



NOVATOP SWP  
Technical documentation

# SUPPORT FOR YOU

---

## On-line



Product



Technical  
documentation



Certificates



Quality sampler



3D library

## Business documents



Complaint  
report



General terms  
and conditions

### **Warning:**

All rights reserved for technical changes, typesetting and printing errors. The colour of the images may differ from the original due to printing.

### **Warning:**

You can find the current technical documentation on the website in downloads section.

# NOVATOP SWP

## CONTENT

---


### TECHNICAL DOCUMENTATION

|          |  |       |
|----------|--|-------|
| <b>1</b> | <b>Technical information</b>   |       |
|          | Assortment .....   | 4     |
|          | Technical specifications .....   | 5     |
|          | <b>Data sheets – 3-ayer panel</b>  |       |
|          | NOVATOP SWP – bearing and non-bearing .....  | 7     |
|          | NOVATOP SWP SD – bearing .....   | 9     |
|          | NOVATOP FREE – with formaldehyde-free bonding .....  | 11    |
|          | NOVATOP EASY BOARD – with spring, groove and chamfered edge .....                          | 13    |
|          | NOVATOP ALTHOLZ – covering layer made of old wood .....                                    | 17    |
|          | NOVATOP DOOR .....   | 18    |
|          | <b>Data sheets – 5-ayer panel</b>  |       |
|          | NOVATOP STATIC .....   | 19    |
| <b>2</b> | <b>Surfaces</b>  |       |
|          | Structured surface .....   | 22    |
|          | Surface treatments .....   | 23    |
| <b>3</b> | <b>Machining possibilities</b>   |       |
|          | Standard Machining .....   | 26–27 |
|          | Other examples of machining .....  | 28    |
| <b>4</b> | <b>Preliminary dimensioning</b>  |       |
|          | Dimensioning tables .....  | 30    |
|          | Designing example .....  | 34    |
| <b>5</b> | <b>Other</b>   |       |
|          | Production, packaging, transportation, handling, storage, use, maintenance, warranty ..... | 38    |
|          | Quality specifications .....   | 42    |
|          | NOVATOP quality .....  | 46    |

CONTENT

## Spruce – 3-layer solid wood panel

### Standard range of products

 Central European spruce

| Thickness Quality | 13 mm (4-5-4) | 16 mm(5-6-5) | 19 mm (6-7-6) | 21 mm (6-9-6) | 27 mm (6-15-6) | 27 mm (9-9-9) | 33 mm (9-15-9) | 42 mm (9-24-9) | 50 mm (9-32-9) | 60 mm (9-42-9) |
|-------------------|---------------|--------------|---------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|
| Pcs. in packet    | 37            | 30           | 25            | 20            | 18             | 18            | 15             | 12             | 10             | 8              |
| A*/B              |               |              |               |               |                |               |                |                |                |                |
| A*/C+             |               |              |               |               |                |               |                |                |                |                |
| B/B               |               |              |               |               |                |               |                |                |                |                |
| B/C+              |               |              |               |               |                |               |                |                |                |                |
| B/C               |               |              |               |               |                |               |                |                |                |                |
| C+/C+             |               |              |               |               |                |               |                |                |                |                |
| C+/C              |               |              |               |               |                |               |                |                |                |                |
| C/C               |               |              |               |               |                |               |                |                |                |                |

\*Central European or Nordic spruce

(Note: C/C quality may also be referred to as K/P)

|          |          |            |             |            |            |           |
|----------|----------|------------|-------------|------------|------------|-----------|
| 2,5 x 5  | 2,5 x 4  | 2,5 x 2,5  | 2,1 x 5     | 2,1 x 4    | 2,1 x 2,75 | 2,1 x 2,5 |
| 1,25 x 5 | 1,25 x 4 | 1,25 x 2,5 | 1,04 x 2,75 | 1,04 x 2,5 | 1,04 x 4   | 1,04 x 5  |

### Formats in length 6 m

| Thickness Quality | 19 mm (6-7-6) | 21 mm (6-9-6) | 27 mm (6-15-6) | 27 mm (9-9-9) | 33 mm (9-15-9) | 42 mm (9-24-9) | 50 mm (9-32-9) | 60 mm (9-42-9) |
|-------------------|---------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|
| Pcs. in packet    | 25            | 20            | 18             | 18            | 15             | 12             | 10             | 8              |
| B/C+              |               |               |                |               |                |                |                |                |
| B/C               |               |               |                |               |                |                |                |                |
| C+/C+             |               |               |                |               |                |                |                |                |
| C+/C              |               |               |                |               |                |                |                |                |
| 2,5 x 6           | 2,5 x 3       | 2,1 x 6       | 2,1 x 3        |               | 1,25 x 6       | 1,25 x 3       | 1,04 x 6       | 1,04 x 3       |

## Silver fir

### Standard assortment

| Thickness Quality | 19 mm (6-7-6) | 27 mm (6-15-6) |
|-------------------|---------------|----------------|
| Pcs. in packet    | 25            | 18             |
| A/C+              |               |                |
| 2,5 x 6           | 2,5 x 5       | 2,5 x 3        |

## Larch (temporarily unavailable)

### Standard assortment

| Thickness Quality | 19 mm (6-7-6) | 27 mm (9-9-9) |            |
|-------------------|---------------|---------------|------------|
| Pcs. in packet    | 25            | 18            |            |
| A/C+              |               |               |            |
| 2,5 x 5           | 2,5 x 2,5     | 2,1 x 5       | 2,1 x 2,5  |
| 1,25 x 5          | 1,25 x 2,5    | 1,04 x 5      | 1,04 x 2,5 |

# NOVATOP SWP

## TECHNICAL SPECIFICATIONS

### CONTENT


1

2

3

4

5

| NOVATOP SWP – Multi-layer solid wood panel |   |
|--|---|
| <b>Description</b>                         | Multilayer panels NOVATOP SWP are made of coniferous sawnwood dried to 8% (larch 12%). Each layer of the panel consists of lamellas of massive solid wood. The three-layer panel consists of two outer layers and one middle layer with the fibres perpendicular to the course of the fibres of the surface layers. The five-layer panel has two parallel upper layers from each side and one middle layer with the fibres perpendicular to the course of the fibres of the surface layers. The thickness of the layers can differ and determines the final thickness of the panel. The lamellas of the middle layer are glued longitudinally, and lengthwise they are connected with the butted joint or they can be continuous. Their thickness is a maximum of 42 mm. The outer layers are made of continuous lamellas with a thickness of 6 or 9 mm and a width of 93–143 mm. On every panel, there is always the same width of the surface lamellas whose right side faces the surface. The longitudinal joints of the lamellas are glued together. The adhesive used is waterproof and the gluing of the surface lamellas corresponds with AW 100 or D4 according to EN 204. The quality of sanding corresponds to the grain size of P100 (coarser sanding is made to order). |
| <b>Technical background</b>                | EN 13353<br>EN 13986<br>DIN 68800    |
| <b>Technical classes of the panels</b>     | SWP/1 – solid wood panels for internal use in dry areas<br>SWP/2 – solid wood panels for internal use in damp areas<br>SWP/3 – solid wood panels for external use   |
| <b>Processed wood species</b>              | Local spruce, Nordic spruce, Silver fir, Larch (temporarily unavailable)  |
| <b>Surface</b>                             | All NOVATOP SWP panels sanded, with a grain size of P100 by default, rough surface with a grain size of P50 on request. The thickness tolerance for sanding is $\pm 0.2$ mm.  |
| <b>Panel formats</b>                       | The NOVATOP SWP is large-format sheet material according to EN 12775 made in standard sizes and construction according to the "Assortment tables".<br>Dimensional tolerances according to EN 13353<br>Nominal width and length tolerance $\pm 2$ mm<br>Side perpendicularity: 1 mm/m<br>Rectangularity: 1 mm/m  |
| <b>Surface lamella width</b>               | 93–143 mm   |
| <b>Surface quality</b>                     | The NOVATOP SWP surface is classified into 4 basic quality grades A, B, C+, C and combinations thereof.<br><b>Warning:</b> In standard labelling, the quality listed first corresponds to the top side of the SWP panel in the package!<br>Sorting parameters in the table "Features for quality sorting".<br>The quality grades of surface lamellas are classified according to EN 13017-1, and AGROP NOVA a.s. technical procedures.  |

## CONTENT

## NOVATOP SWP – 3-layer solid wood panel

|                                 |  |
|---------------------------------|--|
| <b>Sawn wood for production</b> | The sawn wood for NOVATOP SWP production originates from permanently managed forests from suppliers certified for PEFC.  |
| <b>Input material</b>           | Spruce timber (CZ), melamine adhesive, putty   |
| <b>Glueing</b>                  | NOVATOP SWP are glued in all joints.<br>The glueing process meets the following requirements:<br>AW100 according to DIN 68705<br>D4 according to EN 204.<br>The surface lamellas are glued together and to the surface of the middle layer with melamine adhesive.<br>The middle layer lamellas are glued with PVAc adhesive.<br>The patching of natural knots is glued with PVAc.   |
| <b>Patching material</b>        | Putty, patching of natural knots with diameter ranging from 10 to 40 mm  |
| <b>Emissions</b>                | HCHO - NOVATOP SWP are virtually free of formaldehyde, see the data sheets.<br>SWP are made without pentachlorophenol, wood protection agents and organic solvents.  |
| <b>Other SWP parameters</b>     | The mechanical and physical properties of the individual panel types and constructional technical values are provided in the respective data sheets.   |
| <b>Certificates</b>             | Declaration of properties NOVATOP SWP<br>Declaration of properties NOVATOP SWP SD<br>Declaration of properties NOVATOP FREE<br>Declaration of properties NOVATOP STATIC<br>Certificate of conformity of the factory production control SWP/1S, SWP/2, SWP/3<br>Certificate of conformity of the factory production control SWP/1,SD, SWP/2SD, SWP/3SD<br>Limits on emission of harmful substances and their content - Test certificate<br>Formaldehyde emission - Test certificate<br>Steam diffusion - Test certificate, CSI<br>Natureplus<br>PEFC<br>ISPM<br>EPD |
| <b>Waste</b>                    | The product packaging material is to be disposed of as per the applicable regulations valid in the customer's country.<br>The waste produced during the product processing may be incinerated in any equipment designated for incinerating wood material.  |
| <b>Place of production</b>      | Ptení, Czech Republic  |

1

2

3


4

5

# NOVATOP SWP

## DATA SHEET

**CONTENT**

| NOVATOP SWP – Bearing and non-bearing 3-layer solid wood panel according to EN 13986 |  |
|--|--|
| <b>Requirements</b>  | EN 13353, EN 13986    |
| <b>Operation classes</b>   | SWP/1, SWP/2, SWP/3 according to EN 13353  |
| <b>Technical classes</b>   | SWP/1 NS, SWP/2 NS, SWP/3 NS, SWP/1 S, SWP/2 S, SWP/3 S  |
| <b>Wood species</b>  | Local spruce, Nordic spruce, Silver fir, Larch (temporarily unavailable)   |
| <b>Quality</b>   | A, B, C+, C and their combination  |
| <b>Glueing</b>   | AW100 according to DIN 68705, SWP/3 according to EN 13354  |
| <b>Adhesive</b>  | Melamine adhesive  |
| <b>Standard thicknesses (mm)</b>   | 13 (4-5-4), 16 (5-6-5), 19 (6-7-6), 21 (6-9-6), 27 (6-15-6), 27 (9-9-9), 33 (9-15-9), 42 (9-24-9), 50 (9-32-9), 60 (9-42-9)  |
| <b>Standard formats (mm)</b>   | Standard widths (mm): 1040, 1250, 2100, 2500<br>Standard lengths (mm): 2,500, 2,750, 3,000, 4,000, 5,000, 6,000, 7,000, 8,000, 10,000 mm<br>Max. format of 2,500 x 10,000                                    |
| <b>Surface</b>   | Sanded – P 100   |
| <b>Moisture</b>  | Spruce, silver fir $8 \pm 2\%$ , larch $12 \pm 2\%$  |
| <b>Density</b>   | Spruce, white fir approx. $490 \text{ Kg/m}^3$ , larch approx. $580 \text{ kg/m}^3$  |
| <b>Formaldehyde emission class</b>   | E1 according to EN 717-1, EN16516<br>for values refer to the test reports  |
| <b>Reaction to fire</b>  | D-s2, d0 according to EN 13 501-1  |
| <b>Design value of thermal conductivity (<math>\lambda</math>)</b>                   | For spruce, fir of $0.13 \text{ W/mK}$ , at a density of $490 \text{ kg/m}^3$ according to EN ISO 10456<br>For larch of $0.15 \text{ W/mK}$ , at a density of $580 \text{ kg/m}^3$ according to EN ISO 10456 |
| <b>Factor of diffusion resistance (<math>\mu</math>)</b>                             | 200/70 (dry/wet) according to EN ISO 10456   |
| <b>Sound absorption</b>  | 250 – 500 Hz – 0,1<br>1000 – 2000 Hz – 0,3   |
| <b>Airborne sound insulation (dB)</b>  | $R = 13 \times \log(m_a) + 14$<br>$m_a$ – surface weight $\text{kg/m}^2$   |
| <b>Specific thermal capacity (<math>c_p</math>)</b>                                  | $1600 \text{ J/kgK}$ according to EN ISO 10456   |

1

2

3

4

5

## CONTENT

Density, strength and flexural modulus of elasticity of multi-layer panels made of solid wood (requirements for SWP/1 S, SWP/2 S and SWP/3 S technical classes) according to EN 13353

| Property   | Testing method | Panel nominal thickness [mm] |           |           |
|--|----------------|------------------------------|-----------|-----------|
|  |                | 12 až 20                     | >20 až 30 | >30 až 80 |
| Density (kg/m <sup>3</sup> )   | EN 323         | 410                          |           |           |
| <b>Bending strength perpendicular to the panel plane (N/mm<sup>2</sup>)</b>      |                |                              |           |           |
| parallel to the direction of the fibres  | EN 789         | 30                           | 27        | 20        |
| perpendicular to the direction of the fibres                                     |                | 5                            | 5         | 10        |
| <b>Modulus of elasticity perpendicular to the panel plane (N/mm<sup>2</sup>)</b> |                |                              |           |           |
| parallel to the direction of the fibres  | EN 789         | 8 500                        | 8 500     | 6 800     |
| perpendicular to the direction of the fibres                                     |                | 550                          | 700       | 1 300     |

**Comment:** : The 5% quantile percentile of the modulus of elasticity provided in the table corresponds to 85% of the average modulus of elasticity. The bending properties are determined according to EN 789; an optional span corresponding to 30 times the nominal thickness and the force acting at the third point of the span can be used. The local modulus of elasticity is determined. By modifying the test setup mentioned above, it is possible to reduce the issue of rolling shear failure during bending tests.


## Certificates

|       |               |
|-------|---------------|
| SWP/1 | 1393-CPR-0018 |
| SWP/2 | 1393-CPR-0019 |
| SWP/3 | 1393-CPR-0020 |

# NOVATOP SWP SD

## DATA SHEET

**CONTENT**

| NOVATOP SWP SD – Bearing 3-layer solid wood panel with declared values according to EN 13986 |   |
|--|---|
| <b>Requirements</b>  | EN 13353, EN 13986   |
| <b>Operation classes</b>   | SWP/1, SWP/2, SWP/3 according to EN 13353   |
| <b>Technical classes</b>   | SWP/1 SD, SWP/2 SD, SWP/3 SD  |
| <b>Wood species</b>  | Local spruce, Nordic spruce, Larch (temporarily unavailable)  |
| <b>Quality</b>   | A, B, C+ and their combinations. C+/C a C/C panels are excluded   |
| <b>Glueing</b>   | AW100 according to DIN 68705, SWP/3 according to EN 13354   |
| <b>Adhesive</b>  | Melamine adhesive   |
| <b>Standard thicknesses (mm)</b>   | 13 (4-5-4), 16 (5-6-5), 19 (6-7-6), 21 (6-9-6), 27 (6-15-6), 27 (9-9-9), 33 (9-15-9), 42 (9-24-9), 50 (9-32-9), 60 (9-42-9)   |
| <b>Standard formats (mm)</b>   | Standard widths (mm): 1040, 1250, 2100, 2500<br>Standard lengths (mm): 2,500, 2,750, 3,000, 4,000, 5,000, 6,000   |
| <b>Surface</b>   | Sanded – P 100  |
| <b>Moisture</b>  | Spruce 8±2%, larch 12±2%  |
| <b>Density</b>   | spruce cca 490 kg/m <sup>3</sup> , larch cca 580 kg/m <sup>3</sup>  |
| <b>Formaldehyde emission class</b>   | EN according to EN 717-1, EN16516<br>for values refer to the test reports   |
| <b>Reaction to fire</b>  | D-s2, d0 according to EN 13 501-1   |
| <b>Design value of thermal conductivity (λ)</b>  | For spruce 0,13 W/mK at a density of panels 490 kg/m <sup>3</sup> according to EN ISO 10456<br>For larch 0,15 W/mK at a density of panels 580 kg/m <sup>3</sup> according to EN ISO 10456 |
| <b>Factor of diffusion resistance (μ)</b>  | 200/70 (dry/wet) according to EN ISO 10456  |
| <b>Sound absorption</b>  | 250 – 500 Hz – 0,1<br>1000 – 2000 Hz – 0,3  |
| <b>Airborne sound insulation (dB)</b>  | $R = 13 \times \log(m_a) + 14$<br>$m_a$ – surface weight kg/m <sup>2</sup>  |
| <b>Specific thermal capacity (c<sub>p</sub>)</b>   | 1600 J/kgK according to EN ISO 10456  |

1

2

3

4

5

CONTENT

Characteristic values of panels SWP/1 SD, SWP/2 SD, SWP/3 SD in N/mm<sup>2</sup>

Panels with butted joints in the middle layer

| Type of panel                  | 16  | 19  | 22   | 27 Typ a | 27 Typ b | 33   | 42   | 50   | 60   |
|--------------------------------|-----|-----|------|----------|----------|------|------|------|------|
| Number of layers               | 3   | 3   | 3    | 3        | 3        | 3    | 3    | 3    | 3    |
| Thickness [mm]                 | 16  | 19  | 22   | 27       | 27       | 32   | 42   | 50   | 60   |
| Thick. of surface lamellas[mm] | 5,0 | 6,0 | 6,0  | 6,0      | 9,0      | 9,0  | 9,0  | 9,0  | 9,0  |
| Thick. of middle lamellas [mm] | 6,0 | 7,0 | 10,0 | 15,0     | 9,0      | 13,0 | 24,0 | 32,0 | 42,0 |

Stress perpendicular to the panel plane [N/mm<sup>2</sup>]

|                           |   |       |       |       |      |       |       |      |      |      |
|---------------------------|---|-------|-------|-------|------|-------|-------|------|------|------|
| <b>f<sub>m,0,k</sub></b>  | Bending strength parallel to the fibres of the outer layers           | 34,7  | 33,1  | 30,0  | 25,0 | 28,9  | 27,6  | 24,6 | 22,4 | 20,1 |
| <b>f<sub>m,90,k</sub></b> | Bending strength perpendicular to the fibres of the outer layers      | 3,4   | 3,3   | 4,1   | 5,4  | 3,1   | 3,9   | 5,6  | 6,7  | 7,8  |
| <b>E<sub>m,0</sub></b>    | Modulus of elasticity parallel to the fibres of the outer layers      | 10900 | 10900 | 10500 | 9600 | 11100 | 10600 | 9400 | 8600 | 7700 |
| <b>E<sub>m,90</sub></b>   | Modulus of elasticity perpendicular to the fibres of the outer layers | 500   | 450   | 700   | 1150 | 400   | 650   | 1250 | 1650 | 2100 |
| <b>f<sub>v,k</sub></b>    | Shear strength  | 1,1   |       |       |      |       |       |      |      |      |
| <b>G</b>                  | Shear modulus of elasticity   | 90    |       |       |      |       |       |      |      |      |

Stress in the panel plane [N/mm<sup>2</sup>]

|                           |   |      |      |      |      |      |      |      |      |      |
|---------------------------|---|------|------|------|------|------|------|------|------|------|
| <b>f<sub>m,0,k</sub></b>  | Bending strength parallel to the fibres of the outer layers           | 19,1 | 19,3 | 16,8 | 13,9 | 20,3 | 17,3 | 13,4 | 11,4 | 9,7  |
| <b>f<sub>m,90,k</sub></b> | Bending strength perpendicular to the fibres of the outer layers      | 5,9  | 5,8  | 7,1  | 8,6  | 5,3  | 6,8  | 8,8  | 9,8  | 10,7 |
| <b>f<sub>t,0,k</sub></b>  | Tensile strength parallel to the fibres of the outer layers           | 12,8 | 12,9 | 11,2 | 9,3  | 13,6 | 11,5 | 9,0  | 7,6  | 6,5  |
| <b>f<sub>t,90,k</sub></b> | Tensile strength perpendicular to the fibres of the outer layers      | 4,0  | 3,9  | 4,7  | 5,7  | 3,6  | 4,6  | 5,9  | 6,5  | 7,1  |
| <b>f<sub>c,0,k</sub></b>  | Compressive strength parallel to the fibres of the outer layers       | 19,1 | 19,3 | 16,8 | 13,9 | 20,3 | 17,3 | 13,4 | 11,4 | 9,7  |
| <b>f<sub>c,90,k</sub></b> | Compressive strength perpendicular to the fibres of the outer layers  | 5,9  | 5,8  | 7,1  | 8,6  | 5,3  | 6,8  | 8,8  | 9,8  | 10,7 |
| <b>f<sub>v,k</sub></b>    | Shear strength  | 3,0  |      |      |      |      |      |      |      |      |
| <b>E<sub>m,0</sub></b>    | Modulus of elasticity parallel to the fibres of the outer layers      | 7300 | 7400 | 6400 | 5300 | 7800 | 6600 | 5100 | 4400 | 3700 |
| <b>E<sub>m,90</sub></b>   | Modulus of elasticity perpendicular to the fibres of the outer layers | 2300 | 2250 | 2700 | 3300 | 2050 | 2600 | 3350 | 3750 | 4100 |
| <b>G</b>                  | Shear modulus of elasticity   | 600  |      |      |      |      |      |      |      |      |

27 Type a = SWP 27 mm (6-15-6), 27 Type b = SWP 27 mm (9-9-9)

Certificates

|          |               |
|----------|---------------|
| SWP/1 SD | 1393-CPR-0918 |
| SWP/2 SD | 1393-CPR-0921 |
| SWP/3 SD | 1393-CPR-0922 |

# NOVATOP FREE

## DATA SHEET

CONTENT

| NOVATOP FREE – Non-supporting 3-layer solid wood panel glued with adhesive without formaldehyde |   |
|---|---|
| <b>Requirements</b>   | EN 13353, EN 13986                         |
| <b>Operation classes</b>  | SWP/1, SWP/2 according to EN 13353  |
| <b>Technical classes</b>  | SWP/1 NS, SWP/2 NS  |
| <b>Wood species</b>   | Local spruce, Nordic spruce, Silver fir   |
| <b>Quality</b>  | A, B, C+, C and their combinations  |
| <b>Glueing</b>  | D4 according to EN 204  |
| <b>Adhesive</b>   | PVAc  |
| <b>Standard thicknesses (mm)</b>  | 13 (4-5-4), 16 (5-6-5), 19 (6-7-6), 21 (6-9-6), 27 (6-15-6), 27 (9-9-9), 33 (9-15-9), 42 (9-24-9), 50 (9-32-9), 60 (9-42-9) |
| <b>Standard formats (mm)</b>  | Standard widths (mm): 1040, 1250, 2100, 2500<br>Standard lengths (mm): 2,500, 2,750, 3,000, 4,000, 5,000, 6,000             |
| <b>Surface</b>  | Sanded – P 100  |
| <b>Moisture</b>   | Spruce, silver fir 8±2%   |
| <b>Density</b>  | Spruce, silver fir cca 490 Kg/m <sup>3</sup>  |
| <b>Formaldehyde emission class</b>  | EN according to EN 717-1, EN16516, for values refer to the test reports   |
| <b>Reaction to fire</b>   | D-s2, d0 according to EN 13 501-1   |
| <b>Design value of thermal conductivity (λ)</b>   | for spruce, silver fir 0,13 W/mK at a density of panels 490 kg/m <sup>3</sup> according to EN ISO 10456                     |
| <b>Factor of diffusion resistance (μ)</b>   | 200/70 (dry/wet) according to EN ISO 10456  |
| <b>Sound absorption</b>   | 250 – 500 Hz – 0,1<br>1000 – 2000 Hz – 0,3  |
| <b>Airborne sound insulation (dB)</b>   | $R = 13 \times \log(m_a) + 14$<br>$m_a$ – surface weight kg/m <sup>2</sup>  |
| <b>Specific thermal capacity (c<sub>p</sub>)</b>  | 1600 J/kgK according to EN ISO 10456  |

1

2

3

4

5

## CONTENT

## Density, strength and flexural modulus of elasticity of multi-layer panels made of solid wood (requirements for SWP/1 S, SWP/2 S and SWP/3 S technical classes)

| Property   | Testing method | Panel nominal thickness [mm] |           |           |
|--|----------------|------------------------------|-----------|-----------|
|  |                | 12 až 20                     | >20 až 30 | >30 až 80 |
| Density (kg/m <sup>3</sup> )   | EN 323         | 410                          |           |           |
| <b>Bending strength perpendicular to the panel plane (N/mm<sup>2</sup>)</b>      |                |                              |           |           |
| parallel to the direction of the fibres  | EN 789         | 30                           | 27        | 20        |
| perpendicular to the direction of the fibres                                     |                | 5                            | 5         | 10        |
| <b>Modulus of elasticity perpendicular to the panel plane (N/mm<sup>2</sup>)</b> |                |                              |           |           |
| parallel to the direction of the fibres  | EN 789         | 8 500                        | 8 500     | 6 800     |
| perpendicular to the direction of the fibres                                     |                | 550                          | 700       | 1 300     |

**Comment:** The 5% quantile percentile of the modulus of elasticity provided in the table corresponds to 85% of the average modulus of elasticity. The bending properties are determined according to EN 789; an optional span corresponding to 30 times the nominal thickness and the force acting at the third point of the span can be used. The local modulus of elasticity is determined. By modifying the test setup mentioned above, it is possible to reduce the issue of rolling shear failure during bending tests.

Multi-layer panels made of growing wood, fixed with formaldehyde-free glue, are characteristic with extremely low formaldehyde emission. As the glue does not contain any formaldehyde, the emission values measured correspond to the natural contents of the formaldehyde in wood.

**Caution:**

Thanks to the use of PVAc glue in the SWP production, the same formaldehyde emission values are achieved even after the glued joint is opened. These panels are particularly suitable for perforating (drilling, cutting, milling). Formaldehyde emissions comply with the strict requirements of Japanese standards (JIS) in the highest class F\*\*\*\*.

# NOVATOP EASY BOARD

## DATA SHEET

**CONTENT**

| 3-layer panel with a spring, a groove and a chamfered edge         |  |
|--|--|
| <b>Requirements</b>  | EN 13353, EN 13986   |
| <b>Operation classes</b>   | SWP/1, SWP/2, SWP/3 according to EN 13353  |
| <b>Types of trees</b>  | Local spruce, fir  |
| <b>Gluing</b>  | AW100 according to DIN 68705, SWP/3 according to EN 13354, D4 according to EN 204  |
| <b>Glue</b>  | Spruce – PVAC, Melamine adhesive<br>Fir – PVAC   |
| <b>Quality</b>   | PREMIUM: spruce, fir<br>BASE: spruce<br>The back side of the panel is always non-visual<br>Quality specifications are defined in accordance with internal regulations of AGROP NOVA a.s. |
| <b>Standard thicknesses (mm)</b>                                   | 19 (6-7-6), 27 (9-9-9), 27 (6-15-6)  |
| <b>Standard formats (mm)</b>                                       | Gross: 625 x 2500, 625 x 3000, 1250 x 2500, 1250 x 3000, 1250 x 5000, 1250 x 6000<br>Net: 615 x 2490, 615 x 2990, 1240 x 2490, 1240 x 2990, 1240 x 4990, 1240 x 5990                     |
| <b>Dimensional tolerance</b>                                       | Machining tolerance in the thickness of $\pm 0.2$ mm<br>Tolerance of sanding thickness of $\pm 0.2$ mm<br>Width and length tolerance of $\pm 0.5$ mm                                     |
| <b>Surface</b>   | Sanded – P 100   |
| <b>Humidity</b>  | Spruce, fir $8 \pm 2\%$  |
| <b>Density</b>   | Spruce, fir, approx. 490 Kg/m <sup>3</sup>   |
| <b>Formaldehyde emission class</b>                                 | E1 according to EN 717-1, EN16516<br>for values refer to the test reports  |
| <b>Reaction to fire</b>  | D-s2, d0 according to EN 13 501-1  |
| <b>Design value of thermal conductivity (<math>\lambda</math>)</b> | 0.13 W/mK, at a density of 490 kg/m <sup>3</sup> according to EN 12524 – spruce, fir   |
| <b>Factor of diffusion resistance (<math>\mu</math>)</b>           | 200/70 (dry/wet) according to EN ISO 10456   |
| <b>Sound absorption</b>  | 250 – 500 Hz – 0,1<br>1000 – 2000 Hz – 0,3   |
| <b>Airborne sound insulation (dB)</b>                              | $R = 13 \times \log(m_a) + 14$<br>$m_a$ – surface weight kg/m <sup>2</sup>   |
| <b>Specific heat capacity (<math>c_p</math>)</b>                   | 1,600 J/kgK according to EN ISO 10456  |

1

2

3

4

5

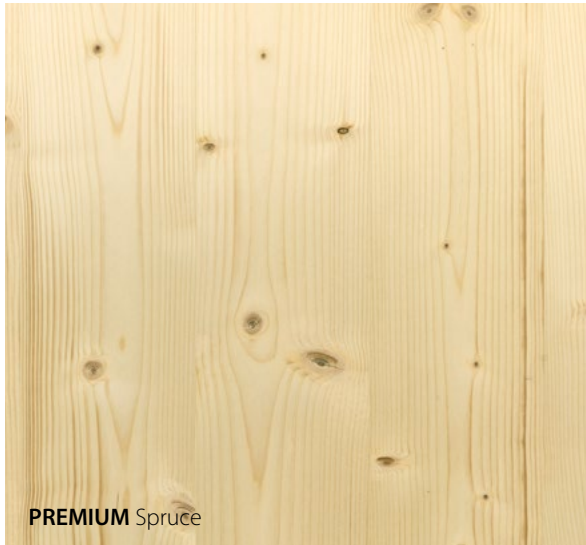
CONTENT

## PREMIUM

- > **Spruce** (Melamine, PVAC adhesive)
- > **Fir** (PVAC adhesive)
- > **Surface quality:** visual furniture, closed and puttied surface, without colouration, repairs with natural knots, sanded

(with the spruce), machining with an accuracy of  $\pm 0.2$  mm.

**The back side is always non-visual.**



PREMIUM Spruce



PREMIUM Fir

## BASE

- > **Spruce** (Melamine, PVAC adhesive)
  - > **Quality:** lower demands on visual quality, permissible chipped knots or lamellas, machining with an accuracy of  $\pm 0.5$  mm
- The back side is always non-visual.**

Permissible defects (examples)



BASE Spruce



1

2

3

4

5

# EASY BOARD DRILLED PROFILES

CONTENT

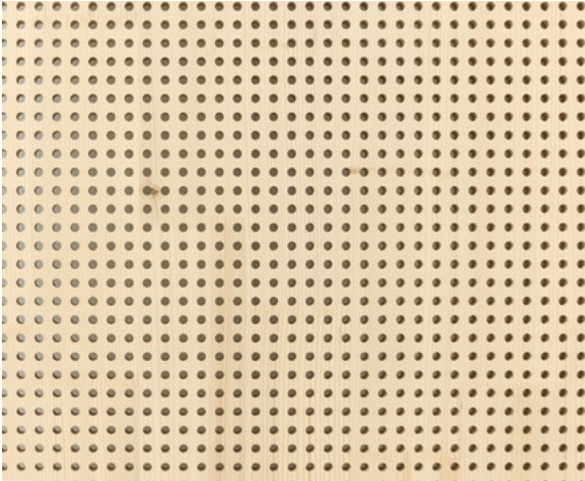
1

2

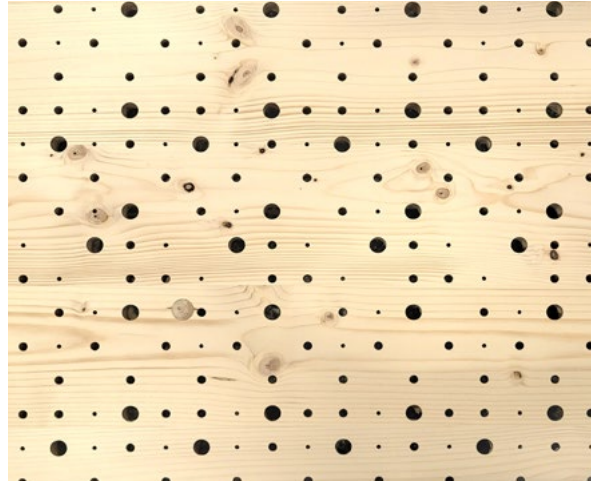
3

4

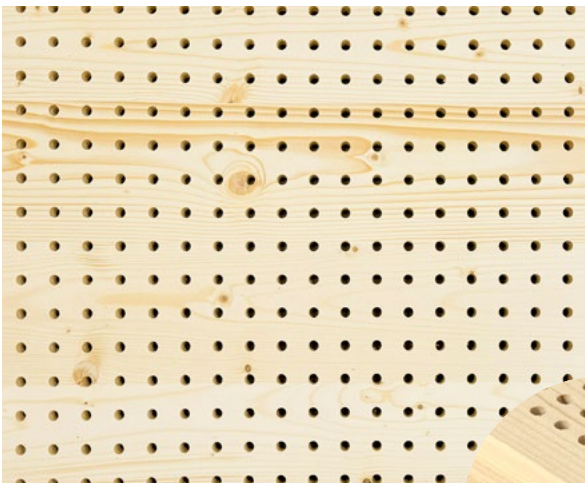
5



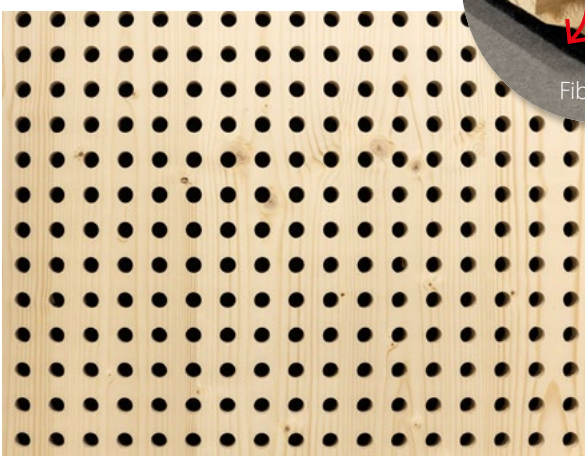
Profile 8/16-16



KATY – random drilling of  $\varnothing$  4, 8, 16 mm



Profile 10/32-32



Profile 16/32-32

S/L Profile – visual side: the 4/12 grooving,  
non-visual side: the 16/32-32 drilling  
Wood: only fir

\* Drilled profiles can be supplemented with a black Fibertex absorber of 450 g on the non-visual side.

CONTENT

1

## Brushing

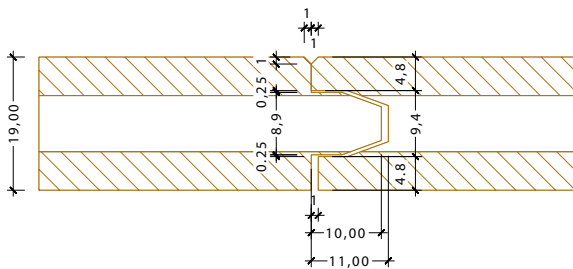
Wood: spruce, fir



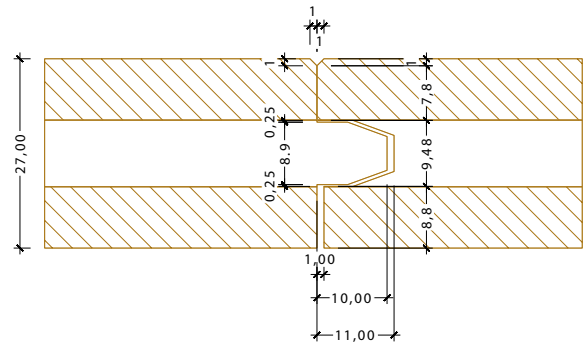
2

## Machining of edges – 4 sides

### EASY BOARD 19 mm



### EASY BOARD 27 mm



Industrial design registration number: 015020522-0001

3

## SURFACE FINISH

Surface finishes are available ON DEMAND only. The coating options offered depend on the type of supplier. Other options on request.

### TYPES OF SURFACE TREATMENT:

Water-soluble glazing paint, UV stable

- Very low VOC (volatile organic compounds) values
- Highly transparent effect, stabilizes the natural appearance of wood – Resistance to colour changes due to UV radiation
- For more information, see the manufacturer's technical data sheets

### OPTIONS:

- Primer
- Final surface

4

### GLAZING PAINTS:

Glazing paint: ADLER LIGNOVIT INTERIOR UV 100

Shade: Natur, Zugspitz, Mont Blanc

Glazing paint: SHERWIN-WILLIAMS LACROMA CLEAR 10

Shade: Natur, Venus, Polaris



Complete EASY BOARD  
technical documentation  
incl. assembly instructions

5

# NOVATOP ALTHOLZ

## DATA SHEET

CONTENT

1

2

3

4

5

| NOVATOP ALTHOLZ<br>– 3-layer solid wood panel with a one-sided covering layer made of old wood |   |
|--|---|
| Type of wood   | Spruce  |
| Thickness  | 19 mm   |
| Standard formats (mm)  | Width: 1250<br>Length: 2600, 2800, 3000, 3200   |
| Gluing   | D4  |
| Glue   | PVAc  |
| Moisture of wood   | 8 %   |
| Composition  | 3-layers, middle layer - spruce, one surface layer - old wood, the other surface layer – spruce   |
| Width of the covering lamellas   | 80-230 mm<br>always a combination of various widths of lamellas on the visual layer   |
| Thickness of the covering lamellas   | approx. 6 mm, may, depending on the board type, show a higher tolerance   |
| Types of boards  | 4 old sunburnt boards, or boards from formwork, manually brushed<br><br>1 beams and boards from a roof truss, manually brushed<br>(Warning: only length 3200 mm)  |
| Surface  | 4A colour shade - black, dark brown, sometimes nail holes, places repaired with old wood<br><br>4B colour shade - dark brown up to light grey, sometimes nail holes, places repaired with old wood<br><br>4C colour shade - brown, light brown up to light grey<br><br>1A colour shade - light brown, light grey, beige |
| Possibility of processing  | Standard: spring and groove, grooves from sides<br>Non-standard: according to individual needs<br>Precision blanks: according to individual needs   |

**Warning:** Distinctive and striking appearance of wood, colour differences, damage, nail holes, cracks caused by drying and woodworm holes are tolerable with NOVATOP ALTHOLZ three-layer boards.



Altholz 4



Altholz 1

CONTENT

## NOVATOP DOOR – multi-layer panel intended for the production of doors

|                                   |  |
|-----------------------------------|--|
| <b>Requirements ETA – 12/0079</b> | EN 13353, EN 13986 <b>CE</b>   |
| <b>Operation classes</b>          | SWP/1, SWP/2 according to EN 13353   |
| <b>Technical classes</b>          | SWP/1 NS, SWP/2 NS   |
| <b>Surface</b>                    | Local spruce, silver fir   |
| <b>Quality</b>                    | A, B, C+, C and their combinations   |
| <b>Glue</b>                       | Spruce MU, fir PVAC  |
| <b>Humidity</b>                   | 8±2%   |
| <b>Composition (mm)</b>           | SWP 19 (6-7-6) / plywood 4/ SWP 19 (6-7-6)   |
| <b>Types of trees</b>             | Local spruce, silver fir   |
| <b>Surface</b>                    | Sanded – P 100   |
| <b>Standard thickness (mm)</b>    | 42   |
| <b>Standard formats (mm)</b>      | Vertical fibre direction<br>2100 x 2000, 2500<br>2500 x 2000, 2500<br>Horizontal fibre direction<br>2500 x 2000, 3000 x 2500 |

## Veneer

|                                |  |
|--------------------------------|--|
| <b>Surface</b>                 | Veneer: European oak – tangential, European oak – radial, walnut, ash  |
| <b>Composition (mm)</b>        | Veneer 2.5 / SWP 19 (6-7-6) / plywood 4/ SWP 19 (6-7-6) / veneer 2.5   |
| <b>Standard thickness (mm)</b> | 47   |
| <b>Standard formats (mm)</b>   | Vertical fibre direction<br>2100 x 2000, 2500<br>2500 x 2000, 2500<br>Horizontal fibre direction<br>2500 x 2000, 3000 x 2500 |

## ALTHOLZ (covering layer made of old wood)

|                                |   |
|--------------------------------|---|
| <b>Surface</b>                 | Altholz 4A, 4B, 4C, 1A  |
| <b>Composition</b>             | SWP ALTHOLZ 19 (6-7-6) / plywood 4 / SWP ALTHOLZ 19 (6-7-6)                                       |
| <b>Glue</b>                    | MU, PVAC  |
| <b>Standard thickness (mm)</b> | 42 ± 2 mm   |
| <b>Standard formats (mm)</b>   | Vertical fibre direction<br>1250 x 2500<br>Horizontal fibre direction<br>2500 x 2000, 3000 x 2500 |

# NOVATOP STATIC

## DATA SHEET

**CONTENT**

| NOVATOP STATIC – 5-layer solid wood panel                          |  |  |
|--|--|--|
| <b>Demands</b>   | EN13353, EN13986 <b>CE</b>   |  |
| <b>Operation classes</b>   | SWP/1, SWP/2 podle EN 13353  |  |
| <b>Technical classes</b>   | SWP/1 NS, SWP/2 NS, SWP/1 SD, SWP/2 SD   |  |
| <b>Wood Species</b>  | Local spruce   |  |
| <b>Quality</b>   | A, B, C+ a jejich kombinace<br>Classification of quality according to the internal regulations of AGROP NOVA a.s.            |  |
| <b>Glueing</b>   | AW100 according to DIN 68705, SWP/3 according to EN 13354  |  |
| <b>Adhesive</b>  | Melamine adhesive  |  |
| <b>Surface</b>   | Sanded – P 100   |  |
| <b>Standard formats (mm)</b>                                       | <b>NOVATOP STATIC L</b><br>(Bending strength parallel)   | <b>NOVATOP STATIC Q</b><br>(Bending strength perpendicular)<br>Connection with an inlay finger joint |
|  | Length: 2.500, 5.000, 6.000<br>Width: 1.040, 1.250, 2.100, 2.500<br>Thickness: 45 (9-9-9-9-9), 60 (9-9-24-9-9)               | Length: 4.950<br>Width: 2.500<br>Thickness: 45 (9-9-9-9-9), 60 (9-9-24-9-9)                          |
| <b>Dimensional tolerances according to EN 13 353</b>               | Tolerance of nominal width and length: $\pm 2$ mm<br>Straightness of the sides: $\pm 1$ mm/m<br>Rectangularity: $\pm 1$ mm/m |  |
| <b>Formaldehyde emission class</b>                                 | EN according to EN 717-1, EN16516  |  |
| <b>Moisture</b>  | 8 % $\pm$ 2 %  |  |
| <b>Coefficient of shrinkage and swelling</b>                       | $\alpha$ (%/%) 0,002 – 0,012 %   |  |
| <b>Density</b>   | Cca 490 kg/m <sup>3</sup>  |  |
| <b>Reaction to fire</b>  | D-s2,d0 according to EN 13501-1  |  |
| <b>Design value of thermal conductivity (<math>\lambda</math>)</b> | For spruce 0,13 W/mK at a density of panels of 490 kg/m <sup>3</sup> according to EN ISO 10456                               |  |
| <b>Specific thermal capacity (<math>c_p</math>)</b>                | 1600 J/kgK according to EN ISO 10456   |  |
| <b>Factor of diffusion resistance (<math>\mu</math>)</b>           | 200/70 (dry/wet) according to EN ISO 10456   |  |
| <b>Sound absorption</b>  | 250 – 500 Hz – 0,1<br>1000 – 2000 Hz – 0,3   |  |
| <b>Airborne sound insulation (dB)</b>                              | $R = 13 \times \log(m_a) + 14$<br>$m_a$ – surface weight kg/m <sup>2</sup>   |  |

1

2

3

4

5

CONTENT

## Standard range of products

| Thickness<br>Quality | 45 mm (9-9-9-9-9) | 60 mm (9-9-24-9-9) |
|----------------------|-------------------|--------------------|
| Pcs.<br>in packet    | 10                | 8                  |
| B/B                  |                   |                    |
| B/C+                 |                   |                    |
| B/C                  |                   |                    |
| C+/C+                |                   |                    |

|         |         |          |          |
|---------|---------|----------|----------|
| 2,5 x 5 | 2,1 x 5 | 1,25 x 5 | 1,04 x 5 |
|---------|---------|----------|----------|

|         |         |          |          |
|---------|---------|----------|----------|
| 2,5 x 6 | 2,1 x 6 | 1,25 x 6 | 1,04 x 6 |
|---------|---------|----------|----------|

## Composition of lamellas



NOVATOP STATIC L  
longitudinal direction of the grain of the surface lamellas



NOVATOP STATIC Q  
transverse direction of the grain of the surface lamellas

## Cross-sectional values

**45 mm**  
(9p-9p-9q-9p-9p)



**60 mm**  
(9p-9p-24q-9p-9p)



| Thickness           | 45 mm                    | 60 mm                    |
|---------------------|--------------------------|--------------------------|
| Structure pattern   | 9p-9p-9q-9p-9p           | 9p-9p-24q-9p-9p          |
| Moment of inertia I | 6.05E+06 mm <sup>4</sup> | 1.31E+07 mm <sup>4</sup> |
| Section modulus W   | 2.69E+05 mm <sup>3</sup> | 4.37E+05 mm <sup>3</sup> |

The cross-sectional values NOVATOP STATIC relate to panel width of 1 m. While determining the defluxion, take care especially of the deformation by sparing.

# DATA SHEET

## STRENGTH VALUES

CONTENT

Characteristic strength values of selected types of panels in N/mm<sup>2</sup> for dimensioning according to DIN 1052:2008-12

### Panels with butted joints in the middle layer

| Type plate                         | 45 (9-9-9-9-9) | 60 Typ A (9-9-24-9-9) |
|------------------------------------|----------------|-----------------------|
| Number of layers                   | 5              | 5                     |
| Thickness [mm]                     | 45             | 60                    |
| Thickness of surface lamellas [mm] | 18,0           | 18,0                  |
| Thickness of middle lamellas [mm]  | 9,0            | 24,0                  |

### Stress perpendicular to the panel plane [N/mm<sup>2</sup>]

|              |   |       |       |
|--------------|---|-------|-------|
| $f_{m,0,k}$  | Bending strength parallel to the fibres of the outer layers           | 29,8  | 28,1  |
| $f_{m,90,k}$ | Bending strength perpendicular to the fibres of the outer layers      | 3,1   | 3,6   |
| $E_{m,0}$    | Modulus of elasticity parallel to the fibres of the outer layers      | 11400 | 10800 |
| $E_{m,90}$   | Modulus of elasticity perpendicular to the fibres of the outer layers | 250   | 550   |
| $f_{v,k}$    | Shear strength  | 1,1   |       |
| <b>G</b>     | Shear modulus of elasticity   | 90    |       |

### Stress in the panel plane [N/mm<sup>2</sup>]

|              |   |      |      |
|--------------|---|------|------|
| $f_{m,0,k}$  | Bending strength parallel to the fibres of the outer layers           | 24,2 | 18,4 |
| $f_{m,90,k}$ | Bending strength perpendicular to the fibres of the outer layers      | 3,4  | 6,3  |
| $f_{t,0,k}$  | Tensile strength parallel to the fibres of the outer layers           | 16,1 | 12,3 |
| $f_{t,90,k}$ | Tensile strength perpendicular to the fibres of the outer layers      | 2,3  | 4,2  |
| $f_{c,0,k}$  | Compressive strength parallel to the fibres of the outer layers       | 24,2 | 18,4 |
| $f_{c,90,k}$ | Compressive strength perpendicular to the fibres of the outer layers  | 3,4  | 6,3  |
| $f_{v,k}$    | Shear strength  | 3,0  |      |
| $E_{m,0}$    | Modulus of elasticity parallel to the fibres of the outer layers      | 9300 | 7100 |
| $E_{m,90}$   | Modulus of elasticity perpendicular to the fibres of the outer layers | 1300 | 2400 |
| <b>G</b>     | Shear modulus of elasticity   | 600  |      |

Note: the factor  $k_h$  is incorporated in the table.

CONTENT

**NOVATOP SWP – a multilayer solid wood panel**

|                                    |  |
|------------------------------------|--|
| <b>Types of surface</b>            | Fine and coarse brushing, chopping   |
| <b>Wood</b>                        | Spruce, silver fir, larch  |
| <b>Standard thicknesses (mm)</b>   | 13 (4-5-4), 16 (5-6-5), 19 (6-7-6), 21 (6-9-6), 27 (6-15-6), 27 (9-9-9), 33 (9-15-9), 42 (9-24-9), 50 (9-32-9), 60 (9-42-9)                                    |
| <b>Standard formats (mm)</b>       | Up to 2100 x 5000, min. length 1000 mm .Other formats on demand.   |
| <b>Maximum weight of the panel</b> | 220 kg   |
| <b>Machining possibilities</b>     | Standard: Tongue and groove, grooves from the side<br>Non-standard: According to the individual demand<br>Exact formatting: According to the individual demand |



Fine brushing



Coarse brushing



Chopping with fine brushing

# DATA SHEET

## SURFACE TREATMENTS

CONTENT

### PRODUCTS

- NOVATOP SWP
- EASY BOARD

### TYPES OF SURFACE TREATMENT:

#### Water-soluble glazing paint, UV stable

- Very low VOC (volatile organic compounds) values
- Highly transparent effect, stabilizes the natural appearance of wood
- Resistance to colour changes due to UV radiation.
- For more information, see the manufacturer's technical data sheets

We offer various coating options according to the type of supplier in the design of **STANDARD** or **ON DEMAND**. Other surface treatment options are available only on the individual demand.

| ADLER LIGNOVIT INTERIOR UV 100  |   |     |  |             |                  |
|---|---|-----|--|-------------|------------------|
| Coating   | Visual / non-visual side<br>Number of layers  |     | Execution                                  | Application |                  |
|   |   |     |  | Interior    | Covered exterior |
| <b>Basic</b>  | 1/0   | 1/1 | <b>STANDARD</b>                            | YES         | NO               |
| <b>Final</b>  | -   | 2/1 | <b>ON DEMAND</b>                           | YES         | NO               |
| SHADES  |   |     |  |             |                  |
| NATUR   | ZUGSPITZ  |     | MONT BLANC                                 |             |                  |
| Natural   | White with a smaller proportion of pigment  |     | White with a greater proportion of pigment |             |                  |
| TECHNICAL PARAMETERS  |   |     |  |             |                  |
| <b>Primer</b>   | 1 layer applied manually with a roller, without edge protection                                     |     | Amount 120–150 g/ m <sup>2</sup>           |             |                  |
| <b>Final surface</b><br>Visual/non-visual   | 2 layers of spray paint with intermediate sanding, without edge protection / 1 layer of spray paint |     | Amount 2x 80-90 g/ m <sup>2</sup>          |             |                  |
| Manufacturer's technical data sheet at: <a href="https://www.adler-lacke.com/">https://www.adler-lacke.com/</a> |   |     |  |             |                  |

| SHERWIN-WILLIAMS LACROMA CLEAR 10   |   |     |  |             |                  |
|---|---|-----|--|-------------|------------------|
| Coating   | Visual / non-visual side<br>Number of layers  |     | Execution                                  | Application |                  |
|   |   |     |  | Interior    | Covered exterior |
| <b>Basic</b>  | 1/0   | 1/1 | <b>ON DEMAND</b>                           | YES         | NO               |
| <b>Final</b>  | -   | 2/1 | <b>STANDARD</b>                            | YES         | NO               |
| SHADES  |   |     |  |             |                  |
| NATUR   | VENUS   |     | POLARIS                                    |             |                  |
| Natural   | White with a smaller proportion of pigment  |     | White with a greater proportion of pigment |             |                  |
| TECHNICAL PARAMETERS  |   |     |  |             |                  |
| <b>Primer</b>   | 1 layer applied manually with a roller, without edge protection                                     |     | Amount 70–90 g/ m <sup>2</sup>             |             |                  |
| <b>Final surface</b><br>Visual/non-visual   | 2 layers of spray paint with intermediate sanding, without edge protection / 1 layer of spray paint |     | Amount 65–75 g/ m <sup>2</sup>             |             |                  |
| Manufacturer's technical data sheet at: <a href="https://www.sherwin-williams.com/">https://www.sherwin-williams.com/</a> |   |     |  |             |                  |

CONTENT

| KOCH & SCHULTE H420 LEONARDO® DESIGNER FINISH  |  |  |                                  |  |                  |
|--|--|--|----------------------------------|--|------------------|
| Coating  | Visual / non-visual side<br>Number of layers |  | Execution                        | Application                                |                  |
|  |  |  |                                  | Interior                                   | Covered exterior |
| <b>Basic</b>   | 1/0  | 1/1  | <b>ON DEMAND</b>                 | YES  | YES              |
| SHADES   |  |  |                                  |  |                  |
| Natural  |  | White with a smaller proportion of pigment |                                  | White with a greater proportion of pigment |                  |
| TECHNICAL PARAMETERS   |  |  |                                  |  |                  |
| <b>Primer</b>  | 1x layer, without edge protection            |  | Amount 100-150 g/ m <sup>2</sup> |  |                  |
| <b>Manufacturer's technical data sheet at: <a href="https://www.kochundschulde.de/">https://www.kochundschulde.de/</a></b> |  |  |                                  |  |                  |

| BLENDA NOVA  |  |   |                                   |             |                  |
|--|--|---|-----------------------------------|-------------|------------------|
| Coating  | Visual / non-visual side<br>Number of layers |   | Execution                         | Application |                  |
|  |  |   |                                   | Interior    | Covered exterior |
| <b>Basic</b>   | 1/0  | - | <b>ON DEMAND</b>                  | YES         | NO               |
| SHADES   |  |   |                                   |             |                  |
| White with a smaller proportion of pigment   |  |   |                                   |             |                  |
| TECHNICAL PARAMETERS   |  |   |                                   |             |                  |
| <b>Primer</b>  | 1x layer, without edge protection            |   | Amount 100 – 125 g/m <sup>2</sup> |             |                  |
| <b>Manufacturer's technical data sheet at: <a href="https://www.knuchel.swiss/">https://www.knuchel.swiss/</a></b> |  |   |                                   |             |                  |

| REMMERS INDULINE LW-716  |  |     |                              |             |                  |
|--|--|-----|------------------------------|-------------|------------------|
| Coating  | Visual / non-visual side<br>Number of layers |     | Execution                    | Application |                  |
|  |  |     |                              | Interior    | Covered exterior |
| <b>Basic</b>   | -  | 1/1 | <b>ON DEMAND</b>             | NO          | YES              |
| SHADES   |  |     |                              |             |                  |
| Visual side – white / non-visual side – transparent  |  |     |                              |             |                  |
| TECHNICAL PARAMETERS   |  |     |                              |             |                  |
| <b>Primer</b>  | 1x layer, without edge protection            |     | Amount 100 g/ m <sup>2</sup> |             |                  |
| <b>Manufacturer's technical data sheet at: <a href="https://www.remmers.com/">https://www.remmers.com/</a></b> |  |     |                              |             |                  |

1

2

3

4

5

# DATA SHEET

## SURFACE TREATMENTS

CONTENT

### SAMPLER

#### Shades of glazes

The colour of the images is for reference only and may differ from the original due to printing.  
Shades of glazes from other manufacturers and other colour options are only available upon individual request.

#### ADLER LIGNOVIT INTERIOR UV 100



Natur



Zugspitz



Mont Blanc

#### SHERWIN-WILLIAMS LACROMA CLEAR 10



Natur



Venus



Polaris

CONTENT

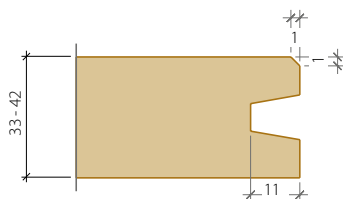
1

## Standard machining of edges

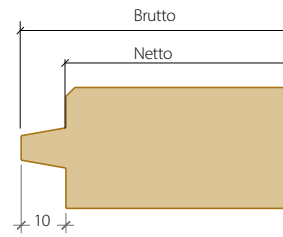
The machining can be bilateral or quadrilateral.



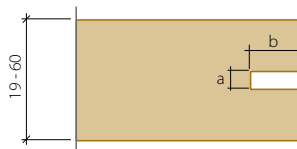
Tongue and groove (Easy Board)



Groove + chamfered edge



Tongue + chamfered edge

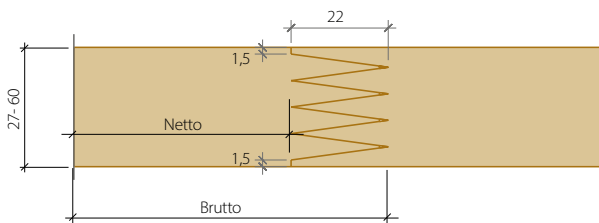


**a x b**  
4 x 10, 8 x 10, 10 x 10, 10 x 12 mm

2

3

## Extension with an inlay finger joint



4

## Non-standard machining

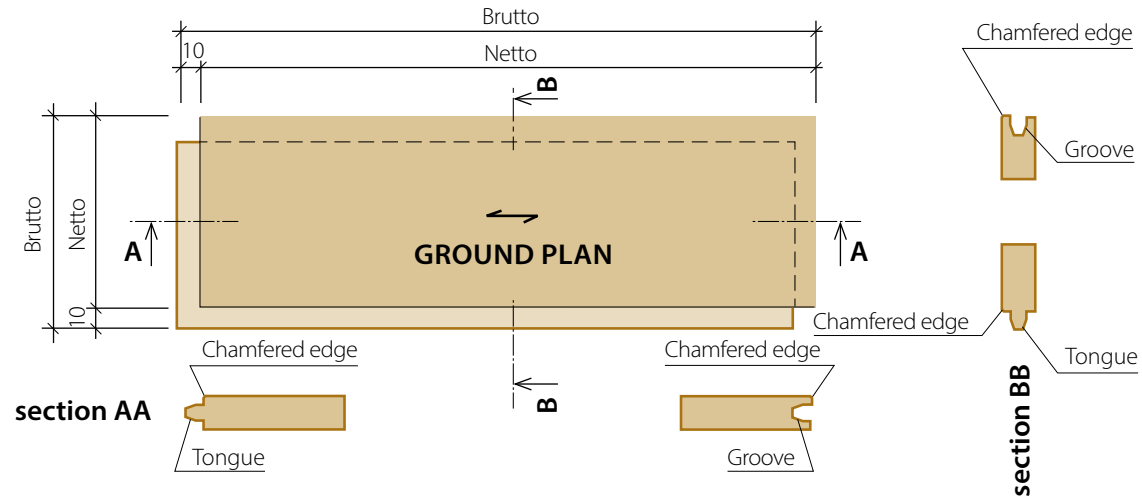
Individually according to the demand, see the examples of machining.

5

# NOVATOP SWP MACHINING

CONTENT

## Format for tongue and groove



| Machining tolerance                     |              |
|---|--------------|
| Machining tolerance in the thickness of | $\pm 0,2$ mm |
| Tolerance of nominal width and length   | $\pm 0,2$ mm |
| Tolerance of sanding thickness          | $\pm 0,5$ mm |

CONTENT

## Standard machining



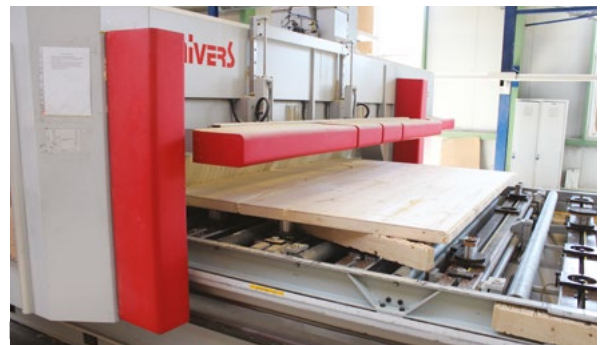
Inlay finger joint



Tongue and groove (Easy Board)

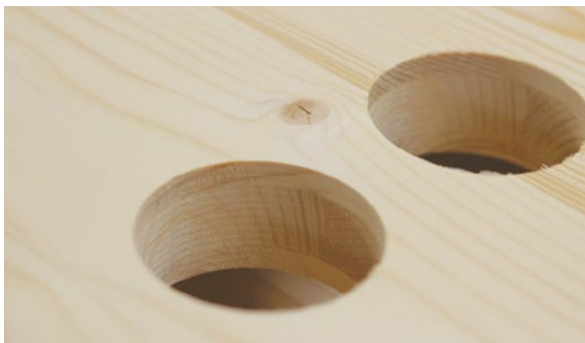


Grooves from the side



Exact formatting

## Non-Standard machining



Milling of openings of various shapes



Grooves from the top



Milling of openings of various shapes



Milling of various shapes

# NOVATOP SWP EXAMPLES MACHINING

CONTENT

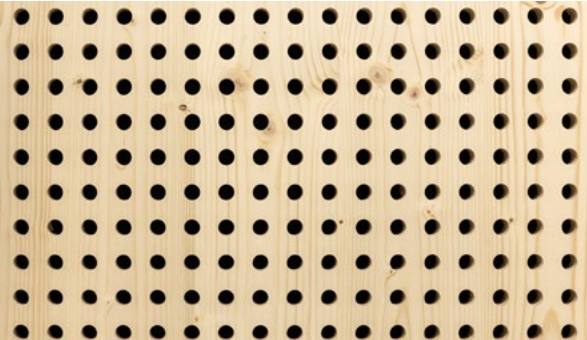
## Non-Standard machining



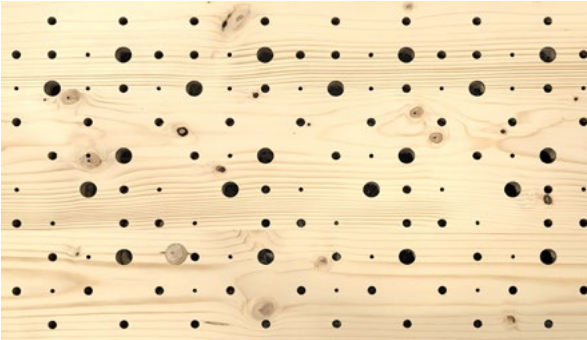
Milling



Cutting



Drilling



Drilling



Special projects



Special projects

1

2

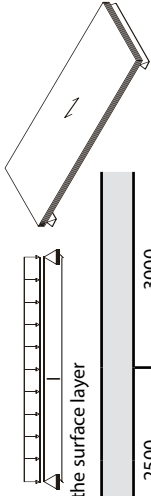
3

4

5

# NOVATOP SWP SD, STATIC PRELIMINARY DIMENSIONING

CONTENT



Girder of a single field: Load perpendicular to the panel plane and parallel to the fibre direction of the surface layer

| Incidental load | Stable load                         |      | Span [mm]                           |         |         |         |         |         |         |     |
|-----------------|-------------------------------------|------|-------------------------------------|---------|---------|---------|---------|---------|---------|-----|
|                 | g <sub>k</sub> [kN/m <sup>2</sup> ] | Cat. | q <sub>k</sub> [kN/m <sup>2</sup> ] | 500     | 1000    | 1500    | 2000    | 2500    | 3000    |     |
| 1,0             | A                                   | 1,5  | 16-60b                              | 22-60b  | 32-60b  | 42-60   | 45-60b  | 60b     | 60a-60b | 60b |
| 1,0             | A                                   | 2,0  | 16-60b                              | 27a-60b | 42-60b  | 50-60   | 45-60b  | 60b     | 60a-60b | -   |
| 1,0             | C                                   | 3,0  | 16-60b                              | 27b-60b | 42-60   | 60      | 60a-60b | -       | -       | -   |
| 1,0             | C                                   | 4,0  | 16-60b                              | 32-60b  | 42-60   | 45-60b  | 60a-60b | -       | -       | -   |
| 1,0             | C                                   | 5,0  | 16-60b                              | 32-60b  | 50-60   | 45-60b  | 60a-60b | -       | -       | -   |
| 1,5             | A                                   | 1,5  | 16-60b                              | 22-60b  | 42-60b  | 50-60b  | 45-60b  | 60a-60b | -       | -   |
| 1,5             | A                                   | 2,0  | 16-60b                              | 27a-60b | 42-60   | 60      | 60a-60b | -       | -       | -   |
| 1,5             | C                                   | 3,0  | 16-60b                              | 27b-60b | 42-60   | 60      | 60a-60b | -       | -       | -   |
| 1,5             | C                                   | 4,0  | 16-60b                              | 27b-60b | 50-60b  | 45-60b  | 60a-60b | -       | -       | -   |
| 1,5             | C                                   | 5,0  | 16-60b                              | 32-60b  | 50-60b  | 45-60b  | 60a-60b | -       | -       | -   |
| 2,0             | A                                   | 1,5  | 16-60b                              | 27a-60b | 42-60b  | 60      | 60a-60b | 60a-60b | -       | -   |
| 2,0             | A                                   | 2,0  | 16-60b                              | 27b-60b | 42-60b  | 60      | 60a-60b | 60b     | -       | -   |
| 2,0             | C                                   | 3,0  | 16-60b                              | 27b-60b | 50-60b  | 45-60b  | 60a-60b | -       | -       | -   |
| 2,0             | C                                   | 4,0  | 16-60b                              | 32-60b  | 50-60b  | 45-60b  | 60a-60b | -       | -       | -   |
| 2,0             | C                                   | 5,0  | 16-60b                              | 32-60b  | 50-60b  | 45-60b  | 60a-60b | -       | -       | -   |
| 2,5             | A                                   | 1,5  | 16-60b                              | 27a-60b | 42-60b  | 60      | 60a-60b | -       | -       | -   |
| 2,5             | A                                   | 2,0  | 16-60b                              | 27a-60b | 42-60b  | 60      | 60a-60b | -       | -       | -   |
| 2,5             | C                                   | 3,0  | 16-60b                              | 32-60b  | 50-60b  | 45-60b  | 60a-60b | -       | -       | -   |
| 2,5             | C                                   | 4,0  | 16-60b                              | 32-60b  | 50-60b  | 45-60b  | 60a-60b | -       | -       | -   |
| 2,5             | C                                   | 5,0  | 16-60b                              | 32-60b  | 50-60b  | 45-60b  | 60a-60b | -       | -       | -   |
| 3,0             | A                                   | 1,5  | 16-60b                              | 27a-60b | 42-60b  | 60      | 60a-60b | -       | -       | -   |
| 3,0             | A                                   | 2,0  | 16-60b                              | 27a-60b | 42-60b  | 60      | 60a-60b | -       | -       | -   |
| 3,0             | C                                   | 3,0  | 16-60b                              | 32-60b  | 50-60b  | 45-60b  | 60b     | -       | -       | -   |
| 3,0             | C                                   | 4,0  | 16-60b                              | 32-60b  | 50-60b  | 45-60b  | 60b     | -       | -       | -   |
| 3,0             | C                                   | 5,0  | 16-60b                              | 32-60b  | 60a-60b | 60a-60b | -       | -       | -       | -   |

The table is used for preliminary sizing "SWP NOVATOP" 3 to 5 layer plates under Z: 9.1-572 and gives the useful types of plates. The following deflection limits must comply with DIN 1052:2008-12:

$$w_{\text{quasi}} \leq \ell / 300$$

$$w_{\text{fin}} - w_{\text{G,org}} \leq \ell / 200$$

$$w_{\text{fin}} - w_0 \leq \ell / 200$$

$$w_{\text{fin}} - w_0 \leq \ell / 200$$

It's necessary to control separately the vibration characteristics using the "SWP NOVATOP" 3 and 5-layers panels as a ceiling. The table is used to pre-size "SWP NOVATOP" 3 and 5-layers panels and doesn't replace exact statistical findings.

Column 1: constant load [kN/m<sup>2</sup>], the net weight of the plate is taken into account

Column 2: perpendicular categories of utility load according to DIN 1055:3:2006-03 table 1

Column 3: perpendicular hot load q<sub>k</sub> [kN/m<sup>2</sup>] DIN 1055:3:2006-03 table 1

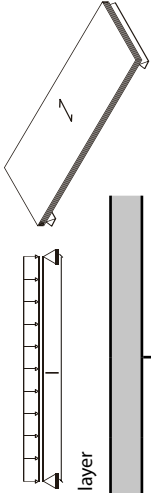
The loads are fixed (constant load, utility load) as a uniform load over the entire load length of the beam perpendicular to the plane of the plate.

Column 4: constant load [kN/m<sup>2</sup>], the net weight of the plate is taken into account

Column 5: perpendicular categories of utility load according to DIN 1055:3:2006-03 table 1

Column 6: perpendicular hot load q<sub>k</sub> [kN/m<sup>2</sup>] DIN 1055:3:2006-03 table 1

# STATIC PRELIMINARY DIMENSIONING



| Incidental load | Stable load | Span [mm] |                      |        |         |         |        |        |        |        |        |    |         |         |
|-----------------|-------------|-----------|----------------------|--------|---------|---------|--------|--------|--------|--------|--------|----|---------|---------|
|                 |             | 500       | 750                  | 1000   | 1250    | 1500    | 1750   | 2000   | 2250   |        |        |    |         |         |
| $g_k$           | Cat.        | $q_k$     | [kN/m <sup>2</sup> ] |        |         |         |        |        |        |        |        |    |         |         |
| 1,0             | A           | 1,5       | 16-60b               | 16-60b | 22-60b  | 22-60b  | 32-60b | 42-60b | 42-60b | 42-60b | 50-60  | 60 | 60a-60b | 60a-60b |
| 1,0             | A           | 2,0       |                      | 16-60b | 27b-60b | 27b-60b | 32-60b | 42-60b | 42-60b | 42-60b | 50-60  | 60 | 60a-60b | 60a-60b |
| 1,0             | C           | 3,0       |                      | 16-60b | 19-60b  | 27b-60b | 42-60b | 42-60b | 42-60b | 42-60b | 50-60  | 60 | 60a-60b | 60a-60b |
| 1,0             | C           | 4,0       |                      | 16-60b | 22-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 50-60  | 60 | 60a-60b | 60a-60b |
| 1,0             | C           | 5,0       |                      | 16-60b | 22-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 50-60  | 60 | 60a-60b | 60a-60b |
| 1,5             | A           | 1,5       | 16-60b               | 16-60b | 27a-60b | 27a-60b | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 1,5             | A           | 2,0       |                      | 16-60b | 19-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 1,5             | C           | 3,0       |                      | 16-60b | 19-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 1,5             | C           | 4,0       |                      | 16-60b | 22-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 1,5             | C           | 5,0       |                      | 16-60b | 22-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,0             | A           | 1,5       | 16-60b               | 22-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,0             | A           | 2,0       |                      | 22-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,0             | C           | 3,0       |                      | 22-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,0             | C           | 4,0       |                      | 22-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,0             | C           | 5,0       |                      | 22-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,5             | A           | 1,5       | 16-60b               | 19-60b | 27b-60b | 27b-60b | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,5             | A           | 2,0       |                      | 19-60b | 27b-60b | 27b-60b | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,5             | C           | 3,0       |                      | 19-60b | 27b-60b | 27b-60b | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,5             | C           | 4,0       |                      | 19-60b | 27b-60b | 27b-60b | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 2,5             | C           | 5,0       |                      | 19-60b | 27b-60b | 27b-60b | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 3,0             | A           | 1,5       | 16-60b               | 19-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 3,0             | A           | 2,0       |                      | 19-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 3,0             | C           | 3,0       |                      | 19-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 3,0             | C           | 4,0       |                      | 19-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |
| 3,0             | C           | 5,0       |                      | 19-60b | 32-60b  | 32-60b  | 42-60b | 42-60b | 42-60b | 42-60b | 42-60b | 60 | 60a-60b | 60a-60b |

The following deflection limits must comply with DIN 1052:2008-12:

$$w_{\text{def}} \leq l / 300$$

$$w_{\text{def}} - w_{\text{def,inst}} \leq l / 200$$

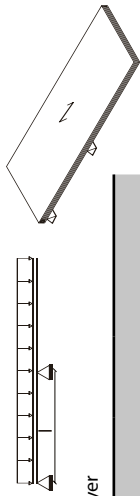
$$w_{\text{def}} - w_{\text{def,inst}} \leq l / 20$$

It's necessary to control separately the vibration characteristics using the "SWP NOVATOP" 3 and 5-layers panels as a ceiling. The table is used to pre-size "SWP NOVATOP" 3 and 5-layers panels and doesn't replace exact statistical findings.

The table is used for preliminary sizing "SWP NOVATOP" 3 to 5 layer plates under Z 9.1-572 and gives the useful types of plate the standard range and load in the category of use n1 under DIN 1052:2008-12.  
 27a = SWP 27 mm (6-15-6), 27b = SWP 27 mm (9-9-9), 60 = SWP 60 mm (9-42-9), 60a = STATIC 60 mm (9-9-24-9-9), 60b = STATIC 60 mm (12-12-12-12-12) - not included in the assortment.  
 The loads are fixed (constant load, utility load) as a uniform load over the entire load length of the beam perpendicular to the plane of the plate.

Column 1: constant load [kN/m<sup>2</sup>]; the net weight of the plate is taken into account  
 Column 2: perpendicular categories of utility load according to DIN 1055-3:2006-03 table 1  
 Column 3: perpendicular hot load  $q_k$  [kN/m<sup>2</sup>] DIN 1055-3:2006-03 table 1

CONTENT



Girder of a single field: Load perpendicular to the panel plane and parallel to the fibre direction of the surface layer

| Incidental load $q_k$ [kN/m <sup>2</sup> ] | Stable load $q_k$ [kN/m <sup>2</sup> ] | Span [mm] |         |         |        |         |         |         |         |    |         |         |  |
|--|--|-----------|---------|---------|--------|---------|---------|---------|---------|----|---------|---------|--|
|  |  | 500       | 750     | 1000    | 1250   | 1500    | 1750    | 2000    | 2250    |    |         |         |  |
| 1,0  | 1,5                                    | 16-60b    | 19-60b  | 27a-60b | 32-60b | 42-60b  | 45-60b  | 50-60   | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 1,0  | 2,0                                    |           | 22-60b  | 27b-60b | 32-60b | 42-60b  | 45-60b  | 60      | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 1,0  | 3,0                                    | 19-60b    | 27a-60b | 32-60b  | 42-60b | 45-60b  | 60      | 60a-60b | 60a-60b |    |         |         |  |
| 1,0  | 4,0                                    |           | 27b-60b | 42-60b  | 50-60  | 45-60b  | 60a-60b |         |         |    |         |         |  |
| 1,0  | 5,0                                    |           |         |         |        |         |         |         |         |    |         |         |  |
| 1,5  | 1,5                                    | 16-60b    | 22-60b  | 27b-60b | 32-60b | 42-60b  | 50-60   | 45-60b  | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 1,5  | 2,0                                    |           | 27a-60b | 32-60b  | 42-60b | 45-60b  | 60      | 60a-60b | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 1,5  | 3,0                                    | 19-60b    | 27a-60b | 32-60b  | 42-60b | 45-60b  | 60      | 60a-60b | 60a-60b |    |         |         |  |
| 1,5  | 4,0                                    |           | 27b-60b | 42-60b  | 50-60  | 45-60b  | 60a-60b |         |         |    |         |         |  |
| 1,5  | 5,0                                    |           |         |         |        |         |         |         |         |    |         |         |  |
| 2,0  | 1,5                                    | 16-60b    | 27a-60b | 32-60b  | 42-60b | 45-60b  | 60      | 60a-60b | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 2,0  | 2,0                                    |           | 27b-60b | 42-60b  | 50-60  | 45-60b  | 60      | 60a-60b | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 2,0  | 3,0                                    | 19-60b    | 27b-60b | 42-60b  | 50-60  | 45-60b  | 60      | 60a-60b | 60a-60b |    |         |         |  |
| 2,0  | 4,0                                    |           | 32-60b  | 42-60b  | 50-60  | 45-60b  | 60a-60b |         |         |    |         |         |  |
| 2,0  | 5,0                                    |           |         |         |        |         |         |         |         |    |         |         |  |
| 2,5  | 1,5                                    | 16-60b    | 27a-60b | 32-60b  | 42-60b | 45-60b  | 60      | 60a-60b | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 2,5  | 2,0                                    |           | 27b-60b | 42-60b  | 50-60  | 45-60b  | 60      | 60a-60b | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 2,5  | 3,0                                    | 19-60b    | 32-60b  | 42-60b  | 50-60  | 45-60b  | 60      | 60a-60b | 60a-60b |    |         |         |  |
| 2,5  | 4,0                                    |           | 42-60   | 45-60b  | 60     | 60a-60b | 60a-60b |         |         |    |         |         |  |
| 2,5  | 5,0                                    |           |         |         |        |         |         |         |         |    |         |         |  |
| 3,0  | 1,5                                    | 19-60b    | 27a-60b | 42-60b  | 50-60  | 45-60b  | 60      | 60a-60b | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 3,0  | 2,0                                    |           | 27b-60b | 42-60b  | 50-60  | 45-60b  | 60      | 60a-60b | 60a-60b | 60 | 60a-60b | 60a-60b |  |
| 3,0  | 3,0                                    | 22-60b    | 32-60b  | 42-60   | 45-60b | 60      | 60a-60b | 60a-60b | 60a-60b |    |         |         |  |
| 3,0  | 4,0                                    |           | 42-60   | 45-60b  | 60     | 60a-60b | 60a-60b |         |         |    |         |         |  |
| 3,0  | 5,0                                    |           |         |         |        |         |         |         |         |    |         |         |  |

The following deflection limits must comply with DIN 10522008-12:

$w_{Q_{max}}$   $\leq$   $\ell$  / 300 Cantilever:  $\ell_c$  / 150

$w_{fin} - w_{G,inst}$   $\leq$   $\ell$  / 200 Cantilever:  $\ell_c$  / 100

$w_{fin} - w_G$   $\leq$   $\ell$  / 20 Cantilever:  $\ell_c$  / 100

It's necessary to control separately the vibration characteristics using the "SWP NOVATOP" 3 and 5-layers panels as a ceiling. The table is used to pre-size "NOVATOP NOWA" 3 and 5-layers panels and doesn't replace exact statistical findings.

The table is used for preliminary sizing "SWP NOVATOP" 3 to 5 layer plates under Z-9.1-572 and gives the useful types of plate's standard range and load in the category of use  $r^1$  under DIN 10522008-12.

27a = SWP 27 mm (6-15-6), 27b = SWP 27 mm (9-9-9), 60 = SWP 60 mm (9-9-24-9-9), 60a = STATIC 60 mm (12-12-12-12-12) - not included in the assortment.

The loads are fixed (constant load, utility load) as a uniform load over the entire load length of the beam perpendicular to the plane of the plate.

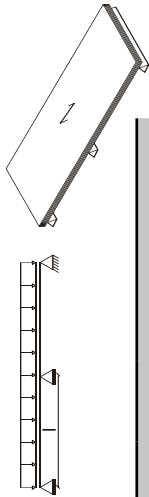
Column 1: constant load [kN/m<sup>2</sup>]; the net weight of the plate is taken into account

Column 2: perpendicular categories of utility load according to DIN 1055-3:2006-03 table 1

Column 3: perpendicular hot load  $q_k$  [kN/m<sup>2</sup>] DIN 1055-3:2006-03 table 1

# STATIC PRELIMINARY DIMENSIONING

CONTENT



Beam of two fields : the load at right angles to the plate and parallel to the surface layer

| Incidental load               | Stable load                        | Rozpětí [mm] |        |         |         |        |        |         |         |         |         |         |         |
|-------------------------------|------------------------------------|--------------|--------|---------|---------|--------|--------|---------|---------|---------|---------|---------|---------|
|                               |                                    | 500          | 1000   | 1500    | 2000    | 2500   | 3000   | 3500    | 4000    |         |         |         |         |
| $g_j$<br>[kN/m <sup>2</sup> ] | Cat. $q_k$<br>[kN/m <sup>2</sup> ] |              |        |         |         |        |        |         |         |         |         |         |         |
| 1,0                           | A 1,5                              | 16-60b       | 16-60b | 16-60b  | 27-60b  | 32-60b | 42-60b | 45-60b  | 50-60b  | 60a-60b | 60b     | 60a-60b | 60b     |
|                               | A 2,0                              |              |        | 19-60b  | 27b-60b | 42-60b | 45-60b | 50-60b  | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 3,0                              |              |        | 22-60b  | 32-60b  | 42-60b | 45-60b | 50-60b  | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 4,0                              |              |        | 27b-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 5,0                              |              |        | 27a-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
| 1,5                           | A 1,5                              | 16-60b       | 16-60b | 19-60b  | 27a-60b | 42-60b | 42-60b | 45-60b  | 50-60b  | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | A 2,0                              |              |        | 19-60b  | 32-60b  | 42-60b | 45-60b | 50-60b  | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 3,0                              |              |        | 22-60b  | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 4,0                              |              |        | 27b-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 5,0                              |              |        | 27a-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
| 2,0                           | A 1,5                              | 16-60b       | 16-60b | 19-60b  | 27b-60b | 42-60b | 42-60b | 45-60b  | 50-60b  | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | A 2,0                              |              |        | 22-60b  | 32-60b  | 42-60b | 45-60b | 50-60b  | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 3,0                              |              |        | 27b-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 4,0                              |              |        | 27b-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 5,0                              |              |        | 27b-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
| 2,5                           | A 1,5                              | 16-60b       | 16-60b | 19-60b  | 32-60b  | 42-60b | 42-60b | 45-60b  | 50-60b  | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | A 2,0                              |              |        | 22-60b  | 32-60b  | 42-60b | 45-60b | 50-60b  | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 3,0                              |              |        | 27b-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 4,0                              |              |        | 27b-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 5,0                              |              |        | 27b-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
| 3,0                           | A 1,5                              | 16-60b       | 16-60b | 22-60b  | 32-60b  | 42-60b | 42-60b | 45-60b  | 50-60b  | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | A 2,0                              |              |        | 27a-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 3,0                              |              |        | 27a-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 4,0                              |              |        | 27a-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |
|                               | C 5,0                              |              |        | 27a-60b | 42-60b  | 45-60b | 50-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b | 60a-60b |

The following deflection limits must comply with DIN 1052:2008-12:

$$w_{\text{def,inst}} \leq l / 300$$

$$w_{\text{def}} - w_{\text{def,inst}} \leq l / 200$$

$$w_{\text{def}} - w_{\text{def}} \leq l / 20$$

It's necessary to control separately the vibration characteristics using the "SWP NOVATOP" 3 and 5-layers panels as a ceiling. The table is used to pre-size "SWP NOVATOP" 3 and 5-layers panels and doesn't replace exact statistical findings.

The table is used for preliminary sizing "SWP NOVATOP" 3 to 5 layer plates under Z 9.1:572 and gives the useful types of plates the standard range and load in the category of use n<sup>1</sup> under DIN 1052:2008-12.  
 27a = SWP 27 mm (6-15-6), 27b = SWP 27 mm (9-9-9), 60 = SWP 60 mm (9-42-9), 60a = STATIC 60 mm (9-9-24-9-9), 60b = STATIC 60 mm (12-12-12-12-12) – not included in the assortment.  
 The loads are fixed ( constant load, utility load ) as a uniform load over the entire load length of the beam perpendicular to the plane of the plate.

Column 1: constant load [kN/m<sup>2</sup>]; the net weight of the plate is taken into account  
 Column 2: perpendicular categories of utility load according to DIN 1055-3:2006-03 table 1  
 Column 3: perpendicular hot load  $q_k$  [kN/m<sup>2</sup>] DIN 1055-3:2006-03 table 1

CONTENT

1. General information

In the following document, there is shown an example of detailed designing and verification on the three-layer panel by the company AGROP NOVA a.s. (stress perpendicular to the panel, the course of fibres of the surface layer in the span direction). Verifications of load-carrying capacity and serviceability have been carried out.

2. System and loading

2.1 Material:

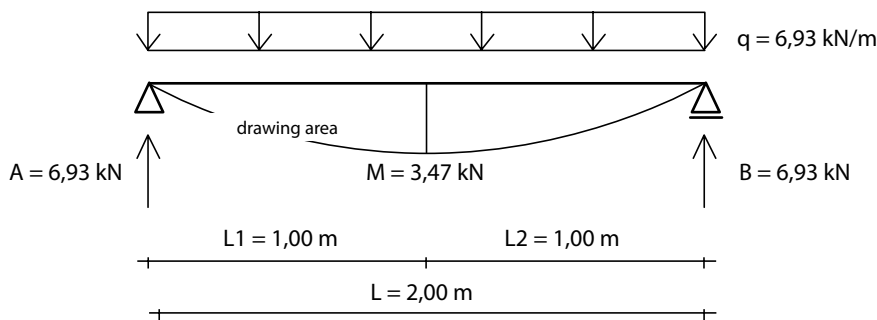
|   |                                      |
|---|--------------------------------------|
| Three-layer panel Type 60                       |                                      |
| Thickness of the surface layer                  | $d_1 = 9 \text{ mm}$                 |
| Thickness of the central layer                  | $d_2 = 42 \text{ mm}$                |
| Flexural modulus of elasticity                  | $E_{m,0,BW} = 11.500 \text{ N/mm}^2$ |
| Modulus of elasticity in shear, (rolling shear) | $G_{BW} = 90 \text{ N/mm}^2$         |
| Characteristic bending strength                 | $f_{m,0,BW} = 30,0 \text{ N/mm}^2$   |
| Characteristic shearing strength                | $f_{v,BW} = 1,10 \text{ N/mm}^2$     |
| Design value of bending strength                | $f_{m,0,d} = 20,77 \text{ N/mm}^2$   |
| Design value of shearing strength               | $f_{v,d} = 0,76 \text{ N/mm}^2$      |
| Creep coefficient                               | $k_{def} = 0,6$                      |

2.2 Loading:

|                    |                                       |
|--------------------|---------------------------------------|
| Class of use       | 1                                     |
| Permanent loading: | $g_k = 1,50 \text{ kN/m}$             |
| Imposed load:      | $q_k = 3,00 \text{ kN/m; category C}$ |
|                    | $\rightarrow k_{mod} = 0,90$          |

2.2.1 Verification of load-carrying capacity

$$q_d = 1,35 \cdot (0,06 \cdot 5,0 + 1,5) + 1,5 \cdot 3,0 = 6,93 \text{ kNm}$$



maximum bending moment

$$M_d = \frac{q_d \cdot \ell^2}{8} = \frac{6,93 \cdot 2,0^2}{8} = 3,47 \text{ kNm}$$

maximum shear force

$$V_d = \frac{q_d \cdot \ell}{2} = \frac{6,93 \cdot 2,0}{2} = 6,93 \text{ kNm}$$

# NOVATOP SWP SD

## EXAMPLE BY DESIGNING

### 2.2.2 Verification of serviceability

Verification of serviceability according to DIN 1052:2008-12

Total loading

$$q_{k,g} = 0,06 \cdot 5,0 \cdot 1 + 1,5 = 1,8 \text{ kNm} \quad q_{k,g} = 3,0 \text{ kNm}$$

### 3. Determination of section parameters

Surface layer:

|  |                              |
|--|------------------------------|
| Area of cross-section                  | $A_1 = 9.000 \text{ mm}^2$   |
| Cross-section modulus                  | $W_1 = 13.500 \text{ mm}^3$  |
| Static moment of area                  | $S_1 = 242.343 \text{ mm}^3$ |
| Moment of inertia of the cross-section | $I_1 = 60.750 \text{ mm}^4$  |
|  | $C/s = 2.143 \text{ mm}^2$   |

Computation of  $\gamma_1$ :

$$\gamma_1 = \frac{1}{1 + \frac{\pi^2 \cdot E_1 \cdot A_1}{\ell^2 \cdot \frac{C}{s}}} = \frac{1}{1 + \frac{\pi^2 \cdot 11.500 \cdot 9000}{2000^2 \cdot 2143}} = 0,894$$

$$\gamma_2 = 1,0$$

Computation of arms  $a_1$  and  $a_2$

$$a_2 = \frac{\gamma_1 \cdot A_1 \cdot \left[ \frac{d_1}{2} + d_2 + \frac{d_1}{2} \right]}{\gamma_1 \cdot A_1 + \gamma_2 \cdot A_1} = \frac{0,894 \cdot 9.000 \cdot \left[ \frac{9}{2} + 42 + \frac{9}{2} \right]}{0,894 \cdot 9.000 + 1,0 \cdot 9.000} = 24,07 \text{ mm}$$

$$a_1 = \left[ \frac{d_1}{2} + d_2 + \frac{d_1}{2} \right] - a_2 = \left[ \frac{9}{2} + 42 + \frac{9}{2} \right] - 24,07 = 26,93 \text{ mm}$$

From the abovementioned results the efficient inertia moment  $I_{\text{eff}}$

$$I_{\text{eff}} = I_1 \cdot \gamma_1 \cdot a_1^2 \cdot A_1 + I_1 + \gamma_2 \cdot a_2^2 \cdot A_1$$

$$= 60.750 + 0,894 \cdot 26,93^2 \cdot 9.000 + 60.750 + 1,0 \cdot 24,07^2 \cdot 9.000 = 11.170.944 \text{ mm}^4$$

### 4. Examination of load-carrying capacity

#### 4.1 Examination of bending strength

$$\sigma_{m,d} = \frac{M_d}{I_{\text{eff}}} \cdot \left[ \gamma_1 \cdot a_1 + \frac{d_1}{2} \right] = \frac{3,47 \cdot 10^6}{11.170.944} \cdot \left[ 0,894 \cdot 26,93 + \frac{9}{2} \right] = 8,88 \text{ N/mm}^2$$

$$\frac{\sigma_{m,d}}{f_{m,0,d}} = \frac{8,88}{20,77} = 0,43 < 1,0$$

## CONTENT

**4.2 Shear strength assessment**

$$\tau_{v,d} = \frac{V_d \cdot \gamma_1 \cdot S_1}{I_{\text{eff}} \cdot b} = \frac{6930 \cdot 0,894 \cdot 242.343}{11.170.944 \cdot 1000} = 0,134$$

$$\frac{\tau_{v,d}}{f_{v,d}} = \frac{0,134}{0,76} = 0,18 < 1,0$$

**5. Verification of serviceability according to DIN 1052:2008-12****5.1 Initial elastic deformation**

$$w_{g,\text{inst}} = \frac{5}{384} \cdot \frac{q_{k,g} \cdot \ell^4}{E \cdot I_{\text{eff}}} = \frac{5}{384} \cdot \frac{1,8 \cdot 2000^4}{11.500 \cdot 11.170.944} = 2,92 \text{ mm}$$

$$w_{g,\text{inst}} = \frac{5}{384} \cdot \frac{q_{k,g} \cdot \ell^4}{E \cdot I_{\text{eff}}} = \frac{5}{384} \cdot \frac{3,0 \cdot 2000^4}{11.500 \cdot 11.170.944} = 4,86 \text{ mm}$$

**5.2 Final elastic deformation****5.2.1 From permanent load**

$$w_{G,\text{fin}} = w_{G,\text{inst}} \cdot (1 + k_{\text{def}}) = 2,92 \cdot (1 + 0,6) = 4,67 \text{ mm}$$

**5.2.2 From imposed load**

For a characteristic design situation

$$w_{Q,\text{fin}} = w_{Q,\text{inst}} \cdot (1 + \Psi_2 \cdot k_{\text{def}}) = 4,86 \cdot (1 + 0,3 \cdot 0,6) = 5,74 \text{ mm}$$

for a quasi-stable design situation

$$w_{Q,\text{fin}} = \Psi_2 \cdot w_{Q,\text{inst}} \cdot (1 + k_{\text{def}}) = 0,3 \cdot 4,86 \cdot (1 + 0,6) = 2,33 \text{ mm}$$

**5.3. Verification of recommended values****5.3.1 Deformation in a characteristic design situation**

$$w_{Q,\text{inst}} = 4,86 \text{ mm} < \frac{\ell}{300} = \frac{2000}{300} = 6,67 \text{ mm} \quad (\eta = 0,73)$$

and

$$w_{\text{fin}} - w_{G,\text{inst}} = (4,67 + 5,74) - 2,92 = 7,49 \text{ mm} < \frac{\ell}{200} = \frac{2000}{200} = 10 \text{ mm} \quad (\eta = 0,75)$$

**5.3.2 Deformation in a quasi-stable design situation**

$$w_{\text{fin}} = 4,67 + 2,33 = 7,00 \text{ mm} < \frac{\ell}{200} = \frac{2000}{200} = 10 \text{ mm} \quad (\eta = 0,70)$$

# NOTES

CONTENT

Grid of dots for notes.

1

2

3

4

5

## CONTENT

## 1 Production and quality control

The multi-layer panels (SWP) are made of solid wood lamellas. The lamellas in the individual layers are glued together in both the longitudinal and transverse directions. The layers are rotated 90° relative to each other and then glued together. The standard sanding quality corresponds to grain size of P100. The moisture content of the boards upon dispatch is 8% ± 2%. **Each panel undergoes individual final quality control.** Detailed specifications of the production technology are provided in a document entitled "NOVATOP Quality".

### Modification, machining:

- All machining of panels is performed on CNC machines by cutting, milling or drilling or, possibly brushing.
- The panels are supplied without surface treatment as standard.

### Surface treatment:

- The glazing paint is applied on one or both sides.
- A water-based glazing paint with a very low content of volatile organic compounds (VOC) is used.
- The glazing paint is resistant to discoloration caused by UV radiation.
- The type of glazing paint is determined according to the specifications of the supplier.
- The edges of the boards are not treated with glazing paint in the standard version.

### Primer:

- Consists of one coat of glazing paint applied manually with a roller.
- May show minor colour variations and surface irregularities.
- Causes the fibres to stand up – intended for subsequent sanding.
- Serves to facilitate and accelerate final adjustments on the construction site.
- Provides partial protection against UV radiation.

### Final coating:

- Is applied as a two-layer spray with intermediate sanding.
- The first layer is applied to a board sanded with P100 grit.
- Areas with different gleams (e.g. around knots) are common.
- The final coating is intended as a final finish, without the need for further treatment. Exceptions include repairs after installation or machining – these interventions are usually visually noticeable.

**Warning:** Surface finishes undergo natural visual changes over time, such as a change in shade or loss of gloss. When combining different batches of glazing paints, possible differences in colour tone due to aging must be taken into account. Multiple batch combinations are usually visually noticeable and cannot be considered a manufacturing defect.



# NOVATOP SWP OTHER

## CONTENT

### Packaging

- After the output inspection, the boards are placed into a package.
- In the package, the boards are stacked with the higher visual quality side facing up.
- The bottom board in the package is placed on timber beams with a spacing of approximately 1 m.
- Each package is wrapped in PE foil; **the foil is NOT applied to the bottom side.**
- The foil provides: protection against changes in humidity, against contamination and partial protection against mechanical damage.
- The packages are secured around its circumference with a strapping band.
- The identification label is placed on the longitudinal side of the package, in the bottom left corner.
- The number of pieces in the package is determined by the thickness of the boards, see the "**Packaging Table**".
- **Surface treatment:** The surface-treated boards are individually interlaid with Mirelon and the package edges are secured against mechanical damage.
- Another method of packaging is possible upon agreement.

### Table of packaging for standard formats 5000 x 2100 m

| Thickness | Construct | Pcs. in packet | m <sup>2</sup> in packet | m <sup>2</sup> in truck | spruce kg/m <sup>2</sup> | larch kg/m <sup>2</sup> |
|-----------|-----------|----------------|--------------------------|-------------------------|--------------------------|-------------------------|
| 14        | 4-6-4     | 37             | 388,5                    | 3108                    | 6,86                     | X                       |
| 16        | 5-6-5     | 30             | 315                      | 2520                    | 7,84                     | X                       |
| 19        | 6-7-6     | 25             | 262,5                    | 2100                    | 9,31                     | 11,21                   |
| 21        | 6-9-6     | 20             | 210                      | 1680                    | 10,78                    | 12,98                   |
| 27        | 6-15-6    | 18             | 189                      | 1512                    | 13,23                    | 15,93                   |
| 27        | 9-9-9     | 18             | 189                      | 1512                    | 13,23                    | 15,93                   |
| 32        | 9-14-9    | 15             | 157,5                    | 1260                    | 15,68                    | 18,88                   |
| 42        | 9-24-9    | 12             | 126                      | 1008                    | 20,58                    | 24,78                   |
| 50        | 9-32-9    | 10             | 105                      | 840                     | 24,5                     | 29,5                    |
| 60        | 9-42-9    | 8              | 84                       | 672                     | 28,8                     | 35,4                    |

### Transport

The standard method of transportation is in covered trucks or 20ft or 40ft containers. The approximate capacity of a truck or a 40ft container is approximately 40 m<sup>3</sup> of boards.



### Handling

The packages of boards (SWP) are designed for handling by front or side forklifts, or by cranes. The approximate weight of one standard package with dimensions of 2,100 x 5,000 mm is around 2,500 kg.



## CONTENT

## 1 Storage

- Store the panels in dry, closed and well-ventilated areas.
  - Lay the panels horizontally, supported by timber beams with a recommended spacing of approximately 1 m.
  - After removing the protective PE packaging, carefully cover the panels.
  - During storage, protect the panels from: rain and running water, dirt and direct sunlight.
- It is not permitted: to step on or place other materials or loads on the packages.
  - The visual surfaces of the panels must be kept clean to prevent damage.

**Warning:** During transportation, handling and storage, it is necessary to ensure the protection of packaging material and panels from mechanical damage and adverse weather conditions.

## 2 Processing

The multi-layer panels (SWP) are made of solid wood with an output moisture content of  $8\% \pm 2\%$ . Due to the preservation of the natural properties of wood, the panels can respond to changes in temperature and relative humidity with volume changes – shrinking, swelling or twisting.

## Application:

**Interior**

- The recommended climate for using the panels indoors is a relative humidity of 40–60% at a temperature of 20 °C. Low humidity can lead to cracks in the wood.

**Exterior**

- For all exterior applications, only panels with a surface lamella of at least B quality, glued in class SWP/3 for exterior use in accordance with EN 13353, must be used.
- Panels for exterior use must meet the requirements for water resistance of glued joints and ensure sufficient structural stability when exposed to weather conditions.
- **Formaldehyde emissions:** The formaldehyde emission values stated in the technical data sheets are only guaranteed for products with an intact sealed surface. Any damage to the surface (e.g. drilling, milling, modification of acoustic panels) may lead to increased emission values. This restriction does not apply to SWP FREE panels glued using PVAC adhesive.

**Structural requirements for the use of multilayer panels in exterior applications**

- Ensure effective water drainage and eliminate moisture retention.
- Protect edges and joints from direct contact with rainwater.
- Allow sufficient ventilation of the structure.
- Prevent the formation of thermal bridges and moisture condensation.
- Apply a surface treatment suitable for exterior conditions, ideally with UV protection.
- Take into account the natural properties of wood, especially drying, swelling, the formation of hairline cracks and changes in shade due to weather conditions.

**Applications that are not recommended**

Use of multilayer panels in horizontal exterior elements where sufficient water drainage cannot be ensured. These include in particular:

- benches and seating areas,
- lids and covers with a horizontal surface,
- table boards,
- cladding without inclination,
- other elements without sufficient overlap or protection from direct rain.

**Machining:**

The panels can be processed using standard woodworking tools and machines, just like solid wood – they can be drilled, cut, milled, sanded, or repaired. Wood dust comes into existence while machining.

- **Interior:** When using the panels in the interior and in furniture production, the natural properties of wood and the different moisture content of individual layers must be taken into account, as these can cause transverse and longitudinal twisting. Furniture doors are at increased risk of twisting due to changes in humidity and internal stress of the material. One possible measure is to use stabilizing pull rods, but these do not guarantee permanent flatness of the door.
- **Exterior:** When using the panels outdoors, it is essential to follow the principles of structural wood protection and to use only SWP/3 panels designed for outdoor use.
- **Surface treatment:** If the panels are not factory-coated, we recommend treating them with a suitable surface treatment intended for solid wood (e.g. glazing paints, oils, waxes). The application of surface treatment is governed by the technological procedure of the manufacturer of the selected coating. The surface treatment increases the panels' resistance to dirt and UV radiation and extends their aesthetic and functional life. Untreated wood naturally darkens due to oxidation and exposure to light.

# NOVATOP SWP

## OTHER

### CONTENT

## Maintenance

### Interior:

- For routine maintenance, use a soft dry cloth or a soft sponge.
- In case of moderate soiling, cleaning agents intended for wooden surfaces can be used.
- Do not use excessive amounts of water.
- Local damage (e.g. alcohol marker, scratches) can be repaired by: fine sanding, followed by application of the same type of paint. Repairs are usually visually noticeable.
- Recommended climate: relative humidity 40–60%, temperature of approx. 20 °C. Low humidity may cause cracks in the wood.

### Exterior:

- Wood in the exterior is naturally subject to greying, surface erosion, and the formation of fine cracks.
- The functional life of the panels is particularly influenced by the type of exposure, the quality of the execution of structural joints, the method of anchoring, the quality and maintenance of the surface finish.
- To achieve a long service life, it is essential to use only SWP/3 panels, follow the principles of structural wood protection, ensure effective water drainage and minimize water retention, protect the edges and ends of the panels from water ingress, regularly remove dirt, continuously check and re-

new the surface treatment, repair any surface defects in a timely manner, and respect the natural changes in the appearance and dimensions of the wood caused by weather conditions.

### Surface finishes:

- Surface treatments must be checked regularly to detect and repair any damage in a timely manner. Surface renovations are planned depending on the location of the panels, the structure, the nature of the surface treatment and the degree of exposure to climatic conditions.
- Visual changes in the paint, such as a change in shade or loss of gloss, are a natural sign of aging and are not grounds for complaint.
- When placing decorations, paintings, shelves, etc., it is necessary to take into account that UV radiation may change the shade of the surrounding surface ("burning out" of the contours). Repairs are usually visually noticeable.

**Warning:** The panels must be protected from direct exposure to moisture, such as condensate from air conditioning, running or dripping water, etc.

## Warranty

The warranty for multi-layer panels (SWP) is governed by the valid **General Terms and Conditions of the Manufacturer** – AGROP NOVA a.s.

**Surface treatment:** Visual changes in the paint, such as a change in shade or loss of gloss, are a natural sign of aging and are not grounds for complaint. Assuming proper processing, application, compliance with wood protection design principles, and the manufacturer's warranty conditions, the manufacturer guarantees that during the warranty period:

- no extensive flaking of the coating occurs,
- there is no degenerative damage to the wooden material,
- no renovation coatings are necessary.

**Warning:** The manufacturer does not assume liability for any damage caused by:

- incorrect handling,
- improper storage,
- incorrect processing,
- improper use and maintenance.

## Business documents:



Complaint report



General terms and conditions

CONTENT

| Features for sorting   | A   | B  | C+  | C   |
|--|---|--|---|---|
|  | <b>General requirements, longitudinal joints</b>  | flawless gluing without open joints  | flawless gluing without open joints                       | flawless gluing, repaired longitudinal joints allowed |
| <b>Structure, course of fibres, compression wood</b>             | finely grown, straight fibres, without compression wood   | roughly grown and light compression wood allowed   | no special requirements                                   | no special requirements                               |
| <b>Knottiness</b>  | healthy, firmly joint knots up to the diameter of 50 mm. Occasionally black knots-eyes allowed up to the diameter of 5 mm | Occasionally black knots-eyes allowed up to the diameter of 10 mm<br>*(Healthy, firmly ingrown knots without special requirements) | no special requirements                                   | no special requirements                               |
| <b>Repair natural knots</b>                                      | allowed up to the diameter of 20 mm<br>2 knots next to each other are not allowed   | 2 knots next to each other are not allowed<br>*(Allowed up to the diameter of 35 mm)   | no special requirements                                   | no special requirements                               |
| <b>Pitch pockets</b>   | occasionally allowed up to 2 x 30 mm  | occasionally allowed up to 5 x 50mm, no clumps or mass occurrence  | no special requirements                                   | no special requirements                               |
| <b>Repaired pitch pockets</b>                                    | occasionally allowed above 2 x 30 mm repaired with a boat-shaped wedge  | occasionally allowed above 5 x 50 mm repaired with a boat-shaped wedge   | allowed above 5 x 50 mm repaired with a boat-shaped wedge | no special requirements                               |
| <b>Bark</b>  | not allowed, inbarks repaired up to 20 mm   | not allowed, *(Bark pockets repaired up to 35 mm)  | occasionally allowed                                      | no special requirements                               |
| <b>Cracks</b>  | shallow surface cracks occasionally allowed, open end cracks up to 50 mm of length occasionally allowed                   | shallow surface cracks occasionally allowed, open end cracks up to 50 mm of length occasionally allowed                            | no special requirements                                   | no special requirements                               |
| <b>Core /pith/</b>   | no pith   | pith allowed in the total length up to 600 mm straight or as a sum of passing parts  | no special requirements                                   | no special requirements                               |
| <b>Infestation with insect, worm</b>                             | not allowed   | not allowed  | not allowed, worm occasionally allowed                    | not allowed, worm occasionally allowed                |
| <b>Discolouration, fungus</b>                                    | not allowed   | allowed blue stains up to the width of 10 mm and length of 200 mm  | no special requirements<br>rot not allowed                | no special requirements<br>rot not allowed            |
| <b>Thickness of glued joints</b>                                 | max. 0,3 mm   | max. 0,3 mm  | no special requirements                                   | no special requirements                               |
| <b>Surface machining</b>   | occasionally allowed small defects  | occasionally allowed small defects   | occasionally allowed small defects                        | no special requirements                               |
| <b>Quality of the panel edge such as bulges, battered places</b> | up to 10 mm from the edge occasionally allowed  | up to 10 mm from the edge occasionally allowed   | up to 50 mm from the edge occasionally allowed            | no special requirements                               |
| <b>Combination of different wood species</b>                     | not allowed   | not allowed  | allowed   | no special requirements                               |
| <b>Width of individual parts - excluding the outer ones</b>      | at least 60 mm  | at least 60 mm   | no special requirements                                   | no special requirements                               |
| <b>Wood pattern</b>  | no special requirements   | no special requirements  | no special requirements                                   | no special requirements                               |

Classification of quality of surface lamellas is conducted according to EN 13017-1 and the internal regulations of AGROP NOVA a.s.

# NOVATOP SWP

## QUALITY SORTING – FIR

**CONTENT**

| Features for sorting   |  |   |   |
|--|--|---|---|
|  | A  | B | C+  |
| <b>General requirements, longitudinal joints</b>                 | flawless gluing without open joints                            |   | flawless gluing, repaired longitudinal joints allowed |
| <b>Structure, course of fibres, compression wood</b>             | finely grown, straight fibres, without compression wood        |   | no special requirements                               |
| <b>Knottiness</b>  | healthy, firmly joint knots up to the diameter of 5 mm.        |   | no special requirements                               |
| <b>Repair natural knots</b>                                      | not allowed  |   | no special requirements                               |
| <b>Bark</b>  | not allowed  |   | no special requirements                               |
| <b>Cracks</b>  | shallow surface cracks occasionally allowed                    |   | no special requirements                               |
| <b>Infestation with insect, worm</b>                             | not allowed  |   | not allowed, worm occasionally allowed                |
| <b>Discolouration, fungus</b>                                    | discolouration allowed in red, yellow, brown                   |   | no special requirements<br>rot not allowed            |
| <b>Thickness of glued joints</b>                                 | max. 0,3 mm  |   | no special requirements                               |
| <b>Surface machining</b>   | no defects   |   | occasionally allowed<br>small defects                 |
| <b>Quality of the panel edge such as bulges, battered places</b> | not allowed  |   | up to 50 mm from the edge<br>occasionally allowed     |
| <b>Combination of different wood species</b>                     | not allowed  |   | allowed   |
| <b>Width of individual parts - excluding the outer ones</b>      | at least 60 mm   |   | no special requirements                               |
| <b>Wood pattern</b>  | according to the colour and the structure uniform wood pattern |   | no special requirements                               |

Classification of quality of surface lamellas is conducted according to EN 13017-1 and the internal regulations of AGROP NOVA a.s.



Quality  
sampler

1

2

3

4

5

CONTENT

TEMPORARILY UNAVAILABLE

| Features for sorting   | A   | B  | C+  | C   |
|--|---|--|---|---|
|  | <b>General requirements, longitudinal joints</b>  | flawless gluing without open joints  | flawless gluing without open joints                       | flawless gluing, repaired longitudinal joints allowed |
| <b>Structure, course of fibres, compression wood</b>             | finely grown, straight fibres, without compression wood   | roughly grown and light compression wood allowed   | no special requirements                                   | no special requirements                               |
| <b>Knottiness</b>  | healthy, firmly joint knots up to the diameter of 60 mm. Occasionally black knots-eyes allowed up to the diameter of 5 mm | healthy, firmly joint knots up to the diameter of 60 mm. Occasionally black knots-eyes allowed up to the diameter of 10 mm | no special requirements                                   | no special requirements                               |
| <b>Repair natural knots</b>                                      | allowed up to the diameter of 20 mm<br>2 knots next to each other are not allowed   | allowed up to the diameter of 30 mm<br>2 knots next to each other are not allowed  | no special requirements                                   | no special requirements                               |
| <b>Pitch pockets</b>   | occasionally allowed up to 2 x 30 mm  | occasionally allowed up to 5 x 50 mm, no clumps or mass occurrence   | no special requirements                                   | no special requirements                               |
| <b>Repaired pitch pockets</b>                                    | occasionally allowed above 2 x 30 mm repaired with a boat-shaped wedge  | occasionally allowed above 5 x 50 mm repaired with a boat-shaped wedge   | allowed above 5 x 50 mm repaired with a boat-shaped wedge | no special requirements                               |
| <b>Bark</b>  | not allowed, inbarks repaired up to 20 mm   | not allowed, inbarks repaired up to 30 mm  | occasionally allowed                                      | no special requirements                               |
| <b>Cracks</b>  | shallow surface cracks occasionally allowed, open end cracks up to 50 mm of length occasionally allowed                   | shallow surface cracks occasionally allowed, open end cracks up to 50 mm of length occasionally allowed                    | no special requirements                                   | no special requirements                               |
| <b>Core /pith/</b>   | no pith   | pith allowed in the total length up to 600 mm straight or as a sum of passing parts  | no special requirements                                   | no special requirements                               |
| <b>Infestation with insect, worm</b>                             | not allowed   | not allowed  | not allowed, worm occasionally allowed                    | not allowed, worm occasionally allowed                |
| <b>Discolouration, fungus</b>                                    | not allowed   | allowed discolouration up to the width of 10 mm and length of 200 mm   | no special requirements<br>rot not allowed                | no special requirements<br>rot not allowed            |
| <b>Sap</b>   | with larch, narrow stripes up to 20 % of the width of lamellas allowed  | allowed  | no special requirements                                   | no special requirements                               |
| <b>Thickness of glued joints</b>                                 | max. 0,3 mm   | max. 0,3 mm  | no special requirements                                   | no special requirements                               |
| <b>Surface machining</b>   | occasionally allowed small defects  | occasionally allowed small defects   | occasionally allowed small defects                        | no special requirements                               |
| <b>Quality of the panel edge such as bulges, battered places</b> | up to 10 mm from the edge occasionally allowed  | up to 10 mm from the edge occasionally allowed   | up to 50 mm from the edge occasionally allowed            | no special requirements                               |
| <b>Combination of different wood species</b>                     | not allowed   | not allowed  | allowed   | no special requirements                               |
| <b>Width of individual parts - excluding the outer ones</b>      | at least 60 mm  | at least 60 mm   | no special requirements                                   | no special requirements                               |
| <b>Wood pattern</b>  | no special requirements   | no special requirements  | no special requirements                                   | no special requirements                               |

Classification of quality of surface lamellas is conducted according to EN 13017-1 and the internal regulations of AGROP NOVA a.s.

# NOTES

CONTENT

Grid of dots for notes.

1

2

3

4

5

CONTENT

NOVATOP panels have been distinguished by their craftsmanship since 1992

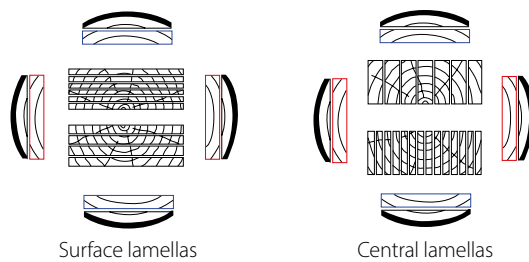
Simply a better panel



9 benefits for you

- 1 Dimensional stability and high strength of the panel
- 2 Elimination of surface cracks
- 3 Natureplus certification
- 4 No need to sort the panels
- 5 Smaller offcut due to the flexibility of formats
- 6 Uniform quality for many applications
- 7 Less risk of complaints
- 8 Saving you time and money
- 9 Maximum satisfaction for your customers

Exclusively central timber



- For the production of all lamellas, we use only central timber from trunk thicknesses of 18–25 cm, which is characterized mainly by small and healthy knots
- We sort the lamellas according to internal regulations, which go beyond the requirements of the standards
- Surface lamellas are always tangential
- The central lamellas are always radial
- We discard the unplanned lamellas and use them for heating the dryers

Compact centre and panel section



- For the centres, we use mainly radial lamellas with a width of max. 63 mm (usually 37 mm – 59 mm)
- We glue all the central lamellas in the joints
- We repair the middle layers
- The middle layer is compact and closed
- We perform the output inspection personally

## NOVATOP QUALITY

## CONTENT

Minimization of  
cracks and manual  
repair of defects



- We dry the timber to 7–8%
- We always assemble the surface lamellas with the right side up on the visual side of the panel
- We glue the surface lamellas in joints by means of high side down pressure
- We repair A, B, C+ qualities
- We only use **natural knots from branches of our own production**

Gluing



- We glue using melamine adhesive
- PVAC gluing on request (formaldehyde-free) or PU

High formatting  
accuracy



- As a standard, we guarantee high accuracy of the basic format  $\pm 2$  mm diagonally
- On request, we perform formatting and machining on CNC machines with an accuracy of 0.1 mm

Exceptional  
sanding quality



- Quality of sanding corresponds to the grain size of 100
- We guarantee sanding tolerance of  $\pm 0.2$  mm

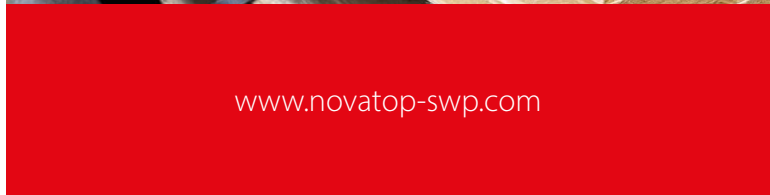
1

2

3

4

5



[www.novatop-swp.com](http://www.novatop-swp.com)

Manufacturer: AGROP NOVA a.s.  
Ptenský Dvorek 99 • 798 43 Ptení  
Czech Republic • Tel: +420 582 397 856  
[novatop@agrop.cz](mailto:novatop@agrop.cz) • [www.novatop-system.com](http://www.novatop-system.com)

Manufacturer certificates:

