

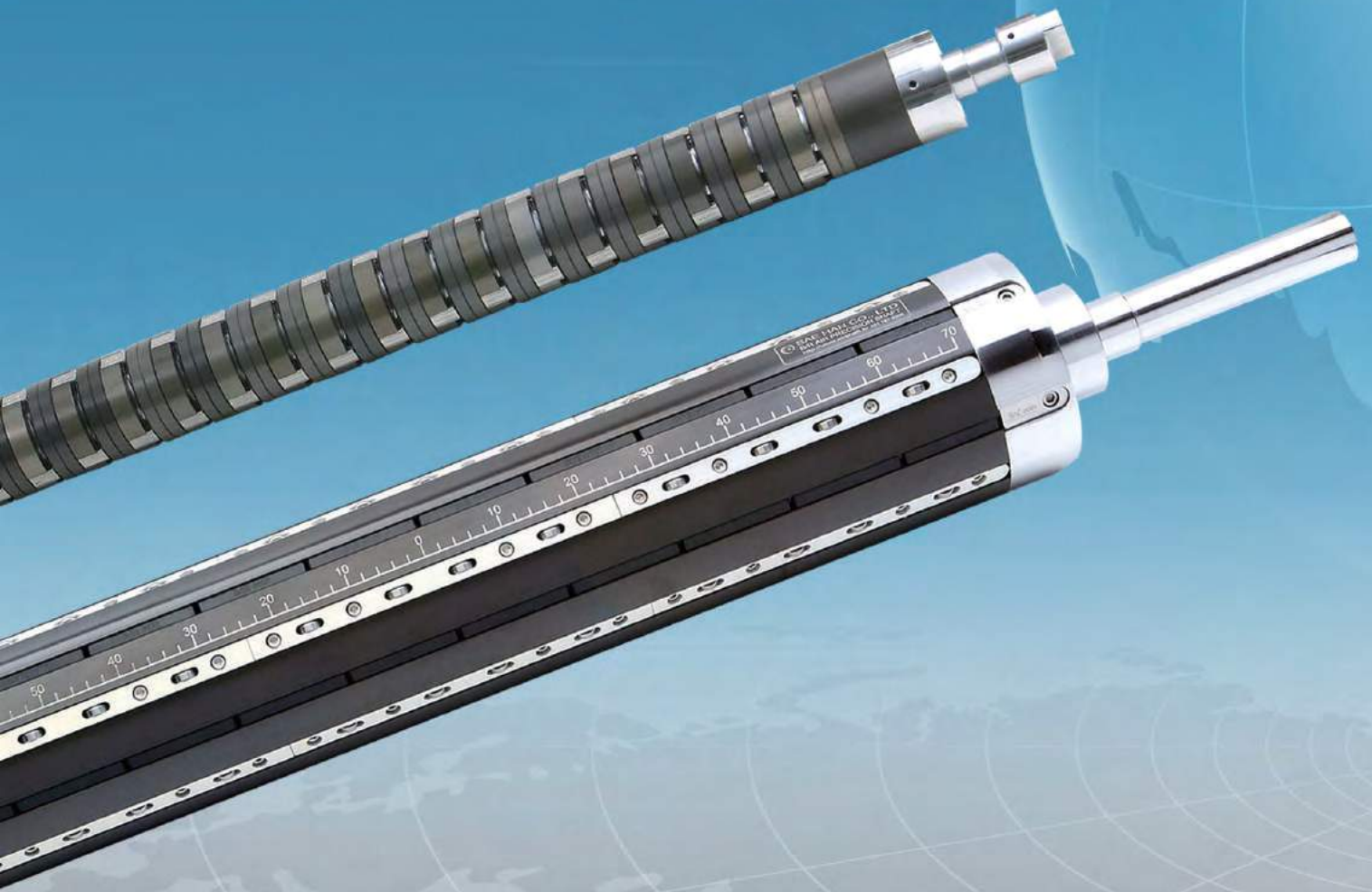
www.airshaft.kr

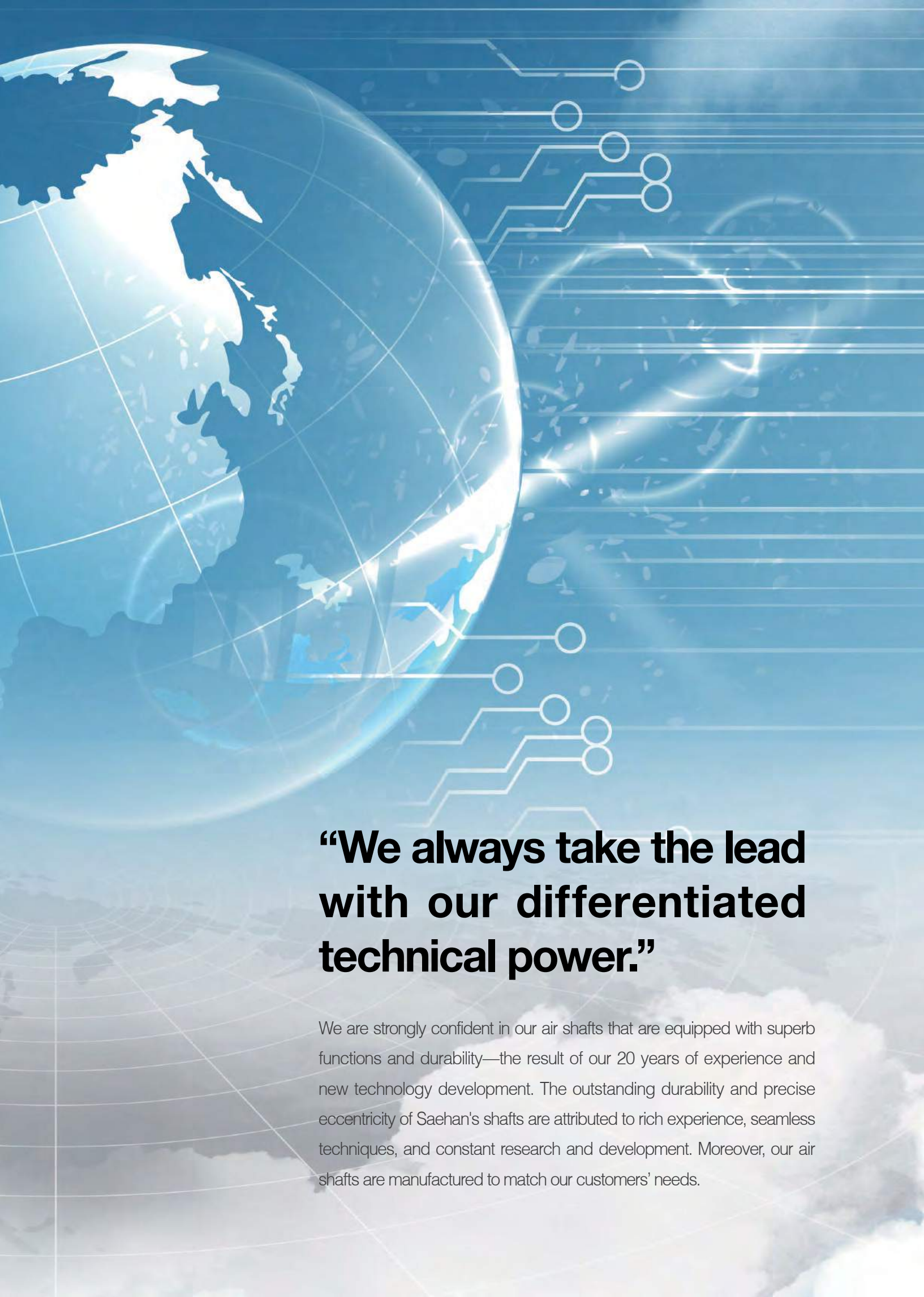
SAEHAN

AIR SHAFTS & ROTARY JOINTS

Air Shafts | Rotary Joints







**“We always take the lead
with our differentiated
technical power.”**

We are strongly confident in our air shafts that are equipped with superb functions and durability—the result of our 20 years of experience and new technology development. The outstanding durability and precise eccentricity of Saehan's shafts are attributed to rich experience, seamless techniques, and constant research and development. Moreover, our air shafts are manufactured to match our customers' needs.

A company gaining **unbounded confidence**

with its specialized technology and affluent experiences



Saehan has grown based on unmatched technical skills and years of accumulated expertise.

Our Company, Saehan is a reliable expert maker on air-shafts and rotary joints based on years of knowhow, new high-technologies, state of the art product facilities and high-tech testing devices. We make highest quality products with shortest delivery cycles. We are committed to provide on-demanding service of air shaft products to all our customers. In addition, in order to supply our rotary joint products at any time of client's request, we are always fully equipped to provide our full line of rotary joint products immediately on request. We do our best for your satisfaction with the fastest service and reasonable price.

President Jae Youn, Kim

JaeYoon Kim

A company that exerts efforts to satisfy customers

based on years of rich experience and state-of-the-art technology

1992 · Saehan established (213-3, Songjungdong, Gwangju-si, Gyeonggi-do)

1998 · Enrollment of the Factory

1999 · Registration of a trademark

2005 · Certification of quality management system
· Establish 2nd factory at Taejeon-dong, Gwangju-si, Gyeonggi-do

2008 · Accredited as an INNO-BIZ
· Saehan Industry moved to a larger facility (302, Taejeon-dong, Gwangju-si, Gyeonggi-do).

2010 · Renamed Saehan Co., Ltd.

2011 · Selected as a Promising Small and Medium Enterprise in Gyeonggi-do

2012 · Received a citation from the Minister of Knowledge and Economy during the SME Merit Awards

2013 · Reselected as a Promising Small and Medium Enterprise in Gwangju-si, Gyeonggi-do

2014 · Received a citation from the Minister of Knowledge and Economy during the SME Merit Awards

2015 · Participated in the KPCA Show

Today Patent: Self-Aligning Pneumatic Air Shaft plus 5 cases
Design registration: Air Shaft for slitters plus 12 cases
Utility model: Friction Unit for friction air shafts plus 10 cases



Sae Han Air Expanding Shafts

AIR SHAFTS

Sae Han will take the initiative in producing the highest quality products that meet customer needs based on its advanced technology and rich experience that are founded on its product expertise and professional manpower.

PRODUCT LIST



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Sae Han Air Expanding Shafts

AIR SHAFTS

Air Shaft of Sae Han was developed from years of experience accumulated by experts in the machine production field. It is produced using a state of the art process that gives customers durability, accuracy and light weight with superior quality at low cost.



The Structure of Air Shaft

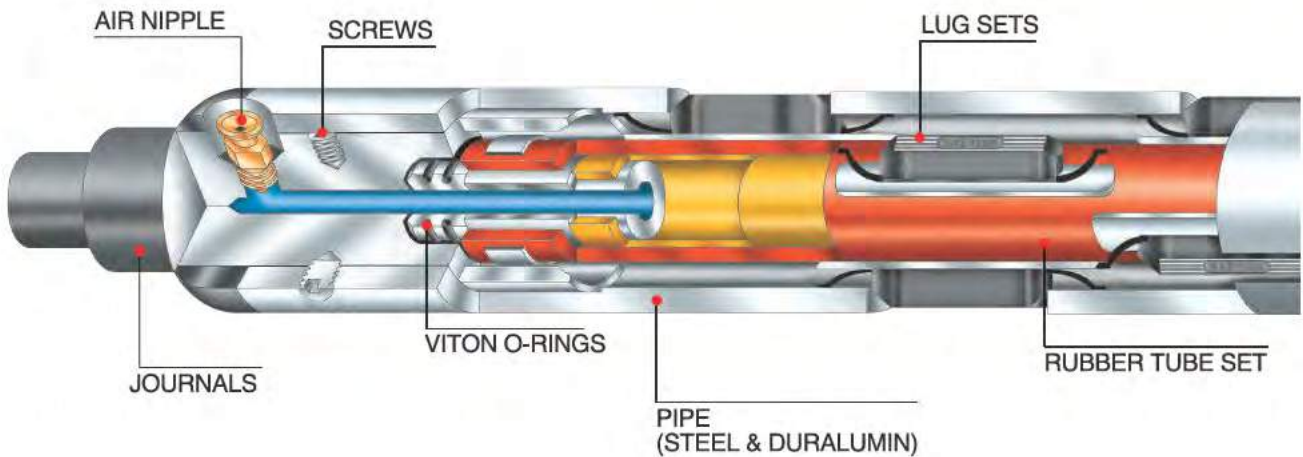
Air has projecting lugs and a special rubber expansion hose. As air is injected, the hose is expanded which pushes the lugs outward so that the paper core, plastic pipe and iron pipe are fixed securely.

After use, the product can be detached with a one-touch quick disconnect.

- Air shaft is produced in lengths form 1" ~ 25" and comes in various models.
- Air shafts guarantee high productivity, safety and economy.



Registration of designs
Utility model pending





Air Shafts

“Saehan manufactures high-quality air shafts that are **Customized in accordance** with the clients’ demands”

Our products will meet any demand as they are precisely made in accordance with the detailed demands of individual clients.

STEEL

For mechanical structures, our products use steel pipes. As such, they have enhanced durability, as well as strong resistance against abrasion and shock.



DURALUMIN

Made of duralumin, the products are lighter than those made of steel. Moreover, they can be handled excellently.



Characteristics of Air Shaft

- Installs quickly with a one-touch switch.
- Improves efficiency of winding operation and is so light weight all operators can handle it easily.
- It clamps paper core securely for certain transfer of torque.
- Paper cores are exchanged easily and are undamaged for recycling
- Repair and maintenance are convenient and safety is high.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.
- More than 3" Please use air pressure of 5~7kgf/cm²



2000 Series

Air Expanding Shafts



For narrow type
SH-2500



For wide type
SH-2200

Custom-Made Manufacturing

Our products can be custom-made in accordance with the fabric's weight and width, as well as the film's material. We can promptly process products to respond to various customer types.



Air Shafts(Uretane lug)

Paper core cutting Air Shafts



Light weight Air Shafts(M.C Nylon)



Canti Lever Air Shafts

- There will be no need to remove air shafts during work. Also, the products can be designed and made in various types such as the lug type and leaf type.
- As our cantilever-type air shafts are installed on the machine, it is possible to easily mount and dismantle the core without lifting the shaft.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.
- Please use air pressure of 5~7 kgf/cm²



SH-2700



SH-8700

Frangle Air Chucks

SH-3500



Disk Separator

AIR SHAFTS

SH-2600

- The products are used for slitting the steel plate and aluminum, thus ensuring the clamping of the disk blocks.
- The products are made with a core eccentricity that ranges from $\pm 0.1 \sim \pm 0.15$. Moreover, the tolerance with the outer diameter of the pipe is handled with precision. As such, it is possible for clients to precisely manufacture their own products when slitting them.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.

**Disk Separator Air Precision Shafts**

SH-2700

- The lugs on the circumference will evenly rise in the length direction, thus ensuring the precise clamping of the disk block.
- Regardless of where the disk block is placed, there will be no transformation in the lugs, ensuring precise clamping.
- If the air shaft tube breaks, it is possible to promptly replace it at the site.



Air Chucks

“The products will supplement the shortcomings of the air shafts. Also, they are economically feasible.”

Saehan's air chucks are made to reduce the costs of changing and improving the sizes of existing air shafts or to lower the relevant weight load.

Our products are widely favored as they can help minimize the volume and reduce costs.

SH-3200

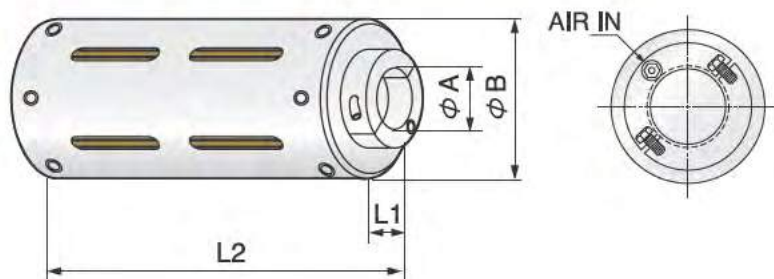
Registration of designs



- o The Air Chuck comes in various sizes and weights.
- o The Air Chuck was precisely designed as an air injection type unlike any other. The body of Air Chuck is made of duralumin which is very light so it can improve productivity with low expense and high efficiency.
- o Although large, it is light and its operation is easy, 3"x6" and various commercial and custom made by the specifications.
- o As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- o Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.
- o Please use air pressure of 5~7 kgf/cm²

Sizes specific to specs

Size	Mark	A	B	L1	L2
5"		75	125	30	370
6"		75	151	30	370
8"		75	203	50	500
10"		75	254	70	500





Leaf Type Air Chucks

SH-3300



Air Chucks

SH-3200



ADAPTER : DURALUMIN
Size : 4" x 10"

Rubber

Air Chucks

“Sae Han Rubber Air Chuck is designed for double sealing and oil banding and air leak-out should not be happened even when the air tube is swelled.”

SH-3700

- Its material is raw crude rubber, whose force of restoration is so great that the core can be easily desorbed at all times, and air is injected into Rubber Air Chuck with point-and-click.
- As the air chuck body and the flange are also made of duralumin, our product is comparatively light at 5.7 kg. Moreover, it offers better durability.
- After inserting branch pipe, inject air and use.
- Please use air pressure 3~6 kgf/cm²



ADAPTER : DURALUMIN
Size : 3" x 6" x 180mm



ADAPTER : DURALUMIN
Size : 3" x 6" x 250mm



Air Slitter Drive

Precision Chucks

The precision air chucks are developed in a way that makes it possible to carry out precision work on the fabric and film as the lugs will evenly rise in a single direction. As the body is made of duralumin, it is light with excellent handling.

SH-3800

- As the tube is mounted on the outer diameter on the pipe, on-site replacement is possible.
- The product can be used when many paper cores are used and even when the clients' products are heavy.
- The product can be used by assembling it to an air shaft or a general bar shaft.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.
- Please use air pressure of 5~7 kgf/cm²



ADAPTER : DURALUMIN
Size : 4" x 10"

Chucks & Adapters

It will inject air into the air shaft and make the lugs of an MC chuck rise at the same time for clamping. It is made of MC nylon, which is a special plastic. The 6" type is lightweight at 2.7 kg.

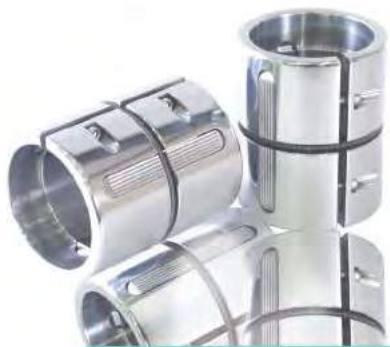
MC Chucks

Registration of designs

Utility model pending

SH-3600

- It is economically feasible compared with the making of 6" air shafts. It offers good handling, thus helping enhance the work efficiency.
- It is designed in a way that a keyhole is machined inside the inner diameter of the MC chuck for smooth assembly of the air shaft.
- It can be custom-made in diverse dimensions ranging from 3" – 30". Also, the chucks can be custom-made using MC nylon, duralumin, and steel.



ADAPTER : STEEL
Size : 3" x 4" x 120mm



ADAPTER : MC NYLON
Size : $\Phi 75.1$ x $\Phi 151$ x 130mm



ADAPTER : DURALUMIN
Size : 3" x 20"



Leaf Type MC Chucks

“Leap MC chucks are developed in a way that they can be used by being assembled to the air shafts, leaf-type air shafts, and precision air shafts.”

SH-3900

- It can be assembled at a desired location when mounting an air shaft.
- Insert the paper core into to the air shaft. To use, inject the air.
- It is convenient to mount and dismantle the air shaft.
- The leap and surface have an irregularity, which helps prevent the paper core from slipping.
- The chucks can be custom-made using various materials such as MC nylon and duralumin.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.

ADAPTER : DURALUMIN
+ MC NYLON
Size : 3" x 6"



ADAPTER : DURALUMIN
Size : 3" x 6"



Mechanical Shafts

“Saehan’s mechanical shafts are made of carbon steel pipes for mechanical structures, which provide excellent precision and realize light torque.”

SH-4300

- In case of mechanical shafts, the applicable pipe inner diameter ranges from 2"~30"
- Lug stroke for cylindrical direction is even and electric for the inside diameter is $\pm 0.2\text{mm}$.
- The products are optimized for high precision, high torque, and high rotation.
- Then mounting and dismantling works can be handled in a few seconds.
- In any case, the lugs will not be loosened as long as the inner screw is not turned because they are supported through the entire body.
- When clients want precise concentricity for the pipe's outer diameter, such product can also be custom-made.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.



The lugs will rise or come down when the stopper is turned.



Mechanical Shafts

“Saehan’s mechanical shafts have mechanical structure.”

The lug stroke can be moved in the left and right direction of the lug housing using the male and female screw devices embedded in the journal section. Because of the uniform and powerful tightening of the paper core, it is possible to push up the lug by making the lug housing move forward. It can be moved forward by turning the screw using the impact wrench. For recovery, simply turn the screw in the reverse direction using the impact wrench. It is possible to replace a lug as it stops at the lug housing on the circumference of the mechanical shaft.

DURALUMIN

Made of duralumin, the products are lighter than those made of steel. Moreover, they can be handled excellently.



STEEL

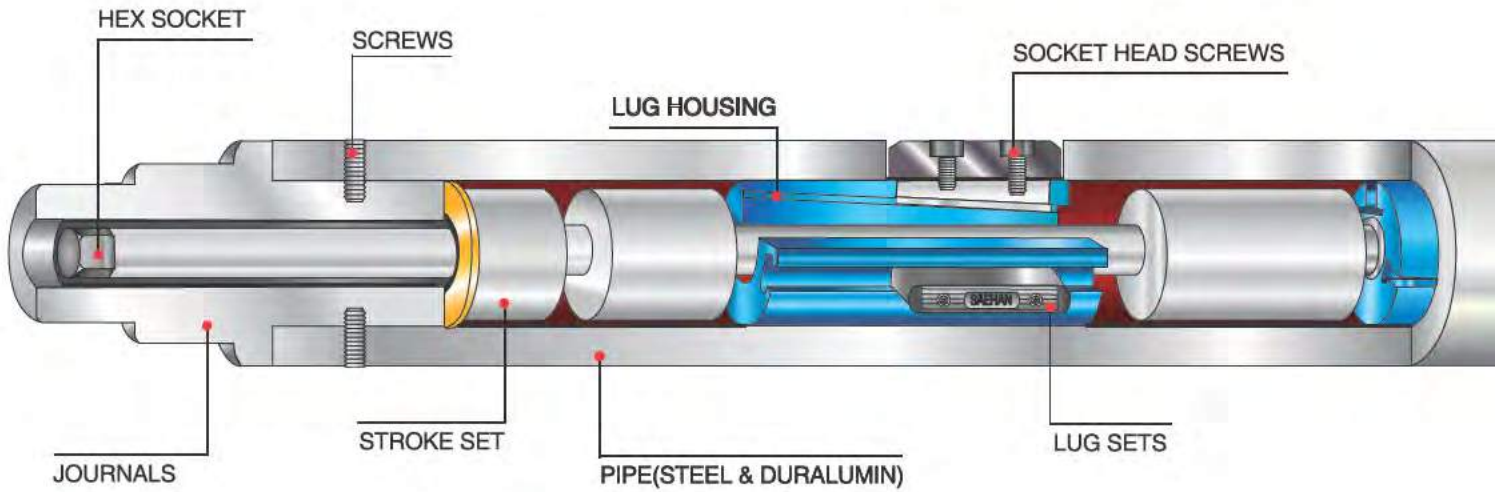
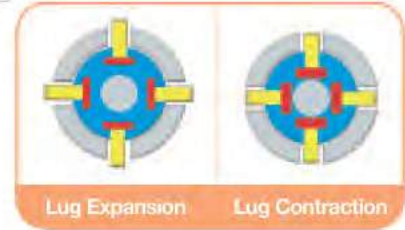
For mechanical structures, our products use steel pipes.

As such, they have enhanced durability, as well as strong resistance against abrasion and shock.





The Structure of Mechanical Shaft



Cylinder Mechanical Air Shaft

SH-4100

Utility model pending

- o The Whole shaft is consisted of mechanical shaft structure and it operates air oil pressure piston which locates in the inside by injection of air instead of screw.
- o Lug is restored to the status quo by the spring which is installed in the inside as air valve is pushed.
- o It is designed to use simple one-touch handling instead of turning mechanical shaft.
- o Use the product by adjusting the air pressure in accordance with the fabric weight.

Cylinder Reverse Mechanical Air Shaft

SH-4200

Utility model pending

- o The inner structure is mechanical and can be easily handled through the air one-touch operation.
- o The product is mainly used for vacuum equipment. **The product is designed in a way that it is possible to remove the core by injecting air to make the lug go down. When air is released, the lug will rise.**
- o Use the product by adjusting the air pressure in accordance with the fabric weight.

Leaf Type

Mechanical Shafts

“Saehan’s leaf-type mechanical shaft is made of carbon steel pipes for mechanical structures, which provide excellent precision and realize light torque.”

SH-4400

- The inner structure of Saehan's own leaf-type mechanical shaft is as described above. The whole body can expand and contract, making it possible to go without a paper core or to simultaneously use multiple paper cores.
- It is mainly used for the pipes to which corrugation will occur initially due to the thinness of the paper core when a lug type air shaft is used.
- Clamping of the paper core due to the contact through the leaf surface helps realizes assured transmission of torque.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.



Leaf material
Steel pipe
for mechanical structure



The lugs will rise or come down when the stopper is turned.





Mechanical Chucks

Mechanical Chuck of Saehan realizes lightness and compact style through the structure which does not have shaft and its installation, maintenance, attachment and detachment of paper core are easy. Also, it is produced with various sizes and 3" ~ 6". Mechanical Chuck is contacted with side unlike taper chuck which is contacted with line so it performs clamping of paper core and transmission of torque more certainly. Also, it can be recycled due to small transformation of paper core.



Urethane coating



SH-4500
Size : 6"

SH-4600
Size : Compatible
to 3" x 6" air shafts

Mechanical Air Chucks

Sae Han Mechanical Air Chucks operate piston by injecting air. Lugs are to be brought back to the normal state by pressing the air nipple.

SH-4700

- As one cylinder-type shaft, $\Phi 72 \sim \Phi 82$ of the inside diameter can be used.
- Lug is solid owing to heat-treatment.
- Lug stroke for cylindrical direction is even and electric for the inside diameter is $\pm 0.2\text{mm}$.
- Core pressure is adjustable from $5\text{kgf/cm}^2 \sim 10\text{kgf/cm}^2$ by tension.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.



SH-4800
Size : MIN $\Phi 73$ / MAX $\Phi 82$
MIN $\Phi 148$ / MAX $\Phi 158$

SH-4700
Size : MIN $\Phi 148$
MAX $\Phi 158$

Air Friction Shafts

“The product can be custom-made for low tension and high tension.”

Winding work in film, paper, or mixed product which combines various materials is very difficult in narrow width treatment due to the tension differences and hood variation.

It improves set up time productivity in your company as it reduces with simple one-touch operation.

Air friction Shaft of Saehan fixes the paper core by air pressure and can rewind as it drives each friction point at the same time with air pressure in cylinder.



Characteristics of Air Friction Shafts

- Leaking of air is very slight so consumption of air is small.
- Paper core is fixed by air pressure in cylinder so there is no slip.
- Lug goes into the inside when paper core is injected so there is no paper dust.
- Delicate regulation (1~7kgf/cm²) of torque by air pressure is possible so good quality can be gained.
- Detachment of paper core is easy so it brings visible improvement to productivity.
- According to use of overall film & compound material, you can choose standard, powerful, special type.
- The product can be custom-made for low tension and high tension.
- It is possible to automatically control the air pressure using electricity through an electric pneumatic conversion system.
- It is used by controlling the main axis motor, electric control, and tension.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.
- Exclusive use for 3" inner diameter of core Ø76.2



Air Friction Shaft **SH-5700** (Vertical type)



Air Friction Shaft **SH-5300** (Horizontal type)



Air Friction Shaft **SH-5500** (Horizontal type)

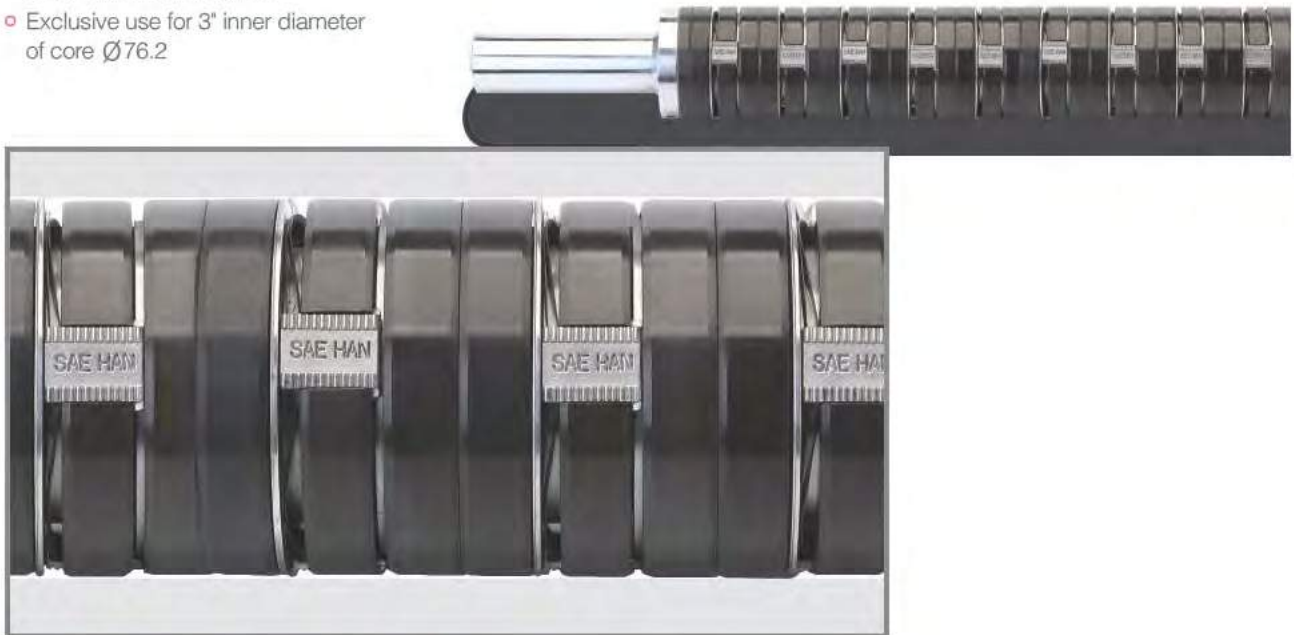


Air Friction 2Line Shafts

“It is possible to control torque and adjust using two air lines such as core clamps.”

SH-5800

- It is possible to wind the various types of film that cannot be controlled with one air line.
- It is possible to precisely and smoothly control from low torque to high torque.
- As the product has a tapered structure, it is possible to carry out precise chucking of the core without slugging.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.
- Exclusive use for 3" inner diameter of core $\varnothing 76.2$



Ball Friction Shaft

SH-5400

Due to air pressure injected on the central axis, Air Ball Friction Shaft can control friction amount and make equal torque. The clamp of each core is ball-typed fixing form of centrifugal force, and is possible to rewind. Despite some demerits caused while handling, both low-and high-tensioned material products are to be used. The inside diameter of core is $\varnothing 76.2$.

- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.
- **Please use air pressure 1~7 kgf/cm²**





Air Friction Ball Shafts

SH-5900

- Because of the ball, it is possible to conveniently and quickly replace the roll when a paper core is mounted. After fabric winding is completed, it can be conveniently transported, providing assured increase of your company's productivity.
- The inner diameter of the pipe will be centralized, helping maintain straightness.
- The slagging, which would occur because of the weight load when the fabric is wound, will be reduced compared with existing air shafts.



Quick Side Friction Shaft

SH-5200

Processing of narrow breadth comes up each winding tension so winding working is difficulty. Its problem also comes up in quality by hood declination. 'Quick Side Friction Shaft', developed by Saehan's own technology, pushes Cylinder at the side and simultaneously can drive each friction and rewinding.



- The diameter Φ of shaft is big so it is mainly used for heavy weights or insensitive materials.
- It fixes the paper core by internal centrifugal force so the paper core does not spin in place.
- The paper core detaches easily can be turned to the opposite side efficiently.
- Winding torque is not affected by shaft transformation coming from the product's load and it can maintain stable tension.
- The lug which fixes the paper core contacts the inside of paper core simultaneously so the center balance is maintained, vibration is small, and high speed winding is possible.

Hanger Type Pneumatic

Transfer Air Shafts

“The product is developed for smoother work performance.”

The lugs of the transfer air shaft are saw-tooth shaped. The transfer air shaft is made in the form of a hanger to make the loading and unloading of the winding roll efficient.

Hanger Type Pneumatic Air Shafts SH-6300

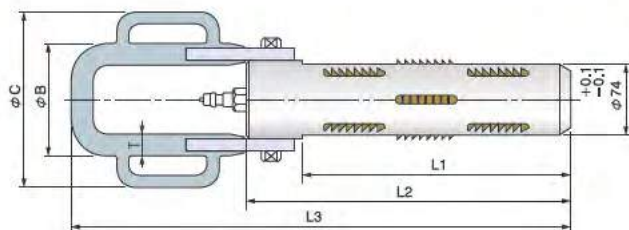


Characteristics of Transfer Air Shafts

- The winding roll is inserted in the standing position so the lug, which is like sawteeth, catches the paper core securely.
- The worker can work without holding the outside of the roll in order to avoid any damage of the product.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.
- Please use air pressure of 5~7 kgf/cm²

Sizes specific to specs

Fabric Weight	Mark	WUG	B	C	L1	L2	L3	T
150	1	114	218	210	260	440	20	
300	2	114	218	320	370	550	20	
450	3	126	230	430	480	668	28	
600	4	126	230	540	590	778	28	
750	5	126	230	650	700	888	28	
900	6	126	230	760	810	998	28	





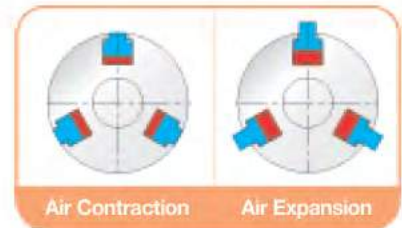
Air Slitter Drive

Precision Air Shafts

Quality of SH-7200 is dual aluminum or steel and is used in light weights, Heavy weights Core, all kinds of films, Unwinding, Rewinding. Several air tubes are installed along the side of pipe and the small size's variously designed to $\varnothing 25 \sim \varnothing 40$.

o Please use air pressure of 3~6 kgf/cm²

Precision Air Shafts SH-7100



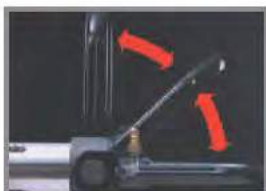
Material : STS 304



Size : 1"



Size : 2"



Air Slitter Drive

Precision Shafts

Selection of paper core position can be made easily so the exchange of roll can be completed more rapidly. The process only involves a simple one-touch switch. As a result, it reduces energy, while improving productivity and efficiency in your company.

- o Use for condenser film, supper thin plate, narrow limit of circle edge, slitting machine.
- o Use for minimum width of 3mm low micron 3~20(μ) working.

DURALUMIN SH-7200 Registration of designs Utility model pending Invention Patent

Made of duralumin, the products are lighter than those made of steel. Moreover, they can be handled excellently.



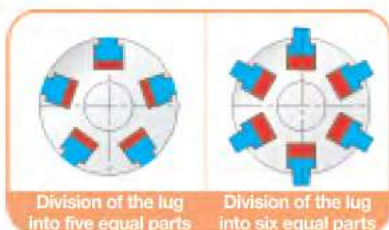
STEEL

For mechanical structures, our products use steel pipes. As such, they have enhanced durability, as well as strong resistance against abrasion and shock.



PRECISION AIR SHAFTS SH-7300

- o It is developed to be used for high fabric weight load.
- o The product's lifetime is extended as the rubber lugs and air tube are enlarged two times compared with existing products.





Air Slitter Drive

High Precision Shafts

SH-7500

- Lug goes up consistently lengthwise and the amount of eccentricity is $\pm 0.1\sim 0.2$ mm to inner diameter of paper core.
(The product comes in various models depending on the materials of the core.)
- Keep the accuracy of strait advance by the automatic centering of inner diameter.
- When air is injected, the aluminum lugs will rise to keep the centering. Then, the rubber lugs will rise to accurately clamp.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.

STEEL



DURALUMIN



Leaf Type

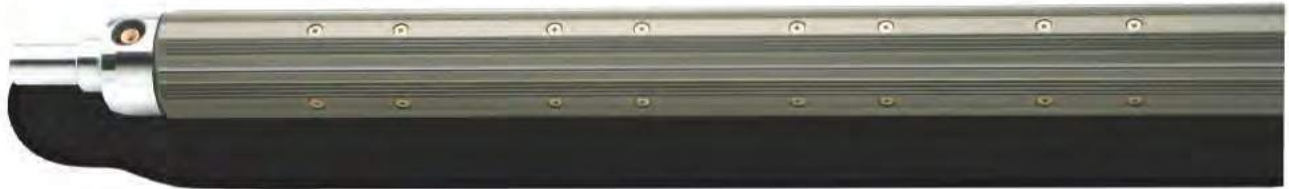
Air Shafts

“The product is suitable for materials that are thin and can be easily crumpled.”

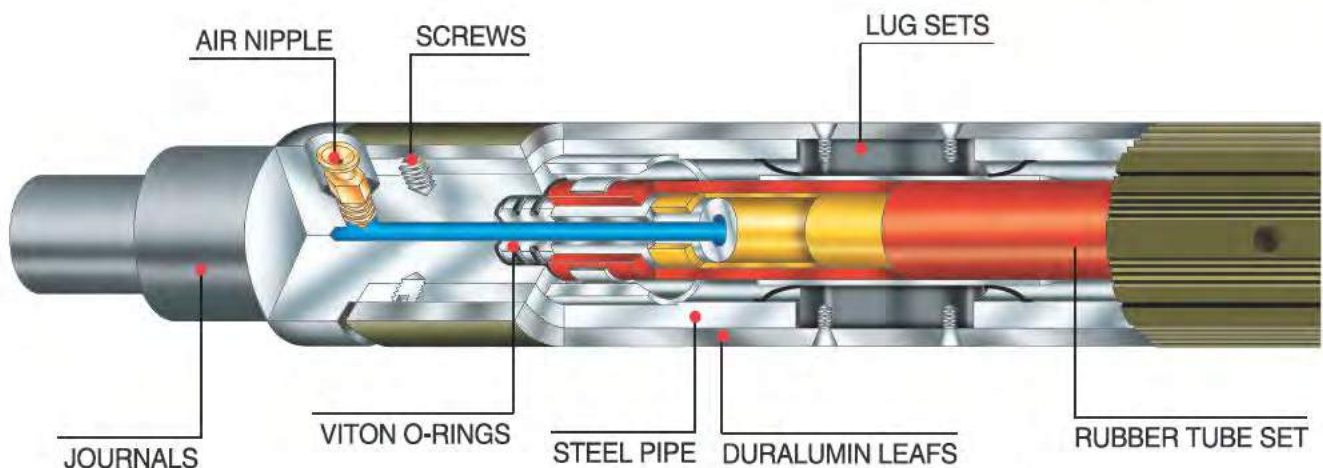
The leaf-type air shaft is suitable for materials that are thin and can be crumpled easily as its whole body can expand and contract.

- The whole leaf of leaf Type Air Shaft of Saehan is expanded and contracted so it can be used with no paper core or various paper cores simultaneously.
- It is mainly used for narrow-width cutting, slitting machines, and to prevent wrinkles due to a thin paper core.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.
- Please use air pressure of 3~6 kgf/cm²

SH-8200



Leaf Type Air Shaft





Precision Leaf Type Air Shafts

SH-8300



SH-8400



As the leaf surface is smooth, there will no impurities when the core is used.

SH-8300



SH-8400



- The pipe is made of duralumin. It is also 40% lighter and can be easily handled.
- The lifetime of the tubes is extended more than two times as a new leaf-type shaft exclusively for 3" is now available.
- The precision keys made into the outer surface of a pipe in a quadrisection form will keep the pipe from slugging because of the product's weight load, thus making it possible to produce products with precision.
- It can be used for products that weigh within 100 kg.
- Please use air pressure of 3~6 kgf/cm²

Ball Cover

Air Shafts

“Due to the ball, it is possible to conveniently and quickly replace the roll when mounting a paper core.”

After fabric winding is completed, it can be conveniently transported, assuring productivity increase of your company.

SH-9400

- The inner diameter of the pipe will be centralized, helping maintain the straightness and make handling easy.
- It is possible to carry out replacement at the site if the ball breaks. It is mainly used for products that require precision for the pipe's inner diameter.
- The slagging, which would occur because of the weight load when the fabric is wound, will be reduced compared with existing air shafts.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.



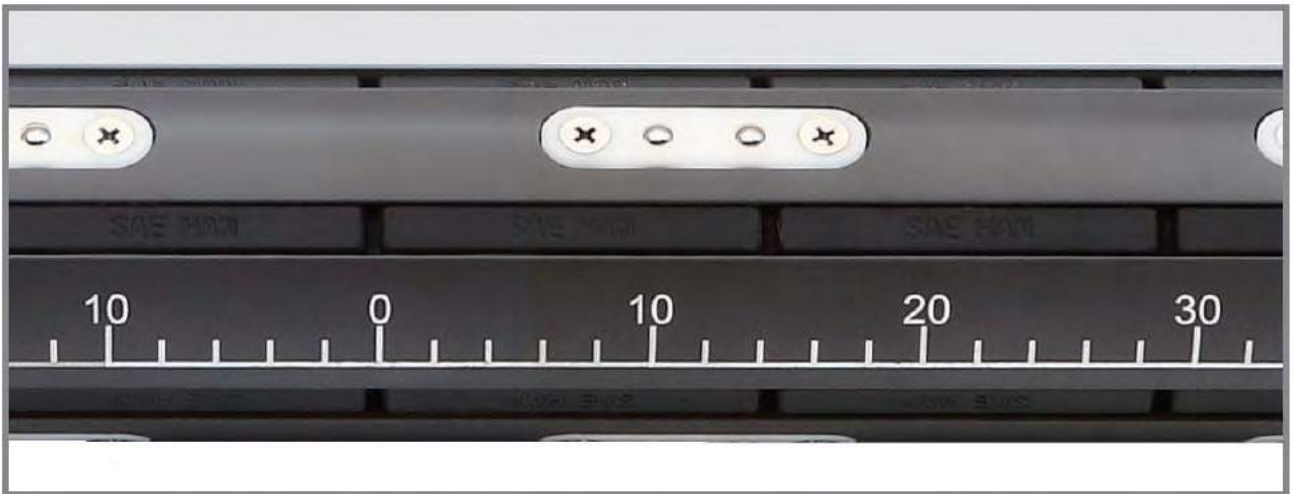
Ball Air Shafts

SH-9100





Ball Cover Air Shaft SH-9400



Ball Air Shaft SH-9100



Ball Bearing Precision

Air Shafts

“The bearing will not be easily detached when loading and unloading the fabric.”

SH-9500

- The inner diameter of the pipe will be centralized, helping maintain the straightness and make handling easy.
- It is possible to carry out replacement at the site if the ball breaks. It is mainly used for products that require precision for the pipe's inner diameter.
- The slagging, which would occur because of the weight load when the fabric is wound, will be reduced compared with existing air shafts.
- As our products are **Custom-Made**, you are kindly requested to contact the tech team of the main office for any inquiries.
- Please contact the tech team for relevant inquiries on **Customized** duralumin and steel products with consideration for individual fabric weights.

Ball Bearing Air Shafts SH-9200



Ball Precision Air Shafts SH-9600





Ball Bearing Precision Air Shafts SH-9500



Ball Bearing Air Shafts SH-9200

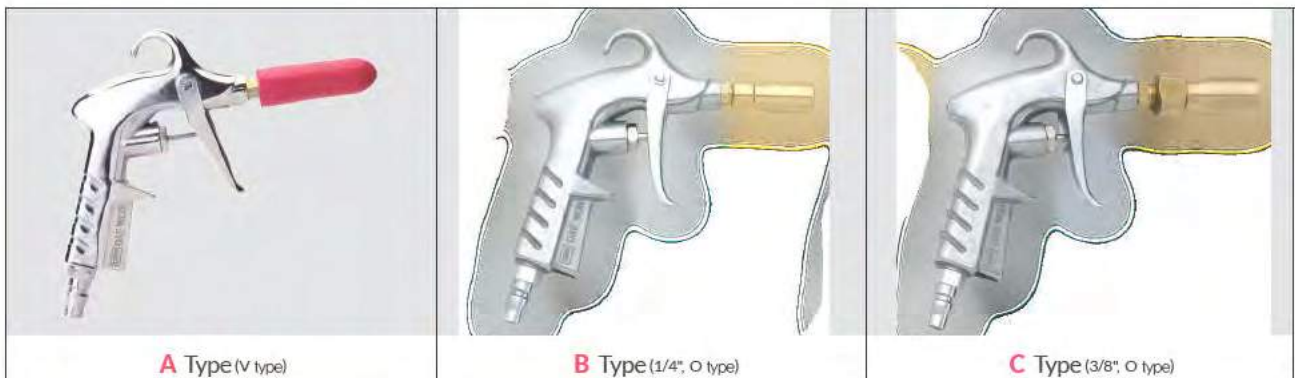


Rebuilding Kit & Repair Kit

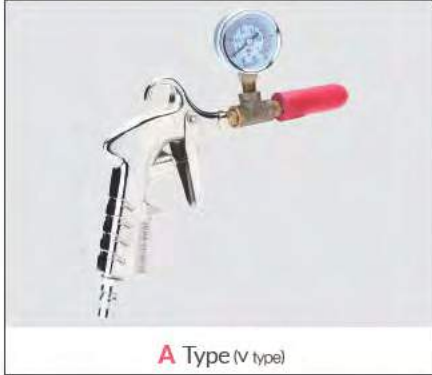
Air Nipple



Air Gun



Pressure Gun



Air Tube Set Utility model pending



Plate Lug Set Utility model pending



How To Use

AIR SHAFT USE DESCRIPTION

1. Using a hoist, mount
 - If it is moved by hand, Air Shaft could be fallen. As a result, it could hurt people or be bent.
2. When the pipe and/or axis of Air Shaft wobbles, stop operating.
 - If not, after sales services should not be helpful.
3. If bent occurs, stop operating.
4. Sudden stops and sudden starts may shorten the life span of Air Shaft.
5. When handling Air Shaft, do not shock or throw it.
 - If so, it could hurt people, bent could occur or precision tolerance could be changed.

METHOD TO FEED AIR

1. Adjust air pressure.
2. Feed air to air nipple using a filter.
 - If a filter is not used, a particle in air could go inside air tube and distract air nipple from working, which cases air leak.
3. When feeding air, make sure the adhered air gun is tightly fixed to plug and the core is well fixed.
4. When releasing air, do it so by pushing the air nipple or air gun by hand.

! THE GUARANTEE PERIOD

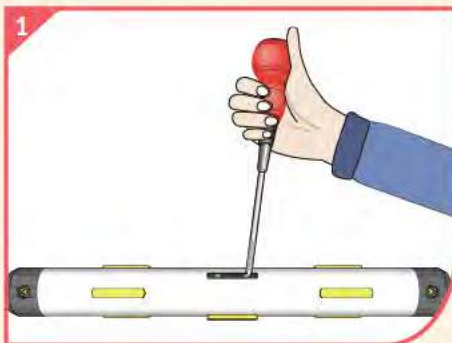
- Installation : 1 year from the purchase date
- Free change of installation tube: 6 months
- No guarantee air shafts under 2".
- When broken due to mishandling or user's fault, AS cannot be provided.

! CHECK IN POINTS IN ABNORMAL OPERATION CASES

- **When air leaks slowly**
 - Check if the air nipple is well installed. If any defect is found, change it with ratchethandle.
- **When air leaks between pipe lug home**
 - Contract our technical engineers.

Disassembly method of air shafts

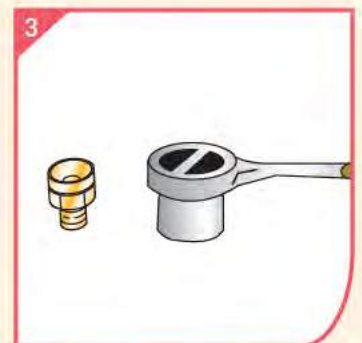
Reassemble in reverse order of disassembly.



1. Raise the lugs using a screwdriver jig.

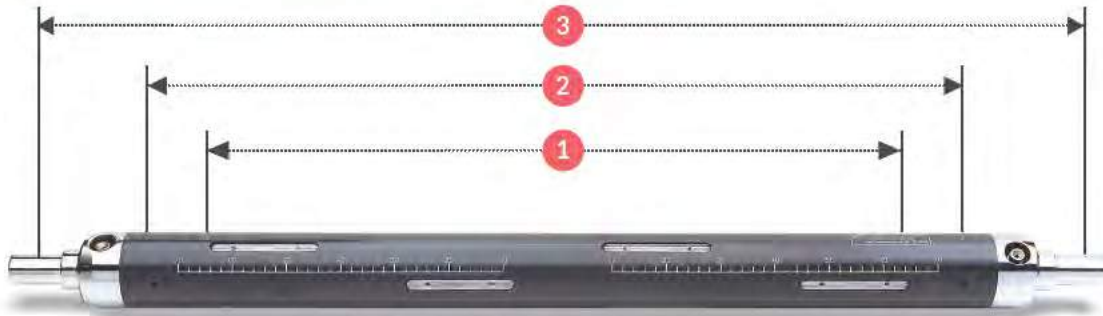


2. Fasten the lugs using wing nuts.



3. Take apart the air nipple using the socket handle.

Technical Data & Terms



① Effective distance ② Effective length ③ Distance of the central parts of the bearing

Air-shaft strength curve

This curve indicates a relation between fabric weights and effective lengths when the maximum bending pressure of the air shaft is equal to the allowable pressure. There is no problem with strength under the curves.

Maximum air-pressure curve

The dotted line indicates a correlation between the maximum fabric weight sustained by the lugs and the effective distance under a given pressure. The range under the line is a right area within a given pressure.

How to use the curves in the figures

To know the effective length of the shaft, the diameter of the main body, and the pressure, check whether the fabric weight is under the air-shaft strength curve and the air pressure curve. If so, this means that the use of the air shaft is appropriate.

Air pressure of Air Shaft

Example 1 STEEL AIR SHAFT LUG TYPE

· Effective length : 1000mm · Diameters of the main body : 75mm · Fabric weight : 500Kg

In the following case, Figure 1 shows that the air pressure is 4-5 kgf/cm² (point A). Therefore, the necessary air pressure is 5 kgf/cm².

Example 2 STEEL AIR SHAFT LUG TYPE

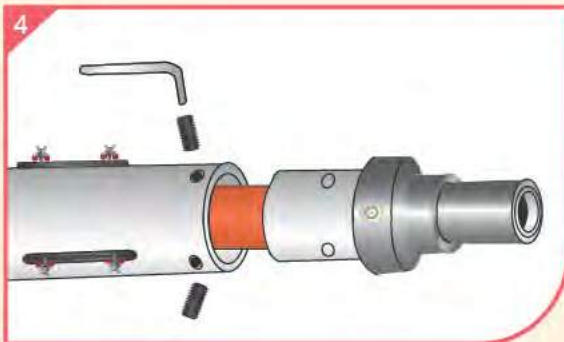
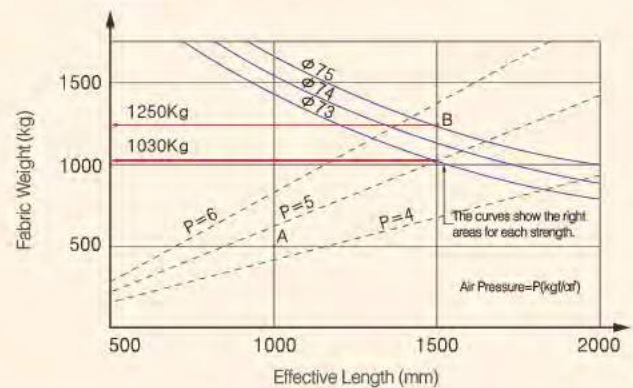
· Effective length : 1500mm · Diameters of the main body : 75mm · Fabric weight : 1250Kg

In the case above (point B), Figure 1 shows the following.

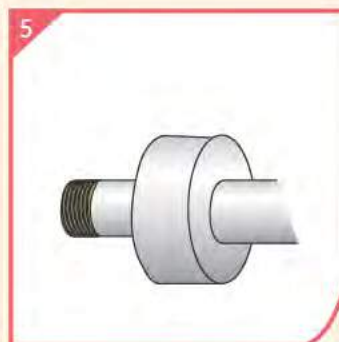
· The necessary air pressure is 6 kgf/cm² · Proper fabric weight is 1,200 kg or below.

In this case, if the max. air pressure is 5 kgf/cm², the max. fabric weight is 1,030kg.

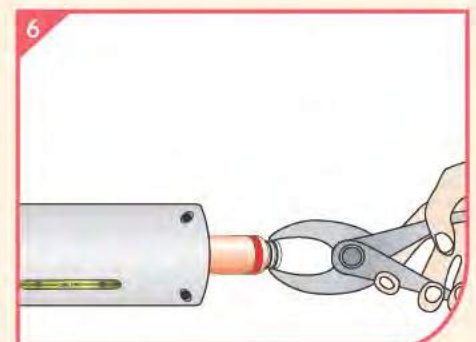
Fig1 STEEL AIR SHAFT LUG TYPE



4. Disassemble the socket set screws using the L-wrench.



5. Unfasten the pipe and journal using the journal puller.



6. Remove the air tube from the inside of the journal.
7. Reassemble in reverse order of the disassembly.

Fig2 AIR SHAFT LUG TYPE (DURALUMIN & STEEL)

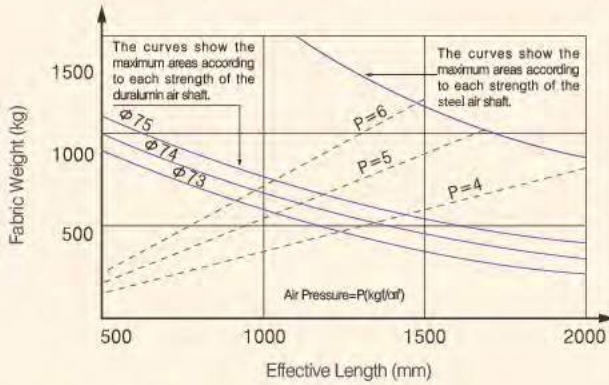
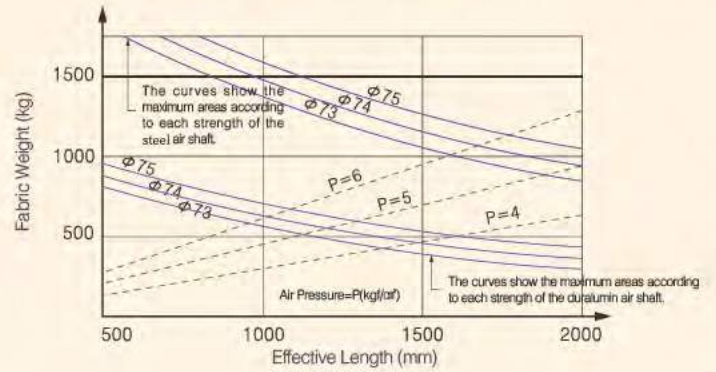


Fig3 AIR SHAFT LUG TYPE (ALUM & STEEL) (In the case of multiple cores)



Weight of original sheet and bend of Air Shaft

Fig 4~7 shows relations between the fabric weights and air-shaft bending. Each curve of the effective lengths (500, 1000, 1500, and 2000) of the 3" air shaft shows a relation between the fabric weight and the degree of bending in the case of 1 core. For instance, in Figure 4, the air shaft is made of steel pipe. If the fabric weighs 600 kg and the air shaft is 1,000 mm long, the degree of bending is 0.8 mm.

Fig4 STEEL AIR SHAFT : 3"

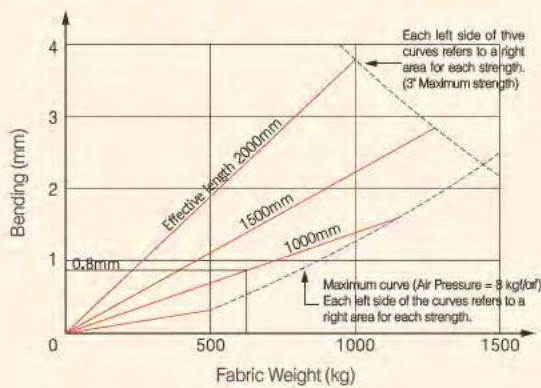


Fig5 STEEL AIR SHAFT : 3" (In the case of multiple cores)

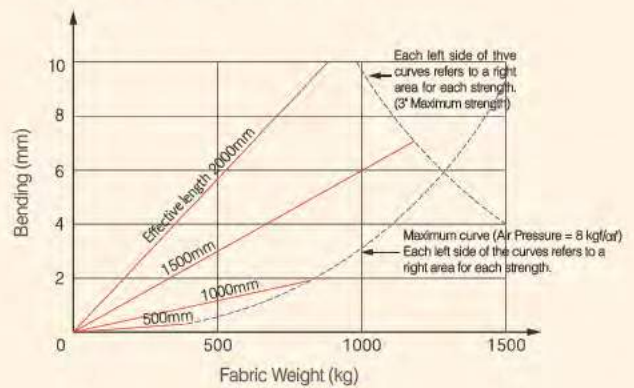


Fig6 DURALUMIN AIR SHAFT : 3" (In the case of multiple cores)

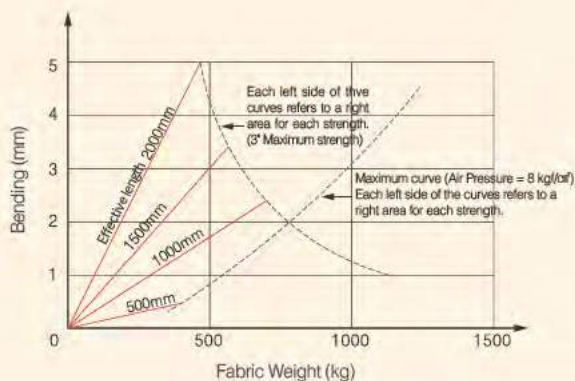
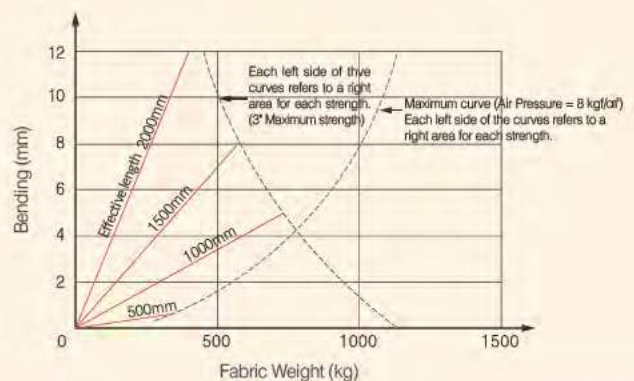


Fig7 DURALUMIN AIR SHAFT : 3" (In the case of multiple cores)



The calculation of bend and intensity of Air Shaft

Figure 8 shows that the air shaft winds fabric inward. The diagram is simplified as shown in Figure 9 to calculate the strength and the degree of bending.

※ Codes and units used for calculation

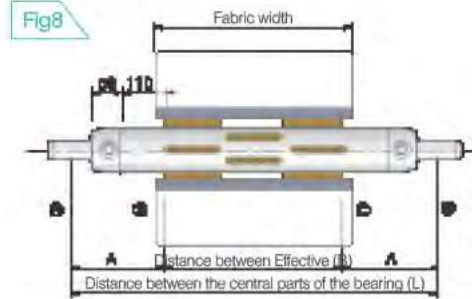
- W_a : Fabric Weight (kg)
- V : Shafts Weight(kg)
- d_o : Outer diameter of the shaft(ϕ)
- d_1 : Inner diameter of the shaft(ϕ)
- l : The 2nd range

Formula

$$I = \frac{\pi}{64} (d_o^4 - d_1^4) \times N$$

N means a loss by the protrusion holes.

- E : Young's Modulus /
- STEEL PIPE : $2.1 \times 10^6 \text{ kg/cm}^2$
- DURALUMIN : $0.72 \times 10^6 \text{ kg/cm}^2$



The intensity of Air Shaft

Pressure is as below where the shaft is bent to the max.

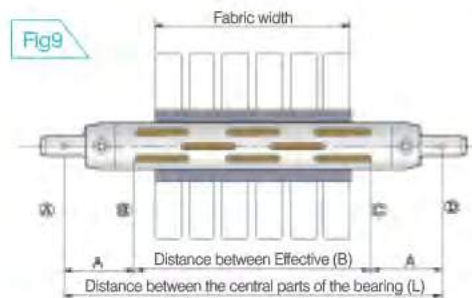
Formula

$$\theta_{\max} = \frac{d_o}{2l} \left(\frac{W}{2} \left\{ \frac{L}{2} - \left(\frac{L}{2} - a \right) / b \right\} + \frac{VL}{8} \right)$$

In the case of a 3" air shaft, appropriate pressures in accordance with pipe materials are as follows:

- STEEL PIPE : $\theta_{al} = 1900 \text{ kgf/cm}^2$
- DURALUMIN : $\theta_{al} = 700 \text{ kgf/cm}^2$

Therefore, where the value of the formula (1) is $\theta_{\max} < \theta_{al}$, there is no problem with the shaft strength.

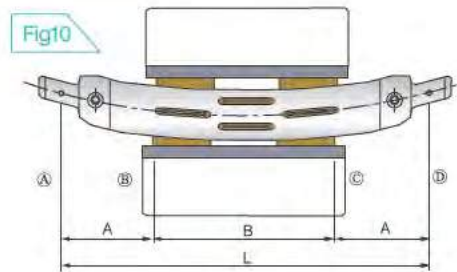


In case of one core

In Figure 10, it is assumed that both the fabric and the core are not bent in the case of one core. Therefore, the amount of shaft bending can be measured through the downward deformation of the core from the central part of the unloaded shaft. Such deformation degree shows the degree of the shaft bending at points (B), (C) where the end protrusions sustain the core. The downward deformation of the paper core is calculated as below:

Formula

$$\theta_{\max} = \frac{W_a}{12EI} \left(\frac{3}{4} L^2 - \frac{b^2}{4} - a^2 \right) + \frac{V_a}{24EIL} (L^3 - 2La^2 + a^3)$$

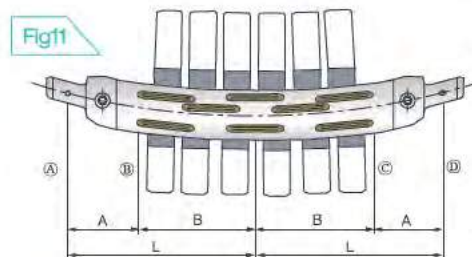



In case of several cores

As shown in Figure 11 where separately independent cores are used, the maximum bending of the air shaft occurs at the central part. The amount is calculated as below.

Formula

$$\theta_{\max} = \frac{W}{6EI} \left\{ \frac{L}{4} \left(\frac{L^2}{2} - \frac{b^2}{4} \right) + \frac{b^3}{64} \right\} + \frac{5VL^2}{384EI}$$

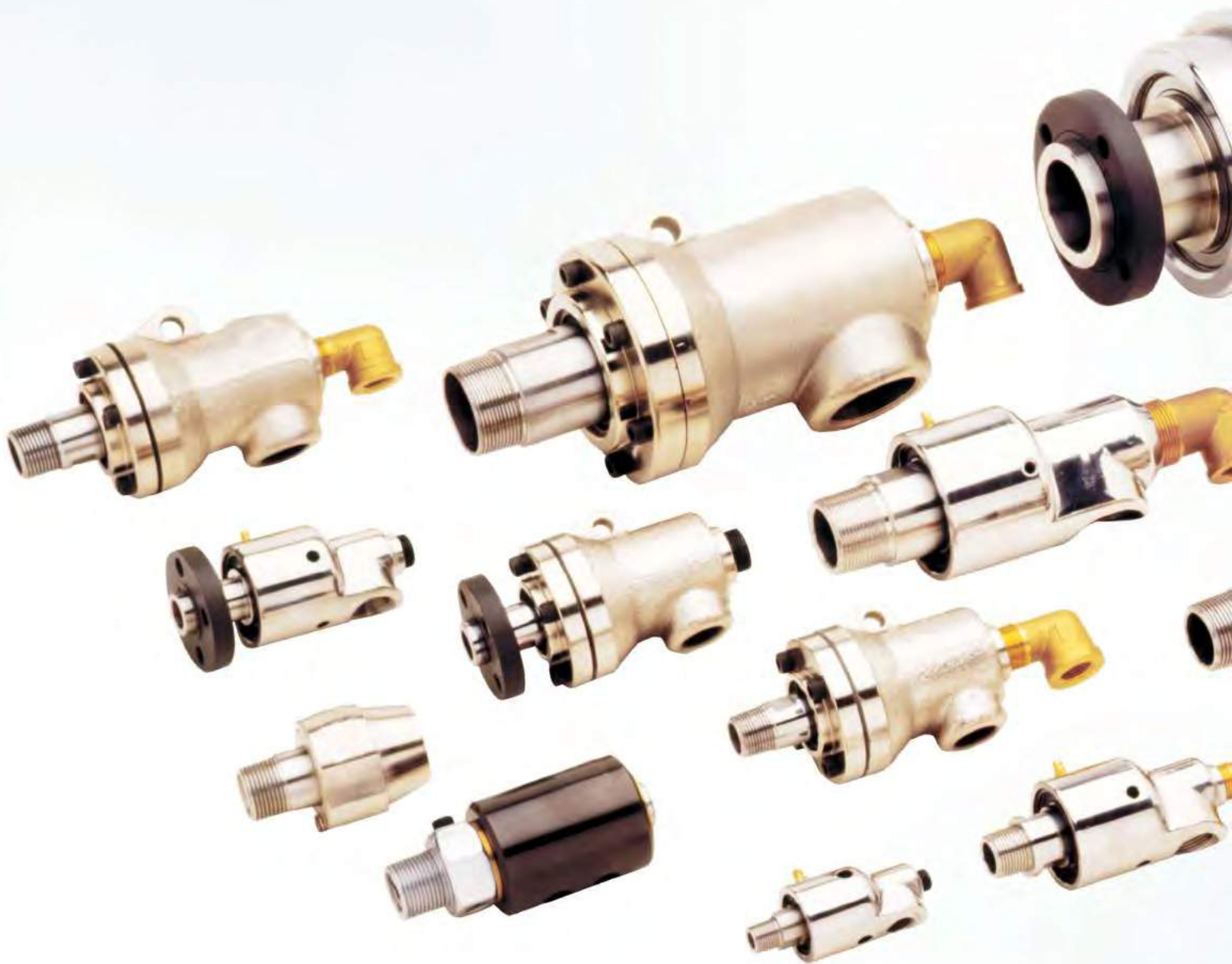




Saehan will take the initiative in producing the highest quality products that meet customer needs based on its advanced technology and rich experience that are founded on its product expertise and professional manpower.





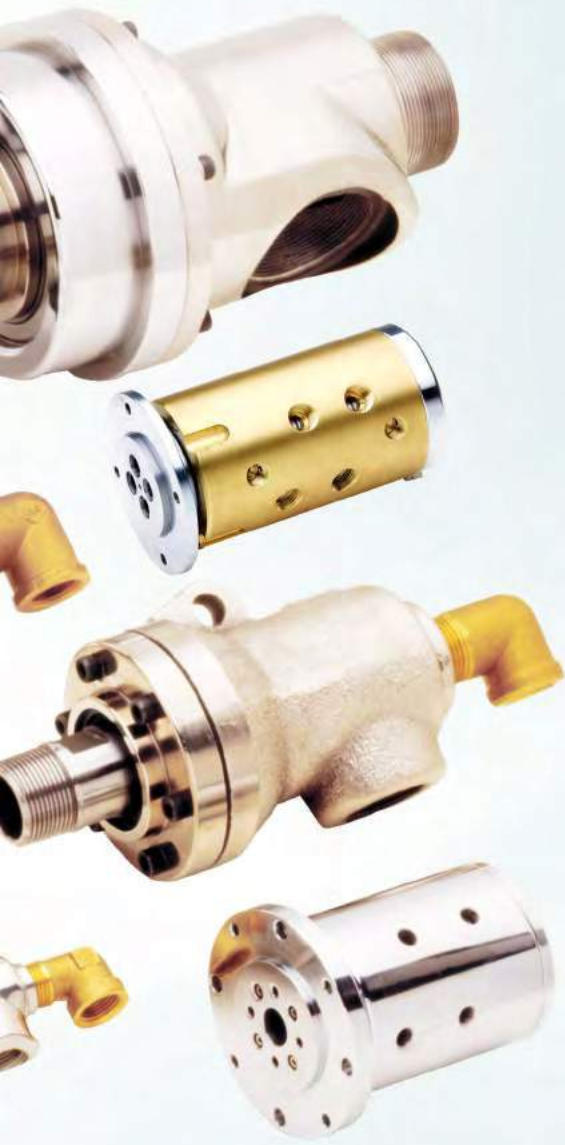


Ceaseless efforts are made to conduct strict quality management with the purpose of reducing lead time to quickly deliver our high-quality products to customers.

We are preparing to make a fresh start for our dreams of a better future.

We at Saehan have endeavored for a long time to actualize our customers' dreams of a comfortable life.

We will exert more efforts for the future in order to stand tall as a global enterprise that will provide our customers and mankind with true value and satisfaction.



Sae Han Rotary Joint

ROTARY JOINT

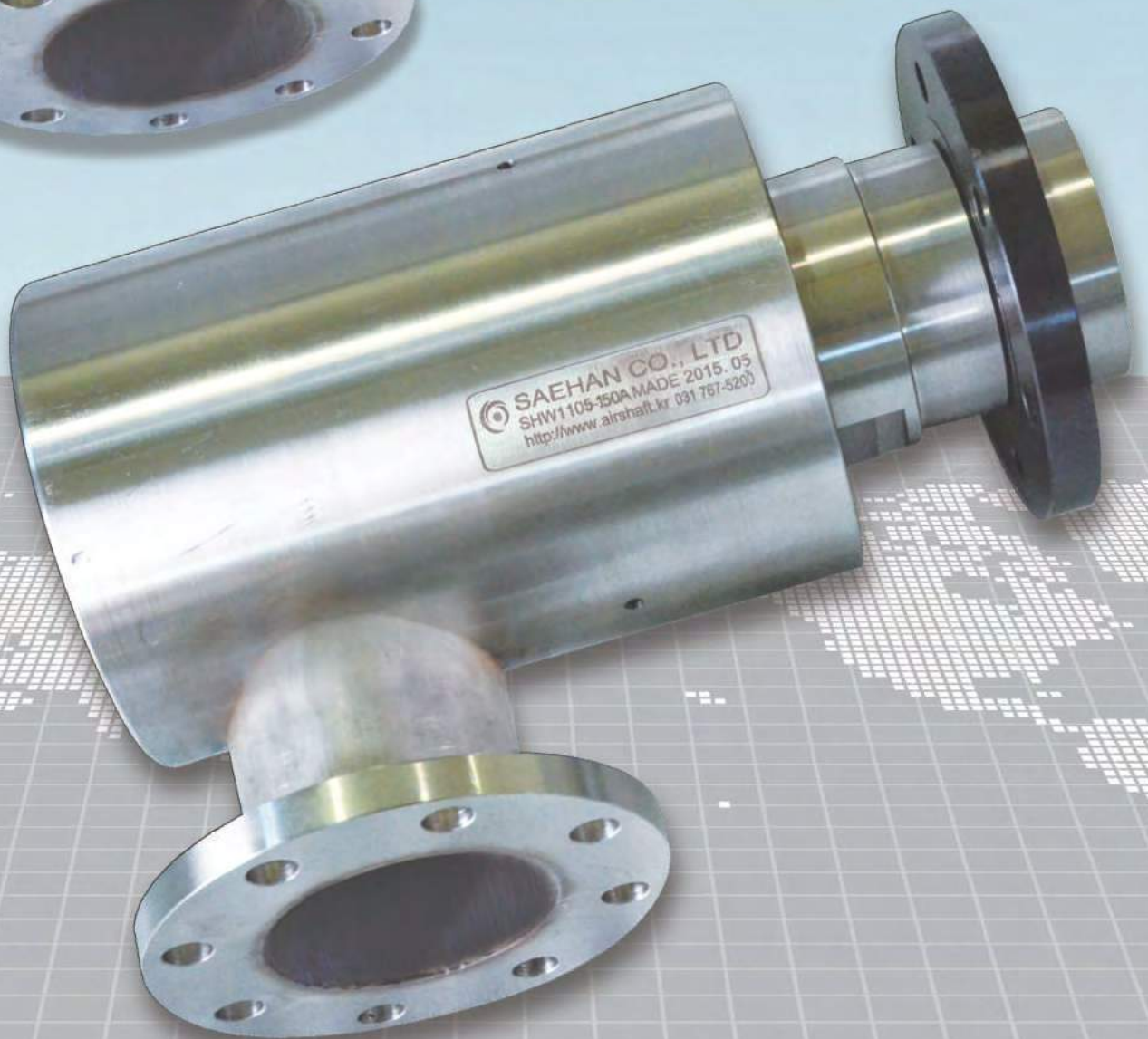
Ceaseless efforts are made to conduct strict quality management with the purpose of reducing lead time to quickly deliver our high quality products to customers.

PRODUCT LIST



53	Model Number Identification
54	SHW 1000 Series
57	SHS 4000 & SHH 5000 Series
60	SHS 6000 & SHH 6000 Series
62	SHHA 7200 Series
63	SHHA 7300 & 7400 Series
64	SHHA 8000 & 9000 Series
65	SHHA 8500 Series
66	How To use
67	Caution For Handling

Rotary Joint



Model Number Indentification

GROUPING

SH	Standard
BH	Sub - standard
OH	Special

SERIES

1	SHW 1000
4	SHS 4000
5	SHH 5000
6	SHS 6000 & SHH 6000
7	SHHA 7000
8	SHHA 8000

SYPHON TYPE

0	-
1	THREADED SYPHON
2	ROTATING SYPHON

SHAFT SIZE

S
H
W
1
1
0
1
10 A

MEDIA

W	WATER, AIR
S	STEAM
H	HOT OIL
HA	HYDRAULIC, AIR
	VACUUM, WATER

HEAD STYLE

1	MONOFLOW
2	DUOFLOW
3	TRIPPLE PASSAGE
4	4PASSAGE

SHAFT TYPE

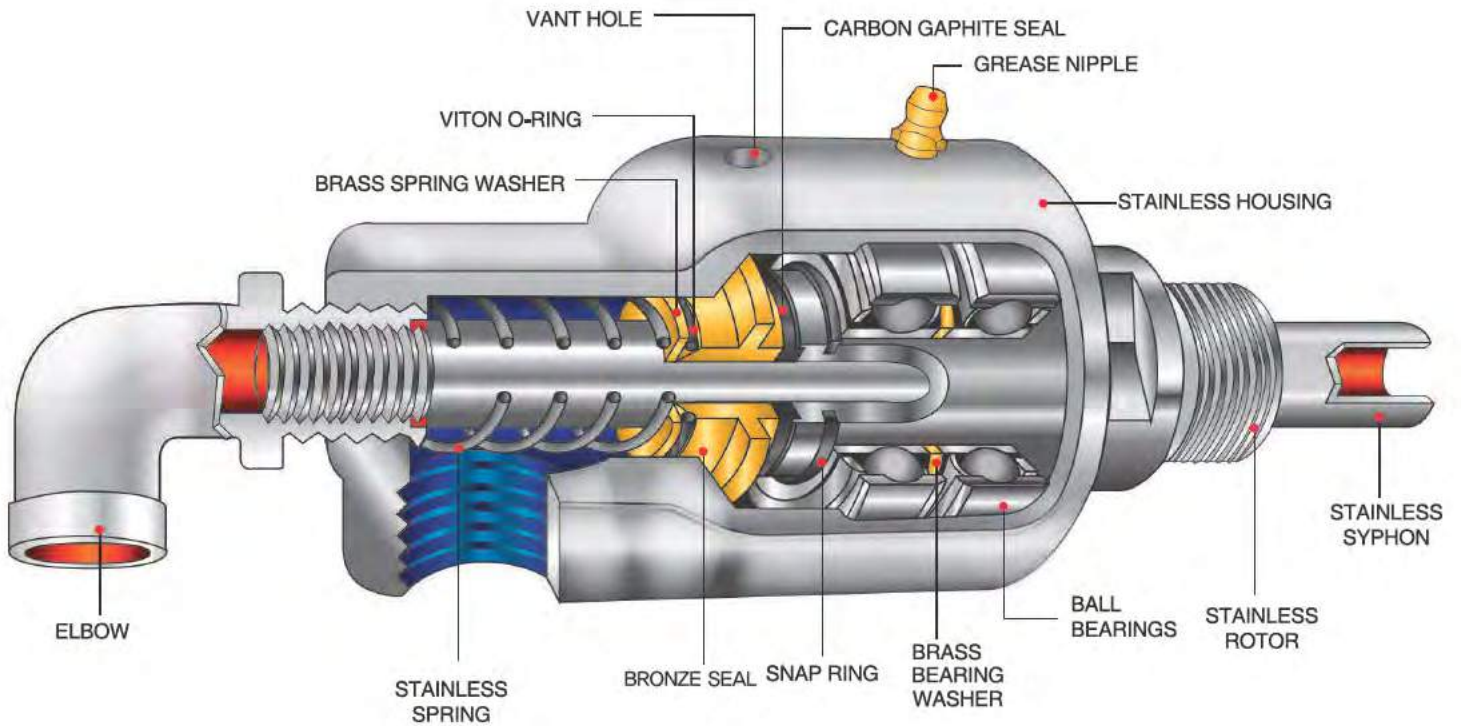
1	PT	RIGHT
2	PT	LEFT
3	PF	RIGHT
4	PF	LEFT
5	FLANGE	
6	BSP	RIGHT
7	BSP	LEFT
8	METRIC	RIGHT
9	METRIC	LEFT
10	ETC	

CROSS REFERENCE CHART

MODEL	MEDIA										
	WATER	STEAM	HOTOIL	HOT WATER	GAS	OIL	AIR	VACUUM	CUTTING OIL	HYDRAULIC OIL	
SHW 1000	○	○	○	○	△	○	○	○			
SHS 4000		○		△							
SHH 5000			○	△							
SHS 6000		○		△							
SHS 6000			○	△							
SHHA 7000							○	○	○	○	
SHHA 8000	○					○	○	○		○	

Sae Han Rotary Joints

ROTARY JOINTS



The Structure of Rotary Joints

SHW 1000 Series was developed for general purpose use, in housing material and oil supply type ball bearings. Sales are ceramic and carbon graphite. A consumer can choose tungsten carbide or silicon carbide for life-extension. These seals can guarantee perfection as they are lapped thoroughly and precisely with high-tech optics. A rotary joint type temperature gauge can be mounted and used.

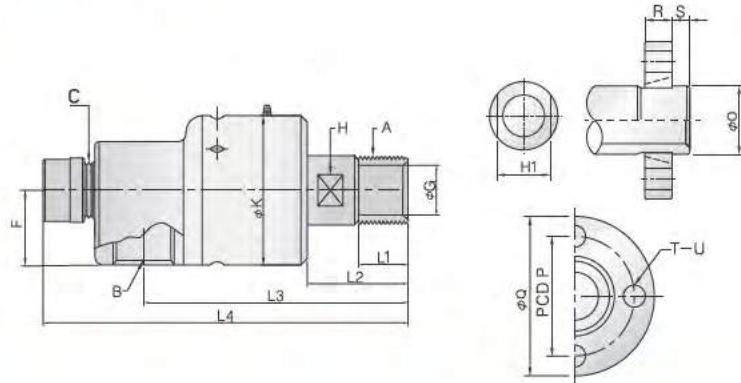


OPERATING DATA	
MAX WATER PRESSURE	15 kgf/cm ² G
MAX WATER TEMPERATURE	120°C
MAX SPEED	6A~25A : 1500RPM
	32A~80A : 1000RPM
	STRAIGHT THREAD FLANGE TYPE : (2000~3500RPM)
MEDIA	WATER, AIR, VACUUM, HOT WATER, STEAM

· Prior to using it other purpose, please discuss it with our development team for technology

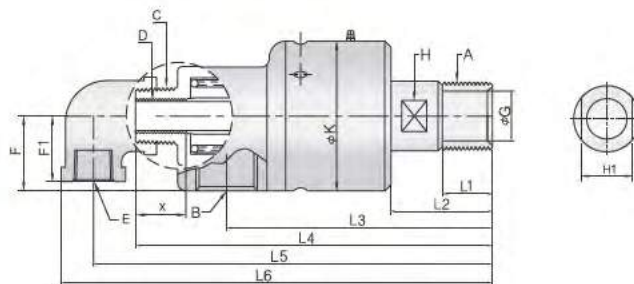


Monoflow For Water For Flange Type



Mark Size	A (PT)	B (PT)	C (PT)	F	G	H	H1	K	L1	L2	L3	L4	O	P	Q	R	S	T	U	W (Kg)
6A	1/8"	1/8"	-	-	3.2	-	-	28.5	11.5	22	63.5	71	-	-	-	-	-	-	-	0.5
8A	1/4"	1/4"	-	-	6.4	-	-	41.2	11.5	29	71.5	81	-	-	-	-	-	-	-	0.5
10A	3/8"	3/8"	3/8"	22	9.5	14	22	44.5	16	26	71	102	-	-	-	-	-	-	-	0.9
15A	1/2"	1/2"	3/8"	27.5	13.5	15	22	55	18	34	98	124	-	-	-	-	-	-	-	1
20A	3/4"	3/4"	1/2"	31.5	17.5	14	28	63	20	40	113	140	30	54	74	13	8	4	11	1.4
25A	1"	1"	3/4"	36	23	18	34	72	25	46	124	161	35	60	80	14	9	4	11	2
32A	1 1/4"	1 1/4"	1"	42.5	29.5	21	42	85	30	55	143	190	45	70	90	15	9	4	11	3
40A	1 1/2"	1 1/2"	1 1/4"	46.5	35	25	50	93	34	62	167	222	50	75	96	16	9	4	11	4
50A	2"	2"	1 1/4"	58	47	25	65	116	35	62	190	250	60	95	120	19	10	4	13	7
65A	2 1/2"	2 1/2"	-	67.5	60	30	75	135	40	65	204	268	80	110	136	20	12	4	13	13
80A	3"	3"	-	75	70	30	85	150	40	75	225	295	90	125	154	20	12	6	13	17

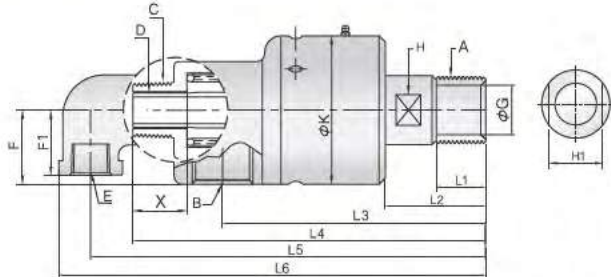
Stationary Style Of Duoflow For Water



Mark Size	A (PT)	B (PT)	C (PT)	D (PF)	E (PT)	F	F1	G	H	H1	K	L1	L2	L3	L4	L5	L6	X	W (Kg)
10A	3/8"	3/8"	3/8"	M6	1/4"	22	18	9.5	14	22	44.5	16	26	71	102	106	123	-	1
15A	1/2"	1/2"	3/8"	1/8"	3/8"	27.5	20	13.5	15	22	55	18	34	98	133	139	150	10	1
20A	3/4"	3/4"	1/2"	1/4"	1/2"	31.5	22	17.5	14	28	63	20	40	113	152	158	170	12	1.4
25A	1"	1"	3/4"	3/8"	1/2"	36	27	23	18	34	72	25	46	124	170	186	202	13	2
32A	1 1/4"	1 1/4"	1"	1/2"	3/4"	42.5	33	29.5	21	42	85	30	55	143	211	219	236	15	3
40A	1 1/2"	1 1/2"	1 1/4"	3/4"	3/4"	46.5	35	35	25	50	93	34	62	167	234	250	267	17	4
50A	2"	2"	1 1/4"	3/4"	3/4"	58	35	47	25	65	116	35	62	190	259	272	289	17	7
65A	2 1/2"	2 1/2"	2"	1 1/4" 1 1/2"	1"	67.5	45	60	30	75	135	40	75	214	228	320	347	20	14
80A	3"	3"	2 1/2"	1 1/4" 1 1/2"	1 1/4"	75	53	70	30	85	150	40	75	225	303	350	381	20	18

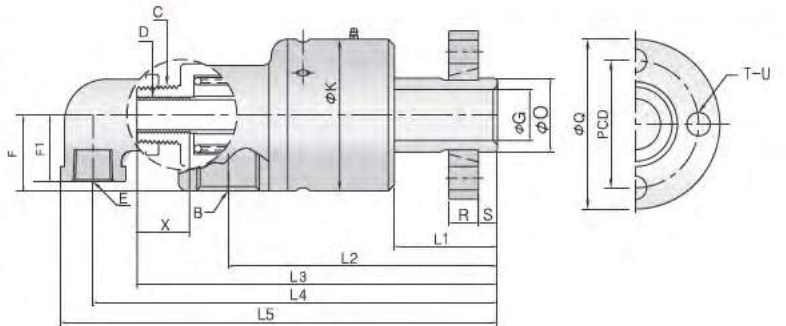
Water Meter Joint

Rotating Style Of Duoflow For Water



Mark Size	A (PT)	B (PT)	C (PT)	D	E (PT)	F	F1	G	H	H1	K	L1	L2	L3	L4	L5	L6	X	W (Kg)
10A	3/8"	3/8"	3/8"	-	3/8"	22	18	9.5	14	22	44.5	16	26	71	102	106	123	-	1
15A	1/2"	1/2"	3/8"	9.90 9.87	3/8"	27.5	20	13.5	15	22	55	18	34	98	133	139	150	10	1
20A	3/4"	3/4"	1/2"	12.70 12.65	1/2"	31.5	22	17.5	14	28	63	20	40	113	152	158	170	12	1
25A	1"	1"	3/4"	16.80 16.75	1/2"	36	27	23	18	34	72	25	46	124	170	186	202	13	2
32A	1 1/4"	1 1/4"	1"	20.50 20.45	3/4"	42.5	33	29.5	21	42	85	30	55	143	211	219	236	15	3
40A	1 1/2"	1 1/2"	1 1/4"	25.30 25.24	3/4"	46.5	35	35	25	50	93	34	62	167	234	250	267	17	4
50A	2"	2"	1 1/4"	25.30 25.24	3/4"	58	35	47	25	65	116	35	62	190	259	272	289	17	7
65A	2 1/2"	2 1/2"	2"	41.90 41.82	1"	67.5	45	60	30	75	135	40	65	204	278	310	337	20	14
80A	3"	3"	2 1/2"	58.60 58.52	1 1/4"	75	53	70	30	85	150	40	75	225	303	350	381	20	18

Stationary Style Of Duoflow Flange Type For Water & Rotating Style Of Flange Type

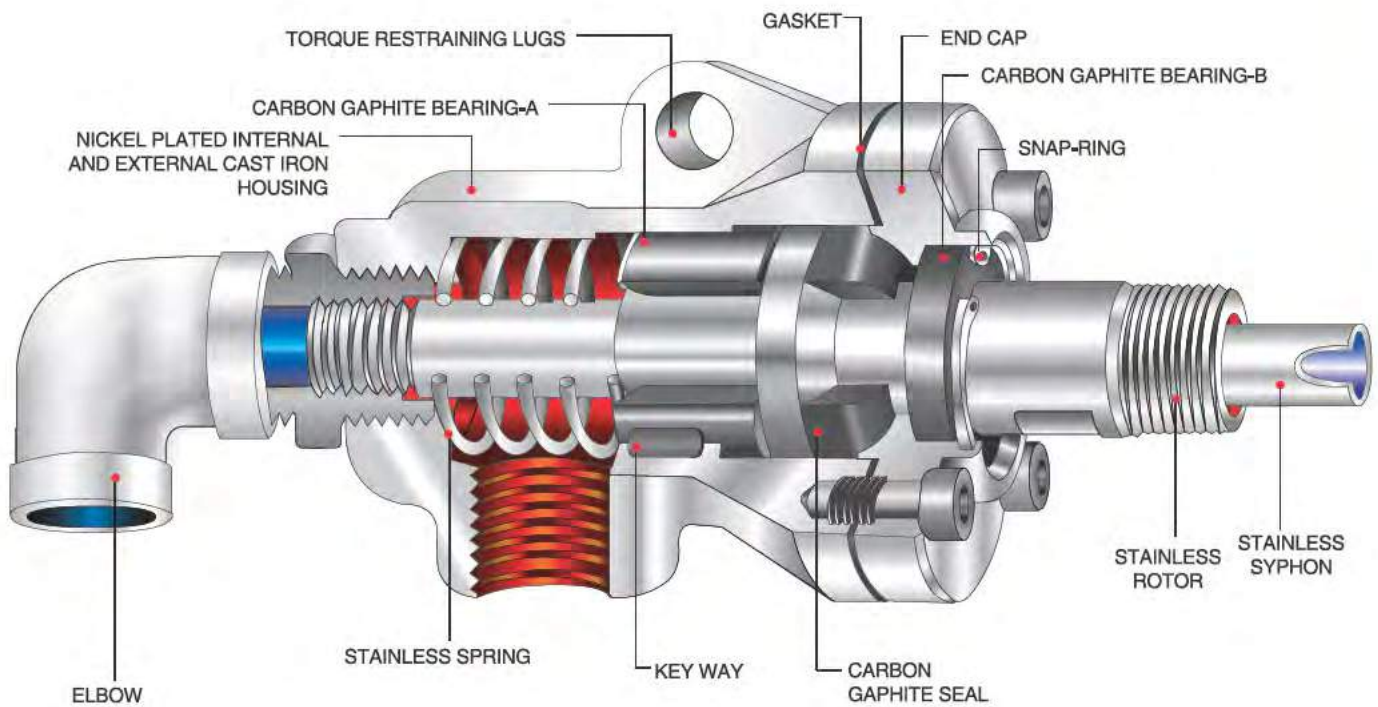


Mark Size	B (PT)	C (PT)	D (PF)	E (PT)	D1	F	F1	G	K	L1	L2	L3	L4	L5	O	P	Q	R	S	T	U	X	W (Kg)
20A	3/4"	1/2"	1/4"	1/2"	12.70 12.65	31.5	22	17.5	63	42	115	152	160	172	30	54	74	13	8	4	11	12	1
25A	1"	3/4"	3/8"	1/2"	16.80 16.75	36	27	23	72	46	124	170	186	202	35	60	80	14	9	4	11	13	2
32A	1 1/4"	1"	1/2"	3/4"	20.50 20.45	42.5	33	29.5	85	55	143	211	219	236	42	70	90	15	9	4	11	15	3
40A	1 1/2"	1 1/4"	3/4"	3/4"	25.30 25.24	46.5	35	35	93	62	167	234	250	267	50	75	96	16	9	4	11	17	4
50A	2"	1 1/4"	3/4"	3/4"	25.30 25.24	58	35	47	116	62	190	259	272	289	65	95	120	19	10	4	13	17	7
65A	2 1/2"	2 1/2"	1 1/4" 1 1/2"	1"	41.90 41.82	67.5	45	60	135	75	214	288	320	347	80	110	136	20	12	4	13	20	14
80A	3"	3"	1 1/4" 1 1/2"	1 1/4"	58.60 58.52	75	53	70	150	75	225	303	350	381	90	125	154	20	12	6	13	20	18

Sae Han Rotary Joints

ROTARY JOINTS

Steam Rotary Joint



The Structure of Rotary Joints

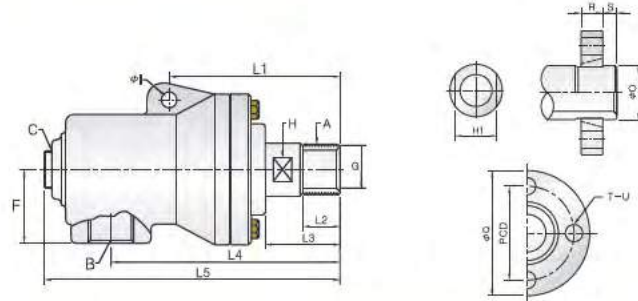
SHS 4000 Series and SHH 5000 Series of Sae Han were designed for long life, convenient maintenance and repair. It was especially plates with Nickel in order to protect it from erosion and rotor was designed as one body with Stainless Steels. It's self-supporting rotary joint type was two carbon bearings and its endurance is excellent so it is suitable for steam, hot oil, hot water which have both high temperature and high pressure.



OPERATING DATA	
MAX STEAM PRESSURE	20 kgf/cm ² G
MAX STEAM TEMPERATURE	210°C
MAX HOT OIL PRESSURE	20 kgf/cm ² G
MAX HOT OIL TEMPERATURE	350°C
MAX SPEED	350 RPM
MEDIA	STEAM, HOT OIL, HOT WATER

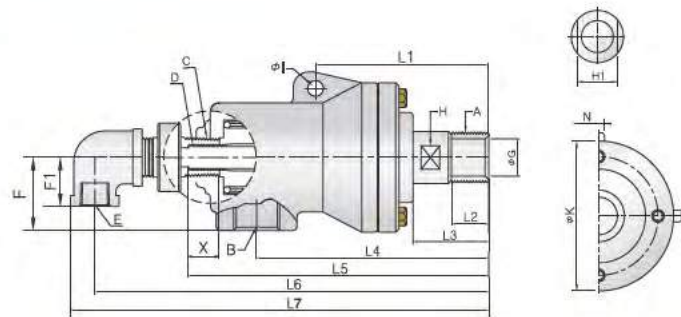
· Prior to using it other purpose, please discuss it with our development team for technology

Monoflow For Steam & Hot Oil of Flange Type



Mark Size	A (PT)	B (PT)	C (PT)	F	G	H	H1	I	L1	L2	L3	L4	L5	O	P	Q	R	S	T	U	W (Kg)
20A	3/4"	3/4"	3/4"	44	18	15	25	12	99	21	41	127	164	28.5	54	74	13	8	4	11	2.6
25A	1"	1"	3/4"	47	24	15	29	14	116	25	50	153	195	35	60	80	14	9	4	11	3.6
32A	1 1/4"	1 1/4"	1"	57	31	20	36	16	132	28	58	180	235	45	70	90	15	9	4	11	6
40A	1 1/2"	1 1/2"	1 1/4"	62	38	20	44	17	135	30	60	196	263	50	75	96	16	9	4	11	8
50A	2"	2"	1 1/4"	75	50	30	61	18	148	30	63	230	297	60	95	120	19	10	4	13	13
65A	2 1/2"	2 1/2"	-	82	62.5	35	73	20	182	40	80	254	325	80	110	136	20	12	4	14	19
80A	3"	3"	-	96	80	35	90	22	205	50	94	324	480	90	125	154	20	12	4	14	37
100A	4"	4"	-	135	98	-	105	26	243	55	100	383	480	113	165	195	22	15	6	18	60

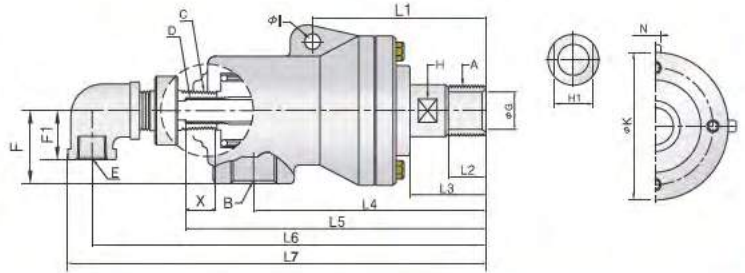
Rotating Style Of Duoflow For Steam & Hot Oil



Mark Size	A (PT)	B (PT)	C (PT)	D	E (PT)	F	F1	G	H	H1	I	K	L1	L2	L3	L4	L5	L6	L7	N	X	W (Kg)
20A	3/4"	3/4"	3/4"	12.70 12.57	1/2"	44	28	18	15	25	12	87	99	21	41	127	174	189	205	15	15	2.8
25A	1"	1"	3/4"	16.84 16.68	1/2"	47	28	24	15	29	14	96	116	25	50	153	211	216	232	15	13	3.7
32A	1 1/4"	1 1/4"	1"	20.54 20.39	3/4"	57	32	31	20	36	16	115	132	28	58	180	252	259	276	15	15	6.5
40A	1 1/2"	1 1/2"	1 1/4"	25.32 25.17	3/4"	62	34	38	20	44	17	125	135	30	60	196	273	291	308	15	17	8
50A	2"	2"	1 1/4"	25.32 25.17	3/4"	75	34	50	30	61	18	145	148	30	63	230	303	324	341	15	17	13
65A	2 1/2"	2 1/2"	2"	41.90 41.75	2"	82	71	62.5	35	73	20	163	182	40	80	254	353	410	455	18	25	20
80A	3"	3"	2 1/2"	47.40 47.25	2 1/2"	96	82	80	35	90	22	214	205	50	94	324	439	480	525	20	28	38
100A	4"	4"	3"	58.60 58.45	3"	135	101	98	45	105	26	260	243	66	100	383	524	555	605	22	30	57



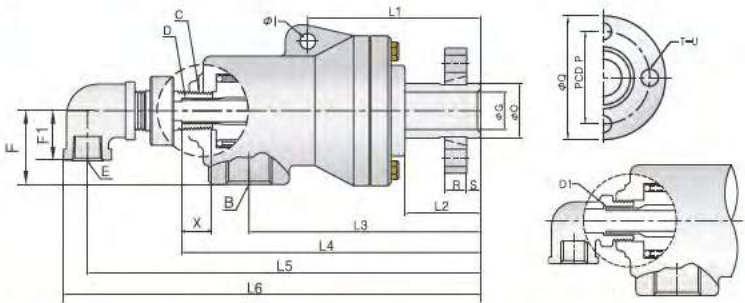
Stationary Style Of Duoflow For Steam & Hot Oli



Mark Size	A (PT)	B (PT)	C (PT)	D (PF)	E (PT)	F	F1	G	H	H1	I	K	L1	L2	L3	L4	L5	L6	L7	N	X	W (Kg)
20A	3/4"	3/4"	3/4"	1/4"	1/2"	44	28	18	15	25	12	87	99	21	41	127	174	189	205	15	15	3
25A	1"	1"	3/4"	3/8"	1/2"	47	28	24	15	29	14	96	116	25	50	153	211	216	232	15	13	4
32A	1 1/4"	1 1/4"	1"	1/2"	3/4"	57	32	31	20	36	16	115	132	28	58	180	252	259	276	15	15	6.5
40A	1 1/2"	1 1/2"	1 1/4"	3/4"	3/4"	62	34	38	20	44	17	125	135	30	60	196	273	291	308	15	17	8.6
50A	2"	2"	1 1/4"	3/4"	3/4"	75	34	50	30	61	18	145	148	30	63	230	303	324	341	15	17	13.6
65A	2 1/2"	2 1/2"	2"	1 1/4" 1/2"	1 1/2"	82	71	62.5	35	73	20	163	182	40	80	254	353	410	455	18	25	20.5
80A	3"	3"	2 1/2"	1 1/2" 2"	1 1/2" 2"	96	82	80	35	90	22	214	205	50	94	324	439	480	525	20	28	39
100A	4"	4"	3"	2" 2 1/2"	2 1/2"	135	101	98	-	105	26	265	243	55	100	383	524	555	605	22	30	64

Steam Rotary Joint

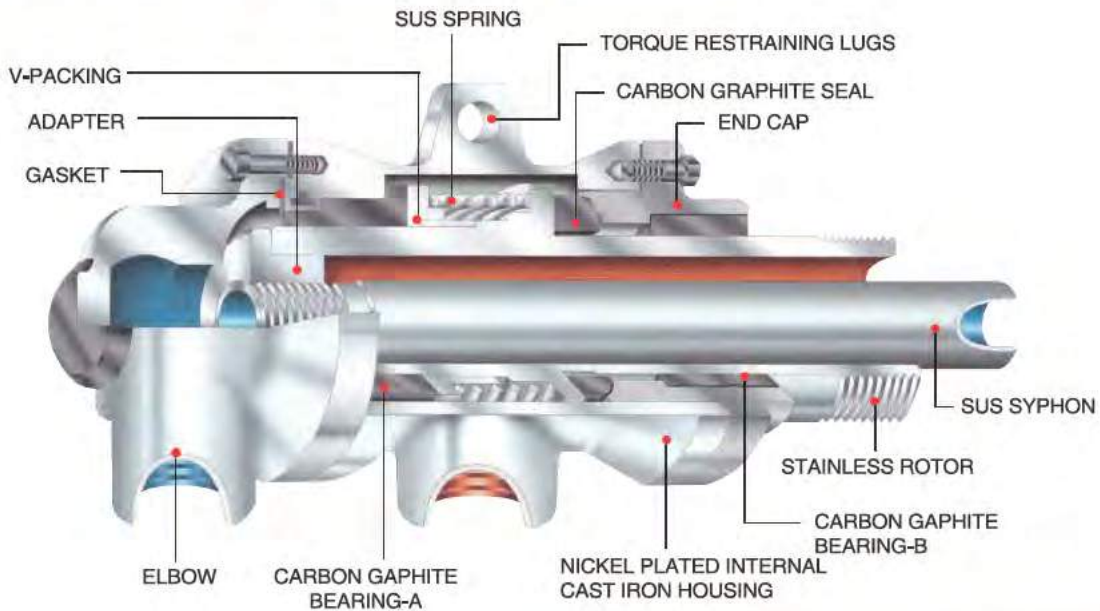
Stationary Style Of Duoflow Flange Type For Steam & Hot Oil Rotating Style Of Flange Type



Mark Size	B (PT)	C (PT)	D (PF)	D1	E (PT)	F	F1	G	I	L1	L2	L3	L4	L5	L6	O	P	Q	R	S	T	U	X	W (Kg)
20A	3/4"	3/4"	1/4"	12.70 12.57	1/2"	44	28	18	12	99	41	127	174	189	205	28.5	54	74	13	8	4	11	15	2.8
25A	1"	3/4"	3/8"	16.84 16.68	1/2"	47	28	24	14	116	50	153	211	216	232	35	60	80	14	9	4	11	13	3.7
32A	1 1/4"	1"	1/2"	20.54 20.39	3/4"	57	32	31	16	132	58	180	252	259	276	45	70	90	15	9	4	11	15	6.5
40A	1 1/2"	1 1/4"	3/4"	25.32 25.17	3/4"	62	34	38	17	135	60	196	273	291	308	50	75	96	16	9	4	11	17	8
50A	2"	1 1/4"	3/4"	25.32 25.17	3/4"	75	34	50	18	148	63	230	303	324	341	62	95	120	19	10	4	13	17	13
65A	2 1/2"	2"	1 1/4" 1 1/2"	41.90 41.75	2"	82	71	62.5	20	182	80	254	353	410	455	80	110	136	20	12	4	14	25	20
80A	3"	2 1/2"	1 1/2" 2"	47.40 47.25	2 1/2"	96	82	80	22	205	94	324	439	480	525	90	125	154	20	12	4	14	28	38
100A	4"	3"	2" 2 1/2"	58.60 58.45	3"	135	101	96	25	230	97	380	524	555	605	113	165	195	22	15	6	18	30	57

Sae Han Rotary Joints

ROTARY JOINTS

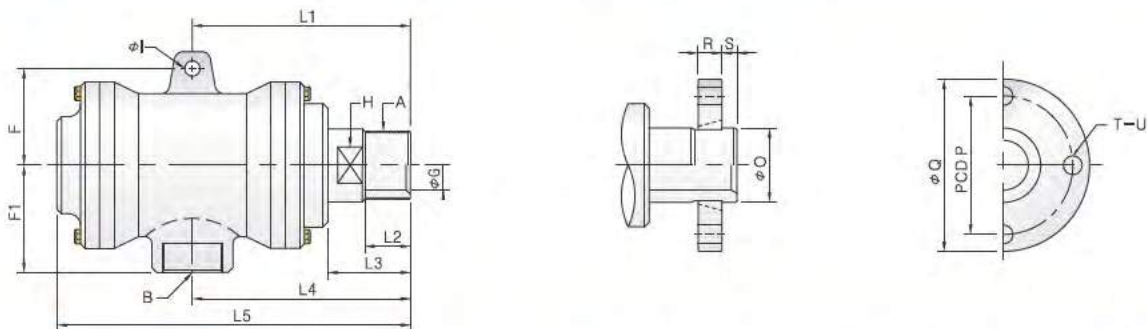


SHS 6000 Series and SHH 6000 Series of Sae Han are mainly suitable for steam and heat conductors which are plentifully used in paper-making, textile, and plastic industry. The material which is of auto caution type circular sealing and has excellent sealing effect so it is resistant to impact not only from internal pressure but also from external force.

OPERATING DATA	
MAX WATER PRESSURE	20 kgf/cm ² G
MAX STEAM TEMPERATURE	210°C
MAX HOT OIL TEMPERATURE	350°C
MAX SPEED	350 RPM
MEDIA	STEAM, HOT OIL, HOT WATER

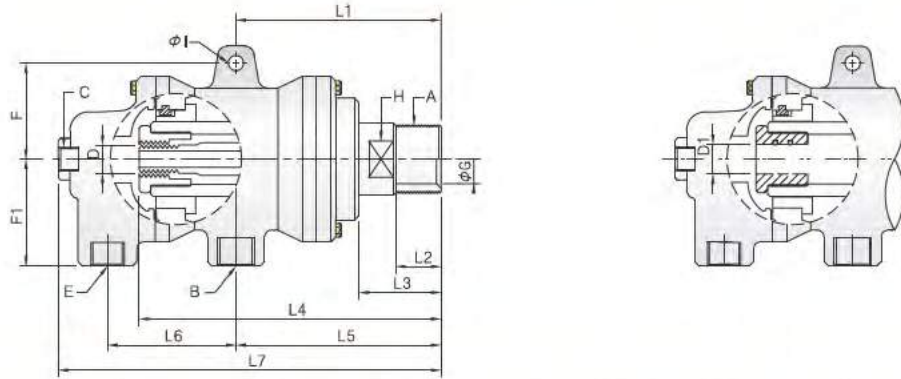
* Prior to using it other purpose, please discuss it with our development team for technology

Monoflow Steam And Monoflow Of Flange Type & Monoflow For Hot Oil And Monoflow Of Flange Type



Mark Size	A (PT)	B (PT)	F	FI	G	H	I	L1	L2	L3	L4	L5	O	P	Q	R	S	T	U
50A	2"	2"	83	95	48	60	13	150	30	60	150	265	65	95	120	14	10	4	11
65A	2 1/2"	2 1/2"	92	110	60	-	15	180	35	70	180	315	80	115	138	18	12	4	13
80A	3"	3"	115	120	76	-	15	185	40	70	185	330	95	125	150	18	12	4	13
100A	4"	4"	137	170	100	-	15	-	-	75	220	400	120	160	200	20	15	4	15
125A	5"	5"	-	220	125	-	-	-	-	85	275	470	160	225	280	24	15	4	18

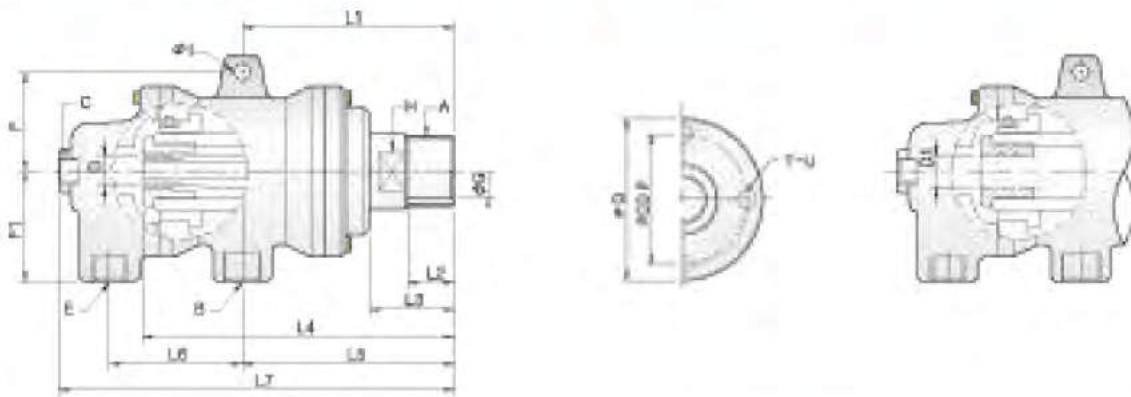
Stationary & Rotating Style Of Duoflow For Steam & Hot Oil



Mark Size	A (PT)	B (PT)	C (PT)	D (PT)	D1	E (PT)	F	F1	G	H	I	L1	L2	L3	L4	L5	L6	L7
50A	2"	1 1/2"	1 1/4"	3/4" ~ 1 1/4"	31.49 31.62	1 1/4"	83	95	48	60	13	150	30	60	233	150	95	305
65A	2 1/2"	2"	1 1/2"	3/4" ~ 1 1/2"	47.37 47.42	1 1/2"	92	110	60	-	15	180	35	70	275	180	125	370
80A	3"	2 1/2"	2"	1" ~ 2"	58.47 58.62	2"	115	120	76	-	15	185	40	70	300	185	145	400
100A	4"	3"	1 1/2"	1" ~ 3"	69.65 69.73	1 1/2"	137	155	100	-	15	-	-	75	375	220	240	515
125A	5"	4"	2"	1 1/4" ~ 4"	-	2"	-	220	125	-	-	-	-	85	442	275	240	600

Steam Rotary Joint

Stationary Style Of Duoflow Flange Type For Steam & Hot Oil Rotating Style Of Flange Type



Mark Size	B (PT)	C (PT)	D (PT)	D1	E (PT)	F	F1	G	I	L1	L2	L3	L4	L5	L6	L7	O	P	Q	R	S	T	U
50A	1 1/2"	1 1/4"	3/4" ~ 1 1/4"	31.49 31.62	1 1/4"	83	95	48	13	150	30	60	233	150	95	305	65	95	120	14	10	4	11
65A	2"	1 1/2"	3/4" ~ 1 1/2"	47.37 47.42	1 1/2"	92	110	60	15	180	35	70	275	180	125	370	80	115	138	18	12	4	13
80A	2 1/2"	2"	1" ~ 2"	58.47 58.62	2"	115	120	76	15	185	40	70	300	185	145	400	95	125	150	18	12	4	13
100A	3"	1 1/2"	1" ~ 3"	69.65 69.73	1 1/2"	137	-	100	15	-	-	75	375	220	240	515	120	160	200	20	15	4	15
125A	4"	2"	1 1/4" ~ 4"	-	2"	-	220	125	-	-	-	85	442	275	240	600	160	225	280	24	15	4	18

Sae Han Rotary Joints

ROTARY JOINTS

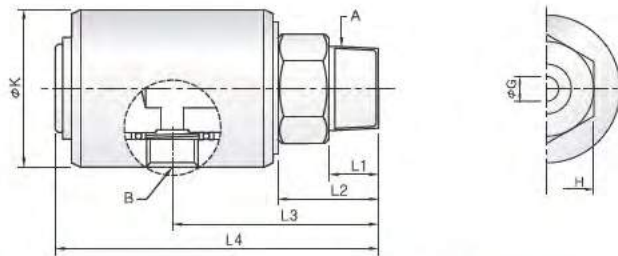
Sae Han SHHA 7200 Series is rotary joint especially for industrial machines which use various pressures from high pressure to low pressure. The shaft is not only plated with special material to prevent wear and erosion but is also polished precisely and long life is guaranteed.



OPERATING DATA	
MAX PRESSURE	200 kgf/cm ² G
MAX TEMPERATURE	120°C
MAX SPEED	250 RPM
MEDIA	HYDRAULIC, VACUUM, AIR

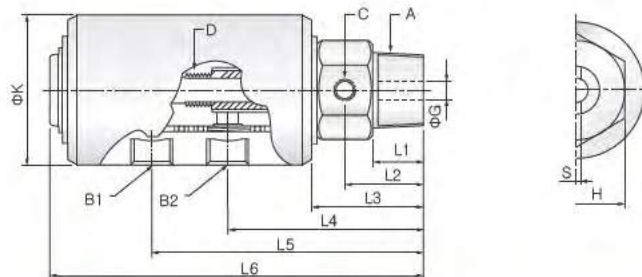
· Prior to using it other purpose, please discuss it with our development team for technology

Monoflow For Air & Hydraulic



Mark	A (PT)	B (PT)	G	H	K	L1	L2	L3	L4	W (Kg)
8A	1/4"	1/4"	6	24	45	15	27	54.5	88	0.3
10A	3/8"	3/8"	10	24	45	15	32	59.5	94	0.7
15A	1/2"	1/2"	18.4	50	78	20	47	82	124.3	1.2

Duoflow For Air & Hydraulic



Mark	A (PT)	B1/B2 (PT)	C (PT)	D (PT)	G	H	K	L1	L2	L3	L4	L5	L6	S	W (Kg)
8A	1"	1/4"	1/4"	1/4"	8	44.4	66.3	27	39.2	55.5	82.1	111.5	150	5	1.6
15A	1 1/4"	1/2"	1/2"	1/2"	15	55	76.3	28	43.5	63	110.5	152.5	208	6	3
20A	1 1/2"	3/4"	3/4"	3/4"	18	63.5	89	30.2	47.7	66.6	117.5	165.9	225.4	6	4.4



Sae Han Rotary Joints

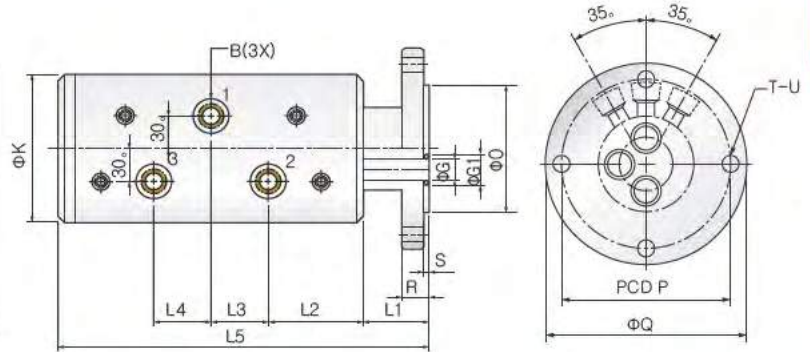
ROTARY JOINTS

SHHA 7300 and SHHA 7400 series of Sae Han are plated with special material and treated by heat in order to prevent the shaft from wear and erosion. The two ball bearings were designed to minimize the load of seal. These products are used for high pressure, oil pressure, and other purposes. Also, they are mainly used for multistage index tables. Long life is guaranteed.

OPERATING DATA	
MAX HYDRULIC PRESSURE	70 kgf/cm ² G
MAX WATER TEMPERATURE	120°C
MAX SPEED	250 RPM
MEDIA	HYDRAULIC, AIR, WATER, VACUUM

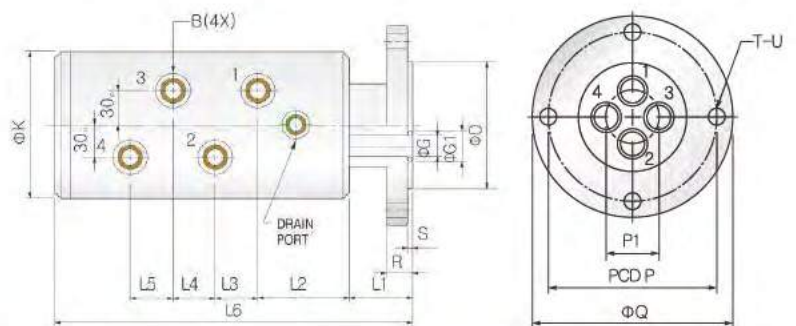
- Prior to using it other purpose, please discuss it with our development team for technology

3 Pot For Air & Hydraulic



Mark Size	B (PT)	G	G1	K	L1	L2	L3	L4	L5	O	P	Q	R	S	T	U	W (Kg)
10A	(3) x 3/8"	10	14	84	30	62	64	60	241	120	105	70	15	5	4	7	-
15A	(3) x 1/2"	13	17	102	35	66	68	64	253	85	120	135	20	5	4	9	-
20A	(3) x 3/4"	18	22.5	105	40	75	77	73	280	100	135	150	20	5	4	9	22.6

4 Pot For Air & Hydraulic



Mark Size	B (PT)	G	G1	K	L1	L2	L3	L4	L5	L6	O	P	P1	Q	R	S	T	U	W (Kg)
10A	(4) x 3/8"	9	16.75 16.65	89	21	51	18	18	18	176	60.000 59.981	90	24.5	110	10.5	4	4	7.2	7.6
15A	(4) x 1/2"	13	19.75 19.65	108	21	60	23	23	23	202	75.000 74.981	110	29	130	13.5	4	4	9	12.7

Sae Han Rotary Joints

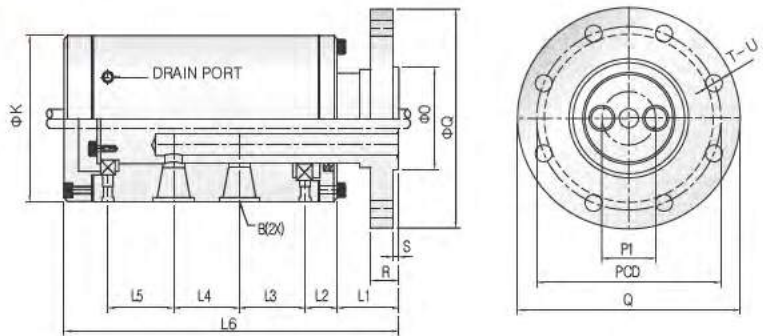
ROTARY JOINTS

2 Pot For Air & Hydraulic

The series was developed especially for continuous casting facilities steel. It was designed for mechanical sealing and can be exchanged easily when a rotary joint is installed. Seals are ceramic on carbon graphite.

OPERATING DATA	
MAX HYDRULIC PRESSURE	140 kgf/cm ² G
MAX WATER TEMPERATURE	8°C
MAX SPEED	2000 RPM
MEDIA	HYDRAUUC OIL

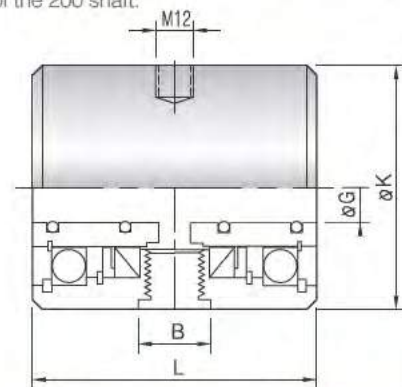
- Prior to using it other purpose, please discuss it with our development team for technology



Size	Mark	B (PT)	K	L1	L2	L3	L4	L5	L6	P	P1	Q	R	S	T	U	C'B ØxDP
10A×8A	(2)×3/8"	90	16	-	42.5	18	-	126	72	-	110	10	2	6	9	-	-
20A×8A	(2)×3/4"	143	35	-	73.5	74	-	273.5	165	36	190	28	2	8	14	-	-
25A×8A	(2)×1"	152	35	50	62	42	76.5	316	180	28	210	30	-	8	18	26×18	-
25A×15A	(2)×1"	210	60	-	110	90	-	382	225	76	260	30	2	8	18	26×18	-
40A×8A	(2)×1 1/2"	220	76	75	90	90	90	450	240	70	290	30	-	8	24	-	-

Around Type Shaft Joints

It is mainly used for narrow spaces or various equipments in which the installation of a general rotary joint is difficult. It is used based on the condition that a little leakage is permissible. Order-based production is the basic principle of the 200 shaft.



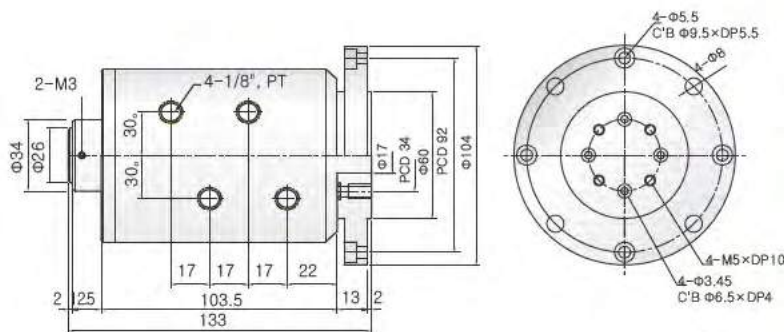
Size	Mark	B (PT)	G	K	L
20MM	1/4"	20	55	89	
30MM	1/4"	30	65	91	
40MM	1/4"	40	75	100	
45MM	1/4"	45	85	104	
50MM	1/4"	50	90	106	
55MM	1/2"	55	100	119	
60MM	1/2"	60	105	121	

Size	Mark	B (PT)	G	K	L
65MM	1/2"	65	110	123	
70MM	1/2"	70	120	127	
75MM	1/2"	75	125	134	
80MM	1/2"	80	135	138	
85MM	1/2"	85	140	140	
90MM	1/2"	90	150	142	
95MM	1/2"	95	155	147	
100MM	1/2"	100	160	153	

Sae Han Rotary Joints

ROTARY JOINTS

4 Pot For Air & Hydraulic



Hydraulic Rotary Joint

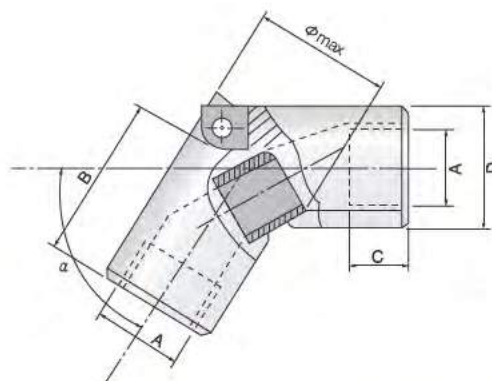
Technical Data & Terns

SYPHON ELBOW

Horizontal pipe and vertical pipe are connected by pin so they are bent freely. The sealing side is round and it is sealed by Teflon. Syphon Elbow is stationary Syphon and it is recommended for rolls which are over 500.

For paper making, please use it ELBOW 200 MPM especially when it is applied to Roll 60".

Size	Mark	A (PT)	B	C	D	α
10A	3/8"	40	20	28	30	
15A	1/2"	50	30	32	30	
20A	3/4"	52	30	37	30	
25A	1"	60	35	46	30	
32A	1 1/4"	62	95	70	52	
40A	1 1/2"	70	105	80	60	



Steam table kg/cm(absolute pressure)

OC	0	1	2	3	4	5	6	7	8	9
100	1.03	1.07	1.11	1.15	1.19	1.23	1.28	1.32	1.37	1.14
110	1.46	1.51	1.56	1.61	1.67	1.72	1.78	1.84	1.90	1.96
120	2.02	2.09	2.16	2.22	2.29	2.37	2.44	2.52	2.59	2.67
130	2.75	2.84	2.92	3.01	3.10	3.19	3.29	3.38	3.48	3.58
140	3.69	3.79	3.90	4.01	4.12	4.24	4.36	4.48	4.60	4.73
150	4.85	4.99	5.12	5.26	5.40	5.54	5.69	5.84	5.99	6.14
160	6.30	6.46	6.63	6.80	6.97	7.15	7.33	7.51	7.69	7.88
170	8.08	8.27	8.48	8.68	8.89	9.10	9.32	9.54	9.76	9.99
180	10.23	10.46	10.70	10.95	11.20	11.46	11.72	11.98	12.25	12.52
190	12.80	13.08	13.37	13.66	13.96	14.27	14.57	14.89	15.20	15.53
200	15.86	16.19	16.53	16.88	17.23	17.59	17.95	18.32	18.69	19.07
210	19.46	19.85	20.25	20.65	21.06	21.48	21.90	22.33	22.77	23.21
220	23.66	24.12	24.58	25.05	25.52	26.01	26.50	27.00	27.50	28.01
230	28.53	29.06	29.59	30.13	30.68	31.24	31.86	32.38	32.96	33.54

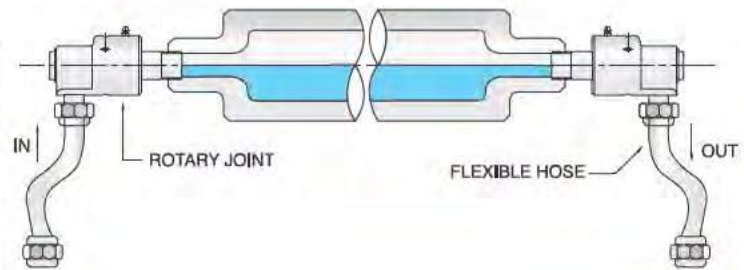
In case of kg/cm²(Gauge), please subtract 1.03 from value of table.

In case that there is no direction about absolute pressure and Gauge pressure, (Steam is absolute pressure) If the value is A kg/cm² in vacuum condition, the value is 1.03 - A kg/cm² in absolute pressure condition.

How To Use

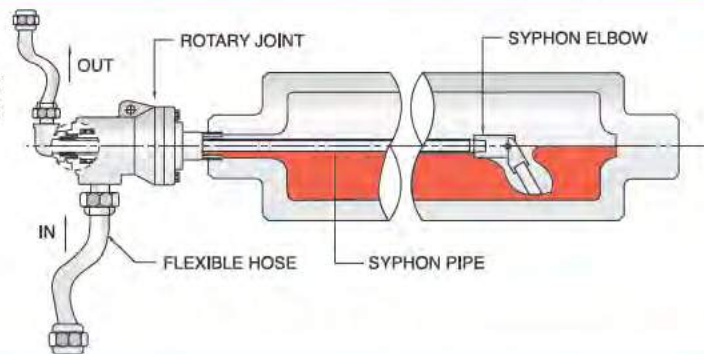
MONOFLOW

It is used for a comparatively small rotating roll and drum. The fluid is supplied from one side and is drawn off through the opposite side in order to make it cool or hot.



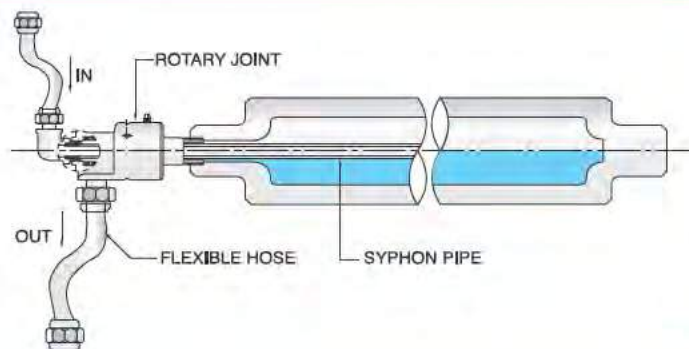
DUOFLOW, STATIONARY SYPHON

It is mainly for steam type and used for rotating the roll and drum. The steam is supplied from one side and condensed water is drawn off through inner pipe which is in the same side.



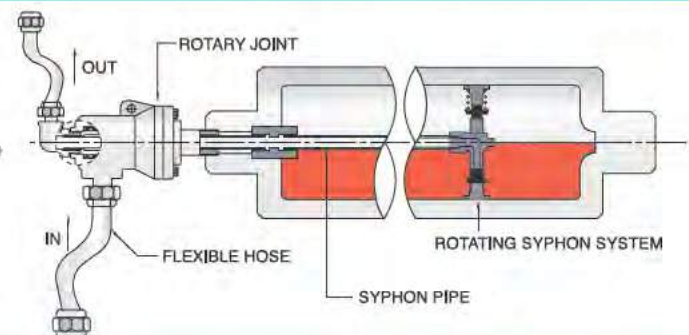
DUOFLOW, STATIONARY SYPHON

The fluid is supplied through an inner pipe in order to increase efficiency of heat exchange. It is mainly suitable for water and hot oil and is used for various machines.



DUOFLOW, ROTATING SYPHON

The steam is supplied from one side and condensed water is drawn off through inner pipe which is in the same side. The end part of the inner pipe is attached to the inside of the roll so it rotates together with roll. This type is used for various machines.



Caution For Handling

HANDLING NOTES

- Never dismantle it.
- Use after selecting a right Rotary Joint according to conditions.
- Always keep it out of contaminated contents.
- When operating Lubricating-type Rotary Joint, make sure to use proper grease according to fluid temperature.
- Cooling Rotary Joints can be leaked in winter due to broken seal.
- Rotary Joints can be leaked due to broken body and/or seal following shock or drop.
- Keep it from idling (When it is idled without fluid, seal can be broken leading to leak due to heat).
- After sales services may not be possible when Rotary Joints are corroded due to long use of leaking Products.
- As the rotary joint cannot be repaired at the site, you need to send it back to our company for repairs.

INSTALLATION METHOD

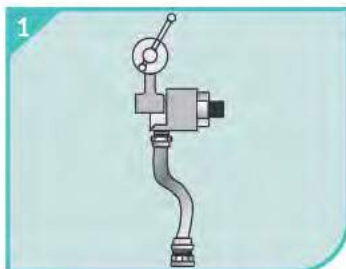
- Check directions of roll screw and Rotary Joints screw before installation.
- Assemble Rotary Joint into rotating center of roll.
- Fit loosely when using hangerf.
- The length of the inner part is recommended fourfold as long as the one of Rotary Joints since it should reduce life when the inner part is too long on multiple forms.
- Use after removing contaminants such as chip, slug or founder, If possible, use a strainer.

! THE GUARANTEE PERIOD

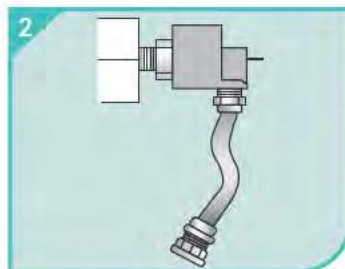
- Installation : 1 year from the purchase date
- After sales service : 6 months from the purchase date
- When broken due to mishandling or use's fault, AAS cannot be provided.

FLEXIBLE HOSE INSTALLATION When dismantling, follow the opposite steps

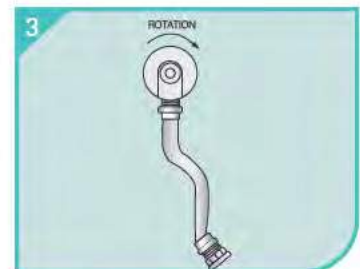
Follow the steps described below.



Please connect flexible hose grasping the rear part of body with bench vice.



Please install rotary joint to shaft of machine.



Please connect flexible hose to supplying line and you never install it when it is twisted or it has been too tight.



SAEHAN

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A Company Armed with
Differentiated Technical Power
and Top-notch Quality

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