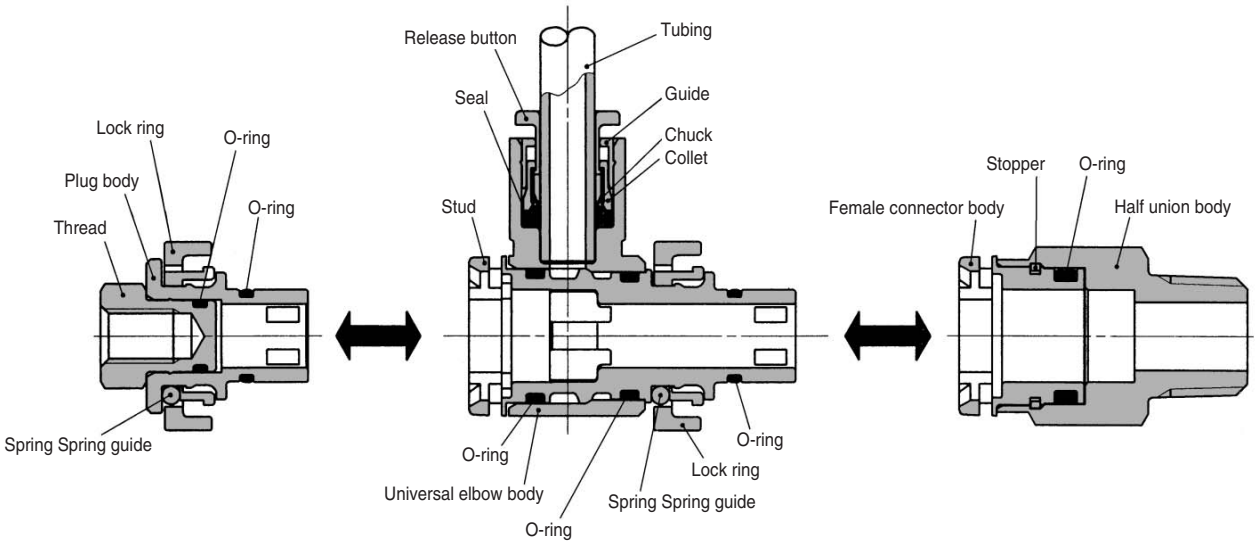
Piping Module
Series KB



Suitable for centralized distribution of supply air

Easy distribution utilizing One-touch fittings

One-touch fitting installation without the use of tools.

Locking system makes the use of tools unnecessary and piping more efficient.

Air output direction possible through 360°

Universal construction allows for changes in air output direction after connections are completed.

Applicable Tubing

Tubing material	Nylon, Soft nylon, Polyurethane
Tubing O.D.	ø4, ø6, ø8, ø10, ø12, ø16

Applicable Thread Size

Male thread	R 1/8, R 1/4, R 3/8, R 1/2
Female thread	M5 x 0.8, M6 x 1, Rc 1/8, Rc 1/4, Rc 3/8, Rc 1/2

Specifications

Fluid		Air
Maximum operating pressure		1.0 MPa
Operating vacuum pressure		–100 kPa
Proof pressure		3.0 MPa
Ambient and fluid temperature		–5 to 60°C (No freezing)
Thread	Mounting section	JIS B 0203 (Taper thread for piping)
		JIS B 0209 Class 2 (Metric coarse thraed)
	Nut section	JIS B 0211 Class 2 (Metric fine thread)
Sealant (Male thread)		With thread seal
Copper-free (Standard)		Brass parts are all electroless nickel plated

Principal Parts Material

Body	C3604BD, PBT, POM
Stud	POM
Lock ring	POM
Spring	Stainless steel 304WPB
Spring guide	POM
Stopper	POM
Thread	C3604BD
Guide	Stainless steel 304, POM
Collet, Release button	POM
Seal, O-ring	NBR
Chuck	Stainless steel 304

How to Order

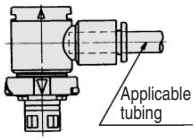
1 Air Output Port: KBV, KBZ (P. 15-2-113)

KB V 1 — 04

- **Model**
- **Body size**
- **Tube size/ Connecting female thread size**

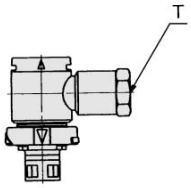
Elbow Module: KBV

Model	Applicable tubing O.D.
KBV1-04	4
KBV1-06	6
KBV2-06	
KBV2-08	8
KBV3-08	
KBV3-10	10
KBV3-12	12
KBV4-12	
KBV4-16	16



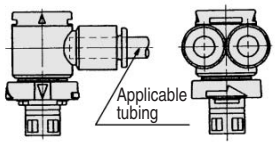
Elbow Socket Module: KBV

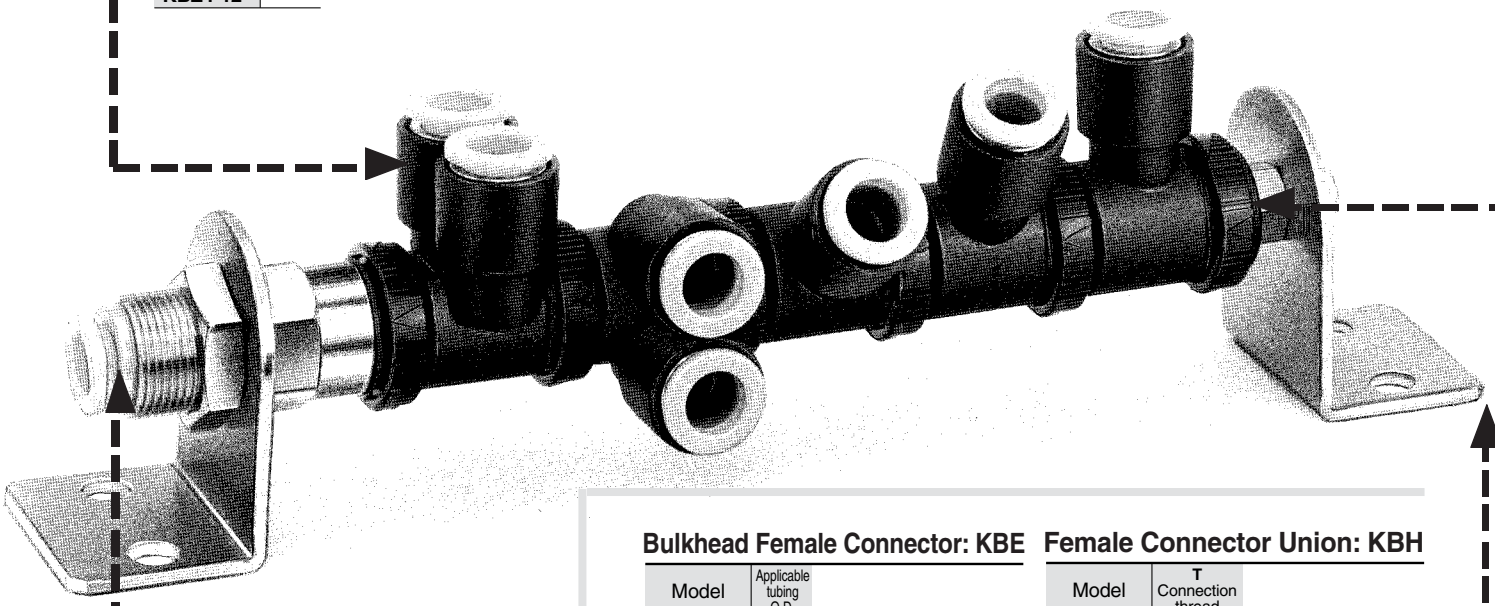
Model	T Connection thread
KBV1-M5	M5 x 0.8
KBV1-M6	M6 x 1
KBV2-M5	M5 x 0.8
KBV2-M6	M6 x 1
KBV2-R1	Rc 1/8
KBV3-R1	
KBV3-R2	Rc 1/4
KBV4-R2	
KBV4-R3	Rc 3/8



Branch Elbow Module: KBZ

Model	Applicable tubing O.D.
KBZ1-04	4
KBZ1-06	6
KBZ2-08	8
KBZ3-10	10
KBZ3-12	12
KBZ4-12	





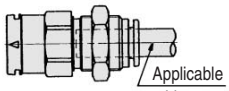
2 Air Supply Port: KBE, KBH, KBB, KBS, KBL (P. 15-3-114, 115)

KB H 1 — R1 S

- **Model**
- **Body size**
- **Tube size/Connection thread size**
- **With sealant (Male thread only)** ····· **Standard specifications**

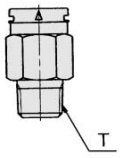
Bulkhead Female Connector: KBE

Model	Applicable tubing O.D.
KBE1-04	4
KBE1-06	6
KBE2-06	
KBE2-08	8
KBE2-10	10
KBE3-08	8
KBE3-10	10
KBE3-12	12
KBE4-12	



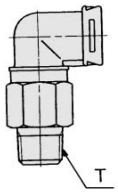
Female Connector Union: KBH

Model	T Connection thread
KBH1-R1S	R 1/8
KBH2-R1S	
KBH2-R2S	R 1/4
KBH2-R3S	R 3/8
KBH3-R2S	R 1/4
KBH3-R3S	R 3/8
KBH3-R4S	R 1/2
KBH4-R3S	R 3/8
KBH4-R4S	R 1/2



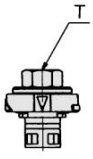
Female Connector Elbow Union: KBL

Model	T Connection thread
KBL1-R1S	R 1/8
KBL2-R1S	
KBL2-R2S	R 1/4
KBL2-R3S	R 3/8
KBL3-R2S	R 1/4
KBL3-R3S	R 3/8
KBL3-R4S	R 1/2
KBL4-R3S	R 3/8
KBL4-R4S	R 1/2



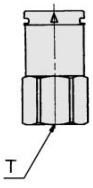
Male Connector Socket: KBB

Model	T Connection thread
KBB1-M5	M5 x 0.8
KBB2-M6	M6 x 1
KBB3-R1	Rc 1/8
KBB4-R2	Rc 1/4



Female Connector Socket: KBS

Model	T Connection thread
KBS1-R1	Rc 1/8
KBS2-R2	Rc 1/4
KBS3-R3	Rc 3/8
KBS4-R4	Rc 1/2



3 Other Pipng Material: KBN, KBD, KBR (P. 15-3-116)

KB N 1

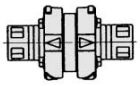
- Model
- Body size

KB D 2 — 1

- Model
- Body size
- Body size

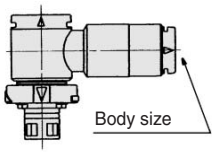
Nipple: KBN

Model
KBN1
KBN2
KBN3
KBN4



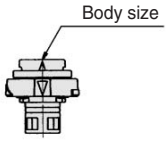
Elbow Different Diameter Female Connector Module: KBD

Model
KBD2-1
KBD3-2
KBD4-3



Different Diameter Module: KBR

Model
KBR2-1
KBR3-2
KBR4-3



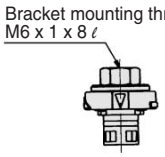
4 Plug/Cap: KBP, KBC (P. 15-3-117)

KB P 1

- Body size
- Model

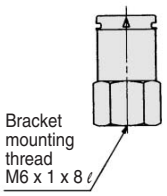
Plug: KBP

Model
KBP1
KBP2
KBP3
KBP4



Cap: KBC

Model
KBC1
KBC2
KBC3
KBC4



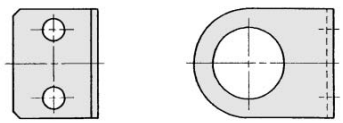
5 Bracket: KBX (P. 15-3-117)

KB X 6

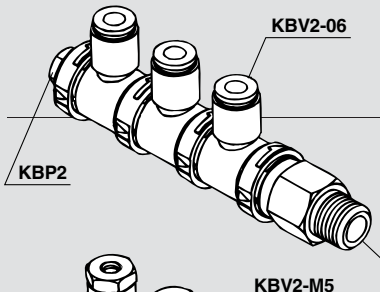
- Applicable thread size
- Model

Bracket: KBX

Model
KBX6
KBX12
KBX14
KBX16
KBX20
KBX22

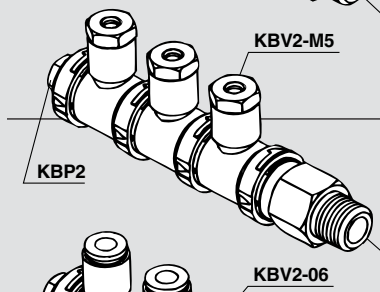


Combination Examples



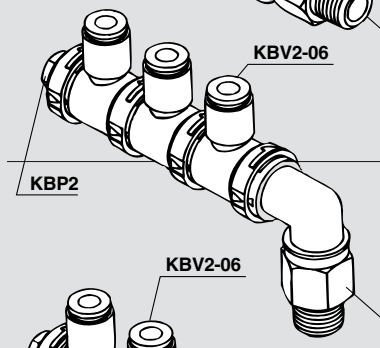
Component module

KBV2-06 3
KBH2-R2S 1
KBP2 1



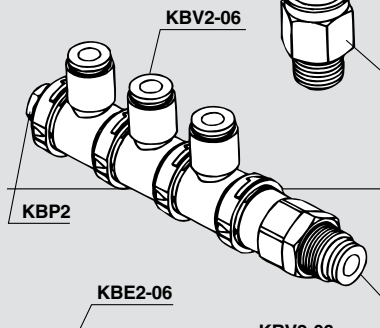
Component module

KBV2-M5 3
KBH2-R2S 1
KBP2 1



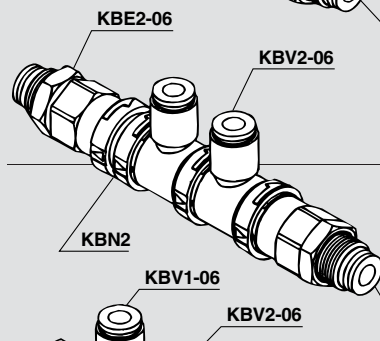
Component module

KBV2-06 3
KBL2-R2S 1
KBP2 1



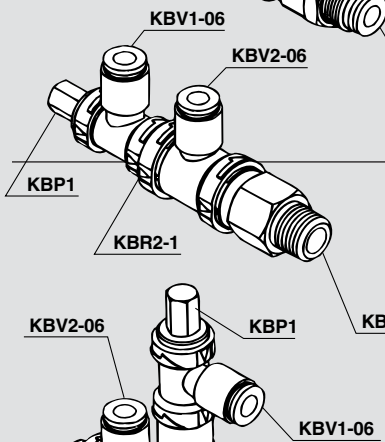
Component module

KBV2-06 3
KBE2-06 1
KBP2 1



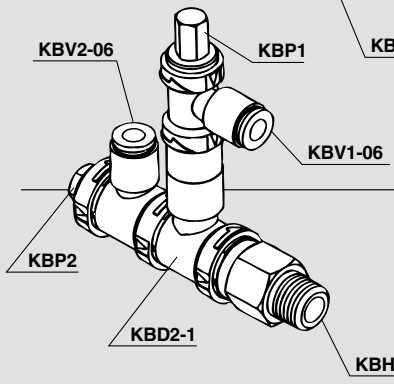
Component module

KBV2-06 2
KBE2-06 2
KBN2 1



Component module

KBV2-06 1
KBV1-06 1
KBR2-1 1
KBH2-R2S 1
KBP1 1



Component module

KBV2-06 1
KBV1-06 1
KBR2-1 1
KBH2-R2S 1
KBP2 1
KBP1 1

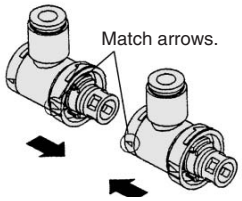
⚠Precautions

Be sure to read before handling.
Refer to pages 15-18-3 to 15-18-4 for Safety Instructions and Common Precautions on the products mentioned in this catalog, and refer to pages 15-1-10 to 15-1-11 for Precautions on every series.

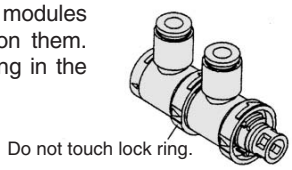
How to Install

⚠ Caution

1. Insert each piping module by matching the arrows on the lock ring and the body of the other module. Insert together. If it becomes difficult to match both modules, rotate modules to left and right while pushing together. When a match is not done, piping material will eject under pressure.



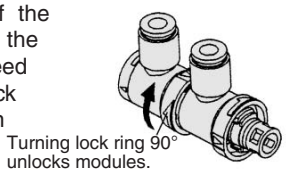
2. Confirm insertion by turning modules to right and left or pulling on them. But do not touch the lock ring in the process.



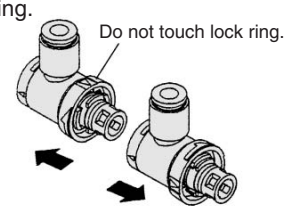
How to Remove

⚠ Caution

1. Exhaust the pressure in pipe before removing. If lock is released under pressure, piping material will eject. Turn the lock ring 90° clockwise (in the direction of the arrow). This will cancel out the affects of the lock ring. You need not hold lock ring in place. Lock ring will hold automatically in this position.



2. Remove the modules by pulling apart. Do not touch the lock ring. After removal, the lock ring will return to normal position automatically beause of a return spring. When removed, it automatically rotates 90° in the opposite direction as its spring is built into the lock ring.

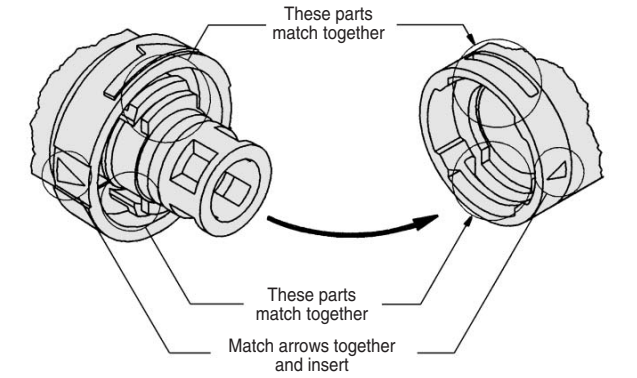


Others

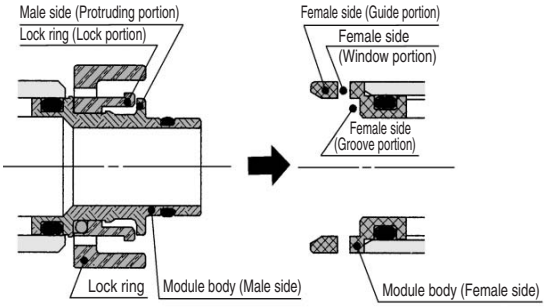
⚠ Caution

1. When connecting piping material to each other, do not apply a bending force, etc. Piping material may be deformed or damaged.
If unit is longer than 5 stations, please use brackets or it may result in deformation of the piping material by bends, deflection, etc.
2. Each type of module materials is capable of being piped with all other materials.
3. When attaching female connector union and female connector elbow union, use the body's hexagon surface and tighten threads with a suitable wrench.
Use the root nearest the thread when tightening with a wrench.
Hex. across flats may be deformed, if using an improper wrench for hex. across flats.

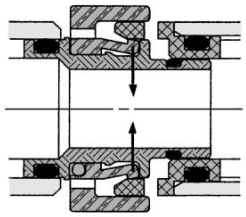
Piping Module-Insertion and Removal Structual Drawing



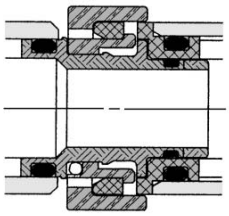
1. Match arrows together and insert piping module male side into female side.



2. By inserting the lock ring, the lock portion touches female side guide portion and falls into the direction shown with the arrow.



3. By pushing tighter, lock portion goes over female side guide portion and snaps into window slot portion. Male side protruding portion snaps into female side groove portion. This performs the function of a detent.

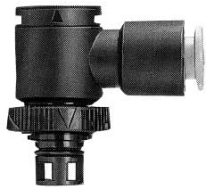


Male module inserted fully into position.

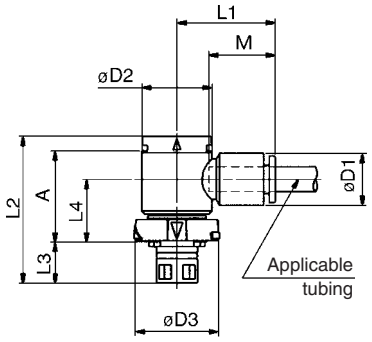
4. To remove, rotate lock ring 90° to release lock portion from female side window slot, then the lock is released. Removal is complete.

1 Air Output Port

Elbow Module: KBV

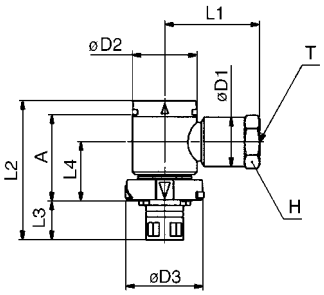


Model	Applicable tubing O.D.	D1	D2	D3	L1	L2	L3	L4	A	M	Weight (g)
KBV1-04	4	10.4	13.6	16.8	22.0	33.0	10.4	13.0	19.5	16.0	4.3
KBV1-06	6	12.8			24.0					17.0	4.9
KBV2-06			17.6	21.0	25.0	36.0	10.1	15.5	22.5		7.3
KBV2-08	8	15.2			28.5					18.5	8.3
KBV3-08			25.2	28.6	29.5	42.6	11.4	20.5	27.0		15.0
KBV3-10	10	18.5			31.5			19.5		21.0	17.5
KBV3-12	12	20.9			34.0					22.0	19.3
KBV4-12			27.0	30.4	35.0	41.4	12.2	18.0	25.0		20.2
KBV4-16	16	26.5	32.3		39.0	55.0		24.0	38.5	25.0	36.4



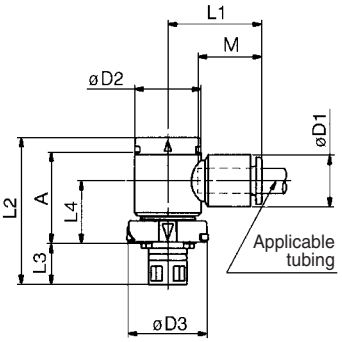
Elbow Socket Module: KBV

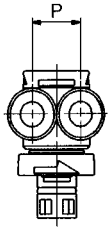
Model	T Connection thread	H (width across flats)	D1	D2	D3	L1	L2	L3	L4	A	Weight (g)
KBV1-M5	M5 x 0.8	12	12.8	13.6	16.8	25.0	33.0	10.4	13.0	19.5	12.4
KBV1-M6	M6 x 1										11.6
KBV2-M5	M5 x 0.8			17.6	21.0	26.0	36.0	10.1	15.5	22.5	14.8
KBV2-M6	M6 x 1										14.0
KBV2-R1	Rc 1/8	14	15.2			29.5					15.3
KBV3-R1				25.2	28.6	30.5	42.6	11.4	20.5	27.0	22.0
KBV3-R2	Rc 1/4	19	18.5			32.0			19.5		27.0
KBV4-R2		22	20.9	27.0	30.4	36.5	41.4	12.2	18.0	25.0	40.6
KBV4-R3	Rc 3/8					43.0					44.7



Branch Elbow Module: KBZ

Model	Applicable tubing O.D.	D1	D2	D3	L1	L2	L3	L4	A	M	P	Weight (g)
KBZ1-04	4	10.4	13.6	16.8	22.0	33.0	10.4	13.0	19.5	16.0	10.4	5.8
KBZ1-06	6	12.8			24.0					17.0	12.8	7.1
KBZ2-08	8	15.2	17.6	21.0	28.5	36.0	10.1	15.5	22.5	18.5	15.2	11.6
KBZ3-10	10	18.5	25.2	28.6	31.5	42.6	11.4	19.5	27.0	21.0	18.5	24.4
KBZ3-12	12	20.9			34.0					22.0	20.9	27.1
KBZ4-12			27.0	30.4	35.0	41.4	12.2	18.0	25.0			28.5



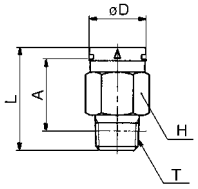


2 Air Supply Port

Female Connector Union: KBH

Model	T Connection thread	H (width across flats)	D	L	A*	Weight (g)
KBH1-R1S	R 1/8	14	13.6	27.0	20.0	13.4
KBH2-R1S		17	17.6	29.0	21.5	19.2
KBH2-R2S	R 1/4			32.0	22.5	23.3
KBH2-R3S	R 3/8			27.5	17.5	22.5
KBH3-R2S	R 1/4	19	25.2	35.5	25.4	26.5
KBH3-R3S	R 3/8			31.0	20.5	23.2
KBH3-R4S	R 1/2	22			19.0	41.5
KBH4-R3S	R 3/8	24	27.0	35.5	24.5	44.5
KBH4-R4S	R 1/2			31.5	19.0	36.5

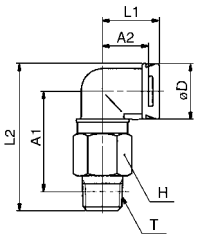
* Reference dimensions after R thread installation.



Female Connector Elbow Union: KBL

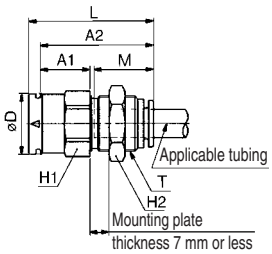
Model	T Connection thread	H (width across flats)	D	L1	L2	A1*	A2	Weight (g)
KBL1-R1S	R 1/8	14	13.6	18	38.0	27.0	15.0	14.8
KBL2-R1S		17	17.6	19	43.5	30.5	15.5	23.2
KBL2-R2S	R 1/4				46.5	31.5		27.3
KBL2-R3S	R 3/8				42.0	26.5		26.5
KBL3-R2S	R 1/4	19	25.2	22	56.0	37.5	18.0	32.6
KBL3-R3S	R 3/8				51.5	32.5		29.3
KBL3-R4S	R 1/2	22				31.0		47.6
KBL4-R3S	R 3/8	24	27.0	24	61.5	41.5	19.5	57.6
KBL4-R4S	R 1/2				57.5	36.0		48.8

* Reference dimensions after R thread installation.



Bulkhead Female Connector: KBE

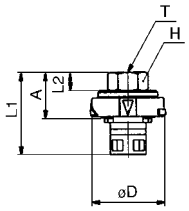
Model	Applicable tubing O.D.	T Connection thread	H1 (width across flats)	H2 (width across flats)	D	L	A1	A2	M	Weight (g)
KBE1-04	4	M12 x 1	14	14	13.6	34.5	15.0	31.5	16.0	17.9
KBE1-06	6	M14 x 1	17	17		35.5	15.5	32.0	17.0	27.0
KBE2-06					17.6	37.5	17.0	33.5		26.0
KBE2-08	8	M16 x 1		19		39.0	15.5	35.5	18.5	29.5
KBE2-10	10	M20 x 1	22	24		41.5	15.5	38.0	21.0	57.5
KBE3-08	8	M16 x 1		19	25.2	43.5	19.5	39.5	18.5	51.6
KBE3-10	10	M20 x 1		24		45.0	18.5	41.0	21.0	63.0
KBE3-12	12	M22 x 1	24	27		46.0		42.0	22.0	83.4
KBE4-12					27.0	44.0	18.0	41.5		66.6



2 Air Supply Port

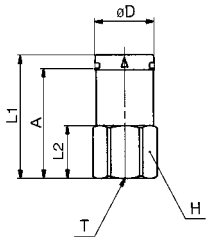
Male Connector Socket: KBB

Model	T Connection thread	H (width across flats)	D	L1	L2	A	Weight (g)
KBB1-M5	M5 x 0.8	8	16.8	29.5	11.5	19.0	6.0
KBB2-M6	M6 x 1	10	21.0	23.0	5.0	12.5	6.3
KBB3-R1	Rc 1/8	14	28.6	27.5	6.5	16.0	11.4
KBB4-R2	Rc 1/4	19	30.4	31.5	9.5	19.5	24.1



Female Connector Socket: KBS

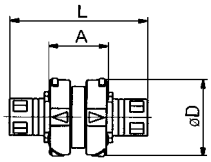
Model	T Connection thread	H (width across flats)	D	L1	L2	A	Weight (g)
KBS1-R1	Rc 1/8	14	13.6	28.0	11.0	25.0	17.8
KBS2-R2	Rc 1/4	17	17.6	33.5	14.0	30.0	28.5
KBS3-R3	Rc 3/8	19	25.2	38.5	17.0	34.5	33.8
KBS4-R4	Rc 1/2	24	27.0	39.0	20.0	35.0	57.1



3 Other Piping Material

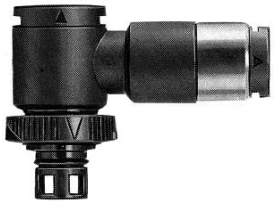
Nipple: KBN

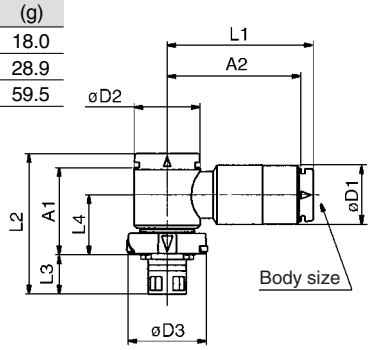
Model	D	L	A	Weight (g)
KBN1	16.8	35.0	14.0	2.9
KBN2	21.0		15.0	4.6
KBN3	28.6	39.0	16.5	7.2
KBN4	30.4	41.5	17.0	10.2



Elbow Different Diameter Female Connector Module: KBD

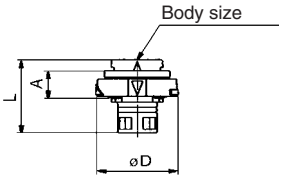
Model	D1	D2	D3	L1	L2	L3	L4	A1	A2	Weight (g)
KBD2-1	15.2	17.6	21.0	39.0	36.0	10.1	15.5	22.5	35.5	18.0
KBD3-2	20.9	25.2	28.6	38.0	42.6	11.4	19.5	27.0	34.5	28.9
KBD4-3	26.5	32.3	30.4	44.5	55.0	12.2	24.0	38.5	40.0	59.5





Different Diameter Module: KBR

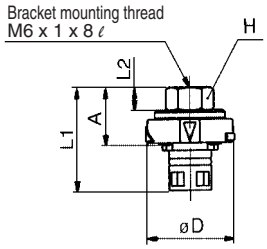
Model	D	L	A	Weight (g)
KBR2-1	21.0	21.5	8.0	2.8
KBR3-2	28.6	25.0	10.0	4.3
KBR4-3	30.4	30.5	14.0	8.8



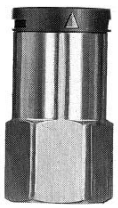
4 Plug/Cap

Plug: KBP

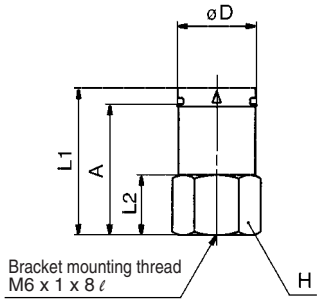
Model	H (width across flats)	D	L1	L2	A	Weight (g)
KBP1	8	16.8	29.5	11.5	19.0	5.6
KBP2	10	21.0	23.0	5.0	12.5	6.8
KBP3	14	28.6	25.5		14.0	13.4
KBP4	19	30.4	27.0		15.0	24.0



Cap: KBC



Model	H (width across flats)	D	L1	L2	A	Weight (g)
KBC1	14	13.6	30.0	13.0	26.5	23.4
KBC2	17	17.6	32.5		28.5	37.0
KBC3	19	25.2	35.5	14.0	31.5	46.7
KBC4	24	27.0	34.0	15.0	29.5	74.4

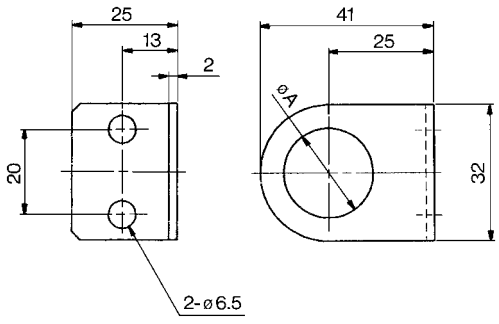


5 Bracket

Bracket: KBX

Model	A	Applicable model	Weight (g)
KBX6	7	KBP, KBC	27.5
KBX12	13	KBE1-04	26.1
KBX14	15	KBE1-06, KBE2-06	25.4
KBX16	17	KBE2-08, KBE3-08	24.4
KBX20	21	KBE2-10, KBE3-10	22.6
KBX22	23	KBE3-12, KBE4-12	21.6

* In the case of KBX6, use the enclosed mounting screws designed for KBP (plug) and KBC (cap).
Screw size: Cross recessed round head screw (M6 x 1 x 8ℓ)
Screw color: Black



Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of **"Caution", "Warning"** or **"Danger"**. To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

⚠ Caution : Operator error could result in injury or equipment damage.

⚠ Warning : Operator error could result in serious injury or loss of life.

⚠ Danger : In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414: Pneumatic fluid power--General rules relating to systems.
Note 2) JIS B 8370: General Rules for Pneumatic Equipment

⚠ Warning

1. The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements. The expected performance and safety assurance will be the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalog information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driver objects have been confirmed.
2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is restarted, take measures to prevent shooting-out of cylinder piston rod, etc.

4. Contact SMC if the product is to be used in any of the following conditions:

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.

Common Precautions

Be sure to read before handling.
For detailed precautions on every series, refer to main text.

Selection

⚠ Warning

1. Confirm the specifications.

Products represented in this catalog are designed for use in compressed air appllications only (including vacuum), unless otherwise indicated.
Do not use the product outside their design parameters.
Please contact SMC when using the products in applications other than compressed air (including vacuum).

Mounting

⚠ Warning

1. Instruction manual

Install the products and operate them only after reading the instruction manual carefully and understanding its contents. Also keep the manual where it can be referred to as necessary.

2. Securing the space for maintenance

When installing the products, please allow access for maintenance.

3. Tightening torque

When installing the products, please follow the listed torque specifications.

Piping

⚠ Caution

1. Before piping

Make sure that all debris, cutting oil, dust, etc, are removed from the piping.

2. Wrapping of pipe tape

When screwing piping or fittings into ports, ensure that chips from the pipe threads or sealing material do not get inside the piping. Also, when the pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.

Air Supply

⚠ Warning

1. Operating fluid

Please consult with SMC when using the product in applications other than compressed air (including vacuum).
Regarding products for general fluid, please ask SMC about applicable fluids.

2. Install an air dryer, aftercooler, etc.

Excessive condensate in a compressed air system may cause valves and other pneumatic equipment to malfunction.
Installation of an air dryer, after cooler etc. is recommended.

3. Drain flushing

If condensate in the drain bowl is not emptied on a regular basis, the bowl will over flow and allow the condensate to enter the compressed air lines.
If the drain bowl is difficult to check and remove, it is recommended that a drain bowl with the auto-drain option be installed.
For compressed air quality, refer to “Air Preparation Equipment” catalog.

4. Use clean air

If the compressed air supply is contaminated with chemicals, cynthetic materials, corrosive gas, etc., it may lead to break down or malfunction.

Operating Environment

⚠ Warning

1. Do not use in environments where the product is directly exposed to corrosive gases, chemicals, salt water, water or steam.

2. Do not expose the product to direct sunlight for an extended period of time.

3. Do not use in a place subject to heavy vibrations and/or shocks.

4. Do not mount the product in locations where it is exposed to radiant heat.

Maintenance

⚠ Warning

1. Maintenance procedures are outlined in the operation manual.

Not following proper procedures could cause the product to malfunction and could lead to damage to the equipment or machine.

2. Maintenance work

If handled improperly, compressed air can be dangerous.
Assembly, handling and repair of pneumatic systems should be performed by qualified personnel only.

3. Drain flushing

Remove drainage from air filters regularly. (Refer to the specifications.)

4. Shut-down before maintenance

Before attempting any kind of maintenance make sure the supply pressure is shut of and all residual air pressure is released from the system to be worked on.

5. Start-up after maintenance and inspection

Apply operating pressure and power to the equipment and check for proper operation and possible air leaks. If operation is abnormal, please verify product set-up parameters.

6. Do not make any modifications to be product.

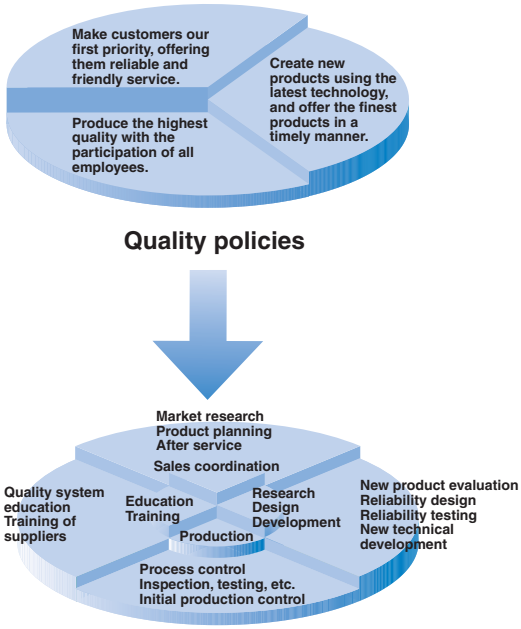
Do not take the product apart.

Quality Assurance Information (ISO 9001, ISO 14001)

Reliable quality of products in the global market

To enable our customers throughout the world to use our products with even greater confidence, SMC has obtained certification for international standards “ISO 9001” and “ISO 14001”, and created a complete structure for quality assurance and environmental controls. SMC products pursue to meet its customers’ expectations while also considering company’s contribution in society.

SMC’s quality control system



Quality management system

ISO 9001

This is an international standard for quality control and quality assurance. SMC has obtained a large number of certifications in Japan and overseas, providing assurance to our customers throughout the world.



Environmental management system

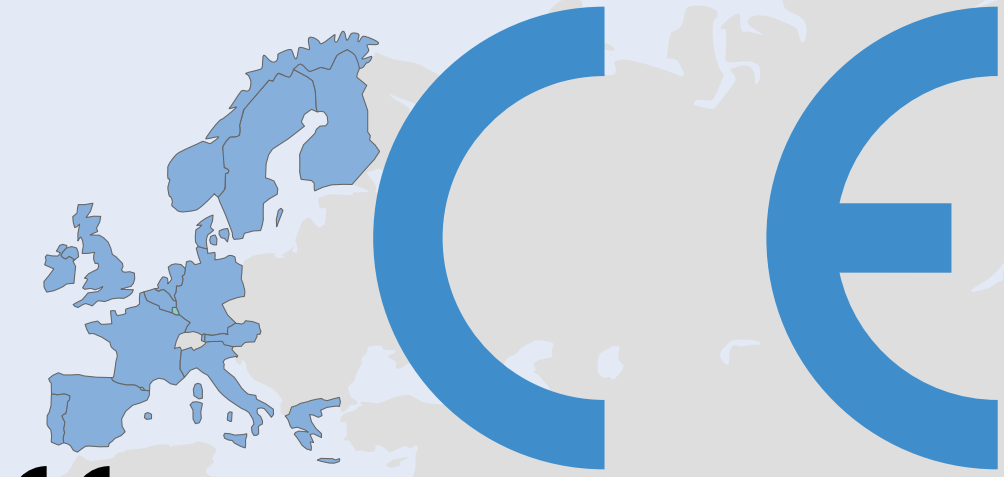
ISO 14001

This is an international standard related to environmental management systems and environmental inspections. While promoting environmentally friendly automation technology, SMC is also making diligent efforts to preserve the environment.



SMC Product Conforming to Inter

SMC products complying with EN/ISO, CSA/UL standards are supporting



CE Mark

The CE mark indicates that machines and components meet essential requirements of all the EC Directives applied.
It has been obligatory to apply CE marks indicating conformity with EC Directives when machines and components are exported to the member Nations of the EU.
Once “A manufacturer himself” declares a product to be safe by means of CE marking (declaration of conformity by manufacturer), free distribution inside the member Nations of the EU is permissible.

■ CE Mark

SMC provides CE marking to products to which EMC and Low Voltage Directives have been applied, in accordance with CETOP (European hydraulics and pneumatics committee) guide lines.

■ As of February 1998, the following 18 countries will be obliged to conform to CE mark legislation

Iceland, Ireland, United Kingdom, Italy, Austria, Netherlands, Greece, Liechtenstein, Sweden, Spain, Denmark, Germany, Norway, Finland, France, Belgium, Portugal, Luxembourg

■ EC Directives and Pneumatic Components

• Machinery Directive

The Machinery Directive contains essential health and safety requirements for machinery, as applied to industrial machines e.g. machine tools, injection molding machines and automatic machines. Pneumatic equipment is not specified in Machinery Directive. However, the use of SMC products that are certified as conforming to EN Standards, allows customers to simplify preparation work of the Technical Construction File required for a Declaration of Conformity.

• Electromagnetic Compatibility (EMC) Directive

The EMC Directive specifies electromagnetic compatibility. Equipment which may generate electromagnetic interference or whose function may be compromised by electromagnetic interference is required to be immune to electromagnetic affects (EMS/immunity) without emitting excessive electromagnetic affects (EMI/emission).

• Low Voltage Directive

This directive is applied to products, which operate above 50 VAC to 1000 VAC and 75 VDC to 1500 VDC operating voltage, and require electrical safety measures to be introduced.

• Simple Pressure Vessels Directive

This directive is applied to welded vessels whose maximum operating pressure (PS) and volume of vessel (V) exceed 50 bar/L. Such vessels require EC type examination and then CE marking.

national Standards

you to comply with EC directives and CSA/UL standards.

■ CSA Standards & UL Standards

UL and CSA standards have been applied in North America (U.S.A. and Canada) symbolizing safety of electric products, and are defined to mainly prevent danger from electric shock or fire, resulting from trouble with electric products. Both UL and CSA standards are acknowledged in North America as the first class certifying body. They have a long experience and ability for issuing product safety certificate. Products approved by CSA or UL standards are accepted in most states and governments beyond question.
Since CSA is a test certifying body as the National Recognized Testing Laboratory (NRTL) within the jurisdiction of Occupational Safety and Health Administration (OSHA), SMC was tested for compliance with CSA Standards and UL Standards at the same time and was approved for compliance with the two Standards. The above CSA NRTL/C logo is described on a product label in order to indicate that the product is approved by CSA and UL Standards.

■ TSSA (MCCR) Registration Products

TSSA is the regulation in Ontario State, Canada. The products that the operating pressure is more than 5 psi (0.03 MPa) and the piping size is bigger than 1 inch. fall into the scope of TSSA regulation.

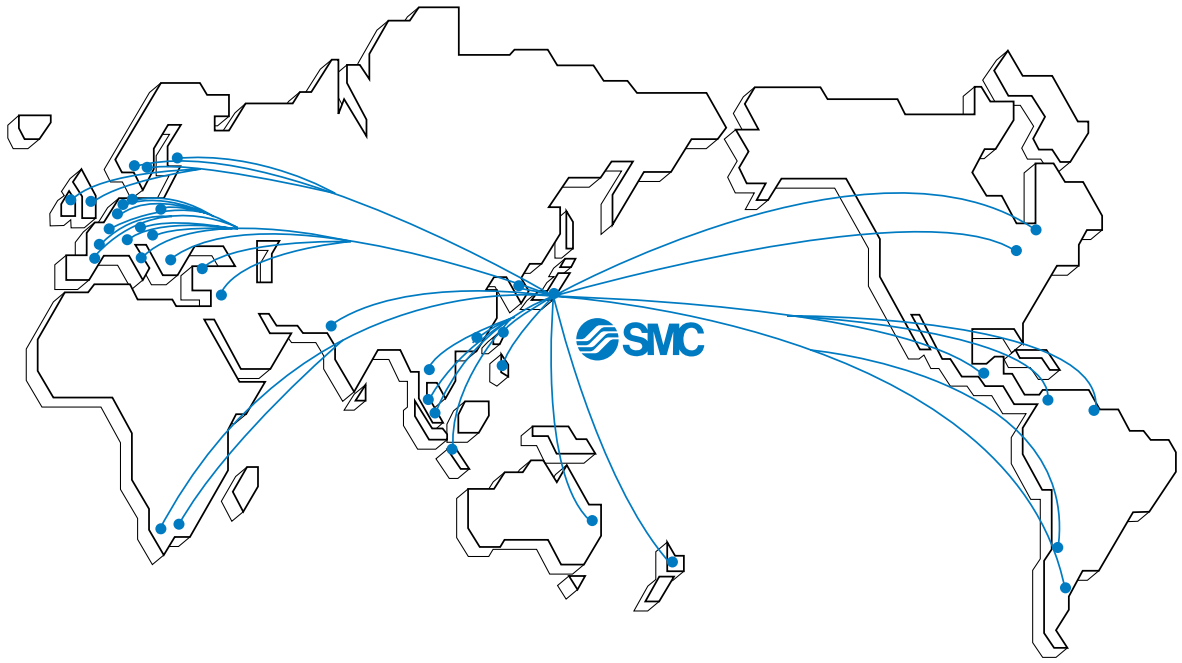
Products conforming to CE Standard

With CE symbol for simple visual recognition

In this catalog each accredited product series is indicated with a CE mark symbol. However, in some cases, every available models may not meet CE compliance. Please visit our web site for the latest selection of available models with CE mark.

http://www.smcworld.com

SMC's Global Service Network



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