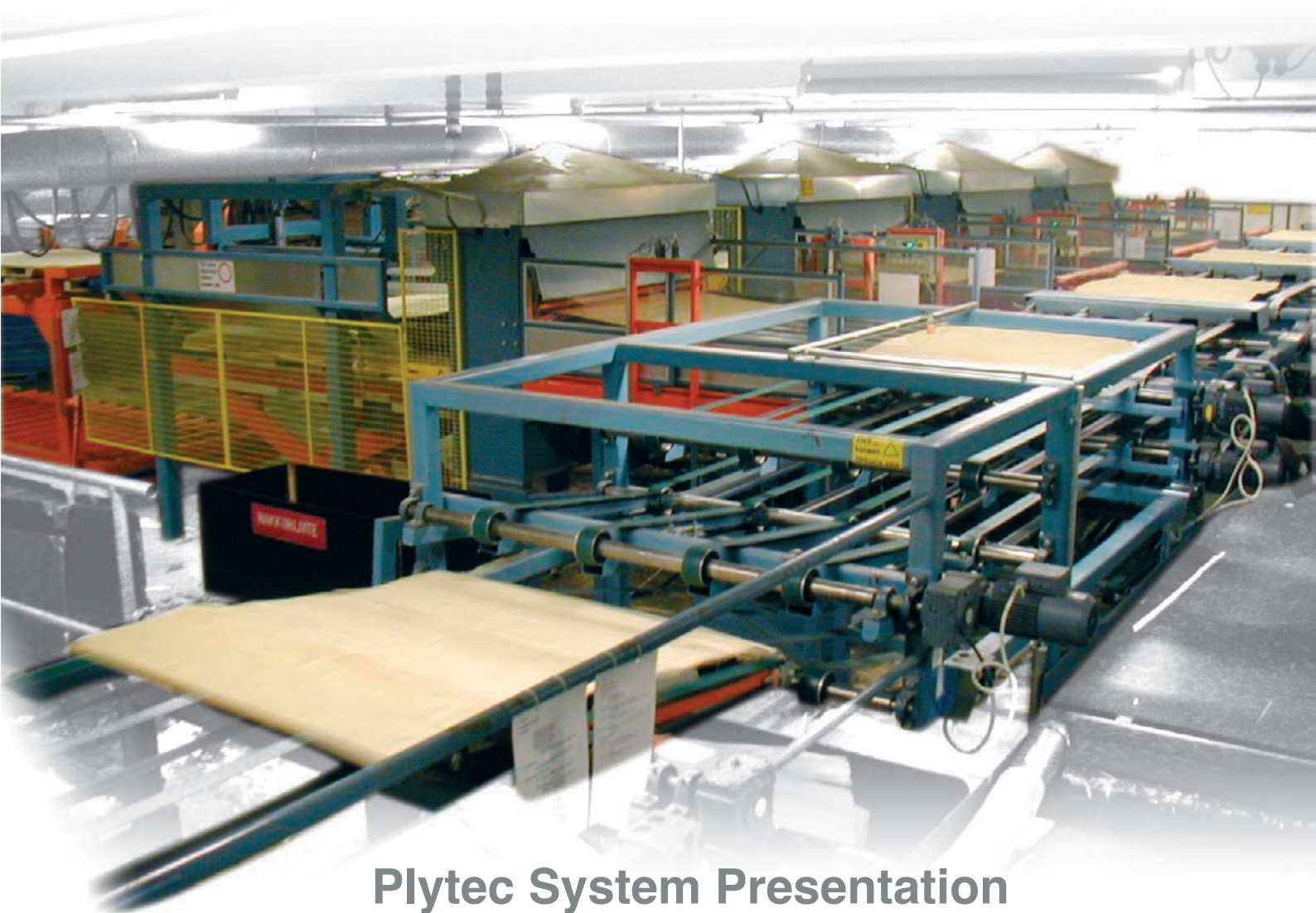




Scarf Jointing

Veneer Handling Solution



Plytec System Presentation

2009 Edition

Dynamic Veneer Technology



Dear Colleague,

Nowadays, plywood industry is feeling pressure from three sides at the same time. At one side, the market demands steady and raising product quality. On the other side, we have to adapt our production methods to meet market demands while the raw material is thinner and softer than ever. Cultivated wood will be one of our main raw material sources, and we will have to live with that. The situation is becoming more complicated as we are facing an increasing competition from OSB. It's a difficult equation.

However, finding success is not a mission impossible! At Plytec, we strongly believe that the future of plywood lies on high quality products and lowering environmental impact. This goal can be achieved through maximizing veneer recovery. Plytec's mission is to design and implement advanced technology that enhances your competitive edge today and in the future.

Plytec is in third decade serving plywood industry. Our experience within the industry has provided us with abundance of real life experience on helping our customers to make most of their production facilities. We produce technology that makes the difference in veneer handling.

Dynamic Plywood Technology for dynamic industry. That's Plytec!

Sincerely yours,



Timo Tolvanen
Managing Director



At Your Service:



Eino-Pekka Vatanen
Sales Director



David Lee
Director, Plytec Far East Pte. Ltd.

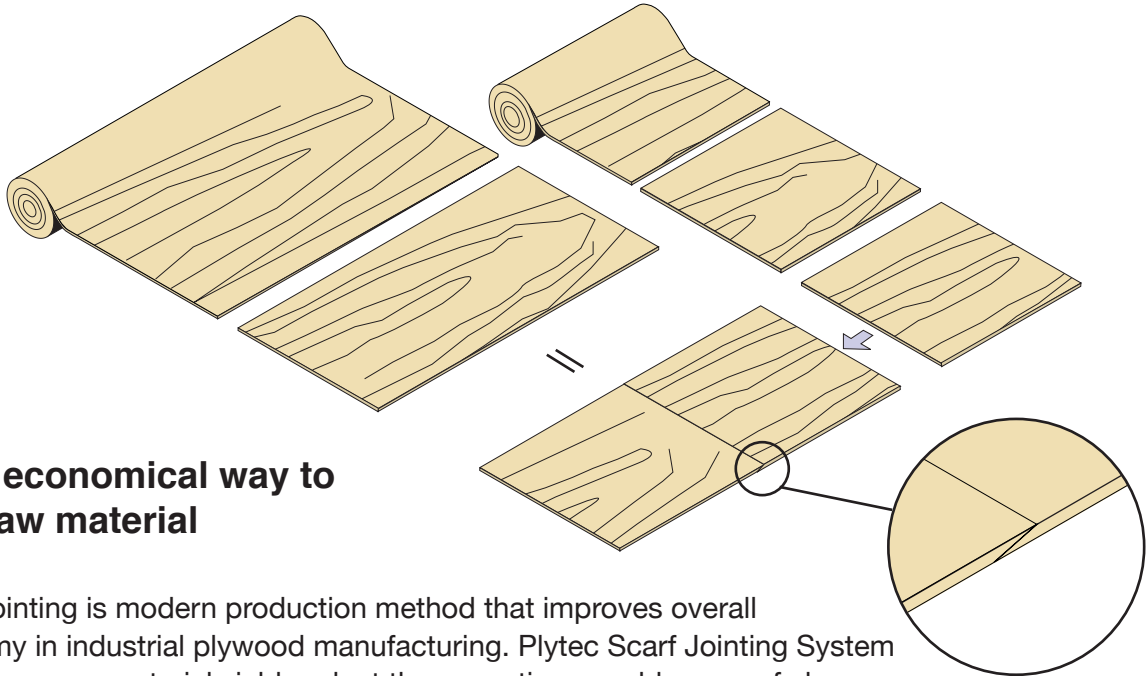
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1. Why scarf jointing?

Scarf jointed veneer is as strong as long grain veneer.



Most economical way to use raw material

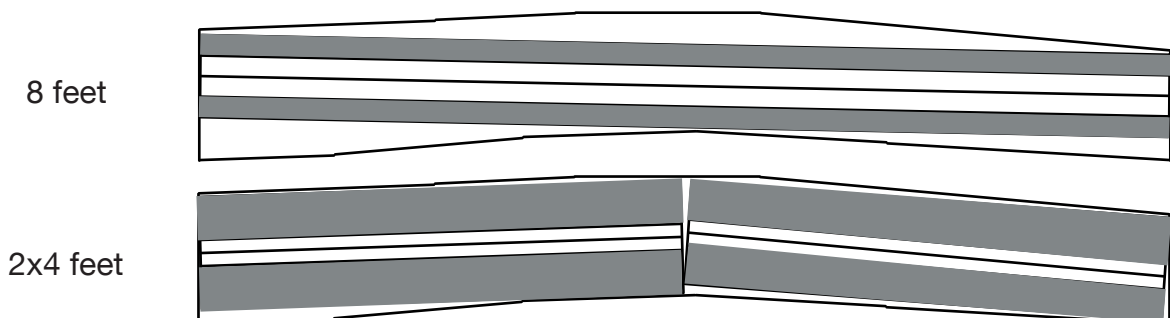
Scarf jointing is modern production method that improves overall economy in industrial plywood manufacturing. Plytec Scarf Jointing System maximizes raw material yield and, at the same time, enables use of cheaper raw material. Positive effects are enhanced further as scarf jointing makes it easier to manage varying production mix and special orders.

Plytec Scarf Jointing System pays itself back very fast.

Increase Peeling Recovery

Nowadays the availability of large diameter logs is limited and prices are high. Only a few, specialized mills are able to purchase that raw material in high enough quantities or at an affordable price. This situation is most probably permanent.

Smaller diameter logs are readily available, and at way more reasonable prices. However, the shape is normally far from cylindrical which will then reduce recovery in peeling. When peeling such shorter length logs the recovery will be better. Round up and core losses will be less. In many cases the recovery can be 20% better.



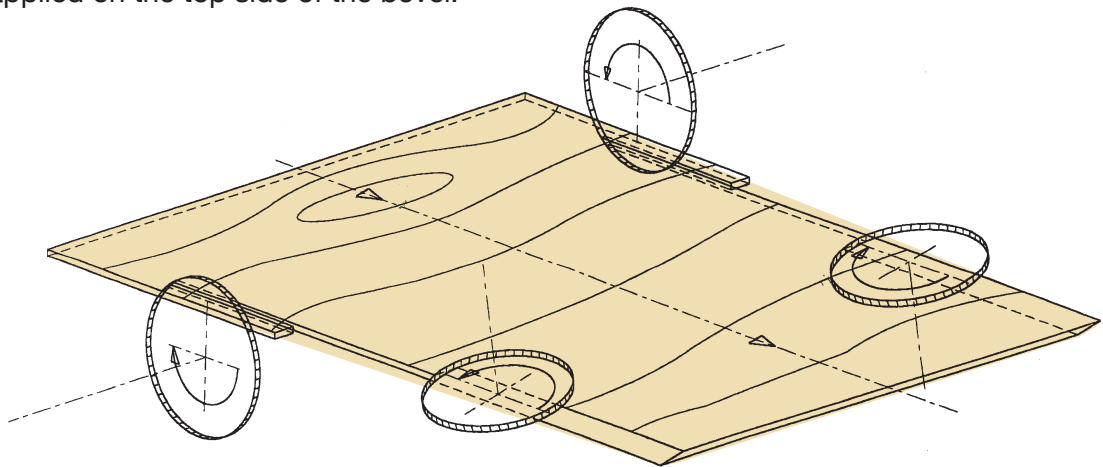
2. What happens in scarf jointing?

So simple but so sophisticated

Short veneer sheets are jointed together in a veneer grain direction to form veneer sheets of required length for plywood lay up line.

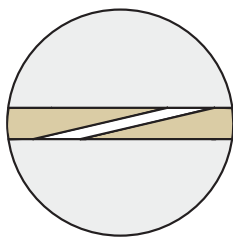
Good scarf

- Both ends of the veneer sheet are bevelled by scarfing saw. One bevel on the top surface and other on the bottom surface.
- Glue is applied on the top side of the bevel.

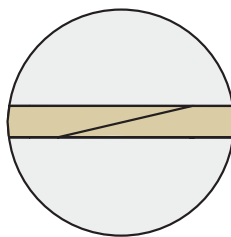


Exact positioning is crucial to make a perfect joint

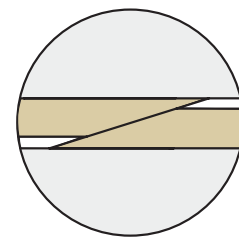
- Bevelled and glued edges are pressed together under controlled pressure and temperature.
- Gluing press produces an endless veneer mat parallel to veneer grain direction, which is clipped into required sheet length.



Insufficient positioning
No pressure in the joint



Excellent positioning
Full even pressure in the joint



Overlap thickness variation



Same composed veneer to short and long core

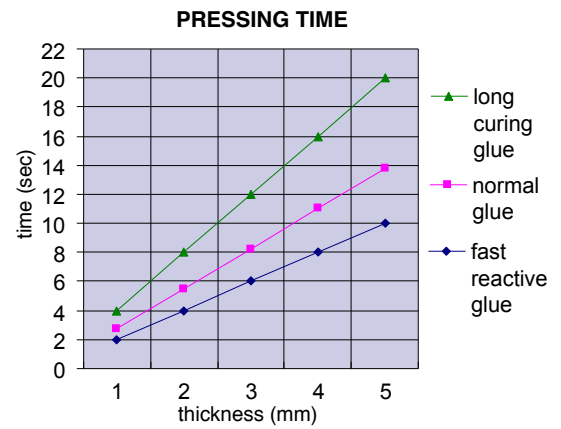
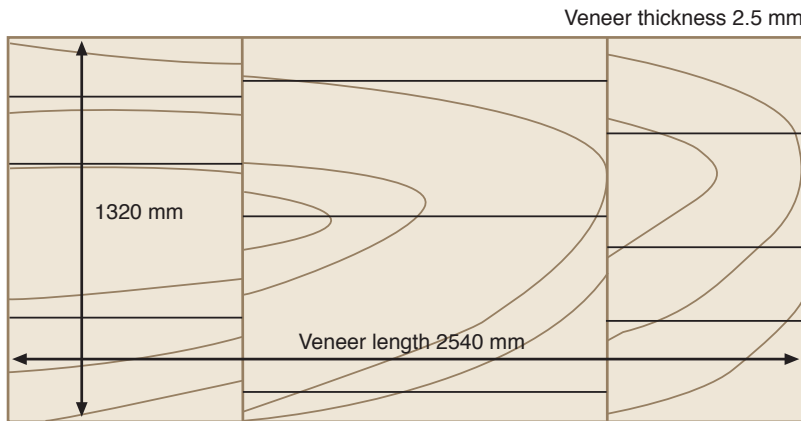
Scarf jointing simplifies the production management in mills that produce thick plywood and require long core veneer. Composed core veneer is simply lengthened to long core and various plywood sizes can be produced using short core veneer. Extra savings are found in production and capacity management where increased flexibility provides more room for optimized scheduling. And finally, no long core composer is needed.

Usage of cheaper rawmaterial

Long grain veneer is more expensive, and the price difference can easily be up to 40-50 € per cubic meter. With the production rate of one scarfer and four jointing presses, the annual savings can go up to 1 million €, which pays the investment back in a short time frame.



3. Savings in Veneer Scarf Jointing



Example of raw material savings with Scarf Jointing System			Your calculation:		
Long Veneer Sheet length	2540	mm	_____	mm	
Sheet width	1320	mm	_____	mm	
Veneer thickness	2,5	mm	_____	mm	
Short Veneer Sheet length	1320	mm	_____	mm	
Sheet width	1320	mm	_____	mm	
Veneer thickness	2,5	mm	_____	mm	
Add Scarfjointing System					
Pressing time:	10	sec	_____	sec	
Cycle time: 10 sec+ 5 sec =	15	sec	_____	sec	
Joints/hour = 0,75* 3600 / 15 =	180	pcs./hour	_____	pcs./hour	
Capacity cub.m./hour			_____		
1,32 x 1,32 x 0,0025 x 180 =			_____		=
	0,8	cub.m./hour	_____	cub.m./hour	
Annual working hours:	22	working hours/day	_____	working hours/day	
	300	working days/year	_____	working days/year	
The saving in raw material price after scarf jointing					
lower quality veneer					
Number of presses:	2	pcs.	_____	pcs.	
Cub.m. basis:					
Long grain veneer	190 €	/cub.m.	_____	€/cub.m.	
Short grain veneer	150 €	/cub.m.	_____	€/cub.m.	
Price difference	40 €	/cub.m.	_____	€/cub.m.	
Saving:					
0.8 x 22 x 300 x 2 x 40 €			_____		=
	= 413 994 €	/annum	_____	€/annum	

4. Scarf Jointing Benefits



Easier production mix and special orders

Plytec Scarf Jointing System simplifies the production management. Long veneer sheets are produced for plywood assembly through scarf jointing. Log and peeling departments feed the factory process with only one or two block and veneer lengths, e.g. four and five feet. Scarf Jointing System ensures that exactly the right veneer lengths and amounts of long grain veneer are put into gluing department. In this setup short grain veneer sheets are produced straight in clipping and/or in composing lines.

Special customer sizes panels can be produced with more flexible scheduling. This is achieved easily, because gluing and pressing receive veneer directly from scarf jointing instead of having to wait veneer all the way from log cutting and peeling.

No limitations in plywood lay up

Scarf jointed surface can be overlaid with thin decorative films as well as sound veneer. Even the strength of a scarf jointed veneer approaches that of a sound veneer. Thus, there are no technical limitations for the use of a scarf jointed veneer within plywood lay up.

For short grain faced plywood production, scarf jointed sheets are typically used as a long grain glue veneers. In long grain panels they fit perfectly into core and often for the face or back veneers. With many technical plywood panels there are not any visual requirements for the face and then scarf jointed surfaces are accepted without doubt. Scarf jointed veneer can be placed as a dry core veneer and goes fine as a full long grain veneer.

5. Reference list

Customer	Year
Finnforest Oy, Punkaharju, Finland	1988
Isku Oy, Lahti, Finland	1988
Schauman Wood Oy, Savonlinna, Finland	1989
Schauman Wood Oy, Joensuu, Finland	1989
Finnforest Oy, Hämeenlinna, Finland	1990
Schauman Wood Oy, Kaukas, Finland	1991
Finnforest Oy, Punkaharju, Finland	1991
Koskisen Oy, Järvelä, Finland	1992
Schauman Wood Oy, Viipurin vaneri, Finland	1992
Schauman Wood Oy, Kaukas, Finland	1995
Manuply Wood Industries (S) Sdn Bhd, Sarawak, Malaysia	1996
Subur Tiasa, Sibul, Malaysia	1997
Koskisen Oy, Järvelä, Finland	1997
Bomasil S.A., Chile	1998
Eucalipto de Pontavedra, Spain	2000
PT. Nusantara Plywood, Indonesia	2000
"OOO Fanernyj Zavod", Zheshart, Russia	2000
Schauman Wood Oy, Jyväskylä	2001
Finnforest Oy, Punkaharju	2001
A/S Latvijas Finieris, Latvia	2002
"OOO Fanernyj Zavod", Zheshart, Russia	2002
Industria de Compensados Guararapes Ltda., Brazil	2002
FF-Baco Production, Romania	2002
Finnforest Oy, Punkaharju, Finland	2003
S.C. Romply Production s.r.l, Romania	2003
Fabryka Sklejka-Pisz S.A, Poland	2003
E. Vigolungo S.P.A, Italy	2004
P.T. Rimba Raya Lestari, Indonesia	2004
Odek, Ukraine	2004
UPM Wood Pellos, Finland	2005
Koskisen Oy, Finland	2005
Odek, Ukraine	2005
PT Rimba Raya Lestari, Indonesia	2005
Montanari SpA., Italy	2005
Industria de Compensados Guararapes Ltda., Brazil	2005
Paged Sklejka S.A., Poland	2006
Invernizzi srl, Italy	2006
Paged Sklejka S.A., Poland	2006
Demidovo Plywood, Russia	2006
UPG Zheshart, Russia	2006
Sklejka Pisz S.A., Poland	2007
Demidovo Plywood Mill, Russia	2007
Koskisen Oy, Finland	2007
Ural Plywood, Russia	2007
Parfino Plywood Factory, Russia	2007
Garnica Plywood, Spain	2009

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6. Plytec Contact Information

Plytec Oy

Laakerikatu 14,
FIN-15700 Lahti, Finland
Tel: +358 3 877 340
Fax: +358 3 877 3410
E-mail: plytec@plytec.fi
www.plytec.fi

Plytec Far East Pte.Ltd.

Block 620, #12-32
Choa Chu Kang St 62
Singapore 680620
Tel: +65 6468 3009
Fax: +65 6468 7870
E-mail: plytecfes@singnet.com.sg

Representatives

Orion Ltda.

Rua Milano 180
Curitiba
PR –BRAZIL
Tel: +55-41-2721154
Fax: +55-41-3723052
E-mail: orionexp@avalon.sul.com.br

Ing.Firma Veijo Turunen

Bergstrasse 3B
D-99706 Sondershausen
GERMANY
Tel: +49 172 3607963
Fax: +49 3632 700614
E-mail: VeijoTru@aol.com

Maga Ltda.

Av.Apoquindo 5608 Of.11
Los Condes
Santiago
CHILE
Tel: +56-2-2024417
Fax: +56-2-2024416
E-mail: informacion@maga.cl

Elliott Bay Industries

7500 West Marginal Way South
Seattle
Washington 98108
USA
Tel: +1 206 762 6560
Fax: +1 206 762 9272
E-mail: sales@ellbay.com

Yu Mok Company Ltd.

Room 532, Life Officetel, 61-3
Youido-dong, Youngdeungpo-gu
Seoul 150-731
SOUTH KOREA
Tel: +82-2-761 2464
Fax: +82-2-761 2522
E-mail: yumokltd@kornet.net

ZAO Fantec

PO Box 198
191123 St. Petersburg
RUSSIA
Tel: +7 812 708 8256
Fax: +7 812 708 7469
E-mail: fantec@fantec.ru

Bestwood srl

Via S.Giorgio, 12
I - 20059 Vimercate
ITALY
Tel: +39 039 669962
Fax: +39 039 6388889
email: bestwood@virgilio.it

www.plytec.fi