

Core

Form which makes contour or recess or groove of a casting . This is not possible to make in the pattern

It is made up of sand called core sand, some times in metal, plaster and in ceramics

Core is to produce hollow castings. It does not allow the molten metal to fill up a particular portion in the mould cavity. To made this restriction core are made and seated in mould cavity to the required shape.

Core are used as inserts in moulds to from design features that is difficult to produce in the simple moulding.

Core Function

To produce internal cavity for hollow castings.

Produce external undercut features

To make deep recess when inserted in mould

Increase the strength of the mould

Used as a part of gate assembly

Improve the mould surface and also used to form part of green sand mould.

Core characteristics

Dry sand core properties

Sufficient strength to support itself without breaking

High permeability and high refractoriness

Provide smooth surface to get smooth casting

Core is made by

Additives

Water

Core binder

Granular refractories

Dry silica carbon Zircon olivin Chamottiee

Core making

1. Core sand preparation

2. Core making
3. Core baking
4. Core finishing or dressing
5. Setting the core
 1. Just as moulding sand preparation
 2. Small core in hand making core box with hand ramming
 3. Using various core making machines
 1. Jolt machine
 2. Shell core machine
 3. Core blower
 4. Sand slingers
 5. Core roll over machine
 6. Core extrusions machine

Core baking

After core preparation it is baked in Baking furnace where moisture completely removed.

Type of core

1. Horizontal core
2. Vertical core
3. Hanging core
4. Balanced core
5. Ram up core
6. Kiss core
7. Drop core

Core box

1. Half core box
2. Dump core box
3. Split core box
4. Strickle core box
5. Gand core box
6. Loose piece core box
7. Left and right hand core box

Core prints

It is extra projection provided in pattern

They form core seat in mould to embedded pattern in the sand for mould making

To support all type of cores , core seats are provided

They do not appear on the cast parts they are the part of the pattern

Core prints types

1. Horizontal core print
2. Vertical core print
3. Balanced core print
4. Cover core print
5. Wing core print

Chaplets

Chaplets support the core from deviating from its position while casting process is carried out. If not provided, core is shifted and cavity shifted and therefore defective casting is obtained. So chaplets are provided to firmly hold the core and avoid vertical movement of core. It is a metal piece which is placed firmly (in between mould and core surface) on which core is placed and the core vertical movement is arrested.

1. Horizontal core

Positioned horizontally in the mould

It may have any shape relevant to the shape of cavity required

Horizontal cores mostly placed at parting line will be of sectioned uniformly

2. Vertical core

Fitted in mould vertically

Top of the core is given more taper to have smooth fitting of cope on the core

Majority portion remains in the drag itself

3. Hanging core or cover core

This is supported from above and hangs vertically in the mould cavity

It has no support from the bottom

They are provided with hole through which molten metal reaches the mould cavity

4. Balanced Core

It is supported and balanced from its one end only

It needs long core seat so that it does not fall in mould cavity

Some time it may be supported on chaplets

6. Ram up Core

It is placed in the mould sand along with pattern before ramming the sand

It is used to make details in casting internally or externally

Cannot be placed in the mould after rammed

7. Kiss Core

No need of core seat for getting support

Held in position between drag and cope boxes due to the pressure exerted by core on the drag.

If many number of holes needed then required number of kiss core may be simultaneously positioned.

8. Drop Core or Stop off core

It is to make cavity that cannot be made by other types of core

If a hole or cavity or recess is not in line with parting line surface of casting this Drop core is used.