

**TECHNICAL SPECIFICATION FOR TAMPER PROOF HOLOGRAM METER SEALS**

1.0 **SCOPE:**

1.1 Material: This specification covers manufacturing of Self Destructive Security Seals having high security hologram throughout length of seals of such a quality that once applied then should not get peeled of under any circumstance, testing of seals, their inspection and delivery of seals to various Consignees of PVVNL.

These tamper proof Hologram meter seals shall be used on electricity meters, metering equipments and metering cubicles etc as high security seals to check the pilferage of electric energy by tempering the meters, metering arrangements and metering equipments etc.

2.0 **MASTER ORIGATION (M.O.):**

**De Metalized Hologram:** -- Master Origination must be 1,20,000 DPI Dot Matrix Master. The Master making System should be In House facility. The hologram artwork shall be as per our requirements and will carry our name, logo, signature, UV readable number and other security features.

3.0 **TECHNICAL FEATURES AND SPECIFICATION OF THE TAMPER PROOF PLASTIC CUM HOLOGRAM METER SEALS:**

3.1 Seals to be supplied shall have the following specification and technical features: -

3.1.1 **SHAPE AND SIZE**

- (a) The meter seals shall be rectangular size having dimensions 70 mm. (length) x30 mm (Width).
- (b) The hologram strip shall be continuous on total seal having size 70 x 15 mm.
- (c) The hologram shall be in the bottom of the seal.
- (d) The hologram design shall be continuous.
- (e) The hologram type shall be 2D 3D master with following high security Hologram features:-

**Dot matrix hologram origination through 120000 DPI Master making system with following security features -**

- 1. Approved Departmental logo with multilevel covert facture of the PVVNL in the centre of the seal as per M. O.
- 2. De-metalization Hologram strip size:- 70mm x 15mm
- 3. Fresnel effect
- 4. 3D MIRROR EFFECT
- 5. Animated CLR(TEXT/IMAGE)
- 6. MOTION RASTER
- 7. Nano text
- 8. Switch effect in background
- 9. Lens effect with text
- 10. Digital signature on hologram- White achromatic
- 11. Flip – flop
- 12. 90 deg concealed image
- 13. Motion Background

**Labels feature:-**

1. Self destructive security seal having high security De-metalized hologram strip throughout the length of seal once seal is applied it should not be peel off in any circumstance.
2. **Size:** 70mm x 30mm
3. **Base film:** frangible/ultra destructible vinyl paper
4. **Adhesive:** synthetic hi tack.
5. **Resistance to chemical:** film dissolves when comes in contact with petrol/organic solvents. Tampering by using petrol and re-fixing the same seal is not possible.
6. **Resistance to heat:** film melts when exposed to high temperature. Tampering by heating and re-fixing the same seal is not possible.
7. **Secret printing:** printing which cannot be read by naked eye. Becomes visible only under ultra violet light.
8. **Cut mark:** - the seals should have two "+" shaped security cuts on either side.
9. **Numbering:** seals will have serial numbers printed in black color bar code & UV ink.
10. **Bar code:** - bar code of the same serial number on printed on seal. The size of bar code should be 20mm x 7mm minimum.
11. **Logo:** - PVVNL logo should be printed on label part in Black Color.  
**Sample: 20 (Twenty) are to be submitted along with the offer.**
12. **Warning text:-** सील से छेड़-छाड़ न करे ON SEAL IN HINDI LANGUAGE WITH RED COLOR AND **TEMPERING WITH THIS SEAL IS AN OFFENCE AND IS LIABLE TO A FINE AND DISCONNECTION OF SUPPLY.**
13. **Seal should be printed on white film not (embossed) as per the final approved design and should also have serial number in invisible ink (UV ink).**

**3.1.2 TYPE:**

- a) The seal should be multilayered & film based. Top layer should be De-metalized hologram layer 15mm X70mm. Second layer should be combination of some special polymer resins, which reacts with adhesive & substrate to form permanent layer
- b) The seals should have adhesive of sufficient strength to avoid peeling off under extreme temperature & environment conditions. The adhesive of seal should be such, that while attempting the removal of seal, the film of seal gets damaged. The adhesive will not require any process time to set during fixing of the seals.
- c) The seals should be UV resistance, water proof & suitable for outdoor use. The seals should not be affected in weather.
- d) The film of the seals should change its shape (deface) & should not be peeled off if excess heat is applied. The seals will not deface/disturb/deform during normal handling process.
- e) The film of seals should deface or dissolve in chemical alcohol or any other polar or non polar solvents. The removal should not be possible if it does not deface
- f) Hologram seals shall have numbers printed at two places i.e. one upper left side and another at hologram portion. These black nos. should be readable with naked eye and on hologram portion by ultra violet light.

**3.1.3 COLOUR:**

The hologram seal should be of the silver color. The effect of light should make the number of seal and 'Logo' visible clearly with naked eye.

### 3.1.4 **CODING AND NUMBERING:**

The hologram meter seal shall have ten-digit alphanumeric sequential numbering at two points, i.e. one at upper left side and another at hologram portion. The height of each digit shall be 4 mm. The numbering shall not be affected/tampered by any kind of solvents or chemicals etc. without destroying hologram seal itself.

- (a) Seals should be with digital printing (not embossed) on white film with UV (ultra violet) protective inks and readable font.
- (b) Seals should have Name & monogram of PVVNL which should be provided in hologram.
- (c) Seals should have space provided for signature of the authorized officers of PVVNL.
- (d) UV serial number of seal shall be provided on hologram portion.

### 3.1.5 **GENERAL FEATURES:**

- (a) The micro text and the UV readable message should not be visible to the naked eyes.
- (b) The other features should be well defined and be easily visible.
- (c) The seal shall not be affected by normal variation in atmospheric conditions and holographic portion should not come out from seals in any condition of weather.
- (d) The shelf life of the seal should be minimum two years without any deformation or deterioration under normal Atmospheric conditions prevailing in western UP.
- (e) The seal should have clearly identifiable Hologram feature.

### 3.1.6 **SPECIAL FEATURES OF THE TAMPER PROOF HOLOGRAM METER SEALS:**

The seal should possess the following features:

- (a) ON / OFF features i.e. continuity line through out the length of holograph seals.
- (b) Seal should be printed on white film (not embossed) as per the final approved design and should also have serial number in invisible ink (UV ink).
- (c) PVVNL should be written by invisible ink on both sides of the seal, which can be seen in UV light. Tenderers shall have to supply 50 Nos and UV pens, 100 Nos MOTION RASTER Film, and 25 nos. CIR readable instruments free of cost with first lot of supply of seals.

#### (d) **Tamper Evident Feature:**

- (i) These seals should leave tamper evidence if tried to remove/ re-paste.
  - (ii) Tamper proof from heat: Seal should not change its features till 75<sup>0</sup>C and should start melting at above 75<sup>0</sup>C, so that this seal cannot be reused.
  - (iii) Tamper proof from Petrol ,Diesel & any organic solvent: seal should dissolve in the petrol and diesel so that seal cannot be reused. Seal should not be tampered by any organic solvent.
- (e) **Tamper Sensor:** Seal should have tamper sensor across the hologram so that if seal is broken / cut at the hologram, tampering can be checked by tamper sensor.
  - (f) Seals shall have some text in red colour on the seal and that will be provided by PVVNL at the time of placing purchase order.
  - g) Seals should have Serial number printed in black color on white portion of the seal and on hologram with invisible ink (serial numbers will be provided at the time of purchase order).
  - (h) **Application surface:** The application surface shall be polycarbonate, bakelite and steel painted.
  - (i) **Bar code / Serial number:** Seals should have bar code (code 2 of 5) of the same serial number. The size of bar code should be 20 mm x 7 mm minimum. It should make each seal unique and can be well recorded as to which seal is used with which meter. The seal shall be Alpha numeric for greater security.

