

Manual Expansion Locating Pin

Model VX

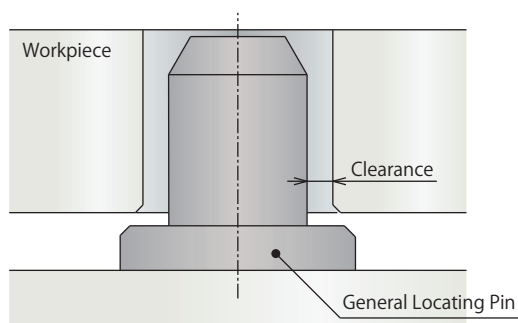


The repetitive location accuracy is $5 \mu\text{m}$ with a wrench

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

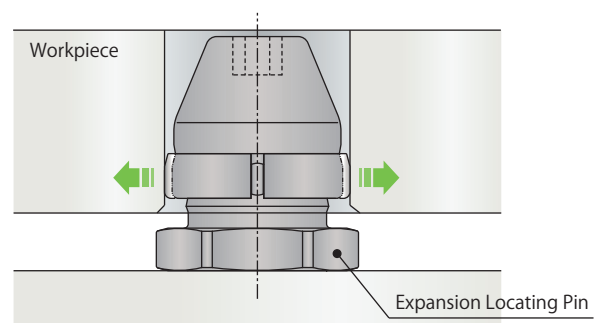
VX is the one that locates with **high accuracy** by expanding and reducing diameter manually.

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



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

High accuracy, cutting down the operation time and total cost reduced

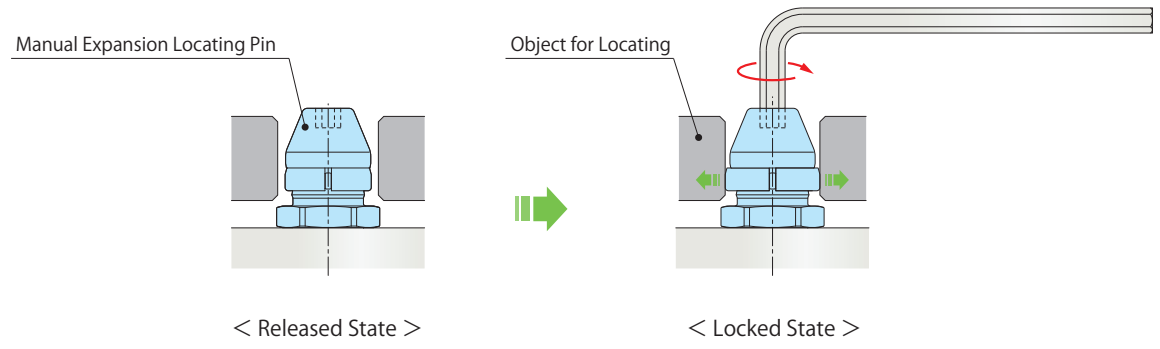


The pin diameter expanding-releasing function

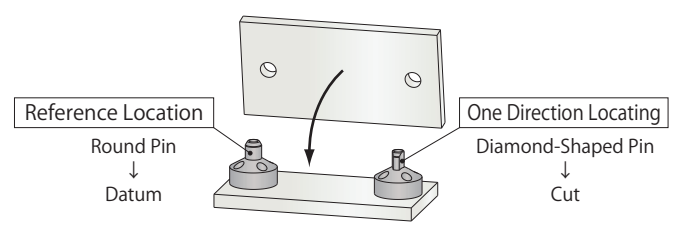
When expanded: The clearance between pin and reference hole get become zero and it leads to locate with high accuracy.

When released: At the time when the work piece is loaded and unloaded, reducing diameter makes enough clearance for changeover and makes it easier.

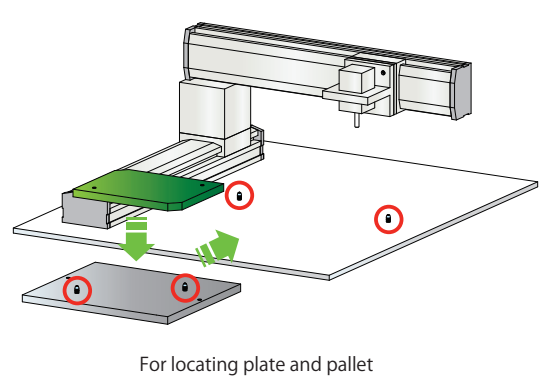
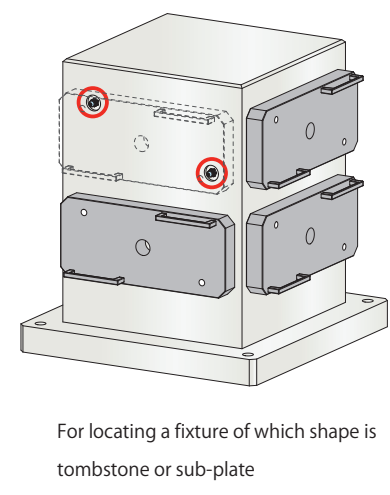
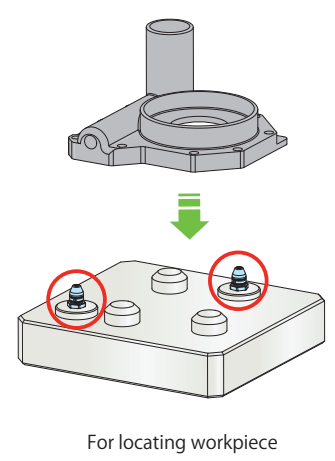
Action Description



Two types of locating pins.
(Cylindrical & Diamond shaped pins)



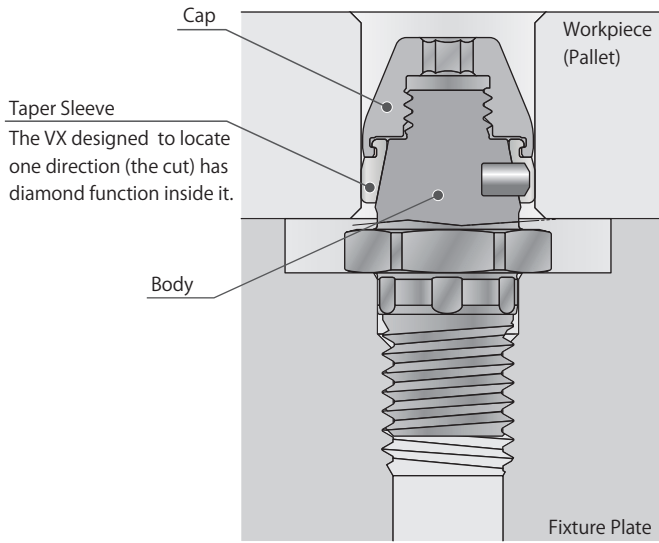
Application Examples



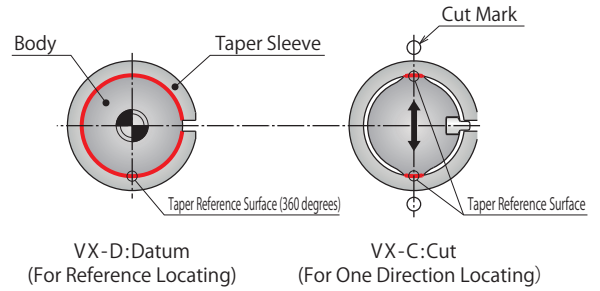
※ VX doesn't have the ability to clamp.
VX is only for location, a different clamping method is required to hold the workpiece and pallet.

- High-Power Series
- Pneumatic Series
- Hydraulic Series
- Valve / Coupler Hydraulic Unit
- Manual Operation Accessories
- Cautions / Others
- Screw Locator
 - VXF
- 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
 - TNZ-S
 - TNZ-SQ
- Pressure Switch
 - JB
- Pressure Gauge
 - JGA/JGB
- Manifold
 - JX
- Coupler Switch
 - PS
- G-Thread Fitting

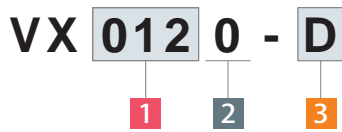
Sectional Structure



Taper Sleeve and Taper Reference Surface



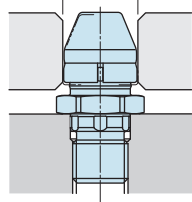
Model No. Indication



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

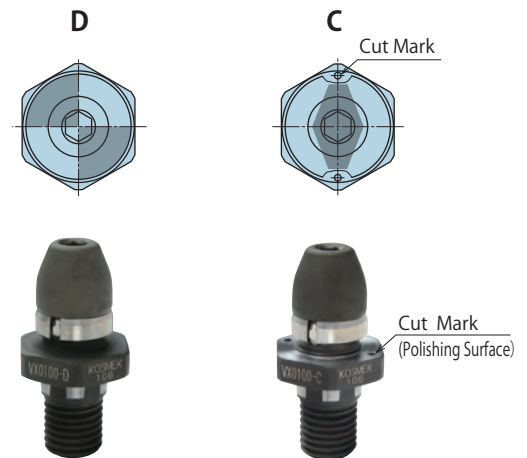


2 Design No.

0 : Revision Number

3 Function Classification

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

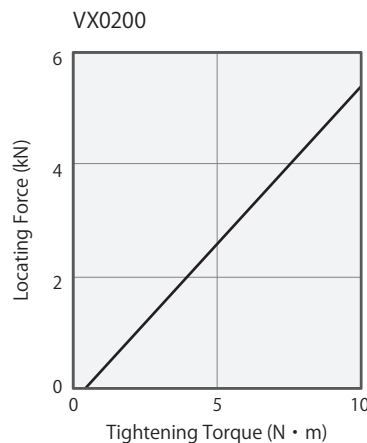
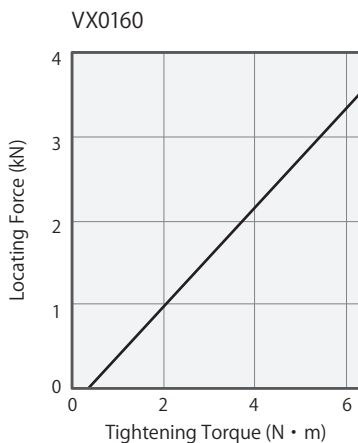
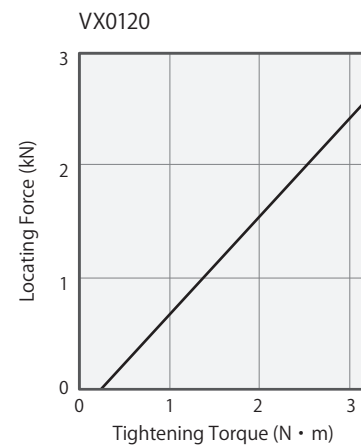
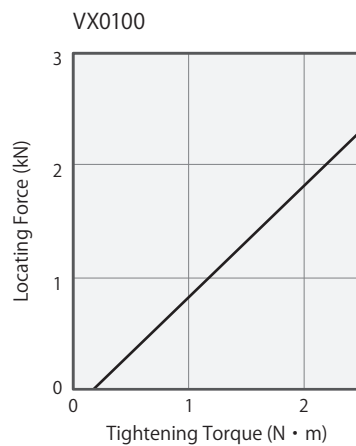
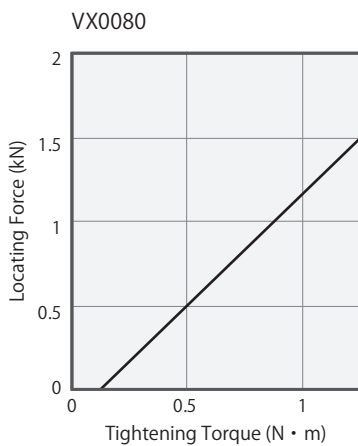


Specifications

Model No.	VX0080-□	VX0100-□	VX0120-□	VX0160-□	VX0200-□
Workpiece Hole Diameter (Standard) mm	$\phi 8 \text{ H}8^{+0.022}_0$	$\phi 10 \text{ H}8^{+0.022}_0$	$\phi 12 \text{ H}8^{+0.027}_0$	$\phi 16 \text{ H}8^{+0.027}_0$	$\phi 20 \text{ H}8^{+0.033}_0$
Datum Diameter mm	Min. Diameter (min.)	$\phi 7.93$	$\phi 9.91$	$\phi 11.88$	$\phi 15.84$
	Max. Diameter (max.)	$\phi 8.04$	$\phi 10.05$	$\phi 12.06$	$\phi 16.06$
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				
Mass g	7	15	20	40	80

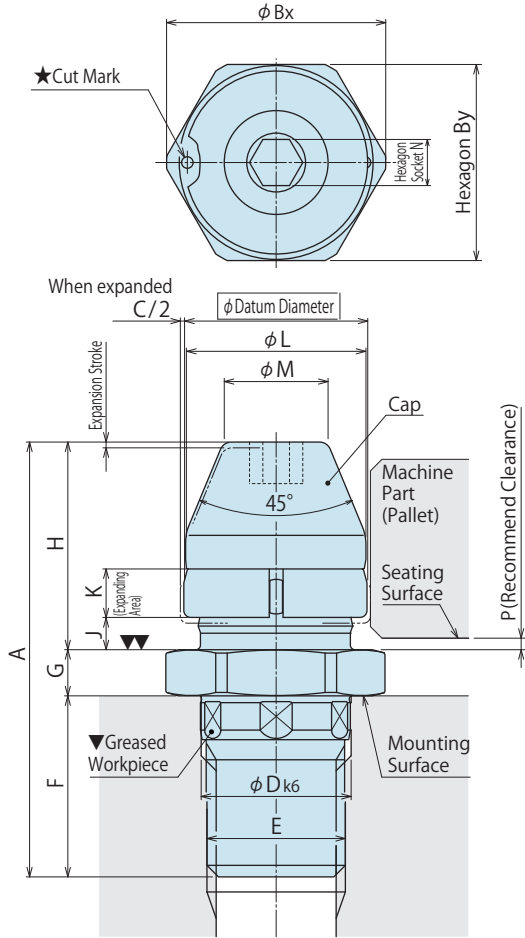
Note ※1. T : Tightening Torque (N·m)

Performance Curve (Tightening Torque—Locating Force)



- High-Power Series
- Pneumatic Series
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- Cautions / Others
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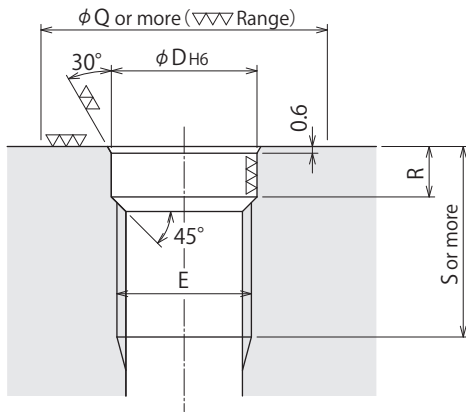
External Dimensions



Dimensions Table

Model No.	VX0080-□	VX0100-□	VX0120-□	VX0160-□	VX0200-□
Hole Diameter of Machine Part (Standard Diameter)	$\phi 8H8^{+0.022}_0$	$\phi 10H8^{+0.022}_0$	$\phi 12H8^{+0.027}_0$	$\phi 16H8^{+0.027}_0$	$\phi 20H8^{+0.033}_0$
Datum Diameter	Min. Diameter (min.)	7.93	9.91	11.88	15.84
	Max. Diameter (max.)	8.04	10.05	12.06	16.06
Expansion Stroke	0.3	0.4	0.5	0.6	0.6
A	24	28.3	30	37	43.5
B _x	11	15.5	15.5	19	24.5
B _y	10	14	14	17	22
C	0.12	0.16	0.20	0.24	0.24
D _{k6}	$7^{+0.010}_{+0.001}$	$9^{+0.010}_{+0.001}$	$9^{+0.010}_{+0.001}$	$13^{+0.012}_{+0.001}$	$17^{+0.012}_{+0.001}$
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

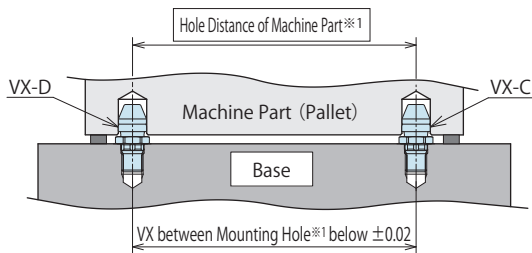
Machining Dimensions of Mounting Area



Notes

1. This drawing shows the released (contracted) state.
2. The ★ identification mark shows the direction of expansion of VX-C. To identify, ▼ area is made smoothly by polishing. In regard to phasing, please take a look at the phasing of [the cut pin] (VX-C) at next page.
3. When mounting the unit put plenty of grease on the part marked by ▼.

Distance Accuracy of Mounting Dimensions



Note

- ※ 1. The distance accuracy for VX should be within ± 0.02 mm.
The distance accuracy of workpiece holes (pallet holes) should be within allowable difference (JIS B 0613 Class2).

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

「JIS B 0613 class 2 excerpt」 Units : mm

Center Distance Classification		Center Distance Tolerance [JIS B0613]
Greater than	Eq to or less than	Class 2
50	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

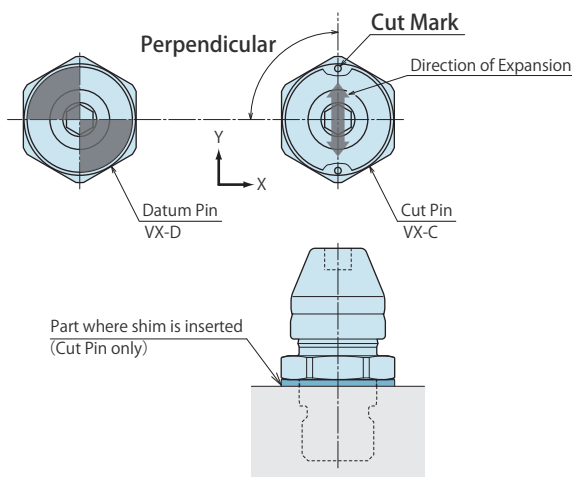
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- Coupler Switch
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Cautions

- 1) 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.**

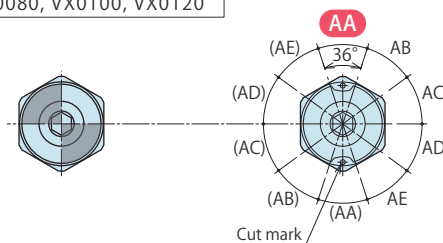


- VX-C (cut) phasing requirements.

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

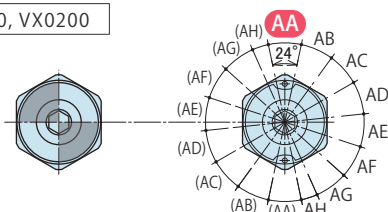


Number of Shims to Insert (Reference)

Cut Mark Position	t=0.1mm Number of Shims	t=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

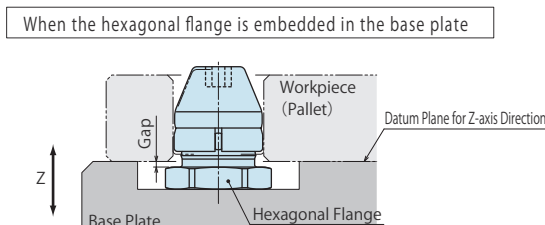
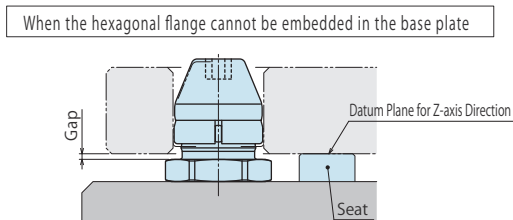


Number of Shims to Insert (Reference)

Cut Mark Position	t=0.1mm Number of Shims	t=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)

- 2) 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.



- 3) Check Specifications
 - The locating (expansion) and release (contraction) operations are both performed manually.
 - When performing the operations use the hexagonal socket on the cap.
 - 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 release (contraction) operation, loosen the cap one turn.
 - When there is too much vibration during the processing the drive screw in the expansion mechanism may become loosened. Select an appropriate clamp so that the workpiece does not move due to the machining load in such a case.

- 4) 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 could damage the hexagonal socket on the cap.
 - Make sure the unit is tightened before using it. The equipment could 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 it. If it is disassembled or modified, the warranty will become invalid even if it is still within the warranty period.

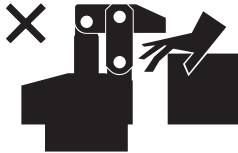
※ Please refer to P.1045 for common caution.

• Notes on Handling • Maintenance/Inspection • Warranty

● Cautions

● Notes on Handling

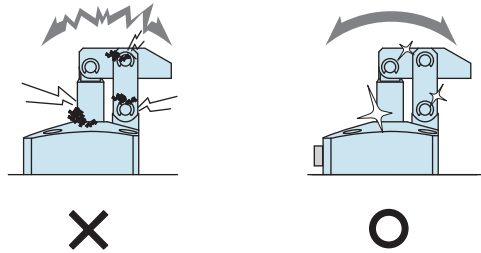
- 1) It should be handled by qualified personnel.
 - The hydraulic machine and air compressor should be handled and maintained by qualified personnel.
- 2) Do not handle or remove the machine unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
 - ② Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
 - ③ After stopping the machine, do not remove until the temperature cools down.
 - ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.
- 3) Do not touch clamps (cylinder) while clamps (cylinder) is working. Otherwise, your hands may be injured due to clinching.



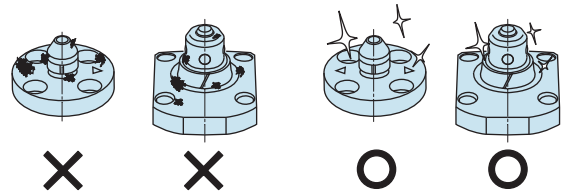
- 4) Do not disassemble or modify.
 - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

● Maintenance and Inspection

- 1) Removal of the Machine and Shut-off of Pressure Source
 - Before the machine is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
 - 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, fluid leakage and air leaks.



- 3) Please clean out the reference surface regularly (taper reference surface and seating surface) of locating machine. (VS/VT/VL/VM/VJ/VK/WVS/WM/WK/VX/VXF)
 - Location products, except VX/VXF model, can remove contaminants with cleaning functions. When installing pallets make sure there is no thick sludge like substances on pallets.
 - Continuous use with dirt on components will lead to locating functions not work properly, leaking and malfunction.



- 4) If disconnecting by couplers on a regular basis, air bleeding should be carried out daily to avoid air mixed in the circuit.
- 5) Regularly tighten nuts, bolts, pins, cylinders and pipe line to ensure proper use.
- 6) Make sure the hydraulic fluid has not deteriorated.
- 7) Make sure there is smooth action and no abnormal 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.

Cautions

[Installation Notes
\(For Hydraulic Series\)](#)
[Hydraulic Fluid List](#)
[Notes on Hydraulic Cylinder
Speed Control Circuit](#)
[Notes on Handling](#)
[Maintenance/
Inspection](#)
[Warranty](#)

Company Profile

[Company Profile](#)
[Our Products](#)
[History](#)

Index

[Search by](#)
[Alphabetical Order](#)

Sales Offices

● 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 handled in 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.

Sales Offices

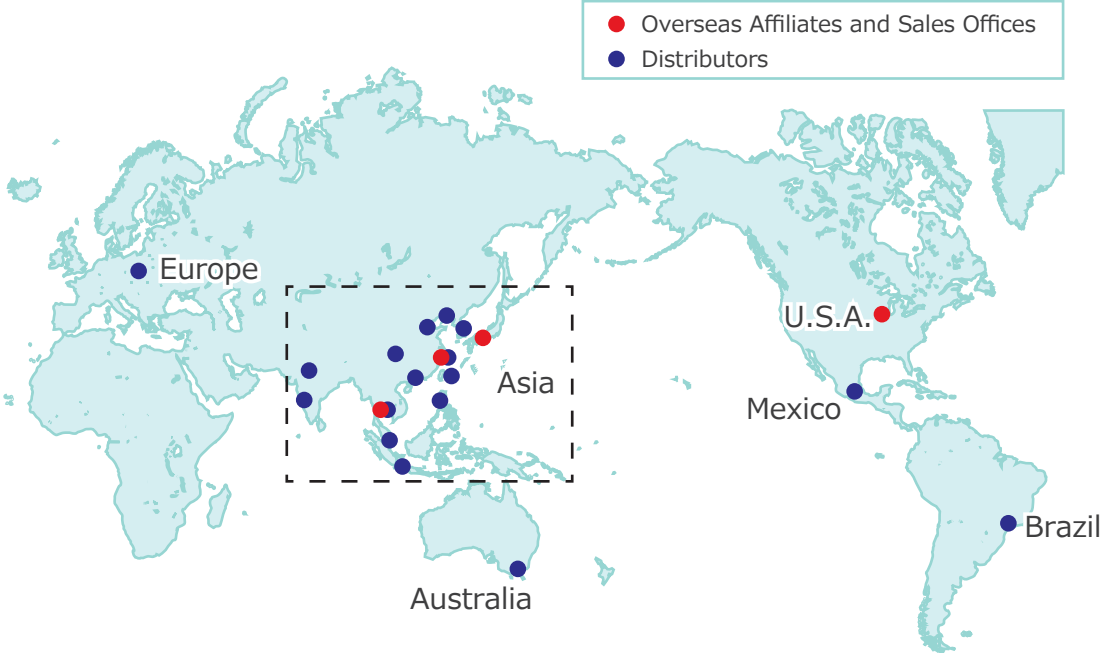
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KOSMEK (USA) LTD.	1441 Branding Avenue, Suite 110, Downers Grove, IL 60515 USA	
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KOSMEK (CHINA) LTD. 考世美(上海)貿易有限公司	21/F, Orient International Technology Building, No.58, Xiangchen Rd, Pudong Shanghai 200122., P.R.China 中国上海市浦东新区向城路58号东方国际科技大厦21F室 200122	
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Taiwan (Taiwan Exclusive Distributor)	TEL. +886-2-82261860	FAX. +886-2-82261890
Full Life Trading Co., Ltd. 盈生貿易有限公司	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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Asia Detailed Map



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