

superior protection  
humid environment

# BECTRON®

Electronic protection  
provides a safe environment

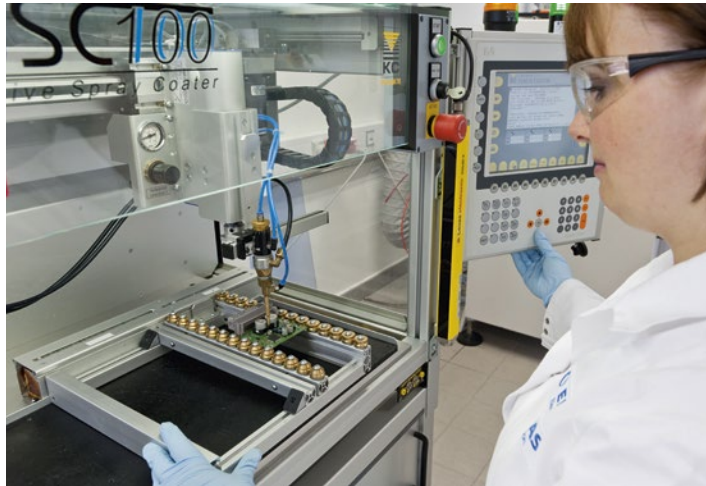


# BECTRON®

Conformal coatings for highest electronic performance

## Focus on innovation

The more you demand, the more you get



In the living world natural protection systems evolve slowly to preserve essential functions in harmful environments; resisting extremes of temperature and protecting against difficult conditions. The products of ELANTAS Electrical Insulation have similarly been developed over many years to make technology more reliable and safer. The BECTRON® family of conformal coatings, plus potting and coating resins, are specially designed to provide optimum protection and dielectric integrity for today's high performance modules.

Several selective coating systems in our lab provide a range of options for conformal coating with BECTRON®. These provide accurate coating patterns without masking but with precise and uniform BECTRON® thickness. The result is reproducible performance with substantial labour and material savings. Our highly trained and experienced researchers and engineers continually create new products to better serve practical needs. They are always available to answer your questions and provide whatever guidance you need.

In our application lab we are fully validating below testing procedures:

- Automotive qualification of conformal coating GS 95011-5 (BMW Coating List) and other standards
- Full approval of IPC-CC-830-B
- Full approval of IEC 61086 A
- Full approval of DIN EN 60068-2-52
- Full approval of UL 746 E
- Full approval of UL 94



BECTRON® performance is convincing in a wide range of applications. So the coating for your product can be configured to your special needs.

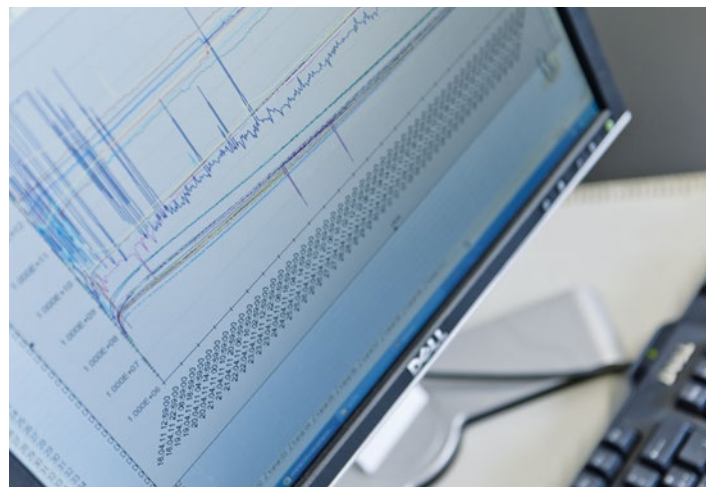
With both thin or thick-film coating plus the options of potting/encapsulation, specific BECTRON® performance can be tuned to very specific requirements.

Conformal coating and potting play a critical role in reliability under harsh conditions of electronic components such as printed circuit boards (PCB's), hybrids, sensors and electronic assemblies. It started with defence, aeronautic and marine applications and expanded to a variety of commercial, industrial, medical and consumer products. Today the automotive sector is the predominant application.



The product line BECTRON® includes

- **Thin film** with Alkyd, Acrylate, Silicone (1- component) RT-/oven curing, time < 10 minutes
- **Thick film**, VOC free with PUR, Epoxy, Silicone (1-component) UV curing, RT-/ temperature curing, humidity curing
- **Melting resin**, VOC free (1- component) Only cooling, no cleaning needed, very easy to use
- **Polyurethane** (1- & 2-component) RT-/ temperature curing (2-K systems) or temperature curing (1-K systems)
- **Silicone** (1- & 2-component) Gel type to soft-elastic molding materials, adhesives and sealings, UV-/RT/temperature curing







The BECTRON® project starts with a briefing of your requirements, continues with innovation work in our lab, usually including trials and ongoing dialogue with our clients, finally results in routine production assured by our regular quality control. BECTRON® is more than a product – it is a permanent process.

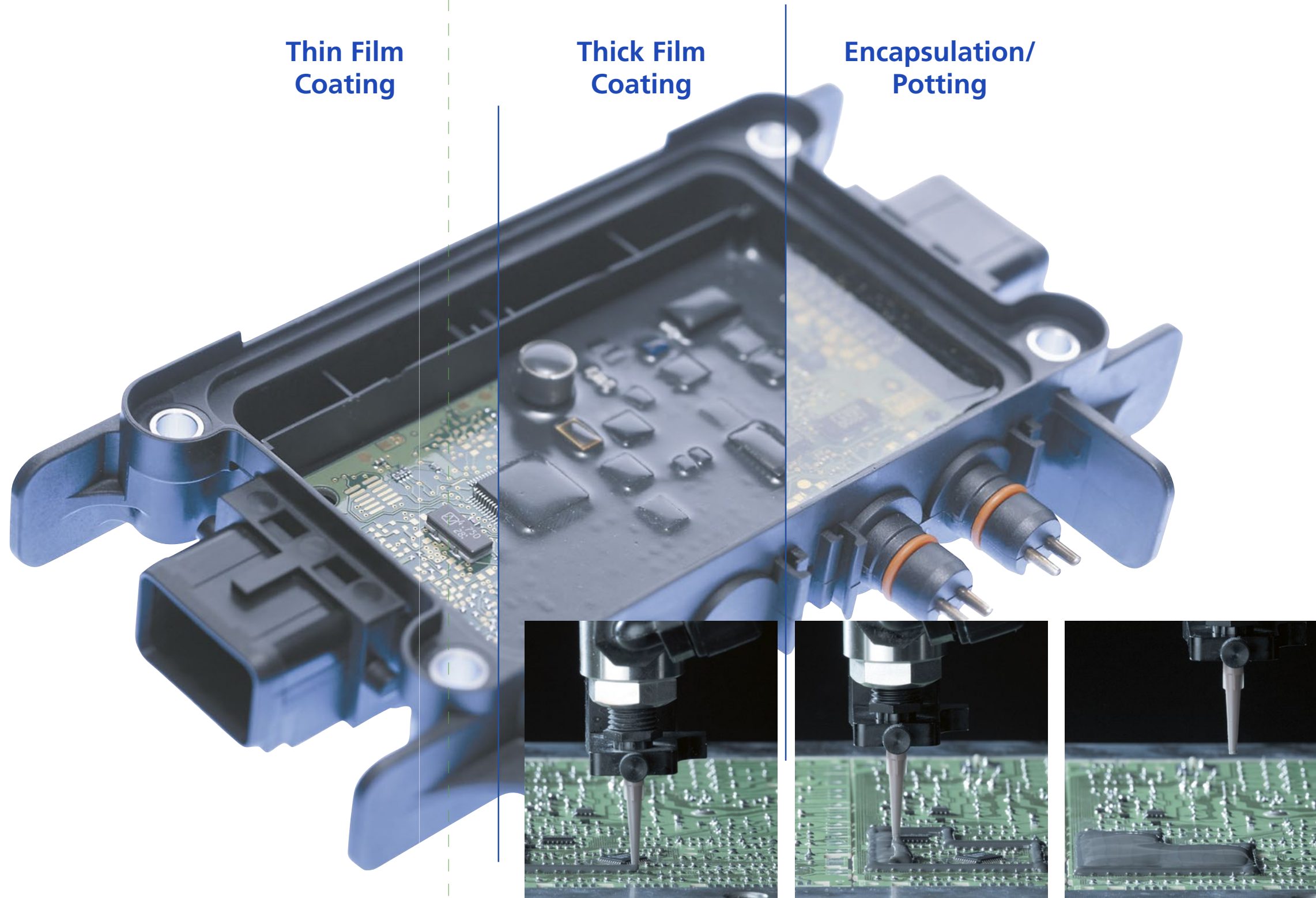


Bectron® production at ELANTAS Europe is certified according to DIN EN ISO 9001, DIN EN ISO 14001, BS OHSAS 18001 (site Hamburg received statement of conformity), DIN EN ISO 50001 (site Hamburg), continuous development of our QM system to the standard of ISO TS 16949.

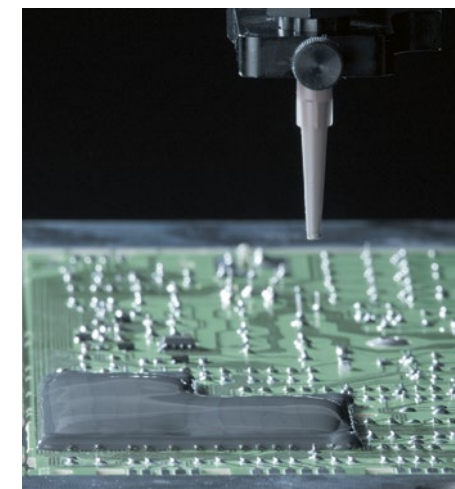
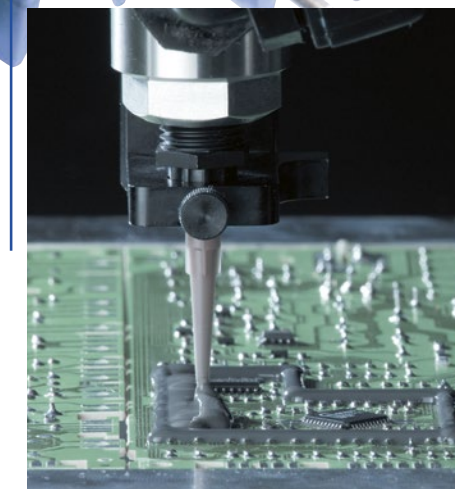
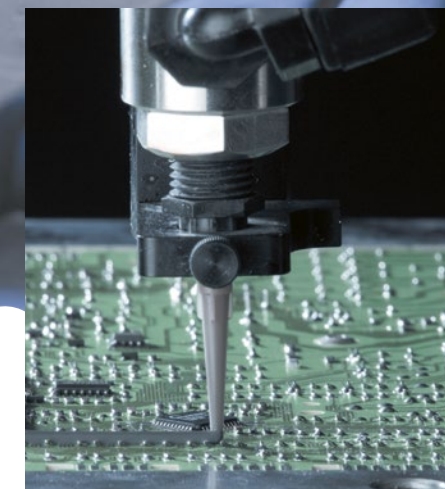
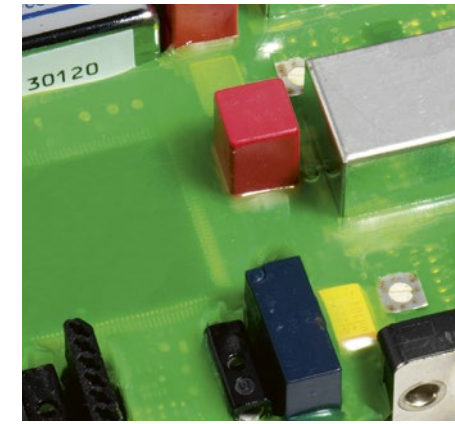
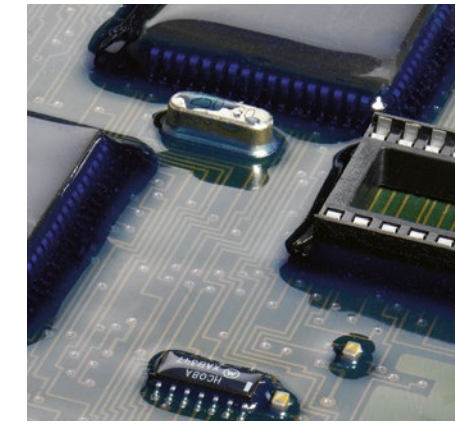
### Thin Film Coating

### Thick Film Coating

### Encapsulation/Potting



Thick Film Coatings for optimum edge covering and fast processing



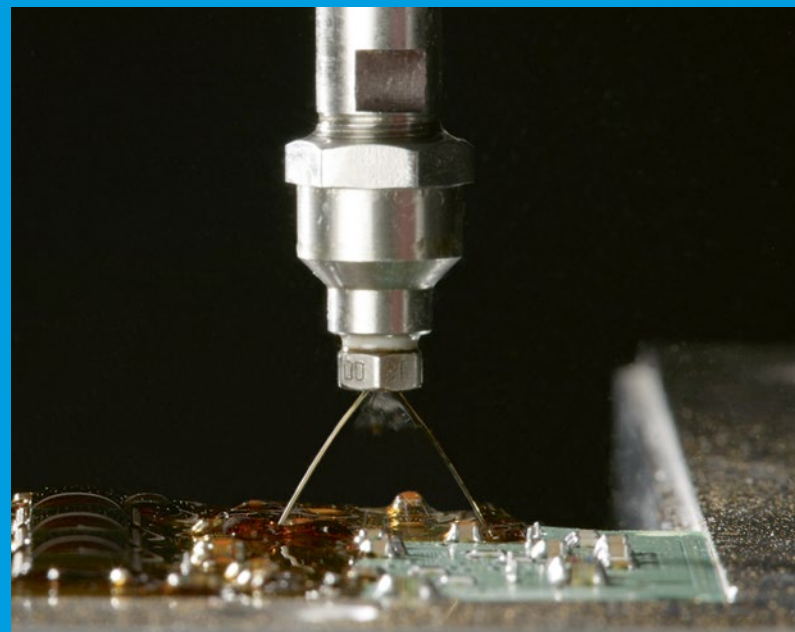
Dam&Fill-coating is key for encapsulation and thick layer PCB protection. Whatever protection you need – it can be done with BECTRON®



# What you need is what you get.

Different dispensing head options of selective coating systems are available to meet your conformal coating needs.

Each BECTRON® grade differs. So the method of coating has to differ, too. The range of options enable you to apply BECTRON® with constant accuracy and reproducibility.



The Film Coater is important for low viscosity thin-film coating, such as widely used solvent-based or VOC-free 100% solids systems.

## BECTRON® Coating and Potting Standard testing @ ELANTAS Europe

Environmental conditions	Testconditions	Testmethod
Damp heat constant T: +85 °C humidity: 85 %	+85 °C ±2 °C at humidity = 85 % ±2 % duration time > 168 h	IPC-TM-650 2.6.3.3 (Flux) IPC-SM-840C; Class T
Damp heat, alternating temperature test cycles T: +25 to +55 °C humidity: 95 %	Environmental chamber +25 °C to +55 °C ±2 °C humidity 93 % <sup>+2%</sup> <sub>-3%</sub> exposure time 9 h at +55 °C number of cycles (24 h) = 9 time of temperature changing 3 h	IEC 60068-2-30 GS 95003-4 VW 801 01 IPC-CC-830B
Alternating temperature test -40 °C to +120 °C	-40 °C to +120 °C at ±2 °C exposure time 30/45 min. no. of cycles = 100, (500 typ); (3000) time of temperature changing < 10 sec.	IEC 60068-2-14 GS 95003-4 VW 801 01 IPC-TM-650 2.6.7.1 IPC-CC-830B

# Worldwide locations



**ELANTAS GmbH**  
Wesel – Germany

**ELANTAS Europe GmbH**  
Hamburg – Germany  
Manchester – United Kingdom

**ELANTAS Europe S.r.L.**  
Ascoli Piceno, Collecchio,  
Quattordio – Italy

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**ELANTAS PDG, Inc.**  
St. Louis, Olean – U.S.A.

**ELANTAS Isolantes  
Elétricos do Brasil, Ltda.**  
Cerquilha – Brazil

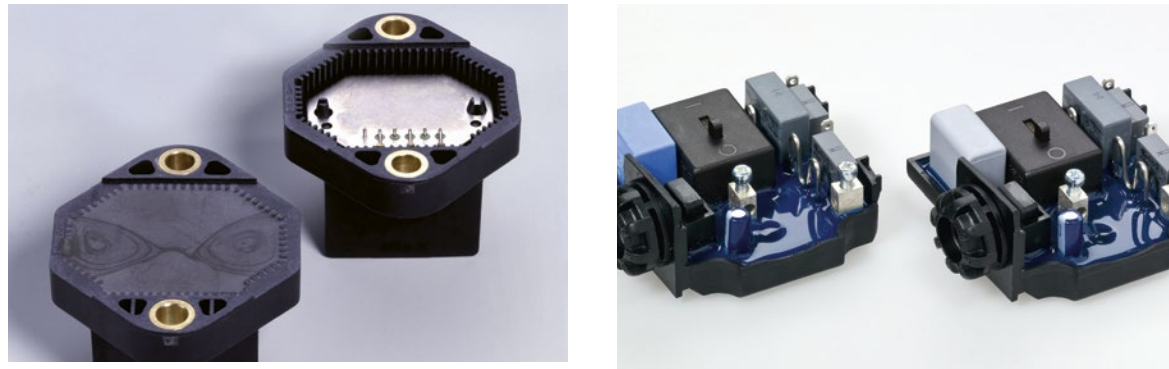
**ELANTAS Beck India, Ltd.**  
Ankleshwar, Pune – India

**ELANTAS Zhuhai Co., Ltd.**  
Zhuhai – P.R. China

**ELANTAS Tongling Co., Ltd.**  
Tongling – P.R. China

**ELANTAS Malaysia Sdn. Bhd.**  
Kuala Lumpur, Malaysia

# Encapsulation / Potting For High Performance



**Polyurethane and Polybutadiene 2 part systems:** BECTRON® PU 45.. and BECTRON® PB 35.. family is comprised of 2 component Polyurethanes covering a clear, high transparency resin and several filled resins. A range of viscosity, hardness and thermal resistance characteristics are available with some qualified for UL94 -V0.

Polybutadiene containing resin of the BECTRON® PB 35.. range give additional flexibility which persists at very low temperatures to withstand severe thermal cycling.

**Polyurethane 1 part systems:** The one component formulation of BECTRON® PK.. is ready to use with no issues of mixing ratio or pot life and offers reliable performance with potentially good environmental properties.

The resin system offers a range of viscosities with rapid heat cure to form a solid with one of 4 different hardness levels.

**Silicone 2 part systems:** BECTRON® SK75.. Silicones with Cross Linkers SH79.. provide 2 component systems with either addition and condensation chemistry and the advantage of very high thermal resistance in a clear or filled material. They offer a choice of viscosities from transparent gels to filled elastic silicone rubber with high thermal conductivity and UL94 V0. These offer ideal protection for delicate electronic components.

**Epoxy 2 part system:** BECTRON® EP 55.. family with Hardeners EH59.. form 2-part epoxy systems which cure to form elastic epoxy plastic. BECTRON® EP55.. is a solvent-less resin with fillers and reacts with a modified aliphatic amine. The resin compound cures with low volume shrinkage and heat evolution to give a stress-free resin. The high elasticity ensures very favourable temperature cycling between -40 °C and +125 °C.

## BECTRON® Encapsulation / Potting Resin

BECTRON® Encapsulation / Potting resins when cured display high elasticity and strength producing excellent temperature cycling behaviour within the range of -50 °C to +200 °C as well as resistance to vibrations. This ensures no crazing even in thick layered applications. Furthermore all have good adhesion to almost all materials used in electronics.

- Zero VOC / 100 % solids
- Resistant to temperature cycling from -50 °C to +200 °C / 20.000 h
- Low glass transition temperature
- Vibration damping, high elasticity
- No exotherm during curing
- Minimal shrinkage

## BECTRON® PU-Series 2 Component Polyurethanes, filled

Product Code	Viscosity [mPas]	UL 94	Max Temp. [°C/20.000 h]	Hardness [Shore]	Pot Life [min]	Cure [h] @ +25 °C	Cure [min] @ +90 °C	Thermal Conductivity [W/mK]
PU 4512	900	No	+110 °C	70 A	40	24	60	0.15
PU 4513	750	No	+115 °C	75 A	50	24	75	0.36
PU 4515	4,500	No	+150 °C	80 A	15	8	30	0.15
PU 4516	310	No	+125 °C	50 D	55	16	60	0.20
PU 4522	1,800	<b>V0</b>	+125 °C	85 A	20	8	30	0.48
PU 4526	1,900	<b>V0</b>	+130 °C	55 D	25	14	50	0.45
PU 4537	1,600	<b>V0</b>	+130 °C	64 D	30	24	120	0.74
PU 4539	4,000	<b>V0</b>	+130 °C	56 A	40	24	40	0.70

## BECTRON® 2 Component Silicones

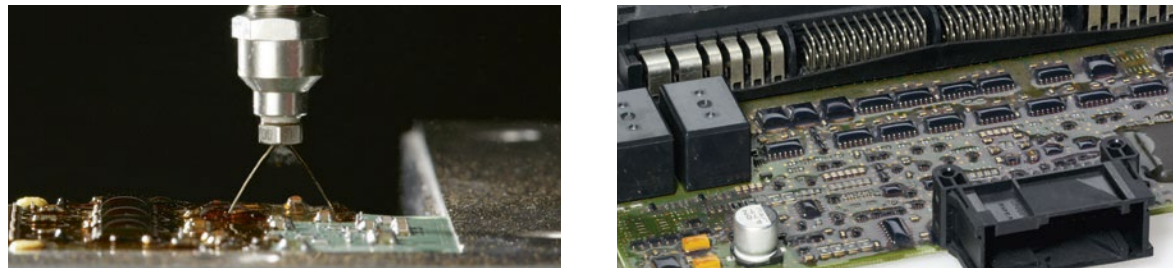
Product Code	Viscosity [mPas]	UL 94 [internal]	Max. Temp. [°C/20.000h]	Hardness [Shore]	Penetration [mm/10]	Pot life [min]	Cure Time [h@25 °C]	Thermal conductivity [W/mK]
SK 75V1-35/ SH 79V2-35	990	V1	200	35 A	-	180	1h @ 120 °C	0,30
SK 75V2-45/ SH 79V2-45	3,200	V0	200	45 A	-	60	24	0,54
SK 75V2-65/ SH 79V2-65	3,500	V0	200	65 A	-	60	24	0,45
SG 75L2-30/ SG 79L5-30	10,500	V0	180	-	30	120	48	0,90
SG 75V1-15/ SG 79V1-15	3,000	V0	200	-	15	60	12	0,20
SG 75V1-60/ SG 79V1-60	350	V1	200	-	60	120	24	0,20
SG 75V1-75/ SG 79V1-75	925	V1	180	-	75	45	24	0,20
SK 76V2-50/ SH 79V5-50	2,600	-	180	50 A	-	30	24	0,40
SK 76V2-75/ SH 79V5-75	7,500	V1	180	75 A	-	20	6	0,42

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# Thin Film Coatings For high performance



BECTRON® Thin Film Coatings are suitable for many process methods including select coat, spray, dip and selective flooding. Examples of applications include PCBs for the automotive and marine navigation industries, PCBs for industrial electronics, hybrid circuits, SMD assemblies and other discrete electronic components.

### Air Drying Resistant Coating

BECTRON® PL4122 BLF is a lead-free coating range based on urethane-alkyd varnish for conformal coating of printed circuit boards (PCBs) and hybrid circuits. BECTRON® PL4122 BLF products are free of aromatic solvents and meet the latest performance characteristics for electronics, including low pin corrosion and fast curing at oven and room temperature. Conveyor oven systems permit very short cure times, below 10 minutes.

### Rapid Process Acrylic Coatings

BECTRON® PL1102 and PL1104 are air dried coating, short cure times of 15 minutes at +25 °C to give a general protection for PCBs and related applications and are free of aromatic solvents and meet the latest performance characteristics for electronics.

### UV / oven Drying Coating

Bectron® PL 5622-250 is a VOC-free conformal coating with the excellent electrical performance and adhesion to most surfaces. It can be cured by UV irradiation and/or heat. Bectron® PL 5622-250 has very good temperature cycling behavior from -40 °C to +150 °C for requirements of automotive.

### BECTRON® PT 4600

Is a VOC-free, 1k polyurethane based and cured by UV irradiation and/or moisture. For easy process control, the color changes from blue to green/yellow to indicate the degree of UV-curing. BECTRON® PT 4600 is qualified according to UL 94 V-O (File-No. E211569).

UV cure is rapid, within seconds and moisture cure follows naturally for 2–3 days. The cured product has very good temperature cycling behavior from -40 °C to +120 °C and good adhesion on most substrates.

### Silicone

BECTRON® SC 75V1-16 is a VOC free silicone coating with high thermal performance, very fast curing at +90 °C possible also curing at room temperature. BECTRON® SC 76 conformal coatings are fast humidity curing silicones with excellent electrical and temperature shock properties.

### Thin Film Coatings

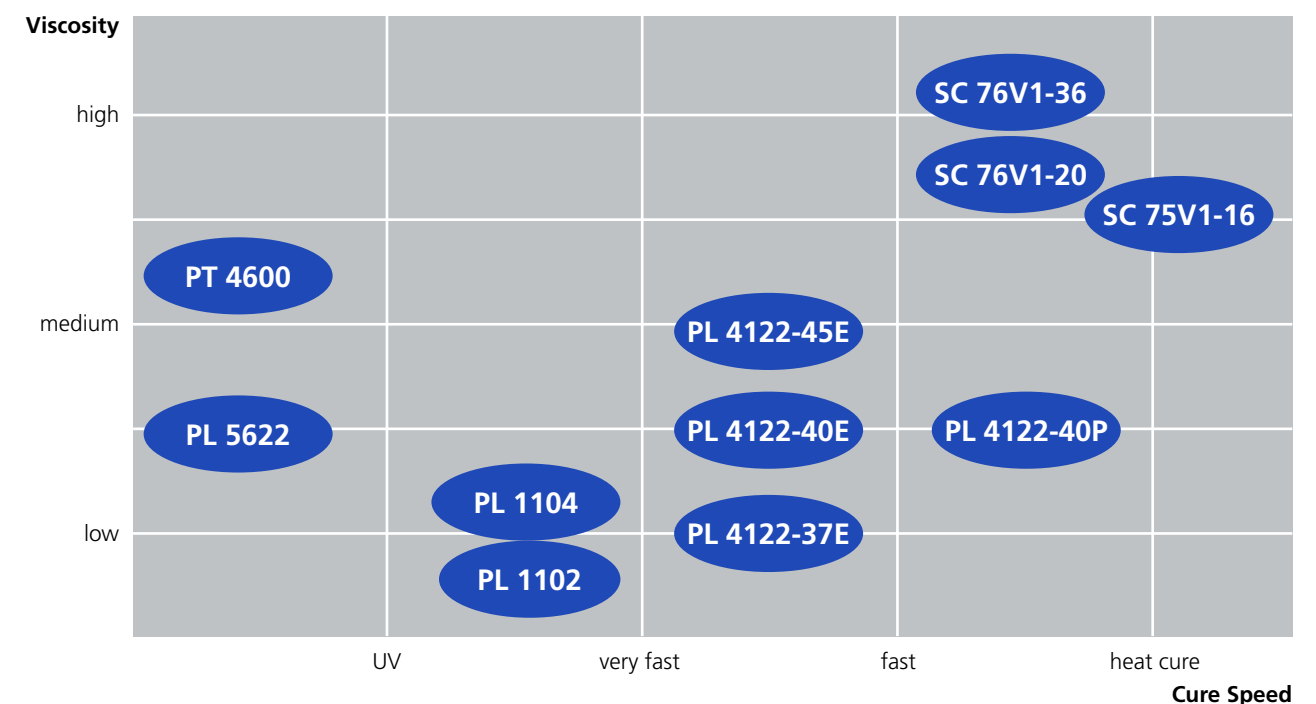
BECTRON® Thin Film Coatings provide optimal protection to electronic assemblies against moisture, chemicals, mechanical stress, dust, contaminants, corrosive gases and other impurities. Cured film properties include:

- High temperature index (up to +200 °C @ 20.000 h)
- Excellent thin film dielectrics
- Protection against several environmental influences
- Very good chemical resistance
- Excellent PCB adhesion withstanding several temperature cycles of -40 °C to +180 °C

### BECTRON® PL 1104, PL 4122 Series, SC 75... & SC 76...

Product Code	Chemical Base	Colour	UL 94	Max Temp. [°C @ 20.000 h]	Cure Speed [h @ +25 °C]	Cure Speed [min @ +80 °C]
PL 1102	Acrylic	Transparent	V0	+120 °C	8	–
PL 1104	Acrylic	Transparent	V0	+120 °C	12	10
PL 4122-37 E	PUR	Transparent	V0	+134 °C	16	30
PL 4122-40 E	PUR	Transparent	V0	+134 °C	16	30
PL 4122-45 E	PUR	Transparent	V0	+134 °C	16	30
PL 4122-40 P	PUR	Transparent	V0	+134 °C	24	45
SC 75V1-16	Silicone	Transparent	V0	+200 °C	–	45
SC 76V1-20	Silicone	Transparent	V0	+200 °C	24	–
SC 76V1-36	Silicone	Transparent	HB	+200 °C	24 (3 mm)	–
PL 5622-250	Epoxy	Transparent	V0	+150 °C	–	–
PT 4600	PUR		V0	+120 °C	24	–

### Thin Film Coatings BECTRON®



### ELANTAS Europe GmbH

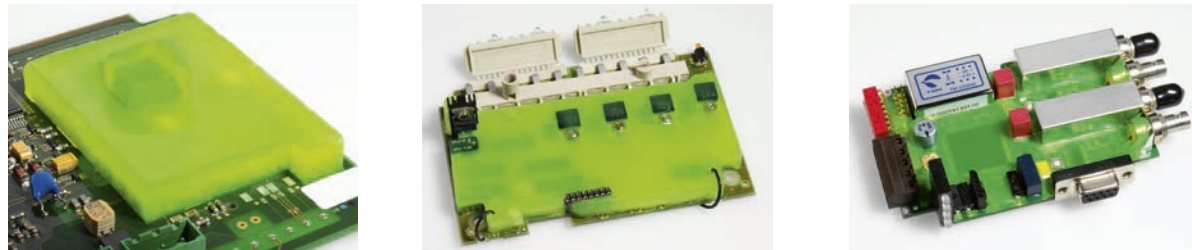
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# Melting Resins

## For high performance



### Optimal protection for extreme demands

**BECTRON® MR 34..** series is a set of thick film coating melting resins developed for rapid and simple protection of electronics. The material is based on modified polyolefin and is solvent-free with zero VOC. Polyolefin resins offer better moisture resistance and adhesion than standard hot melt materials based on polyamide chemistry.

BECTRON® MR 34.. series forms a soft and flexible encapsulation, operating over the temperature range -40 °C to 145 °C.

The electrical insulation properties are excellent with very good adhesion to many substrates. Strong chemical resistance protects against acids, alkalis and polar solvents and also fungal growth, but not to aliphatic and aromatic and chlorinated hydrocarbons.

Application of thermoplastic resins is particularly easy with a melting resin applicator, heated dispensing or monofilament system. With the monofilament system it is possible to reach thickness of approx. 200–400 µm. The removal of melting resin for repair or re-work is also very simple. Above the respective melting temperature, the melting resin is ready to use. On cooling to +105 °C it hardens to a solid. BECTRON® MR resins are ideally suited for high volume production lines with very short process time. Due to their low polarity, BECTRON® MR 34.. products have excellent electrical insulation properties. This is particularly advantageous in high humidity environment and at higher frequencies (MHz to GHz range).

Melt viscosities in the range 520 mPas to 9.250 mPas are available to suit more requirements.

BECTRON® MR34.. series has very good electrical properties particularly suitable for a wide range of electronic elements. It provides protection against moisture, corrosion, vibration and migration. BECTRON® MR is used very successfully in many different applications, from securing of individual components to the protection of hybrids and whole assemblies.

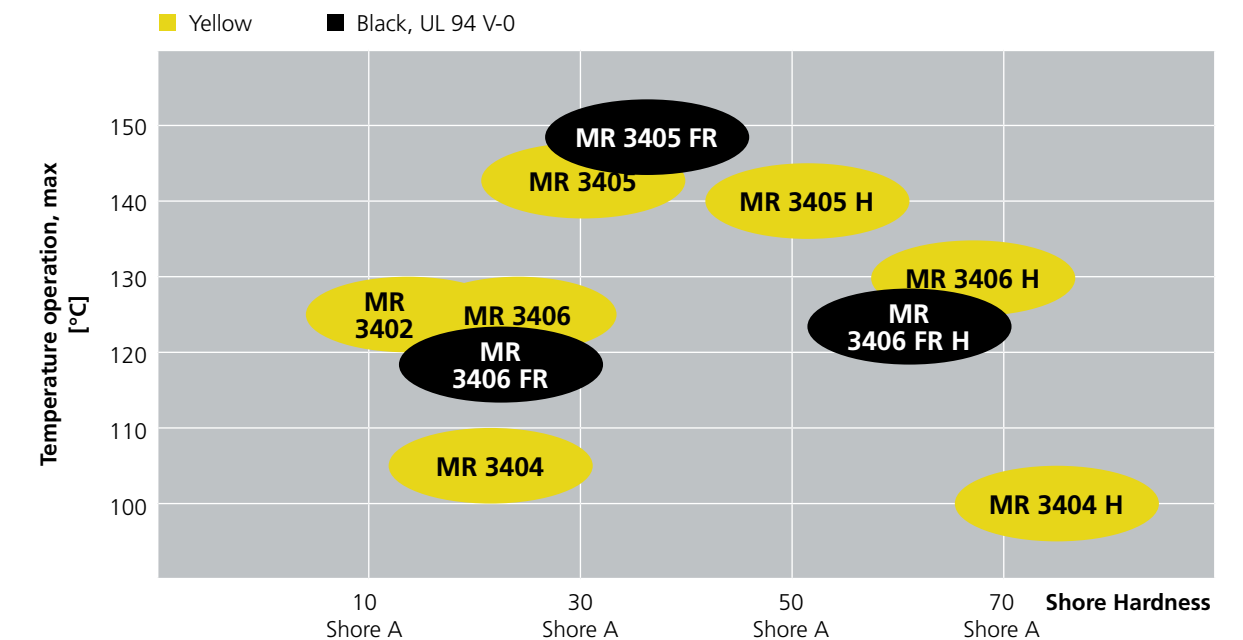
### Melting Resins for high performance

BECTRON® MR 34 series is a one-component melting resin thick film coating, developed for electronic application. It is based on polyolefin resin chemistry, which is better suited to electronics than conventional polyamide based hot-melt thermoplastic:

- One component / "Ready to use"
- Zero VOC / 100 % solids
- Environmentally friendly / non-hazardous classification
- Ideal dielectric properties for electronic applications, i.e. at high frequencies
- Very low water absorption, excellent protection against humidity
- Very good adhesion on PCB's
- Possible to reach thick film thicknesses of 200 µm to 400 µm as well as for potting applications
- Repairable/recycling possible

### BECTRON® MR series (Polyolefine, Thick-Film, Melting Resin, Potting)

Product	Recommended Application conditions	Color	UL 94	Max. operation temperature [°C]	Hardness [Shore A]	Softening point [°C]
BECTRON® MR 3402	9250 mPa·s @ 190 °C	Yellow	–	125	15	130
BECTRON® MR 3404	1100 mPa·s @ 180 °C	Yellow	–	105	22	107
BECTRON® MR 3404 H	2000 mPa·s @ 170 °C	Yellow	–	100	75	105
BECTRON® MR 3405	2100 mPa·s @ 190 °C	Yellow	–	145	30	155
BECTRON® MR 3405 H	2000 mPa·s @ 190 °C	Yellow	–	140	53	153
BECTRON® MR 3405 FR	2000 mPa·s @ 200 °C	Black	V-0	145	35	156
BECTRON® MR 3406	520 mPa·s @ 180 °C	Yellow	–	125	15	138
BECTRON® MR 3406 FR	800 mPa·s @ 190 °C	Black	V-0	125	16	139
BECTRON® MR 3406 H	2000 mPa·s @ 180 °C	Yellow	–	125	65	136
BECTRON® MR 3406 FR H	2500 mPa·s @ 190 °C	Black	V-0	125	63	136



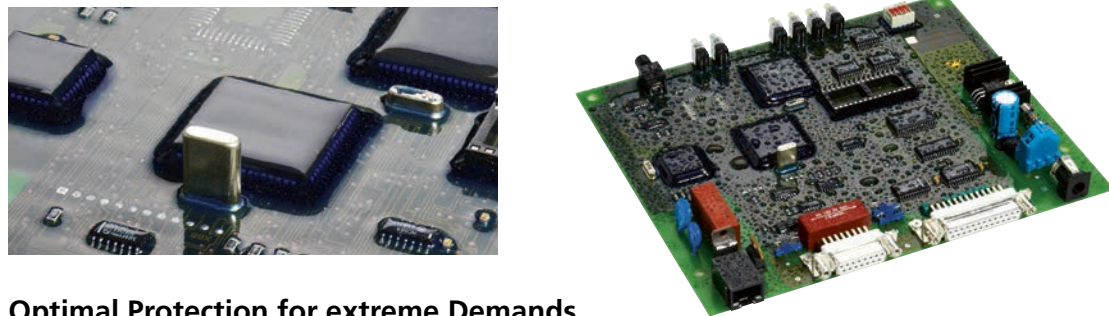
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# Thick Film Coating – Moisture / UV cure For high performance



## Optimal Protection for extreme Demands

**BECTRON® PT 46.. UV & moisture cure** is a solvent-free, zero VOC, one-component polyurethane based thick film coating, cured by UV irradiation and/or by moisture. It provides an ideal VOC-free conformal coating with very short process time. For easy process control, the colour changes from blue to green/yellow to indicate the degree of UV-curing. BECTRON® PT 4600 is qualified according to UL 94 V-O (File-No. E211569).

UV cure is rapid, within seconds and moisture cure follows naturally for 2–3 days and can be accelerated by heat and humidity.

The cured product shows very good temperature cycling behaviour from -40 °C to +120 °C and good adhesion on most substrates. It is strong enough to form a support to secure large components, acting as an adhesive.

The viscosity is low, suitable for rapid automated robotic coating with a choice of application systems such as spraying, dispensing or jetting with reliable edge-covering of sensitive components.

**BECTRON® PT 48..** series one-component moisture-cured polyurethane based thick film coatings are used for protecting and mechanically supporting connections and components of PCBs and hybrids. The whole range has low VOC contribution. The cured product is elastic over the range -50 °C to 120 °C with good adhesion to most substrates to resist vibration.

BECTRON® PT 48.. series is resistant to solvents and dilute acids and alkalis providing excellent protection against moisture migration and corrosion after severe wet storage conditions.

PT 48.. series offers the reliable dielectric properties expected from all BECTRON® products.

3 different viscosity levels, from 1,400 mPas to a viscous thixotropic grade, permit a wide range of applications and processes. BECTRON® PT 48.. cures at room temperature to a dry surface condition in 1–2 hours and further processing is possible a few hours later.

**BECTRON® SC 76V1-36** is a solvent free, one component silicone coating curing with moisture at room temperature. The cured product shows very good temperature cycling behavior from -55 °C to 200 °C.

## BECTRON® Thick Film Coatings – Moisture / UV cure

BECTRON® PT 4yxx is a urethane-acrylate UV and/or moisture cured coating. BECTRON® Thick Film Coatings provide optimal protection to electronic assemblies against moisture, chemicals, mechanical stress, dust, contaminants, corrosive gases and other impurities. Cured film properties include:

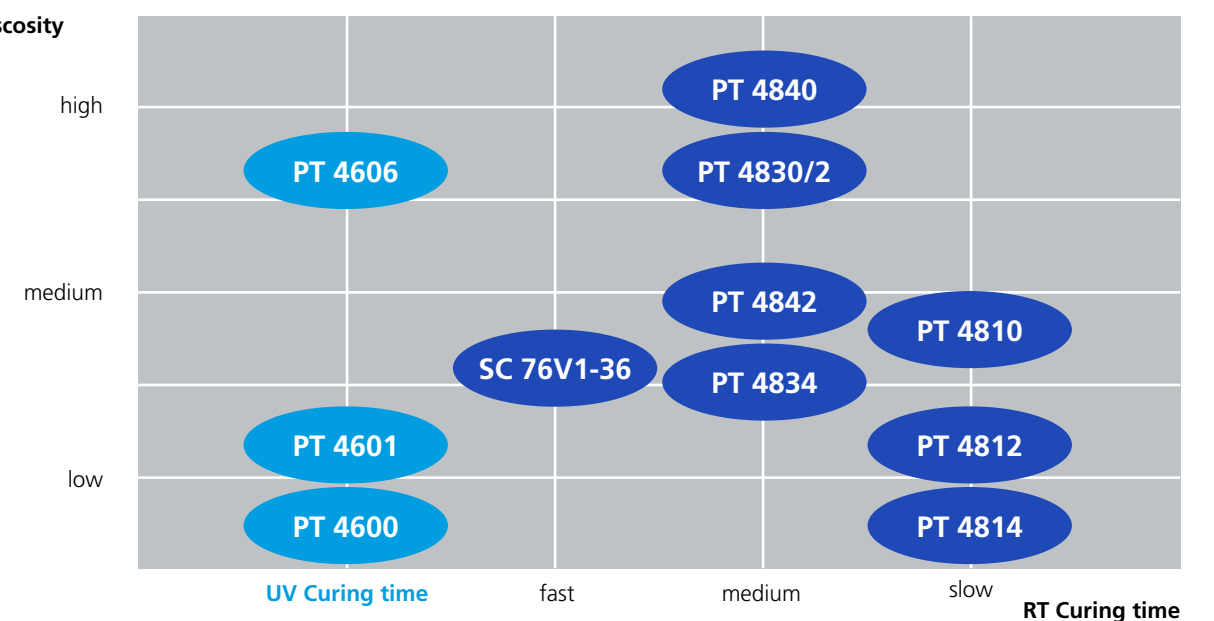
- Solvent Free, zero VOC
- Low temperatures to -50 °C
- Very good chemical resistance
- Excellent PCB adhesion withstanding several temperature cycles of -40 to +120 °C
- Protection against several environmental influences

## BECTRON® PT urethane-acrylate UV & moisture cured coating

Product Code	Product Viscosity [mPas]	Chemical Base	Max Temp. [°C/20.000 h]	Hardness [Shore]	UV Cure	Touch dry [h @ +25 °C]
PT 4600	1,000	PUR	120 °C	65 A	Yes	0
PT 4601	1,700	PUR	120 °C	65 A	Yes	0
PT 4606	46,000	PUR	120 °C	75 A	Yes	0
PT 4810	3,500	PUR	100 °C	45 A	No	5
PT 4812	2,600	PUR	100 °C	40 A	No	5
PT 4814	1,400	PUR	100 °C	45 A	No	5
PT 4830	50,000	PUR	100 °C	45 A	No	4
PT 4832	50,000	PUR	100 °C	45 A	No	4
PT 4834	3,200	PUR	100 °C	45 A	No	4
PT 4840	125,000	PUR	120 °C	42 A	No	4
PT 4842	3,700	PUR	120 °C	45 A	No	4
SC 76V1-36	3,100	Silicone	200 °C	36 A	No	10 min

## BECTRON® PT-Series (Thick-Film, 1 component, RT curing)

### Viscosity



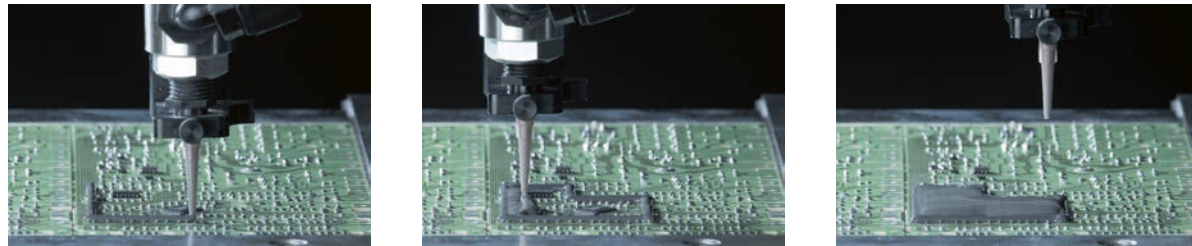
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# Thick Film Coating – Thermal Cure

## For high performance

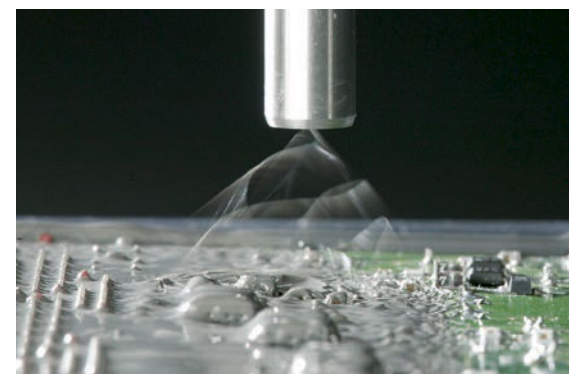
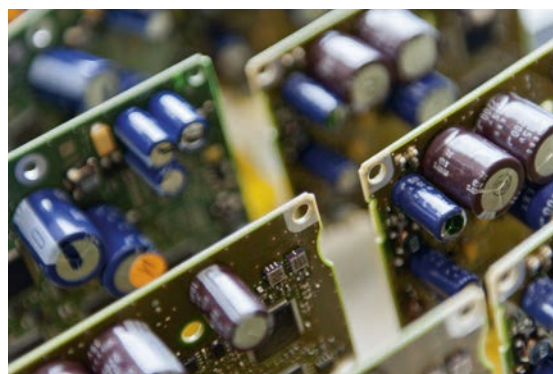


### Optimal Protection for extreme demands

**BECTRON® PK..** series is a one-component resin system which cures to form a thermoset plastic. The resin comprises special technology in a pre-mixed resin and hardener system which offers a range of viscosities which cure rapidly at +90 °C or Infra Red radiation to form solids with one of four different hardness levels.

As a 1 component product BECTRON® PK.. is ready to use avoiding issues of mixing ratios or pot life of 2 component systems but with no compromise on the excellent properties and, particularly, an environmentally friendly formulation.

Coatings of the PK resin series are used in the low viscosity version for select or swirl coating of PCBs or hybrids giving excellent edge covering under the coating layer. The high viscosity, thixotropic grades can be used for encapsulation of small components on the PCB. A combination of thixotropic and low viscosity grades allows Dam + Fill application “wet on wet” to achieve a thicker film needing only one curing cycle, which may be completed in only a few minutes under Infra Red radiation.



### Thick Film Coating – Thermal Cure

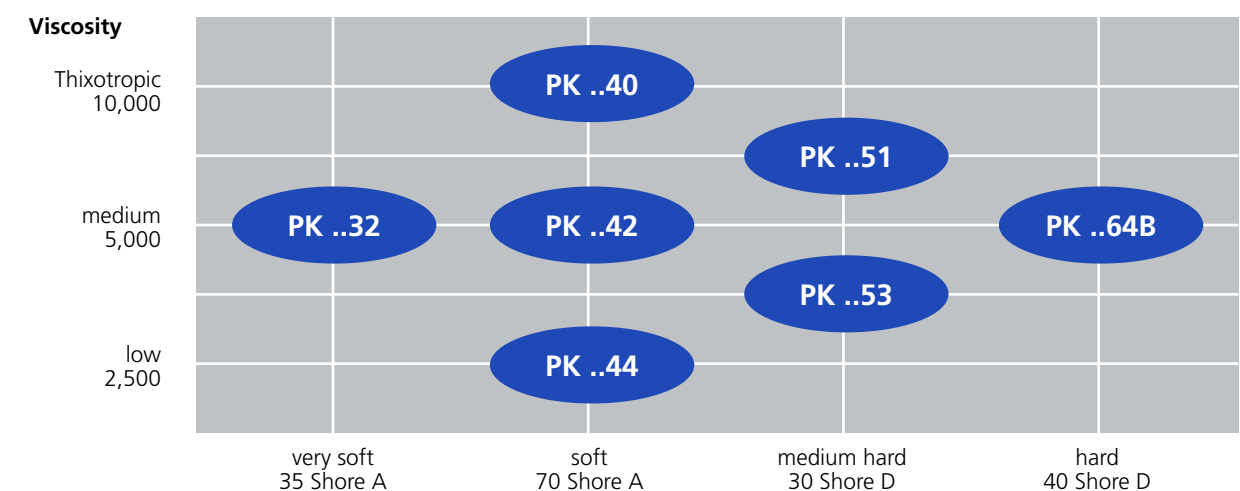
BECTRON® Thick Film Coatings of the PK series when cured display high elasticity and strength producing excellent temperature cycling behaviour within the range of -50 °C to +125 °C as well as resistance to vibration. This ensures no crazing even in thick film layered applications. The curing generates no heat (no exotherm) and minimal shrinkage poses no risk to sensitive components. Furthermore BECTRON® PK series has good adhesion to almost all materials used in electronics.

- One component / “Ready to use”
- Zero VOC / 100 % solids
- Environmentally friendly / non-hazardous classification
- Resistant to temperature cycling from -50 °C to +125 °C
- Glass transition temperature Tg < -60 °C
- Resistant to the usual car fluids

### BECTRON® PK-Series (1 Component, heat-curing)

Product Code	Colour	Viscosity [mPas]	Max Temp. [°C/20.000 h]	Hardness [Shore]	Cure Speed [min] @ +90 °C	Thermal Conductivity [W/mK]
PK 4332	Black	5,250	+125 °C	35 A	60	0.2
PK 4340	Black	9,500	+125 °C	70 A	30	0.3
PK 4342	Black	5,000	+125 °C	70 A	30	0.3
PK 4344	Black	2,000	+125 °C	70 A	30	0.3
PK 4351	Black	6,250	+125 °C	30 D	30	0.3
PK 4353	Black	3,750	+125 °C	30 D	30	0.3
PK 4364B	Blue	5,000	+125 °C	40 D	30	0.3
PK 5532	Black	5,500	+130 °C	35 A	30	0.2
PK 5542	Black	5,000	+130 °C	70 A	30	0.4
PK 5553	Black	3,500	+130 °C	30 D	30	0.3

### Thick Film Coatings BECTRON® PK ..xx-Matrix



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# BECTRON® for Automotive

## For highest electronic performance

### Thin Film Coating

- lead free, no aromatics
- fast curing
- good temperature cycling
- UL-listing 94 V0

### Thick Film Coating

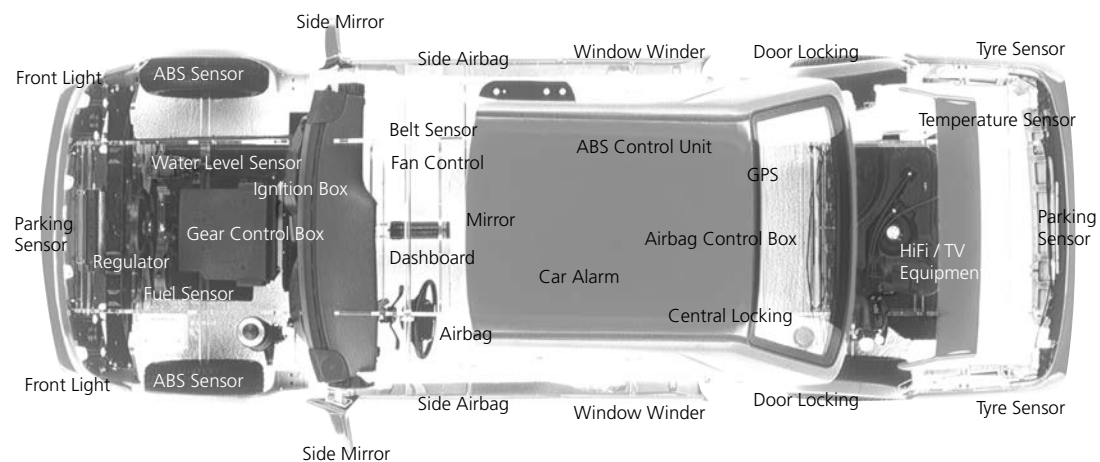
- zero VOC / 100 % solids
- easy processing
- good edge covering
- high operation temperature

### Encapsulation / Potting

- from highly flexible to rigid
- transparent or filled
- one and two component
- very good adhesion

### BECTRON® Coatings meet all requirements of modern automotive electronic industry

- Thermal Resistance
- Temperature Cycling
- Heat / High Humidity
- Mechanical Shock
- Corrosion Test
- Humidity Cycling
- Chemical Resistance
- Salt Spray
- Vibration



### Conformal Coating Comparison Guide

Properties	ALKYD	EPOXY	POLY-URETHANE	ACRYLIC	SILICONE
Protection against moisture	1	1	1	2	1
Protection against solvents	1	1	1	4	1
Protection against aggressive media	1	1	1	4	1
Mechanical strength	1	1	2	3	2
Temperature resistance	2	2	3	4	1
Adhesion to unwashed PCB	2	2	1	4	2
Temperature cycle range (°C)	2	2	2	3	1
Volume resistivity	1	1	1	1	1
Environmentally friendly	Yes	Yes	Yes	No	Yes
UL 94 V-O	Yes	Yes (possible)	Yes	Yes	Yes

Rating: 1 = Excellent, 2 = Good, 3 = Fair, 4 = Poor

### Standard testing @ ELANTAS Europe

Environmental conditions	Testconditions	Testmethod
Damp heat constant T: +85 °C humidity: 85 %	+85 °C ±2 °C at humidity = 85 % ±2 % duration time > 168 h	IPC-TM-650 2.6.3.3 (Flux) IPC-SM-840C; Class T
Damp heat, alternating temperature test cycles T: +25 °C to +55 °C humidity: 95 %	Environmental chamber +25 °C to +55 °C ±2 °C humidity 93% +2% -3% exposure time 9 h at +55 °C number of cycles (24 h) = 9 time of temperature changing 3 h	IEC 60068-2-30 GS 95003-4 VW 801 01 IPC-CC-830B
Alternating temperature test -40 °C to +120 °C	-40 °C to +120 °C at ±2 °C exposure time 30/45 min. no. of cycles = 100, (500 typ); (3000) time of temperature changing < 10 sec.	IEC 60068-2-14 GS 95003-4 VW 801 01 IPC-TM-650 2.6.7.1 IPC-CC-830B

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# Transparent Potting Resins and Gels



## Soft Elastic Transparent Gels

Application of silicone gel is particularly easy with a standard 2K application equipment, dispensing or monofilament system. The removal of silicone gel for repair or re-work is also very simple. It is ideally suited to high volume production lines with very short process time. Viscosities in the range 200 mPas to 10.000 mPas are available to suit more requirements.

BECTRON® SG 75xx series are available as a “flexible and non-sticky” gel, as well as a “soft-elastic” or “soft elastic sticky” gel and as well as a “soft and sticky” or “soft and non-sticky” gel over the temperature range -50 °C to 206 °C. The electrical insulation properties are excellent with good adhesion to many substrates.

BECTRON® SG 75xx series has very good electrical properties particularly suitable for a wide range of electronic elements. It provides protection against moisture, corrosion, vibration and migration. Many uses are possible, from securing of individual components like cable joint boxes to the protection of IGBT's.

## Transparent Resins UV Stable form Soft to Hard

BECTRON® PU 453x series in combination with hardener BECTRON® PH 4901 are 2 component systems which cure to form a resilient but flexible transparent polyurethane. All are solvent free systems with no bleeding characteristic even at high temperature exposure.

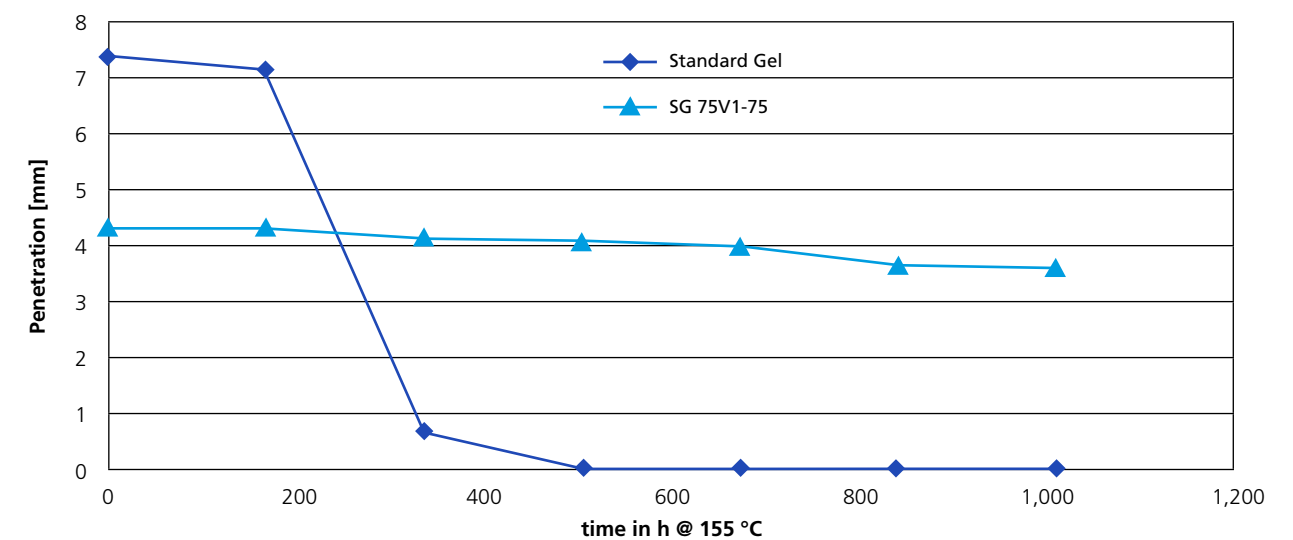
BECTRON® PU 453x series are designed for situations where visibility of the potted material is required, such as optoelectronics and sensor technology. All systems are non-yellowing in daylight. They can also be used as a clear resin for automotive displays or LED modules where high UV stability is needed..



## BECTRON® SG 75xx Silicone Gels for Potting

Product Code	Viscosity [mPas]	Colour	Max. operation temperature	Penetration [mm/10]	Pot Life	Cure time
SG 75L2-30/SG 79L5-30	10,500	blue	+180 °C	30	120 min@25 °C	48h@25 °C
SG 75V1-15/SG 79V1-15	3,000	transparent	+200 °C	15	60 min@25 °C	12h@25 °C
SG 75V1-60/SG 79V1-60	350	transparent	+200 °C	60	120 min@25 °C	24h@25 °C
SG 75V1-75/SG 79V1-75	925	transparent	+180 °C	75	45 min@25 °C	24h@25 °C

## Constant hardness of BECTRON® SG 75xx-yy



## BECTRON® Transparent Potting Materials

Product Code	Chemical Base	Viscosity [mPas]	Colour	Max. operation temperature	Hardness [Shore]	Potlife @ 23 °C
PU 4532 PH 4901	PU	700	Transparent clear	+120 °C	D50	25 min
PU 4533 PH 4901	PU	800	Transparent clear	+120 °C	A35	35 min
PU 4535 PH 4901	PU	800	Transparent clear	+120 °C	A60	35 min
PU 4501 PH 4901	PU	800	Transparent clear	+90 °C	A35	35 min
PU 4528 PH 4915	PU	4,000	Transparent yellow	+120 °C	A20	25 min
PB 3201 PH 4918	PBD	7,000	Transparent yellow	+100 °C	A70	30 min

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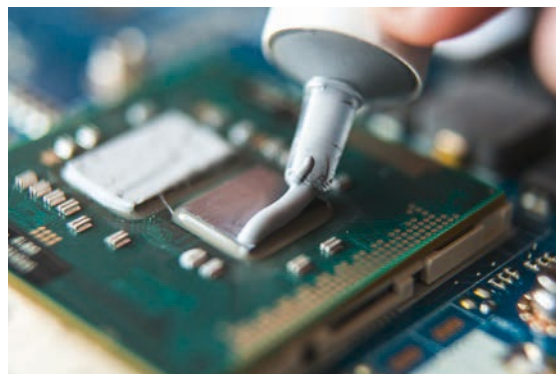
# Silicone Adhesives & Sealants

## For high performance



### Fixing components and sealing of housings

BECTRON® SA 70.. silicone adhesives and sealants offer excellent unprimed adhesion for fixing components and lid sealing applications. They show excellent adhesion to most substrates used in the electronics industry such as FR4, PBT, aluminium, copper and many other common materials. Thanks to their low modulus, they are often used to seal gaps between materials with very different coefficient of thermal expansion, remaining flexible over a wide range of temperatures.



### Heat dissipation

BECTRON® STC 74P1-51 is a thermally conductive compound for powerful components, which delivers high thermal conductivity at thin bond line.

BECTRON® SA 75L7-70 is our thermally conductive adhesive for more stringent needs and offers a good combination of high thermal conductivity, excellent adhesion and strong dielectric properties.

### BECTRON® SA 70.. Silicone Adhesives & Sealants for the Electronic Industry

Product Code	Viscosity [mPas]	Colour	Max. Temp. [°C/20,000h]	Tack free time [min]	Cure Time [h at 25 °C] 3 mm thickness	Hardness [Shore]	Elongation [%]	Tensile Strength [Mpa]
Bectron SA 70L1-30	44,000	Translucent	+200 °C	11	24	30 A	240	1.05
Bectron SA 70L1-36	3,200	Translucent	+200 °C	10	24	36 A	140	1.52
Bectron SA 70P1-15	Paste	Translucent	+200 °C	15	24	15 A	540	2.70
Bectron SA 70P1-30	Paste	Translucent	+200 °C	10	24	30 A	545	2.43
Bectron SA 70P1-34	Paste	White	+200 °C	15	24	34 A	580	2.00
Bectron SA 70P9-37	Paste	Black	+200 °C	15	24	37 A	450	2.40
Bectron SA 70P9-60	Paste	Black	+200 °C	3	24	60 A	200	2.35

### BECTRON® STC 74P1-51 and SA 75L7-70 for Thermal Transfer

Product Code	Viscosity [mPas]	Colour	Max. Temp. [°C/20,000h]	Thermal Conductivity [W/mK]	Cure Time [min at 100 °C]	Hardness [Shore]	Elongation [%]	Tensile Strength [Mpa]
Bectron STC 74P1-51	Paste	White	+150 °C	0.77		Non Curing Product		
Bectron SA 75L7-70	55,000	Grey	+200 °C	1.38	25	70 A	70	3.10