

## STORAGE IN GENERAL

In the majority of products based on vulcanized rubber, storage for a certain period inevitably induces changes in the physical properties of the stored products.

Consequently, these products may not have their ultimate performance characteristics if stored for a length of time before installation (for example, an excess hardness, softening of the rubber or cracks and other surface deteriorations). These changes may result from one particular factor or from a combination of factors, namely the effect of oxygen, ozone, light, heat and humidity.

The adverse effects of these factors may be minimised by a careful choice of the storage conditions.

## PROTECTIVE MEASURES

### Storage area requirements

**Cool:** The storage temperature should be below 25°C and products should be stored away from direct sources of heat such as boilers, radiators and direct sunlight.

If the storage temperature is below 15°C, care should be exercised during the handling of stored products as they may have stiffened and become susceptible to distortion if not handled carefully. The temperature of products taken from such low-temperature storage should be raised to approximately 30°C throughout their mass, before the products are put into service.

It must not drop below 0° C nor exceed +30° C. However, should the temperature fall below 0° C, simply take the precaution of rewarming the joint slowly before handling them in order to avoid any risk of damage.

**Relatively dry:** Maintain a relative humidity between 45 and 70% since excessive dryness is harmful for the expansion joint. Temporary deviations are however allowed.

The relative humidity should be such that, given the variations of temperature in storage, condensation does not occur. In any event, the relative humidity of the atmosphere in storage should be less than 70% or, if polyurethanes are being stored, less than 65%.

#### Note:

- Air with 75% RH at 15°C will have a dew point of approximately 11°C.
- Air with 75% RH at 20°C will have a dew point of approximately 16°C.
- Air with 65% RH at 15°C will have a dew point of approximately 9°C.
- Air with 65% RH at 20°C will have a dew point of approximately 13°C.
- Air with 50% RH at 10°C will have a dew point of approximately 0°C.

## Storage

### Trelleborg Expansion Joints

For the counter-flanges (or metal parts) excessive dryness or humidity are harmful and the pieces must be protected.

**Light ventilation:** Ventilation should be as light as possible, avoiding any draughts.

### Heating

Stoves, radiators and steam pipes should be insulated. If this is not possible, the expansion joint must be stored at a good distance from these heat sources.

### Lightning

During storage, the expansion joints must not be exposed to sunlight or any other light source rich in ultraviolet radiation.

### Cleanliness

It is advisable to clean the room thoroughly previous to storing expansion joints.

Oil, greases and chemicals must not be stored in the same room or should at least be kept separate from the expansion joints.

### Ozone

As ozone is particularly deleterious to rubber, storage rooms should not contain any equipment that is capable of generating ozone, such as mercury vapour lamps or high-voltage electrical equipment giving rise to electric sparks or silent electrical discharges. Combustion gases and organic vapours should be excluded from storage rooms, as they may give rise to ozone via photochemical processes.

**Note 1:** When equipment such as a fork-lift truck is used to handle large rubber products, care needs to be taken to ensure this equipment is not a source of pollution that may affect the rubber.

**Note 2:** Combustion gases should be considered separately. While they are responsible for generating ground-level ozone, they may also contain unburned fuel which, by condensing on rubber products, can cause additional deterioration.

*Please turn!*

## Storage – Trelleborg Expansion Joints

### Deformation

Rubber should be stored free from superimposed tensions and compressive stresses or other causes of deformation. Where products are packaged in a strain-free condition, they should be stored in their original packaging. In case of doubt, the manufacturer's advice should be asked for.

**Note:** It is advisable that rings of large internal diameter are formed into three equal superimposed loops so as to avoid creasing or twisting. It is not possible to achieve this condition by forming just two loops.

### OUR EXPANSION JOINTS

#### Storage precautions

- It is advisable to store them in such a way that they have no contact with the ground.
- Our expansion joints must be laid flat, on a plain surface to prevent any deformation.
- Avoid contact with any sharp object.

Under the above optimum conditions, the expansion joints may be stored for a maximum period of two years from end of manufacture. Expansion joint supplied in a packing case may be stored flat in their original packing in a warehouse for the same period of two years.

Where longer storage is scheduled, it is essential to protect the rubber portions of the expansion joints by giving them two coats in alternate directions of special CSM (hypalon based) paint, at works.

This is for spares which have been given this treatment may be stored for a **maximum total period of 5 years** under the above conditions. (The first two years, they may be stored in their packing case as for non-treated expansion joints).

**Note:** Metal parts such as tie rods and bolts are to be stored in their original packing.

As applicable, give them treatment for normal conditions of storage of metal parts, suitable for the storage area.

### For interim storage during construction work when no proper user facilities are yet available

This storage, which will last no more than a few months, must comply with the following requirement:

- Lay the expansion joint flat on a plain surface covered with wood and a fabric or plastic protective covering.
- Store in a dry place (protected against rain, surface water and splashing).
- Cover the expansion joints to protect them from bad weather and sunlight, (light coloured fabric or plastic if storage area is exposed to sunlight).
- Provide natural ventilation (but avoid draughts and air movements).
- Take necessary precautions to avoid contact, even accidentally, with chemicals, oil, grease, etc.
- Store away from sources of heat or ozone.
- Shield against malicious mischief.
- There are no reservations as to ambient storage temperatures, providing they exceed 0°C.
- Wherever possible, store in the shade of a building.
- Position, so that the identification marking is visible without any items having to be moved.



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