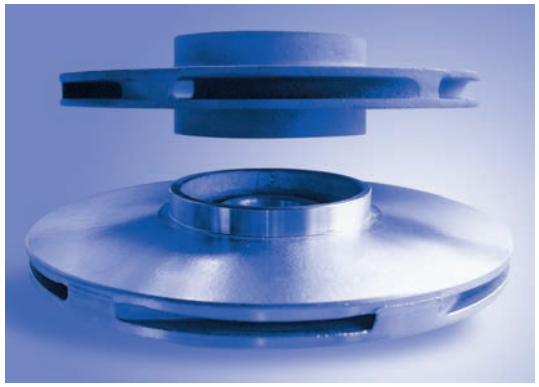
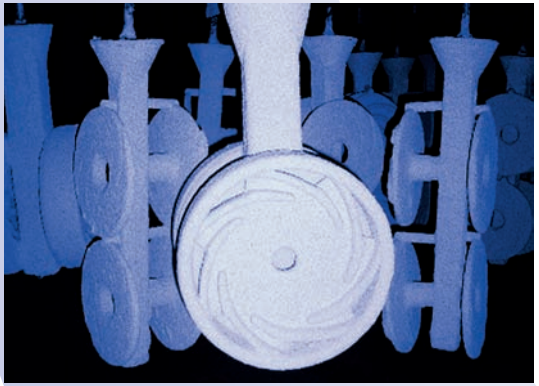
ALLOYD
Industrial Parts





INVESTMENT CASTINGS

Why investment castings?

Investment castings are passing a complex manufacturing process characterised by many manual steps and tight tolerances.

Choice of material and Surface quality

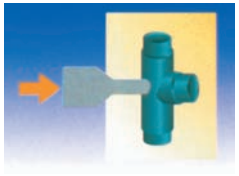
Nearly all types of alloys, especially steels, can be made with the investment casting process. Depending on the alloy materials can be produced, which satisfy highest requirements of thermal and mechanical stresses.

Examples:

- Ductile iron:
  0.7040 – GJS-400-15, GGG 40
- Case hardening/Cementation steel:
  1.7242 – GS-16CrMo4
- Tempered steel:
  1.0446 – GS-45, GS 240
  1.7231 – GS-42CrMo4
- Stainless steel:
  1.4008 – G-X7CrNiMo 12 1
  1.4408 – G-X5CrNiMo 19 11 2
  1.4581 – G-X5CrNiMoNb 19 11 2
- Duplex stainless steels:
  1.4517 – G-X2CrNiMoCuN 25 6 3 3

Due to the high dimensional accuracy of the parts final machining is not necessary. To improve yield or tensile strength the parts can additionally be heat treated or tempered.

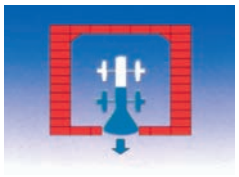

1. Pattern design


2. Wax injection


3. Wax pattern assembly


4. Dipping into ceramic slurry


5. Sanding


6. Dewaxing


7. Pouring


8. Shell removal


9. Cutting


10. Surface finishing


11. Heat treatment


12. Quality inspection

Unrestricted engineering design

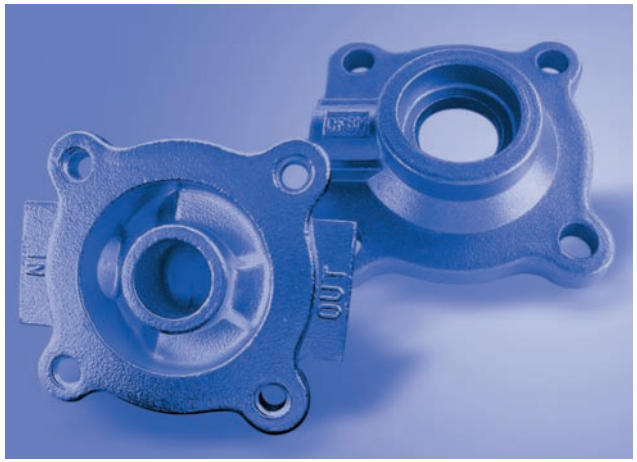
Using investment casting technology complicated parts of high quality can be made economically with no restriction in shape or geometry, which would not be possible with any other process.

Low prices

Based on the low manufacturing costs of our suppliers we can offer you high quality parts at competitive prices even for medium batch sizes.

Cost efficiency

Provided the parts are designed for the investment casting process and the right material is chosen it will help you to cut down your materials and therefore production costs.
Similar to other casting methods there is basically no restriction for complex geometries and due to the high grade homogeneity and surface quality of investment castings parts for high temperature and high mechanical loads can be realised economically.



LIP – Lloyd Industrial Parts

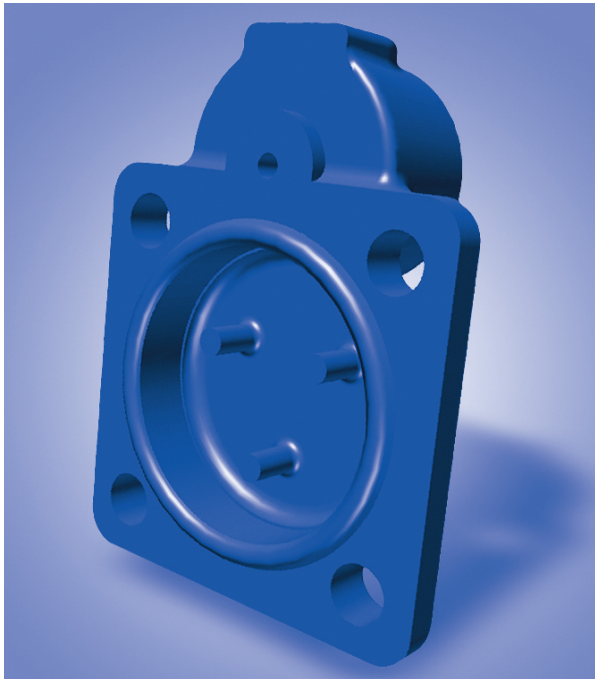
We are a group of production engineers and technical merchants with broad experience in the international procurement market. There are established business connections to suppliers in Asia, which proved their reliability and quality in long term co-operation.

Partner for global sourcing

LIP is your partner for sourcing steel investment castings. Due to your specification the parts will be produced in high quality foundries.

Direct importer

LIP is a direct importer and your German contracting partner. We care for packing, customs and delivery directly to your production site. We guarantee for the agreed technical quality and the on-time delivery.



3D CAD Modelling

Quality assurance

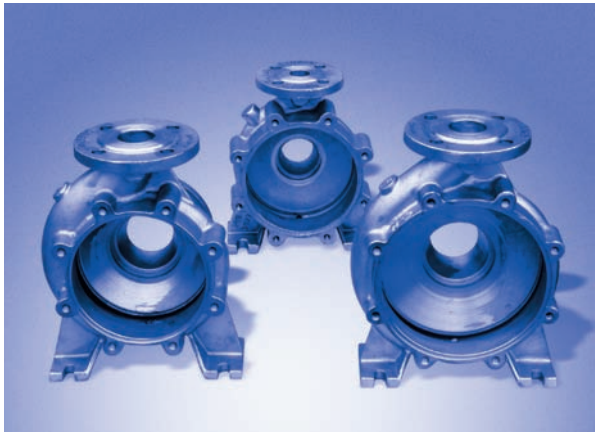
Substantial actions for quality assurance are taken throughout the whole manufacturing process. If required test certificates according to DIN EN 10 024 can be supplied. The production of series starts only after you yourself have approved the prototypes.

Quotation

To be able to quote the casting you want to order we need information about your part like the drawing, the type of material, the weight of the part etc. as well as quality procedures and certificates. We assure you a quick answer.

Finished Parts

We deliver the parts you need, manufactured on CNC-machines according to your dimensions, controlled and ready to fit in.



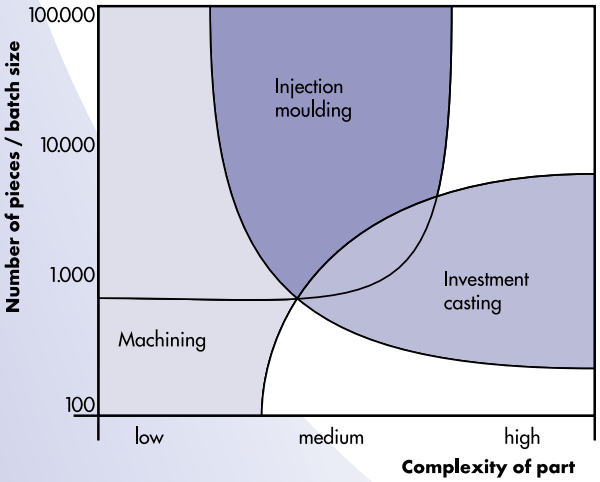
Design flexibility

Investment castings permit functional design and unrestricted geometries. Undercuts, thin walls or three-dimensional surfaces can well be realised. Using investment casting technology geometries (e.g. threads, gear teeth, letters) can be achieved, which are not possible with other manufacturing processes or which can only be realised with expensive, additional production steps.

Innovation for products

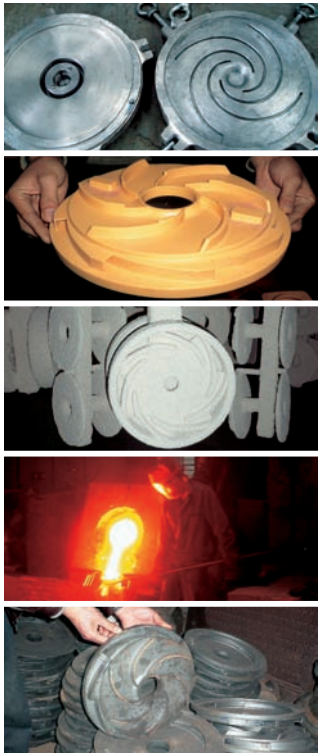
Several separately machined parts can be combined to one integral cast component. Therefore, additional costly machining and assembly can be reduced or even eliminated. By using near-net-shape finished parts you can save capital investment, because you don't need any additional machines or equipment.

Comparison of production process as a function of complexity of parts and number / batch size



Investment casting instead of forging

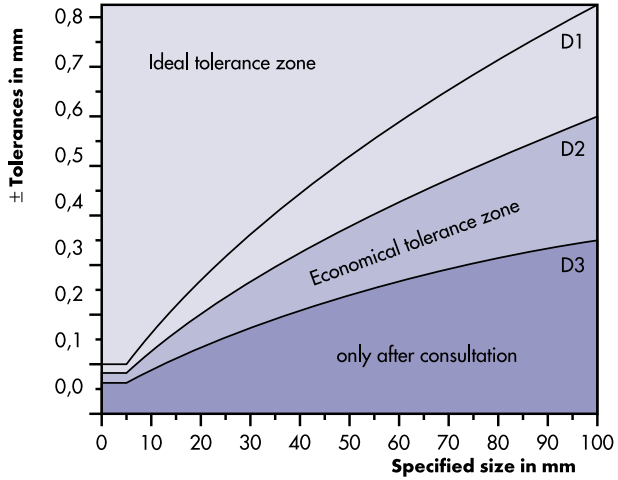
Depending on the alloy and subsequent heat treatment the materials properties of investment castings are very close to those of forgings.



Tolerances and dimensional accuracy

Compared to sand castings investment castings offer smaller tolerances and better dimensional accuracy. Very often you do not need any additional machining and your part can directly be used as-cast for assembly. Please compare „VDG-Merkblatt" (technical bulletin) VDG P 690.

Linear measure tolerances (Length, width, height acc. to VDG-690) in mm



Reduction of production costs

The advantages of investment castings like

- no restriction in geometry
- combination of several single components to one cast component
- alternative to forged parts
- no machining of the as-cast parts
- low roughness

enable you to reduce your production costs.

Design

We consult you in the process of changing design to investment casting and manufacture your parts using the most advanced 3D CAD systems. We would be pleased to be given the opportunity to introduce all the possibilities to you.

LLOYD Industrial Parts

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