



**THE INVESTMENT
CASTING PROCESS**



“BAPUJI INDUSTRIES”, We provide Precision Investment Casting and machined components across a wide spectrum of market. We have started our Investment Casting facility with young, dynamic and professional technocrats who are having sound knowledge and wide experience of Investment Casting Process.

Our Investment Casting Facility (**Lost Wax/ Feinguss Casting/Micro Fusion**) is located at **Indapur Pune, Maharashtra, India**. Our experienced and flexible staff who can offer precision Castings duly machined ready to fit with competitive price to a variety of industries in the domestic as well as International market.

We strive for the timely supply of quality assured goods according to the customer's specification and requirement.

“BAPUJI INDUSTRIES” is certified according to **ISO 9001: 2015** and we have planning to approve with following certifications.

- PED 2014/68/EU
- AD2000 Merkblatt W0
- IBR CERTIFICATE
- ISO 14001:2015
- IATF 16949:2016

SPRAYTECH GROUP, INDIA



“Spraytech Systems” is a leading organisation & a good name in the market for mfg. of Spray Nozzles, Spray Systems. We’ve been supplying spray nozzles and components for more than 20 years. We deliver nozzles, spray gun, accessories and more.



“Spraytech Automation” is a leading organisation & a good name in the market for mfg. of Control Valves, Strainers Filters. We are the industry leader in industrial valves manufacturer and distributors. We keep adding large collections to our Strainers and Filters manufacturer



“Bapuji Industries”, We provide Precision Investment Casting and machined components across a wide spectrum of market. Our Investment Casting Facility (Lost Wax/ Feinguss Casting/Micro Fusion) is located at Indapur Pune, Maharashtra, India with installed capacity of 50 MT/month with full-fledged modern machineries.



VISION

- To become a leading manufacturer of investment casting in Ferrous and Non-Ferrous Alloys. Competitive prices with highest quality ensures material diversity, complexity of geometry, dimensional accuracy.
- Advanced technology with continues improvement.
- Latest know-how, customer centric culture, experienced & skilled team provide complete solutions.

Mission

- To develop long-term business relations with customers.
- Poised to be Global Investment casting manufacturer.
- To grow steadily and become profitable gradually.

Our Strength

- Team of Dynamic and experience people.
- On time Delivery.
- Superior Investment Castings quality adhering to various standards.
- Flexibility in planning and development of Samples for approval.



Tooling and Pattern Making

A tool is built to customer provided specifications (A). Cold wax is then injected into the tool to create a wax pattern / prototype (B) that will hold precise dimensional requirements in the final casting.



Pattern Assembly

The wax patterns are assembled into the sprue.



Dipping and Coating

successive layers of ceramic (A) and stucco (B) are applied to the sprue assembly to form a hard shell.



Dewaxing and Firing

The molds are flash-fired to remove the wax and sprue materials and then heated to 1050°C and placed on a sand bed, ready for pouring.



Casting

Molten metal, up to 1700°C, is poured into the hollow mold and then cooled.



Knockout

The ceramic shell is broken off, and the individual casting are cut away.



INVESTMENT CASTING FACILITY

Our Investment Casting manufacturing facilities consists of:

- 175 KW Induction Furnace (150 Kgs, and 250 Kgs Crucibles)
- 3 Automatic Injection Presses and 2 Manual wax Injection Presses.
- Temperature controlled wax injection room.
- Temperature and Humidity controlled secondary coating area for proper drying of shells.
- Autoclave for De-waxing.
- Shell preheating furnace with temperature controller.
- Hitachi - FMS Optical Emission Spectrometer for rapid and accurate simultaneous determination for Fe, Ni, Co, Cu base and 32 Elements in metal.
- In-house Fettling and finishing facility with Stainless steel and Carbon steel Shot blasting process.
- In-house Heat Treatment Furnace for Solution Annealing, Annealing and Normalizing.
- In-house Material testing facility.

GENERAL INFORMATION

Foundry Capacity : 50 MT/Month Sellable Investment Castings.

Land : 5 Acres

Built up Area: 1,20,000 SQ Ft.

Casting Manufacturing Range : 5 Grams to 80 Kgs. Single Piece Weight (600 mm x 600 mm x 600 mm)

We can provide following Testing's-

- Tensile Testing
- Impact Testing
- Magnetic Particle Testing
- Radiography Testing
- Dye Penetrate Test
- Hardness Test
- Microstructure
- Pneumatic Air Test.
- PMI Inspection.

Material test certificates are provided as per EN 10204 3.1 conforming to all IS, ASTM, DIN, BS, AISI & other international standards.

INDUSTRIES SERVED

- Industrial Valves & Pumps.
- Automotive.
- Orthopaedic Implants and machinery.
- Switch Gear Industries.
- Textile Machinery.
- Power plants & Boilers.
- Defence.
- Agriculture & Farm equipment's.
- Pharmaceutical.
- Earth Moving Equipment's.
- General Engineering.

MATERIAL WE ARE FAMILIAR WITH

CARBON STEELS	ASTM	DIN
	A216 - WCB	1.0619
	A216 - WCC	
	A352 - LCC	1.1138
	A352 - LCB	

LOW ALLOYS STEELS	A217 - WC1	1.5419
	A217 - WC4	
	A217 - WC5	
	A217 - WC6	1.7356
	A217 - WC9	1.7379
	A217 - WC11	
	A217 - C5	1.7363
	A217 - C12	
A217 - C12A		

MARTENSITIC STEELS	A743 - CA15	1.4008
	A743 - CA40	1.4028
	A743 CA-6NM	1.4313

HEAT RESISTING STEELS	A297 - HF	1.4825
	A297 - HH	1.4837
	A297 - HI	1.4846
	A297 - HK	1.4848
		1.4749
	A297 - HD	1.4823

AUSTENITIC STAINLESS STEELS	A351 - CF8	1.4308
	A351 - CF8M	1.4408
	A351 - CF3	1.4306
	A351 - CF3M	1.4404/1.4409
	A351 - CF8C	1.4827
	A351 - CF10	1.4308
	A351 - CK20	1.4843
	A351 - CH20	
	A351 - CN7M	1.45
	A351 - CG8M	1.4431
	A351 - CG3M	

Linear Tolerances :

Nominal Size (mm)	D1 Tolerance (general dimensions)	D2 Tolerance (some functional dimensions)
0 to 6	0.15	0.12
6 to 10	0.18	0.14
10 to 18	0.22	0.17
18 to 30	0.26	0.2
30 to 50	0.4	0.31
50 to 80	0.45	0.37
80 to 120	0.55	0.44
120 to 180	0.8	0.65
180 to 250	1.2	0.95
250 to 315	1.3	1.1
315 to 400	1.8	1.4

SUPER DUPLEX STAINLESS STEEL	ASTM	DIN
	A890 - GR1A	
	A890 - GR2A	
	A890 - GR3A	
	A890 - GR4A	
	A890 - GR5A	
A890 - GR6A		

NICKEL BASED SUPER ALLOYS	ASTM	DIN
	A494 - M - 35 -1	
	A494 - M - 35 -2	
	A494 - M - 30 -C	2.4365
	A494 - N - 12 MV	
	A494 - N - 7M	
	A494 - CY40	2.4816
	A494 - CW12MW	2.4686
	A494 - CW6M	
	A494 - CW2M	2.461
	A494 - CW6MC	2.4856
	A494 - CX2MW	2.4602
	A494 - Cu5MCuC	2.4858
	A560 - 50Cr50Ni	
	A560 - 50Cr50Ni-Cb	2.4813
A560 - 60Cr40Ni		

COBALT BASED ALLOYS	ASTM	DIN
	STELLITE 3	
	STELLITE 6	
	STELLITE 21	
	STELLITE 31	
triballoy T 400		

Tolerance for straightness, flatness, parallelism, shape :

PRECISION CLASS	Length of the tolerated element		
	to 25 mm	25 to 50 mm	up to 50 mm
	Allowed difference		
D1	0.15 mm	0.25 mm	0.6%
D2	0.10 mm	0.20 mm	0.4%

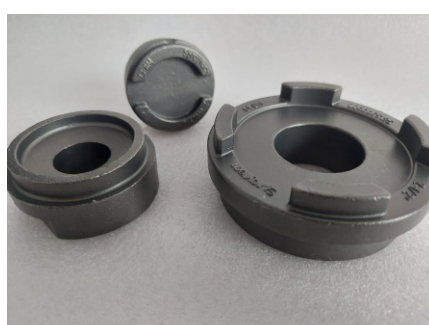
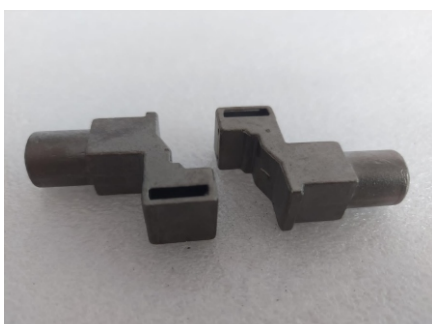
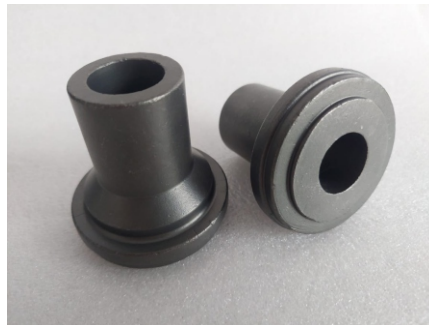
Tolerance for angle values and right angles :

PRECISION CLASS	Nominal dimensions			
	to 30 mm	30 to 100 mm	100 to 200mm	up to 200mm
D1	Allowed deviation			
minute degree	30	30	30	20
mm / 100 mm	0.87	0.87	0.87	0.58
D2	Allowed deviation			
minute degree	30	20	15	15
mm / 100 mm	0.87	0.58	0.44	0.44

Surface quality according to ISO R 468, DIN 4769 and VSM10321 :

	Ra	Rz	Rt
N9	6.3	23-32	25-38

THE INVESTMENT CASTING PROCESS





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