

Clip spacing for Gantrail crane rail clips

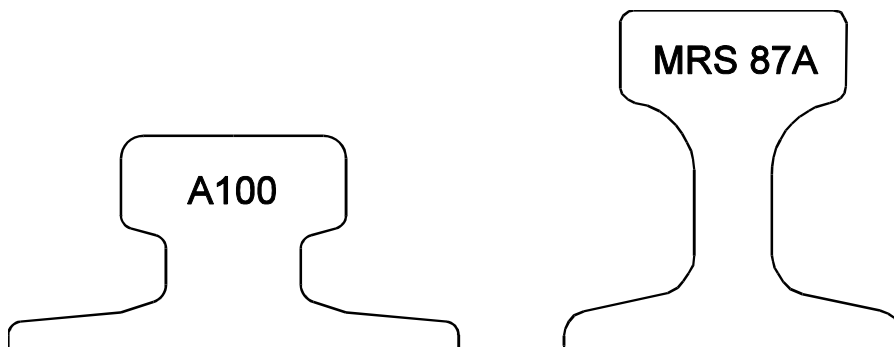


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Every application of Gantrail clips requires the selection of a suitable clip spacing. Unfortunately there is no simple means of calculating a value. Thus one must rely on practical experience. Closely spaced clips result in a design that has a high factor of safety. However, a competitive solution uses clips at the widest sensible spacing consistent with safety. This note gives recommended spacing.

TECHNICAL CONSIDERATIONS

The Gantrail clip needs to be selected to be able to carry the horizontal wheel load ensuring that it will fit on the structure supporting the rail. Calculations have shown that when a wheel is over a pair of clips and is applying the design horizontal load, there will be no significant horizontal load carried by the pairs of clips to either side. It can also be shown that for crane rails, there is no consistency between the vertical wheel load carrying capacity and the horizontal bending characteristics. For example, the Rodange MRS87A from the steel maker Acelor in Luxembourg and the German DIN 536 A100 rail have top flange widths of 102 and 100 mm respectively. Thus they have the substantially the same wheel load capacity. However, the horizontal bending moments of the rails are 975 and 1345 units respectively. The A100 is more than 40% stiffer than the MRS87A. For this reason it is not feasible to develop a calculation method for clip spacing solely on horizontal bending.



SUGGESTED SPACING

Experience has shown that crane rail clips spaced at about 600 mm work well. When the spacing exceeds say 1 metre problems are often encountered. It is reasonable to have some difference in spacing based on the actual duty. Thus the following clip spacing is suggested:

- Normal applications - Clip Spacing 600 to 650 mm
- Heavy duty applications and applications with guide rollers - Clip Spacing 500 mm. (Note that guide rollers typically apply the horizontal load some distance from the vertical load; hence the vertical wheel load cannot anchor the rail against horizontal force.)
- Light duty applications - Clip Spacing 800 mm

Lateral load capacity of Gantrail clips

OTHER CONSIDERATIONS

Further matters may need to be considered. For example:

- With high bay warehouse cranes, the clip spacing should be a whole number division of the crane wheel base. This prevents sway of the tall crane structure during long travel motion.
- With concrete mounted rail it may be desirable to choose a spacing that coincides with the spacing of the reinforcement cage. The drilling may then in theory be planned to miss the steel reinforcement.

A world of crane rail expertise.

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