



# Medium Load Die Spring-Red

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|                       |                  |                                                                                                                                               |                                                                                     |                                                                                     |
|-----------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Material</b>       | <b>Color</b>     | <b>Code</b>                                                                                                                                   |  |  |
| Equivalent to SWOSC-V | Red              | <b>SIMM</b>                                                                                                                                   |                                                                                     |                                                                                     |
| <b>Content</b>        | <b>Error</b>     |                                                                                                                                               |                                                                                     |                                                                                     |
| Load                  | ±10%             |                                                                                                                                               |                                                                                     |                                                                                     |
| Shape angle           | Below 2°         |                                                                                                                                               |                                                                                     |                                                                                     |
| <b>Free length</b>    | <b>Tolerance</b> | The method of load calculation: Load=Spring rate x compression<br>$N=N/mm \times Fmm(kgf=N \times 0.101972)$<br>Soild height is the reference |                                                                                     |                                                                                     |
| 10~50                 | ±0.5             |                                                                                                                                               |                                                                                     |                                                                                     |
| 55~350                | ±1%              |                                                                                                                                               |                                                                                     |                                                                                     |
| <b>Outer Dia.</b>     | <b>Tolerance</b> |                                                                                                                                               |                                                                                     |                                                                                     |
| 6~60                  | 0<br>-0.7        |                                                                                                                                               |                                                                                     |                                                                                     |
| 70                    | 0<br>-1.0        |                                                                                                                                               |                                                                                     |                                                                                     |

| Code No. |                 |                  | cycle life      |                          |                   | 1 million             |              | 0.5 million           |              | 0.3 million           |              |
|----------|-----------------|------------------|-----------------|--------------------------|-------------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|
| Code     | Outer Dia. (mm) | Free length (mm) | Inner Dia. (mm) | Spring rate N/mm(Kgf/mm) | Soild height (mm) | F=Lx25.6%             |              | F=Lx28.8%             |              | F=Lx32%               |              |
|          |                 |                  |                 |                          |                   | Max compression F(mm) | Load N (kgf) | Max compression F(mm) | Load N (kgf) | Max compression F(mm) | Load N (kgf) |
| SIMM     | 6               | 15               | 3               | 20.4(2.08)               | 9.8               | 3.8                   | 79<br>(8.0)  | 4.3                   | 88<br>(9.0)  | 4.8                   | 98<br>(10.0) |
|          |                 | 20               |                 | 15.3(1.56)               | 13.1              | 5.1                   |              | 5.8                   |              | 6.4                   |              |
|          |                 | 25               |                 | 12.3(1.25)               | 16.4              | 6.4                   |              | 7.2                   |              | 8                     |              |
|          |                 | 30               |                 | 10.2(1.04)               | 19.6              | 7.7                   |              | 8.6                   |              | 9.6                   |              |
|          |                 | 35               |                 | 8.8(0.89)                | 22.9              | 9                     |              | 10.1                  |              | 11.2                  |              |
|          |                 | 40               |                 | 7.7(0.78)                | 26.2              | 10.2                  |              | 11.5                  |              | 12.8                  |              |
|          |                 | 45               |                 | 6.8(0.69)                | 29.4              | 11.5                  |              | 13                    |              | 14.4                  |              |
|          |                 | 50               |                 | 6.1(0.63)                | 32.7              | 12.8                  |              | 14.4                  |              | 16                    |              |
|          |                 | 55               |                 | 5.6(0.57)                | 36                | 14.1                  |              | 15.8                  |              | 17.6                  |              |
|          |                 | 60               |                 | 5.1(0.52)                | 39.2              | 15.4                  |              | 17.3                  |              | 19.2                  |              |

| Code No. |                    |                     | cycle life         |                             |                      | 1 million                |                 | 0.5 million              |                 | 0.3 million              |                 |
|----------|--------------------|---------------------|--------------------|-----------------------------|----------------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|-----------------|
| Code     | Outer Dia.<br>(mm) | Free length<br>(mm) | Inner Dia.<br>(mm) | Spring rate<br>N/mm(Kgf/mm) | Soild height<br>(mm) | F=Lx25.6%                |                 | F=Lx28.8%                |                 | F=Lx32%                  |                 |
|          |                    |                     |                    |                             |                      | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) |
| SIMM     | 8                  | 10                  | 4                  | 42.9(4.38)                  | 6.6                  | 2.6                      | 110<br>(11.2)   | 2.9                      | 123<br>(12.6)   | 3.2                      | 137<br>(14.0)   |
|          |                    | 15                  |                    | 28.6(2.92)                  | 9.4                  | 3.8                      |                 | 4.3                      |                 | 4.8                      |                 |
|          |                    | 20                  |                    | 21.5(2.19)                  | 12.5                 | 5.1                      |                 | 5.8                      |                 | 6.4                      |                 |
|          |                    | 25                  |                    | 17.2(1.75)                  | 15.7                 | 6.4                      |                 | 7.2                      |                 | 8                        |                 |
|          |                    | 30                  |                    | 14.3(1.46)                  | 18.8                 | 7.7                      |                 | 8.6                      |                 | 9.6                      |                 |
|          |                    | 35                  |                    | 12.3(1.25)                  | 21.9                 | 9                        |                 | 10.1                     |                 | 11.2                     |                 |
|          |                    | 40                  |                    | 10.7(1.09)                  | 25                   | 10.2                     |                 | 11.5                     |                 | 12.8                     |                 |
|          |                    | 45                  |                    | 9.5(0.97)                   | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 8.6(0.88)                   | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 7.8(0.80)                   | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 7.2(0.73)                   | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 6.6(0.67)                   | 42.5                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 6.1(0.63)                   | 45.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 5.7(0.58)                   | 49.1                 | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 5.4(0.55)                   | 52.3                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
| SIMM     | 10                 | 10                  | 5                  | 61.3(6.25)                  | 6.6                  | 2.6                      | 157<br>(16.0)   | 2.9                      | 176<br>(18.0)   | 3.2                      | 196<br>(20.0)   |
|          |                    | 15                  |                    | 40.9(4.17)                  | 9.8                  | 3.8                      |                 | 4.3                      |                 | 4.8                      |                 |
|          |                    | 20                  |                    | 30.6(3.13)                  | 12.5                 | 5.1                      |                 | 5.8                      |                 | 6.4                      |                 |
|          |                    | 25                  |                    | 24.5(2.50)                  | 15.7                 | 6.4                      |                 | 7.2                      |                 | 8                        |                 |
|          |                    | 30                  |                    | 20.4(2.08)                  | 18.8                 | 7.7                      |                 | 8.6                      |                 | 9.6                      |                 |
|          |                    | 35                  |                    | 17.5(1.79)                  | 21.9                 | 9                        |                 | 10.1                     |                 | 11.2                     |                 |
|          |                    | 40                  |                    | 15.3(1.56)                  | 25                   | 10.2                     |                 | 11.5                     |                 | 12.8                     |                 |
|          |                    | 45                  |                    | 13.6(1.39)                  | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 12.3(1.25)                  | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 11.1(1.14)                  | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 10.2(1.04)                  | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 9.4(0.96)                   | 40.7                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 8.8(0.89)                   | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 8.2(0.83)                   | 47                   | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 7.7(0.78)                   | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
| 90       | 6.8(0.69)          | 56.3                | 23                 | 25.9                        | 28.8                 |                          |                 |                          |                 |                          |                 |

| Code No. |                    |                     | cycle life         |                             |                      | 1 million                |                 | 0.5 million              |                 | 0.3 million              |                 |
|----------|--------------------|---------------------|--------------------|-----------------------------|----------------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|-----------------|
| Code     | Outer Dia.<br>(mm) | Free length<br>(mm) | Inner Dia.<br>(mm) | Spring rate<br>N/mm(Kgf/mm) | Soild height<br>(mm) | F=Lx25.6%                |                 | F=Lx28.8%                |                 | F=Lx32%                  |                 |
|          |                    |                     |                    |                             |                      | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) |
| SIMM     | 12                 | 15                  | 6                  | 59.2(6.04)                  | 9.8                  | 3.8                      | 227<br>(23.0)   | 4.3                      | 256<br>(26.0)   | 4.8                      | 284<br>(29.0)   |
|          |                    | 20                  |                    | 44.4(4.53)                  | 12.5                 | 5.1                      |                 | 5.8                      |                 | 6.4                      |                 |
|          |                    | 25                  |                    | 35.5(3.63)                  | 15.7                 | 6.4                      |                 | 7.2                      |                 | 8                        |                 |
|          |                    | 30                  |                    | 29.6(3.02)                  | 18.8                 | 7.7                      |                 | 8.6                      |                 | 9.6                      |                 |
|          |                    | 35                  |                    | 25.4(2.59)                  | 21.9                 | 9                        |                 | 10.1                     |                 | 11.2                     |                 |
|          |                    | 40                  |                    | 22.2(2.27)                  | 25                   | 10.2                     |                 | 11.5                     |                 | 12.8                     |                 |
|          |                    | 45                  |                    | 19.7(2.01)                  | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 17.8(1.81)                  | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 16.2(1.65)                  | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 14.8(1.51)                  | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 13.7(1.39)                  | 40.7                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 12.7(1.29)                  | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 11.8(1.21)                  | 47                   | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 11.1(1.13)                  | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
|          |                    | 90                  |                    | 9.9(1.01)                   | 56.3                 | 23                       |                 | 25.9                     |                 | 28.8                     |                 |
| SIMM     | 14                 | 20                  | 7                  | 59.8(6.09)                  | 13.1                 | 5.1                      | 306<br>(31.0)   | 5.8                      | 345<br>(35.0)   | 6.4                      | 383<br>(39.0)   |
|          |                    | 25                  |                    | 47.8(4.88)                  | 15.7                 | 6.4                      |                 | 7.2                      |                 | 8                        |                 |
|          |                    | 30                  |                    | 39.8(4.06)                  | 18.8                 | 7.7                      |                 | 8.6                      |                 | 9.6                      |                 |
|          |                    | 35                  |                    | 34.1(3.48)                  | 21.9                 | 9                        |                 | 10.1                     |                 | 11.2                     |                 |
|          |                    | 40                  |                    | 29.9(3.05)                  | 25                   | 10.2                     |                 | 11.5                     |                 | 12.8                     |                 |
|          |                    | 45                  |                    | 26.6(2.71)                  | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 23.9(2.44)                  | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 21.7(2.22)                  | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 19.9(2.03)                  | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 18.4(1.88)                  | 40.7                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 17.1(1.74)                  | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 15.9(1.63)                  | 47                   | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 14.9(1.52)                  | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
|          |                    | 90                  |                    | 13.3(1.35)                  | 56.3                 | 23                       |                 | 25.9                     |                 | 28.8                     |                 |
|          |                    | 100                 |                    | 12.0(1.22)                  | 62.6                 | 25.6                     |                 | 28.8                     |                 | 32                       |                 |

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|----------|--------------------|---------------------|--------------------|-----------------------------|----------------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|-----------------|
| Code     | Outer Dia.<br>(mm) | Free length<br>(mm) | Inner Dia.<br>(mm) | Spring rate<br>N/mm(Kgf/mm) | Soild height<br>(mm) | F=Lx25.6%                |                 | F=Lx28.8%                |                 | F=Lx32%                  |                 |
|          |                    |                     |                    |                             |                      | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) |
| SIMM     | 16                 | 20                  | 8                  | 78.1 (7.97)                 | 13.1                 | 5.1                      | 400<br>(41.0)   | 5.8                      | 450<br>(46.0)   | 6.4                      | 500<br>(51.0)   |
|          |                    | 25                  |                    | 62.5 (6.38)                 | 15.7                 | 6.4                      |                 | 7.2                      |                 | 8                        |                 |
|          |                    | 30                  |                    | 52.1 (5.31)                 | 18.8                 | 7.7                      |                 | 8.6                      |                 | 9.6                      |                 |
|          |                    | 35                  |                    | 44.7 (4.55)                 | 21.9                 | 9                        |                 | 10.1                     |                 | 11.2                     |                 |
|          |                    | 40                  |                    | 39.1 (3.98)                 | 25                   | 10.2                     |                 | 11.5                     |                 | 12.8                     |                 |
|          |                    | 45                  |                    | 34.7 (3.54)                 | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 31.3 (3.19)                 | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 28.4 (2.90)                 | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 26.0 (2.66)                 | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 24.0 (2.45)                 | 40.7                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 22.3 (2.28)                 | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 20.8 (2.13)                 | 47                   | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 19.5 (1.99)                 | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
|          |                    | 90                  |                    | 17.4 (1.77)                 | 56.3                 | 23                       |                 | 25.9                     |                 | 28.8                     |                 |
|          |                    | 100                 |                    | 15.6 (1.59)                 | 62.6                 | 25.6                     |                 | 28.8                     |                 | 32                       |                 |
| SIMM     | 18                 | 20                  | 9                  | 99.6 (10.16)                | 13.1                 | 5.1                      | 510<br>(52.0)   | 5.8                      | 574<br>(58.5)   | 6.4                      | 637<br>(65.0)   |
|          |                    | 25                  |                    | 79.7 (8.13)                 | 15.7                 | 6.4                      |                 | 7.2                      |                 | 8                        |                 |
|          |                    | 30                  |                    | 66.4 (6.77)                 | 18.8                 | 7.7                      |                 | 8.6                      |                 | 9.6                      |                 |
|          |                    | 35                  |                    | 56.9 (5.80)                 | 21.9                 | 9                        |                 | 10.1                     |                 | 11.2                     |                 |
|          |                    | 40                  |                    | 49.8 (5.08)                 | 25                   | 10.2                     |                 | 11.5                     |                 | 12.8                     |                 |
|          |                    | 45                  |                    | 44.3 (4.51)                 | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 39.8 (4.06)                 | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 36.2 (3.69)                 | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 33.2 (3.39)                 | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 30.6 (3.13)                 | 40.7                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 28.5 (2.90)                 | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 26.6 (2.71)                 | 47                   | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 24.9 (2.54)                 | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
|          |                    | 90                  |                    | 22.1 (2.26)                 | 56.3                 | 23                       |                 | 25.9                     |                 | 28.8                     |                 |
|          |                    | 100                 |                    | 19.9 (2.03)                 | 62.6                 | 25.6                     |                 | 28.8                     |                 | 32                       |                 |

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|----------|--------------------|---------------------|--------------------|-----------------------------|----------------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|-----------------|
| Code     | Outer Dia.<br>(mm) | Free length<br>(mm) | Inner Dia.<br>(mm) | Spring rate<br>N/mm(Kgf/mm) | Soild height<br>(mm) | F=Lx25.6%                |                 | F=Lx28.8%                |                 | F=Lx32%                  |                 |
|          |                    |                     |                    |                             |                      | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) |
| SIMM     | 20                 | 20                  | 10                 | 122.6 (12.50)               | 13.1                 | 5.1                      | 628<br>(64.0)   | 5.8                      | 706<br>(72.0)   | 6.4                      | 784<br>(80.0)   |
|          |                    | 25                  |                    | 98.1 (10.00)                | 15.7                 | 6.4                      |                 | 7.2                      |                 | 8                        |                 |
|          |                    | 30                  |                    | 81.7 (8.33)                 | 18.8                 | 7.7                      |                 | 8.6                      |                 | 9.6                      |                 |
|          |                    | 35                  |                    | 70.0 (7.14)                 | 21.9                 | 9                        |                 | 10.1                     |                 | 11.2                     |                 |
|          |                    | 40                  |                    | 61.3 (6.25)                 | 25                   | 10.2                     |                 | 11.5                     |                 | 12.8                     |                 |
|          |                    | 45                  |                    | 54.5 (5.56)                 | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 49.0 (5.00)                 | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 44.6 (4.55)                 | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 40.9 (37.6)                 | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 37.7 (3.85)                 | 40.7                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 35.0 (3.57)                 | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 32.7 (3.33)                 | 47                   | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 30.6 (3.13)                 | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
|          |                    | 90                  |                    | 27.2 (2.78)                 | 56.3                 | 23                       |                 | 25.9                     |                 | 28.8                     |                 |
|          |                    | 100                 |                    | 24.5 (2.50)                 | 62.6                 | 25.6                     |                 | 28.8                     |                 | 32                       |                 |
|          |                    | 125                 |                    | 19.6 (2.00)                 | 78.3                 | 32                       |                 | 36                       |                 | 40                       |                 |
|          |                    | 150                 |                    | 16.3 (1.67)                 | 93.9                 | 38.4                     |                 | 43.2                     |                 | 48                       |                 |
| SIMM     | 22                 | 25                  | 11                 | 118.9 (12.13)               | 15.7                 | 6.4                      | 761<br>(77.6)   | 7.2                      | 856<br>(87.3)   | 8                        | 951<br>(97.0)   |
|          |                    | 30                  |                    | 99.1 (10.10)                | 18.8                 | 7.7                      |                 | 8.6                      |                 | 9.6                      |                 |
|          |                    | 35                  |                    | 84.9 (8.66)                 | 21.9                 | 9                        |                 | 10.1                     |                 | 11.2                     |                 |
|          |                    | 40                  |                    | 74.3 (7.58)                 | 25                   | 10.2                     |                 | 11.5                     |                 | 12.8                     |                 |
|          |                    | 45                  |                    | 66.1 (6.74)                 | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 59.5 (6.06)                 | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 54.0 (5.51)                 | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 49.5 (5.05)                 | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 45.7 (4.66)                 | 40.7                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 42.5 (4.33)                 | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 39.6 (4.04)                 | 47                   | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 37.2 (3.79)                 | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
|          |                    | 90                  |                    | 33.0 (3.37)                 | 56.3                 | 23                       |                 | 25.9                     |                 | 28.8                     |                 |
|          |                    | 100                 |                    | 29.7 (3.03)                 | 62.6                 | 25.6                     |                 | 28.8                     |                 | 32                       |                 |
|          |                    | 125                 |                    | 23.8 (2.43)                 | 78.3                 | 32                       |                 | 36                       |                 | 40                       |                 |
|          |                    | 150                 |                    | 19.8 (2.02)                 | 93.9                 | 38.4                     |                 | 43.2                     |                 | 48                       |                 |

| Code No. |                    |                     | cycle life         |                             |                      | 1 million        |                 | 0.5 million              |                 | 0.3 million              |                 |
|----------|--------------------|---------------------|--------------------|-----------------------------|----------------------|------------------|-----------------|--------------------------|-----------------|--------------------------|-----------------|
| Code     | Outer Dia.<br>(mm) | Free length<br>(mm) | Inner Dia.<br>(mm) | Spring rate<br>N/mm(Kgf/mm) | Soild height<br>(mm) | F=Lx25.6%        |                 | F=Lx28.8%                |                 | F=Lx32%                  |                 |
|          |                    |                     |                    |                             |                      | x compressionF(m | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) |
| SIMM     | 25                 | 25                  | 12.5               | 153.2 (15.63)               | 15.7                 | 981<br>(100.0)   | 1103<br>(112.5) | 1225<br>(125.0)          | 6.4             | 7.2                      | 8               |
|          |                    | 30                  |                    | 127.7 (13.02)               | 18.8                 |                  |                 |                          | 7.7             | 8.6                      | 9.6             |
|          |                    | 35                  |                    | 109.4 (11.16)               | 21.9                 |                  |                 |                          | 9               | 10.1                     | 11.2            |
|          |                    | 40                  |                    | 95.8 (9.77)                 | 25                   |                  |                 |                          | 10.2            | 11.5                     | 12.8            |
|          |                    | 45                  |                    | 85.1 (8.68)                 | 28.2                 |                  |                 |                          | 11.5            | 13                       | 14.4            |
|          |                    | 50                  |                    | 76.6 (7.81)                 | 31.3                 |                  |                 |                          | 12.8            | 14.4                     | 16              |
|          |                    | 55                  |                    | 69.6 (7.10)                 | 34.4                 |                  |                 |                          | 14.1            | 15.8                     | 17.6            |
|          |                    | 60                  |                    | 63.8 (6.51)                 | 37.6                 |                  |                 |                          | 15.4            | 17.3                     | 19.2            |
|          |                    | 65                  |                    | 58.9 (6.01)                 | 40.7                 |                  |                 |                          | 16.6            | 18.7                     | 20.8            |
|          |                    | 70                  |                    | 54.7 (5.58)                 | 43.8                 |                  |                 |                          | 17.9            | 20.2                     | 22.4            |
|          |                    | 75                  |                    | 51.1 (5.21)                 | 47                   |                  |                 |                          | 19.2            | 21.6                     | 24              |
|          |                    | 80                  |                    | 47.9 (4.88)                 | 50.1                 |                  |                 |                          | 20.5            | 23                       | 25.6            |
|          |                    | 90                  |                    | 42.6 (4.34)                 | 56.3                 |                  |                 |                          | 23              | 25.9                     | 28.8            |
|          |                    | 100                 |                    | 38.3 (3.91)                 | 62.6                 |                  |                 |                          | 25.6            | 28.8                     | 32              |
|          |                    | 125                 |                    | 30.6 (3.13)                 | 78.3                 |                  |                 |                          | 32              | 36                       | 40              |
|          |                    | 150                 |                    | 25.5 (2.60)                 | 93.9                 |                  |                 |                          | 38.4            | 43.2                     | 48              |
|          |                    | 175                 |                    | 21.9 (2.23)                 | 109.6                |                  |                 |                          | 44.8            | 50.4                     | 56              |
| SIMM     | 27                 | 25                  | 13.5               | 179.0 (18.25)               | 15.7                 | 1145<br>(116.8)  | 1288<br>(131.4) | 1431<br>(146.0)          | 6.4             | 7.2                      | 8               |
|          |                    | 30                  |                    | 149.1 (15.21)               | 18.8                 |                  |                 |                          | 7.7             | 8.6                      | 9.6             |
|          |                    | 35                  |                    | 127.8 (13.04)               | 21.9                 |                  |                 |                          | 9               | 10.1                     | 11.2            |
|          |                    | 40                  |                    | 111.9 (11.41)               | 25                   |                  |                 |                          | 10.2            | 11.5                     | 12.8            |
|          |                    | 45                  |                    | 99.4 (10.14)                | 28.2                 |                  |                 |                          | 11.5            | 13                       | 14.4            |
|          |                    | 50                  |                    | 89.5 (9.13)                 | 31.3                 |                  |                 |                          | 12.8            | 14.4                     | 16              |
|          |                    | 55                  |                    | 81.4 (8.30)                 | 34.4                 |                  |                 |                          | 14.1            | 15.8                     | 17.6            |
|          |                    | 60                  |                    | 74.6 (7.60)                 | 37.6                 |                  |                 |                          | 15.4            | 17.3                     | 19.2            |
|          |                    | 65                  |                    | 68.8 (7.02)                 | 40.7                 |                  |                 |                          | 16.6            | 18.7                     | 20.8            |
|          |                    | 70                  |                    | 63.9 (6.52)                 | 43.8                 |                  |                 |                          | 17.9            | 20.2                     | 22.4            |
|          |                    | 75                  |                    | 59.7 (6.08)                 | 47                   |                  |                 |                          | 19.2            | 21.6                     | 24              |
|          |                    | 80                  |                    | 55.9 (5.70)                 | 50.1                 |                  |                 |                          | 20.5            | 23                       | 25.6            |
|          |                    | 90                  |                    | 49.7 (5.07)                 | 56.3                 |                  |                 |                          | 23              | 25.9                     | 28.8            |
|          |                    | 100                 |                    | 44.7 (4.56)                 | 62.6                 |                  |                 |                          | 25.6            | 28.8                     | 32              |
|          |                    | 125                 |                    | 35.8 (3.65)                 | 78.3                 |                  |                 |                          | 32              | 36                       | 40              |
|          |                    | 150                 |                    | 29.8 (3.04)                 | 93.9                 |                  |                 |                          | 38.4            | 43.2                     | 48              |
|          |                    | 175                 |                    | 25.6 (2.61)                 | 109.6                |                  |                 |                          | 44.8            | 50.4                     | 56              |

| Code No. |                    |                     | cycle life         |                             |                      | 1 million                |                 | 0.5 million              |                 | 0.3 million              |                 |
|----------|--------------------|---------------------|--------------------|-----------------------------|----------------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|-----------------|
| Code     | Outer Dia.<br>(mm) | Free length<br>(mm) | Inner Dia.<br>(mm) | Spring rate<br>N/mm(Kgf/mm) | Soild height<br>(mm) | F=Lx25.6%                |                 | F=Lx28.8%                |                 | F=Lx32%                  |                 |
|          |                    |                     |                    |                             |                      | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) |
| SIMM     | 30                 | 25                  | 15                 | 220.6 (22.50)               | 15.7                 | 6.4                      | 1412<br>(144.0) | 7.2                      | 1589<br>(162.0) | 8                        | 1765<br>(180.0) |
|          |                    | 30                  |                    | 183.9 (18.75)               | 18.8                 | 7.7                      |                 | 8.6                      |                 | 9.6                      |                 |
|          |                    | 35                  |                    | 157.6 (16.07)               | 21.9                 | 9                        |                 | 10.1                     |                 | 11.2                     |                 |
|          |                    | 40                  |                    | 137.9 (14.06)               | 25                   | 10.2                     |                 | 11.5                     |                 | 12.8                     |                 |
|          |                    | 45                  |                    | 122.6 (12.50)               | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 110.3 (11.25)               | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 100.3 (10.23)               | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 91.9 (9.38)                 | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 84.9 (8.65)                 | 40.7                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 78.8 (8.04)                 | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 73.5 (7.50)                 | 47                   | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 69.0 (7.03)                 | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
|          |                    | 90                  |                    | 61.3 (6.25)                 | 56.3                 | 23                       |                 | 25.9                     |                 | 28.8                     |                 |
|          |                    | 100                 |                    | 55.2 (5.63)                 | 62.6                 | 25.6                     |                 | 28.8                     |                 | 32                       |                 |
|          |                    | 125                 |                    | 44.1 (4.50)                 | 78.3                 | 32                       |                 | 36                       |                 | 40                       |                 |
|          |                    | 150                 |                    | 36.8 (3.75)                 | 93.9                 | 38.4                     |                 | 43.2                     |                 | 48                       |                 |
|          |                    | 175                 |                    | 31.5 (3.21)                 | 109.6                | 44.8                     |                 | 50.4                     |                 | 56                       |                 |
| 200      | 27.6 (2.81)        | 125.2               | 51.2               | 57.6                        | 64                   |                          |                 |                          |                 |                          |                 |
| SIMM     | 35                 | 40                  | 17.5               | 187.7 (19.14)               | 25                   | 10.2                     | 1921<br>(196.0) | 11.5                     | 2161<br>(220.0) | 12.8                     | 2401<br>(245.0) |
|          |                    | 45                  |                    | 166.8 (17.01)               | 28.2                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 150.2 (15.31)               | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 136.5 (12.76)               | 34.4                 | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 125.1 (12.76)               | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 115.5 (11.78)               | 40.7                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 107.3 (10.94)               | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 100.1 (10.21)               | 47                   | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 93.9 (9.57)                 | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
|          |                    | 90                  |                    | 83.4 (8.51)                 | 56.3                 | 23                       |                 | 25.9                     |                 | 28.8                     |                 |
|          |                    | 100                 |                    | 75.1 (7.66)                 | 62.6                 | 25.6                     |                 | 28.8                     |                 | 32                       |                 |
|          |                    | 125                 |                    | 60.1 (6.13)                 | 78.3                 | 32                       |                 | 36                       |                 | 40                       |                 |
|          |                    | 150                 |                    | 50.1 (5.10)                 | 93.9                 | 38.4                     |                 | 43.2                     |                 | 48                       |                 |
|          |                    | 175                 |                    | 42.9 (10.19)                | 109.6                | 44.8                     |                 | 50.4                     |                 | 56                       |                 |
| 200      | 37.5 (3.83)        | 125.2               | 51.2               | 57.6                        | 64                   |                          |                 |                          |                 |                          |                 |

| Code No. |                    |                     | cycle life         |                             |                      | 1 million                |                 | 0.5 million              |                 | 0.3 million              |                 |
|----------|--------------------|---------------------|--------------------|-----------------------------|----------------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|-----------------|
| Code     | Outer Dia.<br>(mm) | Free length<br>(mm) | Inner Dia.<br>(mm) | Spring rate<br>N/mm(Kgf/mm) | Soild height<br>(mm) | F=Lx25.6%                |                 | F=Lx28.8%                |                 | F=Lx32%                  |                 |
|          |                    |                     |                    |                             |                      | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf) |
| SIMM     | 40                 | 40                  | 20                 | 245.2 (25.00)               | 25                   | 10.2                     | 2510<br>(256.0) | 11.5                     | 2824<br>(288.0) | 12.8                     | 3138<br>(320.0) |
|          |                    | 45                  |                    | 217.9 (22.22)               | 29.4                 | 11.5                     |                 | 13                       |                 | 14.4                     |                 |
|          |                    | 50                  |                    | 196.1 (20.00)               | 31.3                 | 12.8                     |                 | 14.4                     |                 | 16                       |                 |
|          |                    | 55                  |                    | 178.3 (18.18)               | 36                   | 14.1                     |                 | 15.8                     |                 | 17.6                     |                 |
|          |                    | 60                  |                    | 163.4 (16.67)               | 37.6                 | 15.4                     |                 | 17.3                     |                 | 19.2                     |                 |
|          |                    | 65                  |                    | 150.9 (15.38)               | 42.5                 | 16.6                     |                 | 18.7                     |                 | 20.8                     |                 |
|          |                    | 70                  |                    | 140.1 (14.29)               | 43.8                 | 17.9                     |                 | 20.2                     |                 | 22.4                     |                 |
|          |                    | 75                  |                    | 130.8 (13.33)               | 49.1                 | 19.2                     |                 | 21.6                     |                 | 24                       |                 |
|          |                    | 80                  |                    | 122.6 (12.50)               | 50.1                 | 20.5                     |                 | 23                       |                 | 25.6                     |                 |
|          |                    | 90                  |                    | 109.0 (11.11)               | 56.3                 | 23                       |                 | 25.9                     |                 | 28.8                     |                 |
|          |                    | 100                 |                    | 98.1 (10.00)                | 62.6                 | 25.6                     |                 | 28.8                     |                 | 32                       |                 |
|          |                    | 125                 |                    | 78.5 (8.00)                 | 78.3                 | 32                       |                 | 36                       |                 | 40                       |                 |
|          |                    | 150                 |                    | 65.4 (6.67)                 | 93.9                 | 38.4                     |                 | 43.2                     |                 | 48                       |                 |
|          |                    | 175                 |                    | 56.0 (5.71)                 | 109.6                | 44.8                     |                 | 50.4                     |                 | 56                       |                 |
|          |                    | 200                 |                    | 49.0 (5.00)                 | 125.5                | 51.2                     |                 | 57.6                     |                 | 64                       |                 |
|          |                    | 225                 |                    | 43.6 (4.44)                 | 141                  | 57.6                     |                 | 64.8                     |                 | 72                       |                 |
|          |                    | 250                 |                    | 39.2 (4.00)                 | 156.5                | 64                       |                 | 72                       |                 | 80                       |                 |
|          |                    | 275                 |                    | 35.7 (3.64)                 | 172                  | 70.4                     |                 | 79.2                     |                 | 88                       |                 |
|          |                    | 300                 |                    | 32.7 (3.33)                 | 196.2                | 76.8                     |                 | 86.4                     |                 | 96                       |                 |
|          |                    | SIMM                |                    | 50                          | 50                   | 25                       |                 | 306.5 (31.25)            |                 | 31.3                     |                 |
| 55       | 278.6 (28.41)      |                     | 34.4               |                             | 14.1                 |                          | 15.8            | 17.6                     |                 |                          |                 |
| 60       | 255.4 (26.04)      |                     | 37.6               |                             | 15.4                 |                          | 17.3            | 19.2                     |                 |                          |                 |
| 65       | 235.7 (24.04)      |                     | 40.7               |                             | 16.6                 |                          | 18.7            | 20.8                     |                 |                          |                 |
| 70       | 218.9 (22.32)      |                     | 43.8               |                             | 17.9                 |                          | 20.2            | 22.4                     |                 |                          |                 |
| 75       | 204.3 (20.83)      |                     | 47                 |                             | 19.2                 |                          | 21.6            | 24                       |                 |                          |                 |
| 80       | 191.5 (19.53)      |                     | 50.1               |                             | 20.5                 |                          | 23              | 25.6                     |                 |                          |                 |
| 90       | 170.3 (17.36)      |                     | 56.3               |                             | 23                   |                          | 25.9            | 28.8                     |                 |                          |                 |
| 100      | 153.2 (15.63)      |                     | 62.6               |                             | 25.6                 |                          | 28.8            | 32                       |                 |                          |                 |
| 125      | 122.6 (12.50)      |                     | 78.3               |                             | 32                   |                          | 36              | 40                       |                 |                          |                 |
| 150      | 102.2 (10.42)      |                     | 93.9               |                             | 38.4                 |                          | 43.2            | 48                       |                 |                          |                 |
| 175      | 87.6 (8.93)        |                     | 109.6              |                             | 44.8                 |                          | 50.4            | 56                       |                 |                          |                 |
| 200      | 76.6 (7.81)        |                     | 125.5              |                             | 51.2                 |                          | 57.6            | 64                       |                 |                          |                 |
| 225      | 68.1 (6.94)        |                     | 141                |                             | 57.6                 |                          | 64.8            | 72                       |                 |                          |                 |
| 250      | 61.3 (6.25)        |                     | 156.5              |                             | 64                   |                          | 72              | 80                       |                 |                          |                 |
| 275      | 55.7 (5.68)        |                     | 172                |                             | 70.4                 |                          | 79.2            | 88                       |                 |                          |                 |
| 350      | 43.8 (4.46)        |                     | 228.9              |                             | 89.6                 |                          | 100.8           | 112                      |                 |                          |                 |



| Code No. |                    |                     | cycle life         |                             |                      | 1 million                |                 | 0.5 million              |                   | 0.3 million              |                 |
|----------|--------------------|---------------------|--------------------|-----------------------------|----------------------|--------------------------|-----------------|--------------------------|-------------------|--------------------------|-----------------|
| Code     | Outer Dia.<br>(mm) | Free length<br>(mm) | Inner Dia.<br>(mm) | Spring rate<br>N/mm(Kgf/mm) | Soild height<br>(mm) | F=Lx25.6%                |                 | F=Lx28.8%                |                   | F=Lx32%                  |                 |
|          |                    |                     |                    |                             |                      | Max compression<br>F(mm) | Load<br>N (kgf) | Max compression<br>F(mm) | Load<br>N (kgf)   | Max compression<br>F(mm) | Load<br>N (kgf) |
| SIMM     | 60                 | 60                  | 30                 | 367.7 (37.50)               | 37.6                 | 15.4                     | 5645<br>(576.0) | 17.3                     | 6350<br>(648.0)   | 19.2                     | 7056<br>(720.0) |
|          |                    | 70                  |                    | 315.2 (32.14)               | 43.8                 | 17.9                     |                 | 20.2                     |                   | 22.4                     |                 |
|          |                    | 80                  |                    | 275.8 (28.13)               | 50.1                 | 20.5                     |                 | 23                       |                   | 25.6                     |                 |
|          |                    | 90                  |                    | 245.2 (25.00)               | 56.3                 | 23                       |                 | 25.9                     |                   | 28.8                     |                 |
|          |                    | 100                 |                    | 220.6 (22.50)               | 62.6                 | 25.6                     |                 | 28.8                     |                   | 32                       |                 |
|          |                    | 125                 |                    | 176.5 (18.00)               | 78.3                 | 32                       |                 | 36                       |                   | 40                       |                 |
|          |                    | 150                 |                    | 147.1 (15.00)               | 93.9                 | 38.4                     |                 | 43.2                     |                   | 48                       |                 |
|          |                    | 175                 |                    | 126.1 (12.86)               | 109.6                | 44.8                     |                 | 50.4                     |                   | 56                       |                 |
|          |                    | 200                 |                    | 110.3 (11.25)               | 125.2                | 51.2                     |                 | 57.6                     |                   | 64                       |                 |
|          |                    | 225                 |                    | 98.1 (10.00)                | 141                  | 57.6                     |                 | 64.8                     |                   | 72                       |                 |
|          |                    | 250                 |                    | 88.3 (9.00)                 | 156.5                | 64                       |                 | 72                       |                   | 80                       |                 |
|          |                    | 275                 |                    | 80.2 (8.18)                 | 172                  | 70.4                     |                 | 79.2                     |                   | 88                       |                 |
|          |                    | 300                 |                    | 73.5 (7.50)                 | 187.8                | 76.8                     |                 | 86.4                     |                   | 96                       |                 |
|          |                    | 350                 |                    | 63.0 (6.43)                 | 228.9                | 89.6                     |                 | 100.8                    |                   | 112                      |                 |
| SIMM     | 70                 | 70                  | 38.5               | 372.2 (38.0)                | 45.8                 | 17.9                     | 6664<br>(680.0) | 20.2                     | 7497<br>(764.5.0) | 22.4                     | 8330<br>(850.0) |
|          |                    | 80                  |                    | 325.6 (33.2)                | 52.3                 | 20.5                     |                 | 23                       |                   | 25.6                     |                 |
|          |                    | 90                  |                    | 289.9 (29.6)                | 58.9                 | 23                       |                 | 25.9                     |                   | 28.8                     |                 |
|          |                    | 100                 |                    | 260.5 (26.6)                | 65.4                 | 25.6                     |                 | 28.8                     |                   | 32                       |                 |
|          |                    | 125                 |                    | 208.4 (21.3)                | 81.8                 | 32                       |                 | 36                       |                   | 40                       |                 |
|          |                    | 150                 |                    | 173.7 (17.7)                | 98.1                 | 38.4                     |                 | 43.2                     |                   | 48                       |                 |
|          |                    | 175                 |                    | 148.9 (15.2)                | 114.5                | 44.8                     |                 | 50.4                     |                   | 56                       |                 |
|          |                    | 200                 |                    | 130.2 (13.3)                | 130.8                | 51.2                     |                 | 57.6                     |                   | 64                       |                 |
|          |                    | 250                 |                    | 104.2 (10.6)                | 163.5                | 64                       |                 | 72                       |                   | 80                       |                 |
|          |                    | 300                 |                    | 86.8 (8.9)                  | 196.2                | 76.8                     |                 | 86.4                     |                   | 96                       |                 |
|          |                    | 350                 |                    | 74.4 (7.6)                  | 228.9                | 89.6                     |                 | 100.8                    |                   | 112                      |                 |