

Field Service



AMERICAN
SPIRALWELD PIPE

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A digital copy of this guide is available through the QR code below:

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Product Introduction

Field Service Checklist

- DELIVERY
 - HANDLING
 - Nylon straps or slings
 - No chains or cables
 - Padded forks and carriage on forklift
 - STORAGE
 - Stringing
 - Sandbags
 - Dirt berms
 - End caps to remain in place until immediately before pipe is installed
 - Bracing
 - Wood or steel screw jacks
 - Care should be taken to protect coating while stored on site
 - BUNKS
 - Property of ASWP and may be asked to return
 - TOOLS
 - “Shoe horn” type device (similar to a car leaf spring)
 - Sleever bar or pry bar
 - Porta Power jack
 - Holiday detector
 - Propane torch and other tools for shrink sleeves
 - JOINT MATERIALS
 - Shipped loose
 - Shrink sleeves
 - O-ring gaskets and joint lube (gasketed joint pipe)
 - Mastic filler
 - JOINT ASSEMBLY
 - Welded lap joint
 - ASWP’s assembly recommendations included herein
 - O-Ring
 - ASWP’s assembly recommendations included herein
 - Feeler gauge, check each point
 - Methods and tips:
 - Hinge
 - Insertion blocks
 - Markings for maximum insertion (welded pipe)
 - Markings for minimum insertion (O-ring pipe)
 - JOINT COATING
 - Shrink sleeve
 - Canusa recommendations included herein
 - Covalence recommendations included herein
 - Liquid coating
 - Joint interior grout
 - Per project specifications
 - ASWP’s recommendations included herein
 - POLYURETHANE REPAIR
 - Preparation
 - Various types of damage
 - Holiday testing
 - ASWP’s recommendations included herein
 - Must comply with project specifications
 - CEMENT-MORTAR LINING REPAIR
 - ASWP’s recommendations included herein
 - PIPE MARKINGS
 - Unique project identifiers (customer name, project number, lot number, etc.)
 - Sequenced mark numbers
 - Field top identification
 - STULLING
 - How to remove
 - How to replace
 - How to adjust
 - DAMAGED PIPE
 - When to call – if in question call
 - Who to call
 - ASWP Project Managers – 866-442-2927
 - Information to provide
 - MK #
 - Lot #
 - Station
 - Full description of problem
 - Pictures
 - ATTACHED LIST OF ATTENDEES
 - COPY WITH ATTACHMENTS PROVIDED TO INSTALLING CONTRACTOR
- The above topics are being covered as a service to the installing contractor and are intended to address the fundamentals required to familiarize a crew with steel pipe. It remains the responsibility of the installing contractor to comply with all requirements of the project’s plans and specifications. A more comprehensive volume of installation guidelines is available in the American Water Works Association (AWWA) Standard, C604 Installation of Buried Steel Water Pipe – 4 inch (100 mm) and Larger.



Checklist Reference Images



When handling pipe with a forklift, pads should be used on the forks and carriage to prevent damage to the pipe coating. This also mitigates the risk of localized stress application or deformation of the pipe. Padding distributes contact loads, protects coating integrity, and ensures safe lifting during site movements.



Pipe handling with nylon straps or slings provides uniform load distribution and avoids point loading that could damage the pipe wall or protective coatings. Flexible straps and slings conform to the pipe surface, reducing the risk of slippage, coating abrasion, and localized stresses during lifting operations.



Large diameter steel pipe is supplied with bracing, or stulls, installed along the interior to maintain roundness and structural stability during handling and storage. Stulling distributes loads and protects the pipe from deformation caused by stacking, lifting, or transportation-induced stresses.



Steel pipe stored on prepared dirt berms provides stable on-site support and load distribution. End caps shall remain in place until immediately before installation to prevent contamination, protect linings, and maintain the moisture necessary for preserving cement-mortar lining integrity.



Pipe stringing arranges pipe sections parallel to the trench in the order of installation, minimizing handling, re-lifting, and the potential for damage. Proper stringing maintains alignment, preserves coating and lining integrity, and promotes efficient, safe installation operations.

Welded Lap Joint Assembly Recommendations

Inside Weld Only, Post Backfill

This information pertains to the field assembly of welded lap joints when the welding is to be performed on the inside of the pipe, after the exterior joint has been coated and trench backfill has been placed to a minimum of 12" over the top of the pipe, and prior to inside joint coating application. This method is commonly referred to as "Weld After Backfill."

I. Joint Assembly

1. Lower pipe sections into the trench using appropriate lifting devices (slings, padded supports) to prevent damage to coatings and linings. Handling methods should follow ANSI/AWWA C604 and AWWA M11 guidelines to avoid coating damage. Any damaged coating should be repaired immediately using the applicable AWWA coating standard.
2. Position the succeeding pipe section so that the bell approaches the previously installed spigot at a controlled, slight angle to achieve proper overlap during assembly, consistent with C604 joint-placement practices.
3. Overlap the bell onto the spigot. This overlap distance should be the joint engagement indicated on the ASWP joint detail sheet. Marking the spigot in advance to indicate proper engagement distance is considered best practice.
4. A small tack weld (2" to 4" in length) may be applied at the top of the joint to stabilize the bell-and-spigot interface during lowering and alignment. Tack welding should follow ANSI/AWWA C206 requirements and may remain in place if allowed by the contract documents and properly incorporated into final welding.
5. Lower the pipe section into final position. If necessary, use suggested tools such as tapered wedges ("shoe horns") to guide proper fit. Pipe should be adequately braced, round, and aligned. Tack welds may be removed and reapplied, if required, to facilitate joint adjustment. Reapplying a tack weld may help prevent the pipe from disengaging during backfilling operations.
6. Confirm proper line, grade, and uniformity of joint engagement. Deflection limits and insertion tolerances should comply with contract documents.

II. Application of Heat Shrinkable Sleeve

Heat-shrinkable sleeves should be applied in full accordance with ANSI/AWWA C216 and the sleeve manufacturer's instructions, including required surface preparation, preheating (when specified), patch filler application, and holiday testing procedures.

III. Backfilling

Backfill materials and placement should comply with contract specifications and ANSI/AWWA C604 requirements for bedding, pipe-zone and haunch embedment, and final backfill. Initial backfill must be placed to a minimum of 12" over the top of the pipe prior to interior welding operations. Backfill should not include materials that could damage coating systems.

IV. Joint Weld

1. Joint welding can be performed once backfill has been placed to a minimum depth of 12" over the pipe, consistent with the weld-after-backfill practice defined in ANSI/AWWA C604.
2. Prior to welding, the radial joint gap should be equalized as required. Tack wells should be applied at four or more evenly spaced locations to maintain consistent spacing and prevent excessive localized gaps.
3. Welds should conform to the applicable welding procedures and inspection requirements defined in the contract documents and ANSI/AWWA C206.

V. Interior Joint Finish – Grouting

Interior cement-mortar joint finishing should be applied in accordance with ANSI/AWWA C205. AMERICAN's Interior Joint Grouting Recommendations are provided as a guide.

Note: These recommendations are for informal purposes only. AMERICAN SpiralWeld Pipe Company, LLC (ASWP) assumes and accepts no responsibility for proper assembly, installation, or quality of workmanship performed by the installing contractors.

O-Ring Joint Assembly Recommendations

Proper assembly of an O-ring joint is critical to the successful operation of the pipeline. The following step-by-step guidelines should be observed during installation of all O-ring joints.

I. Joint Assembly

1. Once the bedding has been placed, a bell hole should be created at each bell end to facilitate proper alignment, assembly, gasket inspection, and field-applied joint coating.
2. O-ring gasketed pipe should not be installed downhill on slopes greater than 10% without evaluating and providing appropriate pipe restraint to prevent movement, consistent with ANSI/AWWA C604 guidance on steep-grade installation.
3. Prior to assembly, clean the bell interior and spigot exterior to remove foreign material. Apply water soluble AMERICAN Pipe Lube to both contact surfaces immediately before joint engagement. Pipe ends shall be substantially round during assembly to ensure proper insertion and gasket seating.
4. Prior to placement on the spigot, pre-stress the O-ring gasket by folding it in half and stretching it as much as possible. Once pre-stressed, place the O-ring gasket into the spigot groove. Equalize gasket tension by running a smooth, rounded tool between the gasket and groove around the full circumference, as recommended in ANSI/AWWA C604.
5. Mark the exterior of the spigot end at the top, bottom, and springlines with the required engagement length (nominal insertion + 1 in.) to assist in verifying uniform, full joint engagement.
6. Insert the spigot end approximately 1" into the bell and confirm proper alignment, centering, and gasket containment before full insertion. The pipe being joined must be colinear with the previously installed section, consistent with ANSI/AWWA C604 alignment requirements.
7. Fully engage the spigot into the bell until it stops without excessive force and to at least the minimum engagement shown on the joint detail drawing. For required insertion requirements, follow ANSI/AWWA C604 recommendations for gasket joints.
8. After full engagement, joint deflection may be introduced by disengaging one side within the amount shown on the layout drawings. This deflection should never be more than that noted on the joint detail drawing, nor shall it exceed the

permissible values defined for gasketed bell-and-spigot joints in ANSI/AWWA C604.

9. Use a feeler gauge around the full circumference of the joint to confirm the gasket has not displaced. If displacement is detected, dismantle the joint, remove the gasket, install a new gasket, and reassemble the joint. Destroy the removed gasket so that it cannot be used on future joints.
10. If a flat spot or distortion on the assembled joint is discovered during feeler-gauge inspection, disassemble the joint and repair the affected area(s) on the bell or spigot. When feasible, rotate the pipe so that previously affected areas do not meet when reassembled. Reassemble the joint and proceed from step 8 above.
11. After a joint is successfully assembled and verified, place sufficient initial backfill around the pipe to prevent shifting during installation of subsequent pipe sections.

II. Application of Heat Shrinkable Sleeve

Application of heat-shrinkable sleeves should be made in accordance with ANSI/AWWA C216 and the sleeve manufacturer's recommendations, including cleaning, surface preparation, preheating (when specified), installation, shrinking, and post-application inspection and holiday testing.

III. Backfilling

Specified backfill material should be placed and compacted per the contract specifications and in accordance with ANSI/AWWA C604 requirements for bedding, pipe-zone and haunch embedment, and final backfill. Backfill materials should not include materials that could damage the coating systems.

IV. Interior Joint Finish – Grouting

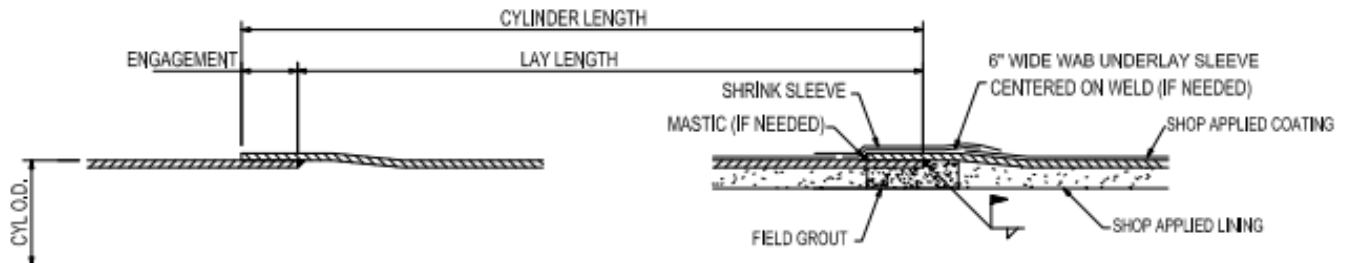
A cement-mortar grout should be applied in accordance with ANSI/AWWA C205. AMERICAN's Interior Joint Grouting Recommendations are provided as a guide.

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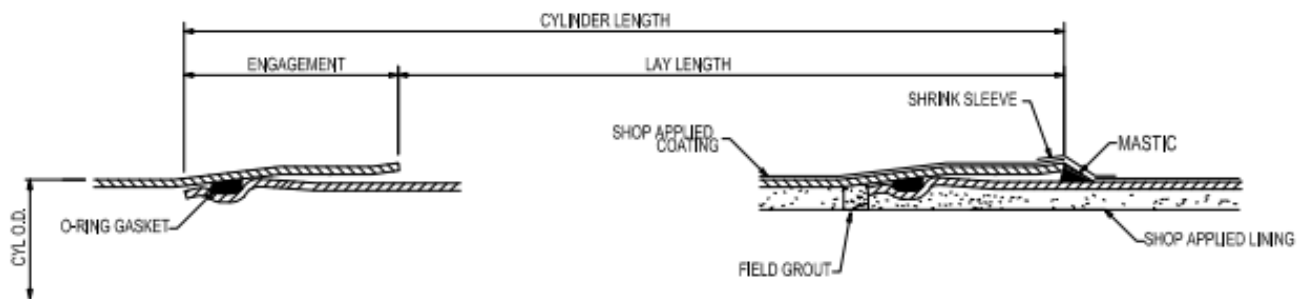


Typical Joint Details

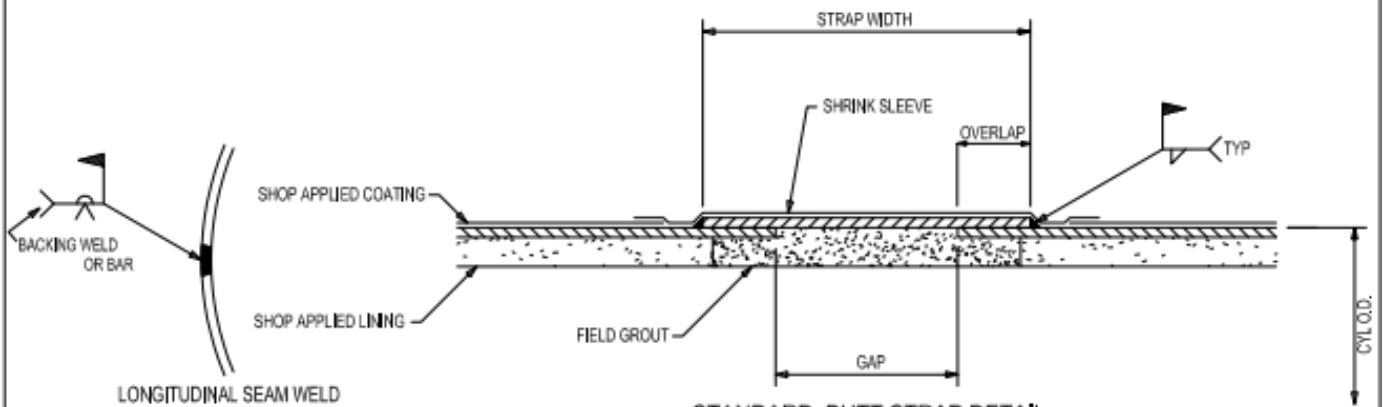
TYPICAL JOINT DETAILS



STANDARD LAP JOINT DETAIL



STANDARD O-RING JOINT DETAIL



NOTES:

1. WELDED JOINTS CAN BE WELDED **INSIDE AND / OR OUTSIDE** DEPENDING ON SPECIFIC PROJECT REQUIREMENTS.
2. REFER TO THE PROJECT SUBMITTAL PACKAGE FOR SPECIFIC JOINT DIMENSIONS PRIOR TO **INSTALLATION.**



Exterior Joint Protection

I. Joint Coating

The primary method for field coating the joints of steel pipe is heat-shrinkable sleeves. Reference to, and compliance with, the contract documents with respect to external joint protection is the contractor's responsibility.

which type of sleeve is being furnished. The specific application requirements of the sleeve manufacturer should be followed. Links and QR codes to the product data sheets and installation guides from two manufacturers have been included in this document for your reference.

II. Heat Shrinkable Sleeves

When heat-shrinkable sleeves are being utilized, please refer to our submittal package to confirm

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Interior Joint Grouting Recommendations

I. Materials

1. Portland cement conforming to ASTM C150, Type I, Type II, or Type V, or Blended Hydraulic cement conforming to Type IL, Type IL(MS), or Type IL(HS), or as required by the contract documents.
2. Sand meeting the requirements of ASTM C33 or C35.
3. Water shall be clean, colorless, and free from objectionable quantities of organic matter, alkali, salt, or other impurities.
4. An admixture conforming to ASTM C494, if desired.
5. A bonding agent conforming to ASTM C881, such as Sikadur 32 Hi-Mod; Sikadur 31 Hi-Mod Gel; or Sikadur AnchorFix 4.

Note: When required by specifications, cured cement-mortar must conform to NSF 61. Products listed above should be verified for NSF 61 conformance. It is the contractor's responsibility to confirm compliance with the applicable standards and specifications.

II. Material Preparation

1. Cement-mortar should consist of not less than one part cement to not more than two parts sand (by volume), dry mix thoroughly, and then moistened with sufficient water and, if desired, an admixture. The consistency should be such that when the mortar is rolled into a ball it will hold its shape.

Example:

- 124 lbs. of masonry sand (8 heaping shovels)
- 54 lbs. of concrete (4 heaping shovels)
- 1 ½ gals. of water (varies with initial wetness of sand)
- 1 pint of admixture (optional)

2. The bonding agent should be prepared as recommended by the manufacturer. Normal pot life is approximately 1 hour at 70°F. Read the warning label, as epoxy mixtures may be toxic to the skin.
3. A grout slurry should be prepared.

Example:

- 7 pints of water
- 1 pint of admixture (if desired)
- 4 pints (5.3 lbs.) of cement

III. Interior Joint Processing

The interior joint recess is to be completely filled with cement-mortar.

1. Clean joint area thoroughly with a brush or rags and water, allowing the surface to dry.
2. If the lining in the joint area has been damaged, chip away all loose material keeping edges of sound mortar essentially vertical. Clean area as noted in (1) above.
3. When a bonding agent is desired, apply the mixture evenly over the area to be patched, including the vertical edges of the existing lining, using either a brush or wood shingle. Allow the bonding agent to become tacky.
4. Apply a coat of grout slurry to all surfaces that will contact the hand placed cement-mortar.
5. Apply the cement-mortar tightly into the joint recess, completely filling the void.
6. Screed off the excess mortar tightly so that the patched area is even with the surfaces of the adjacent lining.
7. Trowel the patch surface to a smooth finish.
8. A slurry mixture may be brushed over the mortar and troweled as necessary to smooth the patch.
9. Allow mortar to cure sufficiently prior to the introduction of water to the patch area.

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Field Cement-Mortar Recommendations

Cement-Mortar Repair

I. Materials

1. Portland cement conforming to ASTM C150, Type I, Type II, or Type V, or Blended Hydraulic cement conforming to ASTM C595, Type IL, Type IL (MS), or Type IL (HS), or as required by the contract documents.
2. Sand meeting the requirements of ASTM C33 or C35.
3. Water shall be clean, colorless, and free from objectionable quantities of organic matter, alkali, salt, or other impurities.
4. An admixture conforming to ASTM C494, if desired.
5. A bonding agent conforming to ASTM C881, such as Sikadur 32 Hi-Mod; Sikadur 31 Hi-Mod Gel; or Sikadur AnchorFix 4.

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1. Cement-mortar should consist of not less than one part cement to not more than two parts sand (by weight), dry mixed thoroughly and then moistened with sufficient water and, if desired, an admixture. The consistency should be such that when the mortar is rolled into a ball it will hold its shape.

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3. A grout slurry should be prepared.

Example:

- 7 pints of water
- 1 pint of admixture (if desired)
- 4 pints (5.3 lbs.) of cement

III. Lining Repair

A. Cracks

Cracks in cement-mortar lining are common, normally caused by shrinkage and minor flexure. They may be propagated by hot, dry weather, removal of pipe caps for an extended period, rough handling, and thermal stresses caused by uneven warming. Cracks up to 1/16" in width or up to 1/8" in width for less than 12 continuous inches do not require repair. Cracks of 1/8" and larger may heal autogenously when the pipe is filled with water. If this healing process can be demonstrated to the satisfaction of the purchaser using a representative pipe, larger cracks may not require repair. Below is the repair procedure for cracks that are too large to heal:

1. Using a prospectors pick or slag hammer, remove the cracked area to the full depth of the lining, leaving vertical edges.
2. Remove all loose lining particles with a stiff wire brush. The surface to be repaired should be free of dirt, oil, and grease.
3. For cracks with a width between 1/16" and 1/8" that exceed 12" in length, repair by rubbing cement paste, brushing a neat cement slurry, or applying an epoxy bonding agent conforming to ASTM C881/C881M into the crack.
4. For cracks wider than 1/8", repair by filling with a cement paste or hand packing with mortar in accordance with ANSI/AWWA C205.

B. Broken and/or Loose Lining

Chip away all loose material, keeping edges of sound mortar essentially vertical. If the area to be repaired exceeds 6" longitudinally, an epoxy bonding agent must be used; if the area to be repaired is 12" or more longitudinally, a wire mesh must first be applied. Patch the exposed area using the same guidelines as that for interior joint grouting.

C. Curing

Do not fill the pipe for at least 24 hours after the last repair has been completed.

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Referenced Industry Standards



[AWWA C200](#)



[AWWA C205](#)



[AWWA C206](#)



[AWWA C207](#)



[AWWA C210](#)



[AWWA C216](#)



[AWWA C222](#)



[AWWA C604](#)



[AWWA M11](#)



[ASTM C33/C33M](#)



[ASTM C35](#)



[ASTM C150/A21.50](#)



[ASTM C494/C494M](#)



[ASTM C595/C595M](#)



[ASTM C881/C881M](#)



[NSF/ANSI 61](#)

Product Data Sheets



[Aqua-Shield AQW](#)



[WaterWrap](#)



[WaterWrap-WAB](#)



[PERP \(Covalence\)](#)



[Canusa-CPS
Polyurethane Repair
Products](#)



[MD-50E Shrink
Sleeve Torch](#)



[Shrink Sleeve Tools](#)

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[ASWP Polyurethane
Repair
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