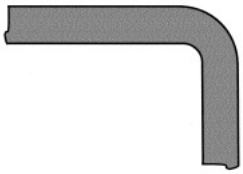
DESIGN FOR VITREOUS ENAMELLING - CAST IRON PARTS.

Here are some specific examples of poor and preferred design for cast iron metal parts which will be vitreous enamelled

1. CORNERS

Poor design. The corner is too sharp. The enamel will tend to burn off the corner during firing and even if a full coat can be achieved it will be very susceptible to chipping. It will be very difficult to coat the sharp corner to achieve a full coat of vitreous enamel.



Preferred design. The radiused corner will be easier to coat with vitreous enamel, will be much less susceptible to chipping and less probe to burn off during firing. All radii on the casting which will be coated need to be similarly generously radiused.

2. BOSSES

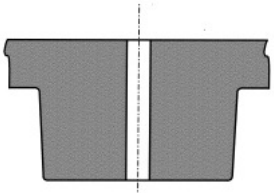
Poor design. The localised increase in cross section may cause under-firing. The sharp nature of this boss will tend to cause stress build concentrations and it will be difficult to achieve a constant coating thickness. The area will tend to exhibit both thick and thin enamel and will be susceptible to chipping.

Improved design. This had removed the sharpness of the boss and it will be much easier to achieve a uniform coating thickness. It does not solve the localised increased cross section.

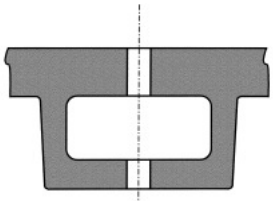
Preferred design. The uniform cross section will reduce this risk of localised under-firing.

NOTE: Bosses on the reverse side (the side which is not visible) may be required for example to provide a point for fixings e.g. by drilling and tapping. This is unavoidable, but the size of the boss should be kept to a minimum consistent with achieving the strength of fix required.

3. CORED BOSSES



Poor design. The large change in cross section of this boss will cause problems with porosity in the casting, and with localised under-firing of the vitreous enamel.



Preferred design. Coring of the boss will maintain the uniformity of casting cross section, reducing the risk of porosity in the casting and under-firing.