# CORE LINEPIPE® EXTERNAL COATING BULLETIN

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# 1. GENERAL

CORE Liner<sup>®</sup> pipelines are intended as corrosion resistant pipelines. CORE Liner<sup>®</sup> pipes are generally delivered to the field with an external coating. To maintain the external corrosion resistance of the CORE Liner<sup>®</sup> pipeline, it is strongly recommended that an external corrosion resistant coating is applied to the ClickWeld<sup>®</sup> joints, after the field joining process is completed.

# 2. SCOPE OF WORK

CORE Linepipe® carries a stock of joint coating materials and can supply it with the pipe delivery to site, if requested by the client/contractor. Please contact a CORE Linepipe® sales representative for further details.

All tools, consumables and ancillaries required for the external coating application are to be supplied by the external coating applicator (the contractor).

## **3. CLICKWELD® READINESS VERIFICATION**

ClickWeld® and electrofusion joints must be complete, which includes installed inserts and plugs, before a ClickWeld® joint is ready to be externally coated. Please ensure that the ClickWeld® joint is fully completed prior to applying the external coating. To verify that the ClickWeld® joint is completed and ready to be externally coated, please refer to APPENDIX A for the ClickWeld® readiness criteria.

## 4. WARNING (PIPE HEATING)

CORE Liner<sup>®</sup> is susceptible to damage by heating as it has a polyethylene liner inside the pipeline. Overheating CORE Liner<sup>®</sup> can potentially lead to damage, failure, and costly repairs. Please refer to <u>APPENDIX B</u> for warning notes regarding heating.

# 5. CLICKWELD® EXTERNAL COATING

Although many external coatings are suitable for use on CORE Liner® pipelines, CORE Linepipe® recommends using STOPAQ as external corrosion protection on CORE Liner® joints. Nevertheless, CORE Linepipe® clients may elect to use other external coatings. Please contact a CORE Linepipe® sales representative for confirmation of suitability, guidance and training recommendations for your coating of choice.

PRODUCT	APPLICATION
STOPAQ WRAPPINGBAND CZ	OPERATING TEMPERATURE UP TO 50°C (122°F)
STOPAQ WRAPPINGBAND CZH	OPERATING TEMPERATURE UP TO 70°C (158°F)
STOPAQ WRAPPINGBAND CZHT	OPERATING TEMPERATURE UP TO 85°C (185°F)
STOPAQ OUTERWRAP PE	OPERATING TEMPERATURE UP TO 70°C (158°F)
STOPAQ OUTERWRAP HTPP	OPERATING TEMPERATURE UP TO 85°C (185°F)

The application procedure for the STOPAQ material on ClickWeld<sup>®</sup> joints is detailed in Wrappingband and Outerwrap for CORE Linepipe ClickWeld Application and is included in APPENDIX C.

All personnel involved in applying external coatings on CORE Linepipe® products must be trained by a representative of the external coating manufacturer. It is strongly recommended that all personnel involved in applying external coatings on CORE Linepipe® products complete the CORE Linepipe® external coating online information module.

TOTAL MAXIMUM ROLLS PER CLICKWELD (STOPAQ)						
STOPAQ PRODUCT      4 INCH      6 INCH      8 INCH      10 INCH      12 II						
WRAPPINGBAND 100MM/4"	0.65	0.51	0.70	1.02	1.40	
WRAPPINGBAND 50MM/2"	0.12	0.29	0.40	0.58	0.80	
OUTERWRAP 75MM/3"	0.54	0.45	0.56	0.90	1.12	
OUTERWRAP HTPP 100MM/4"	0.25	0.33	0.41	0.66	0.82	

TOTAL MAXIMUM ROLLS PER CLICKWELD (SCARGAURD)						
SCARGUARD PRODUCT 4 INCH 6 INCH 8 INCH 10 INCH 12 INCH						
SCARGUARD 6" x 30' ROLL	1	1	1	1.5	2	

# 6. HOLIDAY DETECTION (JEEPING)

Holiday detection and jeeping is the responsibility of the pipeline contractor. CORE Liner® pipes can be jeeped similar to coated carbon steel pipelines. The coating manufacturer general recommendations for jeeping YJ or YJ2K coated CORE Liner® pipes are as follows:

	YJ CO	YJ2K C	COATING	
PRODUCT	COATING THICKNESS, MM	VOLTAGE, V	COATING THICKNESS, MM	VOLTAGE, V
CL440	0.75	7,500	1.22	12,200
CL640	0.85	8,500	1.22	12,200
CL648	0.85	8,500	1.22	12,200
CL671	0.85	8,500	1.22	12,200
CL856	1.00	10,000	1.22	12,200
CL1071	1.00	10,000	1.22	12,200
CL1279	1.25	12,500	1.22	12,200

• It is recommended not to exceed the above voltage values and to use detectors SPY Model 785 / 790 (or equal).

- The jeeping voltages required at externally coated joints may be different than the voltages used for jeeping the pipe. Ensure the appropriate voltages are applied at joint coatings and pipe coatings.
- Holiday testing of the STOPAQ coating requires a voltage of 15,000 volts. Please refer to the STOPAQ Application Guide in APPENDIX C for further guidance on jeeping STOPAQ coatings.



# 7. REPAIRING COATING HOLIDAYS

Any holidays in the coating that are detected during the jeeping process should be repaired using the STOPAQ material, in similar steps to what is described in the STOPAQ application procedure.

# 8. APPLYING A MECHANICAL PROTECTION LAYER

For bores and HDD applications, CORE Linepipe<sup>®</sup> recommends using ScarGuard for mechanical protection of the STOPAQ coated ClickWeld<sup>®</sup> joints. The ScarGuard application procedure is detailed in APPENDIX D.

# **APPENDIX A - CLICKWELD® READINESS CRITERIA**

## **COMPLETED CLICKWELD® - READY FOR EXTERNAL COATING**



Check for ALL of the following prior to applying external coating:

- 1. Both plugs are installed
- 2. EF # is written
- 3. OK and initials are present

There is only one acceptable scenario that indicates a ClickWeld® joint is ready to be externally coated. The above image shows the requirement of the EF #, two installed plugs, and an ok with initials.

## IF ANY OF THESE THREE ARE MISSING, DO NOT EXTERNALLY COAT!

Contact a CORE Service® team member before moving forward.

## **INCOMPLETE CLICKWELD® - DO NOT COAT**

#### Scenario 1: No plugs



Even if there is an EF # and an OK and initial, if both plugs are not installed, external coating should not be applied.

### DO NOT EXTERNALLY COAT IF A PLUG IS MISSING!



Even if there is an OK and initial and both plugs are installed, if there is no EF #, the joint should not be externally coated.

### DO NOT EXTERNALLY COAT IF "EF #" IS MISSING!

## Incomplete ClickWeld® - DO NOT COAT

#### Scenario 3: No "OK" and Initial



Even if both plugs are installed and there is an EF #, if there is no OK and initial, the joint should not be externally coated.

#### DO NOT EXTERNALLY COAT IF "OK" AND INITIAL IS MISSING!

# **APPENDIX B - WARNING (PIPE HEATING)**

1. CORE Liner<sup>®</sup> must not be overheated from the installation of the external coating. CORE Liner<sup>®</sup> has a polyethylene liner inside the pipeline. Damage/failure of the liner could occur as a result of overheating. Liner damage/failure is not visible from the outside of the pipeline. Overheat scenarios could require costly repairs.

2. The temperature of the entire surface to be coated shall be measured using a calibrated digital surface contact thermometer. The surface temperature must be measured frequently to promptly detect when the required temperature is reached. When measuring the temperature, allow the digital surface contact thermometer to touch the surface for at least three seconds (and until the temperature reading stabilizes) before taking the temperature reading.

3. Contact your CORE Linepipe® foreman for any questions or clarifications.

4. All personnel involved in applying external coatings on CORE Linepipe<sup>®</sup> products must sign the Sign-Off and Acknowledgement of CORE Linepipe<sup>®</sup> External Coating Requirements sheet. Refer to <u>APPENDIX E</u>.

### 5. The CORE Liner<sup>®</sup> pipe should never be heated to a surface temperature above the following:

PRODUCT	MAXIMUM ALLOWABLE TEMPERATURE
CL440	85°C (185°F)
CL640 CL648, Cl671, CL856	130°C (266°F)

If this temperature is ever exceeded, you must contact a CORE Linepipe<sup>®</sup> representative immediately. The joint will be inspected and the damaged section will be replaced.

6. The warning sticker (shown below) is to be removed from on the pipe after the external coating is applied and prior to jeeping.



APPENDIX C

STOPAQ APPLICATION GUIDE



Wrappingband and Outerwrap for CORE Linepipe ClickWeld Application

**STOPAQ® Wrappingband** is a corrosion preventing material adhering extremely well to steel and factory applied pipeline coatings like PE, PP and FBE. **STOPAQ® Outerwrap** is used for the mechanical protection of Wrappingband. The heavy-duty Outerwrap provides resistance to impacts, indentations and abrasion, and is also resistant to chemicals like alkalis and acids. Both materials are supplied in a rolled format. For a CORE Linepipe ClickWeld application, the below sizing is used:

Wrappingband CZ/CZH/CZHT 100mm x 10m (3.94" x 32.81') and 50mm x 10m (1.97" x 32.81')

**Outerwrap PE/PVC/HTPP** 75mm x 30m (2.95" x 98.43')





# **STOPAQ VIDEOS**

STOPAQ ClickWeld Application **Training** – It is required that field personnel applying the STOPAQ<sup>®</sup> coating to CORE Liner<sup>®</sup> products are trained by a representative of the STOPAQ<sup>®</sup> supplier.



## **1. Equipment List**

- Temperature probe, dew point tester, high voltage holiday tester, solvent cleaner
- Appropriate tools for surface preparation, wire brush, 60-80 grit sand paper, abrasive blasting pot (optional), appropriate abrasive media (optional)
- Scissors, knife, measuring tape, clean lint free rags, Standard safety equipment such as gloves, goggles, hard hat, etc. Check SDS for specific PPE.



Product	Max Allowable Temp
CL440	85° Celsius (185° Fahrenheit)
CL640, CL648, CL671, CL856	130º Celsius (265º Fahrenheit)

## 2. Heating

Excessive heat can damage the internal plastic liner of the CORE Liner® product and may lead to a pipeline failure. Bare pipe sections of the CORE Liner® product are particularly susceptible to heat damage, as the plastic liner in those locations is only protected by a thin bare pipe. This is particularly relevant to the CL440 product.

STOPAQ<sup>®</sup> is intended for cold application without the use of heat. Significant pipe heating typical of shrink sleeve applications is not required for STOPAQ<sup>®</sup>. Only removing the dew from the pipe surface, if present, is needed for the application of STOPAQ<sup>®</sup>. If dew is not present, no heat application is required.

Removing the dew, where dew is present, only requires a minimal amount of heat. To remove the dew, use a tiger torch on a low setting for between 10 – 20 seconds in a continuous uniform movement along and around the surface to be coated. Target a surface temperature of 3° Celsius (5° Fahrenheit) above the local dew point temperature.

Promptly check the temperature of the entire surface to be coated using a contact surface thermometer. Temperature guns may give misleading results and are not to be used. Record the measured temperature and the ClickWeld® joint number on the project register. The internal plastic liner of any section where the temperature exceeded the maximum allowable temperature of the above table may have been heat damaged. Cut that section out and replace it with a new pipe section. Where heating is needed, heat every ClickWeld<sup>®</sup> joint separately and apply the STOPAQ<sup>®</sup> coating immediately after heating that pipe section. Avoid re-heating a pipe section as the heat build-up can be significant, and may lead to damaging the internal plastic liner. If the pipe is heated and not immediately coated, allow for sufficient time for the heated section to fully cool down before re-heating it.

Pre-heat the STOPAQ<sup>®</sup> tape separately and keep it in a warm/protected place until it is applied on the pipe section for ease of application.



## **3. Surface Preparation**

The surface of the ClickWeld fitting is required to be cleaned prior to the application of STOPAQ® products. The surface shall be cleaned to a minimum SSPC / NACE SP3, ISO 8501 St2 / St3 (Hand / Power tool cleaning). Lightly abrade the mainline coating 50mm (2") adjacent to the cutback area.



## 4. Solvent Cleaning After Preparation

Degrease and wipe clean the steel and coated areas to remove foreign materials using a solvent wipe.

#### **Approved Solvents**

- Isopropanol ≥95% (recommended solvent for STOPAQ products)
- Any solvent that flashes off 100% without leaving a residue



## 5. Coat ClickWeld Transition

Cut strips of 50mm x 10m (1.97" x 32.81') Wrappingband. Remove the release liner and apply to either side of the ClickWeld joint until transition is filled. Multiple wraps may be required.

CL 440	2 strips	53cm (21")
CL 640	2 strips	71cm (28")
CL 648	2 Strips	71cm (28")
CL 671	4 strips	74cm (30")
CL 856	4 strips	91cm (36")

## 6. STOPAQ® Wrappingband Application 1

Cut a number of strips of 100mm x 10m (3.94" x 32.81') Wrappingband according to the appropriate ClickWeld fitting.

CL 440	11 strips	53cm (21")	CL 671	7 strips	74cm (30")
CL 640	7 strips	71cm (28")	CL 856	7 strips	91cm (36")
CL 648	7 strips	71cm (28")			

Remove the release liner on the first strip and start by applying the Wrappingband with  $a \ge 50 \text{ mm} [2^{"}]$  overlap onto the mainline/plant coating. Apply Wrappingband without any tension onto the substrate with  $a \ge 50 \text{ mm} [2^{"}]$  circumferential wrap onto itself. The print string on the Wrappingband should be facing the application direction. Avoid air-enclosures.

## 7. STOPAQ<sup>®</sup> Wrappingband Application 2

Continue to apply the additional Wrappingband strips successively alternating their starting positions. Install each subsequent strip with a minimum 10mm (0.5") side-by-side overlap using the print string as a guide. Keeping the same overlap parameters described in the first wrap, continue installing the Wrappingband strips until the entire ClickWeld fitting and cut-back area is covered with  $a \ge 50$  mm [2"] overlap onto the mainline/ plant coating.







# 8. Installed STOPAQ<sup>®</sup> Wrappingband Inspection

Visual Inspection: The appearance of STOPAQ<sup>®</sup> Wrappingband must look smooth and tight and should be shaped around all details and into corners.

- · In full contact with the steel/coated substrate
- No cracks or holes in backing
- Proper overlap onto the mainline/factory coating.
  ≥50mm (2")
- No entrapped air
- No large wrinkles
- Proper wrap overlap during entire length of installation

Holiday detection: Immediately after application of **STOPAQ® Wrappingband** holiday testing should be carried out with a voltage of 15 kV. A brush probe is recommended. No further testing is required.



#### 9. Outerwrap Application 1

ClickWeld fittings should be spirally wrapped from left-to-right or from right-to-left. In general, **STOPAQ® Outerwrap** should be applied with tension by gently pulling the roll of material. Start wrapping Outerwrap with two full circumferential wraps perpendicular to the pipe, leaving 3 mm of the previously applied **STOPAQ® Wrappingband** visible at the boundary.

After application of the circumferential wraps, consecutive spiral wraps should have an overlap of  $\geq$  50%. Avoid air inclusions. Avoid tenting and bridging.



## 10. Outerwrap Application 2

Continue spiral wrapping until reaching the end of the Wrappingband, leaving 3 mm visible at the boundary. End wrapping with two full circumferential wraps perpendicular to the pipe. Final 75mm (3") should be applied without tension and the tape end should face downwards ending at 3 o'clock position. Cut off in a tie-form.

#### Installed Outerwrap Inspection

**Visual inspection:** The applied Outerwrap must look smooth and tight and should be shaped around all details and into corners.

- In full contact with the Wrappingband
- No cracks or holes in backing
- No large wrinkles
- Proper wrap overlap during entire length of installation







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STOPAQ® DISCLAIMER: Seal For Life Industries warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the technical data sheet when used in compliance with Seal For Life Industries' written instructions. Because many installation factors are beyond the control of Seal For Life Industries, the user shall determine the suitability of the products for the intended uses and assume all risks and liabilities in connection herewith. Seal for Life's liability is stated in its General Terms and Conditions of Sale. Seal For Life Industries makes no other warranty either express or implied. All information contained in this technical data sheet subset as a guide and is subject to change without notice. This technical data sheet supersedes all previous data sheets on this product. Seal For Life Industries is a registered marks of the Berry Global Group, Inc. or its affiliates. APPENDIX D

SCARGUARD APPLICATION GUIDE



# Scar-Guard<sup>®</sup>

# Composite Mechanical Protection for Directionally Drilled Pipelines for Field Joints

#### Product Description



Scar-Guard<sup>®</sup> (SCG) is supplied in a heat sealed foil pouch. Compression Film is supplied separately.

Equipment List



Appropriate tools for surface abrasion and preparation (wire brush/power wire brush or grit blaster, abrasive paper (60-80 grit), knife, lint free rags, approved solvent and high volume water sprayer, perforation tool, standard safety equipment: latex and leather gloves, safety glasses, hard hat, etc.



The field joint coating (FJC) should be installed per the manufacturers recommended guidelines.

Preparation



Perform an SSPC SP1 solvent cleaning. Remove all visible signs of oil, grease, dust, dirt or other surface contaminants; clean the FJC and the adjacent pipe coating with a solvent cleanser. To determine the width of the area to be cleaned refer to step 5 or step 6.

#### For Epoxy Field Joint Coatings:



- Sweep blast a minimum of 150mm (6") past the FJC edges on both sides. Sweep blasting should result in a 25 to 75 microns (1 to 3 mil) profile. Be careful not to cause a holiday when sweep blasting. With approval from the coating manufacturer, sweep blast the entire epoxy girth weld coating resulting in a 25 to 75 microns (1 to 3 mil) profile.
- If sweep blasting isn't an option, thoroughly abrade the areas mentioned in step 1 above with 60 to 80 grade grit paper.
- Blow down, wipe down or brush off the entire prepared area once prep is complete with noncontaminated equipment to remove dust.
- Perform a Holiday Test to ensure that there are no holidays. If any are present, repair the girth weld coating in accordance with the manufacturer's recommendations and repeat steps 1-4.

For Heat Shrink Sleeves, Tapes, Etc:



Do not sweep blast these types of field joint coatings.

- If the mainline coating is an epoxy (FBE/ ARO), sweep blast a minimum of 150mm (6") wide area past the FJC edges on both sides. Sweep blasting should result in a 25 to 75 micron (1 to 3 mil) profile. Be careful not to cause a holiday when sweep blasting. If sweep blasting isn't an option, thoroughly abrade the areas mentioned above with 60-80 grade grit paper.
- If the mainline coating is a polyethylene or polypropylene do not sweep blast, thoroughly abrade the areas mentioned in step 1 above with 60-80 grade grit paper.
- Blow down or wipe down or brush off the entire prepared area once prep is complete with noncontaminated equipment to remove the dust.
- Perform a Holiday Test to ensure that there are no holidays. If any are present, repair the girth weld coating in accordance with the manufacturer's recommendations. and repeat steps 1-4.

#### Outer Wrap Application Scar-Guard®



Water is needed to activate Scar-Guard<sup>®</sup>. Open the foil pouch, remove the roll. Once opened, the product cannot be repackaged. Scar-Guard<sup>®</sup> is activated using a high volume water sprayer to soak each layer as it is wrapped. Impermeable gloves (ie.Latex / rubber) are required during the Scar-Guard<sup>®</sup> installation.



SCG must be wrapped onto the field joint in the correct orientation as shown above. The "Zig Zag" side of the SCG is the side that must face outward towards the installer. (Zig Zag Out). The straight side of the SCG is the side that must contact the pipe's surface.

2 Layer System



After preparation has been completed, soak the entire area to be wrapped with water. Open the foil pouch and remove the roll. Begin the application a minimum distance of 150 mm (6") past the corrosion coating edge. Installation can start on the leading or trailing edge. Apply the first wrap circumferentially around the pipe at a 90° angle, then begin spiral wrapping with a 50% overlap towards the other edge. Apply tension during application by pulling firmly on the roll as it is applied. Squeeze and mold firmly in the direction of the wrap until tight. THOROUGHLY SOAK each layer (both sides, top, and bottom) of the SCG as it is being applied, not just the outer layer. Continue with the 50% overlap until the SCG extends to the other edge of abraded area created in step 5. (a minimum distance of 150 mm (6") beyond the corrosion coating) SCG is applied in a minimum single pass with 50% overlap to achieve a 2-layer system. End with a minimum of one complete circumferential wrap at a 90° angle.





After preparation has been completed, soak the entire area to be wrapped with water. Open the foil pouch and remove the roll. Begin the application at a minimum distance of 150 mm (6") beyond the corrosion coating. Installation can start on the leading or trailing edge. Apply the first wrap circumferentially around the pipe at a 90° angle, then begin spiral wrapping with a 50% overlap towards the other edge. Apply tension during application by pulling firmly on the roll as it is applied. Squeeze and mold firmly in the direction of the wrap until tight. THOROUGHLY SOAK each layer (both sides, top, and bottom) of the SCG as it is being applied, not just the outer layer. Continue with the 50% overlap until the SCG extends a minimum distance of 150 mm (6") beyond the corrosion coating on the other edge. Switch directions and continue to spiral wrap with a 50% overlap towards the edge where the installation started.

#### Prior to Pulling



Apply the compression film **immediately** after the Scar-Guard has been installed. Apply the compression film in the same spiral direction as the SCG with a 50% overlap. Start min. 150 mm (6") beyond the outer edge of the SCG, pulling firmly during application to compress all SCG layers together, and end 150 mm (6") past the SCG on the opposite edge. The compression film must be installed with a minimum of 4 layers thick (2 passes at 50% overlap). Apply compression film with high tension.

NOTE: Compression film should be applied before excess foaming is observed and the resin has exceeded the gel time. The compression film must be applied and perforated immediately after the installation of the SCG. Storage & Handling

For ideal shelf life, store in a cool, shaded area at ambient temperature  $23^{\circ}C(72^{\circ}F)$ . Do not expose to temperatures above  $44^{\circ}C$  (110°F) or below  $5^{\circ}C$  (40°F). Do not open bag containing Scar-Guard (SGC) until you are ready to use it, as SCG cures when exposed to atmospheric moisture/humidity.

Do not stack more than 3 cartons high. Do not remove the Scar-Guard pouches from the boxes and store separately.

Care must be taken when handling the sealed bags to prevent puncturing or scuffing. If the protective foil pouch is punctured, the composite wrap will cure within the sealed foil pouch.

Expiration dates are found on each individual bag.

These installation instructions are intended as a guide for standard products. Consult your Canusa representative for specific projects or unique applications.

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#### Quality Management system registered to ISO 9001

Canusa warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the installation guide when used in compliance with Canusa's written instructions. Since many installation factors are beyond our control, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection therewith. Canusa's liability is stated in the standard terms and conditions of sale. Canusa makes no other warranty either expressed or implied. All information contained in this installation guide is to be used as a guide and is subject to change without notice. This installation guide son this product. E&OE

**Corrosion Protection** 

and Sealing

Part No. 99060-228

IG Scar-Guard rev014



Perforate the compression film using the perforation tool immediately after installation of all the layers. Use enough downward force to perforate the compression film ONLY. Leather gloves can be worn during this step. Perforation allows the CO, gas generated by the curing process, and excess water, to escape. Compression film should remain in place as long as possible, and should only be removed prior to installation of pulling the pipe in. The film will help protect the SCG from UV degradation should the pullback be delayed. If a UV resistant SCG is required, please contact your local Canusa representative.



Allow SCG to reach a Shore D Hardness of 60 prior to pulling. SCG is fully cured at a Shore D Hardness of 80 at 23°C (72°F).

Shore D readings should only be taken over resin only in a flat area. Shore D readings taken over grooves, resin poor fibers or foamed resin areas may result in lower values.

## Hot & Cold Weather Installations

Contact your Canusa-CPS representative for cold and hot weather application techniques. [Cold  $\leq$  10°C (50°F), Hot  $\geq$  40°C (100°F)]



# **APPENDIX E - SIGN-OFF AND ACKNOWLEDGEMENT**

By signing this document, you acknowledge CORE Linepipe External Coating Requirements.

NAME	POSITION	TICKET #	PRODUCT	DATE	SIGNATURE

# **APPENDIX F - EXTERNAL COATING QC DATA ENTRY FORM**

NAME	POSITION	TICKET #	DATE	SIGNATURE
EF #/SI	EF #/SERIAL #		SURAFCE TEMP MIN & MAX	INSTALLER INITIALS



CORE LINEPIPE

®/TM Trademark(s) of CORE Linepipe<sup>®</sup>. CORE Linepipe<sup>®</sup>, ClickWeld<sup>®</sup>, CORE Liner<sup>®</sup>, CORE Service<sup>®</sup> and CORE Coat<sup>®</sup> are registered trademarks of CORE Linepipe<sup>®</sup>.