



**TOZEN INDUSTRIAL CO., LTD.**

All kinds of expansion joint & flexible hose

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# TOZEN GROUP



## ASSOCIATED COMPANIES

### **JAPAN**

- Tozen Corporation

### **SINGAPORE**

- Tozen International Pte. Ltd.

### **HONG KONG**

- Tozen (H.K.) Limited

### **MALAYSIA**

- Tozen (M) Sdn. Bhd.

### **THAILAND**

- Tozen Industrial Co., Ltd.

### **CHINA**

- Shanghai Tozen Mechanical Engineering Products Co., Ltd.

### **PHILIPPINES**

- Tozen Philippines, Inc.

### **VIETNAM**

- Tozen Corporation Vietnam Co., Ltd.

### **INDONESIA**

- PT. Tozen Mechanical Products
- PT. Tozen Engineering Solutions



## Company Profile

### TOZEN - The Total Commitment in Expansion Joint and Flexible Hose

Background of Tozen group – A quality oriented organization from Japan.

- Tozen Corporation. established in 1972, is the pioneer of twin-sphere rubber flexible joint in Japan and most of the Asian countries. Tozen is the market leader of rubber flexible expansion joint. Now, Tozen has about 100 employees in Japan, and over 350 employees in other countries.
- The first ISO9000 company in the field in Japan.



Tozen Corporation., Japan



Tozen Industrial Co., Ltd.

Tozen Industrial established in 1989 is the first flexible joint manufacturer in Thailand for both rubber and stainless steel flexible hose.

- The first ISO9000 certified company in the field. Our quality concern is not only limited in pre-sales activities. Tozen has a clear post-sales service and quality procedure to support our customer in any situation.
- Tozen industrial Home Page – Our customer can access our product information, technical data and installation instructions any time anywhere.
- Tozen product and service – An International Quality Standard available by Localization. Majority of our competitive products are produced or assembled locally with quality standard accepted by Tozen Corporation in Japan.
- All types of expansion joints and flexible hoses – The only international brand with wide range of local manufacturing facility in Thailand.



Factory

- Rubber expansion joint, sizes from 15mm to 2,000mm, current production of 120,000 pieces per year.
- Stainless steel flexible hose, sizes from 8mm to 200mm, current production of 150,000 meters per year.
- Fabrication & assembly of industrial hose, sizes from 8mm to 250mm
- Industrial rubber hose, sizes from 50mm to 300mm, 175,000 meters.
- PTFE flexible joint, sizes from 15mm to 150mm, 34,000 pieces.

- Industrial Hoses and Hose Management – The first quality industrial hose assembler in Thailand certified by Dantec, UK and ISO9002.
- Vibration isolation products - selection and problem solving for all kinds of vibration isolation products.
- Valves – Comprehensive valve package for building services and general industries.

The Last Word – Tozen Industrial is not only an agent, we are the expert of flexible & expansion joint with supporting facility and total commitment in Thailand. You can count on us to solve your problems of thermal expansion, differential settlement, vibration, earthquake, unstable structure, or other applications of flexible connection.



## PRODUCTS & SERVICES

### EXPANSION JOINTS & FLEXIBLE HOSES

#### :: Rubber Expansion & Flexible Joint

- Molded spherical type flexible joints : Tozenflex, Twinflex, etc.
- Spool type expansion joints : LS Connector
- Other rubber joints : Kingflex 20, Toughflex, Toughboy, Pure Joint, Linerflex, Elboflex, U-flex, Facolex, Flexidrain, Flexidrain-S, Sequlex, etc.

#### :: Industrial Hose

- ALFAGOMMA's rubber & PVC hose comply to relevant ISO, DIN, BS or EN standards
  - Fuel & Oil hose
  - Chemical Hose
  - Compressed air hose
  - Steam & hot water hose
  - Material handling & sand blast hose
  - Water hose
  - Food hose

- MASTERFLEX high-tech polyurethane & synthetic hose

#### :: Composite Hose – DANTEC hoses comply to relevant BS standard, United States Coastguard & IMO code

- Fuel & Oil hose: 100% aromatic
- Chemical hose: Polypropylene or PTFE lining
- Cryogenic hose: -200°C to +80°C working temperature
- Fire safe composite hose: The only hose approved by the Safety Committee of Formula One Racing Car for refuelling

#### :: Stainless Steel Expansion Joint & Flexible Hose

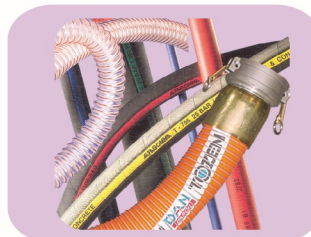
- Corrugated stainless steel flexible hose
- Stainless steel bellow expansion joint
- High engineering expansion joint
- Bend-A-Ful

#### :: PTFE Expansion Joint & Flexible Hose

- PTFE expansion joint : Flonex
- PTFE flexible joint : U-Flex
- PTFE convoluted flexible hose : Poliflex, Interflex
- Bore PTFE hose (Smooth & Convoluted) : XTRAFLEX

#### :: Fabric & Non-Metallic Expansion Joint

#### :: TOZEN Hose management program : Hose Inspection, Repair and Certification Service (HIRCS)



### VIBRATION ISOLATION PRODUCTS

- :: Rubber mounting & hanger
- :: Spring mounting & hanger
- :: Swimming Pool Isolation

### VALVE & FLUID CONTROL PRODUCTS

- :: Butterfly valve, motorized & manual operated
- :: Ball valve, motorized & manual operated
- :: Check valve, spring loaded dual plate
- :: Gate valve, bronze & brass
- :: Y-strainer, bronze & cast iron
- :: Fancoil Valve Prefab Kit

### VERTICAL MULTISTAGE PUMP & BOOSTER PUMP SET

- :: Fresh water pump
- :: Booster pump set

# RUBBER EXPANSION & FLEXIBLE JOINT

## MOLDED SPHERICAL TYPE FLEXIBLE JOINT

### TOZENFLEX

For systems requiring single sphere design, Tozenflex provides a quality rubber connector for sound and vibration absorption. Available with open or filled arches.

Size range from 32mm - 300mm.



### TWINFLEX

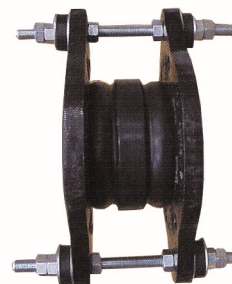
Twinflex incorporates a twin sphere design that provides maximum flexibility at standard face-to-face dimension. Provides excellent performance in sound and vibration absorption.

Screwed end connection available from size 15mm - 50mm.  
Flanged end connection from size 32mm - 600mm.

### TWINFLEX 25

Twinflex25 is used in high pressure piping systems where noise and vibration isolation and expansion compensation are necessary. The normal working pressure is between -0.08 Mpa to 2.5 Mpa. Standard Twinflex25 is finished with unit control for system security.

Size range from 150mm - 300mm.



### KINGFLEX 20, TOUGHFLEX & TOUGHBOY

KINGFLEX 20, TOUGHFLEX & TOUGHBOY are highly engineered flexible rubber joints, offer superior durability, low reaction force and excellent vibration & sound absorption. For further information, please refer to Tozen Corporation website at [tozen.co.jp](http://tozen.co.jp)

## SPOOL TYPE EXPANSION JOINT



### LS CONNECTOR (PT-LS)

Spool type rubber connector designed and produced under strict quality control procedures, to meet specific job requirements. Types of underground and aboveground, lengths and connections provide maximum flexibility in a piping system. LS connectors are available in single arch, multi-arch, straight, reducer and elbow configurations.

Standard size range from 20mm - 2000mm.

## OTHER RUBBER JOINTS



### LINERFLEX

This is a cylindrical type rubber connector with a straight and smooth internal passage, used for vibration and sound absorption, also allows for lateral displacement. LINERFLEX is available in molded and spool type connectors.

Size range available from 20mm-300mm with flanged end connections.

### ELBOFLEX

This rubber elbow saves space and provides great convenience in installation by supercede an elbow fitting and gives the same quality performance as the straight flexible connectors in sound and vibration absorption as well as multi-axis displacement.

Size available from 32mm - 150mm



### U-FLEX

U-FLEX Single sphere PTFE lined rubber connector. U-FLEX is a quality flexible joint using PTFE for heat and chemical resistance. U-FLEX is superior for against corrosion, aging & heat. Suitable for particular applications such as hot water supply & demineralized water line.

Size range from 20mm-150mm with flanged end connections.



### FLEXIDRAIN FLEXIDRAIN-S

This is a flexible drainage connector, designed for underground systems, allows for the differential in settlement and expansion for sewerage system connections.

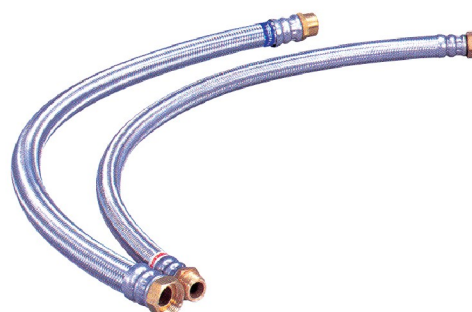
Lateral displacement range : 50mm,100mm

Size range from 40mm - 300mm with worm screw hose clamp.

### FACOLEX

FACOLEX flexible hose is specially designed for fan coil unit application. Direct connection reduces soldering of elbows which facilitate quick & easy installation. Extruded EPDM rubber tube with stainless steel wire braiding construction enhance an excellent durability and flexibility.

Standard sizes from 15mm to 25mm with brass or bronze female swivel nut and male nipple connection.



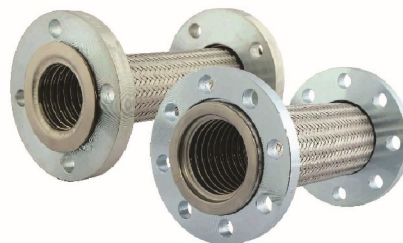


# STAINLESS STEEL EXPANSION JOINT & FLEXIBLE HOSE

## STAINLESS STEEL FLEXIBLE JOINT

"TOZEN" Stainless Steel Flexible Joint is applicable to oil, water, hot water, steam, gas, air, and chemicals. Purposes of application include :

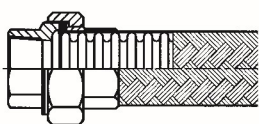
- Compensate pipe misalignment
- Absorb thermal expansion of pipe
- Absorb machinery vibration
- Easy connection between machine and pipe
- Prevention of damage of pipe and equipment by ground sinking, earthquake, etc.



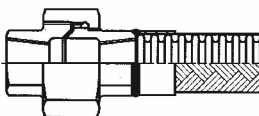
### **Application :**

Hot metal process, petrochemical, power generation, cryogenic, and other general industrial applications.

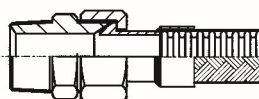
### **Available Type of Connection :**



Union (Non-Welded)



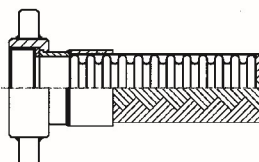
Union (Butt Welded)



Male Union  
(Swivel Nut + Male Nipple)



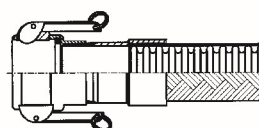
Male Nipple



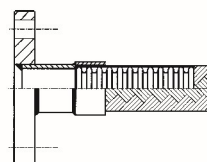
Pinlug Swivel Nut



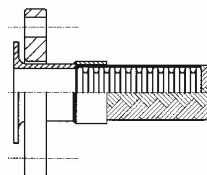
Thread End +  
Camlock Part A



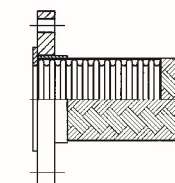
Thread End +  
Camlock Part D



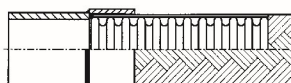
Fixed Flange



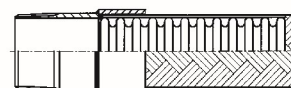
Loose Flange  
(Lap Joint)



Loose Flange  
(Non-Welded)



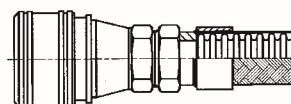
Pipe End



Thread End



Plug-Quick  
Release Coupling



Socket-Quick  
Release Coupling

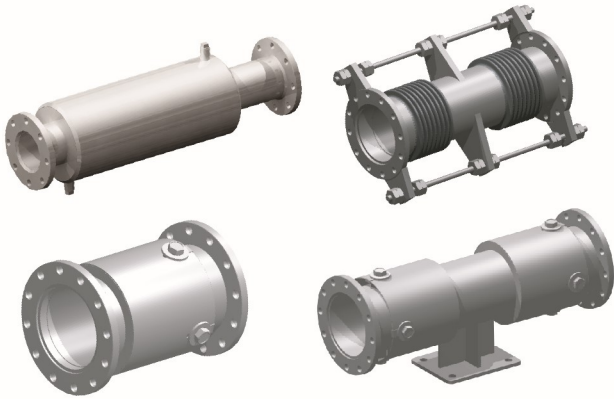


Male Union  
(Hydraulic Fitting)

## STAINLESS STEEL EXPANSION JOINT

### Functions of Stainless Steel Expansion Joint

- To absorb axial movements (elongation and compression) on piping systems caused by thermal changes.
- To absorb lateral movements or misalignments of piping systems due to ground subsidence or differential settlements.
- To isolate vibration caused by operating machine.



### Advantages of Using Stainless Steel Expansion Joint

- Easy handling and installation in a limited space.
- Safe in operations.
- Very durable and last longer in a wide range of practical pressure/temperature operating conditions, corrosive attack, abrasion and erosion, high temperature.
- More effective in terms of material and installation costs on a piping system facing thermal expansion or contraction problems, especially when compared with pipe loops designs.

## HIGH ENGINEERING EXPANSION JOINT

**HIGH ENGINEERING EXPANSION JOINT assigned under EJMA, ASME or UOP**

We supplies expansion joints to many leading companies in the refining petrochemical, power / utility.,etc



- Metallic Expansion Joints
- Thin-Wall and Thick-Wall
- Rectangular Expansion Joints





# PTFE EXPANSION JOINT & FLEXIBLE HOSE

## PTFE EXPANSION JOINT

### FLONEX

FLONEX is a hydraulic molded manufactured PTFE flexible expansion joint, with anti-stick properties and thermal stability. Heat and chemical resistant characteristics of FLONEX are excellent for applications in the chemical, pulp, paper and other industries. Available in 2, 3 and 5 convoluted PTFE expansion joints.

Size range from 25mm - 300mm. with flanged end connections.



## PTFE FLEXIBLE JOINT



### U-FLEX

U-FLEX is a complex functioning flexible joint, which is composed of ethylene tetrafluoride resin and synthetic rubber for fluid contact part. Its application is for absorption of vibration by equipment like pump, etc. Applicable to max working pressure 16kgf/cm<sup>2</sup> and negative - 650mmHg.

Size range from 20mm - 300mm. with flanged end connections.

### POLIFLEX (corrugated), INTERFLEX (smooth-bore)

The PTFE flexible hose has an excellent resistance against aging and chemicals. Great thermal stability. Good for steam water, chemical liquid, super-demineralized water lines, sanitation requirements, food production, and pharmaceutical.

Screwed end connection for 10mm - 50mm.

Flanged end connection for 15mm - 150mm.



## BORE PTFE HOSE

### SMOOTH BORE PTFE HOSE

PTFE synthesized resin smooth bore tube assures high permeability and high mechanical stress resistance. The applications include steam, plastic moulding presses, collant lines for canning machines and gas and chlorine cylinders, transport of air, oil, petrol, corrosive chemical, food and pharmaceutical products, compressors discharge line.



### CONVOLUTED PTFE HOSE

Produced with PTFE resins characterized by low micro-porosity and high tensile strength, the convoluted tubes are the right answer where the bending radius request a high flexibility together with a low permeability. The applications include plastic moulding presses, collant lines for canning machines, collant lines for gas and chlorine cylinders, transport of air, oil, petrol, corrosive chemical, food and pharmaceutical products, compressors discharge line, cable sheating for electrical line.



## FABRIC & NON-METALLIC EXPANSION JOINT

Fabric expansion joints are installed as flexible connections in pipe and duct systems to compensate for vibrations, thermal expansion, installation misalignments and torsion.

Each individual material layer of the expansion joint fulfills a specific requirement, determined by the joint's location in the duct system of the individual plant.

With the temperature range of  $-65^{\circ}\text{C}$  to  $+1000^{\circ}\text{C}$ , the individual types of expansion joints are custom-made to suit the required application.

Tozen have defined a number of standard types of expansion joints, which suit 85% of all applications, i.e. standard types that can be used for certain temperatures, media, or familiar operating conditions, with only very few adjustments.



The standard types can be manufactured to order in all the necessary shapes and forms according to customer drawing.

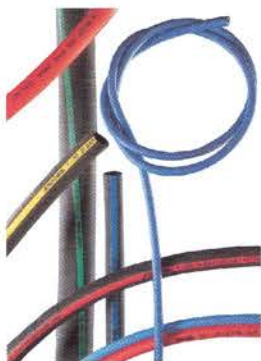
- Round
- Rectangular
- Oval
- Conical
- Combination



Our products are designed to ensure easy assembly on the building site. Tozen provided excellent customer service, our engineers capable of working alongside and supporting the customer during the various phases of the assembly of an expansion joint.

## INDUSTRIAL HOSE

### ALFAGOMMA RUBBER & PVC HOSE



Founded in 1956. Its 6 production plants make it one of the biggest manufacturers of flexible rubber, PVC and thermoplastic hoses in the world.

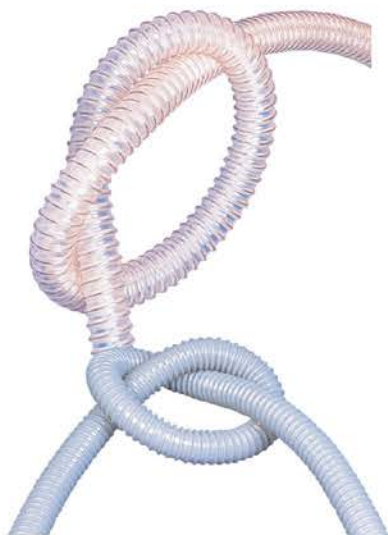
Alfagomma's production range includes flexible hydraulic hoses and couplings, industrial hoses and couplings, rubber, PVC and thermoplastic compounds. All products undergo thorough testing both in company laboratories and those institutes authorized to issue quality certificates. This no-nonsense approach has led to ISO9001 certification, clear testimony to the Group's "quality first" policy.

The range of product application is vast from power transmission for earth-moving machine, off-shore platforms and mining equipment, to conveyance of compressed air, water, steam, food and chemical products, hydrocarbons and abrasives.

- FUEL & OIL HOSE
- CHEMICAL HOSE
- COMPRESSED AIR HOSE
- STEAM & HOT WATER HOSE
- MATERIAL HANDLING & SAND BLAST HOSE
- WATER HOSE
- FOOD HOSE



### MASTERFLEX HIGH-TECH POLYURETHANE & SYNTHETIC HOSE



High-tech hose systems of polyurethane or other synthetic materials, fabric and foil hose, connection systems, innovative wear protection: actually there's hardly anything that cannot be carried through Masterflex products.

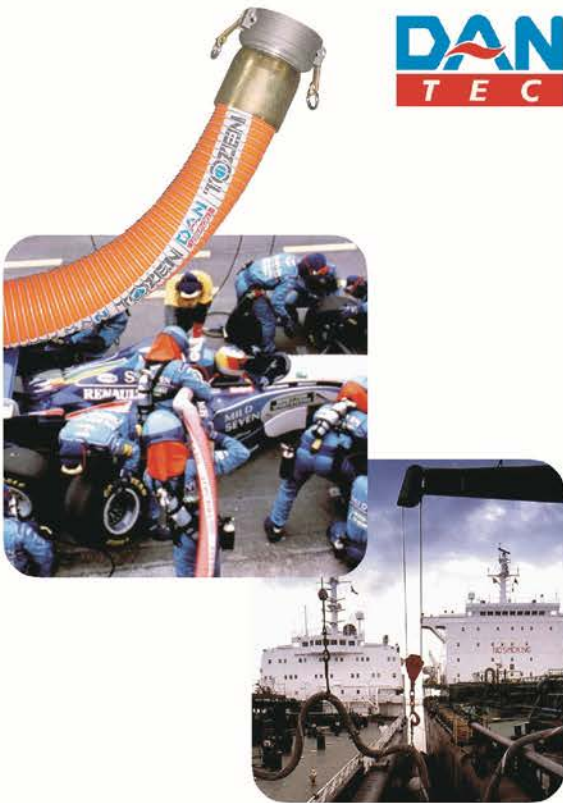
The products are heat- and kink-resistant, non-ageing and abrasion-proof, flexible, resistant to chemical and hardly inflammable materials and products that withstand even the most extreme strains of permanent everyday use. The long life, safety and economic efficiency of Masterflex products are arguments that have been convincing our customers for many years.

Optimised synthetics are replacing conventional materials such as steel, PVC and rubber. The "Innovative Wear Protection" is several times more durable than the corresponding steel components. Highly abrasion resistant high-tech hoses made of electro-conductive, hardly inflammable or microbe resistant material, plus the matching connection systems.

Our consistent quality awareness is manifested in EN ISO 9001 certification which assures our customers a constantly high standard of product quality.



## COMPOSITE HOSE



Dantec Ltd. are recognized as the world leaders in composite hose technology and innovation. Dantec have been manufacturing composite hose for over twenty years. Dantec hoses meet all major national and international standards for their composite hose products and have IMO approvals for hazardous chemicals and liquefied gases. All marine hoses meet the requirements of the United States Coastguard. Dantec were the first composite hose manufacturer to achieve ISO9002/BS5750 Status and have been registered with the British Standards Institute since 1988. HIRCS (Hose, Inspection, Repair and Certification Service) System provides features only available from Dantec. Dantec's patented "Firesafe" hose used for refueling Formula One racing cars has been independently tested by the United Kingdom Fire Research and the Swedish Fire Service.

- FUEL & OIL HOSE : 100% aromatic
- CHEMICAL HOSE : Polypropylene or PTFE lining
- CRYOGENIC HOSE : -200°C to +80°C working temperature
- FIRE SAFE COMPOSITE HOSE : The only hose approved by the Safety Committee of Formula One Racing Car for refuelling

## TOZEN HOSE MANAGEMENT PROGRAM (SITE TESTING SERVICES)



Because the life expectancy of the hose is limited, the user must be alert to signs of impending failure, particularly when the conditions of service include high working pressures and/or the conveyance or containment of hazardous materials.

Tozen Hose Management Program are described to provide a schedule of specific measures which constitute a minimum level of user action to detect signs indicating hose deterioration or loss performance before conditions leading to malfunction or failure are reached. Inspections include visually inspect for leakage, hydrostatic test, and electrical resistance test. With Tozen Hose Management Program, the user is certainly safe and confident in using hose.

### Benefits of a Preventive Maintenance Program :

- Elimination of costly repairs
- Reduced production downtime due to hose failures
- Helps ensure a safe work environment
- Reduces costly EPA spill clean ups
- Increases hose life expectancy





# VIBRATION ISOLATION PRODUCT

## RUBBER MOUNTING & HANGER

### PTH-G

PTH-G VIBRATION ISOLATION RUBBER HANGER. Rubber isolator is made with oil resistant synthetic rubber compound. For vibration and noise isolation which is produced by mechanical equipments, like axial & exhaust fan, piping or ductwork.



### PTM-G

PTM-G VIBRATION ISOLATING MOUNT. One piece molded oil resistant neoprene with two cast-in load transfer steel plates. Recommended for the isolation of vibration produced by small pumps, vent sets or low pressure packaged air-handling units.

### PTM-GP

PTM-GP rubber floor mounted can be used to isolate noise and high frequency vibration generated by mechanical equipments. It is recommended for the isolation of vibration produced by small pumps, vent sets, low pressure packaged air handling units, etc.



### PT-MAT

PT-MAT VIBRATION-PROOF RUBBER SHEET. For noise, high frequency vibration and impact isolation. Both in laterally and vertically, its engineering and physical design can carry out a greater buffer capacity per unit area.

## SPRING MOUNTING & HANGER



### PTM-A, AM

PTM-A and PTM-AM are highly effective in the control of both high and low frequency vibrations produced by mechanical equipment, such as Reciprocating Air or Refrigeration Compressors, Pumps, Air Conditioning and Air Handling Equipment, Centrifugal and Axial Fans, Internal Combustion Engines and similar types of equipment.

### PTM-C

PTM-C Housed Spring Isolators consist of high deflection, laterally stable springs assembled into telescoping cast iron housings. They are used to isolate high and low frequency vibration generated by floor mounted mechanical equipment located in non-critical and semi-critical areas.



### PTM-D

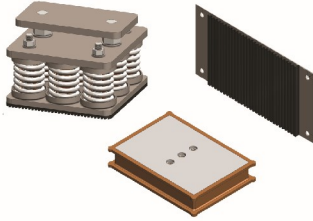
PTM-D Restrained Spring Isolators consist of free standing laterally stable steel springs, fabricated and assembled into ductile iron housing assemblies. They are typically used to reduce the transmission of noise and vibration on chillers, cooling towers etc.

### PTH-S, SG

PTH-S and PTH-SG hangers are used to isolate suspended sources of both audible and inaudible noise and vibration. They are used for suspended mechanical equipment such as in-line fans, cabinet fans, piping and ductwork in close proximity to mechanical equipment.



## SWIMMING POOL ISOLATION



Swimming pool isolation systems isolate the building structure from the source of the vibration by sustaining the pool with high quality spring & rubber pad isolators. High efficiency is achieved with no solid contact between the pool and the building structure. Depends on the size of the pool and the purpose of use at beneath floors, rubber pads or spring isolators are required for moderate to high degree of isolation.

## VALVE & FLUID CONTROL PRODUCT



### BUTTERFLY VALVE

TOZEN BUTTERFLY VALVE's precision design ensures that an absolute shut off can be obtained for flow in either direction. Capable of meeting stringent specifications for various industries. Low head loss, low operating torque, superior corrosion resistance and light weight. Operator flange conforms to ISO 5211 adaptable for manual, electric and pneumatic actuators. Various parts, materials and flanged connections (wafer, lug and double flange type) are available.

Standard size range from 50mm-800mm.

### CHECK VALVE

SCV-W WAFER TYPE DOUBLE DOOR SILENT CHECK VALVE with spring return and resilient seat. Short face-to-face dimension and light weight. Suitable for both horizontal and vertical piping installation. Various materials for body, disc, trim and seat are available.

Standard size range from 50mm-600mm.



### Y-STRAINER (BRONZE and CAST-IRON)

TOZEN Y-STRAINERS provide a highest ratio of opening area and low pressure drop while protects equipment and the pipe system from debris and foreign matter.

Standard size range from 15mm - 80mm for Bronze Y-Strainer.

Standard size range from 50mm - 300mm for Cast-Iron Y-Strainer.



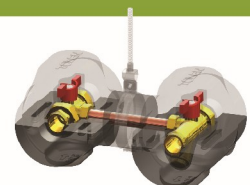
### BRONZE AND BRASS VALVES

TOZEN BRONZE AND BRASS VALVES are produced automatically and 100% inspected before delivery. They can be used for a great variety of installations, as in the housing and building industry. Available in bronze gate valve, ball valve, y-strainer and brass gate valve and ball valves.

Standard size range from 6mm-100mm.

## FAN COIL VALVE PREFAB FIT (FVP)

The Fan coil Valve Prefab unit consists of a 3-way ball valve, a 3-way strainer ball valve, a bypass tube, and the designated insulation box. An all-in-One prefabricated unit revolutionizing fan coil unit (FCU) installation.



## PUMP & BOOSTER PUMP SET



### STAINLESS STEEL VERTICAL MULTISTAGE PUMP

- Fresh water pump
- Booster pump set



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