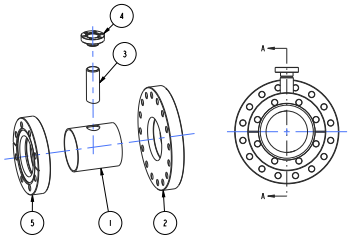
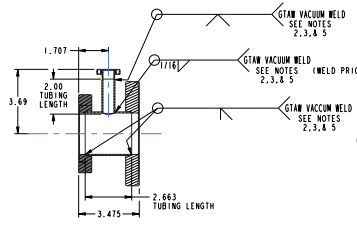
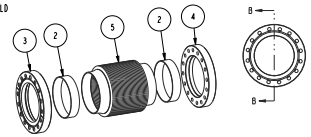
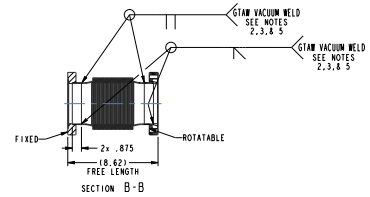
NO.	REVISION	WP NO.	BY	CH	SUP	APPROVED	DATE
0	ISSUED PER ECN #7725	2064	MS	LM	LM	M. SIBILIA	5/3/2016





SECTION A-A





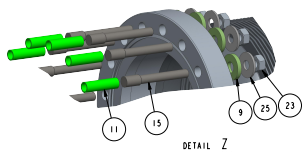
SECTION B-B

ITEM NO.	DRAWING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	QTY REQD
5	100021	4-1/2" CF FLANGE, 2-1/2" TUBE, ROTATABLE, CLEAR HOLES (MDC #100021)	304 SS/STL	1
4	100004	1.33" CF FLANGE, ROTATABLE, 3/4" TUBE, CLEAR HOLES (MDC #100004)	304 SS/STL	1
3	E-9D11461-3	3/4" TUBING, .063 WALL, MODIFIED	316 SS/STL	1
2	E-9D11461-2	6" CF FLANGE, CLEARANCE HOLE, (MODIFIED MDC #100025)	304 SS/STL	1
1	E-9D11461-1	2-1/2" TUBING, .065 WALL, MODIFIED	316 SS/STL	1
-	E-9D11461-02	NIPPLE REDUCER WITH VENT	--	--

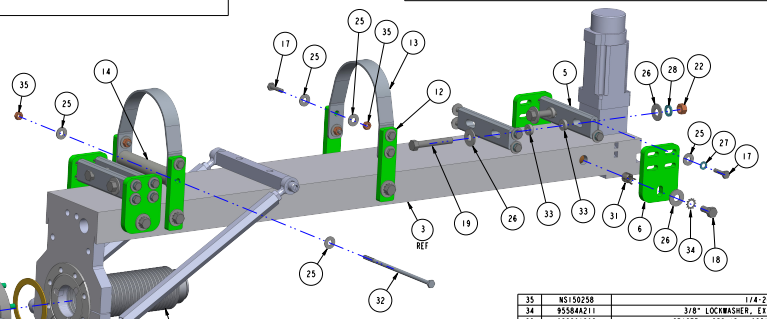
PARTS LIST

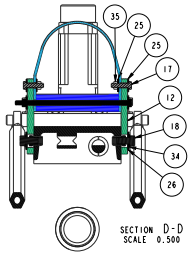
ITEM NO.	DRAWING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	QTY REQD
5	470510	FORMED BELLOWS, 4" OD WELD CUFF x .065 WALL	316 S/S	1
4	110026	FLANGE, CONFLAT, 6 OD, NONROTATABLE, CLEARANCE	304 SST	1
3	100026	CF FLANGE, 6" O.D., 4" BORE, ROTATABLE, CLEAR HOLES - MDC #100026	304 S/S	1
2	E-9D11461-5	BELLOWS EXTENSION, 4" OD, .06 WALL	316 SS/STL	2
-	E-9D11461-03	6" CF BELLOWS ASS'Y, 4" ID WELD CUFF, CUSTOM LENGTH	--	--

PARTS LIST

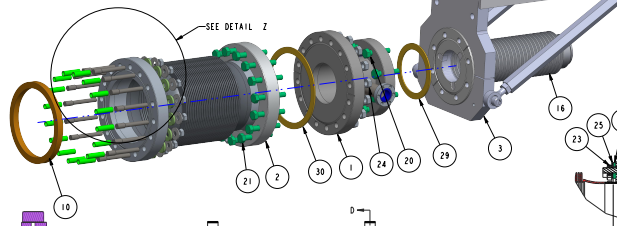


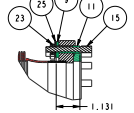
DETAIL Z
SCALE 1.000



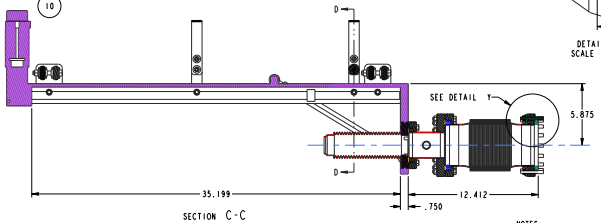


SECTION D-D
SCALE 0.500

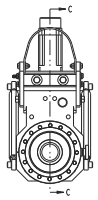




DETAIL Y
SCALE 0.600



SECTION C-C



SCALE 0.300

ITEM NO.	DRAWING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	QTY REQD
35	NS150258	1/4-20UNC-2B HEX NUT	316 S/S	7
34	95584A211	3/8" LOCKWASHER, EXTERNAL TOOTH (MMC #95584A211)	18-8 SS/STL	8
33	92320A393	SPACER, .252 ID, .625" OD, .188 THK. (MMC #92320A393)	18-8 SS/STL	8
32	92198A567	1/4"-20 UNC-2A X 6 1/2 LG HEX HEAD CAP SCREW - MMC #92198A567	18-8 SS/STL	1
31	91731A054	3/8-16UNC-2B INSERT, KEY LOCK, 9/16-12UNC-2B EXT.THD, 1/2" LG (MMC #91731A054)	18-8 SS/STL	8
30	191013	6" CF GASKET, 4.74" OD, 4.01" ID, .08" THK. (MDC #191013)	OFE COPPER	1
29	191009	4-1/2" CF GASKET, 3.24" OD, 2.51" ID, .08" THK. (MDC #191009)	OFE COPPER	1
28	151339	3/8 SPLIT LOCK WASHER	316 S/S	4
27	151333	1/4 SPLIT LOCK WASHER	316 S/S	16
26	151319	3/8 FLAT WASHER	316 S/S	16
25	151311	1/4 FLAT WASHER	316 S/S	46
24	150273	5/16-24 UNF-2B HEX NUT	316 S/S	16
23	150272	1/4-28 UNF-2B HEX NUT	316 S/S	16
22	150260	3/8-16 UNC-2B HEX NUT	316 S/S	4
21	150082	5/16-24 UNF-2A x 2" LG HEX HEAD BOLT	STN STL	16
20	150081	5/16-24 UNF-2A x 1 1/2 LG HEX HEAD BOLT	STN STL	8
19	150053	3/8-16 UNC-2A x 2 1/2 LG HEX HEAD BOLT	316 S/S	4
18	150047	3/8-16 UNC-2A x 3/4 LG HEX HEAD BOLT	316 S/S	8
17	150030	1/4-20 UNC-2A x 1" LG HEX HEAD BOLT	316 S/S	22
16	E-9D11461-04B	BELLOWS ASSEMBLY (THERMIONICS)	--	1
15	E-9D11461-20	STUD, CUSTOM CF FLANGE	316 SS/STL	16
14	E-9D11461-19	SUPPORT SLIDE, ROLLER	ALUM, 6061	1
13	E-9D11461-18	SUPPORT TUBE, SLIDE STRAP	316 SS/STL	2
12	E-9D11461-15	TRANSLATOR VERTICAL SUPPORT BRACKET	G-10	4
11	E-9D11461-14	INSULATOR SLEEVE, 5/16" OD, 1/4 ID, 1.13" LG	TEFLON	16
10	E-9D11461-13	ISOLATOR GASKET	VESPEL	1
9	E-9D11461-12	INSULATING WASHER, .322" ID, .750" OD, .125" THK, (MAKE FROM MMC #8669K24)	G-10	16
6	E-9D11461-9	TRANSLATOR VERTICAL SUPPORT BRACKET	G-10	4
5	E-9D11461-8	TRANSLATOR HORIZONTAL SUPPORT BRACKET	6061 ALUM	4
3	E-9D11461-6	THERMIONICS TRANSLATOR - MODIFIED	--	1
2	E-9D11461-03	6" CF BELLOWS ASS'Y, 4" ID WELD CUFF, CUSTOM LENGTH	--	1
1	E-9D11461-02	NIPPLE REDUCER WITH VENT	304 SS/STL	1
-	E-9D11461-01	TRANSLATOR ASSEMBLY	--	--

PARTS LIST

NS74-E-9D11461

GENERAL NOTES

1. PPPL APPROVED DRAWINGS TAKE PRECEDENCE OVER MODEL DIMENSIONS.
2. WHEN MODELS ARE PROVIDED, VENDOR MUST VERIFY THAT MODEL DIMENSIONS CONFORM WITH PPPL APPROVED DRAWINGS PRIOR TO FABRICATION.

MAGNETIC PERMEABILITY REQUIREMENT (SEE NOTES)

YES X NO

NOTES:

1. REMOVE ALL SHARP CORNERS AND BURRS.
2. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH ASME B31.3
3. WELD INSPECTION SHALL BE PERFORMED IN ACCORDANCE WITH THE ACCEPTANCE CRITERIA OF B31.3, CATEGORY D.
4. MAGNETIC PERMEABILITY OF S/S PARTS USING SEVERN GAUGE SHALL NOT EXCEED THE FOLLOWING:
   BASE MATERIAL: 1.05 mu
   MACHINED: 1.4 mu
   WELDED: 2.0 mu
5. HELIUM LEAK TEST EACH SUBASSEMBLY TO 10 -9 TORR LITER/SEC.

RELEASE LEVEL: Fabrication
DWG VERSION NO: 0.3

RELEASED FOR FABRICATION / INSTALLATION
PPPL Drafting: Lewis Morris

WELDING ENGINEER
APPVD: Raymond C. Gruel DATE:

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED
DO NOT SCALE INFORMATION BY SCALING DRAWING
SCALE:
NEXT ASSEMBLY: E-9D11464

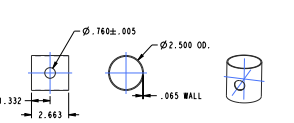
CENTRAL FILES:
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
MACHINE SURFACES 63
BREAK SHARP EDGES .005/.020
TOLERANCES NON-CUMULATIVE
DECIMAL: INCH ±.100 ±.010 ±.005 ±.001 ±.000 ±.0005
FRACTIONS ±1/2° ±1/16 ±1/32 ±1/64 ±1/128 ±1/256
ANGULAR ±0°-15'

PRINCETON PLASMA PHYSICS LABORATORY
PRINCETON UNIVERSITY
NATIONAL SPHERICAL TORUS EXPERIMENT
DIAGNOSTIC SYSTEMS
BAY L, UPPER MID-PLANE, FUSION PRODUCTS TRANSLATOR ASSEMBLY

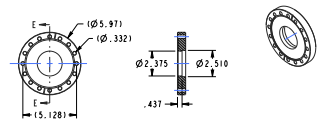
DIV: MECH. ENG.
DATE: 4/20/2016
ENG: M. SIBILIA
DSN: M. SIBILIA
CHK: J. MITCHELL
APPROVED
M. SIBILIA
5/3/16

E-9D11461
SHEET 1 OF 2 REV 0

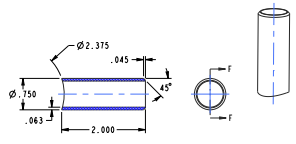
NO.	REVISION	WP NO.	BY	CH	SUP	APPROVED	DATE



PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-1	2-1/2" TUBING, .065 WALL, MODIFIED	316 SS/STL

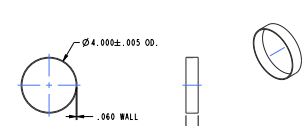


PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-2	6" CF FLANGE, CLEARANCE HOLE, (MODIFIED MDC #100025)	304 SS/STL

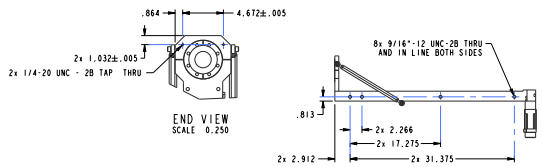


PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-3	3/4" TUBING, .063 WALL, MODIFIED	316 SS/STL

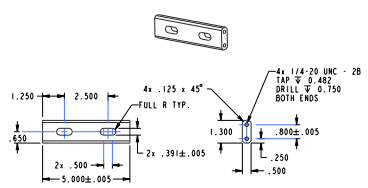
SEE SHEET 1



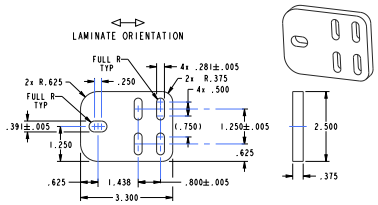
PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-5	BELLOWS EXTENSION, 4" OD, .06 WALL	316 SS/STL



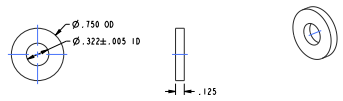
PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-6	THERMIONICS TRANSLATOR - MODIFIED	--



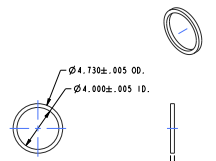
PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-8	TRANSLATOR HORIZONTAL SUPPORT BRACKET	6061 ALUM



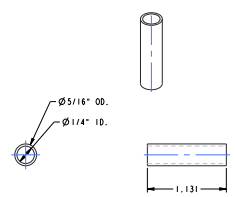
PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-9	TRANSLATOR VERTICAL SUPPORT BRACKET	G-10



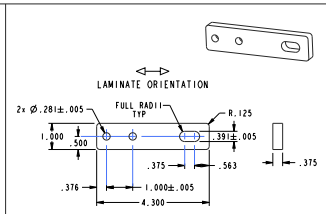
PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-12	INSULATING WASHER, .322" ID, .750" OD, .125" THK, (MAKE FROM MMC #8669K24)	G-10



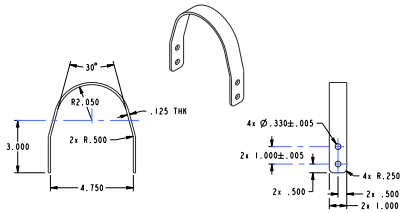
PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-13	ISOLATOR GASKET	VESPEL



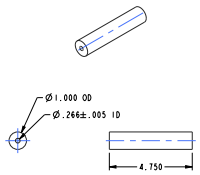
PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-14	INSULATOR SLEEVE, 5/16" OD, 1/4 ID, 1.13" LG	TEFLON



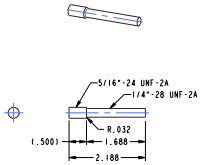
PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-15	TRANSLATOR VERTICAL SUPPORT BRACKET	G-10



PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-18	SUPPORT TUBE, SLIDE STRAP	316 SS/STL



PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-19	SUPPORT SLIDE, ROLLER	ALUM, 6061



PART NUMBER	DESCRIPTION	MATERIAL
E-9D11461-20	STUD, CUSTOM CF FLANGE	316 SS/STL

FOR NOTES AND BILL OF MATERIAL SEE SHEET 1

GENERAL NOTES

1. PPPL APPROVED DRAWINGS TAKE PRECEDENCE OVER MODEL DIMENSIONS.
2. WHEN MODELS ARE PROVIDED, VENDOR MUST VERIFY THAT MODEL DIMENSIONS CONFORM WITH PPPL APPROVED DRAWINGS PRIOR TO FABRICATION.

MAGNETIC PERMEABILITY REQUIREMENT (SEE NOTES)

YES X NO

RELEASED FOR FABRICATION / INSTALLATION
PPPL Drafting Lewis Morris

RELEASE LEVEL: Fabrication
DWG VERSION NO: 0.26

NEXT ASSEMBLY: E-9D11464

WELDING ENGINEER
APPVD DATE

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED

CENTRAL FILES: UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
MACHINE SURFACES 63
BREAK SHARP EDGES .005/.020

TOLERANCES NON-CUMULATIVE

DECIMAL INCH	FRACTIONS
.X ±.100	1/2"-1" ±1/16
.XX ±.030	1/4"-1/2" ±1/32
.XXX ±.010	1/8"-1/4" ±1/64
ANGULAR ±0°-15'	UNDER 1/8" ±1/128

PRINCETON PLASMA PHYSICS LABORATORY
PRINCETON UNIVERSITY
NATIONAL SPHERICAL TORUS EXPERIMENT
DIAGNOSTIC SYSTEMS
BAY L, UPPER MID-PLANE, FUSION PRODUCTS TRANSLATOR ASSEMBLY

SCALE: DIV: MECH. ENG. DATE: 4/20/2016
ENG: M. SIBILIA
DSN: M. SIBILIA
CHK: J. MITCHELL
APPROVED
M. SIBILIA
J. MITCHELL

E-9D11461
SHEET 2 OF 2 REV 0

NSTX-E-9D11461