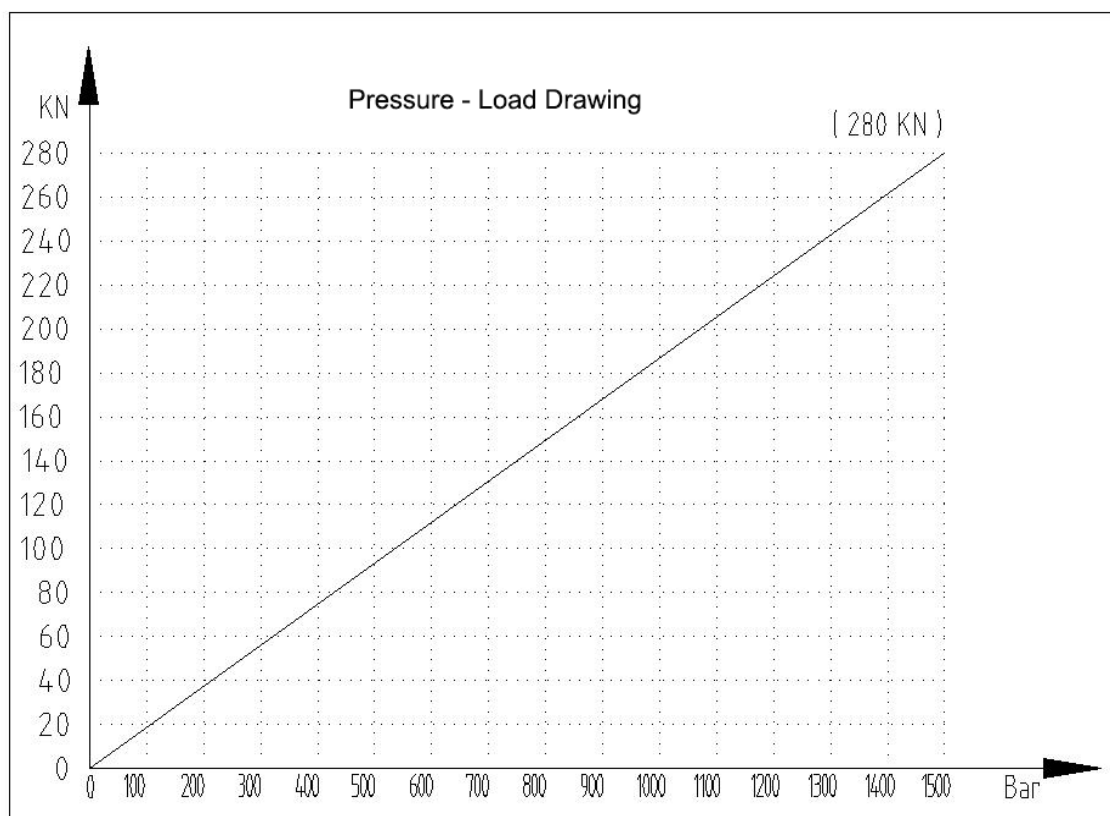
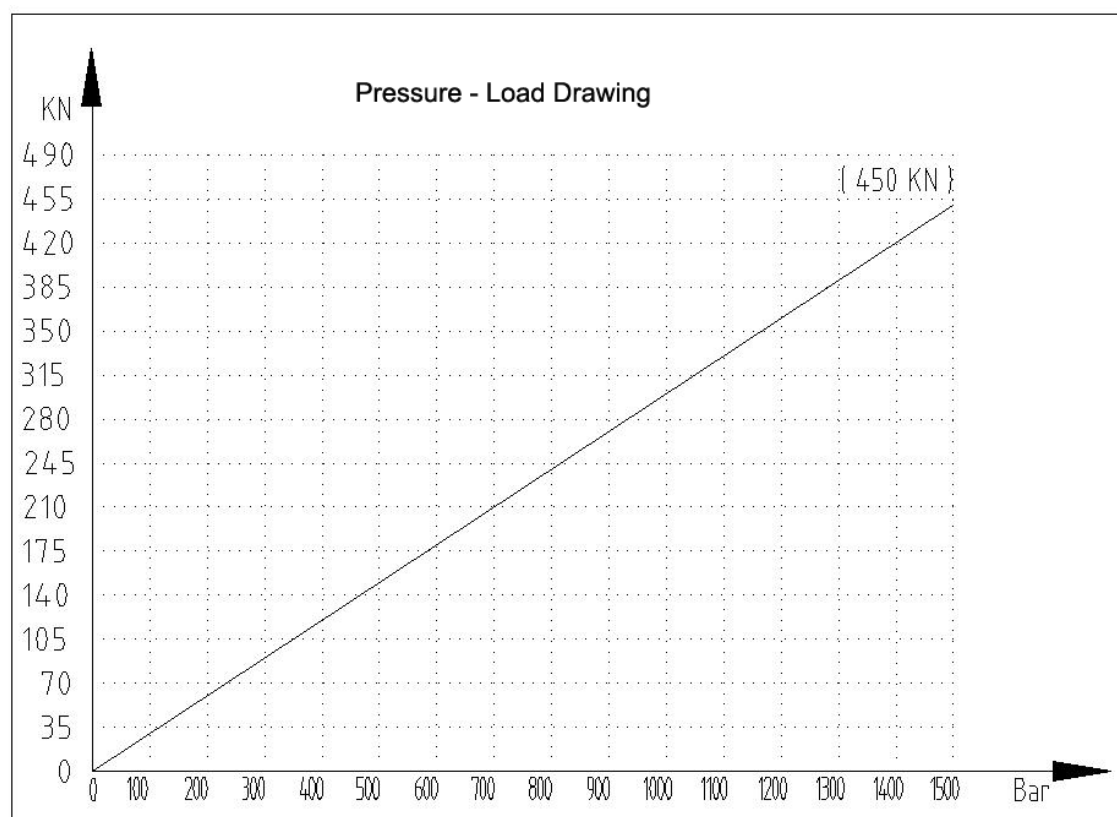


HSR Series Hydraulic Bolt Tensioner Pressure-Load Chart

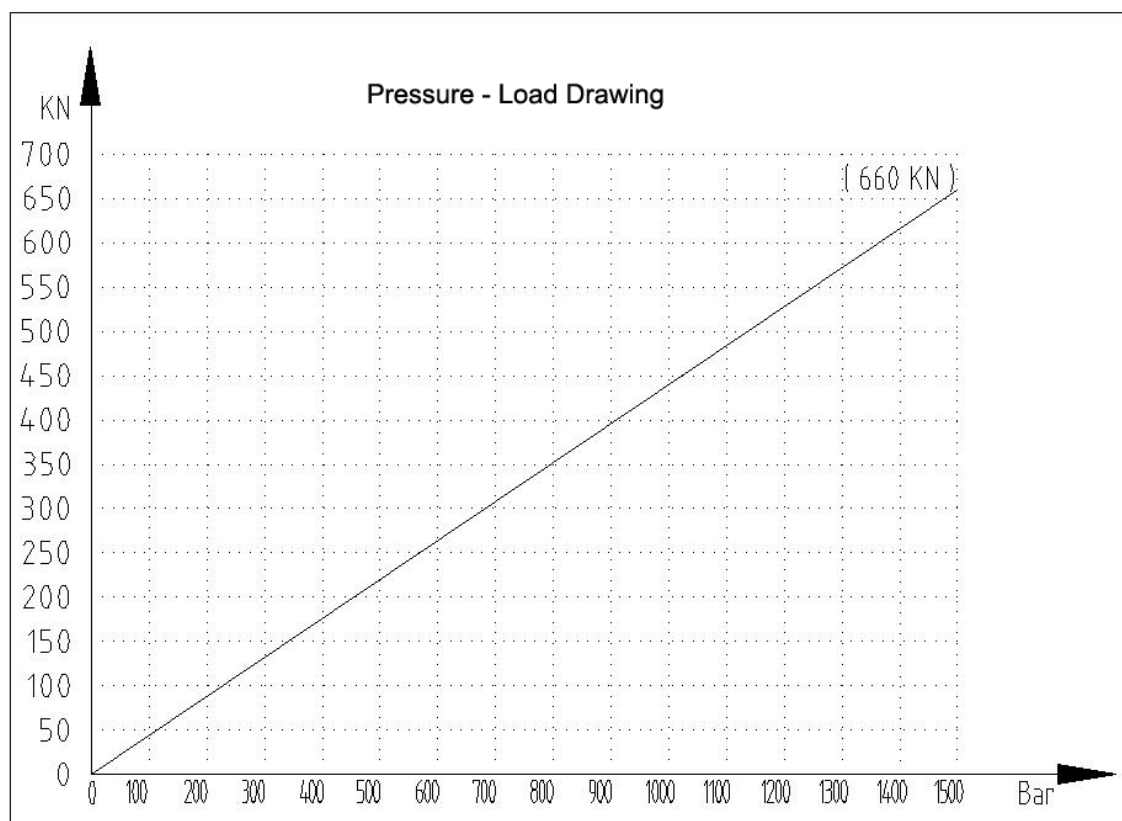
HSR1 Bolt Tensioner: Pressure. Load. Tensioner Force chart										
Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force
(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)
2	3.7	0.4		52	97.1	9.9		102	190.4	19.4
4	7.5	0.8		54	100.8	10.3		104	194.1	19.8
6	11.2	1.1		56	104.5	10.7		106	197.9	20.2
8	14.9	1.5		58	108.3	11.0		108	201.6	20.6
10	18.7	1.9		60	112.0	11.4		110	205.3	21.0
12	22.4	2.3		62	115.7	11.8		112	209.1	21.3
14	26.1	2.7		64	119.5	12.2		114	212.8	21.7
16	29.9	3.0		66	123.2	12.6		116	216.5	22.1
18	33.6	3.4		68	126.9	13.0		118	220.3	22.5
20	37.3	3.8		70	130.7	13.3		120	224.0	22.9
22	41.1	4.2		72	134.4	13.7		122	227.7	23.2
24	44.8	4.6		74	138.1	14.1		124	231.5	23.6
26	48.5	5.0		76	141.9	14.5		126	235.2	24.0
28	52.3	5.3		78	145.6	14.9		128	238.9	24.4
30	56.0	5.7		80	149.3	15.2		130	242.7	24.8
32	59.7	6.1		82	153.1	15.6		132	246.4	25.1
34	63.5	6.5		84	156.8	16.0		134	250.1	25.5
36	67.2	6.9		86	160.5	16.4		136	253.9	25.9
38	70.9	7.2		88	164.3	16.8		138	257.6	26.3
40	74.7	7.6		90	168.0	17.1		140	261.3	26.7
42	78.4	8.0		92	171.7	17.5		142	265.1	27.0
44	82.1	8.4		94	175.5	17.9		144	268.8	27.4
46	85.9	8.8		96	179.2	18.3		146	272.5	27.8
48	89.6	9.1		98	182.9	18.7		148	276.3	28.2
50	93.3	9.5		100	186.7	19.0		150	280.0	28.6
Formula:			Load(KN) =Operating Pressure(Mpa)/150x280			Tension Force(t)= Load (KN)/9.8				



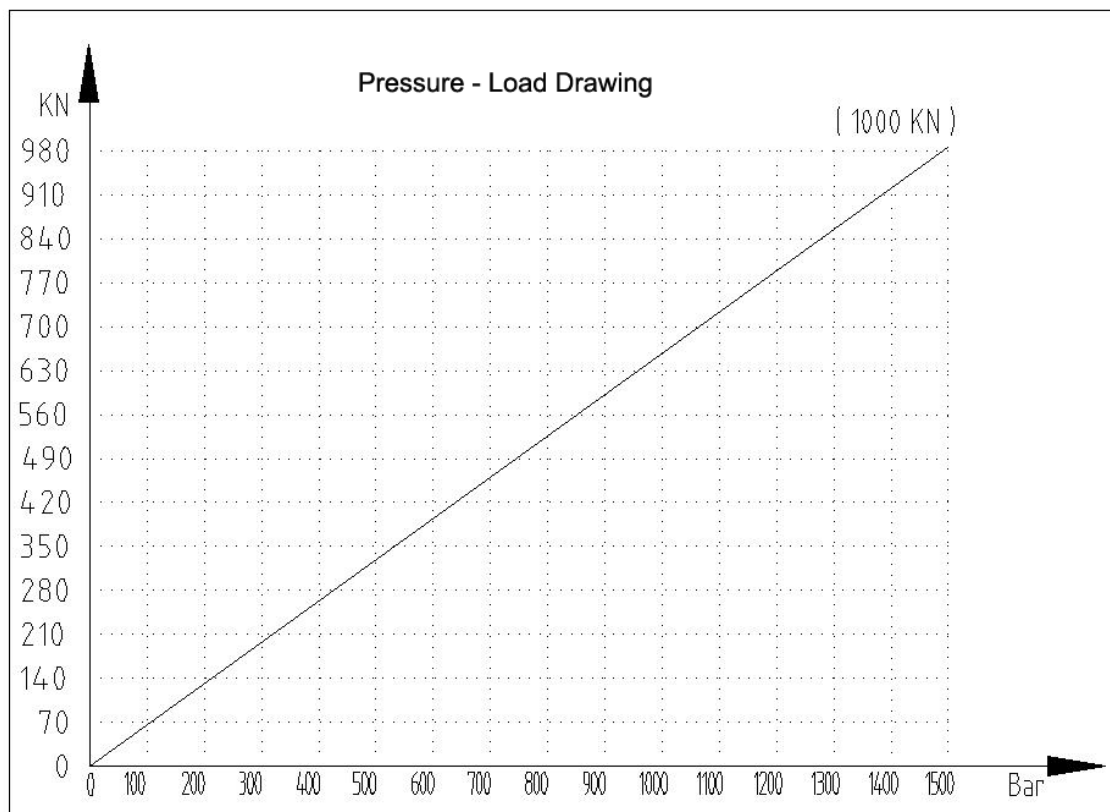
HSR2 Bolt Tensioner: Pressure. Load. Tension Force chart										
Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force
(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)
2	6	0.6		52	156.0	15.9		102	306.0	31.2
4	12.0	1.2		54	162.0	16.5		104	312.0	31.8
6	18.0	1.8		56	168.0	17.1		106	318.0	32.4
8	24.0	2.4		58	174.0	17.8		108	324.0	33.1
10	30.0	3.1		60	180.0	18.4		110	330.0	33.7
12	36.0	3.7		62	186.0	19.0		112	336.0	34.3
14	42.0	4.3		64	192.0	19.6		114	342.0	34.9
16	48.0	4.9		66	198.0	20.2		116	348.0	35.5
18	54.0	5.5		68	204.0	20.8		118	354.0	36.1
20	60.0	6.1		70	210.0	21.4		120	360.0	36.7
22	66.0	6.7		72	216.0	22.0		122	366.0	37.3
24	72.0	7.3		74	222.0	22.7		124	372.0	38.0
26	78.0	8.0		76	228.0	23.3		126	378.0	38.6
28	84.0	8.6		78	234.0	23.9		128	384.0	39.2
30	90.0	9.2		80	240.0	24.5		130	390.0	39.8
32	96.0	9.8		82	246.0	25.1		132	396.0	40.4
34	102.0	10.4		84	252.0	25.7		134	402.0	41.0
36	108.0	11.0		86	258.0	26.3		136	408.0	41.6
38	114.0	11.6		88	264.0	26.9		138	414.0	42.2
40	120.0	12.2		90	270.0	27.6		140	420.0	42.9
42	126.0	12.9		92	276.0	28.2		142	426.0	43.5
44	132.0	13.5		94	282.0	28.8		144	432.0	44.1
46	138.0	14.1		96	288.0	29.4		146	438.0	44.7
48	144.0	14.7		98	294.0	30.0		148	444.0	45.3
50	150.0	15.3		100	300.0	30.6		150	450.0	45.9
Formula: Load(KN) =Operating Pressure(Mpa)/150x450 Tension Force(t)= Load (KN)/9.8										



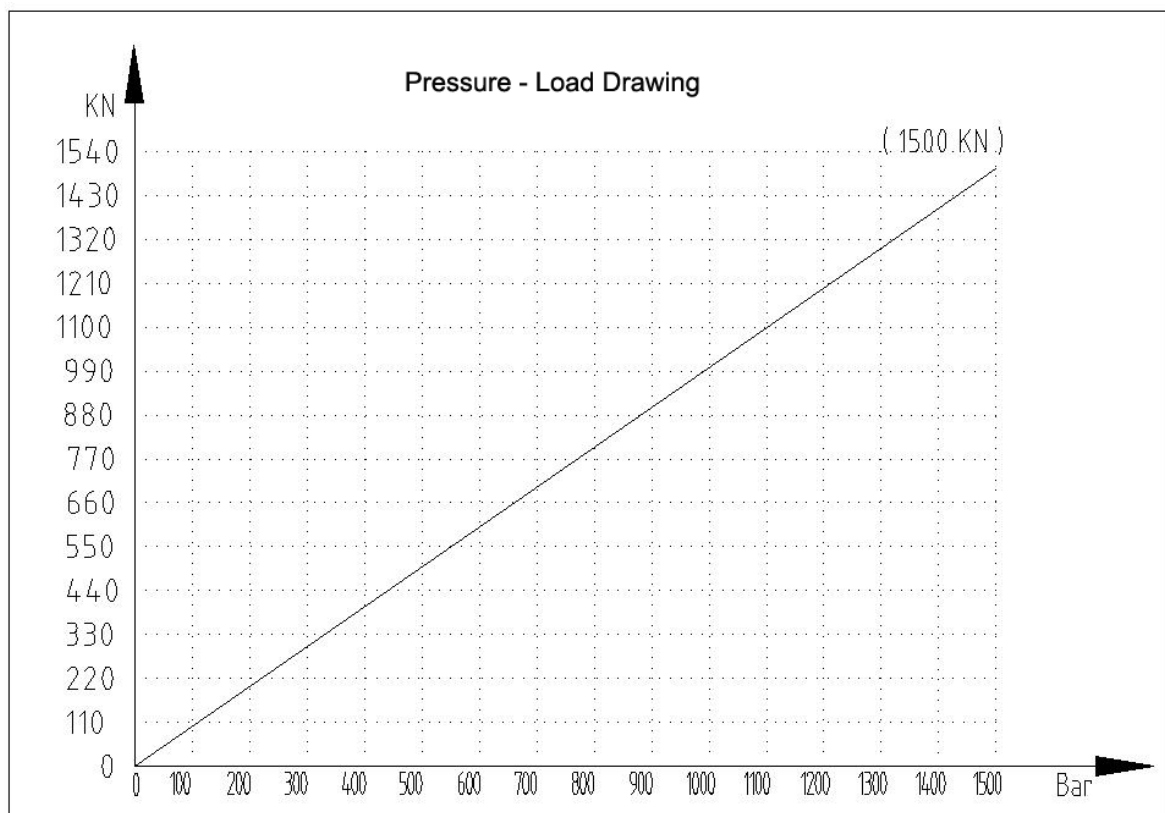
HSR3 Bolt Tensioner: Pressure. Load. Tension Force chart										
Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force
(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)
2	8.8	0.9		52	228.8	23.3		102	448.8	45.8
4	17.6	1.8		54	237.6	24.2		104	457.6	46.7
6	26.4	2.7		56	246.4	25.1		106	466.4	47.6
8	35.2	3.6		58	255.2	26.0		108	475.2	48.5
10	44.0	4.5		60	264.0	26.9		110	484.0	49.4
12	52.8	5.4		62	272.8	27.8		112	492.8	50.3
14	61.6	6.3		64	281.6	28.7		114	501.6	51.2
16	70.4	7.2		66	290.4	29.6		116	510.4	52.1
18	79.2	8.1		68	299.2	30.5		118	519.2	53.0
20	88.0	9.0		70	308.0	31.4		120	528.0	53.9
22	96.8	9.9		72	316.8	32.3		122	536.8	54.8
24	105.6	10.8		74	325.6	33.2		124	545.6	55.7
26	114.4	11.7		76	334.4	34.1		126	554.4	56.6
28	123.2	12.6		78	343.2	35.0		128	563.2	57.5
30	132.0	13.5		80	352.0	35.9		130	572.0	58.4
32	140.8	14.4		82	360.8	36.8		132	580.8	59.3
34	149.6	15.3		84	369.6	37.7		134	589.6	60.2
36	158.4	16.2		86	378.4	38.6		136	598.4	61.1
38	167.2	17.1		88	387.2	39.5		138	607.2	62.0
40	176.0	18.0		90	396.0	40.4		140	616.0	62.9
42	184.8	18.9		92	404.8	41.3		142	624.8	63.8
44	193.6	19.8		94	413.6	42.2		144	633.6	64.7
46	202.4	20.7		96	422.4	43.1		146	642.4	65.6
48	211.2	21.6		98	431.2	44.0		148	651.2	66.4
50	220.0	22.4		100	440.0	44.9		150	660.0	67.3
Formula: Load(KN) =Operating Pressure(Mpa)/150x660 Tension Force(t)= Load (KN)/9.8										



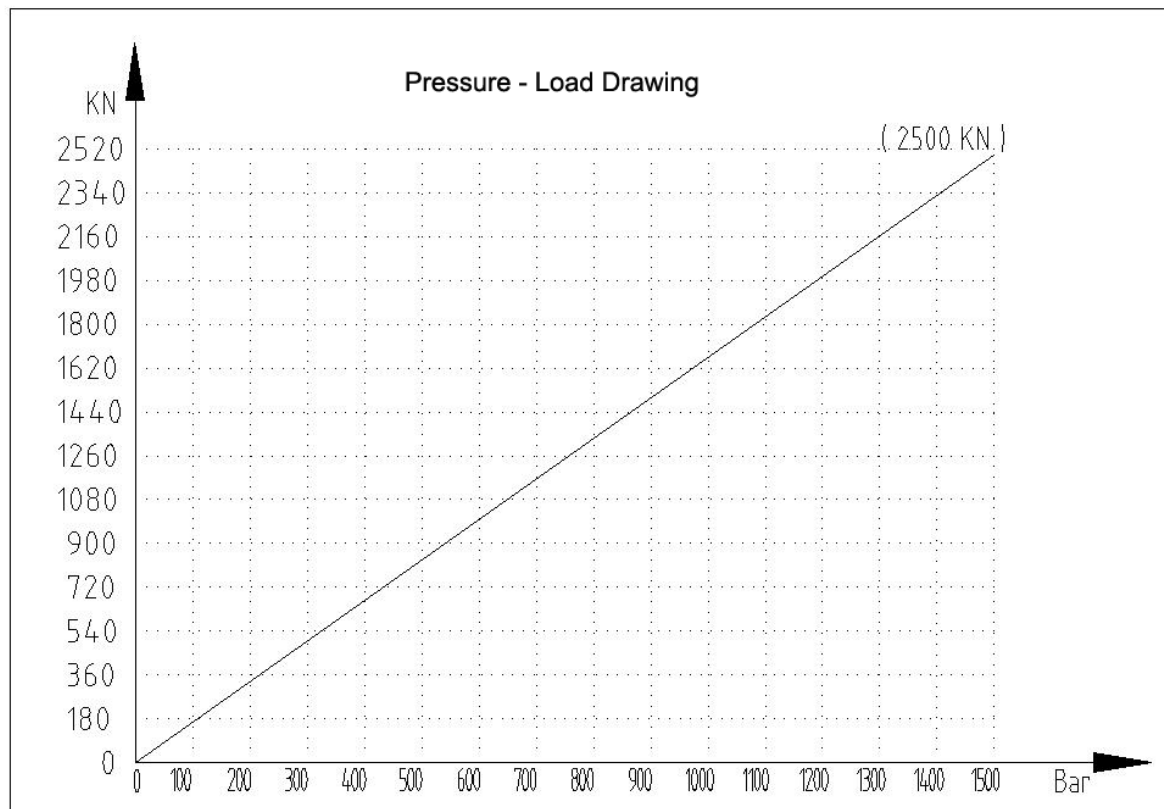
HSR4 Bolt Tensioner: Pressure. Load. Tension Force chart										
Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force
(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)
2	13.3	1.4		52	346.7	35.4		102	680.0	69.4
4	26.7	2.7		54	360.0	36.7		104	693.3	70.7
6	40.0	4.1		56	373.3	38.1		106	706.7	72.1
8	53.3	5.4		58	386.7	39.5		108	720.0	73.5
10	66.7	6.8		60	400.0	40.8		110	733.3	74.8
12	80.0	8.2		62	413.3	42.2		112	746.7	76.2
14	93.3	9.5		64	426.7	43.5		114	760.0	77.6
16	106.7	10.9		66	440.0	44.9		116	773.3	78.9
18	120.0	12.2		68	453.3	46.3		118	786.7	80.3
20	133.3	13.6		70	466.7	47.6		120	800.0	81.6
22	146.7	15.0		72	480.0	49.0		122	813.3	83.0
24	160.0	16.3		74	493.3	50.3		124	826.7	84.4
26	173.3	17.7		76	506.7	51.7		126	840.0	85.7
28	186.7	19.0		78	520.0	53.1		128	853.3	87.1
30	200.0	20.4		80	533.3	54.4		130	866.7	88.4
32	213.3	21.8		82	546.7	55.8		132	880.0	89.8
34	226.7	23.1		84	560.0	57.1		134	893.3	91.2
36	240.0	24.5		86	573.3	58.5		136	906.7	92.5
38	253.3	25.9		88	586.7	59.9		138	920.0	93.9
40	266.7	27.2		90	600.0	61.2		140	933.3	95.2
42	280.0	28.6		92	613.3	62.6		142	946.7	96.6
44	293.3	29.9		94	626.7	63.9		144	960.0	98.0
46	306.7	31.3		96	640.0	65.3		146	973.3	99.3
48	320.0	32.7		98	653.3	66.7		148	986.7	100.7
50	333.3	34.0		100	666.7	68.0		150	1000.0	102.0
Formula:			Load(KN) =Operating Pressure(Mpa)/150x1000				Tension Force(t)= Load (KN) /9.8			



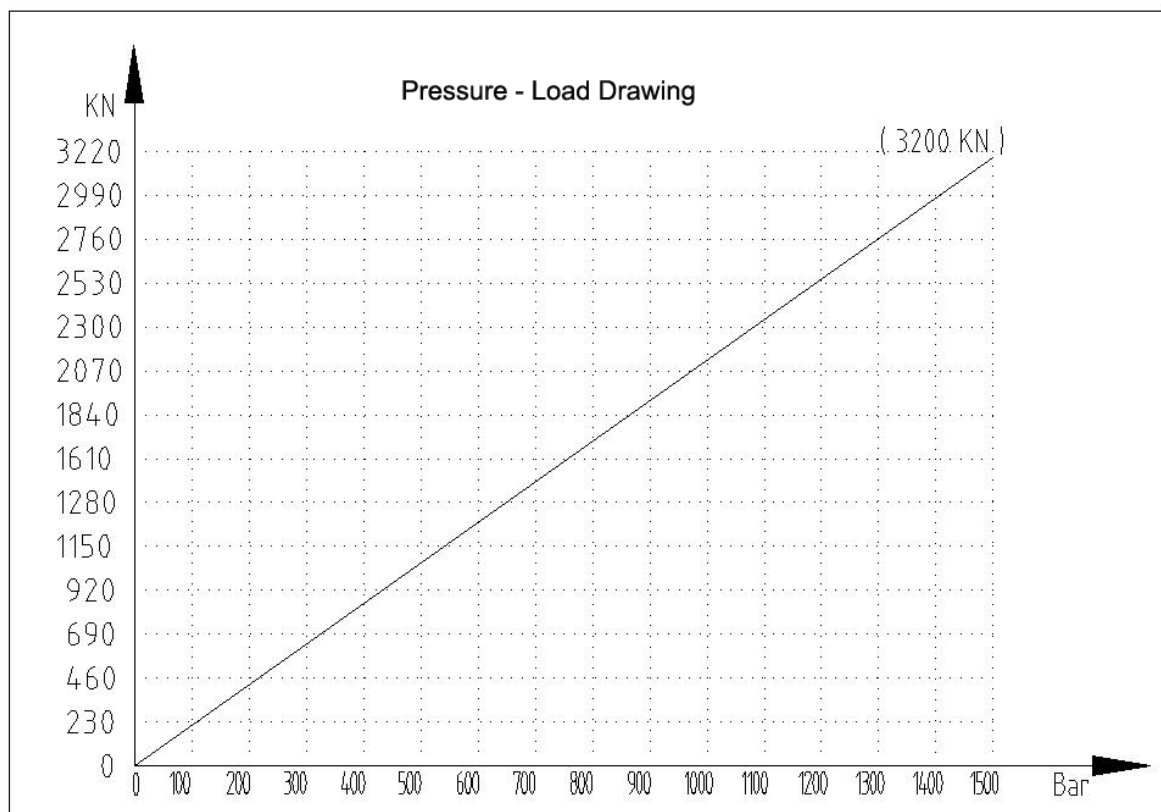
HSR5 Bolt Tensioner: Pressure. Load. Tension Force chart										
Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force
(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)
2	20	2.0		52	520.0	53.1		102	1020.0	104.1
4	40.0	4.1		54	540.0	55.1		104	1040.0	106.1
6	60.0	6.1		56	560.0	57.1		106	1060.0	108.2
8	80.0	8.2		58	580.0	59.2		108	1080.0	110.2
10	100.0	10.2		60	600.0	61.2		110	1100.0	112.2
12	120.0	12.2		62	620.0	63.3		112	1120.0	114.3
14	140.0	14.3		64	640.0	65.3		114	1140.0	116.3
16	160.0	16.3		66	660.0	67.3		116	1160.0	118.4
18	180.0	18.4		68	680.0	69.4		118	1180.0	120.4
20	200.0	20.4		70	700.0	71.4		120	1200.0	122.4
22	220.0	22.4		72	720.0	73.5		122	1220.0	124.5
24	240.0	24.5		74	740.0	75.5		124	1240.0	126.5
26	260.0	26.5		76	760.0	77.6		126	1260.0	128.6
28	280.0	28.6		78	780.0	79.6		128	1280.0	130.6
30	300.0	30.6		80	800.0	81.6		130	1300.0	132.7
32	320.0	32.7		82	820.0	83.7		132	1320.0	134.7
34	340.0	34.7		84	840.0	85.7		134	1340.0	136.7
36	360.0	36.7		86	860.0	87.8		136	1360.0	138.8
38	380.0	38.8	88	880.0	89.8	138	1380.0	140.8		
40	400.0	40.8	90	900.0	91.8	140	1400.0	142.9		
42	420.0	42.9	92	920.0	93.9	142	1420.0	144.9		
44	440.0	44.9	94	940.0	95.9	144	1440.0	146.9		
46	460.0	46.9	96	960.0	98.0	146	1460.0	149.0		
48	480.0	49.0	98	980.0	100.0	148	1480.0	151.0		
50	500.0	51.0	100	1000.0	102.0	150	1500.0	153.1		
Formula: Load(KN) =Operating Pressure(Mpa)/150x1500						Tension Force(t)= Load (KN) /9.8				



HSR6 Bolt Tensioner: Pressure. Load. Tension Force chart										
Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force
(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)
2	33.3	3.4		52	866.7	88.4		102	1700.0	173.5
4	66.7	6.8		54	900.0	91.8		104	1733.3	176.9
6	100.0	10.2		56	933.3	95.2		106	1766.7	180.3
8	133.3	13.6		58	966.7	98.6		108	1800.0	183.7
10	166.7	17.0		60	1000.0	102.0		110	1833.3	187.1
12	200.0	20.4		62	1033.3	105.4		112	1866.7	190.5
14	233.3	23.8		64	1066.7	108.8		114	1900.0	193.9
16	266.7	27.2		66	1100.0	112.2		116	1933.3	197.3
18	300.0	30.6		68	1133.3	115.6		118	1966.7	200.7
20	333.3	34.0		70	1166.7	119.0		120	2000.0	204.1
22	366.7	37.4		72	1200.0	122.4		122	2033.3	207.5
24	400.0	40.8		74	1233.3	125.9		124	2066.7	210.9
26	433.3	44.2		76	1266.7	129.3		126	2100.0	214.3
28	466.7	47.6		78	1300.0	132.7		128	2133.3	217.7
30	500.0	51.0		80	1333.3	136.1		130	2166.7	221.1
32	533.3	54.4		82	1366.7	139.5		132	2200.0	224.5
34	566.7	57.8		84	1400.0	142.9		134	2233.3	227.9
36	600.0	61.2		86	1433.3	146.3		136	2266.7	231.3
38	633.3	64.6		88	1466.7	149.7		138	2300.0	234.7
40	666.7	68.0	90	1500.0	153.1	140	2333.3	238.1		
42	700.0	71.4	92	1533.3	156.5	142	2366.7	241.5		
44	733.3	74.8	94	1566.7	159.9	144	2400.0	244.9		
46	766.7	78.2	96	1600.0	163.3	146	2433.3	248.3		
48	800.0	81.6	98	1633.3	166.7	148	2466.7	251.7		
50	833.3	85.0	100	1666.7	170.1	150	2500.0	255.1		
Formula: Load(KN) =Operating Pressure(Mpa)/150x2500 Tension Force(t)= Load (KN)/9.8										



HSR7 Bolt Tensioner: Pressure. Load. Tension Force chart										
Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force
(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)
2	42.7	4.4		52	1109.3	113.2		102	2176.0	222.0
4	85.3	8.7		54	1152.0	117.6		104	2218.7	226.4
6	128.0	13.1		56	1194.7	121.9		106	2261.3	230.7
8	170.7	17.4		58	1237.3	126.3		108	2304.0	235.1
10	213.3	21.8		60	1280.0	130.6		110	2346.7	239.5
12	256.0	26.1		62	1322.7	135.0		112	2389.3	243.8
14	298.7	30.5		64	1365.3	139.3		114	2432.0	248.2
16	341.3	34.8		66	1408.0	143.7		116	2474.7	252.5
18	384.0	39.2		68	1450.7	148.0		118	2517.3	256.9
20	426.7	43.5		70	1493.3	152.4		120	2560.0	261.2
22	469.3	47.9		72	1536.0	156.7		122	2602.7	265.6
24	512.0	52.2		74	1578.7	161.1		124	2645.3	269.9
26	554.7	56.6		76	1621.3	165.4		126	2688.0	274.3
28	597.3	61.0		78	1664.0	169.8		128	2730.7	278.6
30	640.0	65.3		80	1706.7	174.1		130	2773.3	283.0
32	682.7	69.7		82	1749.3	178.5		132	2816.0	287.3
34	725.3	74.0		84	1792.0	182.9		134	2858.7	291.7
36	768.0	78.4		86	1834.7	187.2		136	2901.3	296.1
38	810.7	82.7		88	1877.3	191.6		138	2944.0	300.4
40	853.3	87.1	90	1920.0	195.9	140	2986.7	304.8		
42	896.0	91.4	92	1962.7	200.3	142	3029.3	309.1		
44	938.7	95.8	94	2005.3	204.6	144	3072.0	313.5		
46	981.3	100.1	96	2048.0	209.0	146	3114.7	317.8		
48	1024.0	104.5	98	2090.7	213.3	148	3157.3	322.2		
50	1066.7	108.8	100	2133.3	217.7	150	3200.0	326.5		
Formula: Load(KN) =Operating Pressure(Mpa)/150x3200						Tension Force(t)= Load (KN)/9.8				



HSR8 Bolt Tensioner: Pressure. Load. Tension Force chart										
Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force		Operating Pressure	Load	Tension Force
(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)		(Mpa)	(KN)	(t)
2	54.7	5.6		52	1421.3	145.0		102	2788.0	284.5
4	109.3	11.2		54	1476.0	150.6		104	2842.7	290.1
6	164.0	16.7		56	1530.7	156.2		106	2897.3	295.6
8	218.7	22.3		58	1585.3	161.8		108	2952.0	301.2
10	273.3	27.9		60	1640.0	167.3		110	3006.7	306.8
12	328.0	33.5		62	1694.7	172.9		112	3061.3	312.4
14	382.7	39.0		64	1749.3	178.5		114	3116.0	318.0
16	437.3	44.6		66	1804.0	184.1		116	3170.7	323.5
18	492.0	50.2		68	1858.7	189.7		118	3225.3	329.1
20	546.7	55.8		70	1913.3	195.2		120	3280.0	334.7
22	601.3	61.4		72	1968.0	200.8		122	3334.7	340.3
24	656.0	66.9		74	2022.7	206.4		124	3389.3	345.9
26	710.7	72.5		76	2077.3	212.0		126	3444.0	351.4
28	765.3	78.1		78	2132.0	217.6		128	3498.7	357.0
30	820.0	83.7		80	2186.7	223.1		130	3553.3	362.6
32	874.7	89.3		82	2241.3	228.7		132	3608.0	368.2
34	929.3	94.8		84	2296.0	234.3		134	3662.7	373.7
36	984.0	100.4		86	2350.7	239.9		136	3717.3	379.3
38	1038.7	106.0		88	2405.3	245.4		138	3772.0	384.9
40	1093.3	111.6		90	2460.0	251.0		140	3826.7	390.5
42	1148.0	117.1		92	2514.7	256.6		142	3881.3	396.1
44	1202.7	122.7		94	2569.3	262.2		144	3936.0	401.6
46	1257.3	128.3		96	2624.0	267.8		146	3990.7	407.2
48	1312.0	133.9		98	2678.7	273.3		148	4045.3	412.8
50	1366.7	139.5		100	2733.3	278.9		150	4100.0	418.4
Formula: Load(KN) =Operating Pressure(Mpa)/150x4100			Tension Force(t)= Load (KN) /9.8							

