



Model: MSD Series Hydraulic Bolt Tensioner

Chart of Pressure and Tensile Force

Model	MSD30-M27	MSD33/36.3.75	MSD33.2.79	MSD36.2.75	MSD36.2.87	MSD36JG.2.82	MSD39.2.94	MSD39.2.100	MSD52/45/42.2.108	MSD42.3.100	MSD45.2.112	MSD48.2.122	MSD56.2.138	MSD56L.2.141	MSD60	MSD64.2.150	MSD64L.2.150
Pressure (MPa)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)	Tensile Force (kN)
20	77.1	90.5	85.6	60.3	96.6	98.9	116.1	143.1	141.1	176.3	180.7	197.2	256.9	229.2	296.2	298.0	245.3
21	81.0	95.0	89.8	63.3	101.4	103.8	121.9	150.2	148.2	183.5	189.7	207.0	269.8	240.6	311.0	312.9	257.6
22	84.8	99.5	94.1	66.4	106.2	108.7	127.7	157.4	155.3	194.0	198.8	216.9	282.6	252.1	325.8	327.8	269.8
23	88.7	104.1	98.4	69.4	111.0	113.7	133.5	164.5	162.3	202.8	207.8	226.7	295.5	263.6	340.6	342.7	282.1
24	92.5	108.6	102.7	72.4	115.9	118.6	139.3	171.7	169.4	211.6	216.8	236.6	308.3	275.0	355.4	357.6	294.4
25	96.4	113.1	107.0	75.4	120.7	123.6	145.1	178.8	176.4	220.4	225.9	246.5	321.2	286.5	370.2	372.5	306.6
26	100.2	117.6	111.2	78.4	125.5	128.5	150.9	186.0	183.5	229.2	234.9	256.3	334.0	297.9	385.0	387.4	318.9
27	104.1	122.1	115.5	81.4	130.3	133.5	156.7	193.1	190.5	238.1	243.9	266.2	346.9	309.4	399.8	402.3	331.2
28	107.9	126.7	119.8	84.4	135.2	138.4	162.5	200.3	197.6	246.9	253.0	276.0	359.7	320.9	414.6	417.2	343.4
29	111.8	131.2	124.1	87.5	140.0	143.4	168.3	207.4	204.7	255.7	262.0	285.9	372.6	332.3	429.5	432.1	355.7
30	115.7	135.7	128.3	90.5	144.8	148.3	174.1	214.6	211.7	264.5	271.0	295.7	385.4	343.8	444.3	447.0	368.0
31	119.5	140.2	132.6	93.5	149.7	153.2	179.9	221.7	218.8	273.3	280.1	305.6	398.3	355.2	459.1	461.9	380.2
32	123.4	144.8	136.9	96.5	154.5	158.2	185.7	228.9	225.8	282.1	289.1	315.5	411.1	366.7	473.9	476.8	392.5
33	127.2	149.3	141.2	99.5	159.3	163.1	191.5	236.0	232.9	291.0	298.2	325.3	424.0	378.2	488.7	491.7	404.8
34	131.1	153.8	145.5	102.5	164.1	168.1	197.3	243.2	239.9	299.8	307.2	335.2	436.8	389.6	503.5	506.6	417.0
35	134.9	158.3	149.7	105.6	169.0	173.0	203.1	250.4	247.0	308.6	316.2	345.0	449.7	401.1	518.3	521.5	429.3
36	138.8	162.9	154.0	108.6	173.8	178.0	208.9	257.5	254.1	317.4	325.3	354.9	462.5	412.5	533.1	536.4	441.6
37	142.6	167.4	158.3	111.6	178.6	182.9	214.7	264.7	261.1	326.2	334.3	364.7	475.4	424.0	547.9	551.3	453.8
38	146.5	171.9	162.6	114.6	183.5	187.8	220.5	271.8	268.2	335.1	343.3	374.6	488.2	435.5	562.7	566.2	466.1
39	150.4	176.4	166.9	117.6	188.3	192.8	226.3	279.0	275.2	343.9	352.4	384.5	501.0	446.9	577.5	581.1	478.4
40	154.2	181.0	171.1	120.6	193.1	197.7	232.1	286.1	282.3	352.7	361.4	394.3	513.9	458.4	592.4	596.0	490.6
41	158.1	185.5	175.4	123.7	197.9	202.7	237.9	293.3	289.3	361.5	370.4	404.2	526.7	469.8	607.2	610.9	502.9
42	161.9	190.0	179.7	126.7	202.8	207.6	243.7	300.4	296.4	370.3	379.5	414.0	539.6	481.3	622.0	625.8	515.2
43	165.8	194.5	184.0	129.7	207.6	212.6	249.5	307.6	303.5	379.1	388.5	423.9	552.4	493.8	636.8	640.7	527.4
44	169.6	199.1	188.2	132.7	212.4	217.5	255.3	314.7	310.5	388.0	397.5	433.8	565.3	504.2	651.6	655.6	539.7
45	173.5	203.6	192.5	135.7	217.2	222.4	261.1	321.9	317.6	396.8	406.6	443.6	578.1	515.7	666.4	670.5	552.0
46	177.3	208.1	196.8	138.7	222.1	227.4	266.9	329.0	324.6	405.6	415.6	453.5	591.0	527.1	681.2	685.4	564.2
47	181.2	212.6	201.1	141.8	226.9	232.3	272.7	336.2	331.7	414.4	424.6	463.3	603.8	538.6	696.0	700.3	576.5
48	185.0	217.1	205.4	144.8	231.7	237.3	278.5	343.3	338.7	423.2	433.7	473.2	616.7	550.1	710.8	715.2	588.8
49	188.9	221.7	209.6	147.8	236.6	242.2	284.3	350.5	345.8	432.0	442.7	483.0	629.5	561.5	725.6	730.1	601.0
50	192.8	226.2	213.9	150.8	241.4	247.2	290.1	357.6	352.9	440.9	451.7	492.9	642.4	573.0	740.4	745.0	613.3
51	196.6	230.7	218.2	153.8	246.2	252.1	295.9	364.8	359.9	449.7	460.8	502.8	655.2	584.4	755.3	759.9	625.5
52	200.5	235.2	222.5	156.8	251.0	257.0	301.7	372.0	367.0	458.5	469.8	512.6	668.1	595.9	770.1	774.8	637.8
53	204.3	239.8	226.7	159.8	255.9	262.0	307.5	379.1	374.0	467.3	478.8	522.5	680.9	607.3	784.9	789.7	650.1
54	208.2	244.3	231.0	162.9	260.7	266.9	313.3	386.3	381.1	476.1	487.9	532.3	693.8	618.8	799.7	804.6	662.3
55	212.0	248.8	235.3	165.9	265.5	271.9	319.1	393.4	388.1	484.9	496.9	542.2	706.6	630.3	814.5	819.5	674.6
56	215.9	253.3	239.6	168.9	270.4	276.8	325.0	400.6	395.2	493.8	506.0	552.0	719.4	641.7	829.3	834.4	686.9
57	219.7	257.9	243.9	171.9	275.2	281.8	330.8	407.7	402.3	502.6	515.0	561.9	732.3	653.2	844.1	849.3	699.1
58	223.6	262.4	248.1	174.9	280.0	286.7	336.6	414.9	409.3	511.4	524.0	571.8	745.1	664.6	858.9	864.3	711.4
59	227.5	266.9	252.4	177.9	284.8	291.6	342.4	422.0	416.6	520.2	533.1	581.6	758.0	676.1	873.7	879.2	723.7
60	231.3	271.4	256.7	181.0	289.7	296.6	348.2	429.2	423.4	529.0	542.1	591.5	770.8	687.6	888.5	894.1	735.9
61	235.2	276.0	261.0	184.0	294.5	301.5	354.0	436.3	430.5	537.8	551.1	601.3	783.7	699.0	903.3	909.0	748.2
62	239.0	280.5	265.3	187.0	299.3	306.5	359.8	443.5	437.5	546.7	560.2	611.2	796.5	710.5	918.2	923.9	760.5
63	242.9	285.0	269.5	190.0	304.1	311.4	365.6	450.6	444.6	555.5	569.2	621.1	809.4	721.9	933.0	938.8	772.7
64	246.7	289.5	273.8	193.0	309.0	316.4	371.4	457.8	451.7	564.3	578.2	630.9	822.2	733.4	947.8	953.7	785.0
65	250.6	294.1	278.1	196.0	313.8	321.3	377.2	464.9	458.7	573.1	587.3	640.8	835.1	744.9	962.6	968.6	797.3
66	254.4	298.6	282.4	199.1	318.6	326.2	383.0	472.1	465.8	581.9	596.3	650.6	847.9	756.3	977.4	983.5	809.5
67	258.3	303.1	286.6	202.1	323.5	331.2	388.8	479.2	472.8	590.7	605.3	660.5	860.8	767.8	992.2	998.4	821.8
68	262.1	307.6	290.9	205.1	328.3	336.1	394.6	486.4	479.9	599.6	614.4	670.3	873.6	779.2	1007.0	1013.3	834.1
69	266.0	312.2	295.2	208.1	333.1	341.1	400.4	493.6	486.9	608.4	623.4	680.2	886.5	790.7	1021.8	1028.2	846.3
70	269.9	316.7	299.5	211.1	337.9	346.0	406.2	500.7	494.0	617.2	632.4	690.1	899.3	802.2	1036.6	1043.1	858.6
71	273.7	321.2	303.8	214.1	342.8	351.0	412.0	507.9	501.1	626.0	641.5	699.9	912.2	813.6	1051.4	1058.0	870.9
72	277.6	325.7	308.0	217.1	347.6	355.9	417.8	515.0	508.1	634.8	650.5	709.8	925.0	825.1	1066.2	1072.9	883.1
73	281.4	330.2	312.3	220.2	352.4	360.8	423.6	522.2	515.2	643.6	659.5	719.6	937.9	836.5	1081.1	1087.8	895.4
74	285.3	334.8	316.6	223.2	357.3	365.8	429.4	529.3	522.2	652.5	668.6	729.5	950.7	848.0	1095.9	1102.7	907.7
75	289.1	339.3	320.9	226.2	362.1	370.7	435.2	536.5	529.3	661.3	677.6	739.4	963.5	859.5	1110.7	1117.6	919.9
76	293.0	343.8	325.1	229.2	366.9	375.7	441.0	543.6	536.3	670.1	686.6	749.2	976.4	870.9	1125.5	1132.5	932.2
77	296.8	348.3	329.4	232.2	371.7	380.6	446.8	550.8	543.4	678.9	695.7	759.1	989.2	882.4	1140.3	1147.4	944.5
78	300.7	352.9	333.7	235.2	376.6	385.6	452.6	557.9	550.7	687.7	704.7	768.9	1002.1	893.8	1155.1	1162.3	956.7
79	304.6	357.4	338.0	238.3	381.4	390.5	458.4	565.1	557.5	696.6	713.8	778.8	1014.9	905.3	1169.9	1177.2	969.0
80	308.4	361.9	342.3	241.3	386.2	395.5	464.2	572.2	564.6	705.4	722.8	788.6	1027.8	916.8	1184.7	1192.1	981.3
81	312.3	366.4	346.5	244.3	391.0	400.4	470.0	579.4	571.6	714.2	731.8	798.5	1040.6	928.2	1199.5	1207.0	993.5
82	316.1	371.0	350.8	247.3	395.9	405.3	475.8	586.5	578.7	723.0	740.9	808.4	1053.5	939.7	1214.3	1221.9	1005.8
83	320.0	375.5	355.1	250.3	400.7	410.3	481.6	593.7	585.7	731.8	749.9	818.2	1066.3	951.1	1229.1	1236.8	1018.0
84	323.8	380.0	359.4	253.3	405												

149		674.1		449.4	719.3		864.6		1051.5		1468.8				1827.6
150		678.6		452.4	724.2		870.4		1058.6		1478.7				1839.8