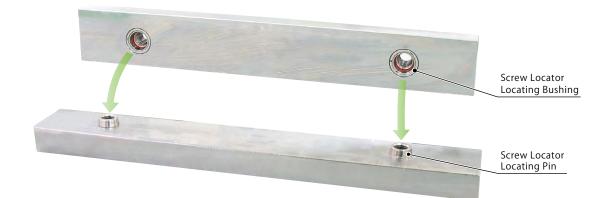


# Simple High-Accuracy Locating by Hand

VXF : Locating Repeatability 3  $\mu$  m VXE : Locating Repeatability 5  $\mu$  m

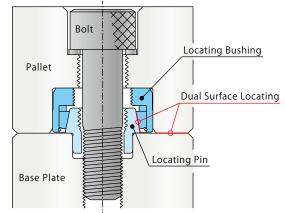
The "Screw Locator" performs high-precision locating by simply tightening the bolts.



# General locating pin has a gap and poor locating repeatability.

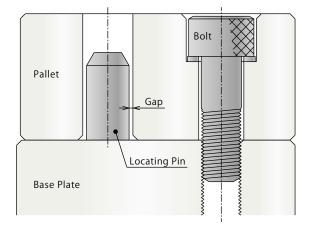
# Screw Locator with Dual Surface Tightening Locating Repeatability $3\mu m$ (VXE : $5\mu m$ )

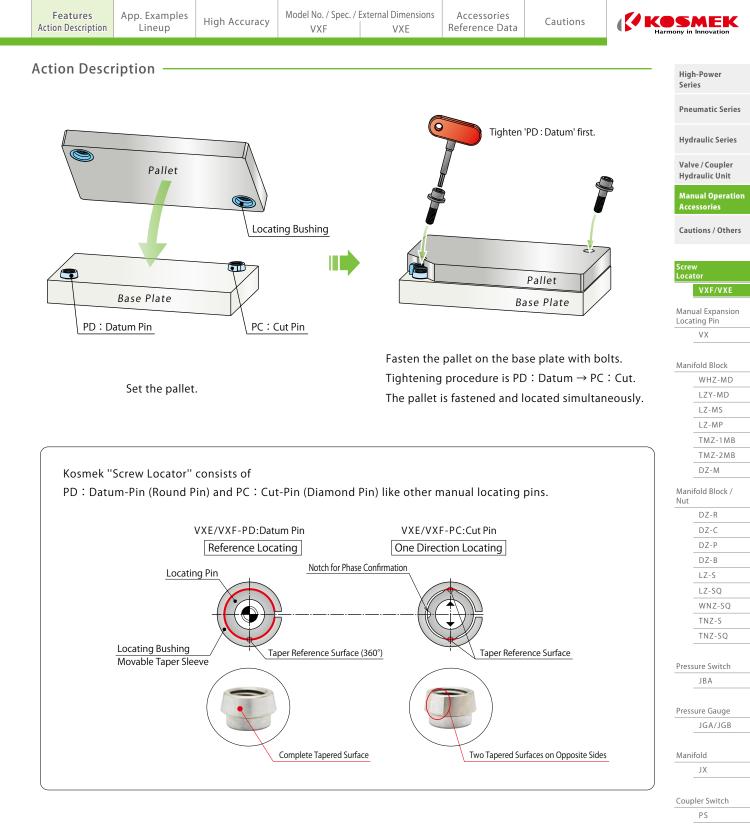
High accuracy allows for high quality and less defective parts. Compact body saves valuable space.



\* Screw Locator consists of Locating Pin and Locating Bushing.

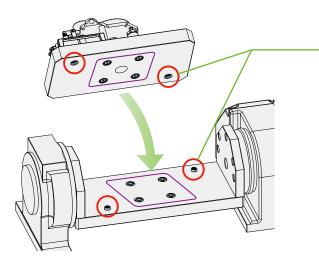
Backlash · Low Accuracy · Space Required



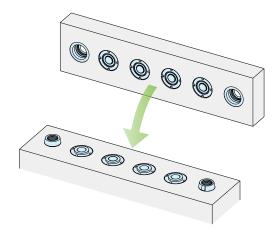


G-Thread Fitting

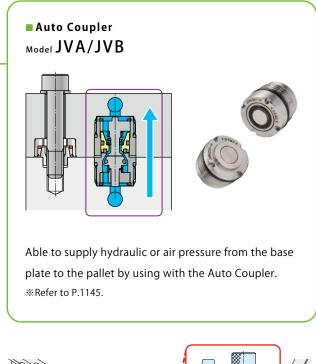
## Application Examples

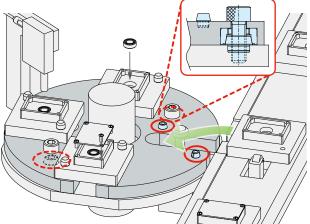


For Locating/Setup of Fixtures in Machining Applications

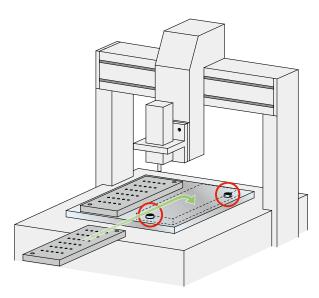


Connects both pallet and couplers simultaneously.

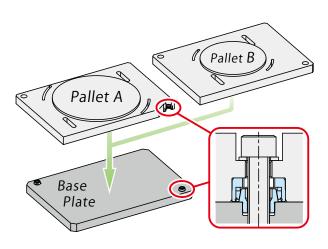




For Setup of Carrier Pallets • Fixture Bases for Assembly / Press Fitting / Inspection Device of Compact Components



For Locating of Pallets in Robot Applications



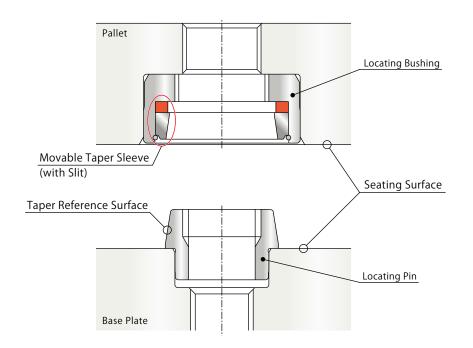
For Replacing and Locating of Fixtures in Semiconductor Applications

	Features Action Description		High Accuracy	Model No. / Spec. / External Dimens VXF VXE	ions Accessories Reference Data	Cautions		mony in Innovation
(	C Lineup							High-Power Series
								Pneumatic Series
								Hydraulic Series
					K			Valve / Coupler Hydraulic Unit
								Manual Operation Accessories
				<b>U</b>				Cautions / Others
_			Model <b>\</b>	/XF → P.1313	Мо	del VXE →	P.1317	Screw
	Locating Repeata	bility	3.	ιm		5µm		Locator VXF/VXE
_				/ M10 / M12 / M16		M3		Manual Expansion Locating Pin
_	Tightening Bolt S	SIZE				CIVI		VX
	Min. Tightening F	orce	1200 ~	3000 N		50 N		Manifold Block
_								WHZ-MD
			Horizontal Mount	ing:100~800 kg	Horizontal	Mounting: 2	ka	LZY-MD
	Max. Loading Wei	ight *	Vertical Mounting : 20 ~ 160kg			-	-	LZ-MS
					Vertical N	lounting:0.4k	g	LZ-MP TMZ-1MB
_								TMZ-2MB
			With a variety of bod	y sizes, Screw Locator	With small min. ti	ightening force (	reaction	DZ-M
			can be used in variou	is environments.	force at connection	on), thin/compa	t pallets	Manifold Block /
			High loading weight	allows for locating	can hardly be def	-	-	Nut DZ-R
				-	When locating w		-	DZ-C
			heavy pallets and using in machining fixture. Setup time of fixture pallet can be reduced.		5		•	DZ-P
	Applications				the taper pin avo		and thus	DZ-B
	_		NEW Clean enviror	iment model using	suitable for autor	nation.		LZ-S
	Features		100% stainless steel a	and low-dust grease				LZ-SQ
			(model VXF□-B- <b>VC</b> )	. Ideal for use in	Low tightening force (reaction force) hardly deforms pallets.			WNZ-SQ TNZ-S
			semiconductor manu					TNZ-SQ
			semiconductor manu	nacturing!		1		
								Pressure Switch
			Availe	able for				JBA
					Thin Pallet		- T-	
			Heavy Fix	ture/Pallet	<u> </u>		1 Par	Pressure Gauge
							TT	JGA/JGB
			Чатр				—	Manifold
								XL
_								Coupler Switch
	※ Maximum loadi	ing weigh	it of VXF / VXE shows the maxii	mum pallet weight that can be loc	ated.			PS

Maximum loading weight of VXF / VXE shows the maximum pallet weight that can be located. About load applied after locating, vertical force is received by fixture seating surface, and horizontal force is received by clamping force with bolt tightening, etc.

G-Thread Fitting

#### © Description of Movable Taper Sleeve



#### Locating Method : Dual Surface with Movable Taper Sleeve

## The Benefits of Movable Taper Sleeve

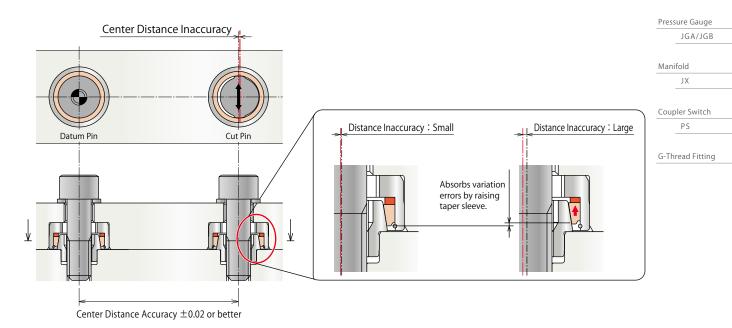
- ① Absorbs tolerance variations in each locating pin and locating bushing.
- ② Absorbs wear of locating part due to long time use.
- ③ Absorbs space variations of mounting holes.
- ④ Absorbs space variations due to temperature change.

The advantage of the 'Movable Taper Sleeve' is to absorb dimension error by vertical movements. This is achieved by removing clearance between the locating pin, tapered sleeves and locating bushing. The dual surface fastening enables high precision with repeated accurate locating.

Features Action Description	App. Examples Lineup	High Accuracy	Model No. / Spec. / VXF	External Dimensions VXE	Accessories Reference Data	Cautions	<b>K</b>	SMEK
								High-Power Series
								Pneumatic Series
								Hydraulic Series
Movem	ent and E	Error Abso	orbed by	the Mova	ble Taper	Sleeve (	1)/2)	Valve / Coupler Hydraulic Unit
Starting of A	ction for Loca	iting	XY Loca	ting		XYZ Locating		Manual Operation Accessories
	t zero clearance as		arance between th		Absorbs	errors by raising		Cautions / Others
	irts come in contac reference surface.	. is c	d the moving parts completely zero.	of the bushing		eve. Seating surface tes on two surface		Screw Locator VXF/VXE
								Manual Expansion Locating Pin

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

Absorbs distance variations minimizing the wear of locating parts and prevents deformation of locating pin/ locating bushing. \* Accuracy becomes paramount when securing multiple sub plates.



1312

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

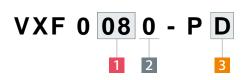
> DZ-R DZ-C DZ-P DZ-B LZ-S LZ-SQ WNZ-SQ

TNZ-S TNZ-SQ

Pressure Switch

JBA

C Model No. Indication (Locating Pin)





### 1 Mounting Bolt Size

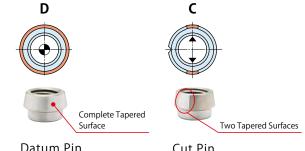
- 04 : Mounting Bolt Size M4
- **05** : Mounting Bolt Size M5
- **06** : Mounting Bolt Size M6
- **08** : Mounting Bolt Size M8
- **10** : Mounting Bolt Size M10
- **12** : Mounting Bolt Size M12
- **16** : Mounting Bolt Size M16

#### 2 Design No.

**0** : Revision Number

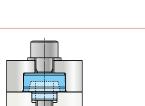
#### 3 Function Classification

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

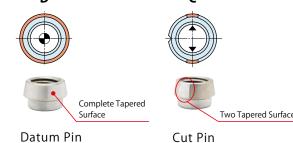


#### Combination of Locating Pin and Locating Bushing

Mounting Bolt Size	Locating Pin Model No.	Locating Bushing Model No.	Function
M4 Dalt	VXF0040-PD (Datum Pin)	VXF0040-B-	Reference Locating
M4 Bolt	VXF0040-PC (Cut Pin)	VXF0040-B-	One Direction Locating
	VXF0050-PD (Datum Pin)	VXF0050-B-	Reference Locating
M5 Bolt	VXF0050-PC (Cut Pin)	VXF0050-B-	One Direction Locating
	VXF0060-PD (Datum Pin)	VXF0060-B-	Reference Locating
M6 Bolt	VXF0060-PC (Cut Pin)	VXF0060-B-	One Direction Locating
	VXF0080-PD (Datum Pin)	VXF0080-B	Reference Locating
M8 Bolt	VXF0080-PC (Cut Pin)	VXF0080-B	One Direction Locating
	VXF0100-PD (Datum Pin)	VXF0100-B	Reference Locating
M10 Bolt	VXF0100-PC (Cut Pin)	VXF0100-B	One Direction Locating
	VXF0120-PD (Datum Pin)	VXF0120-B	Reference Locating
M12 Bolt	VXF0120-PC (Cut Pin)	VXF0120-B	One Direction Locating
M16 Dalt	VXF0160-PD (Datum Pin)	VXF0160-B	Reference Locating
M16 Bolt	VXF0160-PC (Cut Pin)	VXF0160-B	One Direction Locating



Mounting Bolt Size



1313

Features Action Description	App. Examples Lineup	High Accuracy	Model No. / Spec. / Exter VXF	nal Dimensions VXE	Accessories Reference Data	Cautions	Harm	
D Model No	. Indication (	Locating Bu	shing)					High-Power Series
		-	-					Pneumatic Series
VXF 0	08 0 -	- B - V	C					Hydraulic Series
	1 2		3					Valve / Coupler Hydraulic Unit
1 Accomm		sting Din A						Manual Operation Accessories
Αςсопш	odate VXF Lo	ocating Pin N	10061					Cautions / Others
<b>04</b> : VXF	0040-PD / VXF0	040-PC						
<b>05</b> : VXF	0050-PD / VXF0	050-PC						Screw Locator
<b>06</b> : VXF	0060-PD / VXF0	060-PC						VXF/VXE
<b>08</b> : VXF	0080-PD / VXF0	080-PC						Manual Expansion
	0100-PD / VXF0							Locating Pin VX
	0120-PD / VXF0							
	0120 PD / VXF0							Manifold Block
	0100-PD / VAF0	1100-PC						WHZ-MD
								LZ-MS
2 Design N	0.							LZ-MP
<b>0</b> : Rev	ision Number							TMZ-1MB
								DZ-M
3 Operatin	g Environme	nt ※ Selectable	only for VXF0040/0050	/0060.				Manifold Block /
Blank	Standard	Mate	rial: Alloy Tool Steel	Grease: I	NBU30 made by N	JOK KI UEBER		DZ-R
			erial: Stainless Steel					DZ-C
VC	For Clean Enviro	onment Mate	riai - Stainiess Steel	Grease. /	AFF made by THK			DZ-P
								DZ-B LZ-S
								LZ-3

#### Specifications

Model No.			VXF0040	VXF0050	VXF0060	VXF0080	VXF0100	VXF0120	VXF0160	Pressure Gauge
Locating Repea	itability	mm				0.003		1		- JGA/JGB
Stroke		mm		0	.2			0.3		Manifold
Max. Loading	Horizontal Mou	nting	100	200	300	400	500	600	800	JX
Weight kg	Vertical Mountir	ng	20	40	60	80	100	120	160	- Coupler Switch
Min. Tightening Force *1 kN		1.2	1.4	1.5	1.8	2.0	2.5	3.0	PS	
Tightening Pro	cedure				V	XF-PD → VXF-P	νC		1	
Operating Tem	perature	°C				0~70				G-Thread Fitting
Weight	Locating Pin (VX	F□-PD/PC)	2	3	4	5	10	15	25	
g	Locating Bushing (	VXF□-B-□)	4	7	10	11	22	36	50	-
Material Locating Pin (VXF□-PD/PC)			Stainless Steel <sup>%2</sup>					1	-	
	Locating Bushing	3 Blank			/	Alloy Tool Stee				-
	(VXF□-B)	3 VC	Stainless Steel	Stainless Steel	Stainless Steel	_	_	_	-	-

Notes :

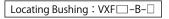
1. This product is made only for locating. It does not have clamping function. Tightening force is required when locating.

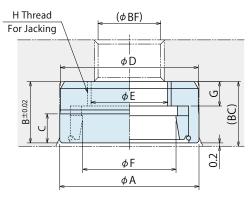
\*\*1. Minimum tightening force indicates the required tightening force (pressing force) per locating unit. (It is the required axial force when tightening the center of VXF with a bolt.) Tighten the mounting bolt with appropriate tightening torque. (Refer to P.1323 for reference data of bolt axial force and tightening torque.) Tightening torque may differ according to bolt tensile strength grade / plate material. For further information, please refer to JIS B 1083, JIS B 1084 or catalogs of bolt makers.

\*2. At shipment, VXF -PD/PC has general grease and rust preventive applied to prevent rust. If low dust is required, wipe off and clean before use, depending on the equipment used. When assembling, it is recommended to apply grease suitable for the equipment. LZ-SQ WNZ-SQ TNZ-SQ TNZ-SQ

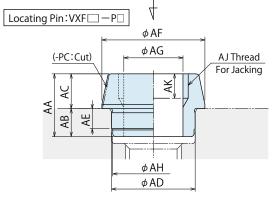
Pressure Switch JBA

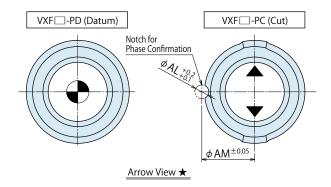
## External Dimensions



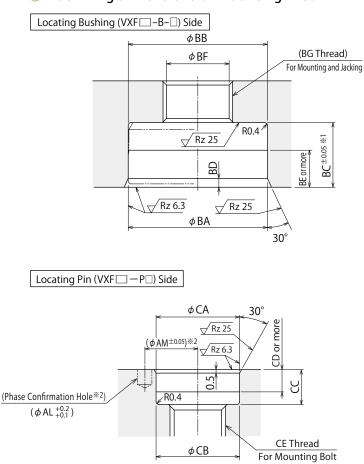








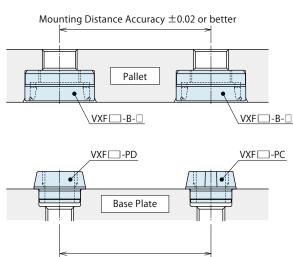
## Machining Dimensions of Mounting Area



#### Notes :

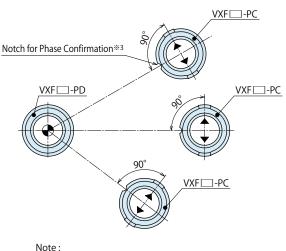
- %1. If material of a base plate and pallet is different, BC machining tolerance should be  $\pm 0.02$ .
- \*2. Prepare this hole for phase confirmation. The overlap of the notch and hole will confirm phase. Phasing becomes easier with a phase confirmation hole when using a parallel pin for mounting VXF-PC. (When using parallel pin, please take into account for the removal of the pin after phase alignment.)

#### VXF-PC Phase



Mounting Distance Accuracy

Mounting Distance Accuracy  $\pm 0.02$  or better



%3. Please align the notch of VXF-PC perpendicular to the center of VXF-PD.

Features	App. Examples	High Accuracy	Model No. / Spec. / External Dimensions		Accessories	Cautions	Ave
Action Description	Lineup	High Accuracy	VXF	VXE	Reference Data	Cautions	Harmony

#### External Dimensions and Machining Dimensions for Mounting

Model No.	VXF0040	VXF0050	VXF0060	VXF0080	VXF0100	VXF0120	VXF0
А	13 <sup>+0.033</sup> <sub>+0.020</sub>	16 +0.033 +0.020	18 +0.033 +0.020	20 +0.033 +0.020	25 <sup>+0.033</sup> <sub>+0.020</sub>	30 +0.033 +0.020	35+
В	6.8	7.8	8.3	8.8	10.8	12.8	13.
С	3.8	4	4	4.5	5.5	6.5	8
D	12.8	15.8	17.8	19.8	24.8	29.8	34.
E	5.1	6.8	9	11	12.5	16.5	20.
F	7.7	9.5	11.5	13.3	16.8	20.2	24.
G	2	2.8	3.2	3.5	4.2	5.2	5.2
Н	M6×1	M8×1.25	M10×1.5	M12×1.75	M14×2	M18×2.5	M22>
AA	8	8.5	8.5	9	11	13	14
AB	3.5	4	4	4	5	6	6
AC	4.5	4.5	4.5	5	6	7	8
AD	6.5p6 <sup>+0.024</sup> <sub>+0.015</sub>	8p6 +0.024 +0.015	10p6 +0.024 +0.015	12p6 +0.029 +0.018	15p6 <sup>+0.029</sup> +0.018	18p6 +0.029 +0.018	23p6
AE	2.5	3	3	3	4	4.5	4.5
AF	9	10.8	12.8	14.8	18.6	22.2	27.
AG	4.3	5.3	6.8	8.5	11	14	18
AH	6.3	7.8	9.8	11.8	14.8	17.8	22.
AJ	M5×0.8	M6×1	M8×1.25	M10×1.5	M12×1.75	M16×2	M20>
AK	3.5	3.5	3.5	3.5	4.5	5	6
AL	1.5	1.5	1.5	2	2.5	3	4
AM	4.7	5.6	6.5	7.6	9.6	11.4	14.
BA	13H6 <sup>+0.011</sup>	16H6 <sup>+0.011</sup>	18H6 +0.011	20H6 <sup>+0.013</sup>	25H6 <sup>+0.013</sup>	30H6 <sup>+0.013</sup>	35H6
BB	13 +0.011	16 <sup>+0.011</sup> -0.1	18 +0.011	20 +0.013	25 <sup>+0.013</sup> -0.1	30 +0.013	35 1
BC	7	8	8.5	9	11	13	14
BD	0.5	0.8	0.8	1	1.2	1.5	1.5
BE	4.2	4.5	5	5.5	6.5	7.5	8.5
BF	4.3	5.3	6.8	9	11	14	18
( BG )	M5×0.8	M6×1	M8×1.25	M10×1.5	M12×1.75	M16×2	M20>
CA	6.5H6 <sup>+0.009</sup>	8H6 <sup>+0.009</sup>	10H6 <sup>+0.009</sup>	12H6 <sup>+0.011</sup>	15H6 <sup>+0.011</sup>	18H6 +0.011 0	23H6 <sup>+</sup>
CB	6.5 +0.009	8 +0.009	10 +0.009	12 +0.011	15 +0.011	18 +0.011	23 ±
CC	4.5	5	5	5	6	7	7
CD	3.5	4	4	4	5	5.5	5.5
CE	M4×0.7	M5×0.8	M6×1	M8×1.25	M10×1.5	M12×1.75	M163

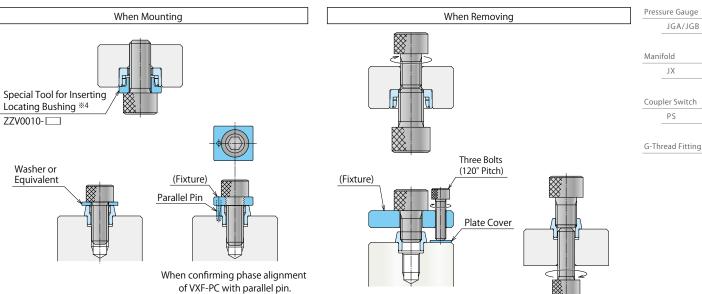
Notes :

1. Special tool (Model:ZZV0010-) or equivalent is required when inserting VXF -B-.

Special tool (Model: ZZV0010-) is not included with VXF - B-D. Please order separately. (Refer to P.1321)

2. Mounting bolts are not included in this product.

### Mounting and Removing



Note :

\*\*4. Special tool (Model:ZZV0010-) or equivalent is required when inserting VXF --B-. Special tool (Model:ZZV0010-) is not included with VXF --B-. Please order separately. ИЕК

High-Power

**Pneumatic Series** 

Hydraulic Series Valve / Coupler Hydraulic Unit Manual Operation

Cautions / Others

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

Pressure Switch JBA

TNZ-SQ

Screw Locator

Series

 Model No. Indication (Locating Pin) VXE 0 03 0 - P D 1 2 3 Function Classification 1 Mounting Bolt Size **03** : Mounting Bolt Size M3 **D** : Datum Pin (For Reference Locating) **C** : Cut Pin (For One Direction Locating) D С Mounting Bolt Size 2 Design No. Complete Tapered **0** : Revision Number Surface Two Tapered Surfaces Datum Pin Cut Pin

C Model No. Indication (Locating Bushing)





1 Accommodate VXE Locating Pin Model

**03**: VXE0030-PD / VXE0030-PC

```
2 Design No.
```

0 : Revision Number

#### © Combination of Locating Pin and Locating Bushing

Mounting Bolt Size	Locating Pin Model No.	Locating Bushing Model No.	Function
M3 Bolt	VXE0030-PD (Datum Pin)	VXE0030-B	Reference Locating
IVIS DUIL	VXE0030-PC (Cut Pin)	VXE0030-B	One Direction Locating

Features	App. Examples	High Accuracy	Model No. / Spec. / I	External Dimensions	Accessories	Cautions	
Action Description	Lineup		VXF	VXE	Reference Data	Cautions	

## Specifications

Model No.		VXE0030
Locating Repeatabilit	y mm	0.005
Stroke	mm	0.2
Max. Loading Weight	Horizontal Mounting	2.0
kg	Vertical Mounting	0.4
Min. Tightening Ford	ce <sup>**1</sup> * <sup>2</sup> N	50
Tightening Procedu	re	$VXE-PD \rightarrow VXE-PC$
Operating Temperat	ure °C	0~70
Weight	Locating Pin	1.5
g	Locating Bushing	3.0

Notes :

1. This product is made only for locating. It does not have clamping function. Tightening force is required when locating.

\*1. Minimum tightening force indicates the required tightening force (pressing force) per locating unit. (It is the required axial force when tightening the center of VXE with a bolt.)

Tighten the mounting bolt with appropriate tightening torque. (Refer to P.1323 for reference data of bolt axial force and tightening torque.) Tightening torque may differ according to bolt tensile strength grade / plate material. For further information, please refer to JIS B 1083, JIS B 1084 or catalogs of bolt makers.

\*\*2. When tightening/clamping a point other than the VXE center using external clamps, clamping force has to be greater than the minimum tightening force. Refer to P.1325 "For tightening (clamping) a point other than the VXE/VXF center." and calculate required tightening force.

High-Power Series

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

Screw Locator VXF/V<u>XE</u>

Manual Expansion Locating Pin VX

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

Mani Nut	fold Block /
	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

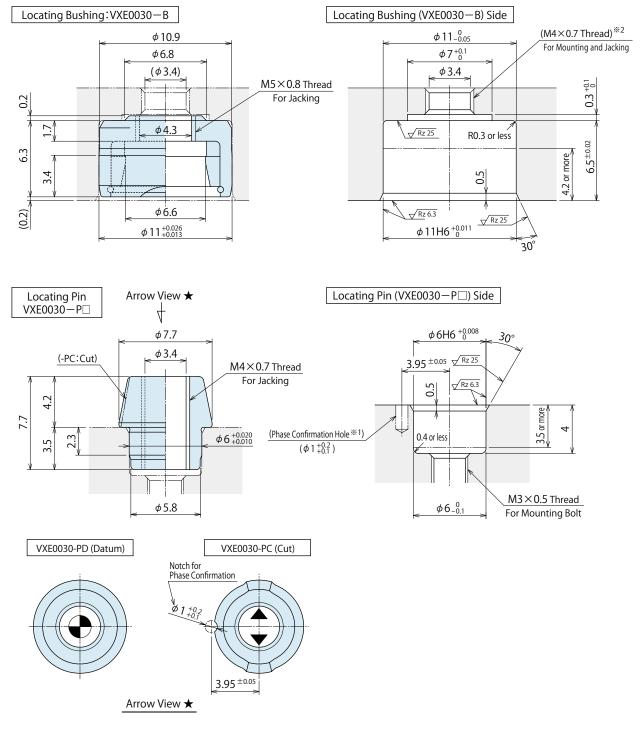
Manifold JX

Coupler Switch

G-Thread Fitting

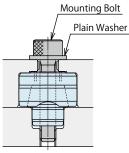
#### External Dimensions

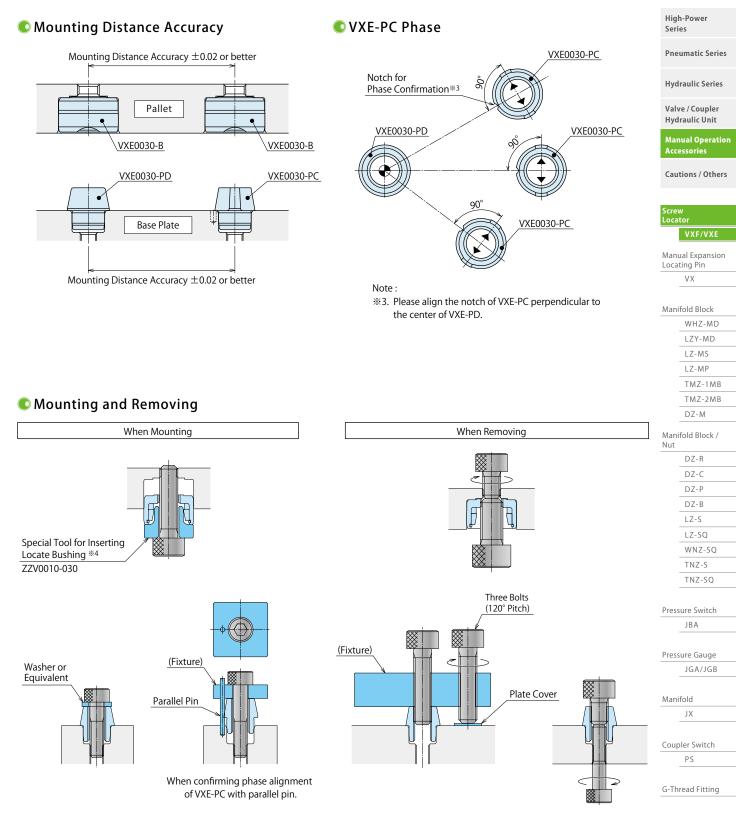
#### C Machining Dimensions of Mounting Area



Notes :

- \*1. Prepare this hole for phase confirmation. The overlap of the notch and hole will confirm phase.
   Phasing becomes easier with a phase confirmation hole when using a parallel pin for mounting VXE-PC.
   (When using parallel pin, please take into account for the removal of the pin after phase alignment.)
- %2. When preparing M4 $\times$ 0.7 thread for mounting/jacking, use the plain washer for the mounting bolt as shown in the drawing on the right.
  - Special tool (Model:ZZV0010-030) or equivalent is required when inserting VXE0030-B. Special tool (Model:ZZV0010-030) is not included with VXE0030-B. Please order separately (refer to P.1321).
  - 2. Mounting bolts are not included in this product.



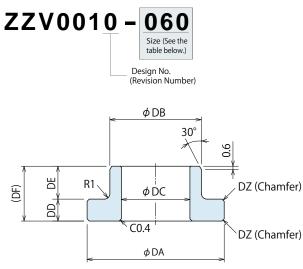


Notes :

%4. Special tool (Model:ZZV0010-030) or equivalent is required when inserting VXE0030-B. Special tool (Model:ZZV0010-030) is not included with VXE0030-B. Please order separately.

## Accessory : Special Tool for Inserting Locating Bushing

Model No. Indication



External Dim	nensions							(mm)
Model No.	ZZV0010-040	ZZV0010-050	ZZV0010-060	ZZV0010-080	ZZV0010-100	ZZV0010-120	ZZV0010-160	ZZV0010-030
Corresponding Product Model	VXF0040-B-	VXF0050-B-	VXF0060-B-	VXF0080-B	VXF0100-B	VXF0120-B	VXF0160-B	VXE0030-B
DA	13 <sup>-0.2</sup> <sub>-0.5</sub>	16 <sup>-0.2</sup> <sub>-0.5</sub>	18 -0.2 -0.5	20 -0.2	25 <sup>-0.2</sup> 0.5	30 -0.2	35-0.2	11 <sup>-0.2</sup> <sub>-0.5</sub>
DB	7.6 _0.2	9.4 _0.2	11.4_0_2	13.2 <sub>-0.2</sub>	16.7 <sub>-0.2</sub>	20.1_0_2	24.8 _0.2	6.4 <sub>-0.2</sub>
DC	5.5	6.7	8.5	10.5	12.5	16.5	20.5	4.5
DD	3	3	3	3	4	5	5	3
DE	4.3	4.5	4.5	4.5	6	7	8	4
DF	7.3	7.5	7.5	7.5	10	12	13	7
DZ (Chamfer)	C0.4	C0.4	C0.4	C0.4	C0.4	C0.4	C0.4	C0.2

Note :

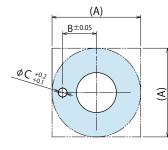
1. Special tool (Model:ZZV0010-□) or equivalent is required when inserting VXF □ -B-□ / VXE0030-B. Please determine the number of tools required when ordering.

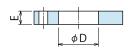
 At shipment, ZZV0010-□ has general grease and rust preventive applied to prevent rust. If low dust is required, wipe off and clean before use, depending on the equipment used. When assembling, it is recommended to apply grease suitable for the equipment.

Features	App. Examples	High Accuracy	Model No. / Spec. / I	External Dimensions	Accessories	Contions	AVOS
Action Description	Lineup		VXF	VXE	Reference Data	Cautions	Harmony in

## Reference Data : Mounting Jig

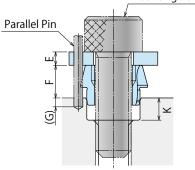
Sample jig design for mounting and phasing VXF — -PC, VXE0030-PC with parallel pins.



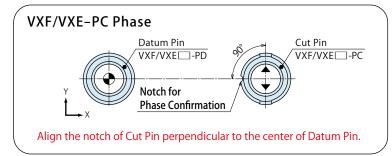


External Din	External Dimensions (mm)							
Corresponding Product Model	VXF0040-PC	VXF0050-PC	VXF0060-PC	VXF0080-PC	VXF0100-PC	VXF0120-PC	VXF0160-PC	VXE0030-PC
А	(18 or more)	(18 or more)	(20 or more)	(20 or more)	(25 or more)	(30 or more)	(40 or more)	(12 or more)
В	4.7	5.6	6.5	7.6	9.6	11.4	14.4	3.95
С	1.5	1.5	1.5	2	2.5	3	4	1
D	4.5	5.5	6.8	9	11	14	18	3.4
E	(3)	(3)	(3)	(3)	(5)	(5)	(5)	(3)
F	6.5 or more	7 or more	7 or more	7.5 or more	9.5 or more	11 or more	12 or more	6 or more
G	(2)	(2)	(2)	(2)	(3)	(3)	(3)	(2)
К	4.5	5	5	5	6	7	7	4
Mounting Bolt <sup>⊗1</sup>	M4×0.7	M5×0.8	M6×1	M8×1.25	M10×1.5	M12×1.75	M16×2	M3×0.5
Parallel Pin <sup>*2</sup>	φ1.5(h8)	φ1.5(h8)	φ1.5(h8)	φ2(h8)	φ2.5(h8)	φ3(h8)	φ4(h8)	φ1(h8)

#### Mounting Bolt

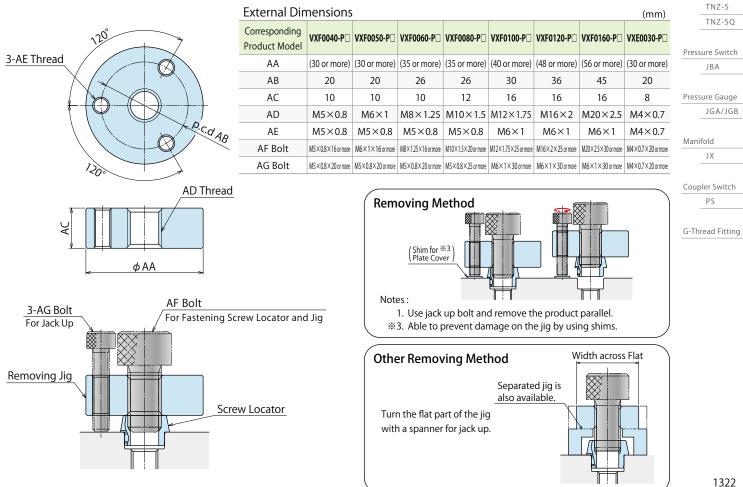


#### Notes: %1. Determine the length of mounting bolt according to the length of mounting thread of base plate. \*2. Determine the length of parallel pin according to the dimension G.



### Reference Data : Removing Jig

Sample jig design for removing VXF - PD/PC, VXE0030-PD/PC.



High-Power

**Pneumatic Series** 

Hydraulic Series

Valve / Coupler Hydraulic Unit Manual Operation

Accessories

ocator

Cautions / Others

Manual Expansion Locating Pin

VX

Manifold Block

WHZ-MD

LZY-MD LZ-MS

LZ-MP

Manifold Block /

DZ-R

DZ-C DZ-P DZ-B LZ-S

LZ-SQ

WNZ-SQ

Nut

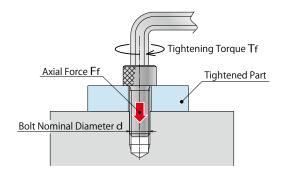
TM7-1MP

TM7-2MB DZ-M

Series

#### Reference Data : Bolt Axial Force and Tightening Torque (Torque Method)

Reference Calculation of Tightening Force (Axial Force). (Not a guaranteed value.) This is extracted and edited from catalogs of Kyokuto MFG Co., Ltd. and Gosho Works Ltd.



F fmax : Allowable Max. Axial Force [kN]

As : Bolt Effective Cross Section Area [mm<sup>2</sup>]

 $\sigma y$  : Yield Stress or Proof Strength

Strength Grade	8.8(d≦16)	8.8(d>16)	10.9	12.9
$\sigma$ y [N/mm <sup>2</sup> ]	640	660	940	1100

Allowable Max. Axial Force Calculation Formula

 $F fmax = 0.7 \times \sigma y \times As$ 

Appropriate Tightening Torque Calculation Formula

$$T_{fA} = \frac{0.35 \times K \times (1+1/Q) \times \sigma y \times As \times d}{1000}$$

[Reference Value] Tightening Force (Axial Force) Calculation Formula

$$F_{f} = \frac{T_{f}}{K \times d}$$

- T fA : Appropriate Tightening Torque [N·m]
- K : Torque Coefficient
- Q : Tightening Coefficient
- d : Bolt Nominal Diameter [mm]
- F f : Tightening Force (Axial Force) [kN]
- T<sub>f</sub> : Tightening Torque [N m]
  - TfA is assigned in the table below.

	Bolt Effective	9	Strength (	Grade 12.9	9	9	Strength (	Grade 10.9	9		Strength	Grade 8.8	5
Nominal	Cross Section	Yield Load	Allowable Max.	Appropriate	Tightening Force	Yield Load	Allowable Max.	Appropriate	Tightening Force	Yield Load	Allowable Max.	Appropriate	Tightening Force
imes Pitch	Area		Axial Force	Tightening Torque	[Reference]		Axial Force	Tightening Torque	[Reference]		Axial Force	Tightening Torque	[Reference]
	As [mm <sup>2</sup> ]	[kN]	Ffmax [kN]	TfA [N∙m]	Ff [kN]	[kN]	Ffmax [kN]	TfA [N∙m]	Ff [kN]	[kN]	Ffmax [kN]	TfA [N∙m]	Ff [kN]
M3×0.5	5.03	5.5	3.8	1.7	(3.3)	4.7	3.3	1.4	(2.7)	3.2	2.2	1.0	(2.0)
M4×0.7	8.78	9.6	6.7	3.9	(5.8)	8.3	5.8	3.3	(4.9)	5.6	3.9	2.3	(3.3)
M5×0.8	14.2	15.6	10.9	7.9	(9.3)	13.4	9.3	6.8	(8.0)	9.1	6.4	4.6	(5.4)
M6×1	20.1	22.1	15.5	13.5	(13.3)	18.9	13.2	11.6	(11.3)	12.9	9.0	7.8	(7.7)
M8×1.25	36.6	40.2	28.1	32.8	(24.1)	34.4	24.1	28.0	(20.6)	23.4	16.4	19.1	(14.1)
M10×1.5	58.0	63.7	44.6	65.0	(38.2)	54.5	38.2	55.6	(32.7)	37.1	26.0	37.9	(22.3)
M12×1.75	84.3	92.6	64.8	114	(55.8)	79.3	55.5	97.1	(47.6)	54.0	37.8	66.1	(32.4)
M16×2	157	172	121	281	(103)	148	103	241	(88.7)	101	70.4	164	(60.2)

Notes : 1. Tightening Condition : Tightened by torque wrench. Surface Oil Lubrication. Torque Coefficient K=0.17, Tightening Coefficient Q=1.4

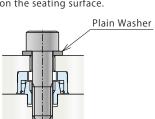
2. Torque coefficient and tightening coefficient may vary depending on the conditions of use. Use this table as a reference. For further information, please refer to JIS B 1083, JIS B 1084 or catalogs of bolt makers.

3. This table is extracted and edited from the catalog of Kyokuto MFG Co., Ltd.

Tightening force [Reference] Ff is a reference value of tightening force (axial force) when tightening with appropriate tightening torque TfA. Tightening force should be calculated from the actual tightening torque.

Consider the tightening torque and calculate the strength as the bolt seating surface must not dent tightened part.

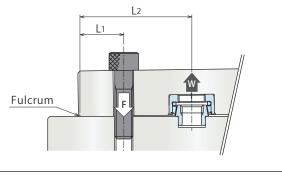
	Features Action Description	App. Examples Lineup	High Accuracy	Model No. / Spec. / VXF	External Dimensions VXE	Accessories Reference Data	Cautions	<b>K</b>	
(	Cautions								High-Power Series
	Cautions for	or Use							Pneumatic Series
1		g Procedure (Loca	ating Action)						Hydraulic Series
	Tighten the So	crew Locator in o	rder of Datum Pir		→ Cut Pin (VXF/VX XF/VXE-PD) → Cu	1	$\dot{z}$ ) $\rightarrow$ other bolt(s)		Valve / Coupler Hydraulic Unit
2				-	d rust preventive a he equipment used		ust.		Manual Operation Accessories
			nded to apply greas						Cautions / Others
	Cautions for	or Desian							Screw Locator
1	I) X-axis/Y-axis L	-			3) Reference Su	Irface towards Z-ax	vis		VXF/VXE
		-	s determined by D	atum Pin	-,	on datum surface is		stomer's	Manual Expansion
		for reference loca				d pallet specificatio	,		Locating Pin VX
			rection locating) c	only locates		em, since it will affe			*^
	in one directio	n (Y-axis direction	ı).						Manifold Block
	Please follow t	he illustration be	low for phase alig	nment of	4) Rough Guide	Installation			WHZ-MD
	Cut Pin (VXF/V	XE-PC).				g up the fixture pla		•	LZY-MD
	VXE / VXF-	PC Phase				amaging taper sur		ocator''.	LZ-MS LZ-MP
					Otherwise Io	cating accuracy wi	III be affected.		TMZ-1MB
	Datum / VXF/VX	Pin E - PD	-	Cut Pin VXF/VXE -PC					TMZ-2MB
		Notch for						X	DZ-M Manifold Block / Nut DZ-R
	L X	Phase Confirmation							DZ-C DZ-P
									DZ-B
	5		(E-PC perpendicul	ar to		F		~	LZ-S
	the center of V	XF/VXE-PD.						()	LZ-SQ
-	) When using a r	oallet in vertical po	sition		Rough Guides			$\mathbf{\overline{v}}$	WNZ-SQ TNZ-S
	• .		utionary measures 1	to prevent	(Two)				TNZ-SQ
		ure plate falling of	•	to prevent					
		1 5	position (hanging	on the wall),			"		Pressure Switch
			wear out. Confirm t		5) Check Specif	ications			JBA
	accuracy on a re	egular basis. In cas	e the allowed range	e is exceeded,	Locating is o	perated by hand.			-
	change the pro-				This product	is made only for lo	ocating. It does no	ot have	Pressure Gauge JGA/JGB
	<ul> <li>Refer to the ver allowable loading</li> </ul>		ure specification of	maximum	clamping fur	iction.			Manifold
		Example of	of			for Mounting VX			XL
		•	Mechanism			(Model : ZZV0010-			
			$\rightarrow$	~		$\operatorname{Max} = \operatorname{Ha} = H$			Coupler Switch
	and the		The second	1	•	Model : ZZV0010-		d with	PS
				1	VXFL_J-B,	/VXE 🖂 -B. Please	order separately.		
					7) Use Plain Wa	sher			G-Thread Fitting
					,	ning a mounting b	olt. use a plain wa	asher to	
						e on the seating s			
					atona aannay	and seating s			



Continuing "Notes for Design" on the Next Page

#### Cautions

- Notes for Design (Continued)
- 8) For tightening (clamping) a point other than the VXF/VXE center.
- When tightening (clamping) a point other than the VXF/VXE center using external clamps, clamping force has to be greater than the minimum tightening force. Calculate required tightening force with the calculation formula below.



Required	Min. Tightening Force W $\times$ L2 $\times$ Safety Factor (2 or more)
Tightening Force F >	L1

 If tightening (clamping) a point other than the VXF/VXE center when a pallet or plate has low rigidity, it will deform the pallet or plate.



- Maintenance Inspection
- 1) Make sure Screw Locator is securely inserted.

Features Action Description	App. Examples Lineup	High Accuracy	Model No. / Spec. / F VXF	External Dimensions VXE	Accessories Reference Data	Cautions	

MEMO

High-Power

Pneumatic Series

Hydraulic Series

Valve / Coupler Hydraulic Unit

Manual Operation Accessories

Cautions / Others

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

Coupler Switch PS

G-Thread Fitting

Manifold JX

Screw Locator

Series

#### Cautions

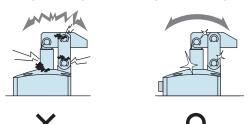
- Notes on Handling
- 1) It should be operated by qualified personnel.
- The hydraulic machine and air compressor should be operated and maintained by qualified personnel.
- 2) Do not operate or remove the product unless the safety protocols are ensured.
- ① The machine and equipment can only be inspected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



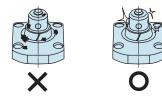
- 4) Do not disassemble or modify.
- If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.

#### 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

#### Pheuma

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

Our Products History

Index Search by Alphabetical Order

Sales Offices

- Warranty1) 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.)
- 3 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 across the World

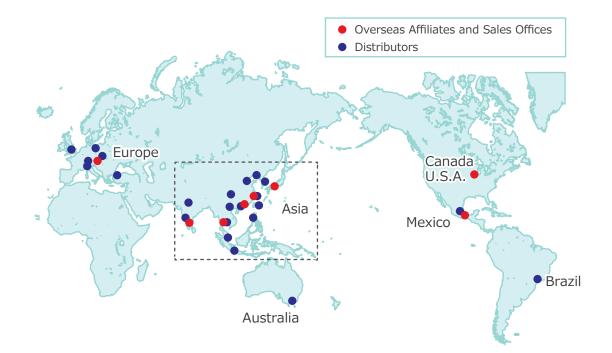
JAPAN Head office	<b>TEL. +81-78-991-5162</b> KOSMEK LTD. 1-5, 2-chome, Murotani, Nis	FAX. +81-78-991-8787 hi-ku, Kobe-city, Hyogo, Japan 651-2241
Overseas Sales	〒651-2241 兵庫県神戸市西区室谷2丁目1番5	
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EUROPE subsidiary	TEL. +43-463-287587	FAX. +43-463-287587-20
KOSMEK EUROPE GmbH	Schleppeplatz 2 9020 Klagenfurt am Wör	thersee Austria
CHINA	TEL. +86-21-54253000	FAX. +86-21-54253709
KOSMEK (CHINA) LTD. 考世美(上海)貿易有限公司	Room601, RIVERSIDE PYRAMID No.55, Lan 中国上海市浦东新区浦三路21弄55号银亿滨江中	ie21, Pusan Rd, Pudong Shanghai 200125, China 心601室 200125
INDIA branch office	TEL. +91-9880561695	
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Full Life Trading Co., Ltd. 盈生貿易有限公司	16F-4, No.2, Jian Ba Rd., Zhonghe District, New 台湾新北市中和區建八路2號 16F-4(遠東世紀履	
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INDONESIA (Indonesia Exclusive Distributor)	TEL. +62-21-29628607	FAX. +62-21-29628608
PT. Yamata Machinery		Jayamukti, Kec. Cikarang Pusat Kab. Bekasi 17530 Indonesia

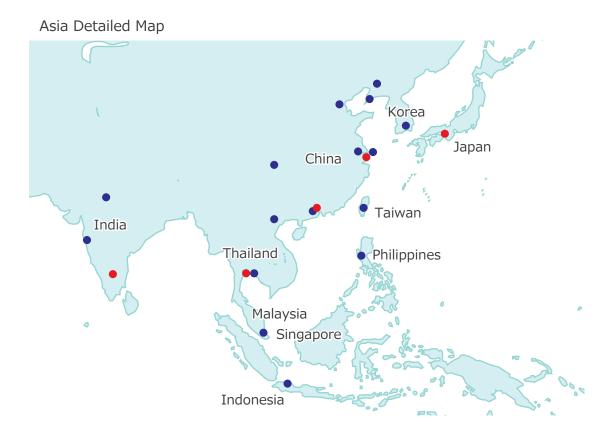
KOSMEK Harmony in Innovation

# Sales Offices in Japan

Head Office Osaka Sales Office	TEL. 078-991-5162	FAX. 078-991-8787
Overseas Sales	〒651-2241 兵庫県神戸市	市西区室谷2丁目1番5号
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Tokyo Sales Office	〒331-0815 埼玉県さいた	たま市北区大成町4丁目81番地
Narous Calas Office	TEL. 0566-74-8778	FAX. 0566-74-8808
Nagoya Sales Office	〒446-0076 愛知県安城市	市美園町2丁目10番地1
	TEL. 092-433-0424	FAX. 092-433-0426
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# **Global Network**









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