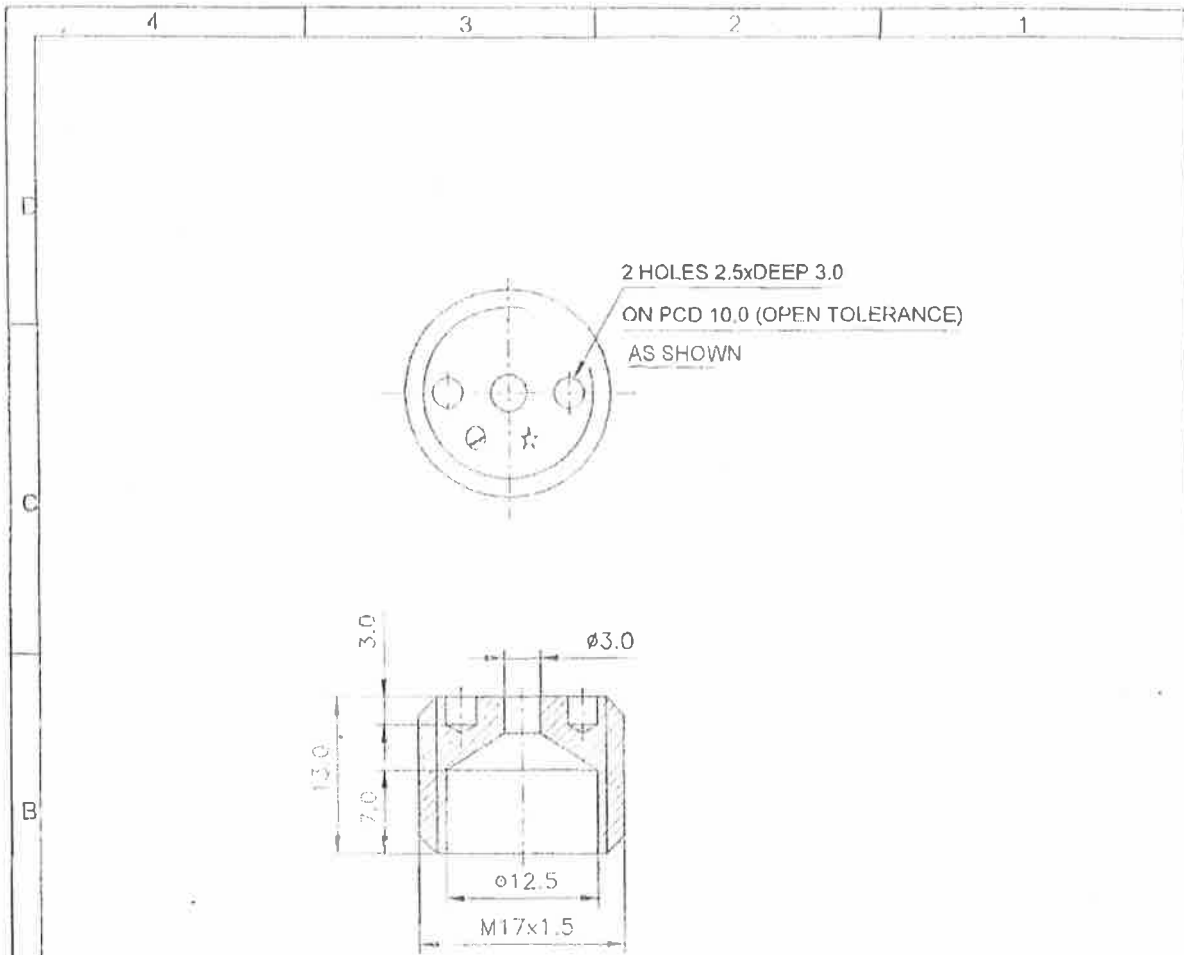



TRIM ON THIS LINE WHEN SUPPLIED TO TRADE



MARKING NOTES:-
 THE FOLLOWING MARKING TO BE ENGRAVED IN 03-04MM LETTER SIZE ON THE BOTTOM SURFACE .
 ○ SERIAL NO ☆ MANUFACTURER'S LOGO
 DEPTH OF ENGRAVING 40 TO 100 MIC
 PROTECTIVE FINISH : ZINC & CHROMATE COATING (15 MICRON MIN.) THICK
 TO IS : 1573.

10 APR 18	C3	MARKING NOTES ADDED		ARD 2547	<i>[Signature]</i>
13-2-14		PROTECTIVE FINISH AMENDED		ARD 2453	<i>[Signature]</i>
08-09-09		DCA NO ADDED		ARD 2396	<i>[Signature]</i>
02-06-09		APPROVED		DGNAI	
R.No	DATE	ZONE	BRIEF RECORD	AUTHORITY	INITIALS
SCALE:-2:1	TOL.	DIMENSIONS ARE IN mm		ASSY DRG No.:- NASK 1068	
DGN	DRN	TCD	COMP	CHD	ASSY DRG LIST.
PASSED <i>[Signature]</i>	APPD. <i>[Signature]</i>	THREADS TO CONFIRM IS:4218		DTE GEN OF NAVAL ARMAMENT INSPECTION IHQ,MOD (NAVY) N. DELHI  DRG No.	
		GEN SPEC :- IS:2102			
MATL:- STEEL		STORE SPEC :-			
MATL SPEC:-BS:970 (P-I)-83		STORE REF No.			
Gde 080 M40		GAUGE SCH No.			
PROTECTIVE FINISH:- SEE DRG		D.S. CAT No.			
DCA No 536518 2183					
BUSH					
NASK 1068/5 (PROVISIONAL)					

A-4

USED ON ROCKET RGB 60

BASED ON:- CNAI(V) DRG No NA(V) 8007/5 DT 13-02-08

[Handwritten mark]

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

Item Description	BUSH
Ref. Document	NASK 1068/5 (P)
Material	Steel to Spec 3)-91 Gde 080 M40 BS:970 (Pt Normalised)
Heat Treatment	Normalised

Component name/operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection Activity Categorisation	Inspection by
Bush (Raw material)	General finish, appearance	Semi critical	Visual	100%	BS:970 (Pt.3)-91 Gde 080 M40 Normalised	BS:970 (Pt.3)-91 Gde 080 M40 Normalised	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		
In process - Turning, drilling and plating	Dimensions specified in the inspection report of the component	Critical	Dimensional measurement	100% or as per the discretion of inspection authority	Tolerance as specified in Drg. NASK 1068/5 (P)	Tolerance as specified in Drg. NASK 1068/5 (P)	Inspection report of Bush		
Final finish	Zinc & Chromate 15 micron minimum thick	Critical	Visual & Test Sample	100%	IS: 1573	IS: 1573	Test report from NABL Lab / Govt Lab		

Inspection Report

Description of the item	BUSH
Drawing No.	NASK 1068/5 (P)
Date of Inspection	

Sno	Description of parameter	Nominal dimension as per drawing in mm	Gauge used	Tolerance	Nature of Parameter	Observed dimension in mm	Deviation in mm	Remarks
1	External thread	M 17 x 1.5	Screw ring 'Go' & 'No Go' gauge	As specified in the relevant drawing.	Major			
2	Internal dia.	12.5			Major			
3	Inner length of 12.5 dia	7			Major			
4	Centre hole dia.	3			Major			
5	Depth of hole 3 dia.	3			Major			
6	Holes on face - Dia x deep (2 nos)	2.5 x 3 deep			Major			
7	PCD of above holes	10			Major			
8	Overall length	13			Major			

Special Notes:

- 1 Material: Steel to Spec BS 970(Pt 3)-91 Gde 080 M40 (Normalised)
- 2 Finish: Zinc and chromate coating (15 micron min) thick to Spec IS:1573.
- 3 General Tolerance specn. IS 2102 (Medium class) unless specified.
- 3 Manufacturer's logo and Serial No. to be engraved in 03 to 04mm letter size on the bottom surface. Depth of engraving 40 to 100 microns.

Table 13 — Chemical composition: carbon and carbon manganese steels

Steel	C	Si	Mn	P	S
	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)
080A15	0.13 to 0.18	0.10 to 0.40	0.70 to 0.90	0.05 max.	0.05 max.
080M15	0.12 to 0.18	0.10 to 0.40	0.60 to 1.00	0.05 max.	0.05 max.
070M20	0.16 to 0.24	0.10 to 0.40	0.50 to 0.90	0.05 max.	0.05 max.
080A30	0.26 to 0.34	0.10 to 0.40	0.70 to 0.90	0.05 max.	0.05 max.
080M30	0.26 to 0.34	0.10 to 0.40	0.60 to 1.00	0.05 max.	0.05 max.
080M40	0.36 to 0.44	0.10 to 0.40	0.60 to 1.00	0.05 max.	0.05 max.
080A42	0.40 to 0.45	0.10 to 0.40	0.70 to 0.90	0.05 max.	0.05 max.
080A47	0.45 to 0.50	0.10 to 0.40	0.70 to 0.90	0.05 max.	0.05 max.
080M50	0.45 to 0.55	0.10 to 0.40	0.60 to 1.00	0.05 max.	0.05 max.
070M55	0.50 to 0.60	0.10 to 0.40	0.50 to 0.90	0.05 max.	0.05 max.
150M19	0.15 to 0.23	0.10 to 0.40	1.30 to 1.70	0.05 max.	0.05 max.
150M36	0.32 to 0.40	0.10 to 0.40	1.30 to 1.70	0.05 max.	0.05 max.

NOTE See also 3.3 g) and option A.1, A.2 and A.4.

Table 14 — Chemical composition: case hardening steels (carbon and carbon manganese steels)

Steel	C	Si	Mn	P	S
	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)
045A10	0.08 to 0.13	0.10 to 0.40	0.30 to 0.60	0.05 max.	0.05 max.
045M10	0.07 to 0.13	0.10 to 0.40	0.30 to 0.60	0.05 max.	0.05 max.
080M15	0.12 to 0.18	0.10 to 0.40	0.60 to 1.00	0.05 max.	0.05 max.
210M15	0.12 to 0.18	0.10 to 0.40	0.90 to 1.30	0.05 max.	0.10 to 0.18

Table 15 — Chemical composition: alloy case hardening Steels^a

Steel	C	Si	Mn	Cr	Mo	Ni
	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)	%(m/m)
635M15	0.12 to 0.18	0.10 to 0.40	0.60 to 0.90	0.4 to 0.80	—	0.70 to 1.10
637M17	0.14 to 0.20	0.10 to 0.40	0.60 to 0.90	0.60 to 1.00	—	0.85 to 1.25
655M13	0.10 to 0.16	0.10 to 0.40	0.35 to 0.60	0.70 to 1.00	—	3.00 to 3.75
665M17	0.14 to 0.20	0.10 to 0.40	0.35 to 0.75	—	0.20 to 0.30	1.50 to 2.00
805M17	0.14 to 0.20	0.10 to 0.40	0.60 to 0.95	0.35 to 0.65	0.15 to 0.25	0.35 to 0.75
805M20	0.17 to 0.23	0.10 to 0.40	0.60 to 0.95	0.35 to 0.65	0.15 to 0.25	0.35 to 0.75
815M17	0.14 to 0.20	0.10 to 0.40	0.60 to 0.90	0.80 to 1.20	0.10 to 0.20	1.20 to 1.70
820M17	0.14 to 0.20	0.10 to 0.40	0.60 to 0.90	0.80 to 1.20	0.10 to 0.20	1.50 to 2.00
822M17	0.14 to 0.20	0.10 to 0.40	0.40 to 0.70	1.30 to 1.70	0.15 to 0.25	1.75 to 2.25
835M15	0.12 to 0.18	0.10 to 0.40	0.25 to 0.50	1.00 to 1.40	0.15 to 0.30	3.90 to 4.30

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

^a Sulfur 0.05 % max., phosphorous 0.04 % max. for all qualities.

Table 20 — Mechanical properties for carbon and carbon manganese steels (18)

Steel	Condition (2)	Size (1) (diameter across flats or thickness) mm	R _m N/mm ²	R _e min. N/mm ²	A min. on 5.65√S ₀ %	Impact ^a		R _{p0.2} (3) min. N/mm ²	HB (13)
						Izod min. J	KCV min. J		
080M40	Normalized + turned or ground	≥ 6 ≤ 150	550 min. 510 min.	280 245	16 17	20	16	—	152 to 207 146 to 197
		> 150 ≤ 250	660 min. 650 min. 620 min.	530 510 480	7 8 9	—	—	495 485 435	
	Hot rolled + cold drawn or hot rolled + cold drawn + ground	> 16 ≤ 40	600 min. 570 min.	465 430	10 10	—	—	370 350	
		> 40 ≤ 63 > 63 ≤ 76							
080M50	Hardened and tempered + turned or ground	Q ≥ 6 ≤ 63 R ≥ 6 ≤ 19	625 to 775 700 to 850	385 465	16 16	34 34	28 28	355 450	179 to 229 201 to 255
		Q ≥ 6 ≤ 63 R ≥ 6 ≤ 19	625 to 775 700 to 850	435 490	12 12	34 34	—	380 460	179 to 229 201 to 255
	Normalized + turned or ground	≥ 6 ≤ 150 > 150 ≤ 250	620 min. 570 min.	310 295	14 14	—	—	—	179 to 229 163 to 217
		Normalized + cold drawn or normalized + cold drawn + ground	≥ 6 ≤ 13 > 13 ≤ 16 > 16 ≤ 40 > 40 ≤ 63 > 63 ≤ 76	740 min. 730 min. 690 min. 680 min. 650 min.	590 585 555 540 510	7 8 8 9 10	—	—	555 545 485 420 400
Hardened and tempered + turned or ground	(4)	Q ≥ 6 ≤ 150 R ≥ 6 ≤ 63 S ≥ 6 ≤ 29 T ≥ 6 ≤ 13	625 to 775 700 to 850 775 to 925 850 to 1 000	390 430 495 570	15 14 14 12	—	—	360 400 465 555	179 to 229 201 to 255 223 to 277 248 to 302
		Hardened and tempered + cold drawn or hardened and tempered + cold drawn + ground	Q ≥ 13 ≤ 150 R ≥ 6 ≤ 63 S ≥ 6 ≤ 29 T ≥ 6 ≤ 13	625 to 775 700 to 850 775 to 925 850 to 1 000	430 490 540 595	11 10 10 9	—	—	390 450 500 550
	Turned, ground or cold drawn and finally softened	—	—	—	—	—	—	—	187 max.

^a See also option A.3.