

Finger Joints Installation Instructions

Responsibility

It is the responsibility of installer to understand all the requirements of this document before attempting to install Finger Joints.

- Failure to perform any of the steps outlined in this document will result in underperformance or failure of the product.
- Failure to perform any of the steps outlined in this document shall void any warranties, either expressed or implied, regarding Finger Joints.

It is the responsibility of The D.S. Brown Company to provide written instructions regarding the proper installation and handling of Finger Joints.

It is the responsibility of The D.S. Brown Company to provide technical support, training, and quality control testing as requested by the installer, contractor, or owner of the project.

- Technical support, training, and quality control testing are available for a fee.

Product Description, Handling and Storage

Finger Joints are supplied in full length or staged construction lengths.

Consult product data sheets for proper Finger Joint sizes or requirements.

Construction shall be in accordance with the state's standard specifications book for highway construction, plus project special provisions.

Welding shall be in accordance with the AASHTO/AWS D1.5:2002 bridge welding codes or the state's approved welding specifications/codes.

Finger Joints will be supplied with an AASHTO M270 Grade 50 (ASTM-A572, ASTM-A36 or ASTM-A992 steel.) Product steel grades may vary by state.

Product Safety

Please review each component's SDS before the installation to fully understand the safety concerns related to this system. Failure to do that could result in serious injury or death.

All jobsite safety rules and regulations as specified by the owner or project management are to be followed and are not superseded by any other statement in this document.

The following guidelines are recommendations consistent with the SDS literature. These recommendations are not intended to supersede or replace any existing requirements set forth by local laws or policies.

Personal Protective Equipment (PPE)

- Use approved respiratory protection when airborne exposure is excessive.
- Use protective clothing.
- Safety glasses with side shields.
- Safety Harness
- Hard Hats
- Steel Toe Shoes
- Proper glove wear to properly handle the Finger Joints and protect your hands.
- Proper weight rated Safety Strips for picking the Finger Joints off the ground.
- Proper hooking devices for moving the Finger Joints from one location to another.
- Workers not wearing the proper PPE equipment shall not enter the installation area.

Material Storage

- All Finger Joints shall be stored in a location where there will be no damage to the Finger Joints themselves.
- All Finger Joints shall be stored on top of support items that will prevent contaminants from entering the support boxes.

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Equipment Needed

- Properly rated crane/cranes for the installation and removal of the Finger Joints.
- Properly rated Safety Straps for the installation and removal of the Finger Joints.
- Properly rated spreaders for picking the Finger joints off the ground and moving them around.
- Proper tools for adjusting the temperature setting and the installation on the Finger Joints.
 - Multiple Come Along
 - Wrenches / Open end wrenches, large Crescent wrenches, large Sockets, Measuring Tapes
 - Large drill for sockets
 - Wooden/Steel Wedges
 - Welder and needed welding equipment.
 - Cut Off Saw
 - Drill and Drill Bits
 - Plywood and a Circular Saw
 - Blow Pipe and 175/185 Air Compressor with Hose or a Backpack Air Blower.
 - Installation tools for the installation of strip seal glands if needed.

Block-out Preparation

Block-outs will be formed prior to the pouring of the concrete deck.

Block-outs will be formed to all related dimensions on the preapproved construction plans.

Block-outs that have rebar already established in them may have to be moved or cut loose in order to allow the Finger Joint to be placed inside the block-out properly.

Material Notes

Stud anchors shall be AASTO M169 (ASTM A108) steel and automatically end welded with complete fusion. Repair studs using weld procedure A-SM-stud-REP-01.

All steel in the expansion joint devices, except stainless steel, shall be hot-dipped galvanized after fabrication in accordance with AASGTO M111 (ASTM A123). Repair damaged galvanizing in accordance with ASTM A70, Annex A1. Due to tank limitations, Assemblies may be dipped in sections and shop spliced after galvanizing. Repair of any galvanizing shall be in accordance with ASTM A780.

Lifting devices may be welded to parts for galvanizing if necessary. When their usage is complete, remove and grind flush at all connecting locations. Repair galvanized locations per ASTM A780 or preapproved cold galvanizing.

5/8" x 3-1/2" square head A307 Spring access plate bolt (Item M2) may either be coated with zinc plating or mechanical galvanizing.

Nitrile Drainage Trough material shall meet requirements of ASTM D5973. Nitrile Drainage Trough material shall be continuous. Once field welding has been completed, the Nitrile Drainage Trough will be continuous, NO field splices of the Nitrile Drainage Trough shall be permitted. The contractor shall protect the Nitrile Drain Trough from damage during construction. Nitrile Drainage Trough shall also be protected and clear from any damage during the field welding process.

Note: The Contractor has the option to install the Nitrile Drainage Trough in the Finger expansion joint prior to setting the Finger expansion joints in the bridge deck. If this is done, care and protection must be taken to avoid damaging the Nitrile Drainage Trough material during the installation/removal process. This process requires the Nitrile Drainage Trough to be flushed with water after installation to wash all concrete and construction debris out of and off the drainage trough.

General Notes

Material and workmanship shall be in accordance with the LRFD Bridge design specifications adopted by the American Association of State Highway and Transportation Officials, contract plans and specifications.

Expansion joints are designed to accommodate fatigue loading.

Finger joints can be equipped with temperature adjustment devices to allow for adjustments per field engineers recommendations.

All steel surfaces in contact with the Nitrile Drainage Trough, shall be cleaned prior to the installation of that drainage trough.

Welding shall be in accordance with the AASHTO/AWS D1.5: 2002 Bridge welding codes.

Care will be taken during the shipping and the moving of the Finger Joints.

Set edge beams and rails at 0"- 1/4" below roadway grade.

The Finger expansion joint assemblies shall be inspected by the D.S. Brown Company's QC department and the States / DOT QC department.

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All full penetration or partial groove welds should be magnetic tested or ultrasonically tested before the installation of the joints.

Any tightly adherent weld spatter needs not be removed in coating areas to be cast inside the concrete.

Installation

Field engineer shall determine the joint opening on the day of the installation. Pre-set the joint gap opening using the temperature chart and the shipping/erection plates.

Place Finger joint in block-out and properly align both horizontally and vertically. (Joint must follow roadway grade & cross slope.) Shim the shipping and erection plates as needed..

Bend or remove conflicting rebar as approved by the onsite engineer.

Field locate and drill holes in the bottom of the block-out for the joint support hardware.

After setting Finger Joint to grade, tighten all support connections. Field tack weld joint supports after all temperature settings and adjustments have been made.

Apply any bond-breaker material (State Approved) to the surfaces of the Finger Joints in contact with the concrete where needed/if needed.

The contractor must place some sort of form work so that no concrete can flow into the joint gap opening.

Pour and vibrate concrete into the block-out to ensure proper consolidation around all embedded components. Remove formwork after the proper cure time on the concrete, to be determined by a field engineer.

Remove or loosen all temporary support devices, lifting devices, and adjustment devices soon after attachment to the bridge structure. After the concrete achieves a minimum compressive strength of 1500 psi and prior to 8 hours elapsing after closing pour. Loosen the bolts on the shipping/erection devices, these devices can be removed at this time by grinding out the welds to the Finger Joints. Repair the damaged galvanized surfaces in accordance with ASTM A780.

After the concrete achieves a minimum compressive strength of 4000 PSI, reset the Finger plates, Retighten the anchor bolts to a snug fit, then tighten and additional 1/6 turn..

Fill the counterbored anchor bolt holes and the gap between the Finger plates with a mastic or silicone material. ****Note: The bond breaking material, the mastic material, or**

silicone material are not supplied by the D.S. Brown Company.

Note: Every state has their own specs on material components. Recommended material components provided here are guidelines only and may not represent state guidelines. The D.S. Brown Company will follow your state's specifications when putting together plans, materials, etc. This is only a Finger Joint guideline.