

GRAVITY CASTING

Gestión de Compras has the facilities to design and manufacture any part made by Gravity Casting.

PROCESS:

Gravity casting, or casting in permanent molds, is widely used for the manufacture of castings parts made of non-ferrous alloys such as aluminum, copper, magnesium or zinc. For this type of casting, metal is poured at atmospheric pressure in a permanent mold (which is not destroyed) made from two machined steel blocks and the cavity, will form the final part.

The moulds for gravity casting are usually made of cast iron or steel and are simple in construction and most of them are operated manually although, for high volume production, pneumatic or hydraulic mechanisms are employed to open and close the molds in a preset cycle, though metal pouring and casting removal may still be manual.

This process basically consists on five steps:



Unlike sand moulds, the metal molds are not porous so, explicit venting passages are required for allowing the air inside the mould to escape during filling.

Coatings of graphite in a suitable carrier are applied to the mould to minimize thermal shock to the mold and reduce the solidification rate of casting.

The first casting is poured with the mold at room temperature but the temperature of the mold gradually rises after each cycle, and stabilizes after few cycles. The tool design and process parameters must therefore be designed for a higher temperature of the mold.

The gravity casting can produce complex parts, sometimes with cavity or pin hole thanks to sand cores or metal pins. Also, it is suitable for small to medium size castings having fairly uniform wall thickness, with no or few undercuts. The metal mould enables better dimensional stability and surface finish compared to sand casting.

PRODUCTION:

In **Gestión de Compras** we are able to produce a wide range of products manufacturing by gravity casting.

We are provided by factories that can produce items completely by permanent molds casting from manufacture a mold from a draw to the auxiliary operations necessary to finish your product.



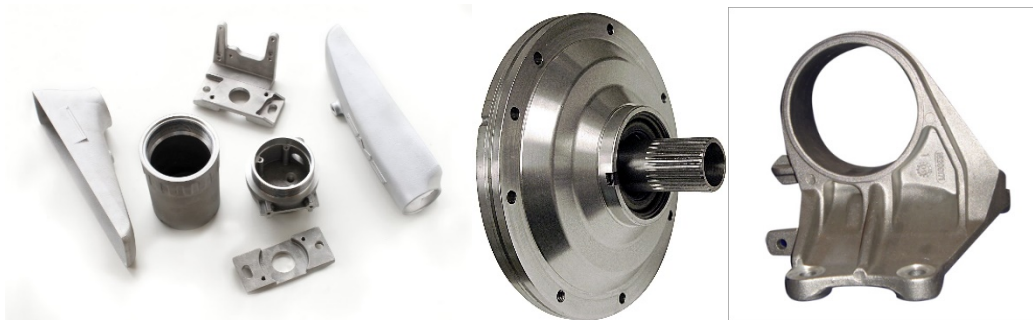
Besides the conventional method our factories also have another types of gravity casting as:

- **Slush casting:** Molten metal is poured into the mould and begins to solidify at the cavity surface. When we have suitable thickness, the remaining liquid is poured out of the mould to leave a hollow shell.
- **Low pressure permanent mold casting:** It uses a low-pressure gas (<1 bar) to force the molten metal to fill the mold.
- **Vacuum permanent mold casting:** It's similar to low pressure method but with an extra advantage, the dissolved gases in the molten metal are minimized.

MATERIALS AND PRODUCTS:

This process is allow to work with non-ferrous materials as aluminium, copper, magnesium or zinc alloys because permanent mold usually are made with iron or steel. However, we can manufacture with irons and steels using graphite molds.

By gravity casting can be produced a big quantity of pieces with a high quality at low cost, for these reasons this process is commonly used for automotive parts but besides, it is used for manufacture industrial equipment, parts for power transmission, casings of any kind, for cable rope hubs... Some parts manufactured by this process are engine brackets, intake pipes, valve bodies, actuator bodies, cylinder heads, junction boxes, knuckles, impellers, brake calipers, compressor parts, torque rod, flanges, manifolds, housings, covers, electrical fittings parts...



TOLERANCES:

Typical tolerances on permanent mold casting are 0.4 mm for the first 25 mm (0.015 in for the first inch) and 0.02 mm for each additional centimetre, always being adjusted to the design specifications.

STANDARD AND CERTIFICATES:

Gestión de Compras only works with companies that can provide us warranties, which are holders of all necessary quality certificates and work according to all specific industry standards such as:

- ISO9001, TS16949 and ISO 14001.
- QS9000, AS9100.
- DIN 4766 for Surface roughness.
- ISO 8062, ISO 286-2, DIN 2768, DIN 1697, ect. for dimensional tolerances.



CONTACT:

In **Gestión de Compras** works with a wide range of customers from different sectors but have in common the search for products that suit your needs at the best Price and the guaranteed maximum quality.

Contact us for any product you are looking for. We have a qualified staff who will advise you.

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