



## US Series

### Raymond® MEDIUM DUTY DIE SPRINGS INCH DIMENSIONS BLUE

Hole Dia. (in)	Rod Dia. (in)	Free Length (in)	CATALOG NUMBER	Load at 1/10 in. Def. (lb)	LOAD DEFLECTION TABLE						
					For Optimum Life (25% of free length)		For Long Life (35% of free length)		Maximum Operating Def. (40% of free length)		*Maximum Deflection (50% of free length)
					Load (lb)	Deflection (in)	Load (lb)	Deflection (in)	Load (lb)	Deflection (in)	Deflection (in)
3/8	3/16	1	103-104	6.0	15.0	0.25	21.0	0.35	24.0	0.40	0.50
		1 1/4	103-105	5.0	15.6	0.31	21.9	0.44	25.0	0.50	0.63
		1 1/2	103-106	4.2	15.8	0.38	22.1	0.53	25.2	0.60	0.75
		1 3/4	103-107	3.7	16.2	0.44	22.7	0.61	25.9	0.70	0.88
		2	103-108	3.1	15.5	0.50	21.7	0.70	24.8	0.80	1.00
		2 1/2	103-110	2.6	16.3	0.63	22.8	0.88	26.0	1.00	1.25
		3	103-112	2.1	15.8	0.75	22.0	1.05	25.2	1.20	1.50
		12	103-148	0.6	18.0	3.00	25.2	4.20	28.8	4.80	6.00
		1/2	9/32	1	103-204	11.0	27.5	0.25	38.5	0.35	44.0
1 1/4	103-205			8.2	25.6	0.31	35.9	0.44	41.0	0.50	0.63
1 1/2	103-206			6.8	25.5	0.38	35.7	0.53	40.8	0.60	0.75
1 3/4	103-207			6.0	26.3	0.44	36.8	0.61	42.0	0.70	0.88
2	103-208			5.5	27.5	0.50	38.5	0.70	44.0	0.80	1.00
2 1/2	103-210			4.5	28.1	0.63	39.4	0.88	45.0	1.00	1.25
3	103-212			3.5	26.3	0.75	36.8	1.05	42.0	1.20	1.50
3 1/2	103-214			3.0	26.3	0.88	36.8	1.23	42.0	1.40	1.75
4 1/2	103-218			2.3	25.9	1.13	36.2	1.58	41.4	1.80	2.25
5 1/2	103-222			2.0	27.5	1.38	38.5	1.93	44.0	2.20	2.75
6 1/2	103-226			1.4	22.8	1.63	31.9	2.28	36.4	2.60	3.25
7 1/2	103-230			1.2	22.5	1.88	31.5	2.63	36.0	3.00	3.75
12	103-248	0.7	21.0	3.00	29.4	4.20	33.6	4.80	6.00		
5/8	11/32	1	103-304	16.4	41.0	0.25	57.4	0.35	65.6	0.40	0.50
		1 1/4	103-305	12.4	38.8	0.31	54.3	0.44	62.0	0.50	0.63
		1 1/2	103-306	10.8	40.5	0.38	56.7	0.53	64.8	0.60	0.75
		1 3/4	103-307	9.6	42.0	0.44	58.8	0.61	67.2	0.70	0.88
		2	103-308	8.6	43.0	0.50	60.2	0.70	68.8	0.80	1.00
		2 1/2	103-310	6.5	40.6	0.63	56.9	0.88	65.0	1.00	1.25
		3	103-312	5.8	43.5	0.75	60.9	1.05	69.6	1.20	1.50
		3 1/2	103-314	5.0	43.8	0.88	61.3	1.23	70.0	1.40	1.75
		4	103-316	4.4	44.0	1.00	61.6	1.40	70.4	1.60	2.00
		12	103-348	1.5	45.0	3.00	63.0	4.20	72.0	4.80	6.00
3/4	3/8	1	103-404	32.0	80.0	0.25	112.0	0.35	128.0	0.40	0.50
		1 1/4	103-405	25.6	80.0	0.31	112.0	0.44	128.0	0.50	0.63
		1 1/2	103-406	20.0	75.0	0.38	105.0	0.53	120.0	0.60	0.75
		1 3/4	103-407	17.6	77.0	0.44	107.8	0.61	123.2	0.70	0.88
		2	103-408	15.0	75.0	0.50	105.0	0.70	120.0	0.80	1.00
		2 1/2	103-410	12.0	75.0	0.63	105.0	0.88	120.0	1.00	1.25
		3	103-412	10.1	75.8	0.75	106.1	1.05	121.2	1.20	1.50
		3 1/2	103-414	8.3	72.6	0.88	101.7	1.23	116.2	1.40	1.75
		4	103-416	7.5	75.0	1.00	105.0	1.40	120.0	1.60	2.00
		4 1/2	103-418	6.4	72.0	1.13	100.8	1.58	115.2	1.80	2.25
		5	103-420	6.0	75.0	1.25	105.0	1.75	120.0	2.00	2.50
		5 1/2	103-422	5.5	75.6	1.38	105.9	1.93	121.0	2.20	2.75
		6	103-424	5.0	75.0	1.50	105.0	2.10	120.0	2.40	3.00
		6 1/2	103-426	4.7	76.4	1.63	106.9	2.28	122.2	2.60	3.25
		7 1/2	103-430	3.8	71.3	1.88	99.8	2.63	114.0	3.00	3.75
12	103-448	2.4	72.0	3.00	100.8	4.20	115.2	4.80	6.00		

\* Deflection values shown represent compressed lengths near solid and are for design information only. The color blue is a registered trademark of Barnes Group Inc.



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					For Optimum Life (25% of free length)		For Long Life (35% of free length)		Maximum Operating Def. (40% of free length)		*Maximum Deflection (50% of free length)
					Load (lb)	Deflection (in)	Load (lb)	Deflection (in)	Load (lb)	Deflection (in)	Deflection (in)
A	B	C									
1	1/2	1	103-504	55.0	137.5	0.25	192.5	0.35	220.0	0.40	0.50
		1 1/4	103-505	45.0	140.6	0.31	196.9	0.44	225.0	0.50	0.63
		1 1/2	103-506	37.3	139.9	0.38	195.8	0.53	223.8	0.60	0.75
		1 3/4	103-507	32.0	140.0	0.44	196.0	0.61	224.0	0.70	0.88
		2	103-508	26.8	134.0	0.50	187.6	0.70	214.4	0.80	1.00
		2 1/2	103-510	20.9	130.6	0.63	182.9	0.88	209.0	1.00	1.25
		3	103-512	17.1	128.3	0.75	179.6	1.05	205.2	1.20	1.50
		3 1/2	103-514	14.5	126.9	0.88	177.6	1.23	203.0	1.40	1.75
		4	103-516	12.5	125.0	1.00	175.0	1.40	200.0	1.60	2.00
		4 1/2	103-518	11.0	123.8	1.13	173.3	1.58	198.0	1.80	2.25
		5	103-520	9.6	120.0	1.25	168.0	1.75	192.0	2.00	2.50
		5 1/2	103-522	8.8	121.0	1.38	169.4	1.93	193.6	2.20	2.75
6	103-524	8.0	120.0	1.50	168.0	2.10	192.0	2.40	3.00		
7	103-528	7.2	126.0	1.75	176.4	2.45	201.6	2.80	3.50		
8	103-532	6.0	120.0	2.00	168.0	2.80	192.0	3.20	4.00		
12	103-548	4.0	120.0	3.00	168.0	4.20	192.0	4.80	6.00		
1 1/4	5/8	1 1/2	103-606	49.6	186.0	0.38	260.4	0.53	297.6	0.60	0.75
		1 3/4	103-607	40.6	177.6	0.44	248.7	0.61	284.2	0.70	0.88
		2	103-608	37.6	188.0	0.50	263.2	0.70	300.8	0.80	1.00
		2 1/2	103-610	28.8	180.0	0.63	252.0	0.88	288.0	1.00	1.25
		3	103-612	24.0	180.0	0.75	252.0	1.05	288.0	1.20	1.50
		3 1/2	103-614	20.0	175.0	0.88	245.0	1.23	280.0	1.40	1.75
		4	103-616	17.6	176.0	1.00	246.4	1.40	281.6	1.60	2.00
		4 1/2	103-618	16.0	180.0	1.13	252.0	1.58	288.0	1.80	2.25
		5	103-620	14.3	178.8	1.25	250.3	1.75	286.0	2.00	2.50
		5 1/2	103-622	12.8	176.0	1.38	246.4	1.93	281.6	2.20	2.75
		6	103-624	12.0	180.0	1.50	252.0	2.10	288.0	2.40	3.00
		7	103-628	10.4	182.0	1.75	254.8	2.45	291.2	2.80	3.50
8	103-632	8.8	176.0	2.00	246.4	2.80	281.6	3.20	4.00		
10	103-640	7.2	180.0	2.50	252.0	3.50	288.0	4.00	5.00		
12	103-648	6.0	180.0	3.00	252.0	4.20	288.0	4.80	6.00		
1 1/2	3/4	2	103-708	53.0	265.0	0.50	371.0	0.70	424.0	0.80	1.00
		2 1/2	103-710	42.7	266.9	0.63	373.6	0.88	427.0	1.00	1.25
		3	103-712	36.0	270.0	0.75	378.0	1.05	432.0	1.20	1.50
		3 1/2	103-714	30.0	262.5	0.88	367.5	1.23	420.0	1.40	1.75
		4	103-716	24.9	249.0	1.00	348.6	1.40	398.4	1.60	2.00
		4 1/2	103-718	23.0	258.8	1.13	362.3	1.58	414.0	1.80	2.25
		5	103-720	21.0	262.5	1.25	367.5	1.75	420.0	2.00	2.50
		5 1/2	103-722	18.5	254.4	1.38	356.1	1.93	407.0	2.20	2.75
		6	103-724	17.0	255.0	1.50	357.0	2.10	408.0	2.40	3.00
		7	103-728	15.3	267.8	1.75	374.9	2.45	428.4	2.80	3.50
		8	103-732	13.2	264.0	2.00	369.6	2.80	422.4	3.20	4.00
		10	103-740	10.6	265.0	2.50	371.0	3.50	424.0	4.00	5.00
12	103-748	8.5	255.0	3.00	357.0	4.20	408.0	4.80	6.00		
2	1	2 1/2	103-810	100.0	625.0	0.63	875.0	0.88	1000.0	1.00	1.25
		3	103-812	83.0	622.5	0.75	871.5	1.05	996.0	1.20	1.50
		3 1/2	103-814	67.7	592.4	0.88	829.3	1.23	947.8	1.40	1.75
		4	103-816	60.0	600.0	1.00	840.0	1.40	960.0	1.60	2.00
		4 1/2	103-818	53.0	596.3	1.13	834.8	1.58	954.0	1.80	2.25
		5	103-820	47.0	587.5	1.25	822.5	1.75	940.0	2.00	2.50
		5 1/2	103-822	40.5	556.9	1.38	779.6	1.93	891.0	2.20	2.75
		6	103-824	39.0	585.0	1.50	819.0	2.10	936.0	2.40	3.00
		7	103-828	31.2	546.0	1.75	764.4	2.45	873.6	2.80	3.50
		8	103-832	28.5	570.0	2.00	798.0	2.80	912.0	3.20	4.00
		10	103-840	21.6	540.0	2.50	756.0	3.50	864.0	4.00	5.00
		12	103-848	18.5	555.0	3.00	777.0	4.20	888.0	4.80	6.00

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