






Grate Load Class Definitions







ANSI A112.21.1M

Grates shall be designed to meet the following loading classifications in a static condition.

GRATE LOAD CLASS	SAFE LIVE LOAD (paragraph 6.1.6 of the ANSI Standard.)	RECOMMENDED USES
 Light Duty	Under 2,000 lbs (900 kg).	For pedestrian foot traffic only.
 Medium Duty	2,000 lbs (900 kg) to 4,999 lbs (2,250 kg).	For light pneumatic tire traffic only. Sidewalks and residential parking.
 Heavy Duty	5,000 lbs (2,250 kg) to 7,499 lbs (3,375 kg).	For Commercial Pneumatic tire traffic patterns and tractor trailers.
 Extra Heavy Duty	7,500 lbs (3,375 kg) to 10,000 lbs (4,500 kg).	For forklift traffic. Roads and Highways. H-20 Load Rated.
 Special Duty	Over 10,000 lbs (4,500 kg).	For airport traffic.

DIN 19580

Grates shall be designed to meet the following loading classifications in a static condition.

LOAD CLASS	DESIGN LOAD	RECOMMENDED USES
 Load Class A	Light Duty Grate design load up to or exceeding 3,372 lbs per ft. 15 kn	For pedestrian foot traffic only.
 Load Class B	Medium Duty Grate design load of at least 28,100 lbs per ft. 125 kn	For light pneumatic tire traffic only. Sidewalks and residential parking.
 Load Class C	Heavy Duty Grate design load of at least 56,200 lbs per ft. 250 kn	Commercial Applications.
 Load Class D	Grate design load of at least 89,920 lbs per ft. H-20 Load Rated. 400 kn	For pneumatic forklift traffic. Extra Heavy Duty. Roads and Highways.
 Load Class E	Grate design load of at least 134,800 lbs per ft. 600 kn	For commercial heavy wheeled traffic, hardwheeled forklifts, and construction equipment. Extreme Heavy Duty.
 Load Class F	Grate design load of at least 202,320 lbs per ft. 900 kn	For airport traffic.

Transportation Classifications

- According to the American Association of State Highway and Transportation Officials (AASHTO) "Standard Specification for Highway Bridges," H-20 loading refers to a two-axle truck with a maximum dual-wheel load of 16,000 lbs, while HS-20 loading describes a tractor truck with a tandem axle semi-trailer, also with a dual-wheel load of 16,000 lbs.
- The FAA (Federal Aviation Administration) Advisory Circular AC 150/5320-6D specifies aircraft loading as 100,000 lbs distributed over a 9" x 9" area.
- The Americans with Disabilities Act (ADA) requires that slot widths on gratings in walkways be no more than 1/2 inch, with elongated slots positioned longitudinally, perpendicular to the primary direction of travel.
- Heel Proof refers to slots or perforations that are less than 1/4 inch in width or diameter.
- The maximum safe live load is determined by dividing the failure load by two.

