



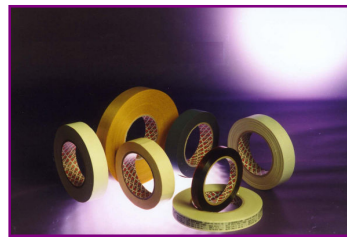
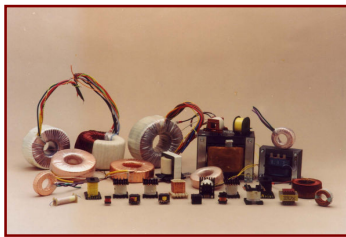
I.S. EN ISO 9001:2008



# PRESSURE SENSITIVE TAPES

## FOR

# ELECTRICAL & ELECTRONIC INDUSTRY



### **PPI Adhesive Products Ltd.**

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*A Brand Of  
Quality To  
Rely On...*



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### **PPI Delivery Specification:**

All technical data are based on average values.

Test methods are based on international standards (EN, VDE, DIN, BSS, IEC, ASTM, UL, MIL, AFERA, CEN)

Standard widths: 6, 9, 12, 15, 19, 25, 30, 38, 50, 60, 75, 100 mm. ( $\frac{1}{4}$ " to 4")

Special and intermediate widths can be supplied from 1 mm upwards in steps of 0.5 mm depending on PPI type. (1" = 25.4 mm.)

Special colours are available on request.

**PPI self-adhesive tapes are available in printed and die-cut-form - details on request.**

Special tapes may be produced to customer's specification.

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### **Our group of companies also offers you:**

#### **PPI Adhesive Products Ltd.**



PPI Self-adhesive tapes

- For the electrical and electronic industries
  - For the audio/video industries (splicing tapes, cleaning tapes, etc.)
  - For use in printed circuit board assembly
  - For shielding and winding transformer applications
  - For a wide range of industrial and speciality applications (floor covering manufacture, masking tapes, etc.)
- 

#### **Technical Adhesive Products Ltd. (T.A.P.)**



Producer of precision die-cut adhesive components for electrical, electronic and general industrial applications.

T.A.P. can offer experienced technical know how on all aspects of product die cutting and design.

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#### **Waterford Research & Development Ltd.**



Continuously develops self-adhesive products for our own group and for our interested customers. R&D develops new production techniques and market know-how on all aspects of adhesive products.

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#### **Valentia Industries.**



Producer of single and double-sided siliconised polyester films in a range of thicknesses from 0.012mm to 0.190mm.

Available from 6mm to 1350mm wide.

Customised release levels a specialty.

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### **Important Notice To Purchasers**

All statements, technical data and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness is not guaranteed, and the following is made in lieu of all warranties, express or implied.

Sellers' and manufacturers' only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.

No statement or recommendation not contained herein shall have any force or effect unless embodied in a written agreement signed by authorised officers of seller and manufacturer.



## ADHESIVE TAPES FOR THE ELECTRICAL INDUSTRY

PPI self-adhesive tapes for electrical insulation encompass all insulation classes from Y to H in the working temperature range from  $-200^{\circ}\text{C}$  to  $+400^{\circ}\text{C}$ .

When selecting a self-adhesive tape for electrical insulation the following points are important:

- nature of the object requiring insulation
- insulation requirement
- resistance against heat and cold
- resistance against impregnating resins, cast resins, transformer oils, solvents, chemicals etc.
- mechanical strength

When selecting a self-adhesive tape for use during a manufacturing process the following points are important:

- nature of the object being processed
- type of surface e.g. plastic, metal, glass
- whether tape will remain permanently in place or be removed after processing
- resistance against solvents and moisture

As well as the different supporting base materials we offer a range of different corrosion-proof adhesive coatings:

<b>synthetic rubber</b>	thermosetting ts - precured thermosetting pts
<b>synthetic resin</b>	heat-resistant hr - thermosetting ts - precured thermosetting pts
<b>silicone</b>	heat-resistant hr - thermosetting ts
<b>heat-sealing</b>	thermoplastic - duroplastic

Heat-resistant adhesives are thermoplastic with good tack and limited resistance to heat and solvents. Thermosetting adhesives cure when subjected to heat and provide excellent resistance to solvents, impregnating resins and cast resins.

Precured thermosetting adhesives already have good resistance to solvents, impregnating resins and cast resins and after full curing this resistance is greatly increased.

Thermosetting - Recommended curing cycle:

Thermosetting adhesives	1 hour	- $150^{\circ}\text{C}$ ( $302^{\circ}\text{F}$ )
	2 hours	- $130^{\circ}\text{C}$ ( $266^{\circ}\text{F}$ )
Pre-cured thermosetting adhesives	4 hours	- $100^{\circ}\text{C}$ ( $212^{\circ}\text{F}$ )
	2 hours	- $130^{\circ}\text{C}$ ( $266^{\circ}\text{F}$ )
	1 hour	- $150^{\circ}\text{C}$ ( $302^{\circ}\text{F}$ )

Heat-sealing adhesives, thermoplastic as well as duroplastic, can be activated by solvents or by heat. They produce particularly strong adhesive bonds when sealed with a combination of pressure and heat.



Supporting base	PPI type	Base Thickness		Total Thickness		Adhesive hr = heat resistant ts = thermosetting pts = procured thermosetting	VDE Specification 0340 1-3	Adhesive strength	Ultimate elongatio n	Tensile strength Volts total	Dielectric strength			
		mm.	Mil.	mm.	Mil.									
Heat Class Y - Temperature range up to 95°C														
Polypropylene	50100	0.030	1.2	0.055	2.2	synthetic resin	hr	-	3.0	27	80-120	40	23	6500
	50110	0.030	1.2	0.055	2.2	synthetic rubber	hr	-	2.0	18	80-120	40	23	6500
Heat Class E - Temperature range up to 120°C														
Triacetate	30200	0.045	1.8	0.070	2.8	synthetic resin	hr	K 30	4.0	36	15	30	18	4500
Acetate silk Silk cloth	35100	0.155	6.1	0.200	7.9	synthetic rubber	ts	W 20	3.2	29	22	50	28	2500
Impregnated Crepe-paper	64100	0.160	6.3	0.200	7.9	synthetic rubber	ts	W 11	4.5	41	12	40	23	1800
Kraft paper	61800	0.080	3.1	0.140	5.5	heat-sealing	ts	-	-	-	4	90	51	2500
Heat Class B - Temperature range up to 130°C														
Polyester	10100	0.025	1.0	0.050	2.0	synthetic resin	ts	W 50	4.2	38	80-120	40	23	5000
	10130	0.025	1.0	0.080	3.2	synthetic resin	ts	W 50	4.2	38	80-120	40	23	5000
	10140	0.025	1.0	0.050	2.0	synthetic rubber	ts	W 50	5.5	50	80-120	40	23	5000
	10160	0.025	1.0	0.050	2.0	synthetic resin	ts	W 50	4.2	38	80-120	40	23	5000
	10160	0.050	2.0	0.080	3.2						80	46	46	8000
	10220	0.025	1.0	0.060	2.4	Polysiloxane	ts	-	3.0	27	80-120	40	23	5000
	10260	0.012	0.5	0.02	0.8	synthetic rubber	ts	W 50	4.5	41	80-120	23	13	3000
	10260	0.025	1.0	0.050	2.0							40	23	5000
	10260	0.050	2.0	0.080	3.2							80	46	8000
	10270	0.025	1.0	0.080	3.2	synthetic rubber	ts	W 50	4.5	41	80-120	40	23	5000

1 Newton = 1-2 grams

1" = 25.4 mm

**AVAILABLE IN PRINTED**



## SELF-ADHESIVE TAPES FOR THE ELECTRICAL INDUSTRY

Electrolytic Corrosion Factor	Combustibility	Adhesive	Colour Coating	Length Of Roll		Characteristics & Applications
				m.	yds.	
A 1.0	BU 1	single faced	transparent and coloured transparent	66	72	PPI 50100 as outer wrap for PP-capacitors; core and layer insulation.
A 1.0	BU 1	single Faced		66	72	PPI 50110 as electrolyte resistant sealing tape for internal capacitor coils; Resistant against DMF; chloride-free.
A 1.2	BU 1	single faced	transparent and coloured	66	72	For coil and core insulation, inter-layer insulation, sealing coil ends, insulating leads and solder points, final insulation to protect outer layer, also with print on adhesive side. For joining capacitor coils. Limited impregnation resistance.
A 1.0	BU 1	single faced	white & black	55	60	Flexible tape, resistant to impregnating resins, especially suitable for final insulation of coils, counteracts unevenness of winding due to its flexibility.
AN 1.2	BU 1	single faced	natural	55	60	As masking tape for field- and core-coils. Bandoleering short-time resistance up to 180°C.
AN 1.0	BU 1	Single Faced	Brown	66 200	72 218	As splicing tape for Presspan sheets in the manufacturing of oil-filled transformers, resistant against transformer oils and silicone oil. Heat-sealing adhesive.
A 1.0	BU 1	Single Faced	Transparent	66	72	Self-adhesive3 tapes based on polyester film encompass a wide field of electrical applications in insulation class B. Polyester tapes can, amongst other things, be applied in the following areas:
A 1.0	BU 1	Double Faced	Transparent	33	36	In the manufacturing of capacitors for sealing the inner coil and for final wrapping of cast-resin capacitors.
A 1.2	BU 1	Single Faced	Yellow & Transparent	66	72	In the motor industry for phase and coil-end insulation, for strengthening edges at slot insulation, as well as for slot insulation in general.
A 1.2	BU 1	Single Faced	Yellow & Transparent	66	72	PPI 10160 for oil-filled transformers is resistant against most transformer oils including chlorinated oils.
A 1.0	BU 1	Single Faced	Transparent & Coloured	66	72	Due to the selection of different adhesive coatings such as heat-resistant, thermosetting heat-sealing, silicone adhesives, there is the possibility even in unfavourable conditions of achieving optimal adhesion. A synthetic rubber-based adhesive is suitable for use with waxed or other kinds of greased wires or parts. PPI self-adhesive polyester tapes are printable on the adhesive side; in this way damage to the print is rendered impossible.
A 1.0	BU 1	Single Faced	Yellow & Coloured	66	72	Due to different film-thickness it is possible to achieve almost any degree of insulation. It is important here that where there is a small winding-radius a tape of the least thickness is chosen, since the possibility of an opening of the insulation could otherwise not be excluded owing to the inherent stiffness of the film
A 1.0	BU 1	Double Faced	Yellow	33	36	Where a new insulation with PPI polyester adhesive tapes is being introduced different types should be tested because owing to the multiplicity of copper wires, cast resins and impregnating varnishes in use today, the most suitable type for a given application can only be ascertained by trial.

OR DIE-CUT FORM



Supporting base	PPI type	Base Thickness		Total Thickness		Adhesive hr = heat resistant ts = thermosetting pts = procured thermosetting		VDE Specification 0340 1-3	Adhesive strength		Ultimate elongation		Tensile strength Volts total		Dielectric strength
		mm.	Mil.	mm.	Mil.				N/cm	Oz/in	%	N/cm	Lbs/in		
Heat Class B - Temperature range up to 130°C															
Polyester	10280	0.025	1.0	0.06	2.4	synthetic rubber	pts	W 50	4.0	36	80-120	40	23	5000	
	10400	0.025	1.0	0.05	2.0	synthetic resin	ts	W 50	2.0	18	80-120	40	23	5000	
	10420	0.025	1.0	0.05	2.0	synthetic resin	pts	W 50	4.0	36	80-120	40	23	5000	
Polyester Flame retardant	01020	0.025	1.0	0.06	2.4	synthetic resin	ts	-	3.0	27	80-120	40	23	5000	
Laminate: Polyester/paper	15100	0.080	3.2	0.110	4.3	synthetic rubber	ts	-	4.0	36	100-120	40	23	5000	
Laminate: Polyester/paper Crepe-paper	15500	0.185	7.3	0.25	10.0	synthetic rubber	ts	W 80	4.5	41	30	70	39	5000	
Laminate: Polyester/paper Polyester fleece	16100	0.07	2.8	0.13	5.1	synthetic rubber	ts	-	4.0	36	50	40	23	5000	
	01610	0.07	2.8	0.13	5.1	synthetic rubber	ts	-	4.0	36	50	40	23	5000	
	16200	0.165	6.5	0.23	9.0	synthetic rubber	ts	-	6.0	54	90-100	65	37	7000	
Laminate: Polyester/ Glasscloth	17100	0.12	4.7	0.17	6.7	synthetic rubber	ts	-	4.5	41	8	200	112	5000	
	1711A	0.12	4.7	0.18	7.1	synthetic resin	ts	-	4.5	41	8	250	140	5000	
Polyester Shrinkable Film	6320	0.03	1.2	0.05	2.0	synthetic resin	pts	-	3.0	28	100	50	28	5000	
	11130	0.03	1.2	0.05	2.0	synthetic resin	pts	-	3.0	28	100	50	28	5000	
	11140	0.019	0.75	0.03	1.2	synthetic resin	pts	-	2.5	23	100	30	18	3600	
Polycarbonate Makrofol N®	42100	0.04	1.6	0.07	2.8	synthetic resin	hr	K 40	4.0	36	100-120	35	20	6500	
Glasscloth	84110	0.12	4.7	0.165	6.5	synthetic rubber	ts	W 60	4.2	38	10	250	140	3000	
	86100	0.10	3.9	0.19	7.5	synthetic rubber	ts	W 60	4.7	43	8	200	112	-	
Polyester Non-woven	80140	-	-	0.105	4.1	synthetic rubber	pts	-	2.5	23	25	26	14	-	

1 Newton = 102 grams 1" = 25.4 mm

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## SELF-ADHESIVE TAPES FOR THE ELECTRICAL INDUSTRY

Electrolytic corrosion factor	Combustibility	Adhesive	Colour Coating	Length of roll		Characteristics and applications
				m	yds	
A 1.0	Bu 1	single faced	yellow and transparent	66	72	PPI 10280 has a procured thermosetting adhesive.
A 1.2	Bu 1	single faced	yellow and transparent	66	72	Printable PPI 10400 as an outer wrap for polyester capacitors has excellent bonding properties with epoxy casting resins.
A 1.0	Bu 1	single faced	yellow and transparent	66	72	This type PPI 10420 is absolutely Freon-resistant and can be exposed to an ultrasonic cleaning process without adhesive degradation.
A 1.2	Bu 1	single faced	white	66	72	PPI 01020 is a flame retardant tape with an Oxygen index of 27.2% and complies with UL flame retardant requirements.
AN 1.2	Bu 2	single faced	white opaque and black	66	72	Especially suitable for insulating solder points. Due to greater impact strength and increased tear-resistance, suitable for phase insulation applications. Also used for outer-wrap on coils. Composition: adhesive-paper-polyester film.
AN 1.2	Bu 2	single faced	brown	66	72	Adhesive coated on polyester side of laminate; available with backing for die-cutting applications; high dielectric strength.
A 1.0	Bu 2	single faced	white opaque	66	72	Outer-wrap for coils especially on irregular windings. Good impact strength. Phase insulation. Composition: adhesive-polyester fleece-polyester film. Exceptional tear-resistance, especially in a transverse direction.
A 1.2	Bu 1	single faced	white opaque	66	72	Applications as for PPI 16100, particularly suitable where a greater degree of flame retardancy is required.
A 1.0	Bu 2	single faced	white opaque	66	72	Applications as for PPI 16100. Better cushioning effect.
A 1.2	Bu 1	single faced	colourless	66	72	Outer-wrap for motor coils. General electrical insulation applications that require high impact strength and high tensile strength in both directions.
A 1.2	Bu 1	single faced	colourless	66	72	PPI 1711A for oil-filled transformers is resistant against most transformer oils. Also resistant against Freons®
A 1.0	Bu 1	single faced	transparent and coloured	66 330	72 360	Complete solvent resistance renders tape ideal for outer wrap on electrolytic capacitors. Simultaneous insulation of capacitor ends if effected by shrinkage.
A 1.0	Bu 1	single faced	transparent and coloured	66 330	72 360	
A 1.0	Bu 1	single faced	transparent	66 330	72 360	
A 1.0	Bu 1	single faced	transparent	66	72	Flexible tape for terminal insulation of coils; outer wrap for capacitors.
A 1.2	Bu 1	single faced	white and black	55 66	60 72	Tear and temperature resistant tape, good impregnability for traction machine manufacturing, for motors and transformers. Wrapping tape at high temperatures.
A 1.2	Bu 1	double faced	colourless	66	72	
A 1.2	Bu 1	single faced	white	66 33	72 36	Zone coated self-adhesive tape for motor and transformer production. The uncoated zone allows free and uninterrupted passage of resins and lacquers. Suitable for die-cutting.

## OR DIE-CUT FORM



Supporting base	PPI type	Base Thickness		Total Thickness		Adhesive hr = heat resistant ts = thermosetting pts = procured thermosetting	VDE Specification 0340 1-3	Adhesive strength		Ultimate elongation	Tensile strength Volts total		Dielectric strength
		mm.	Mil.	mm.	Mil.			N/cm	Oz/in		%	N/cm	

## Heat Class F - Temperature range up to 155°C

<b>Nomex® polyamide paper</b>	65100	0.05	2.0	0.1	3.9	synthetic rubber	ts	-	5.5	50	12	35	20	2500
		0.08	3.1	0.13	5.1						12	60	34	3500
		0.13	5.1	0.18	7.1						15	125	70	5000
		0.18	7.1	0.23	9.0						20	200	112	7000
		0.25	9.8	0.3	11.8						24	280	157	9000
	65110	0.05	2.0	0.15	5.9	synthetic rubber	ts	-	5.5	50	12	35	20	2500
		0.08	3.1	0.18	7.1						12	60	34	3500
		0.13	5.1	0.23	9.0						15	125	70	5000
		0.18	7.1	0.28	11.0						20	200	112	7000
<b>Nomex® mica</b>	66100	0.08	3.1	0.12	4.7	synthetic rubber	ts	-	5.0	46	1.5	35	20	3000
		0.13	5.1	0.17	6.7						2.0	70	40	5000
<b>Nomex® crepe-paper</b>	67100	0.08	3.1	-	-	synthetic resin	ts	-	-	-	45	45	25	1500
		0.13	5.1	-	-						45	60	33	3500
<b>PEN Film</b>	69100	0.025	1.0	0.05	2.0	synthetic resin	ts	-	4.5	40	50	45	25	5000
		0.05	2.0	0.075	3.0						80	90	50	9000
<b>PEN Film</b>	69110	0.025	1.0	0.055	2.2	Polysiloxane	ts	-	2.0	18	50	45	25	5000
		0.05	2.0	0.08	3.2						80	90	50	9000
<b>Glass cloth</b>	84100	0.120	4.7	0.200	7.9	synthetic resin	pts	W 60	3.0	28	10	250	140	3000

## Heat Class H - Temperature range up to 180°C

<b>Nomex® polyamide paper</b>	65120	0.05	2.0	0.09	3.5	synthetic resin	ts	-	4.5	41	12	35	20	2500
		0.08	3.1	0.13	5.1						12	60	34	3500
		0.13	5.1	0.18	7.0						15	125	70	5000
		0.18	7.0	0.23	9.0						20	200	112	7000
		0.25	9.8	0.3	11.8						24	280	157	9000
<b>Nomex® mica</b>	66120	0.08	3.1	0.12	4.7	synthetic resin	ts	-	4.0	36	1.5	35	20	3000
		0.13	5.1	0.17	6.7						2.0	70	40	5000
<b>Polyimide Film</b>	70100	0.025	1.0	0.05	2.0	synthetic resin	ts	-	3.0	27	70	50	28	7000
		0.05	2.0	0.085	3.3						70	100	56	10000
	70110	0.025	1.0	0.050	2.0	Polysiloxane	ts	-	2.0	18	70	50	28	7000
		0.05	2.0	0.080	3.1						70	100	56	10000
<b>Teflon® PTFE</b>	75100	0.05	2.0	0.08	3.1	synthetic resin	ts	-	2.5	23	200-300	15	9	5000
		0.12	4.7	0.175	7.0						200-300	50	28	8000
<b>Teflon® PTFE glass cloth</b>	76100	0.12	4.7	0.15	5.9	Polysiloxane	ts	-	3.2	29	10	240	134	5000
<b>Glass cloth</b>	84150	0.12	4.7	0.165	6.5	Polysiloxane	ts	W 60	4.0	36	10	250	140	2500

## Metal Foil Tapes

<b>Soft aluminium</b>	902	0.040	1.6	0.07	2.75	synthetic resin Non-conductive	ts	-	4.5	41	-	25	14	-
	903	0.060	2.4	0.09	3.50							40	22	-
	904	0.100	3.9	0.13	5.10							75	42	-
<b>Soft copper</b>	9110	0.035	1.4	0.07	2.75	synthetic resin Non-conductive	ts	-	4.5	41	-	55	31	-

AVAILABLE IN PRINTED





## SELF-ADHESIVE TAPES FOR THE ELECTRICAL INDUSTRY

Electrolytic corrosion factor	Combustibility	Adhesive	Colour Coating	Length of roll		Characteristics and applications
				m	yds	
A 1.2 A 1.2 A 1.2 A 1.2 A 1.2	Bu 1 Bu 1 Bu 1 Bu 1 Bu 1	single faced	natural yellow	66	72	NOMEX, a class H material, in combination with special adhesives is an excellent insulator, which can also be worked economically in large widths. The appropriate material applied by the proper processing machinery will ensure savings in time and money. In electrical motor building accepted especially in traction machine manufacturing, small space requirement = good space factor. As machine wide material, interesting insulation for wrapping bar-wound armature, in narrow rolls as phase insulation also in the generator and transformer manufacturing industries.
A 1.2 A 1.2 A 1.2 A 1.2	Bu 1 Bu 1 Bu 1 Bu 1	double faced	natural yellow	33	36	PPI 65100, 65110 and 66100 types are coated with synthetic rubber adhesive which gives good adhesion to adhesive-repellent surfaces. This adhesion is appropriate for temperature class F.
A 1.2 A 1.2	Bu 1 Bu 1	single faced with interliner	natural	66	72	Corona resistant due to mica content of NOMEX.
A 1.2 A 1.2	Bu 1 Bu 1	single faced	natural yellow	33	36	Is highly extensible due to creping of Nomex
A 1.0 A 1.0	Bu 1 Bu 1	single faced	colourless	66	72	Film Based Self-Adhesive Tapes for Class F Applications
A 1.0 A 1.0	Bu 1 Bu 1	single faced	colourless	66	72	
A 1.2	Bu 1	single faced	white and black	55 66	60 72	Tear- and temperature-resistant tape, good impregnability for traction machine manufacturing, for motors and transformers. Wrapping tape at high temperatures.
A 1.2 A 1.2 A 1.2 A 1.2 A 1.2	Bu 1 Bu 1 Bu 1 Bu 1 Bu 1	single faced	natural yellow	66	72	NOMEX, a class H material, in combination with special adhesives is an excellent insulator, which can also be worked economically in large widths. The appropriate material applied by the proper processing machinery will ensure savings in time and money. In electrical motor building accepted especially in traction machine manufacturing, small space requirement = good space factor. As machine wide material, interesting insulation for wrapping bar-wound armature, in narrow rolls as phase insulation also in the generator and transformer manufacturing industries. PPI 65120 and 66120 have a synthetic resin adhesive which can be applied to machinery in temperature class H after curing.
A 1.2 A 1.2	Bu 1 Bu 1	single faced with interliner	natural	66	72	Corona resistant due to mica content of NOMEX
A 1.0 A 1.0 A 1.0 A 1.0	Bu 1 Bu 1 Bu 1 Bu 1	single faced single faced single faced	brown transparent brown transparent	33 66 33 66	36 72 36 72	Insulation tape for very high temperatures, radiation-resistant, for high stress conditions in traction machine manufacturing, in the production of generators, for aerodynamic and space applications which require the highest temperature reserves from the insulation. Short time heat-resistant up to 400° C.
A 1.0 A 1.0	Bu 1 Bu 1	single faced	grey brown	66 66	36 72	For high temperature stress, good flexibility and good resistance to chemicals. Excellent releasing properties. Short time heat-resistance up to 275° C.
A 1.0	Bu 1	single faced	grey brown	33 66	36 72	
A 1.0	Bu 1	single faced	white	33 66	36 72	Tear- and temperature-resistant tape, good impregnability for traction machine manufacturing, for motors and transformers. Wrapping tape at high temperatures.
-	-	single faced	natural	66	72	HF-shielding, heat shielding of wiring in fluorescent light fittings. Also available with interliner and in DIE-CUT form.
-	-	single faced	natural	66	72	HF-shielding, solderable, also available with interliner and in DIE-CUT form. For further information please consult our "PPI foils for shielding & winding" catalogue.

## OR DIE-CUT FORM



## STATIC SHIELDING IN TRANSFORMERS WITH PPI 1091 AND PPI 10912 FRINGED

PPI 1091 and PPI 10912 are specially formulated shielding tapes comprising a laminate of polyester - copper - polyester. The polyester is available in thicknesses of both 0.025 mm = 1 Mil and 0.050 mm = 2 Mil so that the dielectric strength required can be achieved.

PPI 1091 shields the entire inner width of the transformer spool whereas PPI 10912 offers even greater security because of its fringing on both edges which ensures complete insulation of the spool ends.

PPI 1091 and PPI 10912 are applied directly between the primary and secondary windings and the lead can be point soldered to the copper foil through the polyester film. The solder point should then be covered with a PPI self-adhesive insulating tape.

### Technical Data:

Polyester film	0.025 mm	1.0 Mil	0.025 mm	1.0 Mil	0.025 mm	1.0 Mil
Copper foil	0.035 mm	1.4 Mil	0.050 mm	2.0 Mil	0.100 mm	4.0 Mil
Polyester film	0.025 mm	1.0 Mil	0.025 mm	1.0 Mil	0.025 mm	1.0 Mil
Total thickness	0.110 mm	4.3 Mil	0.130 mm	5.1 Mil	0.180 mm	7.0 Mil
Dielectric Strength	5.0 KV	5000 V	5.0 KV	5000 V	5.0 KV	5000 V

### Technical Data:

Polyester film	0.050 mm	2.0 Mil	0.050 mm	2.0 Mil	0.050 mm	2.0 Mil
Copper foil	0.035 mm	1.4 Mil	0.050 mm	2.0 Mil	0.100 mm	4.0 Mil
Polyester film	0.050 mm	2.0 Mil	0.050 mm	2.0 Mil	0.050 mm	2.0 Mil
Total thickness	0.160 mm	6.3 Mil	0.180 mm	7.0 Mil	0.230 mm	9.0 Mil
Dielectric Strength	8.0 KV	8000 V	8.0 KV	8000 V	8.0 KV	8000 V

### Standard copper thickness up to 0.500 mm (20 Mil)

Other copper thicknesses may be supplied subject to availability and minimum order requirements.

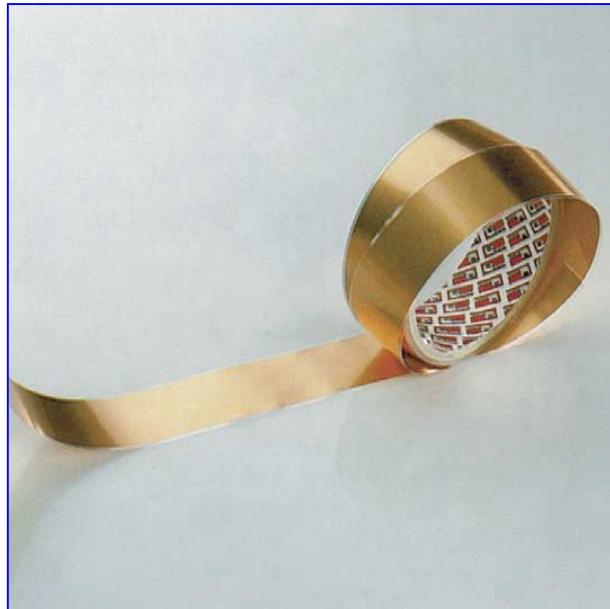
### Standard table for DIN transformers:

DIN Transformer	Inner Width	Safety Allowance	Cu Width	1091 Overall Width	10912 Fringed Overall Width	Fringe Depth	Fringe Spacing
M 30	17.4 mm	0.6 mm	15 mm	18 mm	21 mm	2x1.5 mm	1 mm
M 42	26.3 mm	0.7 mm	24 mm	27 mm	30 mm	2x1.5 mm	1 mm
M 55	33.4 mm	0.6 mm	31 mm	34 mm	38 mm	2x2.0 mm	1 mm
M 65	38.8 mm	0.7 mm	36.5 mm	39 mm	43.5 mm	2x2.0 mm	1.5 mm
M 74	44.6 mm	0.4 mm	42 mm	45 mm	49 mm	2x2.0 mm	1.5 mm
M 85	48.6 mm	0.4 mm	46 mm	49 mm	53 mm	2x2.0 mm	1.5 mm
M 102	60.5 mm	0.5 mm	58 mm	61 mm	65 mm	2x2.0 mm	1.5 mm
EI 30	12.5 mm	0.5 mm	10 mm	13 mm	16 mm	2x1.5 mm	1 mm
EI 38	17.1 mm	0.4 mm	15 mm	17.5 mm	20.5 mm	2x1.5 mm	1 mm
EI 42	18.8 mm	0.7 mm	16.5 mm	19.5 mm	22.5 mm	2x1.5 mm	1 mm
EI 48	21.9 mm	0.6 mm	19.5 mm	22.5 mm	25.5 mm	2x1.5 mm	1 mm
EI 54	24.5 mm	0.5 mm	22 mm	25 mm	28 mm	2x1.5 mm	1 mm
EI 60	27 mm	0.6 mm	25 mm	27.5 mm	30 mm	2x1.2 mm	1 mm
EI 66	29 mm	0.5 mm	26.5 mm	29.5 mm	32.5 mm	2x1.5 mm	1 mm
EI 78	34.6 mm	0.4 mm	32 mm	35 mm	39 mm	2x2.0 mm	1.5 mm
EI 84	37.7 mm	0.8 mm	35.5 mm	38.5 mm	42.5 mm	2x2.0 mm	1.5 mm
EI 96	44 mm	0.5 mm	42 mm	44.5 mm	48.5 mm	2x2.0 mm	1.5 mm

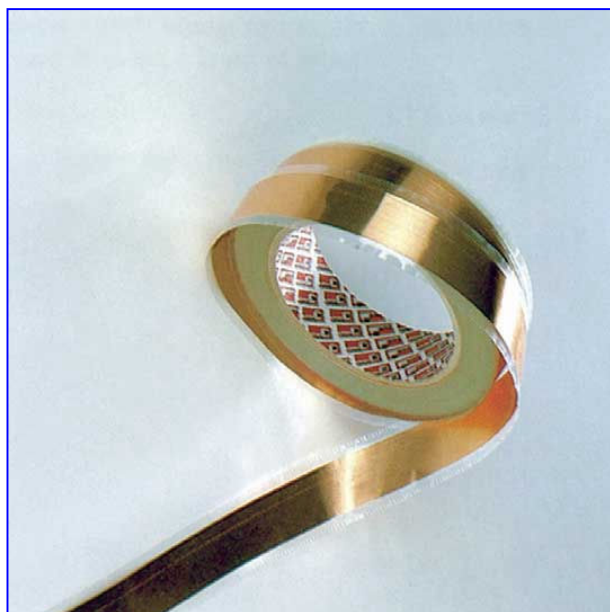
### Delivery specification:

PPI – 1091	all widths from 6 mm (¼")
PPI – 10912	all widths from 12 mm (½")
Roll Length	up to 100 metres (110 yds)

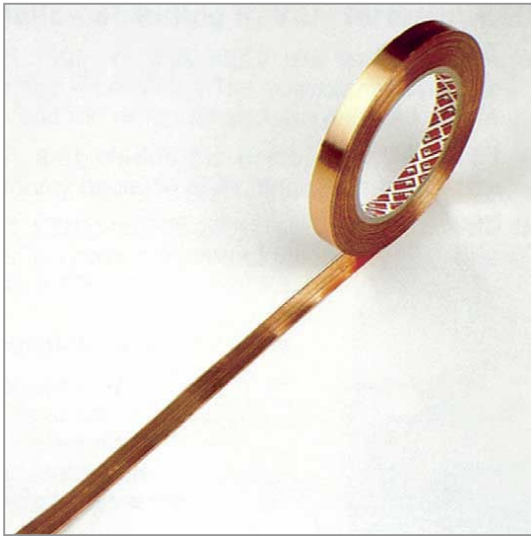
**PPI - 1091**



**PPI - 10912**



## STATIC SHIELDING OF TRANSFORMERS WITH PPI 1095 & PPI 1096



### PPI-1095:

Copper thickness\*:

0.035 mm	0.050 mm	0.100 mm up to	0.500 mm
1.4 Mil	2.0 Mil	4.0 Mil	20.00 Mil

Polyester thickness:

0.025 mm	0.050 mm
----------	----------

The copper is completely wrapped with the polyester with an average overlap of 2 mm (0.08")

Tolerance on width -

Polyester	0.025 mm (1.0 Mil)	+ 0.3 mm (0.012")
Polyester	0.050 mm (2.0 Mil)	+ 0.5 mm (0.020")

Available widths: from 5 mm to 100 mm = from 0.2" to 4"

Roll length: up to 50 m = 55 yds

### PPI-1096 :

Copper thickness*:	0.035 mm	0.050 mm	0.100 mm up to	0.0500 mm
	1.4 Mil	2.0 Mil	4.0 Mil	20.0 Mil

Polyester thickness:	0.025 mm	0.050 mm
	1.0 Mil	2.0 Mil

The copper is partially wrapped with the polyester leaving a minimum 1 mm (0.04") wide strip of uncovered copper in the middle of one side. The minimum overlap of polyester required on each edge of the uncovered strip of the copper is as follows:

Polyester 0.025 mm (1.0 Mil)	3 mm (0.12")
Polyester 0.050 mm (2.0 Mil)	4 mm (0.16")

Tolerance on width -

Polyester 0.025 mm (1.0 Mil)	+ 0.3 mm (0.012")
Polyester 0.050 mm (2.0 Mil)	+ 0.5 mm (0.020")

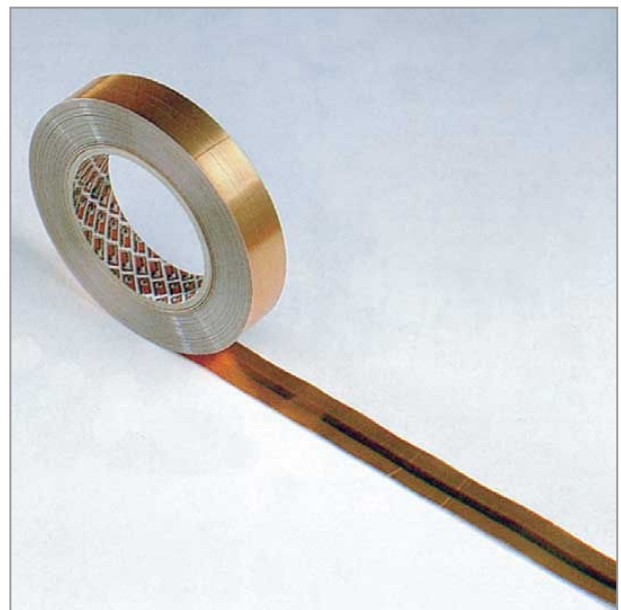
Available width -

Polyester	0.025 mm (1.0 Mil)
	from 7 mm to 100 mm (0.28" to 4")

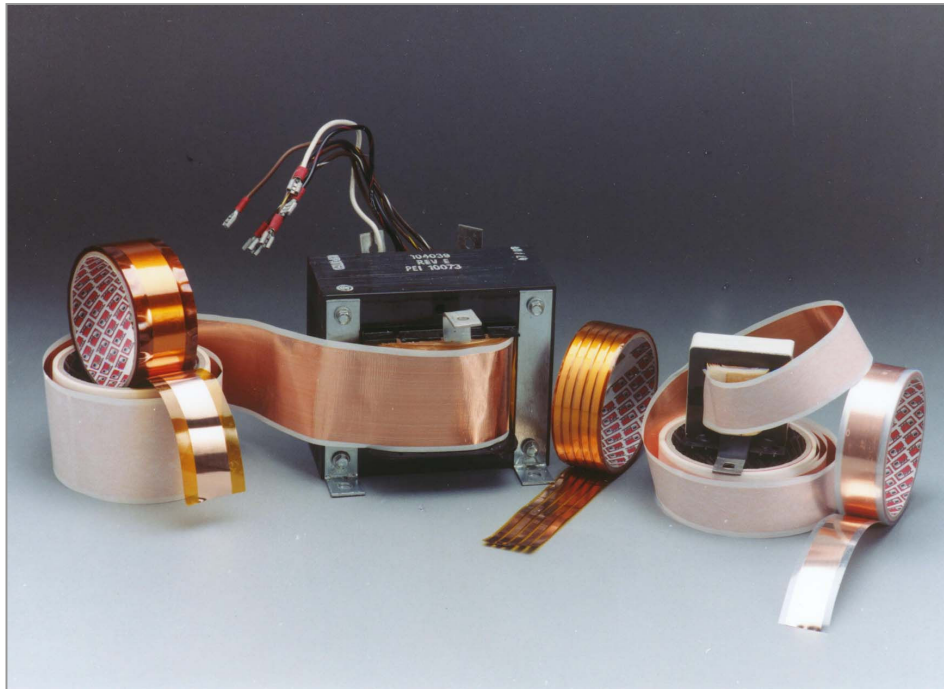
Polyester	0.050 mm (2.0 Mil)
	from 9 mm to 100 mm (0.36" to 4")

Roll length: up to 100 m (110 yds)

\*Other copper thicknesses may be supplied subject to availability and minimum order requirements.



## OTHER FORMS OF SHIELDS, FOILS & LAMINATES

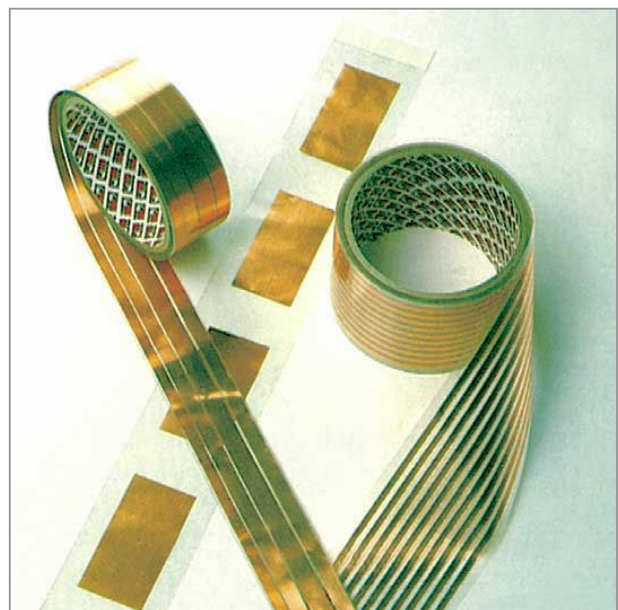


1. Similar to PPI 1091 and 10912 but with two or more parallel strips of copper.
2. Similar to PPI 1091, 10912, 1095 and 1096 but with a wide range of film thicknesses and other insulating materials such as Polyimide film, PEN film and NOMEX®2.
3. Special shapes and die-cut pieces of copper insulated in the same way as PPI 1091, 10912, 1095 and 1096 and available in a range of copper thicknesses up to 0,150 mm (6 Mils).
4. Copper foils with insulation laminated on one side only for coil winding.

**Insulation for classes B, F and H available as standard.**

Static shielding in forms other than those described above can be produced subject to minimum order requirements.

For further information please consult our "PPI foils for shielding and winding" catalogue.





## Core and layer insulation with fringed PPI self-adhesive tapes

PPI fringed self-adhesive tapes with partial adhesive coating.

The high-quality base materials ensure a reliable and lasting insulation and the availability of fringing in the range from 0.5 mm to 2.0 mm ensures optimum insulation properties even on the smallest coils.

Supporting base	PPI type	Base Thickness		Adhesive hr = heat resistant ts = thermosetting pts = procured thermosetting	Adhesive strength		Length of roll		Adhesive coating	Characteristics and applications	
		mm.	Mil.		N/cm	Oz/in	m	yds			
Polyester	102620	0.025	1.0	synthetic rubber	ts	4.0	36	66	72	strip-coated single faced yellow and crème	For core- and inter- layer insulation with flanged coils. Allows efficient work in minimal time, prevents breakdown at flange, safe insulation reduces waste.
		0.036	1.5			4.0	36				
		0.050	2.0			4.0	36				
		0.025	1.0	synthetic resin	ts	4.0	36	66	72		

PPI Fringed tapes for insulation classes F and H also available on request subject to the suitability of the material for fringing and minimum order requirements.

## Supply specification

Width of tape in mm from-to	Width adhesive in mm	Adhesive-free zone on each side in mm including fringe depth		Fringe spacing for all widths in mm	Fringe depth in mm
		from	to		
12-22	8	2	7	all widths from 0,5-2,0 mm	On request
22-30	15	3,5	7,5		1-10mm
30-42	20	5	11		depending
42-52	30	6	11		on widths
52-100	40	6	30		of the tape

PPI core and layer insulations can be applied fully or semi automatically, thereby offering significant time saving as against non-adhesive insulations.

The tensile strength of the base materials prevents tearing of the fringing during high-speed application on automatic machines.  
The special adhesive zone in the centre of the tape is corrosion proof and highly resistant to ageing.

## Standard Table for DIN Transformers

DIN-transformer	Inner widths	Safety allowance	Fringe depth	Fringe spacing	Overall width
M 30	17.4 mm	0.6 mm	2x1.5 mm	1 mm	21 mm
M 42	26.3 mm	0.7 mm	2x1.5 mm	1 mm	30 mm
M 55	33.4 mm	0.6 mm	2x2.0 mm	1 mm	38 mm
M 65	38.8 mm	0.7 mm	2x2.0 mm	1.5 mm	43.5mm
M 74	44.6 mm	0.4 mm	2x2.0 mm	1.5 mm	49 mm
M 85	48.6 mm	0.4 mm	2x2.0 mm	1.5 mm	53 mm
M 102	60.5 mm	0.5 mm	2x2.0 mm	1.5 mm	65 mm
EI 30	12.5 mm	0.5 mm	2x1.5 mm	1 mm	16 mm
EI 38	17.1 mm	0.4 mm	2x1.5 mm	1 mm	20.5mm
EI 42	18.8 mm	0.7 mm	2x1.5 mm	1 mm	22.5mm
EI 48	21.9 mm	0.6 mm	2x1.5 mm	1 mm	25.5mm
EI 54	24.5 mm	0.5 mm	2x1.5 mm	1 mm	28 mm
EI 60	27 mm	0.6 mm	2x1.2 mm	1 mm	30 mm
EI 66	29 mm	0.5 mm	2x1.5 mm	1 mm	32.5mm
EI 78	34.5 mm	0.4 mm	2x2.0 mm	1.5 mm	39 mm
EI 84	37.7 mm	0.8 mm	2x2.0 mm	1.5 mm	42.5mm
EI 96	44 mm	0.5 mm	2x2.0 mm	1.5 mm	48.5mm
EI 120	54.5 mm	0.5 mm	2x2.0 mm	1.5 mm	59 mm





## UL RECOGNISED & MILITARY SPECIFICATIONS

PPI-type	Colour	Tape Description	UL Guide	File Number
<b>For use at temperatures not to exceed 130° C</b>				
01020	white	Polyester Film	OANZ 2	E 86214 (M)
10160	yellow	Polyester Film	OANZ 2	E 86214 (M)
10260	yellow	Polyester Film	OANZ 2	E 86214 (M)
10420	yellow	Polyester Film	OANZ 2	E 86214 (M)
1711A	clear	Polyester/Glasscloth	OANZ 2	E 86214 (M)
84110	white	Polyester Film	OANZ 2	E 86214 (M)
101620	yellow	Polyester Film fringed	OANZ 2	E 86214 (M)
102620	yellow	Polyester Film fringed	OANZ 2	E 86214 (M)

### For use at temperatures not to exceed 155° C

65100	natural	Nomex®2 Polyamide paper	OANZ 2	E 86214 (M)
84100	white	Glasscloth	OANZ 2	E 86214 (M)

### For use at temperatures not to exceed 180° C

65120	natural	Nomex®2 Polyamide paper	OANZ 2	E 86214 (M)
70100	brown	Polyimide film	OANZ 2	E 86214 (M)
70110	brown	Polyimide film	OANZ 2	E 86214 (M)
84150	white	Glasscloth	OANZ 2	E 86214 (M)

## The following PPI tapes meet the flame retardancy requirements of UL 510

PPI type	Tape Description	UL Guide	File Number
01020	Polyester Film	OANZ 2	E 86214 (M)
65120	Nomex®2 Polyamide paper	OANZ 2	E 86214 (M)
70100	Polyimide film	OANZ 2	E 86214 (M)
70110	Polyimide film	OANZ 2	E 86214 (M)
84150	Glasscloth	OANZ 2	E 86214 (M)
902	Aluminium foil	OANZ 2	E 86214 (M)
9110	Copper foil	OANZ 2	E 86214 (M)
9120	Copper foil embossed	OANZ 2	E 86214 (M)
1091	Copper foil/Polyester film	OANZ 2	E 86214 (M)
10912	Copper foil/Polyester film fringed	OANZ 2	E 86214 (M)

## Military Specifications

PPI Type		
01020, 10100, 10160, 10260, 10280, 10420	Polyester Film	Mil-I-15126 F (Type MFT 2.5)
10260, 10160, 10420, 10280	Polyester Film	Mil-I-15126 F (Type MFT 3.5)
10400	Polyester Film	Mil-I-15126 F (Type MFT 2.5)
10400	Polyester Film	Mil-I-15126 F (Type MFT 3.5)
35100, White and Black	Acetate Cloth	Mil-I-15126 F (Type ACT)
84110, White	Glass Cloth	Mil-I-15126 F (Type GFT)
84100, White	Glass Cloth	Mil-I-15126 F (Type GFT)
84150	Glass Cloth	Mil-I-19166 C
70100	Polyimide Film	Mil-P-46112 (Film only)
70110	Polyimide Film	Mil-P-46112 (Film only)
9815	Aluminium-Glass Cloth	Mil-T-83284
9115	Copper Foil	Mil-T-47012
9015	Aluminium Foil	Mil-T-47012



## ADHESIVE TAPES FOR THE ELECTRONICS INDUSTRY

### PPI 105

#### PPI RD 397A

Masking tapes for printed circuits during the plating process especially for gold plating of contacts. RD-397A is particularly suitable for thicker circuits.

PPI:	105	RD-397A
Base:	Polyester Film	Polyester Film
Total thickness:	0.050 mm (2 mil)	0.095 mm (3.7 mil)
Temperature resistance:	100°C (212°F)	100°C (212°F)
Colour:	Transparent	Green

### PPI 289

SILICONE FREE masking tape for printed circuits during the plating process. As the adhesive contains no silicones there is no risk of contamination.

Base:	Polyester Film
Total thickness:	0.100 mm (4.0 mil)
Temperature resistance:	100°C (212°F)
Colour:	Green

### PPI RD 487D

Masking tape for printed circuit boards during the hot air levelling process especially for masking of gold-plated fingers. Conformable and tear resistant, RD-487D will leave no adhesive residue when removed from the circuit board.

Base:	Paper/Polyester Film
Total thickness:	0.250 mm (9.3 mil)
Temperature resistance:	300°C (572°F)
Colour:	Grey

## PPI-self adhesive tapes for printed circuit board assembly

PPI RD-042D:	High temperature polyimide <b>anti-static</b> masking tape
PPI 701:	High temperature polyimide masking tape
PPI 255:	High temperature crepe paper masking tape
PPI 168:	High temperature masking tape <b>water soluble</b>
PPI RD-125B:	High temperature masking tape <b>water soluble</b>

**PPI 2000 series:** High temperature masking tape **solvent soluble**

**Patented**

### PPI 1051:

Bandoleering and masking tape for electronic components e.g. LED and LCD displays during the encapsulating process. Gives complete protection against transfer of resin to the tape and transfer of adhesive to the body of the component.

Base:	Polyester Film
Base thickness:	0.036, 0.050, 0.100 mm = 1.5, 2.0, 4.0 Mil
Total thickness:	0.070, 0.085, 0.135 mm = 2.8, 3.3, 5.3 Mil
Temperature resistance:	to 135° C = 275° F
Colour:	Grey

**For further information please consult our "PPI self adhesive tapes for printed circuit board assembly" catalogue.**





## EMI/RFI SHIELDING FOR ELECTRONIC APPLICATIONS

### **PPI 9110: Copper tape with non-conductive adhesive.**

Base thickness:	0.035 mm	1.4 Mil
Total thickness:	0.070 mm	2.75 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	40 N/cm	23 lbs/inch
Temperature resistance:	155°C	311°F

### **PPI 9115: Copper tape with conductive adhesive for EMI/RFI shielding, static shielding, solderable**

Base thickness:	0.035 mm	1.4 Mil
Total thickness:	0.060 mm	2.4 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	40 N/cm	23 lbs/inch
Temperature resistance:	155°C	311°F

### **PPI 9116: Copper tape with conductive adhesive on both sides for EMI/RFI shielding, bonding of conductive surfaces, electrical grounding.**

Base thickness:	0.035 mm	1.4 Mil
Total thickness:	0.085 mm	3.4 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	40 N/cm	23 lbs/inch
Temperature resistance:	155°C	311°F

### **PPI 9120: Embossed copper tape, conductive through adhesive, lowest contact-resistance, for EMI/RFI shielding, static shielding, solderable.**

Base thickness:	0.035 mm	1.4 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	40 N/cm	23 lbs/inch
Temperature resistance:	155°C	311°F

### **PPI 9015: Aluminium tape with conductive adhesive for EMI/RFI shielding, static shielding.**

Base thickness:	0.040 mm	1.6 Mil
Total thickness:	0.065 mm	2.5 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	25 N/cm	14 lbs/inch
Temperature resistance:	155°C	311°F

### **PPI 9020: Embossed aluminium tape, conductive through adhesive, lowest contact resistance, for EMI/RFI shielding, static shielding.**

Base thickness:	0.040 mm	1.6 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	25 N/cm	14 lbs/inch
Temperature resistance:	155°C	311°F

**All the above tapes are available with a removable interliner and also in DIE-CUT form.**



## **TIN-CLAD COPPER EMI/RFI SHIELDING TAPES FOR ELECTRONIC APPLICATIONS**

**Copper foil is tin-clad on both sides to ensure good solderability and corrosion resistance.**

**PPI 9510:**      **Tin-clad copper tape with non-conductive adhesive for EMI/RFI shielding, static shielding, solderable.**

Base thickness:	0.035 mm	1.4 Mil
Total thickness:	0.060 mm	2.4 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	40 N/cm	23 lbs/inch
Temperature resistance:	155°C	311°F

**PPI 9515:**      **Tin-clad copper tape with conductive adhesive for EMI/RFI shielding, static shielding, solderable.**

Base thickness:	0.035 mm	1.4 Mil
Total thickness:	0.060 mm	2.4 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	40 N/cm	23 lbs/inch
Temperature resistance:	155°C	311°F

**PPI 9516:**      **Tin-clad copper tape with conductive adhesive on both sides for EMI/RFI shielding, static shielding.**

Base thickness:	0.035 mm	1.4 Mil
Total thickness:	0.085 mm	3.4 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	40 N/cm	23 lbs/inch
Temperature resistance:	155°C	311°F

**PPI 9520:**      **Embossed tin-clad copper tape, conductive through adhesive, lowest contact-resistance, for EMI/RFI shielding, static shielding, solderable.**

Base thickness:	0.035 mm	1.4 Mil
Adhesive strength:	4.5 N/cm	41 oz/in.
Tensile strength:	40 N/cm	23 lbs/inch
Temperature resistance:	155°C	311°F

**All the above tapes are available with a removable interliner and also in DIE-CUT form.**

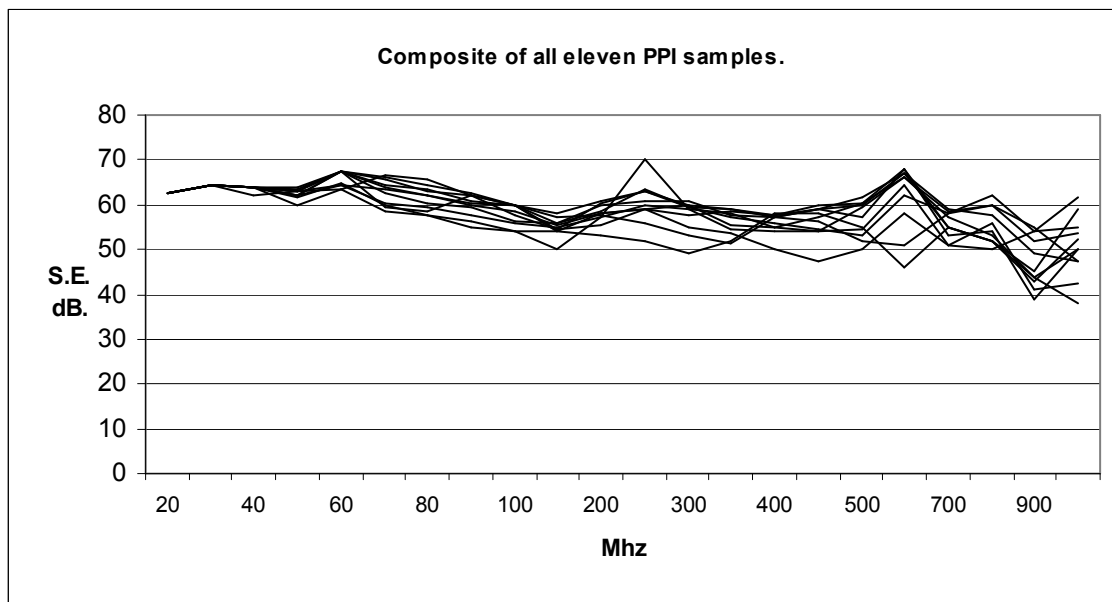


## SHIELDING EFFECTIVENESS TESTS ON PPI COPPER FOIL-BASED TAPES

FREQUENCY	SHIELDING EFFECTIVENESS										
	1	2	3	4	5	6	7	8	9	10	11
20	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5
30	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5
40	64	64	64	64	64	64	62	64	64	64	64
50	60	62	61.5	63.5	63	62	63	64	62	63	63
60	63.5	64.5	65	67.5	64.5	67.5	67.5	67.5	67.5	67.5	63.5
70	58.5	60.5	60	65.5	63.5	59.5	64	66	62.5	64.5	66.5
80	57.5	59.5	57.5	63	62	58.5	62	64.5	60.5	63.5	65.5
90	55	57.5	56.5	62	60.5	62	60	62.5	59.5	61	62
100	54	56	54	60	60	57.5	58.5	60	56.5	60	60
150	50	55	54	58	56	54.5	55.5	57	56	54.5	54
200	57	57	53	61	60	55.5	58	57.5	58.5	60.5	58
250	60	70	52	63	61	59	59	56	63.5	63	59
300	59	59	49	59.5	61	60	55	53	59.5	60	57.5
350	58	54.5	52	57	57.5	55.5	53.5	51.5	59	59	58.5
400	55	54	58	56	57	55	50	57	57.5	57	57.5
450	57	54	58	54.5	59	54	47.5	56.5	59	59	60
500	60.5	59.5	55	53	60	54.5	50	52	57	61.5	60.5
600	66	66	46	62	67	64.5	58	51	68	67	68
700	58.5	57	55	58	59	51	51	58	53	55	55
800	60	53	52	60	57.5	56	50	62	54	52	52
900	52	44	43	55	49	41	54	54	39	45	44
1000	53.5	50	52.5	47.5	47.5	42.5	61.5	55	50	59	38
Mhz.	dB.	dB.	dB.	dB.	dB.	dB.	dB.	dB.	dB.	dB.	dB.

### SAMPLES:

1. Plain copper foil 0.035 mm
2. PPI 9110
3. PPI 9115 Conduct. adhesive
4. PPI 9116 Conduct. adhesive
5. PPI 9120
6. PPI 9510
7. PPI 9515 Conduct. adhesive
8. PPI 9516 Conduct. adhesive
9. PPI 9520
10. PPI 1091 0.035 mm
11. PPI 1091 0.150 mm





## PPI SALES COMPANIES WORLDWIDE

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