# Manual Expansion Locating Pin

Model VX



## The repetitive location accuracy is 5 $\mu$ m with a wrench

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

# 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.



## Cross Section





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  $^{\scriptscriptstyle +0.022}_{\scriptscriptstyle 0}$
- **012** : Applicable Workpiece Hole Diameter  $\phi$  12H8  $^{+0.027}_{0}$
- **016** : Applicable Workpiece Hole Diameter  $\phi$  16H8<sup>+0.027</sup>
- **020** : Applicable Workpiece Hole Diameter  $\phi$  20H8  $^{+0.033}_{0}$





2 Design No.

**0** : Revision Number

## 3 Functions

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



Features / Action Description Application Examples

Cross Section / Model No. Indication / Specifications / Performance Curve

External Dimensions / Cautions



High-Power

Series

## Specifications

	VX0080-🗆	VX0100-□	VX0120-□	VX0160-□	VX0200-□	Pneumatic Series
er (Standard) mm	φ8 H8 <sup>+0.022</sup>	φ10 H8 <sup>+0.022</sup>	ф12 H8 <sup>+0.027</sup>	ф16 H8 <sup>+0.027</sup>	φ20 H8 <sup>+0.033</sup>	
Released (max.)	φ7.93 or less	$\phi$ 9.91 or less	\$\$\phi_11.88 or less	φ15.84 or less	\$\$\phi 19.84 or less	Hydraulic Series
Full Stroke (min.)	$\phi$ 8.04 or more	¢10.05 or more	¢12.06 or more	¢16.06 or more	\$\phi_20.06 or more	Valve / Coupler
mm	0.3	0.4	0.5	0.6	0.6	Hydraulic Unit
Locating Repeatability mm 0.005			1	Manual Operation Accessories		
n Formula) <sup>※1</sup> kN	1.33T-0.16	0.99T-0.18	0.88T-0.21	0.59T-0.22	0.56T-0.23	Cautions / Othors
C:Cut) mm	±0.05	±0.10	±0.10	±0.15	±0.15	cautions / others
Load kN	2.5	3.0	3.5	4.5	7.0	Screw
Torque N∙m	1.25	2.5	3.2	6.3	10.0	Locator
Operation Sequence VX-D → VX-C				VXF/VXE		
1ain Body N∙m	10	25	25	80	200	Manual Expansion Locating Pin
rature ℃			0 ~ 120	I	1	vx
g	7	15	20	40	80	March Indian
Note : %1. T : Tightening Torque (N•m)						WHZ-MD
	r (Standard) mm eleased (max.) ull Stroke (min.) Dility mm Dility mm Formula) <sup>× 1</sup> kN :Cut) mm coad kN forque N•m ce N•m ce °C ain Body N•m rature °C g htening Torque	VX0080-□           r (Standard) mm         \$\$\phi 8 H8 + \begin{bmm/display}{cm} 0.022\$           eleased (max.)         \$\$\phi 7.93 or less\$           ull Stroke (min.)         \$\$\phi 8.04 or more\$           mm         0.3           bility mm         \$\$           Formula) **1 kN         1.33T-0.16           :Cut) mm         ±0.05           coad kN         2.5           forque N·m         1.25           ce         \$\$           ain Body N·m         10           rature °C         \$\$           g         \$\$           thening Torque (N·m)	VX0080-         VX0100-           r (Standard) mm         Ø 8 H8 +0022         Ø 10 H8 +0022           eleased (max.)         Ø 7.93 or less         Ø 9.91 or less           ull Stroke (min.)         Ø 8.04 or more         Ø 10.05 or more           mm         0.3         0.4           bility mm	VX0080-         VX0100-         VX0120-           r (Standard) mm $\phi$ 8 H8 $+^{0.022}_0$ $\phi$ 10 H8 $+^{0.022}_0$ $\phi$ 12 H8 $+^{0.027}_0$ eleased (max.) $\phi$ 7.93 or less $\phi$ 9.91 or less $\phi$ 11.88 or less           ull Stroke (min.) $\phi$ 8.04 or more $\phi$ 10.05 or more $\phi$ 12.06 or more           mm         0.3         0.4         0.5           polity mm $\cdots$ $\cdots$ $0.005$ Formula) **1 kN         1.33T-0.16         0.99T-0.18         0.88T-0.21           :Cut) mm $\pm$ 0.05 $\pm$ 0.10 $\pm$ 0.10           .coad kN         2.5         3.0         3.5           forque N·m         1.25         2.5         3.2           ce $\cdot$ $\cdot$ $\cdot$ $\cdot$ ain Body N·m         10         25         25           rature °C $q$ $7$ 15 $20$	VX0080-         VX0100-         VX0120-         VX0160-           r (Standard) mm         Ø 8 H8 + <sup>0.022</sup> <sub>0</sub> Ø 10 H8 + <sup>0.022</sup> <sub>0</sub> Ø 12 H8 + <sup>0.027</sup> <sub>0</sub> Ø 16 H8 + <sup>0.027</sup> <sub>0</sub> eleased (max.)         Ø 7.93 or less         Ø 9.91 or less         Ø 11.88 or less         Ø 15.84 or less           ull Stroke (min.)         Ø 8.04 or more         Ø 10.05 or more         Ø 12.06 or more         Ø 16.06 or more           mm         0.3         0.4         0.5         0.6           bility mm	VX0080-         VX0100-         VX0120-         VX0160-         VX0200-           r (Standard) mm         \$\phi 8 H 8 + \bar 0^{022}\$         \$\phi 10 H 8 + \bar 0^{022}\$         \$\phi 12 H 8 + \bar 0^{027}\$         \$\phi 16 H 8 + \bar 0^{027}\$         \$\phi 20 H 8 + \bar 0^{033}\$           eleased (max.)         \$\phi 7.93 or less\$         \$\phi 9.91 or less\$         \$\phi 11.88 or less\$         \$\phi 15.84 or less\$         \$\phi 19.84 or less\$           ull Stroke (min.)         \$\phi 8.04 or more\$         \$\phi 10.05 or more\$         \$\phi 12.06 or more\$         \$\phi 16.06 or more\$         \$\phi 20.06 or more\$           mm         0.3         0.4         0.5         0.6         0.6           solity mm         \$\subset -0.015\$         \$\subset -0.22\$         0.56T-0.23\$         0.59T-0.22         0.56T-0.23\$           scuty mm         \$\pu 0.05\$         \$\pu 0.10\$         \$\pu 0.10\$         \$\pu 0.15\$         \$\pu 0.15\$           formula <sup>\$\pi 1</sup> kN         1.33T-0.16         0.99T-0.18         0.88T-0.21         0.59T-0.22         0.56T-0.23\$           scuty mm         \$\pu 0.05\$         \$\pu 0.10\$         \$\pu 0.10\$         \$\pu 0.15\$         \$\pu 0.15\$           scuty mm         \$\pu 0.05\$         \$\pu 0.10\$         \$\pu 0.16\$         \$\pu 0.16\$         \$\pu 0.15\$           scod kN

## Performance Curve (Tightening Torque—Locating Force)









Pressure Gauge JGA/JGB Manifold JΧ Coupler Switch

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

ΡS

G-Thread Fitting

## External Dimensions



Dimensions Table (mm)						
Mod	el No.	VX0080-🗆	VX0100-🗆	VX0120-🗆	VX0160-🗆	VX0200-🗆
Workpiece (Standa	Hole Diam. rd Diam.)	\$\$H8^{+0.022}	¢10H8 <sup>+0.022</sup> _0	ф12H8 <sup>+0.027</sup>	ф16Н8 <sup>+0.027</sup>	¢20H8 <sup>+0.033</sup>
Datum	At Released	7.93 or less	9.91 or less	11.88 or less	15.84 or less	19.84 or less
Diameter	At Full Stroke	8.04 or more	10.05 or more	12.06 or more	16.06 or more	20.06 or more
Expansio	on Stroke	0.3	0.4	0.5	0.6	0.6
	A	24	28.3	30	37	43.5
E	3x	11	15.5	15.5	19	24.5
E	3y	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	$13^{+0.012}_{+0.001}$	$17^{+0.012}_{+0.001}$
D	H6	7 0 +0.009	9 +0.009 0	9 +0.009 0	13 <sup>+0.011</sup>	17 <sup>+0.011</sup>
	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
I	Н	12	13.3	15	18	20
	J	1.6	1.7	2.2	2.8	2.5
	К	2.5	3	3.5	4.2	5
	L	7.9	9.8	11.8	15.7	19.7
I	N	4.7	6	6.5	9	12.4
N (Hex.	× Depth)	$2.5 \times 2.5$	3 × 3	3 × 3	4 × 3.5	$5 \times 4$
P (Recomme	nd 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

## C Machining Dimensions of Mounting Area



## Content of the provide the provident of the provident



#### Note :

%1. The distance accuracy for VX should be within  $\pm$ 0.02mm. The distance accuracy of workpiece holes (pallet holes) should be within allowable offset of "JIS B 0613 Class 2".

#### Notes :

S

1. This drawing shows the released (retracted) state.

11

2. The identification mark '★' shows the expanding direction of the cut pin (VX-C).

13.5

13.5

17

20.5

The surface marked with  $\mathbf{\nabla}\mathbf{\nabla}$  is polished to identify the cut pin (VX-C). Refer to "Cut Pin (VX-C) Phasing Requirements" on the next page for phasing.

3. When mounting the product, apply grease on the part marked with  $\mathbf{\nabla}$ .

「JIS B 0613 class 2 excerpt」 Unit : mm			
Center I Classif	Distance ication	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	



High-Power

**Pneumatic Series** 

Hydraulic Series

Valve / Coupler

Hydraulic Unit

Manual Operation Accessories

Cautions / Others

Screw

Locato

Series

## 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



Number of Shims to Insert (Reference)

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

(AB) (AA) AH

- 2) Datum Plane for Z-Axis Direction
   This product is for positioning on the X and Y-axis,
  - This product is for positioning on the x and 1-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.



VXF/VXE Manual Expansion Locating Pin VX Manifold Block WHZ-MD LZY-MD LZY-MD LZ-MS

LZ-MP

Manifold Block /

DZ-R

D7-C

D7-P

DZ-B LZ-S

LZ-SQ

TNZ-S

Pressure Switch

JBA

Pressure Gauge

JX

Coupler Switch

ΡS

G-Thread Fitting

Manifold

JGA/JGB

TNZ-SQ

WNZ-SQ

Nut

TM7-1MF

TMZ-2MB



When the hexagonal flange is embedded in the base plate.

- 3) 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.

- 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 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

## 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.
- 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.



- 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.



- 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.
- 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



High-Power Series

Pneumatic Series

### Pheum

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

## Cautions

(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

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 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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# **Global Network**









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