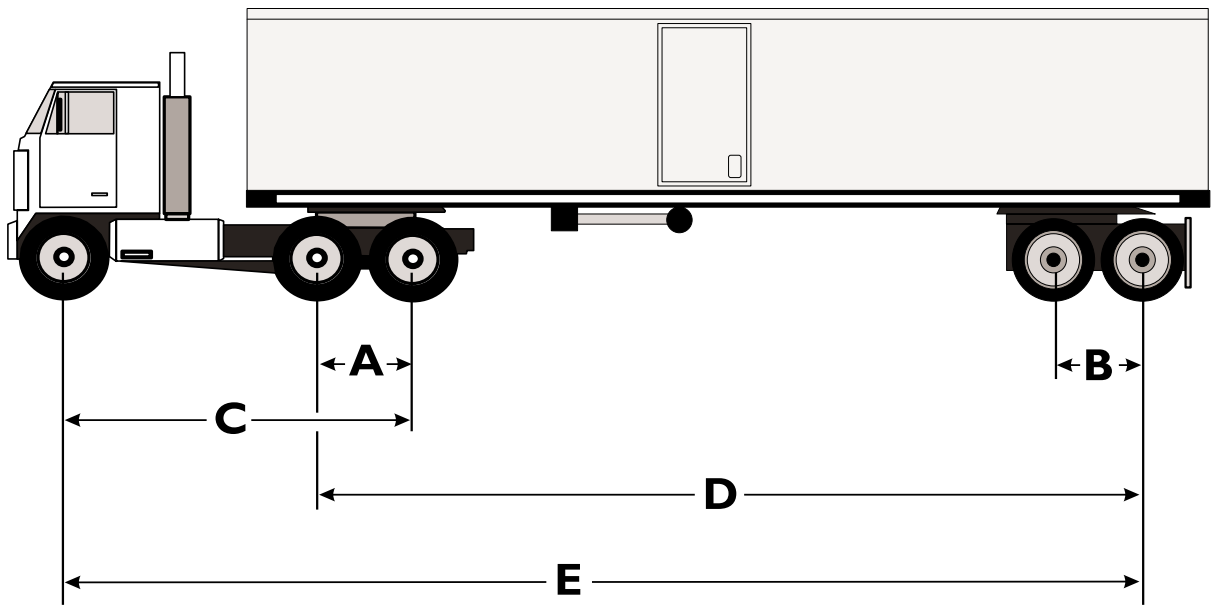


Calculating weigh bridge load bearing capacity

How To Use Bridge Formula Chart (R-Factor)



In the above example there are five (A-E) axle and span combinations. To determine the maximum load bearing capacity follow the steps below for the average vehicle to be weighed on a standard FCTS or IMTS with a 2.06 R-factor.

Combination	Axles	Assumed distance between axle centers for example	Load bearing capacity from chart
A	2	4 ft.	70,000#
B	2	4 ft.	70,000#
C	3	20 ft.	105,000#
D	4	45 ft.	148,235#
E	5	60 ft.	176,029#
Upper limit can never exceed scale capacity			200,000#

The above example demonstrates how to apply the R-factor charts to determine the maximum load bearing capability for a hypothetical truck. Note that in this case the maximum load bearing capacity is 176,029 lb because of the axle spacing.

When comparing a Weigh-Tronix scale with a competitor's offering use the following formula to determine their capacities:

$$\frac{\text{Competitive R-factor}}{(\text{IMTS R-factor})} \times \text{IMTS capacity} = \text{Competitive capacity for a given axle and span combination}$$

The above example and chart for a standard IMTS or FCTS can be used to compare with a competitive scale using the following calculations:

$$\frac{\text{Competitive R-factor } 1.62}{\text{IMTS R-factor } 2.06} = .7864 \text{ competitive conversion factor}$$

<u>Axle Group</u>	<u>IMTS Capacity</u>	<u>Times</u>	<u>Competitive Capacity</u>
A	70,000#	.7864	55,048#
B	70,000#	.7864	55,048#
C	105,000#	.7864	82,572#
D	148,235#	.7864	116,572#
E	176,029#	.7864	138,429#

While both scales have a maximum rated capacity of 200,000 lb, the Weigh-Tronix weigh bridge is clearly superior in terms of structural strength and load bearing capacity by a margin of 27%, or for this particular truck 176,029 lb versus 138,429 lb.

In summary, first calculate the load bearing capacities for the typical vehicle your customer is weighing using the chart for the IMTS or FCTS. Next, if you know the competition's R-factor adjust the Weigh-Tronix load bearing capacities by the percentage relationship of the competitive R-factor to the Weigh-Tronix R-factor.

Try various examples and become familiar with this sales technique—it can be a powerful tool.

Weigh-Tronix IMTS & FCTS Truck Scales

Bridge Gross Weight Formula

CLC = 70,000		R = CLC / 34,000 = 2.0588						
Axle	2	3	4	5	6	7	8	9
Span	Axles	Axles	Axles	Axles	Axles	Axles	Axles	Axles
4	70,000							
5	70,000							
6	70,000							
7	70,000							
8	70,000	86,471						
9	80,294	88,015						
10	82,353	89,559						
11		91,103						
12		92,647	102,941					
13		94,191	104,314					
14		95,735	105,686					
15		97,279	107,059					
16		98,824	108,431	119,412				
17		100,368	109,804	120,699				
18		101,912	111,176	121,985				
19		103,456	112,549	123,272				
20		105,000	113,922	124,559	135,882			
21		106,544	115,294	125,846	137,118			
22		108,088	116,667	127,132	138,353			
23		109,632	118,039	128,419	139,588			
24		111,176	119,412	129,706	140,824	152,353		
25		112,721	120,784	130,993	142,059	153,554		
26		114,265	122,157	132,279	143,294	154,755		
27		115,809	123,529	133,566	144,529	155,956		
28		117,353	124,902	134,853	145,765	157,157	168,824	
29		118,897	126,275	136,140	147,000	158,358	170,000	
30		120,441	127,647	137,426	148,235	159,559	171,176	
31		121,985	129,020	138,713	149,471	160,760	172,353	
32		123,529	130,392	140,000	150,706	161,961	173,529	185,294
33			131,765	141,287	151,941	163,162	174,706	186,452
34			133,137	142,574	153,176	164,363	175,882	187,610
35			134,510	143,860	154,412	165,564	177,059	188,768
36			135,882	145,147	155,647	166,765	178,235	189,926
37			137,255	146,434	156,882	167,966	179,412	191,085
38			138,627	147,721	158,118	169,167	180,588	192,243
39			140,000	149,007	159,353	170,368	181,765	193,401
40			141,373	150,294	160,588	171,569	182,941	194,559
41			142,745	151,581	161,824	172,770	184,118	195,717
42			144,118	152,868	163,059	173,971	185,294	196,875
43			145,490	154,154	164,294	175,172	186,471	198,033
44			146,863	155,441	165,529	176,373	187,647	199,191
45			148,235	156,728	166,765	177,574	188,824	200,349
46			149,608	158,015	168,000	178,775	190,000	201,507
47			150,980	159,301	169,235	179,975	191,176	202,665
48			152,353	160,588	170,471	181,176	192,353	203,824
49			153,725	161,875	171,706	182,377	193,529	204,982
50			155,098	163,162	172,941	183,578	194,706	206,140
51			156,471	164,449	174,176	184,779	195,882	207,298
52			157,843	165,735	175,412	185,980	197,059	208,456
53			159,216	167,022	176,647	187,181	198,235	209,614
54			160,588	168,309	177,882	188,382	199,412	210,772
55			161,961	169,596	179,118	189,583	200,588	211,930
56			163,333	170,882	180,353	190,784	201,765	213,088
57			164,706	172,169	181,588	191,985	202,941	214,246
58				173,456	182,824	193,186	204,118	215,404
59				174,743	184,059	194,387	205,294	216,562
60				176,029	185,294	195,588	206,471	217,721

Total truck weight must not exceed the scale rated capacity.

Weigh-Tronix IMTS-HD & FCTS-HD Truck Scales

Bridge Gross Weight Formula

CLC = 100,000		R = CLC / 34,000 =		2.9412					
Axle	2	3	4	5	6	7	8	9	
Span	Axles	Axles	Axles	Axles	Axles	Axles	Axles	Axles	
4	100,000								
5	100,000								
6	100,000								
7	100,000								
8	100,000	123,529							
9	114,706	125,735							
10	117,647	127,941							
11		130,147							
12		132,353	147,059						
13		134,559	149,020						
14		136,765	150,980						
15		138,971	152,941						
16		141,176	154,902	170,588					
17		143,382	156,863	172,426					
18		145,588	158,824	174,265					
19		147,794	160,784	176,103					
20		150,000	162,745	177,941	194,118				
21		152,206	164,706	179,779	195,882				
22		154,412	166,667	181,618	197,647				
23		156,618	168,627	183,456	199,412				
24		158,824	170,588	185,294	201,176	217,647			
25		161,029	172,549	187,132	202,941	219,363			
26		163,235	174,510	188,971	204,706	221,078			
27		165,441	176,471	190,809	206,471	222,794			
28		167,647	178,431	192,647	208,235	224,510	241,176		
29		169,853	180,392	194,485	210,000	226,225	242,857		
30		172,059	182,353	196,324	211,765	227,941	244,538		
31		174,265	184,314	198,162	213,529	229,657	246,218		
32		176,471	186,275	200,000	215,294	231,373	247,899	264,706	
33			188,235	201,838	217,059	233,088	249,580	266,360	
34			190,176	203,676	218,824	234,804	251,261	268,015	
35			192,157	205,515	220,588	236,520	252,941	269,669	
36			194,118	207,353	222,353	238,235	254,622	271,324	
37			196,078	209,191	224,118	239,951	256,303	272,978	
38			198,039	211,029	225,882	241,667	257,983	274,632	
39			200,000	212,868	227,647	243,382	259,664	276,287	
40			201,961	214,706	229,412	245,098	261,345	277,941	
41			203,922	216,544	231,176	246,814	263,025	279,596	
42			205,882	218,382	232,941	248,529	264,706	281,250	
43			207,843	220,221	234,706	250,245	266,387	282,904	
44			209,804	222,059	236,471	251,961	268,067	284,559	
45			211,765	223,897	238,235	253,676	269,748	286,213	
46			213,725	225,735	240,000	255,392	271,429	287,868	
47			215,686	227,574	241,765	257,108	273,109	289,522	
48			217,647	229,412	243,529	258,824	274,790	291,176	
49			219,608	231,250	245,294	260,539	276,471	292,831	
50			221,569	233,088	247,059	262,255	278,151	294,485	
51			223,529	234,926	248,824	263,971	279,832	296,140	
52			225,490	236,765	250,588	265,686	281,513	297,794	
53			227,451	238,603	252,353	267,402	283,193	299,449	
54			229,412	240,441	254,118	269,118	284,874	301,103	
55			231,373	242,279	255,882	270,833	286,555	302,757	
56			233,333	244,118	257,647	272,549	288,235	304,412	
57			235,294	245,956	259,412	274,265	289,916	306,066	
58				247,794	261,176	275,980	291,597	307,721	
59				249,632	262,941	277,696	293,277	309,375	
60				251,471	264,706	279,412	294,958	311,029	

Total truck weight must not exceed the scale rated capacity.