

POLYURETHANE (PU)



STOCK SHAPES & PARTS



COMPANY PROFILE

Dotmar Engineering Plastic Products was founded in 1967 and is currently the largest importer and distributor of thermoplastic stock shapes, polyurethanes and conveyor components in Australia and New Zealand. Dotmar's distribution footprint extends to over 5,000 customers servicing more than 100 diverse industry sectors.

Dotmar has built up its market-leading position by delivering a high level of customer service and applications advice, supported by a deep level of technical expertise. Dotmar is at the forefront of developing thermoplastic applications for commercial and industrial use and has built up a highly-skilled product development team supported by a group of product specialists and mechanical engineers. Dotmar offers an extensive knowledge base in thermoplastics, polyurethanes and conveyor products coupled with strong partnerships with world leading manufacturers.

Why trust Dotmar with your Polyurethane business:

- Standard Polyurethane Stock Shapes available for immediate delivery
- Custom cast stock shapes and parts manufactured to customers specifications
- Flexibility to manufacture once-off parts, prototypes or high volume, repeat production runs
- Polyurethane parts can range in size from less than a couple of grams to over 500 kg



Experienced technical and design staff work closely with customers to develop quality urethane products for unique and varied applications.

Conceptualization | Design | Production

APPLICATIONS

Polyurethane is used in industry from materials handling, road / building construction, mining, transportation (road / air / rail), industrial manufacturing, forestry/timber, food processing and packaging.

Applications include: Wheels, casters, press on wheels, roller wheels, bushes, bearings, concrete moulds, general moulds, pipe linings, scraper blades, suspension mounts, screens, cutting surfaces, pinch rollers, bumpers, mounts, seals, gaskets, shocks, bucket liners, pump liners etc.



It is important to select the correct grade of polyurethane for each application. Each material type is suited to different environments. Consider the material properties required, and the environment in which the parts have to operate.

Dotmar technical staff will be able to provide material selection advice and technical support.

INDUSTRY	APPLICATIONS
Automotive	Grommets, bearings, bushes, flexible couplings
Building & Construction	Moulds for concrete, gate seals, concrete pump parts, water proofing
Coated Fabrics	Conveyor belts, fuel storage tanks, power transmission belts
Electrical	Encapsulation, insulation, potting, cable joining
Engineered Components	Gears, sprockets, wire guides, rail draft gear, stripper plates, press brake pads, textile yarn guides, cutting boards, business machine belts, couplings
Food	Chute lining, grain buckets
Mining	Bucket liners, conveyor roller, scraper blades, flotation cell impellers, pump linings, grading screens, lined pipes, cross-over pads
Oil, Chemical & Marine	Bushings, bearings, hydrocyclones, buoys, pipeline pigs and scrapers, fenders, valve seats
Rollers	Board rollers, nip rollers, metal forming, printing, conveyor, can coating, paper mill
Seals and Gaskets	Pneumatic and oil seals, diaphragms
Footwear	Shoe soles, bottom moulding diaphragms, wear plate, energy absorbing insoles
Wheel Tyres	Forklift tyres, heavy duty castor wheels, escalator wheels, roller skate wheels, roller blade wheels

ADVANTAGES OF POLYURETHANE

WIDE RANGE OF HARDNESS

This is the most important classification characteristic of polyurethane and is governed by the molecular structure of the prepolymer, not by the addition of plasticisers and fillers. Polyurethane is manufactured in different grades of hardness. (From 60 SHORE to 80 SHORE D)

HIGH LOAD BEARING CAPACITY

Polyurethane has high load bearing capacity in both compression and shear. Compression in this case, means that the elastomer will not change in volume under pressure, but may undergo a change of shape under load. Polyurethane will return to its original shape when the load is removed.

FLEXIBILITY

Polyurethanes are highly flexible, especially the grades with lower hardness. Polyurethanes has resistance to cracking at the flex point, even in parts with thin areas that are subject to flexural stresses.

ABRASION AND IMPACT RESISTANCE

Polyurethanes are ideal for applications where severe wear prove challenging for conventional products. Impact resistance is excellent, even at low temperatures.

TEAR RESISTANCE

Tear strength or tear resistance is an indication of toughness and durability. The high tear resistance of Polyurethanes result in a longer service life of parts in most applications.

RESISTANCE TO WATER, OIL, GREASE

Polyurethanes will not swell or deteriorate in water / oil / grease material properties remain stable.

ELECTRICAL PROPERTIES

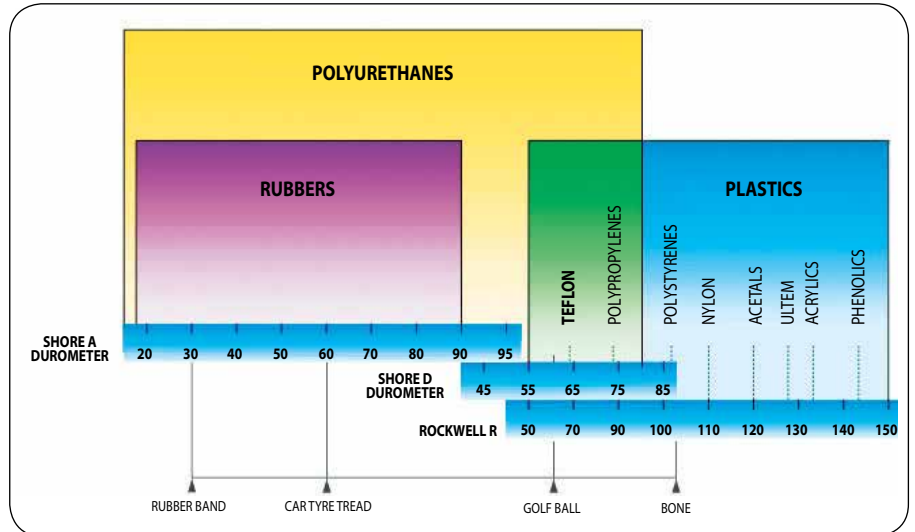
Polyurethanes exhibit good electrical insulating properties.

WIDE RESILIENCY RANGE

Resilience in conventional elastomers is generally a function of hardness. In shock-absorbing elastomer applications, low rebound compounds are usually used i.e. resilience range of 10-40%. For high frequency vibrations or where quick recovery is required, compounds in the 40-65% resilience, are used. In general, toughness is enhanced by high resilience.

STRONG BONDING PROPERTIES

Polyurethane can be bonded to a wide range of materials (e.g. other plastics, metal, and wood) during or after the moulding process. Ideal for wheels, rollers and inserts.



STABILITY WHEN USED IN HARSH ENVIRONMENTS

Polyurethanes are extremely well suited to operating in temperature extremes. Harsh environmental factors and most chemicals will not cause material degradation.

COLOUR RANGE

Colour pigments added during manufacturing process allow for greater flexibility.

ECONOMICAL MANUFACTURING PROCESS

Flexibility to manufacture once-off parts, prototypes or high volume, repeat production runs. Polyurethane parts can range in size from less than a couple of grams to over 500kg.

RELATIVELY SHORT PRODUCTION LEAD TIMES

Relatively short production lead times, when compared to conventional materials.

MOULD, MILDEW , FUNGUS RESISTANCE

Polyether based Polyurethanes generally do not support fungal / mould / mildew growth, making these products particularly suitable for tropical environments.



ADVANTAGES OF POLYURETHANE WHEN COMPARED TO CONVENTIONAL MATERIALS		
METAL	RUBBER	PLASTIC
<ul style="list-style-type: none"> • Higher abrasion resistance • Less noise pollution • Extremely cost competitive • More corrosion-resistant 	<ul style="list-style-type: none"> • Higher cut & abrasion resistance • Higher load bearing capacity • Higher abrasion resistance • Excellent salt water resistance 	<ul style="list-style-type: none"> • Lower tooling costs • Improved elastomeric memory • Wider hardness range • Smaller production runs

Delivery Programme

POLYURETHANE SHEETS



DURO (Hardness)

60A - 70A - 75A - 85A - 90A - 95A

STANDARD SIZE

1000 x 1000mm

STANDARD THICKNESS

3 - 5 - 8 - 10 - 12 - 15 - 20 - 25 - 30 - 35 - 40 - 45 - 50mm

STANDARD COLOURS

Red - Black - Green - Yellow - Navy Blue

POLYURETHANE RODS 600mm Lengths



DURO (Hardness)

60A - 70A - 75A - 85A - 90A - 95A

STANDARD OD

12 - 15 - 20 - 25 - 31 - 35 - 38 - 41 - 47 - 50 - 60 - 72 - 75 -
82 - 88 - 95 - 100 - 125 - 150mm

STANDARD COLOURS

Red - Black - Green - Yellow - Navy Blue

Custom made Tubes and Shapes made to order!



MACHINING

PLEASE NOTE:

Harder grades of Polyurethane can be machined using conventional tooling – Can be drilled, routed, sawn, turned and shaped.

Machining on urethane is only recommended to a Shore hardness of above 84A. Machining tolerances on urethane is also higher than with conventional thermoplastics, and care should be taken when machining parts that require close tolerances. Dotmar Technical Centre is equipped with state-of-the-art machining facilities and highly trained technical teams, skilled in polyurethane machining.

Dotmar Engineering Plastics offer's CAD/CAM design and custom mould manufacturing services for the supply of finished moulded parts. Custom moulded parts offer a vastly improved surface when compared to conventional machined parts.

