



CGI-8

HGE

Q A PLAN FOR STUDS AND NUTS AND KEY RESP. I. N.

SHEET 1 OF 2

Q A PLAN NO. - QSP/HG/101

DT. 13.02.93

REV. 02 Dt. 15.02.96

SL NO	COMPONENT/ASSY. OPERATION	CHARACTERISTICS	CLASS TYPE	QUANTUM OF CHECK	REF. DOC.	RECORD FORMAT	AGENCY	REMARKS
1.0	Inspection at supplier's works.							
1.1	Bar Material	a) Material certification (Heat treatment, Chemical analysis and Mechanical properties)	Maj	Review Sample	As per drg.	TC	Supp/ BHEL	
		b) Material identification.	Maj			"	"	
1.2	Bolts, studs and Nuts.	a) Visual & dimensional checks of studs and nuts/bolts.	Maj	V/D	Sample as per IS	Drg. or IS2614 1969 Table-1	Supp QC record	"
		b) Length measurement and straightness of each stud/Bolts as applicable.	Cri	"	100%	Drg.	"	"
		c) DP on threaded portion of Bolts/Studs.	Maj	DP	10%		TC	Sample/ No cracks BHEL
		d) Witness tests for physical, chemical & Mechanical properties of studs & nuts/bolts.	Cri	Tests	Sample (2 nos. studs & nuts each)		"	"

PREPARED BY - S. Srinivasan 15.2.96

CHECKED BY - [Signature]

APPROVED BY - [Signature]



QCI-9

Q A PLAN FOR- STUDS AND NUTS

P. I. No. -

SHEET 2 OF 2

Q A PLAN NO. - QSP/110/101

DT. 13.10.95

REV. 02

DT. 15.2.96

SL NO	COMPONENT/ASSY. / OPERATION	CHARACTERISTICS	CLASS	TYPE	QUANTUM OF CHECK	REF. DOC.	RECORD FORMAT	AGENCY	REMARKS
		* a) Check for rolled & truncated thread.	Maj	V	100%	drg.	Supp. QC records	Supp/ BHEL	
		E) Marking, identification protection & despatch.		V	"	"	TC	"	

Notes :

- Threads of bolts, studs & nuts to be proved by Go & NO Go gauges by the supplier & nuts should be interchangeable. In case where set of stud and nuts are ordered, there should be no lateral play between the stud and the nut. In case where only studs or nuts are ordered, separately to cover shortage etc. there should be no play between go gauge and nut/stud as the case may be.
- Each stud shall be supplied with a nut at each end, if applicable.
- Bolts, studs and nuts shall be coated with rust preventive compound before despatch.
- Suitable caps to be provided on threaded portion of studs.
- The attached log sheet is to be filled up and signed by supplier and BHEL or its authorised representative.

Certification : Supplier shall submit 6 copies of test certificates duly countersigned by BHEL or its authorized representative incorporating the following :-

- 1) Manufacturer's test certificate test results of bar material.
- ii) Test certificates of tests conducted on studs, bolts and nuts as per IS.
- iii) Dimensional records.

* - For RIM Studs only.

Abbreviations: Maj - Major, V - Visual, D - Dimension, Cri - Critical, TC = Test Certificate. Supp - Supplier, Mech - Mechanical, Elect - Electrical, QC - Quality Control. DP - Dye penetration test.

/rev/

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APPROVED BY [Signature]

LOG SHEET FOR QA PLAN NO. QSP/HG/101

Sr. No.	Description	Sampling Plan	Results	Remarks
1 A	Material certification (Raw Material) (i) Chemical analysis (ii) Heat treatment (iii) Mechanical properties	1 no. (In case of any discrepancy, sampling plan of table 2 of IS 2614 shall apply)	Ref. TC (Annex 1); - do - (Annex 2); - do - (Annex 3);	To be annexed by the party
1 B	In case of any intermediate metal forming process followed (other than machining/grinding) prior to thread formation etc.		Details of heat treatment process with Temp.-Time cycle on complete lot Ref Annex - 2a	To be annexed by the party
2.	Checks on finished bolts & nuts			
2 A	Visual check	Sampling as per IS 2614 IS 2614 table 1	OK/NOT OK	
2 B	GO-NOGO check for threads (Refer note 1 of QA plan) (i) Nut (ii) Stud (iii) Nut Interchangeability	100%	OK/NOT OK OK/NOT OK OK/NOT OK	
2 C	Dimension check (i) Length (ii) Straightness (iv) Shank diameter	100% 100% Sampling as per IS 2614	OK/NOT OK OK/NOT OK OK/NOT OK	

Sr.No.	Description	Sampling Plan	Results	Remarks
2 D	Check for rolled and truncated threads (for rim studs)	100%	OK/NOT OK	
2 E	DP test on stud threads	10%	OK/NOT OK	
2 F	Witness test for i) Chemical analysis ii) Mechanical properties	2 nos studs	Refer TC (Annex. 4) " (Annex. 5)	To be annexed by the party
3	Despatch			
	(i) Marking and Identification	100%	Provided	
	(ii) Nuts assembled on both ends of stud	100%	OK/NOT OK	
	(iii) Rust preventive applied	100%	OK/NOT OK	
	(iv) Thread protection caps on studs provided	100%	OK/NOT OK	
4	Test certificates countersigned by BHEL/ authorised representative	100%		
	(i) Material (Annexures 1,2,3,2a)		OK/NOT OK	
	(ii) Checks as per clause Sr.No. 2A-2F		OK/NOT OK	

Signature of supplier

Signature of BHEL Inspector

List of enclosures

- Annexure 1
- 2
- 3
- 2a