LEUPA

Type B(U) Package for Fissile Materials

MANUFACTURE SPECIFICATIONS

Prepared by:
INVAP

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B	References	NG	JLA	JCO	

CONTENTS

1 PURPOSE

1. Define the requirements for the procurement of materials (to be carried out by INVAP S.E.).
2. Define the requirements for manufacturing, intermediate controls and acceptance tests. These activities are carried out by the contractor defined by INVAP S.E.

2 SCOPE

1. Establish the procurement requirements for the pieces and components of the LEUPA Package detailed in drawing No. 0908-LE01-3AEIN-004 “LOW ENRICHED URANIUM PACKAGE (LEUPA) – GENERAL ASSEMBLY” .

3 QUALITY REQUIREMENT

1. The manufacture has a level A of quality.
2. The applicable document is 0908-LE00-EDEIN-019 – QUALITY MANAGEMENT PROGRAM FOR THE LEUPA PROJECT.

4 LIST OF VALID DRAWINGS

1. The list of valid drawings is presented as Appendix 1.
2. The drawings released for manufacturing shall bear the seal “RELEASED FOR EXECUTION”.

5 APPLICABLE STANDARDS AND CHARACTERISTICS OF THE MATERIALS

5.1 General

1. All materials used in the manufacture process shall be free from corrosion, fissures, surface defects, deformations, etc.
2. The materials of the package according to drawing 0908-LE01-3AEIN-004 “LOW ENRICHED URANIUM PACKAGE (LEUPA) – GENERAL ASSEMBLY” shall also comply with the indications of section NB 2000 of the ASME code – Section III – Division 1 – Sub-Section NB.

5.2 Sheet

1. Standard ASTM A-240 Gr 304L/316L.
2. Standard ASTM A480. Defines the general procurement requirements.

5.3 Bars / Sections

1. Standard ASTM A-479 Gr 304L/316L or ASTM 276 Gr 304L/316L
2. Standard ASTM A 484M/ASTM A-582M. Defines the general procurement requirements.

5.4 Pipes

1. All pipes used are seamless pipes.
2. Standard ASTM A-312 TP 304L/316L.

3. Standards ASTM A 530 / ASTM A-450 define the general procurement requirements for stainless pipes.

5.5 Flanges

1. Standard ANSI B16.5
2. The flanges used are range 150 lbs.
3. Standard ASTM A 182 F316L for the material of the flanges.

5.6 Bolts

1. The Standards that defines geometry and material of screws and rings used, are state in the related drawings.

5.7 Shackles

1. The shackles to be used are CROSBY S 209 shackles, 0.5 ton capacity each.

5.8 Joints

1. The joint to be used in the container is a spiral gasket, with a “V” stainless steel strip and a graphite filling. The joint shall comply with ASME B16.20.
2. The rubber gasket to be used in the intermediate cover and external cover are built from a rubber plate of nitrile with a thickness of 5 mm.

6 SURFACE FINISH

1. Stainless steel components shall be pickled and passivated.
2. The surface finish shall be similar to grade 2B given by ASTM A480. The supplier shall submit INVAP test plates with different polishing degrees. INVAP shall select a test plate with a certain finishing degree. This test plate is used for the final inspection.

7 VISUAL AND DIMENSIONAL CONTROL

1. Visual inspection of all components.
2. Dimensional control, 100% of heights.

8 TOLERANCES

1. General tolerances for mechanized parts shall be in accordance with ISO 2768.1/2.
2. General tolerances for welded parts shall be in accordance with ISO 13920.

9 WELDING

1. Welding materials shall comply with ASME code – Section II – Part C.
2. Welders and welding procedures shall be qualified in accordance with ASME code – Section 9.

9.1 Controls of the Welding of the Main Body of the Packaging

1. The external package is shown in drawing 0908-LE01-3AEIN-010 “LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGING MAIN BODY”.

2. Visual and dimensional inspection, 100%.
3. Penetrating inks, 100% Acceptance criteria: ASME III ND.

10 ADDITIONAL REQUIREMENTS FOR THE CONTAINER OF INTERNAL CONTAINERS

1. The container is shown in drawing 0908-LE01-3AEIN-005 “LOW ENRICHED URANIUM PACKAGE (LEUPA) – CONTAINER OF INNER CONTAINERS”.
2. Materials, manufacture, inspection and test of the container shall be in accordance with ASME code – Section III – Division 1 – Sub-Section NB.
3. The welds indicated with numbers 1 and 2 in the drawing 0908-LE01-3AEIN-005 “LOW ENRICHED URANIUM PACKAGE (LEUPA) – CONTAINER OF INNER CONTAINERS” shall be x-rayed 100%.
4. To carry out the pressure test for the container, the manufacturer shall provide an additional carbon steel blind flange of identical dimensions to the one stated on item 07 in drawing 0908-LE01-3AEIN-005 “LOW ENRICHED URANIUM PACKAGE (LEUPA) – CONTAINER OF INNER CONTAINERS”. The mention flange shall have a venting connection and a supply connection for pressure fluid for the test.

11 APPENDIX 1 - LIST OF VALID DRAWINGS

Drawing	Title
0908-LE01-3AEIN-004	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGE – GENERAL ASSEMBLY
0908-LE01-3AEIN-005	LOW ENRICHED URANIUM PACKAGE (LEUPA) – CONTAINER OF INNER CONTAINERS
0908-LE01-3AEIN-006	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGE – MAIN BODY – CADMIUM CHAMBER
0908-LE01-3AEIN-007	LOW ENRICHED URANIUM PACKAGE (LEUPA) – INNER CONTAINER
0908-LE01-3AEIN-008	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGING – INTERMEDIATE COVER
0908-LE01-3AEIN-009	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGING – EXTERNAL COVER
0908-LE01-3AEIN-010	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGING – MAIN BODY
0908-LE01-3AEIN-015	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGING – MAIN BODY – TYPE “A” AND “B” SHEETS
0908-LE01-3AEIN-016	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGING – MAIN BODY – FLANGE
0908-LE01-3AEIN-017	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGING – MAIN BODY – WARNING PLATE
0908-LE01-3AEIN-018	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGING – MAIN BODY – NAME PLATE

Drawing	Title
0908-LE01-3AEIN-019	LOW ENRICHED URANIUM PACKAGE (LEUPA) – PACKAGING – MAIN BODY – DESIGN AND MANUFACTURE PLATE
0908-LE01-3AEIN-020	LOW ENRICHED URANIUM PACKAGE (LEUPA) – SET OF JOINTS – RUBBER SUPLEMENTS