



«Design loads used when road designing and constructing in the territory of the Russian Federation, as well as specified allowable weight and dimensional parameters for motor vehicles»

Design load resulting from vehicle

The design load resulting from vehicle when road designing and constructing in the territory of the Russian Federation is to determine the calculated value of the desired factor of stress and strain state according to the limit state method. The design load is determined by introducing dynamic factor to standard load.



The standard load for roads:

- with heavy-duty pavements – 115 kN;
- with pavements of light-duty and transition type – 100 kN.

The calculation of road pavements is performed on the load from one wheel.

When calculating road pavements, wheel pressure on the surface from the load is considered to be uniformly distributed over the tyre contact area.

The value of the standard pressure (p) is assumed to be:

- $p = 800$ kPa – for roads with heavy-duty pavements;
- $p = 600$ kPa – for roads with pavements of light-duty and transition type.

Allowable motor vehicle weight

For single-unit vehicles., ton:	For bolster- and trailer-type motor-vehicle trains, ton:
two-axle vehicles – 18	three-axle vehicles – 28
three-axle vehicles – 25	four-axle vehicles – 36
four-axle vehicles – 32	five-axle vehicles – 40
five-axle vehicles and more – 38	six-axle vehicles and more – 44



Allowable vehicle axle loads when road designing with heavy-duty pavements under standard load 115 kN.

Motor vehicle axles arrangement	Distance between double axles (metres)	Allowable load (kN) resulting from an axle or a group of axles of wheeled vehicle	
		single-tyred	twin-tyred
Single axle	over 2,5	105	115
Two-axle group of double axles (the total load of axles group)	not over 1 (inclusive)	115	125
	over 1 to 1,3 (inclusive)	140	160
	over 1,3 to 1,8 (inclusive)	170	180
	over 1,8 to 2,5 (inclusive)	180	200
Three-axle group of double axles (the total load of axles group)	not over 1 (inclusive)	170	180
	over 1 to 1,3 (inclusive)	200	210
	over 1,3 to 1,8 (inclusive)	235	240
	over 1,8 to 2,5 (inclusive)	250	260
Double axles, which have no more than 2 wheels on each axle	not over 1 (inclusive)	55	60
	over 1 to 1,3 (inclusive)	65	70
	over 1,3 to 1,8 (inclusive)	75	80
	over 1,8 to 2,5 (inclusive)	85	90
Double axles, which have more than 2 wheels on each axle	not over 1 (inclusive)	110	110
	over 1 to 1,3 (inclusive)	120	120
	over 1,3 to 1,8 (inclusive)	140	140
	over 1,8 to 2,5 (inclusive)	160	160

Allowable vehicle axle loads when road designing with pavements of light-duty and transition type under standard load 100 kN.

Motor vehicle axles arrangement	Distance between double axles (metres)	Allowable load (kN) resulting from an axle or a group of axles of wheeled vehicle	
		single-tyred	twin-tyred
Single axle	over 2,5	90	100
Two-axle group of double axles (the total load of axles group)	not over 1 (inclusive)	100	110
	over 1 to 1,3 (inclusive)	130	140
	over 1,3 to 1,8 (inclusive)	150	160
	over 1,8 to 2,5 (inclusive)	170	180
Three-axle group of double axles (the total load of axles group)	not over 1 (inclusive)	150	165
	over 1 to 1,3 (inclusive)	180	195
	over 1,3 to 1,8 (inclusive)	210	225
	over 1,8 to 2,5 (inclusive)	220	230
Double axles, which have no more than 2 wheels on each axle	not over 1 (inclusive)	50	55
	over 1 to 1,3 (inclusive)	60	65
	over 1,3 to 1,8 (inclusive)	65	70
	over 1,8 to 2,5 (inclusive)	70	75
Double axles, which have more than 2 wheels on each axle	not over 1 (inclusive)	95	95
	over 1 to 1,3 (inclusive)	105	105
	over 1,3 to 1,8 (inclusive)	120	120
	over 1,8 to 2,5 (inclusive)	135	135

Maximum allowable motor vehicle dimensions

Length, metres:

single-unit motor vehicle – 12;

trailer – 12;

road train – 20;

the length of the load projecting beyond the rear point of motor vehicle dimension shall not exceed – 2.

Width, metres:

all motor vehicles – 2,55;

isothermic motor vehicle *box* bodies – 2,6.

Height, metres:

all motor vehicles – 4

