

Principles of Guarding and Transmission Guards

- 2 Determine distance S —the distance from the vertical line of the rolls to a point where a $\frac{3}{16}$ -in vertical space exists on each side of the travel line of the stock (total nip width of $\frac{3}{8}$ in), as shown in Fig 24-20
- 3 At this point, begin the layout of the dimensions shown centered on the travel line in Fig 24-17 Outline the guard sections, giving the required opening between sections (One edge of each section will touch a clearance line, the other will touch the safe opening layout at the proper point to give the required opening) Determine the necessary dimensions for properly locating the guard from this final layout The width of the guard sections can also be determined in addition to locating dimensions
- 4 Before the guard is put in operation, check carefully for hand travel under the guard, stability of mounting, and rigidity of construction

Guard construction

To assure maintenance of the dimensions established for safe openings, it is important that the guards be constructed to minimize the possibility of distortion or movement which would destroy the effectiveness of the guard All guard parts should be strong enough to withstand expected stress Fastenings should be secure and of such design as to prevent the guard proper from shifting Any guard with openings over $\frac{1}{4}$ in should be considered more or less a "precision" construction and checked frequently for alignment and condition

Depending upon the need for visibility and rigidity and the method of feeding for a particular guard, the designer can use the layouts shown in Figs 24-19, 24-20, and 24-21 to select the guard sections best suited to his needs

Figs 24-22 and 24-23 show typical guard designs for a roll nip with and without a feed table Working from a layout similar to this one, the designer can determine the location, size, and shape of the necessary guard section to meet his particular requirements

Inrunning rolls—stock traveling over one roll before entering nip zone Fig 24-21 shows an inrunning roll nip where the stock travels over a portion of one roll before entering the nip The stock in such an arrangement is fed either under or over a barrier

To design a properly placed barrier guard under such conditions, it is suggested that the following procedure be used

- 1 Draw a full-scale outline of the nip zone with the travel line of the stock indicated on the roll Indicate the clearance line on the top roll If more than a $\frac{3}{8}$ -in clearance is required, the top edge of the guard should be located in accordance with the safe opening layout
- 2 Determine distance S —the distance of the center line of the roll to the point where there is a $\frac{3}{16}$ -in space between the rolls

References

- American Mutual Insurance Alliance, 20 North Wacker Dr, Chicago, Ill *Safe Openings for Some Point of Operation Guards*, Technical Guide for Accident Prevention No 2, January 1949
- American Standards Institute, 1430 Broadway, New York, N Y, 10018
Safety Requirements for Floor and Wall Openings, Railings, and Toe Boards, A12
Safety Requirements for Mechanical Power-Transmission Apparatus, B15.1