

PRODUCT DATA SHEET

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SOLIDA

STAINLESS STEEL SELFTAPPING SCREW

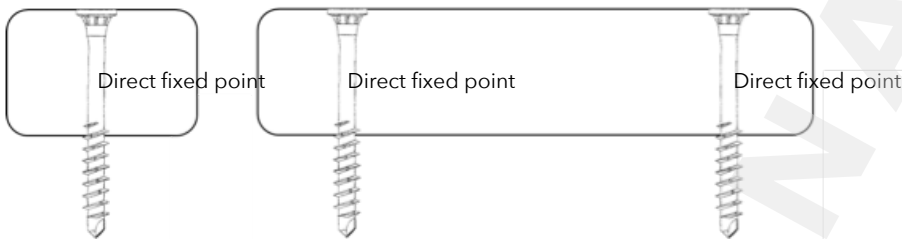


DESCRIPTION

SOLIDA is a universal selftapping stainless steel screw for wooden or wood like decking / cladding materials

Mounting type: Direct fixed point

One or two fixed points - depending on the dimension of the component to be mounted - counteract the deformation forces, shrinkage and swelling.



APPLICATION

For direct fixing, for example, from cover boards, rhombus boards, tongue and groove elements, decking boards, etc. The wood or a wood-like material are directly mounted to a substructure without [optional] pre-drilling

Dimensioning and installation must be carried out according to the manufacturer's instructions, tips and tricks for the construction of terraces and façades, specialist rules, guidelines and country-specific regulations. The suitability and compatibility with the wood material and the metal sections may need to be determined by the material manufacturer / supplier.

For materials with higher dimensional fluctuations [swelling and shrinkage] - especially in the decking area - a distance spacer e.g. GUMO D spacer band or BASO distance spacer is recommended. In this case the shear forces acting on the fixture are substantially reduced.



MATERIAL

SOLIDA1 Hardened stainless steel 1.4006/X12Cr13/AISI 410

SOLIDA4 Stainless steel 1.4401/X5CrNiMo17-12-2/AISI 316



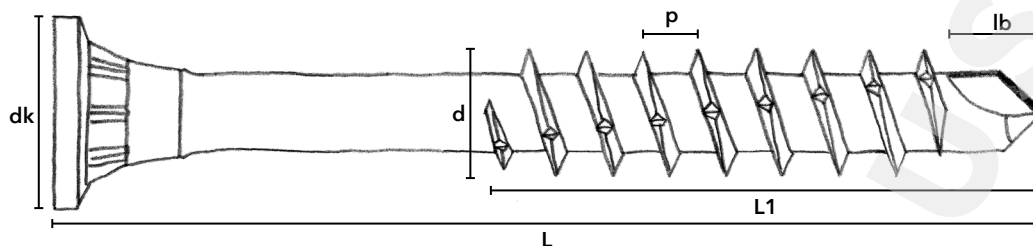
Additional information:

SOLIDA1 hardened stainless steel attains a 50% higher breaking torque as the standard A2 stainless steel grades due to the special hardening process [heat treating].

This type of hardening process makes non-magnetic rust free stainless steel magnetic.

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DIMENSIONS



SOLIDA	Dimensions						
	Self tapping screw	Ø 3,2 mm	Ø 4,0 mm	Ø 4,5 mm	Ø 5,0 mm	Ø 5,5 mm	Ø 6,0 mm
d	3,10 - 3,25	3,75 - 4,00	4,30 - 4,50	4,70 - 5,00	5,20 - 5,50	5,70 - 6,00	
dk	5,00 - 5,25	6,00 - 6,50	6,50 - 7,00	7,50 - 8,00	7,50 - 8,00	9,50 - 10,00	
p	1,20 - 1,40	1,70 - 1,90	1,90 - 2,10	2,10 - 2,30	2,30 - 2,50	2,50 - 2,70	
lb	2,50 - 3,00	2,50 - 3,00	2,50 - 3,00	3,50 - 4,00	3,50 - 4,00	4,00 - 4,50	
TX	TX10	TX20	TX20	TX25	TX25	TX25	
Torsion Nm	1,90	3,00	4,20	5,60	4,55	9,50	
L1 thread length	16 +/- 0,5	25 +/- 0,5					
	18 +/- 0,5	30 +/- 0,5	30 +/- 0,5				
	21 +/- 0,5	35 +/- 0,5	35 +/- 0,5				
	24 +/- 0,5	40 +/- 0,5	40 +/- 0,5	40 +/- 0,5	40 +/- 0,5		
	26 +/- 0,5		45 +/- 0,5	45 +/- 0,5	45 +/- 0,5	45 +/- 0,5	
	28 +/- 0,5	50 +/- 0,5	50 +/- 0,5	50 +/- 0,5	50 +/- 0,5	50 +/- 0,5	
	34 +/- 0,5	60 +/- 1,0	60 +/- 1,0	60 +/- 1,0	60 +/- 1,0	60 +/- 1,0	
	40 +/- 0,5			70 +/- 1,0	70 +/- 1,0	70 +/- 1,0	70 +/- 1,0
	44 +/- 0,5				80 +/- 1,0		80 +/- 1,0
	50 +/- 0,5				90 +/- 1,0		90 +/- 1,0
55 +/- 0,5				100 +/- 1,0		100 +/- 1,0	
60 +/- 0,5						120 +/- 1,0	

STANDARD - CE MARK

The scope of application is not subject to approvals, certificates, etc. due to the lack of standard conformity requirements.

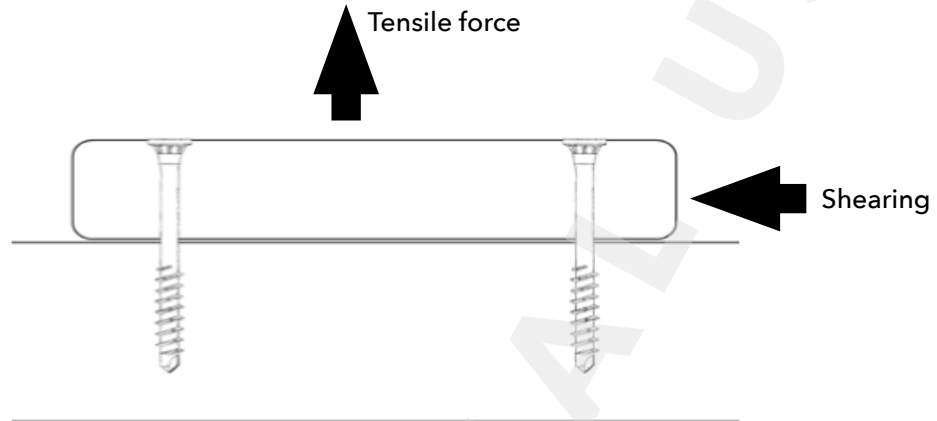
QUALITY ASSURANCE

Continuous quality assurance with regard to material and geometry.

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TEST PROCEDURE

The calculation of limit values were determined by tensile and shear loading. The mechanical property of the load capacity and the deformation behavior were determined via a node feed rate 4.00 mm / min

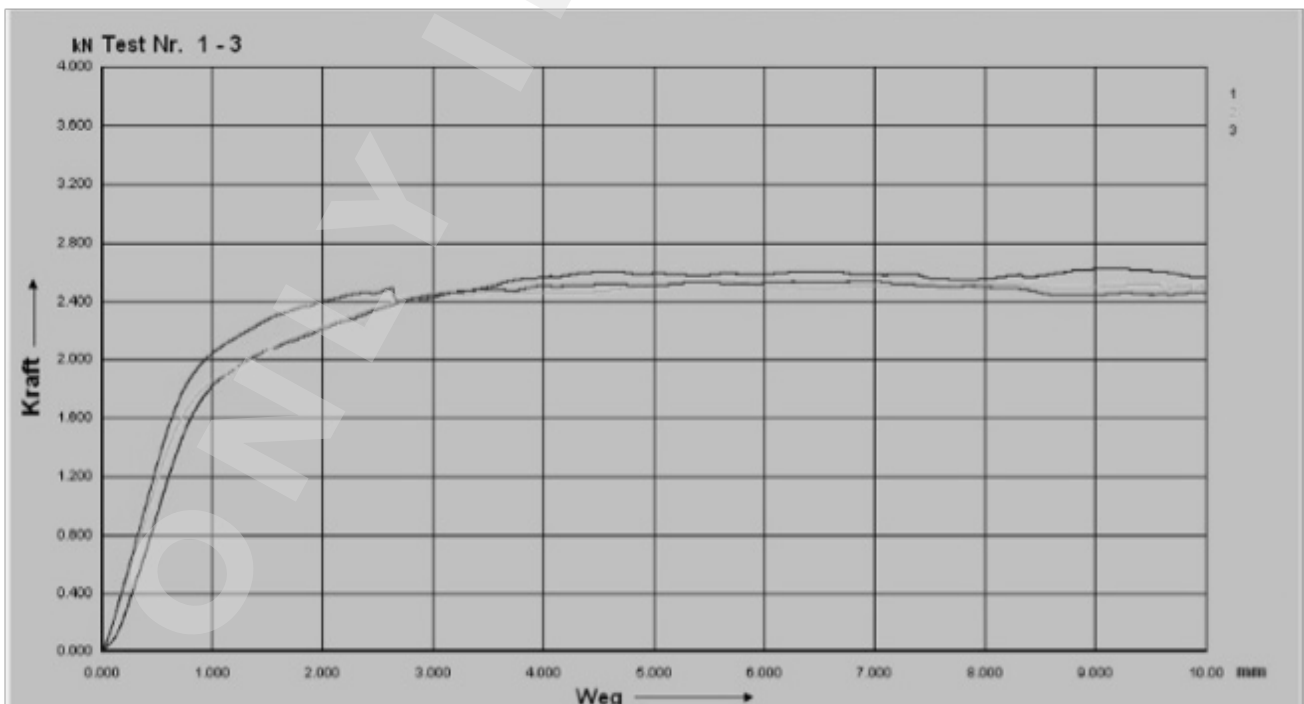


TENSILE TEST RESULTS - Larch

Force absorption F [kN] / deformation displacement S [mm]

SOLIDA 3,2		Tensile Force Table					
Larch	F	S	F	S	Fmax	Smax	
TEST 1	2,40	2,0	2,57	4,0	2,62	9,1	
TEST 2	2,23	2,0	2,53	4,0	2,54	5,6	
TEST 3	2,20	2,0	2,47	4,0	2,54	7,0	
Mean Value	2,28	2,0	2,52	4,0	2,56	7,2	
Minimum	2,20	2,0	2,47	4,0	2,54	5,6	
Maximum	2,40	2,0	2,57	4,0	2,62	9,1	

Max. load_head pull through resistance [node point 2 pcs. 3,2 x 60 mm]



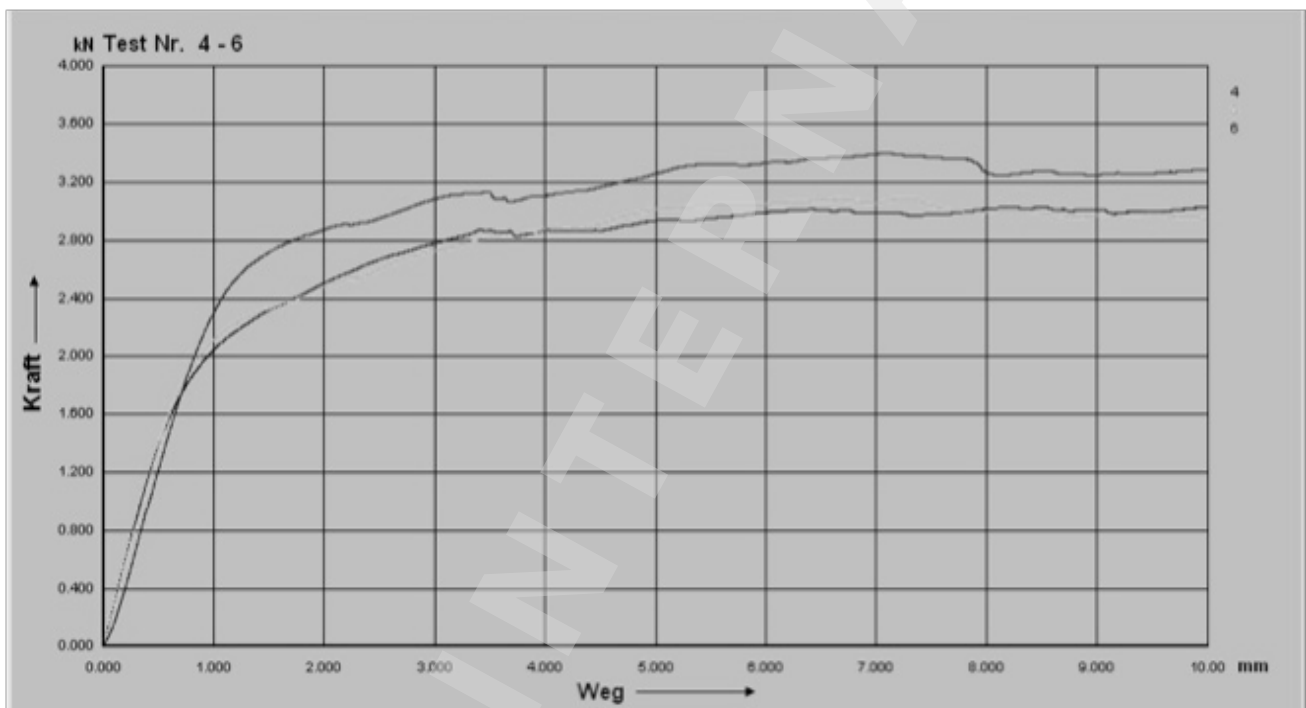
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TENSILE TEST RESULTS - Larch

Force absorption F [kN] / deformation displacement S [mm]

SOLIDA 4,0		Tensile Force Table				
Larch	F	S	F	S	Fmax	Smax
TEST 1	3,10	2,0	2,87	4,0	3,03	8,5
TEST 2	2,90	2,0	2,53	4,0	3,08	7,3
TEST 3	2,87	2,0	2,50	4,0	3,40	7,1
Mean Value	2,95	2,0	2,63	4,0	3,17	7,6
Minimum	2,87	2,0	2,50	4,0	3,03	7,1
Maximum	3,10	2,0	2,87	4,0	3,40	8,5

Max. load_head pull through resistance [node point 2 pcs. 4,5 x 50 mm]



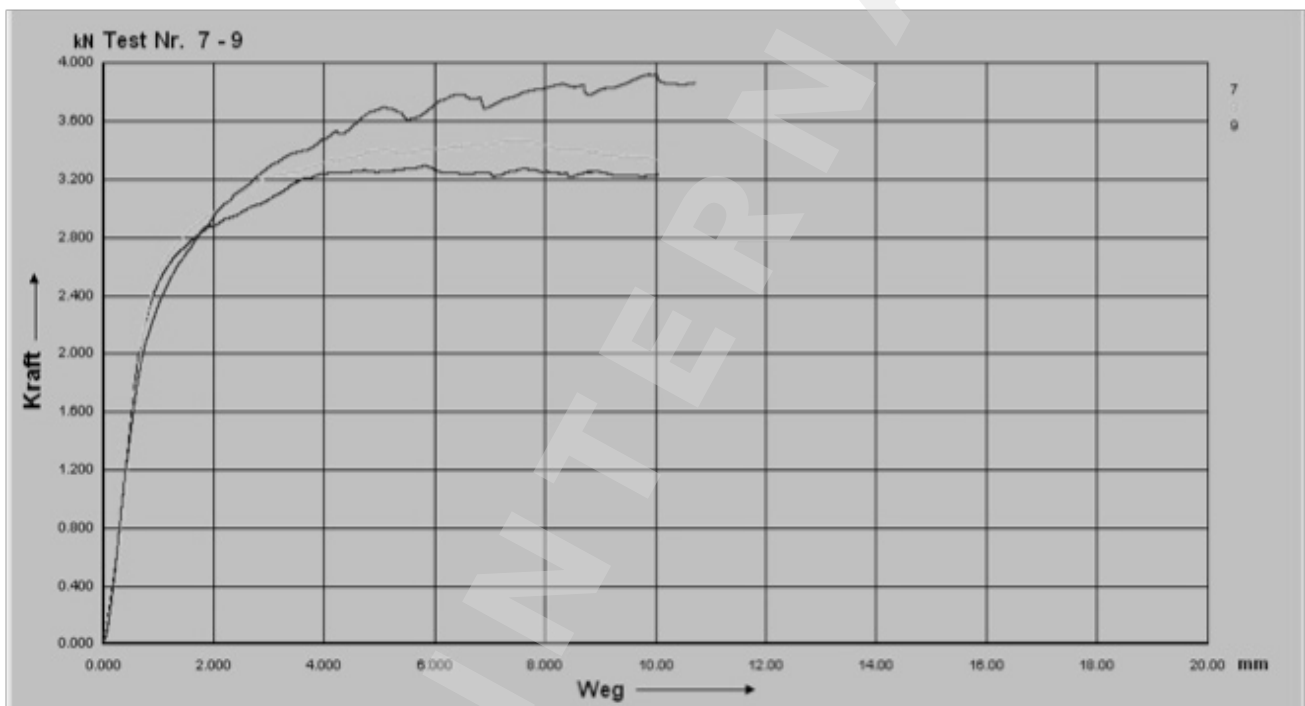
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TENSILE TEST RESULTS - Larch

Force absorption F [kN] / deformation displacement S [mm]

SOLIDA 4,5		Tensile Force Table					
Larch	F	S	F	S	Fmax	Smax	
TEST 1	2,97	2,0	3,46	4,0	3,29	5,8	
TEST 2	2,97	2,0	3,33	4,0	3,46	7,4	
TEST 3	2,90	2,0	3,27	4,0	3,92	10,0	
Mean Value	2,94	2,0	3,35	4,0	3,56	7,7	
Minimum	2,90	2,0	3,27	4,0	3,29	5,8	
Maximum	2,97	2,0	3,46	4,0	3,92	10,0	

Max. load_head pull through resistance [node point 2 pcs. 4,5 x 70 mm]



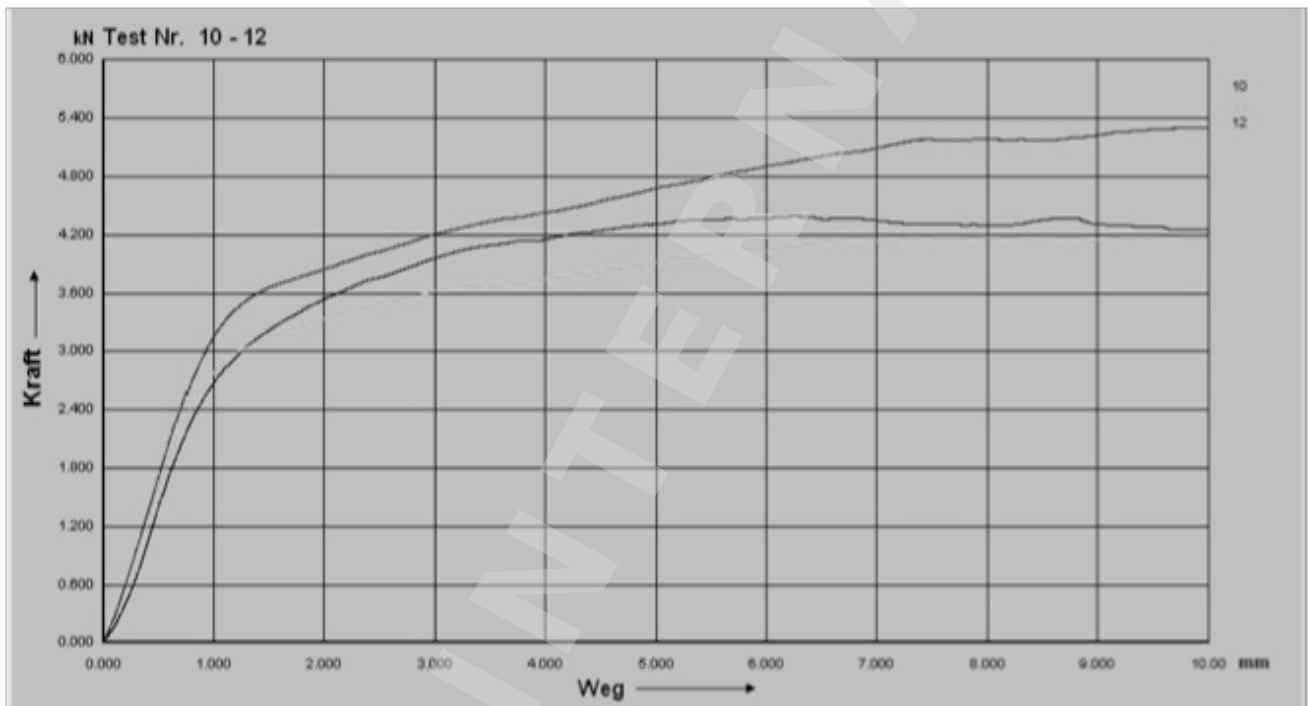
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TENSILE TEST RESULTS - Larch

Force absorption F [kN] / deformation displacement S [mm]

SOLIDA 5,0		Tensile Force Table				
Larch	F	S	F	S	Fmax	Smax
TEST 1	3,85	2,0	4,20	4,0	4,39	6,3
TEST 2	3,55	2,0	3,95	4,0	4,18	7,4
TEST 3	3,35	2,0	3,65	4,0	5,30	9,9
Mean Value	3,58	2,0	3,93	4,0	4,62	7,9
Minimum	3,35	2,0	3,65	4,0	4,18	6,3
Maximum	3,85	2,0	4,20	4,0	5,30	9,9

Max. load_head pull through resistance [node point 2 pcs. 5,0 x 80 mm]



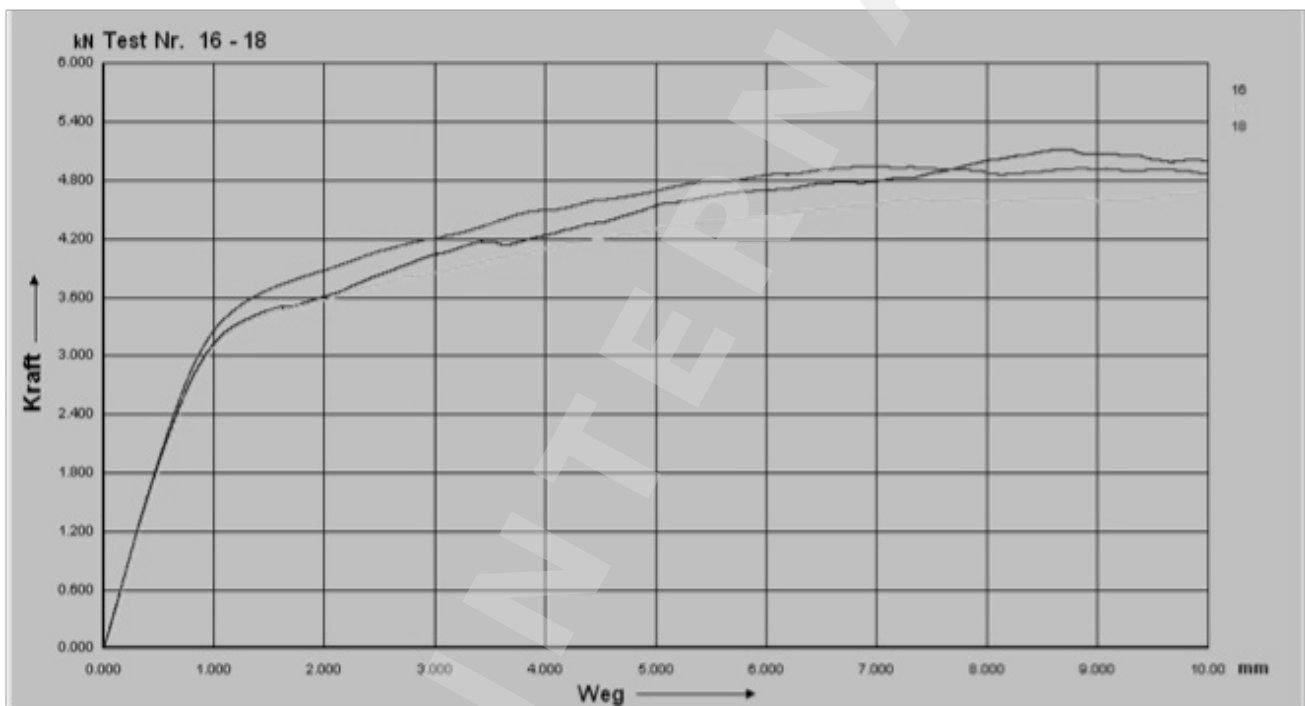
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TENSILE TEST RESULTS - Larch

Force absorption F [kN] / deformation displacement S [mm]

SOLIDA 5,5		Tensile Force Table					
Larch	F	S	F	S	Fmax	Smax	
TEST 1	3,90	2,0	4,50	4,0	5,11	8,6	
TEST 2	3,60	2,0	4,25	4,0	4,69	10,0	
TEST 3	3,60	2,0	4,10	4,0	4,94	6,9	
Mean Value	3,70	2,0	4,28	4,0	4,91	8,5	
Minimum	3,60	2,0	4,10	4,0	4,69	6,9	
Maximum	3,90	2,0	4,50	4,0	5,11	10,0	

Max. load_head pull through resistance [node point 2 pcs. 5,5 x 60 mm]



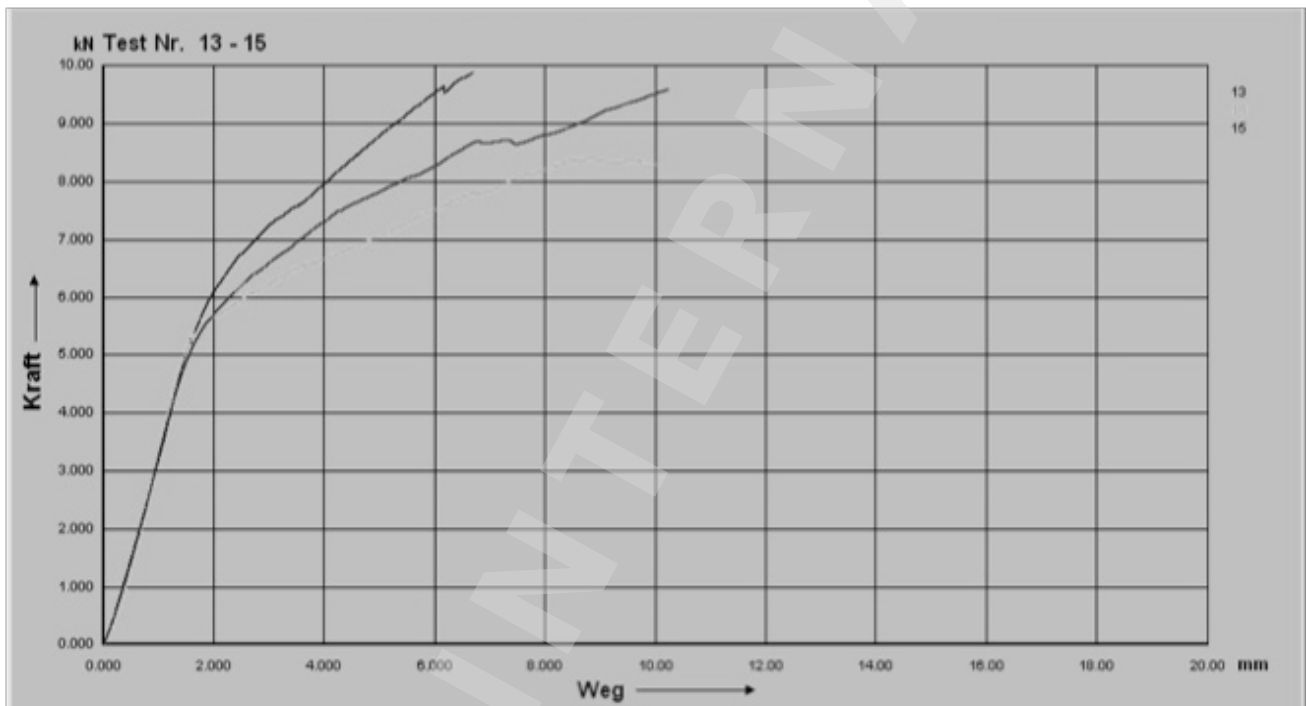
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TENSILE TEST RESULTS - Larch

Force absorption F [kN] / deformation displacement S [mm]

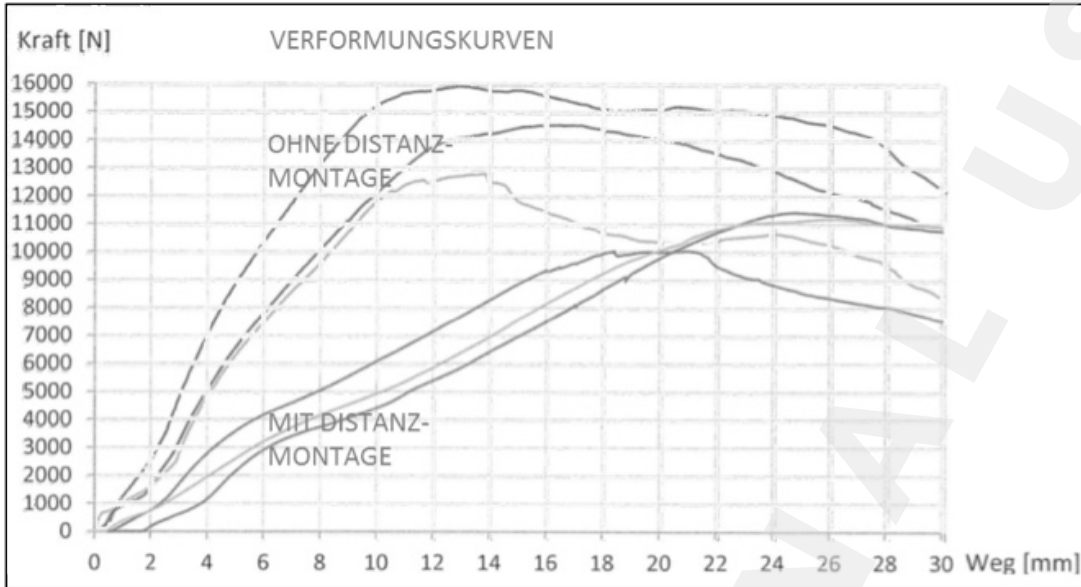
SOLIDA 6,0		Tensile Force Table				
Larch	F	S	F	S	Fmax	Smax
TEST 1	6,17	2,0	8,00	4,0	9,89	6,7
TEST 2	5,74	2,0	7,33	4,0	8,40	8,8
TEST 3	5,66	2,0	6,66	4,0	9,59	10,2
Mean Value	5,86	2,0	7,33	4,0	9,29	8,6
Minimum	5,66	2,0	6,66	4,0	8,40	6,7
Maximum	6,17	2,0	8,00	4,0	9,89	10,2

Max. load_head pull through resistance [node point 2 pcs. 6,0 x 100 mm]



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DEFORMATION RESULTS - Shear force compared with and without distance fitting
Force absorption F [kN] / deformation displacement S [mm]



SHEAR FORCE DIFFERENCE - Larch compared with and without distance to the substructure
Force absorption F [kN] / deformation displacement S [mm]

SOLIDA 5,0		Shear force effects [kN] S 2 mm			Shear force effects [kN] S 4 mm		
Larch		without distance	including distance	Reduction	without distance	including distance	Reduction
Test sample Larch 23 mm	TEST 1	1,24	0,66	-47%	3,40	2,18	-36%
	TEST 2	2,31	0,53	-77%	4,94	1,76	-64%
	TEST 3	1,56	0,70	-55%	2,76	1,91	-31%
	Mittelwert	1,70	0,63	-60%	3,70	1,95	-47%
	Minimum	1,24	0,53	-77%	2,76	1,76	-36%
	Maximum	2,31	0,70	-47%	4,94	2,18	-56%

SOLIDA 5,0 x 60 mm without spacer | SOLIDA 5,0 x 70 mm with spacer 6,0 mm

SHEAR FORCE DIFFERENCE - IPE compared with and without distance to the substructure
Force absorption F [kN] / deformation displacement S [mm]

SOLIDA 5,0		Shear force effects [kN] S 2 mm			Shear force effects [kN] S 4 mm		
IPE 20 mm		RELO U	RELO P	Reduction	RELO U	RELO P	Reduction
Test sample IPE 20 mm	TEST 1	2,57	0,77	-70%	7,09	2,81	-60%
	TEST 2	1,62	0,77	-52%	5,10	2,17	-57%
	TEST 3	1,67	0,75	-55%	4,88	1,97	-60%
	Mittelwert	1,95	0,76	-59%	5,69	2,32	-59%
	Minimum	1,62	0,75	-70%	4,88	1,97	-60%
	Maximum	2,57	0,77	-52%	7,09	2,81	-60%

SOLIDA 5,0 x 50 mm without spacer | SOLIDA 5,0 x 60 mm with spacer 6,0 mm

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