



TRANSFORMERBOARD
CELLULOSIC INSULATION
OF UNSURPASSED QUALITY

WEIDMANN



SCOPE

Transformerboard, a high-quality insulating pressboard made from cellulose, has achieved worldwide use for transformer insulation. The name Transformerboard was coined by WEIDMANN and has now become general term for cellulose insulation of unsurpassed quality. In this brochure, all relevant characteristic data regarding the entire range of Transformerboard types are summarized. It is intended to serve as a helpful guide to your transformer insulation design.

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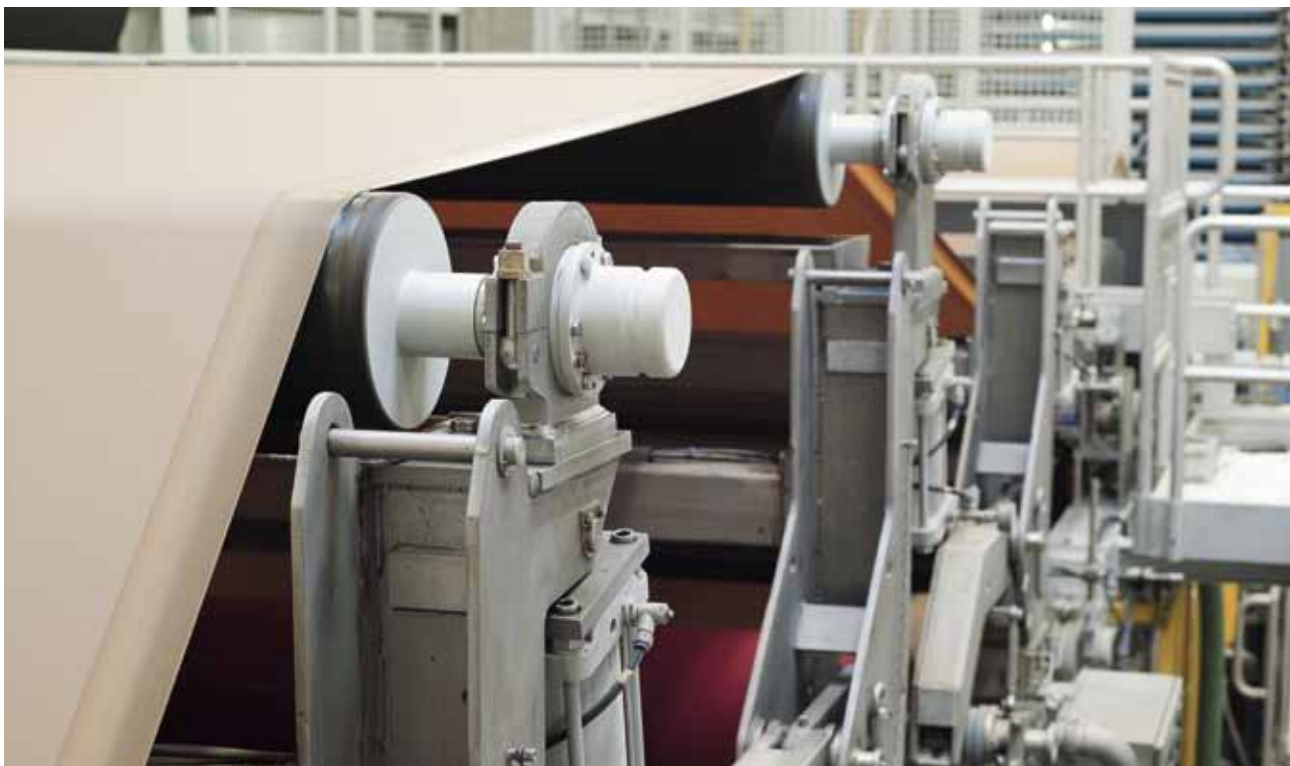
WEIDMANN KNOW-HOW

EXCELLENCE IN QUALITY AND SERVICES

“Made by WEIDMANN” means top quality – there is no compromise on that. WEIDMANN meets all international standards. WEIDMANN ensures superior quality control along the entire supply chain. WEIDMANN Transformerboard is your assurance for consistent, impeccable quality. The quality system following ISO 9001:2000/EN 29001 and a manufac-

turing process with decisive know-how, continuously optimized over decades, guarantee the high quality of the products and services which WEIDMANN is more than happy to offer you at any time. Working with this high-value insulation material, you benefit from the entire savings potential of all optimizations without the risk involved in products that

have not been tested to the highest standards. WEIDMANN has been involved for decades in the design and optimization of insulation systems for high voltage transformers. The comprehensive knowledge and expertise of the WEIDMANN engineers supply the transformer industry with accurate and reliable information. Through design optimization by means of field



Detail of board machine, wet end

analysis and adequately reduced oil gaps, WEIDMANN can provide an insulation layout that offers reduction of clearances and elimination of critical stressed areas. The subdivision of long oil gaps with WEIDMANN Transformerboard barriers between HV and LV windings and in the winding end area increases the electrical strength of the oil. In comparison

to oil, Transformerboard has much higher specific electric strength. The oil is consequently the weak link in the Transformerboard/oil insulation system.



Detail of board machine, dry end

PRODUCT RANGE

SOLUTIONS TAILORED TO INDIVIDUAL NEEDS

Regardless for which kind of application you need a solution, WEIDMANN can help you to find the board that suits your needs best. At WEIDMANN, you can select from a broad variety of insulation boards. WEIDMANN cellulose based board is available in various densities and manufacturing methods – calendered, shapeable, hot-press dried or laminated struc-

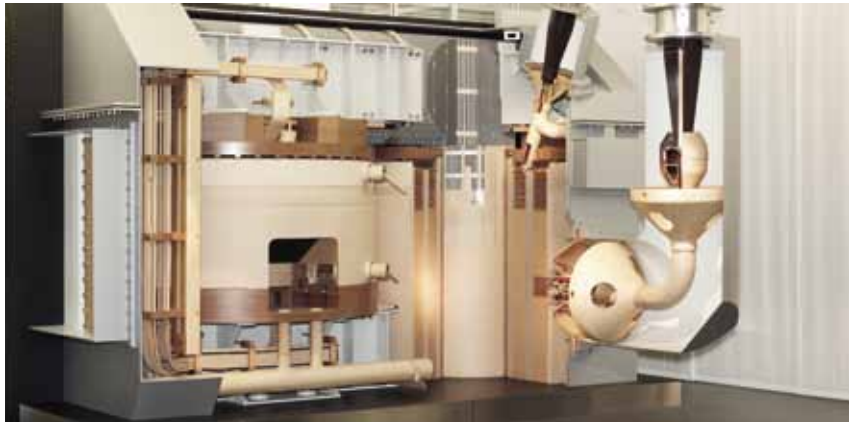
tures. WEIDMANN Transformerboard ensures long-term dimensional stability. All grades of Transformerboard are in temperature class 105 °C as per IEC 60085. The details contained in the data sheets represent measured values obtained from extensive test series in specially equipped state-of-the-art laboratories.

Transformerboard T I

Calendered	
IEC type:	B.2.1
IEC standard:	60641-3-1
Apparent density:	1.15 g/cm ³
Thickness:	0.2 – 3.0 mm
Moisture content:	≤ 8%
Surface:	Light wire marks, smooth and calendered
Raw material:	Unbleached kraft pulp
Production steps:	Stock preparation, sheet forming, wet multiplying, cold pressing, hot air drying, densifying, cutting
Application:	Curved pieces like cylinders with small diameters, punchings, stamped insulation components

Transformerboard T III

Shapeable	
IEC type:	B.4.1
IEC standard:	60641-3-1
Apparent density:	0.90 g/cm ³
Thickness:	0.5 – 3.0 mm
Moisture content:	≤ 8%
Surface:	Light wire marks, uncalendered
Raw material:	Unbleached kraft pulp
Production steps:	Stock preparation, sheet forming, wet multiplying, cold pressing, hot air drying, cutting
Application:	Extremely curved pieces like tubes and folded insulation components



Power transformer model

Transformerboard T IV

Precompressed / Hot-Press Dried	
IEC type:	B.3.1 A
IEC standard:	60641-3-1
Apparent density:	1.20 g/cm ³
Thickness:	1.0 – 8.0 mm
Moisture content:	≤ 6%
Surface:	Wire marks, uncalendered
Raw material:	Unbleached kraft pulp
Production steps:	Stock preparation, sheet forming, wet multiplying, drying by hot pressing, cutting
Application:	Strips, spacers, cylinders, plates, supports
Special:	Material free of strains, very flat, highest mechanical and electrical strength

Transformerboard T IV laminated

Laminated		
IEC type:	LB 3.1A.1 (casein)	LB 3.1A.2 (non-aqueous)
IEC standard:	60763-3-1	60763-3-1
Apparent density:	1.24 g/cm ³	1.30 g/cm ³
Thickness:	9.0 – 30.0 mm	9.0 – 200.0 mm
Adhesive types:	Casein glue	Polyester resin
Moisture content:	≤ 8%	≤ 6%
Surface:	Wire marks, uncalendered	
Production steps:	Stock preparation, sheet forming, wet multiplying, drying by hot pressing, laminating, cutting	
Application:	Pressure rings, static rings, beams, clamping plates, strips	

Pressboard TD12

Calendered	
IEC type:	none
IEC standard:	none
Apparent density:	Approx. 1.15 g/cm ³
Thickness:	0.5 – 3.0 mm
Moisture content:	≤ 8%
Surface:	Smooth and calendered
Raw material:	Unbleached kraft pulp
Production steps:	Stock preparation, sheet forming, wet multiplying, cold pressing, hot air drying, densifying, cutting
Application:	Fair elongation, good pliability. For less demanding applications like punching and embossing parts. Used in distribution transformers.

TRANSFORMERBOARD T I – CALENDERED FOR CURVED INSULATION COMPONENTS

Typical applications of Transformerboard T I are curved components like cylinders with small diameters, punchings, stamped pieces and machine-formed parts in power, distribution and special transformers. Transformerboard T I is calendered pressboard. Basis of calendered board is unbleached kraft pulp along with pure water. The special properties of calendered board

are produced on a board machine with a hot-air-dryer and sequencing calender. The whole manufacturing process chain from preparation of the pulp, forming and drying of the sheet material is monitored and controlled by modern process control systems. The development and in-line installation of a highly sensitive metal detector guarantees board free from metallic particles.

TECHNICAL DATA

The technical data reflect typical results of routine tests performed in WEIDMANN laboratories according to IEC standards 60641-2 and 60243-1. These typical values do not constitute specifications of WEIDMANN products.



Cylinders

Thickness	Master size	Standard size	Tolerance (thickness %)	Norm
0.2 mm	2250 x 1130 mm	2250 x 1130 mm	± 10	IEC 60641-3-2, type P.4.1 A
0.3 mm		1130 x 1125 mm	± 10	
0.4 mm		1130 x 750 mm	± 10	
0.5 mm		2250 x 1040 mm	± 7.5	
0.6 mm	1125 x 1040 mm	± 7.5		
0.7 mm	1040 x 750 mm	± 7.5		
0.8 mm		± 7.5		
0.9 mm		± 7.5		
1.0 mm		± 7.5	IEC 60641-3-1, type B.2.1 A	
1.5 mm		± 7.5		
2.0 mm	4200 x 2250 mm	4200 x 2250 mm	± 5	
2.5 mm		3150 x 2250 mm*	± 5	
3.0 mm		2250 x 2100 mm	± 5	
		2250 x 1040 mm		
		1125 x 1040 mm		
		1040 x 750 mm		

*Off-cuts must be considered

Sheet size tolerances: ± 50 mm

Special tolerances and negative tolerances available on request for order quantities exceeding 5 tons per thickness

Property	Unit	Range of thickness (mm)	Value
Apparent density	g/cm ³	≤ 1.6	1.2
		> 1.6 – 3.0	1.1
Tensile strength, machine direction	MPa	≤ 1.6	105
		> 1.6 – 3.0	97
Tensile strength, cross machine direction	MPa	≤ 1.6	76
		> 1.6 – 3.0	72
Elongation, machine direction	%	0.2 – 3.0	7.5
Elongation, cross machine direction	%	0.2 – 3.0	8.5
Ply adhesion	N/30 mm	0.2 – 3.0	340
Moisture content	%	0.2 – 3.0	≤ 8.0
Ash content	%	0.2 – 3.0	0.3
Shrinkage, thickness	%	0.2 – 3.0	4.1
Shrinkage, machine direction	%	0.2 – 3.0	0.7
Shrinkage, cross machine direction	%	0.2 – 3.0	0.9
Conductivity of aqueous extract	mS/m	0.2 – 3.0	2.3
pH of aqueous extract	–	0.2 – 3.0	7.0
Oil absorption	%	≤ 1.6	14
		> 1.6 – 3.0	22
Electrical strength in oil	kV/mm	≤ 1.6	56
		> 1.6	43

TRANSFORMERBOARD T III – SHAPEABLE FOR HIGHLY BENDED INSULATION COMPONENTS

Typical applications of Transformerboard T III are tightly curved pieces like tubes and folded pieces in power, distribution and special transformers. Transformerboard T III is shapeable pressboard. Unbleached kraft paper grade pulp along with pure water constitutes the basis of Transformerboard T III. The special properties of shapeable board are produced on a board machine with a hot-air-dryer

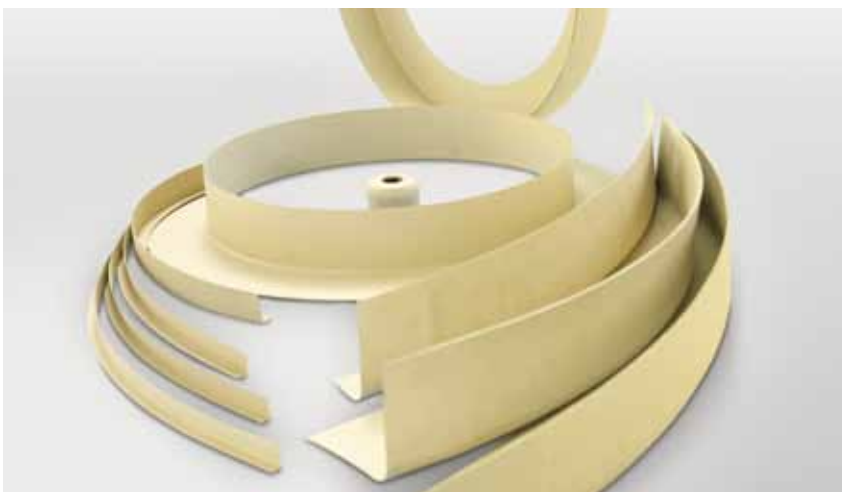
and sequencing calender. The whole manufacturing process chain from preparation of the pulp, forming and drying of the sheet material is monitored and controlled by modern process control systems. The development and in-line installation of a highly sensitive metal detector guarantees board free from metallic particles.

TECHNICAL DATA

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Sheet handling section



Angle rings, caps and edge protections

Thickness	Master size	Standard size	Tolerance (thickness %)	Norm
0.5 mm	2250 x 1040 mm	1125 x 1040 mm	± 10	IEC 60641-3-2, type P 5.1
0.8 mm		1040 x 750 mm	± 7.5	IEC 60641-3-1, type B 4.1
1.0 mm	4200 x 2250 mm	3150 x 2250 mm	± 7.5	
1.5 mm		2250 x 2100 mm	± 7.5	
2.0 mm		2250 x 1040 mm	± 5	
2.5 mm		1125 x 1040 mm	± 5	
3.0 mm		1040 x 750 mm	± 5	

Sheet size tolerances: ± 50 mm

Special tolerances and negative tolerances available on request for order quantities exceeding 5 tons per thickness

Property	Unit	Range of thickness (mm)	Value
Apparent density	g/cm ³	0.5 – 3.0	0.9
Tensile strength, machine direction	MPa	0.5 – 3.0	76
Tensile strength, cross machine direction	MPa	0.5 – 3.0	57
Elongation, machine direction	%	0.5 – 3.0	7.7
Elongation, cross machine direction	%	0.5 – 3.0	8.8
Ply adhesion	N/30 mm	0.5 – 3.0	370
Moisture content	%	0.5 – 3.0	≤ 8.0
Ash content	%	0.5 – 3.0	0.3
Shrinkage, thickness	%	0.5 – 3.0	3.6
Shrinkage, machine direction	%	0.5 – 3.0	0.7
Shrinkage, cross machine direction	%	0.5 – 3.0	0.9
Conductivity of aqueous extract	mS/m	0.5 – 3.0	2.3
pH of aqueous extract	–	0.5 – 3.0	7.0
Oil absorption	%	0.5 – 3.0	30
Electrical strength in oil	kV/mm	≤ 1.6	46
		> 1.6	37

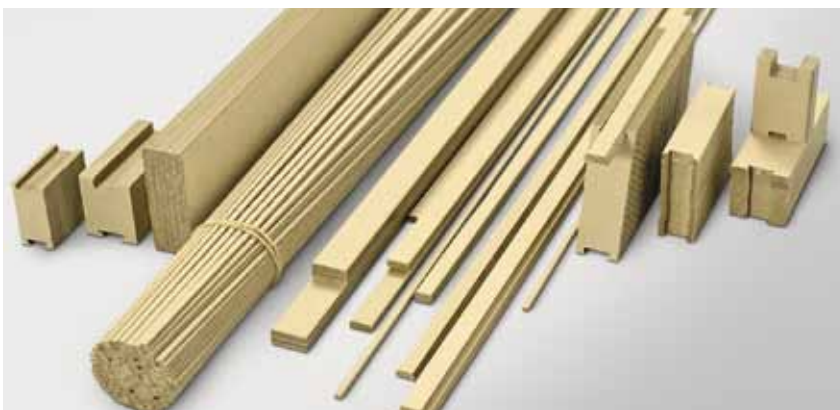
TRANSFORMERBOARD T IV – PRECOMPRESSED / HOT-PRESS DRIED DIMENSIONAL STABILITY AND HIGH COMPRESSIBILITY

Typical applications of Transformerboard T IV – hard and rigid material, which is a hot-press dried Transformerboard – are spacers, strips, cylinders, washers, plates and supports. Transformerboard T IV not only exhibits the highest mechanical and electrical strength, but also offers dimensional stability and low shrinkage. The unique properties are produced on a board machine with a special hot-press. The latest paper and fibre machine technology allows exact control of CMD and MD profiles in the wet end of the board machine. This ensures excellent flatness of the resulting

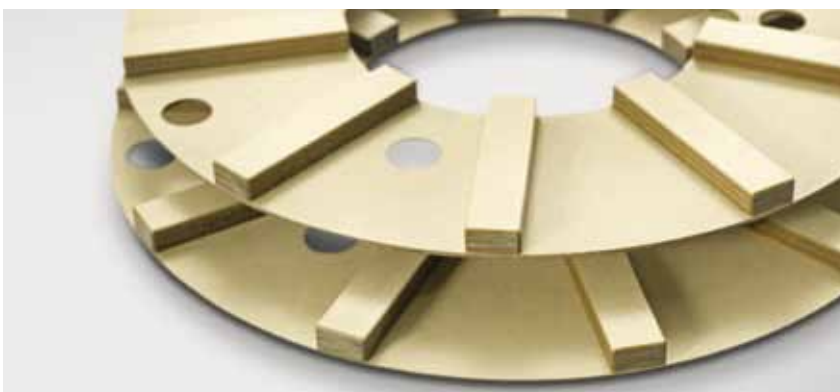
material. The whole manufacturing process chain from preparation of the pulp, forming and drying of the sheet material is monitored and controlled by modern process control systems. Transformerboard T IV can be shipped in a sheet size of up to 6300 x 3200 mm or, of course, in dimensions tailored to customer requirements. Basis of Transformerboard T IV is unbleached kraft pulp along with pure water. The development and in-line installation of a highly sensitive metal detector guarantees board free from metallic particles.

TECHNICAL DATA

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Strips and spacers



Washers with blocks

Thickness	Master size	Standard size	Special size	Tolerance (thickness %)	Norm
1.0 mm	6300 x 3200 mm	6300 x 3200 mm	6300 x 2100 mm*	± 7.5	IEC 60641-3-1, type B 3.1 A
1.5 mm		6300 x 1600 mm	6300 x 1065 mm	± 7.5	
2.0 mm		4200 x 3200 mm	4200 x 2100 mm*	± 5	
2.5 mm		4200 x 1600 mm	3200 x 1600 mm*	± 5	
3.0 mm		3200 x 3150 mm	1600 x 1400 mm	± 5	
4.0 mm		3200 x 2100 mm	1065 x 1400 mm	± 5	
5.0 mm		3150 x 1600 mm	1065 x 1050 mm	± 5	
6.0 mm		2100 x 1600 mm		± 5	
7.0 mm		2100 x 1065 mm		± 5	
8.0 mm				± 5	

* Off-cuts must be considered

Sheet size tolerances: ± 50 mm

Special tolerances and negative tolerances available on request for order quantities exceeding 5 tons per thickness

Special sizes on request only

Property	Unit	Range of thickness (mm)	Value
Apparent density	g/cm ³	≤ 1.6	1.1
		> 1.6 – 3.0	1.2
		> 3.0	1.2
Tensile strength, machine direction	MPa	≤ 1.6	114
		> 1.6 – 3.0	124
		> 3.0	134
Tensile strength, cross machine direction	MPa	≤ 1.6	86
		> 1.6 – 3.0	92
		> 3.0	102
Elongation, machine direction	%	1.0 – 8.0	3.9
Elongation, cross machine direction	%	1.0 – 8.0	4.6
Compressibility C	%	≤ 1.6	7.3
		> 1.6 – 3.0	4.8
		> 3.0 – 6.0	3.6
		> 6.0	3.3
Compressibility C _{rev}	%	≤ 1.6	53
		> 1.6 – 3.0	60
		> 3.0 – 6.0	72
		> 6.0	78
Ply adhesion	N/30 mm	1.0 – 8.0	320
Moisture content	%	1.0 – 8.0	≤ 6.0
Ash content	%	1.0 – 8.0	0.3
Shrinkage, thickness	%	1.0 – 8.0	4.4
Shrinkage, machine direction	%	1.0 – 8.0	0.4
Shrinkage, cross machine direction	%	1.0 – 8.0	0.5
Conductivity of aqueous extract	mS/m	≤ 1.6	1.8
		> 1.6 – 3.0	2.5
		> 3.0 – 6.0	5.0
		> 6.0	6.7
pH of aqueous extract	–	1.0 – 8.0	6.8
Oil absorption	%	1.0 – 8.0	13
Electrical strength in oil	kV/mm	≤ 1.6	53
		> 1.6	51

TRANSFORMERBOARD T IV – LAMINATED MATERIAL WITH GREATER THICKNESS

Transformerboard T IV, with greater thickness, is a laminated board. Typical applications of laminated Transformerboard T IV are pressure rings, static rings, beams, clamping plates and support strips etc. Laminating of Transformerboard T IV precompressed / hot-press dried will result in a higher thickness than 8.0 mm. The range of thickness of laminated Transformerboard T IV

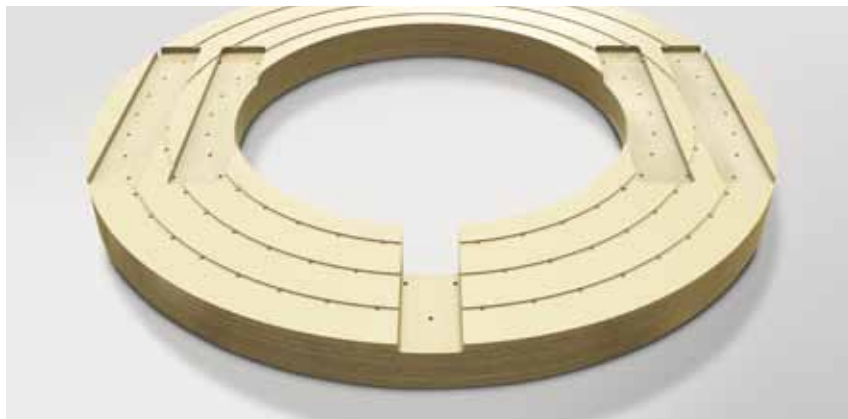
begins from 9.0 mm up to 200.0 mm. Laminated material is, like Transformerboard T IV, dimensionally stable and offers highest mechanical and electrical strength. The adhesives in use are casein glue and polyester resin; casein is aqueous, polyester is nonaqueous. The development and in-line installation of a highly sensitive metal detector guarantees board free from metallic particles.

TECHNICAL DATA

The technical data reflect typical results of routine tests performed in WEIDMANN laboratories according to IEC standards 60763-2 and 60243-1. These typical values do not constitute specifications of WEIDMANN products.



Barrierboard



Clamping ring



End ring

Thickness	Master size	Standard size	Tolerance (thickness %)	Norm
9.0 mm – 200.0 mm ^{*/**}	4000 x 1500 mm	4000 x 1500 mm	± 5 (thickness ≤ 12.0 mm)	IEC 60763-3-1, type LB 3.1A.1*
		4000 x 750 mm		IEC 60763-3-1, type LB 3.1A.2**
		4000 x 500 mm	± 4 (thickness > 12.0 mm)	
		2000 x 1500 mm		
		2000 x 750 mm		
		1500 x 1000 mm		
		1000 x 750 mm		
9.0 mm – 200.0 mm ^{*/**}	3000 x 2000 mm	3000 x 2000 mm		
		2000 x 1500 mm		
		2000 x 1000 mm		

* Adhesive Type 1 Casein 9.0 – 30.0 mm

Sheet size tolerances: ± 50 mm

** Adhesive Type 2 Polyester 9.0 – 200.0 mm

Special tolerances and negative tolerances available on request for order quantities exceeding 5 tons per thickness

Property	Parameter	Unit	LB 3.1A.1*	LB 3.1A.2**
Flexural strength	MD	MPa	115	130
	CMD		105	120
Compressibility	C	%	2.7	2.2
	C _{rev}		83	84
Internal ply strength	Dry 23 °C	MPa	112	115
	Dry 120 °C retention	%	79	73
	Oiled 23 °C retention		96	97
	Aged 23 °C retention		94	97
Apparent density		g/cm ³	1.24	1.30
Moisture content		%	7.4	3.5
Shrinkage	Thickness	%	6.1	2.5
	MD		0.4	0.2
	CMD		0.6	0.3
Oil absorption		%	12.5	10.0
Ash content		%	0.5	0.9
Conductivity of aqueous extract		mS/m	10.5	6.5
Electric strength in oil		kV/mm	14.0	13.5

* Adhesive Type 1 Casein 9.0 – 30.0 mm

** Adhesive Type 2 Polyester 9.0 – 200.0 mm

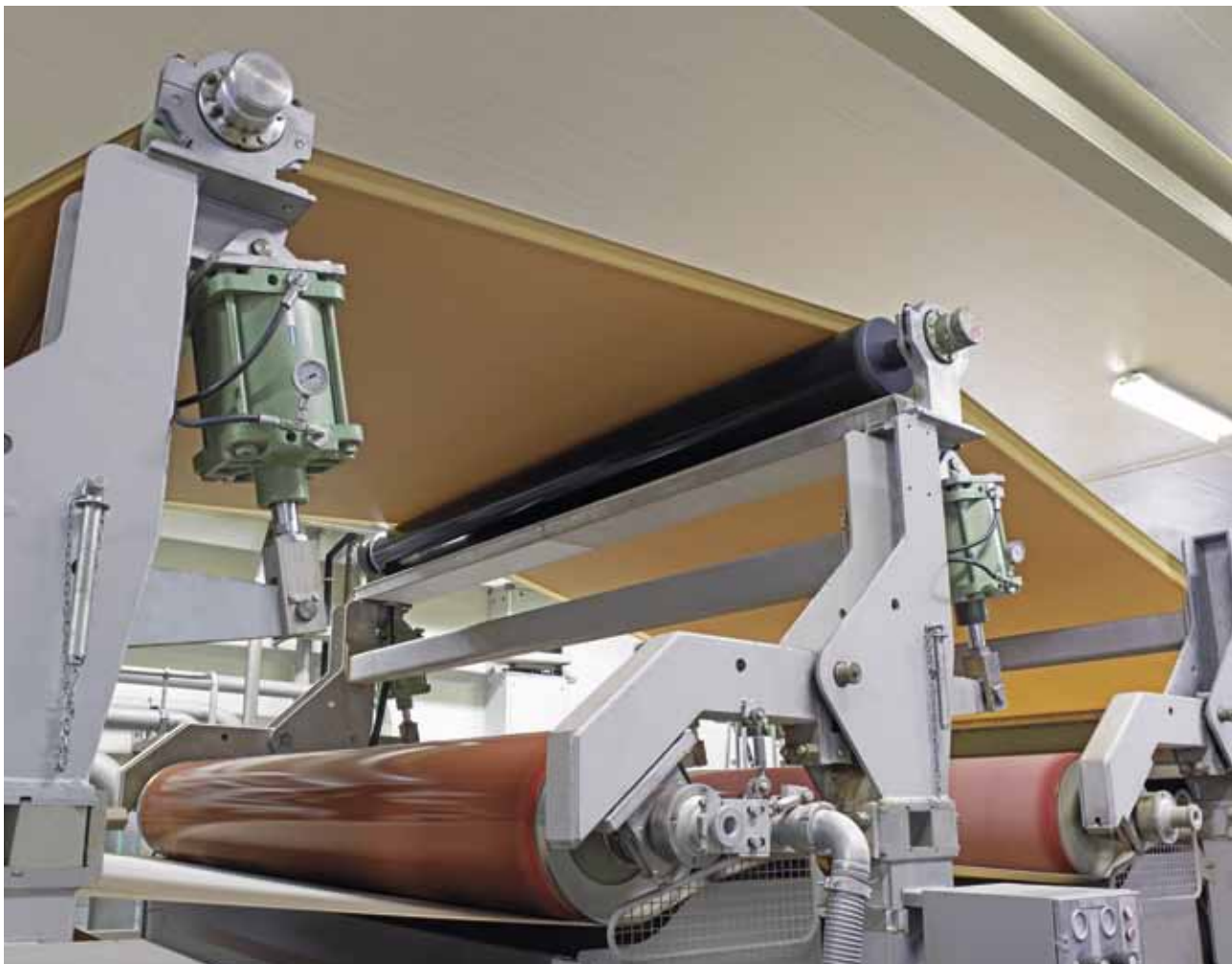
PRESSBOARD TD12 – CALENDERED FOR DISTRIBUTION TRANSFORMERS

Pressboard TD12 is only used in distribution transformers. Using lower purity fibre material, but the same board-manufacturing technology, results in a calendered product with reduced electrical and mechanical properties. Pressboard TD12 was devel-

oped for the production of punched and embossed parts for distribution transformers. Pressboard TD12 is colored reddish. The development and in-line installation of a highly sensitive metal detector guarantees board free from metallic particles.

TECHNICAL DATA

The technical data reflect typical results of routine tests performed in WEIDMANN laboratories according to IEC standards 60641-2 and 60243-1. These typical values do not constitute specifications of WEIDMANN products.



Detail of board machine, wet end

Thickness	Master size	Standard size	Tolerance (thickness %)
0.5 mm	2250 x 1040 mm	2250 x 1040 mm	± 7.5
0.8 mm		1125 x 1040 mm	± 7.5
1.0 mm		1040 x 750 mm	± 7.5
1.5 mm			± 7.5
2.0 mm			± 5
2.5 mm			± 5
3.0 mm			± 5

Sheet size tolerances: ± 50 mm

Special tolerances and negative tolerances available on request for order quantities exceeding 5 tons per thickness

Property	Unit	Range of thickness (mm)	Value
Apparent density	g/cm ³	0.5 – 3.0	1.15
Tensile strength, machine direction	MPa	0.5 – 3.0	90
Tensile strength, cross machine direction	MPa	0.5 – 3.0	67
Elongation, machine direction	%	0.5 – 3.0	6.5
Elongation, cross machine direction	%	0.5 – 3.0	7.1
Ply adhesion	N/30 mm	0.5 – 3.0	230
Moisture content	%	0.5 – 3.0	≤ 8.0
Ash content	%	0.5 – 3.0	4.3
Shrinkage, thickness	%	0.5 – 3.0	4.2
Shrinkage, machine direction	%	0.5 – 3.0	0.6
Shrinkage, cross machine direction	%	0.5 – 3.0	0.8
Conductivity of aqueous extract	mS/m	0.5 – 3.0	8.6
pH of aqueous extract	–	0.5 – 3.0	8.5
Oil absorption	%	0.5 – 3.0	17
Electrical strength in oil	kV/mm	≤ 1.6	51
		> 1.6	41

QUALITY PROMISE

TESTED TO INTERNATIONAL STANDARDS

Using WEIDMANN high-value insulation material, you can benefit from the entire savings potential of all optimizations without the risks involved in products that have not been tested to international standards. Reduction of the clearances creates electrical

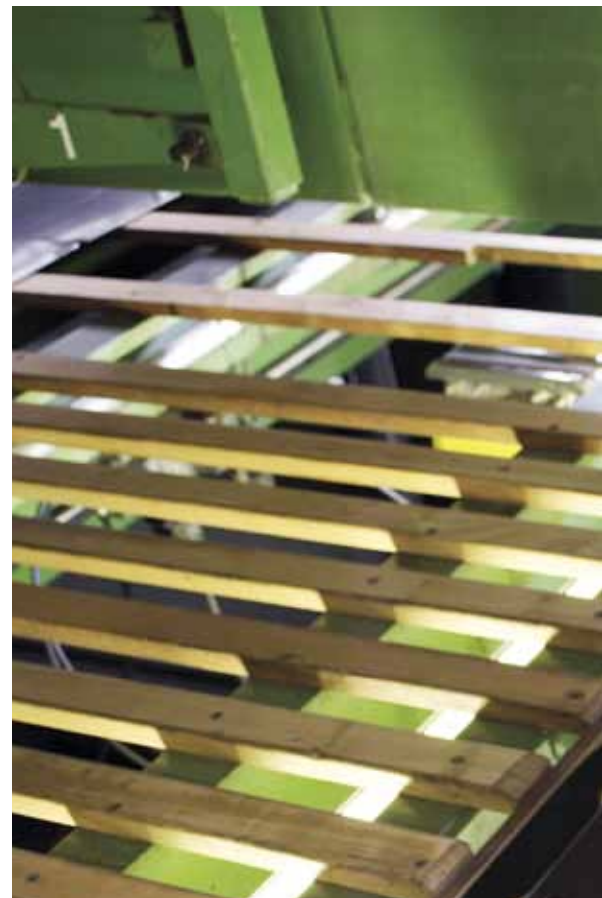
stresses that increase the requirements on the insulation material. Normal "spot check" testing (i.e. IEC 60243, 60641) of material does not adequately test the large volume of material that is permanently stressed within a transformer.



Mechanical test



High voltage laboratory





In-line metal particle detecting equipment

HIGHLY SENSITIVE METAL DETECTING EQUIPMENT

With the highly sensitive metal detecting equipment designed by WEIDMANN, metallic particles under 1/1000 g in weight are detected. By means of coordinate tracking of any metallic contamination in the sheet, the skilled operator can detect the particle and then identify it. By this finding, the source of the contaminant is facilitated and counteraction initiated. With the integration of such highly sensitive metal detecting equipment with all of our Transformerboard machines, WEIDMANN has been able to reach 100% controlled board material, detection and elimination of metal particles and their source in-line.

PREVENTING SERIOUS RISKS

Metal contamination induces weak spots in insulating materials. It may cause noticeable reduction in electrical strength and increase transformer test failures. Sample tests are not adequate to prevent the risk of receiving contaminated material. In order to assure that the complete line of

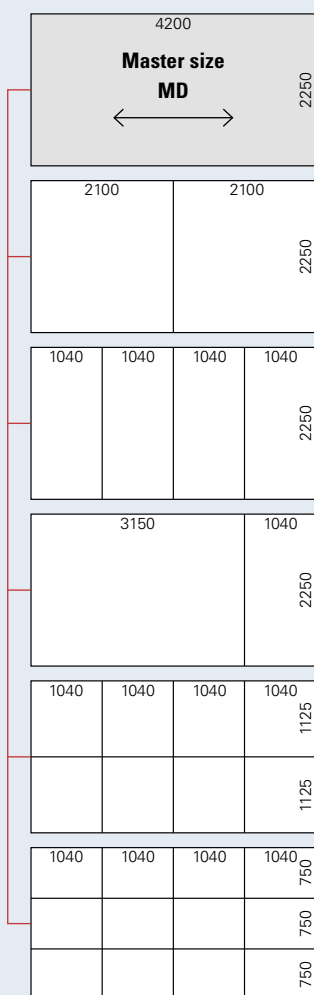
WEIDMANN Transformerboard products attain consistent purity, in-line metal detection equipment is used to detect even the smallest contaminant. WEIDMANN also uses the most modern methods of inspecting and testing of raw materials to assure that the product is of the highest quality.

STANDARD CUTS

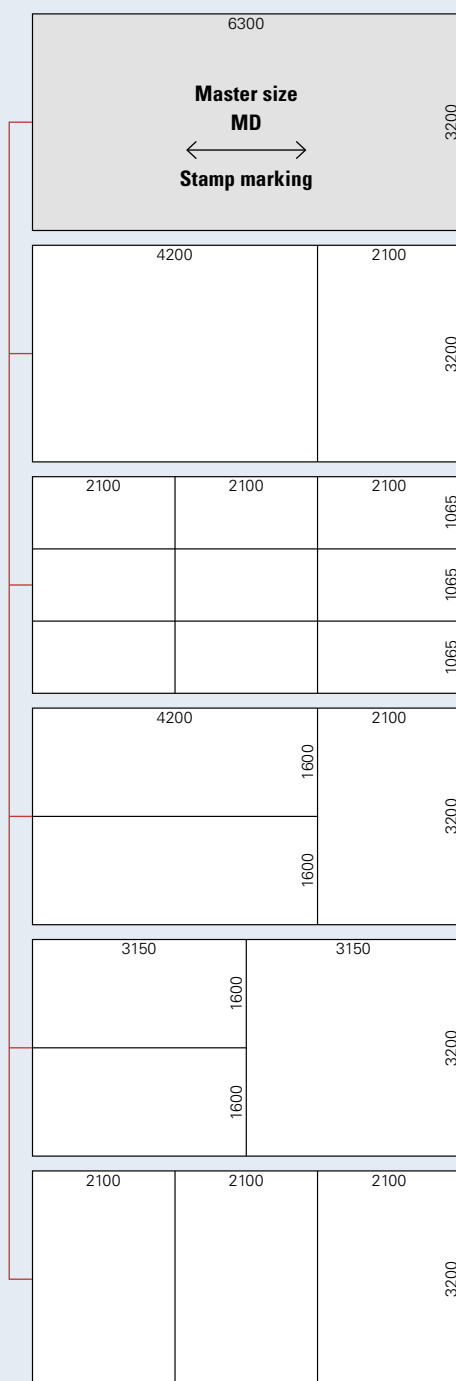
SHEET SIZES FOR CUSTOMARY NEEDS

WEIDMANN provides a variety of standard cuts with a sheet size tolerance of ± 50 mm. Transformerboard can also be cut in dimensions tailored to customer requirements. Stamp marking on the board surface of T IV indicates the machine direction (MD).

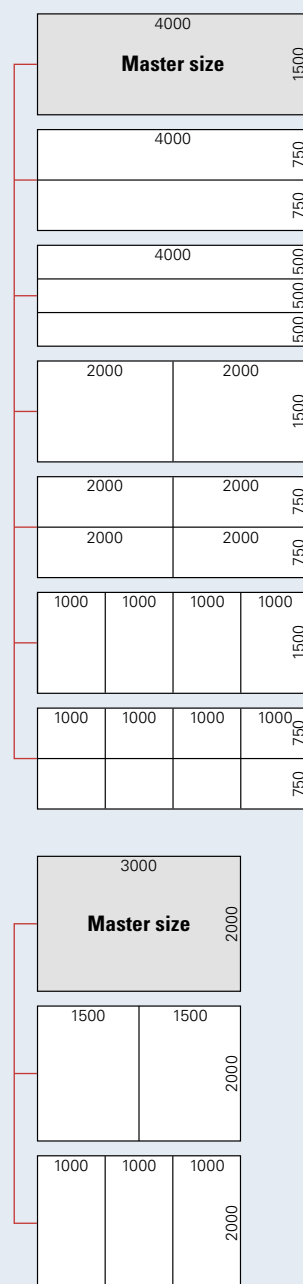
Transformerboard TI, T III and TD12



Transformerboard T IV



Transformerboard T IV – Laminated



SUGGESTIONS FOR PROCESSING CONVERTING OF TRANSFORMERBOARD

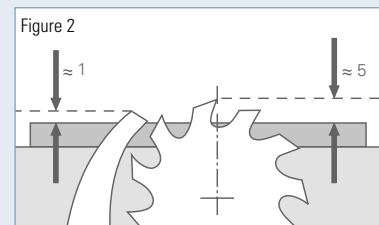
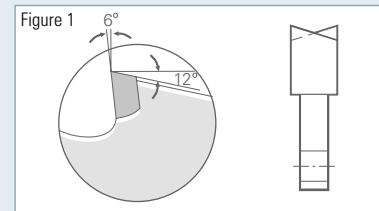
Transformerboard is a material which can be converted in many ways. The use of carbide or diamond tipped tools is highly recommended for efficient machining.

Sawing with band saw

Cutting speed:	1500 to 1800 m/minute
Saw blade:	Thickness 0.8 to 0.9 mm, width 20 to 25 mm, number of teeth 4 per 1"
Power requirement:	2.5 to 3 kW

Sawing with circular saw

Cutting speed:	3300 to 3900 m/minute
Saw blade:	Blade diameter 150 to 450 mm, teeth width 2 to 4 mm, number of teeth 48 to 128, alternating angles (Figure 1), slot wedge 0.2 mm thinner than blade thickness extending approx. 1 mm, saw blade only 5 mm above the material to be cut (Figure 2), table surface made from hard wood or suitable plastic material.
Power requirement:	Up to 20 mm material thickness min. 6 kW above 20 mm material thickness min. 11 kW, feed rate per tooth 0.1 to 0.3 mm, feed fence or feed mechanism must be used.



Drilling

Drilling holes up to a maximum diameter of 15 mm can be made with a metal drill (spiral type). Larger holes can be made by pre-drilling and enlarging the hole with a finger milling bit.

Milling and Routing

This can be done on metal working machines with cylindrical cutters. Machining with a router is preferred. Use standard routers designed for wood work. For heavy duty, use of cutters with carbide tips is recommended.

Glueing

Small areas should be glued, preferably with casein glue, without heat application.

Cutting

Up to 4 mm material with shearing guillotine, slitters, cross cutter and any available sheet metal shears. Larger thicknesses lead to a rough cutting surface.

Sanding

All surfaces can be sanded with cylindrical or belt type sanders.

Bending of sheets

For bending U-channels with sharp corners use equipment designed for bending heavy cardboard. For material thickness above 1 mm wetting is recommended.

Punching

Steel rule dies or regular punching tools can be used up to a material thickness of approx. 4 mm. The required power is equivalent to the power necessary to punch aluminium of the same thickness.

Planing

Planing is only possible if the machined surface has an angle of at least 10 degrees to the sheet surface. Useable are carpenter planers and metal planers. For heavy duty use carbide tipped cutters.

DISPATCH, TRANSPORT AND STORAGE

ADEQUATE HANDLING OF MATERIAL

Transformerboard consists of pure, unbleached kraft paper grade pulp – a natural product obtained from wood. One feature is to adapt to the climatic conditions of the environment by expelling or absorbing moisture. In all cases these special properties must be taken into account when dispatching, transporting and storing Transformerboard.

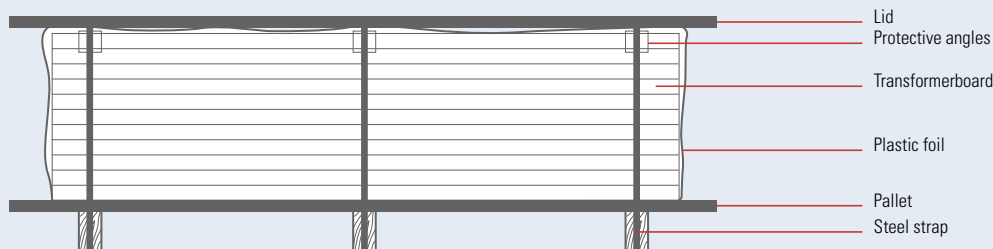
DELIVERY WITH PRECAUTIONS

The board material is packed in plastic foil and delivered on pallets, in wooden boxes or in U-shaped bales. The plastic foil serves as a barrier against water and offers the main protection against humidity, dust and dirt.

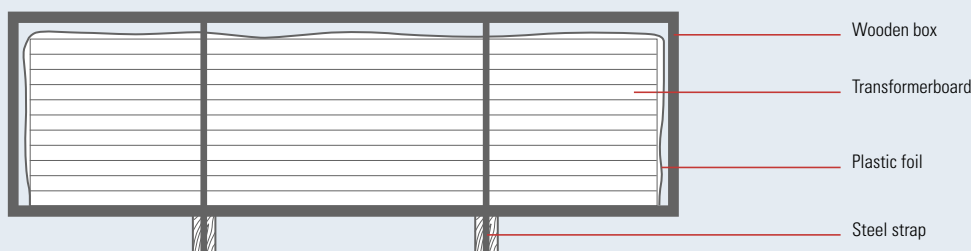


Pallet

Pallet with or without lid



Box





Boxes



U-shaped bale



U-shaped bale ready for shipment

STORAGE IN ORIGINAL PACKING

Transformerboard should be stored in dry rooms and protected from draughts, both in its original packing, and particularly also when unpacked. Because of the strongly fluctuating temperatures, do not store close to heaters or windows. Transformerboard should not be placed directly on floors, but on flat pallets or racks

of well-dried wood. During longer storage, Transformerboard should be wrapped in strong packing paper, cardboard, or best of all in plastic foil. Just these simple protective measures slow down moisture absorption and prevent distortion of the sheets. This also guarantees good machining ability even after longer storage.

