

# 2500 Kg affordable

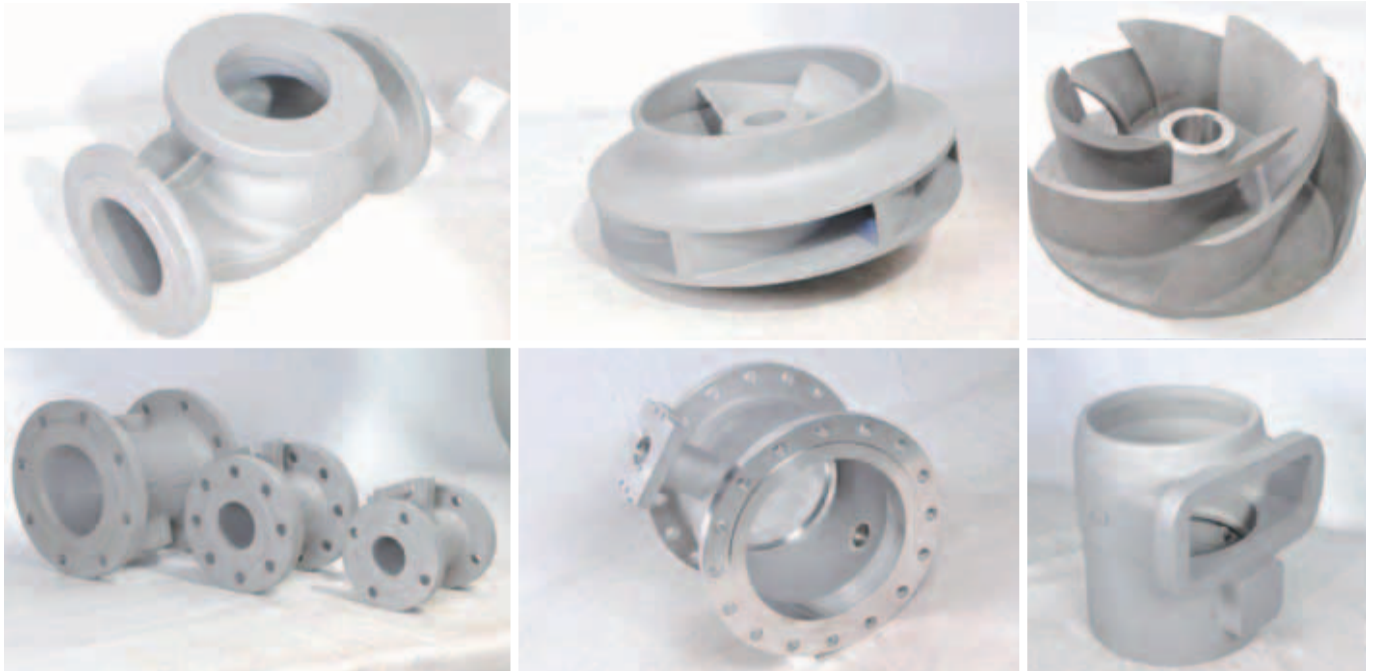
# Investment Casting



PTC Industries has now broken the weight barrier in Ceramic Shell castings. It utilizes an innovative and unique technology, which enables it to produce parts weighing up to 2500 kg, which offer all the benefits of Investment Castings and Vacuum Pouring, moreover reducing the Total Cost up to 50%.

PTC Industries commenced operations over 40 years ago and has been exporting castings to US and Europe for over 25 years. PTC has 3 foundries and 2 CNC machine shops in India, manufacturing castings using Replicast®, RapidCast®, Investment Casting (Lost Wax) and Centrifugal Casting processes in either as cast or finish machined condition. PTC has a wide range of materials that it can offer, including Alloy Steel, Stainless Steel, Duplex and Super Duplex Stainless Steel, Creep Resistant Steel, Heat Resistant Steel, Nickel Based Alloys, Cobalt Based Alloys, Austenitic Ductile Iron, Nickel Aluminium Bronze etc.

below 100 Kg. Thus, all larger and heavier castings continue to be produced predominantly by Sand Moulding process. Every casting buyer who has dealt with Sand Moulded castings has always gone through the pain of quality troubles and delays. Most of the quality related issues generated in Sand Moulded castings arise from sand, binders (in sand), gas & moisture in the mould, and sand core. These elements in the sand mould and core create problems like sand inclusions & reactions, gas holes & porosities, "hot tear" & cracks and "core shift" & dimensional variation. Since these elements and their related parameters are extremely difficult to control,



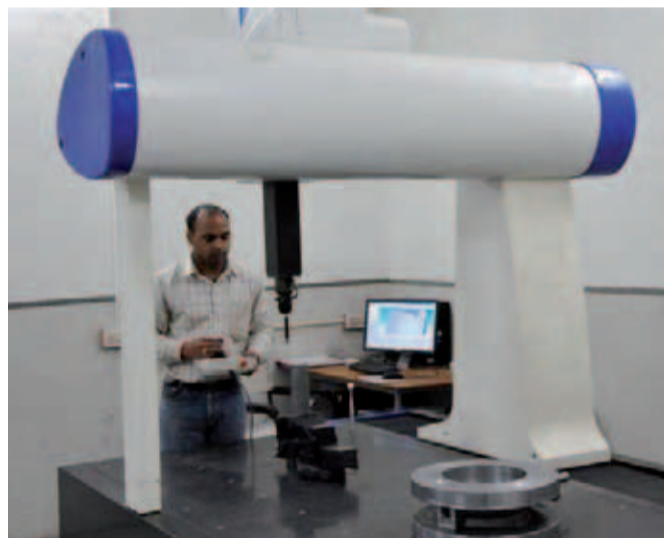
PTC has a vast range of product offerings spanning various metallurgies and weight ranges for wide industrial use.

form of a thin Ceramic Shell, while the liquid metal is poured in that shell under Vacuum. Thus, by using this process, PTC is able to replace sand and binders by a ceramic shell. The presence of moisture in the air is removed by applying vacuum to the shell which eliminates the major sources of defects in the casting.

The Replicast® process requires an Aluminium Die/Tooling in order to produce patterns for parts having repetitive and series production requirements. However, for low and medium volume requirements, PTC offers a unique technology named RapidCast®. RapidCast® uses the same manufacturing process as Replicast®, but instead of making the polystyrene pattern from a Die/Tooling, the pattern is machined from a solid block of polystyrene on a large 7-Axis Machining Centre. RapidCast® uses the concept of "Virtual Tooling" whereby the initial cost and lead time related to Die/Tooling is eliminated. The short development cycle and reduced production lead times makes RapidCast® very attractive for customized solutions, projects, spares, etc.



The recently commissioned Robot assisted Shell Coating System for Replicast®



Latest equipment & technologies ensure stringent quality.

Investment Castings (Lost Wax) have found many applications in recent times by converting conventional sand moulded castings into precision castings, thus reducing total cost and adding substantial value to the product. The advantages of Investment Casting are well known viz. superior quality, reduced weights, lesser machining costs, and far better surface finish and aesthetics. However, Investment Castings are limited by the maximum weight and size they can be used to cast, generally well

Sand Moulded casting quality becomes highly vulnerable to any variation and thus is unreliable and inconsistent.

PTC utilizes a process called Replicast® which was developed by Castings Technology International (U.K). As in the Investment Casting process, a Die/Tooling is required to make patterns; however instead of a heavy and fragile wax pattern used in the Investment Casting process, Replicast® uses light weight and dimensionally stable polystyrene patterns. In Replicast®, the mould takes

The main advantages of castings offered by PTC utilizing this unique process are:

- Weight Reduction up to 40%
- Machining Time Reduction up to 30%
- Exceptional Surface Finish
- No Sand Inclusion or Reaction
- Reduced Gas Holes and Porosity
- "Green Process" – solid waste 1/30th of sand moulding
- Flexible production lots; from 1 piece to several hundreds
- Short 'Time to Market' using RapidCast®

Award from the Government of India in 2006. It carries an ISO 9001:2000 BV certification, PED/97/23 – BV, AD 2000 Merkblatt WO – TuV Nord while the ISO 14000 & 18000 accreditations are under implementation. The company has been approved by the Nuclear Power Corporation of India, while BV and Lloyds have approved the company for Marine Classification. Approval of manufacture of Nuclear Pressure-Retaining Castings in accordance with ASME Section III is currently under process and shall be completed soon.

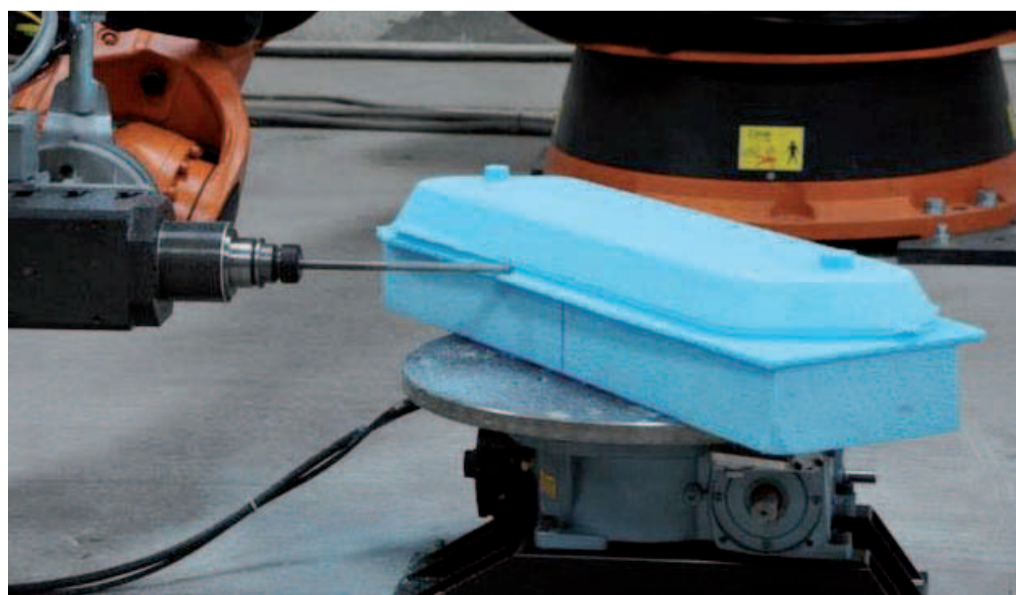
Not one to rest on its laurels, PTC Industries is constantly making investments for the future. PTC has recently commissioned a fully automated, Robot assisted Shell Coating system for Replicast®. This has led to a remarkable consistency in quality, increase in efficiency, shorter lead times and less wastage. Company has further added a new Induction furnace for melting metal up to 5000 Kg. PTC has its own in-house capability for all testing equipments including Radiography up to 200mm thickness. The two

CNC machine shops are equipped with state of the art CNC Turning Centres, Vertical Machining Centres and Horizontal Machining Centres from Japan and Germany. Additionally, a new Replicast® and RapidCast® 'Green' Foundry is being set up, this plant will have the capability to produce individual parts weighing up to 5000 kg.

PTC has always believed that its greatest success lies in being a part of their customer's competitive edge. As their Chairman, Mr. Sateesh Agarwal states, "...for only on our customer's triumph depends our success" hence, the company has constantly strived to advance their ideals of Quality, Value & Speed.

The main industries being serviced by PTC are Power Plants and Turbine Equipments (including blades), Oil & Gas, Valves and Pumps for Petrochemical Industry and Refineries, Paper Industry and Defence Equipment. PTC has supplied many castings for valves to its customers which have been used in very critical applications for large Oil companies like Saudi Aramco etc.

PTC Industries has been awarded the National R&D



The 7 - Axis Machining Centre for RapidCast®

## Contact Information

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