

Beschussamt Mellrichstadt

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Swebor Stål AB
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S-97436 Luleå

Test Report

Testing of the ballistic resistance of material.

Report No : 21M052L01#, order No.:21078
Date of delivery : 21.01.2021
Tester : Edelmann, Gutsmedl
Sample : steel plate (6,0mm x 500mm x 500mm)
Designation : SWEBOR Armor 550 ID-No. SW2055-004
Applicant : Swebor Stål AB
Manufacturer : Swebor Stål AB
Requirement : .223 Rem SS109 / .308 Win DM111

Bötsch



Bötsch

Mellrichstadt, 08.02.2021

The test results relate only to the tested samples described in this test report.
This test report is only valid with the official seal and correspondence of the report numbers on all pages.
Duplication in extracts of this test report is not allowed. It is permitted to pass on this test report without description of the specimen.

Beschussamt Mellrichstadt
Lohstraße 5, 97638 Mellrichstadt

Report-No.: 21M052L01#
Report part-No.: 01
Test date: 27.01.2021

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

steel plate SW550 nominal thickness 5,8mm

Size of the sample (mm): 495 x 495

Thickness (mm): 6,0

Total weight determined by the Beschussamt (g) : 11517

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 : 5,56 x 45 (.223 Rem.)
Bullet type : FMJ/PB/SCP (SS109, M855, MEN, CN348)
Bullet mass : 4,00g
Bullet velocity : 950m/s ± 10m/s acc.to VPAM PM7
Weapon : test barrel No. 01/01
Barrel length : 650mm
Twist length : 178mm
Shooting distance : 10,00m
Room temperature : 20°C
Humidity : 50%
Penetration witness : 0.5mm Al-sheet (AlCuMg1 440N/mm²)
Sample fixation : acc.to PM 2007
Sample preparation : 24h at 20°C ± 2°C

Hit pattern (preset) : triangle 120mm ± 10mm

No	veloc. v(7,50) [m/s]	energy E(7,50) [J]	pene- trat. J/N	angle [deg.] 1.)	remarks
1	959	1839	N	90,0	bulge without cracks
2	966	1866	N	90,0	bulge without cracks
3	956	1828	N	90,0	bulge without cracks

1.) 90 degree = 0 degree NATO

The evaluation of penetration or no penetration was carried out according to VPAM APR-2006

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Report-No.: 21M052L01#
Report part-No.: 02
Test date: 27.01.2021

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

steel plate SW550 nominal thickness 5,8mm

Size of the sample (mm): 495 x 495

Thickness (mm): 6,0

Total weight determined by the Beschussamt (g) : 11517

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 51 (.308 Win.)
Bullet type : FMJ/PB/SC (DM111, MEN, CN347)
Bullet mass : 9,55g
Bullet velocity : 830m/s ± 10m/s acc.to VPAM PM7
Weapon : test barrel No. 03/04
Barrel length : 725mm
Twist length : 305mm
Shooting distance : 10,00m
Room temperature : 20°C
Humidity : 50%
Penetration witness : 0.5mm Al-sheet (AlCuMg1 440N/mm²)
Sample fixation : acc.to PM 2007
Sample preparation : 24h at 20°C ± 2°C

Hit pattern (preset) : triangle 120mm ± 10mm

No	veloc. v(7,50) [m/s]	energy E(7,50) [J]	pene- trat. J/N	angle [deg.] 1.)	remarks
1	835	3329	N	90,0	bulge without cracks
2	833	3313	N	90,0	bulge without cracks
3	829	3282	N	90,0	bulge without cracks

1.) 90 degree = 0 degree NATO

The evaluation of penetration or no penetration was carried out according to VPAM APR-2006

The test has been carried out according to special requirements of the applicant. A final classification is not applicable.

This report consists of 3 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
MH	Multihit	

Revision, 25.06.2020