

Beschussamt Mellrichstadt

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

Pivnichno-Syretska str., 1-3

UKR-04136 KYIV

Test Report

Testing the ballistic resistance of body armour

Report No. : 16M017D01#, order No.:7017
Date of delivery : 10.08.2016
Tester : Volkheimer, Gutsmiedl
Sample : helmet shell
Designation : TOR, AKDA.305259.000TU
Requirement : 9mm Luger (FMJ)



Willner

Mellrichstadt, 31.08.2016

The test results relate only to the tested samples described in this test report.

This test report loses its validity, if any alteration or modification to the manufacturing process, materials and/or quality management system could impact the product conformity.

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Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 16M017D01#
Report part-No.:
Test date: 30.08.2016

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

10,1mm laminated aramid fabric

Total weight determined by the Beschussamt (g) : 1380
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, Rem, CN54)
Bullet mass : 8,00g
Bullet velocity : 426m/s + 15m/s
Weapon : test barrel No. 08/02
Barrel length : 260mm
Twist length : 250mm
Shooting distance : 5,00m
Room temperature : 20°C
Humidity : 59%
Penetration witness : 0.5mm Al-sheet (AlCuMg1 440N/mm²)
Sample fixation : VPAM HVN-2009 appendix 2
Hit pattern (preset) : according to NIJ STD 0106.01
Sample preparation : submerged in water: 3 hours (water absorption:37g)

wet test

No	veloc. v(2,50) [m/s]	energy E(2,50) [J]	pene- trat. J/N	angle [deg.] 1.)	remarks
1	434	753	N	90,0	front
2	436	760	N	90,0	back
3	435	757	N	90,0	right
4	434	753	N	90,0	left

1.) 90 degree = 0 degree NATO

The test was carried out according to special requirements of the applicant. A final classification is not applicable.
The following guideline was applied in parts:
NIJ STD 0106.01 level IIIA

This report consists of 2 pages and 1 appendix

Abkürzungen / abbreviations

Geschossarten / bullet types:

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

Bemerkungen / comments:

oM	ohne Merkmal	without marks
l	leicht (z.B. leichte Beule ...)	slight (e.g. slight bulge ...)
s	stark (z.B. starker Splitterabgang)	serious (e.g. serious fragmentation)
BoR	Beule ohne Riss	bulge without cracks
BmR	Beule mit Riss	bulge with cracks
BmRoL	Beule mit Riss ohne Lichtdurchlass	bulge with cracks without light
BmRmL	Beule mit Riss mit Lichtdurchlass	bulge with cracks with light
SA	Splitterabgang	fragmentation
SF	splitterfrei	no fragmentaion
glD	glatter Durchschuss	complete penetration
SpD	Spitzendurchbruch	partial penetration
S	Splitterbildung nach DIN EN ²	fragmentation described by DIN EN ²
NS	Splitterfrei nach DIN EN ²	no fragmentation described by DIN EN ²

²DIN EN 1063, DIN EN 1522/1523

Sonstige / miscellaneous:

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

Revision, 01.12.2010

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Pivnichno-Syretska str., 1-3

UKR-04136 KYIV

Test Report

Testing the ballistic resistance of body armour

Report No. : 16M017C01#, order No.:7017
Date of delivery : 10.08.2016
Tester : Volkheimer, Gutsmiedl
Sample : helmet shell
Designation : TOR, AKDA.305259.000TU
Requirement : 9mm Luger (FMJ)




Willner

Mellrichstadt, 31.08.2016

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

10,1mm laminated aramid fabric

Total weight determined by the Beschussamt (g) : 1352
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, Rem, CN54)
Bullet mass : 8,00g
Bullet velocity : 426m/s + 15m/s
Weapon : test barrel No. 08/02
Barrel length : 260mm
Twist length : 250mm
Shooting distance : 5,00m
Room temperature : 20°C
Humidity : 59%
Penetration witness : 0.5mm Al-sheet (AlCuMg1 440N/mm²)
Sample fixation : VPAM HVN-2009 appendix 2
Hit pattern (preset) : according to NIJ STD 0106.01

dry test

No	veloc. v(2,50) [m/s]	energy E(2,50) [J]	pene- trat. J/N	angle [deg.] 1.)	remarks
1	433	750	N	90,0	front
2	430	740	N	90,0	back
3	436	760	N	90,0	right
4	434	753	N	90,0	left

1.) 90 degree = 0 degree NATO

The test was carried out according to special requirements of the applicant. A final classification is not applicable.
The following guideline was applied in parts:
NIJ STD 0106.01 level IIIA

This report consists of 2 pages and 1 appendix

Abkürzungen / abbreviations

Geschossarten / bullet types:

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

Bemerkungen / comments:

oM	ohne Merkmal	without marks
l	leicht (z.B. leichte Beule ...)	slight (e.g. slight bulge ...)
s	stark (z.B. starker Splitterabgang)	serious (e.g. serious fragmentation)
BoR	Beule ohne Riss	bulge without cracks
BmR	Beule mit Riss	bulge with cracks
BmRoL	Beule mit Riss ohne Lichtdurchlass	bulge with cracks without light
BmRmL	Beule mit Riss mit Lichtdurchlass	bulge with cracks with light
SA	Splitterabgang	fragmentation
SF	splitterfrei	no fragmentaion
gLD	glatter Durchschuss	complete penetration
SpD	Spitzendurchbruch	partial penetration
S	Splitterbildung nach DIN EN ²	fragmentation described by DIN EN ²
NS	Splitterfrei nach DIN EN ²	no fragmentation described by DIN EN ²

²DIN EN 1063, DIN EN 1522/1523

Sonstige / miscellaneous:

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

Revision, 01.12.2010

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UKR-04136 KYIV

Test Report

Testing the ballistic resistance of body armour

Report No. : 16M017A01#, order No.:7017
Date of delivery : 10.08.2016
Tester : Volkheimer, Gutsmedl
Sample : helmet shell
Designation : TOR, AKDA.305259.000TU
Requirement : .44 Magnum (SWC gas checked)




Willner

Mellrichstadt, 31.08.2016

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

10,6mm laminated aramid fabric

Total weight determined by the Beschussamt (g) : 1402
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 : SWC (Semiwadcutter, Gas checked, PMC, CN79)
Bullet mass : 15,60g
Bullet velocity : 426m/s + 15m/s
Weapon : test barrel No. 05/02
Barrel length : 355mm
Twist length : 508mm
Shooting distance : 5,00m
Room temperature : 20°C
Humidity : 59%
Penetration witness : 0.5mm Al-sheet (AlCuMg1 440N/mm²)
Sample fixation : VPAM HVN-2009 appendix 2
Hit pattern (preset) : according to NIJ STD 0106.01

dry test

No	veloc. v(2,50) [m/s]	energy E(2,50) [J]	pene- trat. J/N	angle [deg.] 1.)	remarks
1	439	1503	N	90,0	front
2	430	1442	N	90,0	back
3	436	1483	N	90,0	right
4	439	1503	N	90,0	left

1.) 90 degree = 0 degree NATO

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The following guideline was applied in parts:
NIJ STD 0106.01 level IIIA

This report consists of 2 pages and 1 appendix

Abkürzungen / abbreviations

Geschossarten / bullet types:

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

Bemerkungen / comments:

oM	ohne Merkmal	without marks
l	leicht (z.B. leichte Beule ...)	slight (e.g. slight bulge ...)
s	stark (z.B. starker Splitterabgang)	serious (e.g. serious fragmentation)
BoR	Beule ohne Riss	bulge without cracks
BmR	Beule mit Riss	bulge with cracks
BmRoL	Beule mit Riss ohne Lichtdurchlass	bulge with cracks without light
BmRmL	Beule mit Riss mit Lichtdurchlass	bulge with cracks with light
SA	Splitterabgang	fragmentation
SF	splitterfrei	no fragmentation
glD	glatter Durchschuss	complete penetration
SpD	Spitzendurchbruch	partial penetration
S	Splitterbildung nach DIN EN ²	fragmentation described by DIN EN ²
NS	Splitterfrei nach DIN EN ²	no fragmentation described by DIN EN ²

²DIN EN 1063, DIN EN 1522/1523

Sonstige / miscellaneous:

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

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Date of delivery : 10.08.2016
Tester : Volkheimer, Gutsmiedl
Sample : helmet shell
Designation : TOR, AKDA.305259.000TU
Requirement : .44 Magnum (SWC gas checked)




Willner

Mellrichstadt, 31.08.2016

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Report-No.: 16M017B01#
Report part-No.:
Test date: 30.08.2016

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

9,6mm laminated aramid fabric

Total weight determined by the Beschussamt (g) : 1351
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 : SWC (Semiwadcutter, Gas checked, PMC, CN79)
Bullet mass : 15,60g
Bullet velocity : 426m/s + 15m/s
Weapon : test barrel No. 05/02
Barrel length : 355mm
Twist length : 508mm
Shooting distance : 5,00m
Room temperature : 20°C
Humidity : 59%
Penetration witness : 0.5mm Al-sheet (AlCuMg1 440N/mm²)
Sample fixation : VPAM HVN-2009 appendix 2
Hit pattern (preset) : according to NIJ STD 0106.01
Sample preparation : submerged in water: 3 hours (water absorption:19g)

wet test

No	veloc. v(2,50) [m/s]	energy E(2,50) [J]	pene- trat. J/N	angle [deg.] 1.)	remarks
1	437	1490	N	90,0	front
2	432	1456	N	90,0	back
3	449	1572	N	90,0	right
4	442	1524	N	90,0	left

1.) 90 degree = 0 degree NATO

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Abkürzungen / abbreviations

Geschossarten / bullet types:

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FMJ	Vollmantel	Full Metal Jacket
RN	Rundkopf	Round Nose
SC	Weichkern	Soft Core
HC	Hartkern	Hard Core
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FN	Flachkopf	Flat Nose
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TPSC	Zwei Stahlkerne	Two-piece Steel Core
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SJHP	Teilmantelhohlspitzgeschoss	Semi Jacketed Hollow Point
SWC	Scharfrandgeschoss	Semiwadcutter

Bemerkungen / comments:

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s	stark (z.B. starker Splitterabgang)	serious (e.g. serious fragmentation)
BoR	Beule ohne Riss	bulge without cracks
BmR	Beule mit Riss	bulge with cracks
BmRoL	Beule mit Riss ohne Lichtdurchlass	bulge with cracks without light
BmRmL	Beule mit Riss mit Lichtdurchlass	bulge with cracks with light
SA	Splitterabgang	fragmentation
SF	splitterfrei	no fragmentaion
glD	glatter Durchschuss	complete penetration
SpD	Spitzendurchbruch	partial penetration
S	Splitterbildung nach DIN EN ²	fragmentation described by DIN EN ²
NS	Splitterfrei nach DIN EN ²	no fragmentation described by DIN EN ²

²DIN EN 1063, DIN EN 1522/1523

Sonstige / miscellaneous:

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

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