

Test Certificate for Plywood

Certificate No.: N141DZW0/7749 HEL

Page 1 of 1

General Data Plandienst, Tannheim, Germany VSO17111
 Ordered by Order no.
Koskisen Oy, birch product industry, Hirvensalmi, Finland
 Manufacturer
Aviation plywood
 Item
136 / 306,0 m² 2017-02-23
 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	<u>F 1</u>	
Type	<u>Birch GL I / II</u>	
Germanischer Lloyd		
Date	<u>2017-02-23</u>	
Certificate no.	<u>7749 HEL</u>	

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 / DNV GL Representative. The test results complied with the Material Rules of Germanischer Lloyd.

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

Helsinki/2017-04-20

Place/Date



Stamp

Jyrki Viherto

Name and Signature of DNV GL Representative

Enclosures 2 pcs

Listing of the tested plywood

Supplemental sheet 1 for certificate No.:

7749 HEL

Page 1 of 2

Bonding of BFU 100 with phenolic adhesive

Test Results

[illegible]

--	--	--	--	--	--	--	--	--



Test Report

Appendix to Certificate No.

7749 HEL

Aircraft Plywood

Manufacturer:

Koskisen Oy

Supplemental sheet 2 from 2017-02-23

Requirements

Plywood - Tensile test
 Longitudinal 70,0 N/mm²
 Added 140,0 N/mm²
 Transverse 45,0 N/mm²

Lap-Shear test

Wet test 2,0 N/mm²

Test No Width Thickness Area

N N/mm² Average N N/mm² Average Width Length Area N N/mm² Bonding % Average

P1	25,0	0,600	15,0	2036,66	135,8	1148,22	76,5	75,7	25,0	3,0	75,0	317,00	4,2	100	
0,6 mm				1862,19	124,1	1018,04	67,9					303,00	4,0	100	
3 Ply				1801,21	120,1	1240,03	82,7					314,00	4,2	100	
12 Sheet												346,00	4,6	100	4,21
Moisture	5,50 %			Added		202,4 N/mm ²						300,00	4,0	100	

P2	25,0	0,800	20,0	2674,50	133,7	1382,14	69,1	72,8	25,0	4,0	100,0	288,00	3,8	100	
0,8 mm				2884,92	144,2	1580,75	79,0					296,00	3,9	100	
3 Ply				2540,51	127,0	1405,25	70,3					285,00	3,8	100	
12 sheet												285,00	3,8	100	
Moisture	5,70 %			Added		207,8 N/mm ²						332,00	4,4	100	3,96

P3	25,0	1,000	25,0	2692,33	107,7	2076,01	83,0	75,5	25,0	4,0	100,0	344,00	3,4	100	
1,0 mm				2828,76	113,2	1715,11	68,6					380,00	3,8	100	
3 Ply				2818,07	112,7	1870,36	74,8					355,00	3,6	100	
51 Sheet												350,00	3,5	100	3,60
Moisture	5,20 %			Added		186,7 N/mm ²						372,00	3,7	100	

P4	25,0	1,200	30,0	3216,72	107,2	2323,89	77,5	81,3	25,0	4,0	100,0	315,00	3,2	100	
1,2 mm				3111,52	103,7	2466,55	82,2					308,00	3,1	100	
3 Ply				3431,83	114,4	2528,66	84,3					281,00	2,8	100	
23 Sheet												292,00	2,9	100	2,93
Moisture	5,40 %			Added		189,8 N/mm ²						271,00	2,7	100	

P5	25,0	1,500	37,5	3340,75	89,1	3131,91	83,5	83,4	25,0	4,0	100,0	419,00	4,2	100	
1,5 mm				3385,75	90,3	3085,86	82,3					440,00	4,4	100	
5 Ply				3224,02	86,0	3169,33	84,5					378,00	3,8	100	
16 Sheet												407,00	4,1	100	4,01
Moisture	5,2 %			Added		171,9 N/mm ²						362,00	3,6	100	

P9	15,0	4,000	60,0	5159,52	86,0	5272,80	87,9	96,9	25,0	6,0	150,0	440,00	2,9	100	
4,0 mm				4473,73	74,6	6437,42	107,3					461,00	3,1	100	
8 Ply				5340,25	89,0	5724,95	95,4					432,00	2,9	100	
11 Sheet												450,00	3,0	100	
Moisture	5,10 %			Added		180,0 N/mm ²						505,00	3,4	100	



Germanischer Lloyd

Plywood - Tensile test										Lap-Shear test						
Requirements					Longitudinal					Transverse						
Added					140,0 N/mm ²					45,0 N/mm ²						
Test No	Width	Thickness	Area	N	N/mm2	Average	N	N/mm2	Average	Width	Length	Area	N	N/mm2	Bonding %	Average

P10 8.0 mm 16 Ply 11 Sheet	5.0	8.000	40.0	2935.97	73.4	3115.77	77.9	79.5	25.0	9.0	225.0	834.00	3.7	100
				3270.45	81.8	3335.94	83.4					875.00	3.9	100
				3229.54	80.7	3087.07	77.2					870.00	3.9	100
												825.00	3.7	100
Moisture: 4.50 %				Added				158.1 N/mm²						
												858.00	3.8	100

3.79

[illegible]

Plandienst

Jyrki Viherto

