

# DECLARATION OF PROPERTIES NO. 1393-CPR-0018

## NOVATOP SWP

<b>Identification code:</b>	<b>SWP 10</b> (Local spruce), <b>SWP 30</b> (Nordic spruce), <b>SWP 50</b> (Larch).
<b>Type:</b>	Multilayer solid wood panel <b>SWP/1 NS, SWP/1 S, according to EN13353.</b>
<b>Intended use:</b>	Used as bearing and non-bearing panels, for indoor or outdoor use and fire resistance class D.
<b>Manufacturer:</b>	AGROP NOVA a.s., Ptenický Dvorek 99, CZ-798 43 Ptení, Tax ID: CZ26243237
<b>Assessment and verification procedures:</b>	<p><b>The system of assessment 2+</b></p> <p>The manufacturer performs: The manufacturer performs:</p> <ol style="list-style-type: none"> <li>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,</li> <li>factory production control,</li> <li>testing of samples taken at the factory in accordance with the prescribed test plan.</li> </ol> <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"> <li>The initial inspection of the factory and of the factory production control,</li> <li>The continuous surveillance, assessment and approval of the factory production control.</li> </ol>
<b>The notified body:</b>	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-0018, EN 13986:2004 + A1:2015.

Basic characteristics	Property	Harmonized technical specifications
<b>Density</b>	SWP 10, SWP 30 490 kg/m <sup>3</sup> , SWP 50 580 kg/m <sup>3</sup>	EN 13986:2004
<b>Reaction to fire</b>	D-s2, d0 according to EN 13 501-1	EN 13986:2004
<b>Design value of thermal conductivity (<math>\lambda</math>)</b>	0,13 W/mK for SWP 10, SWP 30 0,15 W/mK for SWP 50 according to EN ISO 10456	EN 13986:2004
<b>Factor of diffusion resistance (<math>\mu</math>)</b>	200/70 (dry/wet) according to EN ISO 10456	EN 13986:2004
<b>Sound absorption</b>	250–500 Hz – 0,1 1000–2000 Hz – 0,3	EN 13986:2004
<b>Airborne sound insulation (dB)</b>	$R = 13 \times \log(m_a) + 14$ $m_a$ = surface weight kg/m <sup>2</sup>	EN 13986:2004
<b>Specific thermal capacity (<math>c_p</math>)</b>	1600 J/kgK according to EN ISO 10456	EN 13986:2004
<b>Formaldehyde emission class</b>	E1 according to EN 717-1	EN 13986:2004

## Requirements for characteristic strength values according to EN 13353

Property		Testing method	Panel nominal thickness (mm)			
			>12 ≤ 20	>20 ≤ 30	>30 ≤ 42	> 42
$\rho$	Density (kg/m <sup>3</sup> )	EN 323	410	410	410	410
<b>Stress perpendicular to the panel plane [N/mm<sup>2</sup>]</b>						
$f_{m,0,k}$	Bending strength parallel to the fibres of the outer layers	EN 789	35	30	16	12
$f_{m,90,k}$	Bending strength perpendicular to the fibres of the outer layers	EN 789	5	5	9	9
$E_{0,mean}$	Modulus of elasticity parallel to the fibres of the outer layers	EN 789	8500	7000	6500	6000
$E_{90,mean}$	Modulus of elasticity perpendicular to the fibres of the outer layers	EN 789	470	470	1300	1300

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-0019

## NOVATOP SWP

<b>Identification code:</b>	<b>SWP 10</b> (Local spruce), <b>SWP 30</b> (Nordic spruce), <b>SWP 50</b> (Larch).
<b>Type:</b>	Multilayer solid wood panel <b>SWP/2 NS, SWP/2 S, according to EN13353.</b>
<b>Intended use:</b>	Used as bearing and non-bearing panels, for indoor or outdoor use and fire resistance class D.
<b>Manufacturer:</b>	AGROP NOVA a.s., Ptenický Dvorek 99, CZ-798 43 Ptení, Tax ID: CZ26243237

<b>Assessment and verification procedures:</b>	<b>The system of assessment 2+</b> The manufacturer performs: 1. 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, 2. factory production control, 3. 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: 1. The initial inspection of the factory and of the factory production control, 2. The continuous surveillance, assessment and approval of the factory production control.
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<b>The notified body:</b>	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-0019, EN 13986:2004 + A1:2015.
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Basic characteristics	Property	Harmonized technical specifications
<b>Density</b>	SWP 10, SWP 30 490 kg/m <sup>3</sup> , SWP 50 580 kg/m <sup>3</sup>	EN 13986:2004
<b>Reaction to fire</b>	D-s2, d0 according to EN 13 501-1	EN 13986:2004
<b>Design value of thermal conductivity (<math>\lambda</math>)</b>	0,13 W/mK for SWP 10, SWP 30 0,15 W/mK for SWP 50 according to EN ISO 10456	EN 13986:2004
<b>Factor of diffusion resistance (<math>\mu</math>)</b>	200/70 (dry/wet) according to EN ISO 10456	EN 13986:2004
<b>Sound absorption</b>	250–500 Hz – 0,1 1000–2000 Hz – 0,3	EN 13986:2004
<b>Airborne sound insulation (dB)</b>	$R = 13 \times \log(m_a) + 14$ $m_a =$ surface weight kg/m <sup>2</sup>	EN 13986:2004
<b>Specific thermal capacity (<math>c_p</math>)</b>	1600 J/kgK according to EN ISO 10456	EN 13986:2004
<b>Formaldehyde emission class</b>	E1 according to EN 717-1	EN 13986:2004

## Requirements for characteristic strength values according to EN 13353

Property		Testing method	Panel nominal thickness (mm)			
			>12 ≤ 20	>20 ≤ 30	>30 ≤ 42	> 42
$\rho$	Density (kg/m <sup>3</sup> )	EN 323	410	410	410	410
<b>Stress perpendicular to the panel plane [N/mm<sup>2</sup>]</b>						
$f_{m,0,k}$	Bending strength parallel to the fibres of the outer layers	EN 789	35	30	16	12
$f_{m,90,k}$	Bending strength perpendicular to the fibres of the outer layers	EN 789	5	5	9	9
$E_{0,mean}$	Modulus of elasticity parallel to the fibres of the outer layers	EN 789	8500	7000	6500	6000
$E_{90,mean}$	Modulus of elasticity perpendicular to the fibres of the outer layers	EN 789	470	470	1300	1300

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-0020

## NOVATOP SWP

<b>Identification code:</b>	<b>SWP 10</b> (Local spruce), <b>SWP 30</b> (Nordic spruce), <b>SWP 50</b> (Larch).
<b>Type:</b>	Multilayer solid wood panel <b>SWP/3 NS, SWP/3 S, according to EN13353.</b>
<b>Intended use:</b>	Used as bearing and non-bearing panels, for indoor or outdoor use and fire resistance class D.
<b>Manufacturer:</b>	AGROP NOVA a.s., Ptenský Dvorek 99, CZ-798 43 Ptení, Tax ID: CZ26243237

<b>Assessment and verification procedures:</b>	<b>The system of assessment 2+</b> The manufacturer performs: <ol style="list-style-type: none"><li>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,</li><li>factory production control,</li><li>testing of samples taken at the factory in accordance with the prescribed test plan.</li></ol> The notified body for production control certification issues a certificate of conformity of production control based on: <ol style="list-style-type: none"><li>The initial inspection of the factory and of the factory production control,</li><li>The continuous surveillance, assessment and approval of the factory production control.</li></ol>
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<b>Oznámený subjekt:</b>	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 13986:2004 + A1:2015.
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Basic characteristics	Property	Harmonized technical specifications
Density	SWP 10, SWP 30 490 kg/m <sup>3</sup> , SWP 50 580 kg/m <sup>3</sup>	EN 13986:2004
Reaction to fire	D-s2, d0 according to EN 13 501-1	EN 13986:2004
Design value of thermal conductivity ( $\lambda$ )	0,13 W/mK for SWP 10, SWP 30 0,15 W/mK for SWP 50 according to EN ISO 10456	EN 13986:2004
Factor of diffusion resistance ( $\mu$ )	200/70 (dry/wet) according to EN ISO 10456	EN 13986:2004
Sound absorption	250–500 Hz – 0,1 1000–2000 Hz – 0,3	EN 13986:2004
Airborne sound insulation (dB)	$R = 13 \times \log(m_a) + 14$ $m_a =$ surface weight kg/m <sup>2</sup>	EN 13986:2004
Specific thermal capacity ( $c_p$ )	1600 J/kgK according to EN ISO 10456	EN 13986:2004
Formaldehyde emission class	E1 according to EN 717-1	EN 13986:2004

## Requirements for characteristic strength values according to EN 13353

Property		Testing method	Panel nominal thickness (mm)			
			>12 ≤ 20	>20 ≤ 30	>30 ≤ 42	> 42
$\rho$	Density (kg/m <sup>3</sup> )	EN 323	410	410	410	410
<b>Stress perpendicular to the panel plane [N/mm<sup>2</sup>]</b>						
$f_{m,0,k}$	Bending strength parallel to the fibres of the outer layers	EN 789	35	30	16	12
$f_{m,90,k}$	Bending strength perpendicular to the fibres of the outer layers	EN 789	5	5	9	9
$E_{0,mean}$	Modulus of elasticity parallel to the fibres of the outer layers	EN 789	8500	7000	6500	6000
$E_{90,mean}$	Modulus of elasticity perpendicular to the fibres of the outer layers	EN 789	470	470	1300	1300

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

## Characteristic values of panels SWP/1 SD, SWP/2 SD, SWP/3 SD v 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	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 <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	7,9	7,8	9,5	11,4	7,1	9,1	11,7	13,0	14,2
<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								

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

<b>Identification code:</b>	<b>SWP 10</b> (Local spruce), <b>SWP 30</b> (Nordic spruce), <b>SWP 50</b> (Larch).
<b>Type:</b>	Multilayer solid wood panel <b>SWP/3 SD.</b>
<b>Intended use:</b>	Used as bearing and non-bearing panels, for indoor or outdoor use and fire resistance class D.
<b>Manufacturer:</b>	AGROP NOVA a.s., Ptenický Dvůrek 99, CZ-798 43 Ptení, Tax ID: CZ26243237
<b>Assessment and verification procedures:</b>	<p><b>The system of assessment 2+</b></p> <p>The manufacturer performs:</p> <ol style="list-style-type: none"> <li>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,</li> <li>factory production control,</li> <li>testing of samples taken at the factory in accordance with the prescribed test plan.</li> </ol> <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"> <li>The initial inspection of the factory and of the factory production control,</li> <li>The continuous surveillance, assessment and approval of the factory production control.</li> </ol>
<b>The notified body:</b>	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 13986:2004+A1:2015.

Basic characteristics	Property	Harmonized technical specifications
Density	SWP 10, SWP 30 490 kg/m <sup>3</sup> , SWP 50 580 kg/m <sup>3</sup>	EN 13986:2004
Reaction to fire	D-s2, d0 according to EN 13 501-1	EN 13986:2004
Design value of thermal conductivity ( $\lambda$ )	0,13 W/mK for SWP 10, SWP 30 0,15 W/mK for SWP 50 According to EN ISO 10456	EN 13986:2004
Factor of diffusion resistance ( $\mu$ )	200/70 (dry/wet) according to EN ISO 10456	EN 13986:2004
Sound absorption	250–500 Hz – 0,1 1000–2000 Hz – 0,3	EN 13986:2004
Airborne sound insulation (dB)	$R = 13 \times \log(m_a) + 14$ $m_a =$ surface weight kg/m <sup>2</sup>	EN 13986:2004
Specific thermal capacity ( $c_p$ )	1600 J/kgK according to EN ISO 10456	EN 13986:2004
Formaldehyde emission class	E1 according to EN 717-1	EN 13986:2004



## Characteristic values of panels SWP/1 SD, SWP/2 SD, SWP/3 SD v 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	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 <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	7,9	7,8	9,5	11,4	7,1	9,1	11,7	13,0	14,2
<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								

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