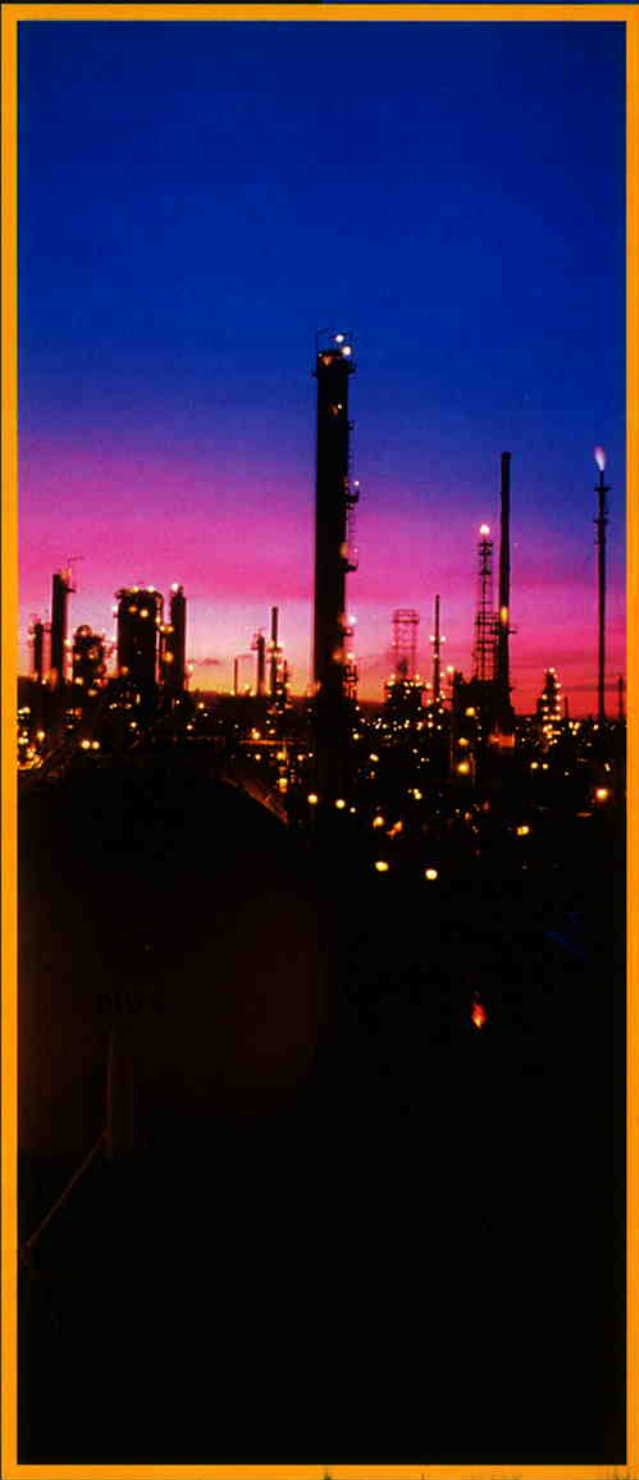


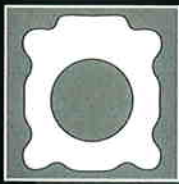
Near-Net Extrusions for

Valve Manufacturers



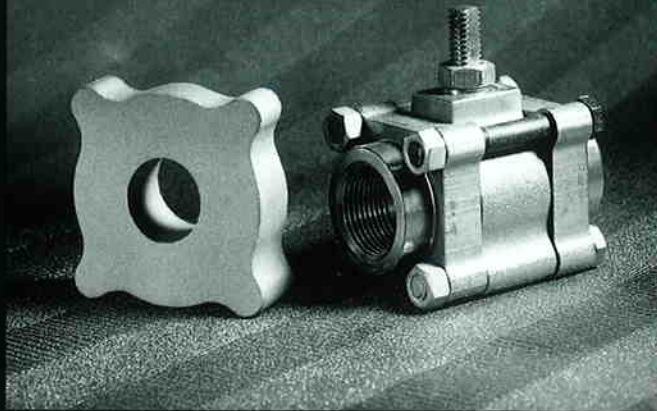
PLYMOUTH EXTRUDED SHAPES





Material Waste Comparison:

- Excess waste with machined stock
- Plymouth near-net extrusion

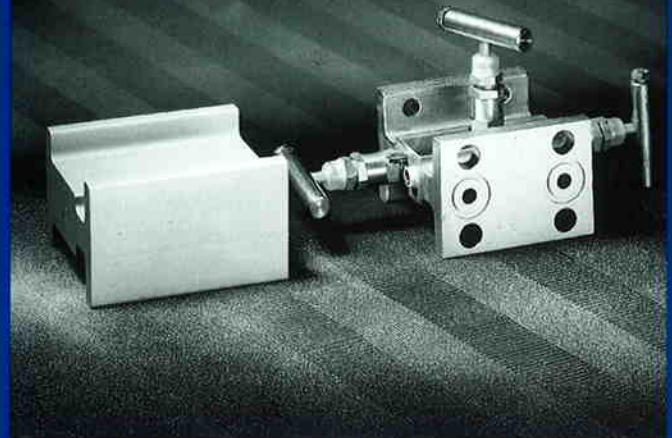


For the ball valve shown here, the center body is extruded in 316SS, the flanges in 316L SS. Standard specifications for both are ASTM A276, A479 or DIN.



Material Waste Comparison:

- Excess waste with machined stock
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This one-piece, three-valve manifold body provided by Plymouth requires no welding. It is extruded from 316SS, providing superior corrosion resistance and the ability to withstand heavy-duty service.

THE VALVE INDUSTRY is one of the many industrial segments to draw significant benefits from the near-net extrusion process. Extrusion permits production of a wide variety of shapes and sizes, both solid and hollow. Above are two examples of how Plymouth, the nation's largest producer of custom and standard near-net shapes, can lower your costs dramatically by reducing material waste and machine time in the manufacture of valve bodies and fittings used in refineries, petrochemical plants and other hostile processing applications.

In near-net extrusion, the final form is achieved in one operation, starting from a completely conditioned billet. This means better surface quality as extruded, and also easier (and less costly) finishing when a machine-finished surface is required. The quality of Plymouth's materials and processes is evident in the dimensional integrity, part-to-part consistency and superior surface quality of our extrusions.

Technical Information/Design Limitations

Depending on the grade of steel specified, your extruded shape can have a maximum cross-section of ten square inches and a minimum of .40 square inches. For stainless steel, the shape must fit within a 5.5-inch diameter circle; for carbon steel and titanium, it must fit within a 6-inch diameter circle. The length of the extrusion depends upon the size of the cross-section of the shape.

Extrusion of relatively small quantities is both feasible and economical. Minimum quantities depend on the material involved. For example, the minimum run is 2,000 pounds for most carbon steel special shapes, 1,000 pounds for most stainless steel special shapes, and 250 pounds for titanium.

Custom Designs

To create special or custom shapes, our design charge is low — seldom exceeding \$400. Plymouth will work with you early in the design phase to optimize the extrusion process and ensure the highest quality end product. Below are four typical shapes currently produced by Plymouth for the valve industry.



Materials

Plymouth manufactures custom and standard extruded shapes in austenitic, ferritic and martensitic stainless steels, nickel alloys, carbon steels, alloy steels and titanium. Chemical and physical properties of extrusions are in accordance with appropriate ASTM, ASME, AMS, QQS and MIL specifications. Typical standard specifications for industrial valves are ASTM A276, A479 and DIN. Plymouth also manufactures to exact customer specifications.

Typical Valve Applications

- Ball valves: 2-way, 3-way
- Switching valves: 3-way, 5-way, 7-way
- Crossover valves: 4-way, 6-way
- Manifold valves: 2-way, 3-way, 5-way
- Plug valves
- Needle valves
- Relief valves: High and low pressure

Call today for more information. If you have a new or custom design, or would like an alternative to forgings, castings and bars to manufacture valve bodies and fittings, give us a call. We'll show you how Plymouth near-net extrusions can save you time and money while ensuring superior product quality.

PLYMOUTH EXTRUDED SHAPES



P.O. Box 768, Warrenville, IL 60555 U.S.A.
1-800-323-9506 • Fax: 1-630-393-3552
<http://www.plymouth.com>

