INSTRUCTION:

1. Preassemble anchor SHD and plastic trunnion (PT) (butter sleeve grease shall be used to facilitate the threading and the compression of the gasket).

2. Bolt the assembled AN into the pocket former using the two threads located on the front surface of AN. ANs shall be placed perpendicular to the tendon's axis and rotated such that the side injection hole points up.

3. The position of the spiral motor SSR shall be secured to the AN by at least 2/3 of the length of the SSR. The SSR shall be installed such that it will interfere with 3/4” NPT pipe attachment (if using side injection holes) does not affect the AN. Seal around port in AN.

4. Install the smooth duct as shown on shop drawings and insert it into PT, seating the connector by heat shrink sleeve (if possible). Heat shrink wrap in order to prevent concrete from penetrating.

5. Carry out the pressure test. Corroding can now proceed.

6. After completion of concrete placement, remove the pocket former and prove that duct is clear of any obstructions or damage that all injection vents are free and secured.

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

8. Before stressing begins, pressu, check wedge holes with wire brush if necessary. Tighten grease or oil wedge bolts.

9. Check wedge for rust. Discard rusty wedges and use only clean steel.

10. Install wedge plate (keeping in the inspection hole), slip the wedges over the strands and securely place them into wedge holes.

11. Do not apply post-tensioning force until the concrete mean compressive strength f is not less than the values shown in the spiral table. These values refer to cylindrical strength.

Stressing can now proceed. (i) Appropriate clearance must be kept behind the hydraulic jack while stressing.

12. 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.

13. Install the protection cap (PC) with 3/4" sealing on AN using six bolts (butter sleeve grease shall be used to facilitate the compression of the O-ring)

14. Thread 3/4" NPT pipe for injection into the PC and the 3/4" NPT pipe into AN. Use a 3/4" plug to secure the hole as PC cap used (some threaded seal tape shall be used to increase the tightness of the threading).

15. Carry out the pressure test. Injection can now proceed.

16. Wax shall be injected through the filler seat until it escapes from the filler outlet. Special measures shall be applied for long tendons, for tendon paths with distinct high points or inclined tendons to avoid voids.

17. All wedges and injection sleeves/ducts have to be sealed with plugs soon after injection.

18. All holes have anti-shrink grooves after post-injection operation and inspection are completed.

NOTE: Components marked with "T" on the drawing are temporary.
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

**Pipe Internal Configuration**

- Vent assemblies can be used as inlet, outlet or drain; when elbows are present, the vent cannot be used for injection / inspection;
- Epoxy grout shall be used to fill recesses: make reference to FDOT standard plans index 462-003 for post-tensioning anchorage and tendon filling details;
- Concrete cover must meet FDOT Structures Design Guidelines Section 1.4.2;
- Components marked with "T" on the drawing are temporary.

**Pipe External Configuration**

**Bill of Materials**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART #</th>
<th>DESCRIPTION</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>XX-01-00*</td>
<td>Protection Cap</td>
<td>Nylon 6-PA66 - according to ASTM D61891</td>
</tr>
<tr>
<td>2</td>
<td>XX-03-00*</td>
<td>Anchor</td>
<td>Ductile Iron ASTM A536 GR80-55-06 + Galvanization according to ASTM A123</td>
</tr>
<tr>
<td>3</td>
<td>E-IU-XX-07-08*</td>
<td>Smooth Plastic Duct</td>
<td>High Density Polyethylene - according to ASTM D3350</td>
</tr>
<tr>
<td>4</td>
<td>00-01-03-M</td>
<td>NPT Pipe Nipple 1/2&quot;</td>
<td>SCH40 steel</td>
</tr>
<tr>
<td>5</td>
<td>00-01-04-M</td>
<td>NPT Ball Valve 1/2&quot;</td>
<td>SCH40 steel</td>
</tr>
<tr>
<td>6</td>
<td>00-01-05</td>
<td>NPT Plug 1/2&quot;</td>
<td>High Density Polyethylene - according to ASTM D3350</td>
</tr>
<tr>
<td>7</td>
<td>00-01-06</td>
<td>NPT Female Plug 1/2&quot;</td>
<td>SCH40 steel</td>
</tr>
<tr>
<td>8</td>
<td>00-03-01-M</td>
<td>NPT Pipe Nipple 3/4&quot;</td>
<td>SCH40 steel</td>
</tr>
<tr>
<td>9</td>
<td>00-03-02-M</td>
<td>NPT Ball Valve 3/4&quot;</td>
<td>SCH40 steel</td>
</tr>
<tr>
<td>10</td>
<td>00-03-03-M</td>
<td>NPT Plug 3/4&quot;</td>
<td>High Density Polyethylene - according to ASTM D3350</td>
</tr>
<tr>
<td>11</td>
<td>00-03-04-M</td>
<td>NPT Female Plug 3/4&quot;</td>
<td>SCH40 steel</td>
</tr>
<tr>
<td>12</td>
<td>00-03-05-M</td>
<td>NPT Ball Valve 3/4&quot;</td>
<td>SCH40 steel</td>
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<tr>
<td>13</td>
<td>00-03-06-M</td>
<td>NPT Plug 3/4&quot;</td>
<td>High Density Polyethylene - according to ASTM D3350</td>
</tr>
<tr>
<td>14</td>
<td>00-03-07-M</td>
<td>NPT Female Plug 3/4&quot;</td>
<td>SCH40 steel</td>
</tr>
<tr>
<td>15</td>
<td>00-07-04-EM</td>
<td>Vent Port 3/4&quot; NPT PE</td>
<td>Polyethylene - according to ASTM D3350</td>
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<tr>
<td>16</td>
<td>00-07-06-M</td>
<td>NPT Female Coupler 3/4&quot;</td>
<td>SCH40 steel</td>
</tr>
<tr>
<td>17</td>
<td>00-07-07-M</td>
<td>NPT Elbow 3/4&quot;</td>
<td>SCH40 steel</td>
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**Miscellaneous Materials**

<table>
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<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Commercially available thread seal tape</td>
</tr>
</tbody>
</table>

* depending from system dimension
NOTE:

- This drawing is not intended for manufacturing purposes.
Material: Steel AISI C1045 Normalized

Title: WEDGE PLATE for 19AMTS15 [19-06"] External and Internal Unbonded systems

Dimensions: [INCH] [mm] FOR REFERENCE ONLY

Date: 08/23/2016

Checked: T.CICCONE

Drawn: L.CIVATI

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First issue

Description

Drawn Checked
Material: Ductile Iron ASTM A536 GR80-55-06

Treatment: Galvanization according to ASTM A123

Title: ANCHOR 19AMTS15 (19-0.6")

Dimensions (INCH [mm])

SECTION A-A
- 3/4" NPT
- Mark on outer side
- Top inspection access

SECTION B-B
- 3/4" NPT
- Front inspection access

Front View
- 11.02" (280mm)
- 8.86" (225mm)
- 6.08" (155mm)

Part #: 19-03-00

Drawn: F.MORAGLIA
Checked: T.CICCONE

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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.

SECTION A-A

Material: NBR - according to FDoT Tab. 2.2.1.7-1 Sec. 960

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Center Guarnizioni TIGER s.r.l
COMPRESSION SEAL
for 19AMTS15
between Anchor and Trumpet
Minimum radius of curvature for prefabricated sections of duct: 10 ft (3.05 m)

Minimum radius of curvature for straight sections of duct to be field bent: 20 ft (6.10 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 4.50″ for External and Internal Unbonded Systems - Std. fit for 19AMTS15

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Part #: E-IU-19-07-08  Code: -

Dimensions: INCH [mm] FOR REFERENCE ONLY

Characteristics of the duct:
- Diameter: US Ø4.50″ [Ø114.3mm] EU Ø4.33″ [Ø100.1mm]
- Thickness: US 0.28″ [7.1mm] EU 0.26″ [6.6mm]
- Length: as long as required

Treatment:
- SMOOTH PLASTIC DUCT 4.50″
- for External and Internal Unbonded Systems - Std. fit for 19AMTS15

Material: High Density Polyethylene - according to ASTM D3350

Date: 10/08/2019

Drawn: L.CIVATI  Checked: T.CICCONE
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.

The 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.

ELECTROFUSION COUPLER
for 4.5" HDPE DUCT CONNECTION
Standard fit for 19AMTS15
**PHASE A**
bulkhead coupler connection

**PHASE B**
mismatch-cast coupler connection

**PHASE C**
segments detachment

**PHASE D**
gasket placing and protection

**PHASE E**
segments connection

---

## BILL OF MATERIALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART #</th>
<th>DESCRIPTION</th>
<th>MATERIAL</th>
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<tbody>
<tr>
<td>1</td>
<td>XX-07-03-01</td>
<td>Bulkhead Coupler</td>
<td>Polypropylene - according to ASTM D4101</td>
</tr>
<tr>
<td>2</td>
<td>XX-07-03-02</td>
<td>Mismatch-Cast Coupler</td>
<td>Polypropylene - according to ASTM D4101</td>
</tr>
<tr>
<td>3</td>
<td>XX-07-03-03</td>
<td>Sealing Gasket</td>
<td>TPR Blend - according to FDoT Tab.2.2.1.7-1 Sec.960</td>
</tr>
<tr>
<td>4</td>
<td>XX-07-03-04</td>
<td>Boot</td>
<td>TPR Blend - according to FDoT Tab.2.2.1.7-1 Sec.960</td>
</tr>
<tr>
<td>5</td>
<td>XX-07-03-05</td>
<td>Bulkhead load plug</td>
<td>Nylone</td>
</tr>
<tr>
<td>6</td>
<td>XX-07-03-06</td>
<td>Mismatch-cast load plug</td>
<td>Nylone</td>
</tr>
<tr>
<td>7</td>
<td>XX-07-03-07</td>
<td>Gasket blockout</td>
<td>Polypropylene - according to ASTM D4101</td>
</tr>
<tr>
<td>8</td>
<td>XX-07-03-08</td>
<td>Storage cap</td>
<td>Polypropylene - according to ASTM D4101</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>Stainless Steel 316</td>
</tr>
<tr>
<td>10</td>
<td>1-XX-07-00</td>
<td>Corrugated Duct</td>
<td>Polypropylene - according to ASTM D4101</td>
</tr>
<tr>
<td>11</td>
<td>E-XX-07-08</td>
<td>Smooth Plastic Duct</td>
<td>High Density Polyethylene - according to ASTM D3350</td>
</tr>
</tbody>
</table>

---

**NOTE:**
- Reference to manufacturer’s installation manual for the detailed installation instructions;
- The representation of both smooth and corrugated duct in the same coupler is purely representative;
- Segmental duct coupler meets FDoT requirements (Par. 2.2.1.6 and 3.2.1 Section 960)
- Components marked with “T” on the drawing are temporary, components marked with “O” are optional
- In the beside table “XX” stands for the system dimension
NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes.
NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes.

Title: GTI SDC MATCHCAST COUPLER 4"

Material: Polypropylene - according to ASTM D4101

Dimensions:
- 2.18" (55mm)
- 6.13" (154mm)
- 4.83" (123mm)
- 6.01" (153mm)

Treatment:

Part #: 19-07-03-02

Date: 08/28/2019

Rev. Date First issue L.C. T.C.

0 08/28/19

Description Drawn Checked

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NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes.
NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes.

Title: GTI SDC BOOT 4"
for 4" GTI corrugated duct and 4.5" smooth duct
Standard fit for 19AMTS15

Material: TPR Blend - according to FDoT Tab.2.2.1.7-1 Sec.960

Dimensions: 3.68" [93mm], 4.78" [121mm], 5.92" [150mm], 3.68" [93mm]

INCH [mm] FOR REFERENCE ONLY
NOTE:
- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.

NOTE:
- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.

Material:
Nylon

Treatment:

Title:
GTI SDC BULKHEAD LOAD PLUG 4" for 4" GTI corrugated duct and 4.5" smooth duct

Standard fit for 19AMTS15

1.06" (27mm)

5.36" (136mm)

4.82" (122mm)

1.06" (27mm)

4.68" (118mm)

4.08" (104mm)

SECTION A-A

VIEW B-B

Description

Rev. Date

0 08/28/19

19-07-03-05

Code: 220443

First issue

Date: 08/28/2019

Dimensions: [INCH [mm] FOR REFERENCE ONLY]

Material: Nylon

Treatment:

Title:
GTI SDC BULKHEAD LOAD PLUG 4"

for 4" GTI corrugated duct and 4.5" smooth duct

Standard fit for 19AMTS15

NOTE:
- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.
NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.

**Title:** GTI SDC MATCHCAST LOAD PLUG 4"

for 4" GTI corrugated duct and 4.5" smooth duct

Standard fit for 19AMTS15

**Dimensions:**

- INCH [mm] FOR REFERENCE ONLY

**Material:** Nylon

**Part #:** 19-07-03-06

**Date:** 08/28/2019

**Checked:** T. CICCONE

**Drawn:** L. CIVATI

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**NOTE:**

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.
NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.
NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.

GTI SDC STORAGE CAP 4"
for 4" GTI corrugated duct and
4.5" smooth duct
Standard fit for 19AMTS15

Material: Polypropylene - according to ASTM D4101

Drawn: L. CIVATI
Checked: T. CICCONE

Date: 08/28/2019
Part #: 19-07-03-08
Code: 220447

08/28/19
T.C.

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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.
NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes.

Title: GTI SDC BULKHEAD COUPLER 4.50"
for 4.5" GTI corrugated duct and
5" smooth duct
Standard fit for 27AMTS15
Alternate fit for 19AMTS15

Material: Polypropylene - according to ASTM D4101

Dimensions:

- 2.21" [56mm]
- 5.56" [141mm]
- 6.74" [171mm]
- 7.08" [186mm]
- 5.56" [141mm]

GTI SDC BULKHEAD COUPLER 4.50"
for 4.5" GTI corrugated duct and
5" smooth duct
Standard fit for 27AMTS15
Alternate fit for 19AMTS15

Part #: 27-07-03-01
Code: 220481

Date: 03/20/2019

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NOTE:

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NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes.

Title: GTI SDC MATCHCAST COUPLER 4.50" for 4.5" GTI corrugated duct and 5" smooth duct
Standard fit for 27AMTS15
Alternate fit for 19AMTS15

Material: Polypropylene - according to ASTM D4101

Treatment: 

Part #: 27-07-03-02  Code: 220482

Date: 03/20/2019

NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes.
NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes.
NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes.

Title: GTI SDC BOOT 4.5"
for 4.5" GTI corrugated duct and
5" smooth duct
Standard fit for 27AMTS15
Alternate fit for 19AMTS15

Material: TPR Blend - according to FDoT Tab.2.2.1.7-1 Sec.940
Treatment: TPR Blend - according to FDoT Tab.2.2.1.7-1 Sec.940

Dimensions: 3.68" [93mm] 5.51" [140mm] 6.65" [169mm]

Part #: 207-03-04
Code: 220484

Date: 03/20/2019

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NOTE:

- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.
NOTE:
- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.

Material : Nylon

Title : GTI SDC MATCHCAST LOAD PLUG 4.5” for 4.5” GTI corrugated duct and 5” smooth duct
Standard fit for 27AMTS15
Alternate fit for 19AMTS15

Treatment :

Dimensions : INCH [mm] FOR REFERENCE ONLY

Part #: 27-07-03-06 Code : 220496

SECTION A-A
VIEW B-B
NOTE:
- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.

Material: Polypropylene - according to ASTM D4101

Title: GTI SDC GASKET BLOCKOUT 4.5"
for 4.5" GTI corrugated duct and 5" smooth duct
Standard fit for 27AMTS15
Alternate fit for 19AMTS15

NOTE:
- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.

Date: 03/20/2019
Part #: 27-07-03-07
Code: 220489
NOTE:
- All dimensions are measured;
- This drawing is not intended for manufacturing purposes;
- Temporary item.

Material: Polypropylene - according to ASTM D4101

Title: GTI SDC STORAGE CAP 4.5"
for 4.5" GTI corrugated duct and
5" smooth duct
Standard fit for 27AMTS15
Alternate fit for 19AMTS15

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Date: 03/20/2019
Dimensions: [For Reference Only]

Part #: 27-07-03-08
Code: 220497

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