

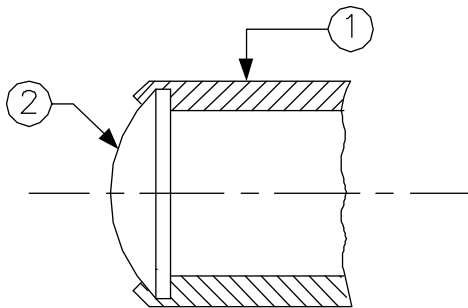
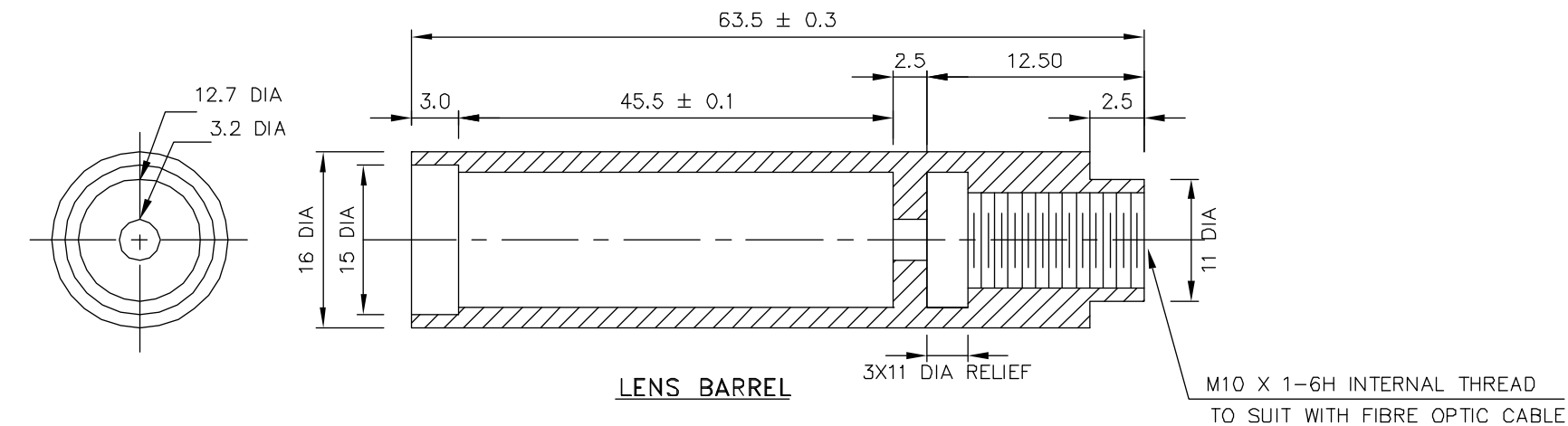
PRE QUALIFICATION REQUIREMENT

AYFOC for BHELSCAN System

Sl. No.	PQR	Vendor's compliance
1.	The vendor shall be active in the manufacturing & supplying these offered fibre optic cable & Lens Barrel Assembly to BHELSCAN system available in coal fired power plants in India for a period of at least 5 years from the date of enquiry.	

3-95-088-04836

DRAWING NO:



ASSEMBLY OF LENS INTO
LENS BARREL

INSERT LENS IN RECESSED END.
ROLL LIP OF LENS BARREL
OVER EDGE OF LENS.

PARTS LIST		
ITEM NO.	REQD. NO.	DESCRIPTION
1	1	LENS BARREL
2	1	LENS-PLANO CONVEX.MELLES GRIOT PROD. NO. 01 LP X 105 OR EQUIVALENT

NOTES	
1. TOLERANCE : ±0.3 MM UNLESS OTHERWISE NOTED.	
2. ALL DIMENSIONS ARE IN MM.	

MATERIAL	
18Cr – 8Ni STAINLESS AISI GR 303 HR.	

REV	DATE	ALTERED : <i>ச.தமிழ்</i> 120214	REV	DATE	ALTERED : <i>ச.தமிழ்</i> 120214
05	120214	CHD. / APPD. :	03	231298	CHD. / APPD. : <i>ச.தமிழ்</i> 231298
ZONE	ITEM NO.-2 DESCRIPTION REVISED				
REV	DATE	ALTERED : <i>ச.தமிழ்</i> 120507	REV	DATE	ALTERED : <i>ச.தமிழ்</i> 231298
04	120507	CHD. / APPD. Sd. / DS-KAK	03	231298	CHD. / APPD. : Sd./DS-SRC
ZONE	ITEM NO. 2 – DESCRIPTION REVISED.				
REV	DATE	ALTERED : <i>ச.தமிழ்</i> 270898	REV	DATE	ALTERED : Sd. / DG
02	150998	CHD. / APPD. : Sd./DS-SRC	01	110292	CHD. / APPD. : Sd. / GJ
ZONE	1. REVISED BASED ON C&I LETTER CI:QAC:55/DT. 06/08/98. 2. GENERAL REVISION AND DRAWN IN ACAD.				
ZONE	THREAD SIZE CORRECTED TO MATCH WITH THE IMPORTED FIBER OPTIC CABLE				

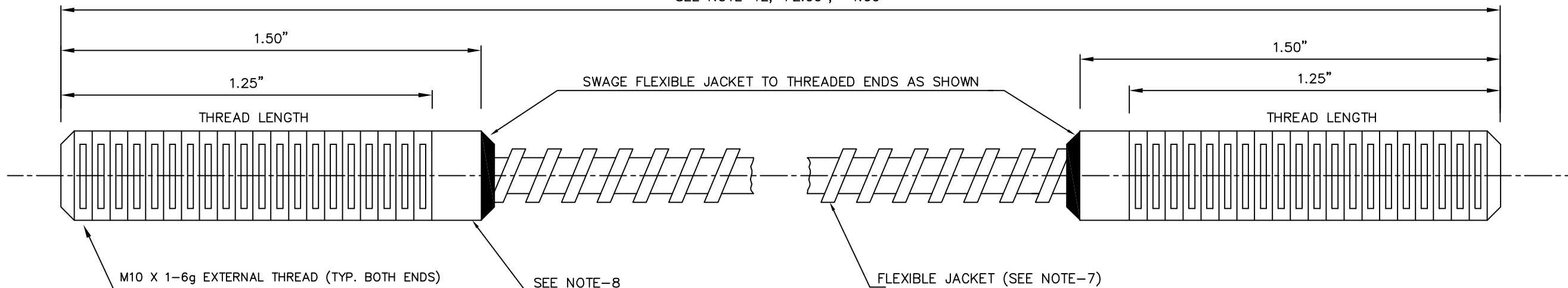
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		STANDARD			
	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI – 620014	DRN	NAME	SIGNATURE	DATE
		CHD	D.Gnaniiah	Sd. / DG	28-03-88
		APPD	R.R.DANIEL	Sd. / RRD	28-03-88
DEPT. : C & I		SCALE NTS	WEIGHT (Kg)	REF TO ASSY / OLD DWG	ITEM NO
CODE : 392				B-984-0318/01	
TITLE ASSEMBLY&DETAILS OF LENS & LENS BARREL FOR SAFE FLAME-FLAME SCANNER			CARD CODE U 01	DRAWING NO : 3-95-088-04836	REV 05

3-95-088-07732

DRAWING NO:

SEE NOTE-12, +2.00", -1.00"



SPECIFICATION

- FIBRE OPTIC BUNDLE DIAMETER = 1/8", 0.002" INDIVIDUAL STRAND DIA.
- BOTH OPTICAL ENDS OF CABLE WILL BE FLAT AND POLISHED.
- CABLE MUST COIL TO 4.00" DIAMETER CIRCLE.R.
- MINIMUM WAVE LENGTH BAND OF TRANSMISSION = 400nm TO 1500nm.
- MAXIMUM CONTINUOUS OPERATING TEMPERATURE = 500° F.
- THREADED ENDS WILL BE MACHINED FROM 18Cr-8Ni STAINLESS STEEL.
- FLEXIBLE JACKET : 1/4" O.D., TYPE SL, UNPACKED, STAINLESS STEEL AND FULLY EXTENDED.
- VENDOR MUST PUT COMPANY IDENTIFICATION ON CABLE.
- OPTICAL GLASS 83% CORE, 17% CLAD.
- MAXIMUM ALLOWABLE BREAKAGE - 1% OF STRANDS.
- 3 NOS. OF JAM NUTS (STAINLESS STEEL), SUITABLE FOR THREADED PORTION ARE TO BE PROVIDED.
- THE LENGTH OF THE FIBRE OPTIC CABLE (FOC) APPLICABLE FOR DIFFERENT LENGTH OF THE FLAME SCANNER HEAD ASSEMBLY (L - DIMENSION) IS GIVEN IN THE TABLE.

FIBRE OPTIC CABLE (FOC) LENGTH SELECTION TABLE

FLAME SCANNER HEAD ASSEMBLY LENGTH (L-DIMENSION IN INCHES)	FIBRE OPTIC CABLE LENGTH IN INCHES
57	110
66	110
72	110
78	110
81	110
99	120
108.54	130

NOTE

ALL DIMENSIONS ARE IN INCHES.

THIS DRG. SUPERSEDES OUR EARLIER DRG. NO. 3-95-088-04834

REV 02	DATE 231298	ALTERED : <i>அ.திலீபு</i> 231298	REV 01	DATE 150998	ALTERED : <i>அ.திலீபு</i> 150698
ZONE	THREAD DETAIL REVISED	CHD. / APPD. <i>சுட.</i> / AKP-KCM	ZONE	1. REVISED BASED ON C&I LETTER CI: QAC: 55/DT.060898	CHD. / APPD. : <i>சுட.</i> /DS-SRC

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

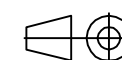
STANDARD



Bharat Heavy Electricals Ltd
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

DRN	NAME	SIGNATURE	DATE	NO. OF VAR
CHD	D.Gnaniiah	Sd. / DG	31-01-92	—
APPD	G.Jayachandrasekar	Sd. / GJ	01-02-92	—

DEPT. : C & I
CODE : 392



SCALE
NTS

WEIGHT (Kg)
—

REF TO ASSY / OLD DWG
—

ITEM NO
—

No OF ITEMS
—

TITLE

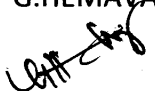
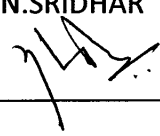
FIBRE OPTIC CABLE FOR
FLAME SCANNER HEAD ASSEMBLY

CARD CODE
U 01

DRAWING NO :
3-95-088-07732

REV
03

BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI
QUALITY ASSURANCE
CONTROLS AND INSTRUMENTATION / FB
STANDARD TEST PROCEDURE
FOR
FIBRE OPTIC CABLE WITH LENS BARREL ASSEMBLY

REV	DATE	PREPARED	REVIEWED	APPROVED	REVISION HISTORY
00	03/01/04	Sd/-	Sd/-	Sd/-	Initial Release
01	19/12/12	G.HEMAVATHY 	RM.VAIRAVAN 	N.SRIDHAR 	Changed the test setup

SCOPE**1.0.0 Testing of Fibre Optic Cable with Lens Barrel Assembly.****2.0.0 COMPONENTS TO BE TESTED**

2.0.1 Fibre Optic cable with lens barrel assembly.

3.0.0 TEST EQUIPMENTS

3.0.1 Vernier, measurement tape, thread gauge (no go, go gauge) (M 10X1 Size)

3.0.2 Calibrated Lux Meter

3.0.3 Stable Light Source

3.0.4 Block assembly with suitable opening for light (to simulate fiber optic input condition)

4.0.0 VISUAL & DIMENSIONAL CHECKS

4.0.1 Check for coiling of cable to 4" diameter and for any manufacturing defects/Damages.

4.0.2 Check for interchangeability of Nuts and lens barrel assembly.

4.0.3 Check for Dimension as per the drawings

5.0.0 FUNCTIONAL CHECK

5.0.1 Switch ON bulb in the light source box.(Manufacturer practice)

5.0.2 Connect the Lux meter and measure the light output from the light source. Record it as input lux reading

5.0.3 Connect Fiber Optic cable to light Source after removing the lux meter.

5.0.4 Measure the light output at the other end of Fiber optic cable. Record it as output lux reading.

5.0.5 Calculate the transmission loss as below:

$$\text{Transmission loss in \%} = \frac{\text{Input Lux} - \text{Output Lux}}{\text{Input Lux}} * 100$$

5.0.6 Record the readings in the Test Report format as per Annexure A

6.0.0 ACCEPTANCE CRITERIA

6.0.1 The light intensity shall not be less than 80 % of input lux per meter basis. If the criterion is met, the FOC is accepted.

Length of FOC (inches)	Input in %	Expected Output in %
110	100%	≥ 54%
120	100%	≥ 51%
130	100%	≥ 48%

ANNEXURE-A**TEST REPORT****Date:****Tests on Sample:**

1. Make :
2. Bending radius :
3. Embossing/ Engraving of vendor name on FOC :

Sl.No. of FOC	Length (inches)	Input Lux reading	Output Lux reading	Transmission loss in %	Observed Output in %= 100- Transmission loss	REMARKS Refer Note 1
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK
						OK / NOT OK

Note:

1. If the Observed Output is greater than or equal to the Expected output, then the FOC is accepted.

Tested By**Witnessed By**



CONTROLS AND INSTRUMENTATION/QA/FB

STANDARD QUALITY PLAN FOR

FIBRE OPTIC CABLE (FOC) WITH LENS BARREL ASSEMBLY

REV	DATE	PREPARED	REVIEWED	APPROVED	REVISION HISTORY
00	02/01/2004	Sd/-	Sd/-	Sd/-	Initial release.
01	01/12/2009	RM.VAIRAVAN 	RM.VAIRAVAN 	N.SRIDHAR 	Type Testing criteria is indicated clearly. Format change done.



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620014

QUALITY PLAN FOR
FOC WITH LENS BARREL ASSY

QA:CI:STD:QP:57
Rev:01 Page: 2 of 3

Sl. No	Component & Operation	Characteristics	Class	Type of Check	Quantum of check		Ref Doc. & Acceptance STD	Format of record	AGENCY			Remarks
					M	B/C			M	B	C	
A	Raw Material Inspection											
01	Fibre optic cable	a. No. of Strands	Major	VISU	1 / lot	1 / lot	Spec, Drg., Mfr's Standards	LGB	P	-	-	
		b. Fibre Material	Major	PHYS	- do -	- do -	- do -	TC	P	V	-	Suitable for 260°C
		c. Flexible hose material	Major	PHYS	- do -	- do -	- do -	TC	P	V	-	
02	Lens Barrel assembly	a. Lens material	Major	PHYS	- do -	- do -	- do -	TC	P	V	-	
		b. Barrel material	Major	PHYS	- do -	- do -	- do -	TC	P	V	-	
B	In Process Inspection											
		a. Cutting	Major	PHYS	100%	-	- do -	LGB	P	-	-	
01	Fibre Optic cable	b. Flexible hose cutting & threading	Major	MECH	100%	-	- do -	LGB	P	-	-	
		c. Assembly of fibre with flexible hose	Major	MECH	100%	-	- do -	LGB	P	-	-	
		1. Cutting										
		2. Polishing										
		3. Mirror finishing										
02	Lens Barrel Assembly	a. Machining	Major	MECH	100%	-	- do -	LGB	P	-	-	
		b. Threading	Major	MECH	100%	-	- do -	LGB	P	-	-	
		c. Encapsulation of lens	Major	MECH	100%	-	- do -	LGB	P	-	-	
		d. Dimensions	Major	MECH	100%	-	-do-	LGB	P	-	-	
		e. Process connection	Major	MEAS	100%	-	- do -	LGB	P	-	-	
C	Final Inspection (FOC with Lens Barrel Assembly)											
01	Routine Tests	a. Physical and dimension verification including process connection.	Major	PHYS	100%	20%	P.O., Spec., Drawing	TR	P	W	-	
		b. Coil radius	Major	PHYS	1 / lot	1 / lot	- do -	TR	P	W	-	
		c. Functional check	Major	PHYS	100%	20%	As per test procedure CI:STD:PR:13	TR	P	W	-	
		d. Finish and serial number	Major	PHYS	100%	20%	Mfr's Standard	TR	P	W	-	
		e. Inter changeability of lens barrel assembly	Major	PHYS	100%	5%	- do -	TR	P	W	-	
02	Type Tests	a. Temperature test	Critical	THER	1 / lot	1 / lot	**	TC	P	V	-	

** The FOC with lens barrel assembly shall be kept in an enclosure at uniform Temp. of 260°C for 8 Hrs. After this, FOC will be checked functionally and the light output shall be not less than 80% of input Lux per 1 m basis.

M- MANUFACTURER/ SUB-VENDOR; **B** - BHEL / TPI ; **C** - CUSTOMER / TPI
P - PERFORM; **W** - WITNESS **V** - VERIFICATION;



D.NOTES:

1.LEGENDS:

MECH	:	Mechanical	MEAS	:	Measurement
PHYS	:	Physical	THER	:	Thermal
TR	:	Test Report	TC	:	Test certificate
VISU	:	Visual			

- The vendor shall arrange all testing facilities at their works. Tests for which facilities are not available are to be carried out at recognized National Test Houses like ETDC/CIL/NPL/ERTL etc., at vendor cost.
- Through Log Book / any other documents available at the vendor's works, it shall be possible to correlate the finished products with raw material and in process stage checks / inspection carried out.
- All Measuring and Testing Instruments shall be periodically calibrated from recognized test houses & certificates made available during inspection for verification.

- Test certificates for routine type tests are to be furnished by the vendor.
- Type test certificate shall not be earlier than 5 years from the date of Purchase enquiry.
- Vendor to give tentative inspection program in advance and confirm exact date two weeks in advance for arranging BHEL's inspection.
- Packing shall be as per the "PACKING PROCEDURE" indicated in the specification.

E. REFERENCE:

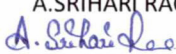
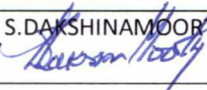
CI:STD:PR:13 - Standard Test Procedure for FOC with lens barrel assembly

SQP57R1.DOC

**BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI**

**CONTROLS AND INSTRUMENTATION / FB
QUALITY ASSURANCE**

**STANDARD PACKING PROCEDURE
FOR
ALL INSTRUMENTS AND MISCELLENEOUS ITEMS
(ELECTRICAL, ELECTRONIC AND PNEUMATIC)**

Rev	Date	Prepared	Checked	Approved	Revision History
00	01.01.96	Sd/-	Sd/-	Sd/-	Initial History
01	28.03.02	Sd/-	Sd/-	Sd/-	Department name changed
02	26.02.07	Sd/-	Sd/-	Sd/-	Revised after discussion with Shipping Dept.
03	17.12.16	A.SRIHARI RAO 	RM.VAIRAVAN 	S.DAKSHINAMOORTHY 	Revised to suit all type of instruments.

1. Scope

This procedure gives minimum guidelines to be complied with for packing of Electrical, Electronic and pneumatic Instruments. This packing shall be suitable for different handling operations and for the adverse conditions during transportation and during indoor / outdoor storage for period more than one year.

2. Material for packing

The individual instrument shall be packed in carton box (specifically made for particular instrument) and grouped together inside a box made of wood or plywood as per National / International standard.

3. Packing

- Items shall be inspected for cleanliness immediately before packaging. Dirt, oil, residue, metal chips or other forms of contamination shall be removed.
- Adequate protection shall be provided against mechanical damage and atmospheric corrosion in transit and, for equipment suitable for outside storage, for prolonged storage at the site prior to installation.
- Water proof barrier material – high density polythene shall be used as a resistant to grease and water; it shall protect items from airborne and windblown soils.
- Desiccants like silica gel to be used inside the carton box. Silica gel shall conform to IS 3401. The gel is to be packed in sachets placed at different positions inside the components for absorbing moisture. The quantity of silica gel shall be adequate for storage period of one year.
- All tapped openings in equipment shall be plugged with plastic plugs to protect internal / external threads.
- Use a sturdy cardboard shipping carton, large enough for at least 3 inch foam padding around the instrument.
- Do not use loose plastic foam pieces, which can shift during transport.
- Secure the box flaps with packaging tape or box staples.

3.1) Marking & Labelling:

- Components and their containers shall be identified by marking. Shipping marks shall be on all sides of package. The shipping marks shall be at least 3 inches high where space permits. Markings are to be in black paint or ink depending on shade of the package surface.
- Cautionary symbols to be stenciled in red waterproof paint or ink.

QA:CI:STD:PR:04 / Rev 03

- The gap between job and the box shall be filled with suitable material like jute, coir, thermo coal, etc.
- For export packing additional care shall be taken as per contract requirements if applicable. Otherwise, suitable box made of seasoned wood and / or plywood sheets of required thickness shall be used with suitable sea worthy packing protection.

4. Marking

- After completing the packing, Stencil marking, as per dispatch instructions and symbol marking as per Annexure – I shall be made. Please ensure the box is stenciled with “FRAGILE ITEM”, “HANDLE WITH CARE”.

5. Packing Slip

- A copy of the packing slip, kept in a polythene cover shall be kept inside the box. Another copy of the packing slip, kept in a polythene cover shall be kept outside the box and firmly fixed to the case.

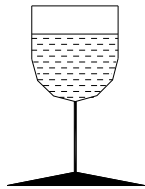
6. Caution

- Do not pack any other Mechanical items with this case.

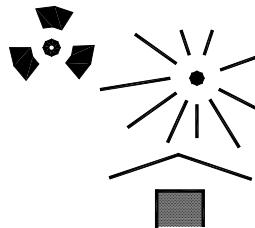
7. General

- These packing procedures are the minimum requirements in addition to the standard instructions mentioned in the Purchase Order and Specification.
- Deviation to meet the packing procedure requirements / non-clarity in packing approach in any quotation will be liable for rejection of offer.

ANNEXURE – 1



FRAGILE, HANDLE WITH CARE



PROTECT FROM HEAT AND RADIOACTIVE SOURCES



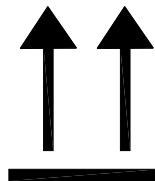
USE NO HOOKS

NOTE: The design of heavy goods packages cannot always resist top lifting by grabhooks.



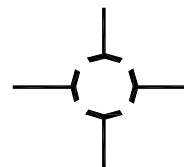
KEEP DRY

NOTE: Not all cases have waterproof internal liners: plywood used in the construction may not have a waterproof glue-line.



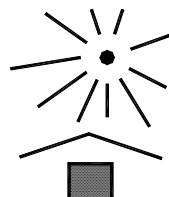
THIS WAY UP

NOTE: Certain designs of small cases make it difficult to distinguish top from bottom.

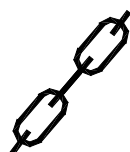


CENTRE OF GRAVITY

NOTE: This should be stencilled as a minimum on the two longest case sides (this information will normally be supplied by the manufacturer of the item(s) packed).

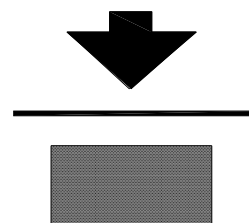


KEEP AWAY FROM HEAT



INTERNATIONAL "SLING HERE" SYMBOL

... kg max



STACKING LIMITATION

NOTE: The maximum load in kilograms should be marked above the arrow.

/ On Bidder's office letter pad /

Self-Declaration

Enquiry No.	GEM/2021/B/1404833
Enquiry Date	02.08.2021

In line with Government public procurement order Number P-45021/2/2017-B.E-II dated 15.06.2017, and further modified order dt.04.06.2020 issued by DPIIT,

I / We hereby declare that I / We are a “Local Supplier” meeting the requirement of minimum local content (.....%) defined in the above government notification for the goods against above mentioned enquiry Number.

Details of location at which local value addition will be made is as follows:

Door No.	
Street / Address 1	
Street / Address 2	
District	
State	
Country	
PIN Code	

We also understand that the false declarations will be considered as breach of Integrity and liable for action.

For Company Name:

Seal:

Signature:

Date:

Place:

(Please fill all the yellow color field)



MATERIALS MANAGEMENT / BOI

SUB-DELIVERY ENQUIRY DEVIATION FORMAT

Page : of

Schedule of deviation to
Sub-delivery Enquiry No. : **GEM/2021/B/1404833 dt 02.08.2021**

Description : **Fibre Optic Cable & Lens Barrel Assembly**

Documents : **Test Procedure CI:STD:PR:13 Rev 01**

Drawing No. : **1) 3-95-088-04836 R05 LBA**
2) 3-95-088-07732 R03 FOC

Quality Plan : **QA:CI:STD:QP:57 Rev 01**

Packing Procedure : **QA:CI:STD:PR 04 Rev.03**

Document reference	BHEL called for	Firm's alternative offer

Certified that other than the above deviations, we are accepting all the other specifications and requirements in full to your Enquiry.

Station :

Date :

Signature of firm's representative

Firm seal

Note : 1. Deviations should be taken only in the extreme case
2. If necessary, use additional sheets with page control number

GEM/2021/B/1404833 dt 02.08.2021**Commercial Points compliance by vendor**

Sl no	Terms	Conditions	Vendor confirmation
1	Delivery term	Vendor shall quote unit price on FOR / BHEL Trichy stores basis inclusive of Packing & Forwarding, Freight & GST. Insurance will be on BHEL scope.	Quoted /Not quoted
2	Delivery days	For this GeM tender, delivery days is 90 days from GeM PO date . Delivery days shall inclusive of all the activities like manufacturing, inspection, Packing & Forwarding and dispatch.	Accepted/ Not Accepted
3	Payment term	As per present GEM T&C	Accepted
4	LD clause	As per present GEM T&C	Accepted
5	Guarantee/ Warranty period	As per specification / tender T&C ie 18 months from the date of supply or 12 months from the date of commissioning whichever is earlier.	Accepted
7	HSN CODE	Indicate HSN code for quoted items	
8	GST	Pl Mention in GST % for quoted items	%
		Document submission along with bid	
9	Attachments 1	Have you submitted Udyam registration certificate (To validate MSE vendors)	Yes / No
10	Attachments 2	Have you submitted filled ,sign & sealed point wise compliance for PQR with supporting documents . Please mention the corresponding page no also for each PQR point.	Yes / No
11	Attachments 3	Have you submitted Filled, signed & sealed “NIL Deviation Format ” .	Yes / No
12	Attachments 4	Have you submitted signed , sealed in the all pages of tender documents like “Technical Specification, Drawing /datasheet , testing procedure, Quality Plan & packing procedure” with respect to this tender along with offer.	Yes / No
13	Attachments 5	Have you Filled local content %, signed , sealed & submitted “Self declaration format for MII clause” as per BHEL format in your company letter head.	Yes / No

Note: vendor consents that the terms & conditions accepted, in GEM alone, shall be binding between BHEL and the Vendor; and no other terms mentioned, elsewhere in the un priced offer / Quotation will be considered / accepted by BHEL.