

Beschussamt Mellrichstadt

Lohstraße 5, 97638 Mellrichstadt
Tel.: 09776/70500, Fax: 09776/5457, e-mail: poststelle@ba-mel.bayern.de

PPSS Ltd.
Knaresborough Technology park,
Manse Lane

UK-Knaresborough HG5 8LF

Test Report

Testing the ballistic resistance of body armour
according to NIJ-Std. 0101.04

Report No. : 11W221A01#, order No.: 7229
Date of delivery : 18.07.2011
Tester : Schmitt, Klier
Sample : insert for body armour vest (soft armour)
Designation : P2M/PPSS Standard IIIA
Applicant : SEAS SCANDINAVIA SVERIGE AB
Manufacturer : SEAS SCANDINAVIA SVERIGE AB
Requirement : Armor Type IIIA

Bötsch

Mellrichstadt, 22.07.2011

The test results are only valid for the samples described in this test report.
The applicability of this test report is restricted to five years from the date of testing. It will expire prematurely, if any alteration or modification to the manufacturing process, materials and/or quality management system could impact the product conformity.
This test report is only valid with the correspondence of the report numbers on all pages and with the official seal.
Duplication in extracts of this report is only allowed with written approval of the Beschussamt Mellrichstadt.

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 01
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
front part
large
816g

Total weight determined by the Beschussamt (g) : 816
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : 9mm Luger (9 x 19)
Bullet type : FMJ/RN/SC (R9MM2, Index 23558, Rem, CN263)
Bullet mass : 8,00g
required bullet speed: 436m/s
Weapon : test barrel No. 08/02
Barrel length : 260mm
Twist length : 250mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
wet test according to NIJ

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 437 | 764 | N | 90,0 | 29,0 | 70 | |
| 2 | 436 | 760 | N | 90,0 | ---- | ---- | |
| 3 | 436 | 760 | N | 90,0 | 25,0 | 70 | |
| 4 | 438 | 767 | N | 60,0 | ---- | ---- | |
| 5 | 437 | 764 | N | 60,0 | ---- | ---- | |
| 6 | 436 | 760 | N | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 02
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
back part
large
868g

Total weight determined by the Beschussamt (g) : 868
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : 9mm Luger (9 x 19)
Bullet type : FMJ/RN/SC (R9MM2, Index 23558, Rem, CN263)
Bullet mass : 8,00g
required bullet speed: 436m/s
Weapon : test barrel No. 08/02
Barrel length : 260mm
Twist length : 250mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
wet test according to NIJ

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 436 | 760 | N | 90,0 | 25,0 | 70 | |
| 2 | 434 | 753 | N | 90,0 | ---- | ---- | |
| 3 | 437 | 764 | N | 90,0 | 25,0 | 70 | |
| 4 | 435 | 757 | N | 60,0 | ---- | ---- | |
| 5 | 434 | 753 | N | 60,0 | ---- | ---- | |
| 6 | 437 | 764 | N | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 03
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
front part
large
820g

Total weight determined by the Beschussamt (g) : 820
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : 9mm Luger (9 x 19)
Bullet type : FMJ/RN/SC (R9MM2, Index 23558, Rem, CN263)
Bullet mass : 8,00g
required bullet speed: 436m/s
Weapon : test barrel No. 08/02
Barrel length : 260mm
Twist length : 250mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
wet test according to NIJ

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 433 | 750 | N | 90,0 | 26,0 | 80 | |
| 2 | 438 | 767 | N | 90,0 | ---- | ---- | |
| 3 | 434 | 753 | N | 90,0 | 24,0 | 70 | |
| 4 | 438 | 767 | N | 60,0 | ---- | ---- | |
| 5 | 438 | 767 | N | 60,0 | ---- | ---- | |
| 6 | 436 | 760 | N | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 04
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
back part
large
871g

Total weight determined by the Beschussamt (g) : 871
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : 9mm Luger (9 x 19)
Bullet type : FMJ/RN/SC (R9MM2, Index 23558, Rem, CN263)
Bullet mass : 8,00g
required bullet speed: 436m/s
Weapon : test barrel No. 08/02
Barrel length : 260mm
Twist length : 250mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
wet test according to NIJ

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 436 | 760 | N | 90,0 | 28,0 | 70 | |
| 2 | 436 | 760 | N | 90,0 | ---- | ---- | |
| 3 | 438 | 767 | N | 90,0 | 25,0 | 80 | |
| 4 | 435 | 757 | N | 60,0 | ---- | ---- | |
| 5 | 436 | 760 | N | 60,0 | ---- | ---- | |
| 6 | 433 | 750 | N | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 05
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
front part
large
813g

Total weight determined by the Beschussamt (g) : 813
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : .44 Rem.Mag.
Bullet type : SJHP (TM Hohlspitz, R44MG3, Rem, CN71)
Bullet mass : 15,60g
required bullet speed: 436m/s
Weapon : test barrel No. 05/01
Barrel length : 380mm
Twist length : 508mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
wet test according to NIJ

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 432 | 1456 | N | 90,0 | 37,0 | 90 | |
| 2 | 434 | 1469 | N | 90,0 | ---- | ---- | |
| 3 | 435 | 1476 | N | 90,0 | 35,0 | 90 | |
| 4 | 433 | 1462 | N | 60,0 | ---- | ---- | |
| 5 | 435 | 1476 | N | 60,0 | ---- | ---- | |
| 6 | 437 | 1490 | N | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 06
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
back part
large
869g

Total weight determined by the Beschussamt (g) : 869
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : .44 Rem.Mag.
Bullet type : SJHP (TM Hohlspitz, R44MG3, Rem, CN71)
Bullet mass : 15,60g
required bullet speed: 436m/s
Weapon : test barrel No. 05/01
Barrel length : 380mm
Twist length : 508mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
wet test according to NIJ

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 438 | 1496 | N | 90,0 | 39,0 | 80 | |
| 2 | 436 | 1483 | N | 90,0 | 36,0 | 90 | |
| 3 | 432 | 1456 | N | 90,0 | ---- | ---- | |
| 4 | 436 | 1483 | N | 60,0 | ---- | ---- | |
| 5 | 432 | 1456 | N | 60,0 | ---- | ---- | |
| 6 | 429 | 1436 | N | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 07
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
front part
large
818g

Total weight determined by the Beschussamt (g) : 818
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : .44 Rem.Mag.
Bullet type : SJHP (TM Hohlspitz, R44MG3, Rem, CN71)
Bullet mass : 15,60g
required bullet speed: 436m/s
Weapon : test barrel No. 05/01
Barrel length : 380mm
Twist length : 508mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
wet test according to NIJ

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 437 | 1490 | N | 90,0 | 36,0 | 90 | |
| 2 | 437 | 1490 | N | 90,0 | ---- | ---- | |
| 3 | 447 | 1559 | N | 90,0 | 35,0 | 90 | |
| 4 | 444 | 1538 | N | 60,0 | ---- | ---- | |
| 5 | 450 | 1580 | N | 60,0 | ---- | ---- | |
| 6 | 446 | 1552 | N | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 08
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
back part
large
870g

Total weight determined by the Beschussamt (g) : 870
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : .44 Rem.Mag.
Bullet type : SJHP (TM Hohlspitz, R44MG3, Rem, CN71)
Bullet mass : 15,60g
required bullet speed: 436m/s
Weapon : test barrel No. 05/01
Barrel length : 380mm
Twist length : 508mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
wet test according to NIJ

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 448 | 1565 | N | 90,0 | 39,0 | 90 | |
| 2 | 449 | 1572 | N | 90,0 | 43,0 | 90 | |
| 3 | 438 | 1496 | N | 90,0 | ---- | ---- | |
| 4 | 446 | 1552 | N | 60,0 | ---- | ---- | |
| 5 | 442 | 1524 | N | 60,0 | ---- | ---- | |
| 6 | 444 | 1538 | N | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 09
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
back part
large
871g

Total weight determined by the Beschussamt (g) : 871
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : 9mm Luger (9 x 19)
Bullet type : FMJ/RN/SC (R9MM2, Index 23558, Rem, CN263)
Bullet mass : 8,00g
Weapon : test barrel No. 10/02
Barrel length : 270mm
Twist length : 250mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
determination of the ballistic limit

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 597 | 1426 | Y | 90,0 | ---- | ---- | |
| 2 | 594 | 1411 | Y | 90,0 | ---- | ---- | |
| 3 | 585 | 1369 | Y | 90,0 | ---- | ---- | |
| 4 | 582 | 1355 | N | 90,0 | ---- | ---- | |
| 5 | 573 | 1313 | Y | 90,0 | ---- | ---- | |
| 6 | 569 | 1295 | Y | 90,0 | ---- | ---- | |
| 7 | 562 | 1263 | N | 90,0 | ---- | ---- | |
| 8 | 559 | 1250 | N | 90,0 | ---- | ---- | |
| 9 | 558 | 1245 | N | 90,0 | ---- | ---- | |
| 10 | 559 | 1250 | N | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO
Determined ballistic limit: 574m/s

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221A01#
Report part-No.: 10
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
front part
large
815g

Total weight determined by the Beschussamt (g) : 815
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : 9mm Luger (9 x 19)
Bullet type : FMJ/RN/SC (R9MM2, Index 23558, Rem, CN263)
Bullet mass : 8,00g
Weapon : test barrel No. 10/02
Barrel length : 270mm
Twist length : 250mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing material calibration (average value): 18,8mm

Test requirement:
determination of the ballistic limit

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 584 | 1364 | Y | 90,0 | ---- | ---- | |
| 2 | 589 | 1388 | N | 90,0 | ---- | ---- | |
| 3 | 575 | 1323 | Y | 90,0 | ---- | ---- | |
| 4 | 585 | 1369 | Y | 90,0 | ---- | ---- | |
| 5 | 585 | 1369 | Y | 90,0 | ---- | ---- | |
| 6 | 584 | 1364 | N | 90,0 | ---- | ---- | |
| 7 | 585 | 1369 | N | 90,0 | ---- | ---- | |
| 8 | 577 | 1332 | N | 90,0 | ---- | ---- | |
| 9 | 583 | 1360 | N | 90,0 | ---- | ---- | |
| 10 | 588 | 1383 | Y | 90,0 | ---- | ---- | |

90 degree = 0 degree NATO
Determined ballistic limit: 584m/s

The sample met the ballistic requirements according to
NIJ Standard-0101.04 Armor Type IIIA.

This report consists of 11 pages and 1 appendix

Abkürzungen von Geschossarten:

| | | |
|------|-----------------------------|----------------------------|
| L | Blei | Lead |
| FMs | Vollmessing | Full Brass |
| CB | Kegelstumpfgeschoss | Coned Bullet |
| FMJ | Vollmantel | Full Metal Jacket |
| RN | Rundkopf | Round Nose |
| SC | Weichkern | Soft Core |
| HC | Hartkern | Hard Core |
| WC | Wolframcarbidkern | Tungsten Core |
| PB | Spitzkopfgeschoss | Pointed Bullet |
| FN | Flachkopf | Flat Nose |
| FeC | Weicheisenkern | Fe-Core |
| SCP | Weichkern mit Penetrator | Soft Core Penetrator |
| TPSC | Zwei Stahlkerne | Two-piece Steel Core |
| I | Brandsatz | Incendiary |
| JSP | Teilmantelgeschoss | Jacketed Soft Point |
| JHP | Teilmantelhohlspitzgeschoss | Jacketed Hollow Point |
| SJSP | Teilmantelgeschoss | Semi Jacketed Soft Point |
| SJHP | Teilmantelhohlspitzgeschoss | Semi Jacketed Hollow Point |
| SWC | Scharfrandgeschoss | Semiwadcutter |

Abkürzungen von Bemerkungen:

| | | |
|-----|-------------------------------------|------------------------------------|
| giH | gestoppt im Hartschutz | stopped in hard armour |
| giW | gestoppt im Weichschutz | stopped in soft armour |
| glD | glatter Durchschuss | complete penetration |
| SS | Steckschuss | bullet lodged in the armour |
| Apr | Geschossabpraller an der Oberfläche | bullet ricocheted from the surface |
| GaO | Geschossaustritt an der Oberfläche | bullet exit on the surface |
| GaS | Geschossaustritt seitlich | bullet exit sideways |

Sonstige Abkürzungen:

| | | |
|----|----------------------|-----------------------------|
| J | Ja | yes |
| N | Nein | no |
| SI | Splitterindikator | fragmentation witness plate |
| DS | Durchschussindikator | penetration witness plate |
| TA | Trefferabstand | hit distance |
| FG | Flächengewicht | mass per unit area |

Beschussamt Mellrichstadt

Lohstraße 5, 97638 Mellrichstadt
Tel.: 09776/70500, Fax: 09776/5457, e-mail: poststelle@ba-mel.bayern.de

PPSS Ltd.
Knaresborough Technology park,
Manse Lane

UK-Knaresborough HG5 8LF

Test Report

Testing the ballistic resistance of body armour

Report No. : 11W221B01#, order No.: 7229
Date of delivery : 18.07.2011
Tester : Schmitt, Klier

Sample : insert for body armour vest (soft armour)
Designation : P2M/PPSS Standard IIIA

Applicant : SEAS SCANDINAVIA SVERIGE AB
Manufacturer : SEAS SCANDINAVIA SVERIGE AB

Requirement : 7,62 x 25 Tokarev

Bötsch

Mellrichstadt, 22.07.2011

The test results are only valid for the samples described in this test report.
The applicability of this test report is restricted to five years from the date of testing. It will expire prematurely, if any alteration or modification to the manufacturing process, materials and/or quality management system could impact the product conformity.
This test report is only valid with the correspondence of the report numbers on all pages and with the official seal.
Duplication in extracts of this report is only allowed with written approval of the Beschussamt Mellrichstadt.

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221B01#

Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
back part
large
869g

Total weight determined by the Beschussamt (g) : 869
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : 7,62 x 25 Tokarev
Bullet type : FMJ/RN/SC (VMR/WK, Russ, CN84)
Bullet mass : 5,50g
required bullet speed: 410m/s
Weapon : test barrel No. 01/01
Barrel length : 590mm
Twist length : 240mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing Material : Roma No.1
Backing material calibration: 19,0mm 18,5mm 19,0mm

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 409 | 460 | N | 90,0 | 22,0 | 60 | |
| 2 | 419 | 483 | N | 90,0 | 20,0 | 60 | |
| 3 | 409 | 460 | N | 90,0 | 20,0 | 70 | |
| 4 | 418 | 480 | N | 90,0 | 19,0 | 70 | |

90 degree = 0 degree NATO

The test was performed according to special requirements of the applicant. A final classification is not applicable.

This report consists of 2 pages and 1 appendix

Abkürzungen von Geschossarten:

| | | |
|------|-----------------------------|----------------------------|
| L | Blei | Lead |
| FMs | Vollmessing | Full Brass |
| CB | Kegelstumpfgeschoss | Coned Bullet |
| FMJ | Vollmantel | Full Metal Jacket |
| RN | Rundkopf | Round Nose |
| SC | Weichkern | Soft Core |
| HC | Hartkern | Hard Core |
| WC | Wolframcarbidkern | Tungsten Core |
| PB | Spitzkopfgeschoss | Pointed Bullet |
| FN | Flachkopf | Flat Nose |
| FeC | Weicheisenkern | Fe-Core |
| SCP | Weichkern mit Penetrator | Soft Core Penetrator |
| TPSC | Zwei Stahlkerne | Two-piece Steel Core |
| I | Brandsatz | Incendiary |
| JSP | Teilmantelgeschoss | Jacketed Soft Point |
| JHP | Teilmantelhohlspitzgeschoss | Jacketed Hollow Point |
| SJSP | Teilmantelgeschoss | Semi Jacketed Soft Point |
| SJHP | Teilmantelhohlspitzgeschoss | Semi Jacketed Hollow Point |
| SWC | Scharfrandgeschoss | Semiwadcutter |

Abkürzungen von Bemerkungen:

| | | |
|-----|-------------------------------------|------------------------------------|
| giH | gestoppt im Hartschutz | stopped in hard armour |
| giW | gestoppt im Weichschutz | stopped in soft armour |
| glD | glatter Durchschuss | complete penetration |
| SS | Steckschuss | bullet lodged in the armour |
| Apr | Geschossabpraller an der Oberfläche | bullet ricocheted from the surface |
| GaO | Geschossaustritt an der Oberfläche | bullet exit on the surface |
| GaS | Geschossaustritt seitlich | bullet exit sideways |

Sonstige Abkürzungen:

| | | |
|----|----------------------|-----------------------------|
| J | Ja | yes |
| N | Nein | no |
| SI | Splitterindikator | fragmentation witness plate |
| DS | Durchschussindikator | penetration witness plate |
| TA | Trefferabstand | hit distance |
| FG | Flächengewicht | mass per unit area |

Beschussamt Mellrichstadt

Lohstraße 5, 97638 Mellrichstadt
Tel.: 09776/70500, Fax: 09776/5457, e-mail: poststelle@ba-mel.bayern.de

PPSS Ltd.
Knaresborough Technology park,
Manse Lande

UK-Knaresborough HG5 8LF

Test Report

Testing the ballistic resistance of body armour

Report No. : 11W221C01#, order No.: 7229
Date of delivery : 18.07.2011
Tester : Schmitt, Klier
Sample : insert for body armour vest (soft armour)
Designation : P2M/PPSS Standard IIIA
Applicant : SEAS SCANDINAVIA SVERIGE AB
Manufacturer : SEAS SCANDINAVIA SVERIGE AB
Requirement : 9mm Makarov (9mm x 18)

Bötsch

Mellrichstadt, 22.07.2011

The test results are only valid for the samples described in this test report.
The applicability of this test report is restricted to five years from the date of testing. It will expire prematurely, if any alteration or modification to the manufacturing process, materials and/or quality management system could impact the product conformity.
This test report is only valid with the correspondence of the report numbers on all pages and with the official seal.
Duplication in extracts of this report is only allowed with written approval of the Beschussamt Mellrichstadt.

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221C01#
Report part-No.: 1
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
back part
large
867g

Total weight determined by the Beschussamt (g) : 867
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : 9mm Makarov (9mm x 18)
Bullet type : FMJ/RN/SC (VMR/WK, S&B, CN88)
Bullet mass : 6,00g
Weapon : test barrel No. 03/01
Barrel length : 260mm
Twist length : 240mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing Material : Roma No.1
Backing material calibration: 19,0mm 18,5mm 19,0mm

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 305 | 279 | N | 90,0 | 13,0 | 60 | |
| 2 | 334 | 335 | N | 90,0 | 15,0 | 60 | |
| 3 | 367 | 404 | N | 90,0 | 17,0 | 60 | |
| 4 | 375 | 422 | N | 90,0 | 17,0 | 60 | |

90 degree = 0 degree NATO

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 11W221C01#
Report part-No.: 2
Test date: 19.07.2011

Description of the specimen in shooting direction (specification of the manufacturer):

16 layers PE-shield (Dyneema SB51)
1 layer coated aramid laminate (0,95mm)
3 layers PE-shield (Dyneema SB51)
All layers are welded in a textile cover.
back part
large
867g

Total weight determined by the Beschussamt (g) : 867
mass per unit area determined by the Beschussamt (kg/m²) : ---
mass per unit area determined by the manufacturer (kg/m²) : ---

Test conditions and results:

Calibre : 9mm Makarov (9mm x 18)
Bullet type : FMJ/RN/FeC (mild steel core, DDR, CN89)
Bullet mass : 6,00g
Weapon : test barrel No. 03/01
Barrel length : 260mm
Twist length : 240mm
Shooting distance : 5,00m
Test range temp. : 21°C
Test range humid. : 50%
Sample temperature : 21°C
Backing Material : Roma No.1
Backing material calibration: 19,0mm 18,5mm 19,0mm

| No. | veloc. V(2,50) [m/s] | energy E(2,50) [J] | pene- trat. Y/N | angle [deg.] | depth plasticine [mm] | diam. [mm] | remarks |
|-----|----------------------------|--------------------------|-----------------------|-----------------|-----------------------------|---------------|---------|
| 1 | 361 | 391 | N | 90,0 | 18,0 | 60 | |
| 2 | 376 | 424 | N | 90,0 | 17,0 | 70 | |

90 degree = 0 degree NATO

The test was performed according to special requirements of the applicant. A final classification is not applicable.

This report consists of 3 pages and 1 appendix

Abkürzungen von Geschossarten:

| | | |
|------|-----------------------------|----------------------------|
| L | Blei | Lead |
| FMs | Vollmessing | Full Brass |
| CB | Kegelstumpfgeschoss | Coned Bullet |
| FMJ | Vollmantel | Full Metal Jacket |
| RN | Rundkopf | Round Nose |
| SC | Weichkern | Soft Core |
| HC | Hartkern | Hard Core |
| WC | Wolframcarbidkern | Tungsten Core |
| PB | Spitzkopfgeschoss | Pointed Bullet |
| FN | Flachkopf | Flat Nose |
| FeC | Weicheisenkern | Fe-Core |
| SCP | Weichkern mit Penetrator | Soft Core Penetrator |
| TPSC | Zwei Stahlkerne | Two-piece Steel Core |
| I | Brandsatz | Incendiary |
| JSP | Teilmantelgeschoss | Jacketed Soft Point |
| JHP | Teilmantelhohlspitzgeschoss | Jacketed Hollow Point |
| SJSP | Teilmantelgeschoss | Semi Jacketed Soft Point |
| SJHP | Teilmantelhohlspitzgeschoss | Semi Jacketed Hollow Point |
| SWC | Scharfrandgeschoss | Semiwadcutter |

Abkürzungen von Bemerkungen:

| | | |
|-----|-------------------------------------|------------------------------------|
| giH | gestoppt im Hartschutz | stopped in hard armour |
| giW | gestoppt im Weichschutz | stopped in soft armour |
| gLD | glatter Durchschuss | complete penetration |
| SS | Steckschuss | bullet lodged in the armour |
| Apr | Geschossabpraller an der Oberfläche | bullet ricocheted from the surface |
| GaO | Geschossaustritt an der Oberfläche | bullet exit on the surface |
| GaS | Geschossaustritt seitlich | bullet exit sideways |

Sonstige Abkürzungen:

| | | |
|----|----------------------|-----------------------------|
| J | Ja | yes |
| N | Nein | no |
| SI | Splitterindikator | fragmentation witness plate |
| DS | Durchschussindikator | penetration witness plate |
| TA | Trefferabstand | hit distance |
| FG | Flächengewicht | mass per unit area |