

MANUFACTURING QUALITY PLAN - ROCKET SHELL - RGB 60

ITEM DESCRIPTION	LINER
REF. DOCUMENT	NASK 1062/3 (P)
MATERIAL	Part 1:- IS: 513 EDD Gde CR4 , Part 2: - ASTM 106 Gde.B Seamless tube

VETTED

[Signature]
Naval Armament Inspectorate
Tiruchirappalli

Component name/operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI
Liner (Raw material)	General finish, appearance	Semi critical	Visual	100% or as per the discretion of inspection authority	ASTM 106 Gde.B(seamless tube) & IS: 513 EDD Gde CR4	ASTM 106 Gde.B(seamless tube) & IS: 513 EDD Gde CR4 specified on drawing.	Inspection report	Visual Inspn. By NAI
	Chemical properties	Critical	Chemical lab analysis	Three samples per lot or as per the discretion of inspection authority	ASTM 106 Gde.B(seamless tube) & IS: 513 EDD Gde CR4 specified on drawing.		Test report from NABL Lab	Accept. By NAI
	Mechanical properties	Critical	Mechanical lab analysis	Three samples per lot or as per the discretion of inspection authority			Test report from NABL Lab	Accept. By NAI
In process -Sheet cutting, deep drawing, welding and turning	Dimensions specified in Inspection Report for the Component.	Critical	Dimensional measurement	100% or as per the discretion of inspection authority	Tolerance as specified in Drg.NASK 1062/3	Tolerance as specified in Drg.NASK 1062/3	NAI Inspection report	Accept. By NAI
Test	Leak test on assy with sleeve at 3 kgf /sq.cm for 1 min.	Critical	Visual	100% or as per the discretion of inspection authority	As per relevant drg.	No leakage permitted	NAI Test report	Accept. By NAI
Final finish	Visual	Semi critical	Visual	100% or as per the discretion of inspection authority	As per relevant drg.	As per relevant drg.	NAI Test report	Accept. By NAI

Note :

1. Proper hygiene / cleanliness to be maintained during drawing process of Liners.
2. Intermediate stress relieving to be carried out as part of deep drawing.
3. Heat Treatment of Liner at temperature 340° ± 10° for 2 hours.

Inspection Report								
Description of the Item		LINER						
Drawing No.		NASK 1062/3 (P)						
Date of Inspection								
Sno.	Description of parameter	Nominal dimension as per drawing in mm	Gauge used	Tolerance (As specified in the drg.)	Nature of parameter	Observed dimension in mm	Deviation in mm	Remarks
Liner Part - 1								
1	Overall length	35		±0.5	Minor			
2	Inner radius	R 180	Form gauge		Minor			
3	Inner radius	R 4			Minor			
4	Inner dimple dia.	25		±0.2	Major			
5	Outer dimple dia.	19			Major			
6	Outer dimple height	1.2		±0.2	Major			
7	Inner dimple height	1.8		±0.1	Major			
Liner Part-2								
1	Outer dia.	85		+0 /-0.3	Major			
2	Inner dia.	81			Major			
Liner after joining Part 1&2								
1	Overall length	267			Minor			
2	Concentricity of Part 1 & Part 2	Within 0.1 mm			Major			
3	Leak test	@ 3 kgf/sq.cm for 1 Min.			Major			

Sno.	Note	Observations
1	When manufactured in two pieces, material for Part 1: IS 513 EDD Gde CR4 and Part 2: ASTM 106 Gr B Seamless tube.	
2	Part 1 and Part 2 to be welded & concentricity of liner Part 1 & Part 2 to be maintained within 0.1 mm.	
3	When manufactured in single piece, material: IS 513 Gde EDD CR4.	
4	Intermediate stress relieving to be carried out as part of deep drawing.	
5	Liner to be heat treated at temperature 340° ± 10° for 2 Hrs.	
6	After welding with Sleeve (NASK 1134/1/1/3 (P)), pneumatic leak test at 3 kgf / Sq.cm for 01 minute to be undertaken.	
7	R4 Open tolerance.	
8	General tolerance IS:2102 medium class unless specified.	
9	Manufacturer logo and serial No. to be engraved in 10 to 20mm letter size on outer surface with curvature R180. Depth of engraving 35 to 75 microns.	

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