

PRAGATI DEFENCE SYSTEMS PVT LTD.

CIN: U29270CT2021PTC011232 | GSTIN: 22AALCP7554N1ZU

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04.06.23

To,
The Director,
DMSRDE, Kanpur,
UP- 208001.

Subject: Request for Absorption of ToT Certificate.

Respect Sir,

I hereby would like to introduce ourselves as Pragati Defence Systems Private Limited, a DIPP registered startup as well as a **ToT holder of improvised BPJ from DMSRDE, Kanpur (LAToT No.-TR/ToT/0612/01).**

We are one of the select companies in India to have successfully developed the BPJs in India for improvised BRJ as per GSQR 1438, which **exactly matches the drawings** and specs of the BRJ as defined in the DRDO Design **and the technology is as per the guidelines of DRDO.**

We are a young and energetic team with a focus on R&D and have launched our company in the commercial space with the setup of complete infrastructure within a short period of 12 months. During this period, we are thankful to DRDO for giving our startup unconditional support and handholding in development of several prototypes. This helped us to achieve success in several tenders in India and win orders of BIS- 5 jackets and also export orders.

Sir I hereby attach our test reports and request you to kindly help us in our absorption of the ToT so that we are able to fortify our profile as a competent startup of the nation.

We thank you and the DRDO again for this award of ToT which motivated our team to achieve this success.

Thanks
Naman Agrawal



Founder & CEO

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
 ISO 9001:2015 Certified

COMPLIANCE TEST-08

BASIC DETAILS



NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/80/PGD-CGP/08	Trail Date	27/07/2022
Armour Type	HAP	HAP ID:	A-34
Type of Firearm	Barrel No: SN: 5283	Distance Of Firing	10m
Type of Ammunition	7.62× 39 mm (HSC)	Room Temperature	34°C
Reference Velocity	700 ± 15 m/s	Humidity	52%
Conditioning If any	11 Days conditioning + HADT	Time IN:-	Time Out:-
BFS Acceptance Criteria	≤44mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium Standalone	2.400	2.398

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	697.2	No Perforation	7.08
2.	Fair	90°	724.6	No Perforation	11.24
3.	Fair	90°	701.5	No Perforation	12.24
4.	Fair	90°	702.9	No Perforation	15.39
5.	Fair	90°	701.6	No Perforation	14.25
6.	Fair	90°	703.7	No Perforation	16.48

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	



**BALLISTIC RESEARCH CENTRE &
TESTING RANGE (BRCTR)**


ISO 9001 : 2015 Certified

Ref. No. : NFSU/BRCTR/BER/79/354/2

Date : 03/08/22

BALLISTIC EVALUATION REPORT

NFSU File No.	NFSU/22/BER/79
Date of Report	03/08/2022
User Request Letter No.	क्रमांक / पु. मु / 10/यो. प्र./ प्रबंध-1/4225/2021
Acceptance of tender No./ Tender Enquiry No./Supply order No.	Ref :PHQ/SEC-10/PROVE-1/1217/2021 Dated: 09/03/2021
Date of Trails	12/07/2022 & 27/07/2022
Armor Type	Hard Armor Panel (HAP), Soft Armor Panel (SAP), Groin (SAP)
Submitted by	M/s. Pragati Defence Systems Pvt Ltd
User/Indenter	Chhattisgarh Police


(S.G Khandelwal)
Head

Note:-

1. The Test results of Ballistic evaluation of Four (04) SAP, Two (02) Groin-SAP & Eight (08) HAP + SAP submitted by M/s. Pragati Defence Systems Pvt Ltd, are as per the sheet attached here with.
2. The test articles were brought to BRCTR-NFSU, Gandhinagar by the User/Supplier Representative as per their own specification / fabrication process.
3. BRCTR-NFSU, Gandhinagar is not responsible, directly or indirectly, for the quality of production lots being manufactured by the firm.
4. The report is Valid only for the particular item evaluated against specified ammunition & publication of these results in any abridges form is not allowed without the written approval from Head BRCTR-NFSU, Gandhinagar.
5. The tested and untested samples are returned back to the user/manufacturer representative after completion of the testing.
6. The test procedure is followed as per IS17051:2018

Encl: Compliance Test-01 to 14



गृह मंत्रालय
MINISTRY OF
HOME AFFAIRS

राष्ट्रीय न्यायालयिक विज्ञान विश्वविद्यालय
(राष्ट्रीय महत्त्व का संस्थान, गृह मंत्रालय, भारत सरकार)
National Forensic Sciences University
(An Institution of National Importance under Ministry of Home Affairs,
Government of India)



**BALLISTIC RESEARCH CENTRE &
TESTING RANGE (BRCTR)**
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COMPLIANCE TEST-01
BASIC DETAILS

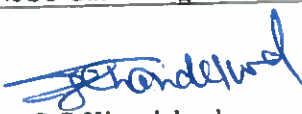

NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/01	Trail Date	12/07/2022
Armour Type	SAP (Front)	SAP ID:	SF-3
Type of Firearm	Barrel No: SN: 5285	Distance Of Firing	05m
Type of Ammunition	9× 19 mm	Room Temperature	36°C
Reference Velocity	430± 15 m/s	Humidity	58%
Conditioning If any	30 Min Water Submersion	Time IN:- 11:50	Time Out:- 12:20
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
SAP	Medium	1.156	1.180

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	425.1	No Perforation	15.80
2.	Fair	90°	426.3	No Perforation	14.46
3.	Fair	90°	421.4	No Perforation	15.63
4.	Fair	30°	418.4	No Perforation	1.55
5.	Fair	45°	420.6	No Perforation	1.53
6.	Fair	90°	428.5	No Perforation	6.69

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

Sector-9, Gandhinagar-382007, Gujarat-India.
Ph: 079-23977102/103/199/194. Mob: +91-9099010435
Email: ballistic@nfsu.ac.in | exe_registrar@nfsu.ac.in
Website: https://www.nfsu.ac.in

**BALLISTIC RESEARCH CENTRE &
TESTING RANGE (BRCTR)**
ISO 9001:2015 Certified

COMPLIANCE TEST-02
BASIC DETAILS

NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/02	Trail Date	12/07/2022
Armour Type	SAP (Back)	SAP ID:	SB-3
Type of Firearm	Barrel No: SN: 5285	Distance Of Firing	05m
Type of Ammunition	9× 19 mm	Room Temperature	36°C
Reference Velocity	430± 15 m/s	Humidity	58%
Conditioning If any	30 Min Water Submersion	Time IN:-11:55	Time Out:- 12:35
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
SAP	medium	1.050	1.092

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	417.3	No Perforation	18.10
2.	Fair	90°	426.5	No Perforation	18.82
3.	Fair	90°	440.0	No Perforation	15.42
4.	Fair	30°	435.0	No Perforation	2.81
5.	Fair	45°	448.4	No Perforation	6.68
6.	Fair	90°	435.4	No Perforation	3.31

Trail Officer, NFSU Gandhinagar.



S.G Khandelwal
Head

Ballistic Research Centre & Testing Range



Saurabh Kumar
Scientific Officer (Ballistics)
Ballistic Research Centre & Testing Range

Manufacturer Representative(s) witnessed the trails:-

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
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COMPLIANCE TEST-03

BASIC DETAILS



NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/03	Trail Date	12/07/2022
Armour Type	SAP (Groin)	SAP ID:	SG-4
Type of Firearm	Barrel No: SN: 5285	Distance Of Firing	05m
Type of Ammunition	9× 19 mm	Room Temperature	36°C
Reference Velocity	430 ± 15 m/s	Humidity	58%
Conditioning If any	30 Min Water Submersion	Time IN:-12:25	Time Out:- 12:55
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
SAP	Medium	0.270	0.272

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	449.0	No Perforation	23.70
2.	Fair	90°	428.4	No Perforation	15.53
3.	Fair	90°	428.8	No Perforation	17.41

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

**BALLISTIC RESEARCH CENTRE &
TESTING RANGE (BRCTR)**
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COMPLIANCE TEST-04

BASIC DETAILS

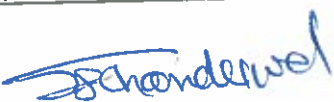

NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/04	Trail Date	12/07/2022
Armour Type	HAP+SAP (Front)	HAP ID:	B-2
		SAP ID:	SF-2
Type of Firearm	Barrel No: SN: 5327	Distance Of Firing	10m
Type of Ammunition	7.62× 51 mm	Room Temperature	36°C
Reference Velocity	838 ± 15 m/s	Humidity	58%
Conditioning If any	30 Min Water Submersion	Time IN:-14:40	Time Out:- 15:10
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium	1.930	1.936
SAP		1.174	1.210

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	864.3	No Perforation	6.98
2.	Fair	90°	836.9	No Perforation	5.31
3.	Fair	90°	852.4	No Perforation	4.74
4.	Fair	90°	857.9	No Perforation	3.91
5.	Fair	90°	848.8	No Perforation	10.15
6.	Fair	90°	840.6	No Perforation	5.73

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

BALLISTIC RESEARCH CENTRE &
TESTING RANGE (BRCTR)
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COMPLIANCE TEST-05

BASIC DETAILS



NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/05	Trail Date	12/07/2022
Armour Type	HAP+SAP (Back)	HAP ID:	B-4
		SAP ID:	SB-2
Type of Firearm	Barrel No: SN: 5327	Distance Of Firing	10m
Type of Ammunition	7.62× 51 mm	Room Temperature	36°C
Reference Velocity	838 ± 15 m/s	Humidity	58%
Conditioning If any	30 Min Water Submersion	Time IN:-14:50	Time Out:- 15:20
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium	1.940	1.946
SAP		1.050	1.092

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	850.1	No Perforation	2.70
2.	Fair	90°	841.7	No Perforation	7.96
3.	Fair	90°	843.5	No Perforation	6.35
4.	Fair	90°	828.4	No Perforation	4.13
5.	Fair	90°	833.3	No Perforation	7.67
6.	Fair	90°	839.1	No Perforation	13.18

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

BALLISTIC RESEARCH CENTRE &
TESTING RANGE (BRCTR)
ISO 9001:2015 Certified

COMPLIANCE TEST-06

BASIC DETAILS

NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/06	Trail Date	12/07/2022
Armour Type	HAP+SAP (Front)	HAP ID:	B-8
		SAP ID:	SF-10
Type of Firearm	Barrel No: SN: 5283	Distance Of Firing	10m
Type of Ammunition	7.62× 39 mm (HSC)	Room Temperature	36°C
Reference Velocity	700± 15 m/s	Humidity	58%
Conditioning If any	30 Min Water Submersion	Time IN:- 15:35	Time Out:- 16:05
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium	1.944	2.000
SAP		1.124	1.144

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	688.5	No Perforation	1.87
2.	Fair	90°	695.3	No Perforation	2.32
3.	Fair	90°	692.2	No Perforation	1.46
4.	Fair	90°	692.3	No Perforation	3.85
5.	Fair	90°	697.1	No Perforation	5.19
6.	Fair	90°	696.5	No Perforation	9.21

Trail Officer, NFSU Gandhinagar.



S.G Khandelwal
Head

Ballistic Research Centre & Testing Range



Saurabh Kumar
Scientific Officer (Ballistics)
Ballistic Research Centre & Testing Range

Manufacturer Representative(s)witnessed the trails:-

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
 ISO 9001:2015 Certified

COMPLIANCE TEST-03

BASIC DETAILS



NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/80/PGD-CGP/03	Trail Date	12/07/2022
Armour Type	HAP	HAP ID:	A-25
Type of Firearm	Barrel No: SN: 5283	Distance Of Firing	10m
Type of Ammunition	7.62× 39 mm (HSC)	Room Temperature	36°C
Reference Velocity	700 ± 15 m/s	Humidity	58%
Conditioning If any	30 Min Water Submersion	Time IN:-15:50	Time Out:- 16:20
BFS Acceptance Criteria	≤44mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium Standalone	2.390	2.398

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	707.0	No Perforation	9.91
2.	Fair	90°	706.4	No Perforation	15.45
3.	Fair	90°	717.1	No Perforation	14.75
4.	Fair	90°	686.0	No Perforation	12.07
5.	Fair	90°	707.0	No Perforation	14.59
6.	Fair	90°	704.6	No Perforation	15.12

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
 ISO 9001:2015 Certified

COMPLIANCE TEST-04

BASIC DETAILS



NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/80/PGD-CGP/04	Trail Date	12/07/2022
Armour Type	HAP	HAP ID:	A-35
Type of Firearm	Barrel No: SN: 5283	Distance Of Firing	10m
Type of Ammunition	7.62× 39 mm (HSC)	Room Temperature	36°C
Reference Velocity	700 ± 15 m/s	Humidity	58%
Conditioning If any	30 Min Water Submersion	Time IN:-15:50	Time Out:- 16:20
BFS Acceptance Criteria	≤44mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium Standalone	2.386	2.392

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	697.5	No Perforation	9.24
2.	Fair	90°	689.4	No Perforation	13.28
3.	Fair	90°	694.3	No Perforation	11.63
4.	Fair	90°	695.8	No Perforation	13.80
5.	Fair	90°	696.8	No Perforation	15.70
6.	Fair	90°	699.9	No Perforation	15.48

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
 ISO 9001:2015 Certified

COMPLIANCE TEST-05
BASIC DETAILS



NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/80/PGD-CGP/05	Trail Date	27/07/2022
Armour Type	HAP	HAP ID:	A-26
Type of Firearm	Barrel No: SN: 5327	Distance Of Firing	10m
Type of Ammunition	7.62× 51 mm	Room Temperature	34°C
Reference Velocity	838 ± 15 m/s	Humidity	52%
Conditioning If any	11 Days conditioning + HADT	Time IN:-	Time Out:-
BFS Acceptance Criteria	≤44mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium Standalone	2.374	2.368

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	849.0	No Perforation	23.92
2.	Fair	90°	849.8	No Perforation	24.09
3.	Fair	90°	835.6	No Perforation	21.89
4.	Fair	90°	839.1	No Perforation	18.13
5.	Fair	90°	849.3	No Perforation	28.82
6.	Fair	90°	833.4	No Perforation	31.49

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
 ISO 9001:2015 Certified

COMPLIANCE TEST-07

BASIC DETAILS



NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/80/PGD-CGP/07	Trail Date	27/07/2022
Armour Type	HAP	HAP ID:	A-32
Type of Firearm	Barrel No: SN: 5283	Distance Of Firing	10m
Type of Ammunition	7.62× 39 mm (HSC)	Room Temperature	34°C
Reference Velocity	700± 15 m/s	Humidity	52%
Conditioning If any	11 Days conditioning + HADT	Time IN:-	Time Out:-
BFS Acceptance Criteria	≤44mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium Standalone	2.390	2.390

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	702.9	No Perforation	7.22
2.	Fair	90°	719.1	No Perforation	11.37
3.	Fair	90°	695.7	No Perforation	12.69
4.	Fair	90°	702.3	No Perforation	12.67
5.	Fair	90°	710.6	No Perforation	14.41
6.	Fair	90°	700.0	No Perforation	15.30

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
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COMPLIANCE TEST-08
BASIC DETAILS

NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/08	Trail Date	27/07/2022
Armour Type	SAP (Front)	SAP ID:	SB-9
Type of Firearm	Barrel No: SN: 5285	Distance Of Firing	05m
Type of Ammunition	9× 19 mm	Room Temperature	34°C
Reference Velocity	430 ± 15 m/s	Humidity	52%
Conditioning If any	Tumbling	Time IN:-	Time Out:-
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

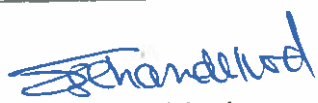

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
SAP	Medium	1.054	1.054

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	462.3	No Perforation	22.82
2.	Fair	90°	425.6	No Perforation	18.89
3.	Fair	90°	436.2	No Perforation	16.05
4.	Fair	30°	429.6	No Perforation	2.18
5.	Fair	45°	439.6	No Perforation	1.56
6.	Fair	90°	445.7	No Perforation	23.42

Trail Officer, NFSU Gandhinagar.

 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s) witnessed the trails:-	

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
 ISO 9001:2015 Certified

COMPLIANCE TEST-09
BASIC DETAILS

NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/09	Trail Date	27/07/2022
Armour Type	SAP (Back)	SAP ID:	SB-08
Type of Firearm	Barrel No: SN: 5285	Distance Of Firing	05m
Type of Ammunition	9× 19 mm	Room Temperature	34°C
Reference Velocity	430± 15 m/s	Humidity	52%
Conditioning If any	Tumbling	Time IN:-	Time Out:-
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
SAP	medium	1.122	1.116

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	431.5	No Perforation	17.65
2.	Fair	90°	432.2	No Perforation	24.12
3.	Fair	90°	457.4	No Perforation	17.97
4.	Fair	30°	443.0	No Perforation	3.43
5.	Fair	45°	432.1	No Perforation	1.38
6.	Fair	90°	430.1	No Perforation	23.30

Trail Officer, NFSU Gandhinagar.



S.G Khandelwal
 Head

Ballistic Research Centre & Testing Range



Saurabh Kumar
 Scientific Officer (Ballistics)
 Ballistic Research Centre & Testing Range

Manufacturer Representative(s)witnessed the trails:-

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
 ISO 9001:2015 Certified

COMPLIANCE TEST-10

BASIC DETAILS

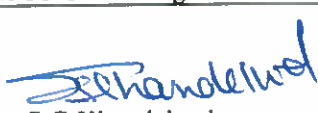
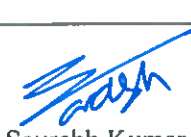
NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/10	Trail Date	27/07/2022
Armour Type	SAP (Groin)	SAP ID:	SG-06
Type of Firearm	Barrel No: SN: 5285	Distance Of Firing	05m
Type of Ammunition	9× 19 mm	Room Temperature	34°C
Reference Velocity	430± 15 m/s	Humidity	52%
Conditioning If any	Tumbling	Time IN:-	Time Out:-
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
SAP	Medium	0.270	0.270

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	424.2	No Perforation	22.25
2.	Fair	90°	416.6	No Perforation	16.76
3.	Fair	90°	427.3	No Perforation	19.54

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

**BALLISTIC RESEARCH CENTRE &
 TESTING RANGE (BRCTR)**
 ISO 9001:2015 Certified

COMPLIANCE TEST-11
BASIC DETAILS



NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/11	Trail Date	27/07/2022
Armour Type	HAP+SAP (Front)	HAP ID:	B-18
		SAP ID:	S-1
Type of Firearm	Barrel No: SN: 5327	Distance Of Firing	10m
Type of Ammunition	7.62× 51 mm	Room Temperature	34°C
Reference Velocity	838 ± 15 m/s	Humidity	52%
Conditioning If any	11 Days conditioning + HADT	Time IN:-	Time Out:-
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium	1.950	1.948
SAP		1.044	-

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	839.3	No Perforation	12.36
2.	Fair	90°	829.9	No Perforation	4.90
3.	Fair	90°	828.0	No Perforation	6.73
4.	Fair	90°	846.1	No Perforation	3.82
5.	Fair	90°	823.1	No Perforation	4.46
6.	Fair	90°	824.0	No Perforation	14.05

Trail Officer, NFSU Gandhinagar.	
 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	

BALLISTIC RESEARCH CENTRE &
TESTING RANGE (BRCTR)
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COMPLIANCE TEST-12

BASIC DETAILS

NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/12	Trail Date	27/07/2022
Armour Type	HAP+SAP (Back)	HAP ID:	B-11
		SAP ID:	SB-4
Type of Firearm	Barrel No: SN: 5327	Distance Of Firing	10m
Type of Ammunition	7.62× 51 mm	Room Temperature	34°C
Reference Velocity	838 ± 15 m/s	Humidity	52%
Conditioning If any	11 Days conditioning + HADT	Time IN:-	Time Out:-
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018

SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium	1.940	1.938
SAP		1.050	-

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	823.1	No Perforation	7.94
2.	Fair	90°	835.1	No Perforation	3.31
3.	Fair	90°	831.5	No Perforation	7.38
4.	Fair	90°	832.3	No Perforation	4.24
5.	Fair	90°	827.6	No Perforation	6.94
6.	Fair	90°	837.2	No Perforation	15.38

Trail Officer, NFSU Gandhinagar.


S.G Khandelwal

Head

Ballistic Research Centre & Testing Range


Saurabh Kumar

Scientific Officer (Ballistics)
Ballistic Research Centre & Testing Range

Manufacturer Representative(s) witnessed the trails:-

BALLISTIC RESEARCH CENTRE &
TESTING RANGE (BRCTR)
ISO 9001:2015 Certified

COMPLIANCE TEST-13

BASIC DETAILS

NFSU Test Sample ID	NFSU/BRCTR/22/BPJ/79/PGD-CGP/13	Trail Date	27/07/2022
Armour Type	HAP+SAP (Front)	HAP ID:	B-6
		SAP ID:	SF-1
Type of Firearm	Barrel No: SN: 5283	Distance Of Firing	10m
Type of Ammunition	7.62× 39 mm (HSC)	Room Temperature	34°C
Reference Velocity	700± 15 m/s	Humidity	52%
Conditioning If any	11 Days conditioning +HADT	Time IN:-	Time Out:-
BFS Acceptance Criteria	≤25mm	Testing Standard	IS17051:2018



SAMPLE DESCRIPTION

Sample Type	Size	Weight before conditioning (Kg)	Weight after conditioning (Kg)
HAP	Medium	1.940	1.938
SAP		1.120	-

TEST DATA

Shot No.	Fair /Unfair	Angle of Firing	Velocity (m/sec)	Perforation/No Perforation/Crack	BFS (mm)
1.	Fair	90°	695.4	Stop in SAP but No perforation	2.26
2.	Fair	90°	687.4	No Perforation	4.37
3.	Fair	90°	694.6	No Perforation	6.61
4.	Fair	90°	691.5	No Perforation	3.53
5.	Fair	90°	695.6	No Perforation	4.55
6.	Fair	90°	686.4	No Perforation	6.71

Trail Officer, NFSU Gandhinagar.

 S.G Khandelwal Head Ballistic Research Centre & Testing Range	 Saurabh Kumar Scientific Officer (Ballistics) Ballistic Research Centre & Testing Range
Manufacturer Representative(s)witnessed the trails:-	