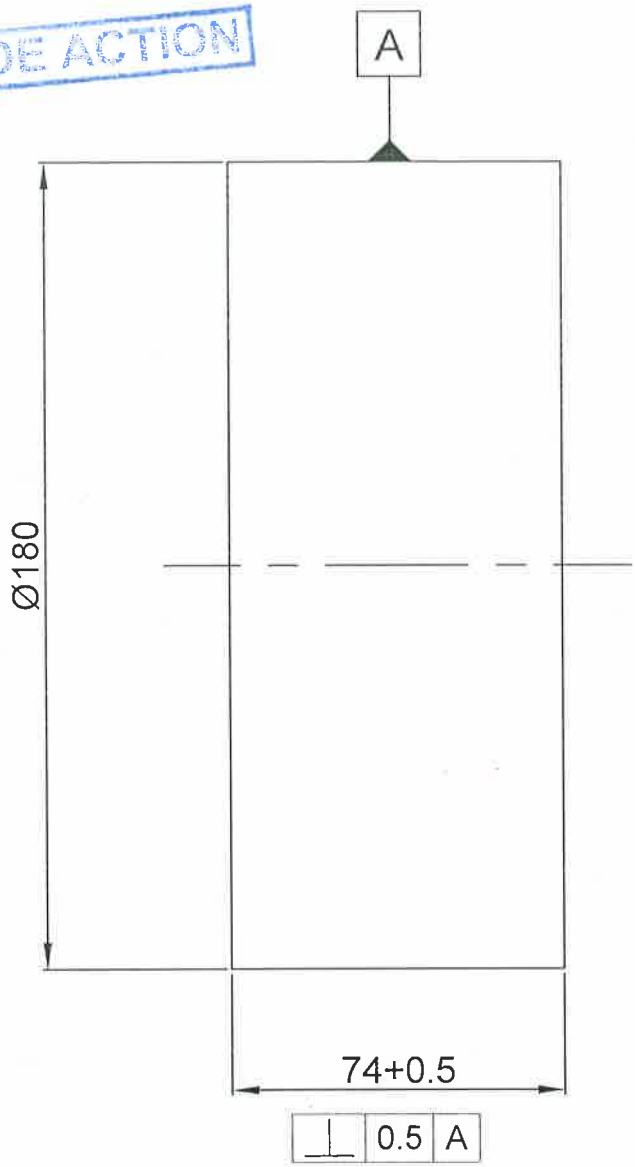
DRG.No.	REV
0 RGB 060 1 180	0

TRADE ACTION



ISSUED BY
STANDARD CELL
MBS-220202 dt 21/9/22
DATE: 13/9/22 SIGNATURE:

Note:
1. Material to be supplied in hardened & tempered to 'U' condition.
2. Ultrasonically tested as per IS 8791-98 Class 'A' in longitudinal & transverse direction.
3. Surface should be smooth and free from burrs,cavities,cracks, scratches, foreign inclusion & dent marks.
4. Suitable rust prevention medium to be applied to avoid rusting of material.

ALL DIMENSIONS IN mm
REMOVE ALL SHARP EDGES

MATERIAL	REV	ALTERATIONS	DATE	LATEST REF./DC NO.:
BS 970 Pt-3:91 817M40(En24)				
HARDNESS				DRAWN
269 to 331 HB				CHECK
PROTECTIVE FINISH				USER SEC.
--				CHECK HOS/SC
ROUGHNESS				APPRD.
--				DATE 24.05.22
EST.MASS	PRO/FINAL			SCALE NTS
--	--			SHEET 1 OF 1

TITLE :

BLANK FOR BODY BASE
(RGB-60)

HIGH ENERGY PROJECTILE FACTORY
TRICHY

DRG. NO:	REV
0 RGB 060 1 180	0

QUALITY ASSURANCE PLAN FOR A/S ROCKET RGB 60 (EMPTY) MOD 1

Item Description	**BODY BASE MOD 1**
Ref. Document	NASK 1134/1/1/2 (P)
Material	Steel to spec BS 970(Pt-3)-91 Gde 817M40 (EN24)
Heat Treatment	Hardened and Tempered 'U' Condition

Component name/operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection Activity Categorisation	Inspection by
Body base (Raw material)	General finish, appearance	Semi critical	Visual	100%	BS 970 (Pt-3)-91 Gde 817M40 (EN24) Hardened and Tempered 'U' Condition	BS 970 (Pt-3)-91 Gde 817M40 (EN24) Hardened and Tempered 'U' Condition	Visual Inspn. Report	Non-Critical	QC/HEPF
	Chemical properties	Critical	Chemical lab analysis	Three samples per lot or as per the discretion of inspection authority			Test report from NABL Lab/ Govt lab		
	Mechanical properties	Critical	Mechanical lab analysis	Three samples per lot or as per the discretion of inspection authority			Test report from NABL Lab/ Govt lab		
	UT Testing	Critical	NDT	100%	IS 8791/98 class 'A' for ferritic steel forging	IS 8791/98 class 'A' for ferritic steel forging	Test cerificatet by Level-II /I III inspector		
	Macro structure examination	Critical	Chemical lab analysis	Randomly selected samples from 3 nos per heat	ASTM E 381-1984	C2 R1 S1 Plate 1 & Nil for Plate 2	Test report from NABL Lab/ Govt lab		
	Micro structure examniation	Critical			ASTM E 112	Tempered amrtensite with grain size grater than 5			
	NMIR	Critical			ASTM E 45-2018	ABCD 1.5 thin & AD 0.5 thick			
	Dye Penetrant Test	Critical	NDT	100%		No defects	Test cerificatet by Level-II /I III inspector		QC/HEPF
In process - Turning, drilling, tapping, coating and painting	Dimensions	Critical	Dimensional measurement	As per sampling plan IS 2500 level II	Drg. NASK 1134/1/1/2 (P)	Tolerance as specified in Drg. NASK 1134/1/1/2 (P)	Inspection report	Critical	NAI
Final finish	Phosphating	Semi critical	Visual & Test Sample	Samples as per the discretion of inspection authority	IS 3618 Class B	IS 3618 Class B	Inspection report	Non-Critical	QC/HEPF
	Varnishing	Critical	Visual & as specified in specification.	100%	JSS 8010-28	JSS 8010-28			
	Zirconium silicate Or APC 216	Critical	Visual & as specified in specification.	100%	Appendix 'C' of ARDE/Spec/334/1985 or APC216 JSS:8010-51	Appendix 'C' of ARDE/Spec/334/1985 or APC216 JSS:8010-51			
	PU Painting	Non-Critical	Visual	100%	Spec ISC No. 694 to IS 5	As per relevant Spec.			

Table 16 — Chemical composition: alloy direct hardening steels

Steel	C	Si	Mn	P	S	Cr	Mo	Ni
	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)
530M40	0.36 to 0.44	0.10 to 0.40	0.60 to 0.90	0.035 max.	0.040 max.	0.90 to 1.20	—	—
605M36	0.32 to 0.40	0.10 to 0.40	1.30 to 1.70	0.035 max.	0.040 max.	—	0.22 to 0.32	—
606M36	0.32 to 0.40	0.10 to 0.40	1.30 to 1.70	0.035 max.	0.15 to 0.25	—	0.22 to 0.32	—
708M40	0.36 to 0.44	0.10 to 0.40	0.70 to 1.00	0.035 max.	0.040 max.	0.90 to 1.20	0.15 to 0.25	—
709M40	0.36 to 0.44	0.10 to 0.40	0.70 to 1.00	0.035 max.	0.040 max.	0.90 to 1.20	0.25 to 0.35	—
722M24	0.20 to 0.28	0.10 to 0.40	0.45 to 0.70	0.035 max.	0.040 max.	3.00 to 3.50	0.45 to 0.65	—
817M40	0.36 to 0.44	0.10 to 0.40	0.45 to 0.70	0.035 max.	0.040 max.	1.00 to 1.40	0.20 to 0.35	—
826M31	0.27 to 0.35	0.10 to 0.40	0.45 to 0.70	0.035 max.	0.040 max.	0.50 to 0.80	0.45 to 0.65	1.30 to 1.70
826M40	0.36 to 0.44	0.10 to 0.40	0.45 to 0.70	0.035 max.	0.040 max.	0.50 to 0.80	0.45 to 0.65	2.30 to 2.80
945M38	0.34 to 0.42	0.10 to 0.40	1.20 to 1.60	0.035 max.	0.040 max.	0.40 to 0.60	0.15 to 0.25	2.30 to 2.80
								0.60 to 0.90

NOTE See also 3.3 c), 3.3 i) and options A.2 and A.5.

Table 17 — Chemical composition: ferritic and martensitic stainless and heat resisting steels

Steel	Chemical composition (maximum unless range stated)								
	C	Si	Mn	P	S	Cr	Mo	Ni	Se
Ferritic steels									
	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)
403S17	0.08	1.0	1.0	0.040	0.030	12.0 to 14.0	—	0.50	—
430S17	0.08	1.0	1.0	0.040	0.030	16.0 to 18.0	—	0.50	—
Martensitic steels									
410S21	0.09 to 0.15	1.0	1.0	0.040	0.030	11.5 to 13.5	—	1.00	—
416S21	0.09 to 0.15	1.0	1.5	0.060	0.15 to 0.35	11.5 to 13.5	0.60	1.00	—
416S29	0.14 to 0.20	1.0	1.5	0.060	0.15 to 0.35	11.5 to 13.5	0.60	1.00	—
416S37	0.20 to 0.28	1.0	1.5	0.060	0.15 to 0.35	12.0 to 14.0	0.60	1.00	—
416S41	0.09 to 0.15	1.0	1.5	0.060	0.060	11.5 to 13.5	0.60	1.00	0.15 to 0.35
420S29	0.14 to 0.20	1.0	1.0	0.040	0.030	11.5 to 13.5	—	1.00	—
420S37	0.20 to 0.28	1.0	1.0	0.040	0.030	12.0 to 14.0	—	1.00	—
431S29	0.12 to 0.20	1.0	1.0	0.040	0.030	15.0 to 18.0	—	2.0 to 3.0	—

Table 21 — Mechanical properties for alloy steels (18)

Steel	Condition (2)	Size (1) (diameter across flats, or thickness)	R_m	R_e min.	A min. on 5.65 $\sqrt{S_o}$	Impact[a]		$R_{p0.2}$ (3) min.	HB (13)
						Izod min.	KCV min.		
		mm	N/mm^2	N/mm^2	%	J	J	N/mm^2	
722M24	Hardened and tempered + turned or ground	$T > 150 \leq 250$	850 to 1 000	650	13	40	35	635	248 to 302
		$T \geq 6 \leq 150$	850 to 1 000	680	13	54	50	665	248 to 302
		$U \geq 6 \leq 150$	925 to 1 075	755	12	47	42	740	269 to 331
	Hardened and tempered + cold drawn or hardened and tempered + cold drawn + ground	$T \geq 6 \leq 150$	850 to 1 000	700	9	54	—	680	248 to 302
		$U \geq 6 \leq 150$	925 to 1 075	770	9	47	—	755	269 to 331
	Turned, ground or cold drawn and finally softened								269 max.
817M40	Hardened and tempered + turned or ground	$T > 150 \leq 250$	850 to 1 000	650	13	40	35	635	248 to 302
		$T > 63 \leq 150$	850 to 1 000	680	13	54	50	665	248 to 302
		$U > 29 \leq 100$	925 to 1 075	755	12	47	42	740	269 to 331
		$V > 13 \leq 63$	1 000 to 1 150	850	12	47	42	835	293 to 352
	(6)	$W \geq 6 \leq 29$	1 075 to 1 225	940	11	40	35	925	311 to 375
	(1)(6)	$X \geq 6 \leq 29$	1 150 to 1 300	1 020	10	34	28	1 005	341 to 401
	(1)(6)	$Z \geq 6 \leq 29$	1 550 min.	1 235	5	10	9	1 125	444 min.
	Hardened and tempered + cold drawn or hardened and tempered + cold drawn + ground	$T > 63 \leq 150$	850 to 1 000	700	9	54	—	680	248 to 302
		$U > 29 \leq 100$	925 to 1 075	770	9	47	—	755	269 to 331
		$V > 13 \leq 63$	1 000 to 1 150	865	9	47	—	850	293 to 352
	(4)(6)(7)	$W \geq 6 \leq 29$	1 075 to 1 225	955	8	40	—	940	311 to 375
	(4)(6)(7)	$X \geq 6 \leq 29$	1 150 to 1 300	1 035	7	34	—	1 020	341 to 401
	(4)(6)(7)	$Z \geq 6 \leq 29$	1 550 min.	1 250	3	11	—	1 235	444 min.
	Turned, ground or cold drawn and finally softened								277 max.

[a] See also option A.3.