SWEBOR ARMOR™ 500

BALLISTIC PROTECTION STEEL

DATASHEET

MATERIAL

Swebor Armor™ 500 is a low alloyed ballistic protection steel. Low carbon and manganese content paired with its carefully controlled heating, rolling, cooling and heat treatment sequences give Swebor Armor™ 500 its good combination of hardness, $Rp_{0,2}$ /Rm ratio, elongation, weldability, bending and ballistic protection ability.

APPLICATION

Swebor Armor™ 500 can be used in most protection applications i.e. civil armored vehicles (limousines, SUVs or trucks), CIT-vehicles, police cars, security doors and walls, bank counters, shot catches, etc. Swebor Armor™ 500 has excellent ballistic protection properties in combination with high hardness and strength but still remains easy to handle in the workshop.

CHEMICAL COMPOSITION (in wt.%)

MAX	C	Si	Mn	P	S	S + P	Other
	0,30	0,50	0,40	0,015	0,005	0,020	Mo & Cr & B

DELIVERY CONDITION

Quenched

HARDNESS

The hardness is measured according to DIN EN ISO 6506-1. The measurement takes place 1 mm underneath the plate surface. Swebor Armor™ 500 reaches hardness values between 477 and 535 HB.

MECHANICAL PROPERTIES (TYPICAL VALUES)

YEILD STRENGTH $Rp_{0,2}$ (N/mm²)	TENSILE STRENGTH R_m (N/mm²)	ELONGATION A_5 (%)	IMPACT STRENGTH Kv -40 °C (J)
1200	1670	9,5	25

GENERAL WORKING INFOS

Due to its chemical composition Swebor Armor™ 500 has good welding characteristics. Furthermore it reaches good properties for cold bending, sawing, mechanical cutting as well as milling. In order not to lose its typical characteristics, especially its hardness, Swebor Armor™ 500 must not be heated above 180°C.

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CONSULTANCY

In order that Swebor Armor™ 500 withstands the different customer specific challenges, a careful production and operational planning is required. In this respect it is highly recommended to ask for professional advice which can be obtained by our expert staff or by third-party specialists of our cooperating partners.

DIMENSION RANGE

THICKNESS (mm)	WIDTH (mm)	LENGTH (mm)	NORMAL STOCK DIMENSION (mm)
2,00 - 2,49	1000 - 1150*	1500 - 7000	1000 x 3000
2,50 - 2,99	1000 - 1300*	1500 - 4000	1000 x 3000
3,00 - 6,50	1000 - 1550	1500 - 8000	1500 x 3000
7,00 - 16,00	1000 - 1550	1500 - 6100	1500 x 3000

*1500mm width might be possible. Discussion required

WIDTH TOLERANCE	0 + 20 mm
FLATNESS	Guaranteed maximum deviation of flatness is 6,0 mm/m

BALLISTIC DATA

WEAPON (type)	FIRING DISTANCE (m)	IMPACT VELOCITY (m/s)	ARMOR THICKNESS (mm)	PROTECTION LEVEL (class)
Handgun 9 mm Para. / FJ/ RN/SC	5	415 ±10	2,0	EN 1522 FB2 VPAM PM 3
Handgun .357 Mag. / FJ/CB/SC	5	430 ± 10	2,5	EN 1522 FB3 NIJ Level II
Handgun .44 Mag. / FJ/FN/SC	5	440 ± 10	3,0 (2,5mm after consultation)	EN 1522 FB4 NIJ Level IIIA VPAM PM 4
Assault Rifle 7.62 x 39 (Kal.) FJ/PB/FeC3	10	720 ± 10	4,0	VPAM PM 6
Assault Rifle 7.62 mm x 51 (NATO ball) / FJ/PB/SC	10	830 ± 10	6,0	EN 1063 BR6 NIJ Level III
Assault Rifle 5.56 mm x 45 (SS 109) / FJ/PB/SCP1	10	950 ± 10	6,5	EN 1522 FB6 (Plus 7.62×51 BR6) / VPAM PM 7
7.62 x 51 Ball FMJ	10	853 ± 15 (up to 880)	8,0	VPAM PM7 skin effect Mexican Level D
Assault Rifle 5.56 mm x 45 (SS 109) / FJ/PB/SCP1	10	950 ± 10	8,0 "Skin Effect"	EN 1522 FB6 (Plus 7.62×51 BR6) / VPAM PM 7 "Skin effect"
Assault Rifle 5.56 mm x 45 (M193 / SS92) / FJ/PB/HC	10	937 ± 20	8,9	SS92 / M 193 STANAG Lv.1/Part3

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BALLISTIC RECOMMENDATIONS SWEBOR ARMOR™ 500

AMMUNITION CALIBER	TYPE	TEST COND. DISTANCE (m)	VELOCITY (m/s)	RECOMMENDED THICKNESS (mm)	NORMS VPAM (Class)	EN 1522/1063	STANAG 4569/AEP55 AND OTHERS	ADD. INFO
9mm Luger	FMJ/RN/SC	5	415 ±10	2,0	3	FB2/BR2	-	-
.357 Mag	FMJ/CB/SC	5	425 ±15	2,5	-	-	NIJ Level II	-
.357 Mag	FMJ/CB/SC	5	430 ±10	2,5	4/Part1	FB3/BR3	-	-
.44 Rem.Mag.	FMJ*/FN/SC	5	440 ±10	3,0*	4/Part2	FB4/BR4	-	-
.44 Rem.Mag.	FMJ/FN/SC	5	426 ±15	3,0*	-	-	NIJ Level IIIA	-
7,62x39	FMJ/PB/FeC	10	720 ±10	4,0	6	-	-	Kalashnikov
7,62x51	FMJ/PB/SC	10	838 ±15	6,0	-	-	NIJ Level III	NATO ball
7,62x51	FMJ/PB/SC	10	830 ±10	6,0	7/Part2	-	STANAG Lv.1/Part2	NATO ball
5,56x45	FMJ/PB/SCP	10	950 ±10	6,5	7/Part1	FB6	STANAG Lv.1/Part1	M855/SS109
7,62x51	FMJ	10	880 ±10	8,0	-	-	Mexican Level D	-
5,56x45	FMJ/PB/SCP	10	950 ±10	8,0	7/Part1	FB6	"Skin effect"	M855/SS109
5,56x45	FMJ/PB/HC	10	937 ±20	8,9	-	-	STANAG Lv.1/Part3	M193/SS92
5,56x45	FMJ/PB/HC	10	990 ±10	9,5	-	-	-	M193/SS92
7,62x39 API BZ	FMJ/PB/HCI	10	695 ±20	12,5	-	-	STANAG Lv.2	AK47 API
7,62x39 API BZ	FMJ/PB/HCI	10	740 ±10	12,0	8	-	-	AK47 API
7,62x51	FMJ/PB/HC	10	820 ±10	14,5	9	FB7/BR7	-	VPAM PM9 - FMJ/PB/HC - P80

*Smaller plate thickness possible

FMJ	Full Metal Jacket	CB	Coned Bullet	SC	Soft Core
		RN	Round Nose	FeC	Fe-Core (non hardened)
		PB	Pointed Bullet	SCP	Soft Core Penetrator
		FN	Flat Nose	HC	Hard Core (steel core)
				I	Incendiary

Stated ballistic proStated ballistic protection level per thickness was tested and certified in 3th party laboratory according to protection level standard. Swebor shall not in any way be held liable for the suggested plate thickness and how they are interpreted, used, relied on, applied or likewisetection level per thickness was tested and certified in 3th party laboratory according to protection level standard. Swebor shall not in any way be held liable for the suggested plate thickness and how they are interpreted, used, relied on, applied or likewise

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