

# INVICTA METAL CASTING CATALOUGE

2020-2021



[WWW.INVICTAINDIA.COM](http://WWW.INVICTAINDIA.COM)

## ABOUT US

History has INVICTA INDIA Inc. to be detail orientated and quality conscious. As a family-owned business, our focus is on our customer, and on our customer's need for reliable parts delivered on-time to exacting specifications. Our responsiveness, service, quality, and reliability have enabled us to achieve our place as an industry leader. INVICTA INDIA is more than just an investment casting company. We focus on building strong, long-lasting relationships with our customers and providing them with the best service possible.

By keeping our investment casting services in-house, we provide you with high quality and cost-effective precision casting solutions. We understand the importance of receiving your parts as quickly as possible, whether you need a short production run of 10 parts or 1,000+ investments cast components, we can help.

With decades of expertise, we specialize in taking on complex casting projects and are equipped to handle any design challenges you present. You can count on us to find an investment casting solution that will deliver the results you need on time, and on budget.

We consistently produce precision investment castings that meet or exceed our customer requirements by employing detailed process controls. These controls, coupled with production automation and continual training programs, have formed the foundations for our long-term success.

# APPLICATION



**MEDICAL**



**FOOD &  
DAIRY**



**COMMERCIAL  
FIREARMS &  
MILITARY**



**MEAT  
PROCESSING**



**WASTE  
MANAGEMENT**



**LOGGING**



**UTILITIES**



**PETROCHEMI  
CAL**



**POWER  
TRANSMISSION**



**AUTOMOTIVE  
AFTER  
MARKET**



**CONSTRUCTION**



**MACHINE  
TOOL**



**MINING**



**OIL & GAS**



**AGRICULTURE**



**PUMPS &  
VALVES**

## QUALITY

Good foundry practice is based on manufacturing process and quality controls to provide consistent, high quality investment castings. As an 9001 compliant investment casting company, we are quality conscious and place a top priority on supplying our customers with parts



that meet or exceeded all contractual requirements, on-time, every time.

- A manufacturing philosophy based on meeting the customer's requirements, not avoiding them.
- Application of the leading technology within the industry.
- Stringent process controls to ensure repeatability.
- Cast material that is free from defects.
- Castings that meet all dimensional requirements.
- A uniform response to heat-treatment with tensile properties that consistently exceed the specified minimums.
- Burr-free castings that can be set into machining fixtures “as received”.
- Lower machining costs with higher quality parts.



# *TYPE OF CASTING*

- **INVESTMENT CASTING**
- **STAINLESS STEEL CASTING**
- **ALUMINUM CASTING**
- **CARBON STEEL CASTING**
- **BRASS CASTING**
- **BRONZE CASTING**
- **COBALT CASTING**
- **TOOL STEEL CASTING**
- **METAL CASTING**
- **RAPID PROTOTYPE CASTING**

# CASTING CAPABILITIES

## **INVESTMENT CASTING OF PRECISION PARTS:**

Invicta India has over 20 years of experience in investment casting of complex parts, and has cast over 9,000 different product configurations. Our services are performed in-house to save you time and money, and we can accommodate production runs ranging from as few as 10 cast components to 1,000 or more. We offer over 75 casting materials including ferrous and non-ferrous air-melt alloys and provide various grades of metal that meet MIL, AMS, ASTM and other specifications.



## **SIZE & DIMENSIONAL TOLERANCES FOR INVESTMENT CASTING:**

Investment casting can hold tight tolerances allowing for production to net shape and is an effective solution for parts with thin walls or complex designs. Our foundry offers investment casting services for parts up to 16" x 16" and with weights up to 150 lbs. Tolerances vary depending on the size and shape of your part but can range from +/- .01" for the first two inches and +/- .005" for each additional inch. Consult our size and dimensional tolerance considerations for more information regarding your investment casting project.

## **RAPID PROTOTYPE CASTINGS:**

Rapid prototype casting can be a lower cost, low lead time option for projects requiring a prototype or small size production runs for testing. Invicta India has produced hundreds of rapid prototype castings and has the expertise to handle designs of various sizes and complexities.

## **INVESTMENT CASTING INJECTION TOOLING & FIXTURE FABRICATION:**

Investment casting services from Invicta India include injection tooling and fixture fabrication to ensure your investment cast parts meet your exact design specifications. We offer in-house tooling services and can accommodate most transfer tooling depending on your part's size and design.

# CASTING MATERIAL

## INVESTMENT CASTING MATERIALS

The investment casting process is capable of producing parts to tight specifications using a wide range of ferrous and non-ferrous alloys that are melted and poured into a ceramic mold. Material choice is typically performance-driven based on the application design requirements, though the most common investment casting alloys include stainless steel and aluminum.



INVICTA INDIA has experience pouring over 75 types of ferrous and non-ferrous metals and can assist you with choosing a casting alloy appropriate for your design needs. We can pour nearly all air melt alloys and our master heat system is strictly controlled to deliver consistent quality and high performance.

## WHAT ARE THE DIFFERENCES BETWEEN FERROUS AND NON-FERROUS CASTING MATERIALS?

The choice between ferrous and non-ferrous casting alloys depends on the application type. Ferrous metals contain iron and are therefore more susceptible to corrosion, making them less suitable for applications where parts will be exposed to moisture and other environmental elements. Their magnetic properties, however, make them desirable for many electrical applications and their tensile strength makes them suitable for heavy duty applications. Ferrous metals include iron and iron alloys such as steel. Stainless steel is another ferrous alloy that is highly durable and magnetic, but it also has corrosion-resistant properties due to its chromium content.

Non-ferrous casting alloys are more malleable than ferrous alloys and provide high resistance to corrosion. They are also more lightweight than their ferrous counterparts and can have magnetic properties. Common non-ferrous alloys include aluminum, copper and copper alloys, and nickel.

## **MATERIAL OPTIONS ARE CHOSEN BASED ON YOUR PRECISION CASTING REQUIREMENTS**

Investment casting is performed using a wide range on ferrous and non-ferrous alloys, each delivering different advantages such as cost, strength, and temperature or corrosion resistance. We work with over 75 different air melted casting alloys to provide you with the perfect solution for your precision investment casting requirements.

### **STAINLESS STEEL CASTING MATERIALS**

Stainless steel casting is used for aerospace and defense and other industries that require non-corrosive parts that deliver the tensile strength required for demanding applications. Stainless steel is also used in investment casting for the food industry and medical, mining and plumbing applications. Our stainless steel casting materials include 17-4 PH, 15-5 PH, and 300 series and 400 series stainless steel.

### **CARBON STEEL CASTING MATERIALS**

Investment casting using carbon steel produces precision parts that are abrasion-resistant. Carbon steel is cost-effective and easy to machine. It can also be heat treated to improve its strength and ductility and is available in a wide range of alloys. Carbon steel casting materials are used for a range of industries including mining, military, and industrial applications.

### **TOOL STEELS CASTING**

Tool steel casting material is a carbon alloy steel that resists abrasion and retains its shape at high temperatures. It is often heat treated to increase its hardness and is commonly used to make tools and devices designed to cut, press or shape other materials.

### **NICKEL-BASE ALLOYS**

Nickel-based alloys are used for precision casted parts that will be used for demanding applications in the oil and gas, medical, nuclear power, and aerospace and defense industries. This material is highly versatile, provides corrosion resistance and can withstand high temperatures. Nickel alloy casting materials include stainless steels, nickel chromium alloys, nickel copper alloys, and more.

## **COBALT-BASE ALLOYS**

Cobalt-based alloys are investment casting materials that are alloyed with nickel, chrome and tungsten. They provide excellent heat corrosion resistance and thermal fatigue resistance, making them ideal for high temperature applications. Cobalt-based alloy casting materials are commonly used by the aerospace and defense industry in jet engines, and for nuclear and power applications.

## **ALUMINUM-ALLOYS**

Aluminum-alloy casting materials are used in many aerospace applications because they are lightweight and corrosion resistant. These alloys commonly include elements such as copper, magnesium, manganese, silicon, tin or zinc, each of which offers different casting characteristics. We use 300 series aluminum for many of our investment casting applications. Benefits of 300 series aluminum are that it has high tensile strength and ductility and works well for pressure applications.

## **HIGH QUALITY PRECISION CASTING MATERIALS FOR RELIABLE PERFORMANCE**

INVICTA INDIA uses strictly controlled investment casting processes to deliver high-quality products that are built to perform. We work with ferrous and non-ferrous casting alloys and can handle small and large production runs.

# IMAGE GALLERY



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