LIST OF SPRINGS

FOR FORM "R" - LOCOMOTIVE SAFETY VALVES

1½" R (SQUARE STEEL SPRING)

SPRING NUMBER	FREE LENGTH	INSIDE DIAMETER	SIZE STEEL	COILS	LOAD	LOAD DEFLECTION	DEFLECTION RATE	DEFLECTION AT LOAD (MAX)	DEFLECTION AT LOAD (MIN)	MIN. RESERVE DEFLECTION	MIN. TOTAL DEFLECTION
5											
10	3	1 5/16	3/16	11	18	.24		.26	.22		
15	3	1 3/16	3/16	10¼	26	.24		.26	.22		
20	3	1 1/16	3/16	10	35	.24		.26	.22		
25											
30	3	1¼	7/32	9	53	.24		.26	.22		
40	3	1¼	¼	10	71	.24		.26	.22		
50	3	1 5/32	¼	9½	88	.24		.26	.22		
60	3	1 3/32	¼	10	106	.24		.26	.22		
80	3	53/64	¼	9 5/8	141	.24		.26	.22		
100	3	1 1/16	9/32	8¾	177	.24		.26	.22		
120	3	1 1/16	9/32	8⅜	212	.24		.26	.22		
140	3	1"	9/32	8⅜	247	.24		.26	.22		
160	3	15/16	9/32	8½	283	.24		.26	.22		
180	3	1 1/16	5/16	7¾	318	.24		.26	.22		
200	3	3/32	5/16	8	353	.24		.26	.22		
220	3	3/32	5/16	7¾	388	.24		26	.22		
240	3	23/32	5/16	8⅛	424	.24		26	.22		
260											
280											
300											
320											
340											
360											

2" R (SQUARE STEEL SPRING)

SPRING NUMBER	FREE LENGTH	INSIDE DIAMETER	SIZE STEEL	COILS	LOAD	LOAD DEFLECTION	DEFLECTION RATE	DEFLECTION AT LOAD (MAX)	DEFLECTION AT LOAD (MIN)	MIN. RESERVE DEFLECTION	MIN. TOTAL DEFLECTION
5	3¾	1 5/8	3/16	10½	16	.28		.31	.25		
10	3¾	1¾	7/32	8½	31	.28		.31	.25		
15	3¾	1 5/8	¼	9	47	.28		.31	.25		
20											
25	3¾	1¼	¼	10⅜	78	.28		.31	.25		
30	3¾	1½	9/32	9	94	.28		.31	.25		
40	3¾	1¼	9/32	9⅝	125	.28		.31	.25		
50											
60	3¾	1 1/16	9/32	10¼	189	.28		.31	.25		
80	3¾	1⅛	5/16	8½	252	.28		.31	.25		
100	3¾	1 3/64	⅜	7¾	314	.28		.31	.25		
120	3¾	1 1/64	⅜	7¾	377	.28		.31	.25		
140	3¾	1 3/16	⅜	8	440	.28		.31	.25		
160	3¾	1 7/16	13/32	7¼	503	.28		.31	.25		
180	3¾	1 5/16	13/32	7½	566	.28		.31	.25		
200	3¾	1 3/16	13/32	7⅝	628	.28		.31	.25		
220	3¾	1 3/16	13/32	7½	691	.28		.31	.25		
240	3¾	1⅛	13/32	7⅝	755	.28		.31	.25		
260	3¾	1¼	7/16	7¼	817	.28		.31	.25		
280											
300											
320											
340											
360											

2½" R (SQUARE STEEL SPRING)

SPRING NUMBER	FREE LENGTH	INSIDE DIAMETER	SIZE STEEL	COILS	LOAD	LOAD DEFLECTION	DEFLECTION RATE	DEFLECTION AT LOAD (MAX)	DEFLECTION AT LOAD (MIN)	MIN. RESERVE DEFLECTION	MIN. TOTAL DEFLECTION
5	4 5/16	2	¼	12	25	.35		.38	.32		
10	4 5/16	1 5/8	¼	10½	49	.35		.38	.32		
15	4 5/16	2	5/16	9⅛	74	.35		.38	.32		
20	4 5/16	1¾	5/16	10	98	.35		.38	.32		
25	4 5/16	1¾	5/16	8½	133	.35		.38	.32		
30	4 5/16	2	⅜	8½	147	.35		.38	.32		
40	4 5/16	1 13/16	⅜	8¼	196	.35		.38	.32		
50											
60	4 5/16	2	7/16	7¼	295	.35		.38	.32		
80	4 5/16	1 13/16	7/16	7⅜	393	.35		.38	.32		
100	4 5/16	1 9/16	7/16	8	491	.35		.38	.32		
120	4 5/16	1 1/2	7/16	7½	590	.35		.38	.32		
140	4 5/16	1 21/32	½	6¾	688	.35		.38	.32		
160	4 5/16	1 45/64	½	6⅞	786	.35		.38	.32		
180	4 5/16	1 5/8	½	7⅛	885	.35		.38	.32		
200	4 5/16	1 9/16	½	7⅛	982	.35		.38	.32		
220	4 5/16	1 1/16	½	7¼	1080	.35		.38	.32		
240	4 5/16	1 3/8	½	7¼	1180	.35		.38	.32		
260	4 5/16	1 1/16	9/16	6½	1280	.35		.38	.32		
280	4 5/16	1 1/16	9/16	6⅝	1375	.35		.38	.32		
300	4 5/16	1 5/8	9/16	6⅝	1473	.35		.38	.32		
320											
340	4 5/16	1 1/16	9/32	6¾	1670	.35		.38	.32		
360											

3" R (SQUARE STEEL SPRING)

SPRING NUMBER	FREE LENGTH	INSIDE DIAMETER	SIZE STEEL	COILS	LOAD	LOAD DEFLECTION	DEFLECTION RATE	DEFLECTION AT LOAD (MAX)	DEFLECTION AT LOAD (MIN)	MIN. RESERVE DEFLECTION	MIN. TOTAL DEFLECTION
5	4 5/16	2 5/16	9/32	10½	35	.42		.46	.38		
10	4 5/16	2 3/16	5/16	9¼	71	.42		.46	.38		
15	4 5/16	2 23/64	⅜	9⅛	105	.42		.46	.38		
20	4 5/16	2 3/16	⅜	9	141	.42		.46	.38		
25	4 5/16	2 1/16	⅜	8½	176	.42		.46	.38		
30	4 5/16	2	⅜	7⅝	212	.42		.46	.38		
40	4 5/16	2¼	7/16	7¾	282	.42		.46	.38		
50											
60	4 5/16	2 15/64	15/32	7	424	.42		.46	.38		
80	4 5/16	2 3/32	½	7¼	565	.42		.46	.38		
100	4 5/16	2	½	6¾	707	.42		.46	.38		
120	4 5/16	1 7/8	½	6⅞	848	.42		.46	.38		
140	4 5/16	2 3/16	9/16	6¼	990	.42		.46	.38		
160	4 5/16	2 1/64	9/16	6⅜	1130	.42		.46	.38		
180	4 5/16	1 7/8	9/16	6⅜	1270	.42		.46	.38		
200	4 5/16	2 1/16	19/32	6⅛	1414	.42		.46	.38		
220	4 5/16	2 1/16	5/8	5⅞	1556	.42		46	.38		
240	4 5/16	1 15/16	19/32	6¼	1700	.42		.46	.38		
260	4 5/16	1 15/16	5/8	5⅞	1840	.42		.46	.38		
280	4 5/16	1 15/16	5/8	6	1980	.42		.46	.38		
300	4 5/16	1 7/8	5/8	6	2121	.42		.46	.38		
320	4 5/16	1¾	5/8	5¾	2260	.42		46	.38		
340											
360	4 5/16	1⅛	21/32	5¾	2550	.42					

3½" R (SQUARE STEEL SPRING)

SPRING NUMBER	FREE LENGTH	INSIDE DIAMETER	SIZE STEEL	COILS	LOAD	LOAD DEFLECTION	DEFLECTION RATE	DEFLECTION AT LOAD (MAX)	DEFLECTION AT LOAD (MIN.)	MIN. RESERVE DEFLECTION	MIN. TOTAL DEFLECTION
5											
10											
15											
20	5¼	2	⅜	8¾	192	.48		.53	.43		
25											
30											
40	5¼	1⅞	7/16	9	385	.48		.53	.43		
50											
60	5¼	2⅛	½	7	577	.48		.53	.43		
80	5¼	1¾	½	8⅜	770	48		.53	43		
100	5¼	2 1/16	9/16	7½	962	.48		.53	.43		
120	5¼	1⅞	9/16	7½	1154	.48		.53	.43		
140	5¼	1 25/32	9/16	7¾	1347	.48		.53	.43		
⑥160	5¼	2 1/16	5/8	7	1540	.48		.53	.43		
180	5¼	1 15/16	5/8	7	1730	.48		.53	.43		
200	5¼	1⅞	5/8	7	1924	.48		.53	.43		
220	5¼	2	1 1/16	6½	2120	.48		.53	.43		
240	5¼	1 31/32	1 1/16	6½	2310	.48		.53	.43		
260	5¼	2	1 1/16	6½	2500	.48		.53	.43		
280	5¼	1⅞	1 1/16	6½	2690	.48		.53	.43		
300	5¼	1⅞	1 1/16	6½	2886	.48		.53	.43		
320	5¼	1¾	1 1/16	6½	3080	.48		.53	.43		
340											
360	5¼	2	¾	6¾	3460	.48		.53	.43		

4" R. (SQUARE STEEL SPRING)

SPRING NUMBER	FREE LENGTH	INSIDE DIAMETER	SIZE STEEL	COILS	LOAD	LOAD DEFLECTION	DEFLECTION RATE	DEFLECTION AT LOAD (MAX)	DEFLECTION AT LOAD (MIN.)	MIN. RESERVE DEFLECTION	MIN. TOTAL DEFLECTION
100	5 1/16	2⅜	5/8	7	1257	.55		.60	.50		
120	5 1/16	2⅛	5/8	7⅜	1510	.55		.60	.50		
140	5 1/16	2⅝	21/32	7	1760	.55		.60	.50		
160	5 1/16	2¼	1 1/16	6⅝	2010	.55		.60	.50		
180	5 1/16	2 3/32	1 1/16	6⅞	2260	.55		.60	.50		
200	5 1/16	2⅜	¾	6½	2514	.55		60	.50		
240	5 1/16	2⅓	¾	6½	3020	.55		.60	.50		
260	5½	2 3/16	27/32	5¾	3270	.55					

-ROUND WIRE-REDUCED HEIGHT

INSIDE DIAMETER LIMITS AT END OF SPRING

FOR I.D NOT OVER 1" - TOL. +1/32 -0 — FOR I.D NOT OVER 4" - TOL. + 3/32 -.0
FOR I.D NOT OVER 2" - TOL. +1/16 -0 — FOR I.D OVER 4" — TOL + 1/8 -0

FREE LENGTH LIMITS

FOR FREE LGTH ON SIZE 1½" - TOL. ±1/32 — FOR FREE LGTHS ON SIZES OVER 1½" - TOL. ±1/16

FINISH - SANDBLAST, BONDERIZE, SPRAY BLACK S. & W. No. 70, AND SEND TO STOCK.

SPRING CHART FOR FORM "R" LOCOMOTIVE SAFETY VALVES.

M.P. 3-15-34
M.P.

T-5136-D

① ON SIZE 2½ SPRING No 120 - INSIDE DIA 1½ WAS 1 9/16 — 5-3-34

② ADDED "FINISH" NOTE — 2-9-35

③ ON SIZE 1½ STEAD 1 31/32 DIA FOR SPRING Nos 10, 15, 140, 160 — 3-7-35

④ ADDED SPRING No 240 CHANGED INSIDE DIA OF SPRING No 160 FROM 1 1/2 TO 1 9/16 — 8-17-37

⑤ 3½ SIZE — NO 160 I.D WAS 2 1/8 SIZE STL WAS 19/32 - NO COILS WAS 6½ — 7-10-38