



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

East Building, PHH-23
1200 New Jersey Ave, SE
Washington, D.C. 20590

IAEA CERTIFICATE OF COMPETENT AUTHORITY
SPECIAL FORM RADIOACTIVE MATERIALS

CERTIFICATE USA/0336/S-96, REVISION 12

This certifies that the sources described have been demonstrated to meet the regulatory requirements for special form radioactive material as prescribed in the regulations of the International Atomic Energy Agency¹ and the United States of America² for the transport of radioactive material.

1. Source Identification - Eckert & Ziegler Isotope Products (EZIP) Model Nos. XFB-3 and XFB-4.
2. Source Description - Both sources are a cylindrical disk single encapsulation constructed of Monel (Model No. XFB-3) or Type 304 or 304L stainless steel with fusion welds and a brazed-in-place beryllium window at one end. Approximate outer dimensions of the Model No. XFB-3 are 7.9 mm (0.312 in.) in diameter and 5.1 mm (0.2 in.) thick. Approximate outer dimensions of the Model No. XFB-4 are 10.8 mm (0.425 in.) in diameter and 5.0 mm (0.197 in.) thick. Construction of the Model No. XFB-3 shall be in accordance with attached EZIP Drawing Nos. 3204, Rev. N, Sheets 5 and 6 of 12; or Drawing Nos. 3204, Rev. O, Sheets 4 and 5 of 11; or 3205, Rev. N, Sheet 6 of 11; or 3205, Rev. O, Sheet 4 of 8. Construction of the Model No. XFB-4 shall be in accordance with attached EZIP Drawing No. 3233, Rev. A, Sheet 3 of 10.
3. Radioactive Contents - Each source described by this certificate is authorized to contain any one of the following radionuclides limited to the activity shown. The radionuclides are in the form of chlorides, nitrates, or oxides in ceramic; oxides in gold or aluminum; or metal plated onto substrate.

¹ "Regulations for the Safe Transport of Radioactive Material, 2012 Edition, No. SSR-6" published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

² Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

CERTIFICATE USA/0336/S-96, REVISION 12

<u>Radionuclide</u>	<u>Activity MBq (mCi)</u>	
Na-22	185	(5)
Fe-55	11,100	(300)
Co-57	11,100	(300)
Co-58	11,100	(300)
Co-60	370	(10)
Ge-68	1,850	(50)
Sr-90	4,625	(125)
Ru-106	1,850	(50)
Cd-109	11,100	(300)
Ba-133	3,700	(100)
Cs-137	11,100	(300)
Gd-153	55,500	(1,500)
Ra-226	1,850	(50)
Lanthanides*	18,500	(500)
Actinides**	11,100	(300)

* (Isotopes of Ce, Pr, Sm, Eu, Gd, Tm, and Yb only)

** (Isotopes of Ac, Th, Pa, U, Np, Pu, Am, and Cm only)

4. Management System Activities - Records of Management System activities required by Paragraph 306 of the IAEA regulations shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under this certificate shall satisfy the requirements of Subpart H of 10 CFR 71.
5. Expiration Date - This certificate expires on November 30, 2025. Previous editions which have not reached their expiration date may continue to be used.

CERTIFICATE USA/0336/S-96, REVISION 12


This certificate is issued in accordance with paragraph(s) 804 of the IAEA Regulations and Section 173.476 of Title 49 of the Code of Federal Regulations, in response to the October 9, 2020 petition by Eckert & Ziegler Isotope Products, Valencia, CA, and in consideration of other information on file in this Office.

Certified By:

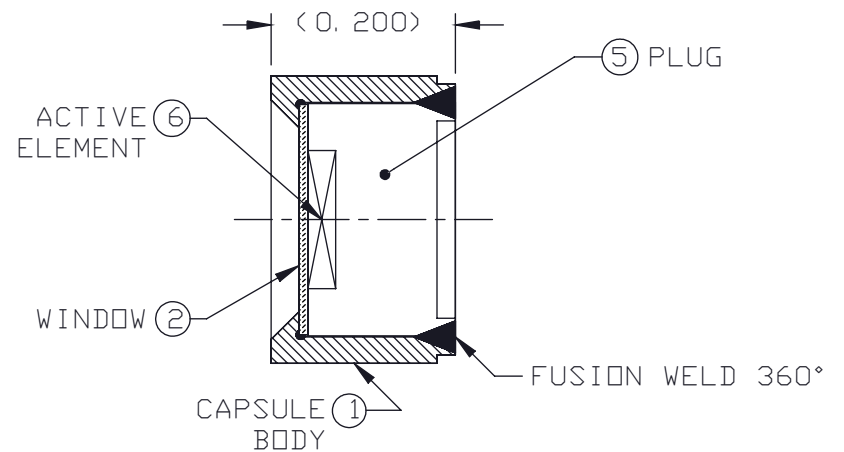
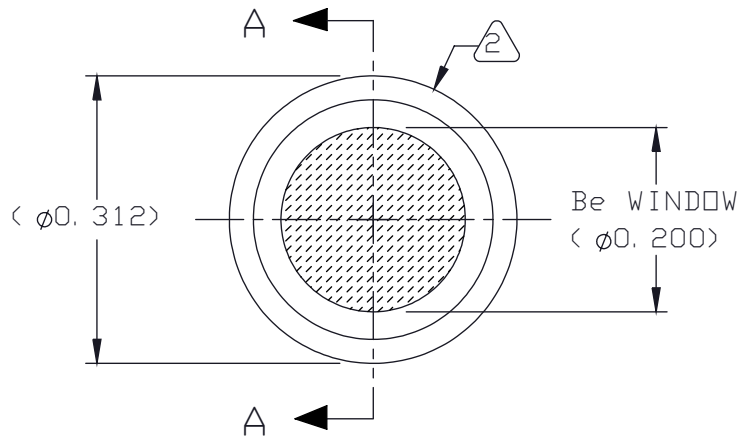


November 12, 2020

(DATE)

 William Schoonover
Associate Administrator for Hazardous
Materials Safety

Revision 12 - Issued to extend the expiration date and to update the drawings.



SECTION A-A

② REFER TO DETAIL DRAWING FOR ENGRAVING

- 1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING BRAZE OR FUSION WELD AS REQUIRED.

NOTES: UNLESS OTHERWISE SPECIFIED (CONTINUED ON SHEET 6)

SEE NEXT SHEET FOR ASSEMBLY DASH NUMBER

A3204-X

ASSEMBLY

Eckert & Ziegler

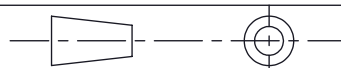
Isotope Products

Valencia, California 91355

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

FRAC-TION	TOLERANCES ON DECIMAL			ANGLE
	X	XX	XXX	
$\pm 1/64$	$\pm .1$	$.01$	$.002$	$\pm .5^\circ$

THIRD ANGLE PROJECTION



DESIGN JMD/RLT

DRAWING TITLE
MODEL 3204 XFB-3 SOURCE

SCALE
NONE

SERIES TITLE
GFS & XFB SOURCES (PHI & BFI)

SIZE
A

CAGE CODE
32993

REVISION
N

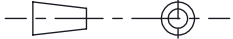
DRAWING NUMBER
3204

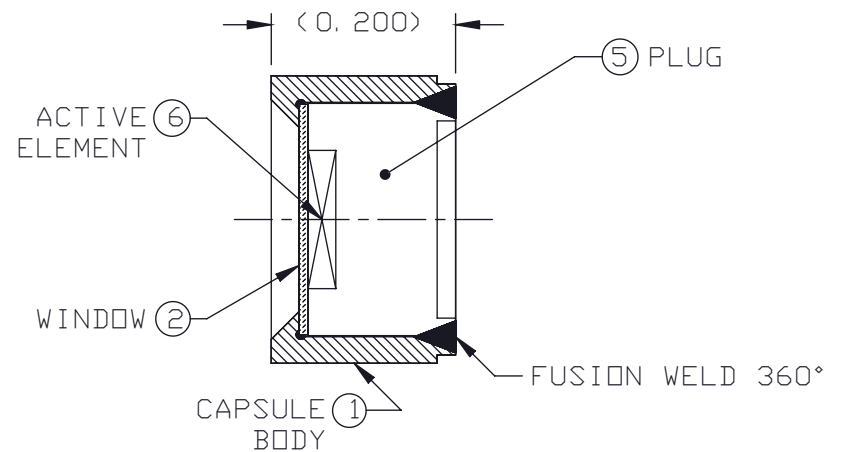
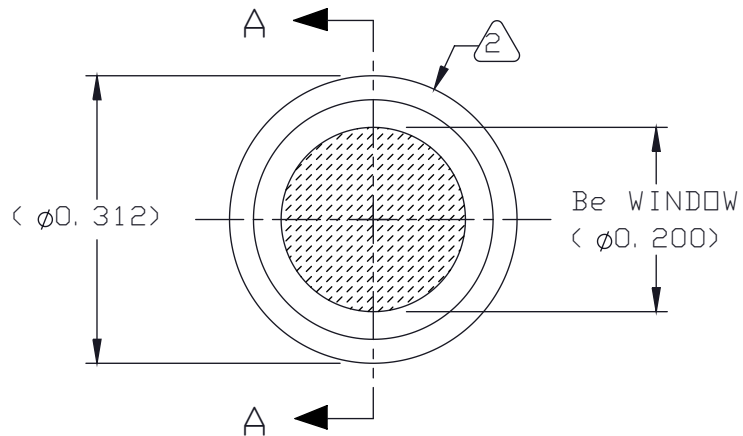
SHEET
5 OF 12

THIS DRAWING IS THE PROPERTY OF ECKERT&ZIEGLER ISOTOPE PRODUCTS AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS WITHOUT EXPRESS AUTHORIZATION BY ECKERT&ZIEGLER ISOTOPE PRODUCTS.

TABLE		
X	MATERIAL	ACTIVE ELEMENT AND SIZE
0	304 SST	FOIL, Ag, UNTHREADED PLUG
1	304 SST	FOIL, Ni
2	304 SST	CANE, 0.125 DIA x 0.030 THK
3	304 SST	CANE, 0.187 DIA x 0.020 THK
4	304 SST	CANE, 0.210 DIA x 0.040 THK
5	304 SST	FOIL, Ag, THREADED PLUG
6	304 SST	FOIL, Pt CLAD Ni
10	MONEL	FOIL, Ag
11	MONEL	FOIL, Ni
12	MONEL	CANE, 0.125 DIA x 0.030 THK
13	MONEL	CANE, 0.187 DIA x 0.020 THK
14	MONEL	CANE, 0.210 DIA x 0.040 THK

NOTES: UNLESS OTHERWISE SPECIFIED (CONTINUED FROM SHEET 5)

THIS DRAWING IS THE PROPERTY OF ECKERT&ZIEGLER ISOTOPE PRODUCTS. AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS WITHOUT EXPRESS AUTHORIZATION BY ECKERT&ZIEGLER ISOTOPE PRODUCTS.	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES				THIRD ANGLE PROJECTION						
	TOLERANCES ON										
	FRAC- TION	DECIMAL	XX	XXX						ANGLE	DESIGN
±1/64	±.1	.01	.002	±.5°	JMD/RLT	NONE	A	32993	N	3204	6 OF 12



SECTION A-A

2. REFER TO DETAIL DRAWING FOR ENGRAVING

- ASSEMBLE COMPLETE PER ENGINEERING DRAWING BRAZE OR FUSION WELD AS REQUIRED.

NOTES: UNLESS OTHERWISE SPECIFIED (CONTINUED ON SHEET 5)

SEE NEXT SHEET FOR ASSEMBLY DASH NUMBER

A3204-X

ASSEMBLY

Eckert & Ziegler

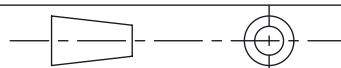
Isotope Products

Valencia, California 91355

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

FRAC-TION	TOLERANCES ON DECIMAL			ANGLE
	X	XX	XXX	
$\pm 1/64$	$\pm .1$	$.01$	$.002$	$\pm .5^\circ$

THIRD ANGLE PROJECTION



DESIGN
JMD/RLT

DRAWING TITLE
MODEL 3204 XFB-3 SOURCE

SCALE
NONE

SERIES TITLE
GFS & XFB SOURCES (PHI & BFI)

SIZE
A

CAGE CODE
32993

REVISION
□


DRAWING NUMBER
3204

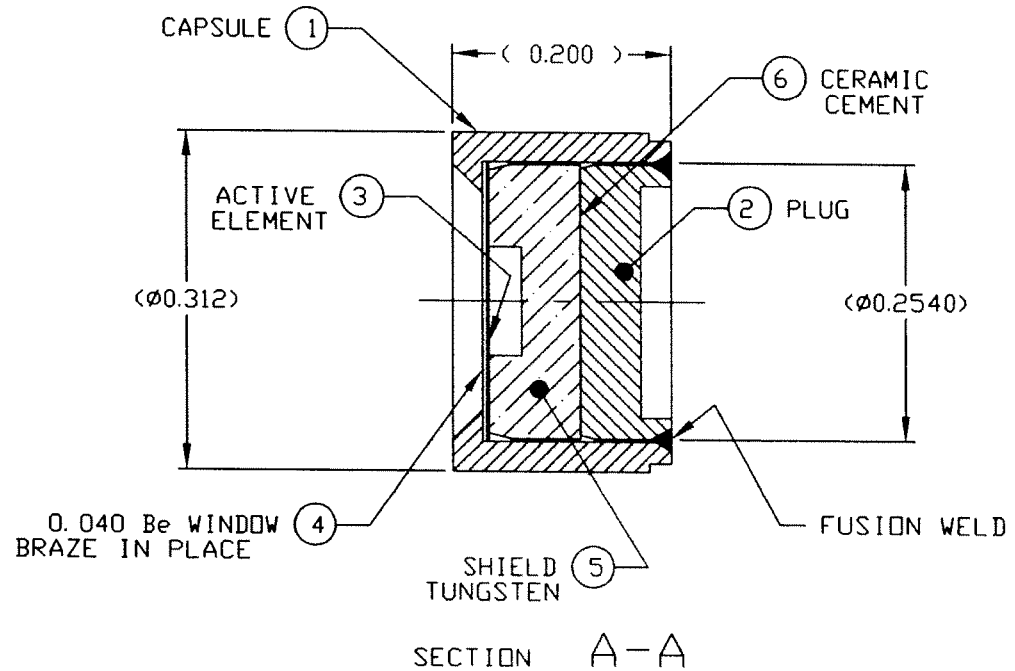
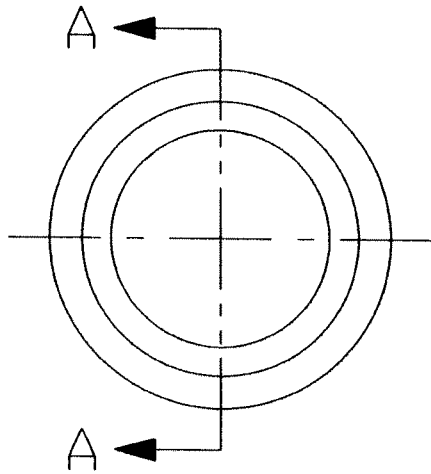
SHEET
4 OF 11

THIS DRAWING IS THE PROPERTY OF ECKERT&ZIEGLER ISOTOPE PRODUCTS AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS WITHOUT EXPRESS AUTHORIZATION BY ECKERT&ZIEGLER ISOTOPE PRODUCTS.

TABLE		
X	MATERIAL	ACTIVE ELEMENT AND SIZE
0	304 SST	FOIL, Ag, UNTHREADED PLUG
1	304 SST	FOIL, Ni
2	304 SST	CANE, 0.125 DIA x 0.030 THK
3	304 SST	CANE, 0.187 DIA x 0.020 THK
4	304 SST	CANE, 0.210 DIA x 0.040 THK
5	304 SST	FOIL, Ag, THREADED PLUG
6	304 SST	FOIL, Pt CLAD Ni
7	304 SST	FOIL, Ni

NOTES: UNLESS OTHERWISE SPECIFIED (CONTINUED FROM SHEET 4)

THIS DRAWING IS THE PROPERTY OF ECKERT&ZIEGLER ISOTOPE PRODUCTS. AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS WITHOUT EXPRESS AUTHORIZATION BY ECKERT&ZIEGLER ISOTOPE PRODUCTS.	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES				THIRD ANGLE PROJECTION						
	TOLERANCES ON										
	FRAC- TION	DECIMAL	XX	XXX						ANGLE	DESIGN
±1/64	±.1	.01	.002	±.5°	JMD/RLT	NONE	A	32993	□	3204	5 OF 11



X	MATERIAL
0	304 or 304L STAINLESS STEEL
1	MONEL

Y	ACTIVE ELEMENT AND DIMENSIONS
0	FOIL, 0.250 DIA x 0.005 THICK
1	CANE, 0.125 DIA x 0.030 THICK
2	CANE, 0.187 DIA x 0.020 THICK
3	CANE, 0.210 DIA x 0.040 THICK
4	CANE, 0.250 DIA x 0.040 THICK
5	CANE, 0.187 DIA x 0.040 THICK

2. INDIVIDUALLY PACKAGE AND IDENTIFY PART NUMBER THEREON
1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND BRAZE OR FUSION WELD AS REQUIRED

NOTE: UNLESS OTHERWISE SPECIFIED

P/N: A3205-XY ASSEMBLY

<p>Eckert & Ziegler Isotope Products Valencia, California 91355</p>	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DESIGN EZ/DI		DRAWING TITLE MODEL XFB-3 CAPSULE WITH TUNGSTEN SHIELD			
	TOLERANCES ON FRACTION DECIMAL ANGLE ±1/64 ±.1 .01 .002 ±.5°		SCALE NONE		SERIES TITLE INDUSTRIAL SOURCES, GFS AND XFB			
THIS DRAWING IS THE PROPERTY OF ISOTOPE PRODUCTS LABORATORIES AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS WITHOUT EXPRESS AUTHORIZATION BY ISOTOPE PRODUCTS LABORATORIES.		THIRD ANGLE PROJECTION 		SIZE A	CAGE CODE 32993	REVISION N	DRAWING NUMBER 3205	SHEET 6 OF 11

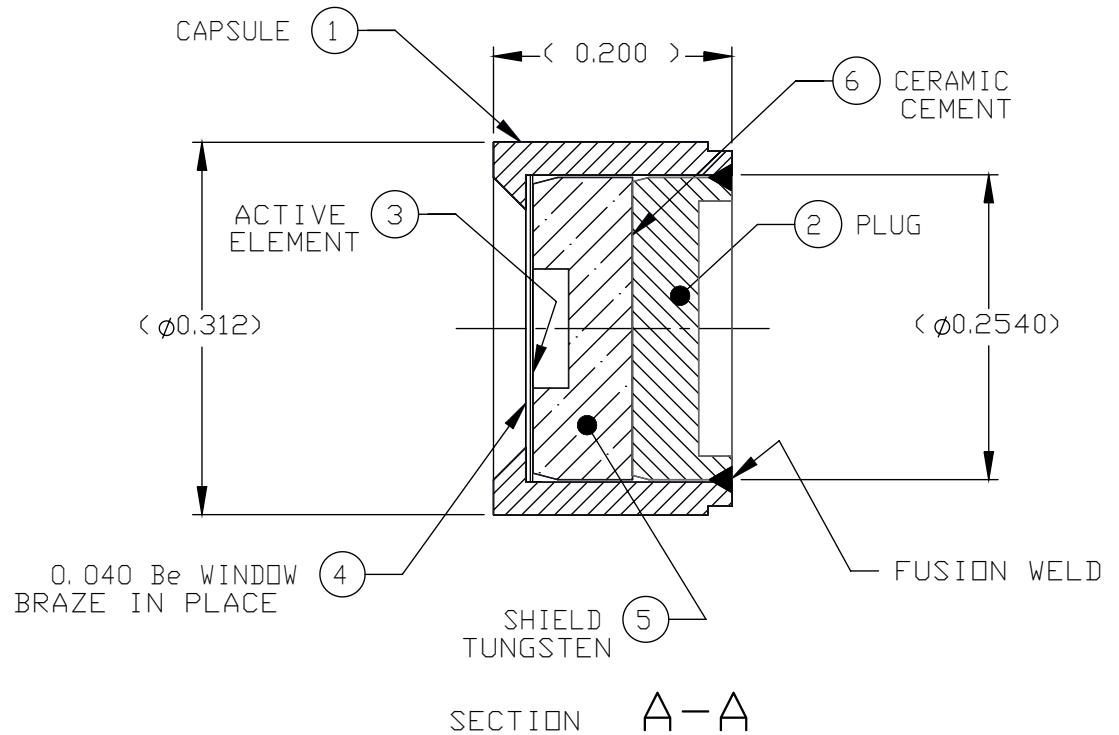
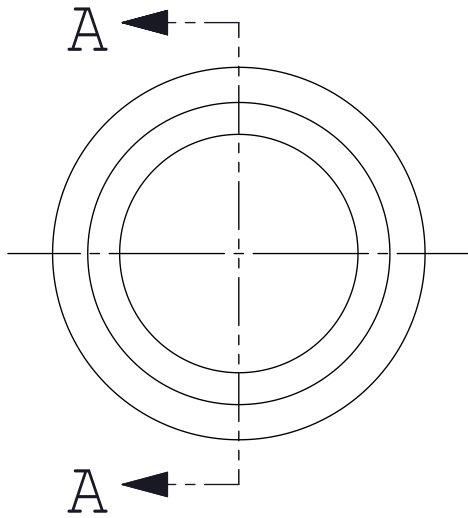


TABLE X	
X	MATERIAL
0	304 or 304L STAINLESS STEEL

TABLE Y	
Y	ACTIVE ELEMENT AND DIMENSIONS
0	FOIL, 0.250 DIA x 0.005 THICK
1	CANE, 0.125 DIA x 0.030 THICK
2	CANE, 0.187 DIA x 0.020 THICK
3	CANE, 0.210 DIA x 0.040 THICK
4	CANE, 0.250 DIA x 0.040 THICK
5	CANE, 0.187 DIA x 0.040 THICK

2. INDIVIDUALLY PACKAGE AND IDENTIFY PART NUMBER THEREON
 1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING
 AND BRAZE OR FUSION WELD AS REQUIRED

NOTE: UNLESS OTHERWISE SPECIFIED

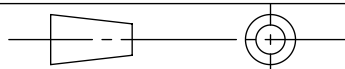
P/N: A3205-XY ASSEMBLY

 Eckert & Ziegler
 Isotope Products
 Valencia, California 91355

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES

FRAC- TION	TOLERANCES ON DECIMAL			ANGLE $\pm 5^\circ$
	X	XX	XXX	
$\pm 1/64$	$\pm .1$.01	.002	

THIRD ANGLE PROJECTION



DESIGN
EZ/DI

SCALE
NONE

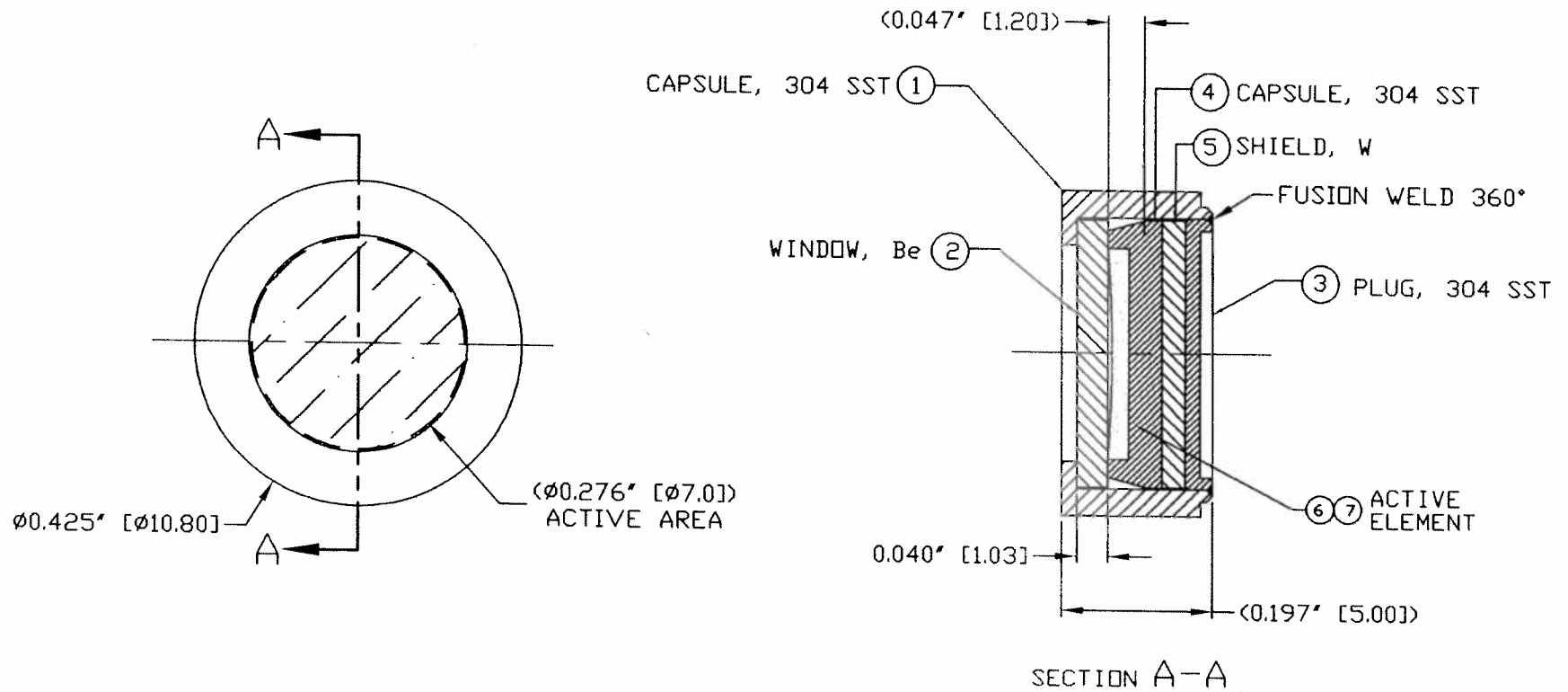
SIZE
A

DRAWING TITLE
MODEL XFB-3 CAPSULE
WITH TUNGSTEN SHIELD

SERIES TITLE
INDUSTRIAL SOURCES, GFS AND XFB

SIZE	CAGE CODE	REVISION	DRAWING NUMBER	SHEET
A	32993	0	3205	4 OF 8



THIS DRAWING IS THE PROPERTY OF ISOTOPE PRODUCTS LABORATORIES
 AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS
 WITHOUT EXPRESS AUTHORIZATION BY ISOTOPE PRODUCTS LABORATORIES.



4. PACKAGE AND IDENTIFY PART NUMBER THEREON.
3. METRIC DIMENSIONS [mm] ARE IN MILLIMETERS
2. FUSION WELD AS REQUIRED.
1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING

NOTES: UNLESS OTHERWISE SPECIFIED

P/N A3233 ASSEMBLY

 Eckert & Ziegler Isotope Products Valencia, California 91355	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH-SIZES TOLERANCES (UNLESS OTHERWISE SPECIFIED) X.XXX ± .002 INCH X.XX ± .01 INCH XX ± .1 INCH ANGULAR TOLERANCE OF 0°±30' FRACTIONAL DIMENSIONS ± 1/16 ALL DIMENSIONS ARE FINISHED DIMENSIONS		DRAWN DI 24 JUN 02	TITLE CESIUM XFB SOURCE	
	THIRD ANGLE PROJECTION 		ME/CHECKER KP 24 JUN 02	DRAWING NO. 3233	REV A
THIS DRAWING IS THE PROPERTY OF ISOTOPE PRODUCTS LABORATORIES AND MAY NOT BE USED, REPRODUCED, PUBLISHED OR DISCLOSED TO OTHERS WITHOUT EXPRESS AUTHORIZATION BY ISOTOPE PRODUCTS LABORATORIES.	SCALE NONE	SIZE A	SERIES TITLE INDUSTRIAL SOURCES, GFS AND XFB	SHEET 3 OF 10	



U.S. Department of
Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

East Building, PHH-23
1200 New Jersey Ave, SE
Washington, D.C. 20590

CERTIFICATE NUMBER: USA/0336/S-96

ORIGINAL REGISTRANT(S) :

Eckert & Ziegler Isotope Products
24937 Avenue Tibbitts
Valencia, CA, 91355
USA

Department of Energy
U.S. Department of Energy
1000 Independence Ave, SW
EM-60
Washington, DC, 20585
USA

Schlumberger
300 Schlumberger Drive
MD-121
Sugar Land, TX, 77478
USA