



Raymond® EXTRA HEAVY DUTY DIE SPRINGS						INCH SERIES GREEN							
Spring O.D. Hole Dia.	Spring I.D. Rod Dia.	Free Length (in)	CATALOG NUMBER	PART NUMBER	Load at 1/10 in. Def. (lb)	LOAD DEFLECTION TABLE							
						For Optimum Life (15% of free length)		For Long Life (17% of free length)		Maximum Operating Def. (20% of free length)		*Maximum Deflection (25% of free length)	
						Load (lb)	Deflection (in)	Load (lb)	Deflection (in)	Load (lb)	Deflection (in)	Load (lb)	Deflection (in)
A	B	C											
1 1/4	5/8	2	12 XH 20	XH-37	192.0	576.0	0.30	652.8	0.34	768.0	0.40	960.0	0.50
		2 1/2	12 XH 25	XH-38	144.0	540.0	0.38	612.0	0.43	720.0	0.50	900.0	0.63
		3	12 XH 30	XH-39	118.4	532.8	0.45	603.8	0.51	710.4	0.60	888.0	0.75
		3 1/2	12 XH 35	XH-40	100.8	529.2	0.53	599.8	0.60	705.6	0.70	882.0	0.88
		4	12 XH 40	XH-41	84.0	504.0	0.60	571.2	0.68	672.0	0.80	840.0	1.00
		4 1/2	12 XH 45	XH-42	78.4	529.2	0.68	599.8	0.77	705.6	0.90	882.0	1.13
		5	12 XH 50	XH-43	68.0	510.0	0.75	578.0	0.85	680.0	1.00	850.0	1.25
		6	12 XH 60	XH-45	56.0	504.0	0.90	571.2	1.02	672.0	1.20	840.0	1.50
		8	12 XH 80	XH-47	41.6	499.2	1.20	565.8	1.36	665.6	1.60	832.0	2.00
		10	12 XH 100	XH-48	33.6	504.0	1.50	571.2	1.70	672.0	2.00	840.0	2.50
		12	12 XH 120	XH-48A	26.4	475.2	1.80	538.6	2.04	633.6	2.40	792.0	3.00
		1 1/2	3/4	2	15 XH 20	XH-49	376.0	1128.0	0.30	1278.4	0.34	1504.0	0.40
2 1/2	15 XH 25			XH-50	294.4	1104.0	0.38	1251.2	0.43	1472.0	0.50	1840.0	0.63
3	15 XH 30			XH-51	231.2	1040.4	0.45	1179.1	0.51	1387.2	0.60	1734.0	0.75
3 1/2	15 XH 35			XH-52	196.0	1029.0	0.53	1166.2	0.60	1372.0	0.70	1715.0	0.88
4	15 XH 40			XH-53	171.2	1027.2	0.60	1164.2	0.68	1369.6	0.80	1712.0	1.00
4 1/2	15 XH 45			XH-54	148.0	999.0	0.68	1132.2	0.77	1332.0	0.90	1665.0	1.13
5	15 XH 50			XH-55	136.0	1020.0	0.75	1156.0	0.85	1360.0	1.00	1700.0	1.25
6	15 XH 60			XH-56	110.4	993.6	0.90	1126.1	1.02	1324.8	1.20	1656.0	1.50
8	15 XH 80			XH-57	80.8	969.6	1.20	1098.9	1.36	1292.8	1.60	1616.0	2.00
10	15 XH 100			XH-58	67.2	1008.0	1.50	1142.4	1.70	1344.0	2.00	1680.0	2.50
12	15 XH 120			XH-58A	54.4	979.2	1.80	1109.8	2.04	1305.6	2.40	1632.0	3.00
2	1			2 1/2	20 XH 25	XH-70	381.6	1431.0	0.38	1621.8	0.43	1908.0	0.50
		3	20 XH-30	XH-71	312.0	1404.0	0.45	1591.2	0.51	1872.0	0.60	2340.0	0.75
		3 1/2	20 XH 35	XH-72	254.4	1335.6	0.53	1513.7	0.60	1780.8	0.70	2226.0	0.88
		4	20 XH 40	XH-73	220.0	1320.0	0.60	1496.0	0.68	1760.0	0.80	2200.0	1.00
		4 1/2	20 XH 45	XH-74	188.8	1274.4	0.68	1444.3	0.77	1699.2	0.90	2124.0	1.13
		5	20 XH 50	XH-75	172.8	1296.0	0.75	1468.8	0.85	1728.0	1.00	2160.0	1.25
		6	20 XH 60	XH-77	141.6	1274.4	0.90	1444.3	1.02	1699.2	1.20	2124.0	1.50
		8	20 XH 80	XH-80	100.0	1200.0	1.20	1360.0	1.36	1600.0	1.60	2000.0	2.00
		10	20 XH 100	XH-82	84.0	1260.0	1.50	1428.0	1.70	1680.0	2.00	2100.0	2.50
		12	20 XH 120	XH-83	71.2	1281.6	1.80	1452.5	2.04	1708.8	2.40	2136.0	3.00

*Tabulated load values shown represent loads near solid and are for design information only.

Deflection To Compressed Length Conversion Tables

Inch Die Spring Series												
Free Length (in)	Medium Duty Compressed Length (in)			Medium Heavy Duty Compressed Length (in)			Heavy Duty Compressed Length (in)			Extra Heavy Duty Compressed Length (in)		
	Deflection in % free length			Deflection in % free length			Deflection in % free length			Deflection in % free length		
	25%	35%	40%	20%	25%	30%	15%	20%	25%	15%	17%	20%
1	0.75	0.65	0.60	0.80	0.75	0.70	0.85	0.80	0.75	0.85	0.83	0.80
1 1/4	0.94	0.81	0.75	1.00	0.94	0.88	1.06	1.00	0.94	1.06	1.04	1.00
1 1/2	1.13	0.98	0.90	1.20	1.13	1.05	1.28	1.20	1.13	1.28	1.25	1.20
1 3/4	1.31	1.14	1.05	1.40	1.31	1.23	1.49	1.40	1.31	1.49	1.45	1.40
2	1.50	1.30	1.20	1.60	1.50	1.40	1.70	1.60	1.50	1.70	1.66	1.60
2 1/2	1.88	1.63	1.50	2.00	1.88	1.75	2.13	2.00	1.88	2.13	2.08	2.00
3	2.25	1.95	1.80	2.40	2.25	2.10	2.55	2.40	2.25	2.55	2.49	2.40
3 1/2	2.63	2.28	2.10	2.80	2.63	2.45	2.98	2.80	2.63	2.98	2.91	2.80
4	3.00	2.60	2.40	3.20	3.00	2.80	3.40	3.20	3.00	3.40	3.32	3.20
4 1/2	3.38	2.93	2.70	3.60	3.38	3.15	3.83	3.60	3.38	3.83	3.74	3.60
5	3.75	3.25	3.00	4.00	3.75	3.50	4.25	4.00	3.75	4.25	4.15	4.00
5 1/2	4.13	3.58	3.30	4.40	4.13	3.85	4.68	4.40	4.13	4.68	4.57	4.40
6	4.50	3.90	3.60	4.80	4.50	4.20	5.10	4.80	4.50	5.10	4.98	4.80
6 1/2	4.88	4.23	3.90	5.20	4.88	4.55	5.53	5.20	4.88	5.53	5.40	5.20
7	5.25	4.55	4.20	5.60	5.25	4.90	5.95	5.60	5.25	5.95	5.81	5.60
7 1/2	5.63	4.88	4.50	6.00	5.63	5.25	6.38	6.00	5.63	6.38	6.23	6.00
8	6.00	5.20	4.80	6.40	6.00	5.60	6.80	6.40	6.00	6.80	6.64	6.40
10	7.50	6.50	6.00	8.00	7.50	7.00	8.50	8.00	7.50	8.50	8.30	8.00
12	9.00	7.80	7.20	9.60	9.00	8.40	10.20	9.60	9.00	10.20	9.96	9.60