TOOLING

DESIGN & PROTOTYPING

Axson TECHNOLOGIES




With 70 years of expertise, AXSON in the formulation and fabrication of applied to design, prototyping and

OUR STRENGTH IS IN OUR CAPACITY TO ACCOMPANY OUR CLIENTS AROUND THE WORLD.

With 12 subsidiaries, 6 research centers, 6 production centers and 40 exclusive distributors, we are a leading global supplier of advanced materials in the fields of design & prototyping.

SUMMARY

SELECTION GUIDE

Our product ranges benefit from technological advances not only in France but also in Japan (Nagoya), the USA (Detroit), China (Shanghai), India (Pune), Slovakia (Bratislava) and Mexico (Mexico City). Our clients are sure to use the latest technological developments.

Our globally recognized expertise in polymers also extends to advanced technologies for composites, structural adhesives and potting & encapsulation resins.

TECHNICAL SUPPORT SERVICES

Axson Technologies global, direct technical support forms the basis of our success. Our Technical support services force is felt through our local presence with the best international network in its field in terms of both quantity and quality.

The continued development of our already outstanding technical support is our principal objective. And our clients' satisfaction is our finest recommendation.




Technologies is a major world leader polyurethane and epoxy resins tooling.

STRATEGIC PRODUCT CO-DEVELOPMENT

Three criteria form the basis of Axson Technologies product development efforts: speed of customers process, longevity of final results and safety of operators and users.

Custom-designed solutions

We help our customers manage today's industrial challenges - solutions for their future. Developing ways to solve our clients problems is what our technical experts and chemists do every day.

Analysis, Diagnostic, Resolution

Working together, we analyze your problem to develop optimized solutions. Product design, material testing and technical analysis take place in both our laboratory and on the client's site. This personalized service - from design to prototype to the final product - assures you of minimized down-time and quick solutions.

QUALITY, ENVIRONMENT AND SAFETY

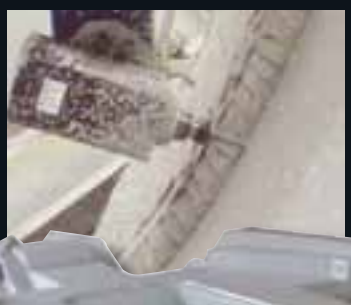
Axson Technologies was one of the first companies in its sector to be certified ISO 9001. Since 1991, we have implemented Total Quality processes in our entire organization. Our quality orientation has for its final goal full client satisfaction. Several of our production sites have already become ISO 9001 certified (France, China, Spain and our new Slovakian site is in progress.)

With Environmental Health and Safety Management among our top priorities, we strive to stay well ahead of what government agencies require. Our primary goal is to reduce the impact of our activities, upon the environment, particularly though strict control of our water and energy consumption & industrial waste.

Through respect for the environment, we no longer produce products with solvants (no COV).

Extrusion pastes

« Volume without limits »


- Extrusion paste technology has been developed to provide a state-of-the-art process for producing very large dimension models, moulds or tools, thereby providing the perfect complement to Mass Casting.

- Only pay for what you need: just the surface that gives your moulds the required quality.

- We have the supporting-structure materials and techniques that will allow you to obtain the strength and stability required (different pastes are available for making models, moulds or tools).

For our complete product range, Selector Guide and technical values, see page 19.

See our new Internet site **axson.com** for technical data sheets, safety data sheets, new products, brochures and other information.

Our technicians and engineers are available to answer your specific needs. Contact: tooling@axson.fr

AXSON advantages:

No visible joints

No limits on size or volume

Rapid production of large volumes

Exceptional stability

No contact with liquid resins

Reduced waste

Economic system

Mass Casting

« Form and pre-form without limits »




Mass Casting is a new technology that has been developed for producing large, seamless patterns, parts and tools of irreproachable quality.

Suitable for all types of styles and models, the Mass Casting technique offers materials of quality for producing precision tools, such as drawing tools and foundry tools.

We can produce your approximate forms and special blocks to any desired quality.

For our complete product range, Selector Guide and technical values, see page 19.

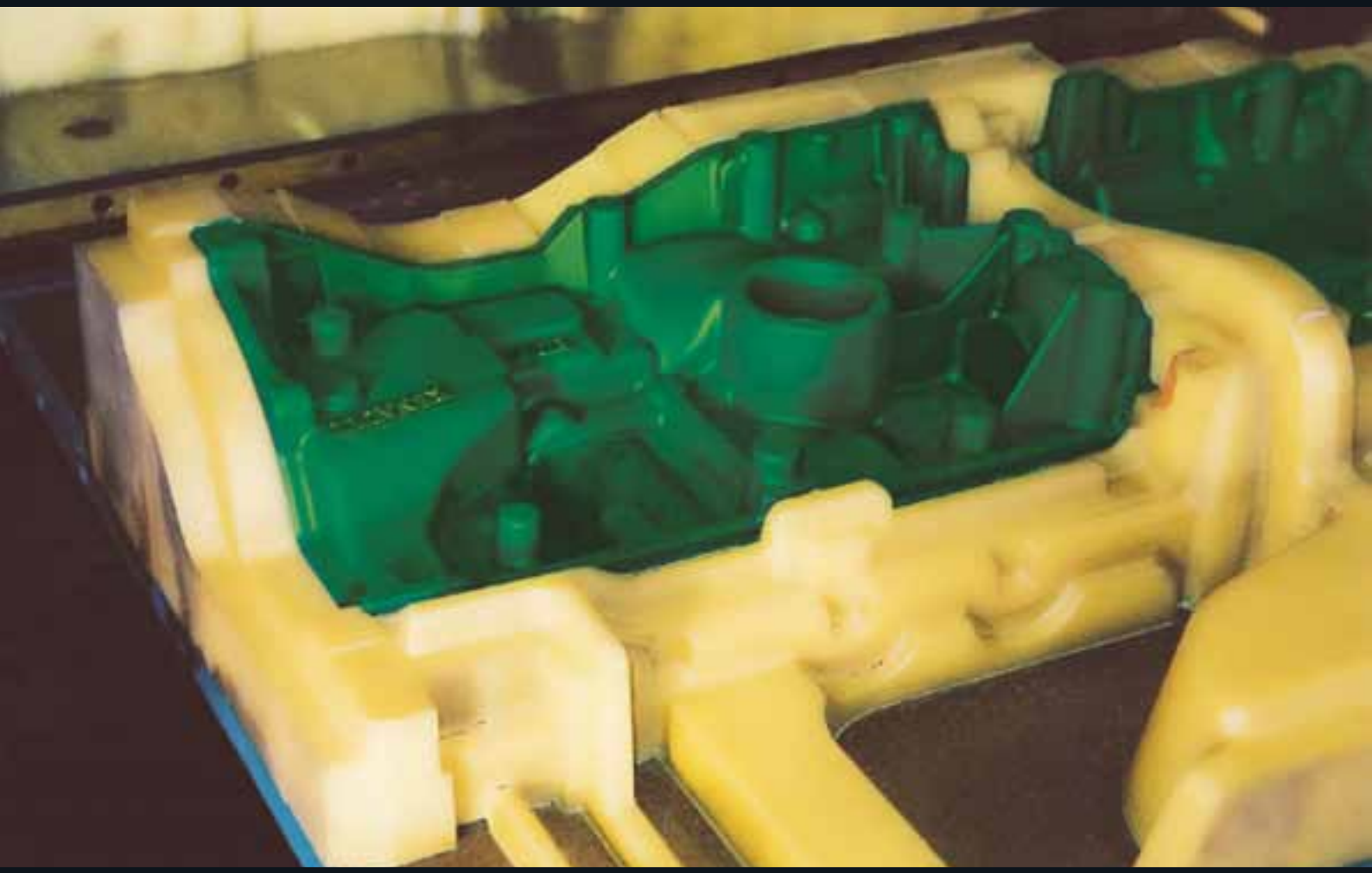
See our new Internet site **axson.com** for technical data sheets, safety data sheets, new products, brochures and other information.

Contact our Mass Casting team: masscasting@axson.fr, for any questions concerning this innovative procedure.

AXSON advantages:

- **Homogeneity of the part / no seams**
- **Can produce any form**
- **Dimensional stability**
- **Different mechanical properties available**
- **Reduced labour costs**
- **Reduced manufacturing times**

Technical machinab



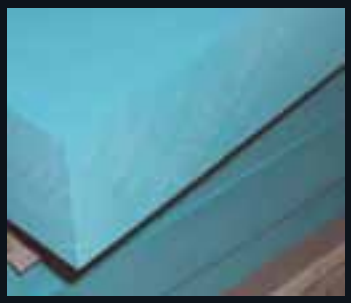
The AXSON +

Made-to-measure solutions.

Slabs can be provided to match the format of your stamping machines, or any other format on request.

ble blocks

« The high tech foundry »




AXSON Technologies' philosophy is to offer a wide range of machinable blocks for each market, so you are sure to find the block most suited to your application.

FOUNDRIES:

Recent developments in digitally controlled machining and in materials technology have been brought together to produce a new generation of machinable blocks.

As well as being suitable for rapid stamping processes, each slab is designed for a certain number of castings:

< 10 000 castings: LAB 1151
10 000/30 000 castings: LAB 920 GN
30 000/ 100 000 castings: LAB 850 BE ou RD
>100 000 castings: LAB 810

All these blocks can be used for models, pattern plates or core boxes.

For our complete product range, Selector Guide and technical values, see page 26.

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AXSON advantages:

Guaranteed performance

Rapid manufacture of a production tool

No need for a model pattern or a negative

Better respect of nominal dimensions

No handling of liquid products

Choice of four different materials

Machinable blocks

« Composites: a complete range »




AXSON Technologies' philosophy is to offer a wide range of machinable blocks for each market, so you are sure to find the block most suited to your application.

COMPOSITES :

AXSON Technologies offers machinable blocks for models or for direct moulds. Our blocks come in three versions: (Density less than 1)

- Standard: for models up to 80°C
- Medium: for models and moulds up to 100°C
- Superior: for models and moulds up to 120°C

Our slabs are approved by the FORMULA 1 industry.

For our complete product range, Selector Guide and technical values, see page 27.

See our new Internet site **axson.com** for technical data sheets, safety data sheets, new products, brochures and other information.

Our technicians and engineers are available to answer your specific needs. Contact: composites@axson.fr

AXSON advantages:

Dimensional stability. Low CTE

No surface marking when used at high temperatures

Suitable for making models or direct moulds

Choice of products suited to each technique

Prototype design

The AXSON +

Full control over the production process, guaranteeing perfect results

« Functional design »




Are you designing a concept car, a racing boat or any other functional object? Axson Technologies offers a complete range of products for cost-effective model making (mass casting or pastes), as well as specially designed products for moulding structural parts from high performance composites.

We offer a choice of products suited to each technical process.

Axson Technologies products put composites within the reach of the entire design and prototyping sector.

As a complement to composite structures, our ranges of transparent and flexible resins allow you to create glass-like prototypes, lighting units or flexible joints with a wide range of hardness.

Our resins are used with simply designed moulds and do not require complicated procedures.

For our complete product range, Selector Guide and technical values, see page 20 et 21.

See our new Internet site **axson.com** for technical data sheets, safety data sheets, new products, brochures and other information.

Our technicians and engineers are available to answer your specific needs. Contact: tooling@axson.fr

AXSON advantages:

Global offer for all your design needs

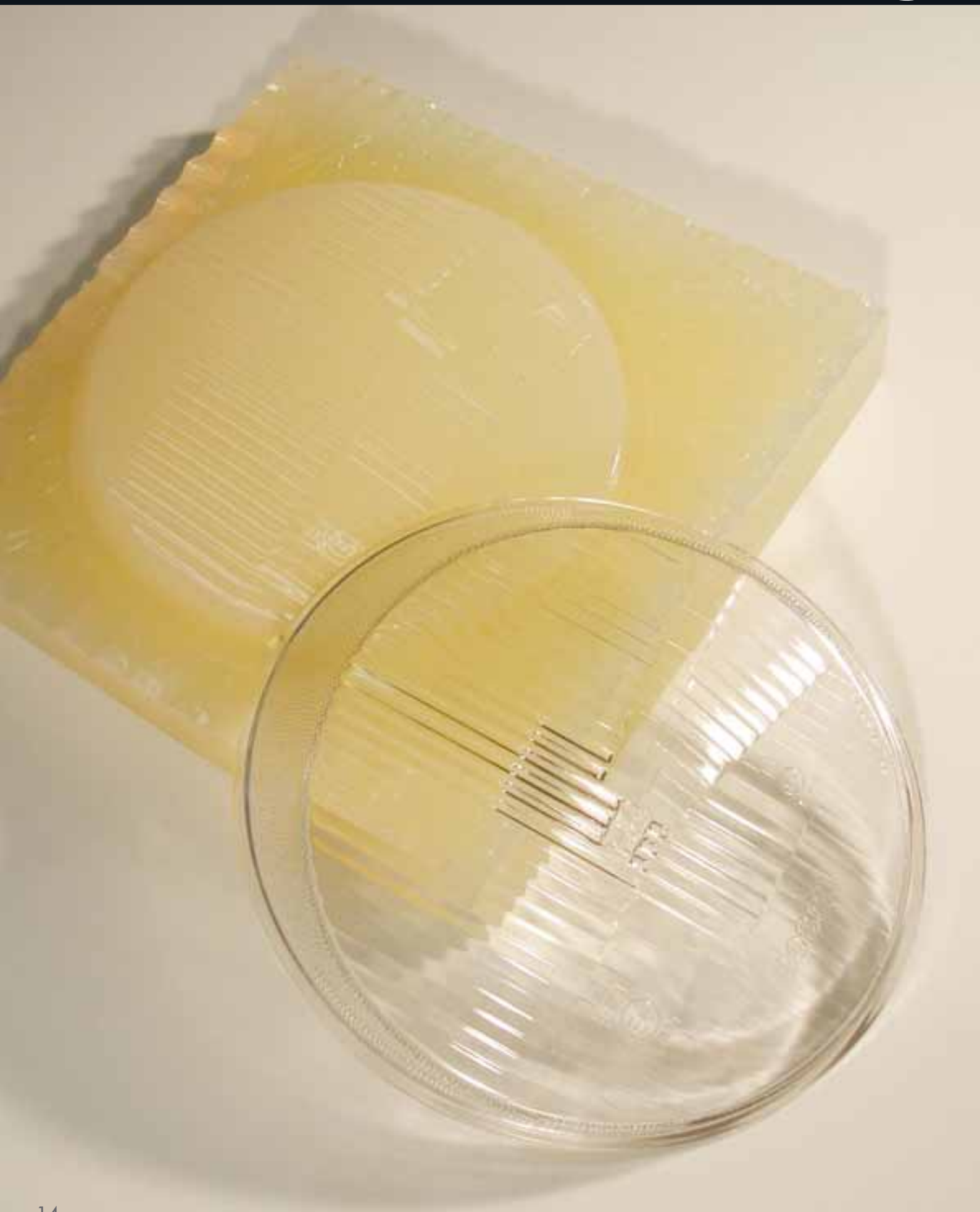
High quality

High performance

Rapid production of tools and parts

Low tool costs

Rapid prototyping



« High performance »





AXSON advantages:

Axson Technologies is the leader in resins for transparent technical parts.

PX 522 HT, one of the flagship products in our rapid prototyping range, is widely appreciated for its optical quality, which is close to that of Plexiglass™ resin. It is moulded using vacuum-casting machines. PX 522 HT's mechanical and thermal properties make it the ideal choice for moulding transparent, functional parts for prototypes or small production runs.

- **Transparent**
- **UV resistant**
- **Temperature resistant**
- **Easy to tint**
- **Easy to polish surface**

As well as being stable, PX 522 is easy to tint to produce coloured transparent parts and offers a choice of aspects: transparent or opalescent.

PX 522 can be used in applications as varied as headlight glass, coloured lights, lighting tubes, machine hoods or protective screens. PX 522 is also available in a flexible version.

Based on our Japanese technology, PX 234 HT is the latest innovation in terms of temperature resistance, and is capable of withstanding temperatures of up to 160°C when under load. PX 234 HT is ideally suited to the production of technical parts subject to high thermal stresses (for example, in the electrical goods and electronics sectors).

AXSON advantages:

- **High thermal resistance**
- **Easy to use**
- **Shock resistant**

For our complete product range, Selector Guide and technical values, see page 22 et 23.

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Art & Decoration

© Création Hilton McConnico, édité par Galerie Maad (Paris)

« Technology at the service of ART »




Over the last ten years we have developed an extensive range of transparent resins for many uses.

Giving the illusion of liquid and simulating water with crystalline transparency even when cast in large quantities, AXSON Technologies' transparent resins have a purity that will delight prototypers, designers and artists, opening the doors to a world of lucid creativity.

These resins, which allow you to cast your models in silicon moulds without using a machine, can be used to make anything from delicate clock mechanisms to parts weighing several kilos.

AXSON advantages:

- **Crystal clear**
- **Simple to use**
- **Easy for Manual casting**
- **Temperature stable**
- **Easy to machine, sand and polish**

Permanent modelling paste.

Work, shape, model… …leave to harden and then sculpt using traditional tools: chisels, gouges, files - woodworking tools are all you need to sculpt these materials.

From original creations to repairing old wooden objects, AXSON Technologies' modelling pastes are renowned amongst restorers for the unequalled longevity they give to any object they are used to make or restore.

AXSON advantages:

- **Manual application**
- **Similar density to wood**
- **Traditional patinas possible**
- **Conventional machining**
- **Durability of the finished object**

For our complete product range, Selector Guide and technical values, see page 24 et 19.

See our new Internet site **axson.com** for technical data sheets, safety data sheets, new products, brochures and other information.

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MACHINABLE PRODUCTS

Low density boards for styling exercises and models

Product	Description	Coulour	Applications	Density	Advised temp.	Glue, repair paste	Dimensions (mm)*
Labelite 80	Rigid, polyurethane foam boards suitable for NC or manual machining. Surface porosity dependent on density. Good compressive strength. Good temperature resistance. Chemical resistance to solvents.		Prototypes, large dimension models, tool-path testing, volumetric models, prototype vacuum forming tools, painted embossed signs, approximate forms for addition of extrudable paste, works of art (sculptures).	.08	120°C	F 16, F 19, EASYMAX, A 77P	1250 x 500 x thicknesses: 50/100/150/200 2250 x 1000 x thicknesses: 50/100/150/200
Labelite 160				.16	120°C		
Labelite 220				.22	120°C		

* certain dimensions may be subject to modification. Other dimensions, please contact us.

Medium density boards for models and patterns

Product	Description	Coulour	Applications	Density	CTE	Hardness (shore)	Tg (°C)	Glue, repair paste	Dimensions (mm)
Prolab 45	Low density board designed for the rapid machining of parts by milling or by manual carving. Compact, non-expanded slab. Low porosity.		Protoypes. Cubing. Programme validation models for NC machining.	.45	75	47D	70	F 16, F 19 PROCOL 2, EASYMAX	1550 x 500 x thicknesses: 50/75/100/150
Prolab 65	NC machinable board. Good surface finish. Very good dimensional stability. Temperature resistant. Compatible with all types of paint.		Models for the automobile industry. Prototype vacuum forming moulds. Foundry models. Models for composite moulds.	.65	75	63D	85	M 261, PROCOL 2, A 77/P	1550 x 500 x thicknesses: 50/75/100/200 Ø: 600 h: 150/75
Prolab 65 CN	NC machinable board. Good surface finish. Very good dimensional stability. Temperature resistant.		Models for the automobile industry. Models for composite moulds.	.65	70	64D	80		1550 x 500 x thicknesses: 50/75/100/200
Model Lab	Specialist block for applications requiring an exceptional surface finish. NC machinable. Excellent surface finish. Can be sanded to a fine polish.		Patterns and models produced by machining with a manual finish. Models for silicone or flexible PU moulds. Shoe industry.	.78	80	72D	50		1550 x 500 x thicknesses: 50/75/100

Adhesives for machinable products

Product	Description	Coulour	Applications	Density	Hardness (shore)	Mixing ratio	CTE	Tg (°C)	Pot life (mn)
PROCOL 2	Low density, thixotropic epoxy adhesive.		Bonding Prolab type boards.	.74	58D	100/40	_	_	50
H 9951	2 parts, non-filled epoxy adhesive. High performance.		Adhesion of composites to composites and of core materials to all kinds of supports such as composite aluminium, PU foam boards or PMMA.	1.08	73D	100/62	70	60	50
H 8973	Thixotropic epoxy adhesive.		Bonding Lab 973 and 975.	.80	78D	100/15	45	120	30

MACHINABLE PRODUCTS

Extrudable pastes

Product	Description	Coulour	Applications	Density	CTE	Hardness (shore)	Tg (°C)	Mixing ratio	Glue, repair paste
SC 167	All supports and preforms. Easy to machine. Very good surface finish.		Prototypes, models, moulds for composite parts and for infusion. Tool-path testing (NC machining).	.68	68	61/57D	40	100/70	A 77/P
SC 261	Application on preforms. NC machinable. Good dimensional stability.		Models, patterns, tool-path testing (digital design files).	1.14	90	68/67D	45	100/120	M 261
SC 300GY	High compression resistance. High dimensional stability and good temperature resistance.		Stamping moulds for prepregs, vacuum forming RIM and cold drawing. Large dimension moulds.	1.58	43	87/86D	88	100/70	GC1 150
SCP 270	Very rapid adoption of final characteristics before machining. Reduced machining times.		Large dimension patterns, especially in the marine sector.	.87	65	65/62D	34	100/86	EASYMAX

Mass casting

Product	Description	Coulour	Applications	Density	CTE	Hardness (shore)	Tg (°c) *	Pot life (mn)
PROFORM 65	System for producing large parts pre-filled. For thick castings of preforms for machining (thickness 350 mm in Labelite 109 moulds). Homogenous. Very good dimensional stability.		Specialist product for prototypes and patterns, cubing, forming exercises, prototype vacuum forming moulds. Casting service at AXSON's premises using moulds supplied by the customer or made by AXSON. CONTACT US FOR DETAILS.	.65	70	60D	45	_
F 50	System for producing large parts. Very low shrinkage for thick castings (400 mm with filler). Long pot life. Must be filled with RZ 30150 (alumina) or RZ 209/6 (aluminium). Mixing ratio (weight): 50/100.		Specialist product for mould stamping, forming moulds, milling or drilling supports, stamping blocks, large negatives, inspection tools.	1.30 1.80 (filled)	50	86D	65	35'-50'

* following appropriate heat treatment (see techical data sheet).

Modelling pastes

Product	Description	Coulour	Applications	Density	Hardness (shore)	CTE	Tg (°C)	Maximum application thickness	Time before machining
SC 258	Low density epoxy paste. Manual or mechanical mixing. Machining with conventional woodworking tools or by NC machining.		Prototypes, over-modelling, inspection masters, patterns, master models. Restauration of old wood, creation of figurines and statues.	.50	55D	46	53	40 mm	16h

Repair pastes

Product	Description	Coulour	Applications	Pot life (mn)	Density	Hardness (shore)
EASYMAX	Quick setting, low density polyurethane putty. Bi-component in 50 cc and 400 cc pots or cartridges.		Repair, touch-up or assembly of low density machinable boards. Filling of gaps and surface imperfections in all types of materials. Mixing ratio: 100/100.	3.3'	.68	57D
A 77/P	Low density, quick setting polyester. Machinable in 20 minutes.		Quick touch-ups for models and prototypes made from extrudable pastes and by mass casting. Filling gaps. Mixing ratio: 100/3.	4'	1	55D

LAMINATING PRODUCTS

Gelcoats
Can be polished or sanded

Product Kit	Description	Coulour	Applications	Tg (°c)*	Hardness (shore)	Hardener	Pot life (mn)	Density
GC1 050	Gelcoat with good corner strength. Good covering power. Easy to sand and good glossing characteristics.		Negatives, large patterns.	50	83D	GC 10	20'	1.45
GC1 080	High resistance to chemicals. Easy to apply.		Surface layer for ceramic mould masters. RTM polyester resin injection moulds.	85	89D	GC 13	20'	1.74
GC1 125	Good thermal conductivity.		Vacuum forming, RTM and foam moulds. RIM tooling.	130	87D	GC 15	32'	1.50
GC1 150	High resistance to chemicals. Very good glossing characteristics.		Polyester and epoxy RTM injection. Polyurethane foam RIM injection.	130	87D	GC 15	27'	1.25
GC1 190	High resistance to chemicals. Resistant to temperatures of up to 190°C.		Polyester and epoxy RTM injection. Vacuum forming moulds. Thermocompression moulds. Moulds for composite parts. Moulds for prepregs. High temperature resin concrete.	185	90D	GC 22	65'	1.59

Gelcoats - Abrasion resistant

Product Kit	Description	Coulour	Applications	Tg (°c)*	Hardness (shore)	Hardener	Pot life (mn)	Density
GC2 070	Abrasion resistant epoxy Gelcoat.		Foundry and reproduction patterns. Core boxes.	85	88D	GC 10	20'	1.59
GC2 120	Filled, abrasion resistant epoxy Gelcoat. Resistant to temperatures of up to 120°C. Easy to use.		Foundry moulds. Low pressure SMC. Moulds for polyester RTM.	120	89D	GC 12	18'	1.48

Gelcoats - Specific applications

Product Kit	Description	Coulour	Applications	Tg (°c)*	Hardness (shore)	Hardener	Pot life (mn)	Density
GC3 070	Preaccelerated polyester Gelcoat. Good UV resistance. Low styrene emissions.		Compatible with epoxy laminating resins. Used as a surface layer. Sprayable. Finishing epoxy laminated parts. Infusion moulds .	HDT 80°C	42* Barcol	–	10'-20'	1.30
GC3 090	Semi-rigid, good abrasion resistance. Polyurethae based.		Foundry tools. Core boxes. Filler for fragile items.	90	65D	_	17'	1.15
GC3 130	Vinylester GELCOAT, preaccelerated. Low styrene emissions. Good temperature resistance.		Compatible with epoxy laminating resins. Production of moulds for infusion.	HDT 130°C	40 Barcol	–	15'-25'	1.25

Laminating pastes

Product	Description	Coulour	Applications	Tg (°c)*	Density	Pot life (mn)
EPOPAST 206	Temperature resistant laminating paste. High dimensional stability. Mixing ratio: 100/12.		Large negatives. Moulds for composite parts. Vacuum forming moulds.	125	.92	75'-95'
EPOPAST 400	Standard laminating paste. Very easy to mix. Very low shrinkage. Mixing ratio: 100/14.		Foundry negatives. Inspection tools. Trimming tools. Moulds for the ceramics industry.	70	.90	120'
EPOPAST 402	Low density laminating paste. Very easy to mix. Very low shrinkage. Mixing ratio: 100/14.		Light duplicate mouldings. Large tools. Inspection tools. Moulds for the ceramics industry.	70	.76	120'

* after appropriate heat treatment (see technical data sheets)

LAMINATING PRODUCTS

Epoxy laminating resins

Product Resin / Hardener	Description	Coulour	Applications	Viscosity (mPa.s)	Pot life (mn)	Tg (°c)*
Multifunctional resins						
EPOLAM 2010/2010	Versatile epoxy system with a single resin and choice of 3 hardeners. Variable curing time.		Composite moulds and parts. Can be used as a gelcoat, on casting resins or concrete, with additional fillers.	1000	30'-35'	50
EPOLAM 2010/2011				900	60'-70'	50
EPOLAM 2010/2012				800	120'-150'	55
EPOLAM 2050	Temperature resistant. Good wettability.		Composite moulds. Concrete or casting.	2000	60'	125
EPOLAM 2025	Good mechanical properties. Can be used for moulds up to 135°C after curing.		Moulds with good temperature resistance by wet lay-up.	1400	70'	135
EPOLAM 2001/95B	Multi-functional, low viscosity epoxy system. Variable reactivity (choice of 2 hardeners).		EPOLAM 2001 can be used to mould parts that require moulds with a degree of flexibility and impact strength.	400	70'	50
EPOLAM 2001/95S				600	40'	55
EPOLAM 2002	Epoxy system for moulds. Weak odour and dimensional stability.		For producing concretes and laminates in the ceramics industry.	950	55'	65
Resins for parts						
EPOLAM 2015/2013	Multi-functional epoxy system for composite structures. High modulus. Compatible with four hardeners.		Composites for marine use. Laminated composites for the aeronautical sector. For manual or vacuum applications.	600-700	6-10'	70
EPOLAM 2015/2014				550-750	50-70'	91
EPOLAM 2015/2015				500-600	125-155'	88
EPOLAM 2015/2016				400-500	360 -450'	81
EPOLAM 2020	Variable curing time through addition of an accelerator. Low viscosity. Good wettability.		Wet lay-up applications. RTM systems.	500	135' to 15' acc. 0 to 10%	80-100
EPOLAM 2022	Very good mechanical properties. Temperature resistant. Low viscosity. Good wettability.		High performance composite structures by manual impregnation, vacuum injection or low pressure injection.	600	60'	100
EPOLAM 2063	Excellent mechanical properties. Outstanding viscosity and wettability.		Production of parts with excellent mechanical properties via the RTM process.	700-25	480'	200
Infusion resins (parts and moulds)						
EPOLAM 2035/2025	Low viscosity systems for producing moulds by infusion.		Infusion resin for producing moulds for prepreg fabrics and RTM processes.	400	120'	135
EPOLAM 2080/2025			Infusion resin for producing moulds for high temperature prepreg fabrics.	700	180'	190
EPOLAM 2090/2026	Good temperature resistance. Excellent wettability.		Composite structures. Moulds for prepregs. RTM. Vacuum forming moulds.	3000	150'	190
EPOLAM 5015/5014	Very low viscosity infusion system with excellent wettability for producing parts.		Production of large-dimension parts: boat hulls, spars, wind-turbine blades, etc.	185	45'	70-90
EPOLAM 5015/5015				200	120'	
EPOLAM 5015/5016				210	240'	

* after appropriate heat treatment (see technical data sheets)

RAPID PROTOTYPING

Low pressure RIM Injection polyurethane resins Specific applications

Product	Description	Coulour	Applications	Flexural modulus (MPa)	Pot life (seconds)	Hardness (shore)	Tg (°c)
RIM 631	Flexible, rapid setting product. Rubber aspect. Weather resistant.		Flexible parts. Seals. Overmoulding of window panes for peripheral seals.	–	50-70"	75A	-
RIM 826/ RIM 902	Very high impact resistance. Easy to use in low pressure machines. Mixing ratio: 100/100		Prototype parts requiring high impact resistance: automobile face panels, cowlings and interior panels.	800	80-100"	73D	95
RIM 832GY/ RIM 974	Hardening specifically adapted to the rotomoulding process. Very easy to use. High temperature resistance. Rapid demoulding. Good impact resistance. Can be painted.		Rotomoulded parts, in resin or metal moulds, requiring similar mechanical properties to polystyrene or ABS-type thermoplastics.	1200	120-145"	79D	110
RIM 624	Rigid product. Very fluid. Very easy to mould in machines.		Prototypes, small production runs (automobile, office equipment, electronics, household appliances).	1600	60-70"	75D	115
RIM 610	UL 94V0 approved: self-extinguishing.		Covers, electrical boxes, computer housings, medical, consoles, ticket machines.	2000	50-70"	80D	100

Low pressure RIM Injection polyurethane resins Combinable systems

Product	Description	Coulour	Applications	Flexural modulus (MPa)	Pot life (seconds)	Hardness (shore)	Tg (°c)
Systems combinable with RIM 900 ISO							
RIM 875 NR RIM 875 BE Polyol	High impact resistance. Polyol resin can be added to obtain intermediary stiffnesses.		PP/PE-type prototype parts, small production runs in the transport industry: tractors, trucks, buses. Special machines.	1000	60-80"	75D	100
RIM 872	Intermediate between RIM 875 and 876.		Prototype parts for automobiles.	1400	60-80"	78D	100
RIM 876 NR RIM 876 BE Polyol	High impact resistance. Polyol resin can be added to obtain intermediary stiffnesses.		ABS-appearance prototype parts.	2000	60-70"	80D	100
RIM 975	High temperature and impact resistance. Polyol resin can be added to obtain intermediary stiffnesses. Rapid demoulding (10 min).		PP/PE-type prototype parts, small production runs, parts in engine compartments.	1000	38-42"	75D	150
RIM 976			ABS-type prototype parts, small production runs.	2000	35-40"	80D	150

Technical silicone rubbers

Product	Description	Coulour	Applications	Hardness (shore)	Viscosity (mPa.s.)	Pot life (mn)	Demoulding time at 40°C
ESSIL 291/291	Transparent polyaddition silicone rubber.	Transparent	Self demoulding, flexible moulds for rapid prototyping.	38A	40 000	60'	12h
ESSIL 291/292	Transparent polyaddition silicone rubber. Oil transparent.			38A	40 000	60'	12h
ESSIL 90	Inhibitor for ESSIL 291 all versions.		Large moulds. Mixing ratio (weight) max.: 0.20%	–	–	5h with 0,2% ESSIL 90	–

RAPID PROTOTYPING

Vacuum casting polyurethane resins

	Product	Description	Coulour	Applications	Flexural modulus (MPa)	Tg (°C)*	Pot life (mn)	Hardness (shore)
rigid	**PX 222 HT/ 223 HT**	PX 223 HT can be coloured. Temperature resistant. Does not attack silicone moulds.		ABS-like prototype parts with good thermal properties. Small production runs for vacuum casting.	1600	>150	6'	80D
	PX 234 HT	Very high temperature resistance. Easy to cast. Reduced curing cycle. Good impact resistance.		Similar to PPS. PEEK. For all parts that have to withstand high temperatures, parts for engine compartments or household appliances.	1850	220	5'	80D
	PX 220	Very good impact resistance, even at very low thicknesses. Very plastic behaviour.		Similar to PS Choc. For all very thin parts requiring good impact resistance.	2000	90	5'	80D
	PX 522 HT	Low viscosity. High temperature resistance. Maximum advisable thickness: 5 mm. UV resistant. Solvent resistant.	transparent	Similar to PMMA. Technical prototypes, headlights, traffic lights, light tubes, transparent covers, etc.	2100	110	6'	87D
	PX 521 HT	Low viscosity. High temperature resistance. UV and weather resistant. Does not require vacuum casting machines. Possible to cast up to 2 kg.	transparent	Similar to PMMA. Prototypes for the glass, art and decoration sectors. Solid parts.	2100	110	20'	87D
	PX 223 HT	Low viscosity. Good impact resistance. High temperature resistance. Does not attack silicone moulds. Resistant to hydrocarbons.		ABS-like prototype parts for small vacuum moulding production runs.	2300	>120	7'	80D
	PX 226 / 245L	Low viscosity. PX 226 suitable for casting large parts. Long pot life		Similar to ABS/ABS filled/PA.6.	2500	105	8'	82D
	PX 226	Very short demoulding time. Low viscosity.		Similar to ABS/ABS filled/PA.6. Technical parts, electro-technical parts, such as bases for relays, sockets and switches.	2500	105	4'	82D
	PX 330 (2)	Conforms to FAR 25 (fire resistance) standard. Easy to use.		Technical parts for the aeronautical industry. All parts requiring a fire-resistance rating.	3400	100	5'	87 D
	PX 245 / PX 245L* *pot life 8 mn	Filled. Very short demoulding time. Very rigid.		Similar to P.O.M. and filled thermoplastics. For all parts requiring high stiffness .	4500	95	4' à 8'	85D
	PX 527	Transparent resin. Impact resistant. Thermoplastic behaviour. High elongation at break.	transparent	Similar to PC. For transparent or tinted technical parts.	2700	90	4'30"	87D
semi-rigid	**PX 205**	Unbreakable "hinge effect". Excellent abrasion resistance. Does not attack silicon moulds.		Similar to PEHD and PP. For all parts with an integrated hinge, pinions, guide rails, rollers, limit stops.	500	90	13'	70D
	PX 212	Low viscosity. Reduced demoulding time. Good impact reistance. Easy to tint.	translucent	PP-aspect prototype parts. Good heat resistance. Automobile interior trim, covers for household appliances.	1200	90	5'	76D
	PX 100	Low viscosity. Manual application possible. Long pot life.		PS CHOC-aspect prototype parts. Large dimensions possible with or without vacuum casting machines.	1500	75	15'	74D
	PX 115	Easy to use in hot or cold moulds. Short demoulding time.		Similar to PS CHOC. For technical parts and scale models.	1500	80	7'	74D
	PX 217	Short demoulding time. Good compromise between impact resistance and heat resistance.		Similar to standard ABS. For all parts in short and medium-sized production runs.	1700	100	5'	77D

	Product	Description	Coulour	Applications	Elongation at break (%)	Pot life (mn)	Hardness (shore)
flexible	**PX 761**	Can withstand continuous 100°C temperatures. Long pot life. Low viscosity. Can be tinted.		Rubber aspect prototype parts, seals.	800	10'	63A
	PX 774	Low viscosity. Very short demoulding time.		Rubber aspect prototype parts.	300	2'	75A

* after appropriate heat treatment (see technical data sheets). (1) Meets regulation FAR 25.853 for inflamability 12 seconds on 2.2 mm

MOLDING/ART & DECORATION

Non-filled Fastcast resins

Product	Description	Coulour	Applications	Pot life (mn)	Shear modulus (Mpa)	Demoulding time (thick.: 2 mm)	Viscosity (mPa.s)	Tg (°c)*
F 31	Rapid demoulding. Good substrate for painting. Compatible with electro-plating.		Patterns, models. Prototyping up to 5-mm thick. Scale models, toys.	2'	1100	> 20'	40	95
F 32	More fluid and odourless version of F 31. Easy demoulding: possible to cast fragile parts without risking breakage.			2'	1100	> 20'	35	100
F 33	Easy demoulding: possible to cast fragile parts without risking breakage. Good impact resistance.			2'	860	> 30'	28	100
F 38	Excellent impact resistance. Low viscosity. Thermoplastic-type finish. Good substrate for painting.		Production of models and protoypes, large scale production in the scale-model industry. Extremely detailed parts.	2'	750	20-25'	35	55

* after appropriate heat treatment (see technical data sheets).

Transparent resins

Product	Description	Coulour	Applications	Pot life (mn)	Demoulding time	Viscosity (mPa.s)	Tg (°c)*
RSF 816	Low viscosity. Brush application in thin coats. Variable pot life through addition of EPOLAM 2020 accelerator. Mixing ratio: 100/40	transparent	Finishing parts, glazing composite or decorative parts moulded from PU or epoxy resin when a gloss finish is required.	28' (without acc.)	16h	500	75
PX 521 HT	PU resin. Stable under UV and weather resistant. Can be sanded and polished. Good temperature resistance. Mixing ratio: 100/55.		Decorative parts subject to mechanical stresses, high temperatures or weathering, such as lamp components or decorative panels.	20'	2 to 4h depending on mould temp.	500	110
TRANSLUX A 260	PU resin. Stable under UV and weather resistant. Hardness: 60A. Mixing ratio: 100/100.		Flexible decorative parts. Inclusions in fabrics, shoes, etc.	20'	8h	1 400	NC
TRANSLUX D 150 **D 152/151** **D 153/154**	Transparent epoxy resin system. Variable pot life. Variable hardness. Easy to use. Variable mixing ratio (see techical data sheet).		Floral decoration, imitation of liquids in different containers. Simulation of rivers or lakes in scale models.	70' à 9h	Variable depending on mix. ratio	250 400	NC NC
TRANSLUX D 180	Rigid, transparent epoxy resin. Long pot life. No specific equipment required. Mixing ratio: 100/45.		All decorative or technical transparent parts cast in open or closed moulds.	3 to 8h (depending on% acc.)	48 - 72h	550	70

* after appropriate heat treatment (see technical data sheets).

Polycondensation silicone rubbers

Product	Description	Coulour	Applications	Hardness (shore)	Viscosity (mPa.s.)	Pot life (mn)	Demoulding time at 23°C
ESSIL 125/125	Polycondensation silicone. Mixing ratio: 100/5.		Flexible, self-demoulding moulds for all types of moulding.	25A	45 000	240	36'
ESSIL 125/124	Polycondensation silicone for rapid demoulding.			24A	45 000	90	16'
ESSIL 126	Thixotropic additive for ESSIL 125, all versions.		Flexible layers applied by brush for large moulds. Max: 0.75%	24A	Thixotropic	–	Depends on catalyst used

FLEXIBLE MOULD

Casting polyurethane elastomers

Product	Description	Coulour	Applications	Hardness (shore)	Elongation %
UR 3420	High tensile strength. Water resistant. Low viscosity.		Seals. Reverse relief moulds. Flexible negatives.	50A	950
UR 3435	Low viscosity. Good tear resistance. Water resistant. Low toxicity.		Ceramics industry. Moulds for plaster and stucco.	65A	1000
UR 3435L				65A	1000
UR 3436			Concrete moulds.	63A	1200
UR 3440	High tear resistance. Low toxicity. Water resistant.		Seals. Reverse relief moulds. Negatives.	63A	1000
UR 3442			Production of parts.	65A	850
UR 3445	Low viscosity. Low toxicity. Excellent tear resistance. Water resistant.		Ceramics industry. Concrete moulds.	72A	1000
UR 3450	Good abrasion resistance. High tear resistance. Good resistance to hydrolysis.		Flexible moulds. Forming tools. Prototype parts.	80A	620
UR 3460	Good abrasion resistance. High chemical resistance. Good resistance to hydrolysis.		Flexible moulds. Forming tools. Concrete moulds.	85A	810
UR 3468	Good abrasion resistance. xcellent tear resistance.		Sand-blasting masks. Parts that are subject to ware.	89A	900
UR 3490	Reduced toxicity. Excellent impact resistance. Rapid hardening.		Production of foundry moulds (models, core boxes) on aluminium, concrete, resin preforms, etc.	67D	120
UR 3546	Good tear and abrasion resistance.		Technical parts.	75A	600
UR 3558	Good impact, tear and abrasion resistance. Rapid demoulding.		Core boxes for foundries. Protection parts.	95A	460
UR 3569	Without MDA. High abrasion resistance. Unbreakable.		Patterns and core boxes for foundries.	70D	160
UR 5825	Low hardness. Low viscosity. Water resistant. Can be coloured. Self degasing.		Candle moulds. Plaster and stucco moulds.	30A	830
UR 5835				38A	1050
UR 5845	System that is easy to use on building sites. Low viscosity. Rapid demoulding.		Concrete moulds for small production runs.	45A	850
UR 5850	Multi-use. Self-degasing. Easy to tint.		Flexible parts and moulds.	50A	1100
UR 5872	For use with two-component machines. Rapid demoulding.		Moulds for large-scale production of concrete parts.	72A	600
UR 5895	Good resistance to chemical solvents. Excellent tear resistance. Easy to use.		Moulding parts for the building industry. Magnetic blocks. Strike-off slabs. Sections.	95A (55D)	400
UR 5898	Semi-rigid, rapid hardening elastomer. Can be coloured.		Production of semi-rigid parts in low-pressure machines.	65D	140

MOULDS/TOOLING

Rapid setting resins (FASTCASTS) / pre-filled

Product	Description	Coulour	Applications	Pot life (mn)	Demoulding time	Viscosity (mPa.s)	Tg (°c)*
F 1	Low shrinkage, even when very thick (even shrinkage). Fine grain. Mixing ratio: 100/100.		Thickness: up to 50 mm. Foundry patterns. Negatives. Vacuum forming moulds. Painted or gilded decorative items.	5	25'-45'	1700	90
F 15	Long pot life version of F 1.		Thickness: up to 70 mm. Foundry patterns. Negatives. Vacuum forming moulds, machining tools.	8	120'-150'	1500	85
F 23	Superb finish. Easy to sand. Gloss recovery. Polishable. Mixing ratio: 100/20.		Vacuum forming tools. Negative moulding for checking mould dimensions. Figurines, decorative objects.	5	30'-45'	1750	90
F 40	Excellent abrasion resistance. Low shrinkage. Low viscosity. Rapid demoulding and use of moulds. Mixing ratio: 100/20.		Core boxes, foundry patterns, pattern plates. Reproduction patterns	6	40'-45'	2500	85

* after appropriate heat treatment (see technical data sheets)

Rapid setting resins (FASTCASTS) / refillable

Product	Description	Coulour	Applications	Pot life (mn)	Demoulding time	Viscosity (mPa.s)	Tg (°c)*
F 16	Rapid demoulding. Low viscosity. Good temperature resistance after heat curing. Mixing ratio: 100/100.		Negatives, patterns, models (F 16 filled with RZ 30150). Vacuum forming moulds (filled with RZ 209/6). RIM injection moulds.	2'30"	30'	80	100
F 19	Very low shrinkage. Low viscosity. Long pot-life. Mixing ratio: 100/100.			7'	90'	78	100
F 18	Good impact resistance. Low shrinkage. Low viscosity. Versatile system. Mixing ratio: 100/100.		Moulding of transparent parts (not filled) or moulds (same fillers as F 16). Fine or massive decorative parts.	3'30"	45'	50	80
TOPCAST 60L 60R	Very versatile system. Variable reactivity by mixing with polyols 60L and 60R. Mixing ratio: 100/50.		Parts (not filled) and moulds. Can be refilled with aluminium hydroxide (RZ 30150) or aluminium powder (RZ 209/6).	between 2'30" and 7'30"	30' 90'	200	90 70

* after appropriate heat treatment (see technical data sheets)

High density boards for tooling

Product	Description	Coulour	Dimensions (mm)	Applications	Density	Hardness (shore)	CTE	Tg (°C)	Glue, repair paste
Lab 810	Non-filled slab. Very high impact and abrasion resistance (unbreakable). Semi-rigid thermoplastic finish.		640 x 500 x 100	Foundry patterns for large production runs. Large and strong machined parts that are both impact and abrassion resistant.	1.18	73D	105	90	UR 3569
Lab 850	Resistant to abrasion. Not filled. Thermoplastic finish. Good corner strength during machining.		850 x 500 x thickness: 50/75/100	Foundry patterns for producing up to 150,000 castings. Core boxes. Stamping blocks for manually forming sheet metal.	1.21	86D	110	80	H 8110
LAB 920 GN	Very good abrasion resistance. Thermoplastic finish. Easy to machine.		850 x 500 x thickness: 50/75/100	Foundry patterns for producing up to 50,000 castings. Machined patterns for presentation.	1.30	85D	85	90	H 9951 ou H 8110 GR
LAB 1151	Low density. Very good dimensional stability. Easy to machine. Resistant to abrasion.		1550 x 500 x thickness: 50/75/100	Inspection tools for medium-sized production runs or fragile parts. Patterns for laminated moulds (vacuum bag or infusion process), foundry patterns for small production runs < 5000 castings.	.82	76D	50	70	H 9951
Lab 1000	High density. Aluminium filled. High compression resistance. High dimensional stability. Good heat exchange coefficient.		850 x 500 x thickness: 50/100	Stamping tools. Inspection tools. Dolly blocks. Vacuum forming moulds.	1.67	89D	50	92	GC1 125
Lab 1001	Compression resistant. High dimensional stability. Good surface quality. Can be sanded using water paper and polished using polishing paste. Easy tracing on white surfaces. Non abrasive.		850 x 500 x thickness: 50/100	Forming and drawing tools. Inspection tools for large-scale production. Moulds for low pressure injection. Vacuum forming moulds.	1.60	90D	45	100	H 9951 ou GC1 050/ GC 10
Lab 900	High density epoxy. Very hard. Fine surface. Can be given a shiny aspect by polishing. Chemical and temperature resistant.		850 x 500 x thickness: 50/100	Tools for prepregs. Vacuum forming moulds. Reproduction moulds.	1.62	88D	55	123	H 9951

MOULDS/TOOLING

Boards for composites

Product	Description	Coulour	Dimensions (mm)	Applications	CTE	Tg (°C)	Density	Hardness (shore)
LAB 975	Low density epoxy board. High dimensional stability. Very good surface finish. Good temperature and pressure resistance.		1550 x 500 x thickness: 50/100	Patterns for prepreg moulds. Direct moulds for laminates or prepregs. Usable in autoclaves up to 120°C and under 4 bars.	40	115	.70	75D
Lab 973	Low density epoxy board. Good dimensional stability. Good surface finish. Good temperature resistance.		1550 x 500 x thickness: 50/100	Patterns for prepreg moulds. Direct moulds for laminates or prepregs. Usable in autoclaves. Vacuum forming moulds. Inspection tools.	45	115	.75	73D
LAB 970	Low density epoxy board. High dimensional stability. Easy to machine.		1550 x 500 x thickness: 50/100	Patterns and direct moulds for low temperature prepregs. Curing at 80°C, 4 bars in an autoclave.	42	80	.68	74D

Two-part structural adhesives for composites

Product	Description	Coulour	Applications	Working time	Hardness (shore)	Shear strength (MPa)	Operating temp. (°C)	Elongation at break
A 140	High mechanical strength, temperature resistant. Suitable for structures subject to high dynamic loads.		Bonding of honeycomb. Composite/composite bonding.	4h30'	77D	21	-40/+100	2%
A 220	Polyurethane: flexibility, elasticity, impact and vibration resistance, rapid hardening.		Composite/composite and composite/thermoplastic bonding.	1h30'	90A	16	-40/+80	95%
H 9951	Two-part, non-filled epoxy adhesive. High performance.		Composite/composite bonding. Core materials on all supports, including composites, aluminium, PU or PMMA foam.	6h	73D	29	-40/+100	10%

Epoxy casting resins

Product	Description	Coulour	Applications	Viscosity (mPa.s)	Pot life (mn)	Density	Hardness (shore)	Tg (°c)*
EPO 5019	Medium viscosity. Long pot life. Highly resistant to abrasion and compression.		Foundry patterns Stamping dies and punches. Reproduction patterns. Mould masters. Machine setting.	23000	100'	2.25	90D	74
EPO 5019/ 95B	Rapid version of EPO 5019 for surface casting. Low viscosity. Compression resistant.			5500	50'	2.40	90D	80
EPO 5030	Low shrinkage. High hardness. Excellent abrassion resistance.		Foundry core boxes and patterns. Positioning jigs. Reproduction models.	5500	50'	1.80	90D	70
EPO 4042 F	Very good surface finish after machining. Aluminium filler. Low shrinkage.		PU foam vacuum forming and injection moulds. RIM moulds.	13000	140'	1.71	89D	80
EPO 4042 L				1700	220'			
EPO 4030	Technical resin with aluminium filler. No post-cure heat treatment.		Vacuum forming moulds. Low-pressure RIM injection moulds.	18500	160'	1.69	85D	120
EPO 752/ 2080	Very good mechanical characteristics. Heat resistant.		Vacuum forming moulds. Thermoplastic injection.	12000	360'	1.74	90D	195

* after appropriate heat treatment (see technical data sheets).

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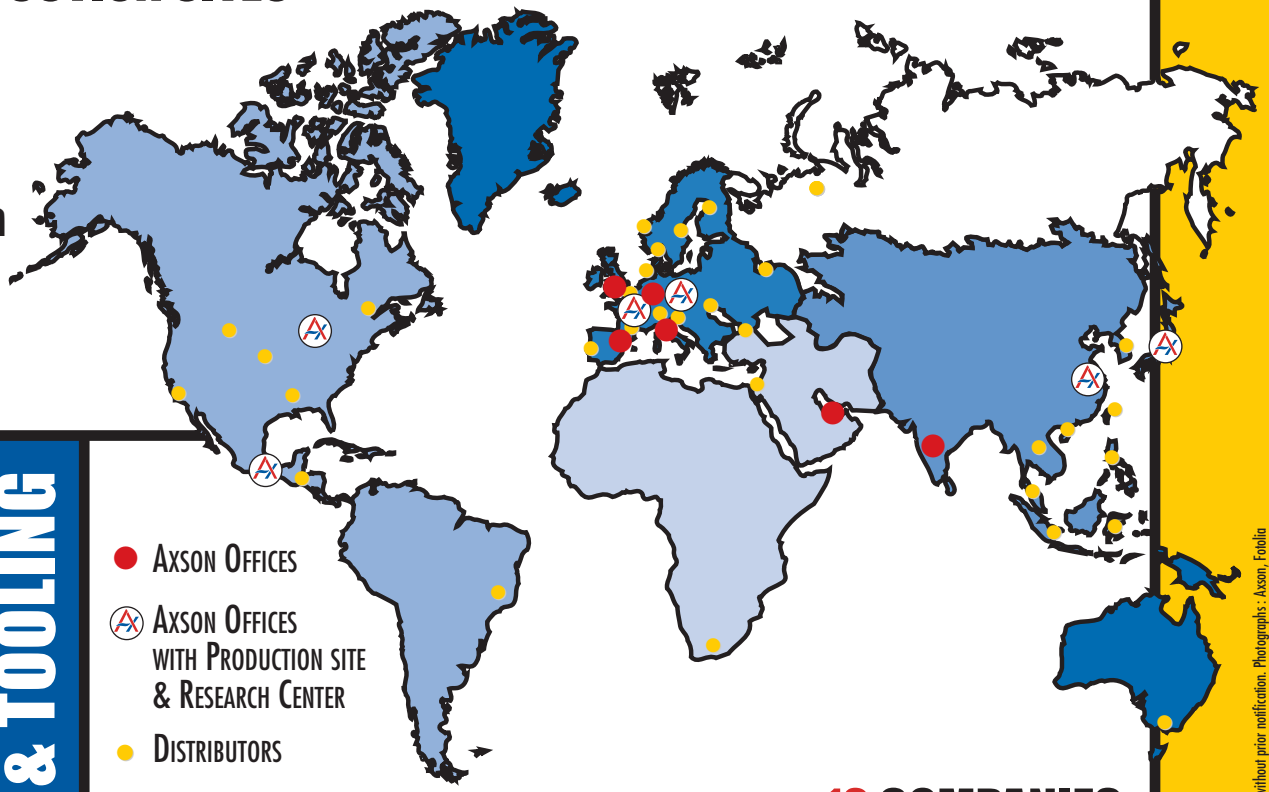

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12 COMPANIES

China
France
Germany
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Mexico
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USA

Axson France
Tel. +33 1 34 40 34 60
axson@axson.fr
axson.fr

Axson Germany
Tel. +49 6 07 44 07 11-0
verkauf@axson.de
axson.de

Axson Middle East
Tel. +97 1 43 35 32 81
info-middleeast@axson.com
axson.com

Axson Slovakia
Tel. +42 1 76 42 25 26
office@axson-ce.sk
axson-ce.sk

Axson UK
Tel. +44 16 38 66 00 62
sales@axson.co.uk
axson.com

Axson India
Tel. +91 20 25 51 07 10/11
info.india@axson.com
axson.com

Axson Spain
Tel. +34 9 32 25 16 20
axson@axson.es
axson.es

Axson Japan
Tel. +81 5 64 26 25 91
sales@axson.jp
axson.jp

Axson North America
Tel. +15 1 76 63 81 91
info@axson-na.com
axson-na.com

Axson Italy
Tel. +39 02 96 70 23 36
axson@axson.it
axson.it

Axson China
Tel. +86 21 58 68 30 37
china@axson.cn
axson.com.cn

Axson Mexico
Tel. +52 55 52 64 49 22
axson@prodigy.net.mx
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