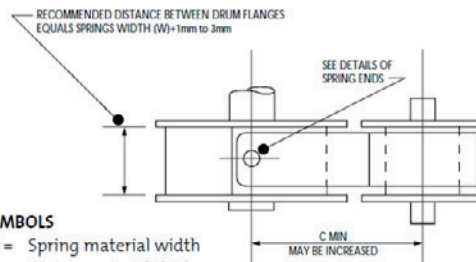
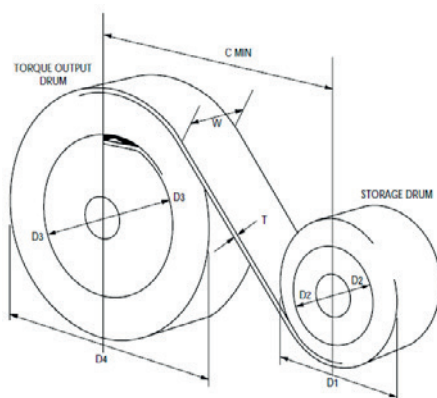


FACTORS AFFECTING DESIGN

MOTOR SPRINGS

| TORQUE +/- 10% | | MATERIAL | | | D2 | D3 | D1 | D4 | C | I/D SPRING | WORKING | SPRING | SPRING | Average Fatigue Life Cycles |
|----------------|--------|----------|------|-------|----|-----|-----|-----|-----|------------|---------|--------|--------|-----------------------------|
| NM | Kg/cms | W | T | L | mm | mm | mm | mm | mm | mm | TURNS | ENDS | No. | |
| 0,004 | 0,04 | 3 | 0,05 | 1168 | 7 | 11 | 11 | 14 | 14 | 6 | 27 | E | SR79 | 5000 |
| 0,008 | 0,08 | 6 | 0,05 | 1168 | 7 | 11 | 11 | 14 | 14 | 6 | 27 | E | SR80 | 5000 |
| 0,01 | 0,1 | 5 | 0,08 | 1753 | 10 | 17 | 17 | 21 | 20 | 8 | 27 | E | SR81 | 5000 |
| 0,02 | 0,2 | 8 | 0,08 | 1753 | 10 | 17 | 17 | 21 | 20 | 8 | 27 | E | SR82 | 5000 |
| 0,03 | 0,3 | 6 | 0,10 | 2337 | 13 | 22 | 22 | 28 | 27 | 11 | 27 | E | SR83 | 5000 |
| 0,05 | 0,5 | 10 | 0,10 | 2337 | 13 | 22 | 22 | 28 | 27 | 11 | 27 | D | SR84 | 5000 |
| 0,08 | 0,8 | 10 | 0,13 | 2921 | 17 | 28 | 27 | 35 | 34 | 14 | 27 | A | SR85 | 5000 |
| 0,1 | 1 | 13 | 0,13 | 2921 | 17 | 28 | 27 | 35 | 34 | 14 | 27 | A | SR86 | 5000 |
| 0,15 | 1,5 | 13 | 0,15 | 3505 | 20 | 33 | 33 | 42 | 41 | 17 | 27 | A | SR87 | 5000 |
| 0,18 | 1,9 | 16 | 0,15 | 3505 | 20 | 33 | 33 | 42 | 41 | 17 | 27 | A | SR88 | 5000 |
| 0,29 | 3 | 14 | 0,20 | 4674 | 26 | 44 | 44 | 56 | 54 | 22 | 27 | A | SR89 | 5000 |
| 0,5 | 5,2 | 16 | 0,26 | 5842 | 33 | 55 | 55 | 71 | 68 | 28 | 27 | A | SR90 | 5000 |
| 0,9 | 8,9 | 19 | 0,30 | 7010 | 40 | 67 | 66 | 85 | 82 | 33 | 27 | A | SR91 | 5000 |
| 1,2 | 11,9 | 25 | 0,30 | 7010 | 40 | 67 | 66 | 85 | 82 | 33 | 27 | C | SR92 | 5000 |
| 1,6 | 16,3 | 25 | 0,35 | 8179 | 47 | 78 | 78 | 99 | 96 | 39 | 27 | C | SR93 | 5000 |
| 2,3 | 23,8 | 51 | 0,30 | 7010 | 40 | 67 | 66 | 85 | 82 | 33 | 27 | F | SR94 | 5000 |
| 3,2 | 32,6 | 51 | 0,35 | 8179 | 47 | 78 | 78 | 99 | 96 | 39 | 27 | F | SR95 | 5000 |
| 4 | 40,3 | 38 | 0,46 | 10516 | 60 | 100 | 100 | 127 | 122 | 50 | 27 | F | SR96 | 5000 |
| 5,3 | 54 | 51 | 0,46 | 10516 | 60 | 100 | 100 | 127 | 122 | 50 | 27 | F | SR97 | 5000 |
| 7,9 | 80,5 | 51 | 0,56 | 12852 | 73 | 122 | 122 | 156 | 150 | 61 | 27 | K | SR98 | 5000 |
| 10 | 103 | 51 | 0,64 | 14605 | 83 | 138 | 138 | 177 | 170 | 69 | 27 | K | SR99 | 5000 |
| 0,003 | 0,03 | 3 | 0,05 | 1168 | 10 | 16 | 13 | 18 | 17 | 8 | 20 | E | SR100 | 20000 |
| 0,006 | 0,06 | 6 | 0,05 | 1168 | 10 | 16 | 13 | 18 | 17 | 8 | 20 | E | SR101 | 20000 |
| 0,01 | 0,1 | 5 | 0,08 | 1753 | 14 | 24 | 19 | 27 | 25 | 12 | 20 | E | SR102 | 20000 |
| 0,02 | 0,2 | 8 | 0,08 | 1753 | 14 | 24 | 19 | 27 | 25 | 12 | 20 | E | SR103 | 20000 |
| 0,03 | 0,3 | 6 | 0,10 | 2337 | 19 | 32 | 26 | 36 | 34 | 16 | 20 | E | SR104 | 20000 |
| 0,04 | 0,5 | 10 | 0,10 | 2337 | 19 | 32 | 26 | 36 | 34 | 16 | 20 | D | SR105 | 20000 |
| 0,06 | 0,6 | 10 | 0,13 | 2921 | 24 | 40 | 33 | 45 | 42 | 20 | 20 | A | SR106 | 20000 |
| 0,09 | 0,9 | 13 | 0,13 | 2921 | 24 | 40 | 33 | 45 | 42 | 20 | 20 | A | SR107 | 20000 |
| 0,12 | 1,2 | 13 | 0,15 | 3505 | 29 | 48 | 39 | 54 | 51 | 24 | 20 | A | SR108 | 20000 |
| 0,14 | 1,5 | 16 | 0,15 | 3505 | 29 | 48 | 39 | 54 | 51 | 24 | 20 | A | SR109 | 20000 |
| 0,23 | 2,3 | 14 | 0,20 | 4674 | 38 | 64 | 52 | 72 | 68 | 32 | 20 | A | SR110 | 20000 |
| 0,4 | 4 | 16 | 0,26 | 5842 | 48 | 79 | 65 | 90 | 85 | 40 | 20 | A | SR111 | 20000 |



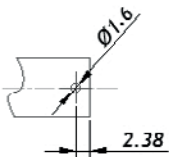
SYMBOLS

- W = Spring material width
- T = Spring material thickness
- L = Spring length (reference only)
- C = Distance between drum centres (min)
- D2 = Storage drum diameter
- D3 = Torque drum diameter
- D1 = Outside diameter of spring when fully wound on storage drum
- D4 = Outside diameter of spring when fully wound on torque drum

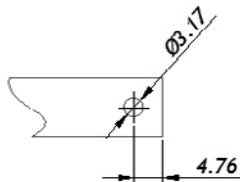
FACTORS AFFECTING DESIGN MOTOR SPRINGS

| TORQUE +/- 10% | | MATERIAL | | | D2 | D3 | D1 | D4 | C | I/D SPRING | WORKING | SPRING | SPRING | Average Fatigue Life Cycles |
|----------------|--------|----------|------|-------|-----|-----|-----|-----|-----|------------|---------|--------|--------|-----------------------------|
| NM | Kg/cms | W | T | L | mm | mm | mm | mm | mm | mm | TURNS | ENDS | No. | |
| 0,7 | 7 | 19 | 0,30 | 7010 | 57 | 95 | 78 | 109 | 102 | 48 | 20 | A | SR112 | 20000 |
| 0,9 | 9,3 | 25 | 0,30 | 7010 | 57 | 95 | 78 | 109 | 102 | 48 | 20 | C | SR113 | 20000 |
| 1,3 | 12,7 | 25 | 0,35 | 8179 | 67 | 111 | 90 | 128 | 118 | 55 | 20 | C | SR114 | 20000 |
| 1,8 | 18,7 | 51 | 0,30 | 7010 | 57 | 95 | 78 | 109 | 102 | 48 | 20 | F | SR115 | 20000 |
| 2,5 | 25,4 | 51 | 0,35 | 8179 | 67 | 111 | 90 | 127 | 118 | 55 | 20 | F | SR116 | 20000 |
| 3,1 | 31,6 | 38 | 0,46 | 10516 | 86 | 143 | 117 | 163 | 152 | 71 | 20 | F | SR117 | 20000 |
| 4,1 | 42,2 | 51 | 0,46 | 10516 | 86 | 143 | 117 | 163 | 152 | 71 | 20 | F | SR118 | 20000 |
| 6,2 | 63 | 51 | 0,56 | 12852 | 105 | 175 | 142 | 199 | 186 | 87 | 20 | K | SR119 | 20000 |
| 8 | 81,5 | 51 | 0,64 | 14605 | 119 | 198 | 163 | 266 | 222 | 99 | 20 | K | SR120 | 20000 |

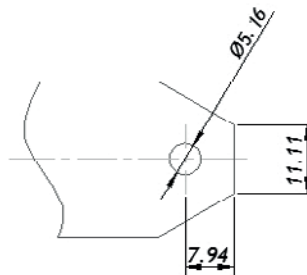
TYPE E EXTENSION



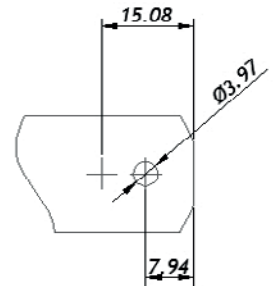
TYPE D EXTENSION



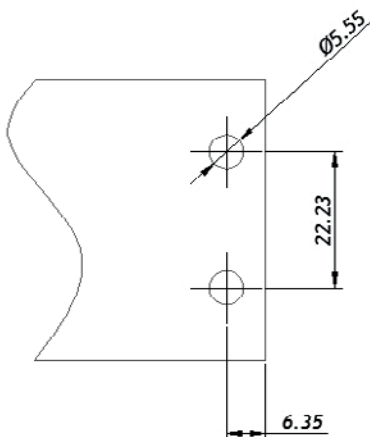
TYPE C EXTENSION



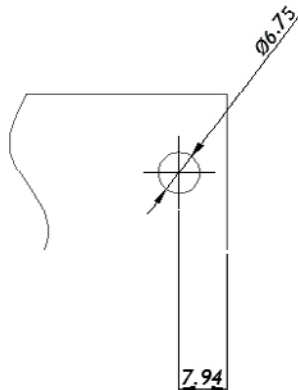
TYPE A EXTENSION



TYPE F EXTENSION



TYPE G EXTENSION



TYPE K EXTENSION

