

# Test Certificate for Plywood



Certificate No.:

6319 HEL  
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**General Data** Plandienst / Matthias Felsch  
D-88459 Tannheim, Germany

VSO10378

Ordered by

Order no.

Koskisen Oy, Hirvensalmi, Finland

Manufacturer

Aviation plywood

Item

293 / 659.25

m<sup>2</sup>

18.10.2010

total number / area

Date of test

**Test requirements** Rules for classification and Construction, II – Materials and Welding, Part 2, Chapter 2.

**Marking by** Angular GL stamp

Manufacturer's symbol

Aircraft plywood		Koskisen Oy Quality Thickness Ply
Strength group	F 1	
Type	Birch GL I / II	
Germanischer Lloyd		
Date	18.10.2010	
Certificate no.	6319 HEL	

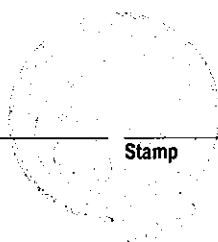
**Remarks** The results of the individual testing are available at Germanischer Lloyd. The attached list gives information on type of plywood, plate scantlings and numbers of plates, as well as mean values of plywood and gluing strength of tested plates.

This is to certify that the material as described in the attached Particulars has been tested by our Surveyor. The test results complied with the Material Rules of Germanischer Lloyd.

This Certification is only valid in connection with the attached document: F149AE

Helsinki, 19.10.2010

Place/Date



Stamp

Seppo Liukkonen

Signature of GL Surveyor

Enclosures

# GL

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The latest edition of the General Terms and Conditions of Germanischer Lloyd is applicable. German law applies.

Appendix to Certificate No. 6319 HEL																
Sheet from 18.10.2010																
Test Report																
Koskisen Oy																
Aircraft Plywood Manufacturer:																
Plywood - Tensile test																
Longitudinal 70,0 N/mm <sup>2</sup> Transverse 45,0 N/mm <sup>2</sup> Wet test 2,0 N/mm <sup>2</sup>																
Added 140,0 N/mm <sup>2</sup>																
Test No	Width	Thickness	Area	N	N/mm2	Average	N	N/mm2	Average	Width	Length	Area	N	N/mm2	Bonding %	Average
1	25,0	0,600	15,0	1429,16	95,3	992,26	66,2	66,3	25,0	3,0	75,0	219,15	2,9	100		
0.6 mm				1310,68	87,4	931,33	62,1					247,96	3,3	100		
3 Ply				1275,73	85,0	1060,41	70,7					257,70	3,4	100		3,22
6 Sheet												267,33	3,6	100		
Moisture		4,34 %		Added		155,5 N/mm <sup>2</sup>										
2	25,0	0,800	20,0	1937,64	96,9	1561,19	78,1	71,5	25,0	3,0	75,0	227,23	3,0	100		
0.8 mm				2779,65	139,0	1345,17	67,3					275,36	3,7	100		
3 Ply				2354,74	117,7	1385,58	69,3					273,09	3,6	100		3,38
10 sheet												220,44	2,9	100		
Moisture		4,68 %		Added		189,4 N/mm <sup>2</sup>										
3	25,0	1,200	30,0	2997,21	99,9	2676,72	89,2	94,5	25,0	4,0	100,0	280,13	2,8	100		
1.2 mm				3036,37	101,2	3180,25	106,0					286,03	2,9	100		
3 Ply				3342,12	111,4	2647,18	88,2					324,16	3,2	100		3,01
42 sheet												308,61	3,1	100		
Moisture		4,87 %		Added		198,7 N/mm <sup>2</sup>										
4	25,0	1,500	37,5	3649,06	97,3	2604,77	69,5	64,4	25,0	4,0	100,0	222,09	2,2	100		
1.5 mm				4300,79	114,7	2457,25	65,5					234,07	2,3	100		
3 Ply				4229,68	112,8	2188,11	58,3					240,16	2,4	100		2,37
44 Sheet												243,10	2,4	100		
Moisture		6,12 %		Added		172,7 N/mm <sup>2</sup>										
5	25,0	1,500	37,5	3611,34	96,3	2974,82	79,3	70,8	25,0	4,0	100,0	273,20	2,7	100		
1.5 mm				3713,26	99,0	2389,20	63,7					268,22	2,7	100		
5 Ply				4014,78	107,1	2598,02	69,3					285,55	2,9	100		2,93
65 sheet												320,64	3,2	100		
Moisture		5,3 %		Added		171,6 N/mm <sup>2</sup>										

6	25,0	1,500	37,5	3781,23	100,8	3186,70	85,0	25,0	4,0	100,0	346,69	3,5	100
1.5 mm				3839,03	102,4	3488,80	92,5				327,25	3,3	100
5 Ply				3596,08	95,9	3396,55	90,6				385,00	3,9	100
65 sheet											361,17	3,6	100
Moisture	5,45 %			Added		189,1 N/mm <sup>2</sup>					287,62	2,9	100
7	25,0	2,000	50,0	5211,81	104,2	3658,41	73,2	25,0	4,0	100,0	411,38	4,1	100
2.0 mm				4393,22	87,9	4184,42	83,7				412,86	4,1	100
5 Ply				5767,50	115,4	3574,82	71,5				419,01	4,2	100
65 Sheet											419,74	4,2	100
Moisture	5,55 %			Added		178,6 N/mm <sup>2</sup>					398,24	4,0	100
8	25,0	2,000	50,0	4804,41	96,1	4042,18	80,8	25,0	4,0	100,0	364,60	3,6	100
2.0 mm				4841,01	96,8	4103,41	82,1				402,27	4,0	100
5 Ply				4232,82	84,7	3922,99	78,5				431,94	4,3	100
65 Sheet											384,27	3,8	100
Moisture	4,86 %			Added		173,0 N/mm <sup>2</sup>					430,77	4,3	100
9	25,0	2,500	62,5	5457,36	87,3	4042,52	64,7	25,0	5,0	125,0	337,91	2,7	100
2.5 mm				5840,94	93,5	4159,67	66,6				378,94	3,0	100
5 Ply				5755,59	92,1	3717,37	59,5				417,69	3,3	100
11 sheet											376,97	3,0	100
Moisture	5,26 %			Added		154,5 N/mm <sup>2</sup>					354,40	2,8	100
10	25,0	3,000	75,0	6753,86	90,1	5061,21	67,5	25,0	5,0	125,0	264,36	2,1	100
3.0 mm				6398,33	85,3	4877,67	65,0				251,86	2,0	100
6 Ply				7094,19	94,6	4760,68	63,5				245,25	2,0	100
30 Sheet											249,72	2,0	100
Moisture	5,23 %			Added		155,3 N/mm <sup>2</sup>					306,51	2,5	100
11	15,0	4,000	60,0	4743,52	79,1	5227,17	87,1	25,0	6,0	150,0	412,89	2,8	100
4.0 mm				5325,82	88,8	6497,64	108,3				382,81	2,6	100
8 Ply				4879,54	81,3	5567,74	92,8				365,2	2,4	100
15 sheet											381,12	2,5	100
Moisture	4,76 %			Added		179,1 N/mm <sup>2</sup>					375,01	2,5	100
12	15,0	6,000	90,0	6942,44	77,1	8242,57	91,6	25,0	7,5	187,5	541,77	2,9	100
6.0 mm				6699,94	74,4	7935,99	88,2				543,19	2,9	100
12 Ply				6895,75	76,6	7444,59	82,7				524,18	2,8	100
5 sheet											565,53	3,0	100
Moisture	4,68 %			Added		163,6 N/mm <sup>2</sup>					565,26	3,0	100