Fabric Expansion Joints

Guide to Correct Handling and Installation

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Sealing
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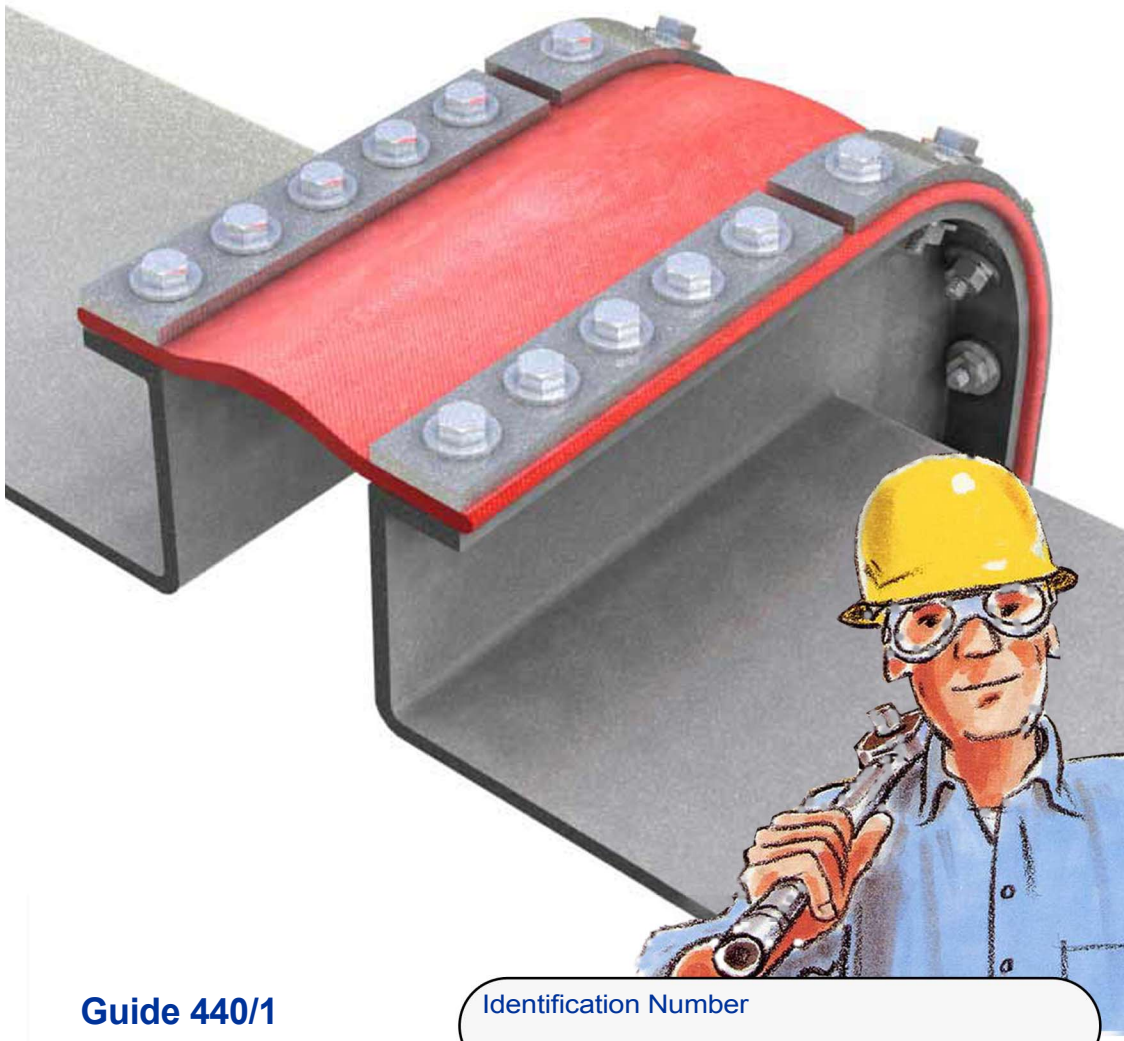

Guide 440/1

Identification Number

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Fitters’ Guide to correct handling and installation of fabric expansion joints

The Fitters’ Guide provides guidance to engineers and fitters to ensure successful installation of fabric expansion joints. It is intended to complement other plant-approved installation and safety procedures. If in doubt, please refer to your supervisor.

This Fitters’ Guide is an extract from the ESA+RAL+FSA Fabric Expansion Joints – Installation Guide (Publication no. 015). Please refer to this document for more details. In particular, please ensure that the pre-installation checks in the Installation Guide have been carried out and confirmed by your supervisor.

ESA Expansion Joint Division Members may have special tooling, procedures and experience which may modify the installation procedure.

For an explanation of terms used in this Fitters’ Guide, including details of packaging, transport, storage, health and safety, please refer to the ESA Expansion Joints - Engineering Guide (ESA Publication no. 011).

Please read through this Fitters’ Guide entirely before starting installation and ask your supervisor if in doubt!

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Tools required

Appropriate personal protection equipment

Spanner or wrench

Calibrated torque wrench

Measuring tape

Hand-held drill

G-clamps

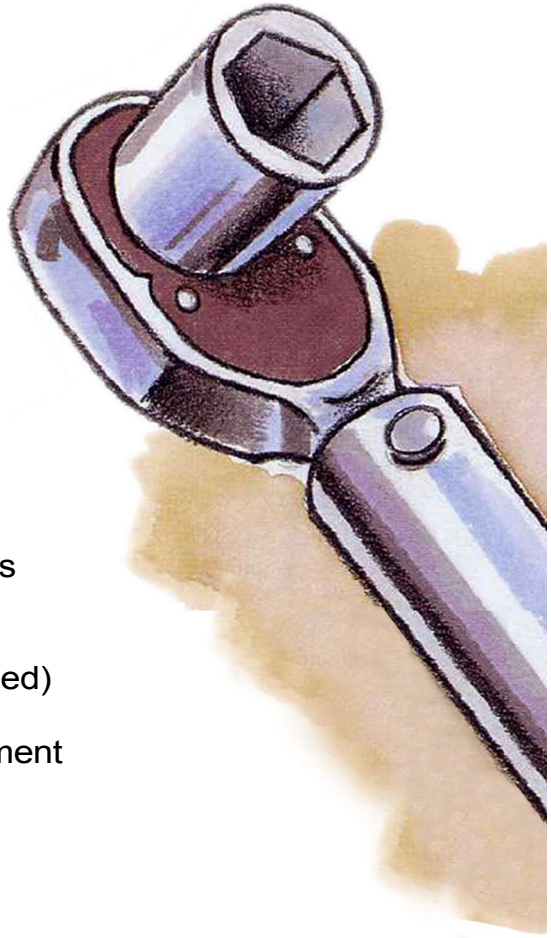
Adequate lifting equipment

Scissors or Stanley® knife
(if required)

Lubricant for fasteners / bolts

Manufacturer's joining kit
(if joint is supplied open-ended)

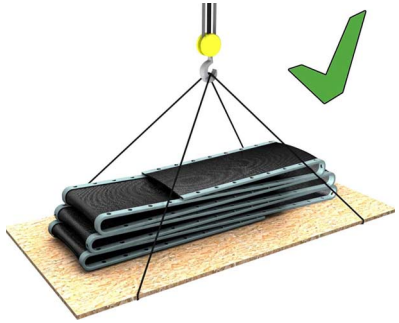
Other plant-specified equipment



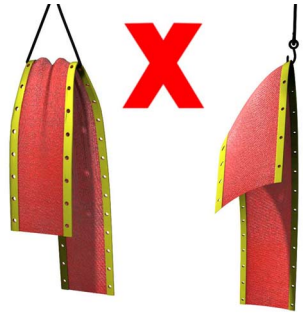
Handling

All materials MUST be kept dry prior to and during installation

Place expansion joint (and cavity insulation or bolster, if applicable) on a supporting base, fitted with attachment points for the lifting equipment



Never use hooks in bolt holes to lift the expansion joint or bolster



Use adequate manpower to avoid dragging along the floor

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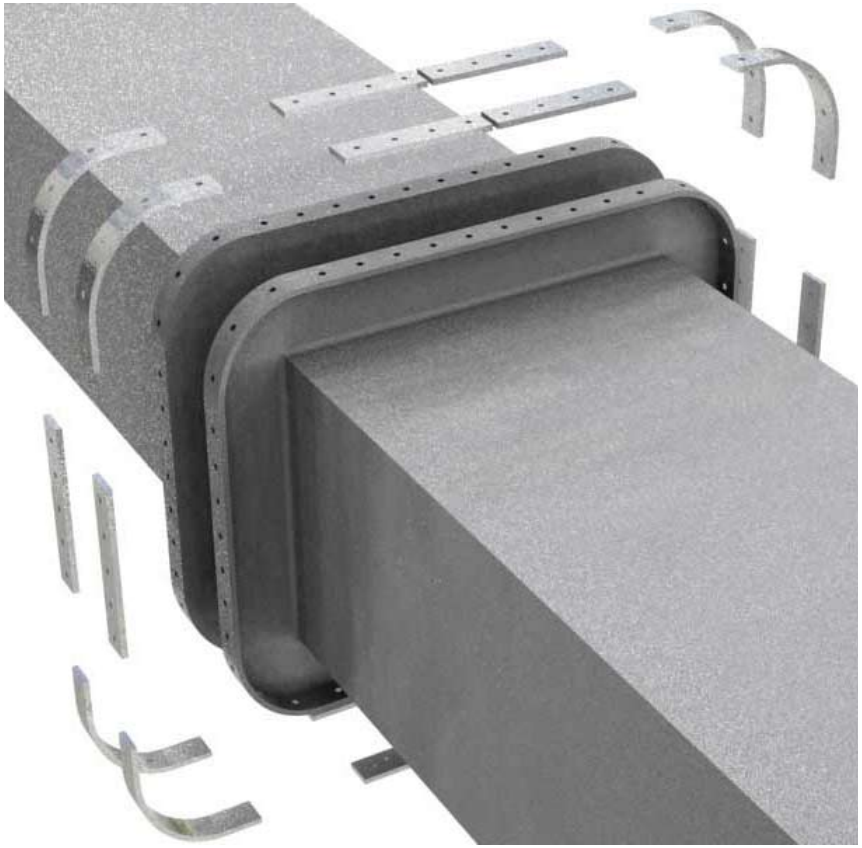
Installation

1 During installation, ***never walk on, or damage*** expansion joints.

2 ***Organise the clamp bars*** to ensure correct match to duct flange.

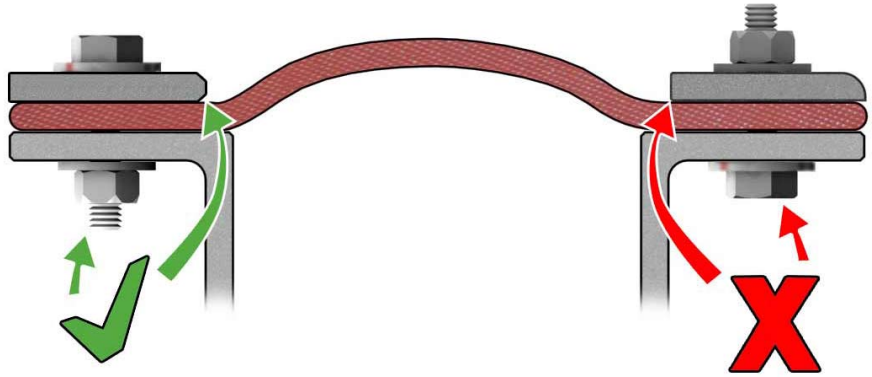


3 If appropriate, ***support the weight of the expansion joint*** during installation. For a vertical duct, support the joint on the upper flange with g-clamps.

4 If appropriate, **apply lubricant uniformly** to all thread, nut and washer load-bearing surfaces.

5 ***Compress the expansion joint slightly*** and slide between the gap in the duct. Orientate the joint to the ducting and locate the corners (if applicable), ensuring that the hot face is towards the inside of the duct. Pull the expansion joint over the duct flanges, spreading it equally to avoid any build up of excess material around the circumference of the duct. Secure with g-clamps.

6 ***Starting from one corner,*** position the expansion joint flange and one corner section of clamp bar correctly, ensuring that the rounded edges face inwards and towards the flange they are clamping.



Compress the expansion joint with a g-clamp either side of the middle hole of the corner clamp bar section, so that the clamp bar holes line up with those in the duct flange (see following diagram).

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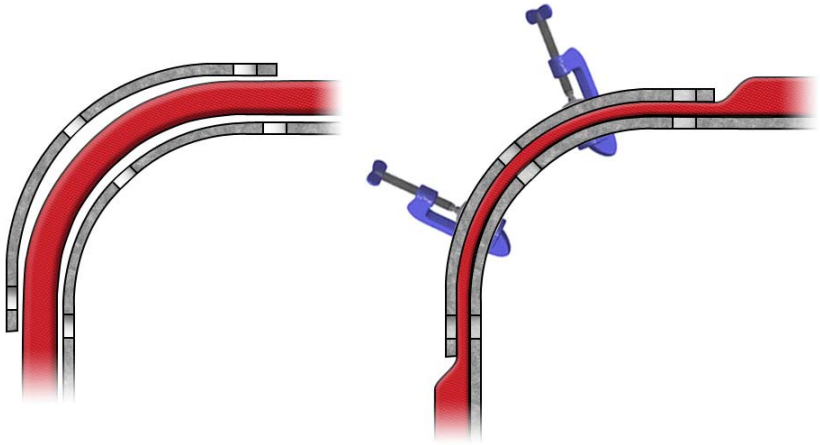
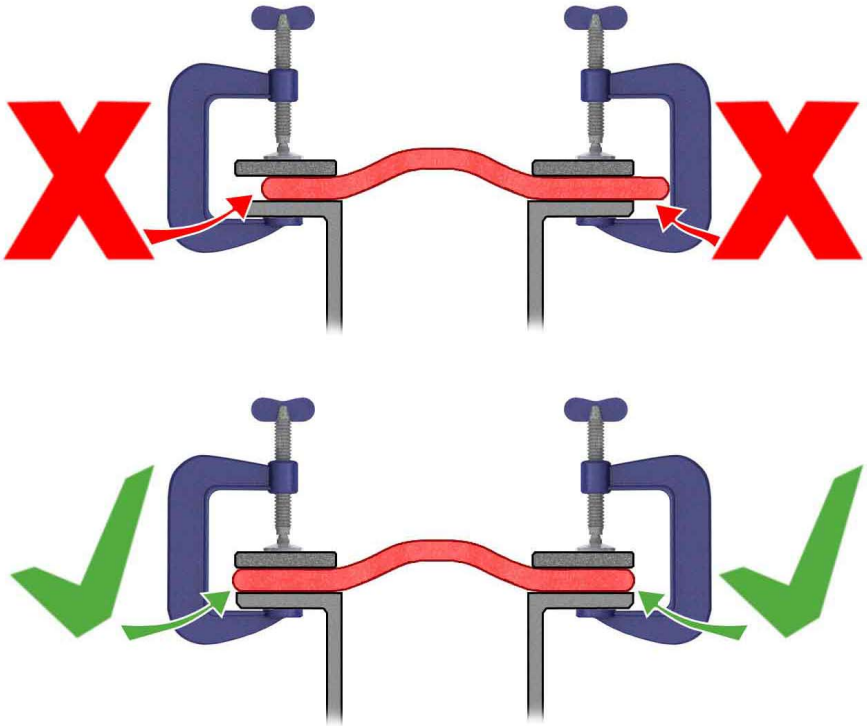


Ensure that the edge of the expansion joint is level with the edge of the clamp bar or protruding slightly beyond.



7 ***Starting at the middle hole*** of the corner clamp bar section, drill one hole through the expansion joint material, using the clamp bar and duct flange as templates. It is very important that the g-clamps (on both sides of the hole) hold the material securely otherwise the fabric may rotate with the drill, resulting in tearing. Insert the bolt from the clamp bar side and tighten loosely. Working along the clamp bar, drill through the flange and clamp bar, inserting bolts from the clamp bar side and tightening the bolts loosely as you go, until all the bolts are in place in the first corner clamp bar section.

8 In the same way, ***install the equivalent corner clamp bar*** section loosely on the opposite duct flange.

9 ***Install all other corners*** in a similar manner on both flanges.

10 ***Starting from the corners,*** use the same process to install all remaining clamp bar sections loosely, ensuring even distribution of excess expansion joint material (see following diagram).

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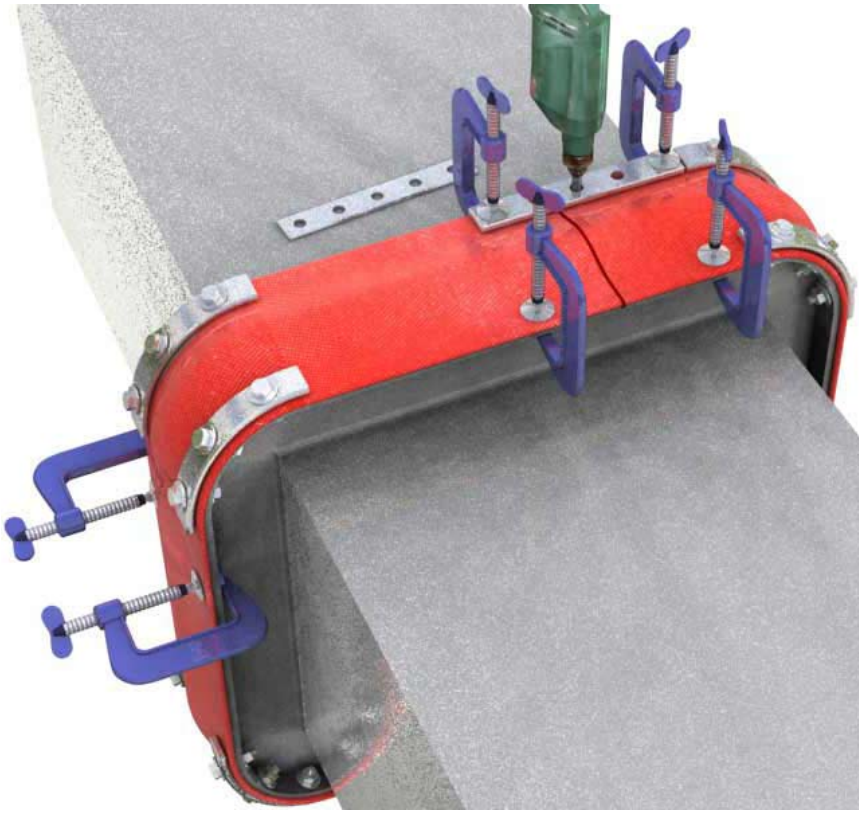
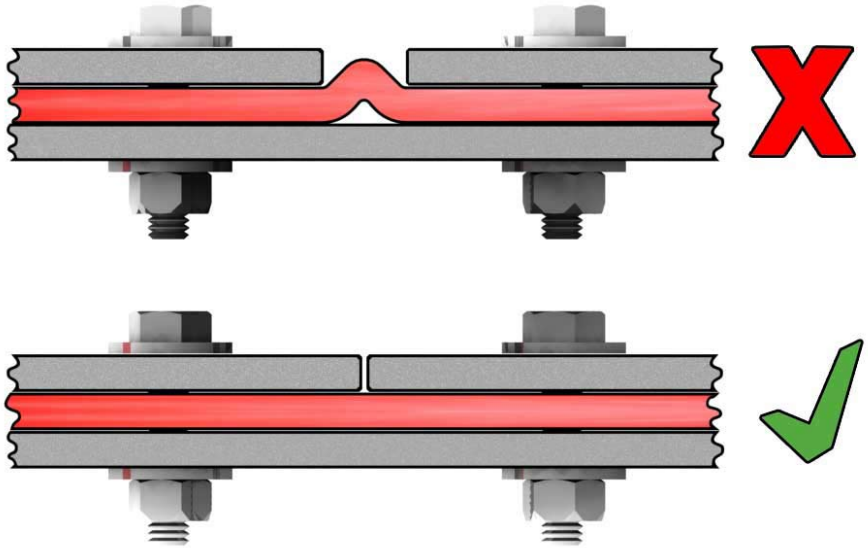


11 ***Adjust positioning of the clamp bars*** to ensure best fit and maximum gap of 3mm or 1/8 inch between adjacent clamp bars. Avoid pinching the expansion joint fabric (see following diagram).



12 ***Tighten bolts*** on both flanges to ~80% of final loading.

13 ***Using a torque wrench***, tighten bolts to final loading.

14 ***Make a second round*** of tightening to final loading.

15 ***Report to your supervisor*** that installation is complete.

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