 0MPa air pressure and does not satisfy specifications.

MEMO

**High-Power Series**

Pneumatic Series

Hydraulic Series

Valve / Coupler  
Hydraulic Unit

Manual Operation  
Accessories

Cautions / Others

High-Power Hydraulic  
Swing Clamp

LHE

High-Power Hydraulic  
Link Clamp

LKE

High-Power Pneumatic  
Hole Clamp

SWE

High-Power Pneumatic  
Swing Clamp

WHE

High-Power Pneumatic  
Link Clamp

WCE

High-Power Pneumatic  
Work Support

WNC

Rodless Hollow  
Pneumatic Work Support

WNA

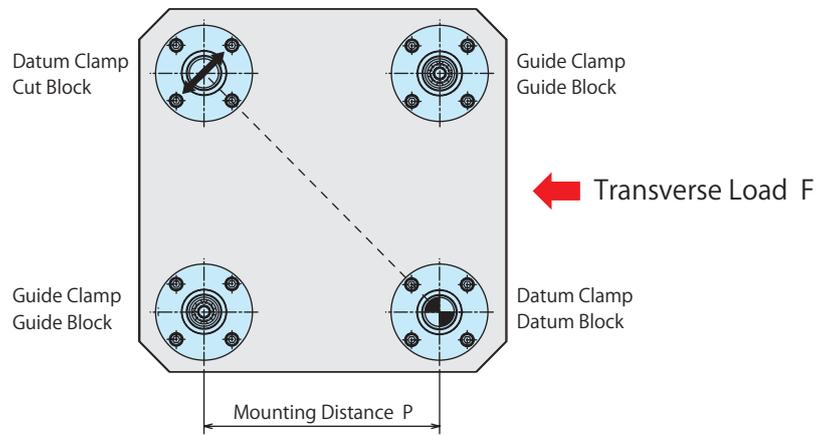
High-Power Pneumatic  
Pallet Clamp

WVS

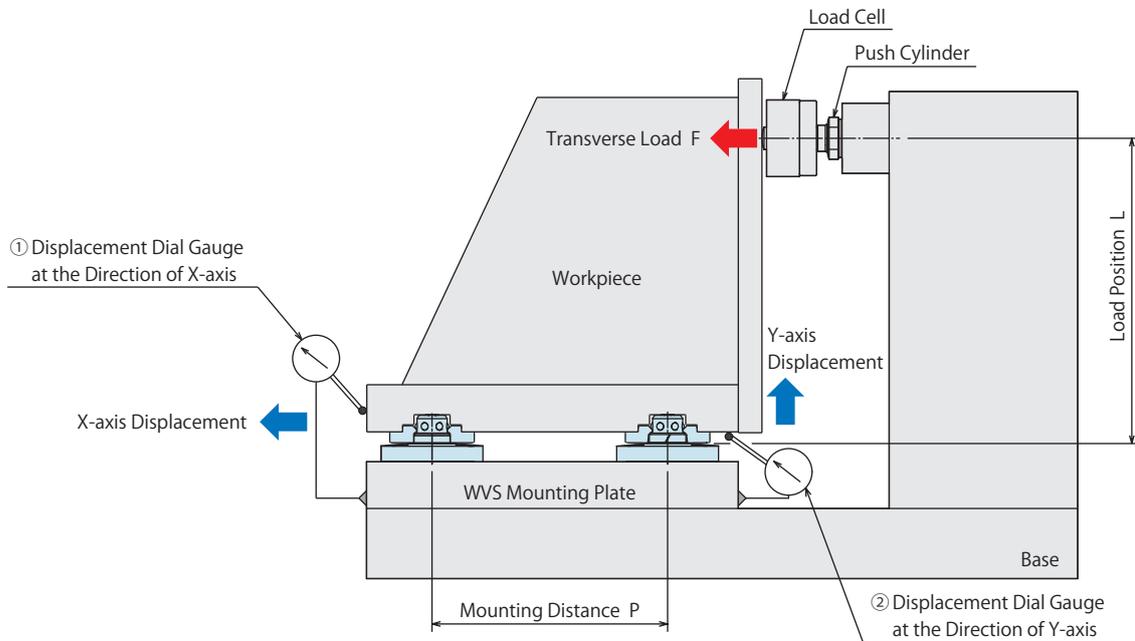
## Displacement against Transverse Load

※ The displacement is the predicted reference value based on the test data under the conditions shown below.  
 Displacement may vary according to conditions of fixtures. The displayed values are reference based on the test data.

### Clamp/Block Layout



### Test Device



### How to Read Displacement

(Ex.) In case of WVS0040

#### Components

- 【Clamp】
- WVS0040-MD×2 Units
- WVS0040-MG×2 Units
- 【Block】
- VSJ020-D×1 Unit
- VSJ020-C×1 Unit
- VSJ020-G×2 Units

#### Conditions

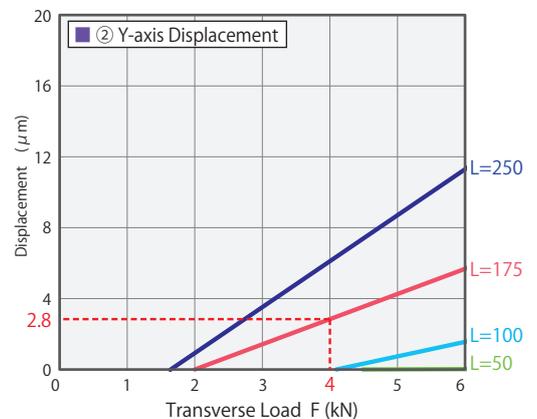
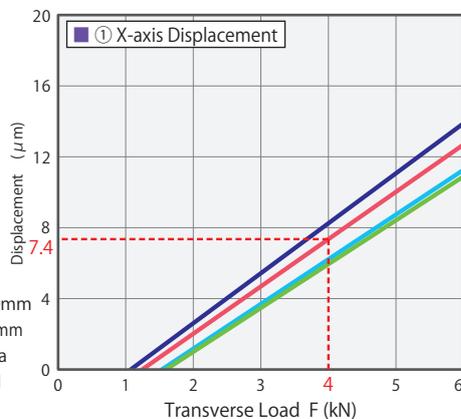
- Mounting Distance P=200mm
- Load Position L=175mm
- Supply Air Pressure 0.5MPa
- Transverse Load F=4kN

#### Displacement

- ① X-axis displacement is about 7.4 μm.
- ② Y-axis displacement is about 2.8 μm.

Note:

1. Please contact us in case the conditions are different.

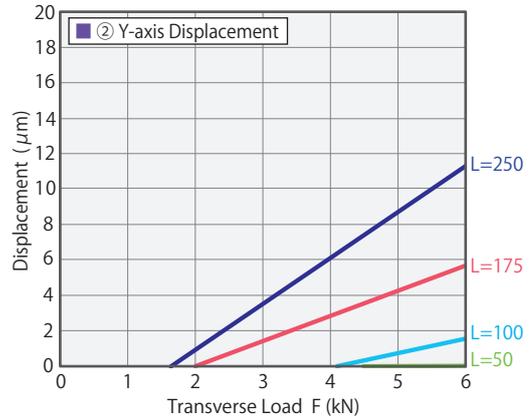
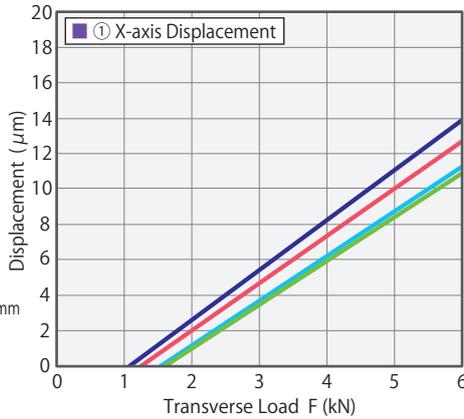


**WVS0040**

- Components
  - 【Clamp】
  - WVS0040-MD×2 Units
  - WVS0040-MG×2 Units
  - 【Block】
  - VSJ020-D×1 Unit
  - VSJ020-C×1 Unit
  - VSJ020-G×2 Units

- Conditions
  - Mounting Distance P=200mm
  - Load Position L=50 ~ 250mm
  - Supply Air Pressure 0.5MPa

- Clamping Force
  - Total 16kN (4.0kN×4)

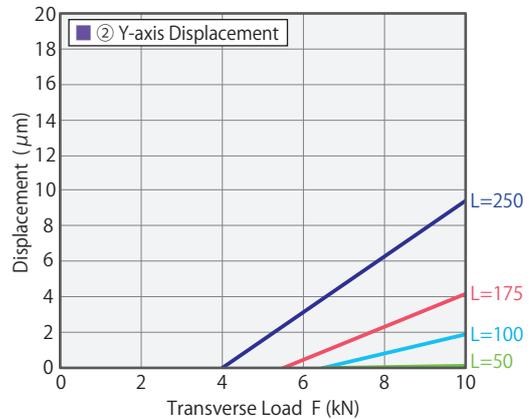
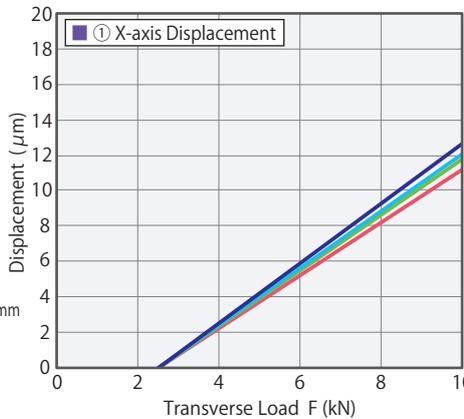


**WVS0060**

- Components
  - 【Clamp】
  - WVS0060-MD×2 Units
  - WVS0060-MG×2 Units
  - 【Block】
  - VSJ060-D×1 Unit
  - VSJ060-C×1 Unit
  - VSJ060-G×2 Units

- Conditions
  - Mounting Distance P=200mm
  - Load Position L=50 ~ 250mm
  - Supply Air Pressure 0.5MPa

- Clamping Force
  - Total 25.2kN (6.3kN×4)

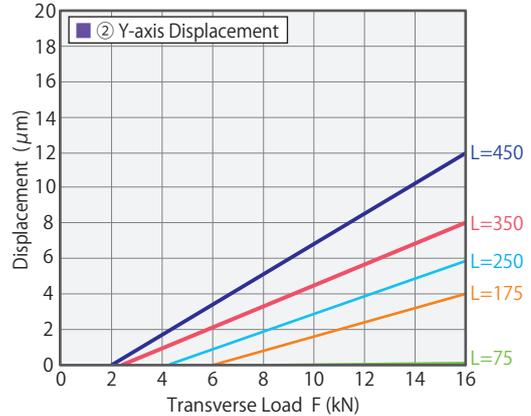
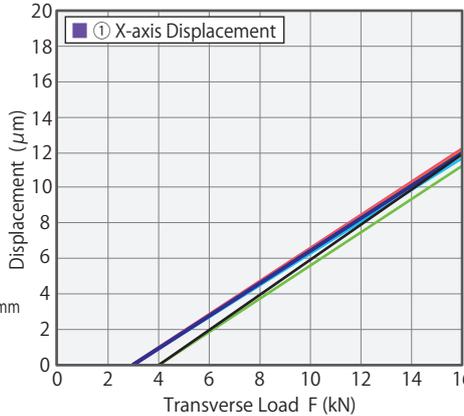


**WVS0100**

- Components
  - 【Clamp】
  - WVS0100-MD×2 Units
  - WVS0100-MG×2 Units
  - 【Block】
  - VSJ100-D×1 Unit
  - VSJ100-C×1 Unit
  - VSJ100-G×2 Units

- Conditions
  - Mounting Distance P=300mm
  - Load Position L=50 ~ 450mm
  - Supply Air Pressure 0.5MPa

- Clamping Force
  - Total 39.6kN (9.9kN×4)

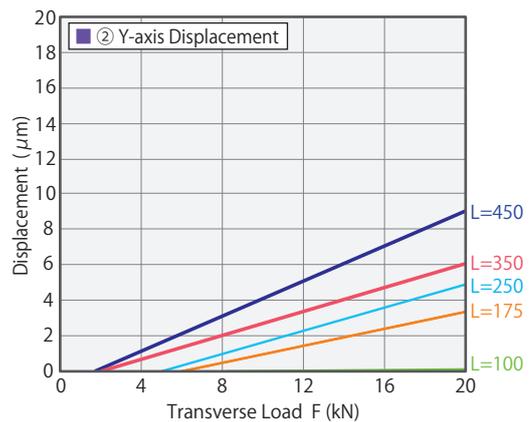
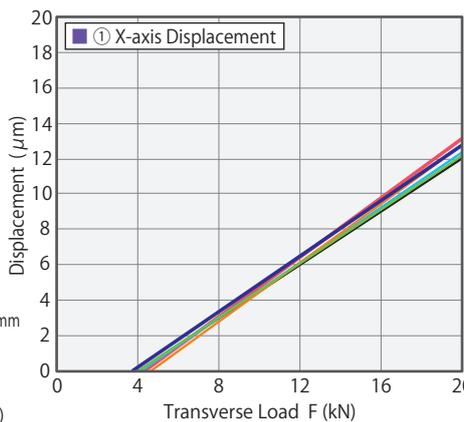


**WVS0160**

- Components
  - 【Clamp】
  - WVS0160-MD×2 Units
  - WVS0160-MG×2 Units
  - 【Block】
  - VSJ160-D×1 Unit
  - VSJ160-C×1 Unit
  - VSJ160-G×2 Units

- Conditions
  - Mounting Distance P=300mm
  - Load Position L=50 ~ 450mm
  - Supply Air Pressure 0.5MPa

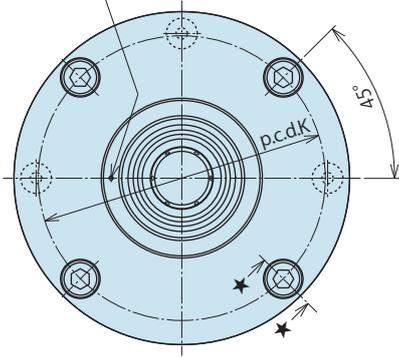
- Clamping Force
  - Total 62.8kN (15.7kN×4)



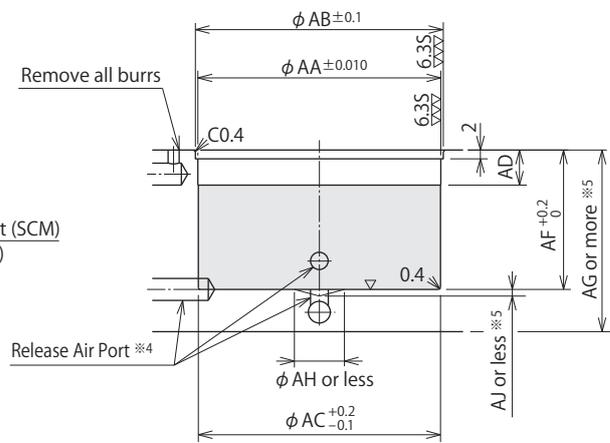
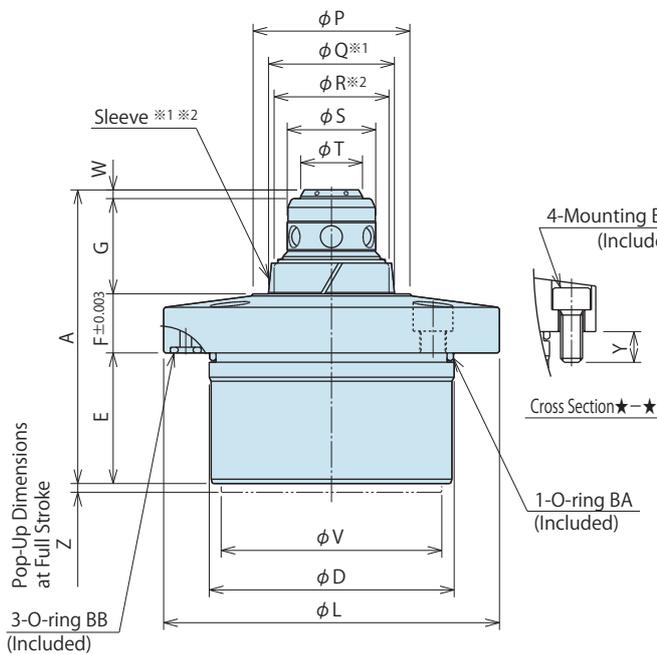
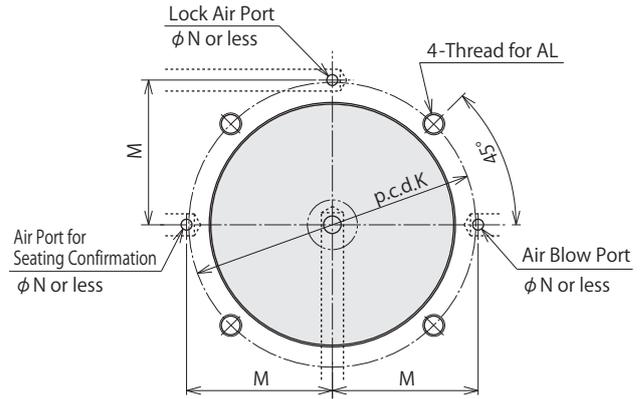
## External Dimensions

※This drawing shows the released state of WVS.

Air Vent Port  
for Seating Confirmation

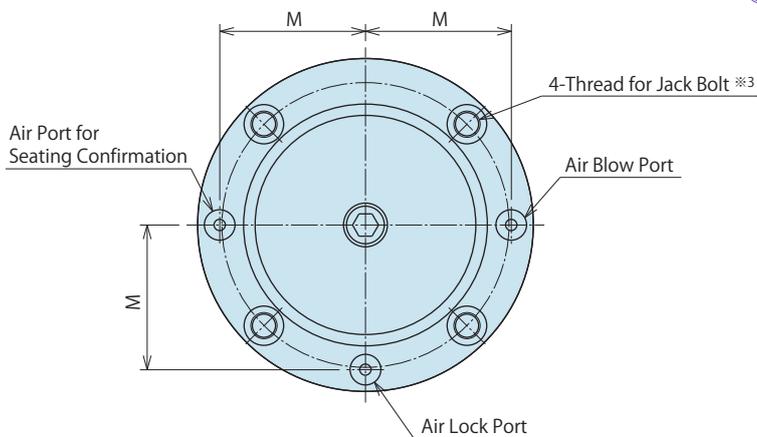


## Machining Dimensions of Mounting Area

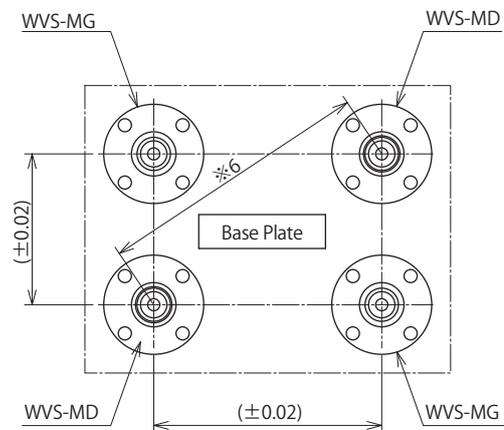


Notes :

1. Make sure no burrs are on or around the hole intersection.
- ※ 4. Release air port should be machined within  $\square$  range.
- ※ 5. The base thickness (AG) and remaining depth after boring (AJ) are reference values when the base material is S50C.



## Distance Accuracy of Each Clamp



Notes :

- ※ 1. φ Q shows the dimensions of sleeve (taper) of datum clamp (WVS-MD).
- ※ 2. φ R shows the dimensions of sleeve (straight) of guide clamp (WVS-MG).
- ※ 3. The thread for jack bolt is used when removing the clamp. (See P.228 for usage.)

Note :

- ※ 6. Please make sure the distance accuracy of each datum clamp is below  $\pm 0.025$ mm between the clamps with the longest distance.

## Specifications

Model		WVS0040-M□	WVS0060-M□	WVS0100-M□	WVS0160-M□
Locating Repeatability	mm	0.003			
Full Stroke	mm	3.4	3.4	4.0	4.5
Lift Up Stroke	mm	1.0			
Allowable Offset when fixture pallet is set	mm	1.0	1.5	1.5	1.5
Max. Loading Weight ※8	kg	300	600	1000	1500
Cylinder Capacity ※7	Lock	8.76	13.56	26.10	51.52
	cm <sup>3</sup> Release	9.41	14.75	28.01	54.51
Holding Force at 0 MPa ※7 ※9	kN	0.8	1.4	1.8	2.2
Max. Operating Pressure	MPa	0.5			
Min. Operating Pressure	MPa	0.25			
Withstanding Pressure	MPa	0.75			
Air Blow Pressure	MPa	0.4 ~ 0.5			
Operating Temperature	°C	0 ~ 70			
Usable Fluid		Dry Air			
Weight※7	kg	0.7	1.0	1.8	3.5

### Notes :

- ※ 7. The specification indicates the value of one device.
- ※ 8. It indicates the weight of pallet in horizontal position (placed flat) that WVS can locate regardless of number of clamps.  
Release air pressure is determined with the loading weight (fixture).  
(Loading weight should be less than 80% of the lift-up force (Number of Clamps×Lift-Up Force)).  
When using pallet in vertical direction, please contact us.
- ※ 9. It indicates holding force when air pressure is at 0MPa and may not satisfy the specifications.

## External Dimensions and Machining Dimensions for Mounting

(mm)

Model		WVS0040-M□	WVS0060-M□	WVS0100-M□	WVS0160-M□
A		65.7	67.2	78.2	90.2
D	WVS-MD	45 <sup>+0.030</sup> <sub>+0.011</sub>	55 <sup>+0.030</sup> <sub>+0.011</sub>	69 <sup>+0.030</sup> <sub>+0.011</sub>	87.5 <sup>+0.030</sup> <sub>+0.011</sub>
	WVS-MG	45 <sup>0</sup> <sub>-0.020</sub>	55 <sup>0</sup> <sub>-0.020</sub>	69 <sup>0</sup> <sub>-0.020</sub>	87.5 <sup>0</sup> <sub>-0.020</sub>
E		30	30	34	39
F		12	13.5	16	20
G		21.7	21.7	26.5	29.5
K		55	65	81	102.5
L		66	76	94	118.5
M		28	33	41	51.5
N		2.5	2.5	3	5
P		32	35.5	44	51
Q		25	28.5	36	42
R		22.5	26	32.3	38.3
S		18	20	26	32
T		12	14	18.8	22.4
V		40	50	63	80
W		2	2	1.7	1.7
Y		8	7	8	11.8
Z		0.5	0.5	1	1
AA		45	55	69	87.5
AB		45.2	55.2	69.2	87.7
AC		44.8	54.8	68.8	87.3
AD		8	8	9	10
AF		30.5	30.5	35	40
AG		35	35	40	45
AH		9	9	14	17
AJ		2.5	2.5	2.5	2.5
AL		M5×0.8 Thread Depth 10	M5×0.8 Thread Depth 10	M6×1 Thread Depth 10	M8×1 Thread Depth 14
1-O-ring BA		AS568-030(70°)	AS568-033(70°)	AS568-037(70°)	AS568-042(70°)
3-O-ring BB		AS568-007(70°)	AS568-007(70°)	1AP5	1AP7
Mounting Bolt		M5×0.8×12	M5×0.8×12	M6×1×14	M8×1.25×20
Thread for Jack Bolt		M6×1	M6×1	M8×1.25	M10×1.5

### High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

Rodless Hollow Pneumatic Work Support

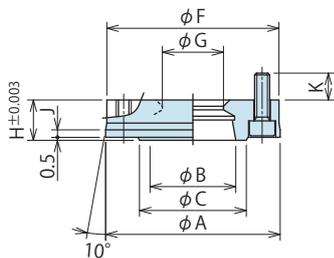
WNA

High-Power Pneumatic Pallet Clamp

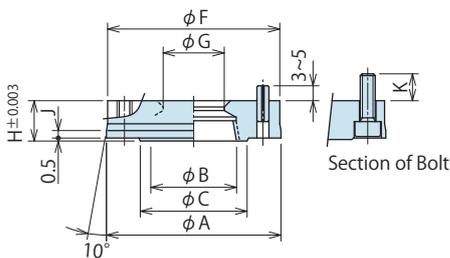
WVS

External Dimensions

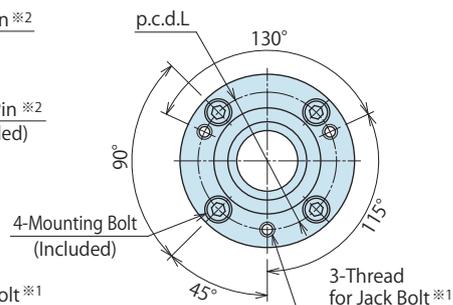
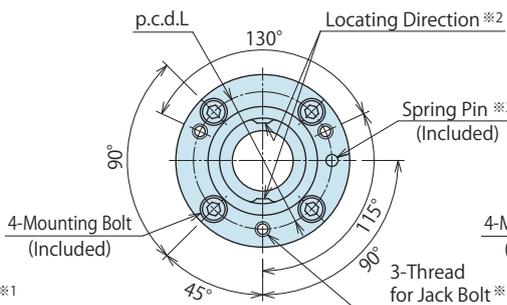
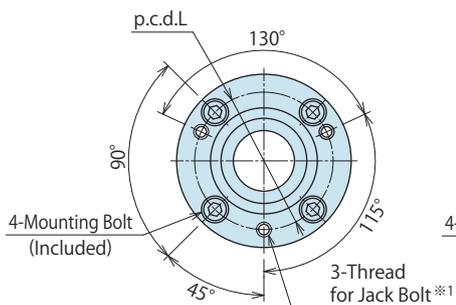
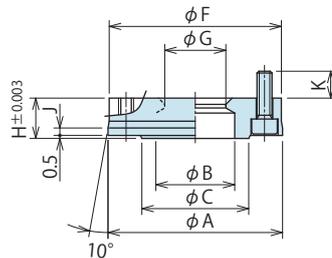
VSB020/060/100/160-D



VSB020/060/100/160-C



VSB020/060/100/160-G/F

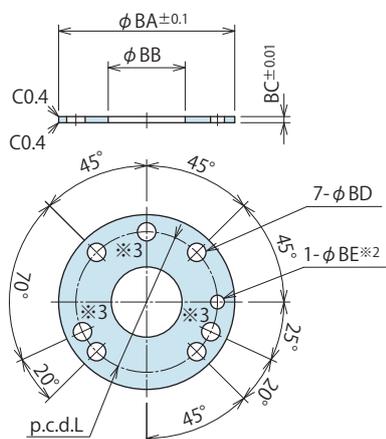


Notes :

- ※1. The thread for jack bolt is used when removing VSB block.
- ※2. The spring pin is used for phasing of VSB-C locating direction.

Dimensions of Collar for Level Adjustment

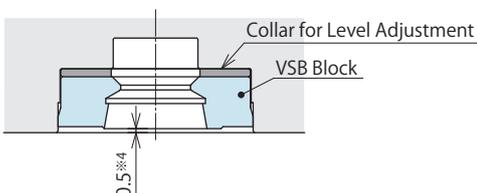
VZ0020/0060/0100/0160-VSC



Notes :

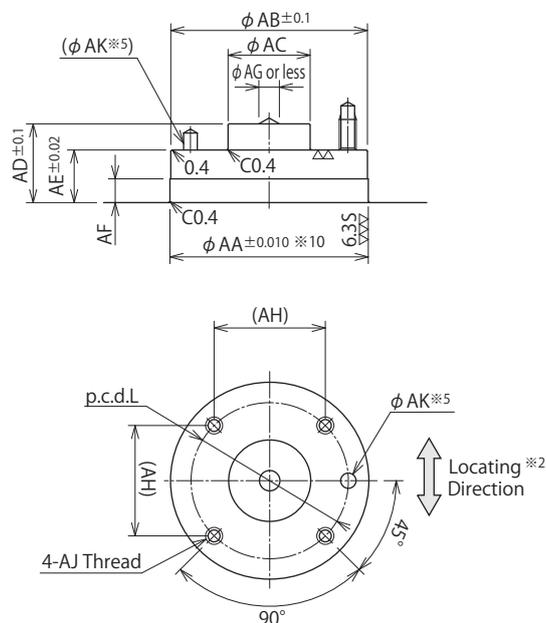
1. Please refer to the drawing above when preparing the level adjustment collar by yourself.
- ※3. The thread (3 parts) is for jack bolt. Align them with the phase of thread for jack bolt of VSB block.

※Mounting of Collar for Level Adjustment.



※4. Clearance between the seating surface of VSB block and the bottom surface of the pallet.

Machining Dimensions of Mounting Area

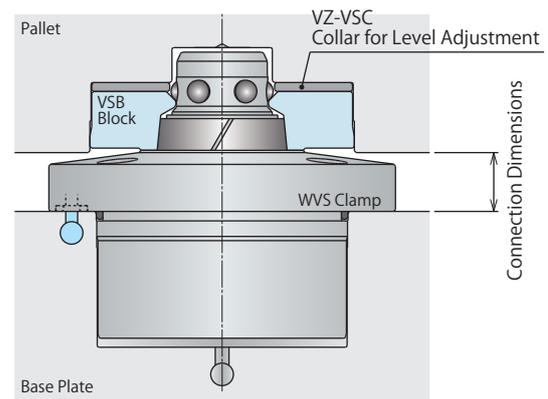
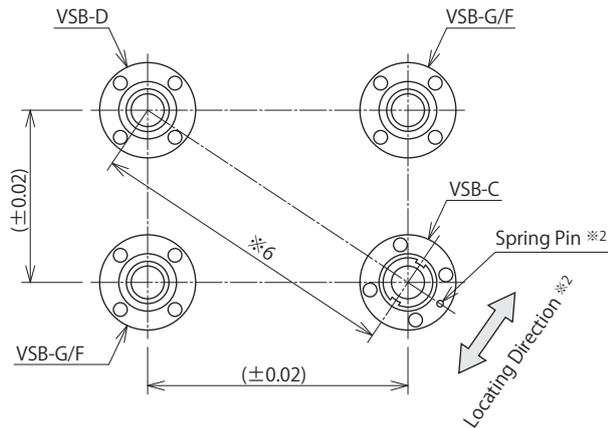


Notes :

1. This graph shows when the clearance between the seating surface of VSB block and the bottom surface of the pallet is 0.5mm by using the level adjustment collar.
- ※5. φAK hole is used for phasing of VSB-C locating direction. Please make sure φAK hole is at the line connecting the centers of VSB-D and VSB-C. This machining is only necessary for VSB-C.

## Mounting Distance Accuracy and VSB-C Phase

## Connection Dimensions



Note :

※6. Distance accuracy of the block should be within  $\pm 0.025\text{mm}$  between the blocks with the longest distance.

## External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	VSB020-D VSB020-C	VSB020-G VSB020-F	VSB060-D VSB060-C	VSB060-G VSB060-F	VSB100-D VSB100-C	VSB100-G VSB100-F	VSB160-D VSB160-C	VSB160-G VSB160-F
A	50 <sup>+0.027</sup> / <sub>+0.011</sub>	50g7 <sup>-0.009</sup> / <sub>-0.034</sub>	58m6 <sup>+0.030</sup> / <sub>+0.011</sub>	58g7 <sup>-0.010</sup> / <sub>-0.040</sub>	70m6 <sup>+0.030</sup> / <sub>+0.011</sub>	70g7 <sup>-0.010</sup> / <sub>-0.040</sub>	83m6 <sup>+0.035</sup> / <sub>+0.013</sub>	83g7 <sup>-0.012</sup> / <sub>-0.047</sub>
B	25	22.7 (25.5) <sup>※7</sup>	28.5	26.2 (29) <sup>※7</sup>	36	32.5 (36.5) <sup>※7</sup>	42	38.5 (42.5) <sup>※7</sup>
C		32		35.5		44		51
F		49.2		57.2		69.2		82.2
G		18.3		20.3		26.3		32.3
H		13		13		16.5		17.5
J		2.5		2.5		2.5		3
K		8		9		10.5		16.5
L		40		46		56		66
AA <sup>※10</sup>		50		58		70		83
AB		49.5		57.5		69.5		82.5
AC		22		24		30		36
AD		23.2		23.2		27.7		30.7
AE		15.5		15.5		20		21
AF		7		7		8		8
AG		3		3		5		5
(AH)		28.28		32.53		39.6		46.67
AJ	M4×0.7 Thread Depth 7		M5×0.8 Thread Depth 8		M6×1 Thread Depth 10		M8×1.25 Thread Depth 14.5	
AK	φ3.4 Depth 5		φ4.5 Depth 5		φ4.5 Depth 5		φ4.5 Depth 5	
Mounting Bolt	M4×0.7×16		M5×0.8×16		M6×1×20		M8×1.25×25	
Thread for Jack Bolt	M4×0.7		M5×0.8		M6×1		M8×1.25	
Spring Pin <sup>※8</sup>	φ3×10		φ4×10		φ4×10		φ4×10	
Weight	0.15kg		0.2kg		0.35kg		0.5kg	
Appropriate Clamp	WVS0040-MD VS0020-MD VS/VT0040-MD	WVS0040-MG WVS0040-MD <sup>※9</sup> VS0020-MG VS/VT0040-MG VS0020-MD <sup>※9</sup> VS/VT0040-MD	WVS0060-MD VS/VT0060-MD	WVS0060-MG WVS0060-MD <sup>※9</sup> VS/VT0060-MG VS/VT0060-MD <sup>※9</sup>	WVS0100-MD VS/VT0100-MD	WVS0100-MG WVS0100-MD <sup>※9</sup> VS/VT0100-MG VS/VT0100-MD <sup>※9</sup>	WVS0160-MD VS/VT0160-MD	WVS0160-MG WVS0160-MD <sup>※9</sup> VS/VT0160-MG VS/VT0160-MD <sup>※9</sup>
Connection Dimensions	When locked	11.5	13	15.5	19.5			
WVS/VS	When released	12.5	14	16.5	20.5			

Model	VZ0020-VSC	VZ0060-VSC	VZ0100-VSC	VZ0160-VSC
BA	49.2	57.2	69.2	82.2
BB	23	25	32	38
BC	2	2	3	3
BD	5	6	7.5	10
BE	3.4	4.5	4.5	4.5

Notes :

※ 7. The dimensions in ( ) show those of VSB-F.

※ 8. The spring pin is included in VSB-C only.

※ 9. The guide block (VSB-G) is used only for guide clamp (WVS□-MG) and the free block (VSB-F) can be used for both datum clamp (WVS□-MD) and guide clamp (WVS□-MG).

※ 10. Pallet with low rigidity (thin pallet or pallet made of aluminum etc.) may be deformed when mounting VSB block.

In this case, tolerance of mounting hole machining dimension  $AA \pm 0.010$  should be close to  $+0.010$  (the upper limit of the tolerance).

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

High-Power Hydraulic Swing Clamp

LHE

High-Power Hydraulic Link Clamp

LKE

High-Power Pneumatic Hole Clamp

SWE

High-Power Pneumatic Swing Clamp

WHE

High-Power Pneumatic Link Clamp

WCE

High-Power Pneumatic Work Support

WNC

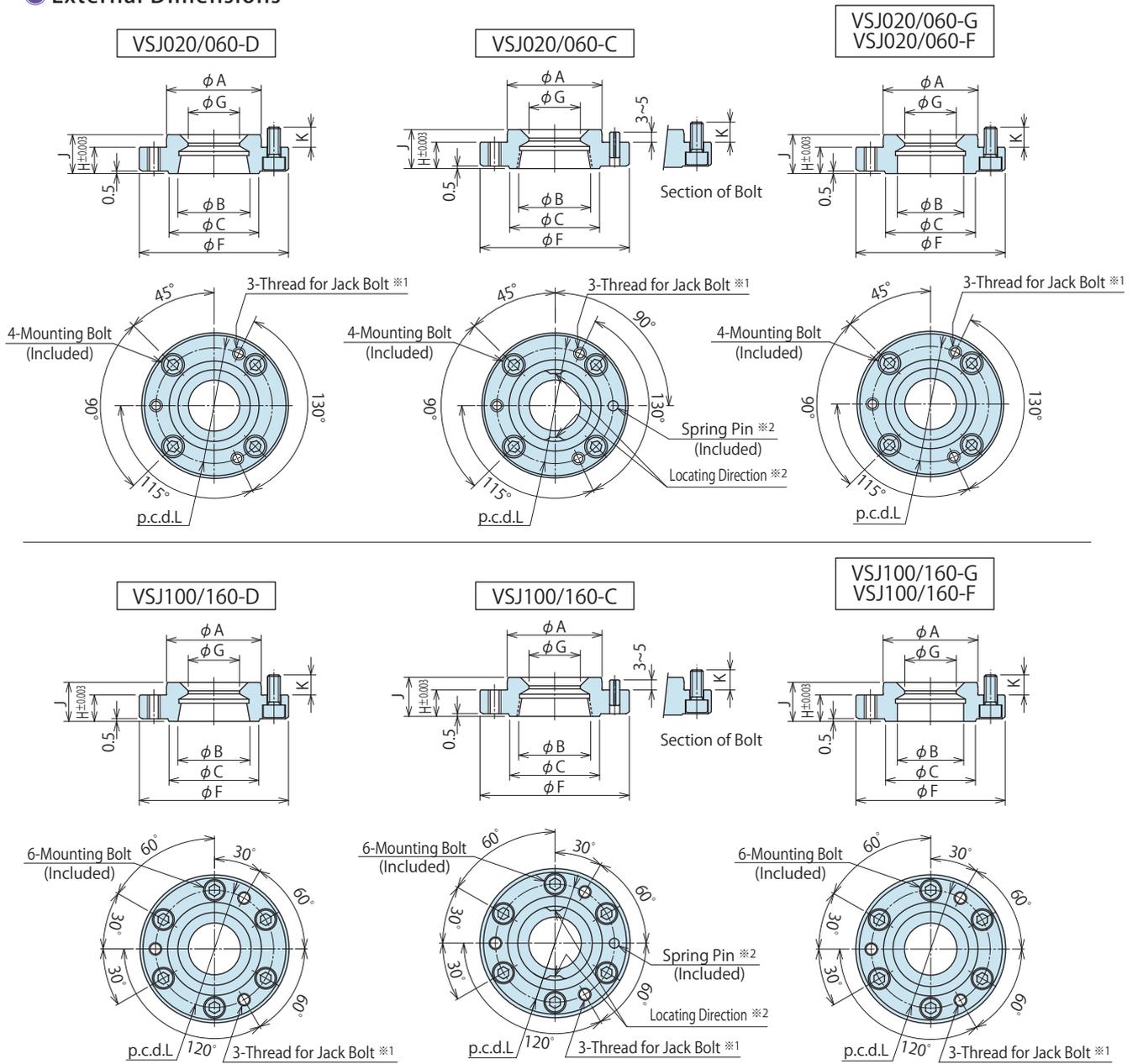
Rodless Hollow Pneumatic Work Support

WNA

High-Power Pneumatic Pallet Clamp

WVS

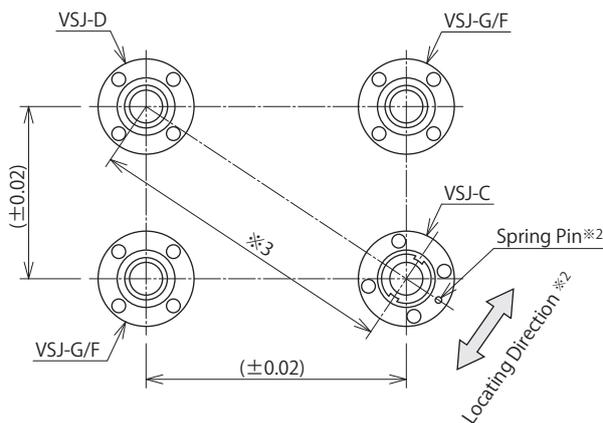
## External Dimensions



Notes :

- ※1. The thread for jack bolt is used when VSJ block is removed.
- ※2. The spring pin is used for phasing of VSJ-C locating direction.

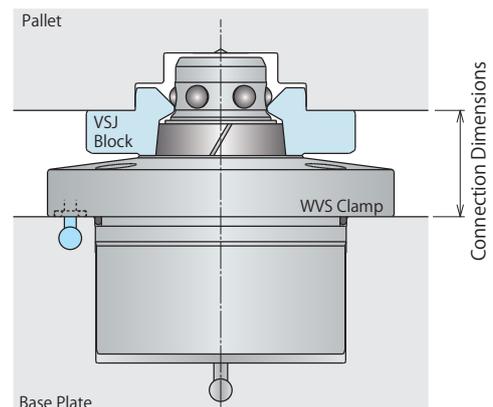
## Mounting Distance Accuracy and VSJ-C Phase



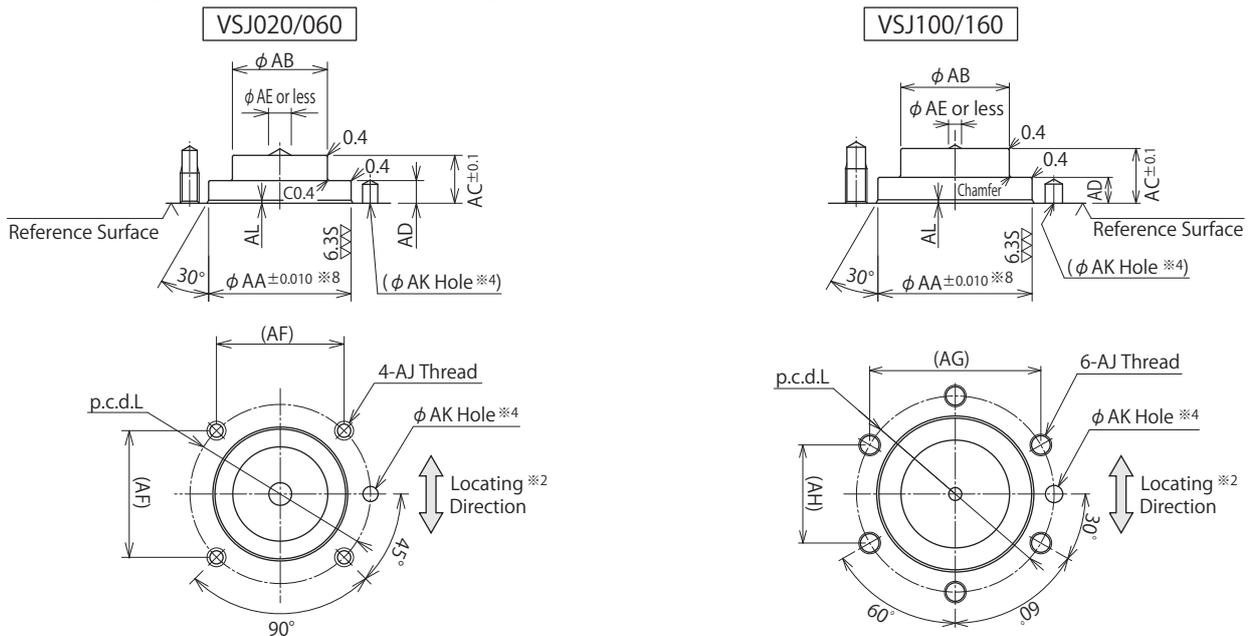
Note :

- ※3. Distance accuracy of the block should be within  $\pm 0.025\text{mm}$  between the blocks with the longest distance.

## Connection Dimensions



## Machining Dimensions of Mounting Area



Note :

※ 4.  $\phi$  AK hole is used for phasing of VSJ-C locating direction.

Please make sure  $\phi$  AK hole is at the line connecting the centers of VSJ-D and VSB-C. This machining is only necessary for VSJ-C.

## External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	VSJ020-D VSJ020-C	VSJ020-G VSJ020-F	VSJ060-D VSJ060-C	VSJ060-G VSJ060-F	VSJ100-D VSJ100-C	VSJ100-G VSJ100-F	VSJ160-D VSJ160-C	VSJ160-G VSJ160-F
A	31.5 <sup>+0.027</sup> / <sub>-0.011</sub>	31.5g7 <sup>-0.009</sup> / <sub>-0.034</sub>	37.5 <sup>+0.027</sup> / <sub>+0.011</sub>	37.5g7 <sup>-0.009</sup> / <sub>-0.034</sub>	52m6 <sup>+0.030</sup> / <sub>+0.011</sub>	52g7 <sup>-0.010</sup> / <sub>-0.040</sub>	62m6 <sup>+0.030</sup> / <sub>+0.011</sub>	62g7 <sup>-0.010</sup> / <sub>-0.040</sub>
B	25	22.7 (25.5) <sup>※5</sup>	28.5	26.2 (29) <sup>※5</sup>	36	32.5 (36.5) <sup>※5</sup>	42	38.5 (42.5) <sup>※5</sup>
C	32		35.5		44		51	
F	49		59		74		89	
G	18.3		20.3		26.3		32.3	
H	8		10		10		12	
J	13		15		16.5		18.5	
K	6.7		7.8		7.8		8.8	
L	40		47.5		62.5		75	
AA <sup>※8</sup>	31.5		37.5		52		62	
AB	22		25		31		38	
AC	14.7		12.7		17.2		18.2	
AD	6		6		7.5		7.5	
AE	3		3		5		5	
(AF)	28.28		33.59		-		-	
(AG)	-		-		54.13		64.95	
(AH)	-		-		31.25		37.5	
AJ	M4×0.7 Thread Depth 8		M5×0.8 Thread Depth 9		M5×0.8 Thread Depth 9		M6×1 Thread Depth 10	
AK	$\phi$ 3.4 Depth 5		$\phi$ 4.5 Depth 5		$\phi$ 4.5 Depth 5		$\phi$ 4.5 Depth 5	
AL	0.8		0.8		0.8		0.8	
Chamfer	-		-		C0.4		C0.4	
Mounting Bolt	M4×0.7×10		M5×0.8×12		M5×0.8×12		M6×1×14	
Thread for Jack Bolt	M4×0.7		M5×0.8		M5×0.8		M6×1	
Spring Pin <sup>※6</sup>	$\phi$ 3×10		$\phi$ 4×10		$\phi$ 4×10		$\phi$ 4×10	
Weight	0.1kg		0.18kg		0.3kg		0.55kg	
Appropriate Clamp	WVS0040-MD	WVS0040-MG WVS0040-MD <sup>※7</sup>	WVS0060-MD	WVS0060-MG WVS0060-MD <sup>※7</sup>	WVS0100-MD	WVS0100-MG WVS0100-MD <sup>※7</sup>	WVS0160-MD	WVS0160-MG WVS0160-MD <sup>※7</sup>
	VS0020-MD VS/VT0040-MD	VS0020-MG VS/VT0040-MG VS0020-MD VS/VT0040-MD <sup>※7</sup>	VS/VT0060-MD	VS/VT0060-MG VS/VT0060-MD <sup>※7</sup>	VS/VT0100-MD	VS/VT0100-MG VS/VT0100-MD <sup>※7</sup>	VS/VT0160-MD	VS/VT0160-MG VS/VT0160-MD <sup>※7</sup>
Connection Dimensions WVS/VS	When locked	20	23.5	26	32			
	When released	21	24.5	27	33			

Notes :

※ 5. The dimensions in ( ) show those of VSJ-F.

※ 6. The spring pin is included in VSJ-C only.

※ 7. The guide block (VSJ-G) is used only for guide clamp (WVS□-MG) and the free block (VSJ-F) can be used for both datum clamp (WVS□-MD) and guide clamp (WVS□-G).

※ 8. Pallet with low rigidity (thin pallet or pallet made of aluminum etc.) may be deformed when mounting VSB block.

In this case, tolerance of mounting hole machining dimension  $AA \pm 0.010$  should be close to +0.010 (the upper limit of the tolerance).

High-Power  
Series

Pneumatic Series

Hydraulic Series

Valve / Coupler  
Hydraulic Unit

Manual Operation  
Accessories

Cautions / Others

High-Power Hydraulic  
Swing Clamp

LHE

High-Power Hydraulic  
Link Clamp

LKE

High-Power Pneumatic  
Hole Clamp

SWE

High-Power Pneumatic  
Swing Clamp

WHE

High-Power Pneumatic  
Link Clamp

WCE

High-Power Pneumatic  
Work Support

WNC

Rodless Hollow  
Pneumatic Work Support

WNA

High-Power Pneumatic  
Pallet Clamp

WVS

## Cautions

### Notes for Design

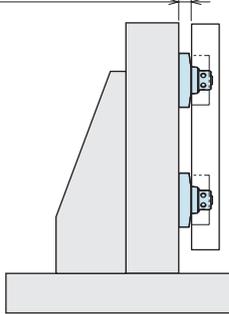
- 1) Check Specifications
  - Please use each product according to the specifications.
- 2) Notes for Circuit Design
  - Ensure there is no possibility of supplying air pressure to the lock port and the release port simultaneously. Improper circuit design may lead to malfunctions and damages.
  - Air blow passage should be  $\phi 6$  or more for an effective air blow.

### 3) When Using a Pallet in Vertical Position

- When setting a workpiece or a fixture plate, make sure it is in proper proximity and square to the clamps. If it is locked out of position, the clamps may be damaged.

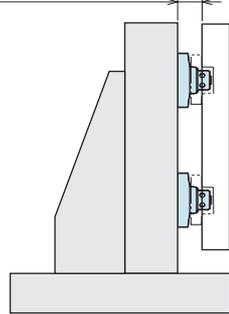
In case of VSB block

Allowed Dimension P



In case of VSJ block

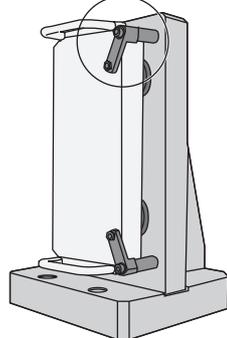
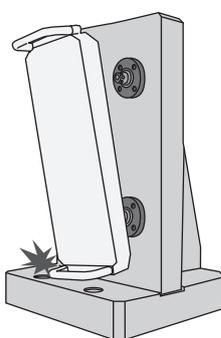
Allowed Dimension P



Model No.	WVS0040	WVS0060	WVS0100	WVS0160
VSB Block	13	14.5	17	21
VSJ Block	21.5	25	27.5	33.5

- As the workpiece fixture plate may fall down when releasing, it is recommended to set up the latching mechanism to prevent a fall.
- When the pallet is used in vertical position (hanging on the wall), the internal moving parts tend to wear out. Please Check the locating accuracy on a regular basis, and replace the product in case the locating accuracy exceeds the allowable range.

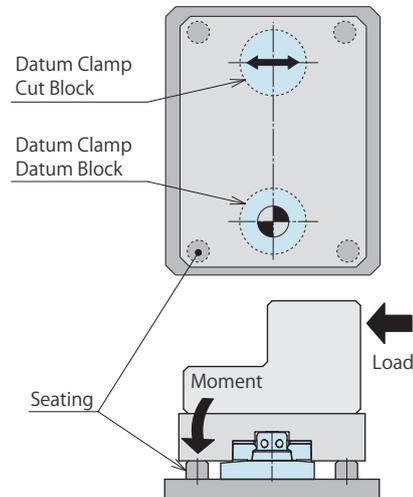
Example of Latching Mechanism



- When the pallet is in horizontal position, make sure the weight of the workpiece fixture is less than the lifting force of the clamps and maximum load of the machine.
- When the pallet is in vertical position, make sure the weight of the workpiece fixture pallet is 10% of the clamping force.
- Please contact us in case the pallet is in other position.

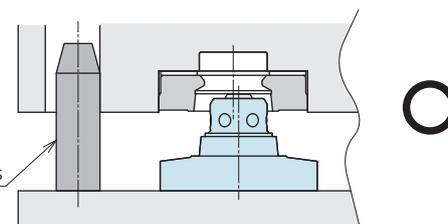
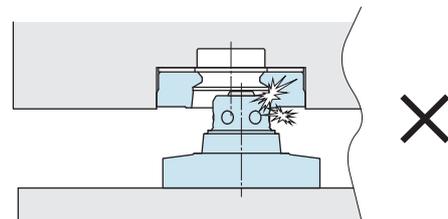
### 4) Seat Setting

- In case the clamp/block configuration is linear, it is recommended to provide additional supports for stability.



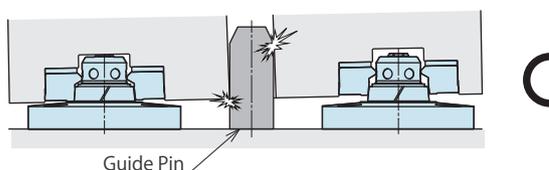
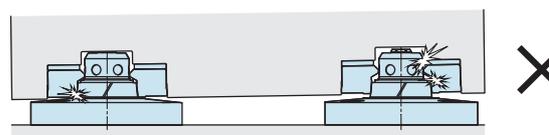
### 5) Setting of Rough Guide

- If the position of the pallet during loading is outside the clamp allowable offset, the clamp may contact the seating surface and the taper surface of the block (VSB/VSJ-D) causing damage to the product and decrease of the locating accuracy. It is recommended to use rough guides to load the pallet within the allowable offset.



Rough Guides (Two)

- The pallet must be level with the base plate during loading and unloading, otherwise the clamps and blocks will be damaged. Provide guide pins to keep the pallet level during loading and unloading.

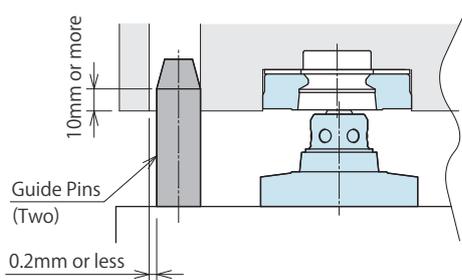


Guide Pin

- 6) Use a guide when not using the guide block (VSB/VSJ-G)
- The combination of the guide clamp (WVS-G) and the guide block (VSB/VSJ-G) ensures the protective function of the datum clamp. Please set a guide in the following cases of not using the guide block.

In case of using the combination of two datum clamps, a datum block (VSB/VSJ-D), and a cut block (VSB/VSJ-C) only.

In case of using the combination of a datum clamp and a free block (VSB/VSJ-F) only in order to rotate a fixture plate.

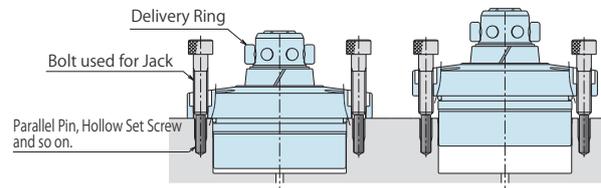


## Installation Notes

- Check the fluid to use.
  - Please supply filtered clean dry air.
  - Oil supply with a lubricator etc. is unnecessary.
- Procedure before 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.
- 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.
- Installation of the Product
  - When mounting the product use all hexagonal socket bolts (with tensile strength of 12.9) and tighten them with the torque shown in the chart below. Tighten them evenly to prevent twisting or jamming.

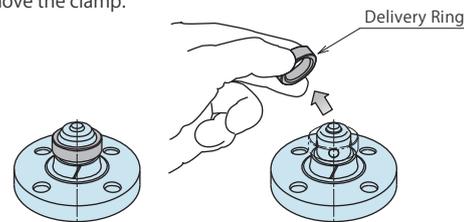
Clamp Model	Block Model		Thread Size	Tightening Torque (N·m)
WVS	VSB	VSJ		
-	VSB020	VSJ020	M4×0.7	3.2
WVS0040	VSB060	VSJ060	M5×0.8	6.3
WVS0100	VSB100	VSJ100	M6×1	10
WVS0160	VSB160	-	M8×1.25	25

- Removal
  - Mount the delivery ring.
  - Remove mounting bolts. Insert jack bolts and tighten them evenly to lift clamp.
  - Protect the thread part with parallel pins, etc. as shown in the below drawing not to damage the surface of mounting bolts.

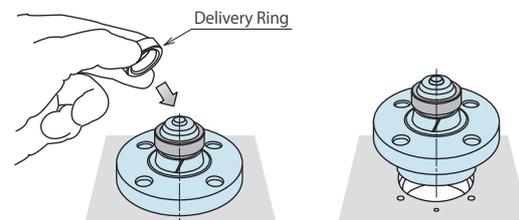


## 6) Delivery Ring (Important)

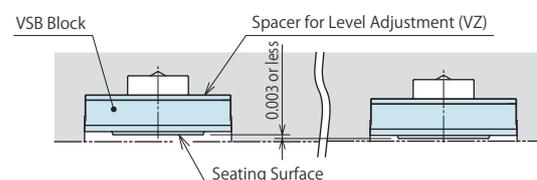
- The delivery ring prevents detachment of parts of individual clamp.
- The clamp will be equipped with a delivery ring for shipment. After mounting the pallet clamp on the fixture, remove the delivery ring before use. (When removing the delivery ring, supply release air pressure.)
- Please keep the delivery ring with great care as it is necessary to remove the clamp.



- When removing the pallet clamp from the fixture, mount the delivery ring in advance. Otherwise the internal parts may be detached from the spring, and they cannot be recovered.



- Level Adjustment of VSB Block Seating Surface
  - When installing each block in the fixture plate, adjust the level of block seating surface as described below. (Recommended Level Adjustment : within  $\pm 0.003\text{mm}$ )
  - Install in order of the level adjustment collar and the block to the fixture and tighten them with the specified torque.
  - Measure the level of the seating surface of each block.
  - In case the levels are not even, remove the blocks, and grind the level adjustment collar so that the level range is within  $\pm 0.003\text{mm}$ .
  - Once again, install the block and level adjustment collar into the fixture plate, and check the levels.



※ Please refer to P.1357 for common cautions.

• Notes on Handling

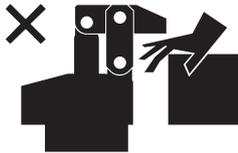
• Maintenance/Inspection

• Warranty

## ⓘ Cautions

### ● Notes on Handling

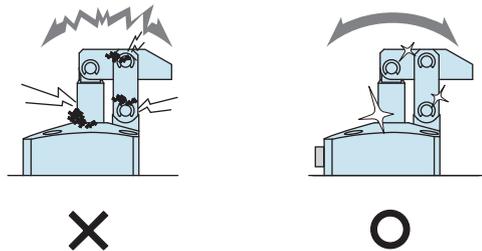
- 1) It should be operated by qualified personnel.
  - The hydraulic machine and air compressor should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
  - ① The machine and equipment can only be inspected or prepared when it is confirmed that the safety devices are in place.
  - ② Before the product is removed, 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 and hydraulic circuits.
  - ③ After stopping the product, do not remove until the temperature drops.
  - ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.
- 3) Do not touch a clamp (cylinder) while it is working. Otherwise, your hands may be injured due to clinching.



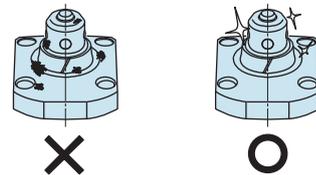
- 4) Do not disassemble or modify.
  - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

### ● Maintenance and Inspection

- 1) Removal of the Machine and Shut-off of Pressure Source
  - Before the machine is removed, 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 the air and hydraulic circuits.
  - Make sure there is no abnormality in the bolts and respective parts before restarting.
- 2) Regularly clean the area around the piston rod and plunger.
  - If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning and fluid leakage.



- 3) Please clean out the reference surfaces on a regular basis (taper reference surface and seating surface) of the locating products. (VS/VT/VFL/VFM/VFJ/VFK/WVS/VWM/VWK/VX/VXE/VXF)
  - The locating products, except VX/VXE/VXF model, can remove contaminants with cleaning functions. However, hardened cutting chips, adhesive coolant and others may not be removed. Make sure there are no contaminants before installing a workpiece/pallet.
  - Continuous use with contaminant on components will lead to locating accuracy failure, malfunction and fluid leakage.



- 4) If disconnecting by couplers, air bleeding should be carried out on a regular basis to avoid air mixed in the circuit.
- 5) Regularly tighten nut, bolt, pin, cylinder, pipe line and others to ensure proper use.
- 6) Make sure the hydraulic fluid has not deteriorated.
- 7) Make sure there is a smooth action without an irregular noise.
  - Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.
- 8) The products should be stored in the cool and dark place without direct sunshine or moisture.
- 9) 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.

- ① If the stipulated maintenance and inspection are not carried out.
- ② If the product is used while it is not suitable for use based on the operator's judgment, resulting in defect.
- ③ If it is used or operated in an inappropriate way by the operator. (Including damage caused by the misconduct of the third party.)
- ④ If the defect is caused by reasons other than our responsibility.
- ⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
- ⑥ Other caused by natural disasters or calamities not attributable to our company.
- ⑦ Parts or replacement expenses due to parts consumption and deterioration. (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.

High-Power  
Series

Pneumatic Series

Hydraulic Series

Valve / Coupler  
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Manual Operation  
Accessories

Cautions / Others

#### Cautions

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Sales Offices

# Sales Offices

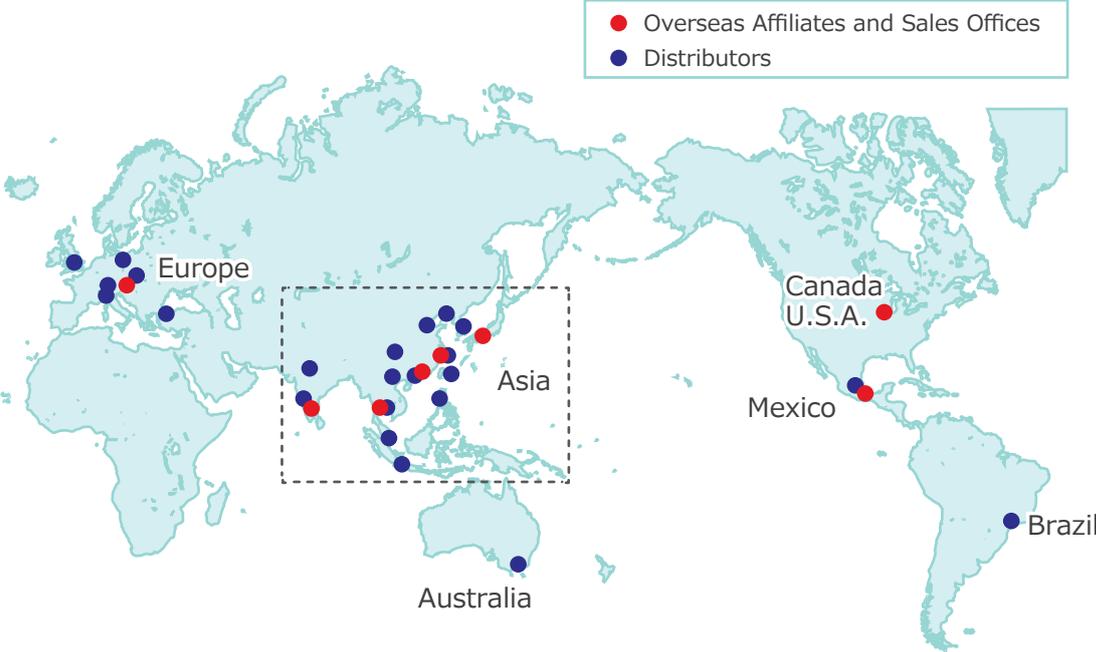
## Sales Offices across the World

JAPAN HEAD OFFICE Overseas Sales	<b>TEL. +81-78-991-5162</b>	<b>FAX. +81-78-991-8787</b>
	KOSMEK LTD. 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241 〒651-2241 兵庫県神戸市西区室谷2丁目1番5号	
United States of America SUBSIDIARY KOSMEK (USA) LTD.	<b>TEL. +1-630-620-7650</b>	<b>FAX. +1-630-620-9015</b>
	650 Springer Drive, Lombard, IL 60148 USA	
MEXICO REPRESENTATIVE OFFICE KOSMEK USA Mexico Office	<b>TEL. +52-442-161-2347</b>	
	Av. Santa Fe #103 int 59 Col. Santa Fe Juriquilla C.P. 76230 Queretaro, Qro Mexico	
EUROPE SUBSIDIARY KOSMEK EUROPE GmbH	<b>TEL. +43-463-287587</b>	<b>FAX. +43-463-287587-20</b>
	Schleppeplatz 2 9020 Klagenfurt am Wörthersee Austria	
CHINA KOSMEK (CHINA) LTD. 考世美(上海)貿易有限公司	<b>TEL. +86-21-54253000</b>	<b>FAX. +86-21-54253709</b>
	Room601, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong Shanghai 200125, China 中国上海市浦东新区浦三路21弄55号银亿滨江中心601室 200125	
INDIA BRANCH OFFICE KOSMEK LTD - INDIA	<b>TEL. +91-9880561695</b>	
	F 203, Level-2, First Floor, Prestige Center Point, Cunningham Road, Bangalore -560052 India	
THAILAND REPRESENTATIVE OFFICE KOSMEK Thailand Representation Office	<b>TEL. +66-2-300-5132</b>	<b>FAX. +66-2-300-5133</b>
	67 Soi 58, RAMA 9 Rd., Suanluang, Suanluang, Bangkok 10250, Thailand	
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	16F-4, No.2, Jian Ba Rd., Zhonghe District, New Taipei City Taiwan 23511 台湾新北市中和區建八路2號 16F-4 (遠東世紀廣場)	
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INDONESIA (Indonesia Exclusive Distributor) PT. Yamata Machinery	<b>TEL. +62-21-29628607</b>	<b>FAX. +62-21-29628608</b>
	Delta Commercial Park I, Jl. Kenari Raya B-08, Desa Jayamukti, Kec. Cikarang Pusat Kab. Bekasi 17530 Indonesia	

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Head Office Osaka Sales Office Overseas Sales	<b>TEL. 078-991-5162</b>	<b>FAX. 078-991-8787</b>
	〒651-2241 兵庫県神戸市西区室谷2丁目1番5号	
Tokyo Sales Office	<b>TEL. 048-652-8839</b>	<b>FAX. 048-652-8828</b>
	〒331-0815 埼玉県さいたま市北区大成町4丁目81番地	
Nagoya Sales Office	<b>TEL. 0566-74-8778</b>	<b>FAX. 0566-74-8808</b>
	〒446-0076 愛知県安城市美園町2丁目10番地1	
Fukuoka Sales Office	<b>TEL. 092-433-0424</b>	<b>FAX. 092-433-0426</b>
	〒812-0006 福岡県福岡市博多区上牟田1丁目8-10-101	

# Global Network



Asia Detailed Map



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