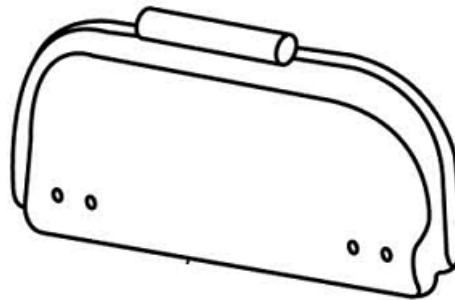




BEML LIMITED

PALAKKAD COMPLEX

QUALITY ASSURANCE PLAN (QAP) FOR ADJUSTABLE SCREEN to P/N: 130973900224



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PREFACE

1) PURPOSE:

To establish procedures for inspection, testing and acceptance of **Adjustable Screen** to **P/N: 130973900224** at supplier end.

2) SCOPE:

Covers the Inspection, Testing and Acceptance of **Adjustable Screen** to **P/N: 130973900224**.

3) RESPONSIBILITY

- a. The section head of Defence Materials group to ensure that the Quality Assurance Plan (QAP) is sent to all suppliers along with the Tender Enquiry and Purchase Order.
- b. The suppliers shall ensure that Quality Assurance Plan (QAP) is followed for testing, inspection and acceptance of item mentioned in purchase order.

4) PROCEDURE

- a. The suppliers shall carry out inspection and testing of components as detailed in this QAP.
- b. All measuring Instruments & Testing Equipments used for inspection & testing shall have valid calibration.
- c. Calibration reports shall be produced to the QA inspector at the time of inspection & testing.
- d. Items are to be offered to BEML Source Inspection Team (SIT) for stage inspection / final assy prior to dispatch.
- e. BEML reserve the right to opt or co-opt any third part inspection agency for inspection at supplier end i.e CQA(BEML) / SQAE(V) / QUEST / any other third party inspection agency as desired by BEML.
- f. Ink signed original copy of Test Certificates, Inspection Reports/Check sheets and other Quality documents are to be submitted to BEML.

Applicable Drawings	BEML Drawing- 130973900224, 130973900114,130973900124, 130929460034, 130952530014, 130973900124, 129951110014, 130973900124, 130929460084, 130929470064, 130951040154, 130929470084, 130929470094			
Legends	P = Perform	W = Witness	V = Verification	R = Review
	GC = Guarantee Certificate	IR = Inspection Reports	TC = Test Certificate	COC = Certificate Of Conformance / Compliance
	CL = Class	Gr. = Grade	MTC = Mill Test Certificate	Mi. = Minor
	Mj. = Major	Mfg - Manufacturer	Insp - Inspection	NABL – National Accredited Board Laboratory

Abbreviations	A	Approver	MPT	Magnetic Particle Test
	ASME	American Society of Mechanical Engineers	NA	Not Applicable
	ASTM	American Society for testing material	NDT	Non Destructive Testing
	CQA(BEML)	Controllorate of Quality Assurance(BEML)	PO	Purchase Order
	DFT	Dry film thickness	P/N	Part Number
	Dimn	Dimensions	QAP	Quality Assurance Plan
	DP	Dye Penetrate Test	SIT	Source Inspection Team BEML
	HT	Heat Treatment	Spec.	Specification
	HTR	Heat treatment Report	VC	Vendor code
	UTS	Ultimate Tensile Strength	YS	Yield Strength
	EL	Elongation	RD	Reduction in Area

Sampling Plan (IS 2500 Pt- 1 :2000, Level II,)	Lot size (No)	02 ~ 08	09 ~ 15	16 ~ 25	26 ~ 50	51 ~ 90	91 ~ 150	151 ~ 280	281 ~ 500	501 ~ 1200
	Sample Qty (No)	02	03	05	08	13	20	32	50	80

SEC-A. QUALITY ASSURANCE PLAN – COMPONENTS

Sr. No.	Component	Characteristics	Class	Quantum of check	Types of check	Ref. Doc	Acceptance Norms	Format of record	QA Agency		Remarks
									Vendor	BEML	
1	SHADING SCREEN FRAME P/N: 130973900114	Material	Critical	1 Sample per Compound	Check test at NABL Lab	As per Drg. 130973900114	Low pressure polyethylene plastic moulded.	NABL Lab TC	P	R	
		Dimension	Major	As per Sampling Plan	Dim Check		As per Drg. 130973900114	IR	P	W	
		Visual Inspection	Major	100 %	Visual		Free from visual defects like damage / dent, etc.,	IR	P	V	
		Identification	Major	100 %	Visual		Emboss / Stamp vendor code , P/N, Mfg. Code	IR	P	V	
2	HEXAGON NUT (W/D)	Make	Critical	100 %	Visual	As per Drg. 130973900124	TVS - Gr.8.8	COC	P	R	
		Dimension	Major	As per Sampling Plan	Dim Check		As per IS:1364(Part 3)-2002 Gr.8.8	IR	P	W	
		Visual Inspection	Major	100 %	Visual		Free from visual defects like damage / dent, etc.,	IR	P	V	
		Identification	Major	100 %	Visual		Emboss Grade & Make	IR	P	V	

Sr. No.	Component	Characteristics	Class	Quantum of check	Types of check	Ref. Doc	Acceptance Norms	Format of record	QA Agency		Remarks
									Vendor	BEML	
3	SCREEN INSERT P/N: 130929460034	Material	Critical	1 Sample per Compound	Check test at NABL Lab	As per Drg. 130929460034	Semi rigid pur foam	NABL Lab TC	P	R	
		Density					120Kg/m ³ ±15%				
		Flammability					As per IS:15061-2002				
		Dimension	Major	As per Sampling Plan	Dim Check		As per Drg. 130929460034	IR	P	W	
		Visual Inspection	Major	100 %	Visual		Free from visual defects like damage / dent, etc.,	IR	P	V	
		Identification	Major	100 %	Visual		Stamp vendor code , P/N, Sl.No, Mfg. Code	IR	P	V	

Sr. No.	Component	Characteristics	Class	Quantum of check	Types of check	Ref. Doc	Acceptance Norms	Format of record	QA Agency		Remarks
									Vendor	BEML	
4	PLATE WITH THREADING P/N: 130952530014	Chemical	Critical	1 Sample per Batch	Check test at NABL Lab	As per Drg. 130952530014	Cold reduced carbon steel sheet, Thickness-2mm Gr.CR1, IS:513 (Part1)-2016 or latest.	NABL Lab TC	P	R	
		Mechanical Properties					TS, YS & EL as per IS:513 (Part1)-2016 or latest.				
		Dimension	Major	As per Sampling Plan	Dim Check		As per Drg. 130952530014	IR	P	W	
		Surface Treatment	Major	100 %	DFT		Zinc plating with yellow chromate passivation, IS:1573-1986 Coating Thickness :- 8-12 µm.	TC	P	V	
		Visual Inspection	Major	100 %	Visual		Free from rust, visual defects like damage / dent, etc.,	IR	P	V	
		Identification	Major	100 %	Visual		Engrave vendor code, P/N, Sl.No, Mfg. Code	IR	P	V	

Sr. No.	Component	Characteristics	Class	Quantum of check	Types of check	Ref. Doc	Acceptance Norms	Format of record	QA Agency		Remarks
									Vendor	BEML	
5	SCREEN COVERING (W/D)	Material	Critical	1 Sample per Compound	Check test at NABL Lab / Mill TC	As per Drg. 130973900124	PVC coated cotton base fabric	NABL Lab TC / Mill TC	P	R	
		Type					HC as per IS:3322 (Part 1)-1987				
		Dimension	Major	As per Sampling Plan	Dim Check		510x260x0.5(Approx) / As per Drg. 130973900124	IR	P	W	
		Color	Major	100 %	Visual		ISC NO.674-DOVE GREY as per IS:5-2007	IR	P	V	
		Visual Inspection	Major	100 %	Visual		Free from visual defects like damage / dent, etc.,	IR	P	V	
6	COVEX WASHER P/N: 129951110014	Chemical	Critical	1 Sample per Batch	Check test at NABL Lab	As per Drg. 129951110014	Cold reduced carbon steel sheet, Gr.CR1,IS:513 (Part1)-2016 or latest.	NABL Lab TC	P	R	
		Mechanical Properties					TS ,YS & EL as per IS:513 (Part1)-2016 or latest.				
		Dimension	Major	As per Sampling Plan	Dim Check		As per Drg. 129951110014	IR	P	W	
		Surface Treatment	Major	100 %	DFT		Zinc plating with yellow chromate passivation, IS:1573-1986 Coating Thickness :- 8-12 µm.	TC	P	V	
		Visual Inspection	Major	100 %	Visual		Free from rust, visual defects like damage / dent, etc.,	IR	P	V	

Sr. No.	Component	Characteristics	Class	Quantum of check	Types of check	Ref. Doc	Acceptance Norms	Format of record	QA Agency		Remarks
									Vendor	BEML	
7	SLOTTED COUNTER SUNK FLAT HEAD SCREW (W/D)	Make	Critical	100 %	Visual	As per Drg. 130973900124	TVS / Unbrako.	COC	P	R	
		Dimension	Major	As per Sampling Plan	Dim Check		M4X14, Gr.4.8 as per IS:1365-2005	IR	P	W	
		Visual Inspection	Major	100 %	Visual		Free from rust, visual defects like damage / dent, etc.,	IR	P	V	
		Identification	Major	100 %	Visual		Emboss Grade	IR	P	V	
8	COVERING CARD BOARD P/N: 130929460084	Material	Critical	1 Sample per Compound	Check test at NABL Lab / Mill TC	As per Drg. 130929460084	Pulp board, Gr. S, IS:4664-1986	NABL Lab TC/ Mill TC	P	R	
		Dimension	Major	As per Sampling Plan	Dim Check		As per Drg. 130929460084	IR	P	W	
		Visual Inspection	Major	100 %	Visual		Free from visual defects like damage / dent, etc.,	IR	P	V	

Sr. No.	Component	Characteristics	Class	Quantum of check	Types of check	Ref. Doc	Acceptance Norms	Format of record	QA Agency		Remarks
									Vendor	BEML	
9	SCREEN BRACE P/N: 130929470064	Chemical	Critical	1 Sample per Compound	Check test at NABL Lab	As per Drg. 130929470064	Cold reduced carbon steel sheet, Gr.CR1,IS:513 (Part1)-2016 or latest.	NABL Lab TC	P	R	
		Mechanical Properties					TS ,YS & EL as per IS:513 (Part1)-2016 or latest.				
		Dimension	Major	As per Sampling Plan	Dim Check		As per Drg. 130929470064	IR	P	W	
		Visual Inspection	Major	100 %	Visual		Free from visual defects like damage / dent, etc.,	IR	P	V	
10	SEALING PAD P/N: 130951040154	Chemical	Critical	1 Sample per Heat	Check test at NABL Lab	As per Drg. 130951040154	Cold reduced carbon steel sheet, Gr.CR1,IS:513 (Part1)-2016 or latest.	NABL Lab TC	P	R	
		Mechanical Properties					TS ,YS & EL as per IS:513 (Part1)-2016 or latest.				
		Dimension	Major	As per Sampling Plan	Dim Check		As per Drg. 130951040154	IR	P	W	
		Surface Treatment	Major	100 %	DFT		Zinc plating with yellow chromate passivation, IS:1573-1986 Coating Thickness :- 8-12 µm.	TC	P	V	
		Visual Inspection	Major	100 %	Visual		Free from rust, visual defects like damage / dent, etc.,	IR	P	V	

Sr. No.	Component	Characteristics	Class	Quantum of check	Types of check	Ref. Doc	Acceptance Norms	Format of record	QA Agency		Remarks
									Vendor	BEML	
11	FRAME CENTRAL PART P/N: 130929470084	Chemical	Critical	1 Sample per Compound	Check test at NABL Lab	As per Drg. 130929470084	Cold draw steel bar, Gr.40C8(C40), IS:1570(Part II)-1979	NABL Lab TC	P	R	
		Mechanical Properties					TS & EL as per IS:1570(Part II)-1979 or latest.				
		Dimension	Major	As per Sampling Plan	Dim Check		As per Drg. 130929470084	IR	P	W	
		Visual Inspection	Major	100 %	Visual		Free from visual defects like damage / dent, etc.,	IR	P	V	
		Identification	Major	100 %	Visual		Engrave vendor code , P/N, Sl.No, Mfg. Code	IR	P	V	
12	FRAME OUTER PART P/N: 130929470094	Chemical	Critical	1 Sample per Compound	Check test at NABL Lab	As per Drg. 130929470094	Cold draw steel bar, Gr.20C8(C20), IS:1570(Part II)-1979	NABL Lab TC	P	R	
		Mechanical Properties					TS & EL as per IS:1570(Part II)-1979 or latest.				
		Dimension	Major	As per Sampling Plan	Dim Check		As per Drg. 130929470094	IR	P	W	
		Visual Inspection	Major	100 %	Visual		Free from visual defects like damage / dent, etc.,	IR	P	V	
		Identification	Major	100 %	Visual		Engrave vendor code , P/N, Sl.No, Mfg. Code	IR	P	V	

SEC-B. QUALITY ASSURANCE PLAN – FINAL ASSEMBLY

Sr. No.	Component	Characteristics	Class	Quantum of check	Types of check	Ref. Doc	Acceptance Norms	Format of record	QA Agency		Remarks
									Vendor	BEML	
1	ADJUSTABLE SCREEN (P/N: 130973900224)	Assembly / Fitment	Critical	100%	Dim Check	As per Drg. 130973900224	1) Ensure proper fitment/ assembly of all sub-assy items/parts. 2) Ensure the Thread stitching on both inside and outside of the Upholstery. 3) Ensure the continuity of Thread stitching in Upholstery 4) Ensure proper locking of Hex Nut M4 against falling out. 5) Ensure the proper fitment of Frame central Part with Frame outer part. 6) Ensure the proper functioning of the upholstery screen when in rotated up & down.	IR	P	W	
		Visual Inspection	Major	100%	Visual		Free from visual defects like damage, cut marks, discontinuity in threads, Painting, etc. Ensure the workmanship.	IR	P	W	
		Fitment on vehicle	Critical	100%	Functional Check		1) Ensure proper clamping / fitment. 2) Ensure Proper locking . 3) Ensure no free play after fitment on vehicle.	IR	---	P	

SEC-C. QUALITY ASSURANCE PLAN – PACKING AND IDENTIFICATION

Sr. No.	Component	Characteristics	Class	Quantum of check	Types of check	Ref. Doc	Acceptance Norms	Format of record	QA Agency		Remarks
									Vendor	BEML	
1	ADJUSTABLE SCREEN (P/N: 130973900224)	Packing	Major	100%	Visual	As per Drg. 130973900224	Individual Adjustable screen is to be packed with polythene cover and heat sealed. Then to be packed in Carton Box suitably to protect from damage during transit. Affix Vendor Identification Label with P/N, Item Description, Item Sl.No, Batch code on the Polythene Cover.	IR	P	R	
		Traceability / Identification	Major	100%	Visual		Screen Print Vendor Code, P/N, Dt of Mfg.	IR	P	R	