Chaplets

What is a chaplet?
A chaplet is a spacer used to support a core in the correct position during the pouring of molten metal into a mould. Chaplets are usually manufactured from mild steel and tin-coated by hot dipping to prevent oxidation of the surface. They can also be electroplated with tin or copper. Uncoated Ni-Resist or Monel chaplets can be used with alloy irons.

When are chaplets used?
Chaplets are used when the casting design makes it impossible to provide adequate core prints, and when the core is likely to sag or lift. For complex, highly cored castings, chaplets are also used to minimize movement between cores.

Types of chaplets
A range of different types and sizes are available and typical examples are shown in Fig 1. They can basically be categorized as studs or perforated chaplets.

![Diagram of chaplets](image)

Fig. 1 Typical examples of the range of chaplets available.

Studs—Three main types are available (Fig. 2).
- Plain studs are held in place by the forces exerted between mould and core or core and core. They can also be fixed by gluing.
- Pin studs are held in place by piercing the mould with the projecting pin.
- Multiple studs are used to support long and heavy cores.

Stud heads can either be plain or perforated and stems can be plain or grooved. Perforated heads and grooved stems facilitate fusion and are recommended for critical pressure-tight castings. The choice of head diameter and thickness of stem depends on the area and weight of core to be supported. Chaplet sections should not be so thin that they prematurely melt, bend or sag when metal is poured round them or so thick as to prevent adequate fusion.

![Diagram of stud types](image)

Fig. 2 (a) Plain, (b) pin and (c) multiple studs.

Perforated chaplets—These are made from tinned steel gauze, generally in the form of box sections which may be bridged or unbridged (Fig. 3).
- Unbridged chaplets are suitable only for supporting light cores.
- Bridged chaplets are stronger than unbridged chaplets because of the additional support in the centre and can be used for heavier cores.

Irrespective of which type of chaplet is used, the edge or bridge marked A must always point in the direction which gives maximum support, or sagging will occur.

Problems with chaplets
Unless adequate care is taken with the selection and use of chaplets the following problems may be experienced:

![Diagram of problems](image)

Fig. 3 Perforated, (a) unbridged and (b) bridged chaplets.