

ATAG

SERVING INDUSTRY SINCE 1947



EXPANSION JOINTS

- Rubber Expansion Joints
- Metallic Expansion Joints
- Textile Joints or Fabric Compensators

PAST, PRESENT, FUTURE



ATAG is serving industry since **1947** and is constantly growing.

The wide range of products, the three domestic locations, the controlled companies, the large warehouses, the extensive sales network, the increasingly stringent internal workings, the website in constant evolution and a service based on the qualified technical expertise offered by our sales department, are the reasons why our customers rely constantly on ATAG.

In recent years we have incorporated complementary companies, using their great competencies to improve our own skills. An efficient export department, our European resellers and long-standing customers, allow us to have a better knowledge of foreign markets and strengthen our presence beyond the Italian borders.

Collaborations and agreements with international prestige partners enable us to offer our country products and solutions that are already appreciated and well established in Europe, and to stimulate our research into improved solutions for the Italian industry.

EXPANSION JOINTS



Rubber Expansion Joints



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Rubber Expansion Joints

Rubber expansion and vibration-compensating joints are components used to disconnect rigid piping in a system, absorbing movements, vibrations, and thermal expansions, thereby protecting the structure from mechanical stresses and potential damage. They are used in all types of industrial installations, on hydraulic systems in ships and boats, in HVAC and air-conditioning systems, in thermal power plants, in fire-fighting systems, and in water treatment facilities.



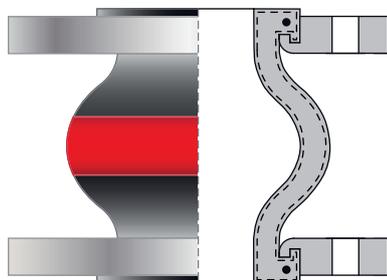
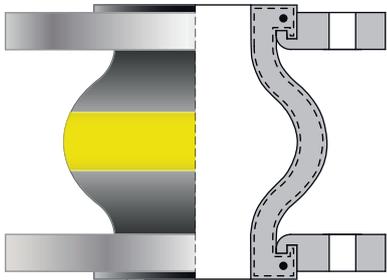
They essentially consist of an elastomeric body, which serves as the core and pivot for vibration absorption and compensation. This body is designed and manufactured with a specially knotted and braided fabric structure that provides the joint with mechanical strength, along with metal rings or inserts to enhance pressure resistance. The entire structure is impregnated and consolidated within the elastomer, allowing it to withstand contact with the chemicals conveyed in the system. At the ends, it is fitted with swivel metal flanges or threaded terminals necessary for installation.

These joints are installed along pipelines — water, air, industrial fluids, HVAC, chemical systems, etc. — to compensate for **thermal expansion and contraction**, absorb **vibrations and noise**, correct pipe **misalignments** between pipes, reduce **stress on pumps, valves, and structural elements**, and prevent breakages or leaks.

EXPANSION JOINTS



Rubber Expansion Joints



The type of elastomer is a key factor in selecting a rubber joint. These products are molded and come in precise dimensions, specific to each joint model, with roughly consistent mechanical characteristics. They are available in single-wave, double-wave, or multi-wave design. Performance and size vary significantly depending on the number of “arches” or “bellows” in the joint; however, multi-wave models are relatively uncommon in Europe.

These joints come with various accessories to enhance performance, extend service life, or restrict movements that could damage the elastomeric body. The main limitations are chemical compatibility — which must always be verified —, the natural aging of the rubber over time, and their operation at lower temperatures and pressures compared to metallic compensators.

Metallic Expansion Joints

Metallic expansion compensators are devices designed to absorb thermal expansion, vibrations, and movements in industrial piping systems. They are constructed with **steel bellows** (stainless steel or special alloys) rather than elastomer, and are the preferred choice for applications that demand higher performance than rubber joints.



The core component is the **corrugated metal bellows**, which is fitted at both ends with flanges, threaded sleeves, or welding ends. It may include inner liners for high-velocity or high-temperature fluids, and can be equipped with tie rods or limit rods when required. The metal body itself — typically manufactured from stainless steels such as AISI 321, 304 or 316, or from special alloys like Inconel or Hastelloy — makes these compensators particularly suitable for **chemically aggressive** fluids compared to rubber joints. Metallic compensators can operate under **high** temperatures and **pressures**. However, they do not provide **vibration-damping**: their primary purpose is to accommodate thermal expansion, which makes them preferable to rubber joints for this function. If vibration or noise is a concern in the system, they should be used strategically in combination with other damping solutions. Their primary applications include steam lines, thermal power plants, petrochemical facilities, steel mills, turbines, and systems with hot exhausts. To accommodate the necessary axial movements, they are often fitted with hinges or specialized constructions, resulting in varying levels of complexity. A key advantage of metallic expansion joints is their custom design, with lengths and dimensions calculated according to engineering studies. Under severe or high-risk operating conditions — such as steam, diathermic oil, or high-temperature fumes — a metallic compensator may be the most appropriate choice.



Textile Joints or Fabric Compensators

Textile joints, also known as fabric compensators, represent a third major category of separation and expansion products for metal piping, distinct from both rubber and metallic joints.



Textile joints are designed to absorb and compensate for thermal expansions between connected pipe sections; they help minimize heat loss and fluid leakage, reduce vibrations, accommodate thermal movements, and attenuate noise. They are primarily intended for **large-diameter, low pressure, and high-temperature** applications, such as **gas ducts, flue lines, or steam systems**.

They can be either sewn or thermally welded and are constructed from: layers of various technical fabrics (glass fiber, silica, aramids, PTFE, etc.) that serve as thermal and chemical barriers in contact with the conveyed fluid; insulating materials within the structure to reduce temperatures; specialized external technical fabrics for mechanical and environmental protection; and additional reinforcements as required. Unlike metal bellows, their flexibility derives from the **layered textile construction**. We offer materials that comply with ATEX zones requirements and resist nearly all chemical agents.

They can withstand extremely high temperatures, up to 1000–1200 °C, and are **fully custom-made**, capable of being **sewn in any size and shape**. Typical applications include flue ducts for industrial boilers, waste-to-energy plants, thermal and cogeneration power plants, steel mills, cement factories, gas purification systems, turbines and generators, hot air lines, and process gas lines.

These products are usually manufactured based on a specific project: drawings and information about the application, as well as details on the flange holes (flanges are not supplied with the product), are required to ensure proper installation of the textile joint in the system.



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