Pre-insulated Solutions

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LOGSTOR SX-WPJoint

A cross-linked shrink joint system with welding plug for pre-insulated pipe systems

Kingspan®

The LOGSTOR SX-WPJoint family
Cross-linked joints

Cross-linked joints

Cross-linked polyethylene joints possess unique properties, ensuring that the joints have the same expected long service life as the rest of the pipe system.

Through cross-linking, the polyethylene material acquires special properties which are significant for pre-insulated pipe joints. Cross-linked polyethylene can be expanded up to 400% as opposed to normal polyethylene, which can be expanded up to max. 20%. The raw material is polyethylene, and the production of the SX-WPJoint system involves the following steps:

- Blow moulding of the joint
- Cross-linking of the joint
- Heating and expansion of the areas designed to shrink
- Cooling of the expanded joint
- Completion with accessories and packaging

The cross-linking of the polyethylene involves beta irradiation. During this process, the molecular structure changes, which produces the outstanding properties of cross-linked polyethylene (PEX). The expanded joint has a 'memory', and by heating the joint with a gas burner, it shrinks back to its original shape pre expansion.

Foaming holes sealed with welding plug

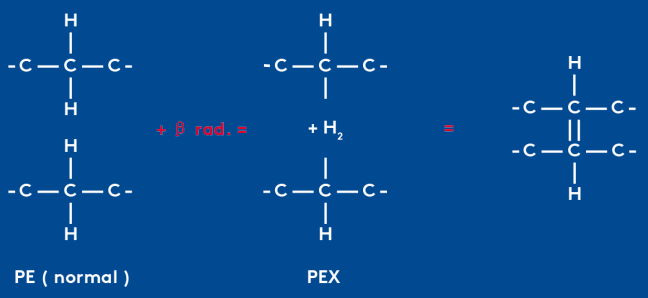
To ensure that the polyethylene welding plug can be used, the foaming holes in the joints are covered with metal plates prior to cross-linking with beta irradiation. This ensures that the area around the foaming hole is weldable like the welding plug.

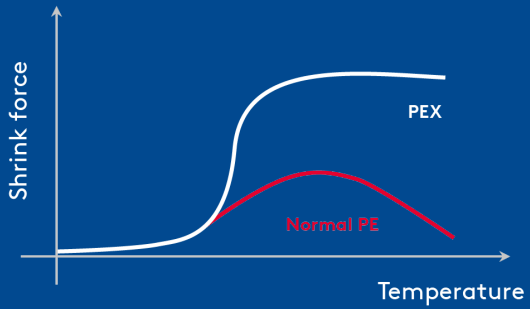
Advantages

- Completely unique shrink properties that ensure the expected service life
- In cross-linked polyethylene (PEX), stress relaxation is reduced to a minimum, and the joint thereby retains its shrink forces throughout its entire service life
- Cross-linked polyethylene is more stable than non-cross-linked polyethylene when exposed to heat from the burner, which minimises the risk of installation errors
- Sealing of the foaming hole with a welding plug
- No risk of preshrinking in hot weather conditions and direct sun light

ELECTRONIC CROSS-LINKING

Changes the molecular structure and increases the shrinkage forces





Straight Joint
SX-WP

Straight cross-linked shrink joint with welding plugs

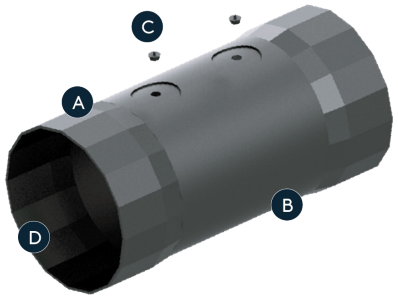
The SX-WPJoint (shrink joint) is made from cross-linked polyethylene (PEX) and has shrinkable ends and a non-shrinkable mid-section. A mastic packing integrated in the shrinkable ends ensures a tight joint.

Easy to install, easy to control

The joint is installed on the pre-insulated pipe prior to welding of the service pipe. When heated to 120 °C with a gas burner, the joint shrinks. Subsequently, it is leakage-tested and insulated with a LOGSTOR Foam Pack. When the foaming is finished, the foaming hole is closed with a welding plug.

Straight joint as reduction

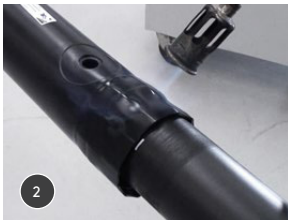
The SX-WPJoint can be used as a reduction joint for one dimensional offset. Alternatively, it is possible to order a reduction SX-WPJoint for two dimensional offsets. This saves one pre-insulated reduction and two standard joints, which equates to significant cost savings overall. The SX-WPJoint is delivered sealed in plastic as protection against moisture and dirt before installation.



A: Cross-linked polyethylene
B: Non-shrinkable mid-section
C: Welding plug
D: Integrated mastic sealing

Advantages

- The joint is cross-linked throughout the length of the joint with the exception of the area around the foaming hole
- The joint only shrinks at the ends, which simplifies installation
- Mastic is integrated at the ends of the joint
- The joint ends are elevated to prevent the mastic from resting on the pipe
- The foaming hole is closed with a welding plug
- The standard joint enables reduction by one dimensional offset, thus replacing more expensive pre-insulated reductions
- It is possible to supply SX-WP reduction joints which enable reduction by two dimensional offsets
- The joint is leakage tested, and visual quality checks ensure that the assembled joint is of a high quality
- SX-WPJoint is tested according to EN489



1 Pre-installation of the joint
2 When the expansion indications are no longer visible, the shrinking is correct
3 Leakage test before foaming
4 Foaming with Foam Pack
5 Control of foaming
6 Welding of the welding plug
7 The finished sealing of the foaming hole

Bend Joint
SXB-WP

When using a SXB-WPJoint, it is possible to create a bend of any angle between 0 and 90 degrees

The SXB-WPJoint (shrink joint) is made from cross-linked polyethylene (PEX) and has shrinkable ends and a non-shrinkable corrugated mid-section. A mastic sealing integrated in the shrinkable ends ensures a tight joint. It is important that the steel bend is centred in the insulation. LOGSTOR steel bends are adapted for bending radii for SXB-WPJoint and secure centring.

Easy to install, easy to control

The bend joint is installed before the service pipe is welded together. The insulation on the free pipe ends is removed as instructed. The corrugated section of the joint is heated until it flexes like an accordion. The joint is then pulled over and around the steel bend. In principle, the last part of the installation is the same as for the straight SX-WPJoint.

Lowest Total Cost of Ownership

The SXB-WPJoint is the obvious choice when you encounter odd angles in the course of a project. However, it may also be advantageous to use the SXB-WPJoint for standard 90-degree bends. One SXB-WPJoint replaces a pre-insulated bend and two straight joints. This provides simpler logistics and project planning, thus ultimately reducing the total costs by 10-15%. Only one joint with the SXB-WPJoint system.

SXB-WP in the field

A: Cross-linked polyethylene
B: Non-shrinkable corrugated mid-section
C: Welding plug
D: Integrated mastic sealing
E: SXB-WP replaces a pre-insulated bend and two joints

Advantages

- The joint is cross-linked throughout the length of the joint with the exception of the area around the foaming hole
- The corrugated part of the joint can therefore withstand the heat necessary to ensure sufficient flexibility for installation
- The joint only shrinks at the ends, which simplifies installation
- Mastic is integrated at the ends of the joint
- The standard joint can reduce one dimensional offset, thus replacing more expensive pre-insulated reductions
- The joint ends are elevated to prevent the mastic from resting on the pipe
- The foaming hole is sealed with a welding plug
- Glue in the joint ends ensures fixation during installation
- Suitable for all angles between 0 and 90 degrees
- Replaces a pre-insulated bend and two straight joints – the solution with the lowest total cost

T-Joint
SXT-WP

Two-part cross-linked T-joint with welding plugs

The SXT-WPJoint (shrink joint) is made from cross-linked polyethylene (PEX) and has a branch joint and a main pipe joint. The branch joint consists of a shrinkable end where it connects to the adjacent pipe, and a non-shrinkable corrugated mid-section. The main pipe joint is an open joint, and consists of a shrinkable end and a non-shrinkable mid-section. A mastic packing integrated in the shrinkable ends ensures a tight joint.

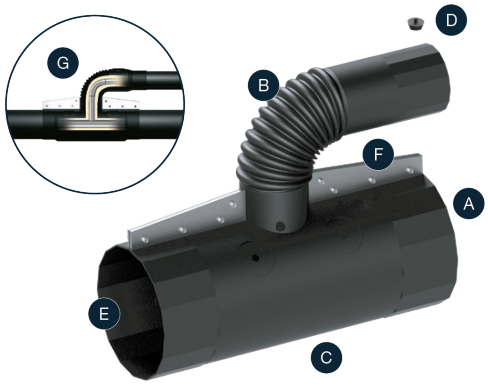
Easy to install, easy to control

The branch joint is pre-installed on the branch. The main pipe joint is open and is fitted after welding on the steel branch pipe. This ensures that the main pipe joint is always clean and dry when mounted.

Lowest possible total economy

The SXT-WPJoint is the natural choice for branches on distribution pipes as it can be used both as a straight branch, a 45-degree branch and a parallel branch. The SXT-WPJoint can be used both on single pipe and TwinPipe systems.
One SXT-WPJoint replaces one pre-insulated T-piece and three straight joints. This provides simpler logistics and project planning, thus ultimately reducing the total costs by 10-15%.

SXT-WPJoint in the field



A: Cross-linked polyethylene
B: Non-shrinkable corrugated section of branch pipe
C: Non-shrinkable mid-section of main pipe joint
D: Welding plug
E: Integrated mastic sealing
F: Flanges and bolts in stainless acid-resistant steel
G: SXT-WPJoint replaces pre-insulated T-piece and three joints

Advantages

- Main pipe joint and branch joint are cross-linked except for the area around the foaming holes
- The corrugated part of the branch joint can therefore withstand the heat necessary to ensure sufficient flexibility for the installation
- The joint only shrinks at the ends, which simplifies installation
- Mastic is integrated at the ends of the joint
- The foaming hole is sealed with a welding plug
- The joint is two-part so that the main pipe joint does not need to be pre-installed
- Can be used for 45-degree, straight and parallel branches
- The branch joint enables reduction by two dimensional offsets
- Can be used on both single pipe and TwinPipe systems
- Can be used for hot tapping
- The flanges and bolts are made of stainless acid-resistant steel AISI 316, which ensures a long service life as the rest of the system
- Replaces one pre-insulated T-piece and three straight joints – the solution with the lowest total cost

Foam liquid
LOGSTOR Foam pack

High focus on safety for fitters and on foaming quality.

When working with foam liquids (isocyanate and polyol), it is important to ensure that the safety of those working with the liquids at all phases from transport to installation has the highest priority. The packaging has therefore been carefully designed with safety in mind. Each bag is clearly labelled to indicate the content with the relevant hazard symbols. In addition, there is a QR code that can be scanned with a mobile phone, providing access to detailed Material Safety Data Sheets.

Once the liquids are mixed, the nozzle is inserted into the foaming hole, and only then is the nozzle membrane broken. This ensures a minimal risk of the fitter coming into contact with the foam liquids.

A: Nozzle with membrane
B: Name of foam liquid and related hazard symbol
C: QR code with access to detailed information about foam liquids
D: Label stating foam pack number and production date
E: Safety information for polyol and Icocyanate in different languages in a booklet

Ensuring the highest quality

It is important for both the service life as well as the quality of the foam that the liquids are stored under the right temperature conditions and have the correct temperature during foaming. Therefore, foam packs are always supplied in polystyrene boxes for easy storage at the customer's warehouse. Correct storage ensures that the liquids have the right temperature when foaming the joints.

Advantages

- Foam packs are available in different sizes to cover different size of joints either with one foam pack or a mix of more foam packs.
- Diffusion-tight film for the isocyanate ensures high quality and a long shelf-life for the foam liquids
- The nozzle membrane is not opened until the nozzle is placed in the foaming hole, which ensures that the fitter does not come into contact with the foam liquids
- Foam packs are supplied in polystyrene boxes. The correct temperature of the liquids ensures high-quality foaming
- New improved labelling stating foam liquids and related hazard symbols
- QR code that can be scanned with a mobile phone providing access to detailed Material Safety Data Sheets
- Foam size and production date are marked on the joint
- Safety information for Polyol and Isocyanate in different languages in a booklet on each half part of the foam pack

Foam pack in the field

General overview
Technical data

Material			
Joints Flanges and bolts for SXT SXT welding plug		Cross-linked polythylene (PEX) Acid-resistant steel HDPE	
		Casing dimensions (Ø mm)	
SX-WP Straight joint*	Single pipe	90-450	
	TwinPipe	125-450	
SXB-WP Bend joint*	Single pipe	90-315	
	TwinPipe	125-315	
SXT-WP Branch joint	Single pipe	90-315 (main pipe)	90-200 (branch pipe)
	TwinPipe	125-315 (main pipe)	125-200 (branch pipe)

Documented standards

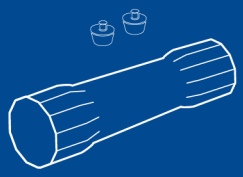
The LOGSTOR SX-WPJoint (shrink joint) system meets the requirements of the EN 489 standard for buried pre-insulated pipe systems.

Quality and the environment are of crucial importance for LOGSTOR systems - from manufacturing of the components to the final assembly and decades of operation. The ISO 9001 and ISO 14001 standards form the basis for the production of all pipes and components.

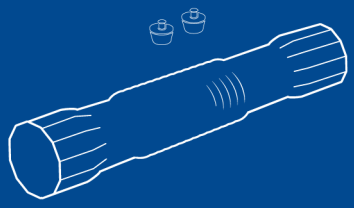
Kingspan Academy offers our customers, contractors, consulting engineers and supervisors in-depth practical training in the use of the LOGSTOR SX-WPJoint system.

Components

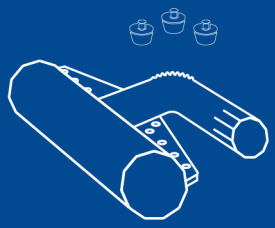
LOGSTOR SX-WP
Straight cross-linked shrink joint with welding plugs



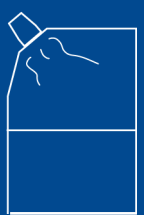
LOGSTOR SXB-WP
Using an SX-WP Joint, it is possible to create a bend of any angle between 0 and 90 degrees



LOGSTOR SXT-WP
Two-part cross-linked T-joint with welding plugs



Foam packs
Safety for fitters and focus on foam quality



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