



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

IAEA CERTIFICATE OF COMPETENT AUTHORITY
SPECIAL FORM RADIOACTIVE MATERIALS
CERTIFICATE USA/0353/S-96, REVISION 8

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

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 United States of America² for the transport of radioactive material.

1. Source Identification - Eckert & Ziegler Isotope Products Model No. 193 Series (Capsules A3011-1, A3011-2, A3011-4, and A3011-5).
2. Source Description - Cylindrical double encapsulations with a hexagonal and cylindrical extension made of Type 304 or 304L stainless steel and fusion seal welded. Approximate exterior dimensions are 9.53 mm (0.375 in.) maximum diameter and 36.5 mm (1.437 in.) in length. Construction shall be in accordance with either attached Eckert & Ziegler Isotope Products Drawing No. 3011, Rev. M, Sheet 4, 5, 7, or 8 of 14.
3. Radioactive Contents - The sources described by this certificate are authorized to contain any one of the following radionuclides in the chemical form identified and limited to the activity shown.

Radionuclide	Form	Activity
Na-22	NaCl in gold or ceramic	3.7 GBq (0.10 Ci)
Co-57	Co metal plated on Ni foil or CoCl ₂ in ceramic	11.1 GBq (0.30 Ci)
Co-58	CoCl ₂ in ceramic	11.1 GBq (0.30 Ci)
Co-60	Ni clad Co pellets or CoCl ₂ in ceramic	11.1 GBq (0.30 Ci)
Ge-68	GeO ₂ in silver or ceramic	1.85 GBq (0.05 Ci)
Ba-133	BaSO ₄ or BaCl ₂ in ceramic	3.7 GBq (0.10 Ci)
Cs-137	CsCl in gold or ceramic	11.1 GBq (0.30 Ci)
Eu-152	Eu(NO ₃) ₃ or Eu ₂ O ₃ in ceramic	0.74 GBq (0.02 Ci)
Ra-226	Sintered RaSO ₄ in platinum sheath	1.85 GBq (0.05 Ci)
Actinides*	Oxides in gold or ceramic	1.85 GBq (0.05 Ci)

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

4. Quality Assurance - Records of Quality Assurance activities required by Paragraph 310 of the IAEA regulations¹ shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors and consignees in the United States exporting or importing shipments under this certificate shall satisfy the requirements of Subpart H of 10 CFR 71.
5. Expiration Date - This certificate expires on July 31, 2019.

¹ "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

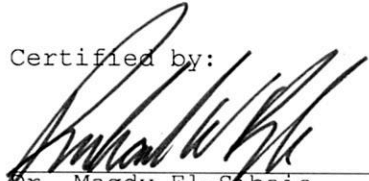
² Title 49, Code of Federal Regulations, Parts 100 - 199, United States of America.

CERTIFICATE USA/0353/S-96, REVISION 8

This certificate is issued in accordance with paragraph 804 of the IAEA Regulations and Section 173.476 of Title 49 of the Code of Federal Regulations, in response to the July 23, 2014 petition submitted by Eckert & Ziegler Isotope Products, Valencia, CA and in consideration of other information on file in this Office.

Certified by:

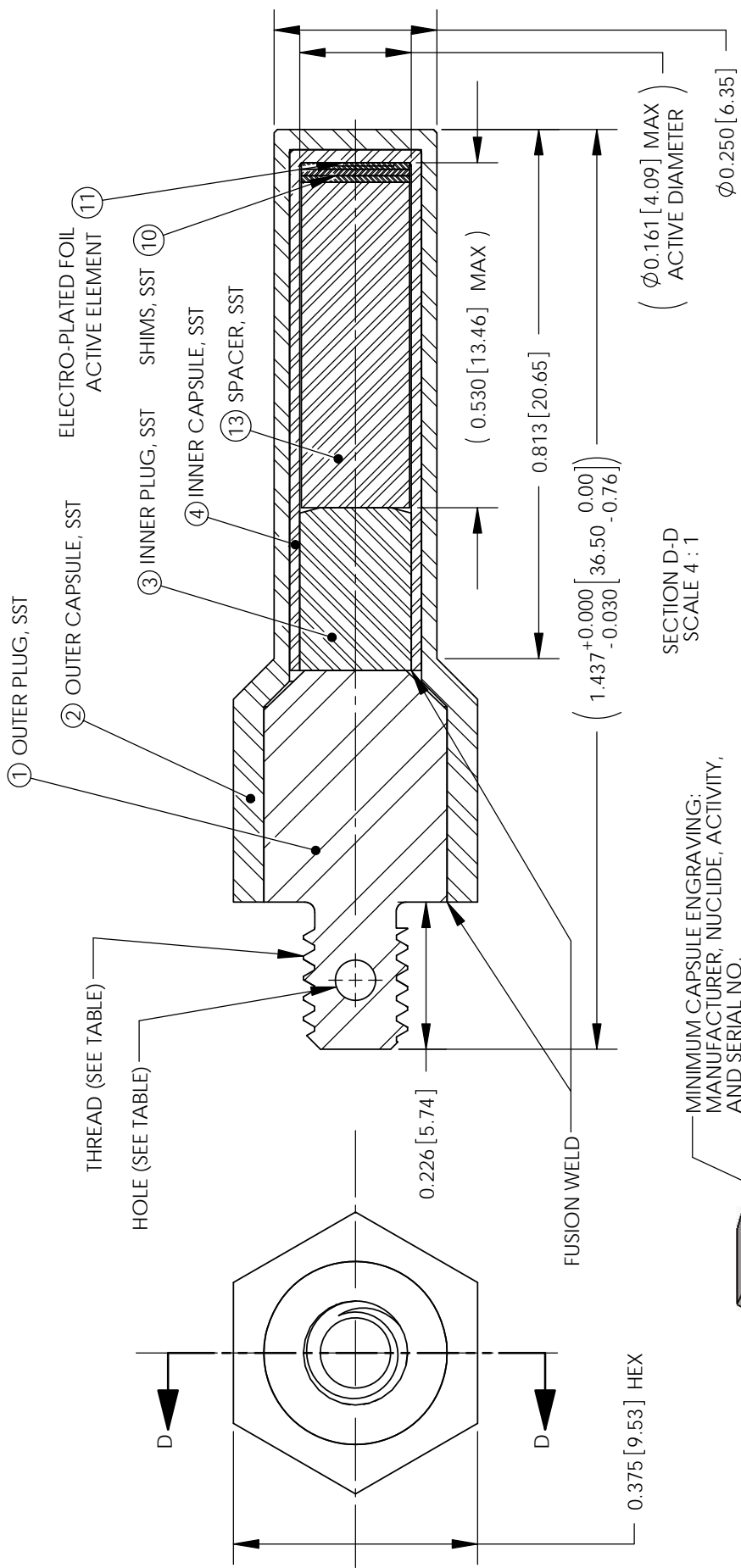
JUL 30 2014



Dr. Magdy El-Sibaie
Associate Administrator for
Hazardous Materials Safety

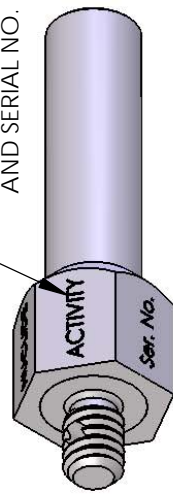
(DATE)

Revision 8 - Issued to update drawings and to extend the expiration date.



SECTION D-D
SCALE 4 : 1

MINIMUM CAPSULE ENGRAVING:
MANUFACTURER, NUCLIDE, ACTIVITY,
AND SERIAL NO.



MODEL VIEW (NOT TO SCALE)

CONFIGURATION TABLE

P/N	THREAD	HOLE
A3011-1-1	8-32 UNC-3A	Ø0.062 THRU
A3011-1-2	6-32 UNC-3A	NONE

2. FUSION WELD AS REQUIRED
1. ASSEMBLE PER ENGINEERING DRAWING
NOTES: UNLESS OTHERWISE SPECIFIED

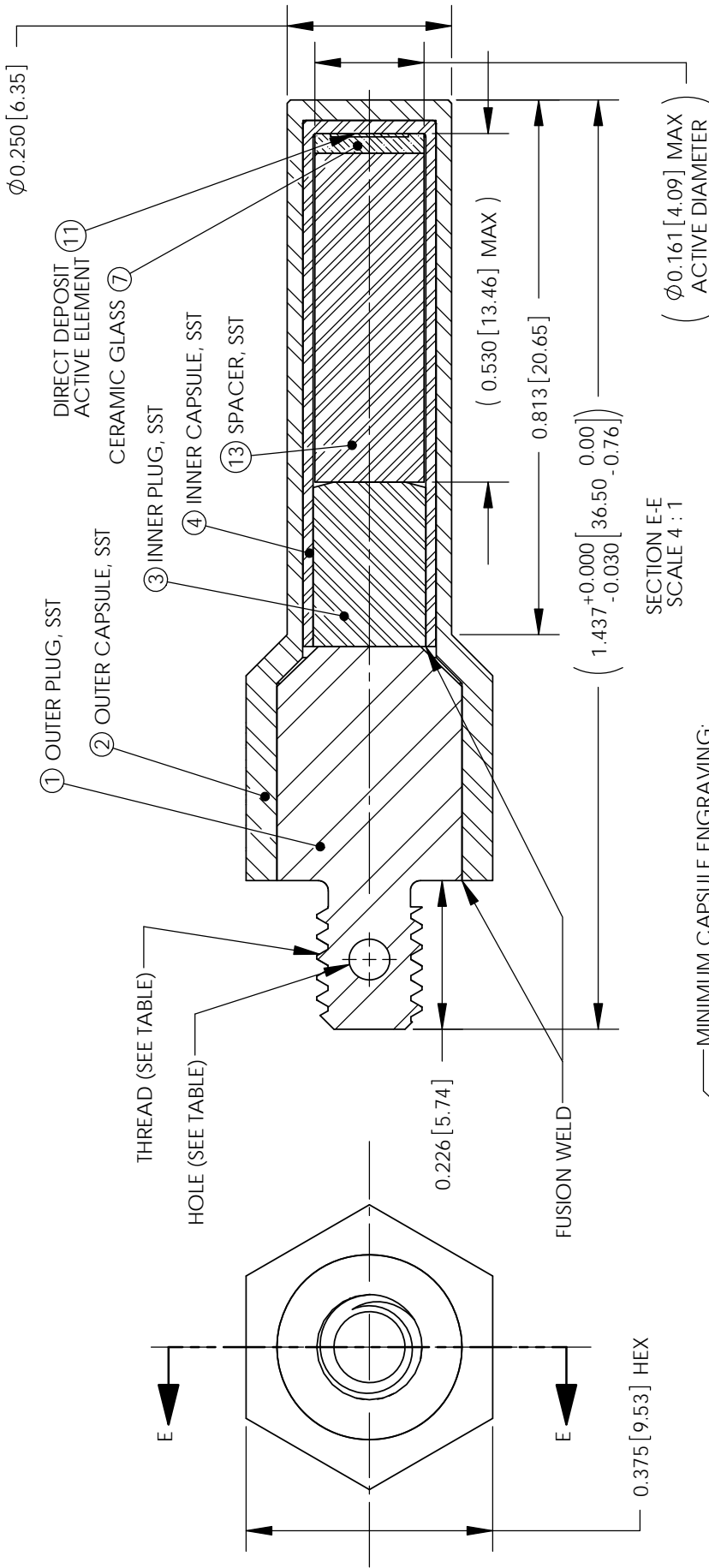
P/N A3011-1 SOURCE WITH FOIL

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.

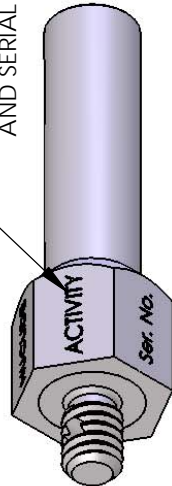
DRAWN KP/RLT	TITLE HIGH INTENSITY GAMMA SOURCE MODEL HEG	
	ME/CHECKER LF/GG	SERIES TITLE HIGH INTENSITY GAMMA AND NEUTRON SOURCES (HEG SERIES CAPSULES 193, 225 AND N-252)
	ENGINEER JMD/RT	
	SCALE NONE	CAGE CODE 32993

SIZE A	REV M	SHEET 4 OF 14
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH- SIZES, METRIC UNITS [mm] ARE IN MILLIMETERS.		
TOLERANCES (UNLESS OTHERWISE SPECIFIED)		
X.XXX ± .002 INCH	ANGULAR TOLERANCE OF 0° ± 30°	
X.XX ± .005 INCH	FRACTIONAL DIMENSIONS ± 1/32"	
X.X ± .03 INCH	REFERENCE DIMENSIONS 0 N/A	
X. ± .1 INCH	SURFACE ROUGHNESS μINCH MAX	
ALL DIMENSIONS ARE FINISHED DIMENSIONS		
THIRD ANGLE PROJECTION		



SECTION E-E
SCALE 4 : 1

MINIMUM CAPSULE ENGRAVING:
MANUFACTURER, NUCLIDE, ACTIVITY,
AND SERIAL NO.



MODEL VIEW (NOT TO SCALE)

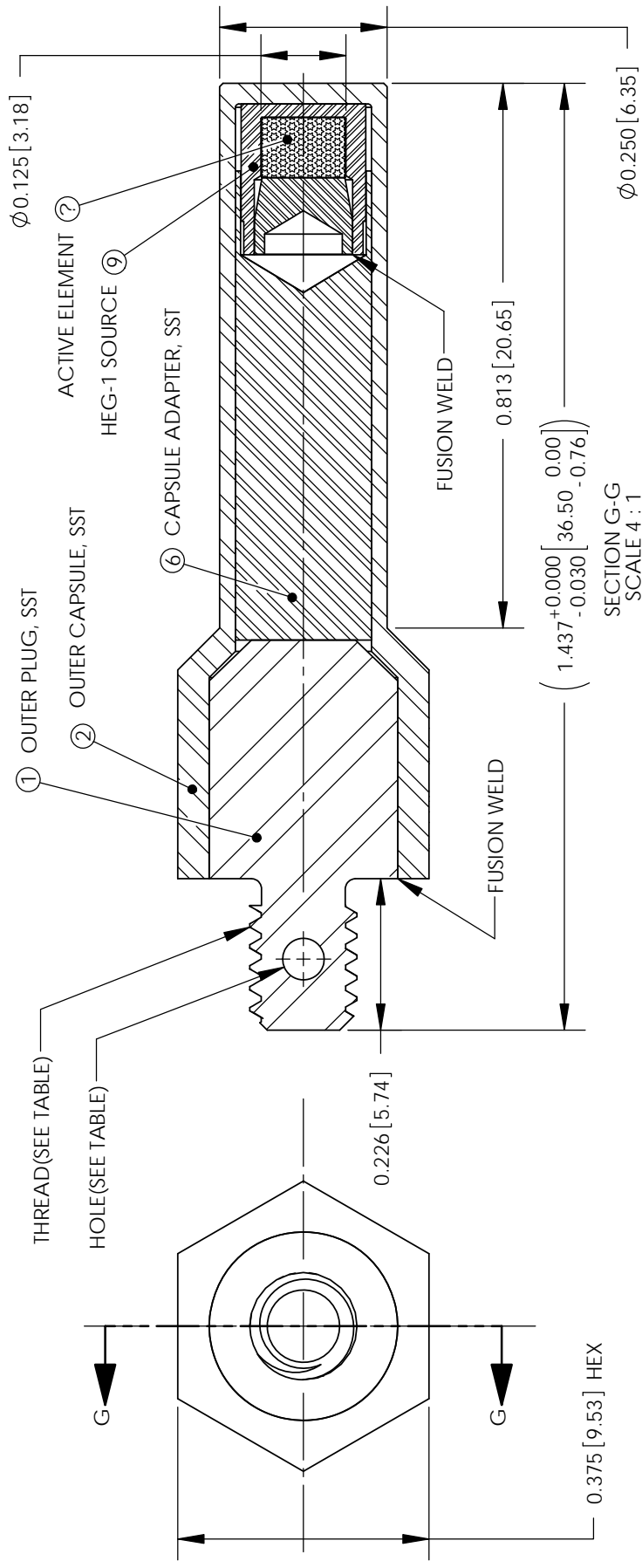
CONFIGURATION TABLE

P/N	THREAD	HOLE
A3011-2-1	8-32 UNC-3A	Ø0.062 THRU
A3011-2-2	6-32 UNC-3A	NONE

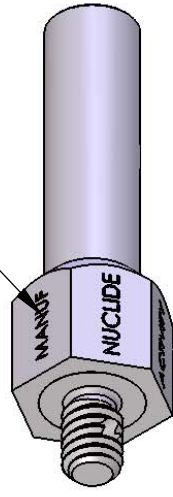
2. FUSION WELD AS REQUIRED
1. ASSEMBLE PER ENGINEERING DRAWING
NOTES: UNLESS OTHERWISE SPECIFIED

P/N A3011-2 SOURCE WITH CERAMIC MATRIX

<p>Eckert & Ziegler Isotope Products VALENCIA, CALIFORNIA 91355</p>	<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH-SIZES. METRIC UNITS [mm] ARE IN MILLIMETERS.</p> <p>TOLERANCES (UNLESS OTHERWISE SPECIFIED)</p> <p>X.XXX ± .002 INCH ANGULAR TOLERANCE OF 0° ± 30° X.XX ± .005 INCH FRACTIONAL DIMENSIONS ± 1/32" X.X ± .03 INCH REFERENCE DIMENSIONS 0 N/A X. ± .1 INCH SURFACE ROUGHNESS µINCH MAX ALL DIMENSIONS ARE FINISHED DIMENSIONS</p>		<p>DRAWN KP/RLT</p>	<p>TITLE HIGH INTENSITY GAMMA SOURCE MODEL HEG</p>			
	<p>THIRD ANGLE PROJECTION</p>	<p>ME/CHECKER LF/GG</p>	<p>ENGINEER JMD/RT</p>	<p>SERIES TITLE HIGH INTENSITY GAMMA AND NEUTRON SOURCES (HEG SERIES CAPSULES 193, 225 AND N-252)</p>			
<p>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>		<p>SCALE NONE</p>	<p>SIZE A</p>	<p>CAGE CODE 32993</p>	<p>DRAWING NO. 3011</p>	<p>REV M</p>	<p>SHEET 5 OF 14</p>



MINIMUM CAPSULE ENGRAVING:
MANUFACTURER, NUCLIDE, ACTIVITY,
AND SERIAL NO.



MODEL VIEW (NOT TO SCALE)

CONFIGURATION TABLE

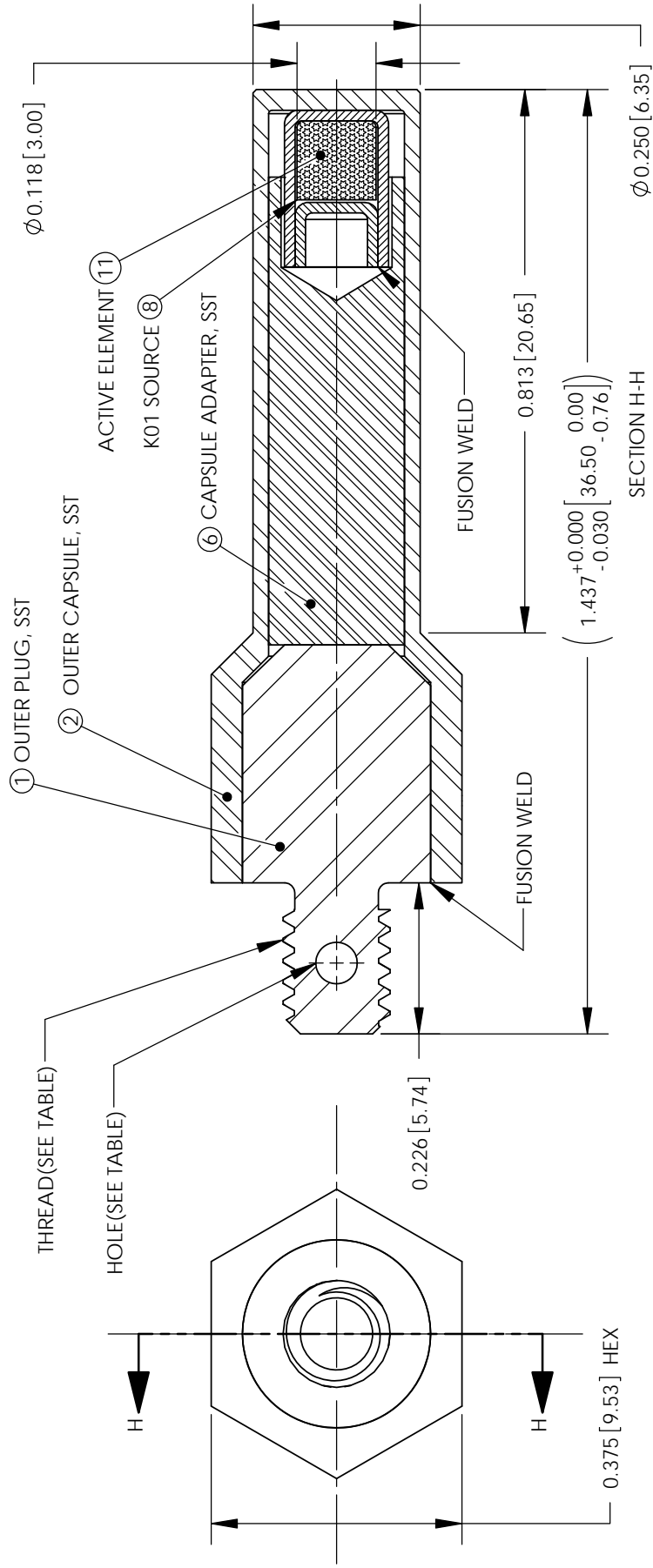
P/N	THREAD	HOLE
A3011-4-1	8-32 UNC-3A	Ø0.062 THRU
A3011-4-2	6-32 UNC-3A	NONE

2. FUSION WELD AS REQUIRED
1. ASSEMBLE PER ENGINEERING DRAWING
NOTES: UNLESS OTHERWISE SPECIFIED

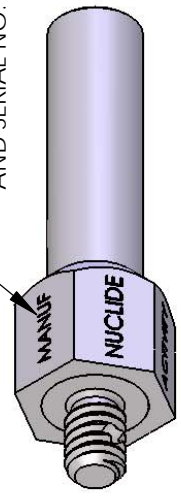
P/N A3011-4 SOURCE WITH S3000 INNER

Eckert & Ziegler Isotope Products VALENCIA, CALIFORNIA 91355	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH- SIZES. METRIC UNITS [mm] ARE IN MILLIMETERS.		DRAWN KP/RLT ME/CHECKER LF/GG ENGINEER JMD/RT	TITLE HIGH INTENSITY GAMMA SOURCE MODEL HEG	CAGE CODE 32993	DRAWING NO. 3011	REV M	SHEET 7 OF 14
	TOLERANCES (UNLESS OTHERWISE SPECIFIED) X.XXX ± .002 INCH ANGULAR TOLERANCE OF 0° ± 30° X.XX ± .005 INCH FRACTIONAL DIMENSIONS ± 1/32" X.X ± .03 INCH REFERENCE DIMENSIONS 0 N/A X. ± .1 INCH SURFACE ROUGHNESS μINCH MAX ALL DIMENSIONS ARE FINISHED DIMENSIONS	SCALE NONE						
THIRD ANGLE PROJECTION			SERIES TITLE HIGH INTENSITY GAMMA AND NEUTRON SOURCES (HEG SERIES CAPSULES 193, 225 AND N-252)					

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MINIMUM CAPSULE ENGRAVING:
MANUFACTURER, NUCLIDE, ACTIVITY,
AND SERIAL NO.



MODEL VIEW (NOT TO SCALE)

CONFIGURATION TABLE

P/N	THREAD	HOLE
A3011-5-1	8-32 UNC-3A	Ø 0.062 THRU
A3011-5-2	6-32 UNC-3A	NONE

2. FUSION WELD AS REQUIRED
1. ASSEMBLE PER ENGINEERING DRAWING
NOTES: UNLESS OTHERWISE SPECIFIED

P/N A3011-5 SOURCE WITH K01 INNER

Eckert & Ziegler Isotope Products VALENCIA, CALIFORNIA 91355	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCH-SIZES. METRIC UNITS [mm] ARE IN MILLIMETERS.		DRAWN KP/RLT	TITLE HIGH INTENSITY GAMMA SOURCE MODEL HEG		
	TOLERANCES (UNLESS OTHERWISE SPECIFIED) X.XXX ± .002 INCH ANGULAR TOLERANCE OF 0° ± 30° X.XX ± .005 INCH FRACTIONAL DIMENSIONS ± 1/32" X.X ± .03 INCH REFERENCE DIMENSIONS 0 N/A X. ± .1 INCH SURFACE ROUGHNESS, µINCH MAX ALL DIMENSIONS ARE FINISHED DIMENSIONS	ME/CHECKER LF/GG		ENGINEER JMD/RT	CAGE CODE 32993	DRAWING NO. 3011
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**Pipeline and
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Safety Administration**

CERTIFICATE NUMBER: USA/0353/S-96, Revision 8

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