

## C405 – GWR 10' 8½" Connecting Rods - bellied rods with a circular boss

These rods were produced as replacement rods for earlier straight tapered rods or fitted as replacements. They are suitable for the following classes:

Saint  
Hall  
Modified Hall  
Grange  
Manor  
28xx  
38xx

These etched rods are designed for fitting to models with Alan Gibson, Ultrascale and Markits wheelsets. They can also be fitted as replacements on Hornby and Bachmann locos with a small adaptation.

The prototype rods had very thick bosses and overlays for these are provided on the etch. However, thicker bosses can lead to clearance problems in model form, so a half-etched version has also been provided

Brassmasters also produce replacement coupling rods for Saint, Hall both early and late versions, Modified Hall, Grange and Manor (Ref C403 and C404).

1. Each side is manufactured from 3 etches plus front and back overlays for the boss.
2. Cut one set of rods from fret, parts [1, 2 & 3].
3. If using Markits wheels, find the largest drill that will pass through the crankpin holes; if using the original Bachmann wheels, Alan Gibson or Ultrascale wheels, open the crankpin holes using a 1.5 mm drill. Using the same drill, drill perpendicularly into a scrap piece of wood. Leave the drill in the hole in the wood. Tin the mating surfaces of the three etches and place over the drill. This holds one end of the rod accurately ready for soldering. **It is critical to align the three parts exactly**, in order to make one rod so take some time tweaking (for a thinner rod, part [2] can be missed out of the middle, if required).
4. Repeat for the other connecting rod.
5. Place a little flux along the edge of the rod and apply heat; the solder on the soldering iron will run between the rods and join them. The secret is to apply only a little solder at a time. Solder will fill the "cusp" and give the impression of a solid rod. Repeat for the whole length of the rod.
6. Clean up and square off the edge of the rods using a file.
7. These etches are for the type of rod with round bosses. There are two ways that this can be achieved, either by fitting parts [4] and [5] and then filing back the etch to give the flare and the curved boss or by fitting a part [6] either side and making the flare with a fillet of solder. Having tried both methods, we find that the filing back method works best.
8. If using the file back method, the best way to achieve a smooth flare is to use a small round file and file in the step on parts [5] and [6]. Once the flare is formed then the file can be worked round the boss to give a circular boss.
9. For a thinner big end, part [7] can be used in place of part [6] either on one side or both sides of the big end.
10. Open up the crankpin holes in order that the rod will rotate on the crankpin screw (if using Markits wheels), the fitted crankpin screw (if using Hornby wheels) or on the crankpin bushes (if using Alan Gibson or Ultrascale wheels). This can be done with a reamer, broach or a fine Swiss file. For Hornby and Bachmann wheels, it will probably be necessary to reduce the diameter of the crankpin screw.

11. Using the indent provided, drill out the hole at the little end to suit the pin being used to attach the rod to the cross head.

