

Manual Expansion Locating Pin

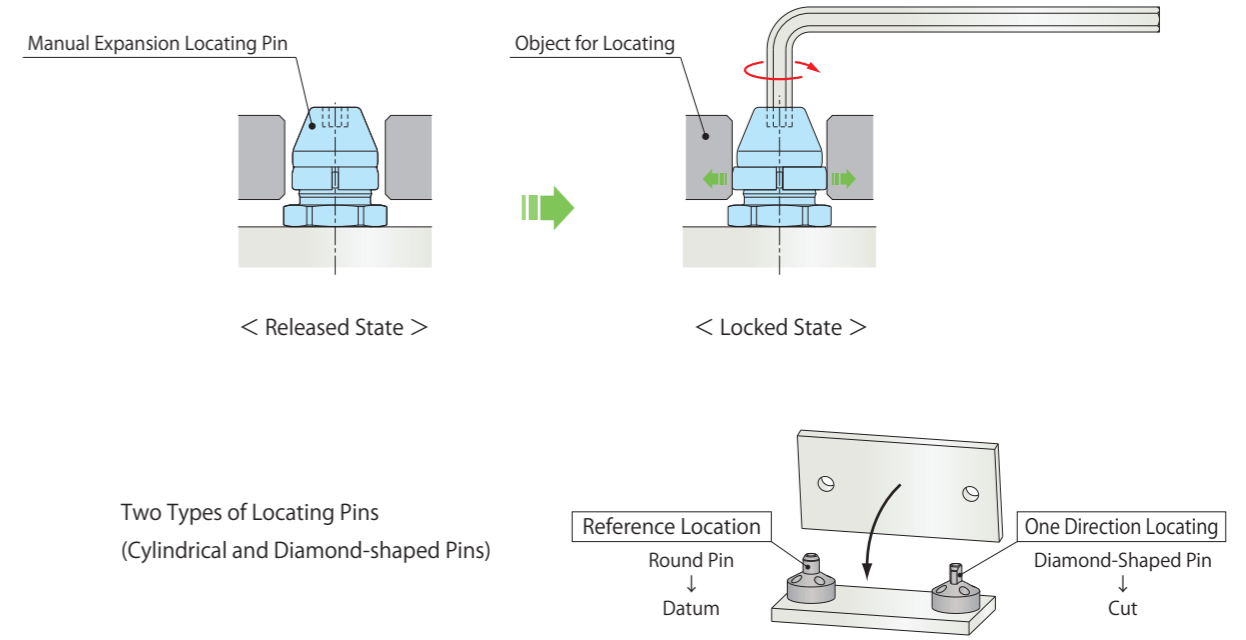
Model VX



The repetitive location accuracy is $5\ \mu\text{m}$ with a wrench

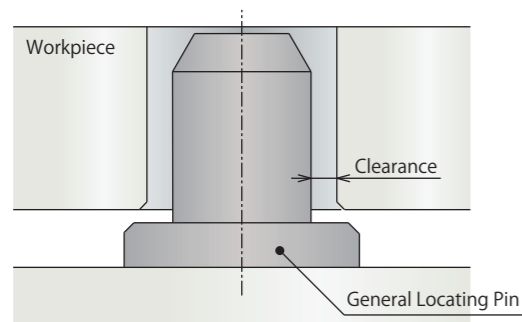
Zero clearance between reference hole, locating pin with high accuracy.

Action Description



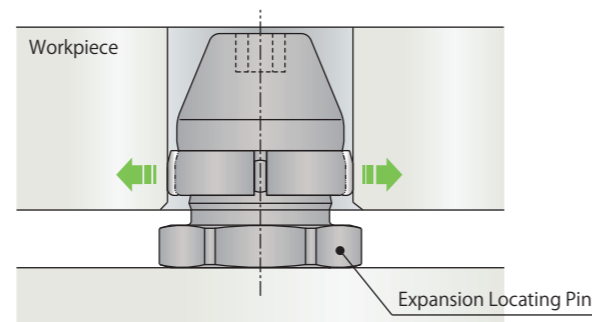
Manual Expansion Locating Pin locates with **high accuracy** by expanding and reducing the pin's diameter manually.

The general locating pin has some clearance between pin and reference hole



Expanding locating pin has **zero clearance** between pin and reference hole!!

High Accuracy, Reduces Setup Time and Total Cost

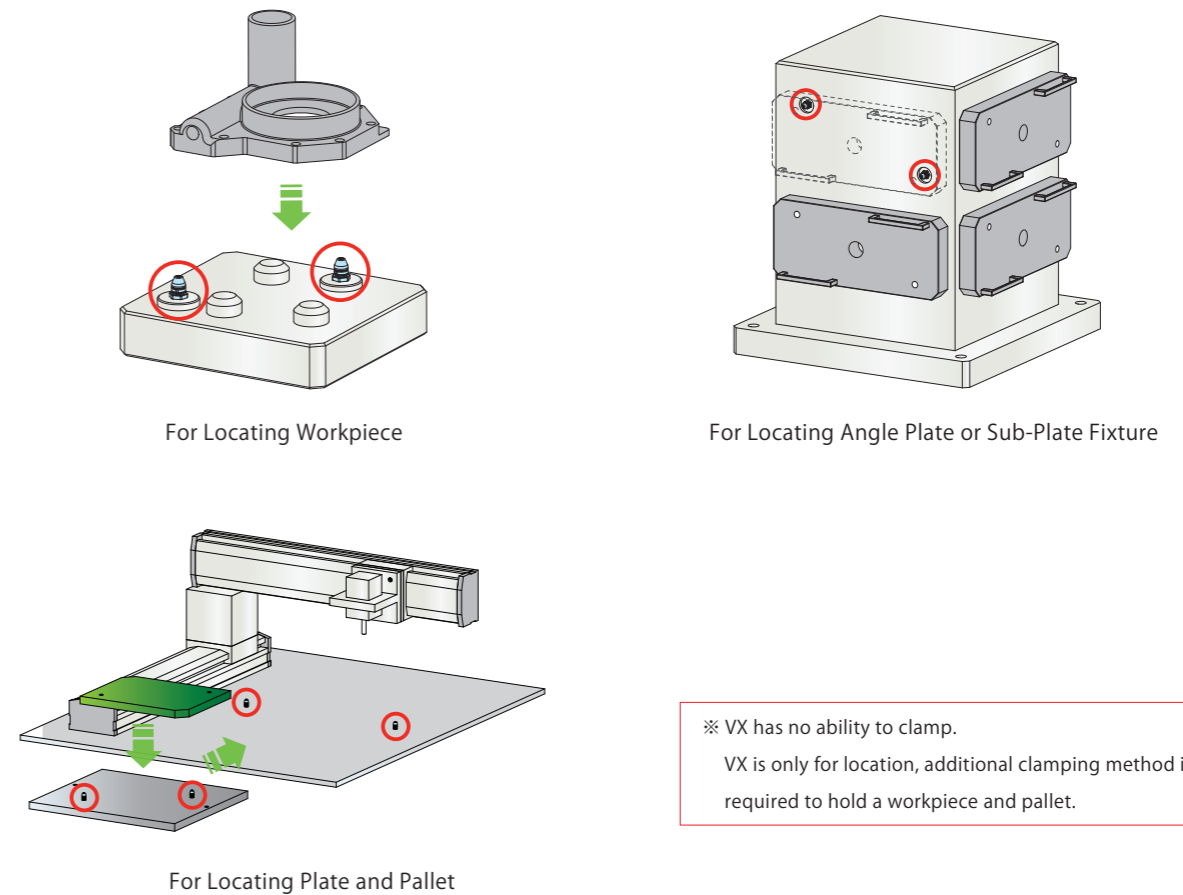


The Pin Diameter Expanding-Releasing Function

When locked : Clearance between the pin and reference hole becomes zero to locate with high accuracy.

When released : Easy to changeover workpieces with enough clearance when loading/unloading.

Application Examples



※ VX has no ability to clamp.
VX is only for location, additional clamping method is required to hold a workpiece and pallet.

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

- Screw Locator
- VXF/VXE

- Manual Expansion Locating Pin
- VX

- Manifold Block
- WHZ-MD
- LZY-MD
- LZ-MS
- LZ-MP
- TMZ-1MB
- TMZ-2MB
- DZ-M

- Manifold Block / Nut
- DZ-R
- DZ-C
- DZ-P
- DZ-B
- LZ-S
- LZ-SQ
- WNZ-SQ
- TNZ-S
- TNZ-SQ

- Pressure Switch
- JBA

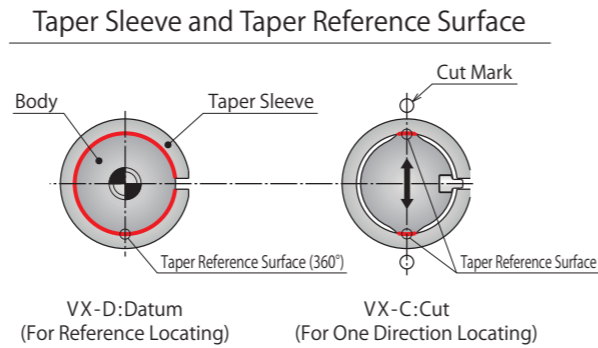
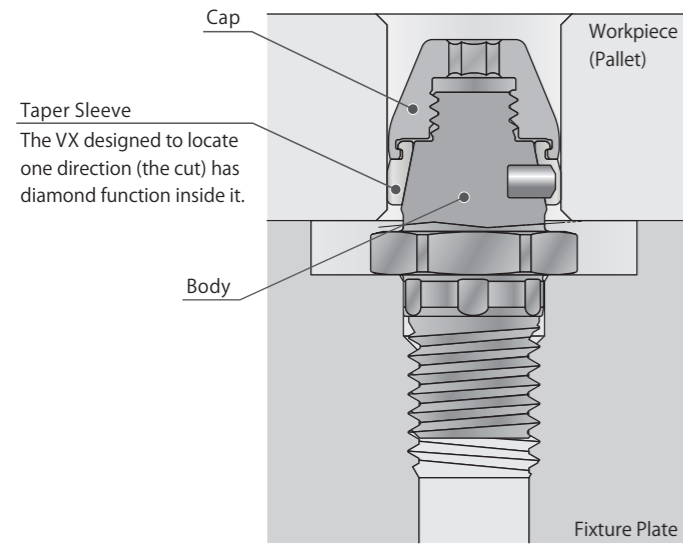
- Pressure Gauge
- JGA/JGB

- Manifold
- JX

- Coupler Switch
- PS

- G-Thread Fitting

Cross Section



Model No. Indication

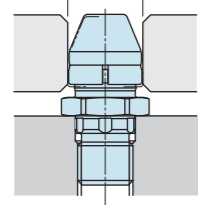
VX 012 0 - D

1 2 3

1 Workpiece Hole Diameter (Standard)

- 008** : Applicable Workpiece Hole Diameter $\phi 8H8^{+0.022}_0$
- 010** : Applicable Workpiece Hole Diameter $\phi 10H8^{+0.022}_0$
- 012** : Applicable Workpiece Hole Diameter $\phi 12H8^{+0.027}_0$
- 016** : Applicable Workpiece Hole Diameter $\phi 16H8^{+0.027}_0$
- 020** : Applicable Workpiece Hole Diameter $\phi 20H8^{+0.033}_0$

Applicable Workpiece Hole Diameter

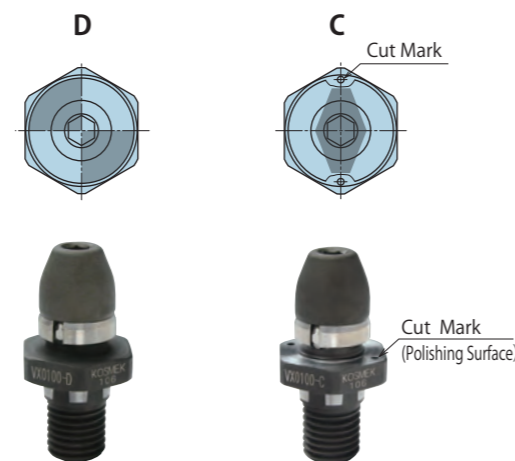


2 Design No.

0 : Revision Number

3 Functions

- D** : Datum (For Reference Locating)
- C** : Cut (For One Direction Locating)

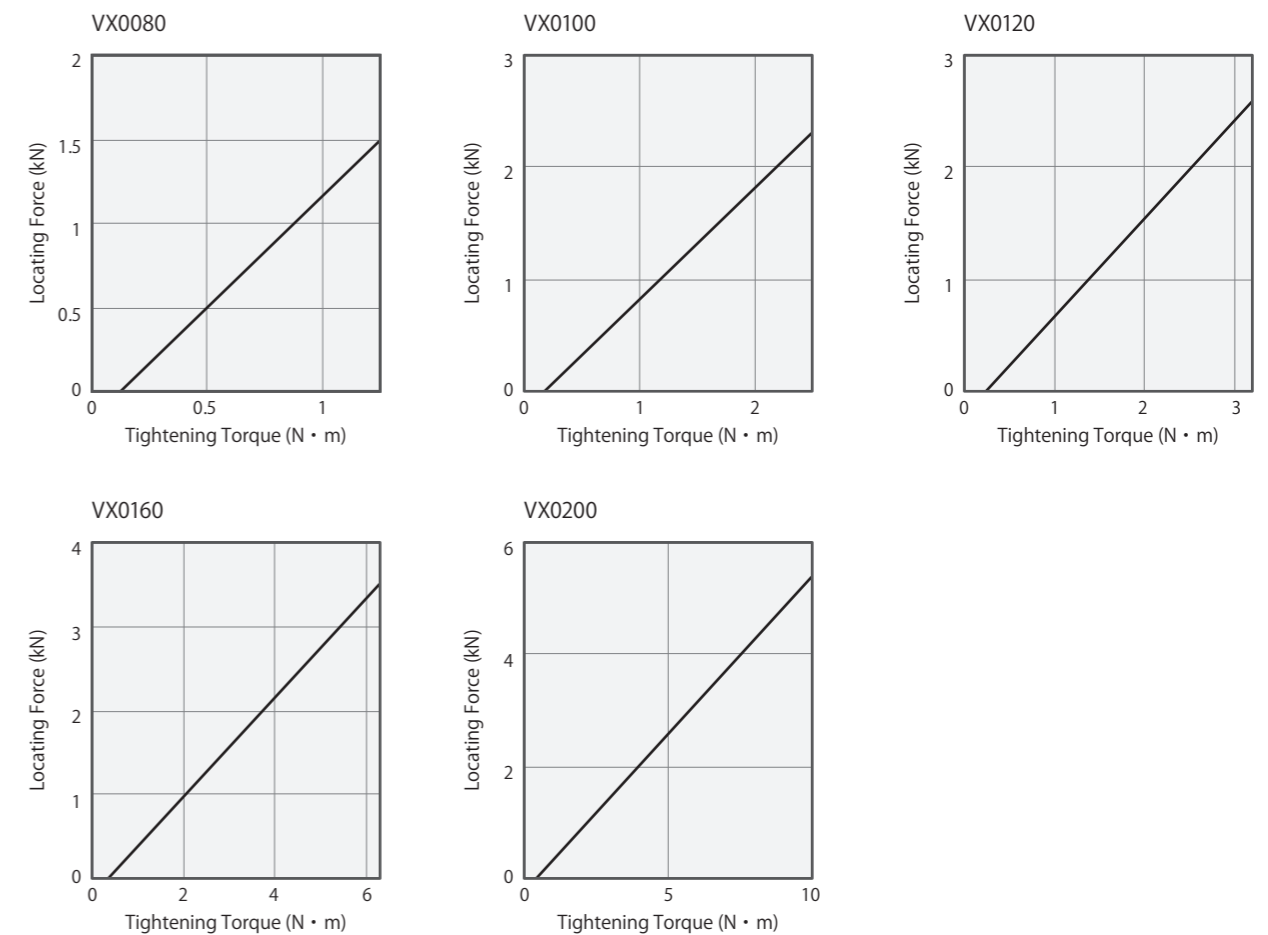


Specifications

Model No.	VX0080-□	VX0100-□	VX0120-□	VX0160-□	VX0200-□
Workpiece Hole Diameter (Standard) mm	$\phi 8 H8^{+0.022}_0$	$\phi 10 H8^{+0.022}_0$	$\phi 12 H8^{+0.027}_0$	$\phi 16 H8^{+0.027}_0$	$\phi 20 H8^{+0.033}_0$
Datum Diameter mm	At Released (max.)	$\phi 7.93$ or less	$\phi 9.91$ or less	$\phi 11.88$ or less	$\phi 15.84$ or less
	At Full Stroke (min.)	$\phi 8.04$ or more	$\phi 10.05$ or more	$\phi 12.06$ or more	$\phi 16.06$ or more
Expansion Stroke mm	0.3	0.4	0.5	0.6	0.6
Locating Repeatability mm	0.005				
Locating Force (Calculation Formula)※1 kN	1.33T-0.16	0.99T-0.18	0.88T-0.21	0.59T-0.22	0.56T-0.23
Allowable Offset (C:Cut) mm	± 0.05	± 0.10	± 0.10	± 0.15	± 0.15
Allowable Thrust Load kN	2.5	3.0	3.5	4.5	7.0
Allowable Tightening Torque N·m	1.25	2.5	3.2	6.3	10.0
Operation Sequence	VX-D → VX-C				
Mounting Torque of Main Body N·m	10	25	25	80	200
Operating Temperature °C	0 ~ 120				
Weight g	7	15	20	40	80

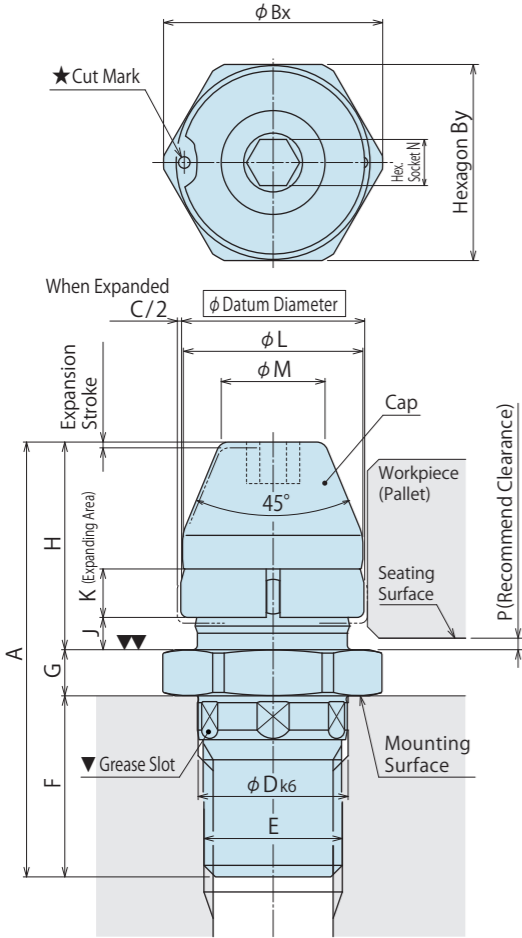
Note : ※1. T : Tightening Torque (N·m)

Performance Curve (Tightening Torque—Locating Force)



- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others
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- VXF/VXE
- Manual Expansion Locating Pin
- VX
- Manifold Block
- WHZ-MD
- LZY-MD
- LZ-MS
- LZ-MP
- TMZ-1MB
- TMZ-2MB
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- Manifold Block / Nut
- DZ-R
- DZ-C
- DZ-P
- DZ-B
- LZ-S
- LZ-SQ
- WNZ-SQ
- TNZ-S
- TNZ-SQ
- Pressure Switch
- JBA
- Pressure Gauge
- JGA/JGB
- Manifold
- JX
- Coupler Switch
- PS
- G-Thread Fitting

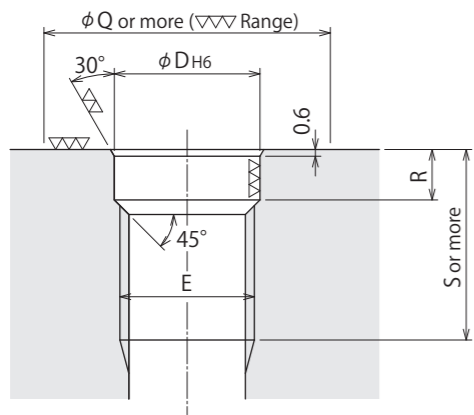
External Dimensions



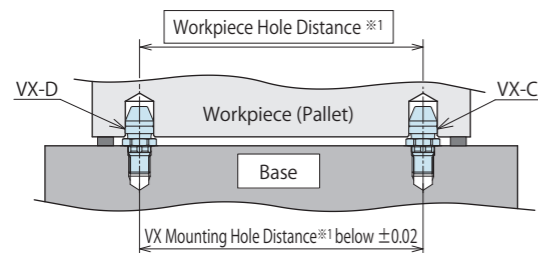
Dimensions Table (mm)

Model No.	VX0080-□	VX0100-□	VX0120-□	VX0160-□	VX0200-□	
Workpiece Hole Diam. (Standard Diam.)	φ8H8 ^{+0.022} ₀	φ10H8 ^{+0.022} ₀	φ12H8 ^{+0.027} ₀	φ16H8 ^{+0.027} ₀	φ20H8 ^{+0.033} ₀	
Datum Diameter	At Released	7.93 or less	9.91 or less	11.88 or less	15.84 or less	19.84 or less
	At Full Stroke	8.04 or more	10.05 or more	12.06 or more	16.06 or more	20.06 or more
Expansion Stroke	0.3	0.4	0.5	0.6	0.6	
A	24	28.3	30	37	43.5	
Bx	11	15.5	15.5	19	24.5	
By	10	14	14	17	22	
C	0.12	0.16	0.20	0.24	0.24	
Dk6	7 ^{+0.010} _{+0.001}	9 ^{+0.010} _{+0.001}	9 ^{+0.010} _{+0.001}	13 ^{+0.012} _{+0.001}	17 ^{+0.012} _{+0.001}	
DH6	7 ^{+0.009} ₀	9 ^{+0.009} ₀	9 ^{+0.009} ₀	13 ^{+0.011} ₀	17 ^{+0.011} ₀	
E	M6×1	M8×1	M8×1	M12×1.5	M16×1.5	
F	9	11.5	11.5	15	18.5	
G	3	3.5	3.5	4	5	
H	12	13.3	15	18	20	
J	1.6	1.7	2.2	2.8	2.5	
K	2.5	3	3.5	4.2	5	
L	7.9	9.8	11.8	15.7	19.7	
M	4.7	6	6.5	9	12.4	
N (Hex. × Depth)	2.5 × 2.5	3 × 3	3 × 3	4 × 3.5	5 × 4	
P (Recommend Clearance)	0.5 ~ 1	0.5 ~ 1	0.5 ~ 1	1 ~ 1.5	1 ~ 1.5	
Q	10	14	14	17	22	
R	4	5	5	5.6	5.6	
S	11	13.5	13.5	17	20.5	

Machining Dimensions of Mounting Area



Distance Accuracy of Mounting Dimensions



Note:
 ※1. The distance accuracy for VX should be within ±0.02mm.
 The distance accuracy of workpiece holes (pallet holes) should be within allowable offset of "JIS B 0613 Class 2".

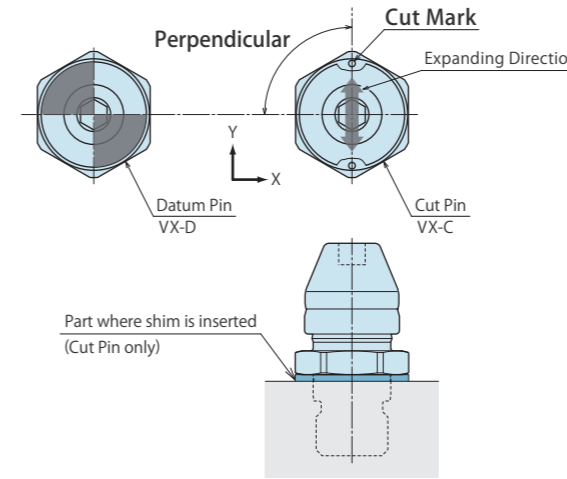
Allowable Offset (C: Cut) ≥ VX Distance Accuracy + Workpiece Hole Distance Accuracy
 (Tolerance Listed in JIS B 0613)

「JIS B 0613 class 2 excerpt」 Unit : mm

Center Distance Classification	Center Distance Tolerance [JIS B0613]	Class 2
Greater than 50	Eq to or less than 80	±0.023
80	120	±0.027
120	180	±0.032
180	250	±0.036
250	315	±0.041
315	400	±0.045
400	500	±0.049

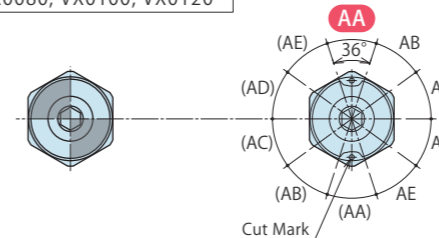
Cautions

- Locating in the Directions of the X and Y Axes
 - The reference position (origin) is determined by VX-D (Datum: for reference locating).
 - VX-C (Cut: for one direction locating) only locates in one direction (Y-axis direction). Use the X-axis direction within the allowable offset.
 - When mounting, adjust the VX-C cut mark with the supplied shim so that it is perpendicular to VX-D.**



- VX-C (Cut) Phasing Requirements**
 Decide the necessary number of shims according to the position of the cut mark when VX-C (cut) is mounted without any shims, and adjust the cut mark so that it is within the range of "AA" as shown in the figure.
 ※ Make adjustments within 180°. The unit may interfere with the workpiece if too many shims are inserted.

VX0080, VX0100, VX0120

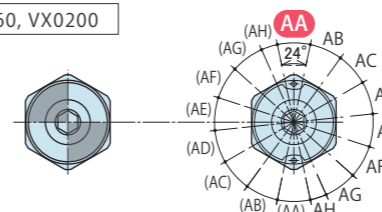


Number of Shims to Insert (Reference)

Cut Mark Position	±0.1mm Number of Shims	±0.2mm Number of Shims
AA	0	0
AB	1	0
AC	0	1
AD	1	1
AE	0	2

(Adjusted Minimum Angle : 36° / 0.1t)

VX0160, VX0200



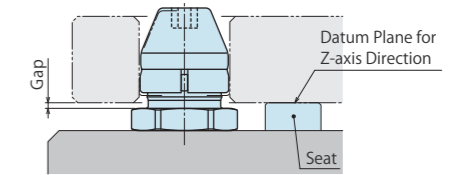
Number of Shims to Insert (Reference)

Cut Mark Position	±0.1mm Number of Shims	±0.2mm Number of Shims
AA	0	0
AB	1	0
AC	0	1
AD	1	1
AE	0	2
AF	1	2
AG	0	3
AH	1	3

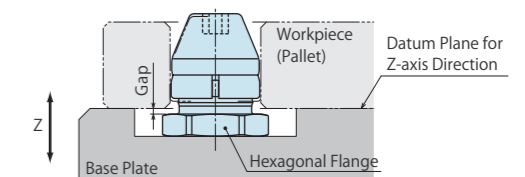
(Adjusted Minimum Angle : 24° / 0.1t)

- Datum Plane for Z-Axis Direction
 - This product is for positioning on the X and Y-axis, so there is no seating plane (Z-axis datum plane). Accordingly, make sure there is clearance between the hexagonal flange surface and the workpiece (pallet). (Please see the machining dimension of mounting part to make sure machining dimension.)
 - Embed the hexagonal flange as shown in the figure or install a separate seat.

When the hexagonal flange cannot be embedded in the base plate.



When the hexagonal flange is embedded in the base plate.



- Check Specifications
 - Both locating (expansion) and releasing (retraction) operations are performed manually.
 - Use the hexagonal socket on the cap when operating the product.
 - This product is a locating pin and has no clamping mechanism.
 - The locating (expansion) operation should be performed in the sequence of VX-D -> VX-C, and the tightening torque should be within the allowable range.**
 - When performing the releasing (retraction) operation, loosen the cap one turn.
 - Excessive vibration during the machining may loose the drive screw in the expansion mechanism.
 - Select an appropriate clamp so that the workpiece does not move due to the machining load.

- Cautions for Use
 - It should be handled by qualified personnel.
 - Avoid performing the operation with a hexagonal wrench that has a ball point tip. Using such a wrench may damage the hexagonal socket on the cap.
 - Make sure the product is tightened before use. The product may be damaged if it is used in a loosened state.
 - Do not handle or remove the machine unless the safety is ensured.
 - Do not disassemble or modify. If the product is taken apart or modified, the warranty will be voided even within the warranty period.

※ Please refer to P.1357 for common caution.
 • Notes on Handling • Maintenance/Inspection • Warranty

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

Screw Locator
 VXF/VXE

Manual Expansion Locating Pin
 VX

Manifold Block
 WHZ-MD
 LZ-Y-MD
 LZ-MS
 LZ-MP
 TMZ-1MB
 TMZ-2MB
 DZ-M

Manifold Block / Nut
 DZ-R
 DZ-C
 DZ-P
 DZ-B
 LZ-S
 LZ-SQ
 WNZ-SQ
 TNZ-S
 TNZ-SQ

Pressure Switch
 JBA

Pressure Gauge
 JGA/JGB

Manifold
 JX

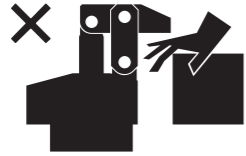
Coupler Switch
 PS

G-Thread Fitting

Cautions

● Notes on Handling

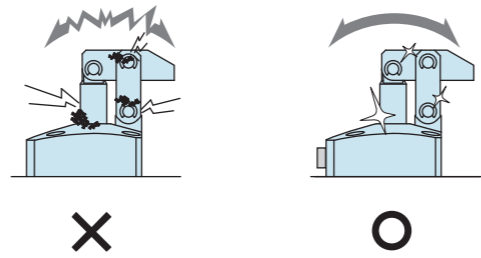
- 1) It should be operated by qualified personnel.
 - The hydraulic machine and air compressor should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared 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.



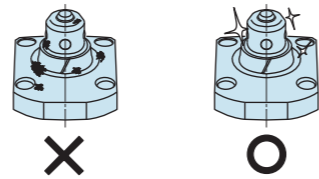
- 4) Do not disassemble or modify.
 - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

● 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.

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

- Cautions
- Installation Notes (For Hydraulic Series)
- Hydraulic Fluid List
- Notes on Hydraulic Cylinder Speed Control Circuit
- Notes on Handling
- Maintenance/Inspection
- Warranty

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