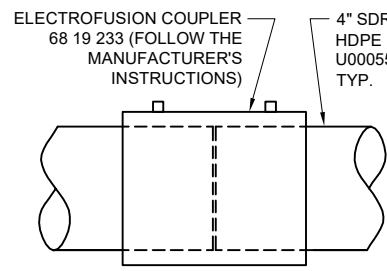


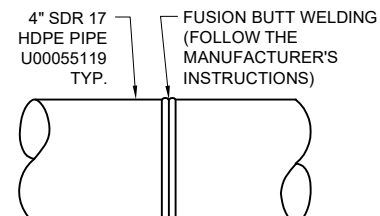
LOADED WITH	ECCENTRICITY
19-0.6" STRANDS	0.74"

WARNING: READ AND COMPLY WITH ALL APPLICABLE SAFETY AND OPERATING INSTRUCTIONS AND WARNINGS FOR MULTI-STRAND STRESSING BEFORE STARTING ANY WORK OR OPERATION.

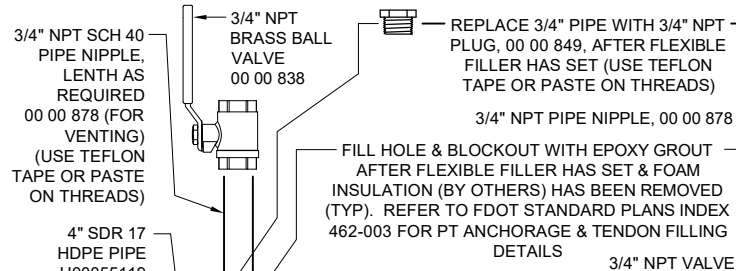
CAUTION: WHEN PRESSURIZING GROUT CAPS, DO NOT STAND BEHIND CAPS!



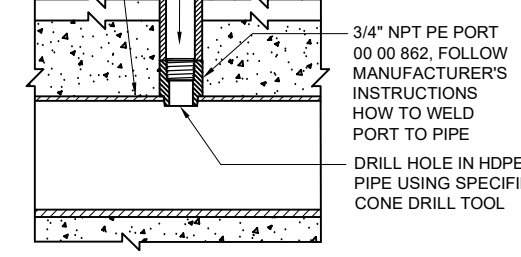
HDPE PIPE COUPLING (OPTIONAL)



HDPE PIPE COUPLING



INTERMEDIATE WAX INJECTION/VENT DETAIL



PIPE INTERNAL DETAIL (OPTIONAL)

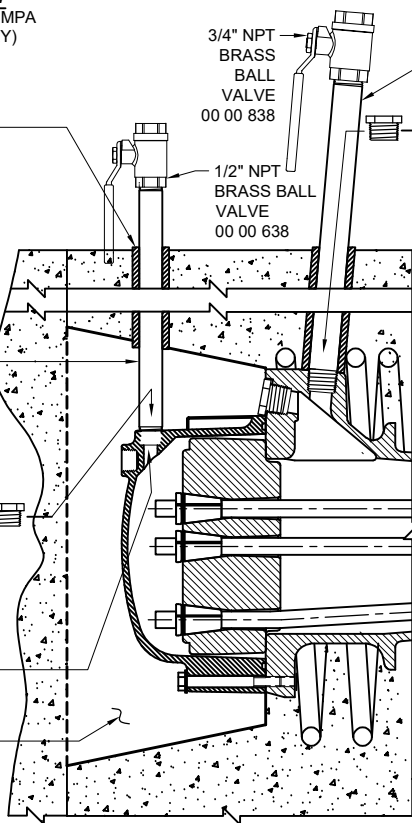
FILL HOLE & BLOCKOUT WITH EPOXY GROUT AFTER FLEXIBLE FILLER (BY OTHERS) HAS SET & FOAM INSULATION HAS BEEN REMOVED (TYP.). REFER TO FDOT STANDARD PLANS INDEX 462-003 FOR PT ANCHORAGE & TENDON FILLING DETAILS.

1/2" NPT SCH 40 STEEL PIPE NIPPLE, LENGTH AS REQUIRED 00 00 678 (FOR VENTING) (USE TEFLON TAPE OR PASTE ON THREADS)

REPLACE 1/2" PIPE WITH 1/2" NPT NYLON PLUG, 00 00 649 AFTER FLEXIBLE FILLER HAS SET (USE TEFLON TAPE OR PASTE ON THREADS)

DRILL 1/2" [13mm] HOLE IN PORT BEING USED SEE NOTE 14

FILL BLOCKOUT WITH EPOXY GROUT AFTER STRESSING IS COMPLETED AND FLEXIBLE FILLER IS SET



NOTE: ALL PARTS AND OTHER NOTES SAME AS FRONT FLEXIBLE FILLER ACCESS.

TOP FLEXIBLE FILLER ACCESS

REPLACE 3/4" PIPE WITH 3/4" NPT NYLON PLUG 00 00 849, AFTER FLEXIBLE FILLER HAS SET (USE TEFLON TAPE OR PASTE ON THREADS)

3/4" NPT PIPE NIPPLE, LENGTH AS REQUIRED 00 00 878 (FLEXIBLE FILLER INLET/OUTLET) (USE TEFLON TAPE OR PASTE ON THREADS)

TO MAINTAIN CORRECT SPIRAL ALIGNMENT, TIE TO ADJACENT REBAR. ROTATE SPIRAL TO CLEAR SIDE FLEXIBLE FILLER PORT. KEEP SPIRAL AND MPA AXIS ALIGNED.

3/4" NPT BRASS BALL VALVE, 00 00 838

REPLACE 1/2" PIPE WITH 1/2" NPT NYLON PLUG 00 00 649, AFTER FLEXIBLE FILLER HAS SET (USE TEFLON TAPE OR PASTE ON THREADS)

1/2" NPT SCH 40 PIPE NIPPLE, LENGTH AS REQUIRED, 00 00 678 (FOR VENTING) (USE TEFLON TAPE OR PASTE ON THREADS)

DRILL 1/2" [13mm] HOLE IN PORT BEING USED, SEE NOTE 14

3-PART WEDGE, 68 00 0536

CAST WEDGE PLATE, 68 19 172

(6) 3/8"-16 UNC 316L S.S. HEX BOLTS, 3-1/2" LG, 00 00 772 WITH WASHERS, 00 00 774

FILL BLOCKOUT WITH EPOXY GROUT AFTER STRESSING IS COMPLETED AND FLEXIBLE FILLER IS SET

1'-4" [406mm] x 1'-4" [406mm]

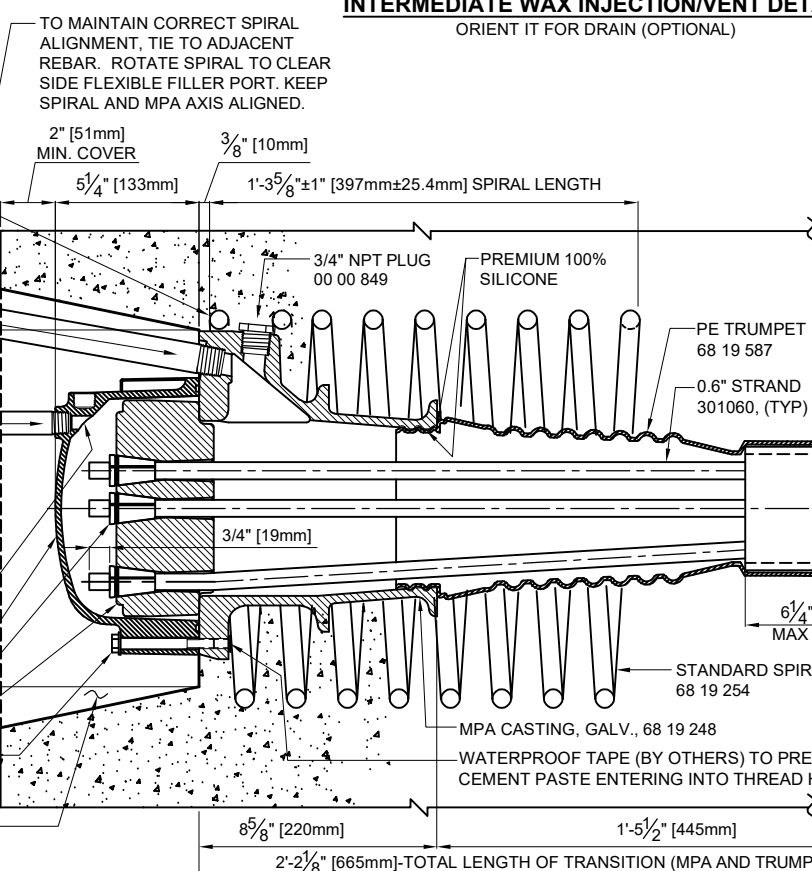
1'-1" [330mm] x 1'-1" [330mm]

2" [51mm] MIN. COVER

3/8" [10mm]

5/4" [133mm]

1'-3 5/8" ± 1" [397mm ± 25.4mm] SPIRAL LENGTH



FRONT FLEXIBLE FILLER ACCESS (SECTION A-A)

NOTES:
1. OTHER REINFORCEMENT NOT SHOWN FOR CLARITY.
2. USE TEFLON TAPE FOR ALL PIPE NIPPLE, PLUG AND VALVE CONNECTIONS.

MATERIAL LIST		
PART NO.	DESCRIPTION	MATERIAL SPECIFICATION
68 19 248	MULTI-PLANE ANCHOR CASTING GALVANIZED	DUCTILE IRON ASTM A536, GR 65-45-12 GALV. ACCORDING TO ASTM A123
68 19 254	STANDARD SPIRAL	STEEL ASTM A615, GR. 60, #5, 1-7/8" PITCH 14-1/2" O.D., 8 FULL TURNS
68 19 587	PE TRUMPET	POLYETHYLENE
68 19 172	CAST WEDGE PLATE	DUCTILE IRON 80-55-06
68 19 7230A	NYLON CAP WITH O-RING FOR FLEXIBLE FILLER	CAP: NYLON 6, 20% GLASS FILLED O-RING: HNBR
U00055119	4" SDR 17 HDPE PIPE	HDPE
U00039115	HEAT SHRINK KLNN WRAP, TYPE L, 18" WIDE CUT TO ~4.5" WIDE IN FIELD	ACCORD. TO FDOT SPECS. P.T. SEC. 960-2.2.1.8
301060	0.6" STRAND	270 KSI LOW RELAX STRAND
68 00 0536	3-PART WEDGE FOR 0.6" STRAND	AISI-C12L14 HEAT TREATED
00 00 772	(6) 3/8"-16UNC HEX BOLTS 3-1/2" LONG	316L STAINLESS STEEL
00 00 774	(6) WASHERS FOR 3/8"-UNC BOLTS	316L STAINLESS STEEL
00 00 878	3/4" NPT PIPE NIPPLE, LENGTH AS REQ'D (TEMP.)	SCH 40, BLACK WELDED STEEL
00 00 838	3/4" NPT VALVE (TEMPORARY)	BRASS
00 00 849	3/4" NPT PLUG	NYLON 6, WHITE

MATERIAL LIST		
PART NO.	DESCRIPTION	MATERIAL SPECIFICATION
00 00 678	1/2" NPT PIPE NIPPLE, LENGTH AS REQ'D (TEMP.)	SCH 40, BLACK WELDED STEEL
00 00 638	1/2" NPT VALVE (TEMPORARY)	BRASS
00 00 649	1/2" NPT PLUG	NYLON 6, WHITE
ANS	FLEXIBLE FILLER MICROCRYSTALLINE WAX	ACCORD. TO FDOT SPECS. 938-5
ANS	TEFLON TAPE OR PASTE FOR THREADS	-
ANS	PREMIUM 100% SILICONE	SILICONE
00 00 878	(OPTIONAL) 3/4" NPT PIPE NIPPLE, LENGTH AS REQ'D	SCH 40 BLACK STEEL
00 00 881	(OPTIONAL) 3/4" NPT SCH 40 COUPLER	BLACK STEEL
00 00 880	(OPTIONAL) 3/4" NPT SCH 40 90° ELBOW	BLACK STEEL
68 19 233	(OPTIONAL) ELECTROFUSION COUPLER	COMPOSITE
00 00 862	(OPTIONAL) 3/4" NPT PE PORT	BLACK HDPE (UV PROTECTED)

DIMENSIONS: INCH [mm] FOR REFERENCE ONLY

INTERNAL FLEXIBLE FILLER 19-0.6" MA ASSEMBLY DRAWING

DATE: 03/01/19 DWG: I. Tira / G. Malecki CHK: SI APP: SI

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INSTALLATION PROCEDURE:
BELOW PROCEDURE IS GENERIC. USERS SHALL REFER TO FDOT STANDARD SPECIFICATIONS AND PROJECT SPECIFIC CRITERIA

- PREASSEMBLE THE MULTI-PLANE ANCHOR, SPIRAL AND PE TRUMPET. USE PREMIUM 100% SILICONE BETWEEN MPA AND TRUMPET TO HAVE A STRONG CONNECTION. GREASE THE BOLTS TO FACILITATE REMOVAL LATER.
- BOLT THE MULTI-PLANE ANCHOR (MPA) WITH PE TRUMPET TO THE POCKET FORMER USING THREADED HOLES IN MPA. THE MPA SHALL BE ORIENTED SUCH THE FLEXIBLE FILLER HOLE POINTS UP. THE SPIRAL SHOULD BE ATTACHED TO ADJACENT REBARS AND ROTATED SUCH THAT IT WON'T INTERFERE WITH 3/4" NPT PIPE ATTACHMENT (IF USING SIDE FLEXIBLE FILLER HOLE IN MPA). ALIGN AXIS OF SPIRAL WITH ANCHOR. USE PLUG TO UNUSED PORT IN MPA AS SHOWN. INSTALL PIPE NIPPLE WITH FOAM INSULATION FOR ANY PIPE NIPPLE CAST IN CONCRETE.
- INSTALL THE DUCT SYSTEM AS SHOWN ON SHOP DRAWINGS. INSERT 4" IPS DR 17 HDPE PIPE INTO TRUMPET AND HEAT SHRINK. SECURE DUCT PROFILE EVERY TWO FEET.
- PRESSURE TEST DUCT SYSTEM PER FDOT SPECS. EITHER 462-8.2.1.1 OR 462-8.2.1.2 (IF VACUUM ASSISTED FILLER INJECTION WILL BE USED).

CONCRETING CAN NOW PROCEED

- AFTER COMPLETION OF CONCRETE PLACEMENT, PROVE THAT THE DUCTS ARE CLEAR OF ANY OBSTRUCTIONS OR DAMAGE. PASS A TORPEDO THROUGH THE DUCT TO DEMONSTRATE.
- PROVE THAT ALL FLEXIBLE FILLER VENTS ARE FREE AND SECURED.
- AFTER THE CONCRETE HAS GAINED STRENGTH, THE STRESSING OPERATION MAY BEGIN.
- INSTALL STRANDS BY PUSHING OR PULLING INDIVIDUALLY OR AS A BUNDLE INTO DUCTS. ALLOW SUFFICIENT TAIL LENGTH FOR STRESSING.
- CHECK THE WEDGE PLATE FOR RUST, DIRT AND GRIT. CLEAN WEDGE HOLES WITH WIRE BRUSH IF NECESSARY. LIGHTLY GREASE OR OIL WEDGE HOLES.
- CHECK WEDGES FOR RUST, DIRT AND GRIT. DISCARD RUSTY WEDGES. USE ONLY CLEAN WEDGES.
- INSTALL WEDGE PLATE, SLIP THE WEDGES OVER THE STRANDS AND LOOSELY SEAT IN WEDGE HOLES.

STRESSING CAN PROCEED WHEN CONCRETE STRENGTH HAS REACHED MIN. COMPRESSIVE STRENGTH REQUIRED IN CONTRACT DRAWING NOT LESS THAN 4000 PSI.

- AFTER THE STRESSING OPERATION IS COMPLETED AND THE ELONGATIONS FALL WITHIN ±7%, OBTAIN APPROVAL FROM THE ENGINEER TO CUT THE STRAND TAILS APPROXIMATELY 3/4" AWAY FROM THE WEDGES.
- EVALUATE STRESSING OPERATION IF ELONGATIONS FALL OUTSIDE THE 7% LIMIT.
- INSTALL GROUT CAP WITH O-RING USING SIX BOLTS. CONNECT 1/2" PIPE NIPPLE IN PORT TO BE USED, INSERT DRILL BIT INTO PIPE NIPPLE AND DRILL 1/2" HOLE IN CAP USING SAW BIT OR SPADE BIT (BY OTHERS) TO PREVENT DAMAGE TO THREADS.
- CONNECT THE 3/4" NPT PIPE NIPPLE ASSEMBLY INTO THE FRONT PORT OF THE MPA.
- THREAD 1/2" NPT PIPE NIPPLE ASSEMBLY INTO THE THREADED PORTS PROVIDED IN THE GROUT CAP. THIS PORT CAN BE USED AS AN INJECTION VENT ONLY. USE A PLUG TO SECURE THE PORT AFTER INJECTION.
- PRESSURE TEST DUCT SYSTEM PER FDOT SPECS. 462-8.2.2.

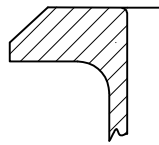
FLEXIBLE FILLER OPERATION CAN NOW PROCEED

- REMOVE FLEXIBLE FILLER PORT PIPES AND INSTALL PLUGS.

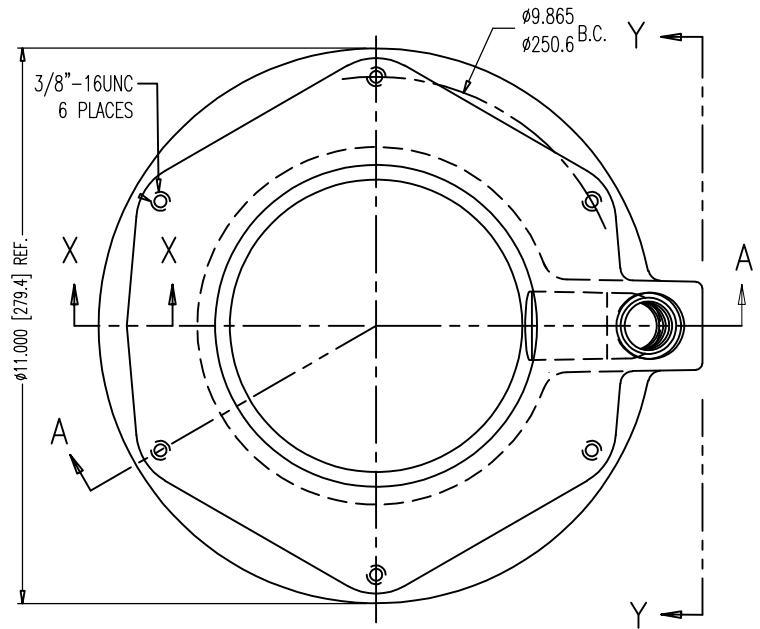
REV.	DATE	NAME	CHKD.

SCALE
1 : 7

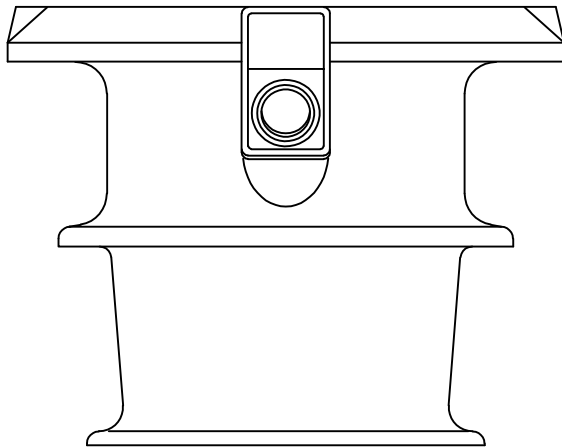
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MA 68 19 100



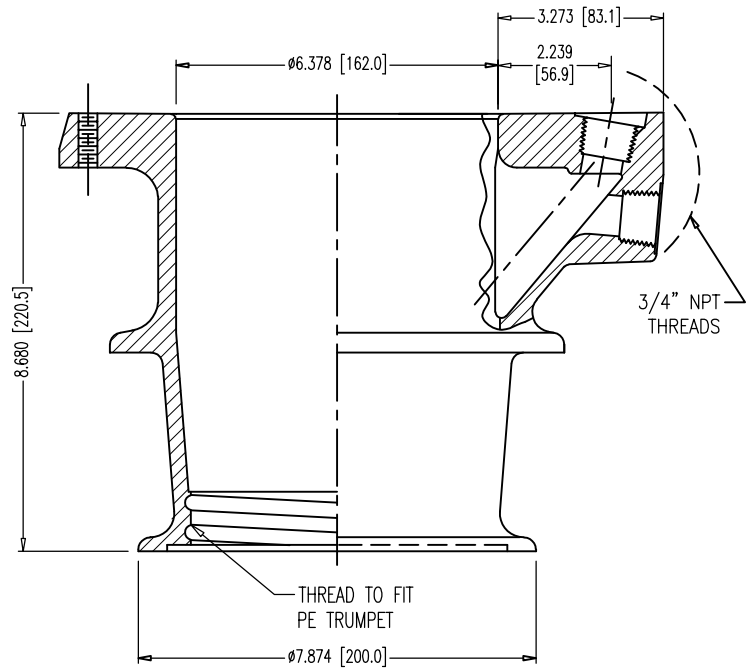
SECTION X-X



TOP VIEW



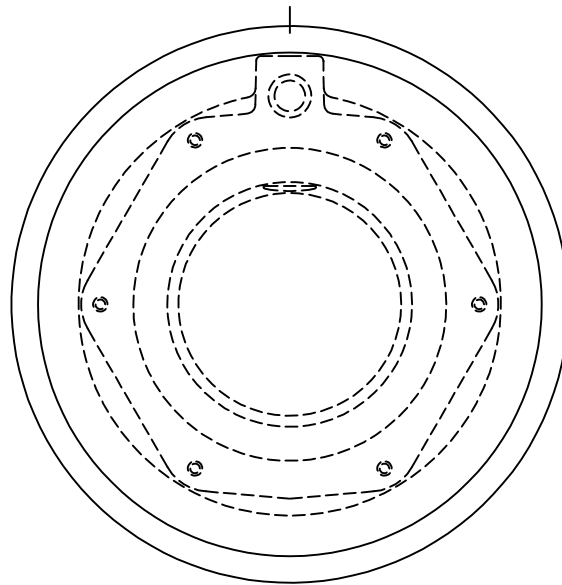
VIEW Y-Y



SECTION A-A

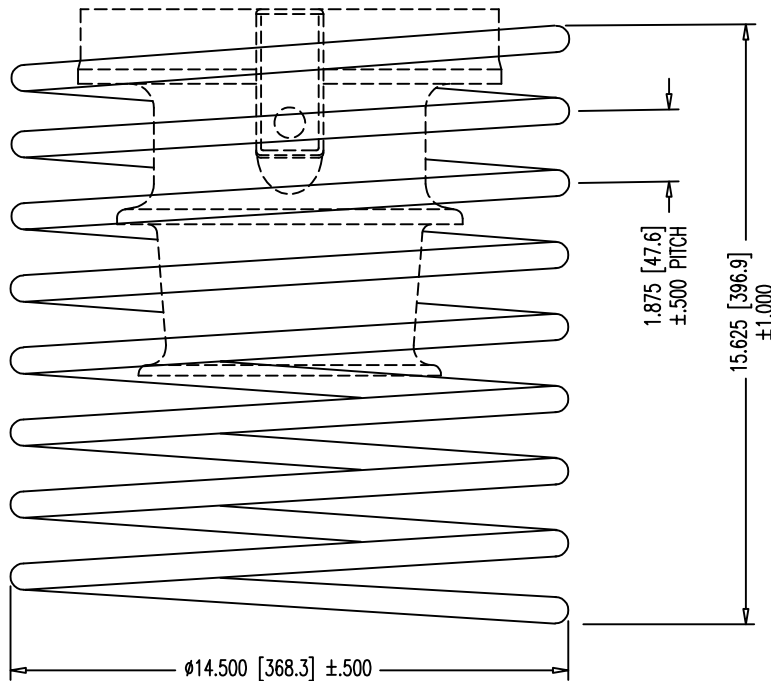
- NOTES FOR GALVANIZING PARTS:
1. AFTER CASTING IS STRIPPED, GRIND AND TOUCH UP TOP AND BOTTOM SURFACES AS NECESSARY TO ELIMINATE ANY PARTING LINES OR UNEVEN AREAS.
 2. GALVANIZE ACCORDING TO ASTM A123 AND TAKE CARE HOW CASTINGS ARE STORED TO PREVENT RUST.
 3. DRILL & TAP BOLT HOLES AND GROUT PORTS AND MACHINE GROOVE IN BOTTOM OF ANCHOR USING A WATER BASED CUTTING FLUID AND SPRAY THEM WITH ZINC RICH PAINT ACCORDING TO ASTM A780, ENSURE THREADABILITY.

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: QS60021200C		TOLERANCES: ±.020 UNLESS NOTED	WEIGHT 40 LBS.	REV.	DATE	NAME	ECRN	PART NUMBER: 68 19 248
19-0.6"/27-0.5" MULTI-PLANE ANCHOR WITH TWO GROUT PORTS-GALV.				MATERIAL: DUCTILE IRON 65-45-12 ASTM A536	SCALE 1:4					DRAWING NUMBER: 68 19 216
DATE: 10-13-04	DWG: G. MALECKI	CHK: H.K.	APP: K.S.	THIS DRAWING, THE PERTINENT ENCLOSURES, DESCRIPTIONS, CALCULATIONS ETC. AND THEIR CONTENTS ARE THE PROPERTY OF DYWIDAG SYSTEMS INTERNATIONAL, USA, INC. THEY ARE NOT ALLOWED TO BE DUPLICATED WITHOUT OUR PERMISSION. THEY ARE ALSO NOT TO BE SHOWN OR EXPLAINED FOR ANY REASON TO A THIRD PARTY OTHER THAN FOR REASONS EXPRESSLY INTENDED BY DSI's SUBMITTAL TO THE ORIGINAL RECEIVER. THEY HAVE TO BE RETURNED UPON REQUEST.						
				DYWIDAG-SYSTEMS INTERNATIONAL, USA, INC. 320 MARMON DRIVE - BOLINGBROOK, IL 60440 PHONE: 630-739-1100 FAX: 630-739-1405						



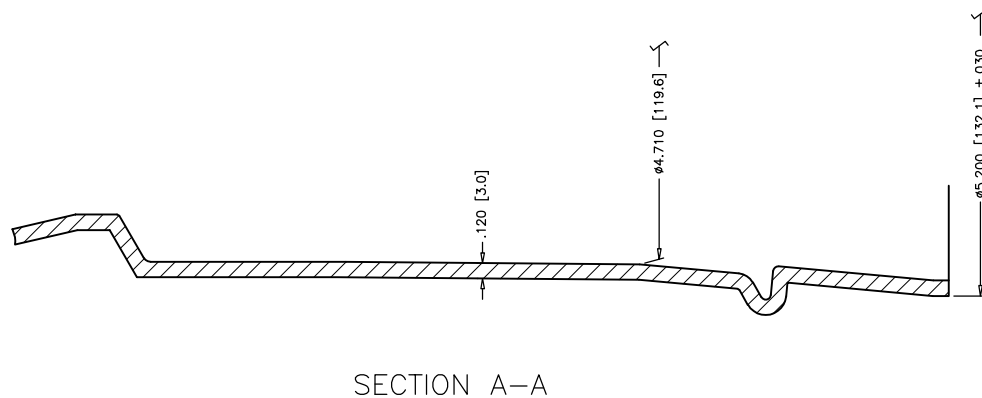
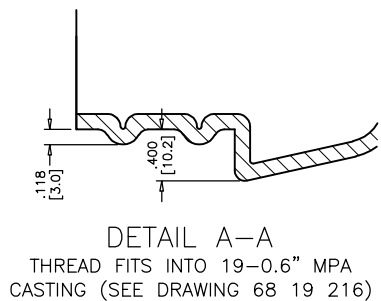
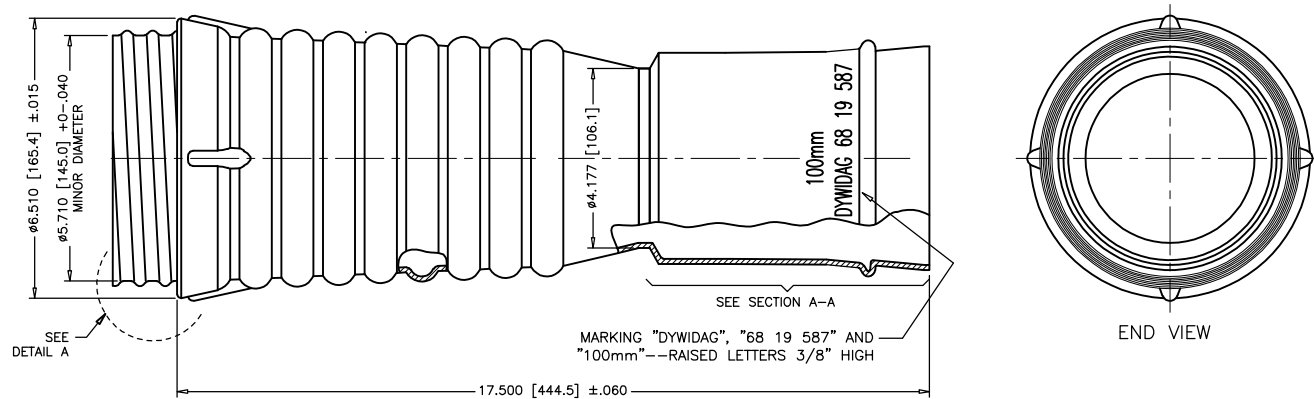
NOTES:

1. SPIRAL IS MADE FROM STANDARD #5 REBAR, NO PART NUMBER MARKING IS SHOWN.
2. KEEP SPIRAL AND MPA AXIS ALIGNED, IF USING SIDE PORT, ROTATE SPIRAL TO CLEAR.



NO. OF FULL TURNS: 8
 DEVELOPED LENGTH: 29'-1" ±.250"
 WEIGHT: 30.4 LBS.

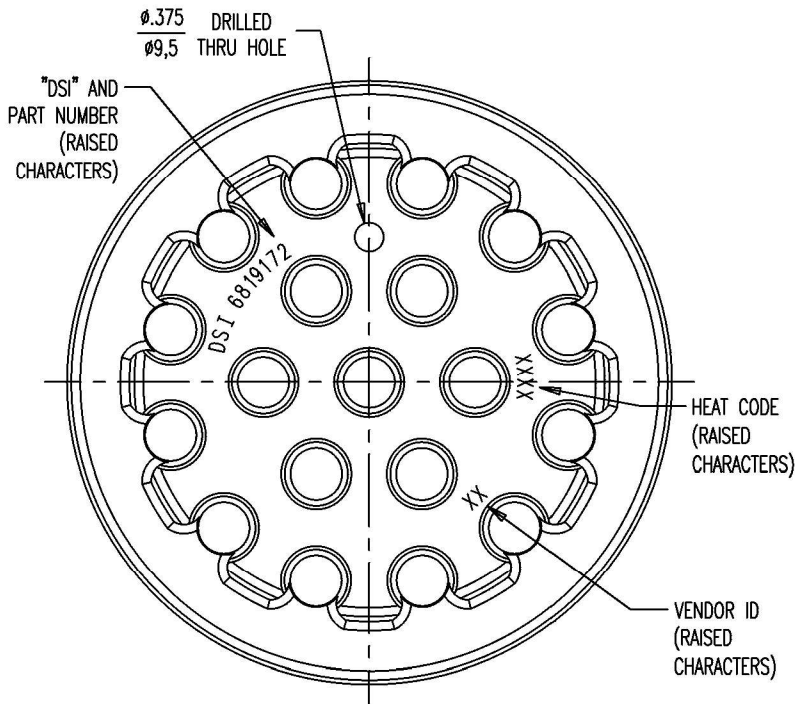
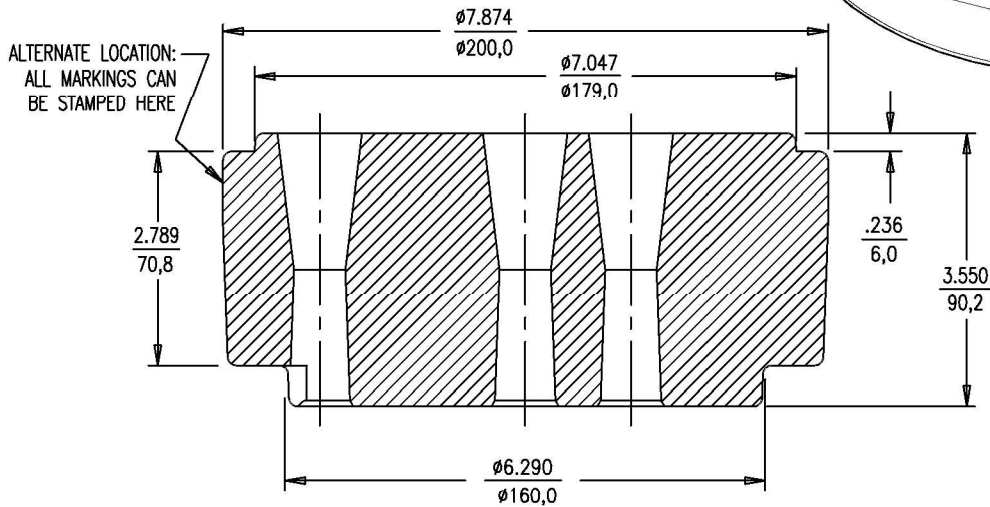
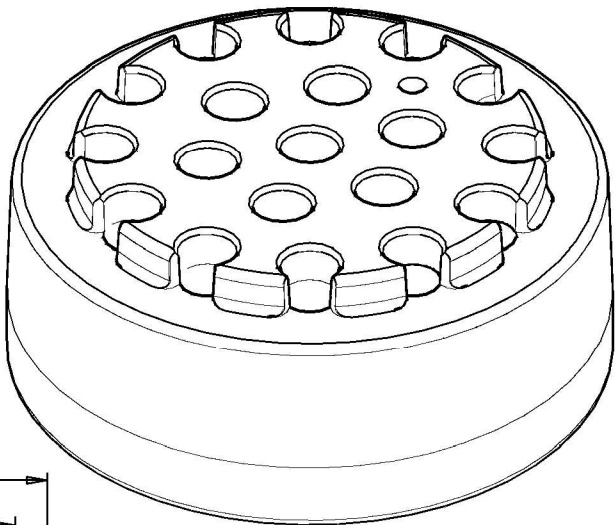
DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: QS60021400A		TOLERANCES: ±.020 UNLESS NOTED	WEIGHT 33.5 WEIGHT	REV.	DATE	NAME	ECRN	PART NUMBER: 68 19 254	
STANDARD SPIRAL FOR 19-0.6"/27-0.5" MPA				MATERIAL: ASTM A615 SIZE #5, GR 60	SCALE 1:5					DRAWING NUMBER: 68 19 254	
				DATE: 01-19-07	DWG: G. MALECKI	CHK: S.Y.	APP: E.A.				
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- ▲ MATERIAL SPECIFICATIONS:
 HIGH-DENSITY POLYETHYLENE, CONFORMING TO THE FOLLOWING:
 1. MEETS REQUIREMENTS OF ASTM D3350 WITH A MINIMUM CELL CLASS OF 445574C.
 2. CONTAINS ANTIOXIDANTS WITH A MINIMUM OXIDATIVE-INDUCTION TIME (OIT) ACCORDING TO ASTM D3895 OF 40 MINUTES.
 3. REMOLDED FINISHED MATERIAL HAS A MINIMUM FAILURE TIME OF 24 HOURS WHEN TESTED FOR STRESS CRACK RESISTANCE USING ASTM F2136 AT AN APPLIED STRESS OF 600 PSI.

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: QS80058800P		TOLERANCES: ±.020 UNLESS NOTED	WEIGHT	REV. Δ	DATE 01-11-19	NAME S.I.	PART NUMBER: 68 19 587
19-0.6" TRUMPET FOR MPA TO 100mm PP DUCT OR 4" HDPE PIPE				MATERIAL: SEE ABOVE	SCALE 1:3 1:1				DRAWING NUMBER: 68 19 587
DATE: 10-16-08	DWG: G. MALECKI	CHK: E.A.	APP: K.S.	THIS DRAWING, THE PERTINENT ENCLOSURES, DESCRIPTIONS, CALCULATIONS ETC. AND THEIR CONTENTS ARE THE PROPERTY OF DYWIDAG SYSTEMS INTERNATIONAL, USA, INC. THEY ARE NOT ALLOWED TO BE DUPLICATED WITHOUT OUR PERMISSION. THEY ARE ALSO NOT TO BE SHOWN OR EXPLAINED FOR ANY REASON TO A THIRD PARTY OTHER THAN FOR REASONS EXPRESSLY INTENDED BY DSI'S SUBMITTAL TO THE ORIGINAL RECEIVER. THEY HAVE TO BE RETURNED UPON REQUEST.					
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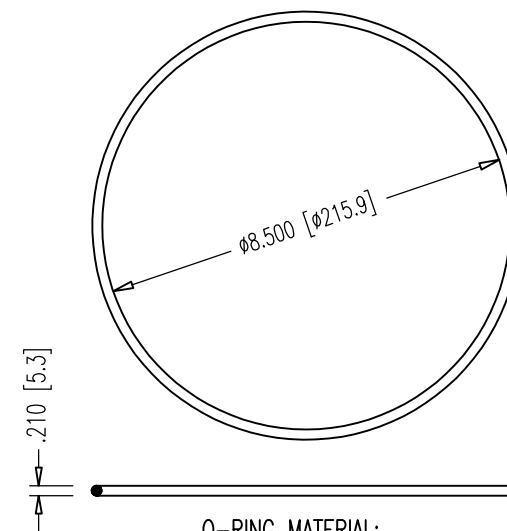
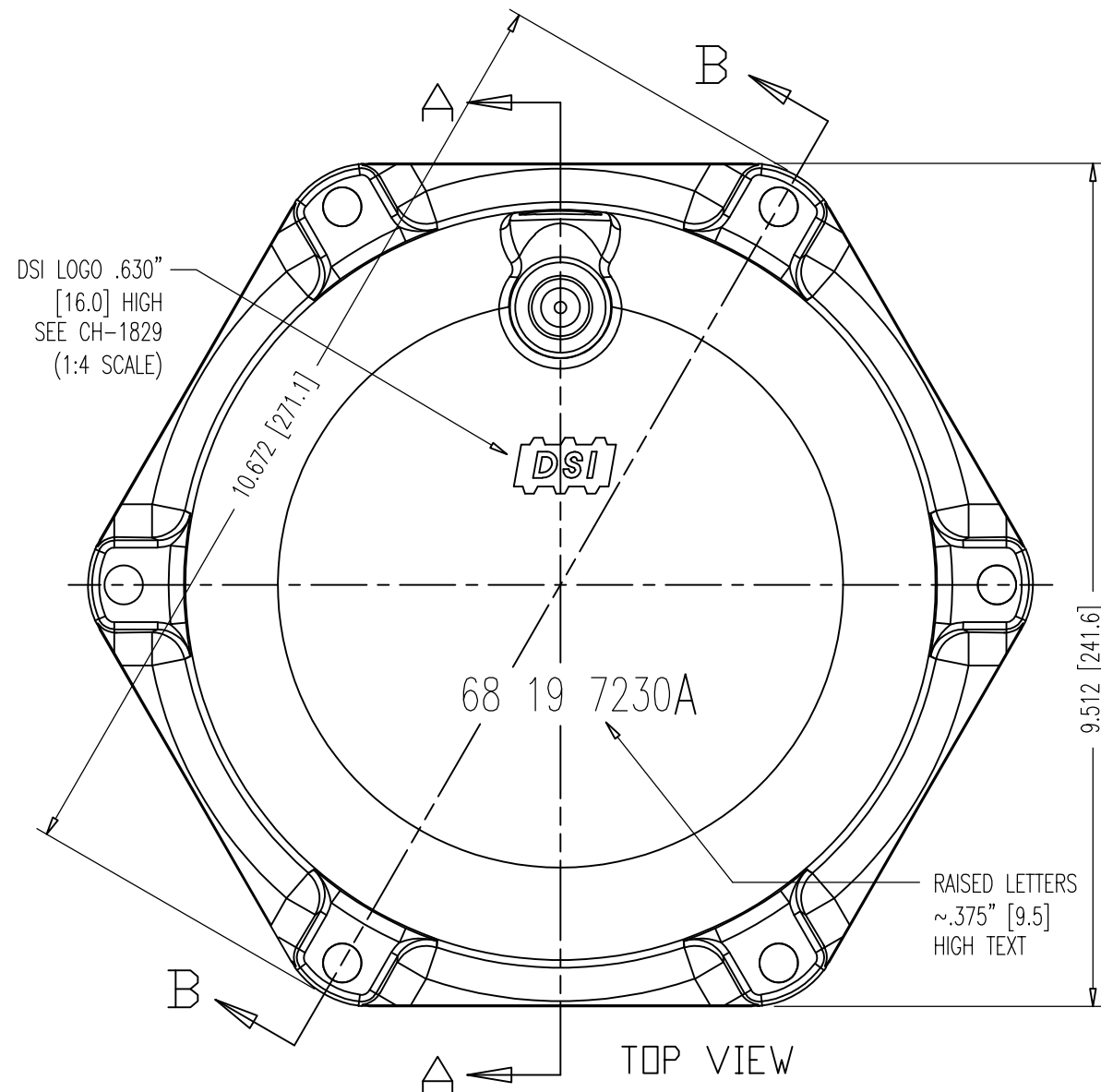




BOTTOM VIEW

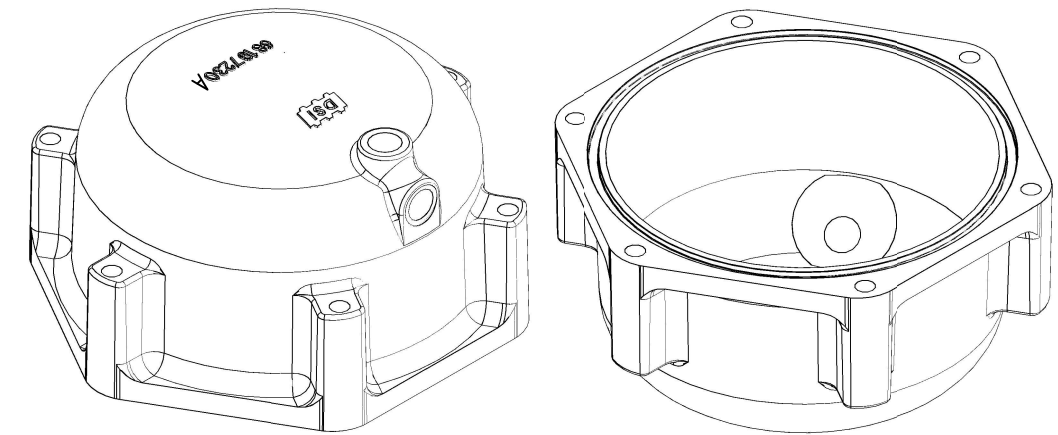
DIMENSIONS: INCH/mm mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: QS00014200F		WEIGHT ~32.08 LBS.	REV.	DATE	NAME	PART NUMBER: 68 19 172
19-0.6" CAST WEDGE PLATE								
DATE: 01-23-15	DWG: G. MALECKI	CHK: S.Y.	APP: S.E.	THIS DRAWING, THE PERTINENT ENCLOSURES, DESCRIPTIONS, CALCULATIONS ETC. AND THEIR CONTENTS ARE THE PROPERTY OF DYWIDAG SYSTEMS INTERNATIONAL, USA, INC. THEY ARE NOT ALLOWED TO BE DUPLICATED WITHOUT OUR PERMISSION. THEY ARE ALSO NOT TO BE SHOWN OR EXPLAINED FOR ANY REASON TO A THIRD PARTY OTHER THAN FOR REASONS EXPRESSLY INTENDED BY DSI'S SUBMITTAL TO THE ORIGINAL RECEIVER. THEY HAVE TO BE RETURNED UPON REQUEST.				
				DYWIDAG-SYSTEMS INTERNATIONAL, USA, INC. 320 MARMON DRIVE - BOLINGBROOK, IL 60440 PHONE: 630-739-1100 FAX: 630-739-1405				



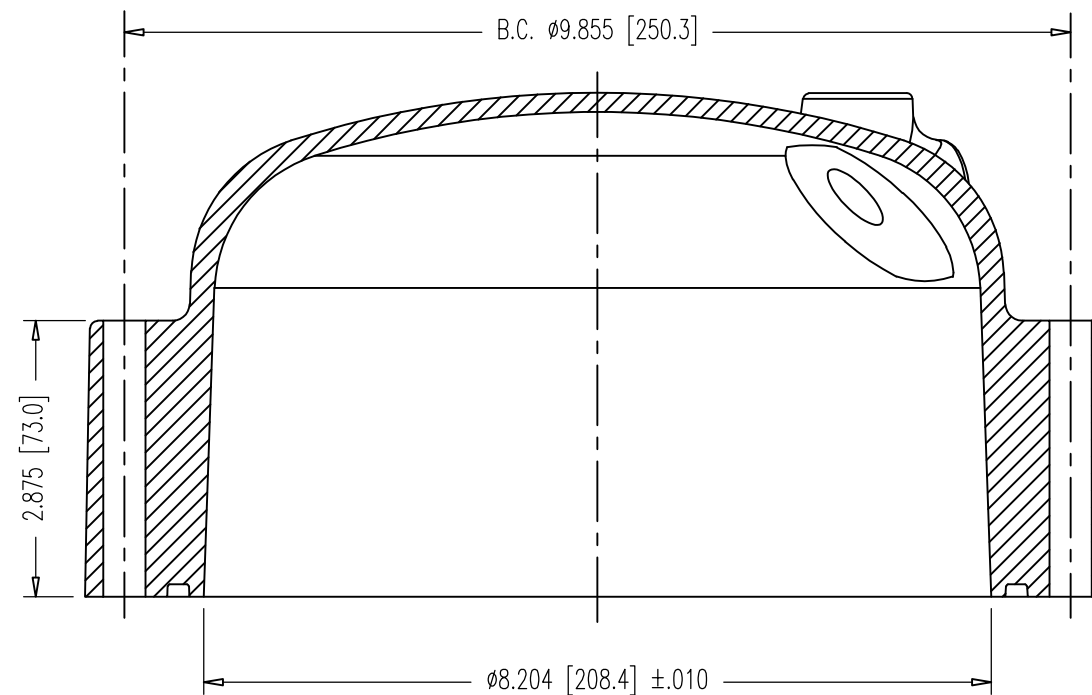
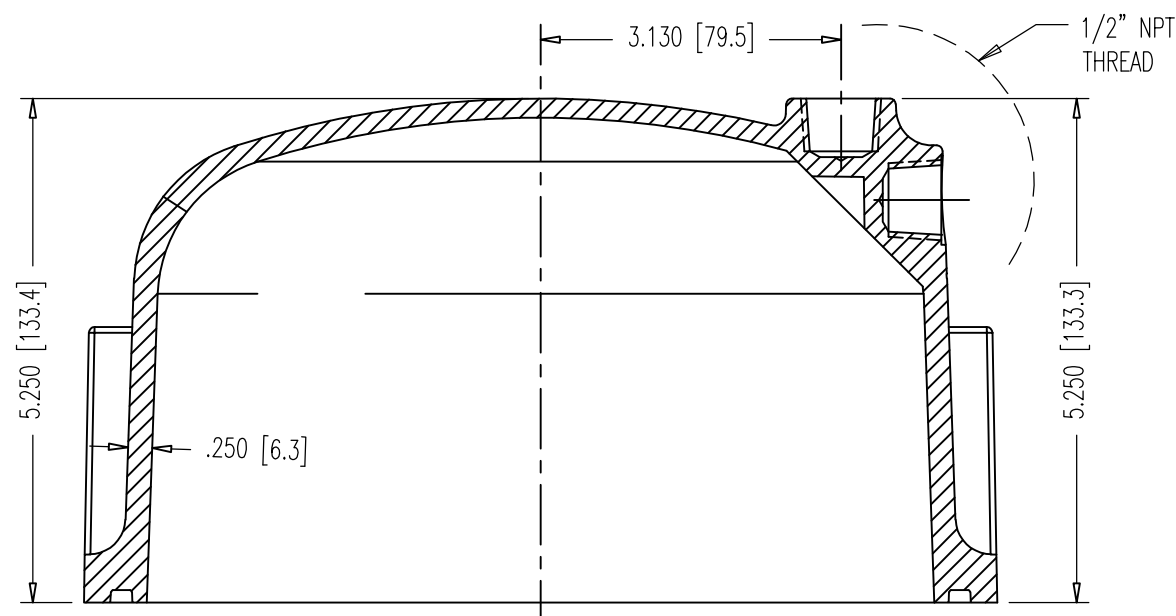


O-RING MATERIAL:
 HNBR, MEETING FDOT SPECIFICATIONS 960-2.2.1.7.

O-RING #371
 8-1/2" x 8-7/8" x 3/16"
 SCALE: NTS



ISOMETRIC VIEWS
 SCALE: 1:4



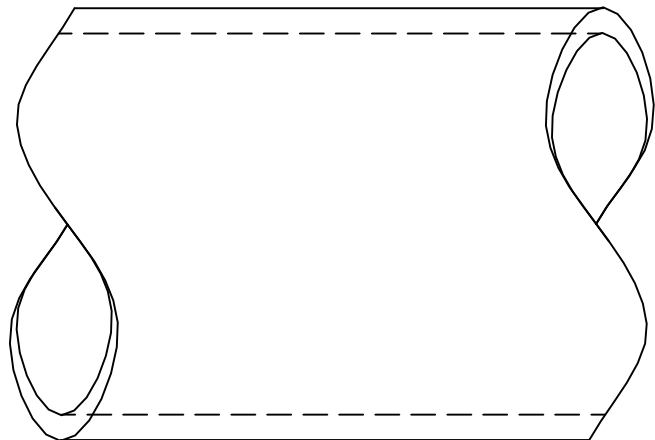
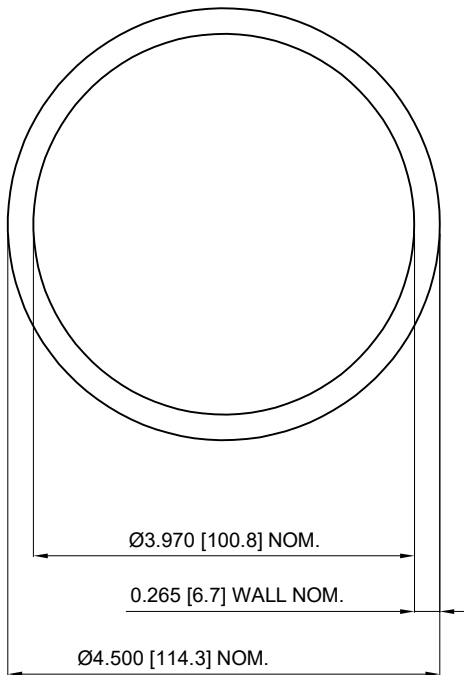
- ⚠ NOTES:
- USE 3/8"-16UNC 316L S.S. HEX BOLTS, 3-1/2" LONG W/SMALL DIA. WASHER.
 - INSTALL O-RING IN GROOVE USING DROPS OF LIQUID ADHESIVE BEFORE SHIPPING. DON'T USE EXCESSIVE ADHESIVE. O-RING MUST STAY IN PLACE UNTIL INSTALLATION.
 - THE NYLON CONFORMS TO ASTM D5989, WITH CELL CLASSIFICATION S-PA0401 (ULTIMATE STRENGTH 10,000 PSI MIN., WITH UV STABILIZER ADDED).
 - DRILL 1/2" [12.7] HOLE IN PORT BEING USED -CAUTION-RECOMMEND USING HOLE SAW BIT OR SPADE BIT (BY OTHERS), BE CAREFUL TO PREVENT DAMAGE TO THREADS OR CAP.
 - WHEN PRESSURIZING GROUT CAPS, DO NOT STAND BEHIND CAPS!

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: QS60072300P		TOLERANCES: SEE TOLERANCE NOTE		WEIGHT ~2.87 LBS.		REV. DATE NAME ECRN		PART NUMBER: 68 19 7230A	
19-0.6" NYLON CAP WITH O-RING FOR FLEXIBLE FILLER				MATERIAL: NYLON 6 20% GLASS FIBER FILLED		SCALE 1:2 UNLESS NOTED		⚠ 03/29/19 S.I.		⚠	
DATE: 11-07-03		DWG: G. MALECKI		CHK: E.A.		APP: K.S.				DRAWING NUMBER: 68 19 7230A	

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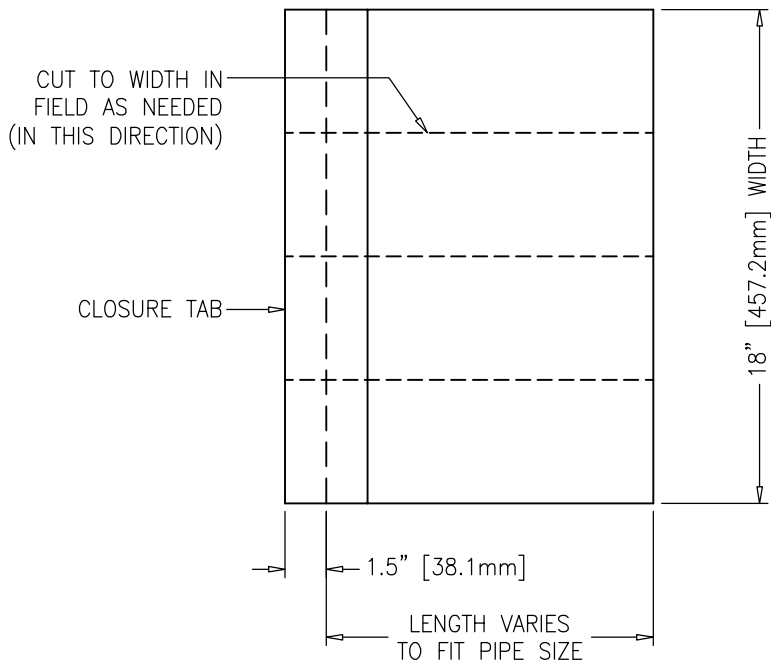


MATERIAL: 4" SDR 17 HDPE PIPE.

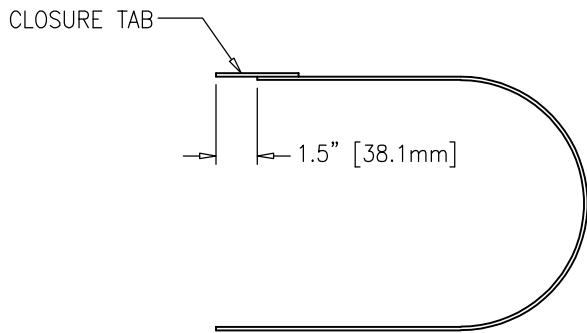
SPECIFICATIONS:

1. PIPE SHALL BE OF HIGH-DENSITY POLYETHYLENE AND SHALL HAVE A MAXIMUM DIMENSION RATIO (DR) OF 17 AS ESTABLISHED BY EITHER ASTM D3035 OR ASTM F714, AS APPROPRIATE FOR MANUFACTURING PROCESS USED.
2. PIPE SHALL HAVE A MINIMUM PRESSURE RATING OF 125 PSI.
3. MEETS REQUIREMENTS OF ASTM D3350 WITH A MINIMUM CELL CLASS OF 445574C.
4. CONTAINS ANTIOXIDANTS WITH A MINIMUM OXIDATIVE-INDUCTION TIME (OIT) ACCORDING TO ASTM D3895 OF 40 MINUTES.
5. REMOLDED FINISHED MATERIAL HAS A MINIMUM FAILURE TIME OF THREE HOURS WHEN TESTED FOR STRESS CRACK RESISTANCE USING ASTM F2136 AT AN APPLIED STRESS OF 348 PSI.
6. MINIMUM BEND RADIUS = 30 FT.

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER:		TOLERANCES: UNLESS NOTED	WEIGHT 1.53 LBS./FT.	REV.	DATE	DWG.	CHK.	PART NUMBER U00055119
4" SMOOTH HDPE PIPE FOR FLEXIBLE FILLER TENDON				MATERIAL SEE ABOVE	SCALE 1 : 2					DRAWING NUMBER: U00055119
				DATE: 09/19/18	DWG: I. TIRA	CHK: SI	APP: SI			
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TOP VIEW



END VIEW
(NOT TO SCALE)

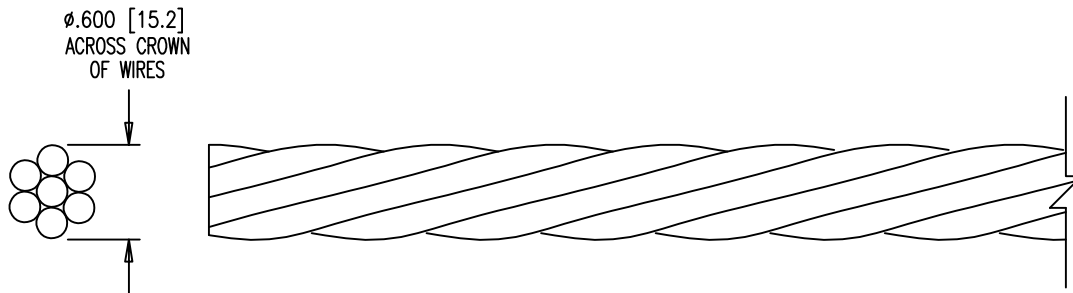
NOTE:
FOLLOW MANUFACTURER'S
INSTALLATION INSTRUCTIONS.

PIPE SIZE	STRAND SYSTEM	BAR SYSTEM	HEAT SHRINK SLEEVE SIZE	PART NUMBER
2 1/2" IPS DR 17	7-0.6"	1", 1 1/4", 1 3/8"	KLNN/L 63-450 BK	U00039063
3" SDR 17	12-0.6"	1 3/4", 1 3/8"	KLNN/L 90-450 BK	U00039090
4" SDR 17	19-0.6"	2 1/2", 3"	KLNN/L 115-450 BK	U00039115
5" SDR 17	27-0.6" & 31-0.6"		KLNN/L 125-450 BK	U00039125




DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER:		REV.		DATE		NAME		PART NUMBERS:			
KLNN HEAT SHRINK SLEEVE				MATERIAL: POLYOLEFIN MEETS FDOT SPECS 960-2.2.1.8 FOR FLEXIBLE FILLER		SCALE XX		1		05-28-20		SI	
								DATE: 02-21-19		DWG: G. MALECKI		CHK: S.I.	
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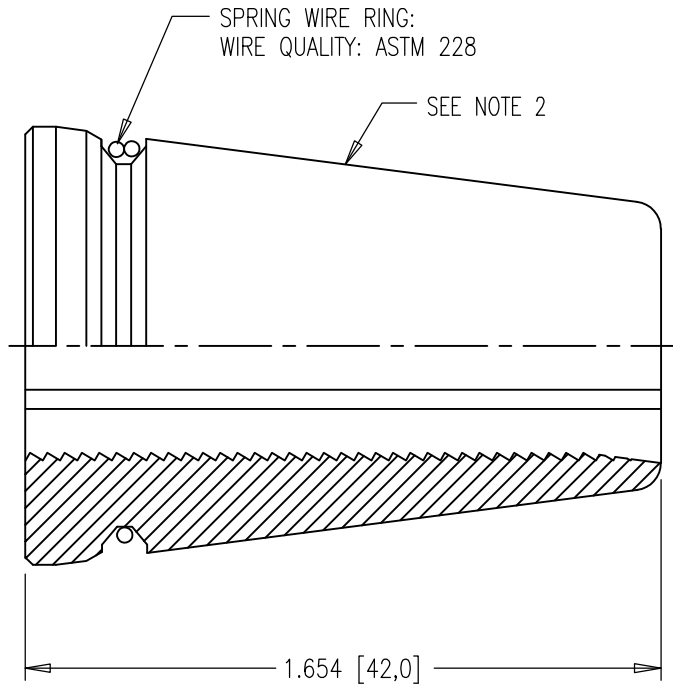
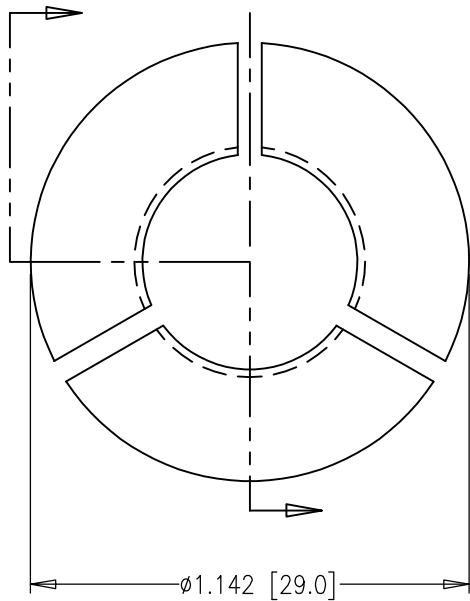




- NOTES:
1. NO PART NUMBER OR IDENTIFICATION MARKS ON STRAND.
 2. RUST PRODUCING VISIBLE PITTING TO THE UN-AIDED EYE IS NOT ALLOWED.

MATERIAL:
0.6" 270 KSI LOW RELAX STRAND
ASTM A416

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: QS000301000		TOLERANCES: ±.020 UNLESS NOTED	WEIGHT .738 PER/FT	REV.	DATE	NAME	PART NUMBER: 301060	
0.6" BARE 270 KSI STRAND				MATERIAL: SEE ABOVE	SCALE 1:1				DRAWING NUMBER: 301060	
				DATE: 02-18-19	DWG: G. MALECKI	CHK: C.S.	APP: K.S.			
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NOTES:

1. SHARP EDGES MUST BE BROKEN.
2. VIBRATE TO SURFACE FINISH OF 63 μIN. MAX.
3. DIP IN SQ70 OIL OR EQUIV. FOR CORROSION PROTECTION.
4. MAKE SURE THAT THE BUTTRESS THREAD IS ORIENTED IN THE DIRECTION SHOWN ON THIS DRAWING.
5. NO STAMPED PART NUMBER

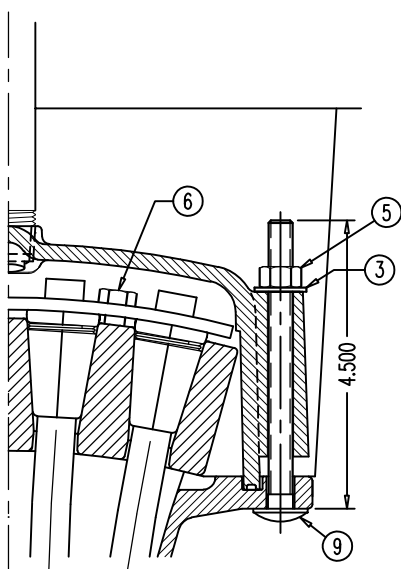
MATERIAL:
12L14
ALL HARDENED

DIMENSIONS: INCH/mm mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: QS00000500D		TOLERANCES: ±.010; ±2° UNLESS NOTED	WEIGHT 0.19 LBS.	REV.	DATE	NAME	PART NUMBER: 68 00 0536
3-PART WEDGE FOR 0.6" STRAND				MATERIAL: SEE ABOVE	SCALE 2:1				DRAWING NUMBER: 68 00 0536
				DATE: 06-01-18	DWG: G. MALECKI	CHK: C.S.	APP: S.I.		

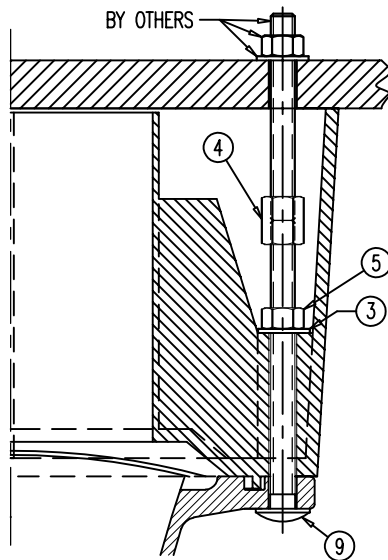
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320 MARMON DRIVE - BOLINGBROOK, IL FAX: 630-739-1405

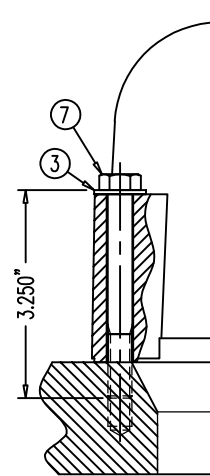




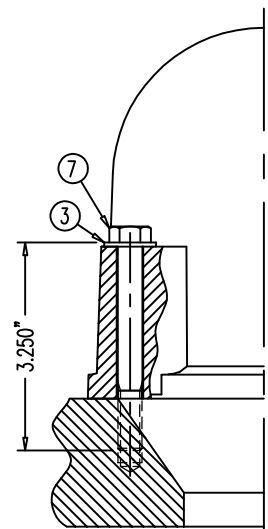
KEEPER PLATE 68 04 2637 ON
WEDGE PLATE 68 04 2534A &
NYLON CAP 68 04 2539 ON
FLAT ANCHOR 68 04 2548



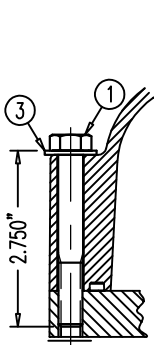
POCKET FORMER 68 04 2640
ON FLAT ANCHOR 68 04 2548



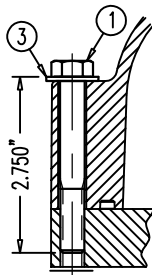
NYLON BAR CAP B36E50700 OR 50700A
ON GALV. BEARING PLATE
B26E22510, 22610, 22700, 22800,
B32E22510, 22610, 22700, 22800,
B36E22410, 22420, 22910, 22510,
22610, 22700, 22800 & NYLON
BAR CAP B66E50700 OR 50700A
ON GALV. BEARING PLATE B66E22700



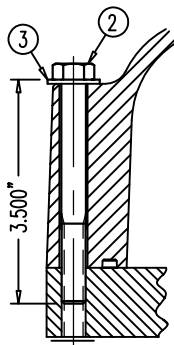
NYLON BAR CAP
B46M50700
OR 50700A
ON GALV.
BEARING PLATE
B46E22700 &
B46E22800



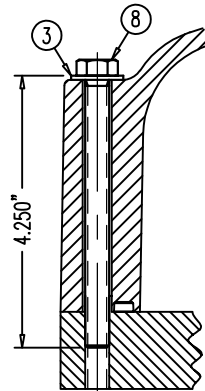
NYLON CAP
68 07 7230 OR 7230A
ON MPA 68 07 248



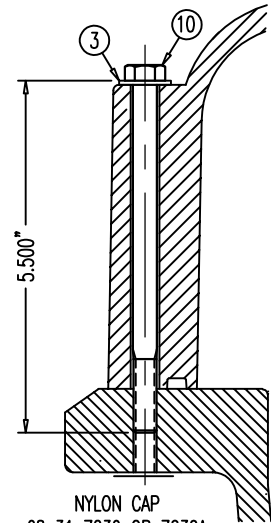
NYLON CAP
68 12 7230 OR 7230A
ON MPA 68 12 248



NYLON CAP
68 19 7230 OR 7230A
ON MPA 68 19 248



NYLON CAP
68 27 7230 OR 7230A
ON MPA 68 27 248



NYLON CAP
68 31 7230 OR 7230A
ON MPA 68 31 248

Ø.812



TYPE A NARROW WASHER
FOR 3/8"-UNC BOLT

NOTE:
THE 316L S.S. BOLTS ARE SPECIAL ORDER.
ALL WASHERS, HEX NUTS & COUPLERS HAVE
NO MARKINGS.

POS.	PART NUMBER	DISCRIPTION (ALL PARTS 316L STAINLESS STEEL UNLESS NOTED)
①	00 00 771	3/8"-16UNC HEX BOLT, 2-3/4" LONG (1" LONG THREAD)
②	00 00 772	3/8"-16UNC HEX BOLT, 3-1/2" LONG (1" LONG THREAD)
③	00 00 774	TYPE A NARROW WASHER FOR 3/8"-UNC BOLT
④	00 00 776	3/8"-16UNC COUPLER, ZINC COATED
⑤	00 00 777	3/8"-16UNC HEX NUT
⑥	00 00 778	5/16"-18UNC HEX BOLT, 7/8" LONG, ZINC PLATED
⑦	00 00 783	3/8"-16UNC HEX BOLT, 3-1/4" LONG (1" LONG THREAD)
⑧	00 00 784	3/8"-16UNC HEX BOLT, 4-1/4" LONG (FULL THREAD)
⑨	00 00 789	3/8"-16UNC CARRIAGE BOLT, 4-1/2" LONG
⑩	00 00 790	3/8"-16UNC CARRIAGE BOLT, 5-1/2" LONG

DIMENSIONS: INCH

QUALITY PLAN NUMBER:

STAINLESS STEEL 316L BOLTS AND WASHER FOR NYLON CAPS

DATE: 09-10-04 DWG: G. MALECKI CHK: E.A. APP: K.S.

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SCALE
1:3

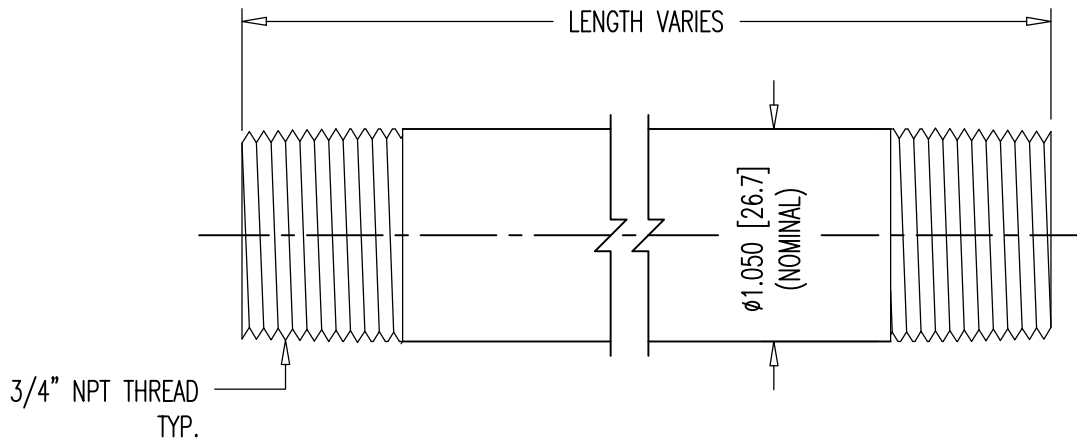
REV.	DATE	NAME	NAME
1	05/01/19	S.I.	
2	05/28/20	S.I.	

PART NUMBERS:
SEE TABLE

DRAWING NUMBER:
00 00 770

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POST TENSIONING / REINFORCING UNIT PHONE: 630-739-1100
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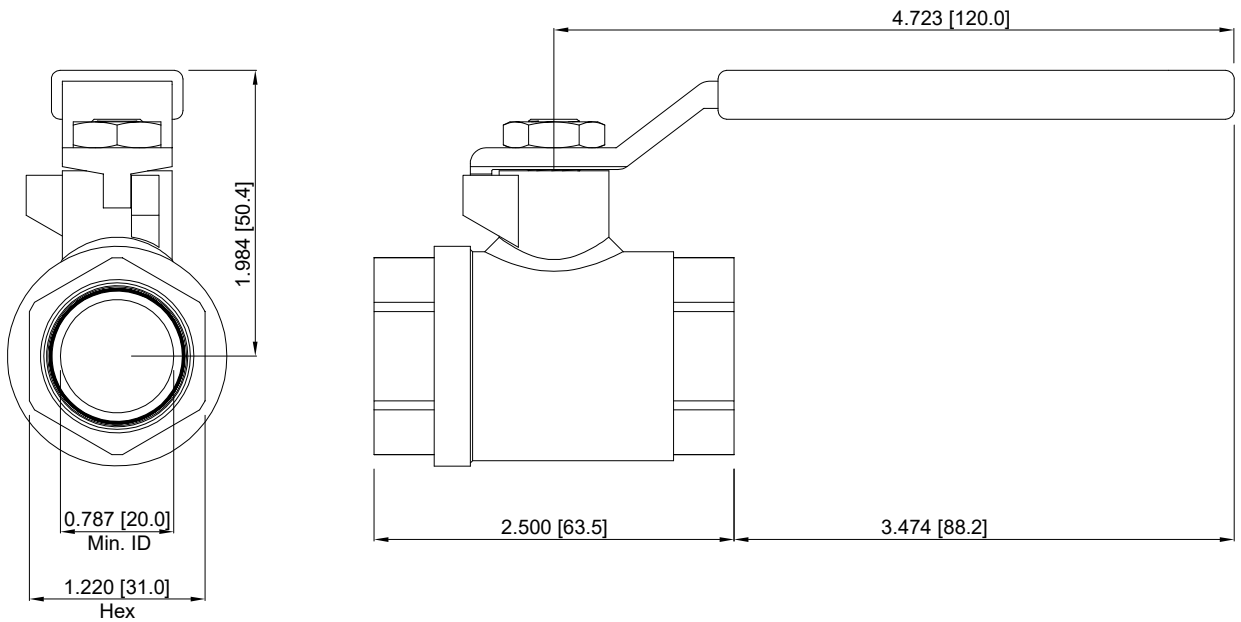
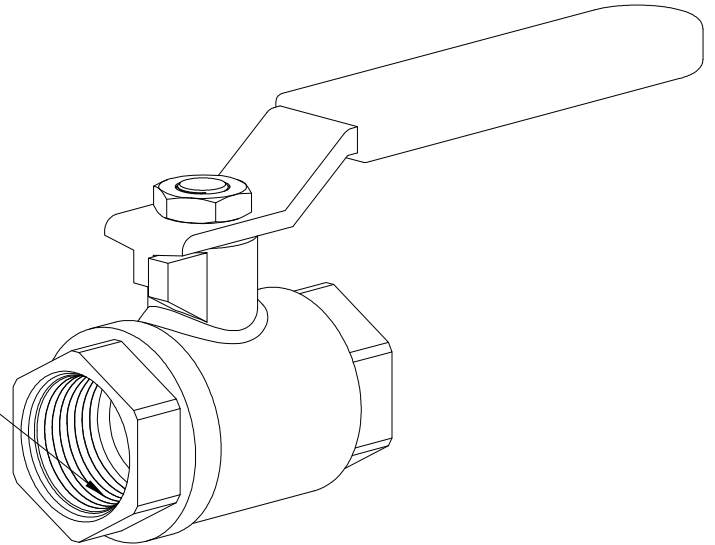




PRESSURE RATED: 150 PSI

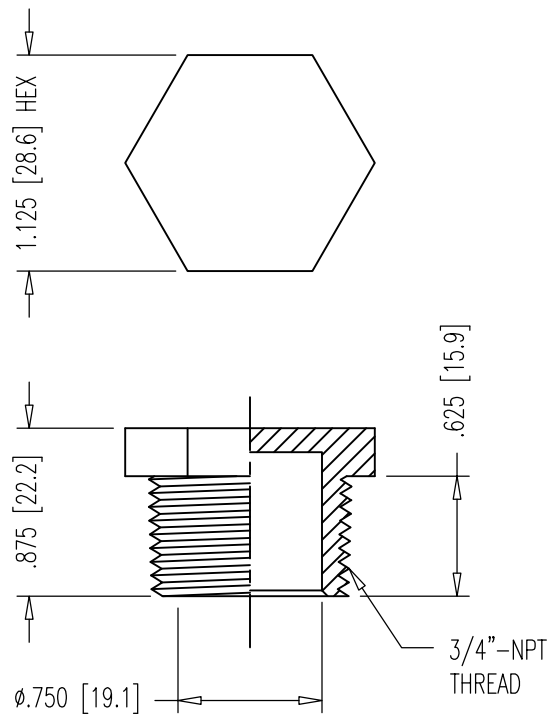
DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: Q00000020P		REV.	DATE	NAME	ECRN	PART NUMBER: 00 00 878
3/4" NPT PIPE NIPPLES				MATERIAL:	SCALE 1:1			
				DATE: 01-29-19 DWG: G. MALECKI CHK: S.I. APP: S.I.			SCH 40 BLACK WELDED STEEL	
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DYWIDAG-SYSTEMS INTERNATIONAL, USA, INC. 320 MARMON DRIVE - BOLINGBROOK, IL 60440 PHONE: 630-739-1100 FAX: 630-739-1405							DYWIDAG	

3/4" NPT, 14 THREADS PER INCH,
0.55" THREAD ENGAGEMENT



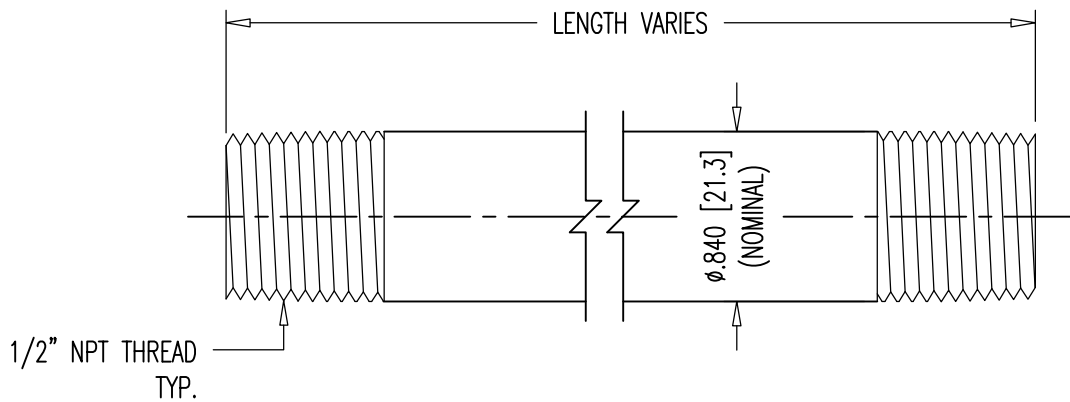
PRESSURE RATED: 150 PSI

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER:		WEIGHT	REV.	DATE	NAME	PART NUMBER
3/4" BALL VALVE				0.77 LBS.				00 00 838
				MATERIAL: BRASS	SCALE 3/4" = 1"			
DATE: 02/08/19	DWG: I. TIRA	CHK: SY	APP: SE					
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PRESSURE RATED: 150 PSI

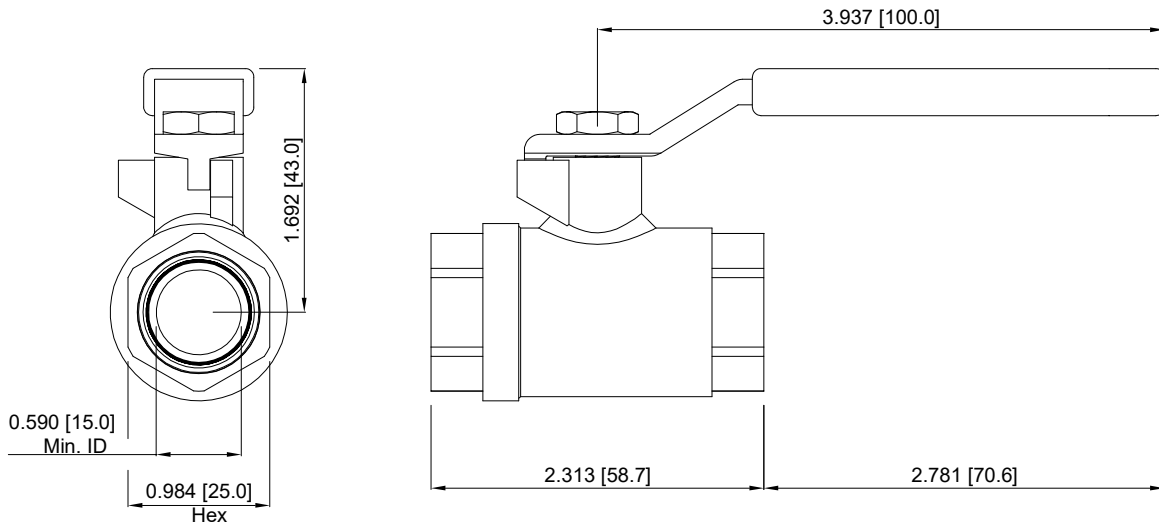
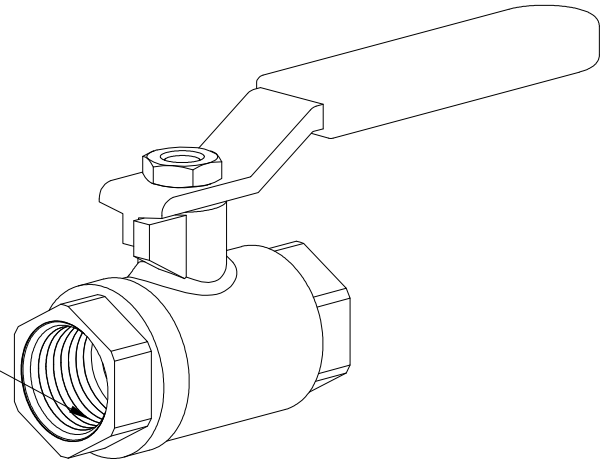
DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER:		WEIGHT .009 LBS.	REV.	DATE	NAME	PART NUMBER: 00 00 849
3/4" NPT NYLON PLUG								
				DATE: 03-12-19	DWG: G. MALECKI	CHK: S.I.	APP: S.I..	DYWIDAG-SYSTEMS INTERNATIONAL, USA, INC. 320 MARMON DRIVE - BOLINGBROOK, IL 60440 PHONE: 630-739-1100 FAX: 630-739-1405
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PRESSURE RATED: 150 PSI

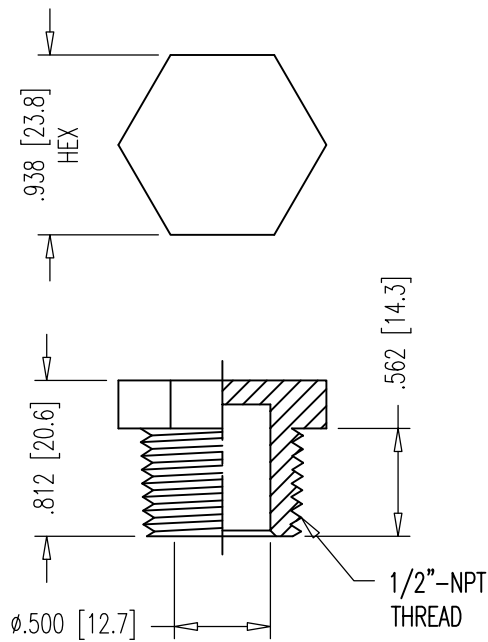
DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: Q000000020P		REV.	DATE	NAME	PART NUMBER: 00 00 678
1/2" NPT PIPE NIPPLES				MATERIAL: SCH 40 BLACK WELDED STEEL	SCALE 1:1		DRAWING NUMBER: 00 00 678
DATE: 01-29-19	DWG: G. MALECKI	CHK: S.I.	APP: S.I.	DYWIDAG-SYSTEMS INTERNATIONAL, USA, INC. 320 MARMON DRIVE - BOLINGBROOK, IL 60440 PHONE: 630-739-1100 FAX: 630-739-1405			
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1/2" NPT, 14 THREADS PER INCH,
0.53" THREAD ENGAGEMENT




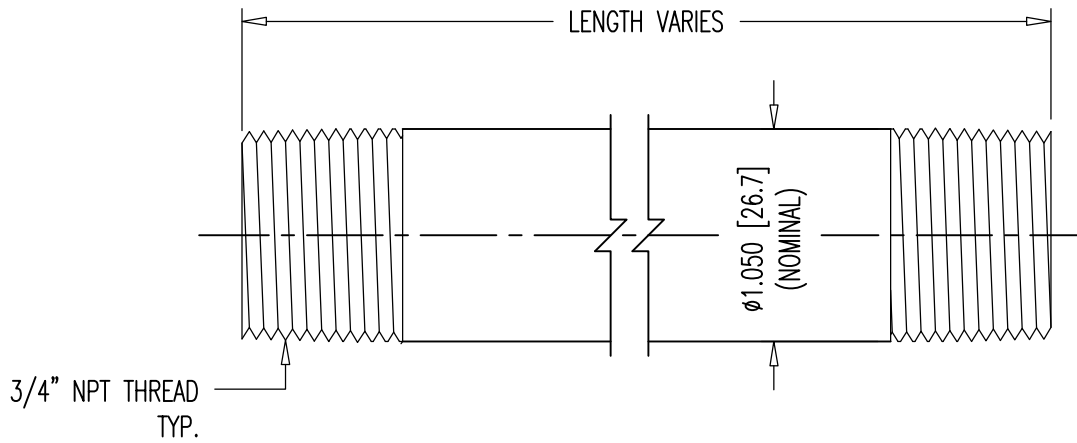
PRESSURE RATED: 150 PSI

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER:		WEIGHT -- LBS.	REV.	DATE	NAME	PART NUMBER 00 00 638
1/2" BALL VALVE								
DATE: 02/08/19	DWG: I. TIRA	CHK: SI	APP: SI					
THIS DRAWING, THE PERTINENT ENCLOSURES, DESCRIPTIONS, CALCULATIONS ETC. AND THEIR CONTENTS ARE THE PROPERTY OF DYWIDAG SYSTEMS INTERNATIONAL, USA, INC. THEY ARE NOT ALLOWED TO BE DUPLICATED WITHOUT OUR PERMISSION. THEY ARE ALSO NOT TO BE SHOWN OR EXPLAINED FOR ANY REASON TO A THIRD PARTY OTHER THAN FOR REASONS EXPRESSLY INTENDED BY DSI'S SUBMITTAL TO THE ORIGINAL RECEIVER. THEY HAVE TO BE RETURNED UPON REQUEST.				DYWIDAG-SYSTEMS INTERNATIONAL, USA, INC. POST TENSIONING / REINFORCING UNIT PHONE: 630-739-1100 DYWIDAG 320 MARMON DRIVE - BOLINGBROOK, IL FAX: 630-739-1405				



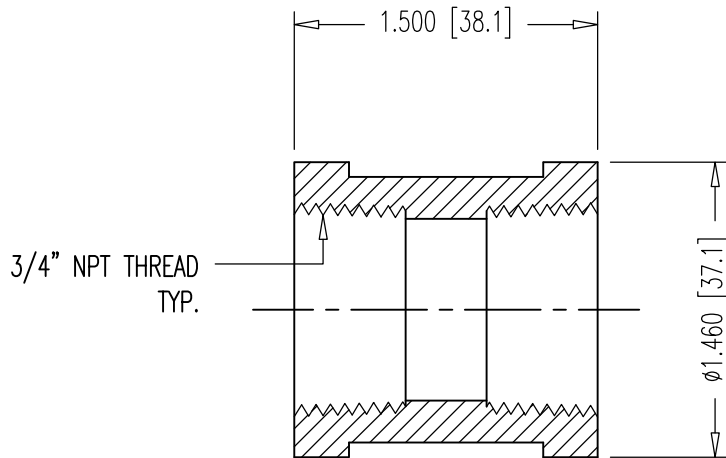
PRESSURE RATED: 150 PSI

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER:		WEIGHT .006 LBS.	REV.	DATE	NAME	ECRN	PART NUMBER: 00 00 649
1/2" NPT NYLON PLUG					SCALE 1:1				
				DATE: 03-12-19		DWG: G. MALECKI		CHK: S.I.	
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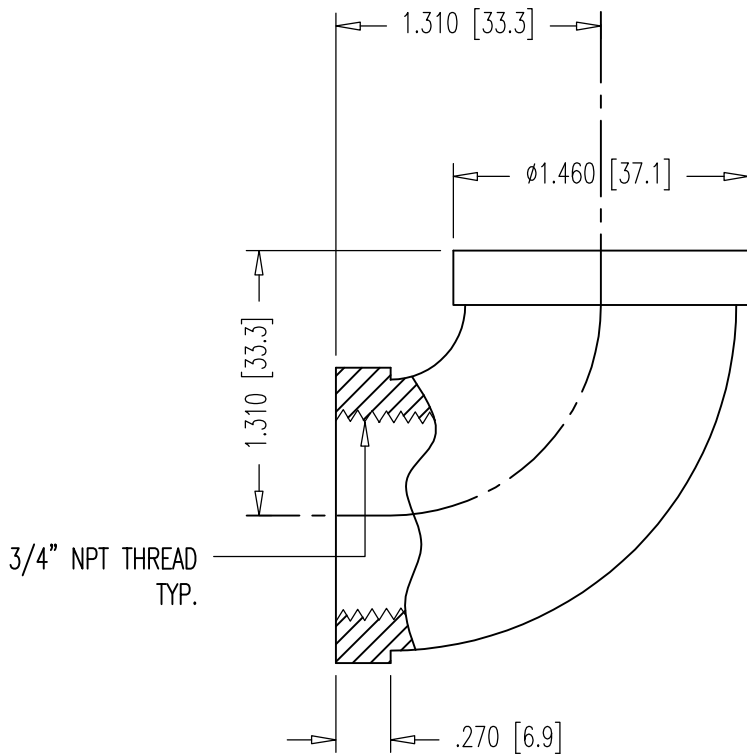
PRESSURE RATED: 150 PSI

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY	QUALITY PLAN NUMBER: Q00000020P			REV.	DATE	NAME	ECRN	PART NUMBER: 00 00 878	
3/4" NPT PIPE NIPPLES		MATERIAL: SCH 40 BLACK WELDED STEEL	SCALE 1:1					DRAWING NUMBER: 00 00 878	
DATE: 01-29-19	DWG: G. MALECKI	CHK: S.I.	APP: S.I.						
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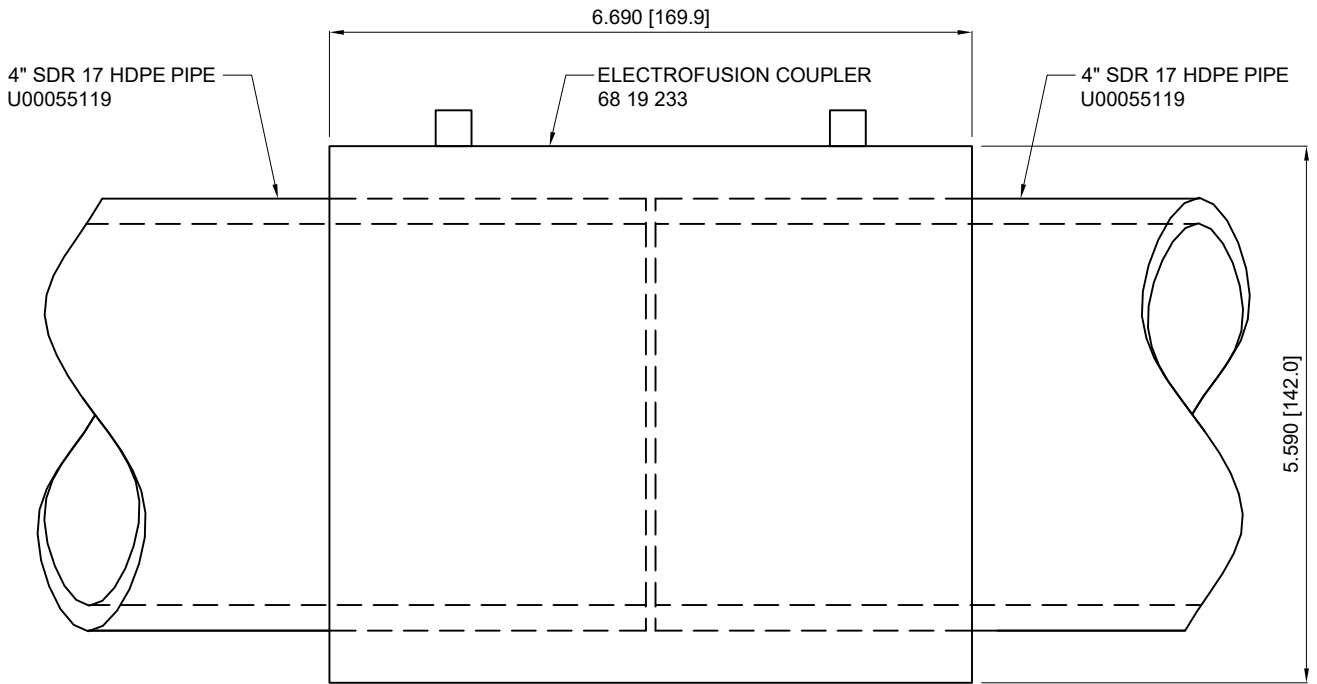
PRESSURE RATED: 150 PSI

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: Q000000020P		REV.	DATE	NAME	ECRN	PART NUMBER: 00 00 881
3/4" NPT FEMALE COUPLER				MATERIAL:	SCALE			
				DATE: 02-05-19 DWG: G. MALECKI CHK: S.I. APP: S.I.		SCH 40 BLACK	1:1	
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PRESSURE RATED: 150 PSI

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER: Q00000020P		REV.	DATE	NAME	ECRN	PART NUMBER: 00 00 880	
3/4" NPT 90° ELBOW, FEMALE-FEMALE				MATERIAL:	SCALE				
				SCH 40 BLACK STEEL		1:1			DRAWING NUMBER: 00 00 880
DATE: 05-01-19	DWG: G. MALECKI	CHK: S.I.	APP: S.I.						
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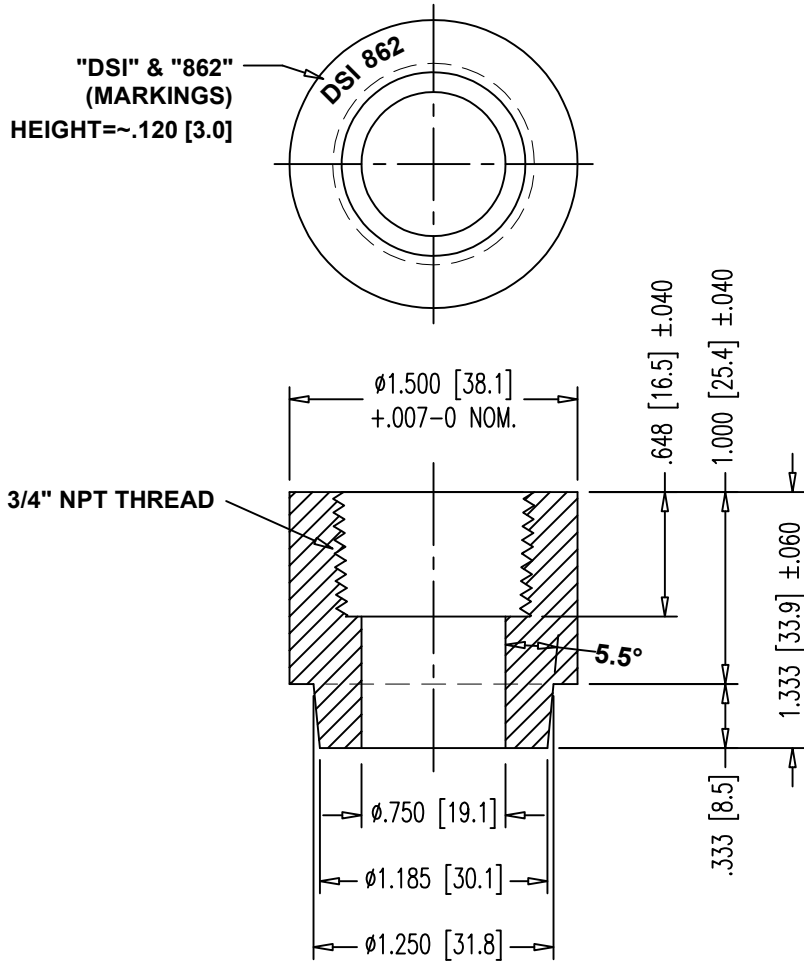


INSTALLATION PROCEDURE:

(SEE MANUFACTURER INSTRUCTION MANUAL FOR DETAILED INSTRUCTIONS)

1. CUT PIPE ENDS PRECISELY AT RIGHT ANGLES TO THE PIPE AXIS.
2. CLEAN BOTH PIPE ENDS CAREFULLY.
3. SCRAP BOTH PIPES ENDS AS REQUIRED TO REMOVE THE OXIDE LAYER COMPLETELY
4. CLEAN BOTH PIPE ENDS WITH CONCENTRATED ISOPROPYL ALCOHOL.
5. USE REROUNDING TOOLS TO CORRECT OVAL PIPE IF NEEDED.
6. USE ALIGNMENT CLAMPS TO SECURE THE ALIGNMENT OF CONNECTED PIPES
7. PROVIDE SUPPORT TO THE PIPE AND COUPLER TO PREVENT ANY MOVEMENT.
8. ENSURE THERE IS NO EXISTING GAPS BETWEEN COUPLE AND PIPE FACE.
9. ATTACH LEADS OF THE FUSION PROCESSOR TO THE COUPLER.
10. SCAN THE BARCODE ON THE COUPLER AND CONFIRM THE COUPLER'S SIZE ON THE PROCESSOR SCREEN.
11. INITIATE FUSION PROCESS.
12. UNPLUG THE LEADS AS SOON AS THE FUSION PROCESS ENDS.
13. CHECK COOLING TIME OF THE PROVIDED COUPLER BASED ON COUPLER'S SIZE.
14. DO NOT ALLOW MOVEMENT OR APPLIED PRESSURE ON THE JOINTS BEFORE COOLING TIME ENDS.

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER:		WEIGHT 1.860 LBS	REV.	DATE	DWG.	CHK.	PART NUMBER 68 19 233
ELECTROFUSION COUPLER CONNECTION FOR 4" SDR 17 HDPE PIPE					MATERIAL:	SCALE 1 : 2			
				DATE: 11/02/18	DWG: I. TIRA	CHK: SI	APP: SI	COMPOSITE	
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WELDING OPERATIONS:
 DRILL A HOLE USING SPECIFIED CONE DRILL TOOL WHEREVER NEEDED IN HDPE PIPE. HEAT UP HDPE GROUT PORT AND THE HOLE IN DUCT FOR ABOUT 10 SECONDS USING PES-TEC WELDING EQUIPMENT. RELEASE THE GROUT PORT AND PRESS INTO THE HOLE IN DUCT BY HAND FOR 15 SECONDS.

MATERIAL: POLYETHYLENE
COLOR: BLACK (UV PROTECTED)
USAGE: FOR SMOOTH HDPE PIPE
PRESSURE RATED: 150 PSI

DIMENSIONS: INCH [mm] mm FOR REFERENCE ONLY		QUALITY PLAN NUMBER:		TOLERANCES: ±.020 UNLESS NOTED	WEIGHT 0.045 LBS.	REV.	DATE	NAME	PART NUMBER: 00 00 862
3/4" NPT PE PORT				MATERIAL: SEE ABOVE	SCALE 1:1				DRAWING NUMBER: 00 00 862
				DATE: 01-11-19	DWG: G. MALECKI	CHK: S.I.	APP: S.I.		
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