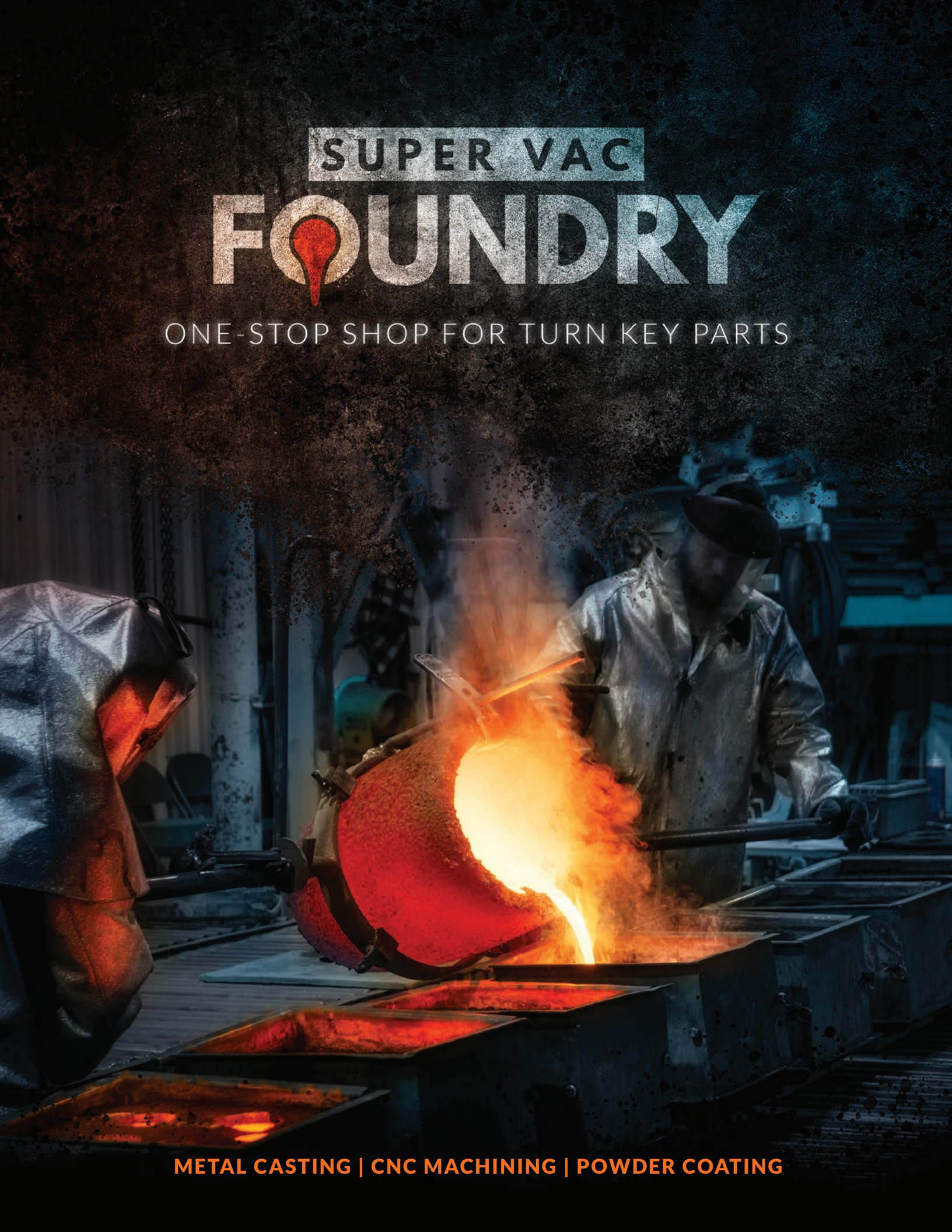
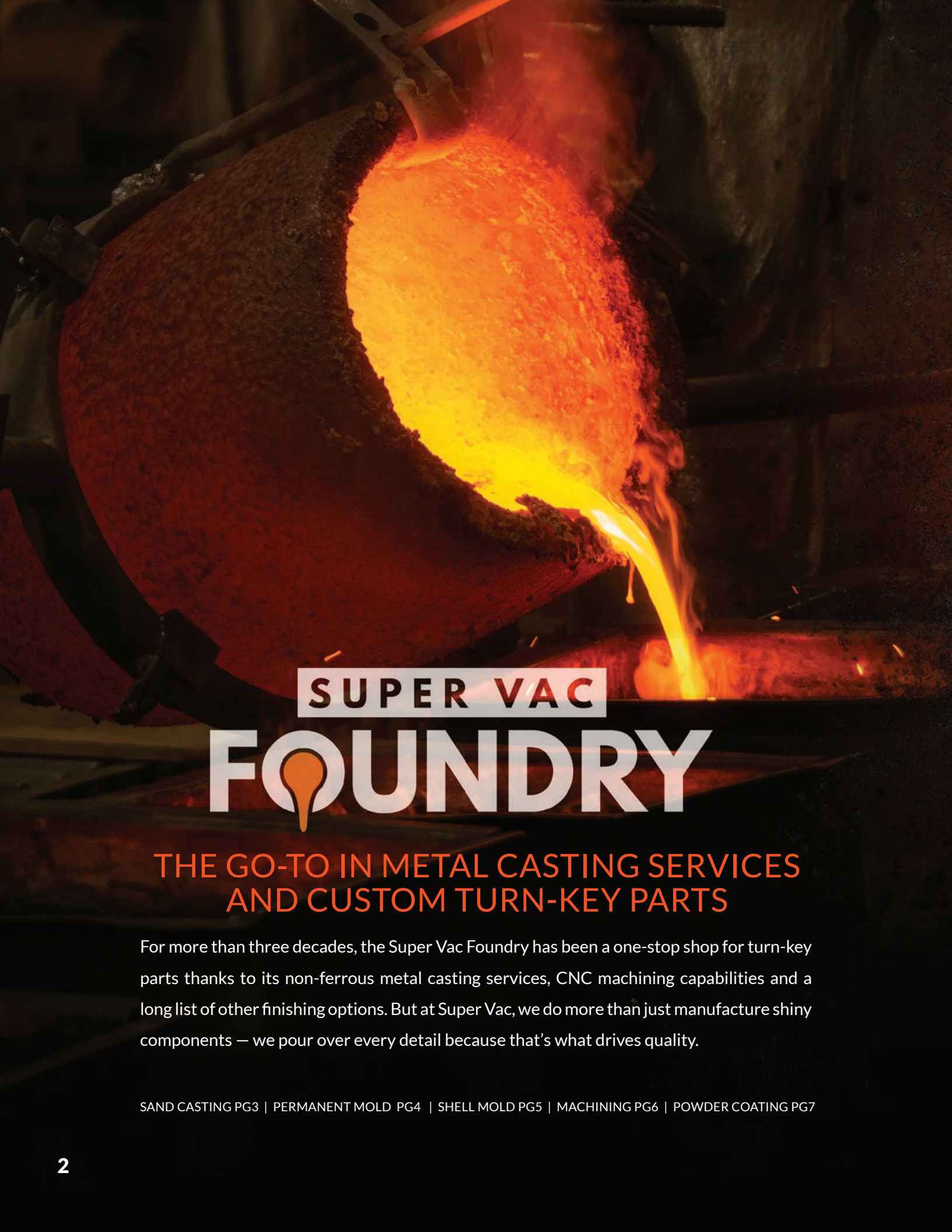

SUPER VAC
FOUNDRY
ONE-STOP SHOP FOR TURN KEY PARTS
METAL CASTING | CNC MACHINING | POWDER COATING



THE GO-TO IN METAL CASTING SERVICES AND CUSTOM TURN-KEY PARTS

For more than three decades, the Super Vac Foundry has been a one-stop shop for turn-key parts thanks to its non-ferrous metal casting services, CNC machining capabilities and a long list of other finishing options. But at Super Vac, we do more than just manufacture shiny components — we pour over every detail because that's what drives quality.

SAND CASTING

Super Vac offers green sand casting services, a process that uses green sand — a combination of olivine sand and bentonite clay — to create molds for metal castings. This process is ideal for both low- and high-volume specialty parts, and while extremely custom, more than 80% of all metal castings are produced this way.

CASTING METALS

319 Aluminum (319SR)
356 Aluminum (356.2)
535 Aluminum (535.2)
713 Aluminum (713.1)
771 Aluminum (771.2)

Red Brass Alloy (115)
Manganese Bronze (421)
Silicon Bronze (500)

SAMPLE PARTS

WATCH Visit bit.ly/sand-casting to watch the full process.

THE PROCESS

STEP 1 CREATING THE MOLD
A pattern is created and placed into the molding box, or "casting flask." For parts with hollow components, a CO_2 core is made and also placed into the flask. Sand is then packed around the pattern.

STEP 2 POURING THE METAL
Aluminum or brass is melted and then poured into the mold using a ladle. Once cool, the mold is broken to reveal the metal casting, while the sand is recycled through the process again.

STEP 3 FINISHING THE PART (See Pages 6-7)
The part is sent to finishing, which may involve grinding, sanding, polishing or machining to achieve the desired dimensional accuracies, physical shape and surface finish.

FACILITY FACT | Super Vac's largest furnace can hold up to 600 lbs. of metal while reaching 1,200-2,200° F.

PERMANENT MOLD

The Super Vac Foundry's permanent mold casting process uses reusable, "permanent" molds, usually made from gray cast iron. This process delivers higher production rates, finer grain structure and more dimensional accuracy than other casting methods but is best suited for large production runs due to higher tooling costs.

WATCH

Visit bit.ly/permanent-mold to watch the full process.

THE PROCESS

STEP 1 INSERTING THE MOLDS

A tilt machine is set in a horizontal position and preheated for mold preparation. During this step, the permanent mold halves and any applicable cores are inserted and enclosed in the casting machine.

STEP 2 POURING THE METAL

Molten alloy is heated in a furnace and poured into the machine's pour cup. The machine is then titled vertically, causing the metal to flow into a gating system to control the flow for consistent results.

STEP 3 REMOVING THE CASTING

Once the casting solidifies, the mold is opened and the casting is removed. Any excess metal is cut from the part using a band saw and returned to the melting furnace to be used in the next casting.

CASTING METALS

319 Aluminum (319SR)
356 Aluminum (356.2)

SAMPLE PARTS

SHELL MOLDING

For high production rates and superior dimensional accuracy, customers look to Super Vac's shell molding services. This process delivers an expendable mold used to cast aluminum parts. The mold is made from a thin "shell" of resin sand that is broken apart to reveal the cast part.

CASTING METALS

319 Aluminum (319SR)
356 Aluminum (356.2)
535 Aluminum (535.2)
713 Aluminum (713.1)

CAPABILITIES

Super Vac offers the largest shell core machine in Colorado, which can accommodate core boxes that weigh up to 2,500 lbs.

SAMPLE PART

WATCH Visit bit.ly/shell-molding to watch the full process.

THE PROCESS

STEP 1 CREATING THE MOLD

A two-piece metal pattern is inserted into the shell core machine, followed by resin-coated sand. Once the pattern has been heated, the press closes the two halves together and inverts the cradling, allowing for the sand to coat the pattern and cure, which in turn forms the shell mold. This mold is ejected from the pattern and then used for shell casting.

STEP 2 CASTING THE COMPONENT

Once the two shell halves have been created, they are clamped together and placed into a pouring flask to form the complete shell mold. Shell or CO_2 cores can be inserted to create hollow parts. Molten metal is then poured into the shell mold cavity and left to cool, solidifying into the final casting. After the metal has cooled, the casting is removed by breaking the shell mold.

CNC MACHINING

As a one-stop shop for turn-key parts, Super Vac offers CNC machining services. With five CNC machining centers, customers can rely on precision, repeatability and more than 35 years of expertise. And while many components are cast in the foundry, we can machine other materials, like plastics, steel and stainless steel.

WATCH

Visit cnc-machining-services to watch these machines in action.

OUR CAPABILITIES

VERTICAL MACHINING

Our three vertical machining centers feature a turret mill design that allows the center's table to move on an X and Y axis, around the stationary spindle to mill most any material to your specifications.

CNC LATHE

Featuring a 30HP, 3,400 RPM spindle and a 12-piece tool turret, Super Vac's CNC lathe machine can turn, drill and thread parts to customer specifications.

CNC LASER

The TRUMPF TruLaser 2030 cuts aluminum and steel sheets with precision and efficiency. An accompanying LiftMaster Shuttle system allows 4,000 lbs. of sheet metal to be processed in one run!

SAMPLE PARTS

POWDER COATING

Whether your part was cast in our foundry, milled in our machining center or brought to our facility as an already-manufactured component, Super Vac can assist with all of your thermosetting powdering coating needs, including polyester, acrylic and epoxy powder coating, perfect for automotive and industrial components.

RESIN OPTIONS

POLYESTER
Ideal for exterior exposure and great for parts that need to be cured at lower temperatures

EPOXY
Suitable for chemical-resistant parts but usually best suited for indoor applications

ACRYLIC
Typically used in the automotive industry, creating a smooth clear-coat, chip-resistant finish

COLOR OPTIONS

Super Vac's powder coating bay features two booths — one dedicated to Hammer Tone Red (a customer-favorite color) and another offering an array of powder coat color options

WATCH Visit bit.ly/powder-coating-services to watch the full process.

THE PROCESS

STEP 1 PREPPING THE COMPONENTS
To remove any oils and solvent, the part is put through a two-part bath — a CrysCoat 747 wash that prepares the metal for powder coating, followed by a water bath to thoroughly rinse the part.

STEP 2 POWDER COATING PROCESS BEGINS
Super Vac's facility features two booths, where a technician uses a spray gun to coat the part; an electrostatic charge passes through the gun, attracting the powder to the grounded part for uniformity.

STEP 3 THE COMPONENT IS CURED
Once powder coated, the part is then cured at 350°F for 15 minutes or longer, depending on metal and coating thickness. This step turns dry powder into a seamless film with heat.

SUPER VAC FOUNDRY

At Super Vacuum Manufacturing, we don't just cast metal. Our facility also manufactures light towers, ventilation fans, fire trucks and much more, so we turn to our own metal foundry to cast many of our parts because it's a quality we can trust. But more than that, it's a quality our outside customers have come to depend on during the last 35 years, in large part because every component that leaves our factory is made to be flawlessly turn key.

AUTOMOTIVE

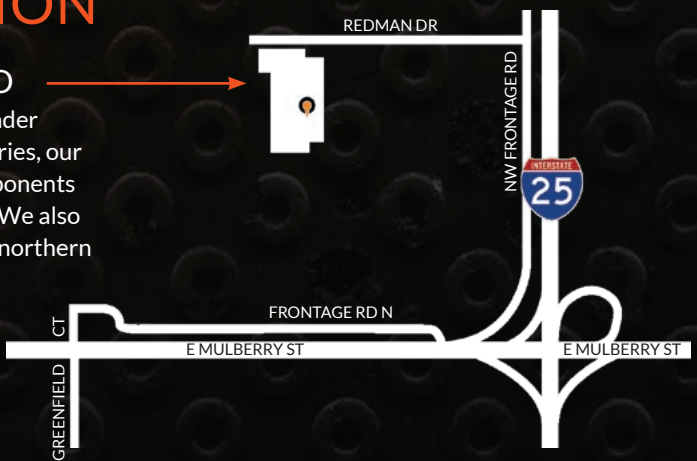
FIRE & EMERGENCY

HEAVY DUTY

CENTRAL LOCATION

3842 Redman Dr., Fort Collins, CO

As a Denver metal casting resource and a leader among the nation's non-ferrous metal foundries, our central location allows us to easily ship components to customers throughout the United States. We also are the region's go-to foundry thanks to our northern Colorado location, tucked off I-25.



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