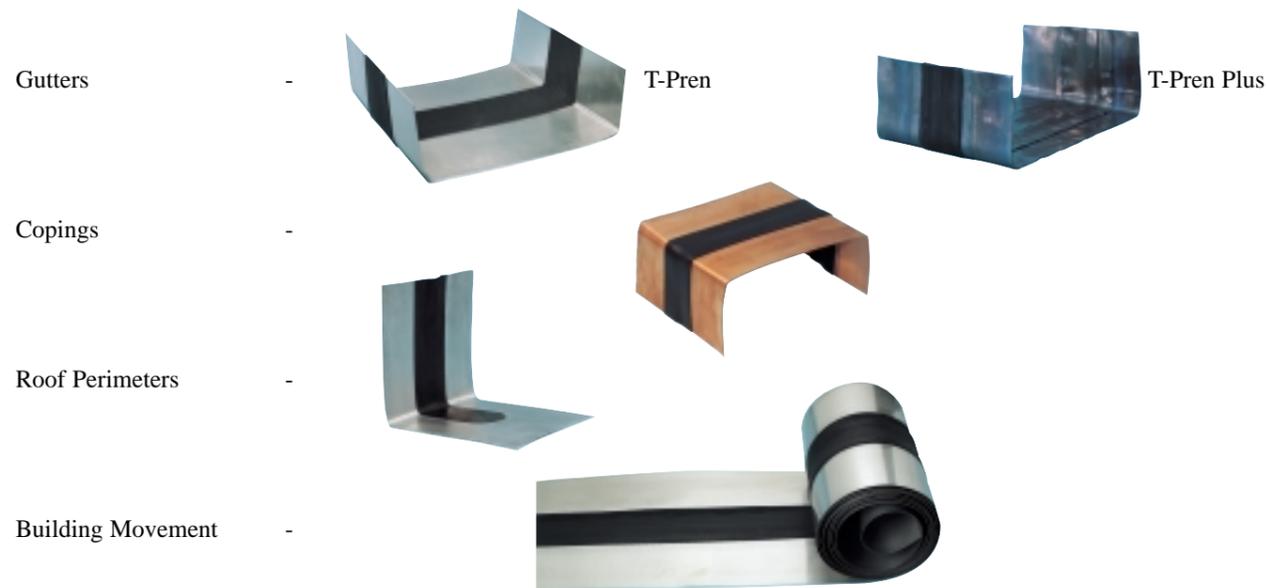


Applications



Properties & Standards

The type of neoprene is polychloroprene. This is a durable elastomer of high elasticity, which is suitable for weather temperatures of - 40° to + 100°C. with no embrittlement or cracking occurring, and is u.v. and ozone resistant. The properties and standards are as follows:-

Shore Hardness	- DIN 53505, Shore A 55-65
Tensile Strength	- DIN 53504, 7N/mm ²
Elongation	- DIN 53504, > 200%
Ozone Resistance	- DIN 53509, pos. 0
Tear Resistance	- DIN 53507, > 8N/mm ²
Bond Type	- Vulcanisation

All the metals used are produced to precise chemical analyses, physical properties and dimensional tolerances to the following standards:-

Aluminium	- BS EN 485 & 573, 1994
Copper	- BS EN 1652, 1998
Lead	- BS EN 12588, 1999
Stainless	- BS EN 10088, 1995
Zinc	- BS EN 988, 1997

Authorised Stockists

England & Wales	- Matthew Hebden, 54 Blacka Moor Road, Sheffield S17 3GJ Tel/Fax. 0114-2368122
	- British Lead Mills, Peartree Lane, Welwyn Garden City, Herts. AL7 3UB Tel. 01707-324595 Fax. 01707-328941
Scotland	- Dunedin Builders Merchants, Unit 14-16 Dunedin Street, Edinburgh EH7 4JG Tel. 0131-557 2345 Fax. 0131-557 2341

T-Pren is a registered trade mark of Matthew Hebden.

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T-PREN®

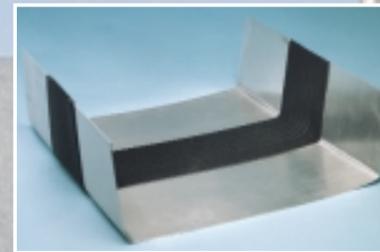
CI/SfB reference

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Sept 2007

THE GUTTER EXPANSION JOINT

- Waterproof
- No Steps
- Fewer Outlets



Baltic centre, Gateshead.



Leisure centre, London.



Royal Opera House, London.



Royal Opera House, London.



Dunblane Cathedral.

General

Introduction

T-Pren was developed over 25 years ago in Europe to overcome expansion problems in metal gutters. The daily and seasonal thermal cycling causes metal gutter linings to expand and contract, and if expansion joints are not provided this movement will cause the metal to crack and so the gutter to leak.

The traditional solution was to use the metal in short lengths, increasing the need for outlets, or incorporate expansion steps into the gutter. However, the height of the parapet may not be able to accommodate the number of steps required or, in the case of masonry, it may not be possible to cut the steps.

T-Pren was developed to overcome these problems by providing a waterproof expansion joint, which reduces the number of outlets and eliminates the need for steps. Lead T-Pren Plus was developed to overcome objections to the appearance of the black neoprene. It has a unique protective cover strip that maintains consistent metal appearance across the joint and prevents damage from foot traffic and building materials.

Application

The versatility of T-Pren makes it suitable for gutters, as well as copings and movement in roofs and wall joints. It is available in aluminium, copper, lead, stainless, terne coated stainless and zinc.

Authority

The lead version of T-Pren is recommended by the Lead Sheet Association for wallhead and timber eaves gutters where the conventional drip cannot be used.

T-Pren is produced to ISO 9002 quality standard with neoprene conforming to the stringent German DIN standards and the metals to the relevant British Standard. Full details are shown in the 'Properties & Standards' section on the back page.

Description

Composition

T-Pren consists of two metal strips connected by a high quality neoprene expansion joint. The joint is formed on both sides of the metal during vulcanisation of the neoprene, and for lead T-Pren Plus a separate cover strip is vulcanised on top of the neoprene. The strength of the double vulcanised joint has been proved by the 25 years of service without failure.

Dimensions

T-Pren is supplied in a 390mm wide coil, with a neoprene centre section with an overall width of 98mm and 4mm thick. The gauge of the metal sides is 1.2mm for aluminium, 0.6mm for copper, 2.24mm (Code 5) for lead, 0.5mm for stainless and terne coated stainless, and 0.7mm for zinc. Lead T-Pren is supplied in 3 metre long coils and the other metals in 6 metre coils. Lead T-Pren Plus is supplied in 1.5 metre coils. Other metal gauges and roll lengths are available to special order.

Weight

The weight of the T-Pren coils is 12kgs for the aluminium, stainless and terne coated stainless, 15kgs for copper and zinc, and 25kgs for lead. Lead T-Pren Plus weighs 17kgs.

Appearance

The metals are used in their standard mill finish and so vary from light grey for aluminium to dark grey for lead. The neoprene is black and where this might be unsightly, over parapets or on external gutters, T-Pren Plus can be used or a cover piece of the matching metal can be clipped over the top.

Performance

Weather

T-Pren is designed to provide a waterproof joint which accommodates the expansion/contraction caused by extremes of weather. Localised water ponding may occur behind the neoprene but this will not affect the life of the joint.

The neoprene section of T-Pren is resistant to chemical attack and so is suitable for use in rural, urban, industrial and marine atmospheres. It is also resistant to attack from timber preservatives, lichens and mosses.

Heat

T-Pren is resistant to ultra violet and ozone, and has been used without failure in very hot climates. The properties of the neoprene are not affected by temperatures in the range -40°C to +100°C.

Durability

T-Pren is guaranteed for 10 years, and has been in use for over 25 years without failure. Tests indicate a life of over 50 years. It has been widely used throughout Europe and the Middle East, and so has been used in a wide variety of situations covering intense heat and cold, wind and rain.

Design Application

Layout

T-Pren joints can be placed at a maximum distance apart of 6 metres, although where movement is restricted at one end, by an outlet for example, this spacing should be halved. An expansion joint should also be sited within 1 metre of each corner.

However, The joint spacing depends on the metal and the gauge used. For most metals, sheets up to 6 metres can be used by correct choice of gauge, although shorter lengths might be used for ease of handling or where thinner gauges are preferred. However for lead, the Lead Sheet Association recommend a distance of 2 metres for Code 5 lead increasing to 3 metres for Code 8.



Installation

A length of T-Pren is first cut from the coil to go round the girth of the gutter. This is joined to the metal sheets, the length of which gives the correct joint spacing as mentioned above. The metal sides of the T-Pren should overlap the metal sheets by a minimum of 25mm and the joint should be made at least 75mm from the neoprene, or 100mm for aluminium and copper due to their better conductivity. The neoprene and its joint with the metal are resistant to heat but it is wise to place a cold metal surface underneath, as the joint is being made, to conduct away the heat. Caution is required when brazing or welding and it may be necessary to cover the neoprene with a damp cloth to prevent damage from conducted heat. Naked flames should be kept away from the neoprene at all times.



The jointing process depends on the metal. TIG welding is best for aluminium and stainless steel, but low currents must be used on these light gauge metals. Copper joints can be soldered but brazing will make a stronger joint. Terne coated stainless and zinc are best soldered, and where additional strength is required the overlap can be rivetted before soldering. For lead, the traditional lead sheet welding technique for a flat lapped seam is used. A single loading should be sufficient for Code 5 lead, but where the T-Pren joint is on top of a lead sheet of Code 6 or higher, two loadings may be beneficial. Jointing is easiest on flat sheets but in certain situations the metal sheets and T-Pren joints have to be pre-formed to shape before jointing. The jointing will then require extra care, particularly on the vertical sides.

The gutter lining with the T-Pren expansion joints is then formed to take up the shape of the gutter, placed into position, and cover flashings formed over the sides. Where heavy foot traffic is expected in the gutter or where the T-Pren joint is visible, T-Pren Plus can be used or a cover piece of the matching metal is clipped over the neoprene section, making sure that it does not restrict the movement of the joint.

Maintenance

The T-Pren joints should be regularly checked for damage from foot traffic etc., and where this has occurred another T-Pren section should be fixed over the top. This is usually preferred to the alternative of removing the old T-Pren joint, and although the additional height may cause water ponding this will not affect the life of the joint.

Health & Safety

The normal health and safety procedures for welding, brazing, soldering and working with lead should be carried out. The correct protective clothing should be worn, ventilation provided for indoor work, and hands should be washed before eating or smoking.

