ECI 6-12 ASSEMBLY W/ PT-PLUS 76MM DUCT CONNECTION, SEE SHEET A154

GROUT VENT CONFIGURATION, SEE SHEET A362

76MM PT-PLUS DUCT COUPLER W/ VENT

76MM PT-PLUS DUCT W/ VENT PORT, SEE SHEET A435

TYPICAL PT-PLUS 76MM DUCT TO PT-PLUS 76MM DUCT CONNECTION, SEE SHEET A436

PT-PLUS DUCT BUTT WELD, SEE SHEET A379

TENDON OVERALL ASSEMBLY

SEGMENTAL TENDON OVERALL ASSEMBLY

NOTES:
1. MINIMUM BEND RADIUS FOR 76MM DUCT IS 16'-0".

ECI 6-12 ASSEMBLY W/ PT-PLUS 76MM DUCT CONNECTION, SEE SHEET A154

GROUT VENT CONFIGURATION, SEE SHEET A362

76MM PT-PLUS DUCT COUPLER W/ VENT

76MM PT-PLUS DUCT W/ VENT PORT, SEE SHEET A435

TYPICAL PT-PLUS 76MM DUCT TO PT-PLUS 76MM DUCT CONNECTION, SEE SHEET A436

PT-PLUS DUCT BUTT WELD, SEE SHEET A379

GROUT VENT CONFIGURATION, SEE SHEET A362

GROUT VENT CONFIGURATION, SEE SHEET A362

GROUT VENT CONFIGURATION, SEE SHEET A362

FOR SEGMENTAL COUPLER DETAILS, SEE SHEET A365
FOR SEGMENTAL COUPLER INSTALLATION PROCEDURE, SEE SHEET A243

ECI 6-12 INTERNAL GROUTED TENDON OVERALL ASSEMBLY

A191
NOTES: ITEMS MARKED WITH A "T" ARE TEMPORARY AND ARE NOT A PERMANENT PART OF THE SYSTEM.

INSTALLATION PROCEDURES (INSTALLATION PROCEDURE IS GENERIC. FOLLOW THE PROJECT SPECIFIC REQUIREMENTS AND THE DRAWING SPECIFICATIONS):

1. PRE-ASSEMBLE DUCT SEGMENT INTO THE BEARING PLATE WITH HEAT SHRINK.
2. LIGHTLY GREASE ANCHORAGE CAP BOLTS. USE MOUNTING HOLES IN BEARING PLATE TO MOUNT BEARING PLATE ASSEMBLY TO FORM. SECURE BEARING PLATE ASSEMBLY WITH ANCHORAGE CAP BOLTS. USE CARE NOT TO DAMAGE THREADS.
3. INSTALL AND SECURE SPIRAL.
4. INSTALL SEPARATOR PORT CONNECTIONS. SEAL ALL TEMPORARY CONNECTIONS WITH PIPE DIPS/SILICONE GREASE (BY OTHERS), AND SEAL ALL PERMANENT CONNECTIONS WITH BONDIUM OR SIMILAR (BY OTHERS). INSTALL ANCHOR HEADS. MAKE SURE WEDGE CAVITIES ARE CLEAN AND RUST FREE. MAKE SURE ALL ANCHOR HEAD TO THE BEARING PLATE USING A GROUT CAP TEMPLATE.
5. ONLY STRESS STRANDS IF CONCRETE HAS REACHED REQUIRED STRENGTH SPECIFIED ON DRAWINGS.

Duct Segment Installation

1. ELOIGNING SHOULD BE WITHIN 47T.
2. AFTER ENGINEERS APPROVAL, STRAND TAPS MAY BE CUT.
3. AFTER FORM WORK IS REMOVED, USE MOUNTING BOLTS TO INSTALL ANCHORAGE CAP BOLT.
4. INSTALL AND SECURE SPIRAL.
5. INSTALL SEPARATOR PORT CONNECTIONS. SEAL ALL TEMPORARY CONNECTIONS WITH PIPE DIPS/SILICONE GREASE (BY OTHERS), AND SEAL ALL PERMANENT CONNECTIONS WITH BONDIUM OR SIMILAR (BY OTHERS).
6. INSTALL AND SECURE SPIRAL.
7. INSTALL SEPARATOR PORT CONNECTIONS. SEAL ALL TEMPORARY CONNECTIONS WITH PIPE DIPS/SILICONE GREASE (BY OTHERS), AND SEAL ALL PERMANENT CONNECTIONS WITH BONDIUM OR SIMILAR (BY OTHERS).
8. INSTALL SEPARATOR PORT CONNECTIONS. SEAL ALL TEMPORARY CONNECTIONS WITH PIPE DIPS/SILICONE GREASE (BY OTHERS), AND SEAL ALL PERMANENT CONNECTIONS WITH BONDIUM OR SIMILAR (BY OTHERS).
9. INSTALL SEPARATOR PORT CONNECTIONS. SEAL ALL TEMPORARY CONNECTIONS WITH PIPE DIPS/SILICONE GREASE (BY OTHERS), AND SEAL ALL PERMANENT CONNECTIONS WITH BONDIUM OR SIMILAR (BY OTHERS).
10. INSTALL SEPARATOR PORT CONNECTIONS. SEAL ALL TEMPORARY CONNECTIONS WITH PIPE DIPS/SILICONE GREASE (BY OTHERS), AND SEAL ALL PERMANENT CONNECTIONS WITH BONDIUM OR SIMILAR (BY OTHERS).

Item | Qty | Description | Material | Inventory # | Cut # |
--- | --- | --- | --- | --- | --- |
1 | 1 | ECI 6-12 GROUT CAP BOLT 3/4" HORIZONTAL PORT | ABS LUSTROM 633 PER ASTM D6797 | 025G1011Y | C201 |
2 | 1 | ECI 6-12 GROUT CAP BOLT 3/4" HORIZONTAL PORT | BUN-0 7/8 PER FOOT SEE TABLE 2.2.1.7 | 97K92050 | C796 |
3 | 1 | G1 3/4" FLAT WASHER | 3/4" FLAT WASHER | 0211669 | C216 |
4 | 1 | G1 3/16" ANCHOR HEAD | CAST IRON GR-05-15 PER ASTM A235 | 02CA007 | C354 |
5 | 1 | D2 5/8" X 10" | SINU STAINLESS PER ASTM F593 | 97W00210212 | A345 |
6 | 1 | D2 5/8" X 10" | STAINLESS PER ASTM F593 | 97W00210212 | A345 |
7 | 1 | PT PLUS 76 | PT PLUS 76 | - | - |
8 | - | DUCT W/ TAP X 1/2" PT PLUS | WHITE POLYPROPYLENE PER ASTM D4061 | 02DT0062 | C064 |
9 | 1 | ECI 6-12 SPIRAL 90° | GR 60 STEEL AS PER ASTM A615 | 97BP0086 | C728 |
10 | 1 | ECI 6-12 SPIRAL 90° | GR 60 STEEL AS PER ASTM A61 | 97BP0097 | C720 |
11 | 1 | BR PLATE / SHIELD 3/4" X 23" | BLACK POLYPROPYLENE PER ASTM D4061 | 02DS010 | C714 |
12 | 1 | SPIRAL EXTENSION | WHITE POLYPROPYLENE PER ASTM D4061 | 97BP0096 | C726 |
13 | 1 | 3/4" NPT PVC NIPPLE | SCH 40 WHITE PVC | 02DS010 | C728 |
14 | 2 | PVC 1/4 TURN BALL VALVE X 3/4" NPT | PVC 1/4 TURN BALL VALVE X 3/4" NPT | 02DTDS1616 | C793 |
15 | 1 | CASLUS P/3/4" X 3/4" THREAD SHIELD SLEEVE | POLYVERMEN TABLE 505 2.1.8-1 | 02DS005 | C726 |
16 | 1 | 23MM GROUT PLUG | HOPE BLACK PER ASTM D3300 | 02D1014 | C583 |
17 | 1 | 23MM GROUT PLUG | HOPE BLACK PER ASTM D3300 | 02D1013 | C787 |
18 | 1 | BONDIUM | COMMERCIALLY AVAILABLE | - | - |
19 | 1 | SILICONE GREASE | COMMERCIALLY AVAILABLE | - | - |
NOTES:

1. THE "OPEN" SIDE OF THE SPIDER CLIP IS MANUALLY "SNAPPED" ONTO EITHER THE HUB (SHOWN SHEET 4) OR THE FORM TOOL (SHOWN HERE).

2. THE "CLOSED" SIDE OF THE SPIDER CLIP IS "ENGAGED" WHEN THE MANDREL IS INSERTED THROUGH THE SPIDER CLIP FROM THE "OPEN" SIDE (SEE SHEET 2).

3. THE SPIDER CLIP IS USED TO:
   3.1. SECURE THE FORM TOOL TO THE HUB IN CASE OF A WET CAST (SEE SHEETS 1-3), AND
   3.2. SECURE THE HUB OF A MATCH-CAST SEGMENT TO THE HUB OF A PRE-CAST SEGMENT (SEE SHEET 6).

4. SPIDER CLIP SHOULD ALWAYS BE ORIENTED AS SHOWN WITH THE WIDE MANDREL RAMPS VERTICAL TO EACH OTHER.

SPIDER CLIP DETAIL

FORM TOOL

FOR 59MM, SEE SHEET C672 [INV. #02SC05905]
FOR 76MM, SEE SHEET C651 [INV. #02SC07605]
FOR 100MM, SEE SHEET C645 [INV. #02SC10005]
FOR 130MM, SEE SHEET C661 [INV. #02SC13005]

NOTES:

1. PART NUMBERS SHOWN ARE FOR 3/8" THICK FORMWARD ONLY

2. ALTERNATE FORM TOOLS MAY BE USED BY CONTRACTOR ONLY IF THEY PERMIT ±6° SKEW ANGLE AND IF THEY POSITION THE RECESS FORMER HALF-WAY INSIDE THE FORM BEING CAST.

8.0" (ALL SEGMENTAL DUCT COUPLER SIZES)

(INSIDE FORM)

(OUTSIDE FORM)

SECTION A-A

FORM ELEVATION VIEW

FORM PLAN VIEW

FORMING MATERIALS

SPIDER CLIP

FORM TOOL

FORM DRAWING

PROJECT INFORMATION:

I:\VSL System Drawings\Work In Progress Drawings\Work In Progress Drawings\Florida DOT Test 2017\Segmemtal Duct Coupler

ELECTRONIC FILE LOCATION:

FILE NAME:

A243 Grouted Segmental Coupler Assembly FDOT.dwg

12:53 PM

29Jan2020

PLOT DATE/TIME:

APPROVED FOR CONSTRUCTION

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FORM ELEVATION VIEW

(INSIDE FORM)

(OUTSIDE FORM)

SECTION A-A

FORM PLAN VIEW

FORMING MATERIALS

SPIDER CLIP

FORM TOOL

8.0" (ALL SEGMENTAL DUCT COUPLER SIZES)

SPIDER CLIP DETAIL

NOTES:

1. THE "OPEN" SIDE OF THE SPIDER CLIP IS MANUALLY "SNAPPED" ONTO EITHER THE HUB (SHOWN SHEET 4) OR THE FORM TOOL (SHOWN HERE).

2. THE "CLOSED" SIDE OF THE SPIDER CLIP IS "ENGAGED" WHEN THE MANDREL IS INSERTED THROUGH THE SPIDER CLIP FROM THE "OPEN" SIDE (SEE SHEET 2).

3. THE SPIDER CLIP IS USED TO:
   3.1. SECURE THE FORM TOOL TO THE HUB IN CASE OF A WET CAST (SEE SHEETS 1-3), AND
   3.2. SECURE THE HUB OF A MATCH-CAST SEGMENT TO THE HUB OF A PRE-CAST SEGMENT (SEE SHEET 6).

4. SPIDER CLIP SHOULD ALWAYS BE ORIENTED AS SHOWN WITH THE WIDE MANDREL RAMPS VERTICAL TO EACH OTHER.

SPIDER CLIP DETAIL

FORM TOOL

FOR 59MM, SEE SHEET C672 [INV. #02SC05905]
FOR 76MM, SEE SHEET C651 [INV. #02SC07605]
FOR 100MM, SEE SHEET C645 [INV. #02SC10005]
FOR 130MM, SEE SHEET C661 [INV. #02SC13005]

NOTES:

1. PART NUMBERS SHOWN ARE FOR 3/8" THICK FORMWARD ONLY

2. ALTERNATE FORM TOOLS MAY BE USED BY CONTRACTOR ONLY IF THEY PERMIT ±6° SKEW ANGLE AND IF THEY POSITION THE RECESS FORMER HALF-WAY INSIDE THE FORM BEING CAST.

8.0" (ALL SEGMENTAL DUCT COUPLER SIZES)

FORM PLAN VIEW

FORM ELEVATION VIEW

SECTION A-A

FORM PLAN VIEW

FORM ELEVATION VIEW

SECTION A-A

FORM PLAN VIEW

FORM ELEVATION VIEW

SECTION A-A
SEGMENTAL DUCT COUPLER INSTALLATION GUIDE

1. Bolt the appropriate form tool to the bulkhead with a spider clip installed in each form tool.

2. Position a recess former between the form tool and the hub.

3. (Optional) Ducts can be pre-assembled with hub seals and hubs to speed the forming time. Any silicon-based or oil-based lubricant or dishwashing detergent solution acceptable to the contractor and the local DOT may be used to assist with the assembly of the segmental duct coupler components.

4. Insert mandrel through the form tool, engaging the spider clip and securing the form tool to the hub, with a recess former sandwiched in between.

5. Note: the spider clip may also be installed on the hub where the mandrel will be inserted from the opposite direction as shown. In such a case, the spider clip will be attached to the hub and will engage the form tool once the mandrel is inserted.

6. The wet cast is ready to pour.

MANDREL

SCH. 40 PVC RECOMMENDED
FOR 59MM USE 1.90" OD MANDREL, 1 1/2" PVC OR SIMILAR
FOR 76MM USE 2.38" OD MANDREL, 2" PVC OR SIMILAR
FOR 100MM USE 3.50" OD MANDREL, 3" PVC OR SIMILAR
FOR 130MM USE 4.50" OD MANDREL, 4" PVC OR SIMILAR

MAX ARTICULATION WITH BULKHEAD IS 6°

WT CAST FORM
SEGMENTAL DUCT COUPLER INSTALLATION GUIDE
(CONTINUED)

7. AFTER THE CONCRETE IS POURED, DISASSEMBLE THE FORM IN THE FOLLOWING ORDER:

7.1 REMOVE ALL MANDRELS
7.2 STRIP THE BULKHEAD FORMWORK FROM THE SEGMENT FACE
7.3 REMOVE ALL RECESS FORMERS. VISUALLY INSPECT. IF THERE ARE NOT SIGNIFICANT CUTS OR TEARS, RETAIN RECESS FORMER, OTHERWISE DISCARD.
7.4 THERE IS NO NEED TO REMOVE THE FORM TOOLS FROM THE BULKHEAD. VISUALLY INSPECT THE SPIDER CLIPS. IF THERE ARE NO BROKEN OR MISSING "FEET", RETAIN SPIDER CLIP, OTHERWISE DISCARD.

FOR 59MM SEE SHEET C917 [INV. #02SC05904]
FOR 76MM SEE SHEET C918 [INV. #02SC07604]
FOR 100MM SEE SHEET C919 [INV. #02SC10004]
FOR 130MM SEE SHEET C920 [INV. #02SC13004]

FOR 59MM SEE SHEET C921 [INV. #02SC05905]
FOR 76MM SEE SHEET C922 [INV. #02SC07605]
FOR 100MM SEE SHEET C923 [INV. #02SC10005]
FOR 130MM SEE SHEET C924 [INV. #02SC13005]

THESE SHOP DRAWINGS ILLUSTRATE THE DESIGN FOR THE STRUCTURAL TECHNOLOGIES, LLC SEGMENTAL DUCT COUPLER INSTALLATION SYSTEM. THEY WERE PREPARED IN CONFORMANCE WITH THE STRUCTURAL DESIGN PROVIDED TO STRUCTURAL TECHNOLOGIES, LLC BY PROJECT OWNER OR ITS REPRESENTATIVE. STRUCTURAL TECHNOLOGIES, LLC TOOK NO PART IN THE PREPARATION OR REVIEW OF SAID STRUCTURAL DESIGN AND DISCLAIMS ANY LIABILITY FOR IT. THE STAMP OR SEAL OF A STRUCTURAL TECHNOLOGIES, LLC EMPLOYEE ON THESE SHOP DRAWINGS PERTAINS ONLY TO THE TRANSFER OF THE FORCES REQUIRED BY THE ENGINEER OF RECORD ON THE STRUCTURAL DRAWINGS, AND NOT TO THE ADEQUACY OF THE STRUCTURAL DESIGN. NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE ADEQUACY OF THE STRUCTURAL DESIGN IS MADE BY VIRTUE OF ANY SUCH STAMP OR SEAL.
SEGMENTAL DUCT COUPLER INSTALLATION GUIDE (CONTINUED)

8. INSTALL THE SPIDER CLIP AS SHOWN.
9. ENSURE A RECESS FORMER IS POSITIONED BETWEEN THE HUBS.
10. SLIDE A MANDREL THROUGH THE LENGTH OF THE DUCT, ENGAGING THE SPIDER CLIP TO SECURE THE MATCH-CAST HUB TO THE PRE-CAST SEGMENT HUB.

RECESS FORMER
FOR 59MM, SEE SHEET C670 [INV. #02SC05907]
FOR 76MM, SEE SHEET C649 [INV. #02SC07607]
FOR 100MM, SEE SHEET C639 [INV. #02SC10007]
FOR 130MM, SEE SHEET C659 [INV. #02SC13007]

SPIDER CLIP
FOR 59MM, SEE SHEET C817 [INV. #02SC05910]
FOR 76MM, SEE SHEET C818 [INV. #02SC07610]
FOR 100MM, SEE SHEET C819 [INV. #02SC10010]
FOR 130MM, SEE SHEET C820 [INV. #02SC13010]

TAPERED HUB
FOR 59MM, SEE SHEET C781 [INV. #02SC05910]
FOR 76MM, SEE SHEET C779 [INV. #02SC07610]
FOR 100MM, SEE SHEET C778 [INV. #02SC10010]
FOR 130MM, SEE SHEET C777 [INV. #02SC13010]

FUSION BUTT WELD
USE INSPECTED & APPROVED FUSION WELDER
12. Once the mandrel is inserted, the spider clip has locked the two hubs together, and the match-cast segment can be poured.
13. TO SEPARATE THE MATCH-CAST SEGMENT FROM THE PRE-CAST SEGMENT, DISASSEMBLE THE FORM IN THE FOLLOWING STEPS:
13.1 REMOVE ALL MANDRELS
13.2 SEPARATE SEGMENTS
13.3 REMOVE ALL SPIDER CLIPS. VISUALLY INSPECT. IF THERE ARE NOT SIGNIFICANT CUTS OR TEARS, RETAIN RECESS FORMER, OTHERWISE DISCARD. IF THERE ARE NO BROKEN OR MISSING "FEET", RETAIN SPIDER CLIP, OTHERWISE DISCARD.
13.4 NOTE: THERE IS NO NEED TO REMOVE THE FORM TOOLS FROM THE BULKHEAD. VISUALLY INSPECT THE SPIDER CLIPS AS NOTED ABOVE.

14. INSTALL PROTECTIVE CAPS OVER DUCT OPENINGS
   FOR 59MM, SEE SHEET C673 [INV. #02SC05906]
   FOR 76MM, SEE SHEET C663 [INV. #02SC07606]
   FOR 100MM, SEE SHEET C662 [INV. #02SC10006]
   FOR 130MM, SEE SHEET C664 [INV. #02SC13006]

NOTE: FAILURE TO REMOVE MANDREL RESULTS IN SEVERE SPALLING OF BOTTOM SLABS.
SEGMENTAL DUCT COUPLER INSTALLATION GUIDE

(Continued)

Once the segments have been transported and are ready for erection:

15. Remove protective caps from duct openings.
16. Install face seals into one segment face only.
17. Apply segmental epoxy to segment faces as required. (Do not apply epoxy to face seal - steps 17 & 18 may be reversed at the discretion of the contractor.)
18. Bring segments together and secure with PT bar.

For 59mm, see sheet C669 [INV. #02SC05903]
For 76mm, see sheet C648 [INV. #02SC07603]
For 100mm, see sheet C640 [INV. #02SC10003]
For 130mm, see sheet C658 [INV. #02SC13003]
SEGMENTAL DUCT COUPLER INSTALLATION GUIDE

PRE-CAST SEGMENT 1

FINAL ELEVATION SECTION - VIEW OF SEGMENTAL DUCT COUPLER JOINT

PRE-CAST SEGMENT 2

1/16" - 1/8" SEGMENTAL EPOXY

COMPRESSED, INSTALLED FACE SEAL
ECI 6-12 GROUT CAP

NOTE: ITEMS MARKED WITH A "T" ARE TEMPORARY AND ARE NOT A PERMANENT PART OF THE SYSTEM.
ITEM | QTY | DESCRIPTION | MATERIAL | INVENTORY # | DWG #
--- | --- | --- | --- | --- | ---
1 | 2 | DUCT, WHT PP, 76 MM PT-PLUS | WHITE POLYPROPYLENE PER ASTM D4101 | 02DT0426 | C684

NOTES:
1. 76MM PT-PLUS DUCT MEETS FDOT 960 SPEC.
2. SEE VSL BUTT-WELDING PROCEDURE IN APPENDIX.
3. ADJUST THE LOCATION OF THE LAST FUSION BUTT WELD SO THAT THE FINAL DUCT COUPLER CONNECTION CAN BE APPLIED PROPERLY.
### INSTALLATION PROCEDURES

1. **CUT DUCT HALF WAY BETWEEN 2 MAJOR RIBS SEE DETAIL A**
2. **INSTALL DUCT INTO COUPLER HALF. PLACE COUPLER HALF OVER MAJOR RIB. SEE DETAIL B**
3. **PLACE SECOND COUPLER HALF OVER DUCT, USING INTERLOCKING PINS TO CENTER SECOND COUPLER HALF**
4. **PARTIALLY INSTALL COUPLER CLIPS IN DIRECTION INDICATED BY ARROWS SHOWN ON COUPLER HALF.**
5. **INSURE BOTH DUCTS ARE SECURED IN COUPLER.**
6. **FINISH INSTALLATION OF CLIPS.**

### MATERIAL LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>MATERIAL</th>
<th>INVENTORY #</th>
<th>DWG #</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>COUPLER HALF, 76 MM FT-PLUS</td>
<td>BLACK POLYPROPYLENE PER ASTM D4101</td>
<td>02DT0077</td>
<td>C626</td>
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<tr>
<td>2</td>
<td>2</td>
<td>SEAL (INCLUDED IN COUPLER HALF)</td>
<td>SANTOPRENE PER FDOT 960 TABLE 2.2.1.7-2</td>
<td>02DT0077</td>
<td>C626</td>
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<td>3</td>
<td>2</td>
<td>COUPLER CLAMP, 76 MM FT-PLUS</td>
<td>BLACK POLYPROPYLENE PER ASTM D4101</td>
<td>02DT0029</td>
<td>C628</td>
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<tr>
<td>4</td>
<td>-</td>
<td>DUCT, WHT PP, 76 MM FT-PLUS</td>
<td>WHITE POLYPROPYLENE PER ASTM D4101</td>
<td>02DT0426</td>
<td>C684B</td>
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</tbody>
</table>

* See sheet C626 for COUPLER HALF, 76 MM FT-PLUS VENTED

**NOTE:** MATERIAL MEETS OR EXCEEDS FOOT SPECIFICATION 980.
ITEM | QTY | DESCRIPTION | MATERIAL | INVENTORY # | DWG #
--- | --- | --- | --- | --- | ---
1 | - | DUCT WHT PP 76MM PT-PLUS | WHITE POLYPROPYLENE PER ASTM D4101 | 02D10426 | C684B
2 | 1 | EXTERNAL GROUT PORT 23MM | BLACK POLYPROPYLENE PER ASTM D4101 | 02D10250 | 5585

NOTES:
1. MATERIALS MEET OR EXCEED FDOT SPECIFICATION 960.
2. FITTINGS ARE RATED TO 150 PSI.
0.6" DIA. MULTIWEDGES

SECTION A-A

MATERIAL

INVENTORY #

0.6" DIA. MULTIWEDGES

TYPE 1.6G

DESCRIPTION

AISI 11-L-17/12L14 PER ASTM A108, PRODUCED IN STRICT ACCORDANCE WITH VSL MS 3.1.006, CASE HARDENED

02WG0008

Ø1.125" 1.77"
**DESCRIPTION**

**MATERIAL**

**INVENTORY #**

ECI 6-12 BEARING PLATE GALVANIZED PER ASTM A123

CAST IRON GR80-55-06 PER ASTM A536

02BP0037

**SECTION A-A**

**SECTION B-B**

**BACK VIEW**

**LETTERING - DATE CODE, FOUNDRY MARK, AND HEAT # "VSL ECI 6-12"**

**LETTERING - REVERSE SIDE, SEE DETAIL 1**

**1/2"-13 TAPPED HOLE (TYP. 4 PLACES)**

**23MM COARSE THREADED GROUT PORT**

**23MM COARSE THREADED GROUT PORT**

**HARDNESS TEST**
**Title:** SYSTEM DRAWING

**Project Information:**

**Sheet No:**

**Electronically Filing Location:**

**File Name:** C556 ECI 6-12 AH FDOT 02AH0037.dwg

**Plot Date/Time:** 29 Jan 2020

**Approved for Construction:**

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**Description:**

**Material:** IRON GR 80-55-06 PER ASTM A536

**Inventory #:** 02AH0037

**Date Code, Foundry Mark, and Type "VSL ECI 6-12" Stamped This Surface. Must Be Recessed.**

**Hardness Test:**

- 3.00"
- 0.38"
- 3.38"
- Ø6.85"
- Ø4.79"
- Ø4.01"
- 1.30"
- 1.30"

**Section A-A**

**Front View**

These shop drawings illustrate the details of the structural technologies, such as structural elements, and are not intended for construction purposes. The use of these drawings is restricted to the specific project and purpose for which they were prepared.

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**SECTION A-A**

**TOP VIEW**

**BEARING PLATE GROUT PLUG 23MM**

**MATERIAL**
- HDPE BLACK PER ASTM D3350

**INVENTORY #**
- 02DT0341

**NOTE:** MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 980

**NBR O-RING (PARKER #N1470 2-212)**
- INSTALL DURING MANUFACTURING

**LETTERING**
- 0.14" LETTERING 0.06" PROUD

**SECTION A-A**

**BOTTOM VIEW**

**0.708"**

**0.521"**

**DESCRIPTION**
- Ø0.929"
- Ø1.102"
- Ø1.250"
- 0.708"
- 0.521"
- 2" G
- M
- R
- O
- U
- T
- P
- L
- V
- S
- L

**DRAWING DETAILS**

**DESCRIPTION**
- BEARING PLATE GROUT PLUG 23MM

**MATERIAL**
- HDPE BLACK PER ASTM D3350

**INVENTORY #**
- 02DT0341

**NOTE:** MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 980

**NBR O-RING (PARKER #N1470 2-212)**
- INSTALL DURING MANUFACTURING

**LETTERING**
- 0.14" LETTERING 0.06" PROUD
**23MM GROUT HOSE CAP**

- **Material**: HDPE Black per ASTM D3350
- **Inventory #**: 02DT0314

**Dimensions**:
- **Front View**:
  - Diameter: 2.31"
  - Height: 5.10"
  - Thickness: 0.13"

- **Top View**:
  - Diameter: 2.28"

- **Section A-A**:
  - Diameter: 2.31"
  - Height: 5.00"
  - Thickness: 0.13"

**Note:** Material meets or exceeds FDOT specification 960.
DESCRIPTION
23MM GROUT HOSE

MATERIAL
HDPE BLACK PER ASTM D3350

INVENTORY #
02DT0310
ITEM | DESCRIPTION | MATERIAL | INVENTORY #
--- | --- | --- | ---
1 | 76MM PT-PLUS DUCT COUPLER HALF SHELL | BLACK POLYPROPYLENE PER ASTM D4101 | 02DT0027
2 | 76MM PT-PLUS DUCT COUPLER HALF SHELL W/ VENT | BLACK POLYPROPYLENE PER ASTM D4101 | 02DT0028
3 | SEAL | SANTOPRENE PER FDOT 960 TABLE 2.2.1.7-2 | INCLUDED

NOTES:
1. MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960.
2. USE TWO HALF-SHELLS W/O VENT (INV. #02DT0027) FOR STANDARD DUCT COUPLING.
3. USE ONE HALF-SHELL W/O VENT (INV. #02DT0027) AND ONE HALF-SHELL W/ VENT (INV. #02DT0028) FOR DUCT COUPLING WHERE A GROUT VENT IS NEEDED.

GROUT PORT (P/N 02DT0028 ONLY)
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>MATERIAL</th>
<th>INVENTORY #</th>
</tr>
</thead>
<tbody>
<tr>
<td>59/76MM PT-PLUS CLIP</td>
<td>BLACK POLYPROPYLENE PER ASTM D4101</td>
<td>02DT0029</td>
</tr>
</tbody>
</table>
76MM HUB SEAL

3D VIEW

TOP VIEW

SIDE VIEW

TEXT 0.020" PROUD
"VSL SEG. COUPLER HUB SEAL 76MM"
ONE SIDE ONLY

0.80" 3.72"

DESCRIPTION
MATERIAL
INVENTORY #

76MM HUB SEAL
SANTOPRENE PER FDOT TABLE 2.3.1.7.2
025C07852

DESIGN DRAWING

CORPORATE OFFICE
10150 OLD COLUMBIA RD
COLUMBIA, MD 21046
PHONE: (410) 850-7000
structuraltechnologies.com
**76MM FACE SEAL**

**DESCRIPTION:**

- **Material:** Santoprene per FDOT Table 2.2.1.7-2
- **Inventory #:** 02SC07603

**Dimensions:**
- **Top View:** 76mm
- **Bottom View:** 76mm
- **Side View:** 76mm

**Text:**

- 0.020" recessed VSL SEG. COUPLER FACE SEAL 76MM
- One side only

**Project Information:**
- **Sheet No:**
- **File Name:** C640 C648 C658 C669 Face Seals FDOT.dwg
- **Plot Date/Time:** 12:50 PM 29Jan2020

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**Contact:**

- **Address:** 10150 Old Columbia Rd, Columbia, MD 21046
- **Phone:** (410) 850-7000
- **Website:** structuraltechnologies.com

**Stamp and Seal:**

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VSL SEG. COUPLER RECESS FORMER 76MM
ONE SIDE ONLY

TEXT 0.037" PROUD
"VSL SEG. COUPLER RECESS FORMER 76MM"

DESCRIPTION
MATERIAL
INVENTORY #
76MM RECESS FORMER
SANTOPRENE PER FDOT TABLE 2.2.1.7-2
025C07607

NOTE: THIS IS A TEMPORARY PART.
**76MM FORM TOOL**

**STEEL PER ASTM A36**

**INVENTORY #** 02SC07605

**NOTE:** THIS IS A TEMPORARY PART.
### System Drawing

**Description:** 76MM Protective Cap

**Material:** LDPE

**Inventory #:** 02SC07606

---

**3D View**

**Dimensions:**
- Front View: 1.05"
- Side View: 4.00"

---

<table>
<thead>
<tr>
<th>Description</th>
<th>Material</th>
<th>Inventory #</th>
</tr>
</thead>
<tbody>
<tr>
<td>76MM Protective Cap</td>
<td>LDPE</td>
<td>02SC07606</td>
</tr>
</tbody>
</table>

*NOTE: THIS IS A TEMPORARY PART.*
DESCRIPTION | MATERIAL | INVENTORY #
--- | --- | ---
VSL POST TENSIONING 0.6" BARE STRAND | LOW-RELAXATION STEEL, SEVEN WIRE STRAND PER ASTM A416, 270KSI | VA22506613
<table>
<thead>
<tr>
<th>DUCT TYPE</th>
<th>ØA - DUCT INNER DIAMETER, INCHES (MM)</th>
<th>B - WALL THICKNESS NOMINAL, INCHES (MM)</th>
<th>ØC - DUCT MAJOR DIAMETER NOM. , INCHES (MM)</th>
<th>MATERIAL</th>
<th>INVENTORY #</th>
</tr>
</thead>
<tbody>
<tr>
<td>76MM</td>
<td>2.00&quot; [50.8]</td>
<td>0.12&quot; (3.05)</td>
<td>3.58&quot; (91)</td>
<td>WHITE POLYPROPYLEN PER ASTM D4101</td>
<td>02DT0426</td>
</tr>
</tbody>
</table>

**MOLDED NOTES:**
- VSL LOGO, REPEAT EVERY 6'-0" REPLACED "XX" WITH ACTUAL DUCT SIZE (48, 59, 70, 85, 100, 115, 130, 150)

**PRINTED NOTES:**
- A PRINTED RUNNING LABEL MAY BE USED WITH OR INSTEAD OF MOLDED NOTES.
- A RUNNING LABEL WILL INCLUDE AT A MINIMUM:
  - VSL LOGO
  - DUCT SIZE
  - DATE OR BATCH CODE
INSTALLATION INSTRUCTIONS:
1. Slide band over hose and align over barbs on fitting
2. Crimp ear on band with pliers using either diagonal cutters or end nippers

DESCRIPTION
MATERIAL
INVENTORY #
3/4" ONE EAR BAND CLAMP
316 STAINLESS STEEL PER ASTM A240
02DT01905
NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960

DESCRIPTION: 3/4" HOSE BARB TO 23MM FITTING

MATERIAL: BLACK POLYPROPYLENE PER ASTM D4101

INVENTORY #: 02DT01903

NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960
SIDE VIEW

DETAIL A

NBR O-RING (PARKER #N1470 2-212) INSTALL DURING MANUFACTURING

NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>MATERIAL</th>
<th>INVENTORY #</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR PLATE BUSHING 3/4&quot; NPT 23MM</td>
<td>BLACK POLYPROPYLENE PER ASTM D4101</td>
<td>02DT0316</td>
</tr>
</tbody>
</table>

**NOTE:** MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960
PVC 1/4 TURN BALL VALVE W/ 3/4" FNPT

NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960
THIS IS A TEMPORARY ITEM

DESCRIPTION
WHITE SCH 80 PVC

INVENTORY #
02DT01916

SIDE VIEW
3/4" NPT PP NIPPLE

C723

DESCRIPTION

SIDE VIEW

VARES BY PROJECT

NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960

Material: SCH 80 BLACK POLYPROPYLENE PER ASTM D4101

SIDE VIEW
NOTE:
1. THESE SPIRALS ARE TO BE IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS AND CONTRACT DRAWINGS
2. CONCRETE STRENGTH SHOWN IN SPIRAL NAME AS #XXXX WHERE # = PSI
### Project Information:

- **Title:** System Drawing
- **Project Number:**
- **Scale:** 1:43
- **NTS System**
- **Project No:**
- **System:**

- **Description:**
  - **Material:** Polyolefin per Table 960 2.2.1.8-1
  - **Inventory #:** 02DT0505

### ELECTRONIC FILE LOCATION:

- **File Name:** PLA-90-YE 90mmx6in Heat Shrink FDOT 02DT0505.dwg
- **Plot Date/Time:** 29Jan2020 1:43 PM

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### Structural Technologies

- **Corporate Office:**
  - 10150 Old Columbia Rd
  - Columbia, MD 21046
  - Phone: (410) 850-7000

### Notes:

- **End View**
- **Side View**

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<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>MATERIAL</th>
<th>INVENTORY #</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; NPT PP F/F COUPLER</td>
<td>SCH 80 BLACK POLYPROPYLENE PER ASTM D4101</td>
<td>C775</td>
</tr>
</tbody>
</table>
DESCRIPTION: 3/4" NPT PE PLUG

MATERIAL: BLACK HDPE PER ASTM D3350

INVENTORY #: 02DT01913

NOTE: MATERIAL MEETS OR EXCEEDS FOOT SPECIFICATION 966
ECI 6-12 GROUT CAP O-RING

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SIZE</th>
<th>MATERIAL</th>
<th>INVENTORY #</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECI 6-12 GROUT CAP O-RING</td>
<td>7.475&quot;x 7.895&quot;x 0.21&quot;</td>
<td>BUNA-N 70 D PER FDOT 960 TABLE 2.2.1.7-1</td>
<td>02WX5020</td>
</tr>
</tbody>
</table>
ECI 6-12 GROUT CAP W/ 3/4" HORIZONTAL PORT

ABS LUSTRAN 633 PER ASTM D4773

02GC61201V

SECTION A-A

SECTION B-B

FRONT VIEW

DETAIL 1

0.35" Ø0.55"

0.17" 0.24" 0.35"

4.86" 4.86"

0.35" Ø9.57" Ø7.32"

4.86"

0.17"

0.24"

0.35"

THESE SHOP DRAWINGS ILLUSTRATE THE DETAILS OF THE STRUCTURAL TECHNOLOGIES, LLC POST-TENSIONING SYSTEM. THEY WERE PREPARED IN CONFORMANCE WITH THE STRUCTURAL DESIGN PROVIDED TO STRUCTURAL TECHNOLOGIES, LLC BY PROJECT OWNER OR ITS REPRESENTATIVE. STRUCTURAL TECHNOLOGIES, LLC TOOK NO PART IN THE PREPARATION OR REVIEW OF SAID STRUCTURAL DESIGN AND DISCLAIMS ANY LIABILITY FOR IT. THE STAMP OR SEAL OF A STRUCTURAL TECHNOLOGIES, LLC EMPLOYEE ON THESE SHOP DRAWINGS PERTAINS ONLY TO THE TRANSFER OF THE FORCES REQUIRED BY THE ENGINEER OF RECORD ON THE STRUCTURAL DRAWINGS, AND NOT TO THE ADEQUACY OF THE STRUCTURAL DESIGN. NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE ADEQUACY OF THE STRUCTURAL DESIGN IS MADE BY VIRTUE OF ANY SUCH STAMP OR SEAL.

DESIGNER

DATE

APPROVED FOR CONSTRUCTION

DATE

APP. NAME

APPROVED

DRAWING NO.

FILE NAME

ELECTRONIC FILE LOCATION

PROJECT INFORMATION:

DESCRIPTION

MATERIAL

INVENTORY #
DESCRIPTION  
76MM SPIDER CLIP

MATERIAL  
HDPE PER ASTM D3350

TEXT 0.020" PROUD  
"VSL S.C SPIDER CLIP 76MM"  
TWO SIDES

NOTE: THIS IS A TEMPORARY PART.
THESE SHOP DRAWINGS ILLUSTRATE THE DETAILS OF THE STRUCTURAL TECHNOLOGIES, LLC POST-TENSIONING SYSTEM. THEY WERE PREPARED IN CONFORMANCE WITH THE STRUCTURAL DESIGN PROVIDED TO STRUCTURAL TECHNOLOGIES, LLC BY PROJECT OWNER OR ITS REPRESENTATIVE. STRUCTURAL TECHNOLOGIES, LLC TOOK NO PART IN THE PREPARATION OR REVIEW OF SAID STRUCTURAL DESIGN AND STRUCTURAL TECHNOLOGIES, LLC DISCLAIMS ANY LIABILITY FOR IT. THE STAMP OR SEAL OF A STRUCTURAL TECHNOLOGIES, LLC EMPLOYEE ON THESE SHOP DRAWINGS PERTAINS ONLY TO THE TRANSFER OF THE FORCES REQUIRED BY THE ENGINEER OF RECORD ON THE STRUCTURAL DRAWINGS, AND NOT TO THE ADEQUACY OF THE STRUCTURAL DESIGN. NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE ADEQUACY OF THE STRUCTURAL DESIGN IS MADE BY VIRTUE OF ANY SUCH STAMP OR SEAL.
### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot; NPT PVC Nipple</td>
<td>SCH 80 WHITE PVC</td>
</tr>
</tbody>
</table>

**SIDE VIEW**

VARIES BY PROJECT