

HEAT EXCHANGERS & ALL FLEXIBLE-JOINTS

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## Company Profile

Since its establishment in 1970 in Osaka / Japan, Zenshin Corporation has supplied flexible joint, expansion joint, pipe fittings and many kinds of heat exchanger for applications ranging from home to industrial processes.

We always research customer's needs and develop new products.


Our product line, for example, three kinds of pressure level for air-conditioning, four kinds of seismic isolation system, can make many offers to customer.

In addition to the basic material stainless steel, we have extended our product line including rubber, PTFE and so on in order to meet customer's requests.

Testing equipment for lateral movement, expansion and contraction gives technical reliability to the products, and we have quality assurance by accrediting to ISO9001 since 1998.

We are working hard to bolster competitiveness by improving costs, quality, delivery times and constantly aware of contributing environmental preservation.

We will focus on achieving greater satisfaction and reliability for our all customers and users.



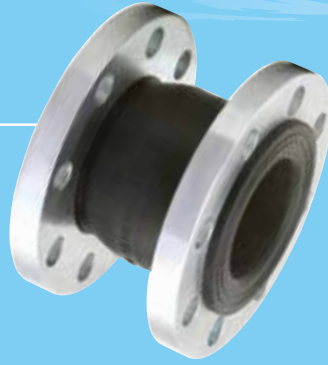


# Vibration Absorbing Joint

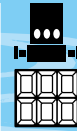
## Rubber Joint

### ZRJ-B Single Sphere

ZRJ-B is standard type which is applied for up to 1 MPa. The raised facing rubber part at both end reinforced by solid ring gives sufficient pressure durability. Special designed reinforcement layers contribute to restrain from elongation and expansion.



Application



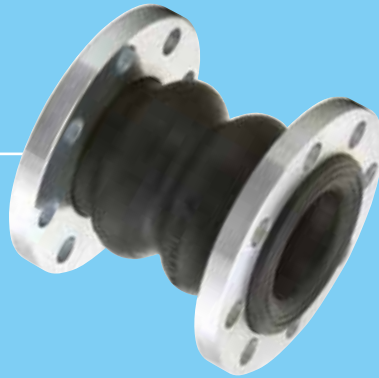
Pump piping  
Water tank piping

Size  
Temperature  
Flange Rating

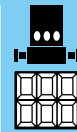
3/4inch to 12inch  
-20degC to +60degC  
JIS

### ZRJ-T Twin sphere

Twin sphere rubber joint has small eigen frequency, it means ZRJ-T could absorb wide range vibration. Remarks: union 1/2inch to 2inch connection is also available



Application



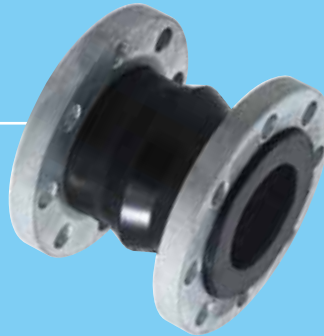
Pump piping  
Water tank piping

Size  
Temperature  
Flange Rating

3/4inch to 12inch  
-20degC to +60degC  
JIS

### ZRJ-HD HEAVY DUTY 20

Special designed fiber layers contribute to restrain from elongation and expansion even if the high pressure line. The flange facing part which is reinforced by solid ring takes sufficient pressure durability.



Application



Pump piping

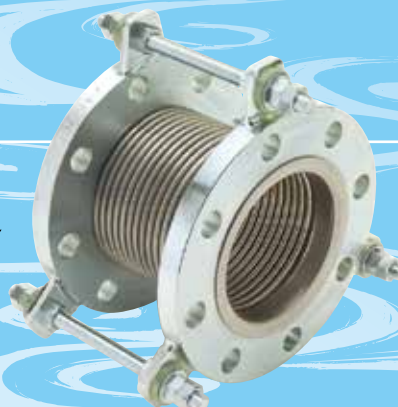
Size  
Temperature  
Flange Rating

1-1/4inch to 12inch  
-20degC to +60degC  
JIS 20k

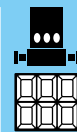
## Stainless Steel Joint

### A·V·JOINT

Multi-ply stainless steel bellows, stainless steel for inner (fluid contact) and outer has sufficient anti-corrosion, pressure durability and vibration absorbing performance. Non-weld fixing conformation is superior in durability.



Application



Pump piping  
Water tank piping

Size  
Temperature  
Flange Rating

3/4inch to 12inch  
~+80degC  
JIS

# Earthquake-resistant Joint for Under-ground

## Rubber Joint

### ZRJ-MK 100F MK 200F

#### For Under-ground

ZRJ-MK 100 is 100mm lateral movement type. Triple sphere structure gives big allowable lateral movement inspite of short length. In case of sewage including solid material, flat inner surface is necessary to evacuate waste water smoothly.



Application



Underground piping

Size

3/4inch to 2inch  
(Inner flat)

2inch to 20inch  
(Inner cavity)

Temperature  
Flange Rating

-10degC to +80degC  
JIS, ANSI, DIN, BS

## Stainless Steel Joint

### Z-8000MS (flange)

#### For Under-ground

Stainless steel 304 bellows have sufficient anti-corrosion against fluid and circumstances. Bellows is protected by PVC tape. Flange is coated by tar.



Application



Underground piping

Size

3/8inch to 12inch

Temperature  
Flange Rating

-10degC to +60degC  
JIS, ANSI, DIN, BS

Pressure

1MPa for single braid  
2MPa for double braid

### Z-9000MS (union)

#### For Under-ground

Stainless steel 304 bellows have sufficient anti-corrosion against fluid and circumstances. Bellows is protected by PVC tape. Union is coated by tar.



Application



Underground piping

Size

3/8inch to 2-1/2inch

Temperature  
Pressure

-10degC to +60degC  
1MPa for single braid  
2MPa for double braid

# Earthquake-resistant Joint and General Pipeline Joint



The following joints have high performance for ground sinkage and seismic protection.

## Rubber Joint

### ZRJ-SH

Special designed reinforcement layers and wires contribute to restrain from elongation and expansion. Strong flange facing part which is reinforced by solid ring takes sufficient pressure durability.




Application	 General piping
	 Waste water piping
Size	3/4inch to 20inch (Inner flat)
Temperature Flange Rating	-10degC to +80degC JIS, ANSI, DIN, BS

### ZRJ-K 100F K 200F

Triple cavity structure gives big allowable lateral movement inspite of short length. The raised facing rubber part reinforced by solid ring gives sufficient pressure durability.






Application	 General piping
Size	3/4inch to 2inch (Inner flat) 2inch to 20inch (Inner cavity)
Temperature Flange Rating	-10degC to +80degC JIS, ANSI, DIN, BS

### Z-3000

Omega shape bellows is effective for absorbing vibration or pressure pulse load. Non-weld fixing conformation is superior in durability. Stainless steel 304 bellows has sufficient anti-corrosion against fluid and circumstances.




Application	 Pump piping
	 General piping
	 Water tank piping
Size	3/4inch to 12inch
Temperature	-40degC to +100degC (standard gasket)
Flange Rating Pressure	JIS, ANSI, DIN, BS 1MPa for single braid 2Mpa for double braid

### Z-2000NW

Standard U shape bellows is suitable joint to adjust misalignment of piping work for cooling water pipe line.



Application	 General piping
Size	1/2inch to 2inch
Temperature	-20degC to +300degC
Flange Rating Pressure	JIS, ANSI, DIN, BS 1MPa for single braid

### Z-4000 PE

Braid hose with roll grooved pipe end.

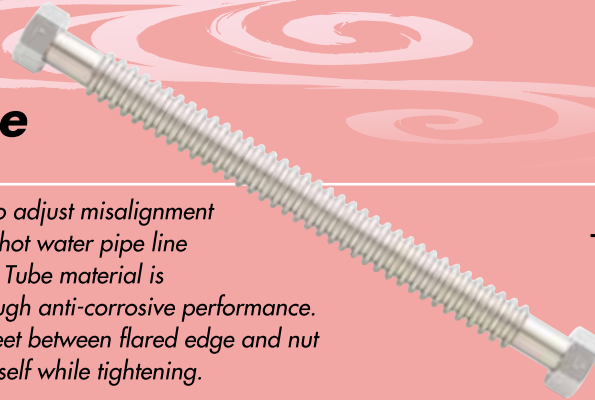




Size	1/2inch to 8inch
Pressure	1MPa for single braid

# Air-conditioning

## Wonder Tube (Low pressure)

Wonder tube is the best joint to adjust misalignment of piping work for chilled and hot water pipe line especially for air conditioning. Tube material is stainless steel 316L, it has enough anti-corrosive performance. Special designed PTFE ring sheet between flared edge and nut makes tube without twisting itself while tightening.





Application	 Sanitary piping
	 Air-conditioning pipe line
Size	1/2inch to 1-1/4inch
Temperature	0degC to +100degC
Pressure	1MPa for 1/2, 3/4 0.7MPa for 1 0.5MPa for 1-1/4

## Wonder Braid (High pressure)

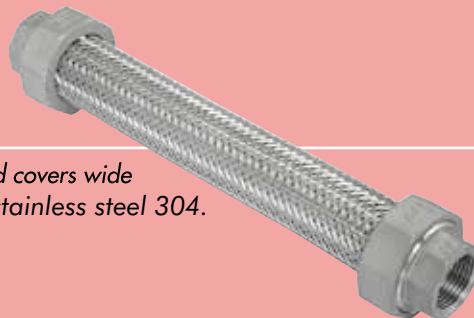
Wonder braid is reinforced by braid, and it resultly has 2 to 3MPa design pressure




Application	 Sanitary piping
	 Air-conditioning pipe line
Size	1/2inch to 1-1/4inch
Temperature	0degC to +100degC
Pressure	3MPa for 1/2, 3/4 2MPa for 3/4, 1, 1-1/4

## Z-10000NW

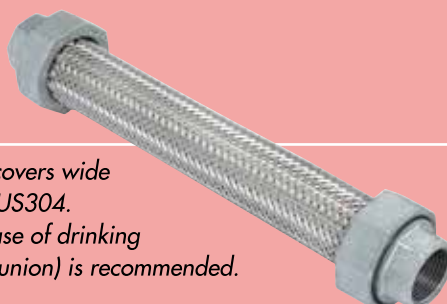
Z-10000NW is union type braid hose, and covers wide applications. Standard bellows material is stainless steel 304.




Application	 General piping
Size	3/8inch to 2inch
Pressure	1MPa for single braid

## Z-9000NW

Z-9000NW is union type braid hose, and covers wide applications. Standard bellows material is SUS304. SUS316L is also applicable on request. In case of drinking water line, Z-9000CAW (polyethelene core union) is recommended.



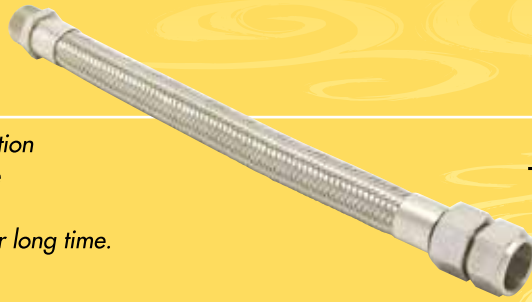
Application	 General piping
Size	3/8inch to 2inch
Pressure	1MPa for single braid

# Chemical pipeline , Food and Beverage pipeline

## ZTF-1000

(Metal sealing type)

If you need gasket-less pipe connection for corrosive fluid, metal sealing type PTFE joint is the best flexible joint. Metal sealing keeps safety sealing for long time.



Application



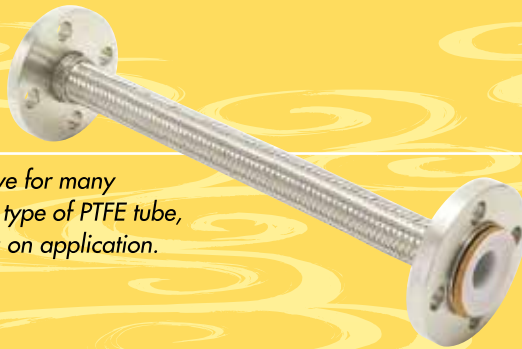
Size  
Temperature

1/8inch to 2inch  
-60degC to +200degC

## ZTF-2000

(Flange type)

PTFE tube has excellent anti-corrosive for many kinds of chemical fluid. There are 2 type of PTFE tube, straight and corrugated, depending on application.



Application



Size  
Temperature

1/2inch to 4inch  
-60degC to +200degC

## ZTF-3000

(Ferrule type)

In case of food and beverage line, ferrule connection is usually requested. After inserting ferrule into PTFE hose, both end are mechanically pressed and tightened. Standard ferrule is IDF, and the other type is also applicable on request.



Application



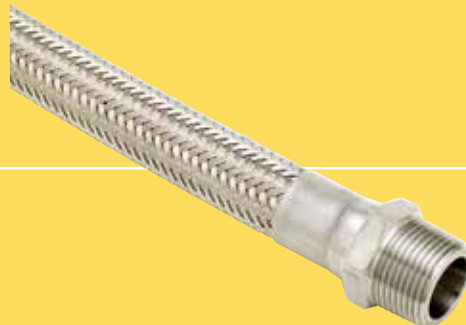
Size  
Temperature

3/8inch to 4inch  
-60degC to +200degC

## ZTF-4000

(Union-Nipple type)

If connection system is screw, ZTF-4000 is suitable joint. Please keep attention not to twist the joint because of fixing nipple.



Application



Size  
Temperature

1/8inch to 2inch  
-60degC to +200degC

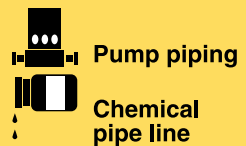
## ZTF-5000

(for anti-vibration)

ZTF-5000 is anti-vibration joint specially designed for corrosive fluid. PTFE tube is shaped bellows by thermal treatment and reinforced by stainless steel rod. Standard number of peak bellows is 3, and 5 peak bellows is also applicable.



Application



Size  
Temperature  
Flange Rating

1 inch to 12inch  
-20degC to +130degC  
JIS, ANSI, DIN, BS

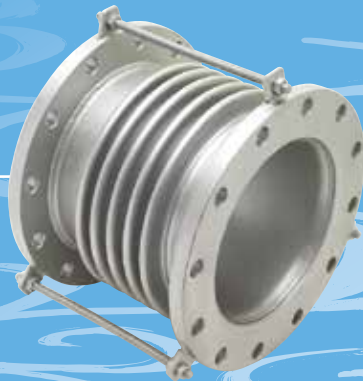


# Expansion Joint

## Z-15000

(Single bellows type)

Z-15000 comprised of end pipes and welded flanges at both ends of bellows. It is for low pressure application like engine exhaust.



Application



Size  
Flange Rating

2inch over  
JIS, ANSI, DIN

## Z-16000

(reinforced rings type)

Z-16000 is high pressure type of expansion reinforced by control-ring at each groove of bellows. The picture shws double type.



Application



Size  
Flange Rating

3inch over  
JIS, ANSI, DIN

## Z-20000

(Non-welding type)

In comparison with Z-15000, Z-16000 is manufactured without the use of welding. The surface in contact with fluid is made of stainless steel. The use of a flexible bellows allows not only the absorption of expansion and contraction but absorption of vibration. It is for low pressure application like engine exhaust. The picture shows rectification pipe.



Application



Size  
Flange Rating

2inch over  
JIS, ANSI, DIN

## Z-22000

(Ractangular type)

Z-22000 is suitable for absorption of expansion and contraction on square piping.



Application



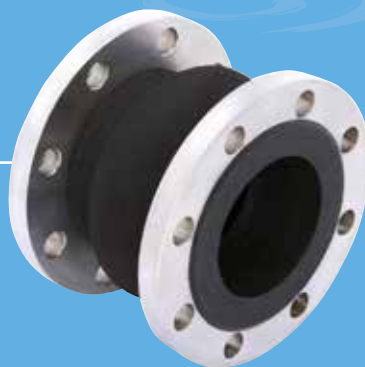
Size

on request

## ZRJ-E1

(Single sphere rubber type)

With its smaller axial reaction force, ZRJ-E1 can be easily installed in piping. The arch structure of the main body absorbs large axial movement.



Application



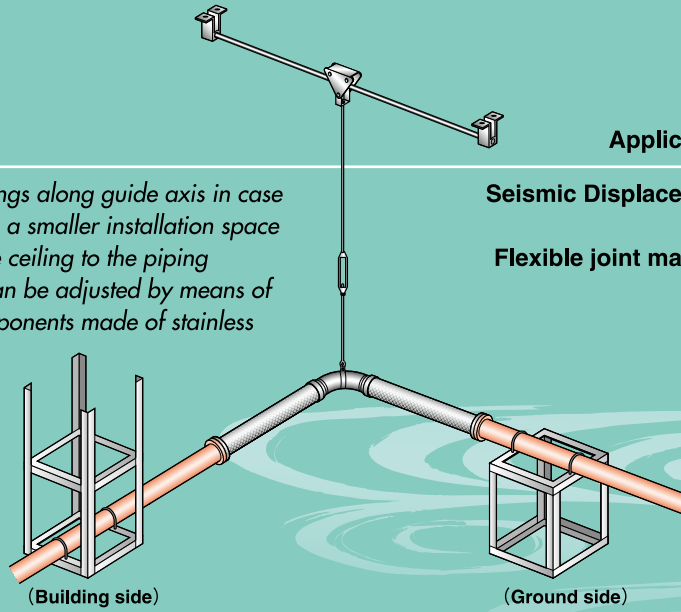
Size  
Temperature  
Flange Rating

3/4inch over  
-10degC to +80degC  
JIS, ANSI, DIN

# Seismic Isolation Unit

## Slider Unit

Slider smoothly follows and swings along guide axis in case of earthquake. The unit requires a smaller installation space and a distance (height) from the ceiling to the piping as short as 600mm. The level can be adjusted by means of a turnbuckle. All the major components made of stainless steel provide excellent corrosion resistance.

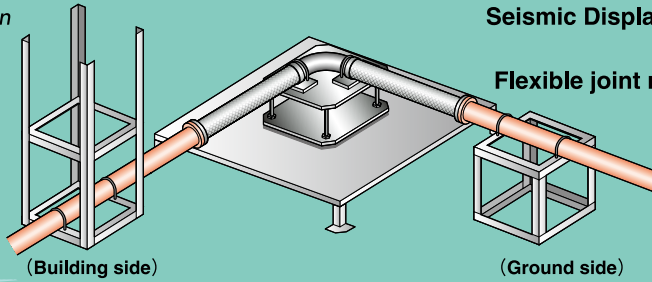


Application  Seismic isolation unit

Seismic Displacement Size 300mm to 800mm  
Flexible joint material 3/4inch to 12inch  
Stainless steel, Rubber, PTFE

## Control Unit

Control unit is optimum system in case of restriction in height between ceiling and ground. Even when several kinds of piping lines should be installed, parallel piping on one controller is enough.

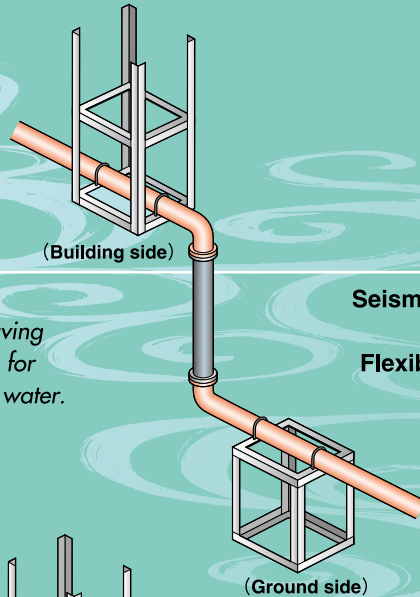


Application  Seismic isolation unit

Seismic Displacement Size 300mm to 800mm  
Flexible joint material 3/4inch to 12inch  
Stainless steel, Rubber, PTFE

## Riser Unit

Only one vertical joint is necessary to absorb the displacement, thereby achieving space saving and cost saving features. Riser unit is suitable for low pressure piping for rain water and drain water.

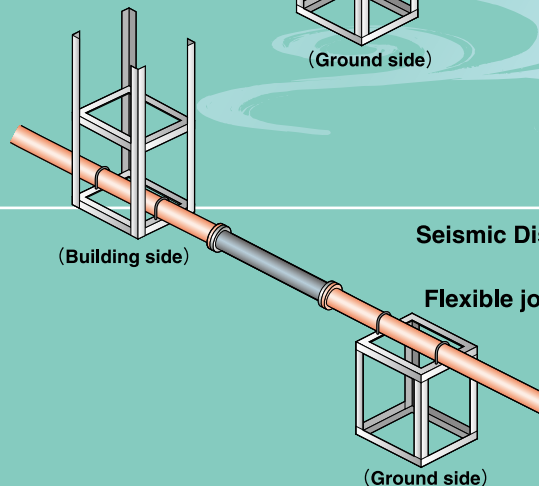


Application  Seismic isolation unit

Seismic Displacement Size 300mm to 800mm  
Flexible joint material 3/4inch to 12inch  
Rubber

## Horizontal Waste Unit

Horizontal waste water unit is the most economical system for rain water and drain water pipeline.



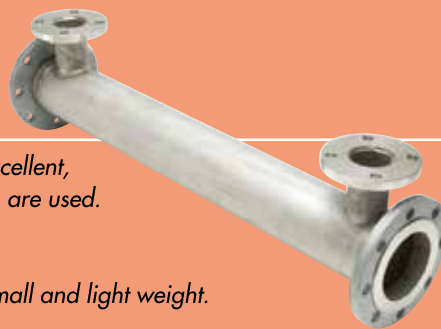
Application  Seismic isolation unit

Seismic Displacement Size 300mm to 800mm  
Flexible joint material 2inch to 12inch  
Rubber

# Heat Exchanger

## Shell & Tube (HCL, HCR)

The heat transfer co-efficient is extremely excellent, because stainless steel made ultra thin tubes are used. Furthermore, tube diameter 5.3mm(HCL) or 8.0mm(HCR) contributes compact design. It is possible to use it by an in-line type in small and light weight.



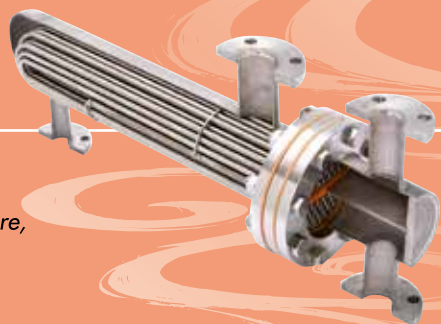
Application  Heat exchanger

Material  
Pressure  
Heat transfer area

AISI304  
0.5MPa  
up to 12.2m<sup>2</sup>

## Shell & Tube (HCU)

The heat transfer co-efficient is extremely excellent, because stainless steel made ultra thin tubes are used. Also, It is U tube structure, and it has the good durability for the expansion and shrinkage of heat.



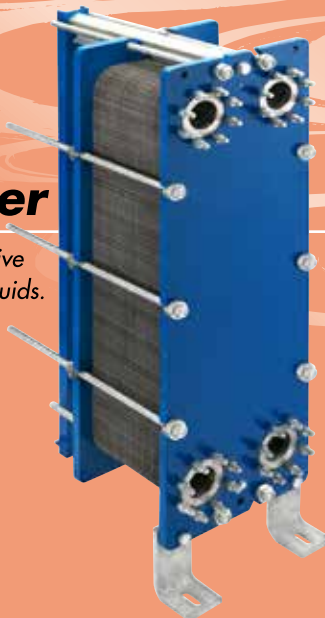
Application  Heat exchanger

Material  
Pressure  
Heat transfer area

AISI304  
0.5MPa  
up to 4.7m<sup>2</sup>

## Plate Heat Exchanger

Plate Heat Exchanger is the one of the cost-effective methods for the indirect heating and cooling of fluids. The basic concept is to run fluids on either side of a plate so that heat may be transferred between the two fluids.



Application  Heat exchanger

Material  
Temperature  
Pressure  
Heat transfer area

Plates of AISI316, titanium and alloys / gaskets of NBR, EPDM, FKM and other types  
-35degC to +160degC  
Max 2.5Mpa  
up to 2500m<sup>2</sup>

## Brazed Heat Exchanger

Plate Heat Exchanger without gaskets. The plates are joined by copper brazing. It is for the smallest duties with water and oil. Extremely compact and economic plate heat exchanger.



Application  Heat exchanger

Material  
Temperature  
Pressure  
Heat transfer area

AISI316L (and Copper)  
-10degC to +195degC  
Max 3MPa  
up to 75m<sup>2</sup>



*The Products for Today's Air-conditioning and Sanitary System*

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