

Description

Design Principle

The constant support as manufactured by QPS Ltd is designed to allow the supported pipework to expand vertically upwards or downwards throughout the total travel of the unit whilst maintaining a constant supporting effort. The use of constant supports therefore ensures that no undue stresses are imposed on critical pipe components and connections.

This is achieved by transferring the operating load to the coiled compression spring through a cranked load arm; as the load arm moves through its travel range the resulting moment of the operating load and spring are perfectly counterbalanced about the main pivot shaft, thus providing a uniform constant load.

Construction

All our constant support units are substantially constructed, with a wide selection of top fixing arrangements available for attachment to supporting steelwork. All materials have been selected to provide a high safety factor, and the helical coil is housed in a casing which prevents the ingress of construction debris, thus reducing the danger of damage or restriction to the function of the unit.

The constant units are principally manufactured from carbon steel as standard, but stainless steel units are available for extreme corrosive conditions.

Model Range

The constant supports are available in a range of six different models, comprising horizontal, vertical and base mounted units. These accommodate a maximum of 66 different sizes, catering for operating loads ranging from 10kg up to 31,500kg, with travels from 40mm up to 610mm. (Longer travels are available on request).

Specials

Our standard range of quality constant supports will cater for most design conditions, but we can provide special units for higher operating loads and movements than are shown in our standard selection tables; multi-coat paint systems are available if required by the project.

Pre-setting

Our constant supports are supplied to site in the pre-set position to suit the specified operating / installed load condition; the removable pre-set pins lock the load arm in the correct position for connecting to the pipework in its cold condition. The pre-set pins must remain in place if the pipework system is subject to hydrostatic testing or chemical cleaning, but must be removed prior to commissioning.

Hydrostatic Test Loads

Every constant support unit is capable of supporting pipework that may be subject to hydrostatic test loads of up to two times the working load of the unit.

Site Load Adjustment

All our constant supports are pre-set to suit the client's specified operating load and travel. Sometimes however, there are minor variations between the specified design load and the "actual" operating load on site. In these situations the constant units incorporate a site adjustment screw that enables the design load to be adjusted up to +/- 20% of the design load. The amount of adjustment is shown on the scale plate, which is calibrated in 2% divisions.

Selection Procedure

To enable a constant support to be selected it is necessary to have details of the actual design load and vertical movement (up / down) that the constant is to accommodate at each support point. It is then good practice to add 'over travel' to the designated vertical movement.

Recommended 'over travel':

- a. For vertical movements up to 125mm - add 25mm
- b. For vertical movements in excess of 125mm – add 20% of the original actual movement.

In both a and b above, the calculated figure should then be rounded up to the next whole 10mm increment, thus providing the total travel for each specific support point. The constant unit can then be selected from the constant support selection tables to suit the operating load and total travel calculated.

Typically, selection of the correct constant size is determined by referring to the selection tables (Kg or kN). Using the total travel figure along the top of the chart, read down the relevant column until the required operating load is found, or the nearest greater load. The correct size of spring is found by reading horizontally along the row to the left of this load.

When selecting constant support model QC110, only loads from the right hand side of the bold line within the selection tables should be used.

Example

Operating load 27kN
Actual movement 82mm up
Total travel 82+25 = 107mm, rounded up to the next whole 10mm increment = 110mm

Using the kN selection table:

- Locate total travel column of 110mm and follow down load column for next load up from 27kN. This reads 27.31kN.
- Next, move horizontally to the left under column headed "constant spring size". In this example the selected size would be size 31.

Ordering information

The following information is required when ordering a Constant Support:

- Support / Tag No.
- Constant type (e.g. Fig QC100)
- Size (1 to 66)
- Mounting type (e.g. BY)
- Operating load (Kg or kN)
- Hydrostatic test load (if required)
- Actual travel (up / down)
- Total travel (up / down)
- Rod size if non standard
- Quantity required
- Surface finish specification (standard is hot dip galvanised)

Dimensioned constant support assembly drawings are available using our custom design software.

Installation Instructions

Initially the constant support units should be attached to the steelwork by means of welding or bolting.

1. Connecting and Loading of Constant Support Units

- 1.1 Constant support unit types which utilise sling rods (QC100, QC110, QC120 and QC130) should be connected between the support top attachment and the constant support unit connector (turnbuckle or yoke). The operating load is transferred from the temporary installation condition to the constant support unit by adjustment of the turnbuckle or yoke arrangement until the pre-set pin (painted red) is easily removed.
- 1.2 In the case of constant support unit types which support piping from below, (QC140 & QC150) the constant support unit is initially installed between the equipment support bracket and the supporting steelwork. Any differences in height may be accommodated by use of the height adjustment nut. The operating load is transferred from the temporary installation condition to the constant support unit by further adjustment of the height adjusting nut until the pre-set pin (painted red) is easily removed.
- 1.3 The red painted pre-set pin should remain in position for any pre-commissioning overload conditions such as hydrostatic testing or chemical cleaning, but must be removed prior to operation, and then stored for possible future use.

2. Load Adjustment

- 2.1 In the event that the actual operating load is greater or lesser than the design load for which the constant support unit was designed and calibrated, it will be necessary to utilise the load adjustment facility. The load adjuster screw allows load carrying capacity of +/- 20% of the mean load to be achieved. A simple rotation of this load adjuster nut in the appropriate direction will increase or decrease the load accordingly; the load adjustment scale is calibrated in 2% divisions.

3. Operation

- 3.1 Prior to operation the following checks must be carried out:
 - All pre-set pins are removed and stored
 - The constant support unit travel indicator is set to the correct setting
- 3.2 During normal operation the unit travel indicator should be at the correct operating (hot) position.
- 3.3 A periodic check should be made during the first few months of operation to ensure that any movement is within the travel range of the constant support unit; minor site adjustments may be necessary during this time.

4. Disconnecting and Unloading of Constant Support Units

- 4.1 Reverse the above instructions until the red painted pre-set pin can be easily fitted back into its pre-set position.

Constant Spring Supports – Pictorial Index

QC100



QC110



QC120



QC130



QC140



QC150







Constant Spring Supports

Loads in Kg

Constant Spring Support – Selection Table – Sizes 1 to 33 – Travels 40 to 320

Constant Spring Size	Total Travel (mm)																															
	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320			
Min Load	61	49	41	35	31	27	25	22	20	19	18	16	15	14	14	13	12	12	11	11	10	10	10	9	9	9	8					
1	78	63	52	45	39	35	31	28	26	24	22	21	20	18	17	16	16	15	14	13	13	12	12	11	11	11	10					
2	100	80	67	57	50	44	40	36	33	31	29	27	25	23	22	21	20	19	18	17	17	16	15	15	14	14	13					
3	127	101	84	72	63	56	51	46	42	39	36	34	32	30	28	27	25	24	23	22	21	20	20	19	18	17	17					
4	161	129	107	92	81	72	64	59	54	50	46	43	40	38	36	34	32	31	29	28	27	26	25	24	23	22	21					
5	204	164	136	117	102	91	82	74	68	63	58	55	51	48	45	43	41	39	37	36	34	33	32	30	29	28	27					
6	260	208	173	149	130	116	104	95	87	80	74	69	65	61	58	55	52	50	47	45	43	42	40	38	37	36	35					
7	331	265	221	189	166	147	133	121	110	102	95	88	83	78	74	70	66	63	60	58	55	53	51	49	47	46	44	43	42			
8	422	337	281	241	211	187	169	153	141	130	120	112	105	99	94	89	84	80	77	74	70	68	65	63	60	58	56	55	53			
9	537	430	358	307	269	239	215	195	179	165	153	143	134	126	119	113	107	102	98	93	90	86	83	80	77	74	72	69	67			
10	680	544	453	388	340	302	272	247	227	209	194	181	170	160	151	143	136	129	124	118	113	109	105	101	97	94	91	88	85			
11	864	691	576	494	432	384	346	314	288	266	247	230	216	203	192	182	173	165	157	150	144	138	133	128	124	119	115	112	108			
12	1097	877	731	627	548	487	439	399	366	337	313	292	274	258	244	231	219	209	200	191	183	176	169	163	157	151	146	142	137			
13			824	706	618	549	494	449	412	380	353	330	309	291	275	260	247	235	225	215	206	198	190	183	176	170	165	159	154			
14			927	795	696	618	556	506	464	428	397	371	348	327	309	293	278	265	253	242	232	223	214	206	199	192	185	179	174			
15			1041	892	781	694	624	568	520	480	446	416	390	367	347	329	312	297	284	272	260	250	240	231	223	215	208	201	195			
16			1152	988	864	768	691	628	576	532	494	461	432	407	384	364	346	329	314	301	288	277	266	256	247	238	230	223	216			
17			1271	1090	953	847	763	693	636	587	545	508	477	449	424	401	381	363	347	332	318	305	293	283	273	263	254	246	238			
18			1444	1238	1083	963	866	788	722	666	619	578	542	510	481	456	433	413	394	377	361	347	333	321	309	299	289	279	271			
19			1640	1406	1230	1093	984	894	820	757	703	656	615	579	547	518	492	469	447	428	410	394	378	364	351	339	328	317	307			
20			1786	1531	1339	1191	1071	974	893	824	765	714	670	630	595	564	536	510	487	466	446	429	412	397	383	369	357	346	335			
21			1943	1666	1457	1296	1166	1060	972	897	833	777	729	686	648	614	583	555	530	507	486	466	448	432	416	402	389	376	364			
22			2122	1819	1591	1415	1273	1157	1061	979	909	849	796	749	707	670	637	606	579	554	530	509	490	472	455	439	424	411	398			
23			2315	1984	1736	1543	1389	1263	1157	1068	992	926	868	817	772	731	694	661	631	604	579	556	534	514	496	479	463	448	434			
24			2516	2156	1887	1677	1510	1372	1258	1161	1078	1006	943	888	839	794	755	719	686	656	629	604	581	559	539	521	503	487	472			
25			2766	2371	2074	1844	1659	1508	1383	1276	1185	1106	1037	976	922	873	830	790	754	721	691	664	638	615	593	572	553	535	519			
26			3054	2617	2290	2036	1832	1666	1527	1409	1309	1221	1145	1078	1018	964	916	872	833	797	763	733	705	679	654	632	611	591	573			
27				2979	2607	2317	2085	1896	1738	1604	1490	1390	1303	1227	1159	1098	1043	993	948	907	869	834	802	772	745	719	695	673	652			
28				3374	2952	2624	2362	2147	1968	1817	1687	1575	1476	1389	1312	1243	1181	1125	1074	1027	984	945	908	875	844	814	787	762	738			
29				3687	3226	2868	2581	2346	2151	1985	1843	1721	1613	1518	1434	1358	1290	1229	1173	1122	1075	1032	993	956	922	890	860	833	807			
30				4016	3514	3124	2811	2556	2343	2162	2008	1874	1757	1654	1562	1480	1406	1339	1278	1222	1171	1124	1081	1041	1004	969	937	907	879			
31				4378	3831	3405	3065	2786	2554	2357	2189	2043	1915	1803	1703	1613	1532	1459	1393	1332	1277	1226	1179	1135	1095	1057	1022	989	958			
32				4773	4177	3712	3341	3037	2784	2570	2387	2227	2088	1965	1856	1759	1671	1591	1519	1453	1392	1336	1285	1237	1193	1152	1114	1078	1044			
33				5464	4781	4250	3825	3477	3188	2942	2732	2550	2391	2250	2125	2013	1913	1821	1739	1663	1594	1530	1471	1417	1366	1319	1275	1234	1195			

Note: For Fig.QC110 only, select from right hand side of bold line.



Constant Spring Supports

Loads in Kg

Constant Spring Support – Selection Table – Sizes 1 to 33 – Travels 330 to 610

Constant Spring Size	Total Travel (mm)																													
	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600	610	
Min Load																														
1																														
2																														
3																														
4																														
5																														
6																														
7	40	39	38	37	36	35	34	33	32	32																				
8	51	50	48	47	46	44	43	42	41	40																				
9	65	63	61	60	58	57	55	54	52	51																				
10	82	80	78	76	74	72	70	68	66	65																				
11	105	102	99	96	94	91	89	87	84	82																				
12	133	129	125	122	119	116	113	110	107	105																				
13	150	145	141	137	134	130	127	124	121	118																				
14	169	163	159	154	150	146	143	139	136	132																				
15	189	184	178	173	169	164	160	156	152	149																				
16	209	203	197	192	187	182	177	173	169	165																				
17	231	224	218	212	206	201	196	191	186	182																				
18	262	255	247	241	234	228	222	217	211	206																				
19	298	289	281	273	266	259	252	246	240	234	229	224	219	214	209	205	201	197												
20	325	315	306	298	289	282	275	268	261	255	249	243	238	233	228	223	219	214												
21	353	343	333	324	315	307	299	292	284	278	271	265	259	253	248	243	238	233												
22	386	374	364	354	344	335	326	318	310	303	296	289	283	277	271	265	260	255												
23	421	408	397	386	375	366	356	347	339	331	323	316	309	302	296	289	283	278												
24	457	444	431	419	408	397	387	378	368	360	351	343	336	328	321	315	308	302												
25	503	488	474	461	448	437	425	415	405	395	386	377	369	361	353	346	339	332												
26	555	539	523	509	495	482	470	458	447	436	426	416	407	398	390	382	374	366												
27	632	613	596	579	564	549	535	521	509	496	485	474	463	453	444	434	426	417												
28	716	695	675	656	638	622	606	591	576	562	549	537	525	514	503	492	482	472												
29	782	759	737	717	698	679	662	645	630	615	600	587	574	561	549	538	527	516												
30	852	827	803	781	760	740	721	703	686	669	654	639	625	611	598	586	574	562												
31	929	901	876	851	828	807	786	766	748	730	713	697	681	666	652	639	626	613												
32	1012	983	955	928	903	879	857	835	815	795	777	759	742	726	711	696	682	668												
33	1159	1125	1093	1063	1034	1007	981	956	933	911	890	869	850	832	814	797	781	765												



Constant Spring Supports

Loads in Kg

Constant Spring Support – Selection Table – Sizes 34 to 66 – Travels 40 to 320

Constant Spring Size	Total Travel (mm)																															
	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320			
34						4698	4228	3844	3524	3253	3020	2819	2643	2487	2349	2225	2114	2013	1922	1838	1762	1691	1626	1566	1510	1458	1409	1364	1321			
35						5146	4632	4211	3860	3563	3308	3088	2895	2724	2573	2438	2316	2206	2105	2014	1930	1853	1781	1715	1654	1597	1544	1494	1447			
36						5850	5265	4787	4388	4050	3761	3510	3291	3097	2925	2771	2633	2507	2393	2289	2194	2106	2025	1950	1880	1816	1755	1698	1645			
37						6657	5991	5446	4993	4608	4279	3994	3744	3524	3328	3153	2996	2853	2723	2605	2496	2396	2304	2219	2140	2066	1997	1933	1872			
38						7259	6533	5939	5444	5025	4666	4355	4083	3843	3629	3438	3266	3111	2969	2840	2722	2613	2513	2420	2333	2253	2178	2107	2041			
39						7911	7120	6473	5934	5477	5086	4747	4450	4188	3956	3748	3560	3391	3236	3096	2967	2848	2739	2637	2543	2455	2373	2297	2225			
40								7060	6471	5973	5547	5177	4853	4568	4314	4087	3883	3698	3530	3376	3236	3106	2987	2876	2773	2678	2588	2505	2427			
41								7687	7047	6504	6040	5637	5285	4974	4698	4450	4228	4027	3844	3676	3523	3382	3252	3132	3020	2916	2819	2728	2642			
42								8421	7719	7126	6617	6176	5790	5449	5146	4875	4632	4411	4211	4028	3860	3705	3563	3431	3308	3194	3088	2988	2895			
43								9573	8776	8100	7522	7020	6582	6194	5850	5542	5265	5015	4787	4578	4388	4212	4050	3900	3761	3631	3510	3397	3291			
44								10893	9985	9217	8559	7988	7489	7048	6657	6306	5991	5706	5447	5210	4993	4793	4609	4438	4279	4132	3994	3865	3744			
45								11878	10888	10050	9332	8710	8166	7685	7259	6876	6533	6222	5939	5681	5444	5226	5025	4839	4666	4505	4355	4215	4083			
46								12946	11867	10954	10171	9494	8900	8377	7911	7495	7120	6781	6473	6192	5934	5696	5477	5274	5086	4911	4747	4594	4450			
47								14119	12942	11947	11094	10354	9707	9136	8628	8174	7765	7396	7060	6753	6471	6212	5973	5752	5547	5355	5177	5010	4853			
48								15376	14095	13010	12081	11276	10571	9949	9396	8902	8457	8054	7688	7354	7047	6765	6505	6264	6041	5832	5638	5456	5285			
49								16601	15218	14047	13044	12174	11413	10742	10145	9611	9131	8696	8301	7940	7609	7305	7024	6764	6522	6297	6087	5891	5707			
50								18015	16514	15244	14155	13211	12386	11657	11009	10430	9908	9437	9008	8616	8257	7927	7622	7340	7077	6833	6606	6393	6193			
51								19377	17762	16396	15225	14210	13322	12538	11842	11218	10657	10150	9689	9267	8881	8526	8198	7894	7612	7350	7105	6876	6661			
52								20948	19202	17725	16459	15362	14402	13555	12802	12128	11521	10973	10474	10019	9601	9217	8863	8534	8230	7946	7681	7433	7201			
53								22624	20739	19143	17776	16591	15554	14639	13826	13098	12443	11851	11312	10820	10369	9955	9572	9217	8888	8582	8295	8028	7777			
54								24090	22083	20384	18928	17666	16562	15588	14722	13947	13250	12619	12045	11521	11041	10600	10192	9815	9464	9138	8833	8548	8281			
55								25838	23685	21863	20301	18948	17764	16719	15790	14959	14211	13534	12919	12357	11843	11369	10932	10527	10151	9801	9474	9168	8882			
56								27713	25404	23450	21775	20323	19053	17932	16936	16044	15242	14516	13857	13254	12702	12194	11725	11291	10887	10512	10161	9834	9526			
57								29724	27247	25151	23354	21797	20435	19233	18164	17208	16348	15570	14862	14216	13623	13078	12575	12110	11677	11275	10899	10547	10218			
58								31881	29224	26976	25049	23379	21918	20629	19483	18457	17534	16699	15940	15247	14612	14027	13488	12988	12524	12092	11689	11312	10959			
59												24578	23042	21686	20482	19404	18433	17556	16758	16029	15361	14747	14180	13654	13167	12713	12289	11893	11521			
60												25838	24224	22799	21532	20399	19379	18456	17617	16851	16149	15503	14907	14355	13842	13365	12919	12503	12112			
61												27164	25466	23968	22637	21445	20373	19403	18521	17716	16977	16298	15671	15091	14552	14050	13582	13144	12733			
62												28557	26772	25198	23798	22545	21418	20398	19471	18624	17848	17134	16475	15865	15299	14771	14279	13818	13386			
63												29723	27866	26226	24769	23466	22292	21231	20266	19385	18577	17834	17148	16513	15923	15374	14862	14382	13933			
64												30937	29003	27297	25781	24424	23203	22098	21093	20176	19336	18562	17848	17187	16573	16002	15468	14969	14502			
65												32200	30187	28412	26833	25421	24150	23000	21954	21000	20125	19320	18577	17889	17250	16655	16100	15581	15094			
66												33515	31420	29572	27929	26459	25136	23939	22851	21857	20947	20109	19335	18619	17954	17335	16757	16217	15710			

Note: For Fig.QC110 only, select from right hand side of bold line.



Constant Spring Supports

Loads in Kg

Constant Spring Support – Selection Table – Sizes 34 to 66 – Travels 330 to 610

Constant Spring Size	Total Travel (mm)																												
	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600	610
34	1281	1244	1208	1175	1143	1113	1084	1057	1031	1007	983	961	940	919	900	881	863	846	829	813	798	783	769	755	742	729	717	705	693
35	1404	1362	1323	1287	1252	1219	1188	1158	1130	1103	1077	1053	1029	1007	986	965	945	926	908	891	874	858	842	827	813	799	785	772	759
36	1596	1549	1504	1463	1423	1386	1350	1316	1284	1254	1224	1197	1170	1145	1120	1097	1074	1053	1032	1013	993	975	957	940	924	908	892	876	863
37	1815	1762	1712	1664	1619	1577	1536	1498	1461	1426	1393	1362	1331	1302	1275	1248	1223	1198	1175	1152	1130	1109	1089	1070	1051	1033	1015	999	982
38	1980	1921	1866	1815	1766	1719	1675	1633	1593	1555	1519	1485	1452	1420	1390	1361	1333	1307	1281	1256	1233	1210	1188	1167	1146	1126	1107	1089	1071
39	2158	2094	2034	1978	1924	1874	1826	1780	1737	1695	1656	1618	1582	1548	1515	1483	1453	1424	1396	1369	1343	1319	1295	1271	1249	1228	1207	1187	1167
40	2353	2284	2219	2157	2099	2044	1991	1941	1894	1849	1806	1765	1726	1688	1652	1618	1585	1553	1523	1493	1465	1438	1412	1387	1362	1339	1316	1294	1273
41	2562	2487	2416	2349	2285	2225	2168	2114	2062	2013	1966	1922	1879	1838	1799	1762	1726	1691	1658	1626	1595	1566	1537	1510	1483	1458	1433	1409	1386
42	2807	2724	2647	2573	2504	2438	2375	2316	2259	2206	2154	2105	2059	2014	1971	1930	1890	1853	1816	1781	1748	1715	1684	1654	1625	1597	1570	1544	1519
43	3191	3097	3009	2925	2846	2771	2700	2633	2568	2507	2449	2393	2340	2289	2241	2194	2149	2106	2065	2025	1987	1950	1915	1880	1847	1816	1785	1755	1726
44	3631	3524	3424	3328	3238	3153	3072	2996	2923	2853	2787	2723	2663	2605	2549	2496	2445	2396	2349	2304	2261	2219	2179	2140	2102	2066	2031	1997	1964
45	3959	3843	3733	3629	3531	3438	3350	3266	3187	3111	3038	2969	2903	2840	2780	2722	2666	2613	2562	2513	2465	2420	2376	2333	2292	2253	2214	2178	2142
46	4315	4188	4069	3956	3849	3748	3651	3560	3473	3391	3312	3236	3165	3096	3030	2967	2906	2848	2792	2739	2687	2637	2589	2543	2498	2455	2414	2373	2335
47	4706	4568	4437	4314	4198	4087	3982	3883	3788	3698	3612	3530	3451	3376	3304	3236	3170	3106	3045	2987	2930	2876	2824	2773	2725	2678	2632	2588	2546
48	5125	4975	4832	4698	4571	4451	4337	4228	4125	4027	3933	3844	3759	3677	3599	3524	3452	3383	3316	3253	3191	3132	3075	3020	2967	2916	2867	2819	2773
49	5534	5371	5218	5073	4936	4806	4682	4565	4454	4348	4247	4150	4058	3970	3885	3804	3727	3652	3581	3512	3446	3382	3320	3261	3204	3149	3095	3044	2994
50	6005	5829	5662	5505	5356	5215	5081	4954	4833	4718	4609	4504	4404	4308	4216	4129	4044	3963	3886	3811	3739	3670	3603	3539	3477	3417	3359	3303	3249
51	6459	6269	6090	5921	5761	5609	5465	5329	5199	5075	4957	4844	4737	4634	4535	4441	4350	4263	4179	4099	4022	3947	3875	3806	3739	3675	3613	3552	3494
52	6983	6777	6584	6401	6228	6064	5908	5761	5620	5486	5359	5237	5121	5009	4903	4801	4703	4609	4518	4431	4348	4267	4190	4115	4043	3973	3906	3840	3778
53	7541	7320	7110	6913	6726	6549	6381	6222	6070	5925	5788	5656	5530	5410	5295	5185	5079	4977	4880	4786	4696	4609	4525	4444	4366	4291	4218	4148	4080
54	8030	7794	7571	7361	7162	6974	6795	6625	6463	6309	6163	6023	5889	5761	5638	5521	5408	5300	5196	5096	5000	4907	4818	4732	4649	4569	4491	4417	4344
55	8613	8359	8121	7895	7682	7479	7288	7106	6932	6767	6610	6460	6316	6179	6047	5921	5800	5684	5573	5466	5363	5263	5168	5075	4986	4900	4817	4737	4659
56	9238	8966	8710	8468	8239	8022	7817	7621	7435	7258	7089	6928	6774	6627	6486	6351	6221	6097	5977	5862	5752	5645	5543	5444	5348	5256	5167	5081	4997
57	9908	9616	9342	9082	8837	8604	8384	8174	7975	7785	7604	7431	7266	7108	6957	6812	6673	6539	6411	6288	6169	6055	5945	5839	5736	5637	5542	5449	5360
58	10627	10314	10019	9741	9478	9228	8992	8767	8553	8350	8155	7970	7793	7624	7461	7306	7157	7014	6876	6744	6617	6494	6376	6262	6152	6046	5944	5845	5749
59	11172	10843	10533	10241	9964	9702	9453	9217	8992	8778	8574	8379	8193	8015	7844	7681	7524	7373	7229	7090	6956	6827	6703	6583	6468	6356	6249	6144	6044
60	11745	11399	11074	10766	10475	10199	9938	9689	9453	9228	9013	8809	8613	8426	8246	8075	7910	7752	7600	7453	7313	7177	7047	6921	6800	6682	6569	6460	6354
61	12347	11984	11642	11318	11012	10723	10448	10186	9938	9701	9476	9260	9055	8858	8669	8489	8315	8149	7989	7836	7688	7546	7408	7276	7148	7025	6906	6791	6680
62	12981	12599	12239	11899	11577	11273	10984	10709	10448	10199	9962	9735	9519	9312	9114	8924	8742	8567	8399	8238	8082	7933	7788	7649	7515	7385	7260	7139	7022
63	13511	13113	12739	12385	12050	11733	11432	11146	10874	10615	10369	10133	9908	9692	9486	9289	9099	8917	8742	8574	8412	8256	8106	7962	7822	7687	7557	7431	7309
64	14062	13649	13259	12890	12542	12212	11899	11601	11318	11049	10792	10547	10312	10088	9873	9668	9470	9281	9099	8924	8756	8594	8437	8287	8141	8001	7865	7734	7607
65	14636	14206	13800	13417	13054	12710	12385	12075	11780	11500	11233	10977	10733	10500	10277	10062	9857	9660	9471	9288	9113	8944	8782	8625	8474	8328	8186	8050	7918
66	15234	14786	14363	13964	13587	13229	12890	12568	12261	11969	11691	11425	11172	10929	10696	10473	10260	10054	9857	9668	9485	9310	9140	8977	8820	8668	8521	8379	8241



Constant Spring Supports

Loads in Kn

Constant Spring Support – Selection Table – Sizes 1 to 33 – Travels 330 to 610

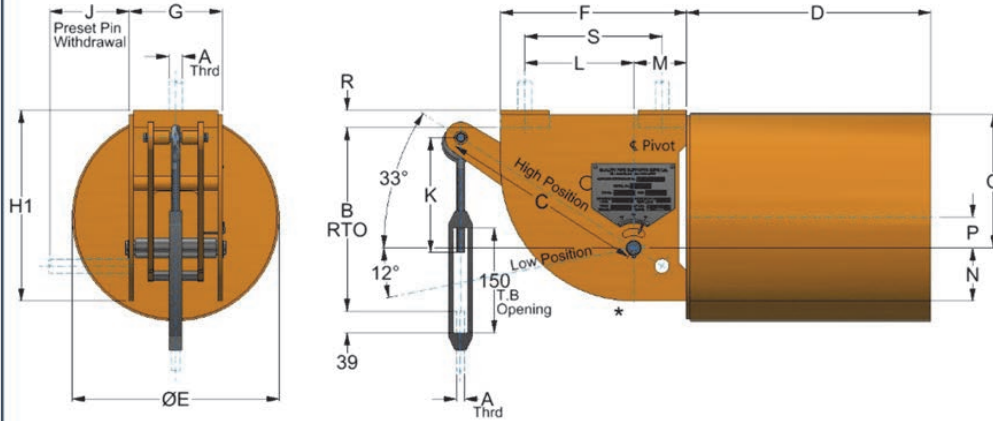
Constant Spring Size	Total Travel (mm)																												
	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590	600	610
Min Load																													
1																													
2																													
3																													
4																													
5																													
6																													
7	0.392	0.383	0.373	0.363	0.353	0.343	0.333	0.324	0.314	0.314																			
8	0.500	0.491	0.471	0.461	0.451	0.431	0.422	0.412	0.402	0.392																			
9	0.638	0.618	0.598	0.589	0.569	0.559	0.540	0.530	0.510	0.500																			
10	0.804	0.785	0.765	0.746	0.726	0.706	0.686	0.667	0.647	0.637																			
11	1.030	1.006	0.971	0.942	0.922	0.892	0.873	0.854	0.824	0.804																			
12	1.305	1.265	1.226	1.197	1.167	1.138	1.108	1.079	1.049	1.030																			
13	1.470	1.421	1.382	1.343	1.315	1.275	1.246	1.216	1.187	1.158																			
14	1.657	1.598	1.559	1.510	1.471	1.432	1.403	1.364	1.334	1.295																			
15	1.853	1.804	1.745	1.696	1.658	1.609	1.570	1.530	1.491	1.462																			
16	2.049	1.990	1.931	1.882	1.834	1.785	1.736	1.697	1.658	1.619																			
17	2.265	2.196	2.137	2.078	2.021	1.972	1.923	1.874	1.825	1.785																			
18	2.568	2.450	2.421	2.363	2.296	2.237	2.178	2.129	2.070	2.021																			
19	2.922	2.834	2.756	2.677	2.608	2.540	2.471	2.412	2.353	2.295	2.246	2.197	2.147	2.098	2.049	2.010	1.971	1.932											
20	3.187	3.089	3.001	2.922	2.834	2.765	2.697	2.628	2.560	2.500	2.442	2.383	2.334	2.285	2.236	2.187	2.147	2.098											
21	3.462	3.364	3.266	3.177	3.089	3.010	2.932	2.863	2.785	2.726	2.657	2.599	2.540	2.481	2.432	2.383	2.334	2.285											
22	3.785	3.668	3.570	3.472	3.373	3.285	3.197	3.119	3.040	2.971	2.903	2.834	2.775	2.716	2.657	2.598	2.550	2.500											
23	4.129	4.001	3.893	3.785	3.677	3.589	3.491	3.403	3.324	3.246	3.167	3.099	3.030	2.961	2.903	2.834	2.775	2.726											
24	4.482	4.354	4.227	4.109	4.001	3.893	3.795	3.707	3.609	3.530	3.442	3.363	3.295	3.216	3.148	3.089	3.020	2.961											
25	4.933	4.786	4.648	4.521	4.393	4.285	4.167	4.069	3.971	3.873	3.785	3.697	3.618	3.540	3.461	3.393	3.324	3.256											
26	5.443	5.286	5.129	4.992	4.854	4.726	4.609	4.491	4.383	4.276	4.177	4.079	3.991	3.903	3.824	3.746	3.667	3.589											
27	6.198	6.011	5.845	5.678	5.531	5.383	5.246	5.109	4.991	4.864	4.756	4.648	4.540	4.442	4.354	4.256	4.177	4.089											
28	7.022	6.816	6.619	6.433	6.256	6.099	5.942	5.795	5.648	5.511	5.383	5.266	5.148	5.040	4.932	4.825	4.726	4.628											
29	7.669	7.443	7.228	7.031	6.844	6.658	6.491	6.325	6.178	6.031	5.884	5.756	5.629	5.501	5.383	5.276	5.168	5.060											
30	8.355	8.110	7.875	7.659	7.452	7.256	7.070	6.894	6.727	6.560	6.413	6.266	6.129	5.991	5.864	5.746	5.629	5.511											
31	9.110	8.836	8.591	8.345	8.119	7.913	7.707	7.511	7.335	7.158	6.992	6.835	6.678	6.531	6.393	6.266	6.138	6.011											
32	9.924	9.640	9.365	9.101	8.855	8.619	8.404	8.188	7.992	7.796	7.619	7.443	7.276	7.119	6.972	6.825	6.688	6.550											
33	11.366	11.032	10.719	10.424	10.140	9.875	9.620	9.374	9.149	8.933	8.727	8.521	8.335	8.158	7.982	7.815	7.658	7.501											



Constant Spring Supports

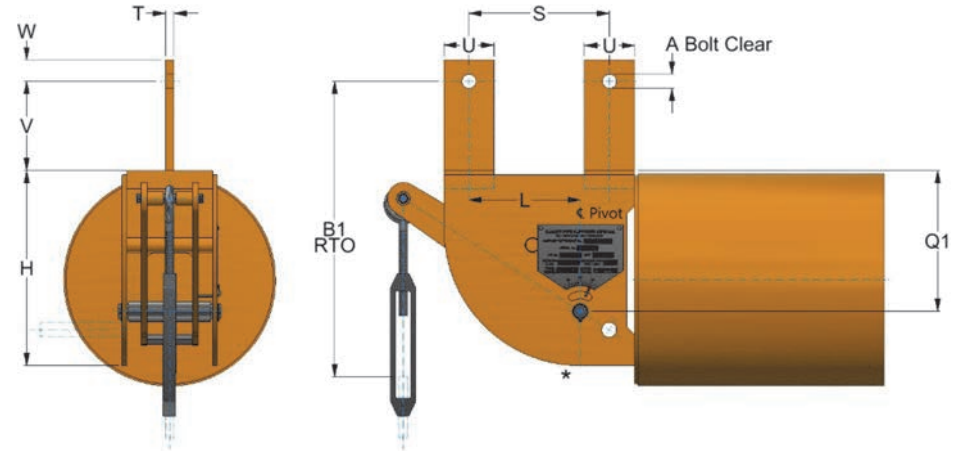
Constant Spring Support – QC100A, QC100BX, QC100BY & QC100C

QC100A



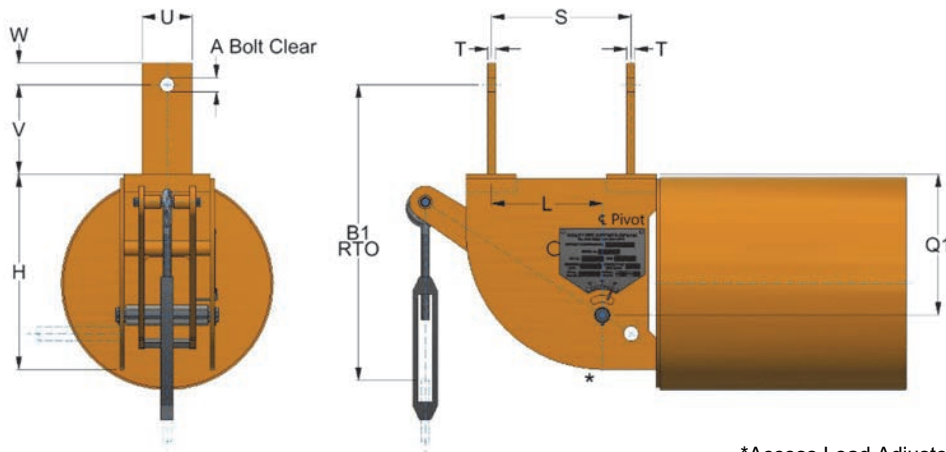
*Access Load Adjuster

QC100BX



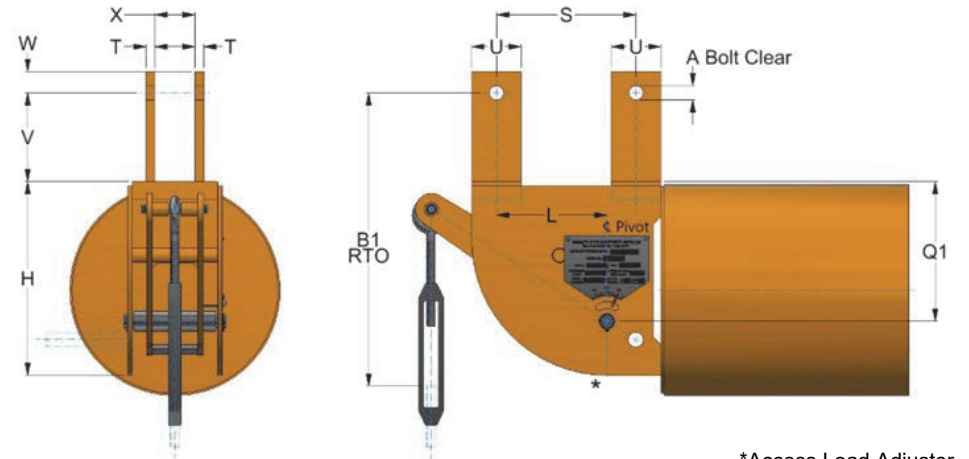
*Access Load Adjuster

QC100BY



*Access Load Adjuster

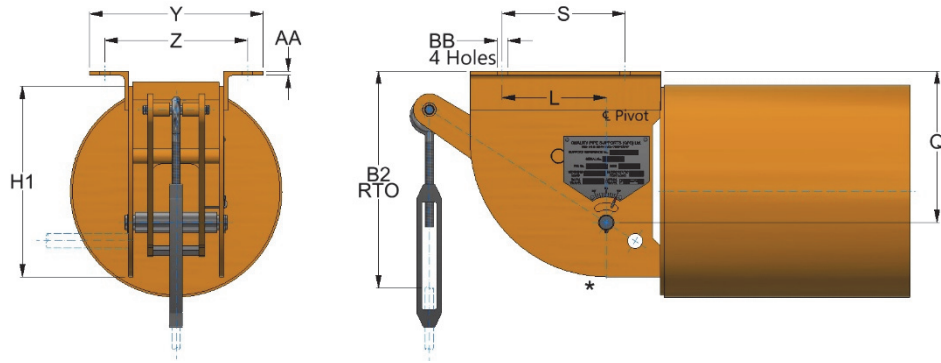
QC100C



*Access Load Adjuster

Constant Spring Support – QC100E

QC100E



*Access Load Adjuster

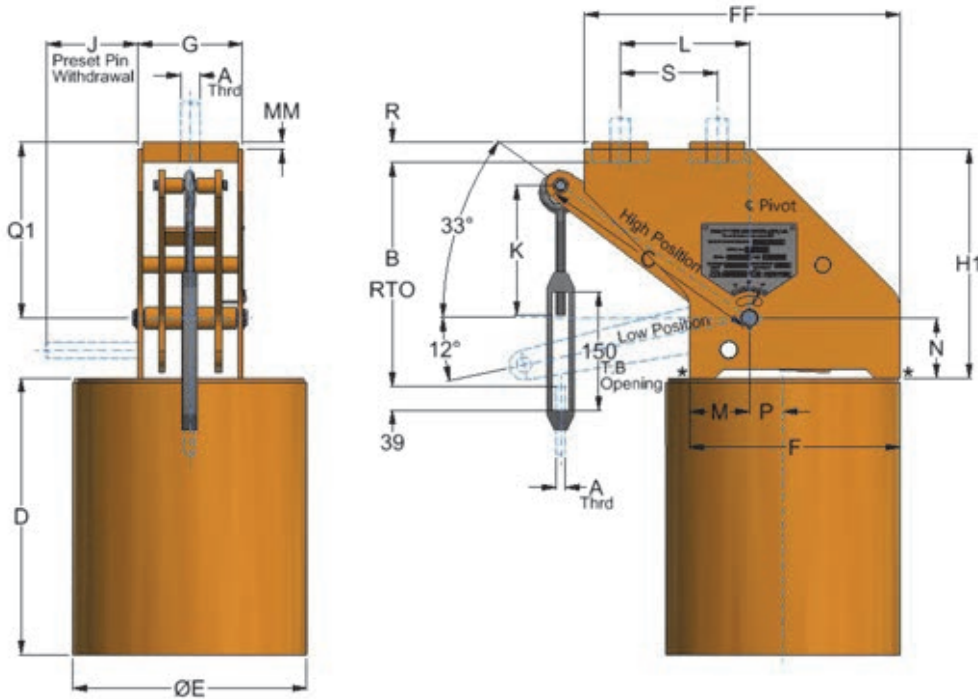
The rod take out (RTO) dimensions B, B1 or B2 are given for the load arm in the high position.

When the load arm is in the low position, the total up travel must be added to dimension B, B1 or B2.

This applies to all QC100 types

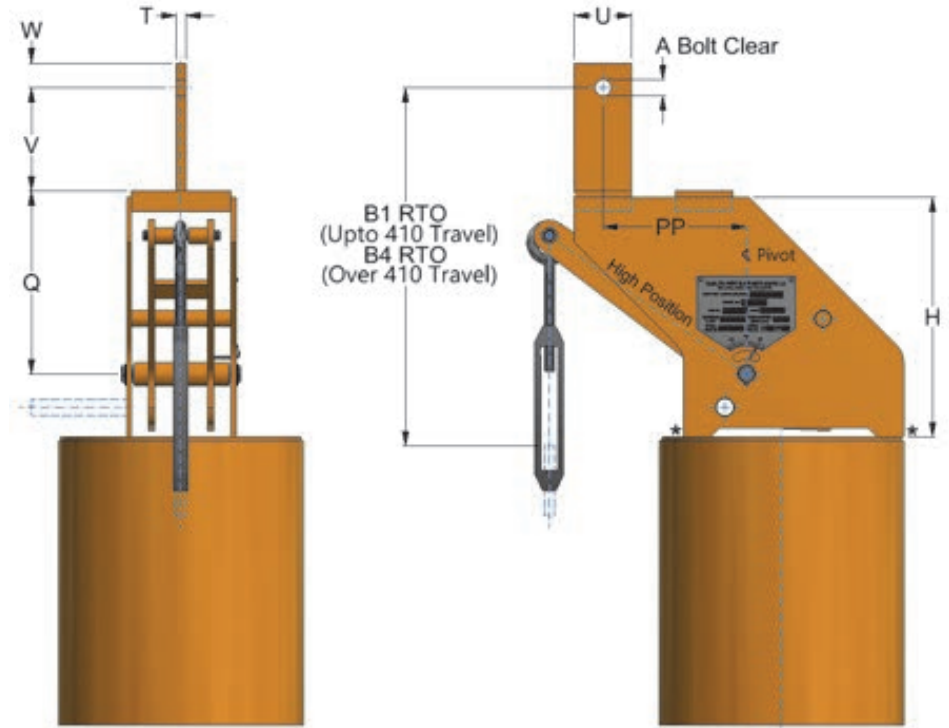
Constant Spring Support – QC110A & B

QC110A



*Access Load Adjuster

QC110B



*Access Load Adjuster

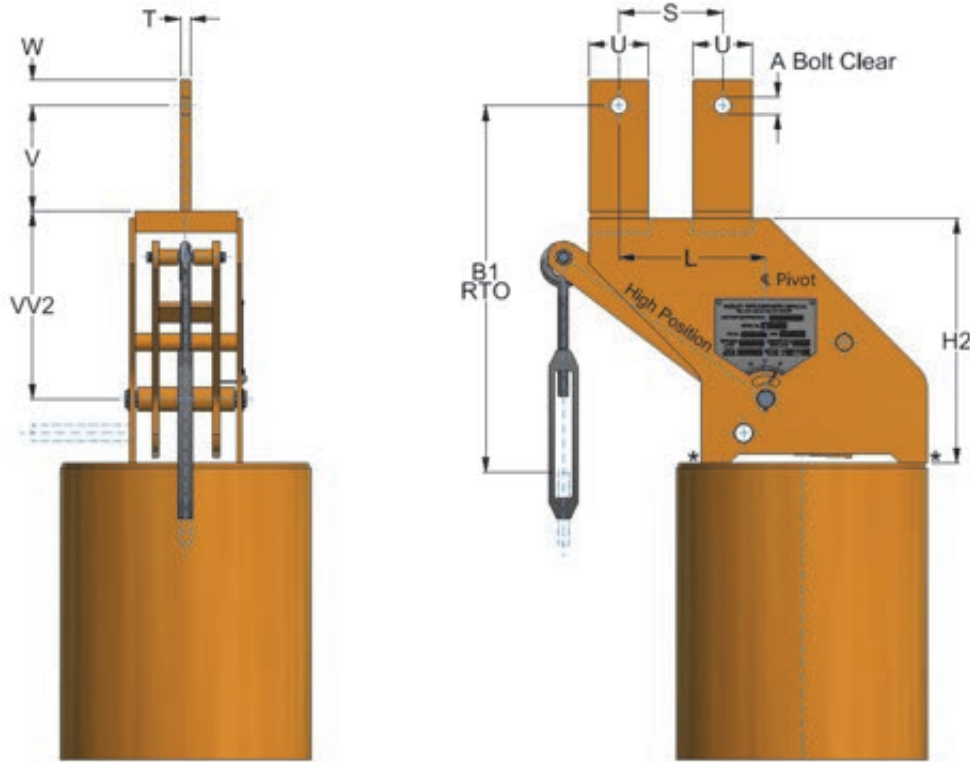
The rod take out (RTO) dimension B, B1 or B3 are given for the load arm in the high position. When the load is set in the low position the total up travel must be added to dimensions B, B1 or B3.

Typical yoke arrangement applicable to all types.
See page 32 for diagram and yoke table for unit and travel range applicable.

Note: Type 'B' & 'C'
Not recommended over:
190 Travel Sizes 1 to 12
210 Travel Sizes 13 to 18
290 Travel Sizes 19 to 26
300 Travel Sizes 27 to 33
500 Travel Sizes 34 to 39
All Travels Sizes 40 to 66

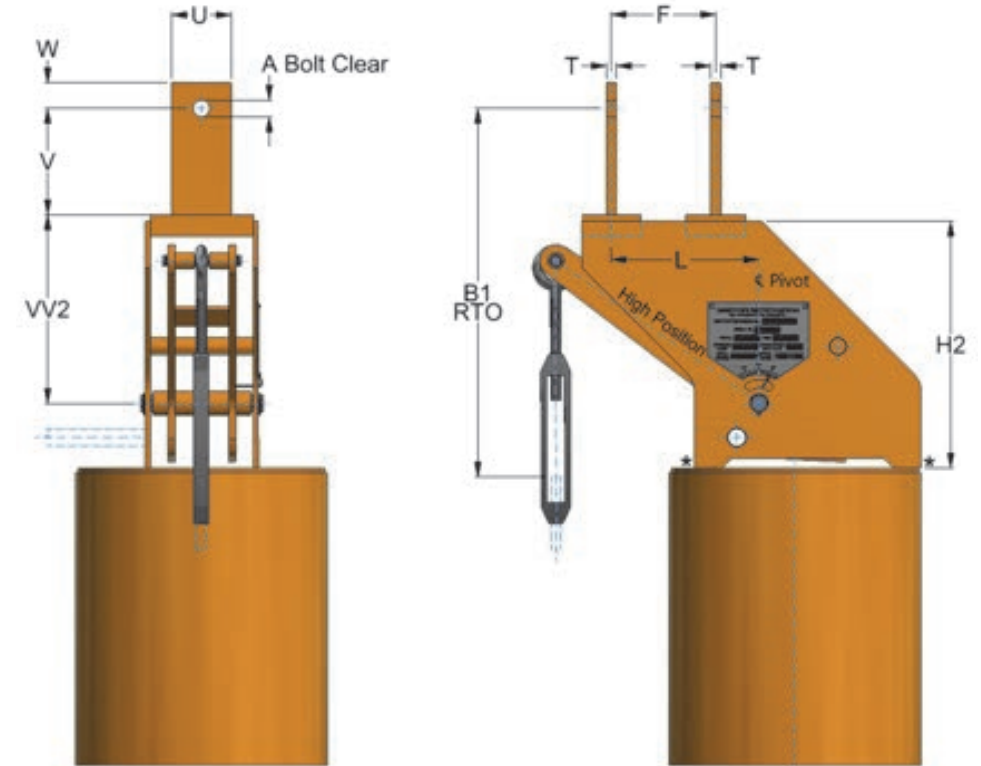
Constant Spring Support – QC110BX & BY

QC110BX



*Access Load Adjuster

QC110BY



*Access Load Adjuster

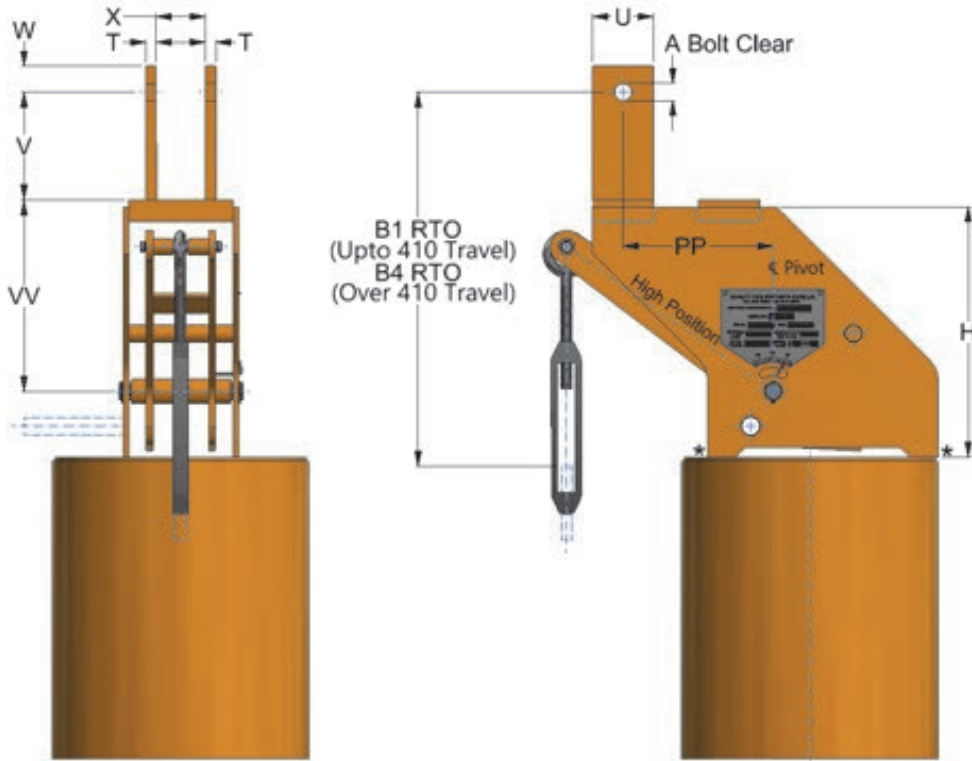
The rod take out (RTO) dimension B, B1 or B3 are given for the load arm in the high position. When the load is set in the low position the total up travel must be added to dimensions B, B1 or B3.

Typical yoke arrangement applicable to all types.
See page 32 for diagram and yoke table for unit and travel range applicable.



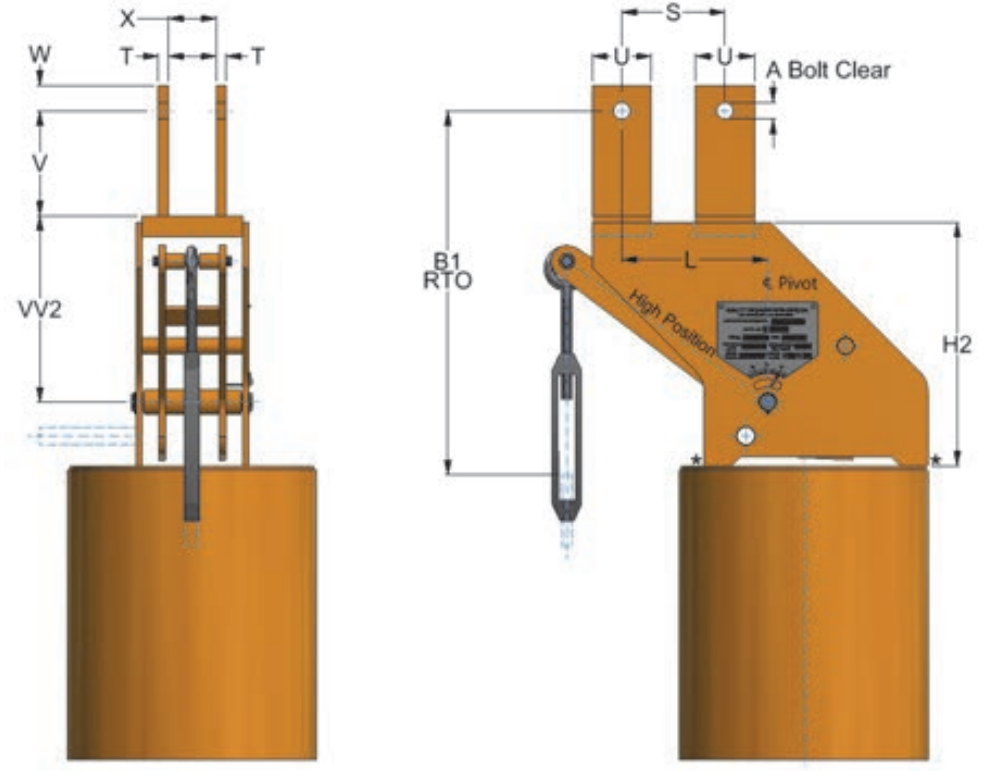
Constant Spring Support – QC110C & CX

QC110C



*Access Load Adjuster

QC110CX



*Access Load Adjuster

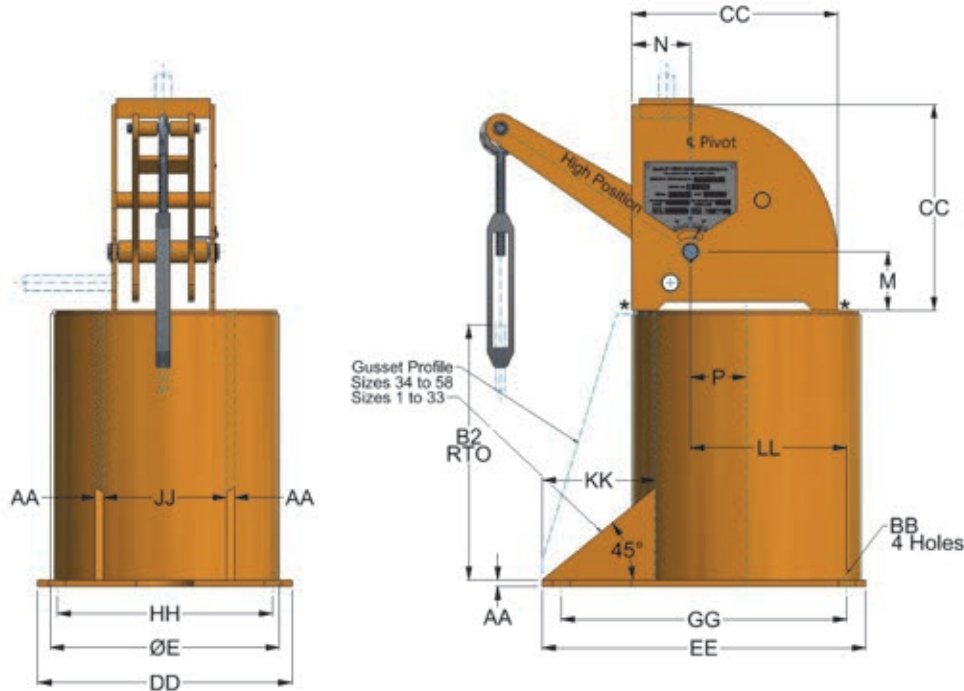
Note: Type 'B' & 'C'
 Not recommended over:
 190 Travel Sizes 1 to 12
 210 Travel Sizes 13 to 18
 290 Travel Sizes 19 to 26
 300 Travel Sizes 27 to 33
 500 Travel Sizes 34 to 39
 All Travels Sizes 40 to 66

The rod take out (RTO) dimension B, B1 or B3 are given for the load arm in the high position. When the load is set in the low position the total up travel must be added to dimensions B, B1 or B3.

Typical yoke arrangement applicable to all types.
 See page 32 for diagram and yoke table for unit and travel range applicable.

Constant Spring Support – QC110D & E

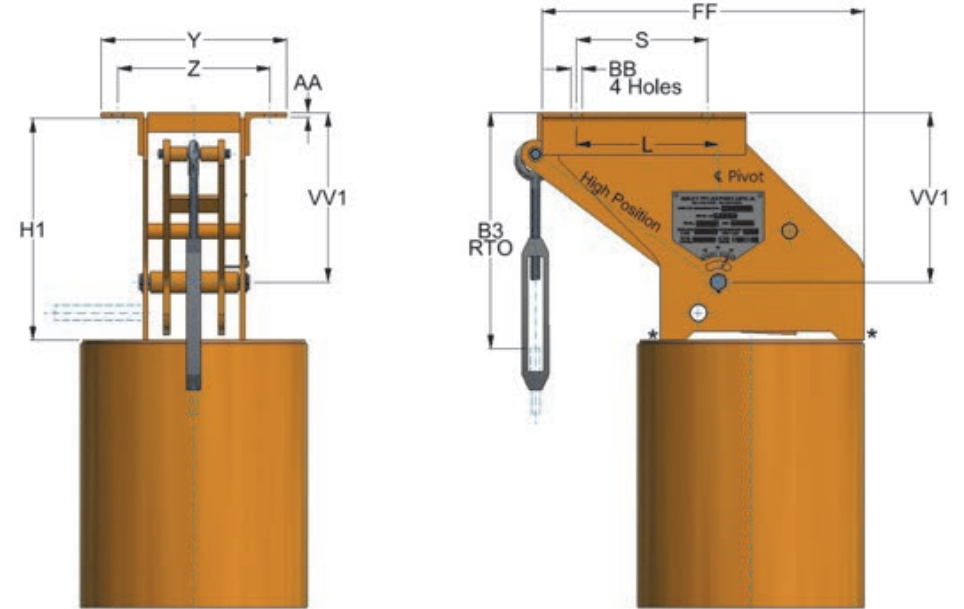
QC110D



Type D only. The rod take out (RTO) dimension B2 is given for the load arm in the high position. When the load is set in the low position the total up travel must be subtracted from dimensions B2.

*Access Load Adjuster

QC110E



*Access Load Adjuster

The rod take out (RTO) dimension B, B1 or B3 are given for the load arm in the high position. When the load is set in the low position the total up travel must be added to dimensions B, B1 or B3.

Typical yoke arrangement applicable to all types.
See page 32 for diagram and yoke table for unit and travel range applicable.



Constant Spring Supports

Constant Spring Tables – Fig. QC110 – Sizes 1 to 66

Constant Support Dimension Sizes 1 to 66											
Size	1-6	7-12	13-18	19-26	27-33	34-39	40-47	48-50	51-54	55-58	59-66
D	250	300	350	400	600	750	1100	1265	1265	1265	1620
E	150	220	295	330	390	440	525	525	525	525	640
F	180	215	270	325	405	495	610	685	685	685	760
G	115	120	135	150	180	225	280	345	345	345	455
J	135	140	160	175	215	270	330	405	405	405	560
M	55	65	75	95	115	145	198	250	250	250	280
N	55	65	75	95	115	145	180	190	190	190	215
T	10	12	12	20	25	25	30	40	40	40	40
R	15	20	30	30	35	40	50	60	70	80	80
U	40	50	70	80	100	130	150	200	200	200	200
V	40	40	50	65	75	75	90	140	140	140	150
Y	215	220	255	280	320	425	480	745	745	745	855
Z	165	180	205	220	265	335	395	520	520	520	685
BB	14	18	22	22	22	27	33	45	45	45	51
AA	6	6	8	8	10	10	15	20	20	20	25
TT	5	5	10	15	10	30	15	15	15	15	40
FF	295	330	455	550	615	815	945	1080	1080	1080	1100
X	35	35	50	50	65	75	90	110	110	110	120
K	150	150	150	200	200	200	250	300	300	300	300
P	33	38	65	66	83	100	Table	182	182	182	Table
LL	100	130	195	215	255	285	Table	460	460	460	~
GG	180	255	370	395	510	510	740	830	830	830	~
EE	220	305	420	460	585	610	840	930	930	930	~
KK	80	100	170	180	230	170	300	350	350	350	~
JJ	102	127	203	254	305	206	257	305	305	405	~
HH	170	230	280	355	410	460	560	560	560	560	~
DD	210	280	330	420	485	560	660	660	660	660	~
CC	-	-	-	-	-	-	-	275	275	290	340

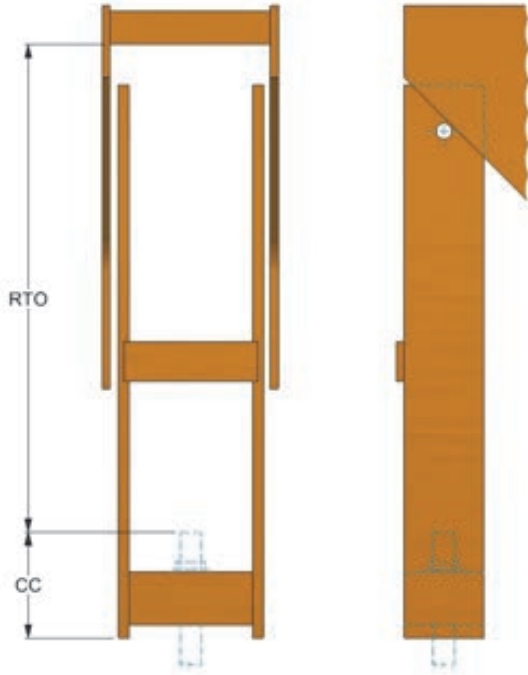
All units are supplied with drop rods and turnbuckles, except for sizes/travels shown in the yoke table below, which will be supplied with a yoke arrangement.

Yoke Table	
Sizes	Travels
48 - 58	170 - 350
59 - 66	180 - 350

LL Dimension		
Size	40 - 44	45 - 47
LL	360	405

W Dimensions for 'A' Bolt													
Size	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M72	M80	M90
W	25	25	30	35	40	50	60	65	80	85	100	110	120

P Dimension										
Size	40 - 44	45 - 47	59	60	61	62	63	64	65	66
P	121	165	188	193	197	203	207	211	216	220





Constant Spring Supports

Constant Spring Tables – Fig. QC110 – Sizes 1 to 12

Sizes 1 to 6															
Travel	C	B	B1	B2	B3	A	PP	L	S	VV	VV1	VV2	H	H1	H2
60	80	340	395	130	355	M12	64	150	130		175				225
70	94	335	390	135	350	M12	64	150	130		175				225
80	107	325	380	145	340	M12	86	150	130		175				225
90	120	320	375	150	335	M12	97	150	130		175				225
100	134	315	365	160	330	M12	107	150	130		175				225
110	147	305	360	165	320	M12	118	150	130		175				225
120	160	300	355	175	315	M12	128	150	130		175				225
130	174	290	345	180	305	M12	140	150	130		175				225
140	187	285	340	185	300	M12	150	150	130		175				225
150	200	275	330	195	290	M12	161	150	130		175				225
160	214	270	325	200	285	M12	172	150	130		175				225
170	227	260	315	210	275	M12	182	150	130		175				225
180	240	255	310	215	270	M12	193	150	130		175				225
190	254	245	300	225	260	M12	203	150	130		175				225
200	267	240	295	230	255	M12		150	130		175	175		225	225
210	280	235	290	240	250	M12		150	130		175	175		225	225
220	294	250	280	245	265	M12		150	130		200	175		250	225
230	307	245	275	255	260	M12		150	130		200	175		250	225
240	320	235	265	260	250	M12		150	130		200	175		250	225
250	334	250	260	270	265	M12		150	130		220	175		270	225
260	347	240	250	275	255	M12		150	130		220	175		270	225
270	360	235	245	280	250	M12		150	130		220	175		270	225
280	374	245	235	290	260	M12		150	130		240	175		290	225
290	387	240	230	295	255	M12		150	130		240	175		290	225
300	400	230	220	305	245	M12		150	130		240	175		290	225

For table of standard dimensions, see page 32

Sizes 7 to 12															
Travel	C	B	B1	B2	B3	A	PP	L	S	VV	VV1	VV2	H	H1	H2
90	120	320	380	215	340	M12	96	155	125		180				240
100	134	310	370	220	330	M12	107	155	125		180				240
110	147	305	365	230	325	M12	117	155	125		180				240
120	160	300	360	235	320	M12	128	155	125		180				240
130	174	290	350	245	310	M12	139	155	125		180				240
140	187	285	345	250	305	M12	150	155	125		180				240
150	200	275	335	260	295	M12	160	155	125		180				240
160	214	270	330	265	290	M12	171	155	125		180				240
170	227	260	320	270	280	M12	181	155	125		180				240
180	240	255	315	280	275	M12	192	155	125		180				240
190	254	250	310	285	270	M12	204	155	125		180				240
200	267	240	300	295	260	M12		155	125		180	180		240	240
210	280	235	295	300	255	M12		155	125		180	180		240	240
220	294	255	285	305	275	M12		155	125		210	180		270	240
230	307	250	280	315	270	M12		155	125		210	180		270	240
240	320	240	270	320	260	M12		155	125		210	180		270	240
250	334	255	265	330	275	M12		155	125		230	180		290	240
260	347	245	255	335	265	M12		155	125		230	180		290	240
270	360	240	250	340	260	M12		155	125		230	180		290	240
280	374	245	240	350	265	M12		155	125		245	180		305	240
290	387	240	235	355	260	M12		155	125		245	180		305	240
300	400	230	225	365	250	M12		155	125		245	180		305	240
310	414	270	250	370	290	M12		155	125		290	210		350	270
320	427	260	240	380	280	M12		155	125		290	210		350	270
330	440	255	235	385	275	M12		155	125		290	210		350	270
340	454	250	230	395	270	M12		155	125		290	210		350	270
350	467	240	220	400	260	M12		155	125		290	210		350	270
360	480	275	255	405	295	M12		155	125		330	250		390	310
370	494	265	245	415	285	M12		155	125		330	250		390	310
380	507	260	240	420	280	M12		155	125		330	250		390	310
390	520	250	230	430	270	M12		155	125		330	250		390	310
400	534	245	225	435	265	M12		155	125		330	250		390	310
410	547	235	215	445	255	M12		155	125		330	250		390	310
420	560	230	210	450	250	M12		155	125		330	250		390	310



Constant Spring Supports

Constant Spring Tables – Fig. QC110 – Sizes 13 to 26

Sizes 13 to 18															
Travel	C	B	B1	B2	B3	A	PP	L	S	VV	VV1	VV2	H	H1	H2
100	134	345	425	280	375	M16	105	225	195		225			290	
110	147	340	420	290	370	M16	116	225	195		225			290	
120	160	335	415	295	365	M16	126	225	195		225			290	
130	174	325	405	305	355	M16	138	225	195		225			290	
140	187	320	400	310	350	M16	148	225	195		225			290	
150	200	310	390	315	340	M16	158	225	195		225			290	
160	214	305	385	325	335	M12	169	225	195		225			290	
170	227	295	375	330	325	M12	179	225	195		225			290	
180	240	290	370	340	320	M12	189	225	195		225			290	
190	254	280	360	345	310	M12	200	225	195		225			290	
200	267	275	355	355	305	M12	211	225	195		225			290	
210	280	270	350	360	300	M12	221	225	195		225			290	
220	294	260	340	370	290	M12		225	195		225	225		290	290
230	307	255	335	375	285	M12		225	195		225	225		290	290
240	320	245	325	380	275	M12		225	195		225	225		290	290
250	334	240	320	390	270	M12		225	195		225	225		290	290
260	347	230	310	395	260	M12		225	195		225	225		290	290
270	360	255	305	405	285	M12		225	195		255	225		320	290
280	374	245	295	410	275	M12		225	195		255	225		320	290
290	387	240	290	420	270	M12		225	195		255	225		320	290
300	400	255	280	425	285	M12		225	195		280	225		345	290
310	414	250	275	435	280	M12		225	195		280	225		345	290
320	427	240	265	440	270	M12		225	195		280	225		345	290
330	440	255	260	450	285	M12		225	195		300	225		365	290
340	454	250	255	455	280	M12		225	195		300	225		365	290
350	467	240	245	460	270	M12		225	195		300	225		365	290
360	480	235	240	470	265	M12		225	195		300	225		365	290
370	494	260	230	475	290	M12		225	195		335	225		400	290
380	507	255	245	485	285	M12		225	195		335	245		400	310
390	520	245	235	490	275	M12		225	195		335	245		400	310
400	534	240	230	500	270	M12		225	195		335	245		400	310
410	547	230	220	505	260	M12		225	195		335	245		400	310
420	560	225	215	515	255	M12		225	195		335	245		400	310

Sizes 19 to 26															
Travel	C	B	B1	B2	B3	A	PP	L	S	VV	VV1	VV2	H	H1	H2
120	160	470	565	315	500	M20	129	260	220		310			390	
130	174	460	555	325	490	M20	141	260	220		310			390	
140	187	455	550	330	485	M20	152	260	220		310			390	
150	200	445	540	335	475	M20	162	260	220		310			390	
160	214	440	535	345	470	M20	173	260	220		310			390	
170	227	430	525	350	460	M20	184	260	220		310			390	
180	240	425	520	360	455	M16	195	260	220		310			390	
190	254	415	510	365	445	M16	206	260	220		310			390	
200	267	410	505	375	440	M16	217	260	220		310			390	
210	280	405	500	380	435	M16	227	260	220		310			390	
220	294	395	490	390	425	M16	239	260	220		310			390	
230	307	390	480	395	420	M16	249	260	220		310			390	
240	320	380	475	400	410	M16	259	260	220		310			390	
250	334	375	470	410	405	M16	271	260	220		310			390	
260	347	365	460	415	395	M16	282	260	220		310			390	
270	360	360	455	425	390	M16	292	260	220		310			390	
280	374	350	445	430	380	M16	304	260	220		310			390	
290	387	345	440	440	375	M16	315	260	220		310			390	
300	400	335	430	445	365	M16		260	220		310	310		390	390
310	414	330	425	455	360	M16		260	220		310	310		390	390
320	427	325	420	460	355	M16		260	220		310	310		390	390
330	440	315	410	470	345	M12		260	220		310	310		390	390
340	454	310	405	475	340	M12		260	220		310	310		390	390
350	467	300	395	480	330	M12		260	220		310	310		390	390
360	480	295	390	490	325	M12		260	220		310	310		390	390
370	494	315	380	495	345	M12		260	220		340	310		420	390
380	507	310	375	505	340	M12		260	220		340	310		420	390
390	520	300	365	510	330	M12		260	220		340	310		420	390
400	534	295	360	520	325	M12		260	220		340	310		420	390
410	547	315	350	525	345	M12		260	220		370	310		450	390
420	560	310	345	535	340	M12		260	220		370	310		450	390
430	574	300	335	540	330	M12		260	220		370	310		450	390
440	587	295	330	550	325	M12		260	220		370	310		450	390
450	600	290	325	555	320	M12		260	220		370	310		450	390
460	614	310	315	560	340	M12		260	220		400	310		480	390
470	627	305	310	570	335	M12		260	220		400	310		480	390
480	641	295	300	575	325	M12		260	220		400	310		480	390
490	654	290	295	585	320	M12		260	220		400	310		480	390
500	667	280	285	590	310	M12		260	220		400	310		480	390

For table of standard dimensions, see page 32



Constant Spring Supports

Constant Spring Tables – Fig. QC110 – Sizes 27 to 39

Sizes 27 to 33															
Travel	C	B	B1	B2	B3	A	PP	L	S	VV	VV1	VV2	H	H1	H2
130	174	440	550	545	475	M30	142	285	240		295				405
140	187	435	545	550	470	M30	153	285	240		295				405
150	200	425	535	560	460	M30	164	285	240		295				405
160	214	420	530	570	455	M30	175	285	240		295				405
170	227	410	520	575	445	M24	185	285	240		295				405
180	240	405	515	580	440	M24	196	285	240		295				405
190	254	395	505	590	430	M24	208	285	240		295				405
200	267	390	500	595	425	M24	219	285	240		295				405
210	280	385	495	605	420	M24	230	285	240		295				405
220	294	375	485	610	410	M24	241	285	240		295				405
230	307	370	480	620	405	M24	251	285	240		295				405
240	320	360	470	625	395	M20	262	285	240		295				405
250	334	355	465	635	390	M20	273	285	240		295				405
260	347	345	455	640	380	M20	284	285	240		295				405
270	360	340	450	645	375	M20	295	285	240		295				405
280	374	330	440	655	365	M20	306	285	240		295				405
290	387	325	435	660	360	M20	317	285	240		295				405
300	400	315	425	670	350	M20	327	285	240		295				405
310	414	310	420	675	345	M20		285	240		295	295		405	405
320	427	305	415	685	340	M20		285	240		295	295		405	405
330	440	295	405	690	330	M20		285	240		295	295		405	405
340	454	290	400	700	325	M20		285	240		295	295		405	405
350	467	280	390	705	315	M20		285	240		295	295		405	405
360	480	275	385	710	310	M20		285	240		295	295		405	405
370	494	310	375	720	345	M20		285	240		340	295		450	405
380	507	305	370	725	340	M20		285	240		340	295		450	405
390	520	295	360	735	330	M20		285	240		340	295		450	405
400	534	290	355	740	325	M20		285	240		340	295		450	405
410	547	310	345	750	345	M20		285	240		370	295		480	405
420	560	305	340	755	340	M20		285	240		370	295		480	405
430	574	295	330	765	330	M20		285	240		370	295		480	405
440	587	290	325	770	325	M20		285	240		370	295		480	405
450	600	315	320	775	350	M20		285	240		400	295		510	405
460	614	305	310	785	340	M20		285	240		400	295		510	405
470	627	300	305	790	335	M20		285	240		400	295		510	405
480	641	290	295	800	325	M20		285	240		400	295		510	405
490	654	285	290	805	320	M20		285	240		400	295		510	405
500	667	275	280	815	310	M20		285	240		400	295		510	405

Sizes 34 to 39																
Travel	C	B	B1	B2	B3	B4	A	PP	L	S	VV	VV1	VV2	H	H1	H2
170	227	530	645	750	570		M36	187	400	355			420			535
180	240	525	640	760	565		M36	197	400	355			420			535
190	254	515	630	765	555		M30	209	400	355			420			535
200	267	510	625	770	550		M30	220	400	355			420			535
210	280	505	620	780	545		M30	230	400	355			420			535
220	294	495	610	785	535		M30	242	400	355			420			535
230	307	490	605	790	530		M30	252	400	355			420			535
240	320	480	595	800	520		M30	262	400	355			420			535
250	334	475	590	810	515		M30	274	400	355			420			535
260	347	465	580	815	505		M30	285	400	355			420			535
270	360	460	575	825	500		M30	296	400	355			420			535
280	374	450	565	830	490		M30	307	400	355			420			535
290	387	445	560	840	485		M30	318	400	355			420			535
300	400	435	550	845	475		M30	328	400	355			420			535
310	414	430	545	850	470		M24	340	400	355			420			535
320	427	425	540	860	465		M24	351	400	355			420			535
330	440	415	530	870	455		M24	361	400	355			420			535
340	454	410	525	875	450		M24	373	400	355			420			535
350	467	400	515	880	440		M24	384	400	355			420			535
360	480	395	510	890	435		M24	394	400	355			420			535
370	494	385	500	895	425		M24	405	400	355			420			535
380	507	380	495	905	420		M24	416	400	355			420			535
390	520	370	485	910	410		M24	427	400	355			420			535
400	534	365	480	920	405		M24	439	400	355			420			535
410	547	355	470	925	395		M24	449	400	355			420			535
420	560	350	465	935	390	515	M24	460	400	355	470	420	420	585	535	535
430	574	340	455	945	380	505	M24	470	400	355	470	420	420	585	535	535
440	587	335	450	950	375	500	M24	480	400	355	470	420	420	585	535	535
450	600	330	445	955	370	495	M24	495	400	355	470	420	420	585	535	535
460	614	320	435	965	360	485	M24	505	400	355	470	420	420	585	535	535
470	627	315	430	970	355	480	M24	515	400	355	470	420	420	585	535	535
480	641	305	420	980	345	470	M24	530	400	355	470	420	420	585	535	535
490	654	340	415	985	380	465	M24	540	400	355	470	460	420	585	575	535
500	667	330	405	995	370	455	M24	550	400	355	470	460	420	585	575	535
510	680	325	400	1000	365		M24		400	355		460	420		575	535
520	695	315	390	1010	355		M24		400	355		460	420		575	535
530	708	310	385	1015	350		M24		400	355		460	420		575	535
540	720	305	380	1020	345		M24		400	355		460	420		575	535
550	734	335	370	1030	375		M24		400	355		500	420		615	535
560	747	330	365	1035	370		M24		400	355		500	420		615	535
570	761	320	355	1045	360		M24		400	355		500	420		615	535
580	774	315	350	1050	355		M24		400	355		500	420		615	535
590	787	305	340	1060	345		M24		400	355		500	420		615	535
600	800	300	335	1065	340		M24		400	355		500	420		615	535
610	815	290	325	1075	330		M24		400	355		500	420		615	535

For table of standard dimensions, see page 32



Constant Spring Supports

Constant Spring Tables – Fig. QC110 – Sizes 40 to 50

Sizes 40 to 47												
Travel	C	B	B1	B2	B3	A	L	S	VV1	VV2	H1	H2
170	227	575	715	1115	625	M48	430	370		425		610
180	240	570	710	1120	620	M48	430	370		425		610
190	254	560	700	1130	610	M48	430	370		425		610
200	267	555	695	1135	605	M48	430	370		425		610
210	280	545	690	1145	595	M42	430	370		425		610
220	294	540	680	1150	590	M42	430	370		425		610
230	307	535	675	1160	585	M42	430	370		425		610
240	320	525	665	1165	575	M42	430	370		425		610
250	334	520	660	1175	570	M42	430	370		425		610
260	347	510	650	1180	560	M42	430	370		425		610
270	360	505	645	1185	555	M42	430	370		425		610
280	374	495	635	1195	545	M42	430	370		425		610
290	387	490	630	1200	540	M36	430	370		425		610
300	400	480	620	1210	530	M36	430	370		425		610
310	414	475	615	1215	525	M36	430	370		425		610
320	427	470	610	1225	520	M36	430	370		425		610
330	440	460	600	1230	510	M36	430	370		425		610
340	454	455	595	1240	505	M36	430	370		425		610
350	467	445	585	1245	495	M36	430	370		425		610
360	480	440	580	1250	490	M36	430	370		425		610
370	494	430	570	1260	480	M36	430	370		425		610
380	507	425	565	1270	475	M36	430	370		425		610
390	520	415	555	1275	465	M36	430	370		425		610
400	534	410	550	1280	460	M36	430	370		425		610
410	547	400	540	1290	450	M36	430	370		425		610
420	560	470	610	1290	520	M36	430	370	500	500	685	685
430	574	460	600	1300	510	M36	430	370	500	500	685	685
440	587	455	595	1305	505	M36	430	370	500	500	685	685
450	600	445	585	1315	495	M36	430	370	500	500	685	685
460	614	440	580	1320	490	M36	430	370	500	500	685	685
470	627	435	575	1330	485	M36	430	370	500	500	685	685
480	641	425	565	1335	475	M36	430	370	500	500	685	685
490	654	420	560	1345	470	M36	430	370	500	500	685	685
500	667	410	550	1350	460	M36	430	370	500	500	685	685
510	680	405	545	1355	455	M36	430	370	500	500	685	685
520	695	395	535	1365	445	M36	430	370	500	500	685	685
530	708	390	530	1375	440	M36	430	370	500	500	685	685
540	720	380	520	1380	430	M36	430	370	500	500	685	685
550	734	375	515	1385	425	M36	430	370	500	500	685	685
560	747	365	505	1395	415	M36	430	370	500	500	685	685
570	761	360	500	1400	410	M36	430	370	500	500	685	685
580	774	350	490	1410	400	M36	430	370	500	500	685	685
590	787	345	485	1415	395	M36	430	370	500	500	685	685
600	800	340	480	1425	390	M36	430	370	500	500	685	685
610	815	330	470	1430	380	M36	430	370	500	500	685	685

Sizes 48 to 50												
Travel	C	B	B1	B2	B3	A	L	S	VV1	VV2	H1	H2
170	227	635	835	1285	695	M64	460	365		445		680
180	240	630	830	1290	690	M64	460	365		445		680
190	254	620	820	1300	680	M64	460	365		445		680
200	267	615	815	1305	675	M56	460	365		445		680
210	280	610	810	1310	670	M56	460	365		445		680
220	294	600	800	1320	660	M56	460	365		445		680
230	307	595	795	1330	655	M56	460	365		445		680
240	320	585	785	1335	645	M56	460	365		445		680
250	334	580	780	1340	640	M56	460	365		445		680
260	347	570	770	1350	630	M56	460	365		445		680
270	360	565	765	1355	625	M48	460	365		445		680
280	374	555	755	1365	615	M48	460	365		445		680
290	387	550	750	1370	610	M48	460	365		445		680
300	400	540	740	1380	600	M48	460	365		445		680
310	414	535	735	1385	595	M48	460	365		445		680
320	427	530	730	1395	590	M48	460	365		445		680
330	440	520	720	1400	580	M48	460	365		445		680
340	454	515	715	1410	575	M48	460	365		445		680
350	467	505	705	1415	565	M48	460	365		445		680
360	480	500	700	1420	560	M42	460	365		445		680
370	494	490	690	1430	550	M42	460	365		445		680
380	507	485	685	1435	545	M42	460	365		445		680
390	520	475	675	1445	535	M42	460	365		445		680
400	534	470	670	1450	530	M42	460	365		445		680
410	547	460	660	1460	520	M42	460	365		445		680
420	560	540	740	1465	600	M42	460	365		530		765
430	574	530	730	1475	590	M42	460	365		530		765
440	587	525	725	1480	585	M42	460	365		530		765
450	600	515	715	1485	575	M42	460	365		530		765
460	614	510	710	1495	570	M42	460	365		530		765
470	627	505	705	1500	565	M42	460	365		530		765
480	641	495	695	1510	555	M42	460	365		530		765
490	654	490	690	1515	550	M42	460	365		530		765
500	667	480	680	1525	540	M42	460	365		530		765
510	680	475	675	1530	535	M42	460	365		530		765
520	695	465	665	1540	525	M42	460	365		530		765
530	708	460	660	1545	520	M42	460	365		530		765
540	720	450	650	1550	510	M42	460	365		530		765
550	734	445	645	1560	505	M42	460	365		530		765
560	747	435	635	1565	495	M42	460	365		530		765
570	761	430	630	1575	490	M42	460	365		530		765
580	774	420	620	1580	480	M42	460	365		530		765
590	787	415	615	1590	475	M42	460	365		530		765
600	800	410	610	1595	470	M42	460	365		530		765
610	815	400	600	1605	460	M42	460	365		530		765

For table of standard dimensions, see page 32



Constant Spring Supports

Constant Spring Tables – Fig. QC110 – Sizes 51 to 58

Sizes 51 to 54												
Travel	A	B	B1	B2	B3	C	E	F	VV1	VV2	H1	H2
170	227	625	835	1285	695	M64	460	365	445		680	
180	240	620	830	1290	690	M64	460	365	445		680	
190	254	610	820	1300	680	M64	460	365	445		680	
200	267	605	815	1305	675	M56	460	365	445		680	
210	280	600	810	1310	670	M56	460	365	445		680	
220	294	590	800	1320	660	M56	460	365	445		680	
230	307	585	795	1330	655	M56	460	365	445		680	
240	320	575	785	1335	645	M56	460	365	445		680	
250	334	570	780	1340	640	M56	460	365	445		680	
260	347	560	770	1350	630	M56	460	365	445		680	
270	360	555	765	1355	625	M48	460	365	445		680	
280	374	545	755	1365	615	M48	460	365	445		680	
290	387	540	750	1370	610	M48	460	365	445		680	
300	400	530	740	1380	600	M48	460	365	445		680	
310	414	525	735	1385	595	M48	460	365	445		680	
320	427	520	730	1395	590	M48	460	365	445		680	
330	440	510	720	1400	580	M48	460	365	445		680	
340	454	505	715	1410	575	M48	460	365	445		680	
350	467	495	705	1415	565	M48	460	365	445		680	
360	480	490	700	1420	560	M42	460	365	445		680	
370	494	480	690	1430	550	M42	460	365	445		680	
380	507	475	685	1435	545	M42	460	365	445		680	
390	520	465	675	1445	535	M42	460	365	445		680	
400	534	460	670	1450	530	M42	460	365	445		680	
410	547	450	660	1460	520	M42	460	365	445		680	
420	560	530	740	1465	600	M42	460	365	530		765	
430	574	520	730	1475	590	M42	460	365	530		765	
440	587	515	725	1480	585	M42	460	365	530		765	
450	600	505	715	1485	575	M42	460	365	530		765	
460	614	500	710	1495	570	M42	460	365	530		765	
470	627	495	705	1500	565	M42	460	365	530		765	
480	641	485	695	1510	555	M42	460	365	530		765	
490	654	480	690	1515	550	M42	460	365	530		765	
500	667	470	680	1525	540	M42	460	365	530		765	
510	680	465	675	1530	535	M42	460	365	530		765	
520	695	455	665	1540	525	M42	460	365	530		765	
530	708	450	660	1545	520	M42	460	365	530		765	
540	720	440	650	1550	510	M42	460	365	530		765	
550	734	435	645	1560	505	M42	460	365	530		765	
560	747	425	635	1565	495	M42	460	365	530		765	
570	761	420	630	1575	490	M42	460	365	530		765	
580	774	410	620	1580	480	M42	460	365	530		765	
590	787	405	615	1590	475	M42	460	365	530		765	
600	800	400	610	1595	470	M42	460	365	530		765	
610	815	390	600	1605	460	M42	460	365	530		765	

Sizes 55 to 58												
Travel	A	B	B1	B2	B3	C	E	F	VV1	VV2	H1	H2
180	240	610	830	1290	690	M72	460	365	445		680	
190	254	600	820	1300	680	M72	460	365	445		680	
200	267	595	815	1305	675	M64	460	365	445		680	
210	280	590	810	1310	670	M64	460	365	445		680	
220	294	580	800	1320	660	M64	460	365	445		680	
230	307	575	795	1330	655	M64	460	365	445		680	
240	320	565	785	1335	645	M64	460	365	445		680	
250	334	560	780	1340	640	M64	460	365	445		680	
260	347	550	770	1350	630	M56	460	365	445		680	
270	360	545	765	1355	625	M56	460	365	445		680	
280	374	535	755	1365	615	M56	460	365	445		680	
290	387	530	750	1370	610	M56	460	365	445		680	
300	400	520	740	1380	600	M56	460	365	445		680	
310	414	515	735	1358	595	M56	460	365	445		680	
320	427	510	730	1395	590	M56	460	365	445		680	
330	440	500	720	1400	580	M56	460	365	445		680	
340	454	495	715	1410	575	M56	460	365	445		680	
350	467	485	705	1415	565	M56	460	365	445		680	
360	480	480	700	1420	560	M48	460	365	445		680	
370	494	470	690	1430	550	M48	460	365	445		680	
380	507	465	685	1435	545	M48	460	365	445		680	
390	520	455	675	1445	535	M48	460	365	445		680	
400	534	450	670	1450	530	M48	460	365	445		680	
410	547	440	660	1460	520	M48	460	365	445		680	
420	560	520	740	1465	600	M48	460	365	530		765	
430	574	510	730	1475	590	M48	460	365	530		765	
440	587	505	725	1480	585	M48	460	365	530		765	
450	600	495	715	1485	575	M48	460	365	530		765	
460	614	490	710	1495	570	M48	460	365	530		765	
470	627	485	705	1500	565	M48	460	365	530		765	
480	641	475	695	1510	555	M48	460	365	530		765	
490	654	470	690	1515	550	M48	460	365	530		765	
500	667	460	680	1525	540	M48	460	365	530		765	
510	680	455	675	1530	535	M48	460	365	530		765	
520	695	445	665	1540	525	M48	460	365	530		765	
530	708	440	660	1545	520	M48	460	365	530		765	
540	720	430	650	1550	510	M48	460	365	530		765	
550	734	425	645	1560	505	M48	460	365	530		765	
560	747	415	635	1565	495	M48	460	365	530		765	
570	761	410	630	1575	490	M48	460	365	530		765	
580	774	400	620	1580	480	M48	460	365	530		765	
590	787	395	615	1590	475	M48	460	365	530		765	
600	800	390	610	1595	470	M48	460	365	530		765	
610	815	380	600	1605	460	M48	460	365	530		765	

For table of standard dimensions, see page 32



Constant Spring Supports

Constant Spring Tables – Fig. QC110 – Sizes 59 to 66

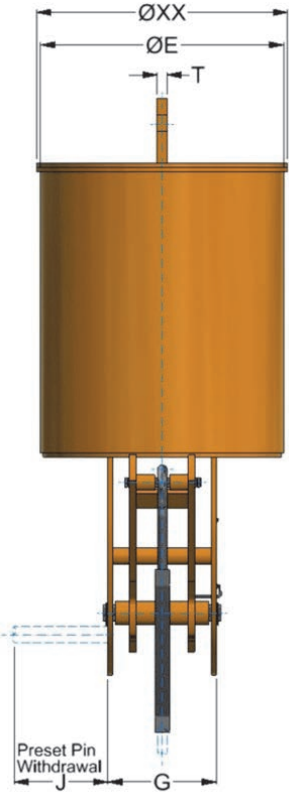
Sizes 59 to 62											
Travel	C	B	B1	B3	A	L	S	VV1	VV2	H1	H2
180	240	745	975	825	M80	430	500	580		820	
190	254	740	970	820	M72	430	500	580		820	
200	267	730	960	810	M72	430	500	580		820	
210	280	725	955	805	M72	430	500	580		820	
220	294	715	945	795	M72	430	500	580		820	
230	307	710	940	790	M72	430	500	580		820	
240	320	700	930	780	M64	430	500	580		820	
250	334	695	925	775	M64	430	500	580		820	
260	347	685	915	765	M64	430	500	580		820	
270	360	680	910	760	M64	430	500	580		820	
280	374	670	900	750	M64	430	500	580		820	
290	387	665	895	745	M64	430	500	580		820	
300	400	660	890	740	M64	430	500	580		820	
310	414	650	880	730	M64	430	500	580		820	
320	427	645	875	725	M56	430	500	580		820	
330	440	635	865	715	M56	430	500	580		820	
340	454	630	860	710	M56	430	500	580		820	
350	467	620	850	700	M56	430	500	580		820	
360	480	615	845	695	M56	430	500	580		820	
370	494	605	835	685	M56	430	500	580		820	
380	507	600	830	680	M56	430	500	580		820	
390	520	595	825	675	M56	430	500	580		820	
400	534	585	815	665	M56	430	500	580		820	
410	547	580	810	660	M56	430	500	580		820	
420	560	570	800	650	M56	430	500	580		820	
430	574	560	790	640	M56	430	500	580		820	
440	587	555	785	635	M56	430	500	580		820	
450	600	550	775	625	M56	430	500	580		820	
460	614	540	770	620	M56	430	500	580		820	
470	627	535	765	615	M56	430	500	580		820	
480	641	525	755	605	M56	430	500	580		820	
490	654	520	750	600	M56	430	500	580		820	
500	667	510	740	590	M56	430	500	580		820	
510	680	505	735	585	M56	430	500	580		820	
520	695	495	725	575	M56	430	500	580		820	
530	708	490	720	570	M56	430	500	580		820	
540	720	480	710	560	M56	430	500	580		820	
550	734	475	705	555	M56	430	500	580		820	
560	747	470	700	545	M56	430	500	580		820	
570	761	460	690	540	M56	430	500	580		820	
580	774	450	685	530	M56	430	500	580		820	
590	787	445	675	525	M56	430	500	580		820	
600	800	440	670	520	M56	430	500	580		820	
610	815	430	660	510	M56	430	500	580		820	

Sizes 63 to 66											
Travel	C	B	B1	B3	A	L	S	VV1	VV2	H1	H2
180	240	745	975	825	M80	430	500	580		820	
190	254	740	970	820	M80	430	500	580		820	
200	267	730	960	810	M80	430	500	580		820	
210	280	725	955	805	M80	430	500	580		820	
220	294	715	945	795	M80	430	500	580		820	
230	307	710	940	790	M72	430	500	580		820	
240	320	700	930	780	M72	430	500	580		820	
250	334	695	925	775	M72	430	500	580		820	
260	347	685	915	765	M72	430	500	580		820	
270	360	680	910	760	M72	430	500	580		820	
280	374	670	900	750	M72	430	500	580		820	
290	387	665	895	745	M64	430	500	580		820	
300	400	660	890	740	M64	430	500	580		820	
310	414	650	880	730	M64	430	500	580		820	
320	427	645	875	725	M64	430	500	580		820	
330	440	635	865	715	M64	430	500	580		820	
340	454	630	860	710	M64	430	500	580		820	
350	467	620	850	700	M64	430	500	580		820	
360	480	615	845	695	M64	430	500	580		820	
370	494	605	835	685	M64	430	500	580		820	
380	507	600	830	680	M56	430	500	580		820	
390	520	595	825	675	M56	430	500	580		820	
400	534	585	815	665	M56	430	500	580		820	
410	547	580	810	660	M56	430	500	580		820	
420	560	570	800	650	M56	430	500	580		820	
430	574	560	790	640	M56	430	500	580		820	
440	587	555	785	635	M56	430	500	580		820	
450	600	550	775	625	M56	430	500	580		820	
460	614	540	770	620	M56	430	500	580		820	
470	627	535	765	615	M56	430	500	580		820	
480	641	525	755	605	M56	430	500	580		820	
490	654	520	750	600	M56	430	500	580		820	
500	667	510	740	590	M56	430	500	580		820	
510	680	505	735	585	M56	430	500	580		820	
520	695	495	725	575	M56	430	500	580		820	
530	708	490	720	570	M56	430	500	580		820	
540	720	480	710	560	M56	430	500	580		820	
550	734	475	705	555	M56	430	500	580		820	
560	747	470	700	545	M56	430	500	580		820	
570	761	460	690	540	M56	430	500	580		820	
580	774	450	685	530	M56	430	500	580		820	
590	787	445	675	525	M56	430	500	580		820	
600	800	440	670	520	M56	430	500	580		820	
610	815	430	660	510	M56	430	500	580		820	

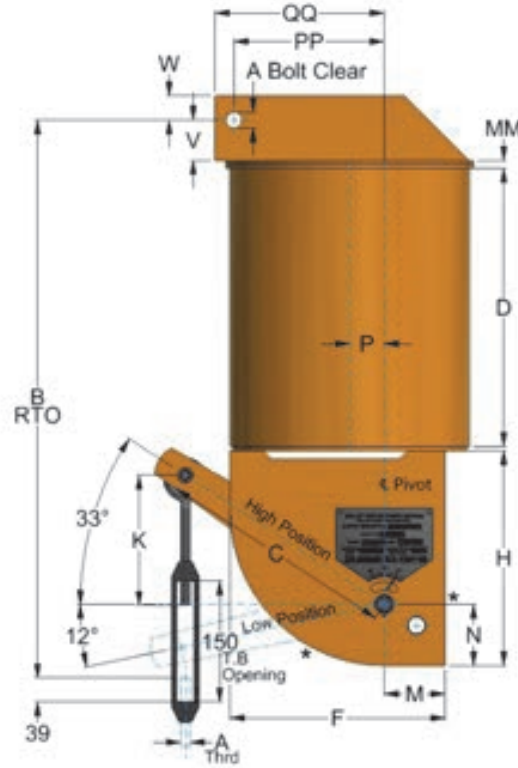
For table of standard dimensions, see page 32

Constant Spring Support – QC120B, QC120C & QC120D

QC120B

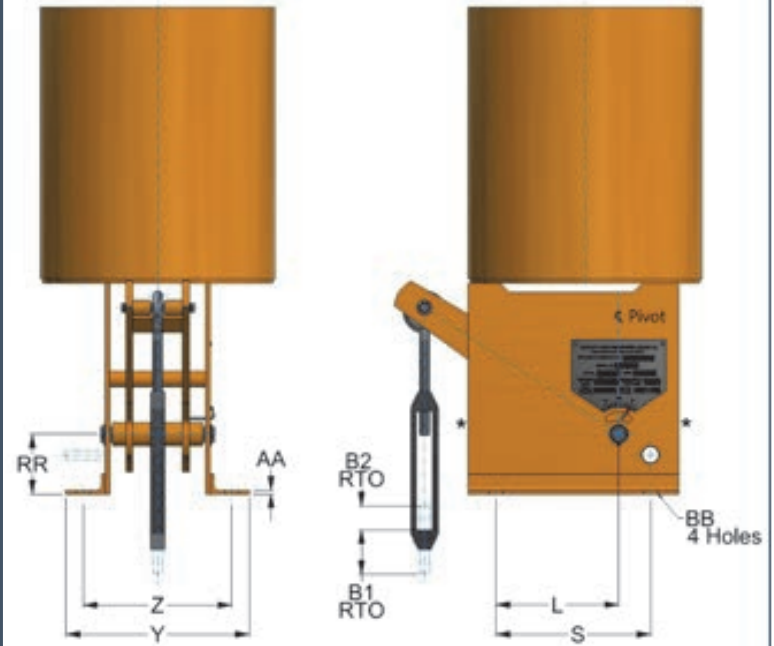


QC120C



*Access Load Adjuster

QC120D



*Access Load Adjuster

RTO is B for Types B & C.
RTO is B1 or B2 for Type D.

RTO is calculated when the load arm is in the high position.

For up travel:
RTO equals total up plus B or B1 or total up travel minus B2.

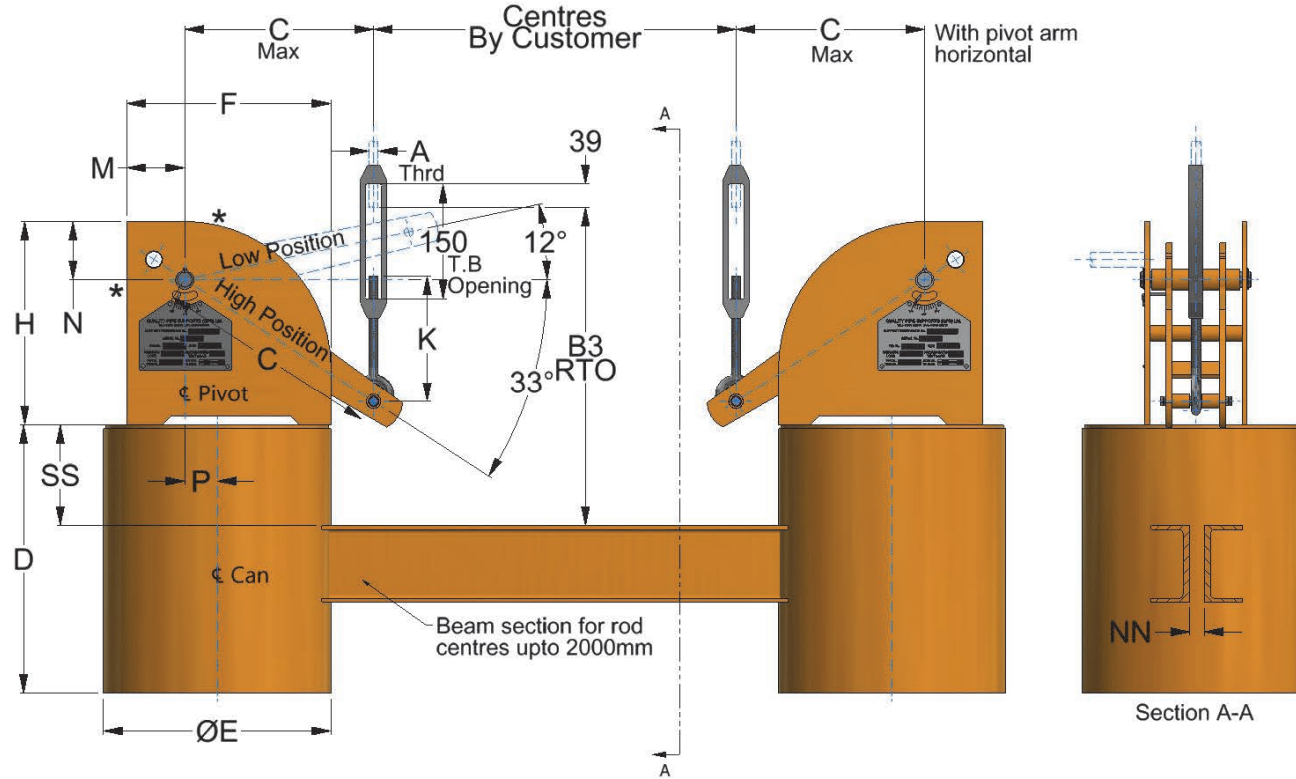
Types B, D & G are not recommended over:-
250 Travel for sizes 1 - 6
300 Travel for sizes 7 - 12
360 Travel for sizes 13 - 18
420 Travel for sizes 19 - 26 & 27 - 33
500 Travel for sizes 34 - 39

Typical yoke arrangement applicable to types B, C & D. See page 41 for diagram and yoke table for unit and travel range applicable.



Constant Spring Support – QC120G

QC120G



NOTE:
 When using type 'G' the working load must be halved to select hanger size.
 Arms in 'High Position' allow downward pipe movement.

*Access Load Adjuster

RTO is B for Types B & C.
 RTO is B1 or B2 for Type D.

RTO is calculated when the load arm is in the high position.

For up travel:
 RTO equals total up plus B or B1 or total up travel minus B2.

Types B, D & G are not recommended over:-
 250 Travel for sizes 1 - 6
 300 Travel for sizes 7 - 12
 360 Travel for sizes 13 - 18
 420 Travel for sizes 19 - 26 & 27 - 33
 500 Travel for sizes 34 - 39

Constant Spring Tables – Fig. QC120 – Sizes 1 to 66

Constant Support Dimension Sizes 1 to 66											
Size	1~6	7~12	13~18	19~26	27~33	34~39	40~47	48~50	51~54	55~58	59~66
D	250	300	350	400	600	750	1100	1265	1265	Table	Table
E	150	220	295	330	390	440	525	525	525	525	640
F	180	215	270	325	405	495	610	710	710	710	760
G	115	120	135	150	180	225	280	345	345	345	455
J	135	140	160	175	215	270	330	405	405	405	560
M	55	65	75	95	115	145	180	250	250	250	280
N	55	65	75	95	115	145	180	190	190	190	215
T	10	12	12	20	25	25	30	40	40	40	40
V	40	40	50	65	75	75	90	140	140	140	150
Y	215	220	255	270	320	425	480	745	745	745	855
Z	165	180	205	220	265	335	395	520	520	520	685
BB	14	18	22	22	22	27	33	45	45	45	51
AA	6	6	8	8	10	10	15	20	20	20	25
MM	10	15	20	25	30	40	40	60	60	60	80
X	35	35	50	50	65	75	90	110	110	110	120
XX	220	300	380	425	480	540	625	650	650	650	780
K	150	150	150	200	200	200	250	Table	Table	300	300
P	33	38	65	66	83	100	Table	182	182	182	Table
H	180	215	270	325	405	495	610	685	685	685	760
CC	125	155	170	190	205	225	245	275	290	290	340
JJ	95	102	112	123	153	190	231	288	288	288	390
HH	40	50	65	80	90	110	130	150	160	160	220
NN	18	30	30	42	50	55	65	65	65	65	70

Beam Section Size	Travel up to 190	100x50	125x65	125x65	200x75	200x90	260x90	300x90	380x100	380x100	380x100	430x100
	Travel over 190	100x50	100x50	100x50	125x65	150x75	180x75	230x90	300x90	300x90	380x100	430x100

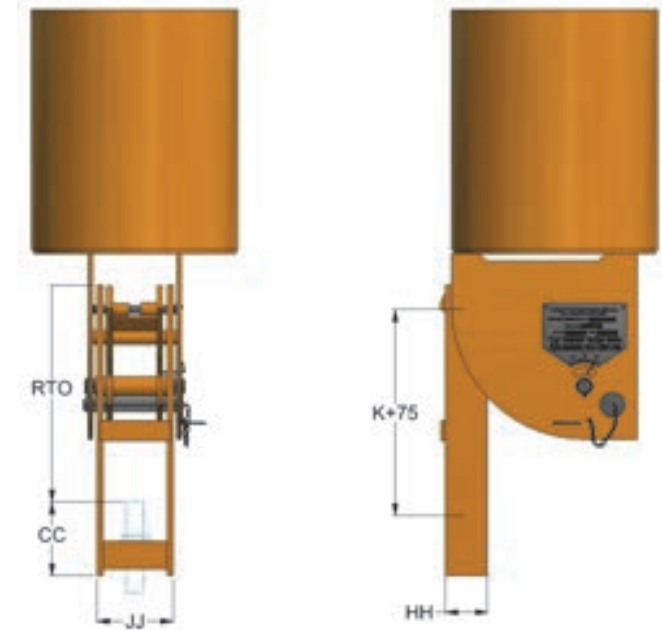
W Dimensions for 'A' Bolt													
Size	M12	M16	M20	M24	M30	M36	M42	M48	M56	M64	M72	M80	M90
W	25	25	30	35	40	50	60	65	80	85	100	110	120

P Dimension										
Size	40 - 44	45 - 47	59	60	61	62	63	64	65	66
P	121	165	188	193	197	203	207	211	216	220

D Dimension					
Size	55 ~ 58		59 ~ 66		Travel Range
	Type G & D	Type B & C	Type G & D	Type B & C	
D	1265	1650	1620	1845	170-410
	1265	1265	1620	1620	420-610

K Dimension (Sizes 48-54)		
Travel Range	150-410	420-610
K	135	300

All units are supplied with drop rods and turnbuckles, except for sizes/travels shown in the table below, which will be supplied with a yoke arrangement.



Typical yoke arrangement applicable to types QC120B, C & D.

Yoke Table	
Size	Travels
1~6	40 to 100
7~12	40 to 120
13~18	60 to 150
19~26	70 to 180
27~33	80 to 200
34~39	100 to 250
40~47	120 to 320
48~54	150 to 410
55~58	170 to 410
59~66	180 to 410



Constant Spring Supports

Constant Spring Tables – Fig. QC120 – Sizes 1 to 12

Sizes 1 to 6												
Travel	C	B	B1	B2	B3	A	PP	L	S	QQ	RR	SS
40	54	620	130		375	M12	42	105	140	105	65	55
50	67	610	125		370	M12	53	105	140	105	65	55
60	80	605	115		360	M12	64	105	140	105	65	55
70	94	600	110		355	M12	76	105	140	110	65	55
80	107	590	105		345	M12	86	105	140	115	65	55
90	120	585	95		340	M12	97	105	140	130	65	55
100	134	575	90		330	M12	107	105	140	130	65	55
110	147	570	80		325	M12	118	105	140	140	65	55
120	160	560	75		320	M12	128	105	140	155	65	55
130	174	555	65		310	M12	140	105	140	160	65	55
140	187	550	60		305	M12	150	105	140	175	65	55
150	200	540	50		295	M12	161	105	140	180	65	55
160	214	530	45		290	M12	172	105	140	195	65	55
170	227	525	35		280	M12	182	105	140	210	65	55
180	240	520	30		275	M12	193	105	140	215	65	55
190	254	510	25		265	M12	203	105	140	230	65	55
200	267	505	15		260	M12	214	105	140	235	65	55
210	280	500	10		255	M12	225	105	140	250	65	55
220	294	490		25	275	M12	240	105	140	260	90	85
230	307	485		30	270	M12	250	105	140	270	90	85
240	320	475		40	260	M12	260	105	140	280	90	85
250	334	470		60	255	M12	270	105	140	290	105	85
260	347	N/A		70	N/A	M12	N/A	105	140	N/A	105	N/A
270	360	N/A		75	N/A	M12	N/A	105	140	N/A	105	N/A
280	374	N/A		85	N/A	M12	N/A	105	140	N/A	105	N/A
290	387	N/A		90	N/A	M12	N/A	105	140	N/A	105	N/A
300	400	N/A		100	N/A	M12	N/A	105	140	N/A	105	N/A

Sizes 7 to 12												
Travel	C	B	B1	B2	B3	A	PP	L	S	QQ	RR	SS
40	54	700	115		385	M20	41	120	155	150	80	40
50	67	695	110		380	M16	52	120	155	150	80	40
60	80	685	100		370	M16	63	120	155	150	80	40
70	94	680	95		365	M16	75	120	155	150	80	40
80	107	670	90		355	M12	85	120	155	150	80	40
90	120	665	80		350	M12	96	120	155	150	80	40
100	134	655	70		340	M12	107	120	155	150	80	40
110	147	650	65		335	M12	117	120	155	150	80	40
120	160	645	60		330	M12	128	120	155	160	80	40
130	174	635	50		320	M12	139	120	155	170	80	40
140	187	625	45		315	M12	150	120	155	180	80	40
150	200	620	35		305	M12	160	120	155	190	80	40
160	214	610	30		300	M12	171	120	155	200	80	40
170	227	605	20		290	M12	181	120	155	215	80	40
180	240	600	15		285	M12	192	120	155	220	80	40
190	254	590	10		280	M12	204	120	155	235	80	40
200	267	585	~	~	270	M12	214	120	155	245	80	40
210	280	575		10	265	M12	225	120	155	255	80	40
220	294	570		40	285	M12	240	120	155	260	105	70
230	307	565		45	280	M12	250	120	155	270	105	70
240	320	555		55	270	M12	260	120	155	280	105	70
250	334	550		60	295	M12	270	120	155	290	105	100
260	347	540		70	285	M12	280	120	155	300	105	100
270	360	535		75	280	M12	290	120	155	310	105	100
280	374	525		85	270	M12	305	120	155	325	105	100
290	387	520		90	265	M12	315	120	155	335	105	100
300	400	510		100	255	M12	325	120	155	345	105	100
310	414	N/A		125	N/A	M12	N/A	120	155	N/A	125	N/A
320	427	N/A		135	N/A	M12	N/A	120	155	N/A	125	N/A
330	440	N/A		140	N/A	M12	N/A	120	155	N/A	125	N/A
340	454	N/A		145	N/A	M12	N/A	120	155	N/A	125	N/A
350	467	N/A		155	N/A	M12	N/A	120	155	N/A	125	N/A
360	480	N/A		180	N/A	M12	N/A	120	155	N/A	145	N/A
370	494	N/A		190	N/A	M12	N/A	120	155	N/A	145	N/A
380	507	N/A		195	N/A	M12	N/A	120	155	N/A	145	N/A
390	520	N/A		205	N/A	M12	N/A	120	155	N/A	145	N/A
400	534	N/A		210	N/A	M12	N/A	120	155	N/A	145	N/A
410	547	N/A		220	N/A	M12	N/A	120	155	N/A	145	N/A
420	560	N/A		225	N/A	M12	N/A	120	155	N/A	145	N/A

For table of standard dimensions, see page 41



Constant Spring Supports

Constant Spring Tables – Fig. QC120 – Sizes 13 to 26

Sizes 13 to 18												
Travel	C	B	B1	B2	B3	A	PP	L	S	QQ	RR	SS
60	80	790	90		415	M20	63	155	190	200	90	40
70	94	785	85		410	M20	75	155	190	200	90	40
80	107	780	75		400	M20	85	155	190	200	90	40
90	120	770	70		395	M16	95	155	190	200	90	40
100	134	765	60		385	M16	105	155	190	200	90	40
110	147	755	55		380	M16	116	155	190	200	90	40
120	160	750	50		375	M16	126	155	190	200	90	40
130	174	740	40		365	M16	138	155	190	200	90	40
140	187	735	35		360	M16	148	155	190	200	90	40
150	200	725	25		350	M16	158	155	190	200	90	40
160	214	720	20		345	M12	169	155	190	200	90	40
170	227	710	10		335	M12	179	155	190	215	90	40
180	240	705	5		330	M12	189	155	190	220	90	40
190	254	700		5	320	M12	200	155	190	230	90	40
200	267	690		10	315	M12	211	155	190	240	90	40
210	280	685		20	310	M12	221	155	190	255	90	40
220	294	675		25	300	M12	232	155	190	265	90	40
230	307	670		30	295	M12	242	155	190	275	90	40
240	320	660		40	285	M12	253	155	190	285	90	40
250	334	655		45	280	M12	264	155	190	295	90	40
260	347	650		55	270	M12	274	155	190	305	90	40
270	360	645		85	305	M12	290	155	190	310	115	80
280	374	635		95	295	M12	305	155	190	325	115	80
290	387	630		100	290	M12	315	155	190	335	115	80
300	400	620		110	280	M12	325	155	190	345	115	80
310	414	615		135	305	M12	340	155	190	360	135	110
320	427	605		145	295	M12	350	155	190	370	135	110
330	440	600		150	290	M12	360	155	190	380	135	110
340	454	595		155	285	M12	375	155	190	395	135	110
350	467	685		165	275	M12	385	155	190	405	135	110
360	480	580		170	270	M12	395	155	190	415	135	110
370	494	N/A		180	N/A	M12	N/A	155	190	N/A	135	N/A
380	507	N/A		200	N/A	M12	N/A	155	190	N/A	150	N/A
390	520	N/A		210	N/A	M12	N/A	155	190	N/A	150	N/A
400	534	N/A		215	N/A	M12	N/A	155	190	N/A	150	N/A
410	547	N/A		225	N/A	M12	N/A	155	190	N/A	150	N/A
420	560	N/A		230	N/A	M12	N/A	155	190	N/A	150	N/A

Sizes 19 to 26												
Travel	C	B	B1	B2	B3	A	PP	L	S	QQ	RR	SS
70	94	945	115		535	M30	76	190	240	230	110	80
80	107	935	105		530	M24	87	190	240	230	110	80
90	120	930	100		520	M24	97	190	240	230	110	80
100	134	920	90		510	M24	108	190	240	230	110	80
110	147	915	85		505	M24	119	190	240	230	110	80
120	160	910	78		500	M20	129	190	240	230	110	80
130	174	900	70		490	M20	141	190	240	230	110	80
140	187	895	65		485	M20	152	190	240	230	110	80
150	200	885	55		475	M20	162	190	240	230	110	80
160	214	880	50		470	M20	173	190	240	230	110	80
170	227	870	40		460	M20	184	190	240	230	110	80
180	240	865	35		455	M16	195	190	240	230	110	80
190	254	855	30		450	M16	206	190	240	235	110	80
200	267	850	20		440	M16	217	190	240	245	110	80
210	280	845	15		435	M16	227	190	240	255	110	80
220	294	835	5		425	M16	239	190	240	270	110	80
230	307	830	~	~	420	M16	249	190	240	280	110	80
240	320	820		10	410	M16	259	190	240	290	110	80
250	334	815		15	405	M16	271	190	240	300	110	80
260	347	805		25	395	M16	282	190	240	310	110	80
270	360	800		30	390	M16	292	190	240	320	110	80
280	374	790		40	380	M16	304	190	240	335	110	80
290	387	785		45	375	M16	315	190	240	345	110	80
300	400	775		55	370	M16	324	190	240	355	110	80
310	414	770		60	360	M16	336	190	240	365	110	80
320	427	765		70	350	M16	347	190	240	375	110	80
330	440	755		75	345	M12	357	190	240	385	110	80
340	454	750		80	340	M12	369	190	240	400	110	80
350	467	740		90	330	M12	380	190	240	410	110	80
360	480	735		95	325	M12	390	190	240	420	110	80
370	494	725		150	355	M12	405	190	240	425	155	120
380	507	720		155	350	M12	415	190	240	435	155	120
390	520	710		165	340	M12	425	190	240	445	155	120
400	534	705		170	335	M12	440	190	240	460	155	120
410	547	695		180	325	M12	450	190	240	470	155	120
420	560	680		210	320	M12	460	190	240	480	180	120
430	574	N/A		220	N/A	M12	N/A	190	240	N/A	180	N/A
440	587	N/A		225	N/A	M12	N/A	190	240	N/A	180	N/A
450	600	N/A		230	N/A	M12	N/A	190	240	N/A	180	N/A
460	614	N/A		240	N/A	M12	N/A	190	240	N/A	180	N/A
470	627	N/A		245	N/A	M12	N/A	190	240	N/A	180	N/A
480	641	N/A		255	N/A	M12	N/A	190	240	N/A	180	N/A
490	654	N/A		260	N/A	M12	N/A	190	240	N/A	180	N/A
500	667	N/A		270	N/A	M12	N/A	190	240	N/A	180	N/A

For table of standard dimensions, see page 41



Constant Spring Supports

Constant Spring Tables – Fig. QC120 – Sizes 27 to 39

Sizes 27 to 33												
Travel	C	B	B1	B2	B3	A	PP	L	S	QQ	RR	SS
80	107	1210	85		550	M36	88	235	300	275	130	40
90	120	1205	80		540	M36	99	235	300	275	130	40
100	134	1195	70		530	M36	109	235	300	275	130	40
110	147	1190	65		525	M30	120	235	300	275	130	40
120	160	1185	60		520	M30	131	235	300	275	130	40
130	174	1175	50		510	M30	142	235	300	275	130	40
140	187	1170	45		505	M30	153	235	300	275	130	40
150	200	1160	35		495	M30	164	235	300	275	130	40
160	214	1155	30		490	M30	175	235	300	275	130	40
170	227	1145	20		480	M24	185	235	300	275	130	40
180	240	1140	15		475	M24	196	235	300	275	130	40
190	254	1130	10		470	M24	208	235	300	275	130	40
200	267	1125	~	~	460	M24	219	235	300	275	130	40
210	280	1120		10	455	M24	230	235	300	275	130	40
220	294	1110		15	445	M24	241	235	300	275	130	40
230	307	1105		20	440	M24	251	235	300	285	130	40
240	320	1095		30	430	M20	262	235	300	295	130	40
250	334	1090		35	425	M20	273	235	300	310	130	40
260	347	1080		45	415	M20	284	235	300	315	130	40
270	360	1075		50	410	M20	295	235	300	330	130	40
280	374	1065		60	400	M20	306	235	300	335	130	40
290	387	1060		65	395	M20	317	235	300	345	130	40
300	400	1050		70	390	M20	327	235	300	355	130	40
310	414	1045		80	380	M20	339	235	300	370	130	40
320	427	1040		90	370	M20	350	235	300	380	130	40
330	440	1030		95	365	M20	361	235	300	390	130	40
340	454	1025		100	360	M20	372	235	300	395	130	40
350	467	1015		110	350	M20	383	235	300	415	130	40
360	480	1010		115	345	M20	394	235	300	420	130	40
370	494	1000		175	405	M20	405	235	300	435	180	110
380	507	995		180	400	M20	415	235	300	445	180	110
390	520	985		190	390	M20	425	235	300	455	180	110
400	534	980		195	385	M20	440	235	300	470	180	110
410	547	970		205	375	M20	450	235	300	480	180	110
420	560	965		210	370	M20	460	235	300	490	180	110
430	574	955		220	360	M20	N/A	235	300	500	180	110
440	587	950		225	355	M20	N/A	235	300	510	180	110
450	600	945		230	350	M20	N/A	235	300	525	180	110
460	614	935		240	340	M20	N/A	235	300	535	180	110
470	627	930		245	335	M20	N/A	235	300	545	180	110
480	641	920		255	325	M20	N/A	235	300	560	180	110
490	654	915		260	320	M20	N/A	235	300	570	180	110
500	667	905		270	310	M20	N/A	235	300	580	180	110

Sizes 34 to 39												
Travel	C	B	B1	B2	B3	A	PP	L	S	QQ	RR	SS
100	134	1420	45		590	M42	110	290	365	345	155	40
110	147	1410	40		585	M42	121	290	365	345	155	40
120	160	1405	35		580	M42	131	290	365	345	155	40
130	174	1395	25		570	M42	143	290	365	345	155	40
140	187	1390	20		565	M36	154	290	365	345	155	40
150	200	1385	10		555	M36	165	290	365	345	155	40
160	214	1375	5		550	M36	176	290	365	345	155	40
170	227	1370		5	540	M36	187	290	365	345	155	40
180	240	1360		10	535	M36	197	290	365	345	155	40
190	254	1355		20	530	M30	209	290	365	345	155	40
200	267	1345		25	520	M30	220	290	365	345	155	40
210	280	1340		35	515	M30	230	290	365	345	155	40
220	294	1330		40	505	M30	242	290	365	345	155	40
230	307	1325		45	500	M30	252	290	365	345	155	40
240	320	1320		55	490	M30	262	290	365	345	155	40
250	334	1310		60	485	M30	274	290	365	345	155	40
260	347	1305		70	475	M30	285	290	365	355	155	40
270	360	1295		75	470	M30	296	290	365	360	155	40
280	374	1290		85	460	M30	307	290	365	370	155	40
290	387	1280		90	455	M30	318	290	365	380	155	40
300	400	1275		100	450	M30	328	290	365	390	155	40
310	414	1265		105	440	M24	340	290	365	405	155	40
320	427	1260		115	430	M24	351	290	365	415	155	40
330	440	1250		120	425	M24	361	290	365	420	155	40
340	454	1245		125	420	M24	373	290	365	430	155	40
350	467	1240		135	410	M24	384	290	365	445	155	40
360	480	1230		140	405	M24	394	290	365	455	155	40
370	494	1225		150	395	M24	405	290	365	465	155	40
380	507	1215		155	390	M24	416	290	365	485	155	40
390	520	1210		165	385	M24	427	290	365	495	155	40
400	534	1200		170	375	M24	439	290	365	500	155	40
410	547	1195		180	370	M24	449	290	365	515	155	40
420	560	1185		215	450	M24	460	290	365	500	185	70
430	574	1175		225	440	M24	470	290	365	510	185	70
440	587	1170		230	435	M24	480	290	365	515	185	70
450	600	1165		235	430	M24	495	290	365	530	185	70
460	614	1155		245	420	M24	505	290	365	540	185	70
470	627	1150		250	415	M24	515	290	365	550	185	70
480	641	1140		260	405	M24	530	290	365	565	185	70
490	654	1135		290	400	M24	540	290	365	575	210	70
500	667	1125		300	390	M24	550	290	365	585	210	70
510	680	N/A		305	N/A	M24	N/A	290	365	N/A	210	N/A
520	695	N/A		315	N/A	M24	N/A	290	365	N/A	210	N/A
530	708	N/A		320	N/A	M24	N/A	290	365	N/A	210	N/A
540	720	N/A		325	N/A	M24	N/A	290	365	N/A	210	N/A
550	734	N/A		335	N/A	M24	N/A	290	365	N/A	210	N/A
560	747	N/A		340	N/A	M24	N/A	290	365	N/A	210	N/A
570	761	N/A		350	N/A	M24	N/A	290	365	N/A	210	N/A
580	774	N/A		355	N/A	M24	N/A	290	365	N/A	210	N/A
590	787	N/A		365	N/A	M24	N/A	290	365	N/A	210	N/A
600	800	N/A		370	N/A	M24	N/A	290	365	N/A	210	N/A
610	815	N/A		380	N/A	M24	N/A	290	365	N/A	210	N/A

For table of standard dimensions, see page 41



Constant Spring Supports

Constant Spring Tables – Fig. QC120 – Sizes 40 to 50

Sizes 40 to 47												
Travel	C	B	B1	B2	B3	A	PP	L	S	QQ	RR	SS
120	160	1895	50		740	M56	132	355	455	395	190	70
130	174	1890	40		730	M56	144	355	455	395	190	70
140	187	1880	35		725	M56	154	355	455	395	190	70
150	200	1875	25		715	M56	165	355	455	395	190	70
160	214	1865	20		710	M48	176	355	455	395	190	70
170	227	1860	10		700	M48	187	355	455	395	190	70
180	240	1850	5		695	M48	198	355	455	395	190	70
190	254	1845		5	690	M48	210	355	455	395	190	70
200	267	1835		10	680	M48	220	355	455	395	190	70
210	280	1830		20	675	M42	231	355	455	395	190	70
220	294	1820		25	665	M42	243	355	455	395	190	70
230	307	1815		35	660	M42	253	355	455	395	190	70
240	320	1810		40	650	M42	264	355	455	395	190	70
250	334	1800		50	645	M42	275	355	455	395	190	70
260	347	1795		55	635	M42	286	355	455	395	190	70
270	360	1785		60	630	M42	297	355	455	395	190	70
280	374	1780		70	620	M42	308	355	455	395	190	70
290	387	1770		75	615	M36	319	355	455	395	190	70
300	400	1765		85	610	M36	329	355	455	395	190	70
310	414	1755		90	600	M36	341	355	455	405	190	70
320	427	1750		100	595	M36	352	355	455	415	190	70
330	440	1740		105	585	M36	363	355	455	425	190	70
340	454	1735		110	580	M36	375	355	455	435	190	70
350	467	1730		120	570	M36	386	355	455	450	190	70
360	480	1720		125	565	M36	396	355	455	455	190	70
370	494	1715		135	555	M36	407	355	455	465	190	70
380	507	1705		140	550	M36	416	355	455	485	190	70
390	520	1700		150	545	M36	429	355	455	495	190	70
400	534	1690		155	535	M36	441	355	455	500	190	70
410	547	1685		165	525	M36	451	355	455	515	190	70
420	560	1680		230	550	M36	461	355	455	515	250	100
430	574	1670		235	540	M36	471	355	455	525	250	100
440	587	1665		245	535	M36	482	355	455	535	250	100
450	600	1655		250	525	M36	493	355	455	550	250	100
460	614	1650		260	520	M36	505	355	455	560	250	100
470	627	1645		265	515	M36	515	355	455	570	250	100
480	641	1635		275	505	M36	527	355	455	580	250	100
490	654	1630		280	500	M36	537	355	455	590	250	100
500	667	1620		285	490	M36	548	355	455	600	250	100
510	680	1615		295	485	M36	559	355	455	615	250	100
520	695	1605		305	475	M36	571	355	455	625	250	100
530	708	1600		310	470	M36	582	355	455	635	250	100
540	720	1590		315	460	M36	592	355	455	645	250	100
550	734	1585		325	455	M36	604	355	455	660	250	100
560	747	1575		330	445	M36	613	355	455	665	250	100
570	761	1570		340	440	M36	625	355	455	680	250	100
580	774	1560		345	430	M36	636	355	455	690	250	100
590	787	1555		355	425	M36	647	355	455	700	250	100
600	800	1550		360	420	M36	658	355	455	715	250	100
610	815	1540		370	410	M36	670	355	455	725	250	100

Sizes 48 to 50												
Travel	C	B	B2	B3	A	PP	L	S	QQ	RR	SS	
150	200	2060	220	665	M64	164	340	480	465	320	70	
160	214	2055	225	660	M64	175	340	480	465	320	70	
170	227	2045	235	650	M64	186	340	480	465	320	70	
180	240	2040	240	645	M64	197	340	480	465	320	70	
190	254	2030	250	635	M64	209	340	480	465	320	70	
200	267	2025	255	630	M56	220	340	480	465	320	70	
210	280	2020	260	625	M56	231	340	480	465	320	70	
220	294	2010	270	615	M56	242	340	480	465	320	70	
230	307	2005	275	610	M56	252	340	480	465	320	70	
240	320	1995	285	600	M56	263	340	480	465	320	70	
250	334	1990	290	595	M56	275	340	480	465	320	70	
260	347	1980	300	585	M56	285	340	480	465	320	70	
270	360	1975	305	580	M48	296	340	480	465	320	70	
280	374	1965	315	570	M48	308	340	480	465	320	70	
290	387	1960	320	565	M48	318	340	480	465	320	70	
300	400	1950	330	555	M48	328	340	480	465	320	70	
310	414	1945	335	550	M48	340	340	480	465	320	70	
320	427	1935	345	545	M48	351	340	480	465	320	70	
330	440	1930	350	535	M48	362	340	480	465	320	70	
340	454	1925	355	530	M48	373	340	480	465	320	70	
350	467	1915	365	520	M48	384	340	480	475	320	70	
360	480	1910	370	515	M42	395	340	480	485	320	70	
370	494	1900	380	505	M42	406	340	480	495	320	70	
380	507	1895	385	500	M42	416	340	480	520	320	70	
390	520	1885	395	495	M42	427	340	480	525	320	70	
400	534	1880	400	485	M42	439	340	480	535	320	70	
410	547	1870	410	480	M42	450	340	480	545	320	70	
420	560	2030	250	635	M42	461	340	480	525	320	70	
430	574	2020	255	625	M42	471	340	480	535	320	70	
440	587	2015	265	620	M42	482	340	480	545	320	70	
450	600	2005	275	610	M42	493	340	480	555	320	70	
460	614	2000	280	605	M42	505	340	480	570	320	70	
470	627	1995	285	600	M42	515	340	480	580	320	70	
480	641	1985	295	590	M42	527	340	480	590	320	70	
490	654	1980	300	585	M42	537	340	480	600	320	70	
500	667	1970	305	575	M42	548	340	480	610	320	70	
510	680	1965	315	570	M42	559	340	480	625	320	70	
520	695	1955	325	560	M42	571	340	480	635	320	70	
530	708	1950	330	555	M42	582	340	480	645	320	70	
540	720	1940	335	545	M42	592	340	480	655	320	70	
550	734	1935	345	540	M42	604	340	480	665	320	70	
560	747	1925	350	530	M42	613	340	480	675	320	70	
570	761	1920	360	525	M42	625	340	480	690	320	70	
580	774	1910	365	515	M42	636	340	480	700	320	70	
590	787	1905	375	510	M42	647	340	480	710	320	70	
600	800	1900	380	505	M42	658	340	480	720	320	70	
610	815	1890	390	495	M42	670	340	480	735	320	70	

For table of standard dimensions, see page 41



Constant Spring Supports

Constant Spring Tables – Fig. QC120 – Sizes 51 to 58

Sizes 51 to 54											
Travel	C	B	B2	B3	A	PP	L	S	QQ	RR	SS
150	200	2060	220	665	M64	164	340	480	465	320	70
160	214	2055	225	660	M64	175	340	480	465	320	70
170	227	2045	235	650	M64	186	340	480	465	320	70
180	240	2040	240	645	M64	197	340	480	465	320	70
190	254	2030	250	635	M64	209	340	480	465	320	70
200	267	2025	255	630	M56	220	340	480	465	320	70
210	280	2020	260	625	M56	231	340	480	465	320	70
220	294	2010	270	615	M56	242	340	480	465	320	70
230	307	2005	275	610	M56	252	340	480	465	320	70
240	320	1995	285	600	M56	263	340	480	465	320	70
250	334	1990	290	595	M56	275	340	480	465	320	70
260	347	1980	300	585	M56	285	340	480	465	320	70
270	360	1975	305	580	M48	296	340	480	465	320	70
280	374	1965	315	570	M48	308	340	480	465	320	70
290	387	1960	320	565	M48	318	340	480	465	320	70
300	400	1950	330	555	M48	328	340	480	465	320	70
310	414	1945	335	550	M48	340	340	480	465	320	70
320	427	1935	345	545	M48	351	340	480	465	320	70
330	440	1930	350	535	M48	362	340	480	465	320	70
340	454	1925	355	530	M48	373	340	480	465	320	70
350	467	1915	365	520	M48	384	340	480	475	320	70
360	480	1910	370	515	M42	395	340	480	485	320	70
370	494	1900	380	505	M42	406	340	480	495	320	70
380	507	1895	385	500	M42	416	340	480	520	320	70
390	520	1885	395	495	M42	427	340	480	525	320	70
400	534	1880	400	485	M42	439	340	480	535	320	70
410	547	1870	410	480	M42	450	340	480	545	320	70
420	560	2030	250	635	M42	461	340	480	525	320	70
430	574	2020	255	625	M42	471	340	480	535	320	70
440	587	2015	265	620	M48	482	340	480	545	320	70
450	600	2005	270	610	M48	493	340	480	560	320	70
460	614	2000	280	605	M42	505	340	480	570	320	70
470	627	1995	285	600	M42	515	340	480	580	320	70
480	641	1985	295	590	M42	527	340	480	590	320	70
490	654	1980	300	585	M42	537	340	480	600	320	70
500	667	1970	305	575	M42	548	340	480	610	320	70
510	680	1965	315	570	M42	559	340	480	625	320	70
520	695	1955	325	560	M42	571	340	480	635	320	70
530	708	1950	330	555	M42	582	340	480	645	320	70
540	720	1940	335	545	M42	592	340	480	655	320	70
550	734	1935	345	540	M42	604	340	480	665	320	70
560	747	1925	350	530	M42	613	340	480	675	320	70
570	761	1920	360	525	M42	625	340	480	690	320	70
580	774	1910	365	515	M42	636	340	480	700	320	70
590	787	1905	375	510	M42	647	340	480	710	320	70
600	800	1900	380	505	M42	658	340	480	720	320	70
610	815	1890	390	495	M42	670	340	480	735	320	70

Sizes 55 to 58											
Travel	C	B	B2	B3	A	PP	L	S	QQ	RR	SS
170	227	2595	70	815	M72	186	340	480	465	320	70
180	240	2590	75	810	M72	197	340	480	465	320	70
190	254	2580	85	800	M72	209	340	480	465	320	70
200	267	2575	90	795	M64	220	340	480	465	320	70
210	280	2570	100	790	M64	231	340	480	465	320	70
220	294	2560	105	780	M64	242	340	480	465	320	70
230	307	2555	110	775	M64	252	340	480	465	320	70
240	320	2545	120	765	M64	263	340	480	465	320	70
250	334	2540	125	760	M64	275	340	480	465	320	70
260	347	2530	135	750	M56	285	340	480	465	320	70
270	360	2525	140	745	M56	296	340	480	465	320	70
280	374	2515	150	735	M56	308	340	480	465	320	70
290	387	2510	155	730	M56	318	340	480	465	320	70
300	400	2500	165	720	M56	328	340	480	465	320	70
310	414	2495	170	715	M56	340	340	480	465	320	70
320	427	2485	180	710	M56	351	340	480	465	320	70
330	440	2480	185	700	M56	362	340	480	465	320	70
340	454	2475	190	695	M56	373	340	480	465	320	70
350	467	2465	200	685	M56	384	340	480	475	320	70
360	480	2460	205	680	M48	395	340	480	485	320	70
370	494	2450	215	670	M48	406	340	480	495	320	70
380	507	2445	220	665	M48	416	340	480	520	320	70
390	520	2435	230	660	M48	427	340	480	525	320	70
400	534	2430	235	650	M48	439	340	480	535	320	70
410	547	2420	245	640	M48	450	340	480	545	320	70
420	560	2030	250	635	M48	461	340	480	535	320	70
430	574	2020	255	625	M48	471	340	480	545	320	70
440	587	2015	265	620	M48	482	340	480	555	320	70
450	600	2005	270	610	M48	493	340	480	565	320	70
460	614	2000	280	605	M48	505	340	480	580	320	70
470	627	1995	285	600	M48	515	340	480	590	320	70
480	641	1985	295	590	M48	527	340	480	600	320	70
490	654	1980	300	585	M48	537	340	480	610	320	70
500	667	1970	305	575	M48	548	340	480	620	320	70
510	680	1965	315	570	M48	559	340	480	630	320	70
520	695	1955	325	560	M48	571	340	480	645	320	70
530	708	1950	330	555	M48	582	340	480	655	320	70
540	720	1940	335	545	M48	592	340	480	665	320	70
550	734	1935	345	540	M48	604	340	480	675	320	70
560	747	1925	350	530	M48	613	340	480	685	320	70
570	761	1920	360	525	M48	625	340	480	700	320	70
580	774	1910	365	515	M48	636	340	480	710	320	70
590	787	1905	375	510	M48	647	340	480	720	320	70
600	800	1900	380	505	M48	658	340	480	730	320	70
610	815	1890	390	495	M48	670	340	480	740	320	70

For table of standard dimensions, see page 41



Constant Spring Supports

Constant Spring Tables – Fig. QC120 – Sizes 59 to 66

Sizes 59 to 62											
Travel	C	B	B2	B3	A	PP	L	S	QQ	RR	SS
180	240	2870	75	910	M80	197	380	560	530	320	120
190	254	2865	80	900	M72	209	380	560	530	320	120
200	267	2855	90	895	M72	220	380	560	530	320	120
210	280	2850	95	890	M72	231	380	560	530	320	120
220	294	2840	105	880	M72	242	380	560	530	320	120
230	307	2835	110	875	M72	252	380	560	530	320	120
240	320	2825	120	865	M64	263	380	560	530	320	120
250	334	2820	125	860	M64	275	380	560	530	320	120
260	347	2810	135	850	M64	285	380	560	530	320	120
270	360	2805	140	845	M64	296	380	560	530	320	120
280	374	2795	150	835	M64	308	380	560	530	320	120
290	387	2790	155	830	M64	318	380	560	530	320	120
300	400	2785	160	820	M64	328	380	560	530	320	120
310	414	2775	170	815	M64	340	380	560	530	320	120
320	427	2770	175	810	M56	351	380	560	530	320	120
330	440	2760	185	800	M56	362	380	560	530	320	120
340	454	2755	190	795	M56	373	380	560	530	320	120
350	467	2745	200	785	M56	384	380	560	530	320	120
360	480	2740	205	780	M56	395	380	560	530	320	120
370	494	2730	215	770	M56	406	380	560	530	320	120
380	507	2725	220	765	M56	416	380	560	530	320	120
390	520	2720	225	760	M56	427	380	560	530	320	120
400	534	2710	235	750	M56	439	380	560	530	320	120
410	547	2705	240	745	M56	450	380	560	530	320	120
420	560	2465	250	735	M56	461	380	560	545	320	120
430	574	2455	255	725	M56	471	380	560	555	320	120
440	587	2450	265	720	M56	482	380	560	570	320	120
450	600	2440	270	710	M56	493	380	560	575	320	120
460	614	2435	280	705	M56	505	380	560	590	320	120
470	627	2430	285	700	M56	515	380	560	600	320	120
480	641	2420	295	690	M56	527	380	560	610	320	120
490	654	2415	300	685	M56	537	380	560	620	320	120
500	667	2405	305	675	M56	548	380	560	630	320	120
510	680	2400	315	670	M56	559	380	560	645	320	120
520	695	2390	325	660	M56	571	380	560	655	320	120
530	708	2385	330	655	M56	582	380	560	665	320	120
540	720	2380	335	645	M56	592	380	560	675	320	120
550	734	2370	345	640	M56	604	380	560	690	320	120
560	747	2360	350	630	M56	613	380	560	700	320	120
570	761	2355	360	625	M56	625	380	560	710	320	120
580	774	2345	365	615	M56	636	380	560	720	320	120
590	787	2340	375	610	M56	647	380	560	730	320	120
600	800	2335	380	605	M56	658	380	560	740	320	120
610	815	2325	390	595	M56	670	380	560	755	320	120

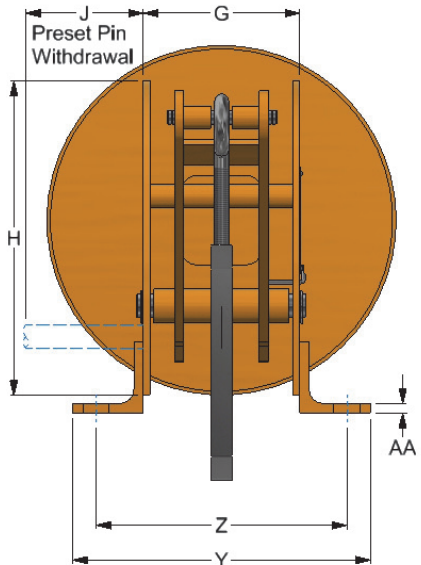
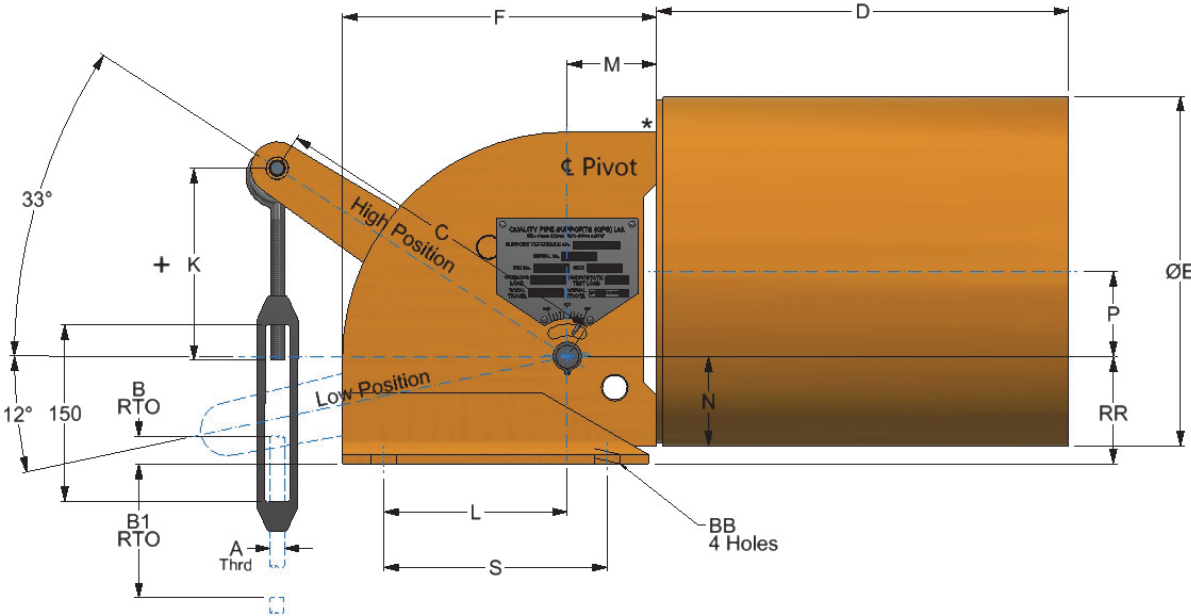
Sizes 63 to 66											
Travel	C	B	B2	B3	A	PP	L	S	QQ	RR	SS
180	240	2870	75	910	M80	197	380	560	530	320	120
190	254	2865	80	900	M80	209	380	560	530	320	120
200	267	2855	90	895	M80	220	380	560	530	320	120
210	280	2850	95	890	M80	231	380	560	530	320	120
220	294	2840	105	880	M80	242	380	560	530	320	120
230	307	2835	110	875	M72	252	380	560	530	320	120
240	320	2825	120	865	M72	263	380	560	530	320	120
250	334	2820	125	860	M72	275	380	560	530	320	120
260	347	2810	135	850	M72	285	380	560	530	320	120
270	360	2805	140	845	M72	296	380	560	530	320	120
280	374	2795	150	835	M72	308	380	560	530	320	120
290	387	2790	155	830	M64	318	380	560	530	320	120
300	400	2785	160	820	M64	328	380	560	530	320	120
310	414	2775	170	815	M64	340	380	560	530	320	120
320	427	2770	175	810	M64	351	380	560	530	320	120
330	440	2760	185	800	M64	362	380	560	530	320	120
340	454	2755	190	795	M64	373	380	560	530	320	120
350	467	2745	200	785	M64	384	380	560	530	320	120
360	480	2740	205	780	M64	395	380	560	530	320	120
370	494	2730	215	770	M64	406	380	560	530	320	120
380	507	2725	220	765	M56	416	380	560	530	320	120
390	520	2720	225	760	M56	427	380	560	530	320	120
400	534	2710	235	750	M56	439	380	560	530	320	120
410	547	2705	240	745	M56	450	380	560	530	320	120
420	560	2465	250	735	M56	461	380	560	545	320	120
430	574	2455	255	725	M56	471	380	560	555	320	120
440	587	2450	265	720	M56	482	380	560	570	320	120
450	600	2440	270	710	M56	493	380	560	580	320	120
460	614	2435	280	705	M56	505	380	560	590	320	120
470	627	2430	285	700	M56	515	380	560	600	320	120
480	641	2420	295	690	M56	527	380	560	615	320	120
490	654	2415	300	685	M56	537	380	560	625	320	120
500	667	2405	305	675	M56	548	380	560	635	320	120
510	680	2400	315	670	M56	559	380	560	645	320	120
520	695	2390	325	660	M56	571	380	560	655	320	120
530	708	2385	330	655	M56	582	380	560	665	320	120
540	720	2380	335	645	M56	592	380	560	675	320	120
550	734	2370	345	640	M56	604	380	560	690	320	120
560	747	2360	350	630	M56	613	380	560	700	320	120
570	761	2355	360	625	M56	625	380	560	710	320	120
580	774	2345	365	615	M56	636	380	560	720	320	120
590	787	2340	375	610	M56	647	380	560	730	320	120
600	800	2335	380	605	M56	658	380	560	740	320	120
610	815	2325	390	595	M56	670	380	560	755	320	120

For table of standard dimensions, see page 41



Constant Spring Support – QC130D

QC130D



+ Longer top rods can be supplied on request

*Access Load Adjuster

The rod take out (RTO) dimension B & B1 are given for the load arm in the high position.
 When using B for up travel, RTO equals total up travel minus B.
 When using B1 for up travel, RTO equals total up travel plus B1.



Constant Spring Supports

Constant Spring Tables – Fig. QC130 – Sizes 1 to 18

Sizes 1 to 6							
Travel	C	B	B1	A	L	S	RR
40	54		130	M12	105	140	65
50	67		125	M12	105	140	65
60	80		115	M12	105	140	65
70	94		110	M12	105	140	65
80	107		105	M12	105	140	65
90	120		95	M12	105	140	65
100	134		90	M12	105	140	65
110	147		80	M12	105	140	65
120	160		75	M12	105	140	65
130	174		65	M12	105	140	65
140	187		60	M12	105	140	65
150	200		50	M12	105	140	65
160	214		45	M12	105	140	65
170	227		35	M12	105	140	65
180	240		30	M12	105	140	65
190	254		25	M12	105	140	65
200	267		15	M12	105	140	65
210	280		10	M12	105	140	65
220	294	40		M12	105	140	105
230	307	45		M12	105	140	105
240	320	55		M12	105	140	105
250	334	60		M12	105	140	105
260	347	70		M12	105	140	105
270	360	75		M12	105	140	105
280	374	85		M12	105	140	105
290	387	90		M12	105	140	105
300	400	100		M12	105	140	105

Sizes 7 to 12							
Travel	C	B	B1	A	L	S	RR
40	54		115	M20	120	155	80
50	67		110	M16	120	155	80
60	80		100	M16	120	155	80
70	94		95	M16	120	155	80
80	107		90	M12	120	155	80
90	120		80	M12	120	155	80
100	134		70	M12	120	155	80
110	147		65	M12	120	155	80
120	160		60	M12	120	155	80
130	174		50	M12	120	155	80
140	187		45	M12	120	155	80
150	200		35	M12	120	155	80
160	214		30	M12	120	155	80
170	227		20	M12	120	155	80
180	240		15	M12	120	155	80
190	254		10	M12	120	155	80
200	267	~	~	M12	120	155	80
210	280	10		M12	120	155	80
220	294	40		M12	120	155	105
230	307	45		M12	120	155	105
240	320	55		M12	120	155	105
250	334	60		M12	120	155	105
260	347	70		M12	120	155	105
270	360	75		M12	120	155	105
280	374	85		M12	120	155	105
290	387	90		M12	120	155	105
300	400	100		M12	120	155	105
310	414	125		M12	120	155	125
320	427	135		M12	120	155	125
330	440	140		M12	120	155	125
340	454	145		M12	120	155	125
350	467	155		M12	120	155	125
360	480	180		M12	120	155	145
370	494	190		M12	120	155	145
380	507	195		M12	120	155	145
390	520	205		M12	120	155	145
400	534	210		M12	120	155	145
410	547	220		M12	120	155	145
420	560	225		M12	120	155	145

Sizes 13 to 18							
Travel	C	B	B1	A	L	S	RR
60	80		80	M20	155	190	100
70	94		75	M20	155	190	100
80	107		65	M20	155	190	100
90	120		60	M16	155	190	100
100	134		50	M16	155	190	100
110	147		45	M16	155	190	100
120	160		40	M16	155	190	100
130	174		30	M16	155	190	100
140	187		25	M16	155	190	100
150	200		15	M16	155	190	100
160	214		10	M12	155	190	100
170	227	~	~	M12	155	190	100
180	240	5		M12	155	190	100
190	254	15		M12	155	190	100
200	267	20		M12	155	190	100
210	280	30		M12	155	190	100
220	294	35		M12	155	190	100
230	307	40		M12	155	190	100
240	320	50		M12	155	190	100
250	334	55		M12	155	190	100
260	347	65		M12	155	190	100
270	360	100		M12	155	190	130
280	374	110		M12	155	190	130
290	387	115		M12	155	190	130
300	400	125		M12	155	190	130
310	414	130		M12	155	190	130
320	427	140		M12	155	190	130
330	440	145		M12	155	190	130
340	454	150		M12	155	190	130
350	467	160		M12	155	190	130
360	480	165		M12	155	190	130
370	494	195		M12	155	190	150
380	507	200		M12	155	190	150
390	520	210		M12	155	190	150
400	534	215		M12	155	190	150
410	547	225		M12	155	190	150
420	560	230		M12	155	190	150

P Dimension										
Size	40 - 44	45 - 47	59	60	61	62	63	64	65	66
P	121	165	188	193	197	203	207	211	216	220

Constant Support Dimension Sizes 1 to 66											
Size	1~6	7~12	13~18	19~26	27~33	34~39	40~47	48~50	51~54	55~58	59~66
D	250	300	350	400	600	750	1100	1265	1265	1265	1620
E	150	220	295	330	390	440	525	525	525	525	640
F	180	215	270	325	405	495	610	685	685	685	760
G	115	120	135	150	180	225	280	345	345	345	455
J	135	140	160	175	215	270	330	405	405	405	560
M	55	65	75	95	115	145	198	250	250	250	280
N	55	65	75	95	115	145	180	190	190	190	215
Y	215	220	255	270	320	425	480	745	745	745	855
Z	165	180	205	220	265	335	395	520	520	520	685
BB	14	18	22	22	22	27	33	45	45	45	51
AA	6	6	8	8	10	10	15	20	20	20	25
K	150	150	150	200	200	200	250	300	300	300	300
P	33	38	65	66	83	100	TABLE	182	182	182	TABLE
H	180	215	270	325	405	495	610	710	710	710	760



Constant Spring Supports

Constant Spring Tables – Fig. QC130 – Sizes 19 to 39

Sizes 19 to 26							
Travel	C	B	B1	A	L	S	RR
60	80		120	M30	190	240	110
70	94		115	M30	190	240	110
80	107		105	M24	190	240	110
90	120		100	M24	190	240	110
100	134		90	M24	190	240	110
110	147		85	M24	190	240	110
120	160		80	M20	190	240	110
130	174		70	M20	190	240	110
140	187		65	M20	190	240	110
150	200		55	M20	190	240	110
160	214		50	M20	190	240	110
170	227		40	M20	190	240	110
180	240		35	M16	190	240	110
190	254		30	M16	190	240	110
200	267		20	M16	190	240	110
210	280		15	M16	190	240	110
220	294		5	M16	190	240	110
230	307	~	~	M16	190	240	110
240	320	10		M16	190	240	110
250	334	15		M16	190	240	110
260	347	25		M16	190	240	110
270	360	30		M16	190	240	110
280	374	40		M16	190	240	110
290	387	45		M16	190	240	110
300	400	55		M16	190	240	110
310	414	60		M16	190	240	110
320	427	70		M16	190	240	110
330	440	75		M12	190	240	110
340	454	80		M12	190	240	110
350	467	90		M12	190	240	110
360	480	95		M12	190	240	110
370	494	145		M12	190	240	150
380	507	150		M12	190	240	150
390	520	160		M12	190	240	150
400	534	165		M12	190	240	150
410	547	175		M12	190	240	150
420	560	210		M12	190	240	180
430	574	220		M12	190	240	180
440	587	225		M12	190	240	180
450	600	230		M12	190	240	180
460	614	240		M12	190	240	180
470	627	245		M12	190	240	180
480	641	255		M12	190	240	180
490	654	260		M12	190	240	180
500	667	270		M12	190	240	180

Sizes 27 to 33							
Travel	C	B	B1	A	L	S	RR
70	94		95	M36	235	300	130
80	107		85	M36	235	300	130
90	120		80	M36	235	300	130
100	134		70	M36	235	300	130
110	147		65	M30	235	300	130
120	160		60	M30	235	300	130
130	174		50	M30	235	300	130
140	187		45	M30	235	300	130
150	200		35	M30	235	300	130
160	214		30	M30	235	300	130
170	227		20	M24	235	300	130
180	240		15	M24	235	300	130
190	254		10	M24	235	300	130
200	267	~	~	M24	235	300	130
210	280	10		M24	235	300	130
220	294	15		M24	235	300	130
230	307	20		M24	235	300	130
240	320	30		M20	235	300	130
250	334	35		M20	235	300	130
260	347	45		M20	235	300	130
270	360	50		M20	235	300	130
280	374	60		M20	235	300	130
290	387	65		M20	235	300	130
300	400	70		M20	235	300	130
310	414	80		M20	235	300	130
320	427	90		M20	235	300	130
330	440	95		M20	235	300	130
340	454	100		M20	235	300	130
350	467	110		M20	235	300	130
360	480	115		M20	235	300	130
370	494	165		M20	235	300	170
380	507	170		M20	235	300	170
390	520	180		M20	235	300	170
400	534	185		M20	235	300	170
410	547	195		M20	235	300	170
420	560	200		M20	235	300	170
430	574	210		M20	235	300	170
440	587	215		M20	235	300	170
450	600	220		M20	235	300	170
460	614	230		M20	235	300	170
470	627	235		M20	235	300	170
480	641	245		M20	235	300	170
490	654	250		M20	235	300	170
500	667	260		M20	235	300	170

Sizes 34 to 39							
Travel	C	B	B1	A	L	S	RR
90	120		55	M48	290	365	155
100	134		45	M42	290	365	155
110	147		40	M42	290	365	155
120	160		35	M42	290	365	155
130	174		25	M42	290	365	155
140	187		20	M36	290	365	155
150	200		10	M36	290	365	155
160	214		5	M36	290	365	155
170	227	5		M36	290	365	155
180	240	10		M36	290	365	155
190	254	20		M30	290	365	155
200	267	25		M30	290	365	155
210	280	35		M30	290	365	155
220	294	40		M30	290	365	155
230	307	45		M30	290	365	155
240	320	55		M30	290	365	155
250	334	60		M30	290	365	155
260	347	70		M30	290	365	155
270	360	75		M30	290	365	155
280	374	85		M30	290	365	155
290	387	90		M30	290	365	155
300	400	100		M30	290	365	155
310	414	105		M24	290	365	155
320	427	115		M24	290	365	155
330	440	120		M24	290	365	155
340	454	125		M24	290	365	155
350	467	135		M24	290	365	155
360	480	140		M24	290	365	155
370	494	150		M24	290	365	155
380	507	155		M24	290	365	155
390	520	165		M24	290	365	155
400	534	170		M24	290	365	155
410	547	180		M24	290	365	155
420	560	220		M24	290	365	190
430	574	230		M24	290	365	190
440	587	235		M24	290	365	190
450	600	240		M24	290	365	190
460	614	250		M24	290	365	190
470	627	255		M24	290	365	190
480	641	295		M24	290	365	220
490	654	300		M24	290	365	220
500	667	310		M24	290	365	220
510	680	315		M24	290	365	220
520	695	325		M24	290	365	220
530	708	330		M24	290	365	220
540	720	335		M24	290	365	220
550	734	345		M24	290	365	220
560	747	350		M24	290	365	220
570	761	360		M24	290	365	220
580	774	365		M24	290	365	220
590	787	375		M24	290	365	220
600	800	380		M24	290	365	220
610	815	390		M24	290	365	220

For table of standard dimensions, see page 49



Constant Spring Supports

Constant Spring Tables – Fig. QC130 – Sizes 40 to 58

Sizes 40 to 47							
Travel	C	B	B1	A	L	S	RR
110	147		55	M64	355	455	190
120	160		50	M56	355	455	190
130	174		40	M56	355	455	190
140	187		35	M56	355	455	190
150	200		25	M56	355	455	190
160	214		20	M48	355	455	190
170	227		10	M48	355	455	190
180	240		5	M48	355	455	190
190	254	5		M48	355	455	190
200	267	10		M48	355	455	190
210	280	20		M42	355	455	190
220	294	25		M42	355	455	190
230	307	35		M42	355	455	190
240	320	40		M42	355	455	190
250	334	50		M42	355	455	190
260	347	55		M42	355	455	190
270	360	60		M42	355	455	190
280	374	70		M42	355	455	190
290	387	75		M36	355	455	190
300	400	85		M36	355	455	190
310	414	90		M36	355	455	190
320	427	100		M36	355	455	190
330	440	105		M36	355	455	190
340	454	110		M36	355	455	190
350	467	120		M36	355	455	190
360	480	125		M36	355	455	190
370	494	135		M36	355	455	190
380	507	140		M36	355	455	190
390	520	150		M36	355	455	190
400	534	155		M36	355	455	190
410	547	165		M36	355	455	190
420	560	220		M36	355	455	240
430	574	225		M36	355	455	240
440	587	235		M36	355	455	240
450	600	240		M36	355	455	240
460	614	250		M36	355	455	240
470	627	255		M36	355	455	240
480	641	265		M36	355	455	240
490	654	270		M36	355	455	240
500	667	275		M36	355	455	240
510	680	285		M36	355	455	240
520	695	295		M36	355	455	240
530	708	300		M36	355	455	240
540	720	305		M36	355	455	240
550	734	315		M36	355	455	240
560	747	320		M36	355	455	240
570	761	330		M36	355	455	240
580	774	335		M36	355	455	240
590	787	345		M36	355	455	240
600	800	350		M36	355	455	240
610	815	360		M36	355	455	240

Sizes 48 to 54							
Travel	C	B	A	L	S	RR	
110	147	25	M80	340	480	320	
120	160	30	M72	340	480	320	
130	174	40	M72	340	480	320	
140	187	45	M72	340	480	320	
150	200	55	M64	340	480	320	
160	214	60	M64	340	480	320	
170	227	70	M64	340	480	320	
180	240	75	M64	340	480	320	
190	254	85	M64	340	480	320	
200	267	90	M56	340	480	320	
210	280	100	M56	340	480	320	
220	294	105	M56	340	480	320	
230	307	110	M56	340	480	320	
240	320	120	M56	340	480	320	
250	334	125	M56	340	480	320	
260	347	135	M56	340	480	320	
270	360	140	M48	340	480	320	
280	374	150	M48	340	480	320	
290	387	155	M48	340	480	320	
300	400	165	M48	340	480	320	
310	414	170	M48	340	480	320	
320	427	180	M48	340	480	320	
330	440	185	M48	340	480	320	
340	454	190	M48	340	480	320	
350	467	200	M48	340	480	320	
360	480	205	M42	340	480	320	
370	494	215	M42	340	480	320	
380	507	220	M42	340	480	320	
390	520	230	M42	340	480	320	
400	534	235	M42	340	480	320	
410	547	245	M42	340	480	320	
420	560	250	M42	340	480	320	
430	574	255	M42	340	480	320	
440	587	265	M42	340	480	320	
450	600	270	M42	340	480	320	
460	614	280	M42	340	480	320	
470	627	285	M42	340	480	320	
480	641	295	M42	340	480	320	
490	654	300	M42	340	480	320	
500	667	305	M42	340	480	320	
510	680	315	M42	340	480	320	
520	695	325	M42	340	480	320	
530	708	330	M42	340	480	320	
540	720	335	M42	340	480	320	
550	734	345	M42	340	480	320	
560	747	350	M42	340	480	320	
570	761	360	M42	340	480	320	
580	774	365	M42	340	480	320	
590	787	375	M42	340	480	320	
600	800	380	M42	340	480	320	
610	815	390	M42	340	480	320	

Sizes 55 to 58							
Travel	C	B	A	L	S	RR	
110	147	25	M90	340	480	320	
120	160	30	M90	340	480	320	
130	174	40	M80	340	480	320	
140	187	45	M80	340	480	320	
150	200	55	M80	340	480	320	
160	214	60	M72	340	480	320	
170	227	70	M72	340	480	320	
180	240	75	M72	340	480	320	
190	254	85	M72	340	480	320	
200	267	90	M64	340	480	320	
210	280	100	M64	340	480	320	
220	294	105	M64	340	480	320	
230	307	110	M64	340	480	320	
240	320	120	M64	340	480	320	
250	334	125	M64	340	480	320	
260	347	135	M56	340	480	320	
270	360	140	M56	340	480	320	
280	374	150	M56	340	480	320	
290	387	155	M56	340	480	320	
300	400	165	M56	340	480	320	
310	414	170	M56	340	480	320	
320	427	180	M56	340	480	320	
330	440	185	M56	340	480	320	
340	454	190	M56	340	480	320	
350	467	200	M56	340	480	320	
360	480	205	M48	340	480	320	
370	494	215	M48	340	480	320	
380	507	220	M48	340	480	320	
390	520	230	M48	340	480	320	
400	534	235	M48	340	480	320	
410	547	245	M48	340	480	320	
420	560	250	M48	340	480	320	
430	574	255	M48	340	480	320	
440	587	265	M48	340	480	320	
450	600	270	M48	340	480	320	
460	614	280	M48	340	480	320	
470	627	285	M48	340	480	320	
480	641	295	M48	340	480	320	
490	654	300	M48	340	480	320	
500	667	305	M48	340	480	320	
510	680	315	M48	340	480	320	
520	695	325	M48	340	480	320	
530	708	330	M48	340	480	320	
540	720	335	M48	340	480	320	
550	734	345	M48	340	480	320	
560	747	350	M48	340	480	320	
570	761	360	M48	340	480	320	
580	774	365	M48	340	480	320	
590	787	375	M48	340	480	320	
600	800	380	M48	340	480	320	
610	815	390	M48	340	480	320	

For table of standard dimensions, see page 49



Constant Spring Tables – Fig. QC130 – Sizes 59 to 66

Sizes 59 to 62						
Travel	C	B	A	L	S	RR
150	200	55	M80	380	560	320
160	214	60	M80	380	560	320
170	227	70	M80	380	560	320
180	240	75	M80	380	560	320
190	254	80	M72	380	560	320
200	267	90	M72	380	560	320
210	280	95	M72	380	560	320
220	294	105	M72	380	560	320
230	307	110	M72	380	560	320
240	320	120	M64	380	560	320
250	334	125	M64	380	560	320
260	347	135	M64	380	560	320
270	360	140	M64	380	560	320
280	374	150	M64	380	560	320
290	387	155	M64	380	560	320
300	400	160	M64	380	560	320
310	414	170	M64	380	560	320
320	427	175	M56	380	560	320
330	440	185	M56	380	560	320
340	454	190	M56	380	560	320
350	467	200	M56	380	560	320
360	480	205	M56	380	560	320
370	494	215	M56	380	560	320
380	507	220	M56	380	560	320
390	520	230	M56	380	560	320
400	534	235	M56	380	560	320
410	547	240	M56	380	560	320
420	560	250	M56	380	560	320
430	574	255	M56	380	560	320
440	587	265	M56	380	560	320
450	600	270	M56	380	560	320
460	614	280	M56	380	560	320
470	627	285	M56	380	560	320
480	641	295	M56	380	560	320
490	654	300	M56	380	560	320
500	667	305	M56	380	560	320
510	680	315	M56	380	560	320
520	695	325	M56	380	560	320
530	708	330	M56	380	560	320
540	720	335	M56	380	560	320
550	734	345	M56	380	560	320
560	747	350	M56	380	560	320
570	761	360	M56	380	560	320
580	774	365	M56	380	560	320
590	787	375	M56	380	560	320
600	800	380	M56	380	560	320
610	815	390	M56	380	560	320

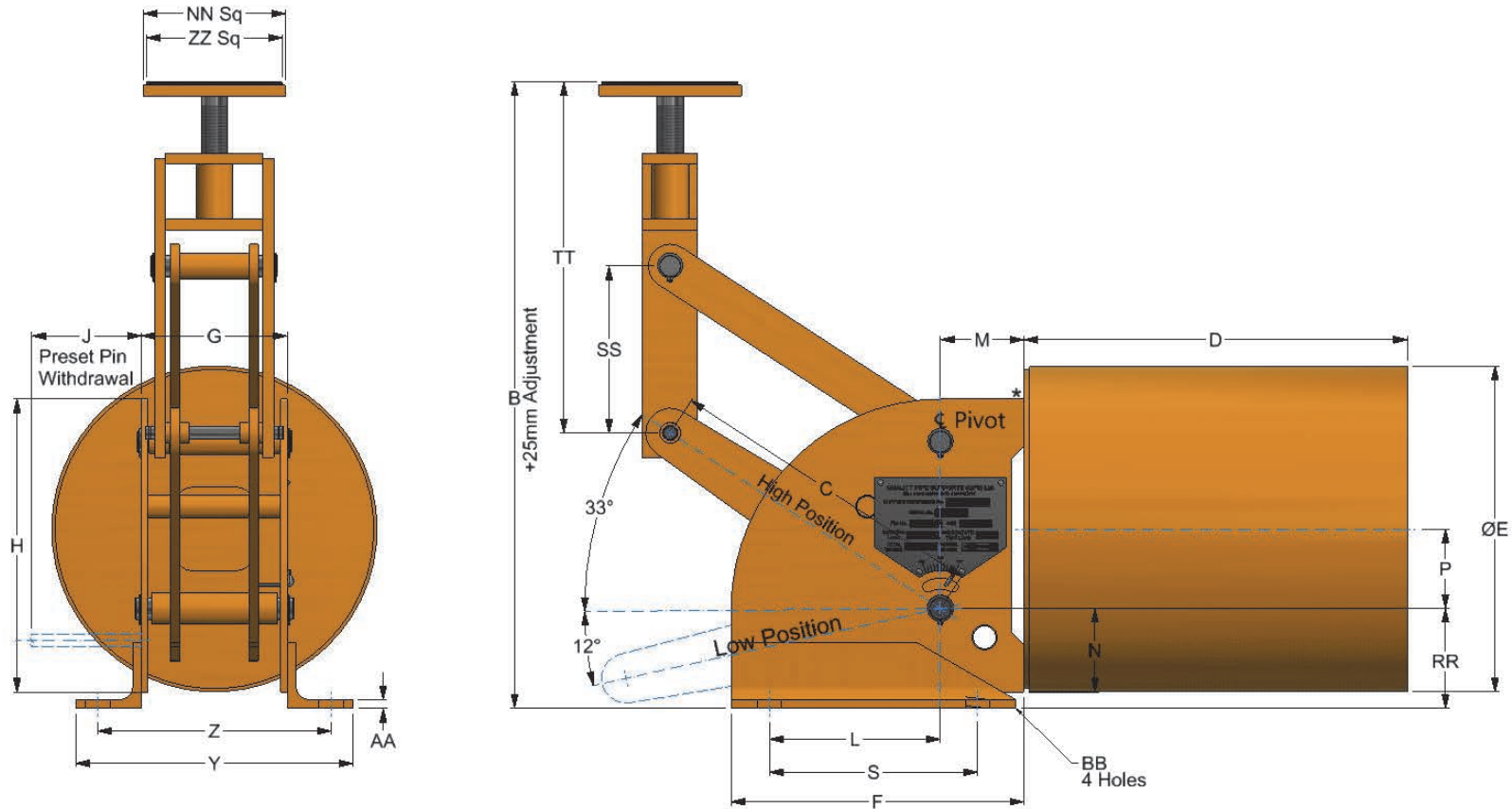
Sizes 63 to 66						
Travel	C	B	A	L	S	RR
150	200	55	M90	380	560	320
160	214	60	M90	380	560	320
170	227	70	M90	380	560	320
180	240	75	M80	380	560	320
190	254	85	M80	380	560	320
200	267	90	M80	380	560	320
210	280	95	M80	380	560	320
220	294	105	M80	380	560	320
230	307	110	M72	380	560	320
240	320	120	M72	380	560	320
250	334	125	M72	380	560	320
260	347	135	M72	380	560	320
270	360	140	M72	380	560	320
280	374	150	M72	380	560	320
290	387	155	M64	380	560	320
300	400	160	M64	380	560	320
310	414	170	M64	380	560	320
320	427	175	M64	380	560	320
330	440	185	M64	380	560	320
340	454	190	M64	380	560	320
350	467	200	M64	380	560	320
360	480	205	M64	380	560	320
370	494	215	M64	380	560	320
380	507	220	M56	380	560	320
390	520	230	M56	380	560	320
400	534	235	M56	380	560	320
410	547	240	M56	380	560	320
420	560	250	M56	380	560	320
430	574	255	M56	380	560	320
440	587	265	M56	380	560	320
450	600	270	M56	380	560	320
460	614	280	M56	380	560	320
470	627	285	M56	380	560	320
480	641	295	M56	380	560	320
490	654	300	M56	380	560	320
500	667	305	M56	380	560	320
510	680	315	M56	380	560	320
520	695	325	M56	380	560	320
530	708	330	M56	380	560	320
540	720	335	M56	380	560	320
550	734	345	M56	380	560	320
560	747	350	M56	380	560	320
570	761	360	M56	380	560	320
580	774	365	M56	380	560	320
590	787	375	M56	380	560	320
600	800	380	M56	380	560	320
610	815	390	M56	380	560	320

For table of standard dimensions, see page 49

Constant Spring Support – QC140F

QC140F

Height is calculated when the load arm is in the high position.
For up travel, installed height equals 'B' minus up travel.



*Access Load Adjuster



Constant Spring Tables – Fig. QC140 – Sizes 1 to 26

Sizes 1 to 6						
Travel	C	B	L	S	RR	
40	54	325	105	140	65	
50	67	330	105	140	65	
60	80	340	105	140	65	
70	94	345	105	140	65	
80	107	355	105	140	65	
90	120	360	105	140	65	
100	134	370	105	140	65	
110	147	375	105	140	65	
120	160	380	105	140	65	
130	174	390	105	140	65	
140	187	400	105	140	65	
150	200	405	105	140	65	
160	214	410	105	140	65	
170	227	420	105	140	65	
180	240	425	105	140	65	
190	254	435	105	140	65	
200	267	440	105	140	65	
210	280	450	105	140	65	
220	294	495	105	140	105	
230	307	500	105	140	105	
240	320	510	105	140	105	
250	334	515	105	140	105	
260	347	525	105	140	105	
270	360	530	105	140	105	
280	374	540	105	140	105	
290	387	545	105	140	105	
300	400	555	105	140	105	

Sizes 7 to 12						
Travel	C	B	L	S	RR	
40	54	370	120	155	80	
50	67	375	120	155	80	
60	80	385	120	155	80	
70	94	390	120	155	80	
80	107	400	120	155	80	
90	120	405	120	155	80	
100	134	415	120	155	80	
110	147	420	120	155	80	
120	160	425	120	155	80	
130	174	435	120	155	80	
140	187	440	120	155	80	
150	200	450	120	155	80	
160	214	455	120	155	80	
170	227	465	120	155	80	
180	240	470	120	155	80	
190	254	480	120	155	80	
200	267	485	120	155	80	
210	280	495	120	155	80	
220	294	525	120	155	105	
230	307	530	120	155	105	
240	320	540	120	155	105	
250	334	545	120	155	105	
260	347	555	120	155	105	
270	360	560	120	155	105	
280	374	570	120	155	105	
290	387	575	120	155	105	
300	400	580	120	155	105	

Sizes 13 to 18						
Travel	C	B	L	S	RR	
60	80	460	155	190	100	
70	94	465	155	190	100	
80	107	475	155	190	100	
90	120	480	155	190	100	
100	134	490	155	190	100	
110	147	495	155	190	100	
120	160	500	155	190	100	
130	174	510	155	190	100	
140	187	515	155	190	100	
150	200	525	155	190	100	
160	214	530	155	190	100	
170	227	540	155	190	100	
180	240	545	155	190	100	
190	254	555	155	190	100	
200	267	560	155	190	100	
210	280	570	155	190	100	
220	294	575	155	190	100	
230	307	580	155	190	100	
240	320	590	155	190	100	
250	334	595	155	190	100	
260	347	605	155	190	100	
270	360	640	155	190	130	
280	374	650	155	190	130	
290	387	655	155	190	130	
300	400	665	155	190	130	
310	414	670	155	190	130	
320	427	680	155	190	130	
330	440	685	155	190	130	
340	454	690	155	190	130	
350	467	700	155	190	130	
360	480	705	155	190	130	

Sizes 19 to 26						
Travel	C	B	L	S	RR	
60	80	535	190	240	110	
70	94	540	190	240	110	
80	107	550	190	240	110	
90	120	555	190	240	110	
100	134	565	190	240	110	
110	147	570	190	240	110	
120	160	580	190	240	110	
130	174	585	190	240	110	
140	187	590	190	240	110	
150	200	600	190	240	110	
160	214	605	190	240	110	
170	227	615	190	240	110	
180	240	620	190	240	110	
190	254	630	190	240	110	
200	267	635	190	240	110	
210	280	645	190	240	110	
220	294	650	190	240	110	
230	307	660	190	240	110	
240	320	665	190	240	110	
250	334	670	190	240	110	
260	347	680	190	240	110	
270	360	685	190	240	110	
280	374	695	190	240	110	
290	387	700	190	240	110	
300	400	710	190	240	110	
310	414	715	190	240	110	
320	427	725	190	240	110	
330	440	730	190	240	110	
340	454	735	190	240	110	
350	467	745	190	240	110	
360	480	750	190	240	110	
370	494	800	190	240	150	
380	507	805	190	240	150	
390	520	815	190	240	150	
400	534	820	190	240	150	
410	547	830	190	240	150	
420	560	865	190	240	180	
430	574	875	190	240	180	
440	587	880	190	240	180	
450	600	885	190	240	180	
460	614	895	190	240	180	
470	627	900	190	240	180	
480	641	910	190	240	180	
490	654	915	190	240	180	
500	667	925	190	240	180	

Constant Support Dimensions Sizes 1 to 47								
Size	1~6	7~12	13~18	19~26	27~33	34~39	40~44	45~47
D	250	300	350	400	600	750	1100	1100
E	150	220	295	330	390	440	525	525
F	180	215	270	325	405	495	610	610
G	115	120	135	150	180	225	280	280
J	135	140	160	175	215	270	330	330
M	55	65	75	95	115	145	198	198
N	55	65	75	95	115	145	180	180
Y	215	220	255	270	320	425	480	480
Z	165	180	205	220	265	335	395	395
BB	14	18	22	22	22	27	33	33
AA	6	6	8	8	10	10	15	15
TT	230	260	315	380	490	610	685	685
P	33	38	65	66	83	100	121	165
NN	80	100	130	150	180	200	230	230
ZZ	75	95	120	145	175	195	225	225
SS	105	120	160	190	240	295	390	390
H	180	215	270	325	405	495	610	610



Constant Spring Supports

Constant Spring Tables – Fig. QC140 – Sizes 27 to 47

Sizes 27 to 33					
Travel	C	B	L	S	RR
70	94	670	235	300	130
80	107	680	235	300	130
90	120	685	235	300	130
100	134	695	235	300	130
110	147	700	235	300	130
120	160	705	235	300	130
130	174	715	235	300	130
140	187	720	235	300	130
150	200	730	235	300	130
160	214	735	235	300	130
170	227	745	235	300	130
180	240	750	235	300	130
190	254	760	235	300	130
200	267	765	235	300	130
210	280	775	235	300	130
220	294	780	235	300	130
230	307	785	235	300	130
240	320	795	235	300	130
250	334	800	235	300	130
260	347	810	235	300	130
270	360	815	235	300	130
280	374	825	235	300	130
290	387	830	235	300	130
300	400	835	235	300	130
310	414	845	235	300	130
320	427	855	235	300	130
330	440	860	235	300	130
340	454	865	235	300	130
350	467	875	235	300	130
360	480	880	235	300	130
370	494	930	235	300	170
380	507	935	235	300	170
390	520	945	235	300	170
400	534	950	235	300	170
410	547	960	235	300	170
420	560	965	235	300	170
430	574	975	235	300	170
440	587	980	235	300	170
450	600	985	235	300	170
460	614	995	235	300	170
470	627	1000	235	300	170
480	641	1010	235	300	170
490	654	1015	235	300	170
500	667	1025	235	300	170

Sizes 34 to 39					
Travel	C	B	L	S	RR
90	120	830	290	365	155
100	134	840	290	365	155
110	147	845	290	365	155
120	160	850	290	365	155
130	174	860	290	365	155
140	187	865	290	365	155
150	200	875	290	365	155
160	214	880	290	365	155
170	227	890	290	365	155
180	240	895	290	365	155
190	254	905	290	365	155
200	267	910	290	365	155
210	280	920	290	365	155
220	294	925	290	365	155
230	307	930	290	365	155
240	320	940	290	365	155
250	334	945	290	365	155
260	347	955	290	365	155
270	360	960	290	365	155
280	374	970	290	365	155
290	387	975	290	365	155
300	400	985	290	365	155
310	414	990	290	365	155
320	427	1000	290	365	155
330	440	1005	290	365	155
340	454	1010	290	365	155
350	467	1020	290	365	155
360	480	1025	290	365	155
370	494	1035	290	365	155
380	507	1040	290	365	155
390	520	1050	290	365	155
400	534	1055	290	365	155
410	547	1065	290	365	155
420	560	1105	290	365	190
430	574	1115	290	365	190
440	587	1120	290	365	190
450	600	1125	290	365	190
460	614	1135	290	365	190
470	627	1140	290	365	190
480	641	1180	290	365	220
490	654	1185	290	365	220
500	667	1195	290	365	220
510	680	1200	290	365	220
520	695	1210	290	365	220
530	708	1215	290	365	220
540	720	1220	290	365	220
550	734	1230	290	365	220
560	747	1235	290	365	220
570	761	1245	290	365	220
580	774	1250	290	365	220
590	787	1260	290	365	220
600	800	1265	290	365	220
610	815	1275	290	365	220

Sizes 40 to 47					
Travel	C	B	L	S	RR
110	147	955	355	455	190
120	160	960	355	455	190
130	174	970	355	455	190
140	187	975	355	455	190
150	200	985	355	455	190
160	214	990	355	455	190
170	227	1000	355	455	190
180	240	1005	355	455	190
190	254	1015	355	455	190
200	267	1020	355	455	190
210	280	1025	355	455	190
220	294	1035	355	455	190
230	307	1040	355	455	190
240	320	1050	355	455	190
250	334	1055	355	455	190
260	347	1065	355	455	190
270	360	1070	355	455	190
280	374	1080	355	455	190
290	387	1085	355	455	190
300	400	1095	355	455	190
310	414	1100	355	455	190
320	427	1110	355	455	190
330	440	1115	355	455	190
340	454	1120	355	455	190
350	467	1130	355	455	190
360	480	1135	355	455	190
370	494	1145	355	455	190
380	507	1150	355	455	190
390	520	1160	355	455	190
400	534	1165	355	455	190
410	547	1175	355	455	190
420	560	1230	355	455	240
430	574	1235	355	455	240
440	587	1245	355	455	240
450	600	1250	355	455	240
460	614	1260	355	455	240
470	627	1265	355	455	240
480	641	1275	355	455	240
490	654	1280	355	455	240
500	667	1285	355	455	240
510	680	1295	355	455	240
520	695	1305	355	455	240
530	708	1310	355	455	240
540	720	1315	355	455	240
550	734	1325	355	455	240
560	747	1330	355	455	240
570	761	1340	355	455	240
580	774	1345	355	455	240
590	787	1355	355	455	240
600	800	1360	355	455	240
610	815	1370	355	455	240

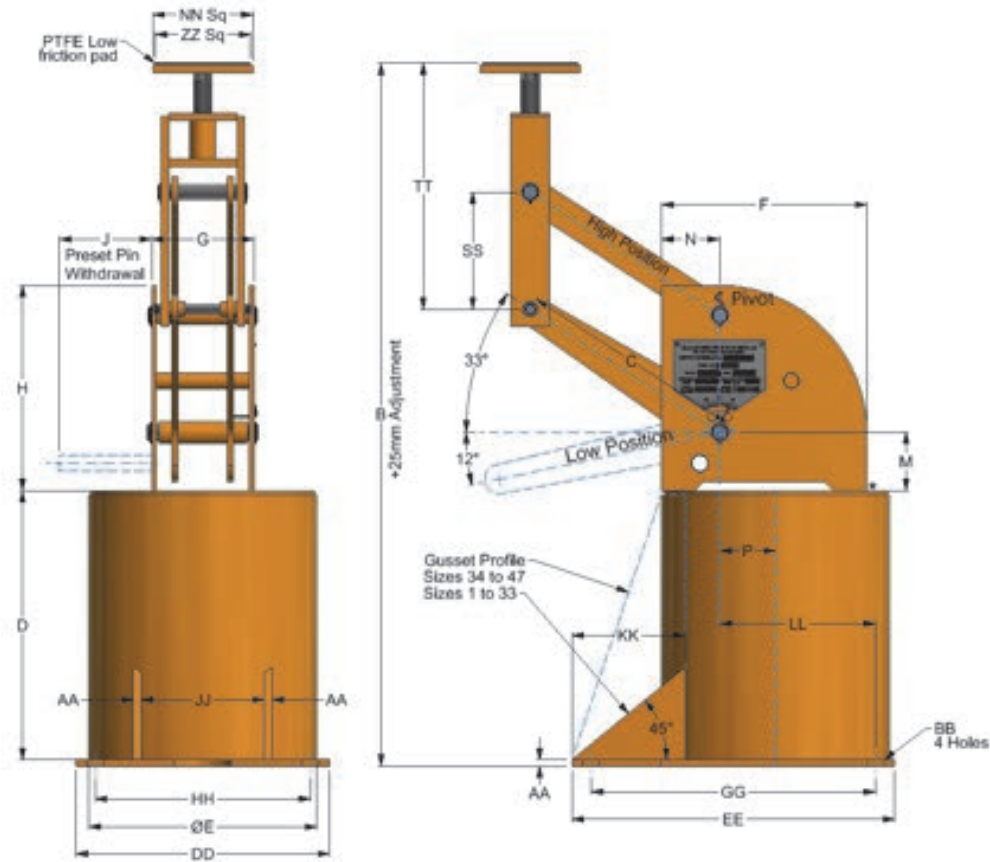
For table of standard dimensions, see page 54

Constant Spring Support – QC150F

QC150F

Height B calculated when the load arm is in the high position.
For up travel, installed height equals B minus up travel.

Square base plates used for travels up to and including 150.
Extended base plates used for travels over 150.



*Access Load Adjuster



Constant Spring Supports

Constant Spring Tables – Fig. QC150 – Sizes 1 to 33

Sizes 1 to 6		
Travel	C	B
40	54	570
50	67	580
60	80	585
70	94	595
80	107	600
90	120	605
100	134	615
110	147	620
120	160	630
130	174	640
140	187	645
150	200	650
160	214	660
170	227	665
180	240	670
190	254	680
200	267	685
210	280	695
220	294	700
230	307	710
240	320	715
250	334	725
260	347	730
270	360	735
280	374	745
290	387	750
300	400	760

Sizes 7 to 12		
Travel	C	B
40	54	660
50	67	670
60	80	675
70	94	685
80	107	690
90	120	695
100	134	705
110	147	710
120	160	720
130	174	725
140	187	735
150	200	740
160	214	750
170	227	755
180	240	760
190	254	770
200	267	775
210	280	785
220	294	790
230	307	800
240	320	805
250	334	815
260	347	820
270	360	825
280	374	835
290	387	840
300	400	850

Sizes 13 to 18		
Travel	C	B
60	80	790
70	94	800
80	107	805
90	120	815
100	134	820
110	147	830
120	160	835
130	174	845
140	187	850
150	200	855
160	214	865
170	227	870
180	240	880
190	254	885
200	267	895
210	280	900
220	294	910
230	307	915
240	320	920
250	334	930
260	347	935
270	360	945
280	374	950
290	387	960
300	400	965
310	414	975
320	427	980
330	440	990
340	454	995
350	467	1000
360	480	1010

Sizes 19 to 26		
Travel	C	B
60	80	925
70	94	935
80	107	940
90	120	950
100	134	955
110	147	965
120	160	970
130	174	980
140	187	985
150	200	990
160	214	1000
170	227	1005
180	240	1015
190	254	1020
200	267	1030
210	280	1035
220	294	1045
230	307	1050
240	320	1060
250	334	1065
260	347	1070
270	360	1080
280	374	1085
290	387	1095
300	400	1100
310	414	1110
320	427	1115
330	440	1125
340	454	1130
350	467	1140
360	480	1145
370	494	1150
380	507	1160
390	520	1165
400	534	1175
410	547	1180
420	560	1190
430	574	1195
440	587	1205
450	600	1210
460	614	1215
470	627	1225
480	641	1230
490	654	1240
500	667	1245

Sizes 27 to 33		
Travel	C	B
70	94	1265
80	107	1275
90	120	1280
100	134	1290
110	147	1295
120	160	1300
130	174	1310
140	187	1315
150	200	1325
160	214	1330
170	227	1340
180	240	1345
190	254	1355
200	267	1360
210	280	1370
220	294	1375
230	307	1380
240	320	1390
250	334	1395
260	347	1405
270	360	1410
280	374	1420
290	387	1425
300	400	1435
310	414	1440
320	427	1450
330	440	1455
340	454	1460
350	467	1470
360	480	1475
370	494	1485
380	507	1490
390	520	1500
400	534	1505
410	547	1515
420	560	1520
430	574	1530
440	587	1535
450	600	1540
460	614	1550
470	627	1555
480	641	1565
490	654	1570
500	667	1580

Constant Support Dimensions Sizes 1 to 47								
Size	1~6	7~12	13~18	19~26	27~33	34~39	40~44	45~47
D	250	300	350	400	600	750	1100	1100
E	150	220	295	330	390	440	525	525
F	180	215	270	325	405	495	640	640
G	115	120	135	150	180	225	280	280
J	135	140	160	175	215	270	330	330
M	55	65	75	95	115	145	198	198
N	55	65	75	95	115	145	180	180
BB	14	18	22	22	22	27	33	33
AA	6	6	8	8	10	10	15	15
TT	230	260	315	380	490	610	685	685
P	33	38	65	66	83	100	121	165
NN	80	100	130	150	180	200	230	230
ZZ	75	95	120	145	175	195	225	225
SS	105	120	160	190	240	295	390	390
LL	100	130	195	215	225	285	360	405
GG	180	255	370	395	510	510	740	740
EE	220	305	420	460	585	610	840	840
KK	80	100	170	180	230	170	300	300
H	180	215	270	325	405	495	640	640
JJ	102	127	203	254	305	206	257	257
HH	170	230	280	355	410	460	560	560
DD	210	280	330	420	485	560	660	660



Constant Spring Tables – Fig. QC150 – Sizes 34 to 47

Sizes 34 to 39		
Travel	C	B
90	120	1575
100	134	1585
110	147	1590
120	160	1595
130	174	1605
140	187	1610
150	200	1620
160	214	1625
170	227	1635
180	240	1640
190	254	1650
200	267	1655
210	280	1665
220	294	1670
230	307	1675
240	320	1685
250	334	1690
260	347	1700
270	360	1705
280	374	1715
290	387	1720
300	400	1730
310	414	1735
320	427	1745
330	440	1750
340	454	1755
350	467	1765
360	480	1770
370	494	1780
380	507	1785
390	520	1795
400	534	1800
410	547	1810
420	560	1820
430	574	1830
440	587	1835
450	600	1840
460	614	1850
470	627	1855
480	641	1865
490	654	1870
500	667	1880
510	680	1885
520	695	1895
530	708	1900
540	720	1905
550	734	1915
560	747	1920
570	761	1930
580	774	1935
590	787	1945
600	800	1950
610	815	1960

Sizes 40 to 47		
Travel	C	B
110	147	2080
120	160	2085
130	174	2095
140	187	2100
150	200	2105
160	214	2115
170	227	2120
180	240	2130
190	254	2135
200	267	2145
210	280	2150
220	294	2160
230	307	2165
240	320	2170
250	334	2180
260	347	2185
270	360	2195
280	374	2200
290	387	2210
300	400	2215
310	414	2225
320	427	2230
330	440	2240
340	454	2245
350	467	2250
360	480	2260
370	494	2265
380	507	2275
390	520	2280
400	534	2290
410	547	2295
420	560	2300
430	574	2310
440	587	2320
450	600	2325
460	614	2330
470	627	2340
480	641	2345
490	654	2355
500	667	2360
510	680	2365
520	695	2375
530	708	2385
540	720	2390
550	734	2400
560	747	2405
570	761	2410
580	774	2420
590	787	2425
600	800	2435
610	815	2440

For table of standard dimensions, see page 57