



What Hitchiner Can Do For You!

Do you buy metal parts within a size range from less than 0.5 in. (12.5mm) per side to as large as 24 in. (610mm)? Do the designs have wall thicknesses ranging from 0.015 in. (0.38mm) to 2.0 in. (51mm)? Are the parts made of aluminum, low-alloy steel, high-alloy steel, stainless steel, nickel-base alloy, brass, bronze, titanium or cobalt-base alloy? Are the production rates in the range of 10 to 100,000 per day?

If the answers to some of these questions are “Yes,” then it is worth your while to read on. Look at a few of the examples on the attached pages. See how Hitchiner services hundreds of other customers with similar part requirements. Tell us your challenges—let us participate in the solutions.

Since its founding in 1946, Hitchiner has become the world’s leading producer of low-cost, high-quality precision (investment) castings for commercial applications. Investment castings are dimensionally precise, have the smoothest surface finishes of any castings for most alloys and are available in more alloys than from any other process for shaping metals.

Over 3000 Hitchiner employees in seven locations around the world are organized to provide rapid prototype service for a few parts or quick delivery of a few dozen parts as well as thousands per day. To provide “one-stop” shopping for our customers, the parts can be delivered as castings, as finished machined parts or as multi-part assemblies.

More than 90 engineers and metallurgists with experience in all forms of metal parts manufacture

are available to assist you with design, support development and production planning. They know if a part should be a casting or should be made using another process and will make the best recommendation for you, the customer. You can take advantage of this experience by contacting Hitchiner. Our engineers will review the part function, ambient conditions, stress levels, needed life, needed stiffness, type of loading (continuous

or cyclic) and special considerations such as magnetic, thermal expansion or electrical needs to assist with alloy selection. They can then assist you with consideration of manufacturing approaches and test designs in those approaches to see which process best fits the alloy and cost objectives of the part or assembly.

The goal is to produce the lowest-cost part which will provide the desired performance, regardless of the manufacturing process selected. Achieving this may include simplifying the design, reducing the number of parts needed in an assembly or incorporating new features to

enhance performance while keeping machining and assembly costs low. If investment castings result are indicated, Hitchiner can assist you with their design to assure the lowest cost results. If the requirement is an assembly which requires an investment casting, Hitchiner may submit a proposal for doing the complete assembly. In any event, Hitchiner will assist you in finding the best source to refine the design and obtain pricing.

Hitchiner knows its customer’s best interest is its best interest and will always make the best recommendation for the customer, regardless of



the manufacturing process needed for the part. If you decide to work with Hitchiner, you can count on us for rapid prototyping, finite element analysis design support, handling of CAD/CAM software of any kind, short lead time for tooling, installation of whatever facilities are required to support production and production in facilities which are qualified to the most stringent international and major company quality standards. If your needs are not met well by any current processes, Hitchiner can use Metal Casting Technology, Inc. (MCT, a joint venture development company of Hitchiner and General Motors Corpo-

ration) to develop an entirely new approach. MCT personnel have received more than 150 patents.

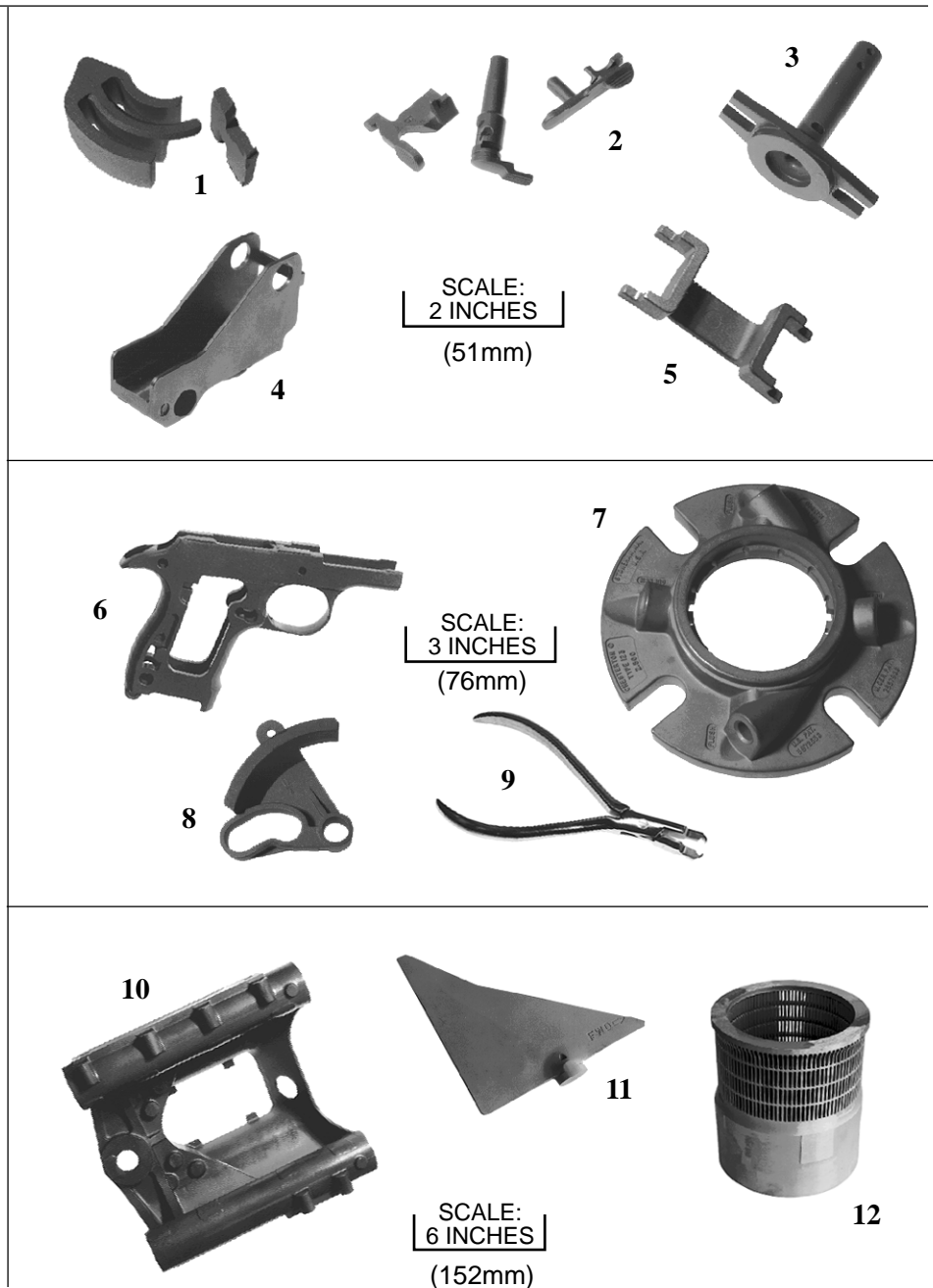
Show our representatives what you do and they will arrange for our engineers to study your part or assembly requirement to reduce your cost and make your product better.

Contact us and let us be of service!

Ferrous Division Examples

(Air-melt ferrous alloys)

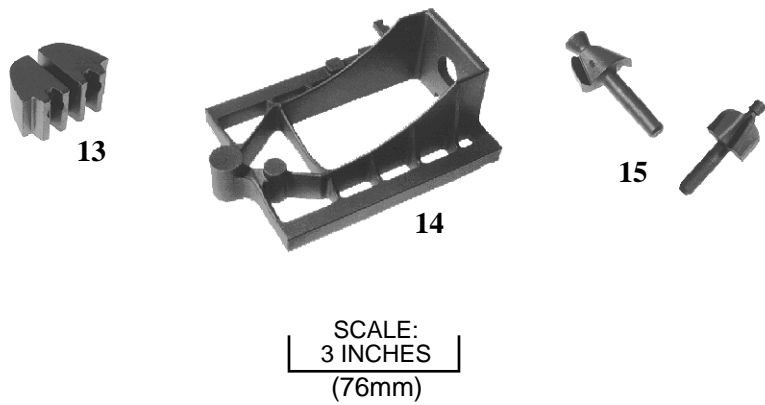
1. Computer hard drive component, alloy: 1.2% Si Fe, size: 2" x 1 1/4" x 3/4"
2. Firearm components, alloy: 410 S.S., size: 1 3/4" x 1/4" dia.
3. Temperature probe, alloy: alloy X, size: 2 1/2" x 2 3/8" x 1 1/4"
4. Transmission bracket, alloy: 8650 L.A.S., size: 2 7/8" x 7/8" x 1 1/2"
5. Brake clip, alloy: Cobalt 21, size: 2 1/2" x 1 1/8" x 3/4"
6. Gun Frame, alloy: 8620 L.A.S., size: 5 1/4" x 3 1/2" x 3/4"
7. Valve cover, alloy: 316 S.S., size: 6 1/2" dia. x 1 1/2"
8. Steering cam, alloy: 8620 L.A.S., size: 3 1/2" x 2 3/4" x 1"
9. Surgical pliers, alloy: 420 S.S., size: 5" x 2 1/2" x 1/4"
10. Weapon component, alloy: 15-5 PH S.S., size: 12" x 11 1/2" x 5 1/2"
11. Sidewinder missile fin, alloy: 17-4 PH S.S., size: 8" x 8 1/2" x 1/4" (.040" leading edge radius)
12. Cage, alloy: Cb7 Cu1, S.S. size: 8 3/4" diameter x 9 3/4"



Ferrous Division

Examples

13. Jaw, alloy: T5, size: 1½" x 1⅛" x 1"
14. Axis slide, alloy: T5, size: 5¼" x 3½" x 1⅞"
15. Router bits, alloy: T5, size: 2" x 1" diameter

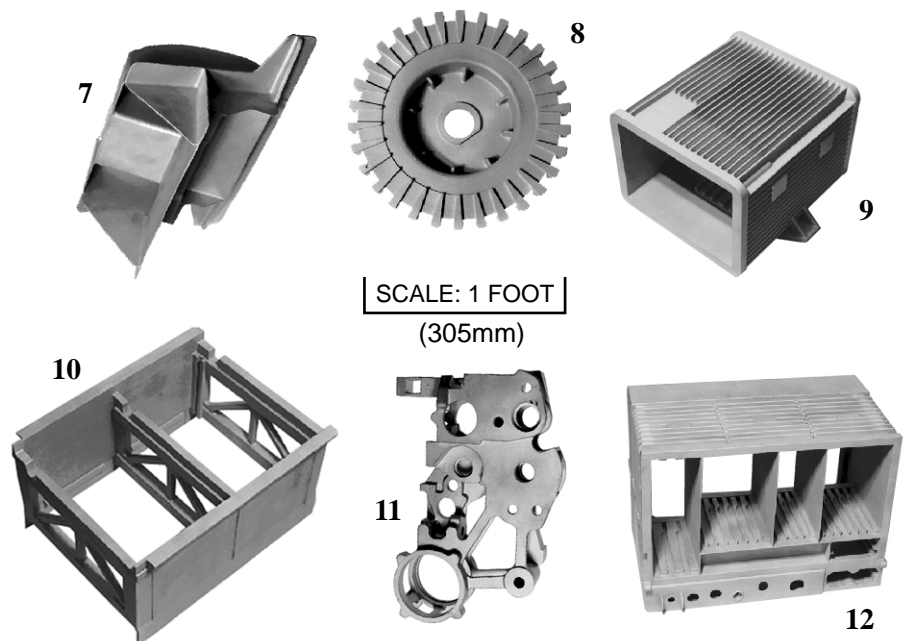
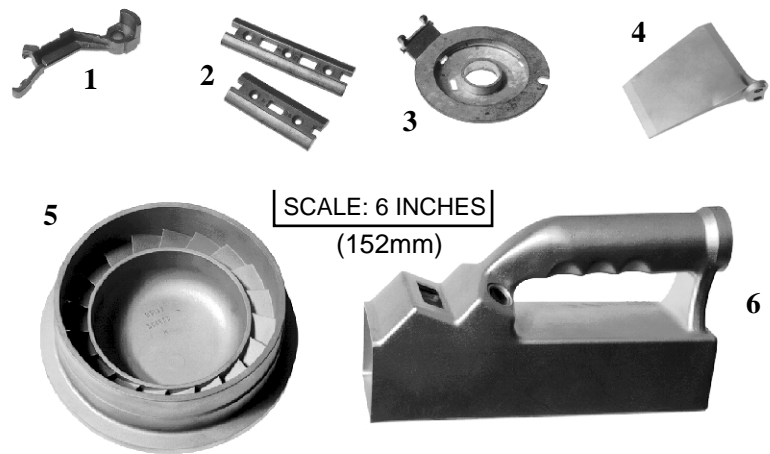


Nonferrous Division

Examples

(Aluminum and copper alloys)

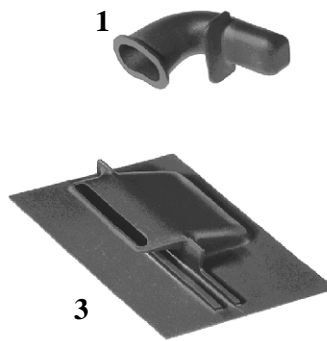
1. 3½" Disc Drive Arm, alloy: alum. bronze, size ¾" x 3"
2. Honing Mandrel Shoe, alloy: Silicon Bronze, size: 1" x 3¼"
3. Retainer, alloy: BeCu 20C, size: 2½" dia.
4. Hellfire Missile Fin, alloy: 356 alum., size: 3" x 3¼"
5. DC-10, ATS-10D-35 Stator (.028" blade-end thickness), alloy: 356 alum., size: 7" dia.
6. Chemical Agent Monitor Case, alloy: 356 alum., size: 5¾" x 9½" x 3¼"
7. CF6-80 Actuator, alloy: 356 Alum., size: 10" x 12½" x 17"
8. Blood Analyzer Carousel, alloy: 356 alum., size: 12" dia.
9. Howitzer Computer Housing, alloy: 356 alum., size: 13¼" x 12" x 8¼"
10. Launch System Chassis, alloy: 356 alum., size: 14½" x 18" x 10"
11. Gear Housing, alloy: 356 alum., size: 8" x 12" x 3"
12. Receiver Chassis (weight: 17 lbs.), alloy: 356 alum., size: 12¼" x 16¾" x 9¾"



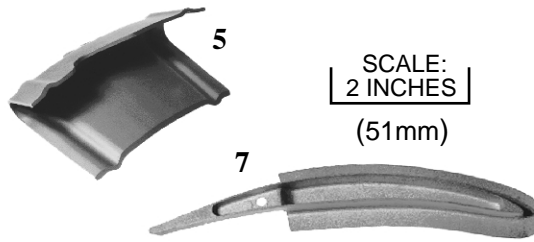
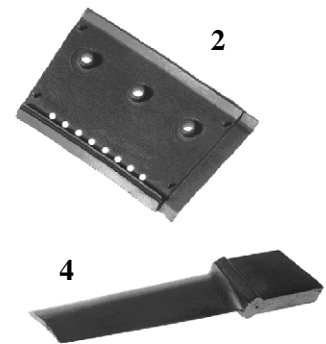
Gas Turbine Division Examples

(Vacuum-cast superalloys)

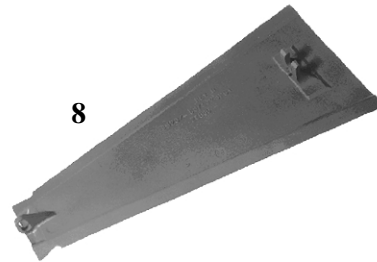
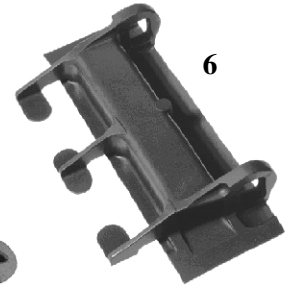
1. Nozzle, alloy: Inco 625, size: $\frac{3}{4}$ " x $1\frac{1}{2}$ " (.035" wall thickness)
2. Combustor Panel, alloy: Haynes 230, size: $1\frac{1}{2}$ " x $2\frac{1}{4}$ " (.015" wall thickness)
3. Nozzle, alloy: Inco 625, size: $1\frac{1}{2}$ " x $2\frac{3}{4}$ " (.040" wall thickness)
4. Compressor Blade, alloy: Inco 718, size: $\frac{3}{4}$ " x $2\frac{1}{4}$ " (.012" trailing edge thickness)
5. V-Ring Segment, alloy: Rene 108, size: $2\frac{1}{2}$ " x $3\frac{1}{2}$ "
6. Hinge, alloy: Rene 41, size: $2\frac{1}{2}$ " x 5"
7. Vane Stub, alloy: Inco 625, size: 1" x 5" (.022" wall thickness)
8. Primary seal, alloy: Rene 41, size: $4\frac{1}{4}$ " x 9" (.045" wall thickness)
9. Torque Bar, alloy: IN 100, size: $1\frac{1}{4}$ " x 12"
10. Ring Segment, alloy: IN 100, size: $2\frac{1}{4}$ " x $10\frac{3}{4}$ "
11. Diffuser Segment, alloy: Inco 939, size: 5" x 9"



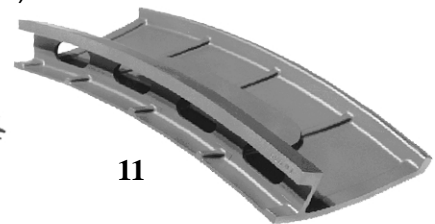
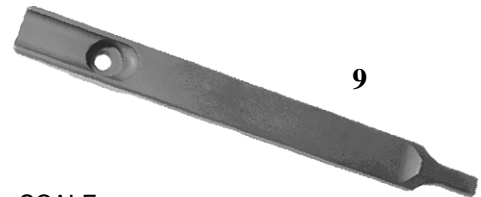
SCALE:
1 INCH
(25mm)



SCALE:
2 INCHES
(51mm)



SCALE:
3 INCHES
(76mm)



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