



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/0517/S-96, REVISION 5

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 Agency<sup>1</sup> and the United States of America<sup>2</sup> for the transport of radioactive material.

1. Source Identification - Eckert & Ziegler Isotope Products source capsule Models 3224-04, 3224-14, 3901-1 and 3901-2.
2. Source Description - Cylindrical single encapsulations made of Type 304 or 304L stainless steel (Models 3224-04 and 3901-2) or titanium (Models 3224-14 and 3901-1) with a 0.25 mm (0.010 in.) thick integral window at one end and fusion seal welded. Approximate outer dimensions are 3.0 mm (0.12 in.) in diameter and 5.0 mm (0.2 in.) in length. Construction of the Models 3224-04 and 3224-14 shall be in accordance with either attached IPL Drawing No. 3224, Rev. B, Sheet 3 of 6 or Drawing No. 3224, Rev. S, Sheet 3 of 5. Construction of the Models 3901-1 and 3901-2 shall be in accordance with either attached IPL Drawing No. 3901, Rev. -, Sheet 3 of 5 or Drawing No. 3901, Rev. G, Sheet 3 of 5.
3. Radioactive Contents - The sources described by this certificate are 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 or resin bead; oxides in gold or aluminum; or metal plated onto substrate. The Na-22 may also be in the form of NaCl in gold. The Ge-68 may also be in the form of GeO<sub>2</sub> in silver. The Sr-90 may also be in the form of SrTiO<sub>4</sub> in silver. The Ba-133 may also be in the form of BaSO<sub>4</sub> in ceramic.

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

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

CERTIFICATE USA/0517/S-96, REVISION 5

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

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

\*\* (Isotopes of Ac, Th, Pa, U, 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 December 31, 2025. Previous editions which have not reached their expiration date may continue to be used.

**CERTIFICATE USA/0517/S-96, REVISION 5**


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 November 13, 2020 petition by Eckert & Ziegler Isotope Products, Valencia, CA, and in consideration of other information on file in this Office.

Certified By:



December 09, 2020

(DATE)

 William Schoonover  
Associate Administrator for Hazardous  
Materials Safety

Revision 5 - Issued to extend the expiration date, to revise Sr-90 content, and to update the drawing.

GROUP #4

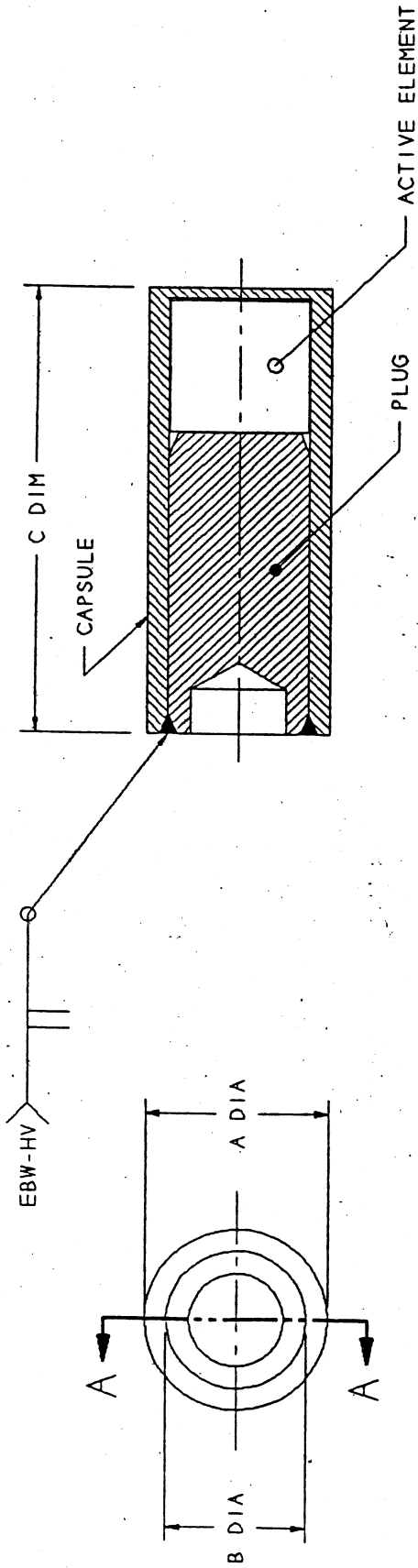


TABLE 1

Y	A DIA	B DIA	C DIM
1	0.118	0.080	0.394
2	0.157	0.120	0.394
3	0.275	0.187	0.394
4	0.118	0.098	0.197

TABLE 2

X	MATERIAL
0	304 or 304L STAINLESS STEEL
1	TITANIUM

P/N: A3224-XY ASSEMBLY

- INDIVIDUALLY PACKAGE AND IDENTIFY PART NUMBER THEREON
  - ENGRAVE SERIAL NUMBER - CHARACTER HEIGHT 0.062 AND 0.005 MAX DEPTH
  - TOLERANCES: 0.XXX ±0.002, 0.XX ±0.01, 0.X ±0.1. ANGLE ±0.5°
  - DIMENSIONS ARE IN INCHES
  - ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND FUSION WELD AS REQUIRED
- NOTE: UNLESS OTHERWISE SPECIFIED

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.

<b>ISOTOPE PRODUCTS LABORATORIES</b> BURBANK, CALIFORNIA 91504		APPROVED:	<i>Michael Devine</i>	DESIGNED: JMD/RLT
		SCALE: NTS		REV/CHG: B
DATE: 01/11/94		TITLE:		
INDUSTRIAL PHOTON SOURCE		SHEET: 3 OF 6		
SERIES: GFS & XFB SOURCES		DRAWING NUMBER: 3224		

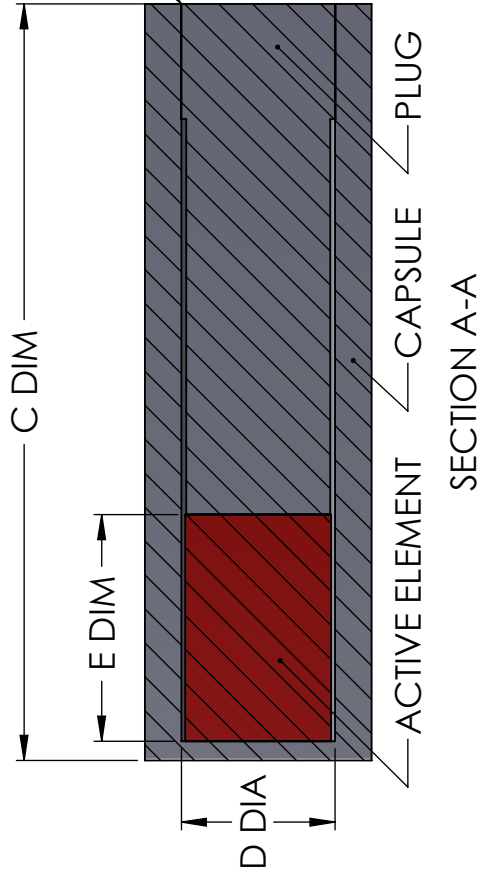


TABLE 1

X	MATERIAL
0	304 OR 304L SST
1	TITANIUM

TABLE 2

Y	A DIA	B DIA	C DIM	D DIA	E DIM
1	0.118	0.0800	0.394	0.076	0.118
2	0.157	0.1200	0.394	0.116	0.115
3	0.275	0.1870	0.394	0.182	0.160
4	0.118	0.0980	0.197	0.093	0.030
5	0.079	0.0460	0.394	0.039	0.079
6	0.079	0.0460	0.197	0.039	0.039

TABLE 3

Z	ENGRAVED CAPSULE
0	EZIP, NUCLIDE, ACTIVITY, S/N
1	EZIP, Co-57 50 $\mu$ Ci S/N
2	EZIP, Co-57 1 mCi S/N
3	EZIP, Co-57 10 mCi S/N
4	EZIP, Co-57 15 mCi S/N
5	EZIP, Co-57 20 mCi S/N
6	EZIP, Co-57 5 mCi S/N

3. PACKAGE AND IDENTIFY PART NUMBER THEREON
  2. ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND FUSION WELD AS REQUIRED.
  1. MATERIAL: SEE COMPONENTS
- NOTES: UNLESS OTHERWISE SPECIFIED



**Eckert & Ziegler**  
Isotope Products

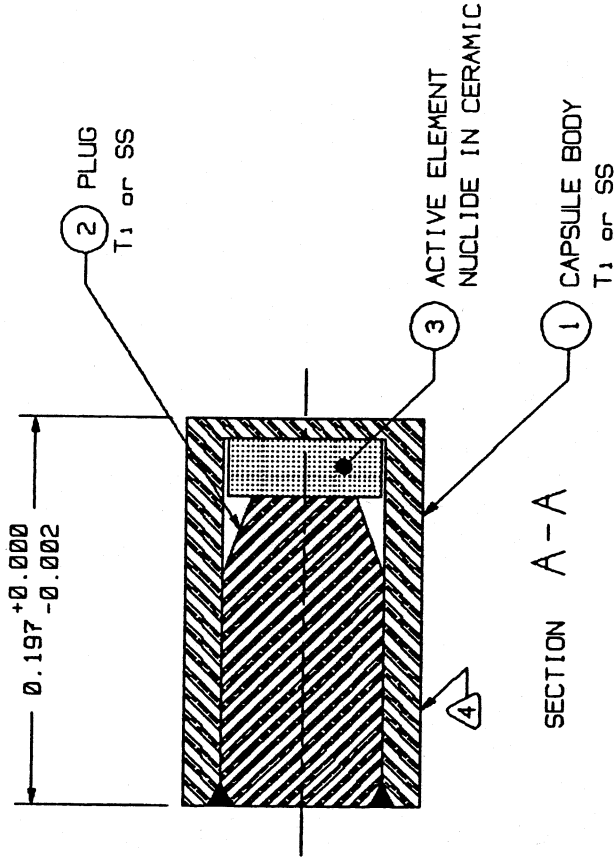
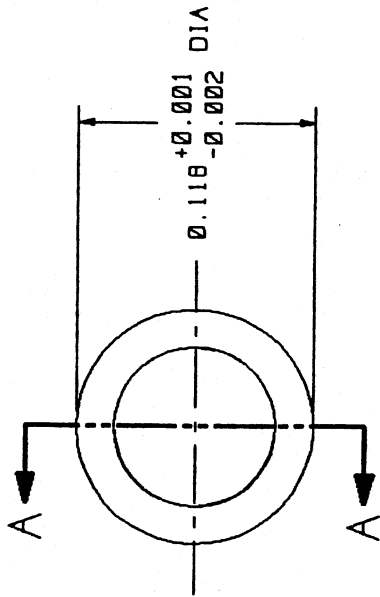
VALENCIA, CALIFORNIA 91355

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.

P/N A3224-XYZ; ASSEMBLY

CAGE CODE	32993	DRAWING SIZE	LETTER	DRAWN	IT	TITLE	GFS INDUSTRIAL PHOTON SOURCE
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH SIZES. METRIC UNITS [mm] ARE IN MILLIMETERS.		ME/CHECKER		JR		SERIES TITLE
TOLERANCES (UNLESS OTHERWISE SPECIFIED)		ANGULAR TOLERANCE OF 0°±30'		ENGINEER	IT	INDUSTRIAL SOURCES , GFS AND XFB	
X.XXX	± .002 INCH	FRACTIONAL DIMENSIONS ± 1/32"		SCALE	10:1	DRAWING NO.	3224
X.XX	± .005 INCH	REFERENCE DIMENSIONS (I) N/A				REV	S
X.X	± .03 INCH	SURFACE ROUGHNESS (I) INCH MAX				SHEET	3 OF 5
X.	± .1 INCH						

GROUP #3



P/N: A3901-X ASSEMBLY

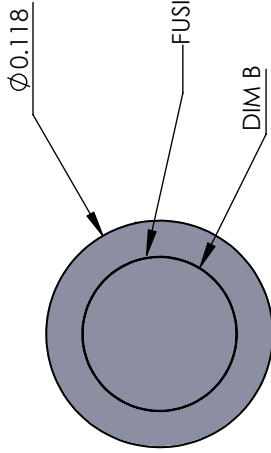
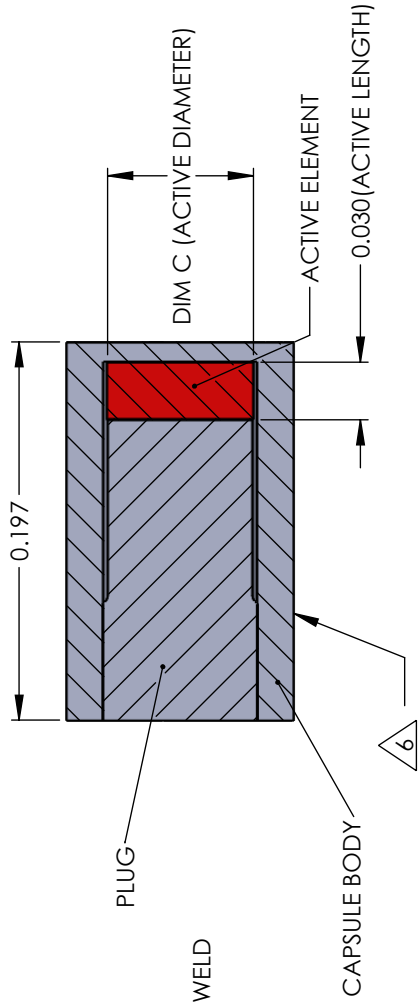
X	MATERIAL
1	TITANIUM
2	304 OR 304L SS

**ISOTOPE PRODUCTS LABORATORIES**  
**BURBANK, CALIFORNIA 91504**

SCALE: NTS	APPROVED:	DESIGNED: JMD/RLT
DATE: 09/15/94	<i>M. Devine</i> 12/20/94	REV/CD: -
TITLE: GAUGING SOURCE	SHEET: 3 OF 5	DRAWING NUMBER 3901
SERIES: CUSTOM SOURCES (290 SERIES)		

5. INDIVIDUALLY PACKAGE AND IDENTIFY PART NUMBER THEREON
  - ④ ENGRAVE: IPL, NUCLIDE, ACTIVITY, SERIAL NUMBER
  - CHARACTER HEIGHT 0.040 AND 0.003 MAX DEPTH
  3. TOLERANCES: 0.XXX ±0.002, 0.XX ±0.01, 0.X ±0.1, ANGLE ±0.5°
  2. DIMENSIONS ARE IN INCHES
  1. ASSEMBLE COMPLETE PER ENGINEERING DRAWING AND FUSION WELD AS REQUIRED
- NOTE: UNLESS OTHERWISE SPECIFIED

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6 ENGRAVE CHARACTERS 0.025"-0.030" HIGH, MAX 0.003" DEEP:

NUCLIDE  
ACTIVITY  
SERIAL NUMBER

5. RMD (DYNASIL) INSPECTION, IF REWELDED:  
MAX LENGTH 0.196 +/- 0.005, MAX DIA. 0.118+0.000-0.002
4. PACKAGE AND IDENTIFY PART NUMBER THEREON
3. SURFACE ROUGHNESS: 32 µin RMS
2. REMOVE BURRS AND BREAK EDGES 0.005 MAX
1. MATERIAL: TITANIUM OR STAINLESS STEEL (304/304L)

NOTES: UNLESS OTHERWISE SPECIFIED

X	MATERIAL	DIM B	DIM C
1	TITANIUM	0.0800	0.076
2	304 OR 304L STAINLESS STEEL	0.0980	0.093

P/N: A3901-X ASSEMBLY

<p><b>Eckert &amp; Ziegler</b> Isotope Products</p> <p>VALENCIA, CALIFORNIA 91355</p>	CAGE CODE	32993	DRAWING SIZE	LETTER	DRAWN	KM	TITLE
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH SIZES. METRIC UNITS [mm] ARE IN MILLIMETERS.				ME/CHECKER	JR	GAUGING SOURCE
TOLERANCES (UNLESS OTHERWISE SPECIFIED)				ENGINEER	EZ	SERIES TITLE	
X.XXX ± .002 INCH ANGULAR TOLERANCE OF 0°±30°				SCALE	10:1	INDUSTRIAL SOURCES, CUSTOM	
X.XX ± .005 INCH FRACTIONAL DIMENSIONS ± 1/32"				DRAWING NO. 3901			
X.X ± .03 INCH REFERENCE DIMENSIONS (I N/A)				REV	G	SHEET	3 OF 5
X. ± .1 INCH SURFACE ROUGHNESS µINCH MAX							

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**CERTIFICATE NUMBER:** USA/0517/S-96

**ORIGINAL REGISTRANT(S) :**

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