Patchmaster

Veneer Patching System

Plytec System Presentation

2009 Edition

Dynamic Veneer Technology

PLYTEC

Dear Colleague,

Plywood industry faces more challenges in this decade than it has encountered during its whole previous history. There is an increasing competition from other wood based panels, such as OSB. At the same time, end users place higher requirements on product quality, while our raw material is getting smaller in diameter and an increasing amount of wood is cultivated. The dynamics of the industry is changing.

At Plytec, we follow the development in technology and plywood market. We believe that the future of plywood lies in high quality products and capability to meet customer requirements -- even if raw material makes that more difficult than in the past. Plytec's mission is to provide advanced technology that enhances your competitiveness today and in the future.

Our staff's average career in plywood industry exceeds twenty years. In short, Plytec is a company of real plywood people. We concentrate into the plywood industry and develop our products in cooperation with the most advanced companies of the industry. After all, the only thing that really matters to us is the continuity of plywood industry.

Dynamic Veneer Technology for dynamic plywood industry. That is our goal.

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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The importance of veneer patching

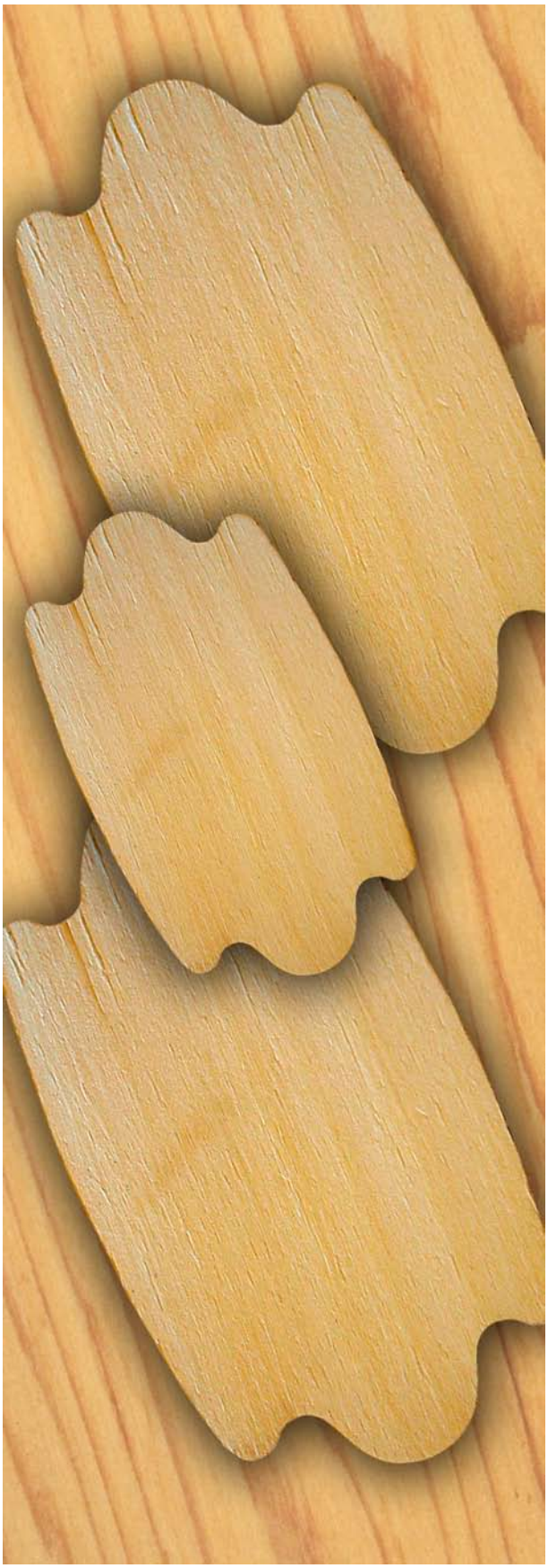
The main idea in veneer patching is to upgrade veneer quality by replacing defected areas with good quality veneer. When this is made by machine, the result is a combination of perfect quality and higher yield and capacity. Neither hard wood nor thick veneers generate any problems.

Remarkable savings compared to composing

Nowadays plywood mills have veneer composers which clip away defects in veneers and then joint thus borne joint pieces again into full veneer sheets by the aid of glue string and glue taps. With this kind of an operation, also a lot of good quality veneer on both sides of the defect will be clipped away and thrown into the boiler. But instead of composing, if suitable portion of these veneers will be repaired by patching, a lot of good quality veneer can be saved. So the raw material saving is a key aspect when talking about veneer patching.

Thick and difficult species

Let's think for example rubber wood veneer, which normally has a lot of bad quality knots and holes. Repairing rubber wood is easy with patching machine. So veneer patching with machine is very essential and an easy way to increase both veneer quality and yield. Today plywood mills have to accept also other similar lower quality wood species, where same kind of problems can be found.



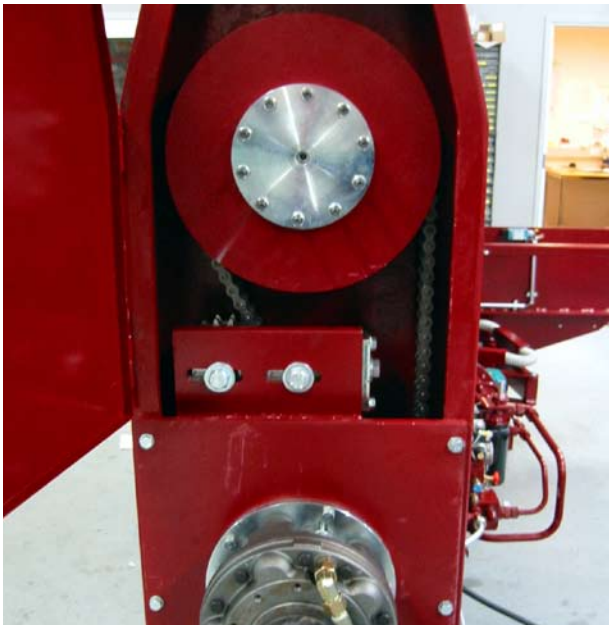
Core veneer patching is important also for further processing of plywood

One very important end user group for veneer patching are such plywood mills who produce panels for phenol film overlaying. Those mills have to pay a lot of attention also to the quality of core veneers.
The overlay pressing process is very sensitive for open defects in core veneers, even small diameter, say 10-20 mm open holes in core veneers can be seen as a grey spot on the overlaid surface. This grey spot is a consequence of delamination of the overlay material and the basic panel caused by the open defect in the core.

Huge income when upgrading veneer quality

Plywood price depends dramatically on the quality of the face veneer. In certain cases lower quality veneer can be upgraded by patching. The technical qualities of patched face is as good as the sound veneer. It can be painted and overlaid with very thin phenol films to say nothing of thick decorative papers or sliced veneers.

Plytec Patchmaster PM 100 Veneer Patching System



Technical Features

- Strong and heavy construction guarantees an accurate operation
- Almost maintenance free hydraulic drive solution
- Very strong and rigid cast iron construction and newly designed dies enable patching large defects

User friendliness

- Operated by foot pedal
- Equipped with a spot light to illuminate veneer surface
- Air blow to remove the defect from the machine
- Clear control panel

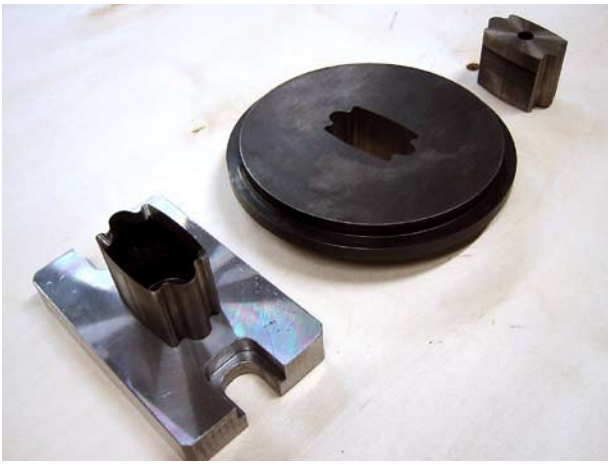
Advantages for user

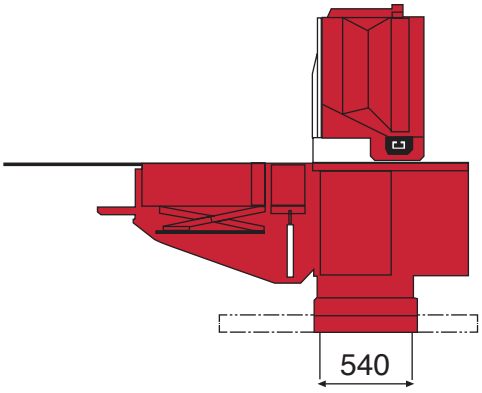
- Automatic strip feeding device allows a continuous feeding for the patch veneer strips from an inbuilt strip magazine
- Possibility for large size patches
- Patch and operating hours counter

Standard butterfly patch sizes

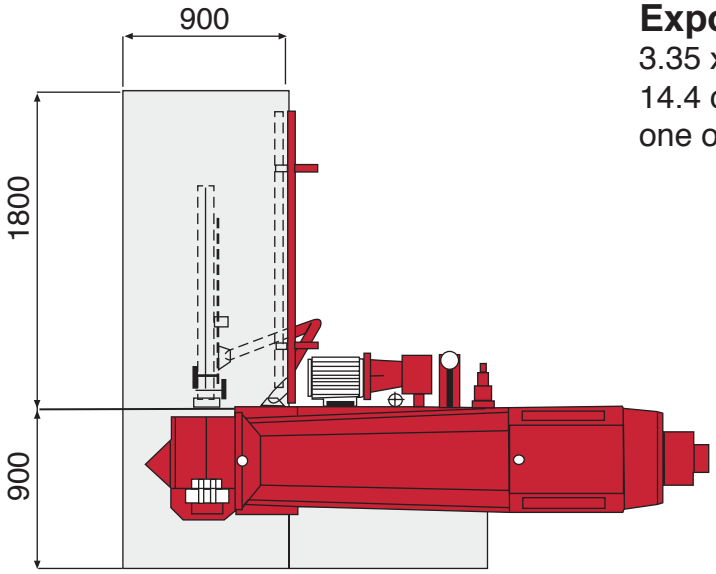
40x70 mm
60x100 mm
80x120 mm
100x140 mm

Other shapes available as agreed



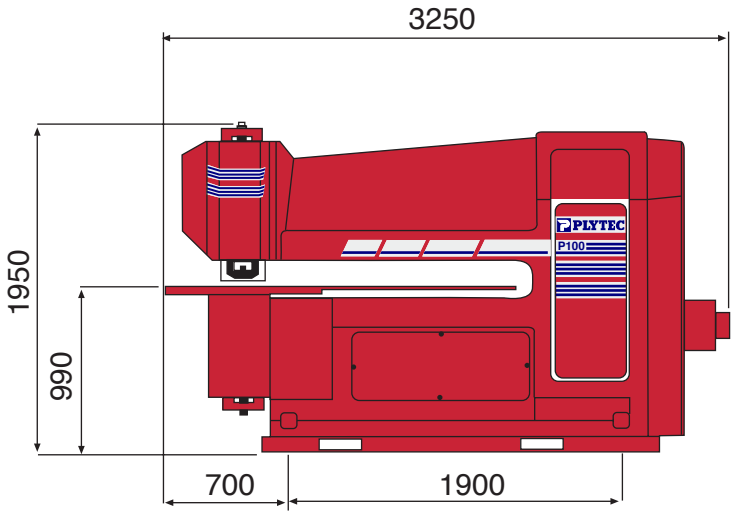


Maximum working depth	1650 mm
Veneer thickness range	1,0-4,5 mm
Patching strip width	55-115 mm
Maximum tool stroke rate	60 per minute
Table height	990 mm
Pneumatic air pressure	0,6 Mpa
Pneumatic air consumption	6 Nm3/h
Rated power	7,5 kW



Export package

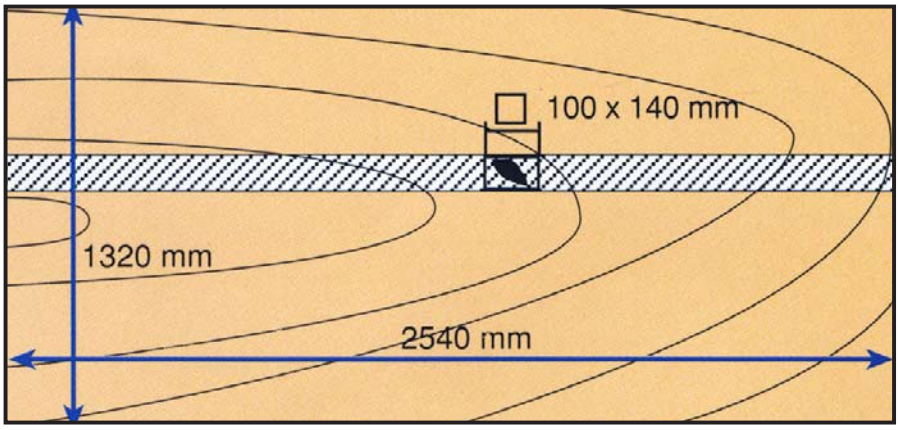
3.35 x 2.05 x 2.10 m
14.4 cubic meters
one or two units in 20ft dry cargo container



Machine dimensions:

Length.....3250 mm
Width .....2700 mm
Height .....1950 mm
Weight .....4500 kg

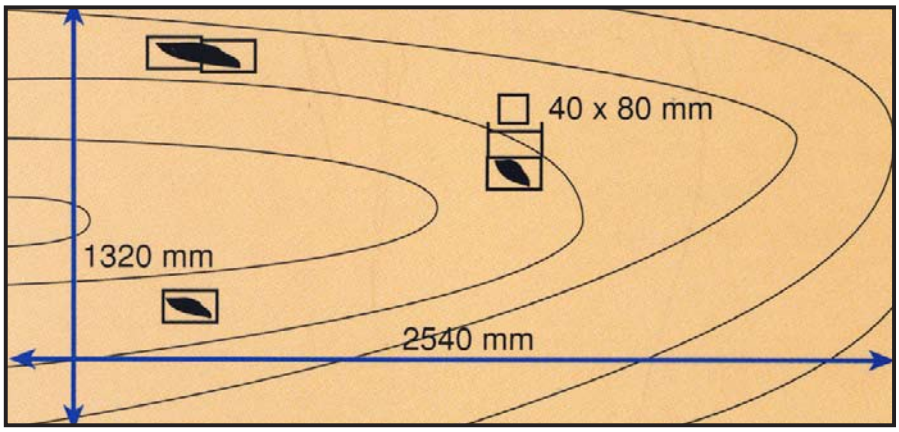
3. Core Veneer Patching



Marked area = 7% of the total area. Veneer Thickness 2,5 mm.

Example of raw material savings with Patchmaster System		**Your calculation**	
Sheet length	2540 mm		mm
Sheet width	1320 mm		mm
Veneer thickness	2,5 mm		mm
One clip causes average (2540-140) x 100 / 2540 / 1320 x 100%			
=	7 % loss of good veneer		%
Add one Patchmaster PM100			
Patchmaster handles avg.	120 sheets/hour		sheets/hour
	with 4 patches/sheet		patches/sheet
4 defects/sheet			defects/sheet
22 working hours/day			working hours/day
300 working days/year			working days/year
The value of recovered veneer with Patchmaster system in one year			
Cub.m.basis:			
Average value of veneer	125 € /cub.m.		€ /cub.m.
4 x 0,07 x 2,54 x1,32 x 0,0025 x 120 x 125€ x 22 x 300			=
	= 232 349 €/annum		**€/annum**
Sheet value basis:			
Average value of veneer	1 € /sheet		€ /sheet
4 x 0,07 x 120 x 1€ x 22 x 300			=
	= 221 760 € /annum		**€/annum**

4. Face Veneer Patching



Veneer Thickness 1,5 mm.

Example of added value of veneer with Patchmaster System		**Your calculation**	
Sheet length	2540 mm		mm
Sheet width	1320 mm		mm
Veneer thickness	1,5 mm		mm
Add one Patchmaster PM100			
Patchmaster handles avg.	100 sheets/hour		sheets/hour
with	8 patches/sheet		patches/sheet
Capacity cub.m/hour			
1,32 x 2,54 x 0,0015 x 100 =			=
	0,50 cub.m./hour		cub.m./hour
22 working hours/day			working hours/day
300 working days/year			working days/year
The added veneer value after upgrading lower quality veneer into face veneer quality with Patchmaster system in one year			
Cub.m. basis:			
Birch plywood mill			
Grade III (BB) Face	370 € /cub.m.		€/cub.m.
Core grade	300 € /cub.m.		€ /cub.m.
Price difference	70 € /cub.m.		€ /cub.m.
0,5 x 70€ x 22 x 300 =			=
	232 349 € /annum		**€/annum**
Sheet value basis:			
Grade III (BB) Face	2,4 € /sheet		€/sheet
Core grade	2,0 € /sheet		€/sheet
Price difference	0,4 € /sheet		€/sheet
100 x 0,4 € x 22 x 300 =			=
	264 000 € /annum		**€/annum**

5. Reference list

PATCHING MACHINE PM 100

Customer	Year		Model
Sandakan Plywood, Sandakan, Malaysia	1993	1	(PM 100)
Lignum Product, Hodonin, Czech Republic	1995	1	(PM 100)
Mondi Plywood, South Africa	1995	2	(PM 100)
Ledder Werkstätte, Germany	1995	2	(SM 100)
Subur Tiasa Plw, Sibu, Malaysia	1995	1	(PM 100)
Wijaya Tri Utama, Banjarmasin, Indonesia	1995	1	(PM 100)
Yord Chaiyapruck, Bangkok, Thailand	1996	1	(PM 100)
RGM Panel, Medan, Indonesia	1996	1	(PM 100)
Jaya Tiasa, Sibu, Malaysia	1996	2	(PM 100)
P.T.Nusantara, Surabaya, Indonesia	1997	1	(PM 100)
Jaya Tiasa , Sibu, Malaysia	1997	4	(PM 100)
Shin Yang Plywood, Miri, Malaysia	1997	1	(PM 100)
Fortune Timber CO.Ltd (TaFu)Tianjin,China	1997	1	(PM 100)
Wijaya Tri Utama, Banjarmasin, Indonesia	1998	1	(PM 100)
Sumbermash, Surabaya, Indonesia	1999	1	(PM 100)
Sunchang Corporation, South Korea	1999	1	(PM 100)
Big River Timbers, Australia	1999	1	(PM 100)
Paneles Arauco, Chile	2000	1	(PM 100)
Penglai Global Timber Co., China	2000	1	(PM 100)
Paneles Arauco, Chile	2001	2	(PM 100)
PT Central Karda, Indonesia	2001	1	(PM 100)
PT Korindo Ariabima Sari, Indonesia	2001	1	(PM 100)
PT Kutai Timber, Indonesia	2001	1	(PM 100)
Wempco Group, Nigeria	2001	1	(PM 100)
Paneles Arauco, Chile	2001	1	(PM 100)
PT Kutai Timber, Indonesia	2002	1	(PM 100)
Maderas de Llodio, Spain	2002	2	(PM 100)
Latvijas Finieris, Latvia	2002	1	(PM 100)
Pt Tjipta Rimba Djaja, Medan, Indonesia	2003	1	(PM 100)
Forestal Lautaro, Chile	2004	1	(PM 100)
Paneles Arauco, Chile	2004	3	(PM 100)
P.T. Rimba Raya Lestari, Indonesia	2004	1	(PM 100)
P.T. Kayan River Indah Plywood, Indonesia	2004	1	(PM 100)
Ploma A.S., Czech Republic	2004	2	(PM 100)
Guararapes Plywood, Brazil	2005	2	(PM 100)
Sudati Plywood, Brazil	2005	2	(PM 100)
Paneles Santa Elena, Chile	2006	2	(PM 100)
Paneles Arauco, Chile	2007	3	(PM 50S)
Sudati Plywood, Brazil	2007	2	(PM 50S)
Guararapes Plywood, Brazil	2007	1	(PM50S)
Conguasul Ltda., Brazil	2007	1	(PM50S)
Kurogullari A.S., Turkey	2007	1	(PM50S)
Sudati Plywood, Brazil	2008	2	(PM50S)
Sudati Plywood, Brazil	2008	2	(PM80S)
Repinho Ltda., Brazil	2008	2	(PM50S)
Fuck S.A., Brazil	2008	1	(PM100)
Biele S.A., Spain	2009	2	(PM80S)
Total		**68**	

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