संख्या. पी-63013/D-QRs & TDs/2022/मोड–।/सीसुबल ५ ७०२। –९५ भारत सरकार, गृह मंत्रालय महानिदेशालय सीमा सुरक्षा बल (रसव निदेशालय: आधुनिकीकरण सैल) (Emoil-comdtord@bsf.nic.in) (Fax: 011-24367683)

> ब्लाक संख्या . 10, सीजीओ काम्पलैक्स, लोधी रोड, नई दिल्ली–03 दिनांक 13 दिसम्बर 2022

वरिष्ठ तकनीकी निदेशक The Senior Technical Director राष्ट्रीय सूचना–विज्ञान केन्द्र, नोर्थ ब्लाक, गृह मंत्रालय, नई दिल्ली NIC, North Block, MHA New Delhi (द्वारा ई–मेल)

(ई-मेल पता : mpsugandhi@nic.in) Sub: Request for comments of stakeholders/OEM on draft QRs.

कृपया गृह मंत्रालय के पत्र संख्या IV-24011/12/2011-Prov-I(part)(CFN 3300890)-1710 दिनांक 31<sup>st</sup> Aug 2015 के सन्दर्भ में।

2. उपरोक्त विष्यान्तर्गत यह सूचित किया जाता है कि तकनीकी विशेषज्ञों के उप समूह द्वारा निम्नलिखित उपकरणों के गुणातमक आवश्यकता/परीक्षण निर्देशों का प्रारुप दिनांक 22 अगस्त 2022 में आयोजित सभा के दौरान तैयार किया गया था जिसको इस आश्य से प्रेषित किया जा रहा है कि उक्त गुणातमक आवश्यकता/परीक्षण निर्देशों के मसौदे को पुनः गृह मंत्रालय की वैबसाईट पर 15 दिन तक अपलोड करने का श्रम करें।

- (क) Rain Test Chamber
- (ख) Humidity Chamber
- (ग) Hot and Cold Chamber
- (印) Shock Test Equipment
- (司) Vibration Test Station
- (छ) Bump Test Station

संल्गन : उपरोक्तनुसार

पतिलिपि :-

	and a second				
1.	SO (IT), North Block, MHA (Through E-mail) (E-mail address: soit@nic.in)		उपरोक्त समस्त गुणातमक आवश्यकता का मसौदा आपके सूचनार्थ एवं अग्रिम कार्यवाही हेतु।		
2.	IT Wing, FHQ BSF	•••	i) उपरोक्त उक्त गुणातमक आवश्यकता का मसौदे को सीमा सुरक्षा बल की वैबसाईट पर 15 दिन तक अपलोड करने का श्रम करें। आपसे अनुरोध है कि उक्त मसौदे को गृह मंत्रालय की वैबसाईट पर भी अपलोड करने हेतु निम्नलिखित पतों पर ई–मेल करने का भी श्रम करें:- (a) Technical Director, NIC, North Block, MHA (E-mail : mpsugandhi@nic.in) (b) SO (IT), North Block, MHA (E-mail : soit@nic.in)		
3.	SIW, BSF New Delhi	: For your into w.r.t your 0.0 No.3447 dated m.m.2022			

(दिगेन्द्र' सिंह पॅवार) उप कमाण्डेंट (मोड)

भारत सरकार, गृह मंत्रालय महानिदेशालय सीमा सुरक्षा बल (रसद निदेशालय: आधुनिकीकरण सैल) ब्लाक संख्या . 10,सीजीओ काम्पलैक्स,लोधी रोड, नई दिल्ली–03 (Email-comdtord@bsf.nic.in) (Fax: 011-24367683)

संख्या. पी-63013/57/2022/मोड-।/सीसुबल

दिनांक 3 दिसम्बर 2022

#### विषय : गुणातमक आवश्यकता/परीक्षण निर्देशों पर हितघारकों/ निर्माताओं/ विकेताओं की टिप्पणी के लिए अनुरोध।

- निम्नलिखित उपकरणों के प्रस्तावित गुणातमक आवश्यकता और परीक्षण निर्देशों 1. יּדַי' में संलग्न को परिशिष्ट के किया है। रुप गया हितधारकों / निर्माताओं / विकेताओं से अनुरोध किया जाता है कि वे उस उत्पाद की विस्तृत एवं स्टीक जानकारी दें। साथ ही प्रत्येक पैरामीटर के अनूरुप अपने उत्पाद के सही विवरणों को प्रस्तुत करें । सिर्फ 'अनुपालना' या ' अनुपालना नहीं' वाली टिप्पणी स्वीकार नहीं की जाएगी।
  - (क) Rain Test Chamber
    (ख) Humidity Chamber
    (河) Hot and Cold Chamber
    (되) Shock Test Equipment
    (코) Vibration Test Station
    (평) Bump Test Station
- आवश्यक <u>जानकारी / विवरण</u> 28 दिसम्बर 2022 तक निम्नलिखित पते पर भेजे जा सकते हैं।

रसद निदेशालय, सीमा सुरक्षा बल लेवल–8, ब्लाक–10, केन्द्रीय कार्यालय परिसर, लोंधी रोड, नई दिल्ली–110003 ईमेल:– comdtord@bsf.nic.in

शीघ्र प्रतिकिया का अनुरोध किया जाता है।

3.

(दिगेन्द सिंह पॅवार) उप कमाण्डेंट (आधुनिकीकरण) Government of India Ministry of Home Affairs Directorate General Border Security Force (Prov Dte: Mod Cell) Block No.10, CGO Complex, Lodhi Road, New Delhi-03 (Fax: 011-24367683, Email-comdtord@bsf.nic.in)

No. P-63013/60/2022/Mod-1/BSF/

Dated, the 13 Dec 2022

#### Subject : <u>Request for comments of stakeholders/OEM/Firms on QRs</u> (Qualitative Requirements) & TDs (Trial Directives.

1. The Draft QRs/TDs of following Equiptments is attached as Appendix 'A'. The OEMs/Vendors are requested to forward information of the product, which they can offer and also forward correct specifications of their system against each parameter. Only complied or not complied remarks will not be accepted.

- (क) Rain Test Chamber
- (ख) Humidity Chamber
- (ग) Hot and Cold Chamber
- (되) Shock Test Equipment
- (च) Vibration Test Station
- (13) Bump Test Station
- 2. The firms are also requested to furnish the following details:-
  - Whether you are OEM/Vendor?
  - If vendor details of OEM.
  - Authorization certificate from OEM.
  - Original catalogue of the product
  - Brochure/Literature of the product

3. The required information/details may please be forwarded at the following addresses by 28.12.2022.

Directorate General BSF, Level-8, Block No. 10, CGO Complex, Lodhi Road, New Delhi-110003 Email: <u>comdtord@bsf.nic.in</u>

4. An early response is requested.

(Digendra Singh Panwar) Dy. Commandant (Mod)

# DRAFT QRs/TDs OF RAIN TEST EQUIPMENT

SLNO	DESCRIPITION	LEST EGOITMENT			
1		SPECIFICATION	TRIAL DIRECTIVE		
1.	General Description: Rain Test ( reliably while withstanding varia	amber carry out tests on equipments exposed outdoors. These equipment must be able to function is rain intensities.			
2.	Out chamber size	1300 x 1450 x 1960 mm (WxDxH)	BOO will check physically.		
3.	Inner chamber size	1000 x 1000 x 1000 mm( WxDxH)	BOO will check physically.		
4.	volume	1000 Ltr Minimum	BOO will check physically.		
5.	Test Bench Area	400 mm	BOO will check physically.		
6.	Number of pipe holes	25 minimum	BOO will check physically.		
7.	Pendulum tube water hole	0.4mm	BOO will check physically.		
8.	Spray hole spacing	50 mm	BOO will check physically.		
9.	Spray Ring Radius	400mm	BOO will check physically.		
10.	Swing Angle Range	0 to 330° (Can be adjustable)	BOO will check physically.		
1.	Swing speed adjustment	0 to 20 times	BOO will check physically.		
2.	Water pressure	80 Kpa - 100 Kpa.	BOO will check physically.		
3.	Water supply quantity	Adjusted as per IP X3, IP X4.	BOO will check physically and OEM certificate should be submitted by the firm /Supplier		
ŀ.	Nozzle Diameter	IP 1/2 = 0.4mm, $IP 3/4 = 0.4$ mm, $IP 5/6 = 6.3$ mm,	OEM certificate should be submitted by the firm /Supplier		
. (	Caster Wheels	Should be mounted on four caster wheels with two lockable wheels for easy mobility.	BOO will check physically.		
. 1	nter circulation pipe system	i). The internal circulation pipe system is equipped with a water quality filter, a glass flow meter, a pressure gauge, a drain valve and a filter, the pressure gauge can be	BOO will check physically.		

		directly observed. ii). The filter, pressure gauge and glass flow meter are setup by loose joint and easy to be change. iii) Water flow is controlled by the glass flow, automatic control the water flow and ensure the safe operation of the pump. iv) SUS 304 Stainless Steel material used in internal circulating pipe and connecting parts, which ensure the required water quality.	BOO will check physically.
17.	Drain port	An overflow port and a drain ports are provided.	BOO will check physically.
18.	Power	220 Volt 50 Hz	BOO will check physically.
19.	Safety protection function	Earth leakage protection, water protection, short-circuit protection.	BOO will check physically.

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नोट - सभी विकताओं / फर्मों से निवेदन है कि अपने सुझावों के साथ निम्नलिखित कागजात संल्पन कर ई—मेल पता comdtord@bsf.nic.in पर भेजने का श्रम करें—

- 1. उत्पाद की वास्तविक विवरण पुस्तिका।
- 2. उत्पाद की साहित्यिक रचना का ब्यौरा।
- 3. गुणातमक आवश्यकताओं के उपर व्यापक टिप्पणीयाँ।

(दिगेन्द्र)सिंह पॅवार) उप कमांडेण्ट (आधुनिकीकरण)

### DRAFT QRs /TDs OF HUMIDITY TEST EQUIPMENT

SLN	O DESCRIPITION	CDP CUELO LONG	TOTAL DIDECTIVE	
1.	General Description	SPECIFICATION	TRIALDIRECTIVE	
	components to fix its pharmaceuticals, pl	s quality parameters. This instrument is not subjected to only one industri astic and rubber industries for quality assurance testing.	rolong ettect of humidity on y applications. It is used in	
2.	Temperature range	-30° to +120°	To be shacked Physically, by POO	
3.	Standard volume range	50 L	To be checked Physically by BOO	
4.	Rate of temp changes	1°C/min to 2°C/min	To be checked Physically by BOO	
5.	Refrigeration system	Single	To be checked Physically by BOO	
6.	Controller	Touch screen type	To be checked Physically by BOO	
7.	Humidity range	10% to 98% RH	To be checked Physically by BOO	
8.	Humidity accuracy	-3% RH or better	To be checked Physically by BOO	
9.	Test chamber	The test chamber shall be corrosion resistance stainless steel with arrangement to accommodate with selves (min 2)	To be checked Physically by BOO. OEM certificate should be submitted for corrosion resistance stainless steel by the firm /Supplier.	
10.	Lamp	Suitable lamp to be provided in chamber	To be checked Physically by BOO	
11.	Test chamber Door	The test chamber shall be completely shield by a door i.e hinged on the left and opens fully for easy access. It shall be made of corrosion resistance stainless steel plate and equipped with high quality insulation.	To be checked Physically by BOO. OEM certificate should be submitted for corrosion resistance stainless steel and high quality insulation. by the firm /Supplier.	
2.	Control and monitoring system	Microprocessor based humidity control and monitoring system shall be provided and have following features. 1. Provision for interface with computer 2. Password protection provided.	To be checked Physically by BOO.	

		<ul> <li>3. Graphical representation of set point and actual value.</li> <li>4. Digital display of set point and actual value of humidity.</li> <li>5. Digital input of humidity in manual and automatic operation.</li> <li>6. Fault and diagnosis system</li> <li>7. Equipped with PLC &amp; HMI have features like DATA logging</li> <li>8. Chart recording</li> <li>9. USB port</li> <li>10. Printer facility</li> <li>11.50 programs setting with SV &amp; PV &amp; maintenance free</li> </ul>	
13.	Temperature/ Humidity	<ul> <li>Machine should be designed with customized temperature and humidity range for accurate results.</li> <li>High Humidity with high temperature range</li> <li>Low humidity with low temperature range.</li> <li>Uniform temperature with variable Humidity range.</li> <li>Uniform Humidity with variable temperature range</li> </ul>	To be checked Physically by BOO.
14.	Input power supply	230 V AC 50 Hz	To be checked Physically, by BOO
15.	Noise	< 76 db at a distance of 1 mtr	OEM certificate should be submitted by the firm /Supplier.
16.	Ingress protection	IP 32 for the switch and cabinet	OEM certificate should be submitted by the firm /Supplier.
17.	Construction	Interior chamber made with complete SS 304 & exterior can be MS powder coated or rust-free SS 304 for long life. Heavy duty rugged designed steel wire adjustable shelves with easy maintenance. Outer door comes with glass window, lockable handle, glass wool insulation, Silicon gasket and heating tube for moisture removal. Should be mounted on four caster wheels with two lockable wheels for easy mobility.	To be checked Physically by BOO.
18	Heating system	Should provide uniform heating inside the chamber	To be checked Physically by BOO
9	Humidity system	Inbuilt Stainless steel water tank with water heater to generate	To be checked Physically by BOO.

		humidity inside the chamber. Water heater used in the tank should be according to international standard for proper heating and moisture generation with quality low water cut off. The system should also have an overflow valve facility in case of self- filling of water from the source.	
20.	Air Circulation system	Suitable motor with impeller for uniform temperature and humidity system.	To be checked Physically by BOO.
21.	Computer Interface	RS 232/RS 485 for computer connectivity and data storage. USB port- for data transfer.	To be checked Physically by BOO.
22.	Safety features	Circuit breaker Over temperature protection Door opening alarm High temp and low temp alarm	To be checked Physically by BOO.

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नोट - सभी विकताओं / फर्मों से निवेदन है कि अपने सुझावों के साथ निम्नलिखित कागजात संल्गन कर ई—मेल पता comdtord@bsf.nic.in पर भेजने का श्रम करें:—

1. उत्पाद की वास्तविक विवरण पुस्तिका।

2. उत्पाद की साहित्यिक रचना का ब्यौरा।

3. गुणातमक आवश्यकताओं के उपर व्यापक टिप्पणीयाँ।

(दिगेन्द्र सिंह पॅवार) उप कमांडेण्ट (आधुनिकीकरण)

### DRAFT QRs /TDs OF HOT & COLD CHAMBER

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SL No DESCRIPITION			
1.	Test Space Volume	SPECIFICATION	TRIAL DIRECTIVE
2.	Temp Range	TOOOLir	BOO will check physically.
3.	Temp regulation	-50° C to +180°C	BOO will check physically.
4.	Average heating rate	Better than -0.5° C	BOO will check physically.
5	Average cooling rate	Better than 3° C per min in the entire range of temp	BOO will check physically.
6	Tart room dimension	Better than 2° C per min in the entire range of temp	BOO will check physically.
<b>v</b> .	dimension )	Width = Appx 1100mm - 50mm Depth = Appx 950 mm -50 mm Height = Appx 950 mm -50 mm	BOO will check physically.
7.	Housing	i)The chamber must be of mono-block construction which comprise all systems necessary for operation. ii)The outer housing shall be made from light weight, self supporting galvanized sheet-steel of 14 SWG gauge(appx 2mm) and out side primered and painted to standard finish with high quality material. iii)The exterior surface shall have corrosion-resistance and high wear resistance.	BOO will check physically.
8.	Insulation	The insulation between the test chamber and exterior housing must be of environmental friendly and guarantees best insulation value and minimum operating cost. The insulation shall be of multi layered with double vapour barrier. Asbestos free mineral fibre insulation is preferred.	BOO will check physically.
9.	Door	<ul> <li>i)The door must be of lockable type with hinges on right hand side and self open fully for easy access and must be provide with high quality insulation.</li> <li>ii)The exterior of the door shall be made of galvanized sheet-steel of 14 SWG gauge (app 2mm) and outside primered and painted to a standard finish with high quality materials.</li> </ul>	BOO will check physically.

		<ul> <li>iii)The inner side of the door shall be made of 19 SWG gauge thickness (appx 1mm) non magnetic stainless steel</li> <li>iv)The door must be provided with double continuous seal rings of silicon rubber material.</li> <li>v)The door is to be provided with a multipane toughened glass inspection window with built in heaters. The size of window shall be 450x600mm or larger.</li> </ul>	
10.	Illumination/lighting of test space	The chamber must be provide with a light and a switch to illuminate the test space during the test to help visual inspection.	BOO will check physically.
11.	Shelf	The chamber must be provided with 05 adjustable selves which is easily removable and adjustable to any height	BOO will check physically.
12.	Ports	The chamber must be provided with a port of minimum 125 mm diameter on the right hand side and 50 mm dia on the left hand side of the test space. The port must be centrally locked on the sides. Suitable rubber cap are to be provided to close the port air tight.	BOO will check physically.
13.	Castors	The test chamber shall be moved easily to different location using 4 castor wheels and of which 2 are preferably fitted with brakes.	BOO will check physically.
14.	Chamber regulation and programming	The chamber shall be provided with PC based control and monitoring systems with following features : i)Selection of manual and automatic modes. ii)Shall be possible to create temperature programme with immediate graphical check of programming. iii)Integrated programme with a programming memory for 99 test programme minimum. iv) Built in capability to restart the test chamber after	BOO will check physically.

		v)RS 232/RS422/RS 485 interface for communication with computer. vi)Provision to print any test report in text format and graphical format. vii)The display and control panel should be in the front side of the chamber	
5.	Standard	The chamber construction shall be confirmed to the international standard (MILSTD_IEC_DIN_USS 55555)	BOO will check physically.
).	Safety and protection	i)The over temperature protection for test specimen. A steady state over heating safety thermostat shall be installed that automatically switches off the heater if the chamber temp range is exceeded.	BOO will check physically.
	Power Supply	The chamber shall work on 415 Volt,50 Hz and 3 phase main supply.	BOO will check physically.

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1. उत्पाद की वास्तविक विवरण पुस्तिका।

2. उत्पाद की साहित्यिक रचना का ब्यौरा।

3. गुणातमक आवश्यकताओं के उपर व्यापक टिप्पणीयाँ।

(दिगेन्द्र उप कमाडेण्ट (आध्निकीकरण)

# DRAFT QRs/TDs OF SHOCK TEST EQUIPMENT

SL NO	DESCRIPTION	Specification	TRIAL DIRECTIVE
1.	General Description: Shock Test Ma International Standards e.g. IS, MIL	achine is a versatile test equipment to carry out sho EN, ISO, IEC, DEE & ASTAA Standards	ck tests in accordance with various National &
2.	Table size	750 x 750mm	BOO will check physically.
3.	Load Capacity	500 Kg	BOO will check physically.
4.	Payload Height	unlimited	BOO will check physically.
5.	Max payload size	750 x 750mm	BOO will check physically.
6.	Insert Pattern	100 x 100mm Matrix	BOO will check physically.
7.	Stroke Length	350 nm (max)	
8.	Velocity Change No load	10m/s	BOO will check physically and also OEM
9.	Velocity Change Full load	8 m/s	certificate should be submitted by the firm
10.	Pulse shape	Half-Sine (Optional Sawtooth / Square wave / Trapezoidal wave form.	/Supplier.
11.	Shock Rate	1-8 shocks/min	
12.	Standard Test	10 'g' - 10 'ms' 20 'g' - 11 'ms' 30 'g' - 20 'ms' 40 'g' - 6 'ms' 50 'g' - 11 'ms' 50 'g' - 18 'ms' 100 'g' - 6 'ms' 150 'g' - 3 'ms' 200 'g' - 3 'ms'	BOO will check physically.
13.	Max Deviation of specimen from table centre	30 mm	BOO will check physically.

4. Comme	Pre-set mechanism with on off quite l	and the how signify
5. Power Supply	220 V, 50 Hz Single phase	BOO will check physically.
6. Monitoring and Control System	PC based Shock Monitoring and Control System.	BOO will check physically.
	The system should Monitor & Control all relevant parameter of the Shock test Payload.	
Safety interlocks	Mains input Over & Under Voltage, Phase drop programmer pad change protection, over travel safe brake.	BOO will check physically.

तकनीकी विशेषज्ञों के उप समूह द्वारा यह निश्चित किया गया है कि उक्त गुणातमक आवश्यकता को अधिक बेहतर बनाने के लिए गृह मंत्रालय एवं सीमा सुरक्षा बल की वैबसाईट पर विकेताओं / फर्मों के सुझाव प्राप्त करने हेतु 15 दिनों के लिए अपलोड किया जाए।

नोट - सभी विकताओं / फर्मों से निवेदन है कि अपने सुंझावों के साथ निम्नलिखित कागजात संलान कर ई—मेल पता comdtord@bsf.nic.in पर भेजने का श्रम करें:-

- 1. उत्पाद की वास्तविक विवरण पुस्तिका।
- 2. उत्पाद की साहित्यिक रचना का ब्यौरा।
- 3. गुणातमक आवश्यकताओं के उपर व्यापक टिप्पणीयाँ।

(दिगेन्द्र) सिंह पॅवार) उप कमाडेण्ट (आधुनिकीकरण)

DRAFT	QRs/TDs	OE		TIC
			VIBRA	ION

SLI	DESCRIPITION				
1.	General Description: Vibration Test E method simulates the transport b	SPECIFICATION	TRIAL DIRECTIVE		
Z.	Weight VVeight in terms of its strength or protection. This f				
3.	Dimension	550 kg max	Ing the test. BOO will check physically.		
4.	Vibrations	1770x 1150x 735 (W x D x H) mm Max	BOO will check physically.		
		<ul><li>Harmonious : in Phase</li><li>90° out of Phase</li><li>180° out of Phase</li></ul>	BOO will check physically.		
5.	Weight of device to be test.	Random			
6	gin of device to be fested	100 Kg	BOO will check physically.		
0.	Control Panel	550 x 550 x 1215 mm	BOO will check physically.		
7.	Frequency range	1.6 Hz to 6.66 Hz (100 to 400 RPM)	OEM Certificate should be submitted by the firm		
8.	Railing guard	300mm	BOO will check physically.		
7.	Power	220 V 50 Hz	BOO will check physically.		
			1		

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1. उत्पाद की वास्तविक विवरण पुस्तिका।

10

- 2. उत्पाद की साहित्यिक रचना का ब्यौरा।
- 3. गुणातमक आवश्यकताओं के उपर व्यापक टिप्पणीयाँ।

(दिगेन्द्र सिंह पॅवार) उप कमांडेण्ट (आध्निकीकरण)

# DRAFT QRs/TDs OF BUMP TEST EQUIPMENT

DESCRIPTION SLNO SPECIFICATION TRIAL DIRECTIVE General Description: Bump test machine is a versatile test equipment to carry out bump tests in accordance with various IS, MIL-1. 810F, DIN, EN, ISO, IEC, DEF & ASTM standards. The machine is used in product qualification testing transient analysis of structures or models and fatigue tests on some systems and parts with an object to determine their suitability under repetitive BUMP environment (during transportation or in service etc) and to assess structural integrity. 2. Type Free Fall BOO will check physically. 3. Table size 750 x 750mm BOO will check physically. 4. Load Capacity 500 Kg BOO will check physically. 5. Payload Height unlimited BOO will check physically. 6. Max payload size 750 x 750mm BOO will check physically. 7. **Bump** Rate Adjustable 1 to 3 bumps/sec BOO will check physically. BOO will check physically. 8. Bump rate counter Digital OEM certificate should be submitted by the 3-60 g 9. Acceleration firm /Supplier. OEM certificate should be submitted by the Half-Sine Pulse shape 10. firm /Supplier. OEM certificate should be submitted by the 2-18 ms **Pulse** Duration 11. firm /Supplier. 2 'g'-10 'ms' BOO will check physically. Standard Test 12. 3 'g' - 10 'ms' 7 'g' - 10 'ms' 20 'g' - 11 'ms' 30 'g' - 6 'ms' 40 'g' - 6 'ms' BOO will check physically. 50 mm 13. Max Drop Height

14.	Control Panel		
15.	Power Supply Monitoring and Control System	Pre-set mechanism with on off switch 220 V, 50 Hz Single phase PC based Bump Monitoring and Control System. The system should Monitor & Control all relevant parameter of the Bump test Payload.	BOO will check physically. BOO will check physically. BOO will check physically.
17.	Safety interlocks	Mains input Over & Under Voltage, Phase drop programmer pad change protection, over travel.	BOO will check physically.

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नोट – सभी विकृताओं / फर्मों से निवेदन है कि अपने सुझावों के साथ निम्नलिखित कागजात संल्गन कर ई–मेल पता comdtord@bsf.nic.in पर भेजने का श्रम करें:–

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 उत्पाद की साहित्यिक रचना का ब्यौरा।
 गुणातमक आवश्यकताओं के उपर व्यापक टिप्पणीयाँ।

(दिगेन्द्र सिंह पॅवार) उप कमांडेण्ट (आध्निकीकरण)