

SECTION - VII

INSPECTION AND TESTING

1.0 Pre-dispatch inspection of plant and equipment at manufacturer's premises shall be carried out by Employer/his Consultant to ensure conformance to the specified requirements indicated in specification, drawings and relevant standards.

2.0 All testing facilities, measuring instruments calibrated from NABL laboratory, labor, power, etc required to carry out testing and inspection shall be provided by CONTRACTER at free of cost.

3.0 The CONTRACTER shall furnish Inspection Procedure (IP) indicating the complete list of tests he proposes to conduct and the test reports he proposes to submit in support of the same. The Employer may ask for any special tests to be carried out for any equipment. Employer/his Consultant shall finalize the IP furnished by CONTRACTER. Standard Inspection Procedure format attached with bid under APPENDIX-1

4.0 As far as possible, offered equipment shall be shop assembled for control assembly check, free running, performance test, routine tests, type tests load/overload test etc as appropriate.

5.0 Complete inspection dossier containing test certificates for raw material, bought out items, in process checking reports and other final inspection reports shall be supplied along with the equipment.

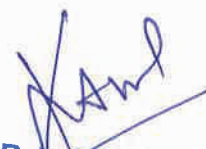
6.0 If the equipment is supplied in disassembly condition, erection match marking shall be provided for such equipment to facilitate proper assembly and erection at site.

7.0 Proper packing and other precautions shall be carried out by CONTRACTER during dispatch as per packing and dispatch instruction stipulated in the SBD, Contract and/or prepared by CONTRACTER to prevent transit damages.

8.0 CONTRACTER shall strictly follow the General Specification for Inspection and Testing.


 पी. सन्तोष रेड्डी P. SANTHOSH REDDY
 वरिष्ठ प्रबंधक (यां)-यूटी
 Sr. Manager (Mech.)-UIT
 अभिकल्पना एवं अभियंत्रण विभाग
 Design & Engineering Dept.
 आर आई एस एल विद्यालय परिसर इलाहाबाद संयंत्र
 RINL, Visakhapatnam Steel Plant
 विशाखपट्टणम-visakhapatnam-530 031

VII-1


 Rahul Kumar Bansal
 Dy. Manager
 Power Sector-SSBG (R & M)
 Bharat Heavy Electricals Limited
 2nd Floor, KRIBHCO Bhawan
 A-8-10, Sector-1, Noida-201 301 (U.P.)

M.N. DASTUR & COMPANY (P) LTD.

012

Contract/P.O. No.
Specification No.
Dastur IP No.& Rev

Project	Contractor's Name	Package Description
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श्री. संतोष रेडि. P. S. N. 2064 R
 परियोजना प्रबंधक
 Sr. Manager (Mech.)-U
 अभियंत्रण व सामग्री विभाग
 Design & Engineering Dept
 आर. नरु. ई. ए. विराटपुष्पा
 विभागाध्यक्ष
 विद्युत विभाग

Project
 Package
 Contracty
 Billing
 Est-

X = Inspection to be done by contractor and/or manufacturer and internal inspection reports and test certificates duly verified, accepted and endorsed by the contractor to be submitted along with Inspection Call for review by the Inspection Agency (Consultant/Client).

0 = To be offered for witness inspection by the Inspection Agency (Consultant/Client) along with relevant supporting documents.

NOTE: Use Alpha Numericals code as indicated in **ANNEXURE-A of FM 1A, Rev.02** for extent of inspection and tests. Additional codes and Description for extent of Inspection and Test may be added as applicable for plant and equipment.



Signature of Contractor & Seal

Rahul Kumar Banerjee
Dy. Manager
Power Sector-SSBG (R & I)
Bharat Heavy Electricals Ltd.
2nd Floor, KRIBHCO Bhawan
A-6-16 Sector-1, Noida-201 301

Signature of Client

Name:

Signature of Inspection Agency
Name: M.N. Dastur & Company (P) L

M.N. DASTUR & COMPANY (P) LTD.

ANNEXURE-A OF FM IA, REV.02

INSPECTION PROCEDURE FOR MECHANICAL EQUIPMENT & STRUCTURES AT MANUFACTURERS' WORKS

Contract/P.O. No.
Specification No. :-
Dastur IP No. & Rev.

List-A			List-B			List-C		
Code	Inspection Checks/Tests	Code	Inspection Checks/Tests	Code	Documents to be submitted	Code	Inspection Checks/Tests	Code
B1	Visual & Dimensional Check	B9	Dust/water ingress test	C1	Welding Procedure Specification (WPS),	C9	Equipment	
B2	Raw material	B10	Performance test		Procedure Qualification Record (PQR),		Calibration reports	
B3	(Physical & Chemical test from NABL accredited lab./Mill TC)	B11	(with Characteristic Curve)		Welding Operator Performance Qualification (WPO)		Certificate of Interchangeability report	
B4	Fitment & Alignment Check	B12	No load/Free Run Test		Mfg. Test Certificates for bought out items		C10	Conformance (COC)
B5	Control assembly check	B13	Load/Overload test		IBR/other Statutory test report.		C11	Interchangeability report
B6	Heat treatment/Stress Relieving	B14	Measurement of Speed		Internal inspection report		C12	Temp. rise reports
B7	Hardness test	B15	Vibration, Noise, Temp. rise test		Galvanization test report		C13	Vibration, Noise measurement report
B8	Spark test for Lining	B16	Pressure test		Material Test Certificates (from NABL/Mill TC)		C14	Strip test report
	Friction factor test	B17	Leakage Test		Painting Certificate		C15	Non-Destructive Test report
			Dynamic Balancing test		Performance Test Report & Curves		C16	

GENERAL NOTES:

- 1) Inspection Procedure shall be submitted for each equipment separately with break up of assembly/sub-assembly and part/component or for group of equipment having same specification.
- 2) Painting to be done after inspection as per approved Painting Specification. Shop Painting Certificate as per format FM VIA shall be submitted.
- 3) Valid calibration certificate from NABL accredited laboratory shall be submitted for measuring instrument and test equipment used during inspection.
- 4) Three sets of test certificates (2 sets hard & 1 set soft) duly verified and signed by the main Contractor shall be furnished prior to/during inspection.
- 5) Random sampling for mass produced items, whenever so identified, shall be as per relevant National/International Standard.
- 6) Vendor approved detail drawing shall be made available during inspection as required correlated with Dastur approved GA drawing
- 7) Performance test shall be carried out at manufacturer's works for one of each type/size from one lot of Fans, Pumps & Compressors. Balance will be run tested.
- 8) If quantity is in lot/set, substantial quantity shall be offered and lot/set break up details should be certified by the competent authority.

Signature of Contractor & Seal

Signature of Client

Signature of Inspection Agency

Name: M.N. Dastur & Company (P) Ltd.

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Contract/P.O. No.

Specification No.

Dastur IP No. & Rev. :

Hand

Inspection Category:

Inspection to be done by contractor and/or manufacturer and internal inspection reports and test certificates duly verified, accepted and endorsed by the contractor to be submitted along with Inspection Call for review by the Inspection Agency (Consultant/Client).

0 = To be offered for witness inspection by the Inspection Agency (Consultant/Client) along with relevant supporting documents.

GENERAL NOTES:

- ### Instructions For Filling Up:

- 1) Use Alpha Numericals codes as indicated in **ANNEXURE-A of FM IB, Rev.02** for extent of Inspection and Tests and submission of test certificates and documents. Additional codes and Description for extent of Inspection and Test may be added as applicable.

Signature of Client

Name:

Signature of Inspection Agency
Name: M.N. Dastur & Company (P) Ltd.



Inspection Procedure for Refractory Material at Manufacturers' Works

Dastur IP No. & Rev. :

List-A

Approved/Cleared Document

Code	Document	Code	Document
A1	Data Sheet Individual Brick, Monolithic	A4	Approved quantity in weight/numbers
A2	Drawing	A5	Technical Specification
A3	Assembly Drawing		

List-B

Codes for Extent of Inspection & Tests Certificates.

CODES	DESCRIPTION	METHODOLOGY	CODES	DESCRIPTION	METHODOLOGY
B1	Visual		B20	Warpage	
B2	Dimension & Geometry		B21	Creep test	
B3	Chemical Composition		B22	Permeability test	
B4	Apparent Porosity		B23	Hydration Resistance test	
B5	True Specific Gravity		B24	Lap joint strength test	
B6	Bulk/True density		B25	Abrasion Resistance	
B7	Cold Crushing Strength		B26	Cold Bonding test	
B8	Pyrometric Cone Equivalent		B27	Oxidation Resistance	
B9	Refractoriness Under Load		B28	Workability test	
B10	Spalling Resistance		B29	Surface Area	
B11	Permanent Linear Change after heating		B30	Corrosion Resistance	
B12	Modulus of rupture/Flexural strength		B31	Consistency	
B13	Reversible Thermal Expansion		B32	Internal Inspection Report	
B14	Resistance to disintegration effect of Carbon monoxide gas		B33	Safe Working Temperature	
B15	Water Absorption		B34	Lot sampling	
B16	Acid Resistance		B35	Part Assembly	
B17	Thermal Conductivity		B36	Control Assembly	
B18	Drying & Firing shrinkage		B37	Residual Quartz (RQ)	
B19	Shieve analysis		B38	Loose BD	

Signature of Contractor

Name:

Signature of Client

Name:

Signature of Inspection Agency

Name: M.N. Dastur & Company (P) Ltd.

Signature of M.N. DASTUR & COMPANY (P) LTD.
 Sr. Manager - Quality Control
 Design & Engineering Dept.
 1st Floor, KRIHCO Bhawan
 A-8-10, Sector-1, Noida-201301
 Phone: 0120-2610331

Signature of RAOUL KUMAR BANSAL
 Dy. Manager
 Power Sector-SSBG (R & M)
 Bharat Heavy Electricals Limited
 2nd Floor, KRIHCO Bhawan
 A-8-10, Sector-1, Noida-201301
 Page 2 of 2

INSPECTION PROCEDURE FOR ELECTRICAL ITEMS AT MANUFACTURERS' WORKS

Contract/P.O. No.	
Specification No.	
Dastur IP No. & Rev.	

Project	Contractor's Name	Package Description
1	2	3

Design &

RINL, Visakhapatnam Steel Plant
विशाखपट्टणम-530 031

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Inspection Category:

Inspection to be done by contractor and/or manufacturer and internal inspection reports and test certificates duly verified, accepted and endorsed by the contractor to be submitted along with Inspection Call for review by the Inspection Agency (Consultant/Client).

To be offered for witness inspection by the Inspection Agency (Consultant/Client) along with relevant supporting documents.

NOTE: Use Alpha Numericals code as indicated in **ANNEXURE-IIA, REV.02** for extent of inspection and tests. Additional codes and Description for extent of Inspection and Test may be added as applicable for plant and equipment.

Signature of Contractor

Signature of Client

Signature of Inspection Agency

Name: M.N. Dastur & Company (P) Ltd.

Rahul Kumar Bansal
Dy. Manager
Power Sector-SSBG (R & M)
Sharat Heavy Electricals Limited
2nd Floor, KRIBHCO Bhawan
AG-12 Sector-1, Noida-201 301 (U.P.)

ANNEXURE-A OF FM IIA, REV.02

INSPECTION PROCEDURE FOR ELECTRICAL ITEMS AT MANUFACTURERS' WORKS

Project
Contractor's Name
Package Description

Contract/P.O. No.
Specification No.
Dastur IP No. & Rev.

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List-A			List-B		List-C	
Code	Approved/Cleared Documents	Code	Documents to be submitted	Code	Inspection /Tests	
A1	GA Drawing duly approved	B1	Routine test certificate	C1	Gen.arrangement & workmanship	
A2	Data Sheet duly approved	B2	Acceptance Test Certificate	C2	Dimensional check	
A3	BOM duly approved	B3	Type test certificate	C3	Checking of bill of material	
A4	SLD /Schematic duly approved	B4	Manufacturer's test certificate.	C4	Operational & functional tests	
A5	Terminal Plan duly approved	B5	Test certificate for bought out items.	C5	Routine tests as per relevant standard	
A6	Cable Schedule/Earthing Schedule	B6	Certificate for enclosure	C6	Acceptance tests as per relevant standard	
A7	Manufacturer's Catalogue	B7	Degree of Protection	C7	Type tests as per relevant standard	
A8	Control Philosophy	B8	Painting Certificate.	C8	Insulation resistance test	
A9		B9	FLP/Explosion proof certificate from appropriate authority.	C9	High Voltage Test	
A10		B10	Galvanization test Certificate.	C10	Check for P1 value	
A11		B11	Certificate, from statutory authority.	C11	Contact resistance check	
		B12	Contractor's compliance certificate.	C12	Check for noise & vibration	
		B13	Manufacturer's conformity certificate.	C13	Checks for accessories	
		B14	Material test certificate (from NABL / Mill T.C.)	C14	Pressure/vacuum test	
		B15	Stage test reports	C15	Oil BDV test	
		B16	Interchangeability report	C16	Oil leakage test	
				C17	Ripple & regulation measurement.	
				C18	Load test.	

 Rahul Kumar Dy. Manag Power Sector-SSB Bharat Heavy Electric 2nd Floor, KRIBHCO A-8-10, Sector-1, Noida-201301	
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Rahul Kumar Banerjee
Dy. Manager
Power Sector-SSBG (R & B)
Bharat Heavy Electricals Ltd.
2nd Floor, KRIBHCO Bhawan
A-8-10, Sector-1, Noida-201 301 (U.P.)

GENERAL NOTES:

- 1) Inspection Procedure shall be submitted for each equipment separately with break up of assembly/sub-assembly and part/component or for group of equipment having same specification.
- 2) Valid calibration certificate from NABL accredited laboratory shall be submitted for measuring instrument and test equipment used during inspection.
- 3) Three sets of test certificates (2 sets hard & 1 set soft) duly verified and signed by the main Contractor shall be furnished prior to/during inspection.
- 4) All Type test certificates should be from national/international approved testing houses unless the same have been carried out by the contractor/manufacturer at manufacturer's premises with test instruments having valid calibration traceable to National standards.
- 5) If quantity is in lot/set, substantial quantity shall be offered and lot/set break-up details should be certified by the competent authority.

Signature of Contractor

Signature of Client

Name:

Signature of Inspection Agency
Name: M.N. Dastur & Company (P) Ltd.

INSPECTION PROCEDURE FOR INSTRUMENTATION, COMMUNICATION & AUTOMATION ITEMS AT MANUFACTURERS' WORKS

Project

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Contract/P.O. No.

Contractor's Name :

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Specification No.

Package Description :

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Dastur IP No. & Rev.

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Inspection Category:	
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X = inspection to be done by contractor and/or manufacturer and internal inspection reports and test certificates duly verified, accepted and endorsed by the contractor to be submitted along with Inspection Call for review by the Inspection Agency (Consultant/Client).

0 = To be offered for witness inspection by the Inspection Agency (Consultant/Client) along with relevant supporting documents.

NOTE:

Use Alpha Numericals code as indicated in **ANNEXURE-IIB, REV.02** for extent of inspection and tests. Additional codes and Description for extent of inspection and Test may be added as applicable for plant and equipment.

Signature of Contractor

Signature of Client

Name:

Signature of Inspection Agency

Name: M.N. Dastur & Company (P) Ltd.

Name

Rahul Kumar Bansal
Dy. Manager

Power Sector **SSBG** (R & M)

Bharat Heavy Electricals Limited
2nd Floor, KRIBHCO Bhawan
A 8-10, Sector-1, Noida-201 301 (U.P.)

A 8-10, Sector-1, Noida-201 301 (U.P.)

M.N. DASTUR & COMPANY (P) LTD.

ANNEXURE-A OF FM IIB, REV.02

INSPECTION PROCEDURE FOR INSTRUMENTATION, COMMUNICATION & AUTOMATION ITEMS AT MANUFACTURERS' WORKS

Project :
Contractor's Name :
Package Description :
Contract/P.O. No.
Specification No.
Dastur IP No. & Rev. :

List-A		List-B		List-C	
Code	Abbreviation for Approved/ Cleared Documents	Code	Abbreviation for Supporting Documents	Code	List of Checks/Tests
A1	GA Drawing	B1	Routine test certificate	C1	Gen. arrangement & workmanship
A2	Data Sheet	B2	Type test certificate	C2	Dimensional check
A3	BOM	B3	Manufacturer's test certificate.	C3	Operational & functional tests
A4	SLD/Schematic	B4	Calibration certificate.	C4	Component check as per
A5	Terminal Plan	B5	TCs for bought out items.	C5	Bill of Materials
A6	Manufacturer's Catalogue	B6	Certificate for enclosure	C6	Routine Tests
A7	P&I Diagram	B7	Degree of Protection	C7	Type tests
A8	System configuration diagram	B8	Painting Certificate.		System integration Test (SIT)/
A9	Input/output list		FLP/Explosion proof		Factory Acceptance Test (FAT)
A10	FAT/SIT document		certificate from		to be done on original
A11	Control Philosophy		appropriate authority.		hardware based on approved
A12					SIT/FAT documents.
A13					

GENERAL NOTES:

- 1) Inspection Procedure shall be submitted for each equipment separately with break up of assembly/sub-assembly and part/component or for group of equipment having same specification.
- 2) Valid calibration certificate from NABL accredited laboratory shall be submitted for measuring instrument and test equipment used during inspection.
- 3) Three sets of test certificates (2 sets hard & 1 set soft) duly verified and signed by the main Contractor shall be furnished prior to/during inspection.
- 4) All type test certificates should be from national/international approved testing houses unless the same have been carried out by the contractor/manufacturer at manufacturer's premises with test instruments having valid calibration traceable to National standards
- 5) If quantity is in lot/set, substantial quantity shall be offered and lot/set break-up details should be certified by the competent authority.

Rahul Kumar Bansal

Dy. Manager

Bharat Heavy Electricals Limited
2nd Floor, KRIBHCO Bhawan
A 8-10, Sector-1, Noida-201 301 (U.P.)

Signature of Contractor

Name

Signature of Client

Name:

Signature of Inspection Agency

Name: M.N. Dastur & Company (P) Ltd.

878

Dr. P. SANTHOSH REDDY
Sr. Manager (Mech. IUT)
Design & Engineering Dept.
M/s. Visakhapatnam Steel
Corporation, Visakhapatnam.

MONTHLY INSPECTION PLAN

For the month of

Contractor:
Order No. &

Project:

पी. संतोष रेड्डी - P. SANTOSH REDDY
वरिष्ठ प्रबंधक (या) - यू टी
Sr. Manager (Mech.) - UT
अभिकल्प व अभियांत्रिकी विभाग
Design & Engineering Dept.
आर आई एन एल, विशाखपट्टणम इस्पात संयंत्र
RINL, Visakhapatnam Steel Plant
विशाखपट्टणम - Visakhapatnam-530 031

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Kand
Rahul Kumar Bansal
Dy. Manager
Power Sector-SSBG (R & M)
Bharat Heavy Electricals Limited
2nd Floor, KRISHCO Bhawan
A-10, Sector-1, Noida-201301 (U.P.)
for Contract to
FM - III A - REV 00

Project Name :

Contract / P.O. No. :

Completion Date as per P.O. :

Plant/System :

Signature of Main Contractor