



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/0353/S-96, REVISION 9

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 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. N, 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.

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.

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<u>Radionuclide</u>	<u>Form</u>	<u>Activity</u>
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. 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 May 31, 2024. Previous editions which have not reached their expiration date may continue to be used.

CERTIFICATE USA/0353/S-96, REVISION 9


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 May 2, 2019 petition by Eckert & Ziegler Isotope Products, Valencia, CA, and in consideration of other information on file in this Office.

Certified By:

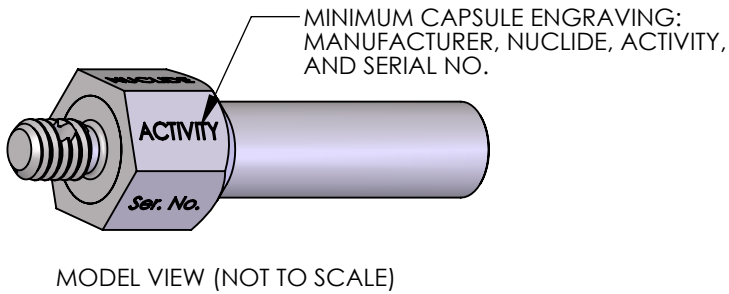
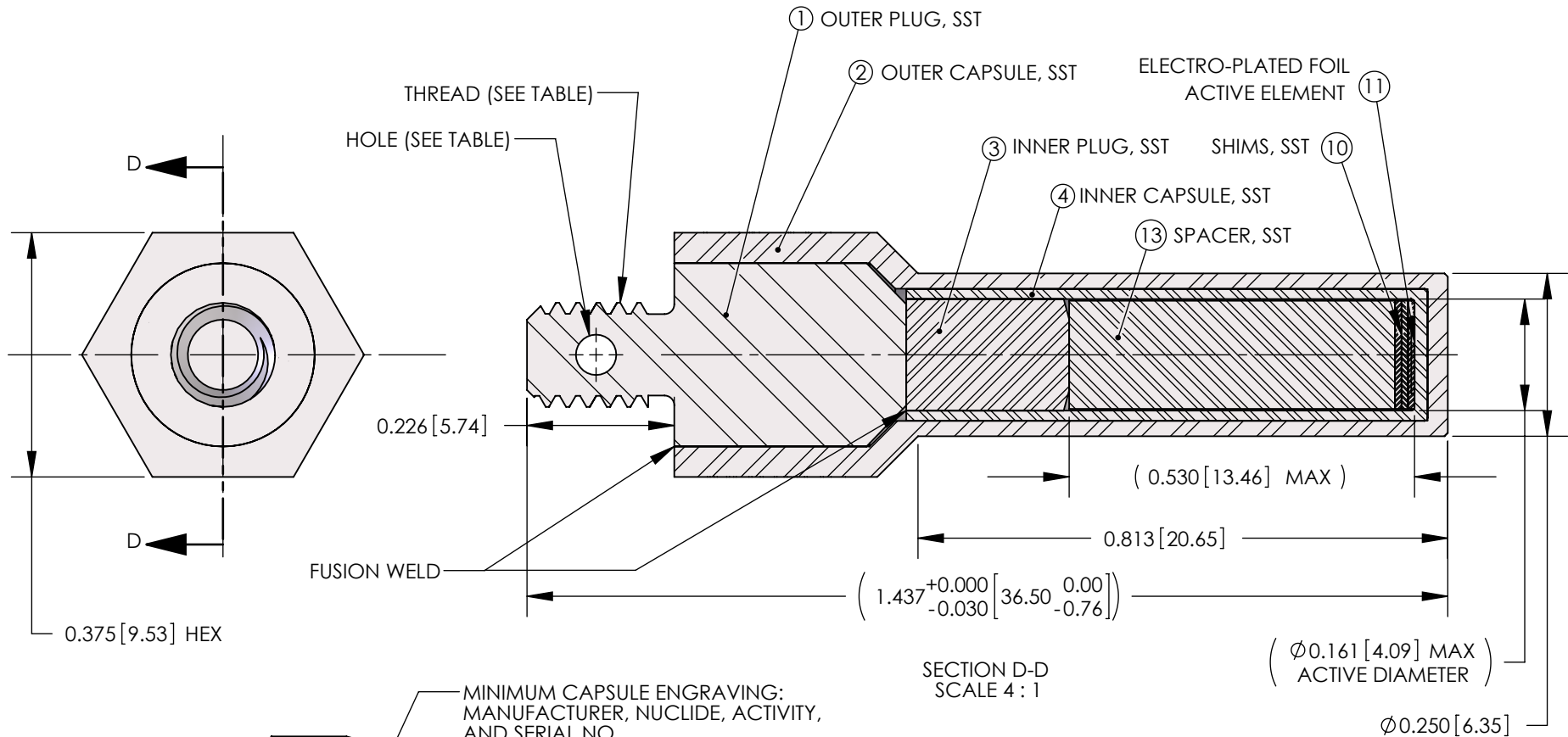


May 17, 2019

(DATE)

 William Schoonover
Associate Administrator for Hazardous
Materials Safety

Revision 9 - Issued to update drawings and to extend the expiration date.



SECTION D-D
SCALE 4:1

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

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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 (J) N/A
X.	± .1	INCH	SURFACE ROUGHNESS μINCH MAX

ALL DIMENSIONS ARE FINISHED DIMENSIONS



DRAWN
KP/RLT

ME/CHECKER
LF/GG

ENGINEER
JMD/RT

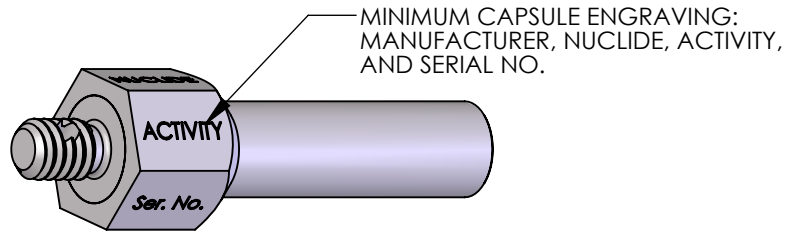
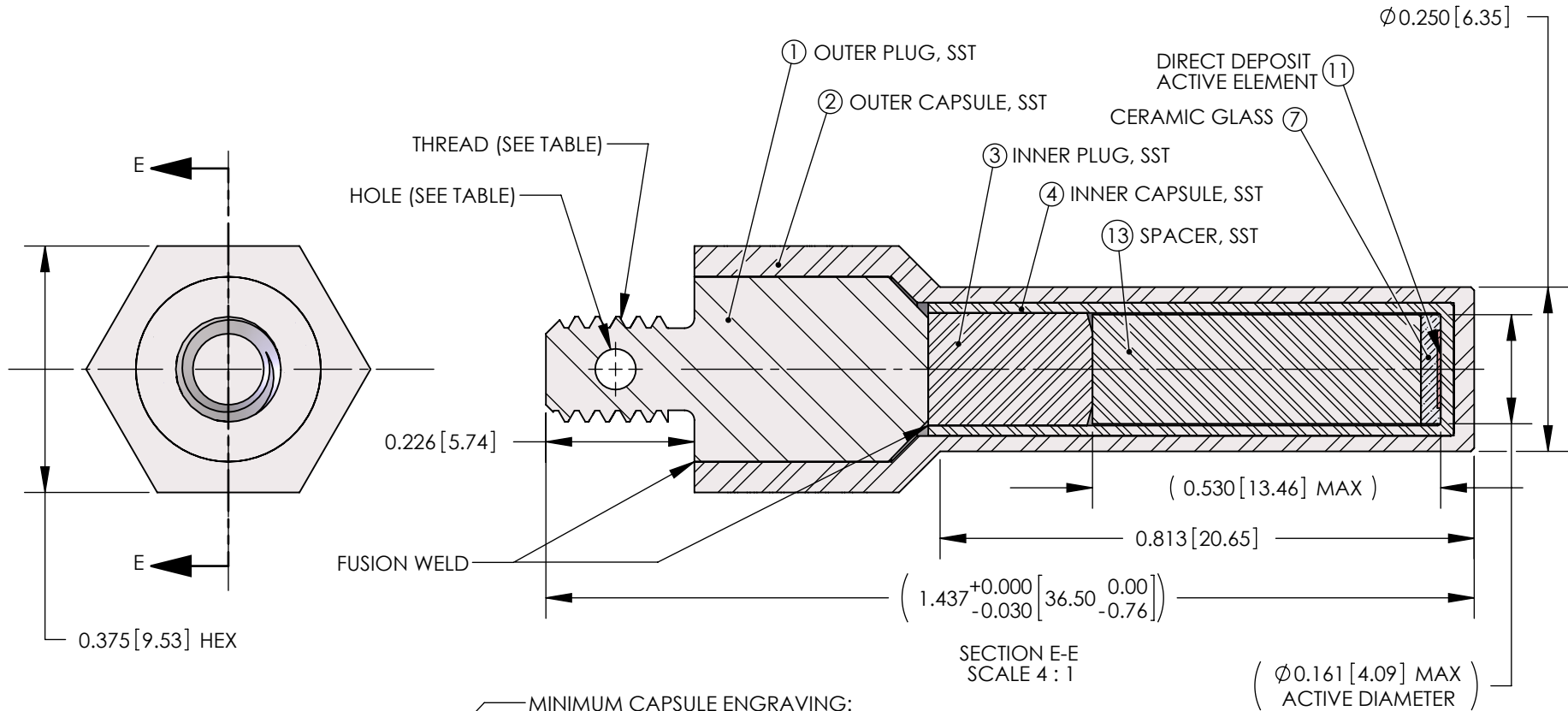
SCALE
NONE

SIZE
A

TITLE
HIGH INTENSITY GAMMA SOURCE MODEL HEG

SERIES TITLE
HIGH INTENSITY GAMMA AND NEUTRON SOURCES
(HEG SERIES CAPSULES 193, 225 AND N-252)

CAGE CODE 32993	DRAWING NO. 3011	REV N	SHEET 4 OF 14
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MODEL VIEW (NOT TO SCALE)

SECTION E-E
SCALE 4 : 1

($\phi 0.161 [4.09] \text{ MAX}$)
ACTIVE DIAMETER

CONFIGURATION TABLE

P/N	THREAD	HOLE
A3011-2-1	8-32 UNC-3A	$\phi 0.062$ 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

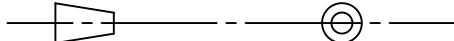
 **Eckert & Ziegler**
Isotope Products

VALENCIA, CALIFORNIA 91355

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 (J) N/A
 X. ± .1 INCH SURFACE ROUGHNESS μINCH MAX
 ALL DIMENSIONS ARE FINISHED DIMENSIONS

THIRD ANGLE PROJECTION



DRAWN
KP/RLT

ME/CHECKER
LF/GG

ENGINEER
JMD/RT

SCALE
NONE

SIZE
A

TITLE
HIGH INTENSITY GAMMA SOURCE MODEL HEG

SERIES TITLE
HIGH INTENSITY GAMMA AND NEUTRON SOURCES
(HEG SERIES CAPSULES 193, 225 AND N-252)

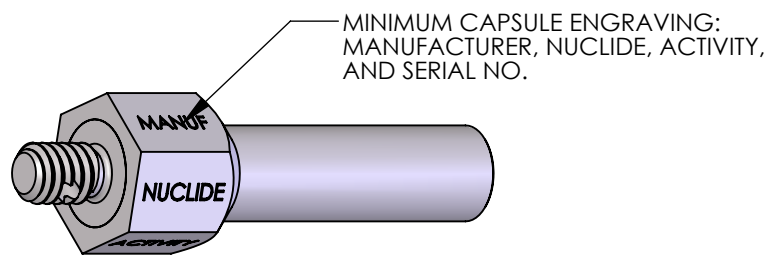
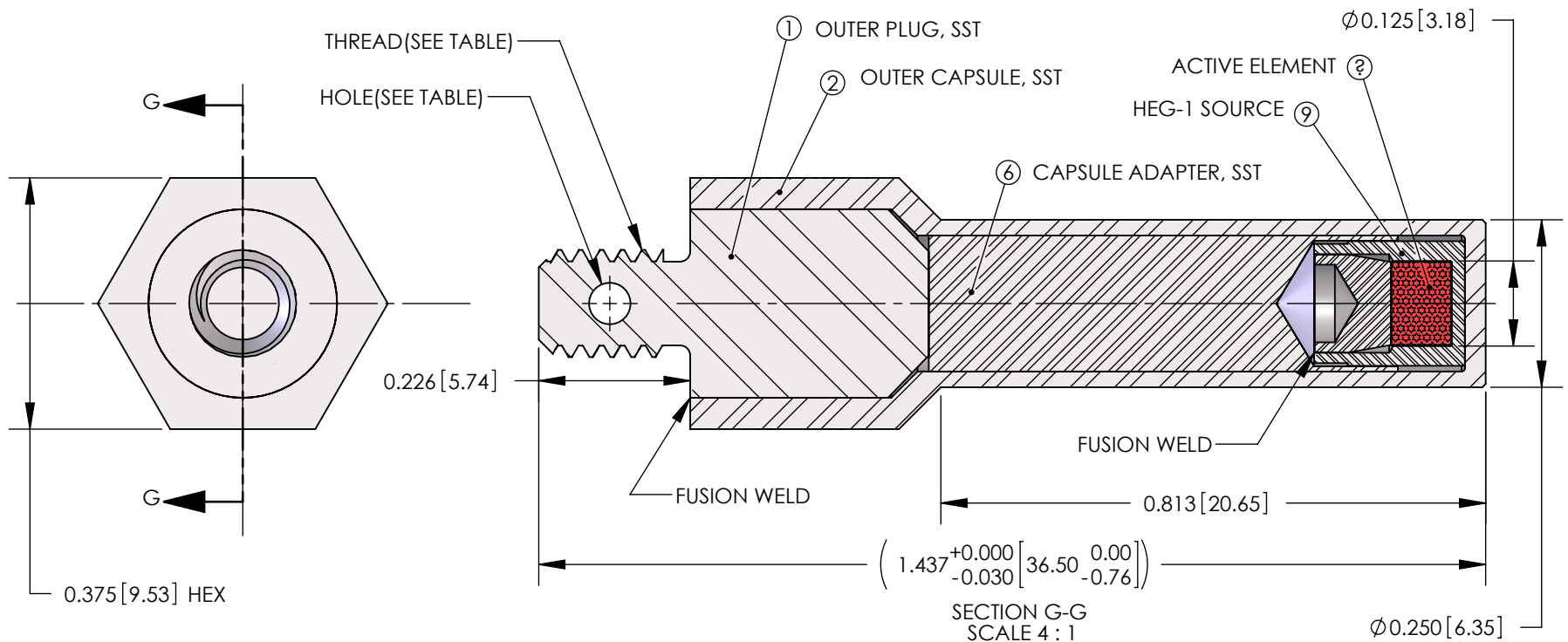
CAGE CODE
32993

DRAWING NO.
3011

REV
N

SHEET
5 OF 14

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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

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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 (J) N/A
X.	± .1	INCH	SURFACE ROUGHNESS μINCH MAX

ALL DIMENSIONS ARE FINISHED DIMENSIONS



DRAWN
KP/RLT

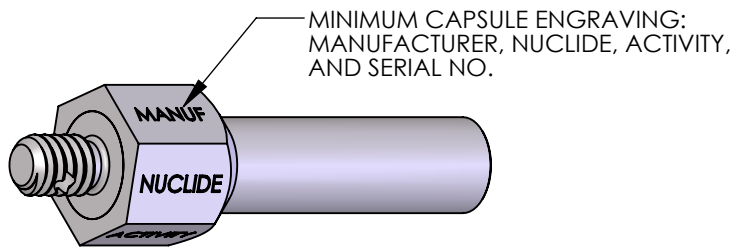
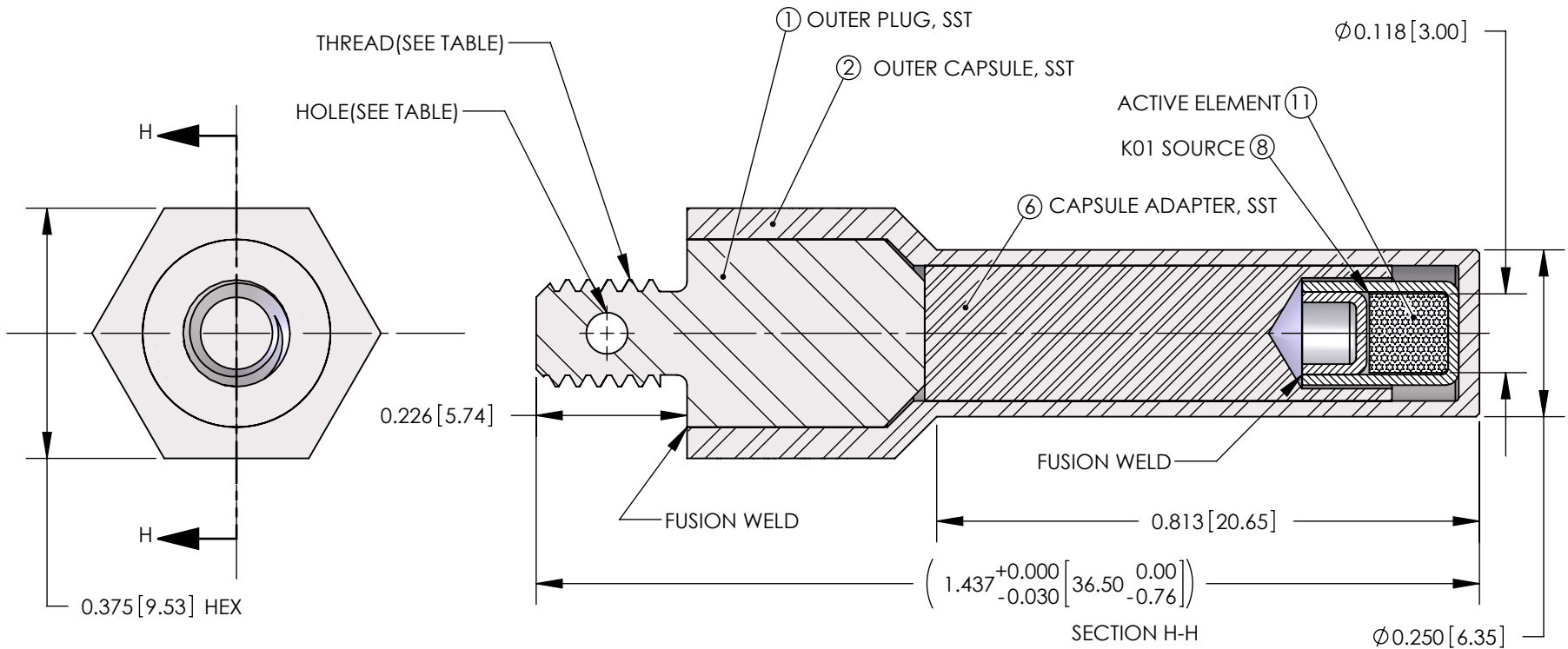
ME/CHECKER
LF/GG

ENGINEER
JMD/RT

SCALE
NONE

SIZE
A

TITLE HIGH INTENSITY GAMMA SOURCE MODEL HEG			
SERIES TITLE HIGH INTENSITY GAMMA AND NEUTRON SOURCES (HEG SERIES CAPSULES 193, 225 AND N-252)			
CAGE CODE 32993	DRAWING NO. 3011	REV N	SHEET 7 OF 14



MODEL VIEW (NOT TO SCALE)

CONFIGURATION TABLE

P/N	THREAD	HOLE
A3011-5-1	8-32 UNC-3A	Ø0.062 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

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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 (J) N/A
X. ± .1 INCH	SURFACE ROUGHNESS μINCH MAX

ALL DIMENSIONS ARE FINISHED DIMENSIONS



DRAWN
KP/RLT
ME/CHECKER
LF/GG
ENGINEER
JMD/RT

SCALE
NONE
SIZE
A

TITLE
HIGH INTENSITY GAMMA SOURCE MODEL HEG

SERIES TITLE
HIGH INTENSITY GAMMA AND NEUTRON SOURCES
(HEG SERIES CAPSULES 193, 225 AND N-252)

CAGE CODE 32993	DRAWING NO. 3011	REV N	SHEET 8 OF 14
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1200 New Jersey Ave, SE
Washington, D.C. 20590

CERTIFICATE NUMBER: USA/0353/S-96

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