Custom Moldless Rubber Manufacturing

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TECHNICAL REPORT II
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Value 1
Builds Wide Range of Shapes Without Metal Mold

Blanks made of rubber materials are machined, cut and bonded by the very latest machines and experienced crafts-men. We can produce a range of rubber materials with variety of shapes to be used for large-sized machines or even small size equipment without a metal mold.

Value 2
No Minimum Order

We can meet the demand for even small-lot orders since no metal molds are used. So, you can order only the required number of products, even one piece such as special parts or prototypes.

Value 3
Great Variety of Stocked Materials

We stock a wide range of blanks rubber materials with variety of hardness. We analyze product type and past production performance data to ensure the selection of optimum material for the job.

Value 4
No Tooling Cost

We provide outstanding products as cost effective as possible. This is achieved by not only being able to eliminate the costs of producing a metal mold. The result is highly cost-effective products for our customers.

Value 5
Quick Delivery

Production is possible within a short timeframe to meet your schedule with Moldless process.
Parts of all "shapes and hardesses" can be produced in small lots, with in short delivery schedules and at low cost without the need for metal molds.

**Spinning Lathe and Lathe Machining**

Experienced and skilled craftsmen finish products quickly and to high precision. Complex products take shape thanks to a technician’s skills and advanced machine technology.

**Cutting of Solid Blocks**

Parts with subtle curved edges and surfaces, and parts requiring high-grade precision are made by expert craftsmen.

**Water Jet & Cutting Plotter Processing**

This leading-edge technology achieves the accurate finishing of irregular shaped products. Even if the product is complexly shaped, computerized control produces almost error-free, accurately cut products.

**NC Lathes and Machining Centers**

Large products that would normally require a metal die can be processed. Installed at our manufacturing sites are machining centers for creating NC data based on CAD data, for example. And, NC lathes generate NC data from CAD data to drive special cutting tools and create precision products.
Urethane Pouring (metal mold not required)

Products are molded by pouring liquid material into a pre-formed shape. Cutting is a highly accurate process that originated with the manual work of experienced technicians. We also accept orders for small lots made by hand pouring.

Plural Processing

Molding is performed using a combination of diverse technologies. The proprietary technology of incorporating machining, cutting, bonding, and other techniques at all stages of the production process to finish products to the optimum shape can be called our greatest achievement.

Micro-Processing

We can finish rubber processed products in a variety of shapes, such as ultra-precision micro-packings, to meet customers' specific requirements.

Clean Room Processing

We process products, such as electronic parts and products for the medical and food industries, that must not be subjected to dust or static electricity in a carefully controlled environment.

Surface Polishing

We conduct surface polishing suited to each of the various blanks we stock. For example, precision rubber processed parts can be given a standard ground finish or even polished to have a mirror finish.
How to View the Following Processing Examples

The products shown here are processed samples, and serve as a guide for shapes and blanks. A cost comparison is also shown. This information differs slightly according to the details of the order and the material used, so consult us regarding actual details.

<table>
<thead>
<tr>
<th>Product name</th>
<th>Stock number</th>
<th>Name of material and hardness (type A durometer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift Boots</td>
<td>1-3</td>
<td>Plural Processing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neoprene</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[Hardness] 45</td>
</tr>
</tbody>
</table>

Note: All dimensions shown are metric (mm).

This graph compares costs when the sample product is made with and without a metal mold by our company.
Square bellows 1-1
Cutting of Solid Blocks

(Material) Urethane
(Hardness) 90°

Note: All dimensions shown are metric (mm).

Round bellows 1-2
Spinning Lathe and Lathe Machining

(Material) Silicon
(Hardness) 50°

Note: All dimensions shown are metric (mm).
Shift Boots
Plural Processing

(Material) Neoprene
[Hardness] 45°

Note: All dimensions shown are metric (mm).

Shaft cover
Spinning Lathe and Lathe Machining

(Material) Acrylonitrile Butadiene Rubber
[Hardness] 70°

Note: All dimensions shown are metric (mm).
Cushion
Plural Processing

(Material) Acrylonitrile Butadiene Rubber
(Hardness) 70°

Note: All dimensions shown are metric (mm).

Parts magazine
Water Jet

(Material) Neoprene
(Hardness) 65°

Note: All dimensions shown are metric (mm).
Cushion

Plural Processing

[Material] Urethane
[Hardness] 90°

Note: All dimensions shown are metric (mm).

Bail

Spinning Lathe and Lathe Machining

[Material] Silicon
[Hardness] 50°

Note: All dimensions shown are metric (mm).
Non-standard elbow
Plural Processing

(Material) Acrylonitrile Butadiene Rubber
[Hardness] 70°

Note: All dimensions shown are metric (mm).

O-ring
Spinning Lathe and Lathe Machining

(Material) Silicon
[Hardness] 50°

Note: All dimensions shown are metric (mm).
O-ring
Spinning Lathe and Lathe Machining

[Material] Fluoro Rubber
[Hardness] 80°

Non-standard O-ring
Plural Processing

[Material] Acrylonitrile Butadiene Rubber
[Hardness] 70°

Note: All dimensions shown are metric (mm).
Note: All dimensions shown are metric (mm).
Chain

Plural Processing

(Material) Urethane
(Hardness) 90°

(A)

(T1.5)

(B)

Note: All dimensions shown are metric (mm).

L joint

Plural Processing

(Material) Urethane
(Hardness) 90°

Note: All dimensions shown are metric (mm).
2-Micro Products

Miniature cube
Plural Processing

(Material] Soft Vinyl Chloride

Note: All dimensions shown are metric (mm).

Micro Products
Spinning Lathe and Lathe Machining

(Material] Acrylonitrile Butadiene Rubber
[Hardness] 70'

Note: All dimensions shown are metric (mm).
Miniature round bellows  2-3
Spinning Lathe and Lathe Machining

- Material: Neoprene
- Hardness: 65°

Note: All dimensions shown are metric (mm).

Micro Products  2-4
Plural Processing

- Material: Silicon
- Hardness: 70°

Note: All dimensions shown are metric (mm).
Miniature O-ring

2-5

Spinning Lathe and Lathe Machining

(Material) Silicon

(Hardness) 50°

Note: All dimensions shown are metric (mm).

Micro Products

2-6

Spinning Lathe and Lathe Machining

(Material) Acrylonitrile Butadiene Rubber

(Hardness) 70°

Note: All dimensions shown are metric (mm).
Micro Products 2-7
Spinning Lathe and Lathe Machining

Note: All dimensions shown are metric (mm).

[Material] Urethane
[Hardness] 90°

Miniature threaded ball 2-8
Spinning Lathe and Lathe Machining

Note: All dimensions shown are metric (mm).
Micro Products 2-9

Spinning Lathe and Lathe Machining

(Material) Acrylonitrile Butadiene Rubber
(Hardness) 70°

Note: All dimensions shown are metric (mm).

Micro Products 2-10

Grooving

(Material) Urethane
(Hardness) 90°

Note: All dimensions shown are metric (mm).

Micro Products 2-11

Spinning Lathe and Lathe Machining

(Material) Acrylonitrile Butadiene Rubber
(Hardness) 70°

Note: All dimensions shown are metric (mm).
Micro Products 2-12
Ultra-thin framing

(Material) Acrylonitrile Butadiene Rubber
[Hardness] 70°

Wall Thickness 0.4±0.1

Note: All dimensions shown are metric (mm).

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Micro Products 2-13
Grooving

(Material) Neoprene
[Hardness] 65°

Slit Pitch 0.45±0.1

Note: All dimensions shown are metric (mm).

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Micro Products 2-14
Plural Processing

(Material) Urethane
[Hardness] 90°

Note: All dimensions shown are metric (mm).
Micro Products
2-15
Ultra-small drilling

(Material) Fluoro Rubber
(Hardness) 80°

Note: All dimensions shown are metric (mm).

Micro Products
2-16
Ultra-small drilling

(Material) Urethane
(Hardness) 90°

Note: All dimensions shown are metric (mm).

Micro Products
2-17
Grooving

(Material) Acrylonitrile Butadiene Rubber
(Hardness) 70°

Note: All dimensions shown are metric (mm).
**Micro Products**  
2-18  
**Step processing**  

(Material) Urethane  
(Hardness) 90°

![Image of a step processing diagram](image)

Note: All dimensions shown are metric (mm).

**Micro Products**  
2-19  
**Spinning Lathe and Lathe Machining**  

(Material) Acrylonitrile Butadiene Rubber  
(Hardness) 70°

![Image of a spinning lathe diagram](image)

Note: All dimensions shown are metric (mm).
## RUBBER & PLASTIC MATERIALS

<table>
<thead>
<tr>
<th><strong>Solid Rubber</strong></th>
<th><strong>Plastic</strong></th>
<th><strong>Vinyl</strong></th>
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</thead>
<tbody>
<tr>
<td>100 Natural 65-Black</td>
<td>305 Urethane Black-90</td>
<td>600 Soft Vinyl Chloride-Transparency</td>
</tr>
<tr>
<td>101 Natural 60-White</td>
<td>306 Urethane Black-70</td>
<td>601 Soft Vinyl Chloride-Milky</td>
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<td>102 Natural 60-Green</td>
<td>307 Urethane Black-60</td>
<td>602 Soft Vinyl Chloride-Black</td>
</tr>
<tr>
<td>103 Natural 60-Red</td>
<td>308 Urethane Black-50</td>
<td>603 Soft Vinyl Chloride-Grey</td>
</tr>
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<td>104 Soft Natural 50-Black</td>
<td>309 Urethane Black-40</td>
<td>604 Vinyl Rib-Green</td>
</tr>
<tr>
<td>105 Natural w/Cloth 65-Black</td>
<td>310 Urethane Black-30</td>
<td>605 Vinyl Pyramid Mat-Green</td>
</tr>
<tr>
<td>150 Pure Gum 40%</td>
<td>350 Urethane 95</td>
<td>606 Vinyl Pyramid Mat-Black</td>
</tr>
<tr>
<td>151 Pure Gum 60%</td>
<td>351 Urethane 90</td>
<td>607 Vinyl Flat Mat-Green</td>
</tr>
<tr>
<td>152 Pure Gum Crepe (Fine)</td>
<td>352 Urethane 80</td>
<td>608 Vinyl Pyramid Mat-Green</td>
</tr>
<tr>
<td>180 Elasticity for Cushion (Fine 60%)-White</td>
<td>353 Urethane 70</td>
<td>609 Soft Polyethene</td>
</tr>
<tr>
<td>181 Insertion</td>
<td>354 Urethane 60</td>
<td><strong>Others</strong></td>
</tr>
<tr>
<td>182 King Sheet</td>
<td>355 Urethane 50</td>
<td>647 Cork Rubber</td>
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<tr>
<td>183 -Grey</td>
<td>356 Urethane 40</td>
<td>651 Oil Sheet (3 Sheet)</td>
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<tr>
<td>184 -Black</td>
<td>357 Urethane 30</td>
<td>652 Oil Sheet</td>
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<tr>
<td>185 -Green</td>
<td>400 Silicone 50</td>
<td>653 Leather</td>
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<td>200 Nitrile/Buna N 70-Black</td>
<td>401 Silicone 60</td>
<td>654 Santprene</td>
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<td>402 Silicone 70</td>
<td>655 Magnet Rubber</td>
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<td>202 Soft Nitrile/Buna N 50</td>
<td>403 Silicone-Red 50</td>
<td>657 Felt</td>
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<td>203 Nitrile/Buna N w/Cloth 70</td>
<td>404 Silicone 50-Round Cord</td>
<td>530 EPDM Sponge</td>
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<tr>
<td>204 Nitrile/Buna N-Round Cord</td>
<td>405 Silicone 50-Square Cord</td>
<td>531 Silicone Sponge</td>
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<td>250 Neoprene 65-Black</td>
<td>406 Silicone Tube 50</td>
<td>532 Silicone Sponge-White</td>
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<td>430 Fluoro 80</td>
<td>533 Fluoro Sponge</td>
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<td>252 Neoprene 60-Grey</td>
<td>431 Atlas</td>
<td>580 Molt Prene Rubber-White</td>
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<td>253 Soft Neoprene 45</td>
<td>432 Fluoro Round Cord</td>
<td>581 Molt Prene Rubber-Grey</td>
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<td>254 Neoprene w/Cloth 65</td>
<td>480 REP-5 Conductive</td>
<td>582 Urethane Foam-White</td>
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<td>255 UL Neoprene 60</td>
<td>481 REP-2 Conductive</td>
<td>583 Urethane Foam-Grey</td>
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<td>256 Neoprene-Round Cord</td>
<td>482 CEP-5 Conductive</td>
<td>585 PE Foam</td>
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<td>257 Neoprene 80</td>
<td>483 CEP-2 Conductive</td>
<td>586 Polyethylene Foam</td>
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<td>258 Neoprene 55</td>
<td>484 NEP-5 Conductive</td>
<td><strong>Sponge Rubber Foam</strong></td>
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<td>259 Neoprene 90</td>
<td>485 EC-8 Conductive</td>
<td>500 Neoprene Sponge</td>
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<tr>
<td>280 IIR 65-Black</td>
<td>486 ECC-8 Conductive</td>
<td>502 Neoprene Sponge-White</td>
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<td>281 IIR 60-White</td>
<td>494 Fluoro Tube</td>
<td>530 EPDM Sponge</td>
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<td>282 Less Friction Natural Rubber 65</td>
<td>662 Vibration Isolate Rubber GP-35L</td>
<td>531 Silicone Sponge</td>
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<td>663 Vibration Isolate Rubber</td>
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<td>284 EPDM 60-White</td>
<td>666 Vibration Isolate Rubber GP-60L</td>
<td>533 Fluoro Sponge</td>
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<td>285 EPDM 60-Grey</td>
<td>667 Vibration Isolate Rubber AP 50</td>
<td>580 Molt Prene Rubber-White</td>
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<tr>
<td>286 Hypalon 70</td>
<td>668 Vibration Isolate Rubber AP 30</td>
<td>581 Molt Prene Rubber-Grey</td>
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