**MATERIAL**

Swebor Armor™ 600 is an UHH ballistic protection steel with extreme hardness. Advance alloying system with carbon, silicon, nickel, chromium and molybdenum with carefully managed production from the melt, rolling to heat treatment sequence give Swebor Armor™ 600 extreme combination of hardness, high strength, weldability and one of the most advanced ballistic performance properties on the market. Swebor Armor 600™ complies with MIL – DTL – 32332 (MR, w/amendment 1, 19 July 2019) with tighter chemical composition range for better material performance.

**APPLICATION**

Swebor Armor™ 600 can be used in most protection application i.e civil armored vehicles (limousines, SUVs, trucks), CIT-vehicles, police cars, security doors and walls, bank counters, shoot catches, etc. Swebor Armor™ 600 has one of the most advanced ballistic protection properties on the market. Swebor Armor™ 600 can be used as base material for protection or as add-on armor for most demanding applications. Regardless of its higher hardness Swebor Armor™ 600 still remains easy to handle in the workshop with good bending and welding properties.

**CHEMICAL COMPOSITION (in wt.%)**

<table>
<thead>
<tr>
<th>MAX</th>
<th>C</th>
<th>Si</th>
<th>Mn</th>
<th>Cr</th>
<th>Ni</th>
<th>P</th>
<th>S</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0,40</td>
<td>0,80</td>
<td>0,60</td>
<td>0,80</td>
<td>3,00</td>
<td>0,015</td>
<td>0,003</td>
<td>0,004</td>
</tr>
</tbody>
</table>

*The steel is grain-refined / All values are in max. wt. %

**DELIVERY CONDITION**

Quenched (+ tempered)

**HARDNESS**

The hardness is measured according to DIN EN ISO 6506-1. The measurement takes place 1 mm underneath the plate surface. Swebor Armor™ 600 reaches hardness values between 590 and 640 HB.

**MECHANICAL PROPERTIES (TYPICAL VALUES)**

<table>
<thead>
<tr>
<th>YIELD STRENGTH $R_{p0.2}$ (N/mm$^2$)</th>
<th>TENSILE STRENGTH $R_m$ (N/mm$^2$)</th>
<th>ELONGATION $A_5$ (%)</th>
<th>IMPACT STRENGTH $K_V$ -40 °C (J)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1550</td>
<td>2100</td>
<td>8,5</td>
<td>13</td>
</tr>
</tbody>
</table>
GENERAL WORKING INFOS
Due to its chemical composition Swebor Armor™ 600 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™ 600 must not be heated above 200°C.

CONSULTANCY
In order that Swebor Armor™ 600 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

<table>
<thead>
<tr>
<th>THICKNESS (mm)</th>
<th>WIDTH (mm)</th>
<th>LENGTH (mm)</th>
<th>NORMAL STOCK DIMENSION (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,00 - 6,50</td>
<td>1000 - 1550</td>
<td>1500 - 8000</td>
<td>1500 x 3000</td>
</tr>
<tr>
<td>7,00 - 12,00</td>
<td>1000 - 1550</td>
<td>1500 - 6100</td>
<td>1500 x 3000</td>
</tr>
</tbody>
</table>

*1500mm width might be possible. Discussion required

WIDTH TOLERANCE
0 + 20 mm

FLATNESS
Guaranteed maximum deviation of flatness is 6,0 mm/m

BALLISTIC RECOMMENDATIONS SWEBOR ARMOR™ 600

<table>
<thead>
<tr>
<th>AMMUNITION</th>
<th>CALIBER</th>
<th>TEST COND. DISTANCE (m)</th>
<th>VELOCITY (m/s)</th>
<th>RECOMMENDED THICKNESS (mm)</th>
<th>NORMS VPAM (Class)</th>
<th>EN 1522/1063</th>
<th>STANAG 4569/AEP55 AND OTHERS</th>
<th>ADD. INFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMJ/SC/SCP</td>
<td>5,56x45</td>
<td>30</td>
<td>950 ±10</td>
<td>4,7</td>
<td>7/Part1</td>
<td>FB5/BR5</td>
<td>STANAG Lv.1/Part1</td>
<td>M855/SS109</td>
</tr>
<tr>
<td>FMJ/SC</td>
<td>7,62x51</td>
<td>30</td>
<td>830 ±10</td>
<td>4,7</td>
<td>7/Part2</td>
<td>FB6/BR6</td>
<td>STANAG Lv.1/Part2</td>
<td>NATO ball</td>
</tr>
<tr>
<td>FMJ/HC</td>
<td>5,56x45</td>
<td>30</td>
<td>937 ±20</td>
<td>5,7</td>
<td>-</td>
<td>-</td>
<td>STANAG Lv.1/Part3</td>
<td>M93/SS92</td>
</tr>
<tr>
<td>FMJ/HC</td>
<td>5,56x45</td>
<td>30</td>
<td>990 ±10</td>
<td>6,3</td>
<td>-</td>
<td>-</td>
<td>STANAG Lv.1/Part3</td>
<td>M93/SS92</td>
</tr>
<tr>
<td>FMJ/SC</td>
<td>V special request</td>
<td>5</td>
<td>426 ±15</td>
<td>3,0*</td>
<td>-</td>
<td>-</td>
<td>NIJ Level IIIA</td>
<td>-</td>
</tr>
<tr>
<td>FMJ/HC</td>
<td>7,62x39</td>
<td>30</td>
<td>695 ±20</td>
<td>8,0</td>
<td>-</td>
<td>-</td>
<td>STANAG Lv.2</td>
<td>AK47 API</td>
</tr>
<tr>
<td>FMJ/HC</td>
<td>7,62x51</td>
<td>10</td>
<td>820 ±10</td>
<td>10,0</td>
<td>9</td>
<td>FB7/BR7</td>
<td>-</td>
<td>VPAM PM9 - FMJ/SC/HC - P80</td>
</tr>
<tr>
<td>FMJ/HC</td>
<td>7,62x54</td>
<td>30</td>
<td>860 ±10</td>
<td>12,0</td>
<td>10</td>
<td>-</td>
<td>STANAG Lv.3</td>
<td>Dragunov</td>
</tr>
</tbody>
</table>

*smaller plate thickness possible

AMMUNITION CALIBER
- 5,56x45
- 7,62x51
- 5,56x45
- 5,56x45
- V special request
- 7,62x39
- 7,62x51
- 7,62x54

TEST COND. DISTANCE (m)
- 30
- 30
- 30
- 5
- 30
- 10
- 30

VELOCITY (m/s)
- 950 ±10
- 830 ±10
- 937 ±20
- 990 ±10
- 426 ±15
- 695 ±20
- 820 ±10
- 860 ±10

RECOMMENDED THICKNESS (mm)
- 4,7
- 4,7
- 5,7
- 6,3
- 3,0*
- 8,0
- 10,0
- 12,0

NORMS VPAM (Class)
- 7/Part1
- 7/Part2
- -
- -
- -
- -
- 9
- 10

EN 1522/1063
- FB5/BR5
- FB6/BR6
- -
- -
- -
- -
- -

STANAG 4569/AEP55 AND OTHERS
- STANAG Lv.1/Part1
- STANAG Lv.1/Part2
- STANAG Lv.1/Part3
- STANAG Lv.2
- STANAG Lv.3

ADD. INFO
- M855/SS109
- NATO ball
- M93/SS92
- AK47 API
- VPAM PM9 - FMJ/SC/HC - P80
- Dragunov

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