Installation

1. Preassemble anchor (AN) and plastic trumpet (PT) before extending the anchorage and the compression of the gasket.

2. Bolt the assembled AN to the tendon using the two threaded holes located on the front face of AN. AN shall be placed perpendicular to the tendon's axis and rotated such that the side injection hole points up.

3. The position of the spra valve (SV) shall be secured to the AN to allow mixing by hand-wrading or prop.

4. The SR shall be rotated such that it won't interfere with 3/4" NPT pipe attachment (if using side injection holes) along side or behind AN. Seal used in port in AN.

5. Install the smooth duct as shown on the drawings and insert it in PT, sealing the connection by heat shrink sleeve. If not possible, with heat shrink sleeve is to prevent concrete from penetrating.

6. Carry out the pressure test.

Concrete can now proceed.

4. After completion of concrete placement, remove the pocket former and prave that there is clear of any obstructions and that all injection vents are free and secured.

7. Install struts by pulling or pushing individually or as a bundle into the duct. Allow sufficient extra length at the active anchorage for stressing.

8. Check the wedge plate (WP) for rust and dirt, clean wedge holes with wire brush of necessary. Lightly grease or oil wedge holes.

9. Check struts for rust. Discard rusty struts and use only clean ones.

10. Install wedge plate bringing up the inspection total, tidy up the wrenches over the strands and secure them there with wedge holes.

11. Do not apply post-tensioning forces until the concrete meets a compressive strength of Fc3 not less than the values shown on the spiral configuration. These values refer to cylindrical strengths.

Stressing can now proceed.

12. Appropriate clearance must be kept behind the hydraulic jack while stressing.

13. Stressing operation shall be executed according to the engineer's form and requires the simultaneous reading of pressure and elongation. Check the conformity of the final elongations measurement with prescribed values.

14. Install the protection cap (PC) with O-ring sealing. Use six bolts (bolts silicone grease shall be used to facilitate the compression of the O-ring).

15. Replace 3/4" pipe (00-03-01-M) with 1/2" plug 06-01-20 after injection and inspection.

16. Check the wedge plate (WP) for rust and dirt, clean wedge holes with wire brush of necessary. Lightly grease or oil wedge holes.

17. Stressing can now proceed.

18. While stress injection shall be applied for longer tendons for tendon paths with distinct obstructions or damage and that all injection vents are free and secured.

19. All vents and injection substrates have to be sealed with plugs after injection.

20. FINISHING: After non-structural grout after post injection operation and inspection are completed.

SECTION A-A

Preassembly anchor (AN) and plastic trumpet (PT) before extending the anchorage and the compression of the gasket.

FIRST ISSUE

1. Preassembly anchor (AN) and plastic trumpet (PT) before extending the anchorage and the compression of the gasket.

2. Bolt the assembled AN to the tendon using the two threaded holes located on the front face of AN. AN shall be placed perpendicular to the tendon's axis and rotated such that the side injection hole points up.

3. The position of the spra valve (SV) shall be secured to the AN to allow mixing by hand-wrading or prop.

4. The SR shall be rotated such that it won't interfere with 3/4" NPT pipe attachment (if using side injection holes) along side or behind AN. Seal used in port in AN.

5. Install the smooth duct as shown on the drawings and insert it in PT, sealing the connection by heat shrink sleeve. If not possible, with heat shrink sleeve is to prevent concrete from penetrating.

6. Carry out the pressure test.

Concrete can now proceed.

4. After completion of concrete placement, remove the pocket former and prave that there is clear of any obstructions and that all injection vents are free and secured.

7. Install struts by pulling or pushing individually or as a bundle into the duct. Allow sufficient extra length at the active anchorage for stressing.

8. Check the wedge plate (WP) for rust and dirt, clean wedge holes with wire brush of necessary. Lightly grease or oil wedge holes.

9. Check struts for rust. Discard rusty struts and use only clean ones.

10. Install wedge plate bringing up the inspection total, tidy up the wrenches over the strands and secure them there with wedge holes.

11. Do not apply post-tensioning forces until the concrete meets a compressive strength of Fc3 not less than the values shown on the spiral configuration. These values refer to cylindrical strengths.

Stressing can now proceed.

12. Appropriate clearance must be kept behind the hydraulic jack while stressing.

13. Stressing operation shall be executed according to the engineer's form and requires the simultaneous reading of pressure and elongation. Check the conformity of the final elongations measurement with prescribed values.

14. Install the protection cap (PC) with O-ring sealing. Use six bolts (bolts silicone grease shall be used to facilitate the compression of the O-ring).

15. Replace 3/4" pipe (00-03-01-M) with 1/2" plug 06-01-20 after injection and inspection.

16. Check the wedge plate (WP) for rust and dirt, clean wedge holes with wire brush of necessary. Lightly grease or oil wedge holes.

17. Stressing can now proceed.

18. While stress injection shall be applied for longer tendons for tendon paths with distinct obstructions or damage and that all injection vents are free and secured.

19. All vents and injection substrates have to be sealed with plugs after injection.

20. FINISHING: After non-structural grout after post injection operation and inspection are completed.

SECTION A-A

Preassembly anchor (AN) and plastic trumpet (PT) before extending the anchorage and the compression of the gasket.

FIRST ISSUE

1. Preassembly anchor (AN) and plastic trumpet (PT) before extending the anchorage and the compression of the gasket.

2. Bolt the assembled AN to the tendon using the two threaded holes located on the front face of AN. AN shall be placed perpendicular to the tendon's axis and rotated such that the side injection hole points up.

3. The position of the spra valve (SV) shall be secured to the AN to allow mixing by hand-wrading or prop.

4. The SR shall be rotated such that it won't interfere with 3/4" NPT pipe attachment (if using side injection holes) along side or behind AN. Seal used in port in AN.

5. Install the smooth duct as shown on the drawings and insert it in PT, sealing the connection by heat shrink sleeve. If not possible, with heat shrink sleeve is to prevent concrete from penetrating.

6. Carry out the pressure test.

Concrete can now proceed.

4. After completion of concrete placement, remove the pocket former and prave that there is clear of any obstructions and that all injection vents are free and secured.

7. Install struts by pulling or pushing individually or as a bundle into the duct. Allow sufficient extra length at the active anchorage for stressing.

8. Check the wedge plate (WP) for rust and dirt, clean wedge holes with wire brush of necessary. Lightly grease or oil wedge holes.

9. Check struts for rust. Discard rusty struts and use only clean ones.

10. Install wedge plate bringing up the inspection total, tidy up the wrenches over the strands and secure them there with wedge holes.

11. Do not apply post-tensioning forces until the concrete meets a compressive strength of Fc3 not less than the values shown on the spiral configuration. These values refer to cylindrical strengths.

Stressing can now proceed.

12. Appropriate clearance must be kept behind the hydraulic jack while stressing.

13. Stressing operation shall be executed according to the engineer's form and requires the simultaneous reading of pressure and elongation. Check the conformity of the final elongations measurement with prescribed values.

14. Install the protection cap (PC) with O-ring sealing. Use six bolts (bolts silicone grease shall be used to facilitate the compression of the O-ring).

15. Replace 3/4" pipe (00-03-01-M) with 1/2" plug 06-01-20 after injection and inspection.

16. Check the wedge plate (WP) for rust and dirt, clean wedge holes with wire brush of necessary. Lightly grease or oil wedge holes.

17. Stressing can now proceed.

18. While stress injection shall be applied for longer tendons for tendon paths with distinct obstructions or damage and that all injection vents are free and secured.

19. All vents and injection substrates have to be sealed with plugs after injection.

20. FINISHING: After non-structural grout after post injection operation and inspection are completed.
Replace 3/4" ball valve (00-03-02-M) with 3/4" female plug (00-03-04) at the end of operations. Replace 3/4" ball valve (00-03-02-M) with 3/4" female plug (00-03-04) at the end of operations.
PROTECTION CAP BOLTS
for 27AMTS15

Material: Stainless Steel GR316L - according to ASTM F593

Dimensions:
- 1/2"-13UNC THREADED ROD, 6.50" LONG, WHOLE THREADED
- 1/2"-13UNC HEX NUT
- 1/2" TYPE B NARROW WASHER

Part #: 27-01-01

Date: 12/20/2016

Drawn: F.MORAGLIA
Checked: T.CICCONE

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NOTE:

- This drawing is not intended for manufacturing purposes.
**View C-C**

**Section A-A**

**View B-B**

**Dimensions:**
- Ø8.11" (Ø208mm)
- Ø9.84" (Ø250mm)
- 3.94" (100mm)
- 3.54" (90mm)

**Material:**
Steel AISI C1045 Normalized

**Title:**
WEDGE PLATE for 27AMTS15 (27-06") External and Internal Unbonded systems

**Checkered:**
T.C. CICCONE

**Drawn:**
L. CIVATI

**Date:**
12/20/2016

**Part #:**
E-IU-27-02-00

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**INCH [mm] FOR REFERENCE ONLY**
Material: Ductile Iron ASTM A536 GR80-55-06
Treatment: Galvanization according to ASTM A123
Title: ANCHOR 27AMTS15 (27-0.6")

Drawn: F.M. MORAGLIA
Checked: T. CICCONE

Date: 12/20/2016
Dimensions: INCH [mm] FOR REFERENCE ONLY

Rev. Date Description Drawn Checked
0 12/20/16 First issue F.M. T.C.
I have independently reviewed the calculations and testing reports, along with the documentation and certified that TENSA system spiral rebar detail meets the requirements as outlined in paragraph 3.3 PTI Anchorage Zone Design.

(*) Do not apply post-tensioning forces until the concrete mean compressive strength $f'_c$ is not less than the values shown in the present drawing.

NOTE: The local zone reinforcement is to be shown on the shop drawings.
NOTE:

- This drawing is not intended for manufacturing purposes.
Minimum radius of curvature for prefabricated sections of duct 13 ft [3.96 m]
Minimum radius of curvature for straight sections of duct to be field bent 25 ft [7.62 m]

NOTE:
- This drawing is not intended for manufacturing purposes;
- Duct meets FDoT requirements (Par. 2.2.1.2 and 2.4.4 Section 960):
  - maximum dimensional ratio (DR) of 17 as per ASTM D3035 or ASTM F714
  - 125 psi rated
  - minimum cell class of 445574C as per ASTM D3350
  - minimum OIT of 40 minutes as per ASTM D3895

Material: High Density Polyethylene - according to ASTM D3350
Treatment: SMOOTH PLASTIC DUCT 5" for External and Internal Unbonded Systems - Std. fit for 27AMTS15

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### INSTALLATION

#### Preparing the duct
1. Scrape the duct up to 0.4" (10mm) beyond the insertion length of the fitting.
2. Clean the welding area and let it dry.
3. Insert the duct ends straight into the fitting for the correct length.
4. Install the aligners in order to keep straight position.

#### Welding Process
5. Connect the welding cables to the electrofusion coupler connectors and enter the welding parameters in the device.
6. At the end of the welding cycle, disconnect the cables and wait for the cooling.
7. Remove the aligners.

---

**NOTE:**

- The installation procedure is general; reference to manufacturer’s instruction manual for the detailed installation instructions;
- This drawing is not intended for manufacturing purposes;
- Coupler meets FDoT requirements (Par. 2.2.1.5 Section 960):
  - 150 psi rated
  - Minimum cell class of 445574C as per ASTM D3350
  - Minimum OIT of 40 minutes as per ASTM D3895

---

**Material:**

High Density Polyethylene- according to ASTM D3350

**Treatment:**

- 

---

**Title:**

ELECTROFUSION COUPLER

for 5" HDPE DUCT CONNECTION

Standard fit for 27AMTS15
NOTE:
- Thickness is type L, i.e. 0.035" [0.9 mm] backing + 0.043" [1.1 mm] adhesive;
- This drawing is not intended for manufacturing purposes;
- Heat shrink sleeve meets or exceeds FDoT requirements (Table 2.2.1.8-1 Section 960);
- For the installation make reference to manufacturer procedure.

Material:
Coated Polyolefin Backing - according to FDoT Tab.2.2.1.8-1 Sec.960

Title:
HIGH TEMPERATURE HEAT SHRINK SLEEVE
Standard fit for 27AMTS15 and 31AMTS15
External and Internal Unbonded Systems

Part # : E-IU-27-07-13
Code : KLNN-125-150-BK

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NOTE:

- This drawing is not intended for manufacturing purposes;
- Coupler meets or exceeds FDOT requirements (Section 960-2.2.1.5 and 2.4.3);
- Standard fit for 4.50" [115mm] corrugated plastic duct and 5" smooth plastic duct.

Title:
GTI STEPLESS COUPLER
Adaptation for 4.50" corrugated duct and 5" smooth plastic duct with 27AMTS15 trumpet

Material:
Polypropylene - according to ASTM D4101

Date: 03/20/2019
Rev. 0 Date 03/20/19
Part #: 27-07-07
Code: 220464
Minimum radius of curvature for prefabricated sections of duct: 13 ft (3.96 m)

Minimum radius of curvature for straight sections of duct to be field bent: 30 ft (9.14 m)

NOTE:
- This drawing is not intended for manufacturing purposes;
- Duct meets FDoT requirements (Par. 2.2.1.2 and 2.4.4 Section 960):
  - maximum dimensional ratio (DR) of 17 as per ASTM D3035 or ASTM F714
  - 125 psi rated
  - minimum cell class of 445574C as per ASTM D3350
  - minimum OIT of 40 minutes as per ASTM D3895

Material: High Density Polyethylene - according to ASTM D3350

Title: SMOOTH PLASTIC DUCT 5.563" for External and Internal Unbonded Systems - Standard fit for 31AMTS15
Alternate fit for 27AMTS15

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Checked: T.CICCONE
Drawn: L.CIVATI

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NOTE:

- The United States (US) coupler must be used with the corresponding US duct; the European (EU) coupler must be used with the corresponding EU duct;
- The installation procedure is general; reference to manufacturer’s instruction manual for the detailed installation instructions;
- This drawing is not intended for manufacturing purposes;
- Coupler meets FDoT requirements (Par. 2.2.1.5 Section 960):
  - 150 psi rated
  - minimum cell class of 445574C as per ASTM D3350
  - minimum OIT of 40 minutes as per ASTM D3895

INSTALLATION

Preparing the duct
1. Scrape the duct up to 0.4” (10mm) beyond the insertion length of the fitting.
2. Clean the welding area and let it dry.
3. Insert the duct ends straight into the fitting for the correct length.
4. Install the aligners in order to keep straight position.

Welding Process
5. Connect the welding cables to the electrofusion coupler connectors and enter the welding parameters in the device.
6. At the end of the welding cycle, disconnect the cables and wait for the cooling.
7. Remove the aligners.