

DECLARATION OF PROPERTIES NO. 1393-CPR-0918

NOVATOP SWP SD

| | |
|--|--|
| Identification code: | SWP 10 (Local spruce), SWP 30 (Nordic spruce), SWP 50 (Larch). |
| Type: | Multilayer solid wood panel SWP/1 SD. |
| Intended use: | Used as bearing and non-bearing panels, for indoor or outdoor use and fire resistance class D. |
| Manufacturer: | AGROP NOVA a.s., Ptenický Dvorek 99, CZ-798 43 Ptení, Tax ID: CZ26243237 |
| Assessment and verification procedures: | <p>The system of assessment 2+</p> <p>The manufacturer performs:</p> <ol style="list-style-type: none"> determination of the product type on the basis of the type testing (including sampling). Computation for the type, tabular values or descriptive documentation of the product, factory production control, testing of samples taken at the factory in accordance with the prescribed test plan. <p>The notified body for production control certification issues a certificate of conformity of production control based on:</p> <ol style="list-style-type: none"> The initial inspection of the factory and of the factory production control, The continuous surveillance, assessment and approval of the factory production control. |
| The notified body: | Timber Research and Development Institute Prague s.p. performed the initial inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control (system 2 + according to ZA-norm) and issued a Certificate of factory production control No. 1393-CPR-0020, EN 13986:2015 + A1:2015. |

| Basic characteristics | Property | Harmonized technical specifications |
|--|---|-------------------------------------|
| Density | SWP 10, SWP 30 490 kg/m ³ , SWP 50 580 kg/m ³ | EN 13986:2015 |
| Reaction to fire | D-s2, d0 according to EN 13 501-1 | EN 13986:2015 |
| Design value of thermal conductivity (λ) | 0,13 W/mK for SWP 10, SWP 30 0,15 W/mK for SWP 50 According to EN ISO 10456 | EN 13986:2015 |
| Factor of diffusion resistance (μ) | 200/70 (dry/wet) according to EN ISO 10456 | EN 13986:2015 |
| Sound absorption | 250–500 Hz – 0,1 1000–2000 Hz – 0,3 | EN 13986:2015 |
| Airborne sound insulation (dB) | $R = 13 \times \log(m_a) + 14$ $m_a =$ surface weight kg/m ² | EN 13986:2015 |
| Specific thermal capacity (c_p) | 1600 J/kgK according to EN ISO 10456 | EN 13986:2015 |
| Formaldehyde emission class | E1 according to EN 717-1,E N 16516 | EN 13986:2015 |

Characteristic values of panels SWP/1 SD, SWP/2 SD, SWP/3 SD v N/mm²

| Panels with butted joints in the middle layer | | | | | | | | | | |
|--|---|-------|-------|-------|----------|----------|-------|------|------|------|
| Type of panel | | 16 | 19 | 22 | 27 Typ a | 27 Typ b | 32 | 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 | 14,0 | 24,0 | 32,0 | 42,0 |
| Stress perpendicular to the panel plane [N/mm ²] | | | | | | | | | | |
| f_{m,0,k} | 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 |
| f_{m,90,k} | 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 |
| E_{m,0} | Modulus of elasticity parallel to the fibres of the outer layers | 10900 | 10900 | 10500 | 9600 | 11100 | 10600 | 9400 | 8600 | 7700 |
| E_{m,90} | Modulus of elasticity perpendicular to the fibres of the outer layers | 500 | 450 | 700 | 1150 | 400 | 650 | 1250 | 1650 | 2100 |
| f_{v,k} | Shear strength | 1,1 | | | | | | | | |
| G | Shear modulus of elasticity | 90 | | | | | | | | |
| Stress in the panel plane [N/mm ²] | | | | | | | | | | |
| f_{m,0,k} | 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 |
| f_{m,90,k} | 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 |
| f_{t,0,k} | 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 |
| f_{t,90,k} | Tensile strength perpendicular to the fibres of the outer layers | 7,9 | 7,8 | 9,5 | 11,4 | 7,1 | 9,1 | 11,7 | 13,0 | 14,2 |
| f_{c,0,k} | 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 |
| f_{c,90,k} | 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 |
| f_{v,k} | Shear strength | 3,0 | | | | | | | | |
| E_{m,0} | Modulus of elasticity parallel to the fibres of the outer layers | 7300 | 7400 | 6400 | 5300 | 7800 | 6600 | 5100 | 4400 | 3700 |
| E_{m,90} | Modulus of elasticity perpendicular to the fibres of the outer layers | 2300 | 2250 | 2700 | 3300 | 2050 | 2600 | 3350 | 3750 | 4100 |
| G | Shear modulus of elasticity | 600 | | | | | | | | |

The product properties are in compliance with the properties listed in the table.

This Declaration of Properties is issued under the sole responsibility of the manufacturer.

Signed for and on behalf of the manufacturer:



Ing. Mgr. Vladimír Crhonek
Managing Director of AGROP NOVA a.s.

Ptení, 3. 4. 2018

DECLARATION OF PROPERTIES NO. 1393-CPR-0921

NOVATOP SWP SD

Identification code: SWP 10 (Local spruce), SWP 30 (Nordic spruce), SWP 50 (Larch).

Type: Multilayer solid wood panel
SWP/2 SD.

Intended use: Used as bearing and non-bearing panels, for indoor or outdoor use and fire resistance class D.

Manufacturer: AGROP NOVA a.s., Ptenský Dvorek 99, CZ-798 43 Ptení,
Tax ID: CZ26243237

Assessment and verification procedures: **The system of assessment 2+**
The manufacturer performs:

- determination of the product type on the basis of the type testing (including sampling). Computation for the type, tabular values or descriptive documentation of the product,
- factory production control,
- testing of samples taken at the factory in accordance with the prescribed test plan.

The notified body for production control certification issues a certificate of conformity of production control based on:

- The initial inspection of the factory and of the factory production control,
- The continuous surveillance, assessment and approval of the factory production control.

The notified body: Timber Research and Development Institute Prague s.p. performed the initial inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control (system 2 + according to ZA-norm) and issued a Certificate of factory production control No. 1393-CPR-0921, according to ZA norm EN 13986:2015+A1:2015.

| Basic characteristics | Property | Harmonized technical specifications |
|--|---|-------------------------------------|
| Density | SWP 10, SWP 30 490 kg/m ³ , SWP 50 580 kg/m ³ | EN 13986:2015 |
| Reaction to fire | D-s2, d0 according to EN 13 501-1 | EN 13986:2015 |
| Design value of thermal conductivity (λ) | 0,13 W/mK for SWP 10, SWP 30 0,15 W/mK for SWP 50 According to EN ISO 10456 | EN 13986:2015 |
| Factor of diffusion resistance (μ) | 200/70 (dry/wet) according to EN ISO 10456 | EN 13986:2015 |
| Sound absorption | 250–500 Hz – 0,1 1000–2000 Hz – 0,3 | EN 13986:2015 |
| Airborne sound insulation (dB) | $R = 13 \times \log(m_a) + 14$ $m_a =$ surface weight kg/m ² | EN 13986:2015 |
| Specific thermal capacity (c_p) | 1600 J/kgK according to EN ISO 10456 | EN 13986:2015 |
| Formaldehyde emission class | E1 according to EN 717-1, EN 16516 | EN 13986:2015 |

Characteristic values of panels SWP/1 SD, SWP/2 SD, SWP/3 SD v N/mm²

| Panels with butted joints in the middle layer | | | | | | | | | | |
|--|---|-------|-------|-------|----------|----------|-------|------|------|------|
| Type of panel | | 16 | 19 | 22 | 27 Typ a | 27 Typ b | 32 | 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 | 14,0 | 24,0 | 32,0 | 42,0 |
| Stress perpendicular to the panel plane [N/mm ²] | | | | | | | | | | |
| f_{m,0,k} | 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 |
| f_{m,90,k} | 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 |
| E_{m,0} | Modulus of elasticity parallel to the fibres of the outer layers | 10900 | 10900 | 10500 | 9600 | 11100 | 10600 | 9400 | 8600 | 7700 |
| E_{m,90} | Modulus of elasticity perpendicular to the fibres of the outer layers | 500 | 450 | 700 | 1150 | 400 | 650 | 1250 | 1650 | 2100 |
| f_{v,k} | Shear strength | 1,1 | | | | | | | | |
| G | Shear modulus of elasticity | 90 | | | | | | | | |
| Stress in the panel plane [N/mm ²] | | | | | | | | | | |
| f_{m,0,k} | 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 |
| f_{m,90,k} | 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 |
| f_{t,0,k} | 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 |
| f_{t,90,k} | Tensile strength perpendicular to the fibres of the outer layers | 7,9 | 7,8 | 9,5 | 11,4 | 7,1 | 9,1 | 11,7 | 13,0 | 14,2 |
| f_{c,0,k} | 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 |
| f_{c,90,k} | 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 |
| f_{v,k} | Shear strength | 3,0 | | | | | | | | |
| E_{m,0} | Modulus of elasticity parallel to the fibres of the outer layers | 7300 | 7400 | 6400 | 5300 | 7800 | 6600 | 5100 | 4400 | 3700 |
| E_{m,90} | Modulus of elasticity perpendicular to the fibres of the outer layers | 2300 | 2250 | 2700 | 3300 | 2050 | 2600 | 3350 | 3750 | 4100 |
| G | Shear modulus of elasticity | 600 | | | | | | | | |

The product properties are in compliance with the properties listed in the table.
This Declaration of Properties is issued under the sole responsibility of the manufacturer.
Signed for and on behalf of the manufacturer:



Ing. Mgr. Vladimír Crhonek
Managing Director of AGROP NOVA a.s.

Ptení, 3. 4. 2018

DECLARATION OF PROPERTIES NO. 1393-CPR-0922

NOVATOP SWP SD

| | |
|--|--|
| Identification code: | SWP 10 (Local spruce), SWP 30 (Nordic spruce), SWP 50 (Larch). |
| Type: | Multilayer solid wood panel SWP/3 SD. |
| Intended use: | Used as bearing and non-bearing panels, for indoor or outdoor use and fire resistance class D. |
| Manufacturer: | AGROP NOVA a.s., Ptenický Dvorek 99, CZ-798 43 Ptení, Tax ID: CZ26243237 |
| Assessment and verification procedures: | <p>The system of assessment 2+</p> <p>The manufacturer performs:</p> <ol style="list-style-type: none"> determination of the product type on the basis of the type testing (including sampling). Computation for the type, tabular values or descriptive documentation of the product, factory production control, testing of samples taken at the factory in accordance with the prescribed test plan. <p>The notified body for production control certification issues a certificate of conformity of production control based on:</p> <ol style="list-style-type: none"> The initial inspection of the factory and of the factory production control, The continuous surveillance, assessment and approval of the factory production control. |
| The notified body: | Timber Research and Development Institute Prague s.p. performed the initial inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control (system 2 + according to ZA-norm) and issued a Certificate of factory production control No. 1393-CPR-0922, according to ZA norm EN 13986:2015+A1:2015. |

| Basic characteristics | Property | Harmonized technical specifications |
|--|---|-------------------------------------|
| Density | SWP 10, SWP 30 490 kg/m ³ , SWP 50 580 kg/m ³ | EN 13986:2015 |
| Reaction to fire | D-s2, d0 according to EN 13 501-1 | EN 13986:2015 |
| Design value of thermal conductivity (λ) | 0,13 W/mK for SWP 10, SWP 30 0,15 W/mK for SWP 50 According to EN ISO 10456 | EN 13986:2015 |
| Factor of diffusion resistance (μ) | 200/70 (dry/wet) according to EN ISO 10456 | EN 13986:2015 |
| Sound absorption | 250–500 Hz – 0,1 1000–2000 Hz – 0,3 | EN 13986:2015 |
| Airborne sound insulation (dB) | $R = 13 \times \log(m_a) + 14$ $m_a =$ surface weight kg/m ² | EN 13986:2015 |
| Specific thermal capacity (c_p) | 1600 J/kgK according to EN ISO 10456 | EN 13986:2015 |
| Formaldehyde emission class | E1 according to EN 717-1, EN 16516 | EN 13986:2015 |

Characteristic values of panels SWP/1 SD, SWP/2 SD, SWP/3 SD v N/mm²

| Panels with butted joints in the middle layer | | | | | | | | | | |
|--|---|-------|-------|-------|----------|----------|-------|------|------|------|
| Type of panel | | 16 | 19 | 22 | 27 Typ a | 27 Typ b | 32 | 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 | 14,0 | 24,0 | 32,0 | 42,0 |
| Stress perpendicular to the panel plane [N/mm ²] | | | | | | | | | | |
| f_{m,0,k} | 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 |
| f_{m,90,k} | 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 |
| E_{m,0} | Modulus of elasticity parallel to the fibres of the outer layers | 10900 | 10900 | 10500 | 9600 | 11100 | 10600 | 9400 | 8600 | 7700 |
| E_{m,90} | Modulus of elasticity perpendicular to the fibres of the outer layers | 500 | 450 | 700 | 1150 | 400 | 650 | 1250 | 1650 | 2100 |
| f_{v,k} | Shear strength | 1,1 | | | | | | | | |
| G | Shear modulus of elasticity | 90 | | | | | | | | |
| Stress in the panel plane [N/mm ²] | | | | | | | | | | |
| f_{m,0,k} | 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 |
| f_{m,90,k} | 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 |
| f_{t,0,k} | 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 |
| f_{t,90,k} | Tensile strength perpendicular to the fibres of the outer layers | 7,9 | 7,8 | 9,5 | 11,4 | 7,1 | 9,1 | 11,7 | 13,0 | 14,2 |
| f_{c,0,k} | 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 |
| f_{c,90,k} | 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 |
| f_{v,k} | Shear strength | 3,0 | | | | | | | | |
| E_{m,0} | Modulus of elasticity parallel to the fibres of the outer layers | 7300 | 7400 | 6400 | 5300 | 7800 | 6600 | 5100 | 4400 | 3700 |
| E_{m,90} | Modulus of elasticity perpendicular to the fibres of the outer layers | 2300 | 2250 | 2700 | 3300 | 2050 | 2600 | 3350 | 3750 | 4100 |
| G | Shear modulus of elasticity | 600 | | | | | | | | |

The product properties are in compliance with the properties listed in the table.
This Declaration of Properties is issued under the sole responsibility of the manufacturer.
Signed for and on behalf of the manufacturer:



Ing. Mgr. Vladimír Chronek
Managing Director of AGROP NOVA a.s.

Ptení, 3. 4. 2018