

<b>MONITORING INSTRUCTION FOR INSPECTION</b>		Issue No. 01 Rev. No. 05
		Date of Issue 17/11/2017
<b>DIAPHRAGM (ASSY ADAPTER)</b>		<b>HAPP/QA/SC/ZI/011</b>

DRAWING NO. : NASK 1068/7  
MATERIAL SPECN : STEEL AS PER IS 2856: 1987 GR.3  
END USE : FOR ASSY ADAPTER OF OF RGB 60.

**A. INSPECTION CHECK TO BE CARRIED OUT AT FIRM'S PREMISES FOR RAW MATERIAL BY NAI.**

SL. NO.	CHARACTERISTICS	SPECIFICATION / REQUIREMENT	SAMPLE SIZE
1.	WORKMANSHIP (VISUAL)	THE MATERIAL SHALL BE CLEAN AND FREE FROM SHARP EDGES, INTERNAL FLAWS LIKE PIN HOLES, POROSITY, CRACKS & DISTORTION OR OTHER HARMFUL DEFECTS.	100%
2.	DIMENSIONS	AS PER DRAWING.	
3.	CHEMICAL COMPOSITION (%)	C - 0.25 Max Mn - 0.70 Max Si - 0.60 Max P - 0.040 Max S - 0.045 Max	ONE SAMPLE PER HEAT
4.	MECHANICAL PROPERTIES	UTS : 415 - 585 Mpa YS : 205 Mpa.Min E : 22% Min. IMPACT TEST (CHARPY V- NOTCH) - 22 Min	
5.	RADIOGRAPHIC EXAMINATION	AS PER IS 2595:1978	100%

**NOTE :**

- THE RAW MATERIAL SAMPLES / TEST SPECIMENS FOR EACH HEAT SHALL BE SELECTED FROM BULK AT FIRM'S PREMISES BY NAI REP. AND FORWARDED TO NEARBY NABL ACCREDITED LABORATORY FOR TESTING.
- THE FIRM HAS TO CHECK FOR THE DIMENSIONS, VISUAL DEFECTS AND MARKING AS PER TABLE A. AFTER COMPLETION OF DIMENSIONAL, CHEMICAL AND MECHANICAL PROPERTIES, THE FIRM HAS TO SUBMIT/FORWARD THE FOLLOWING DOCUMENTS TO NAI/TRICHY WITH A COPY TO HAPP.
  - THE RAW MATERIAL ORIGINAL MANUFACTURER'S CERTIFICATE, DETAILS OF HEAT NUMBER, QUANTITY PURCHASED AND NUMBER OF BARS ARE TO BE SUBMITTED.
  - THE CHEMICAL AND MECHANICAL TEST CERTIFICATES FROM NABL ACCREDITED LAB AS PER TABLE A.
  - DIMENSION REPORT INCLUDING VISUAL AS PER TABLE A.
  - GUARANTEE/WARRANTEE CERTIFICATE OF ORIGINAL MANUFACTURER.
- MANUFACTURING OF COMPONENT SHOULD BE DONE ONLY AFTER GETTING RAW MATERIAL CLEARANCE FROM NAI AND SHOULD BE MANUFACTURED AS PER THE MANUFACTURING QUALITY PLAN OF NAI.

**B. INSPECTION CHECK TO BE CARRIED OUT AT FIRM'S PREMISES BY NAI.  
(FINISHED PRODUCT STAGE)**

SL. NO	CHARACTERISTICS	SPECIFICATION / REQUIREMENT	SAMPLE SIZE
1	WORKMANSHIP (VISUAL)	THE MATERIAL SHALL BE CLEAN AND FREE FROM SHARP EDGES, INTERNAL FLAWS LIKE PIN HOLES, POROSITY, CRACKS & DISTORTION OR OTHER HARMFUL DEFECTS.	100 %
2	DIMENSION	AS PER DRAWING.	
3	RADIOGRAPHIC EXAMINATION	AS PER IS 2595:1978	100%
4	PROTECTIVE FINISH	AS PER DRAWING	100%
5	PACKING	SUITABLY PACKED TO AVOID TRANSIT DAMAGES AND SECURELY TIED WITH METAL / PLASTIC TAG, PACKING SLIP SHOULD SPECIFY HAPP SUPPLY ORDER NO. QUANTITY IN NOS. AND PRODUCER'S NAME OR CODE. THE MATERIAL SHOULD BE FREE FROM CORROSION. ( APPLY RUST PREVENT OIL )	100%

4. 100 % LOT SHALL BE INSPECTED BY NAI REP. / INSPECTORS AT FIRM'S PREMISES

**ISSUED BY  
STANDARD CELL**

MPSNO17046, 08/11/17  
*[Signature]*  
DATE: 27/11 SIGNATURE

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5.. MATERIAL TO BE DESPATCHED TO HAPP ONLY AFTER GETTING CLEARANCE FROM NAI.

6. THE FIRM HAS TO DESPATCH THE MATERIAL/COMPONENT ALONG WITH NAI I-NOTE ONLY.

**C. INSPECTION CHECK TO BE CARRIED OUT AT HAPP AFTER RECEIPT BY NAI.**

SL. NO.	CHARACTERISTICS	SPECIFICATION / REQUIREMENT	SAMPLE SIZE
1	WORKMANSHIP (VISUAL)	THE MATERIAL SHALL BE CLEAN AND FREE FROM SHARP EDGES, INTERNAL FLAWS LIKE PIN HOLES, POROSITY, CRACKS & DISTORTION OR OTHER HARMFUL DEFECTS.	100 %
2	DIMENSIONS	AS PER DRAWING.	
3	PACKING	SUITABLY PACKED TO AVOID TRANSIT DAMAGES AND SECURELY TIED WITH METAL / PLASTIC TAG.PACKING SLIP SHOULD SPECIFY HAPP SUPPLY ORDER NO. QUANTITY IN NOS. AND PRODUCER'S NAME OR CODE.THE MATERIAL SHOULD BE FREE FROM CORROSION. ( APPLY RUST PREVENT OIL )	100 %

**D. VERIFICATION OF INSPECTION DOCUMENTS.**

FOLLOWING INSPECTION DOCUMENTS MUST BE ENCLOSED WITH EACH SUPPLY.

SL. NO.	INSPECTION DOCUMENTS
1.	THE RAW MATERIAL ORIGINAL MANUFACTURER'S CERTIFICATE, DETAILS OF HEAT NUMBER, QUANTITY PURCHASED AND NUMBER OF BARS ETC.
2.	THE CHEMICAL AND MECHANICAL TEST CERTIFICATES FROM NABL ACCREDITED LAB.
3.	DIMENSION REPORT INCLUDING VISUAL.
4.	PACKING SLIP DETAILS.
5.	GUARANTEE / WARRANTY CERTIFICATE OF SUPPLIER.
6.	NAI - I-NOTE.

7. MATERIAL/COMPONENT WILL BE CLEARED/ACCEPTED BASED ON NAI I-NOTE/CLEARANCE CERTIFICATE ONLY.

8. MATERIAL HAS TO BE REPLACED 100% BY THE FIRM IN CASE OF ANY DAMAGES DURING INSPECTION AT HAPP, TRICHY.

*Mithlesh*  
MITHLESH CHANDRA  
WM / P  
MEMBER / MI COMMITTEE

*D.Bhaskar RAO*  
D.BHASKAR RAO  
WM / E  
MEMBER / MI COMMITTEE

*T.Prabhu*  
T.PRABHU  
JT.GM / QA  
CHAIRMAN / MI COMMITTEE

**ISSUED BY  
STANDARD CELL**  
MPSNO: 170116, DT: 08/11/17  
*6-ary*  
**DATE: 27/11 SIGNATURE:**



**MANUFACTURING QUALITY PLAN - ROCKET SHELL - RGB 60**

**ISSUED BY**  
**STANDARD CELL**  
 MPS No. 170116 08/11/17  
 DATE: 27/11 SIGNATURE: [Signature]

ITEM DESCRIPTION	DIAPHRAGM (ADAPTOR)
REF. DOCUMENT	NASK 1068/7 (PROV)
MATERIAL	STEEL CASTING AS PER IS:2856-87 Gr.3
HEAT TREATMENT	NORMALISED

Component name/operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by
Diaphragm (Raw material)	General finish, appearance	Semi critical	Visual	100% or as per the discretion of inspection authority	STEEL CASTING AS PER IS:2856-87 Gr.3 normalised condition	STEEL CASTING AS PER IS:2856-87 Gr.3 normalised condition	Inspn. Report	Vis. Inspn.
	Chemical properties	Critical	Chemical lab analysis	Three sample per lot or as per the discretion of inspection authority			Test report from NABL Lab	Accept. By NAI
	Mechanical properties	Critical	Mechanical lab analysis	Three sample per lot or as per the discretion of inspection authority			Test report from NABL Lab	Accept. By NAI
In process - Pattern making, casting, normalizing, turning, milling, drilling, tapping and plating	Dimensions specified in the Sinspection report of the component	Critical	Dimensional measurement	100% or as per the discretion of inspection authority	Tolerance specified as per DRG.NASK 1068/7 (PROV)	Tolerance specified as per DRG.NASK 1068/7 (PROV)	NAI inspection report	Accept. By NAI
	Radiographic examination	Critical	Visual	100% or as per the discretion of inspection authority	As Per IS 2595:1978	As Per IS 2595:1978	Test report from NABL Lab	Accept. By NAI
Final finish	Chromium plating	Critical	Visual / Test sample	Sample as per the discretion of inspection authority	IS:1337	IS:1337	As per relevant drg	
	Microns							

## Inspection Report

Description of the item	DIAPHRAGM
Drawing No.	NASK 1068/7 (PROV)
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	Front collar outer dia	30			Major			
2	Collar internal thread	M 24 x 1.5	Screw gauge GO & NO GO		Major			
3	Dia. On face	104			Minor			
4	Outer step dia.	145.8 -0.5			Major			
5	Outer dia.	151.8 -0.5			Major			
6	Outer chamfer	2 x 45 deg			Minor			
7	Holes dia. on PCD 65 ( 8 nos)	18			Minor			
8	PCD of 18 dia. holes	65			Major			
9	Dia. of holes located on circumference x deep (2 nos)	5.0x6 Deep			Major			
10	Centre distance of holes on circumference from one end	15			Major			
11	Length of outer dia 151.8	21			Major			
12	Length	26.5			Major			
13	Length	33			Major			
14	Overall length	42			Major			
15	Tapped holes on PCD 103 ( 2 nos) x deep	M 5 x 0.8 x 10 deep		As specified in the relevant drawing.	Major			
16	PCD of tapped hole M5 x 0.8	103			Major			
17	Tapped hole-counter dia depth	2.5			Major			
18	Counter dia. Around above tap hole	17			Major			
19	Inner dia.	95 + 0.2			Major			
20	Chamfer	1 x 45 deg			Minor			
21	Hole dia on PCD 38 ( 2 nos)	8			Major			
22	PCD of 8 dia holes	38			Major			
23	Fin width	9.6			Minor			
24	Number of fins	16			Major			
25	Fin width	6 ± 0.3			Minor			
26	Angle of each fin	22 deg 30 min			Major			
27	Fin radius at section XX	R 3			Minor			
28	Fin height	26.5			Minor			
29	Outer corner radius	R 5			Minor			
30	Outer corner radius	R 7			Minor			
31	Fin Radius at section YY	2.5			Minor			

Special Notes:

Sno	Note	Observations
1	95 dia tolerance on positive side	
2	Phosphating to specification IS 3618 class B	
3	Chromium plating thick 40 micron to spec: IS 1337	
4	Blow holes to be repaired as per IS 5530 - 1969 as cast condition but all features at all points must be within the specified limit.	
5	100% Radiographic Examination to be conducted as per IS 2595:1978	
6	Plating type, thickness shall be confirmed by stripping method ( IS 3203-1998) and supplier test certificates also to be verified.	

ISSUED BY  
**STANDARD CELL**  
MPSNO: 170116, Dt: 08/11/17  
DATE: 27/11 SIGNATURE: *R. S. J.*