

Advanced Urethane Technology



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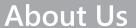
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Established in 1971, Watts Urethane Products Limited has been producing polyurethane (PU) products for over 40 years.

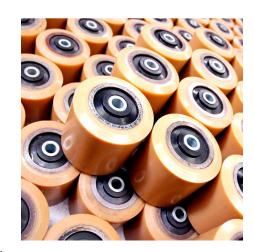
Watts Urethane are proud to offer a wide range of products, including industry standard components whilst also manufacturing to a customer's own specifications. Through our experience and expertise, we are also in a position to produce a design solution from the ground up.

Watts Urethane offer the most advanced range of Polyurethane systems available, and utilises these in conjunction with our technical and processing expertise, to design and supply products specific to our customers needs.

Using polyurethane products in preference to products manufactured from other materials provides a number of benefits, some of these are listed below:

- Improved physical performance in your application
- Less down-time and maintenance costs for your business operations
- Higher efficiency and reliability for your manufacturing processes
- Faster and more cost effective prototyping and bespoke products
- Tailored material and component properties to your individual needs

Here at Watts Urethane, we pride ourselves on our innovative use of both technology and technique to solve customers application problems, whilst offering a totally professional service from material specification and product design through to the finished item.





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#### **Watts Urethane Products Limited**

# **About Us**

#### **Quality Products**

With our quality management systems, we constantly monitor our products throughout the production process. We see quality as a key part of our business operations and we use this as a tool as we strive for perfection.

To us, quality means the optimum design solutions developed by our experts to meet your specific application needs. It means carefully formulated and consistently mixed polyurethane which guarantees the long term performance required in service. This means that by doing business with Watts Urethane Products Ltd, you can expect quality products delivered on time, in a cost effective manner.

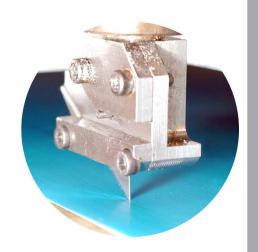


#### Highest Standards of Health and Safety Practice

Processing polyurethanes involves the use of materials and production techniques which demand stringent compliance with Health and Safety legislation. Watts Urethane Products Ltd is proud of its exemplary track record in meeting and exceeding statutory requirements. Many of our practices have been recommended by Health and Safety regulators, as models for the polyurethane industry.



Not content to rest on our laurels, we are constantly looking for ways to improve our products and processes. This ranges from innovating more efficient manufacturing processes or moulds to working with customers to design and create new products.





Polyurethanes are a vast family of high performance engineering materials, which combine many of the benefits of rigid plastics, metals and ceramics with the flexibility of rubber. In service they bridge the gap between rubbers and plastics.

### The unique properties of polyurethanes

Polyurethane is chemically formed by the reaction of a polyol with an isocyanate. Polyols provide the soft qualities, with the hard segments provided by the isocyanates. The characteristics of the final material depend upon the ratio of these two components, and the mixing and production techniques applied.

The unique properties that polyurethane offers has led to an increase in the use of polyurethane products throughout different industries. These material properties allows for products to be manufactured to meet a wide and varying range of demanding applications.

The relatively low processing and tooling costs when compared to alternative materials means that using polyurethane products can also make sound commercial sense.

The longevity and performance of polyurethane products in production processes can also provide cost savings.

The ability to produce small batches and small machine runs make utilising polyurethane ideal for specialist applications and for tasks that require low volume runs.



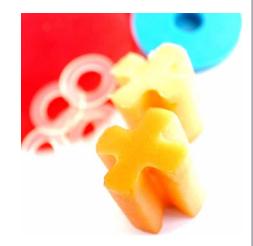




### **Types of Polyurethane**

The main types of polyurethane used by Watts Urethane Products are:

- Polyether TDI
- Polyester TDI
- Polyester NDI (Vulkollan®)
- Polyester MDI
- Polycaprolactone MDI



#### **Polyethers**

Polyethers are especially suited to applications that require a high tolerance to dynamic loading. This is applications such as fork truck tyres and hammer pads where repeated loading can cause heat build-up failure in other materials. Polyethers also have extremely good anti-hydrolytic properties (resistance to water ingress) and a lower viscosity than other PU's providing a superior surface finish.

#### Polyester based urethanes

Polyesters have an extremely high abrasion, cut and tear resistance and are especially suitable to jobs such as anvil covers and cutting sticks where this is a necessity. Although not as good as ethers in anti-hydrolytic properties, they do have very good resistance to oil and solvents

#### TDI based products

TDI PU's allow for rapid de-moulding due to their lower de-mould times and again have a very high resistance to moisture (anti-hydrolytic)

#### MDI based products

MDI PU's have a high rate of resilience and even superior anti-hydrolytic properties when compared to TDI's PU's.

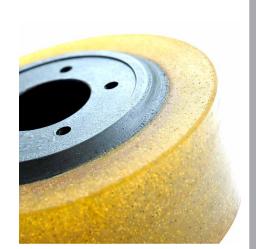
#### **Polycaprolactones**

Polycaprolactones offer high abrasion, cut and tear much like the Polyesters but have the advantage of superior moisture resistance when the two are compared. They may also have high load carrying capacity compared to TDI PU's.



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#### **Vulkollan®**

This is produced under licence from Bayer AG. It is the longest established and best known polyurethane formulation, specified for applications where high physical strength is essential.

### Appraisal of polyurethane qualities

#### Hardness

The hardness of polyurethanes can range from the equivalent harness of a golf ball to the softness of an eraser.

The degrees of hardness are measured using the Shore scale, where 10 - 15 Shore A is softer than an eraser and 60 Shore D is the golf ball equivalent. A 90 Shore D polyurethane would have a hardness level greater than bone. For a detailed graph of shore hardness please visit appendix i in the technical information section at the rear of the catalogue.



#### Abrasion Resistance

In many applications where abrasion resistance is of paramount importance, polyurethanes can out-perform rubber, plastic and metal.

By replacing the alternative materials with a suitable polyurethane product you should achieve a longer operational life, at a lower unit cost. You may also receive additional benefits such as lighter or smaller components, plus a reduction in noise levels.

Abrasion resistance can vary considerably with each type of application. For this reason we would recommend that prior to new orders you speak to a member of our sales team. For a technical breakdown of abrasion resistance, please see appendix ii in the technical information section at the rear of the catalogue.



#### **Load Bearing**

Through the wide range of physical properties offered by polyurethanes, it can offer a greater load bearing capacity than conventional rubber.



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#### **Mechanical Properties**

Most elastomers encounter a reduction in elasticity as the hardness increases, which can ultimately cause cracking in the product. Polyurethane does not encounter this problem, even at its highest hardness level, it can display significant impact resistance.

Polyurethanes also exhibit good tear strength and harder grades can offer a very low co-efficient of friction. The combination of these mechanical properties has lead to many polyurethane products being adopted into the tough operating environments of engineering applications.



#### **Tear Strength**

Tear strength is an indication of toughness and durability. The higher the tear strength, the longer the service life. Watts Urethane only utilises materials that enhance this advantage.

#### Low Temperature Performance

The methods utilised by Watts Urethane in the formulation of polyurethane means that materials can be produced which remain flexible at extremely low temperatures, whilst providing excellent resistance to thermal shock. These qualities make the products ideal for use in applications with long term exposure to sub-zero temperatures.



The use of Ether based polyurethanes provides excellent water resistance, demonstrating long term stability in water up to 50°C. Water absorption is very low, and volume swell is negligible.





#### Resilience

Polyurethanes of varying families can have identical hardnesses, but vary in levels of resilience quite dramatically. We leverage this feature to better match a material to a specific application. In general, toughness of a product is enhanced by high resilience. For example in shock absorbing applications, where you would generally expect low rebound compounds, the resilience range would be typically between 10 - 40%. This would increase to 40 - 65%, in applications where quick recovery is required such as provided by high frequency vibrations.



#### **Tensile Strength**

All of our polyurethane systems are tested for tensile strength by our suppliers. Providing us with the ability to offer products with a combination of higher level toughness and durability provided by high tech materials.

#### Flex Properties

Through careful polyurethane systems selection Watts Urethane are in a position to provide products that have an increased resistance to cracking when subjected to repeated flexing.

#### **Dry Heat Resistance**

As well as operating in low temperatures, Watts Urethane are able to offer products that are suitable for continuous use in temperatures of up to 90°C, and intermittent use in temperatures as high as 120°C. To achieve operation in temperatures greater than 120°C, would require using special formulations, so if this is required please speak to a member of the sales team.





#### Water Resistance

The level of resistance offered by polyurethane varies between the different family groups. For example, polyethers are resistant to the effects of submersion in water, and provide excellent long term stability in water up to 50°C. For continuous use in water with temperatures over 80°C it is advised that you contact a member of the sales team, as this requires a non-standard system. The level of water absorption provided is also very low, which in turn results in a negligible volume swell.



#### **Electrical Properties**

Typically, the products offered by Watts Urethane possess very good insulating properties, enabling effective use in potting and encapsulating applications.

#### Oxygen and Ozone Resistance

Polyurethanes are proven to exhibit high levels of resistance to degradation by atmospheric oxygen and ozone, unlike other elastomers which are known to have a general weakness in this area. Past continuous exposure test have demonstrated that polyurethanes are highly immune to attack under normal atmospheric conditions. This level of resistance makes the use of polyurethane products around electrical equipment highly advantageous.



#### Oil, Grease and Chemical Resistance

With the exception of strong acids and alkalis and some strong solvents, polyurethanes are broadly resistant to most oils, greases chemicals and mild solvents. This level of resistance is greater than that offered by many rubbers and plastics. To best ensure that the polyurethane product is resistant to a specific chemical it is advised that you test a sample piece, in similar working conditions to the end use.



#### **Watts Urethane Products Limited**

#### Radiation Resistance

The polyurethane systems sourced by Watts Urethane are considered to show a high level of resistance to gamma ray radiation when compared to other polyurethane systems. The products retain a high proportion of their original flexibility and toughness after exposure to gamma radiation.

#### Flame Resistance

If it is a requirement that your product be flame resistant, please contact a member if the sales team as it is possible to formulate a product with these qualities.



Watts Urethane are able to provide products that do not support fungal growth. These are usually polyether based products, and enables the utilisation of products in tropical environments.

#### **Frictional Properties**

Typically polyurethanes will resemble the results of most plastics in that as the hardness increases, the friction against a non-lubricated surface will decrease.

The level of friction required can be dependent on the application. For example it is valuable for an industrial tyre to have a high level of friction.

#### **Bonding to Other Materials**

Polyurethane can be bonded to most materials. Please contact the sales department for your specific requirements.







# Applications for Polyurethane Products

### **Applications for Polyurethane Products**

#### Solid tyres

When made from polyurethane, they are able to carry far heavier loads much longer than conventional tyres, whilst remaining resilient and non-marking.

#### Rollers

These benefit from the superior abrasion resistance of polyurethane over rubber, coupled with its high load bearing properties.

#### **Bushing and Bearing**

These combine excellent abrasion resistance with low friction characteristics.

#### **Energy Absorbers**

The resilience and physical strength of polyurethane makes it ideal for polyurethane products to be used in applications where released mass must be arrested, such as elevator hoists and travelling cranes.

#### **Abrasion Liners**

Polyurethane is an ideal material for lining surfaces which are subject to high abrasion forces such as feed chutes and conveyor belts.

#### Gaskets

Die cut gaskets from polyurethane have the ability to withstand high flange loading without extruding.

#### **Encapsulation**

By making use of the liquid nature in processing of polyurethane and its translucence combined with excellent electrical, thermal shock and ozone resistance in its finished state, polyurethane becomes a useful material for encapsulation.







# Applications for Polyurethane Products

# **Industry Uses**

Watts Urethane already provide components into a number of industries. Over the next two pages is a table with some of the industries we currently provide products into, along with some examples of these products.

Industry	Examples of components
Aerospace	Bump stops & wear pads, viscous dampers, gimble rings, rods & tubes and link components
Agricultural	Scraper blades, seed plantation components, harvesting wheels, ground & soil preparation stars, guides, rams, pulleys, rods, tubes, nozzles, suspension & shock absorbing components, links, buffers, and seals
Automotive	Buffers, sheet, custom mouldings, dunnage blocks, mud flaps & under body & link protection for rallying, bushes, springs, shock absorbers, and custom mouldings.
Ceramic and Iso-Pressing	Square, rectangular, round, tubular, spherical & custom iso-bags, and membranes
Construction	Brick impression rollers, concrete casting moulds, kerb stone pressing plates, anvil cushions, gaskets, seals, sheets, strips, protection covers, wear pads, belts, covers, scraper blades, and wacker plates & shoes







# Applications for Polyurethane Products

Industry	Examples of components
Industrial Components	Anvil covers, soft touch wheels, non crush wheels, shock absorbers, strippers, springs, folding arm blocks, pulleys, wedges, rods, strips, blocks and cutting sticks
Manufacturing	Rollers, wheels, pulleys, buffer pads, bump stops, springs, shock absorbers, scraper blades, wear plates, milling & grinding vessels, canister lining, sheet, rod, tube, cutting sticks, and custom mouldings.
Marine and Offshore	Buffers, bend restrictors, packing pieces, cones, jointing pieces & sleeves, deep sea seals, bumpers, and dock gate stops.
Metal Working	Film, strip, sheet, bending pads, blocks, strippers, springs, wear pads, rod, tube, protective covers, and custom moulded bending tools.
Mining and Quarrying	Belts, sheet, scraper blades, wear pads, screening & grading mats, covers, tubes, rods, pulleys, rollers, and cable guides.
Paper and Board	Washers, bosses, suckers, soft touch wheels, non-crush wheels, creasers, anvil covers, shock absorbers, strippers, springs, folding arm blocks, rods, strips, blocks, and cutting sticks.
Printing	Squeegee blades
Service and Inspection	Pipeline inspection components, pipeline scraper cups (pipeline pigs), scraper blades, wear strips, buffers, and hydro-cyclones.







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# Working with Watts Urethane Products

### **Supplier Selection**

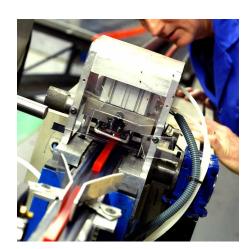
The wide range of qualities offered by polyurethane makes it a remarkable family of materials. The applications for use are only truly limited by the imagination of the designer and the expertise of the processor.

To gain the most from the performance available it is essential that you work with processors who are both competent and experienced. At Watts Urethane, we recommend that you follow three steps when selecting a processing supplier:

- Choose a company with extensive and proven design and formulation skills, to ensure that all options are considered.
- The highest quality of raw materials are used in the formulating of polyurethanes. Cheaper alternatives may not have the same level of performance even if aesthetically they are similar.
- Work closely with your supplier, providing as much information as possible so as the most effective solution can be suggested, designed and produced.

Our manufacturing operation is flexible enough to accommodate both large batch production and short run requirements. This allows us to serve a wide range of businesses from many different industries.

Working closely with our customers we aim to deliver products and components which meet their specific needs and requirements. It is our aim to get it right first time, saving time and money.













# Watts Urethane Products







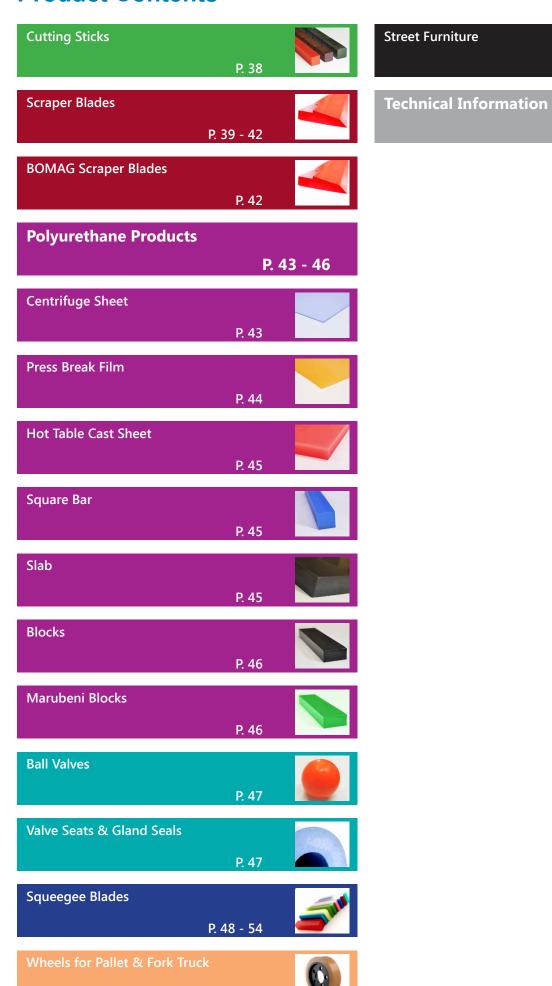
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Appendix

### Rods



# **Engineering Products**

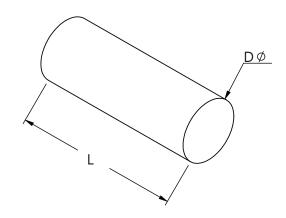
Rods are available in a shore hardness range of 45 Shore 'A' to 60 Shore 'D'. They are also available in Vulkollan®.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

There is the option for all rods to be cut to customer specific sizes from the longer lengths.

The products listed are the standard sizes that we offer. If your exact requirement is not listed,

please contact us to discuss your requirements and to check for availability.



		Dime	ensions	s (mm)
Part Number	Short Description	D	x	L
CR001	5 x 305mm	5	х	305
CR002	6 x 160mm	6	x	160
CR003	8 x 305mm	8	x	305
CR004	9.5 x 305mm	9.5	x	305
CR005	0.375 x 12"	9.525	x	304.8
CR006*	10 x 305mm	10	x	304.8
CR007*	12.5 x 305mm	12.5	x	304.8
CR008*	12.7 x 305mm	12.7	x	305
CR009	14 x 90mm	14	x	305
CR010	0.625 x 12"	15.875	x	304.8
CR011	16 x 305mm	16	x	305
CR012	17 x 300mm	17	x	300
CR013	19 x 305mm	19	x	305
CR014	0.75 x 12"	19.05	x	304.8
CR015	20 x 305mm	20	x	305
CR016	22 x 305mm	22	x	305
CR017	0.875 x 12"	22.225	x	304.8
CR018	25 x 305mm	25	x	305
CR019	25 x 1000mm	25	x	1000
CR020	1 x 12"	25.4	x	304.8

<sup>\* -</sup> The Vulkollan® option for these part numbers are only available in lengths of 150mm

# Rods



# **Engineering Products**

Part Number	Chart Description	Dimen	sion	s (mm)
Part Number	Short Description	D	x	L
CR021	28 x 305mm	28	Х	305
CR022	30 x 1000mm	30	х	1000
CR023	1.25 x 12"	31.75	x	304.8
CR024	32 x 305mm	32	х	305
CR025	35 x 1000mm	35	х	1000
CR026	38 x 305mm	38	х	305
CR027	1.5 x 12"	38.1	х	304.8
CR028	40 x 300mm	40	х	300
CR029	40 x 1000mm	40	х	1000
CR030	44 x 305mm	44	х	305
CR031	1.75 x 12"	44.45	х	304.8
CR032	44.5 x 305mm	44.5	х	305
CR033	50 x 305mm	50	х	305
CR034	50 x 400mm	50	Х	400
CR035	50 x 500mm	50	х	500
CR036	50 x 1000mm	50	х	1000
CR037	2 x 12"	50.8	х	304.8
CR038	51 x 305mm	51	х	305
CR039	60 x 1000mm	60	х	1000
CR040	63 x 400mm	63	х	400
CR041	63.5 x 305mm	63.5	х	305
CR042	64 x 305mm	64	х	305
CR043	66 x 750mm	66	х	750
CR044	69 x 300mm	69	х	300
CR045	70 x 300mm	70	х	300
CR046	76 x 305mm	76	х	305
CR047	76 x 400mm	76	х	400
CR048	3 x 12"	76.2	х	304.8
CR049	80 x 400mm	80	х	400
CR050	80 x 1000mm	80	х	1000
CR051	3.5 x 12"	88.9	х	304.8
CR052	3.75 x 12"	95.25	х	304.8
CR053	100 x 300mm	100	x	300
CR054	100 x 400mm	100	х	400
CR055	4 x 12"	101.6	х	304.8
CR056	108 x 457mm	108	x	457
CR057	120 x 1000mm	120	х	1000
CR058	127 x 305mm	127	х	305

# Rods



# **Engineering Products**

Part Number	Short Description	Dimensions (mm)					
Part Number	Number Short Description D		Х	L			
CR059	5.25 x 18"	133.35	Х	457.2			
CR060	140 x 300mm	140	Х	300			
CR061	150 x 300mm	150	Х	300			
CR062	6 x 12"	152.4	Х	304.8			
CR063	166 x 310mm	166	Х	310			
CR064	200 x 300mm	200	Х	300			
CR066	9 x 6"	228.6	Х	152.4			

# Cord



Cord is available in the following diameters; 1mm, 1.5mm, 2mm, 2.5mm, 3mm, 4mm and 5mm.

Please contact our sales department for our hardness and colour ranges.

Please note that minimum order quantities may be applicable.

Prices are available upon application.

Part Number	Short Description	Dimensions (mm)
Part Number	Short Description	Diameter
CCO001	1mm Cord	1
CCO002	1.5mm Cord	1.5
CCO003	2mm Cord	2
CCO004	2.5mm Cord	2.5
CCO005	3mm Cord	3
CCO006	4mm Cord	4
CCO007	5mm Cord	5

# **Tubes & Springs**



# **Engineering Products**

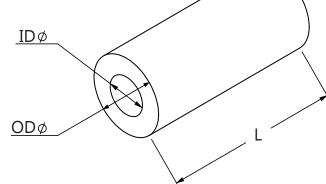
Tubes and springs are available in a shore hardness range of 45 Shore 'A' to 60 Shore 'D'. They are also available in Vulkollan®.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange.

Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

There is the option for all tubes and springs to be cut to customer specific sizes from the longer lengths.

The products listed are the standard sizes that we offer. If your exact requirement is not listed, please contact us to discuss your requirements and to check for availability.



We are also able to utilise the isostatic open ended round iso-bag moulds to manufacture tubes.

Part Number	art Number Short Description		Dimensions (mm)					
- are realiser		ID	Х	OD	Х	L		
CTS001	6.5 x 16 - 150mm	6.5	Х	16	x	150		
CTS002	8.5 x 20 - 300mm	8.5	Х	20	x	300		
CTS003	8.5 x 25 - 300mm	8.5	х	25	x	300		
CTS004	8.5 x 32 - 300mm	8.5	x	32	x	300		
CTS005	8.5 x 19 - 300mm	9.5	х	19	x	300		
CTS006	9.5 x 20 - 300mm	9.5	x	20	x	300		
CTS007	9.5 x 25 - 300mm	9.5	x	25	x	300		
CTS008	9.5 x 25 - 360mm	9.5	x	25	x	360		
CTS009	9.5 x 40 - 300mm	9.5	х	40	x	300		
CTS010	10.5 x 25 - 300mm	10.5	x	25	x	300		
CTS011	12 x 25 - 300mm	12	x	25	x	300		
CTS012	12.5 x 25 - 300mm	12.5	x	25	x	300		
CTS013	13.5 x 32 - 300mm	13.5	х	32	x	300		
CTS014	13.5 x 40 - 300mm	13.5	x	40	x	300		
CTS015	13.5 x 44 - 300mm	13.5	x	44	x	300		
CTS016	0.625 x 1.25 - 12"	15.9	х	31.8	x	304.8		
CTS017	16 x 25 - 300mm	16	x	25	x	300		
CTS018	17 x 50 - 240mm	17	x	50	x	240		
CTS019	17 x 63 - 400mm	17	x	63	x	400		

# Tubes & Springs



# **Engineering Products**

Part Number	Short Description		Dimensions (mm)					
rait Nullibei	Short Description	ID	Х	OD	x	L		
CTS020	19 x 40 - 430mm	19	Х	40	х	430		
CTS021	19 x 50 - 400mm	19	Х	50	x	400		
CTS022	21 x 40 - 300mm	21	X	40	x	300		
CTS023	80 x 21 - 400mm	21	х	80	x	400		
CTS024	21 x 100 - 400mm	21	х	100	x	400		
CTS025	23 x 50 - 400mm	23	Х	50	x	400		
CTS026	24 x 125 - 400mm	24	X	125	x	400		
CTS027	25 x 50 - 400mm	25	x	50	x	400		
CTS028	25 x 80 - 500mm	25	X	80	x	500		
CTS029	26 x 63 - 400mm	26	х	63	x	400		
CTS030	26 x 63 - 400mm	26	X	63	x	400		
CTS031	27 x 125 - 400mm	27	x	125	x	400		
CTS032	32 x 80 x 400mm	32	X	80	x	400		
CTS033	33.75 x 95.7 - 430mm	33.75	X	95.7	x	430		
CTS034	40 x 63 - 400mm	40	X	63	x	400		
CTS035	40 x 100 - 400mm	40	x	100	x	400		
CTS036	43.2 x 50 - 300mm	43.2	х	50	x	300		
CTS037	44.4 x 95.7 - 430mm	44.4	X	95.7	x	430		
CTS038	2 x 2.25 - 18"	50.8	X	57.15	x	457.2		
CTS039	59.1 x 72 - 339mm	59.1	x	72	x	339		
CTS040	59.7 x 72 - 339mm	59.7	x	72	x	339		
CTS041	62.5 x 74.9 - 450mm	62.5	x	74.9	x	450		
CTS042	70 x 127 - 457mm	70	x	127	x	457		
CTS043	76.6 x 95 - 1000mm	76.6	x	95	x	1000		
CTS044	100 x 120 - 500mm	100	x	120	x	500		

# **Tubular Springs**



# **Engineering Products**

Part Number	er Short Description		Dimensions (mm)				
r art rvarriber		OD	Х	Height	Х	ID	
CTSPR001	7/8 x 3/8 x 2" Spring	22.2	Х	50.8	Х	9.525	
CTSPR002	25 x 15 x 10mm Spring	25	X	15	Х	10	
CTSPR003	25 x 18 x 10mm Spring	25	X	18	x	10	
CTSPR004	25 x20 x 10mm Spring	25	X	20	X	10	
CTSPR005	25 x 25 x 10mm Spring	25	X	25	х	10	
CTSPR006	30 x 16 x 20mm Tube	30	X	20	x	16	
CTSPR007	30 x 16 x 25mm Tube	30	X	25	X	16	
CTSPR008	30 x 16 x 30mm Tube	30	X	30	X	16	
CTSPR009	32 x 63 x 13.5mm Spring	32	X	63	x	13.5	
CTSPR010	50 x 50 x 17mm Spring	50	X	50	Х	17	
CTSPR011	50 x 38 x 26mm Spring	50	Х	38	x	26	
CTSPR012	2 x 2.479 - 1.03125" Spring	50.8	X	62.9	x	26.19	
CTSPR013	2 x 1.604 - 1.03125" Spring	50.8	X	40.74	х	40.74	
CTSPR014	80 x 21 - 145mm Spring	80	х	145	х	21	
CTSPR015	80 x 21 - 145mm Spring	80	X	145	х	21	
CTSPR016	21 x 100 x 100mm Spring	100	X	100	x	21	

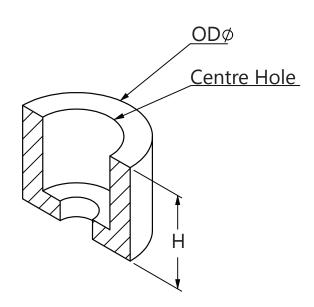
# Strippers



# **Engineering Products**

Strippers are available in a shore hardness range of 80 Shore 'A' to 95 Shore 'A'. They are also available in Vulkollan®.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.



Part Number	Part Number Short Description				Dimensions (mm)					
rait Number	Short Description	OD	Х	Н	Х	Centre Hole				
CSTR001	Stripper WA0728-130-007	20	Х	63	Х	8				
CSTR002	Stripper WA0728-070-007	18	X	58	Х	3				
CSTR003	Stripper WA0728-090-007	20	X	52	Х	3				
CSTR004	Stripper WA0728-100-007	20	x	83	Х	3				
CSTR005	Stripper WA0728-070-008	30	x	58	Х	3				
CSTR006	Stripper WA0728-100-008	45	X	83	Х	3				
CSTR007	Stripper WA0728-110-010	20	Х	58	Х	3				
CSTR008	Stripper WA0728-080-010	20	x	58	Х	3				
CSTR009	Stripper WA0728-110-011	32	x	58	Х	3				
CSTR010	Stripper WA0728-080-011	45	x	58	Х	3				
CSTR011	Stripper WA0728-120-013		Х	63	Х	3				

# Strippers



# **Engineering Products**

Part	Tivo	Chart Description		D	imensions (m	n)	
Number	Туре	Short Description	OD	X	Н	X	Centre Hole
CSTR012	F1000	F1000 Stripper	50.4	Х	76.2	Х	25.4
CSTR013	F1250	F1250 Stripper	50.4	Х	76.2	X	31.75
CSTR014	F187	F187 Stripper	17.425	х	38.1	X	4.7625
CSTR015	F250	F250 Stripper	19.05	х	50.8	X	6.35
CSTR016	F312	F312 Stripper	20.6375	х	50.8	Х	3.365
CSTR017	F375	F375 Stripper	22.22	х	50.8	Х	22.25
CSTR018	F500	F500 Stripper	25.4	Х	57.15	X	12.7
CSTR019	F562	F562 Stripper	31.75	X	57.15	X	14.28
CSTR020	F625	F625 Stripper	31.75	х	57.15	Х	15.875
CSTR021	F750	F750 Stripper	38.1	х	76.2	Х	19.05
CSTR022	F875	F875 Stripper	44.45	х	76.2	Х	22.25
CSTR023	M04	M04 Stripper	17	X	40	X	4
CSTR024	M05	M05 Stripper	18	х	50	Х	5
CSTR025	M06	M06 Stripper	19	х	65	Х	6
CSTR026	M08	M08 Stripper	21	Х	70	Х	8
CSTR027	M10	M10 Stripper	23	Х	70	Х	10
CSTR08	M13	M13 Stripper	26	х	70	Х	13
CSTR029	M16	M16 Stripper	30	х	70	Х	16
CSTR030	M19	M19 Stripper	38	Х	70	Х	19
CSTR031	M20	M20 Stripper	38	Х	70	Х	20
CSTR032	M25	M25 Stripper	50	Х	70	Х	25
CSTR033	M35	M35 Stripper	51	х	52	Х	35
CSTR034	No2	No2 Stripper (F250)	19.05	х	50.8	Х	6.35
CSTR035	No4	No4 Stripper (F375)	22.22	X	50.8	х	9.525
CSTR036	No5	No5 Stripper (F500)	25.4	X	57.15	х	12.7
CSTR037	No6	No6 Stripper (F625)	31.75	X	57.15	х	15.875
CSTR038	No7	No7 Stripper (F750)	38.1	Х	76.2	х	19.05
CSTR039	No9	No9 Stripper (F1000)	50.4	Х	76.2	Х	25.4

# Feed Wheels & Rollers

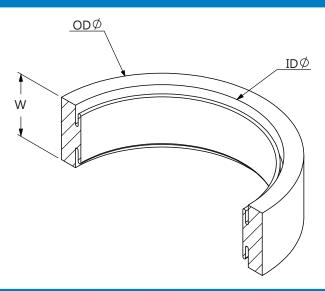


# **Engineering Products**

Feed wheels and rollers are available in a shore hardness range of 60 Shore 'A' to 95 Shore 'A'. They are also available in Vulkollan®.

Other hardnesses are available, for further details, please contact our sales department to discuss your requirements.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.



Cast Poly	Cast Polyurethane										
Part	Туре	Short Description		Dimensions (mm)							
Number	Туре	Short Description	OD	Х	Width	x	ID				
CFR001	Isowa/Sun	65 x 16 - 54mm	65.00	х	16.00	x	54.00				
CFR002	Isowa/Sun	75 x 20 - 65mm	75.00	х	20.00	x	65.00				
CFR003	Isowa/Sun	93 x 25.4 - 80mm	93.00	х	25.00	x	80.00				
CFR020	Isowa/Sun	93 x 30 - 80mm	93.00	х	30.00	x	80.00				
CFR004	Isowa/Sun	109 x 25 - 90mm	109.00	х	25.00	x	90.00				
CFR017	Simon 350	97 x 47 - 49mm	97.00	х	47.00	x	49.00				
CFR018	Simon 470	75 x 47 - 40mm	75.00	х	47.00	x	40.00				
CFR019	GANDOSSI & FOSSATI	107.5 x 40.5 - 78mm	107.50	х	40.50	x	78.00				

Recovere	ed							
Part	Type	Short Description		Dimensions (mm)				
Number	Туре	Short Description	OD	х	Width	x	ID	
CFR005	EMBA	60 x 50 - 50mm	60.00	х	50.00	х	50.00	
CFR006	EMBA	60.3 x 50 - 50mm	60.30	х	50.00	x	50.00	
CFR007	Plain	109 x 25.4 - 91mm	109.00	x	25.40	x	91.00	
CFR008	Plain	4.5 x 1.75 - 3.25"	114.30	x	44.45	x	82.55	
CFR009	Plain	115 x 48 - 82mm	115.00	x	48.00	x	82.00	
CFR010	Plain	115 x 50 - 80mm	115.00	х	80.00	x	80.00	
CFR011	Kirby	115 x 120 - 90mm	115.00	x	120.00	x	90.00	
CFR012	Plain	120 x 16 - 85mm	120.00	x	16.00	x	85.00	
CFR013	Plain	120 x 40 - 94mm	120.00	x	94.00	x	94.00	
CFR014	Hertan B	122 x 73 - 50mm	122.00	x	73.00	x	50.00	
CFR015	Plain	128 x 45 - 118mm	128.00	х	45.00	x	118.00	
CFR016	Hertan T	158.8 x 73 - 75mm	158.80	х	73.00	х	75.00	

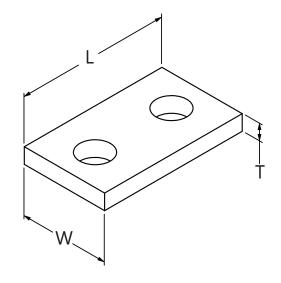
# Shock Absorber Pads



# **Engineering Products**

Shock absorber pads are available in a shore hardness range of 80 Shore 'A' to 95 Shore 'A'.

Please contact our sales department for further details regarding colouring and availability.



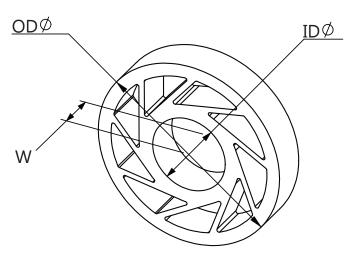
Part	Tupo	Holes	Short Description		Din	nensions (n	nm)			
Number	Number Type	noies	Short Description	L	x	W	x	Т		
CASAP001	MARTIN 718	2 of 8mm	36 x 21 - 4mm	36	Х	21	х	4		
CASAP002	MARTIN	2 of 11mm	45 x 30 - 4mm	45	x	30	x	4		
CASAP003	MARTIN	2 of 11mm	45 x 30 - 5mm	45	х	30	x	5		
CASAP004	MARTIN 928	2 of 11mm	45 x 30 - 6mm	45	x	30	x	6		

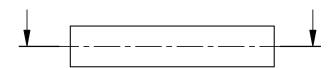
# Soft Touch Wheels

# **Engineering Products**

Soft touch wheels are available in a shore hardness range of 45 Shore 'A' to 95 Shore 'A'.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.





Do at Niversia au	T	Chart Description	Dimensions (mm)					
Part Number	Туре	Short Description	OD	x	Width	x	ID	
CSTW001	Stepped Bore	90 x 30 - 21mm	90	х	30	х	21	
CSTW002	Plain Bore	97 x 22 - 48mm	97	x	22	x	48	
CSTW003	Plain Bore	98 x 49 - 58mm	98	x	49	x	58	
CSTW004	Plain Bore	100 x 22 - 52mm	100	x	22	x	52	
CSTW005	Plain Bore	100 x 40 - 28mm	100	x	40	x	28	
CSTW006	Plain Bore	100 x 42 - 56mm	100	x	42	x	56	
CSTW007	Plain Bore	102 x 43 - 50mm	102	x	43	x	50	
CSTW008	Plain Bore	102 x 45 - 50mm	102	x	45	x	50	
CSTW009	Plain Bore	102 x 50 - 50mm	102	x	50	x	50	
CSTW010	Plain Bore	102 x 100 - 50mm	102	x	100	x	50	
CSTW011	Plain Bore	102 x 45 - 50mm	102	x	45	x	50	
CSTW012	Plain Bore	102 x 50-50mm	102	x	50	x	50	
CSTW013	Plain Bore	104 x 50 - 57mm	104	x	50	x	57	
CSTW014	Plain Bore	115 x 40 - 75mm	115	x	40	x	75	
CSTW015	Plain Bore	115 x 45 - 50mm	115	х	45	x	50	

# Soft Touch Wheels

# **Engineering Products**

Davit Nives have	Time	Chaut Daggintian		Dimensions (mm)					
Part Number	Туре	Short Description	OD	x	Width	x	ID		
CSTW016	Plain Bore	127 x 50 - 80mm	127	х	50	х	80		
CSTW017	Plain Bore	150 x 50 - 80mm	150	x	50	x	80		
CSTW018	Plain Bore	150 x 125 - 89mm	150	x	125	x	89		
CSTW019	Plain Bore	150 x 125 - 89mm	150	x	125	x	89		
CSTW020	Plain Bore	153 x 26 - 33mm	153	x	26	x	33		
CSTW021	Plain Bore	155 x 50 - 82mm	155	x	50	x	82		
CSTW022	Plain Bore	160 x 40 - 64mm	160	x	40	x	64		
CSTW023	Plain Bore	160 x 75 - 97mm	160	x	75	x	97		
CSTW024	Plain Bore	160 x 75 - 100mm	160	x	75	x	100		
CSTW025	Plain Bore	160 x 98 - 113mm	160	x	89	x	113		
CSTW026	Plain Bore	164 x 48 - 66mm	164	x	48	x	66		
CSTW027	Plain Bore	164 x 50 - 64mm	164	x	50	x	64		
CSTW028	Plain Bore	164 x 50 - 66mm	164	x	50	x	66		
CSTW029	Stepped Bore	164 x 25 - 66mm	164	x	66	x	25		
CSTW030	Plain Bore	164 x 48 x 66mm	165	x	48	x	66		
CSTW031	Plain Bore	165 x 50 - 65mm	165	x	50	x	65		
CSTW032	Plain Bore	170 x 45 - 70mm	170	x	45	x	70		
CSTW033	Plain Bore	170 x 50 - 86mm	170	x	50	x	86		
CSTW034	Plain Bore	180 x 50 - 65mm	180	x	50	x	65		
CSTW035	Plain Bore	200 x 35 - 55mm	200	x	35	x	55		
CSTW036	Plain Bore	220 x 50 - 152mm	220	x	50	x	152		
CSTW037	Plain Bore	290 x 50 - 175mm	290	x	50	x	175		
CSTW038	Plain Bore	335 x 70 - 215mm	335	x	70	x	215		
CSTW039	Plain Bore	335 x 70 - 220mm	335	х	70	x	220		

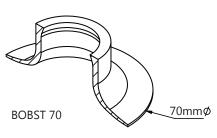
# Suckers

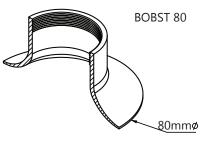


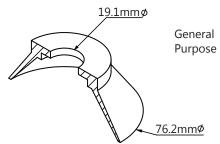
# **Engineering Products**

Suckers are available in a shore hardness range of 45 Shore 'A' to 95 Shore 'A'.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.







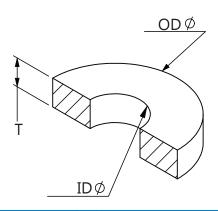
Part Number	Chart Description	Dimensions (mm)
Part Number	Short Description	Outer Diameter
CASUK001	BOBST 70 Sucker	70
CASUK002	BOBST 80 Sucker	80
CASUK003	BOBST 80 Sucker Extended	80
CASUK004	General Purpose Sucker 3" x 0.75" Bore	76.2

### Washers



Washers are available in a shore hardness range of 80 Shore 'A' to 95 Shore 'A'.

Please contact our sales department for further details regarding colouring and availability.



Part Number	Short Description	Dimensions (mm)					
Part Number	Short Description	OD	х	ID	х	Thickness	
WASH001	17.9 x 1.5 - 10.2mm	17.9	х	10.2	х	1.5	
WASH002	Cool Click 2 Damping Washer - 3 Flats	18	х	10.4	x	1	
WASH003	Cool Click 2 Damping Washer - Plain	18	х	10.4	x	2	
WASH004	24 x 3 - 8mm	24	х	8	x	3	
WASH005	BOBST 32 x 1 - 12mm	32	х	12	x	1	
WASH006	BOBST 55 x 2 - 23mm	55	х	23	x	2	
WASH007	BOBST 65 x 2 - 34mm	65	Х	34	x	2	
WASH008	BOBST 67 x 2 - 23.5mm	67	х	23.5	x	2	

# Acuform

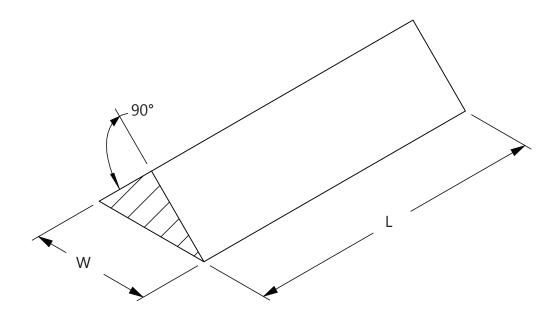


# **Engineering Products**

Acuform profiles are available in a shore hardness range of 80 Shore 'A' to 60 Shore 'D'. They are also available in Vulkollan®.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

Part Number	Short Description	Dimensions (mm)				
Part Number	Short Description	W	Х	L		
ACU001	48 x 1" Triangular	25.4	Х	1219		
ACU002	48 x 2" Triangular	50.8	х	1219		
ACU003	835 x 80mm Triangular	80	Х	835		



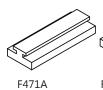
# Cast PU Anvils

# **Engineering Products**

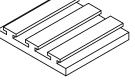
Cast PU anvils are available in a shore hardness range of 80 Shore 'A' to 60 Shore 'D'. They are also available in Vulkollan®.

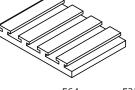
The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the

polyurethane.













F953	F64	F32/2, F471B, F21B

Part Number	Туре	Style	Short Description	Nominal Boss Diameter (ins)	Length Per Half (mm)
CAC001	Anvil Cover	F42	10.75" / 432mm 2T Anvil	10.75"	432
CAC002	Anvil Cover	F32	11" / 440mm 2T Anvil	11"	440
CAC003	Anvil Cover	F32/2	11" / 440mm 1T Anvil	11"	440
CAC004	Anvil Cover	F32B	11" / 440mm 2T Anvil	11"	440
CAC005	Anvil Cover	F42	11" / 440mm 2T Anvil	11"	440
CAC006	Anvil Cover	F52	11" / 440mm 2T Anvil	11"	440
CAC007	Anvil Cover	F64	11" / 435mm 4T Anvil	11"	435
CAC008	Anvil Cover	F750	11" / 440mm 1T Anvil	11"	440
CAC009	Anvil Cover	F953	11" / 410mm 3T Anvil	11"	410
CAC010	Anvil Cover	F471A	12.25"/ 488mm 1T Anvil	12.25"	488
CAC011	Anvil Cover	F32/2	13" / 511mm 1T Anvil	13"	511
CAC012	Anvil Cover	F452	13.75" / 500 2T Anvil	13.75"	500
CAC013	Anvil Cover	F52	13.75" / 540mm 2T Anvil	13.75"	540
CAC014	Anvil Cover	F750	14" / 559mm 1T Anvil	14"	559
CAC015	Anvil Cover	F32	14.5" / 585mm 2T Anvil	14.5"	585
CAC016	Anvil Cover	F32	14.5" / 620mm 2T Anvil	14.5"	620
CAC017	Anvil Cover	F32/2	14.5" / 660mm 1T Anvil	14.5"	660
CAC018	Anvil Cover	F42	14.50" / 585mm 2T Anvil	14.5"	585
CAC019	Anvil Cover	F471A	15" / 600mm 1T Anvil	15"	600
CAC020	Anvil Cover	F471B	15" / 600mm 1T Anvil	15"	600
CAC021	Anvil Cover	F750	16" / 639mm 1T Anvil	16"	639
CAC022	Anvil Cover	F21B	19" / 775mm 1T Anvil	19"	775
CAC023	Anvil Cover	F21B	19" / 820mm 1T Anvil	19"	820
CAC024	Anvil Cover	F750	8" / 320mm 1T Anvil	8"	320
CAC025	Anvil Cover	F32	8.25" / 330mm 2T Anvil	8.25"	330
CAC026	Anvil Cover	F32/2	8.25" / 330mm 1T Anvil	8.25"	330
CAC027	Anvil Cover	F750	8.25" / 330mm 1T Anvil	8.25"	330
CAC028	Anvil Cover	EMBA	132391 Anvil Cover	265mm	_
CAC029	Anvil Cover	Split	327 x 305-240 3T Anvil Cover	327mm	_

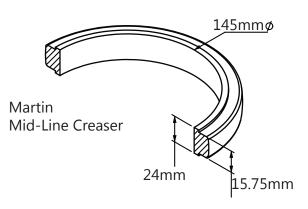
# **Cast PU Creasers**

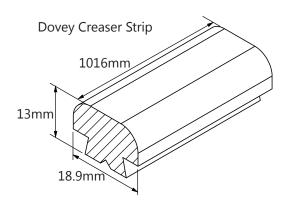


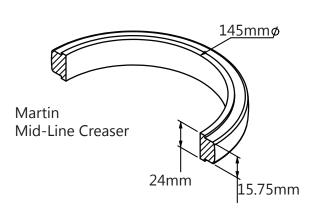
# **Engineering Products**

Cast PU creasers are available in a shore hardness range of 80 Shore 'A' to 60 Shore 'D'. They are also available in Vulkollan®.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.







Dart Number	Tuno	Doscription		D	imensions (mr	n)	
Part Number	Туре	Description	Height	x	Width	X	Length/ID  145
CACR001	Mid-Line Creaser (Half)	Martin - 924	15.75	х	24	Х	145
CACR002	Pre-Creaser (Full)	Martin - 924	19.7	x	25.4	x	235
CACR003	Creaser Strip	Dovey - 40"	13	х	18.9	х	1016

# Recovered Anvils & Creasers



# **Engineering Products**

Recovered anvils and creasers are available in a shore hardness range of 45 Shore 'A' to 60 Shore 'D'. They are also available in Vulkollan®.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

There is the option for all recovered creasers and anvils to be cut to customer specific dimensions.

The products listed are the sizes that we currently supply. If your exact requirement is not listed, please contact us to discuss and also to check for availability.

Please bear in mind prices quoted may be affected by the construction of your wheel centre.

Part	Typo					ensions	s (mm)		
Number	Туре	Descriptor	Short Description	OD	x	Width	x	ID	
SACRC001	Split Anvil/Creaser	Split	110 x 25.5 x 90mm Anvil	110	Х	25.5	Х	90	
SACRC002	Split Anvil/Creaser	Split	110 x 28.5 x 90mm Anvil	110	x	28.5	x	90	
SACRC003	Split Anvil/Creaser	Fury	162 x 35 - 146mm Anvil Cover	162	x	35	x	146	
SACRC004	Split Anvil/Creaser	Split	185 x 30 x 160mm Creaser	185	х	30	x	160	
SACRC005	Split Anvil/Creaser	Split	188 x 30 x 165mm Anvil	188	х	30	x	165	
SACRC006	Split Anvil/Creaser	Split	192 x 22.5 - 170mm Ring	192	x	22.5	x	170	
SACRC007	Split Anvil/Creaser	Split	215 x 20 - 194mm Anvil	215	x	20	x	194	
SACRC008	Split Anvil/Creaser	Split	215 x 26.5 - 192mm Anvil	215	x	26.5	x	192	
SACRC009	Split Anvil/Creaser	Split	216 x 21 - 205mm Anvil	216	Х	21	х	205	
SACRC010	Split Anvil/Creaser	Split	240 x 65 - 220mm Rings	240	х	65	х	220	
SACRC011	Split Anvil/Creaser	Split	267 x 22 - 247mm Anvil	267	х	22	х	247	
SACRC013	Split Anvil/Creaser	Split	406 x 27 - 383mm Creaser	406	х	35	х	383	

#### Recovered Anvils & Creasers



## **Engineering Products**

Part	_				Dim	ensions (r	nm)	
Number	Туре	Descriptor	Short Description	OD	x	Width	х	ID
CACR001	Creaser	Split	108 x 67 - 94mm Split Creaser	108	х	67	х	94
CACR002	Creaser	Split	108 x 87 - 94mm Split Creaser	108	x	87	х	94
CACR003	Creaser	Split	110 x 25.5 x 90mm Split Anvil	110	x	25.5	x	90
CACR004	Creaser	Split	110 x 28.5 x 90mm Split Anvil	110	x	28	x	90
CACR005	Creaser	Plain	5.375 x 0.75 - 4.5625" 2-ZLG-59351	136.525	x	19.05	х	117.47
CACR006	Creaser	Plain	5.456 x 0.75 - 4.625" 2-701-51000	138.58	x	19.05	х	117.47
CACR007	Creaser	Split	150mm O/D KLETT Split Creaser	150	x		х	
CACR008	Creaser	Plain	155 x 20 - 140mm Creaser 1895	155	x	20	х	140
CACR009	Creaser	Plain	160 x 20 x 143mm	160	x	20	х	143
CACR010	Creaser	Split	160 x 17 x 145mm Split Creaser	160	x	17	х	145
CACR011	Creaser	Plain	185 x 30 x 160mm	185	x	30	х	160
CACR012	Creaser	Split	188 x 30 x 165mm Split Anvil	188	x	30	x	165
CACR013	Creaser	Split	198 x 20 - 190mm Split Boss	198	x	20	x	190
CACR014	Creaser	Split	215 x 20 x 194mm Split Anvil	215	x	20	х	194
CACR015	Creaser	Split	215 x 26.5 x 192mm Split Anvil	215	x	26.5	х	192
CACR016	Creaser	Split	216 x 21 x 205mm Split Anvil	216	x	21	х	205
CACR017	Creaser	Plain	8.562 x 0.75 - 7.5" = 9019	217.47	x	19.05	х	190.5
CACR018	Creaser	Plain	218 x 93 -191mm 2-ZLG 5340g	218	x	93	х	191
CACR019	Creaser	Plain	220 x 20 - 200mm	220	x	20	х	200
CACR020	Creaser	Split	267 x 22 x 247mm Split Anvil	267	x	22	х	247
CACR021	Creaser	Plain	12.812 x 0.75 - 11.625" 51005	325.42	x	19.05	х	295.275
CACR022	Creaser	Plain	12.812 x 2 - 11.625" 51028	325.42	x	50.8	х	295.275
CACR023	Creaser	Split	360 x 60 - 335mm Split Boss	360	x	60	х	335
CACR024	Creaser	Split	406 x 27 x 383mm Creaser Anvil	406	х	27	х	383

#### Recovered Anvils & Creasers



## **Engineering Products**

Part				Dir	mer	nsions (	mn	n)
Number	Туре	Descriptor	Short Description	OD	x	W	Х	ID
CACR025	EMBA	Plain	108.5 x 21mm Creaser	108.5	Х	21	х	
CACR026	EMBA	Plain	108.5 x 26mm Creaser	108.5	Х	26	Х	
CACR027	EMBA	Crowned	109.15 x 19 - 100mm Creaser	109.15	Х	19	х	100
CACR028	EMBA	Plain	109.15 x 19 - 100mm Creaser	109.15	Х	19	х	100
CACR029	EMBA	Plain	109.15 x 41 - 100mm Creaser	109.15	Х	41	х	100
CACR030	EMBA	Plain	110 x 19 - 90mm Creaser	110	Х	19	х	90
CACR031	EMBA	Plain	110 x 40 - 95mm Creaser	110	Х	40	х	95
CACR032	EMBA	Plain	110 x 40mm Creaser	110	Х	40	х	
CACR033	EMBA	Castle	111 x 19 - 90mm Creaser Castle	111	Х	19	х	90
CACR034	EMBA	Crowned	111 x 41 - 100mm Creaser	111	Х	41	х	100
CACR035	EMBA	Plain	111 x 19 - 90mm Creaser	111	Х	19	х	90
CACR036	EMBA	Plain	111 x 41 - 90mm Creaser	111	Х	41	х	90
CACR037	EMBA	Plain	111 x 45 - 90mm Creaser	111	Х	45	х	90
CACR038	EMBA	Castle	114.5 x 19 - 100mm Creaser	114.5	Х	19	х	100
CACR039	EMBA	Plain	114.5 x 19 - 100mm Creaser	114.5	Х	19	х	100
CACR040	EMBA	Plain	114.5 x 41 - 100mm Creaser	114.5	Х	41	х	100
CACR041	S&S	Plain Creaser	2-ZLG-51252-0-B	152.4	Х	25.4	х	101.6
CACR042	S&S	Plain Creaser	6.406 x 3-5" = P/N-53197	162.71	Х	76.2	х	127
SACRC014	Bizzozero	Split Anvil/Creaser	162 x 35 - 146mm Anvil Cover	162	Х	35	х	146
SACRC015	Bizzozero	Split Anvil/Creaser	162 x 35 - 146mm Stitch Flap Anvil	162	х	35	х	146
SACRC016	Bizzozero	Split Anvil/Creaser	162 x 35 - 146mm Anvil	162	х	35	х	146
SACRC017	Bizzozero	Split Anvil/Creaser	162 x 35 - 146mm Stitch Flap Anvil	162	х	35	х	146
SACRC012	TECASA	Split Anvil/Creaser	240 x 60 - 218mm Split Boss	240	х	60	х	218
SACRC018	TECASA	Split Anvil/Creaser	240 x 60 - 218mm Split Boss	240	х	60	х	218

#### Harris Nip Rollers

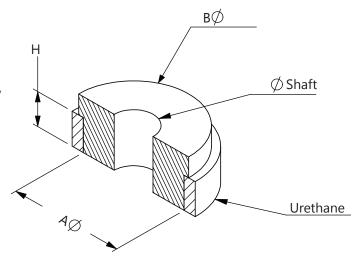


## Harris Nip Rollers

Feed wheels and rollers are available in a shore hardness range of 60 Shore 'A' to 95 Shore 'A'. It is also available in Vulkollan®.

Other hardnesses are available, for further details, please contact our sales department to discuss your requirements.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.



Press		ı	Size (mm)	I		Shaft
	A*	X	Н	Х	В	Diameter (mm)
M 90	201.5	X	50	х	165	63.5
M 110	114.4	X	50	х	121	63.5
M 200 A	134.7	X	50	х	112	50
M 420 B	116.8	X	40	х	96	36.5
M 850	201.0	x	50	х	178	63.5
M 1000	128.9	Х	50	Х	116	63.5

<sup>\*</sup> Or To Customers Own Required Diameter

Prices Are For Recovering Of Existing Metal Centres And Not For Complete Component.

## Isostatic Moulding Bags

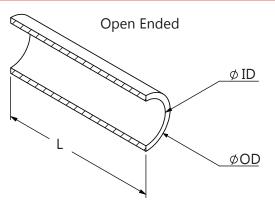
Isostatic moulding bags and plugs are available in a shore hardness range of 45 shore 'A' to 95 shore 'A'.

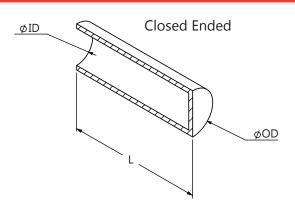
Typically iso-bags are manufactured to a hardness of 65 shore 'A' with a translucent finish. Colouring pigments and different degrees of hardness can be manufactured to meet specifications. For further details regarding the different options available, please contact our sales department.



#### Open Ended Round Tubes







D IN I	_	F 1	Cl + D · · ·		Di	imensions (m	m)	
Part Number	Туре	End	Short Description	ID	x	OD	x	L
IBROE001	Round	Open	17 x 26 - 457mm	17	Х	26	Х	457
IBROE002	Round	Open	52 x 59 - 234mm	52	X	59	X	234
IBROE003	Round	Open	31.7 x 38.1 - 457mm	31.7	x	38.1	X	457
IBROE004	Round	Open	20 x 30 - 457mm	20	x	30	x	457
IBROE005	Round	Open	26.8 x 34.7 - 765mm	26.8	x	34.7	x	765
IBROE006	Round	Open	26.8 x 34.7 - 765mm	26.8	X	34.7	X	765
IBROE007	Round	Open	50.5 x 59.43 - 500mm	50.5	X	59.43	X	500
IBROE008	Round	Open	35 x 60 x 234mm	35	x	60	X	234
IBROE009	Round	Open	3.75 x 4 - 18"	95.25	x	101.6	x	457
IBROE010	Round	Open	44.4 x 57.1 - 457mm	44.4	X	57.1	X	457
IBROE011	Round	Open	31 x 59 - 234mm	31	x	59	X	234
IBROE012	Round	Open	50 x 62 - 457mm	50	x	62	X	457
IBROE013	Round	Open	30 x 60 - 234mm	30	x	60	x	234
IBROE014	Round	Open	70 x 82 - 350mm	70	X	82	X	350
IBROE015	Round	Open	50.8 x 63.5 - 457mm	50.8	x	63.5	X	457
IBROE016	Round	Open	85 x 95.3 - 360mm	85	x	95.3	X	360
IBROE017	Round	Open	38 x 59 - 340mm	38	x	59	x	340
IBROE018	Round	Open	120.6 x 127 - 457mm	120.6	x	127	x	457
IBROE019	Round	Open	84 x 95.3 - 360mm	84	X	95.3	X	360
IBROE020	Round	Open	82.5 x 95.3 - 330mm	82.5	x	95.3	X	330
IBROE021	Round	Open	57.8 x 65.9 - 765mm	57.8	x	65.9	x	765
IBROE022	Round	Open	42.1 x 59 - 450mm	42.1	x	59	x	450
IBROE023	Round	Open	16 x 60 - 234mm	16	X	60	X	234
IBROE024	Round	Open	133.3 x 139.7 - 457mm	133.3	x	139.7	X	457
IBROE025	Round	Open	10 x 60 - 234mm	10	X	60	X	234
IBROE026	Round	Open	9.5 x 60 - 234mm	9.5	x	60	x	234
IBROE027	Round	Open	9 x 60 - 234mm	9	x	60	x	234
IBROE028	Round	Open	76.2 x 88.9 - 457mm	76.2	x	88.9	x	457
IBROE029	Round	Open	112.8 x 121 - 500mm	112.8	x	121	x	500
IBROE030	Round	Open	60.5 x 70 - 800mm	60.5	х	70	х	800

### Open Ended Round Tubes



D. A. N. J.	-		Cl. (D. ) ()		Di	mensions (m	m)	
Part Number	Туре	End	Short Description	ID	x	OD	X	L
IBROE031	Round	Open	127 x 139.7 - 300mm	127	Х	139.7	Х	300
IBROE032	Round	Open	35 x 58.8 - 460mm	35	x	58.8	Х	460
IBROE033	Round	Open	82.5 x 95.3 - 457mm	82.5	x	95.3	х	457
IBROE034	Round	Open	61 x 82 - 350mm	61	x	82	х	350
IBROE035	Round	Open	3.5 x 4 - 18"	88.9	x	101.6	х	457
IBROE036	Round	Open	31 x 59 - 457mm	31	x	59	X	457
IBROE037	Round	Open	28 x 58.8 - 460mm	28	x	58.8	х	460
IBROE038	Round	Open	4 x 4.5 - 18"	101.6	x	114.3	х	457
IBROE039	Round	Open	26 x 58.8 460mm	26	x	58.8	х	460
IBROE040	Round	Open	4.06 x 4.37 - 30"	103.124	x	110.998	Х	762
IBROE041	Round	Open	103.1 x 116 - 457mm	103.1	x	116	х	457
IBROE042	Round	Open	4.25 x 4.75 - 18"	107.95	x	120.6	х	457
IBROE043	Round	Open	54 x 82 - 350mm	54	x	82	х	350
IBROE044	Round	Open	23 x 58.8 - 460mm	23	x	58.8	Х	460
IBROE045	Round	Open	22 x 58.8 - 460mm	22	x	58.8	Х	460
IBROE046	Round	Open	21 x 58.8 - 460mm	21	x	58.8	х	460
IBROE047	Round	Open	114.3 x 127 - 457mm	114.3	x	127	х	457
IBROE048	Round	Open	20 x 58.8 - 460mm	20	x	58.8	х	460
IBROE049	Round	Open	75 x 85 - 894mm	75	x	85	Х	894
IBROE050	Round	Open	18 x 58.8 - 460mm	18	x	58.8	х	460
IBROE051	Round	Open	17 x 58.8 - 460mm	17	x	58.8	х	460
IBROE052	Round	Open	112.8 x 121 - 765mm	112.8	x	121	X	765
IBROE053	Round	Open	16 x 58.8 - 460mm	16	x	58.8	Х	460
IBROE054	Round	Open	13 x 58.8 - 460mm	13	x	58.5	X	460
IBROE055	Round	Open	14 x 58.8 - 460mm	14	x	58.8	х	460
IBROE056	Round	Open	10 x 58.8 - 460mm	10	x	58.8	X	460
IBROE057	Round	Open	127 x 139.7 457mm	127	x	139.7	Х	457
IBROE058	Round	Open	5.25 x 5.75 - 18"	133.35	x	146.06	X	457
IBROE059	Round	Open	139.7 x 152 - 457mm	139.7	x	152	X	457
IBROE060	Round	Open	145.1 x 153 - 765mm	145.1	x	153	Х	765
IBROE061	Round	Open	3.75 x 4.5 - 18"	95.25	x	114.3	Х	457
IBROE062	Round	Open	171.5 x 186.2 - 355mm	171.5	x	186.2	X	355
IBROE063	Round	Open	12.5 x 9 - 13"	317.5	x	330.2	X	228.6
IBROE064	Round	Open	6 x 6.5 - 20"	152.4	x	165.1	x	508
IBROE065	Round	Open	103.1 x 119 - 585mm	103.1	x	119	х	585
IBROE066	Round	Open	168.1 x 176 - 765mm	168.1	x	176	х	765
IBROE067	Round	Open	6.25 x 6.8 - 18"	158.75	x	172.72	х	457
IBROE068	Round	Open	158.7 x 172.7 - 457mm	158.7	x	172.7	x	457
IBROE069	Round	Open	7 x 7.5 - 18"	177.8	х	190.5	х	457

### Open Ended Round Tubes



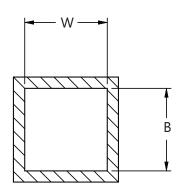
Dant Namelann	T	FI	Chart Daggiotics		Di	mensions (m	m)	
Part Number	Туре	End	Short Description	ID	x	OD	x	L
IBROE070	Round	Open	168 x 180 - 580mm	168	х	180	Х	580
IBROE071	Round	Open	191.9 x 200 - 765mm	191.9	x	200	x	765
IBROE072	Round	Open	8.5 x 9 - 18"	215.9	x	228.6	x	457
IBROE073	Round	Open	149 x 130 - 509mm	130	x	149	x	509
IBROE074	Round	Open	20 x 59 - 909mm	20	x	59	x	909
IBROE075	Round	Open	8.8 x 9.12 - 30"	223.52	х	231.6	x	762
IBROE076	Round	Open	223.5 x 231.6 - 765mm	223.5	x	231.6	x	765
IBROE077	Round	Open	60.1 x 85 - 894mm	60.1	x	85	x	894
IBROE078	Round	Open	203.2 x 215.9 - 610mm	203.2	x	215.9	x	610
IBROE079	Round	Open	190 x 209.6 - 457mm	190	х	209.6	x	457
IBROE080	Round	Open	45 x 85 - 700mm	45	x	85	x	700
IBROE081	Round	Open	54 x 85- 894mm	54	x	85	x	894
IBROE082	Round	Open	96.5 x 109.2 - 1500mm	96.5	x	109.2	x	1500
IBROE083	Round	Open	52 x 85 - 894mm	52	x	85	x	894
IBROE084	Round	Open	254 x 273 - 457mm	254	x	273	x	457
IBROE085	Round	Open	9.35 x 9.84 - 30"	237.49	x	249.9	x	762
IBROE086	Round	Open	11.5 x 11.95 - 30"	292.1	x	303.53	x	762
IBROE087	Round	Open	287.6 x 275.6 - 800mm	275.6	x	287.6	x	800
IBROE088	Round	Open	149 x 105 - 509mm	105	x	149	x	509
IBROE089	Round	Open	149 x 100 - 509mm	100	x	149	x	509
IBROE090	Round	Open	152.5 x 166.7 - 450mm	152.2	x	166.7	x	450
IBROE091	Round	Open	22.7 x 31.8 - 765mm	22.7	x	31.8	x	765
IBROE092	Round	Open	22 x 59 - 234mm	22	x	59	x	234
IBROE093	Round	Open	23 x 59 - 234mm	23	x	59	x	234
IBROE094	Round	Open	30 x 44.4 - 457mm	30	x	44.4	x	457
IBROE095	Round	Open	35 x 59 - 350mm	35	x	59	x	350
IBROE096	Round	Open	38 x 59 - 350mm	38	х	59	x	350
IBROE097	Round	Open	40 x 50.8 - 457mm	40	x	50.8	x	457
IBROE098	Round	Open	42.1 x 59 - 350mm	42.1	x	59	x	350
IBROE099	Round	Open	45 x 53.7 - 730mm	45	x	53.7	x	730
IBROE100	Round	Open	5.71 x 6.02 - 30"	145.034	x	152.9	x	762
IBROE101	Round	Open	56 x 68 - 1250mm	56	x	68	х	1250
IBROE102	Round	Open	57.1 x 82.6 - 1100mm	57.1	x	82.6	х	1100
IBROE103	Round	Open	63.5 x 76.2 - 457mm	63.5	x	76.2	х	457
IBROE104	Round	Open	82.5 x 95.3 - 900mm	82.5	X	95.3	х	900

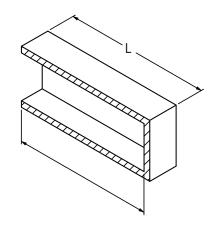
#### Closed Ended Round Tubes



D . N . I	_		Cl + D · · ·		Di	mensions (m	m)	
Part Number	Туре	End	Short Description	ID	x	OD	x	L
IBRCE001	Round	Closed	22 x 30 - 250mm	22	Х	30	Х	250
IBRCE002	Round	Closed	44.4 x 57.1 - 300mm	44.4	x	57.1	x	300
IBRCE003	Round	Closed	88.9 x 99.5 - 210mm	88.9	X	99.5	X	210
IBRCE004	Round	Closed	69.8 x 82.6 - 457mm	69.8	X	82.6	x	457
IBRCE005	Round	Closed	290 x 302 - 150mm	290	X	302	x	150
IBRCE006	Round	Closed	290 x 302 - 150mm	290	x	302	x	150
IBRCE007	Round	Closed	62 x 81.2 - 390mm	62	X	81.2	X	390
IBRCE008	Round	Closed	82.5 x 93.2 - 600mm	82.5	X	93.2	x	600
IBRCE009	Round	Closed	72 x 91.9 - 350mm	72	X	91.9	x	350
IBRCE010	Round	Closed	88.9 x 99.5 - 600mm	88.9	x	99.5	x	600
IBRCE011	Round	Closed	275.6 x 287.5 - 180mm	275.6	X	287.5	X	180
IBRCE012	Round	Closed	120.6 x 133.3 - 457mm	120.6	X	133.3	x	457
IBRCE013	Round	Closed	127 x 139.7 - 457mm	127	X	139.7	x	457
IBRCE014	Round	Closed	120.6 x 134 - 457mm	120.6	X	134	x	457
IBRCE015	Round	Closed	103.1 x 116 - 567mm	103.1	X	116	x	567
IBRCE016	Round	Closed	5.25 x 5.75 - 18"	133.35	X	146.05	X	457.2
IBRCE017	Round	Closed	C5 Pattern	103	X	116.28	x	558.8
IBRCE018	Round	Closed	64 x 75 - 1100mm	64	X	75	x	1100
IBRCE019	Round	Closed	C6 Pattern revA	116	X	128.67	x	558.8
IBRCE020	Round	Closed	45 x 57 - 1420mm	45	X	57	X	1420
IBRCE021	Round	Closed	117 x 128.8 - 680mm	117	X	128.7	x	680
IBRCE022	Round	Closed	145.1 x 153 - 860mm	145.1	X	153	x	860
IBRCE023	Round	Closed	158.7 x 172.7 - 445mm	158.7	x	172.7	x	445
IBRCE024	Round	Closed	151.8 x 166 - 508mm	151.8	x	166	x	508
IBRCE025	Round	Closed	171.5 x 186.2 - 457mm	171.5	X	186.2	x	457
IBRCE026	Round	Closed	76.2 x 93 - 880mm	76.2	X	93	x	880
IBRCE027	Round	Closed	171.5 x 187 - 457mm	171.5	x	187	x	457
IBRCE028	Round	Closed	78.2 x 90 - 1400mm	78.2	X	90	X	1400
IBRCE029	Round	Closed	76.2 x 93 - 1140mm	76.2	X	93	x	1140
IBRCE030	Round	Closed	203.2 x 215.9 - 620mm	203.2	X	215.9	x	62
IBRCE031	Round	Closed	203.2 x 215.9 - 620mm	203.2	x	215.9	x	62
IBRCE032	Round	Closed	101 x 117.4 - 925mm	101	x	117.4	x	925
IBRCE033	Round	Closed	87.4 x 99.9 - 1420mm	87.4	x	99.9	x	1420
IBRCE034	Round	Closed	254 x 273 - 457mm	254	x	273	x	457
IBRCE035	Round	Closed	165 x 185 - 740mm	165	x	185	x	740
IBRCE036	Round	Closed	165 x 185 - 740mm	165	x	185	x	740
IBRCE037	Round	Closed	95.2 x 111.8 - 1524mm	95.2	x	111.8	x	1524
IBRCE038	Round	Closed	C1 Pattern	108.9	x	118.7	x	460

# Square/Rectangular Closed End Bags



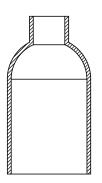


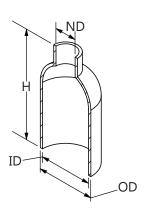
Part Number	Type	End	Dimens					
Fait Number	Туре	Eliu	Short Description	W	х	В	х	L
IBSQCE001	Square	Closed	22.2 x 22.2 - 127mm	22.2	х	22.2	х	127
IBSQCE002	Square	Closed	46 x 46 - 57mm	46	x	46	x	57
IBSQCE003	Square	Closed	38.1 x 38.1 - 140mm	38.1	x	38.1	x	140
IBSQCE004	Square	Closed	1 x 1 - 12"	25.4	x	25.4	x	304.8
IBSQCE005	Square	Closed	35 x 35 - 305mm	35	x	35	x	305
IBSQCE006	Square	Closed	2 x 2 - 12"	50.8	x	50.8	x	304.8
IBSQCE007	Square	Closed	46 x 46 - 476mm	46	x	46	x	476
IBSQCE008	Square	Closed	6.5 x 6.5 - 20"	165.1	x	165.1	x	508
IBSQCE009	Square	Closed	200 x 200 - 500mm	200	x	200	x	500

# Square/Rectangular Closed End Bags

Dout Nives Is an	T. va a	المما	Chart Description		Dir	mensions (r	nm)	
Part Number	Туре	End	Short Description	W	x	В	x	L
IBRECE001	Rectangular	Closed	27 x 48 - 253mm	27	Х	48	Х	253
IBRECE002	Rectangular	Closed	46 x 35 - 310mm	35	x	46	x	310
IBRECE003	Rectangular	Closed	21 x 69 - 360mm	21	x	69	x	360
IBRECE004	Rectangular	Closed	71 x 181 - 297mm	71	x	181	x	297
IBRECE005	Rectangular	Closed	63 x 158 - 400mm	63	x	158	x	400
IBRECE006	Rectangular	Closed	85 x 134 - 400mm	85	x	134	x	400
IBRECE007	Rectangular	Closed	71 x 168 - 367mm	71	x	168	x	367
IBRECE008	Rectangular	Closed	21 x 252 - 360mm	21	x	252	x	360
IBRECE009	Rectangular	Closed	47 x 150 - 495mm	47	x	150	x	495
IBRECE010	Rectangular	Closed	42 x 212 - 400mm	42	x	212	x	400
IBRECE011	Rectangular	Closed	68 x 179 - 400mm	68	x	179	x	400
IBRECE012	Rectangular	Closed	82 x 175 - 400mm	82	x	175	x	400
IBRECE013	Rectangular	Closed	85 x 178 - 400mm	85	x	178	x	400
IBRECE014	Rectangular	Closed	85 x 216 - 400mm	85	x	216	x	400
IBRECE015	Rectangular	Closed	75 x 125 - 700mm	75	x	125	x	700
IBRECE016	Rectangular	Closed	47 x 206 - 585mm	47	x	206	x	585
IBRECE017	Rectangular	Closed	78 x 275 - 400mm	78	x	275	x	400
IBRECE018	Rectangular	Closed	32 x 215 - 650mm	32	x	215	x	650
IBRECE019	Rectangular	Closed	133 x 235 - 400mm	133	x	235	x	400
IBRECE020	Rectangular	Closed	78 x 275 - 450mm	78	x	275	x	450
IBRECE021	Rectangular	Closed	160 x 50 - 900mm	50	x	160	x	900
IBRECE022	Rectangular	Closed	32 x 246 - 700mm	32	x	246	x	700
IBRECE023	Rectangular	Closed	22 x 247 - 757mm	22	x	247	x	757
IBRECE024	Rectangular	Closed	50 x 236 -746mm	50	x	236	x	746
IBRECE025	Rectangular	Closed	41 x 246 - 757mm	41	x	246	x	757
IBRECE026	Rectangular	Closed	50 x 260 - 705mm	50	x	260	x	705
IBRECE027	Rectangular	Closed	50 x 281 - 746mm	50	x	281	x	746
IBRECE028	Rectangular	Closed	50 x 325 - 746mm	50	x	325	x	746
IBRECE029	Rectangular	Closed	28 x 340 -860mm	28	x	340	x	860
IBRECE030	Rectangular	Closed	50 x 369 - 743mm	50	x	369	x	743
IBRECE031	Rectangular	Closed	30 x 380 - 800mm	30	x	380	x	800
IBRECE032	Rectangular	Closed	22 x 343 - 990mm	22	x	343	x	990

### Bottle Bags

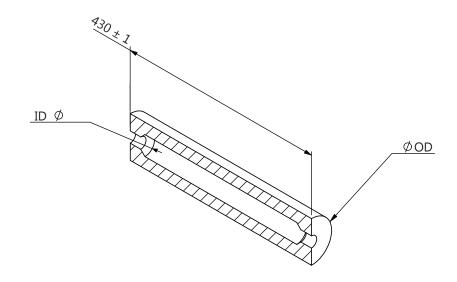




Part Number	Tuno	End	Short Description			Dimen	sion	ıs (mm)		
Part Number	Туре	EHU	Short Description	ID	х	OD	х	L	х	ND
IBBOE001	Bottle	Open	63 x 58 - 170mm	58	х	63	х	170	x	20
IBBOE002	Bottle	Open	61 x 55 - 150mm	55	x	61	x	150	x	24
IBBOE003	Bottle	Open	103 x 111 - 274.8mm	103	x	111	x	274	x	50
IBBOE004	Bottle	Open	103 x 111 - 300mm	103	x	111	х	300	x	50
IBBOE005	Bottle	Open	N7622 Pattern Iso-Bag	121	x	131	х	271	x	74.5
IBBOE006	Bottle	Open	N7610 Pattern Iso-Bag	126	x	136	x	290	x	90
IBBOE007	Bottle	Open	135 x 147 - 262mm	135	x	147	x	262	x	
IBBOE008	Bottle	Open	125 x 134 - 390mm	125	x	134	x	390	x	80
IBBOE009	Bottle	Open	N7646 Pattern Iso-Bag	126	x	136	х	350	x	90
IBBOE010	Bottle	Open	N7603 Pattern Iso-Bag	143	x	152	x	353	x	
IBBOE011	Bottle	Open	N7607 Pattern Iso-Bag	148	x	157	x	348	x	50.8
IBBOE012	Bottle	Open	N7620 Pattern Iso-Bag	135	x	144	x	400	x	50
IBBOE013	Bottle	Open	82.5 x 95.3 - 457mm	82.5	x	95.3	x	457	x	
IBBOE014	Bottle	Open	164 x 154 - 380mm	154	x	164	х	380	x	80
IBBOE015	Bottle	Open	N7636 Pattern Iso-Bag	123	x	134	х	450	x	
IBBOE016	Bottle	Open	148 x 157 - 470mm	148	x	157	х	470	x	
IBBOE017	Bottle	Open	123 x 134 - 475mm	123	x	134	x	475	x	50
IBBOE018	Bottle	Open	N7623	163.5	x	172.5	x	453	x	
IBBOE019	Bottle	Open	N7666	185	x	194	x	410.5	x	
IBBOE020	Bottle	Open	155 x 166 - 464mm	155	x	166	x	464	x	64
IBBOE021	Bottle	Open	N7632	185	x	194	x	537.5	x	50
IBBOE022	Bottle	Open	230 x 240 - 630mm	230	x	240	x	630	x	80
IBBOE023	Bottle	Open	300 x 290 - 630mm	290	x	300	x	630	x	100
IBBOE024	Bottle	Open	397 x 413 - 850mm	397	x	413	х	850	x	
IBBOE025	Bottle	Open	397 x 413 - 850mm	397	x	413	х	850	x	
IBBOE026	Bottle	Open	148 x 157 - 348mm	148	х	157	х	348	x	
IBBOE027	Bottle	Open	123 x 134 - 313mm	123	х	134	х	313	x	50
IBBOE028	Bottle	Open	148 x 158 - 393mm	148	х	158	х	393	x	
IBBOE029	Bottle	Open	218 x 228 - 418.3mm	218	х	228	х	418.3	Х	

### SIMAC D200 Iso-Bags





Part Number	Туре	End	Short Description		Di	mensions (m	ım)	
rait Nullibei	туре	LIIU	Short Description	ID	Х	OD	X	L
IBS200OE001	SIMAC	Open	82.55 x 95.7 - 430mm	82.55	x	95.7	x	430
IBS200OE002	SIMAC	Open	76.2 x 95.7 - 430mm	76.2	X	95.7	x	430
IBS200OE003	SIMAC	Open	72 x 95.7 - 430mm	72	X	95.7	x	430
IBS200OE004	SIMAC	Open	69.85 x 95.7 - 430mm	69.85	x	95.7	x	430
IBS200OE005	SIMAC	Open	63.5 x 95.7 - 430mm	63.5	x	95.7	x	430
IBS200OE006	SIMAC	Open	61 x 95.7 - 430mm	61	X	95.7	x	430
IBS200OE007	SIMAC	Open	57.15 x 95.7 - 430mm	57.15	X	95.7	x	430
IBS200OE008	SIMAC	Open	55 x 95.7 - 430mm	55	x	95.7	x	430
IBS200OE009	SIMAC	Open	50.8 x 95.7 - 430mm	50.8	X	95.7	x	430
IBS200OE010	SIMAC	Open	48 x 95.7 - 430mm	48	X	95.7	x	430
IBS200OE011	SIMAC	Open	46.5 x 95.7 - 430mm	46.5	X	95.7	x	430
IBS200OE012	SIMAC	Open	44.45 x 95.7 - 430mm	44.45	X	95.7	x	430
IBS200OE013	SIMAC	Open	42.8 x 95.7 - 430mm	42.8	x	95.7	x	430
IBS200OE014	SIMAC	Open	41.27 x 95.7 - 430mm	41.27	x	95.7	x	430
IBS200OE015	SIMAC	Open	41 x 95.7 - 508mm	41	x	95.7	x	430
IBS200OE016	SIMAC	Open	40.9 x 95.7 - 430mm	40.9	x	95.7	x	430
IBS200OE017	SIMAC	Open	39 x 95.7 - 430mm	39	x	95.7	x	430
IBS200OE018	SIMAC	Open	38.2 x 95.7 - 430mm	38	x	95.7	x	430
IBS200OE019	SIMAC	Open	35.3 x 95.7 - 430mm	35.3	X	95.7	x	430
IBS200OE020	SIMAC	Open	35 x 95.7 - 434mm	35	X	95.7	x	430
IBS200OE021	SIMAC	Open	33.5 x 95.7 - 430mm	33.5	x	95.7	x	430
IBS200OE022	SIMAC	Open	32.56 x 95.7 - 430mm	32.56	x	95.7	x	430
IBS200OE023	SIMAC	Open	31.75 x 95.7 - 430mm	31.75	x	95.7	x	430
IBS200OE024	SIMAC	Open	30.7 x 95.7 - 430mm	30.7	x	95.7	x	430
IBS200OE025	SIMAC	Open	30 x 95.7 - 430mm	30	x	95.7	x	430
IBS200OE026	SIMAC	Open	28.1 x 95.7 - 430mm	28.1	X	95.7	x	430

#### SIMAC D200 Iso-Bags



## Isostatic Moulding Bags

Part Number	Typo	End	Short Description	Dimensions (mm)					
Part Number	Туре	EHU	Short Description	ID	x	OD	Х	L	
IBS200OE027	SIMAC	Open	27.5 x 95.7 - 430mm	27.5	х	95.7	Х	430	
IBS200OE028	SIMAC	Open	26.5 x 95.7 - 434mm	26.5	x	95.7	х	430	
IBS200OE029	SIMAC	Open	25.4 x 95.7 - 430mm	25.4	x	95.7	x	430	
IBS200OE030	SIMAC	Open	24.5 x 95.7 - 430mm	24.5	x	95.7	x	430	
IBS200OE031	SIMAC	Open	22.2 x 95.7 - 430mm	22.2	x	95.7	x	430	
IBS200OE032	SIMAC	Open	33.8 x 95.7 - 430mm	21	x	95.7	х	430	
IBS200OE033	SIMAC	Open	20.5 x 95.7 - 434mm	20.5	x	95.7	x	430	
IBS200OE034	SIMAC	Open	19.01 x 95.7 - 430mm	19.01	x	95.7	x	430	
IBS200OE035	SIMAC	Open	15.9 x 95.7 - 430mm	15.9	x	95.7	x	430	
IBS200OE036	SIMAC	Open	12.7 x 95.7 - 430mm	12.7	x	95.7	х	430	
IBS200OE037	SIMAC	Open	9.52 x 95.7 - 430mm	9.52	x	95.7	х	430	
IBS200OE038	SIMAC	Open	6.35 x 95.7 - 430mm	6.35	x	95.7	x	430	

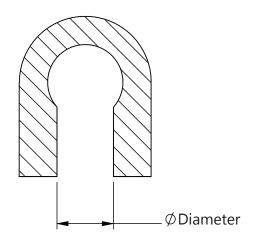
#### SIMAC D50 Iso-Bags

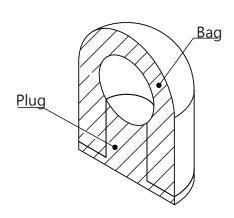


Dart Number	Type	End	d Short Description	Dimensions (mm)						
Part Number	Туре	Ena	Short Description	ID	x	OD	х	L		
IBS50OE001	SIMAC 50	Open	29.7 x 54 - 380mm	29.7	х	54	х	380		
IBS50OE002	SIMAC 50	Open	42.8 x 54 - 380mm	42.8	х	54	Х	380		

### Sphere Bags



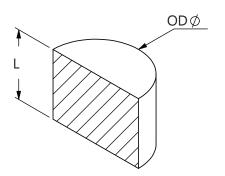


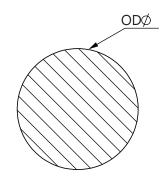


Part Number	Туре	End	Short Description	Sphere Diameter (mm)
IBSPCE001	Sphere	Closed	Model 40.3	40.3
IBSPCE002	Sphere	Closed	Model 48.0	48
IBSPCE003	Sphere	Closed	Mould 54.2	54.2
IBSPCE004	Sphere	Closed	Model 59.0	59
IBSPCE005	Sphere	Closed	Mould 63.0	63
IBSPCE006	Sphere	Closed	Mould 78.0	78

## Plain Round Plugs







Metric					
Dout Number	Tura	Chart Dagariation	Dimen	sion	s (mm)
Part Number	Туре	Short Description	OD	X	L
IPRM001	Round	10 x 25mm	10	Х	25
IPRM002	Round	24 x 25mm	24	X	25
IPRM003	Round	17 x 50mm	17	X	50
IPRM004	Round	20 x 50mm	20	x	50
IPRM005	Round	22 x 50mm	22	Х	50
IPRM006	Round	31.7 x 25.4mm	31.7	X	25.4
IPRM007	Round	26.8 x 50mm	26.8	x	50
IPRM008	Round	40 x 25.4mm	40	X	25.4
IPRM009	Round	30 x 47mm	30	Х	47
IPRM010	Round	44.5 x 25.4mm	44.5	X	25.4
IPRM011	Round	50.5 x 25mm	50.5	x	25
IPRM012	Round	50.8 x 25.4mm	50.8	x	25.4
IPRM013	Round	44.5 x 38mm	44.5	Х	38
IPRM014	Round	57.1 x 25.4mm	57.1	Х	25.4
IPRM015	Round	62 x 25mm	62	x	25
IPRM016	Round	50.8 x 38mm	50.8	х	38
IPRM017	Round	44.4 x 50mm	44.4	X	50
IPRM018	Round	50 x 40mm	50	X	40
IPRM019	Round	45 x 50mm	45	x	50
IPRM020	Round	63.5 x 25.4mm	63.5	x	25.4
IPRM021	Round	56 x 38mm	56	х	38
IPRM022	Round	57.1 x 38mm	57.1	Х	38
IPRM023	Round	50.8 x 50mm	50.8	x	50
IPRM024	Round	72 x 25mm	72	X	25
IPRM025	Round	60 x 40mm	60	x	40
IPRM026	Round	76.2 x 25.4mm	76.2	х	25.4
IPRM027	Round	56 x 50mm	56	x	50
IPRM028	Round	88.9 x 25mm	88.9	x	25
IPRM029	Round	64 x 50mm	64	х	50

# Plain Round Plugs

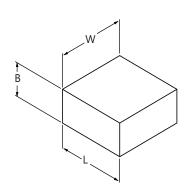
Metric					
Part Number	Tuna	Chart Description	Dimen	sion	s (mm)
Part Number	Type	Short Description	OD	x	L
IPRM030	Round	95.3 x 25.4mm	95.3	х	25.4
IPRM031	Round	69.8 x 50mm	69.8	x	50
IPRM032	Round	73.7 x 50mm	73.7	x	50
IPRM033	Round	76.2 x 50mm	76.2	x	50
IPRM034	Round	78.2 x 50mm	78.2	x	50
IPRM035	Round	80 x 50mm	80	x	50
IPRM036	Round	82.5 x 50mm	82.5	x	50
IPRM037	Round	87.4 x 50mm	87.4	x	50
IPRM038	Round	80 x 60mm	80	x	60
IPRM039	Round	133.3 x 25mm	133.3	x	25
IPRM040	Round	95.2 x 50mm	95.2	x	50
IPRM041	Round	100 x 50mm	100	x	50
IPRM042	Round	100 x 50mm	100.00	x	50.00
IPRM043	Round	101.6 x 50mm	101.6	x	50
IPRM044	Round	145.1 x 25mm	145.1	x	25
IPRM045	Round	103.1 x 50mm	103.1	x	50
IPRM046	Round	150 x 25mm	150	x	25
IPRM047	Round	114.3 x 50mm	114.3	x	50
IPRM048	Round	168 x 25mm	168	x	25
IPRM049	Round	120.6 x 50mm	120	x	50
IPRM050	Round	145.1 x 50mm	145.1	x	50
IPRM051	Round	151.8 x 50mm	151	x	50
IPRM052	Round	215.9 x 25.4mm	215.9	x	25.4
IPRM053	Round	117 x 90mm	117	x	90
IPRM054	Round	158.7 x 50mm	158.7	x	50
IPRM055	Round	165 x 50mm	165	x	50
IPRM056	Round	168 x 50mm	168	x	50
IPRM057	Round	191 x 50mm	191	x	50
IPRM058	Round	192 x 50mm	192	x	50
IPRM059	Round	203.2 x 50mm	203.2	x	50
IPRM060	Round	207 x 50mm	207	x	50
IPRM061	Round	155 x 100mm	155	x	100
IPRM062	Round	254 x 38mm	254	x	38
IPRM063	Round	223.5 x 50mm	223.5	x	50
IPRM064	Round	275 x 38mm	275	x	38
IPRM065	Round	290 x 50mm	290	x	50
IPRM066	Round	292.1 x 63mm	292.1	x	63

## Plain Round Plugs



Imperial					
Part Number	Tuno	Short Description	Dime	ension	s (ins)
Part Number	Туре	Short Description	OD	x	L
IPRI001	Round	0.90 x 2"	0.9	X	2
IPRI002	Round	1.38 x 1"	1.38	X	1
IPRI003	Round	1.5 x 1.5"	1.5	x	1.5
IPRI004	Round	1.5 x 2"	1.5	X	2
IPRI005	Round	1.75 x 1.5"	1.75	X	1.5
IPRI006	Round	1.75 x 2"	1.75	x	2
IPRI007	Round	2.5 x 1"	2.5	x	1
IPRI008	Round	2.5 x 1"	2.5	x	1
IPRI009	Round	2.5 x 1.5"	2.5	x	1.5
IPRI010	Round	2.5 x 1.5"	2.5	x	1.5
IPRI011	Round	2.5 x 2"	2.5	x	2
IPRI012	Round	2.75 x 1"	2.75	x	1
IPRI013	Round	2.75 x 1.5"	2.75	x	1.5
IPRI014	Round	3 x 2"	3	x	2
IPRI015	Round	3.25 x 2"	3.25	x	2
IPRI016	Round	3.5 x 2"	3.5	x	2
IPRI017	Round	3.75 x 2"	3.75	x	2
IPRI018	Round	3.834 x 1.5"	3.834	X	1.5
IPRI019	Round	4 x 2"	4	x	2
IPRI020	Round	4.25 x 2"	4.25	x	2
IPRI021	Round	4.5 x 2"	4.5	x	2
IPRI022	Round	4.75 x 2"	4.75	X	2
IPRI023	Round	5 x 2"	5	X	2
IPRI024	Round	5.25 x 2"	5.25	x	2
IPRI025	Round	5.50 x 2"	5.5	x	2
IPRI026	Round	5.75 x 2"	5.75	x	2
IPRI027	Round	6 x 2"	6	X	2
IPRI028	Round	6.25 x 2"	6.25	X	2
IPRI029	Round	4.055 x 3.5"	4.055	x	3.5

### Square/Rectangular Plugs



Part Number	Tuno	Short Description		D	imensions (mr	n)	
Part Number	Туре	Short Description	W	x	В	X	L
IPREM001	Rectangular	22.2 x 22.2 - 25.4mm	22.2	х	22.2	Х	22.2
IPREM002	Rectangular	1 x 1 - 1"	25.4	х	25.4	Х	25.4
IPREM003	Rectangular	27 x 48 - 50mm	27	x	48	X	50
IPREM004	Rectangular	21 x 69 - 50mm	21	x	69	X	50
IPREM005	Rectangular	72 x 32 - 50mm	32	X	72	X	50
IPREM006	Rectangular	160 x 50 - 50mm	20	x	160	X	50
IPREM007	Rectangular	49 x 99 - 50mm	49	x	99	X	50
IPREM008	Rectangular	102 x 102 - 25mm	102	x	102	X	25
IPREM009	Rectangular	21 x 252 - 50mm	21	x	252	X	50
IPREM010	Rectangular	22 x 247 - 50mm	22	x	247	X	50
IPREM011	Rectangular	32 x 215 - 50mm	32	x	215	X	50
IPREM012	Rectangular	47 x 150 - 50mm	47	x	150	X	50
IPREM013	Rectangular	35 x 305 - 35mm	35	x	305	X	35
IPREM014	Rectangular	22 x 343 - 50mm	22	x	343	X	50
IPREM015	Rectangular	32 x 246 - 50mm	32	x	246	X	50
IPREM016	Rectangular	42 x 212 - 50mm	42	x	212	X	50
IPREM017	Rectangular	75 x 125 - 50mm	75	x	125	X	50
IPREM018	Rectangular	28 x 340 - 50mm	28	х	340	Х	50
IPREM019	Rectangular	47 x 206 - 50mm	47	x	206	X	50
IPREM020	Rectangular	63 x 158 - 50mm	63	x	158	X	50
IPREM021	Rectangular	42 x 248 - 50mm	42	x	248	x	50
IPREM022	Rectangular	42 x 248 - 50mm	42	x	248	X	50
IPREM023	Rectangular	85 x 134 - 50mm	85	x	134	X	50
IPREM024	Rectangular	30 x 380 - 50mm	30	x	380	X	50
IPREM025	Rectangular	50 x 236 x 50mm	50	x	236	X	50

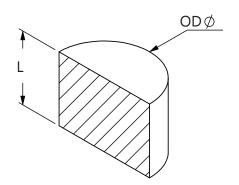
# Square/Rectangular Plugs

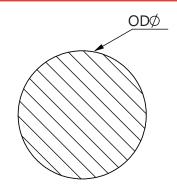
				D	imensions (mı	n)	
Part Number	Туре	Short Description	W	x	В	x	L
IPREM026	Rectangular	71 x 168 - 50mm	71	Х	168	Х	50
IPREM027	Rectangular	68 x 179 - 50mm	68	x	179	х	50
IPREM028	Rectangular	71 x 181 - 50mm	71	x	181	х	50
IPREM029	Rectangular	50 x 260 - 50mm	50	x	260	x	50
IPREM030	Rectangular	50 x 281 - 50mm	50	x	281	x	50
IPREM031	Rectangular	82 x 175 - 50mm	82	x	175	х	50
IPREM032	Rectangular	85 x 178 - 50mm	85	x	178	Х	50
IPREM033	Rectangular	66 x 236 - 50mm	66	x	236	х	50
IPREM034	Rectangular	50 x 325 - 50mm	50	x	325	х	50
IPREM035	Rectangular	64 x 281 - 50mm	64	x	281	х	50
IPREM036	Rectangular	85 x 216 - 50mm	85	x	216	Х	50
IPREM037	Rectangular	50 x 369 - 50mm	50	x	369	Х	50
IPREM038	Rectangular	85 x 236 - 50mm	85	x	236	х	50
IPREM039	Rectangular	66 x 325 - 50mm	66	x	325	х	50
IPREM040	Rectangular	78 x 275 - 50mm	78	x	275	Х	50
IPREM041	Rectangular	50 x 281 x 85mm	85	x	281	х	50
IPREM042	Rectangular	6.5 x 6.5 x 2"	165.1	x	165.1	х	50.4
IPREM043	Rectangular	85 x 325 x 50mm	85	x	325	х	50
IPREM044	Rectangular	79 x 369 - 50mm	79	x	369	х	50
IPREM045	Rectangular	133 x 235 - 50mm	133	x	235	х	50
IPREM046	Rectangular	88 x 369 - 50mm	88	x	369	х	50
IPREM047	Rectangular	200 x 200 - 50mm	200	x	200	x	50

### Bottle Plugs



## Isostatic Moulding Bags

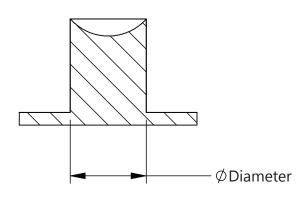


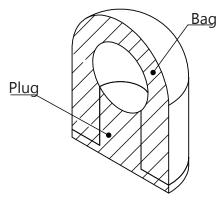


Part Number	Type	End	Short Description	Dimensions (mm)		
rait Number	Туре	Liid	Short Description	Diameter	x	L
IPBOM001	Bottle	Open	50.8 x 38mm	50.8	x	38
IPBOM002	Bottle	Open	50.8 x 38mm	50.8	x	38
IPBOM003	Bottle	Open	50 x 40mm	50	x	40
IPBOM004	Bottle	Open	64 x 60mm	64	x	60
IPBOM005	Bottle	Open	80 x 60mm	80	x	60
IPBOM006	Bottle	Open	80 x 60mm	80	x	60
IPBOM007	Bottle	Open	80 x 60mm	80	x	60
IPBOM008	Bottle	Open	80 x 60mm	80	x	60

### Sphere Plugs







Part Number	Tuno	Short Description	Dimensions (mm)
Part Number	Туре	Short Description	Diameter
IPSPM001	Sphere	Model 40.3	40.3
IPSPM002	Sphere	Model 54.2	54.2
IPSPM003	Sphere	Model 63.0	63
IPSPM004	Sphere	Model 78.0	78
IPSPM005	Sphere	Model 59.0	59

### **Cutting Sticks**

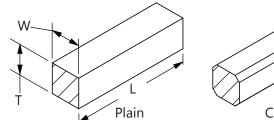


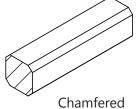
### **Cutting Sticks**

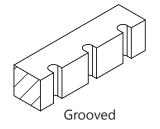
Cutting sticks are available in a shore hardness range of 80 Shore 'A' to 60 Shore 'D'.

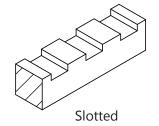
The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

Variations of plain cutting sticks are available as; chamfered, grooved, slotted and holed. These can be manufactured to customer specifications. For further details, and availability, please contact the sales department.









				Size (mm)		
Part Number	Short Description	W	x	Т	x	L
CS001	3/8 x 3/8 x 24"	9.53	Х	9.53	Х	610
CS002	10 x 10 x 610mm	10.00	Х	10.00	x	610
CS003	13 x 16 x 610mm	13.00	Х	16.00	x	610
CS004	14 x 16 x 610mm	14.00	Х	16.00	x	610
CS005	15 x 15 x 610mm	15.00	Х	15.00	x	610
CS006	5/8 x 5/8 x 24"	15.90	Х	15.90	x	610
CS007	16 x 16 x 580mm	16.00	Х	16.00	x	580
CS008	16 x 16 x 610mm	16.00	Х	16.00	x	610
CS009	19 x 19 x 610mm	19.00	Х	19.00	x	610
CS010	3/4 x 3/4 x 24"	19.05	Х	19.05	x	610
CS011	0.75 x 0.75 x 18" Knife Sticks	19.05	Х	19.05	x	457.2
CS012	19.05 x 19.05mm x 22"	19.05	Х	19.05	x	558.8
CS013	19.1 x 19.1 x 610mm	19.10	Х	19.10	x	610
CS014	19.1 x 19.1 x 575mm	19.10	Х	19.10	x	575
CS015	19.3 x 19.3 x 610mm	19.30	Х	19.30	x	610
CS016	20 x 20 x 610mm	20.00	Х	20.00	x	610
CS017	20 x 20 x 1016mm	20.00	Х	20.00	x	1016
CS018	22 x 22 x 610mm	22.00	Х	22.00	X	610
CS019	1 x 7/8 x 30"	25.4	Х	22.2	x	760
CS020	1 x 7/8 x 24"	25.4	Х	22.2	х	610

#### Scraper Blades

**Scraper Blades** 

Scraper blades are available in a shore hardness range of 45 Shore 'A' to 60 Shore 'D'. It is also available in Vulkollan®.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

Scraper blades are available in any size up to 2.8m x 500m and up to 50mm thickness.

Please note that it is advisable to discuss your requirements with a member of our sales team prior to the ordering process as different polyurethane systems are better suited to certain jobs.

Part	Cl D			Size (mm)		
Number	Short Description	L	х	W	x	Т
CASCR001	1100 x 120 - 20mm	1100	х	120	х	20
CASCR002	2000 x 120 - 9.5mm	2000	х	120	х	9.5
CASCR003	750 x 100 - 15mm	750	х	100	х	15
CASCR004	450 x 120 - 30mm 3H	450	х	120	х	30
CASCR005	530 x 120 - 30mm 3H	530	х	120	x	30
CASCR006	570 x 120 - 30mm 3H	570	х	120	х	30
CASCR007	584 x 34 - 3mm	584	х	34	х	3
CASCR008	600 x 120 - 30mm Moulded	600	х	120	х	30
CASCR009	711 x 152 x 17mm	711	х	152	х	17
CASCR010	730 x 120 - 15mm	730	х	120	х	15
CASCR011	730 x 120 - 20mm	730	х	120	х	20
CASCR012	750 x 120 - 30mm Moulded	750	х	120	х	30
CASCR013	750 x 150 - 20mm	750	х	150	х	20
CASCR014	765 x 100 - 15mm	765	х	100	х	15
CASCR015	800 x 120 - 9.5mm	800	х	120	х	9.5
CASCR016	875 x 150 - 15mm	875	х	150	х	15
CASCR017	900 x 80 - 10mm	900	х	80	х	10
CASCR018	900 x 120 - 30mm 5H	900	х	120	х	30
CASCR019	930 x 120 - 30mm 6H	930	х	120	х	30
CASCR020	930 x 150 - 35mm 4H	930	х	150	х	35
CASCR021	1000 x 100 x 10mm	1000	х	100	х	10
CASCR022	1000 x 102 - 20mm	1000	х	102	х	20
CASCR023	1000 x 150 - 35mm 4H	1000	х	150	х	35
CASCR024	1000 x 200 - 10mm	1000	х	200	х	10
CASCR025	1050 x 120 - 30mm 6H	1050	х	120	x	30
CASCR026	1060 x 200 - 12mm	1060	х	200	х	12
CASCR027	1070 x 120 - 30mm 4H	1070	х	120	х	30

### Scraper Blades

## **Scraper Blades**

D 1				Size (mm)		
Part Number	Short Description	L	x	W W	x	Т
CASCR028	1100 x 70 - 10mm	1100	Х	70	Х	10
CASCR029	1100 x 120 - 30mm 4H	1100	X	120	X	30
CASCR030	1100 x 150 x 16mm	1100	X	150	X	16
CASCR031	1127 x 120 - 30mm 4H	1127	X	120	X	30
CASCR032	1200 x 125 - 9.5mm	1200	X	125	X	9.5
CASCR033	1200 x 100 - 9mm	1200	X	100	X	9
CASCR034	1210 x 120 - 9.5mm	1210	X	120	X	9.5
CASCR035	48 x 3.5 - 0.375"	1219.2	X	88.9	X	9.525
CASCR036	1220 x 102 - 16mm	1220	X	102	X	16
CASCR037	1220 x 127 - 19mm	1220	X	127	X	19
CASCR038	1220 x 152 - 12.7mm	1220	x	152	x	12.7
CASCR039	1220 x 152 - 19mm	1220	X	152	X	19
CASCR040	1320 x 127 - 10mm	1320	x	127	x	10
CASCR041	1400 x 120 - 12mm	1400	x	120	x	12
CASCR042	1400 x 125 - 9.5mm	1400	X	125	x	9.5
CASCR043	1500 x 101.4 - 10mm	1500	x	101.4	x	10
CASCR044	1500 x 150 - 12mm	1500	x	150	x	12
CASCR045	1500 x 152 - 12.7mm	1500	х	152	х	12.7
CASCR046	1510 x 150 - 9.5mm	1510	X	150	x	9.5
CASCR047	1524 x 152 - 12.7mm	1524	x	152	x	12.7
CASCR048	1525 x 150 - 20mm	1525	х	150	х	20
CASCR049	1530 x 152 - 12.7mm	1530	х	152	х	12.7
CASCR050	1600 x 120 - 12mm	1600	х	120	х	12
CASCR051	1600 x 152 - 12.7mm	1600	х	152	х	12.7
CASCR052	1625 x 120 - 20mm	1625	х	120	х	20
CASCR053	1674 x 152 - 12.7mm	1674	х	152	х	12.7
CASCR054	1680 x 150 - 9.5mm	1680	х	150	х	9.5
CASCR055	1700 x 120 - 20mm	1700	х	120	х	20
CASCR056	1700 x 152 - 12.7mm	1700	х	152	х	12.7
CASCR057	1700 x 203 - 12mm	1700	х	203	х	12
CASCR058	1760 x 152 - 20mm	1760	х	152	х	20
CASCR059	1778 x 152 - 12.7mm	1778	х	150	х	12.7
CASCR060	1780 x 102 - 16mm	1780	х	102	х	16
CASCR061	1800 x 150 - 20mm	1800	х	150	х	20
CASCR062	1830 x 102 - 12.7mm	1830	х	102	х	12.7
CASCR063	1830 x 150 - 20mm	1830	х	150	х	20
CASCR064	1830 x 152 - 12.7mm	1830	х	152	х	12.7
CASCR065	1830 x 152 - 13mm	1830	x	152	х	13
CASCR066	1840 x 100 - 20mm	1840	х	100	х	20
CASCR067	1900 x 150 - 15mm	1900	х	150	х	15

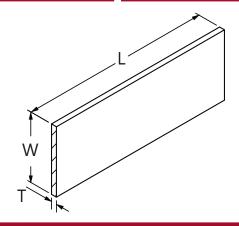
### Scraper Blades

## **Scraper Blades**

Part	Short Description		l	Size (mm)		_		
Number	·	L	Х	W	Х	T		
CASCR068	1830 x 120 - 12mm	1930	Х	120	Х	12		
CASCR069	1930 x 450 - 12.7mm	1930	Х	450	Х	12.7		
CASCR070	1980 x 152 - 12.7mm	1980	Х	152	Х	12.7		
CASCR071	1982 x 127 - 12.7mm	1982	Х	127	Х	12.7		
CASCR072	2000 x 90 - 28mm	2000	Х	90	Х	28		
CASCR073	2000 x 112 - 12mm	2000	Х	112	Х	12		
CASCR074	2000 x 125 - 20mm	2000	Х	125	Х	20		
CASCR075	2000 x 150 - 13mm	2000	Х	150	Х	13		
CASCR076	2000 x 150 - 20mm	2000	Х	150	Х	20		
CASCR077	2000 x 150 - 20mm	2000	Х	150	Х	20		
CASCR078	2000 x 200 - 8mm	2000	х	200	Х	8		
CASCR079	2000 x 325 - 20mm	2000	Х	325	Х	20		
CASCR080	2030 x 152 - 12.7mm	2030	Х	152	Х	12.7		
CASCR081	2047 x 100 - 20mm	2047	Х	100	Х	20		
CASCR082	2055 x 100 - 10mm	2055	х	100	х	10		
CASCR083	2055 x 100 - 20mm	2055	Х	100	х	20		
CASCR084	2065 x 152 - 12.7mm	2065	Х	152	х	12.7		
CASCR085	2083 x 102 - 12.7mm	2083	х	102	х	12.7		
CASCR086	2083 x 152 - 20mm	2083	Х	152	Х	20		
CASCR087	2130 x 152 - 12.7mm	2130	х	152	х	12.7		
CASCR088	2134 x 120 - 12mm	2134	Х	120	Х	12		
CASCR089	2300 x 120 - 20mm	2300	х	120	х	20		
CASCR090	2362 x 127 - 12.7mm	2362	х	127	х	12.7		
CASCR091	2400 x 80 - 20mm	2400	х	80	х	20		
CASCR092	2400 x 100 - 12mm	2400	х	100	х	12		
CASCR093	96 x 4.5 - 0.5"	2440	х	114	х	12.7		
CASCR094	2440 x 127 - 19mm	2440	х	127	х	19		
CASCR095	96 x 9 - 0.5"	2440	х	229	х	12.7		
CASCR096	2450 x 152 - 12.7mm	2450	Х	152	х	12.7		
CASCR097	2500 x 100 - 15mm	2500	Х	100	х	15		
CASCR098	2500 x 150 - 12mm	2500	х	150	х	12		
CASCR099	2500 x 150 - 16mm	2500	х	150	х	16		
CASCR100	2500 x 200 - 12mm	2500	х	200	х	12		
CASCR101	3000 x 100 - 20mm	3000	х	100	х	20		
CASCR102	3000 x 102 - 11mm	3000	х	102	х	11		
CASCR103	3000 x 150 - 20mm	3000	х	150	х	20		
CASCR104	3000 x 152 - 11mm	3000	х	152	х	11		
CASCR105	3000 x 200 - 10mm	3000	х	200	х	10		
CASCR106	3600 x 100 - 10mm	3600	х	100	х	10		
CASCR107	3700 x 100 - 6mm	3700	х	100	х	6		

BOMAG

## **Scraper Blades**



Part	Model	Chart Description			Size (mm)		
Number	iviodei	Short Description	L	x	W	х	Т
BOMSCR001	75 AD	760 x 105 - 9.5mm	760	Х	105	Х	9.5
BOMSCR002	80 AD	810 x 120 - 9.5mm	810	X	120	х	9.5
BOMSCR003	90 AD	910 x 105 - 9.5mm	910	X	105	х	9.5
BOMSCR004	100 AD	1005 x 120 - 9.5mm	1005	X	120	х	9.5
BOMSCR005	120 AD	1200 x 125 - 9.5mm	1200	X	125	х	9.5
BOMSCR006	121 AD	1210 x 120 - 9.5mm	1210	X	120	х	9.5
BOMSCR007	130 AD	1265 x 120 - 9.5mm	1265	X	120	х	9.5
BOMSCR008	140 AD	1400 x 125 - 9.5mm	1400	X	125	х	9.5
BOMSCR009	150 AD	1510 x 150 - 9.5mm	1510	X	150	х	9.5
BOMSCR010	154 AD	1650 x 150 - 9.5mm	1650	X	150	х	9.5
BOMSCR011	154 AD	1680 x 150 - 9.5mm	1680	X	150	х	9.5
BOMSCR012	160 AD	1680 x 150 - 9.5mm	1680	x	150	x	9.5
BOMSCR013	161 AD	1680 x 150 - 9.5mm	1680	x	150	х	9.5
BOMSCR014	200 AD	2100 x 150 - 9.5mm	2100	Х	150	х	9.5

## Centrifuge Sheet

### Polyurethane Products

Centrifuge sheet is available in a shore hardness range of 45 Shore 'A' to 95 Shore 'A'.

It is available in thicknesses ranging from 1.0mm to 13mm. Standard sheet lengths are 3715mm nominally, with the widths being 686mm.

We offer a large range of colour options, for more details on these please contact the sales department.

Thickness (mm)	Weight (kg)
1.0	2.9
1.5	4.4
1.6	4.8
2.0	5.8
3.0	8.7
4.0	11.6
5.0	14.5
6.0	17.4
7.0	20.3
8.0	23.2
9.0	26.1
10.0	29.1
11.0	32.0
12.0	34.9
13.0	37.8

Thickness (ins)	Metric Equivalent (mm)	Weight (kg)
1/16	1.5875	4.6
1/8	3.1750	9.2
3/16	4.7625	13.8
1/4	6.3500	18.4
5/16	7.9375	23.1
3/8	9.52500	27.7
7/16	11.1100	32.3
1/2	12.7000	36.9

## Press Break Film

### Polyurethane Products

Press break film is available in a shore hardness range of 80 Shore 'A' to 95 Shore 'A'.

It is available in thicknesses ranging from 0.5 mm to 1.5 mm. Standard sheet dimensions are 3600 mm (Long) x 150 mm (Wide) nominally.

We offer a large range of colour options, for more details on these please contact the sales department.

Thickness (mm)	
0.5	
0.6	
0.7	
0.8	
0.9	
1.0	
1.1	
1.2	
1.3	
1.4	
1.5	

# Polyurethane Hot Table Cast Sheet

# Polyurethane Products

Polyurethane hot table cast sheets are available in a shore hardness range of 45 Shore 'A' to 60 Shore 'D'. It is also available in Vulkollan®.

They are available in sizes up to 2700 x 1200mm x 12mm thick.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

#### Polyurethane Square Bar



Polyurethane square bars are available in a shore hardness range of 45 Shore 'A' to 60 Shore 'D'. It is also available in Vulkollan®.

They are available in sizes up to 500mm x 500mm x 100mm high.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

We are also able to offer these in standard sizes. The specifications are listed below.

Part Number	Short Description	Dimensions (mm)					
Fait Number	Short Description	W	х	T	х	L	
PUSQB001	1 x 24" Bar	25.4	х	25.4	Х	610	
PUSQB002	1.5 x 24" Bar	38.1	x	38.1	x	610	
PUSQB003	2 x 24" Bar	50.8	x	50.8	x	610	
PUSQB004	60 x 610mm Bar	60.0	x	60.0	x	610	
PUSQB005	3 x 24" Bar	76.2	x	76.2	x	610	
PUSQB006	35 x 610mm Bar	35.0	х	35.0	х	610	

#### Polyurethane Slab



Polyurethane slabs are available in a shore hardness range of 45 Shore 'A' to 60 Shore 'D'. It is also available in Vulkollan®.

They are available in sizes up to 1500mm x 1200mm x 60mm thick, with a maximum weight of 60kg.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

# Polyurethane Blocks

### Polyurethane Products

Polyurethane blocks are available in a shore hardness range of 45 Shore 'A' to 60 Shore 'D'. It is also available in Vulkollan®.

They are available in sizes up to 1000mm x 1000mm x 100mm high, with a maximum weight of 60kg.

The standard colours available are; red, black, ochre, natural, green, blue, yellow and orange. Although some of these may be subject to additional charges dependant on the grading of the polyurethane.

#### Marubeni Block

Part Number	Short Description		Dimensions (mm)					
Part Number	Short Description	W	X	L	х	Н		
PUMABK001	320 x 300 - 120mm	320	X	300	x	120		
PUMABK002	250 x 250 - 125mm	250	x	250	x	125		
PUMABK003	280 x 280 - 125mm	280	x	280	x	125		
PUMABK004	320 x 300 - 125mm	320	x	300	x	125		
PUMABK005	106 x 590 - 12mm	106	x	590	x	12		
PUMABK006	130 x 130 - 12mm	130	x	130	x	12		
PUMABK007	130 x 220 - 12mm	130	x	220	x	12		
PUMABK008	130 x 590 - 12mm	130	x	590	x	12		
PUMABK009	130 x 680 - 12mm	130	x	680	x	12		
PUMABK010	130 x 715 - 12mm	130	x	715	x	12		
PUMABK011	154 x 155 - 12mm	154	x	155	x	12		
PUMABK012	154 x 255 - 12mm	154	x	255	x	12		
PUMABK013	154 x 270 - 12mm	154	x	270	x	12		
PUMABK014	154 x 650 - 12mm	154	x	650	x	12		
PUMABK015	154 x 680 - 12mm	154	x	680	x	12		
PUMABK016	155 x 800 - 15mm	155	x	800	x	15		
PUMABK017	165 x 80 - 15mm	165	x	80	x	15		
PUMABK018	180 x 30 - 15mm	185	x	30	x	15		
PUMABK019	185 x 320 - 15mm	185	x	320	X	15		
PUMABK020	185 x 800 - 15mm	185	x	800	x	15		
PUMABK021	340 x 340 - 25mm	340	x	340	x	25		
PUMABK022	165 x 80 - 20mm	165	x	80	X	20		
PUMABK023	130 x 50 - 21mm	130	x	50	x	40		
PUMABK024	154 x 50 - 40mm	154	x	50	x	40		
PUMABK025	154 x 60 - 40mm	154	x	60	x	40		
PUMABK026	185 x 50 - 40mm	185	x	50	x	40		
PUMABK027	195 x 50 - 40mm	195	Х	50	x	40		
PUMABK028	154 x 143 -60mm	154	x	143	x	60		
PUMABK029	154 x 154 - 65mm	154	x	154	x	65		
PUMABK030	155 x 155 - 65mm	155	x	155	x	65		
PUMABK031	195 x 195 - 80mm	195	x	195	X	80		

# Ball Valves, Seats, Seals, Cap & Impellers

### **Ball Valves**

Part Number	OD	Core Diameter	Core Type	Mould	To Fit
CABV001	1 1/4"			686	
CABV002	2.0125"			687	
CABV003	4 5/8"	3"	C.I.	688	
CABV004	4 5/8"	3 5/8"	C.I.	688	Willetts 6"
CABV005	5″	3″	C.I.	689	Pegson
CABV006	5″	3 1/8"	C.I.	689	
CABV007	5″	3 1/2"	Pb	689	Dorrco
CABV008	150mm	115mm	C.I.	690	Whitehead & Poole 230

# Valve Seats & Gland Seals

Part Number	OD	Thickness	ID	Туре	Shore Hardness	To Fit
CAVSGA001	190mm	19mm	152.5mm	G.S.	70 'A'	Whitehead & Poole 150
CAVSGA002	154mm	20mm	75mm	V.S.	80 'A'	Whitehead & Poole 150
CAVSGA003	279mm	25mm	228mm	G.S.	70 'A'	Whitehead & Poole 230
CAVSGA004	228mm	25mm	100mm	V.S.	80 'A'	Whitehead & Poole 230
CAVSGA005	7 3/4"	3/4"	3"	V.S.	80 'A'	Willetts 6"
CAVSGA006	8 3/4"	3/4"	4"	V.S.	80 'A'	Willetts 9"
CAVSGA007	11 1/4"	3/4"	5 1/2"	V.S.	80 'A'	Willetts 12"

G.S. = Gland Seal / V.S. = Valve Seal

Watts have been manufacturing the Watts Squeegee Blade for over 35 years. Regarded as one of the world's leading developers and manufacturers, Watts offers possibly the most comprehensive range of Squeegee Blades available to the Screen Printing industry.

Watts Squeegees are currently sold into over 75 countries worldwide. Please contact us for your local distributor or to enquire about becoming a distributor.

The edges of Watts Blades are regarded amongst the best in the industry, using CNC Cutting Technology for a precise Linear Cut. The profiled items are also cut using a linear technique, ensuring the perfect finish to enable high quality print.

We work closely with suppliers to specifically formulate Polyurethane systems to enable to the highest performance in specific applications.

All materials are stored, prepared and processed as per our supplier's recommendations and cast through sophisticated, computer-controlled dispensing equipment, this ensures the end component has the optimum properties to suit our customers' requirements.

Due to the breadth and depth of industries and markets that we serve, combined with the close inter-working relationship of our product groups, we are continually learning to supply better products, at better prices and with better service.











Size and Tolerance for Specific Profiles							
Profile	Length	Width	Thickness				
G1, G5, G6	50 - 3715mm (+ 10mm/- 0mm)	8 - 686mm (+/- 0.15mm)	3 - 12.5mm (+/- 0.25mm)				
G2, G3, G4	50 - 3450mm (+/- 15mm)	15 - 55mm (+/- 0.5mm)	3 - 12.5mm (+/- 0.25mm)				
G18	2000mm (+ 0mm/- 10mm)	20 - 50mm (+/- 1mm)	9mm (+/- 0.25mm)				
G25	50 - 3715mm (+/- 0.5mm)	9 - 12.5mm (+/- 0.15mm)	9 - 12.5mm (+/- 0.15mm)				

Please note that the above specifications are standard and can vary depending on the grade of material requested.

#### Hardness Range:

7000SERIES 45 - 90 Shore A
2000SERIES 60 - 90 Shore A
8000SERIES 60 - 90 Shore A
5000SERIES 55 - 95 Shore A

#### Solvent Resistance

Although polyurethane is generally recognised as being highly resistance to solvents, it must be noted that all polyurethanes absorb solvents. Resistance to solvent swelling is increased with hardness.

The ability of the polyurethane formula to resist edge breakdown when subjected to solvent ingression is vital in Screen Printing. Watts Squeegee Blades, unlike many others, are formulated especially to withstand this absorption, with the 8000 Series showing amongst the highest UV Chemical and Solvent resistance of any product in the market. These formulas are the result of many years of research and development.

#### Colour Change in 5000 Series

The Watts 5000 Series material is a Vulkollan® material, made under licence from Bayer AG. Once processed, the material is sensitive to UV light and is therefore stored away from natural light. To maintain the colour the material must not be exposed to light for prolonged periods of time. If left in sunlight, the material will rapidly darken until almost black. This colour change has no influence on the physical properties and is purely an aesthetic effect.

#### **Blade Life**

Blade life is increased through periods of "rest". If you use two pieces one can be "rested" whilst the other one is used.

### **Squeegee Blades**

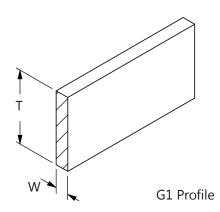
#### Resharpening

Do not sharpen a new Watts blade – take advantage of the perfect edges. All Watts Squeegee Blades can be re-sharpened. Rest the blade for at least 24 hours before re-sharpening and as Watts Squeegee Blades are designed especially to be abrasion resistance, be careful not to generate too much heat. Apply little pressure and for short time periods.

#### **Moulded Blades**

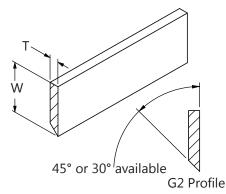
Moulded blades are heat sealed at the time of manufacture. This sealed surface resists the ingression of solvents for slightly longer periods of time. Advances in materials such as the 8000 Series mean that cut products offer extremely high levels of resistance and therefore similar life expectancy, at far more competitive prices and enabling the use of the perfect cut edges. The 8000 Series can also be re-sharpened, unlike moulded products.

#### **Squeegee Profiles**



#### **G1** Profile

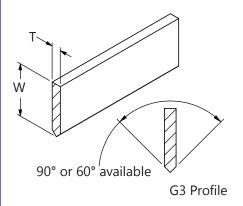
The standard Square Edged profile is used for a wide range of applications, but most commonly used in general textile and graphics applications. Suitable for both manual and automatic printing and on a wide range of substrates.



#### **G2** Profile

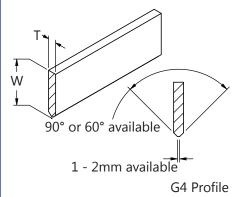
Single bevelled squeegees, generally used for printing into nonabsorbent surfaces such as plastic, glass or metal. Conforms easily to irregular surfaces while maintaining excellent ink deposit. Widely used on container printing and also good on bottle printing.

### Squeegee Blades



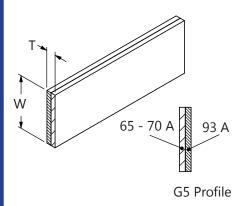
#### G3 Profile

This double bevel edge blade (60 & 45 deg) provides excellent control for direct printing onto cylindrical surfaces and irregular forms, also fine print for textiles.



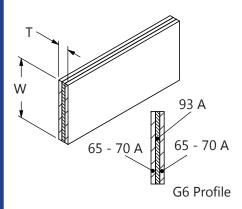
#### **G4 Profile**

This double bevel flat edge blade is used on most substrates including direct ceramic printing. The profile allows for maximum ink shear and good angle control when depositing ink with a wide range of viscosity on multiple substrates.



#### **G5 Profile**

Blade will flex less preventing roll over, the angle is therefore maintained giving excellent ink shear. The softer edge allowing for good ink deposit.



#### **G6** Profile

Square edge Composite Triple hardness blade gives the printer the responsiveness of a soft to medium hard blade without the undesired flexing created by increased secondary force squeegee pressure. Excellent for printing on high mesh counts with high tension.

### Squeegee Blades

#### Squeegee Materials

Watts offer four distinct squeegee materials to cover the full spectrum of screen printing applications:

#### **2000**SERIES

#### **LEADING EDGE PERFORMANCE**

2000 Series is a premium Watts Squeegee product offering market leading performance at competitive prices. This material delivers high abrasion resistance, impressive chemical resistance and very good all round properties. Suitable for use in a wide range of Screen Printing applications and ideal for a distributor selling into a variety of customers.

## **5000**SERIES THE LONG LIFE EDGE

5000 Series is the Watts Squeegee material range offering the very highest abrasion resistance. Made from a Vulkollan® material, these squeegees will offer long life solutions in very tough applications. Vulkollan® is made under licence from Bayer AG and Watts Urethane Products Ltd is one of a small number of Global companies with the licence to produce this material.

#### **7000**SERIES

#### **VALUE**

7000 Series is an extremely good value range of Watts Squeegee blades, offering the same high quality as all Watts Squeegee Blades, with good performance across the range of products. Most commonly used for textile printing but is popular across a broad spectrum of Screen Printing applications.

#### **8000**SERIES

#### HIGH SOLVENT RESISTANCE

8000 Series material has been designed to provide a solution to more extreme applications. The 8000 Series is at the forefront of our ongoing development programme, which results in innovative and practical solutions to the problems created at the boundaries of screen printing development. It offers extremely high chemical and solvent resistance to enable longer life and quality of print, when other products fail.



## Squeegee Blades

#### Squeegee Features

	Features and Benefits	Applications	Hardness Range
2000SERIES	<ul> <li>High Tolerance to UV Systems</li> <li>Very good all round properties</li> <li>High Abrasion Resistance</li> <li>High Cut Resistance</li> <li>Free from additives for a cleaner print when using Sensitive Print Media</li> <li>High Solvent Resistance</li> <li>High tolerance to Plastisols</li> </ul>	High all round performance, ideal for use in a wide range of printing applications including:  Bottle Ceramic CD / DVD Decal Electronic / PCB Glass Graphic Textile Industrial Solar / PV	60 – 90 Shore A
<b>5000</b> SERIES	<ul> <li>Very High Abrasion Resistance</li> <li>Very high Edge Retention</li> <li>High Strength</li> <li>High Solvent Resistance</li> <li>Vulkollan® Material</li> </ul>	Very high Abrasion Resistance, performs very well when glass printing using hot enamels.  Bottle Ceramic Electronic / PCB Glass Industrial Solar / PV	55 – 95 Shore A
<b>7000</b> SERIES	<ul><li>High Tolerance to UV Systems</li><li>Good General Use</li><li>Extremely Good Value</li></ul>	<ul><li>A good all round product, most suitable for textile printing.</li><li>Textile</li><li>Industrial</li></ul>	45 – 90 Shore A
8000SERIES	<ul> <li>Very High Tolerance to UV         Systems</li> <li>Very High Solvent Resistance</li> <li>High Energy Absorption /         Low Energy Release</li> </ul>	Very high Solvent and Chemical Resistance. Performs well in applications typically favouring moulded squeegee blades. A low energy release blade that can eliminate "kick back" in large format applications.  Bottle Decal Electronic / PCB Graphic Industrial Solar / PV	60 – 90 Shore A

# Squeegee Blades

# Squeegee Blades

#### **Squeegee Applications**

Screen Printing is a process in which a Squeegee Blade pushes Ink through a Screen, which has had areas blocked off by a stencil. The ink is then pushed though the areas of mesh that have not been blocked, printing an image on the substrate. Using several screens, multiple colours can be applied. Screen printing is arguably the most versatile of printing techniques and is valued for its ability to print on a wide variety of materials with flexibility. Also known as Silk Screen Printing, Serigraphy and Serigraph.

Watts Squeegee Blades are used in a wide variety of industries to produce many thousands of different products. Users vary from printers using hand held Squeegees in manual processes, to large Blue Chip companies running state of the art factories.

Whatever the application, customers can be sure that Watts Squeegees will help them to achieve the desired print.

A number of common Screen Printing applications using Watts Squeegees are:

- Bottle
- Ceramic
- CD / DVD Disc
- Electronic and Printed Circuit Board (PCB)
- Decal
- Glass
- Graphics
- Industrial
- Solar / Photo Voltaic (PV)
- Textile

For the suitable material to use in each application, please see Squeegee Features page.



Trading under the name **Q**W, we have over 35 years of experience in the manufacture of polyurethane wheels for pallet trucks, fork lift trucks and roller coaster wheels.

- **QW** offer a comprehensive range of polyurethane products for all industrial tyre applications.
- •W's products have been designed to take into consideration the specific demands for high dynamic properties coupled with good physical strength and abrasion resistance. The range includes press on band tyres, direct bond drive wheels and load wheels, a comprehensive selection of pallet wheels and castor wheels, as well as offering a tyre re-covering service to customers existing wheels.
- W utilise their experience of processing and knowledge of material performance to offer customers a professional service from material specification through product and tooling design to the finished item.
- QW pride themselves on their innovative use of both technology and technique to solving customers' application problems.

With over 35 years Polyurethane experience, you can have confidence in our products and services.













#### **Dimensions:**

The dimensions of the tyres are always given in the following order: Outer Diameter (OD) x Width (W) x Outside diameter of wheel centre (ID). The outside diameter is the overall tyre diameter, the width is measured at the base of the band, and the ID is the nominal outside diameter of the wheel centre.

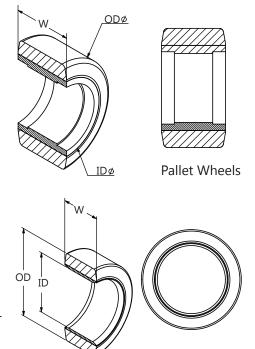
#### **Tolerances:**

The tolerance on the outside diameter (OD) is 1.5% of the stated OD. The tolerance on the width (W) is +/-4%. The press-on band wheel centres should be machined to the nominal ID with tolerances of +0.005" and -0.000". This will provide the correct interference for satisfactory tyre fitting.

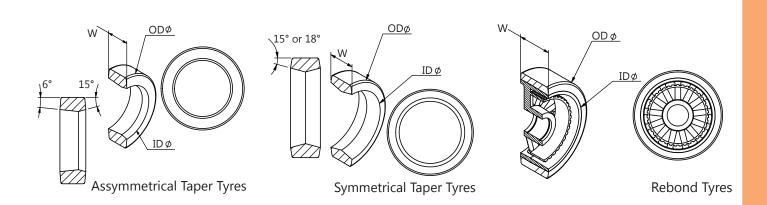


Polyurethane tyres can be supplied with a hardness rating of between 55 Shore 'A' up to 60 Shore 'D'. Suitable grades are selected to provide the best combination of load carrying capacity and resilience.

Please see appendix i for a diagram of the shore hardness ranges.



Press-on Band Tyres



# Wheels for Pallet and Fork Truck





Please see below for a list of the current dealer range currently provided by **Q**W.

Current Dealer Range
Atlet-Lafis
Baumann
BT
Crown/Hamech
Dambach
Fenwick-Linde-Lansing
Genkinger
Hurth
Icem

Current Dealer Range
Jungheinrich-Mic-Steinbock
Lafis-Atlet
Nacco-Hyster-Ormic-Deca
OMG
PIMESPO
Prat
Rocla
Still-Saxby-Wagner

#### Press-on-Band



**Q**W can provide any size of Press-on-Band. Listed below are some of the more common sizes that we can provide. If your size is not listed, or if you require a band in specific materials, please do not hesitate in contacting us.

Description	QW Ref
8 x 3 - 6	92
10 x 4 - 6.25	93
10 x 5 - 6.5	94
10 x 3 - 8	53
10 x 3.5 - 8	52
10.5 x 3.5 - 8	95
12 x 5 - 8	97
13 x 5.5 - 8	98
12 x 2 - 10	99

Description	QW Ref
12 x 3 - 10	51
12.5 x 3 - 10	100
12.5 x 3.5 - 10	55
13 x 3.5 - 10	50
13 x 5 -10	48
15 x 3 - 11.25	101
14 x 3.5 - 11.25	102
15 x 5 - 11.25	103
254 x 120 - 190	105

Description	QW Ref
330 x 145 - 194	106
343 x 114 - 225	107
285 x 100 - 228	47
300 x 75 - 240	108
343 x 140 - 270	109
350 x 110 - 270	110
350 x 140 - 270	111
350 x 100 - 280	46
415 x 75 - 305	112

**Q**W also offer a comprehensive range of industrial wheel centres.

For the full range of products offered by **Q**W, please visit the website, www.qwheels.co.uk, or you can view the full catalogue here, http://bit.ly/qwheels.

# **Street Furniture**

Polyurethane is the perfect material for urban products (street furniture) because it is; Strong, Durable, Lightweight, and Low maintenance or maintenance free. They are also non-ferrous, meaning that they will never rust.

The Watts Street Furniture range comprises of the following products:

- Heritage Bollards
- Streetwise Bollards
- Impact Flex Bollards
- Bikewise Cycle Hoops



These are available in a wide range of standard generic designs. The polyurethane design replicates the standard cast iron products, and is coated with a high quality polyurethane paint. The bollards come with a steel core to provide vehicular impact, and can be designed with a full anti-ram specification or removable with socket. These bollards require very little maintenance following the installation.

#### Streetwise Bollards:

The next step in Bollard evolution. A highly durable and resilient material with a steel core. These are extremely resilient to vehicular damage, and can also include graffiti retardant agents to make it difficult to fly post on. These are not painted, and will never require painting. They are supplied in black as standard, with other colours available upon request. Streetwise Bollards are also available in anti-ram options or with a removable socket. They are available in a number of diameters, lengths and reflective tape configurations.



#### Impact Flex Bollards:

A further development on the Streetwise Bollards, these are perfect for areas where bollards are frequently hit at low speeds, such as car parks. The design of these reduces impact damage to vehicles, and reduces the need to replace the bollards. The Impact Flex Bollards combines strength and flexibility, and with no steel core, are designed to flex during vehicle impact, at which point the bollard will flex through 90 degrees. Once the load is remove the bollard will return to its original upright position. It will continue to fold indefinitely due to the manufacturing process. These are available in Black, Red, or Ochre, with other standard colours available upon request. Now also available in the Manchester Bollard style.



#### Bikewise Cycle Hoops:

Manufactured from polyurethane with a steel core that is not painted and will never require painting. They are extremely durable, and will not damage the bike parked against them. Available in Sheffield Style or Heritage Red Route Style, come in Black as standard with other colours available upon request.



# Heritage Bollards

# **Street Furniture**

A wide range of standard generic bollard designs are available. For our current list please see the chart below. Other designs can be manufactured to meet customer specifications.

For a detailed specification on each bollard, please visit the Heritage bollards section of the Street Furniture website: (www.thebollardshop.com/bollards/Heritage-Bollards.html).

Part Name
Ashbeian
ASDA Type 1 Standard
ASDA Type 3 Anti-Ram
Battersea
Blackburn
Borough
Bury/Blackpool
Cannon
Chain Bollard
Cheltenham / Worcester
Chippenham
Clapham
Cornwall
Coventry Elephant
Delaval

Doub Nove s
Part Name
Exeter/Barnstable/Bristol
Forester
Gateshead
Hackney
Hendon
Hexham/Bournemouth
Highbury/Oxford
Hounslow
Lydney/F.O.D.
Malden
Manchester Extended 1000
Manchester Slim
Manchester Standard
Medway Short

Part Name
Medway Tall
Morpeth
Napoli
Neston
Old Camden
Plymouth
Redway
Seaham
Slough Standard
Slough Std Extended 1000
Solihull
Streatham
Tesco
Wycombe

We also offer a range of Posts and Rails under in Heritage and Streetwise style. Our current offerings are listed below:

The full specifications can be viewed on the Post and Rail section of the Street Furniture website: (www.thebollardshop.com/bollards/Post-aand-Rail.html)

Heritage
Part Name
Bewdley Post
Folkestone Post
Inverness Post
Weston Super Mare Post

Streetwise	
Part Name	
Rail 50mm x 2000mm	

# Streetwise Bollards

# **Street Furniture**

For our current list of Streetwise Bollards, please see the chart below.

For a detailed specification on each bollard, please visit the Streetwise bollards section of the Street Furniture website: (www.thebollardshop.com/bollards/Streetwise-Bollards.html).

#### Part Name

Streetwise 105mm Flat Single/Double Ring
Streetwise 105mm Dome Single/Double Ring
Streetwise 130mm Flat Single/Double Ring
Streetwise 130mm Dome Single/Double Ring
Streetwise 150mm 100mm Tape Band
Streetwise 155mm Flat Single/Double Ring
Streetwise 155mm Dome Single/Double Ring

# Impact Flex Bollards

For our current list of Impact Flex Bollards, please see the chart below.

For a detailed specification on each bollard, please visit the Impact Flex bollards section of the Street Furniture website: (www.thebollardshop.com/bollards/Impact-Flex-Bollards.html).

#### Part Name

Impact Flex 130mm Diameter (9mm wall)
Impact Flex 155mm Diameter (12mm wall)
Impact Flex Manchester Style (9mm wall)
Terrafirma Flexible (15mm wall)

# Bikewise Cycle Hoops

For our current list of Bikewise Cycle Hoops, please see the chart below.

For a detailed specification on each hoop, please visit the Bikewise Cycle Hoops section of the Street Furniture website: (www.thebollardshop.com/bollards/Bike-Wise-Cycle-Hoops.html).

Part Name	
Sheffield Cycle Hoops	
Ridgerack Cycle Hoop	
Sheffield Red Route Cycle Hoop	

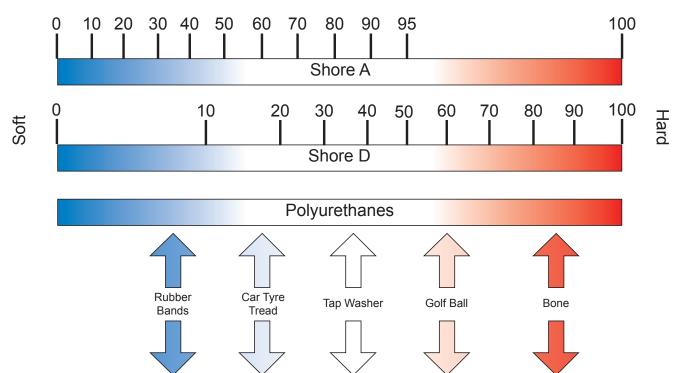
# Appendix i

# **Technical Information**

**Plastics** 

**Nylons** 

### **Shore Hardness Chart**



Rubbers



#### **Qinto Polyurethane Comparisons**

	Urethane	Natural Rubber	Nitrile	Neoprene	High Density Polyethylene
Tensile (MPa)	34.5 - 62.1	20.7	6.9 - 13	20.7	20.7
Tear Resistance	E	G	G	F/G	F
Abrasion Resistance	E ( 5 x Rubber)	E	E	G	F
Solvent Resistance					
Auphatics	E	Р	E	G	G
Aromatics	G	Р	G	F	G
Oil	E	Р	E	G	F
Water	E (Sub 40°)	E	F/G	F	E
Weathering	E	F	Р	V/G	G

Key	E = Excellent	G = Good	F = Fair	P = Poor	V/G = Very
					Good

# **Abrasion Resistance Data Sheet**

## **Sliding Abrasion Data**

#### Relative Abrasion Resistance Laboratory Sand Test (Wet)

Materials	% Weight Loss			
Polyurethane	8			
Ceramic Alloy	16			
Nickel-Cast Iron	18			
UHMWPE	21			
410 Stainless Steel	65			
504 Stainless Steel	78			
Manganese Brass	84			
Carbon Steel	100			
Polyethylene (Low Density)	138			
Polypropylene	275			
Aluminium Alloy	318			
Fibreglass Plastic	367			
Polyvinyl Chloride (PVC)	575			
Hard Oil-Resistant Rubber	800			

<sup>\*</sup> Relative to 100

# Appendix iii

# **Technical Information**

# Variation of Modulus with Shape Factor

Calculating Forces for Polyurethane Pressure Pads and Bars

#### Step 1:

Calculate the shape factor (SF) from the data below:

Rectangular Blocks 
$$SF = \underline{LW}$$
  
2t (L+W)

Discs and Cylinders SF = 
$$\underline{D}$$

Tubes 
$$SF = D - d$$
4h

Where:

#### Step 2:

Determine the Modulus of Elasticity (E) from the curves shown on the two graphs on the following

N.B. Curves apply for deflections up 20%. Above this modify E by the factor in the multiplier graph.

#### Step 3:

Calculate force by substituting in the following formula.

$$F = \Delta H \times A \times E$$

$$H_{\pm}$$

Where:

F = Force (lbs)

 $\Delta H$  = Change in Height (ins)

 $H_{\tau}$  = Total Height (ins)

A = Area (Sq ins)

#### Example:

Assume a pressure pad is 1" Thick x 3" Wide x 4" Long made of 90 Shore 'A' polyurethane. How much force is needed to deflect it 0.1875 inches?

$$SF = \underbrace{\frac{3 \times 4}{2 \times 1 (3 + 4)}} = \underbrace{\frac{12}{14}} = 0.857$$

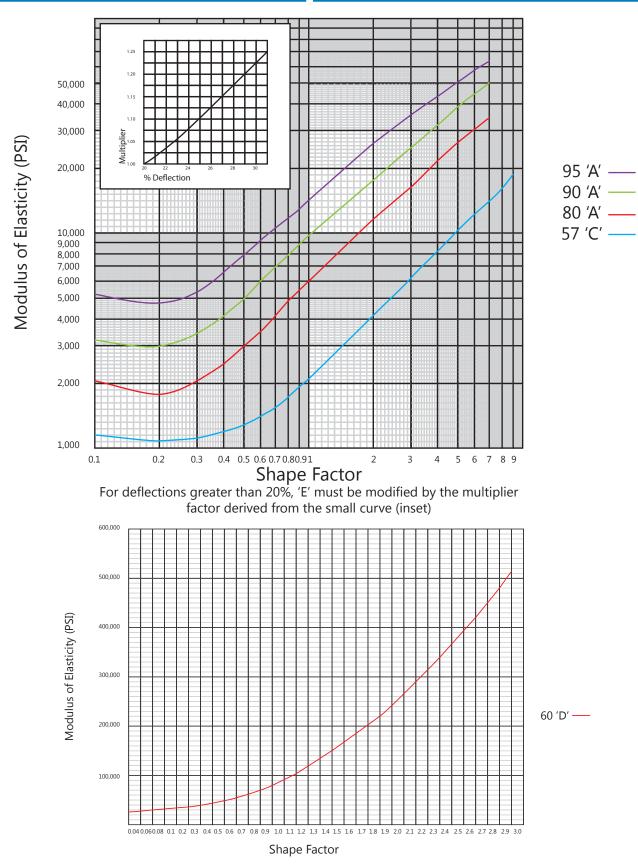
From the curve E is 8200 psi.

$$F = \underbrace{0.1875}_{1} \times (3 \times 4) \times 8200 = 18450 \text{ lbs}$$

Therefore 18450 lbs force is needed to compress the pad by 0.1875 inches.

# Appendix iii

# **Technical Information**



Please Note: Whilst every attempt has been made to ensure that the graph is accurate, we can not guarantee 100% accuracy. Therefore for accurate calculations please contact the sales office, where we will be able to assist you further.

# **Load Bearing for Polyurethane Wheels**

#### Wheel Calculations:

The following formula is used to calculate the deflection for specific tyre sizes, when the loading is known.

$$U = \left(\frac{0.75 \times W \times (b - a)}{E \times S \times (8a) \ 1/2}\right) 2/3$$

#### Where:

U = Deflection load in inches

W = Load in pounds

a = Inside radius of wheel in inches

b = Outside radius of wheel in inches

E = Compression modulus of Polyurethane grade (see appendix iii)

S = Tyre width in inches

#### **Please Note:**

If in your calculations you produce a deflection that is greater than 5% of the original tyre thickness it is advisable that you contact our sales office for further advise.

#### **Tyre Footprint:**

To calculate the area of the tyre that is in contact with the ground (footprint), please use the following calculation:

$$P = 2 \times S [b^2 - (b - U)^2] 1/2$$

# Appendix iv

# Technical Information

# **Rolling Resistance/Friction**

The main forces resisting initial movement and acceleration of a wheeled vehicle are:

- 1. The rolling friction between the wheel and the surface on which it rests and, in the case of tyred wheels, the rolling resistance of the flat area of tread caused by static loading.
- 2. The friction within the wheel or axle bearings
- 3. The inertial resistance of vehicle and load

The main forces resisting the maintenance of movement after acceleration from rest are point 1 and 2 mentioned above (excluding the effect of a tyre 'flat').

# Rolling Friction Polyurethane Tyred Wheels

Guide figures to rolling resistance per wheel as a percentage of load per wheel:

- 1. From rest, when the period of rest is 8 hours maximum = 5% of load.
- 2. From rest, when the period of rest is greater than 8 hours = 8% of load.
- 3. To maintain a constant speed = 3% of load.

#### **Traction Co-efficient of Friction**

To calculate the traction of a driving wheel, you would use the formula:

 $T = u \times P$ 

#### Where:

u = The co-efficient of friction for a given wheel material and track surface.

P = the load of the wheel.

Disclaimer: Whilst every attempt has been made to ensure that the information contained in this publication is as accurate and current as possible. However, inaccuracies, errors, or omissions may occur, and details of the specifications, or prices, may be subject to change at any time without prior notice. To reduce the impact of any misunderstanding we advise you confirm details with our sales department prior to order placement.

# **Notes**

Notes		

Disclaimer: Whilst every attempt has been made to ensure that the information contained in this publication is as accurate and current as possible. However, inaccuracies, errors, or omissions may occur, and details of the specifications, or prices, may be subject to change at any time without prior notice. To reduce the impact of any misunderstanding we advise you confirm details with our sales department prior to order placement.

All orders are subject to the company standard terms and conditions, a copy of which is available upon request.



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