

Steam Engine Size and Horse Power

Boiler pressure is 150# unless noted

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1915 20th Century	6 1/16 x 10	16	288.7	0.055
	7 x 10	20	384.8	0.052
	7 1/2 x 10	25	441.8	0.057
1907- 11 Advance	7 1/4 x 10	10	412.8	0.024
	7 5/8 x 10	12	456.6	0.026
	6 1/4 & 9 x 9	14 (T. C.)	276.1 & 572.6	0.025
	8 1/2 x 10	16	567.5	0.028
	7 1/4 & 10 1/4 x 9	18 (T. C.)	371.5 & 742.6	0.024
	9 x 10	20	636.2	0.031
	7 5/8 & 10 1/4 x 10	21 (T. C.)	456.6 & 825.2	0.023
	9 x 11	22	699.8	0.031
	9 & 12 x 10	26 (T. C.)	636.2 & 1131	0.020
	10 x 12	30	942.5	0.032
	9 & 13 x 12	35 (T. C.)	763.4 & 1592.8	0.023
	9 & 12 x 11	30 (T. C.)	699.8 & 1244.1	0.021
	9 & 13 x 13	40 (T. C.)	827.1 & 1725.5	0.024
1914-21 Adv-Rum	8 1/2 x 10	16	567.5	0.028
	9 x 10	20	636.2	0.031
	9 x 11	22	699.8	0.031
	10 x 12	25	942.5	0.027
1913, 14 Avery	6 x 10 (2)	20	565.5	0.035
	7 x 10 (2)	30	769.7	0.039
	7 x 10 (2)	40	769.7 (200#)	0.052
	10 x10	25-75	785.4	0.032

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1916 Avery	8 ¼ x 10	16 (175#)	534.6	0.030
	8 ¾ x 10	20 (175#)	601.3	0.033
	10 x 10	25 (175#)	785.4	0.032
1912 Baker	8 ¾ x 10 ¼	16 (140#)	616.4	0.026
	9 ¼ x 10	18 (140#)	817.3	0.022
	10 x 10	20 (140#)	785.4	0.025
	10 ¾ x 10 ½	25 (140#)	953	0.026
1921 Baker	5 ½ & 9 ¼ x 8	20 (T. C., 300#)	190.1 & 537.6	0.053
1887 Buffalo-Pitts	5 ½ x 9	6	213.8	0.028
	6 ½ x 9	8	298.7	0.027
	7 ½ x 10	10	441.8	0.023
	8 ¼ x 10	13	534.6	0.024
	9 x 10	18	636.2	0.028
1912 Buffalo-Pitts	7 x 10	10	384.9	0.026
	6 x 10 (2)	14	565.5	0.025
	8 1/2 x 10	15	567.5	0.026
	6 1/4 x 10 (2)	18	613.6	0.029
	8 1/2 x 12	18	680.9	0.026
	9 ¼ x 12	20	806.4	0.025
	10 x 12	25	942.5	0.027
	7 x 10 (2)	25	769.7	0.032
	11 ¼ x 12	30	1192.8	0.025
	7 ¾ x 12 (2)	35	1132.2	0.031
1906 Case	14 x 14	40-150 (160#)	2155.1	0.0696

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1913 Case	6 x 8	18 (140#)	226.2	0.080
	7 ¼ x 10	30 (140#)	412.8	0.073
	8 1/4 x 10	40 (140#)	534.6	0.075
	9 x 10	50 (150#)	636.2	0.079
	10 x 10	60 (140#)	785.4	0.076
	11 x 11	80 (150#)	1045.4	0.077
	12 x 12	110 (160#)	1357.2	0.081
1919 Case	7 ¼ x 10	15	412.8	0.036
	8 ¼ x 10	20	534.6	0.037
	9 x 10	25	636.2	0.039
	10 x 10	30	785.4	0.038
	10 x 11	33	863.9	0.038
	11 x 11	40	1045.4	0.038
	12 x 12	55 (160#)	1357.2	0.040
1908 Colean	6 x 10 (2)	18	565.5	0.032
	7 x 10 (2)	25	769.6	0.032
	7 1/2 x 10 (2)	30	883.6	0.034
1896 Frick	4 ½ x 7 (Sta.)	4	111.3	0.036
	5 x 8 (Sta.)	6	157.0	0.038
	6 x9 (Sta.)	8	254.5	0.031
	7 x 9	10	346.4	0.029
	7 x 10 (Sta.)	11	384.9	0.029
	7 ½ x 9	12	397.6	0.030
	8 x 10	15	502.7	0.030
	8 1/2 x 10	17	567.5	0.030
	9 x 12	20	763.4	0.026

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1896 Frick	10 x 12	25	942.5	0.027
	10 x 16	30	1256.4	0.024
	11 x 16	40	1520.5	0.026
1912 Frick	4 ½ x 7 (Sta.)	4	111.3	0.036
	5 x 8 (Sta.)	(6)	157.0	
	6 x 9 (Sta.)	(8)	254.5	
	7 x 9	(9)	346.4	
	7 x 10 (Sta.)	(10)	384.9	
	7 ½ x 9	(10)	397.6	
	8 x 10 (Sta.)	(15)	502.7	
	8 ½ x 10	16 (135#)	567.5	0.028
	9 x 10	(18) (135#)	636.2	
	9 ½ x 10	(20) (135#)	708.8	
	7 x 10 (2)	(30) (135#)	769.7	
	8 x 10 (2)	(35) (160#)	1005.3	
	9 x 12 (Sta.)	(22)	763.4	
	10 x 12 (Sta.)	(25)	942.5	
	10 x 16 (Sta.)	(35)	1256.6	
11 x 16 (Sta.)	40	1520.5	0.026	
1909 Gaar-Scott	5 ½ x 10	6	323.9	0.019
	6 ½ x 11	8	365	0.022
	7 x 11	10	423.3	0.024
	7 ¾ x 11	13	518.9	0.025
	8 ¼ x 11	16	588	0.027
	8 ½ x 11	18	624.2	0.029

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1909 Gaar-Scott (cont.)	9 ¼ x 11	22	739.2	0.030
	6 ¾ x 11 (2)	22	787.3	0.028
	7 x 11 (2)	25	846.7	0.030
	8 ½ & 13 x 11	30 (T. C.)	624.2 & 1460	0.024
	11 x 12	32	1140.4	0.028
	6 ½ & 10 x 11 (2)	40 (T. C.)	365 & 863.9	0.027
1910 Geiser	7 x 9	10	346.4	0.029
	7 1/2 x 10	14	441.8	0.032
	8 x 10	15	502.7	0.030
	8 1/2 x 10	16	567.5	0.028
	8 3/4 x 10	18	601.3	0.030
	9 1/2 x 10	22	708.8	0.031
	10 x 10	25	785.4	0.032
	8 1/2 x 10 (2)	35	1134.9	0.031
1913 Geiser	7 ¾ x 10	14	471.7	0.030
	8 ¾ x 10	20	601.3	0.033
	6 ½ x 10 (2)	20	663.7	0.030
	9 ½ x 10	22	708.8	0.031
	7 x 10 (2)	22	769.7	0.029
	10 x 10	25	785.4	0.032
1911 Huber	7 x 8	8	307.9	0.026
	7 ½ x 8	10	353.4	0.028
	8 x 8	12	402.1	0.030
	8 ½ x 10	16	567.5	0.028
	9 x 11	18	699.8	0.026
	9 ½ x 11	20	779.7	0.032

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1911 Huber (cont.)	10 x 12	25	942.5	0.027
	11 x 12	30	1140.4	0.026
1923 Jumbo (Harrison Machine Works)	7 7/8 x 11	15	535.8	0.028
	8 1/4 x 11	17	588	0.029
	8 3/4 x 11 1/4	20	676.5	0.030
1914 Minneapolis	8 1/2 x 10	16	567.5	0.028
	8 1/2 x 11	18	624.2	0.029
	9 1/4 x 11	20	739.2	0.027
	9 1/2 x 11	22	779.7	0.028
	10 x 11	25	863.9	0.029
	11 x 11	30	1045.4	0.029
	12 x 12	35	1357.2	0.026
	8 1/4 & 12 x 11	30 (T. C.)	588 & 1244.1	0.026
1926 Minneapolis	9 1/4 x 11	20	739.2	0.027
	10 x 11	24	863.9	0.028
1894 N-S	6 x 9	6	254.5	0.024
	7 x 10	10	384.8	0.026
	7 1/2 x 10	13	441.8	0.029
	7 3/4 x 10	15	471.7	0.032
	8 x 12	16	603.2	0.027
	8 1/2 x 11	18	624.2	0.029
1902 N-S	7 1/4 x 10	10	412.83	0.024
	7 3/4 x 10	13	471.7	0.028
	8 x 12	16	603.2	0.027
	8 1/4 x 12	18	641.5	0.028
	8 1/2 x 12	20	680.9	0.029

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1902 N-S (cont.)	9 1/4 x 12	25	806.4	0.031
	9 3/4 x 12	30	895.9	0.033
1908 N-S	7 7/8 x 11 (2)	35-120	1071.6	0.033
1910 N-S	7 7/8 x 11 (2)	35-120	1071.6	0.033
1913 N-S	7 3/4 x 10	13	471.7	0.028
	8 x 12	16	603.2	0.027
	8 1/2 x 12	20	680.9	0.029
	9 1/4 x 12	25	806.4	0.031
	9 3/4 x 12	30	895.9	0.033
	5 3/4 x 10 (2)	16	519.3	0.031
	6 3/8 x 10 (2)	20	638.4	0.031
	6 3/4 x 10 (2)	25	715.7	0.035
	7 1/4 x 11 (2)	30	908.2	0.033
	1914 N-S	7 3/4 x 10	13-39	471.7
8 x 12		16-48	603.2	0.027
8 1/2 x 12		20-60	680.9	0.029
9 1/4 x 12		25-75	806.4	0.031
9 3/4 x 12		30-90	895.9	0.033
5 3/4 x 10 (2)		16-48	519.3	0.031
6 3/8 x 10 (2)		20-60	638.4	0.031
6 3/4 x 10 (2)		25-75	715.7	0.035
7 1/4 x 11 (2)		30-90	908.2	0.033
1915 N-S	7 3/4 x 10	13-40	471.7	0.028
	8 x 12	16-50	603.2	0.027
	8 1/2 x 12	20-70	680.9	0.029

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1915 N-S (cont.)	9 1/4 x 12	25-85	806.4	0.031
	9 3/4 x 12	30-98	895.9	0.033
	5 3/4 x 10 (2)	16-50	519.3	0.031
	6 3/8 x 10 (2)	20-70	638.4	0.031
	6 3/4 X 10 (2)	25-85	715.7	0.035
	7 7/8 x 11 (2) (Wade's engine-)	30-98 (132 HP) Recorded at Rock River Thresheree, September 5, 2005	1071.6 (2887 Ft Lbs)	0.028 (0.123)
1917, 18 N-S	7 3/4 x 12	13-40	566.1	0.023
	8 x 12	16-50	603.2	0.027
	8 1/2 x 12	20-70	680.9	0.029
	9 1/4 x 12	25-85	806.4	0.031
	9 3/4 x 12	30-98	895.9	0.033
	6 1/4 x 12 (2)	16-60	736.3	0.022
	6 3/8 x 10 (2)	20-75	638.4	0.031
	7 X 10 (2)	25-85	769.6	0.032
1920 N-S	8 x 12	16-50	603.2	0.027
	8 1/2 x 12	20-70	680.9	0.029
	9 1/4 x 12	25-85	806.4	0.031
	6 1/4 x 10 (2)	16-60	613.6	0.026
	7 x 10 (2)	25-90	769.6	0.032
1921, 22 N-S	8 x 12	16-50	603.2	0.027
	8 1/2 x 12	20-70	680.9	0.029
	9 1/4 x 12	25-85	806.4	0.031
	6 1/4 x 10 (2)	16-60	613.6	0.026
	6 5/8 x 10 (2)	20-75	689.4	0.029
	7 x 10 (2)	25-90	769.6	0.032

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1903 Northwest	8 ½ x 10	16 (120#)	567.5	0.028
	9 x 10	18 (120#)	636.2	0.028
	9 ½ x 10	20 (120#)	708.8	0.028
	9 ½ x 10	25 (150#)	708.8	0.035
	7 ¾, & 10 ¾ x 10	20 (T.C., 120#)	471.7 & 1076.5	0.021
	7 ¾ & 11 ¼ X 10	22 (T.C., 120#)	471.7 & 1268.9	0.024
	8 ¼ & 12 x 10	25 (T.C., 120#)	534.6 & 1131	0.023
	8 ¼ & 12 x 10	30 (T.C., 150#)	534.6 & 1131	0.028
1917 Port Huron	8 ½ X 10	20-60 (175#)	567.5	0.035
	6 & 9 x 10	16-50 (T. C., 175#))	282.7 & 636.2	0.028
	6 1/2 & 9 3/4 x 10	19-65 (T. C., 175#)	331.8 & 746.6	0.029
	7 1/2 & 11 x 10	24-75 (T. C., 175#)	441.8 & 950.3	0.027
	8 1/2 & 13 1/4 x 10	32-100 (T. C., 175#)	567.5 & 1378.9	0.028
1905 Reeves	6 3/8 x 8 (2)	13	510.7	0.025
	6 1/8 x 11 (2)	16	648.2	0.025
	6 1/2 x 12 (2)	20	796.4	0.025
	7 x 13 (2)	25	1000.6	0.025
	7 5/8 x 14 (2)	32	1278.6	0.025
	6 3/8 & 9 5/8 x 10	13 (C. C.)	319.2 & 727.6	0.020
	6 3/4 & 11 x 11	16 (C. C.)	393.6 & 1045.4	0.020
	7 1/4 & 12 x 12	20 (C. C.)	495.4 & 1357.2	0.020
	7 3/4 & 13 x 13	25 (C. C.)	613.3 & 1725.5	0.020
	8 1/2 & 14 & 14	32 (C. C.)	794.4 & 2155.1	0.020
1913 Reeves	9 & 14 ¾ x 15	40 (C. C.)	954.3 & 2563.1	0.021

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1914 Rumely	8 ¾ x 10 ¼	16	616.3	0.026
	10 x 10 ¼	20	805.0	0.025
	6 ¼ x 10 ¼ (2)	16	628.9	0.025
	6 ½ x 12 (2)	20	796.4	0.025
	10 3/8 x 11	25	930	0.027
1912 Russell	5 x 7	6	137.4	0.044
	6 x 8	8	226.2	0.035
	7 1/2 x 10	12	441.8	0.027
	8 x 10	15	502.7	0.030
	8 1/4 x 12	18	641.5	0.031
	9 x 13	20	827	0.024
	10 x 13	25	1021	0.024
1920 Russell	7 1/2 x 10	12-36	441.8	0.027
	8 x 10	16-48	502.7	0.032
	8 1/4 x 12	20-60	641.5	0.031
	9 x 13	25-75	827	0.030
	10 x 13	30-90	1021	0.029
1914 Sawyer-Massey	7 x 10	30	384.8	0.078
	8 x 10	51 (175#)	502.7	0.101
	9 x 10	60 (175#)	636.2	0.094
	9 x 11	68 (175#)	699.8	0.097
	9 1/2 x 11	76 (175#)	779.7	0.097
	7 1/2 & 11 x 10	82 (175#) (T. C.)	441.8 & 950.3	0.093
	7 3/4 & 12 1/2 x 11	100 (175#) (T. C.)	518.9 & 1349.9	0.096
	12 x 14	115 (172#)	1583.4	0.073

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
1886 Westinghouse	4 ½ x 5	4 (110#)	79.5	0.050
	5 ½ x 7	6 (110#)	166.3	0.036
	7 x 7	10 (110#)	269.4	0.037
	8 x 8	15 (110#)	402.1	0.037

The engine sizes listed are from catalogs on line @ steamcatalogs.com

Compound calculation: Divide HP by smaller cylinder cu. In. x 2 (for 2 cyl. X 4)
The actual force is the same for High and Low pressure pistons

The last six entries are included for interest only

1953 Skinner (LMC)	22.5 & 55 x 26 (x4)	3500 (470#)	37,900.3 & 243,635.8	0.046
S.S. Badger	Unaflow vertical 4 cyl. High pr. Up = 364.43 sq.in	470# steam = 171282.1 lbs pressure		
	Steeple Compound	Low pr Dn = 2342.65 sq.in	73.12# steam = 171282.1 lbs pressure	
	6.5" Rod = 33.183 s.i. (est.)	Stroke = 26"		
1862 U.S.S.Monitor	36 x 22 (2) 13" trunk = 132.7 sq. in.	320 (40#)	43901.5	0.0073
1911 Filer & Stowell	12 x 24	89 (100#)	2,714.3	0.033
	30 x 60	895 (100#)	42,411.6	0.021
1911 Titanic Triple expanding Vertical 4 cyl. Compound	54 x 75	15,000 (215#)	171,767	0.022
	84 x 75		415,634	
	97 x 75(x2)		1,108,474	
	High pr. Dn = 2,290.23 sq. in	215# steam = 492,399.5 lbs pressure		
	High pr. Up = 2,101.53 sq. in	215# steam = 451,828.9 lbs pressure		
	Int. pr. Dn = 5,541.78 sq. in	78# steam = 432,259 lbs pressure		
	Int. pr. Up = 5,353.08 sq. in	78# steam = 417,540.2 lbs pressure		
	Low pr. Dn = 14,779.7 sq. in	24# steam = 354,712.8		
	Low pr. Up = 14,591 sq. in	24# steam = 350,184		
	15.5" Rod = 188.7 sq. in (est.)	Stroke = 75"		
Two engines = 30,000 plus one turbine = 16,000 for a total of 46,000 horsepower				

Make	Size, B x S	HP	Cubic Inch	HP/Cu. In.
Mikado 1003	28 x 30 (2)	3000 (170#)	36,945	0.081
Big Boy	23 ¾ x 32 (4)	6300 (300#)	56,706	0.111

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Terry Jones

**Gauge, Instrument and Magneto
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