



Heavy-Duty Grip Strut Walkways, Planks and Stair Treads

General Load Information

Heavy-Duty Grip Strut Grating Walkways and Planks are available in three thicknesses of steel, one of aluminum: walkways have one standard siderail height, planks have four. In each category, walkways come in three widths, planks in five. Begin sizing, for maximum economy, with widest practical grating for the job (shallowest siderails and thinnest gauge); if this does not meet required load capacity, first consider deeper siderails, then heavier gauge, and finally narrower grating width, if necessary.

Flexural load tables have been calculated according to design load limiting criteria, and if not illustrated in this catalog they can be obtained from Cooper B-Line technical services.

“Strut Load Tables” show flexural strength and deflection of individual grating surface struts relative to siderails. Since these are maximum values in the elastic range, lesser loads/deflections can be proportioned from them.

Design load assumptions differ according to load type: (1) uniform, (2) concentrated (see Figures 1, 2 and 3 below for explanation of load application). Concentrated load capacities generally vary with span, siderail height and material thickness, irrespective of grating width, although large differences in

grating width cause concentrated loads to be distributed somewhat differently into siderails.

Siderail strength usually controls, but with shorter spans, deeper siderails, and/or wider grating surfaces, flexural strength of individual struts may control. In sizing walkways/planks with strength as a design criterion, be sure to check Heavy-Duty Grip Strut Grating for both: (1) strength of walkways/plank siderails, (2) strength of individual struts in grating surface. With deflection as a design criterion, loads may be limited by either: strength of individual surface struts, or total deflection of one siderail at midspan plus a surface strut at midwidth of walkway/plank (sum of siderail deflection plus strut deflection).

All load tables show maximum loads, based upon actual load tests performed at the Pinckneyville (IL) plant, and determined in accordance with AISI “Specification for the Design of Cold-Formed Steel Structural Members”, 1980 Edition, using minimum yield strength of 33 ksi for steel, 23 ksi for aluminum. Loads are designated:

-
- (U) for uniform, in./ft.²
 - (C) for concentrated, in./lb.
 - (D) for corresponding deflections, in inches
-

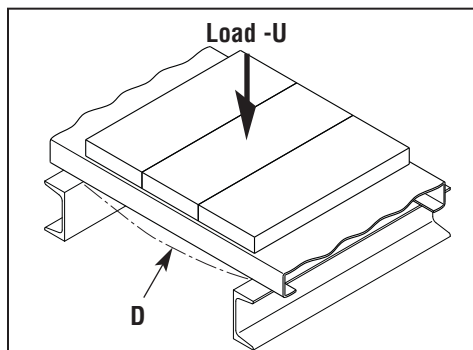


Figure 1
Uniform Load (U)
applications to all walkways/planks:
 Maximum load (lb./ft.²) permitted by flexural stress in siderail or grating strut, whichever is lower, applied to entire grating area (full-width by clear-span) between supports.
Deflection (D) in all walkways/planks:
 Deflection (in.) corresponding to maximum load (U) or (C) permitted by flexural stress in siderail or grating strut, whichever is lower, applied as defined in Figures 1 or 2, and 3.

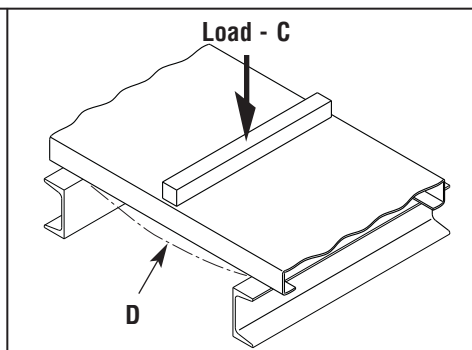


Figure 2
Concentrated Load (C)
applications to all walkways/planks:
 Maximum load (lb.) permitted by flexural stress in siderail or grating strut, whichever is lower, applied transversely to total width of grating at midspan and assumed to be carried equally by both siderails.
Deflection (D) in all walkways/planks:
 Deflection (in.) corresponding to maximum load (U) or (C) permitted by flexural stress in siderail or grating strut, whichever is lower, applied as defined in Figures 1 or 2, and 3.

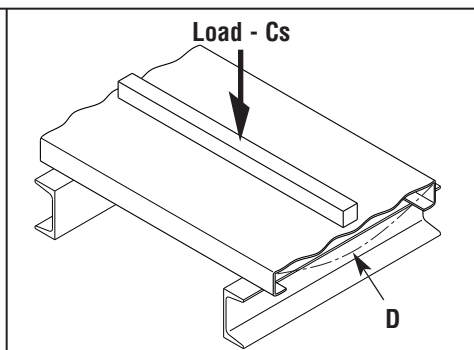


Figure 3
Concentrated Load (Cs)
applications to grating surface struts of all walkways/planks:
 Maximum load (lb./ft.) permitted by flexural stress in grating strut, applied longitudinally to a 1 foot length of grating at midwidth.
Deflection (Ds) in all walkways/planks
 Deflection (in.) corresponding to maximum concentrated strut load (Cs) permitted by flexural stress in grating strut, applied longitudinally to a 1 foot length of grating at midwidth.



General Load Information

Heavy-Duty GripStrut Walkways — The Safety Of OSHA-Required Toeboards, Built-In

Availability of Heavy-Duty Grip Strut Walkways*

Material	Thickness	Walkway Width		
		36"	30"	24"
Steel	11 ga.	✓	✓	✓
	10 ga.	✓	✓	✓
	9 ga.	✓	✓	✓
Aluminum	.125"	--	✓	✓

* Standard toeboard depth of 5".

Heavy-Duty Grip Strut Safety Grating Walkways, like Heavy-Duty Planks, offer additional strength for walkway applications with greater load requirements. Grating surface design is identical. The walkway difference is in the side channels, which are turned up as 5 inch toeboards, exceeding OSHA requirements. Walkways offer all the slip-resistance and self-cleaning advantages of planks, and are available in the material/thickness combinations shown above.

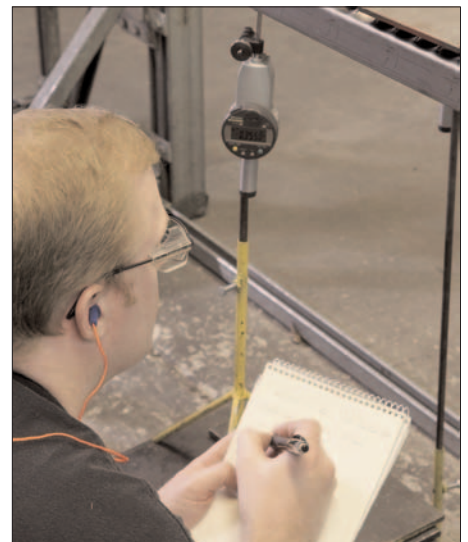
Heavy-Duty Grip Strut Grating Walkways are ideal for many types of applications. They are equally at home in process plants, refineries, grain elevators, conveyor walkways and large machines in paper mills. Allowable design load/deflection data are complete on pages 18 & 19.

They are combined with Grip Strut Stair Treads for a complete walkway design. For further information on stair treads, see page 20. The pre-formed, integral design of stair treads reduces the costs by saving not only material, but fabrication and detailing time as well.

Heavy-Duty Grip Strut Walkways incorporate 5 inch integral toeboards, complying with OSHA regulations (appropriate safety devices may also be necessary during use — consult applicable safety regulations). Canadian compliant (OH&S) designs are also available in some sizes.

Handrail Brackets are available for application on Heavy-Duty Grip Strut Steel Walkways. This is a valuable accessory for those projects where utilization of Heavy-Duty Grip Strut Steel Walkway is desirable for its superior long spanability. And handrailing with handrail post on maximum eight foot center is required per OSHA. The handrail bracket eliminates unnecessary and costly substructure to support handrail post.

Splice Plates (P-H-SP-U) are available for use with Heavy-Duty Grip Strut Steel Walkways. Splice Plates can help reduce costly material cuts and waste. The Splice Plates may be used at midspan conditions without reducing the load carrying capacity of the Heavy-Duty Grip Strut Walkway.



General Load Information



Heavy-Duty Grip Strut Planks — The Versatility of 9¹/₄" to 36" Widths for Single- or Multi-Width Platforms, to Fit Every Job Requirement — And Many O.E.M.

Availability of Heavy-Duty Grip Strut Planks*

Material	Thickness	Walkway Width				
		36"	27 ³ / ₄ "	24"	13 ³ / ₄ "	9 ¹ / ₄ "
Steel	11 ga.	✓	✓	✓	✓	✓
	10 ga.	✓	✓	✓	✓	✓
	9 ga.	✓	✓	✓	✓	✓
Aluminum	.125"	--	--	--	✓	✓

* All in depths of 2", 2¹/₂", 3" and 4".

Heavy-Duty Grip Strut Safety Grating Planks are ideal for all types and sizes of platform applications with design load requirements beyond the capacities of regular Grip Strut Safety Grating (fully described in Grip Strut Gratings and Stair Treads catalog GSSGST-09). Four depths and five widths, each in steel and aluminum alloy 5052, provide versatility of load capacity for greatest economy: adequate strength without over design. Each width/side channel depth combination is available in material/thickness combinations as shown above.

All can be used for single-plank applications, or in multi-plank combinations for large-area platforms (see Multi-plank width chart, opposite page). One combination of width/depth/metal thickness is certain to meet your requirements with exceptional economy. For special job requirements, or the fine-tuned economies required by O.E.M. applications, other materials and many special fabricating services are available from Cooper B-Line (see page 22).

