


ATP No: EXPORT of PERCUSSION FUZE M85P13 PD3A for 155 mm

ACCEPTANCE TEST PROCEDURE
FOR
PERCUSSION FUZE M85P13 PD3A for 155 mm

<h2>FUZE PD</h2> <h3>ELECTRONIC</h3>															
<p>The Fuze is compatible to fire with 155mm Ammunition. It has two modes of operation i.e. Point Detonation Super Quick and Point Detonation Delay as per requirement.</p>															
<table border="1"> <thead> <tr> <th colspan="2">TECHNICAL SPECIFICATION</th> </tr> </thead> <tbody> <tr> <td>Mass</td> <td>: 1000 gms</td> </tr> <tr> <td>Length</td> <td>: 151 mm</td> </tr> <tr> <td>Diameter</td> <td>: 61 mm</td> </tr> <tr> <td>Shelf Life</td> <td>: 15 years</td> </tr> <tr> <td>Operating Temperature</td> <td>: -30 °C to +55 °C</td> </tr> <tr> <td colspan="2">The Fuze is safe for use in the muzzle velocity range of 180 to 1000 m/s and can withstand chamber pressure up to 397 ± 8 MPa</td> </tr> </tbody> </table>		TECHNICAL SPECIFICATION		Mass	: 1000 gms	Length	: 151 mm	Diameter	: 61 mm	Shelf Life	: 15 years	Operating Temperature	: -30 °C to +55 °C	The Fuze is safe for use in the muzzle velocity range of 180 to 1000 m/s and can withstand chamber pressure up to 397 ± 8 MPa	
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OIC / QCP & QA&P

OIC/QC(Mat)

OIC/Unit-III

DO/ QCP & QA&P

DO/QC(Mat)

DO/Unit-III

GO/QCP & QA&P

GO/Unit-III

ACCEPTANCE TEST PROCEDURE
FOR
PERCUSSION FUZE M85P13 PD3A for 155 mm

1. The Fuzes shall be compatible with shell 155 mm for firing.
2. **Bill of Materials**: Firm shall submit bill of materials for each lot with acceptance documents of each sub assembly component
3. **Documents Verification**: Acceptance documents of end product to be provided along with shop test reports and inspection / Proof reports of the components as applicable. The following documents and details of inspection/tests conducted by firm to be submitted along with lot:
 - a) Acceptance and test reports for all sub-assemblies involved in fuze
 - b) 100% radiographic examination acceptance report of Fuzes along with X-ray film images in soft form.
 - c) Electronic Clearance certificate from supplier for explosive filling.
 - d) Certificate of Conformity for the different components / sub-assemblies used.
4. **Acceptance Inspection of Packing.**
 - a) Each fuze will be individually packaged in a hermitically sealed container with an O-ring seal. 20 cylinders will be packed together in one plastic box. The package marking shall have all relevant ammunition details includes UN Hazardous division.
5. **Lot size and Proof samples.**
 - a) The firm shall supply the consignment with different lots.
 1. Pilot lot size of 2000 nos. + proof samples
 2. Subsequent lot size of 1600 nos. +proof samples
 - b) The proof samples to be selected at random from the bulk by O F Chanda representative.
 - c) Before drawl of samples, following documents /certificates will be obtained from manufacturer.
 1. Shelf life certificate
 2. Environmental test certificate (as per production spec.)
 3. QA certificate for components viz. battery, electronic portion, SAD etc. supplied by OEM

4. Radiographic examination (fused are fit for firing and use)
 5. Lot details of components viz., battery, SAD, firing circuit etc. used in each fuze lot offered for inspection. Homogeneity of lot to be maintained.
- d) The first lot of the consignment shall be treated as pilot lot and subsequent lot as OT lot with lot size and proof samples as follows:

6. Dynamic Proof

Pilot lot /1st Lot

Sr. No	Test	Sampling Plan	Sample Size	Sentence		AQL
				Ac	Re	
1.	SAD	Single	5	0	1	2.5%
2.	PD DELAY	Double				6.5%
		First	20	2	5	
		Reproof	40	6	7	
3.	PDSQ	Double				6.5%
		First	20	2	5	
		Reproof	40	6	7	

Subsequent Lot

Sr. No	Test	Sampling Plan	Sample Size	Sentence		AQL
				Ac	Re	
1.	SAD	Single	5	0	1	2.5%
2.	PD DELAY	Double				6.5%
		First	13	1	4	
		Reproof	26	4	5	
3.	PDSQ	Double				6.5%
		First	13	1	4	
		Reproof	26	4	5	

7. Target& Range

Sl. No.	Test	Target	Range
1.	SAD	2 to 3 mm mild steel (MS) plate at 39 mm from muzzle	
2.	PD DELAY	200 mm thick plywood or 250 mm thick wooden plate, size 2	Considering the velocity (566 m/s) of the charge the

		m x 3m kept at @ > 1 sec time of flight from the gun	distance will approximately 700 m from the gun
3.	PDSQ	Ground (Excluding marshy & water logged area)	To suit proof officer

4. **Observations**

SAD Test

- a) Functioning /non-functioning of fuze on mild steel plate
- b) Functioning of fuze after impact on ground
- c) Premature/abnormal observations

PD DELAY TEST

- a) Premature
- b) Trajectory Burst
- c) Delay timing (milliseconds) behind the target at which the round functions
- d) Blind
- e) Functioning /nonfunctioning of fuze on the target
- f) Muzzle velocity
- g) Any other defects/abnormalities

PDSQ TEST

- a) Premature
- b) Trajectory Burst
- c) Early burst (functioned after 0.5 sec but before impact)
- d) Blind
- e) Pressure
- f) Muzzle velocity
- g) Any other abnormality

7. **Explanation**

1. Premature is a malfunction in which the fuze functions before 100 meter from muzzle end
2. Trajectory burst means in which round burst between premature zone/time but before 0.5 sec after firing.
3. Early burst means a burst after 0.5 sec and before impact

8. Performance:

1. SAD: Fuzes should not Function on impact (hitting MS plate)
2. PD Delay: Fuzes must function after impact on target with delay time of 50+/- 20 milliseconds
3. PDSQ: Fuzes must impact on impact

9. Defect classification

Critical

1. Premature
2. Trajectory Burst
3. In case of SAD test, functioning of fuze on hitting the mild steel plate

Major

1. Early burst (functioned after 0.5 sec but before impact)
2. Blind
3. Delay time beyond specified limit.

10. Sentencing authority: Ordnance Factory Chanda