

**警告**

ご利用の際は、以下の事項をお守りください。使用形態によっては、折損したばねが飛散するなどして、人身傷害を招く恐れがあります。

- ・TR、TYは、自由長×50.0%を超えるたわみでは使用しないでください。
- ・設置の際には、ばねを少しでも押している状態（初期圧がある状態）で使用してください。

② 規格表**TR**

規格表

TR

| 呼 称 | 外径 (mm) | 内径 (mm) | 自由長 (mm) | ばね定数 | | 自由長×40.0% 100万回 | | 自由長×45.0% 50万回 | | 自由長×50.0% 30万回 | |
|------------|------------|------------|-------------|--------|----------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | | | | (N/mm) | (kgf/mm) | たわみ (mm) | 荷 重 N [kgf] | たわみ (mm) | 荷 重 N [kgf] | たわみ (mm) | 荷 重 N [kgf] |
| TR 14.5×20 | 14.5 | 9.0 | 20 | 10.90 | { 1.11 } | 8.0 | 88.3 { 9.0 } | 9.0 | 98.1 { 10.0 } | 10.0 | 107.9 { 11.0 } |
| 25 | | | 25 | 8.72 | { 0.89 } | 10.0 | | 11.3 | | 12.5 | |
| 30 | | | 30 | 7.27 | { 0.74 } | 12.0 | | 13.5 | | 15.0 | |
| 35 | | | 35 | 6.23 | { 0.64 } | 14.0 | | 15.8 | | 17.5 | |
| 40 | | | 40 | 5.45 | { 0.56 } | 16.0 | | 18.0 | | 20.0 | |
| 45 | | | 45 | 4.84 | { 0.49 } | 18.0 | | 20.3 | | 22.5 | |
| 50 | | | 50 | 4.36 | { 0.44 } | 20.0 | | 22.5 | | 25.0 | |
| 55 | | | 55 | 3.96 | { 0.40 } | 22.0 | | 24.8 | | 27.5 | |
| 60 | | | 60 | 3.63 | { 0.37 } | 24.0 | | 27.0 | | 30.0 | |
| 65 | | | 65 | 3.35 | { 0.34 } | 26.0 | | 29.3 | | 32.5 | |
| 70 | | | 70 | 3.11 | { 0.32 } | 28.0 | | 31.5 | | 35.0 | |
| 75 | | | 75 | 2.91 | { 0.30 } | 30.0 | | 33.8 | | 37.5 | |
| 80 | | | 80 | 2.73 | { 0.28 } | 32.0 | | 36.0 | | 40.0 | |
| 90 | | | 90 | 2.42 | { 0.25 } | 36.0 | | 40.5 | | 45.0 | |
| 100 | | | 100 | 2.18 | { 0.22 } | 40.0 | | 45.0 | | 50.0 | |
| 125 | 125 | 1.74 | { 0.18 } | 50.0 | 56.3 | 62.5 | | | | | |
| TR 17×25 | 17.0 | 11.0 | 25 | 14.82 | { 1.51 } | 10.0 | 147.1 { 15.0 } | 11.3 | 166.7 { 17.0 } | 12.5 | 186.3 { 19.0 } |
| 30 | | | 30 | 12.35 | { 1.26 } | 12.0 | | 13.5 | | 15.0 | |
| 35 | | | 35 | 10.58 | { 1.08 } | 14.0 | | 15.8 | | 17.5 | |
| 40 | | | 40 | 9.26 | { 0.94 } | 16.0 | | 18.0 | | 20.0 | |
| 45 | | | 45 | 8.23 | { 0.84 } | 18.0 | | 20.3 | | 22.5 | |
| 50 | | | 50 | 7.41 | { 0.76 } | 20.0 | | 22.5 | | 25.0 | |
| 55 | | | 55 | 6.74 | { 0.69 } | 22.0 | | 24.8 | | 27.5 | |
| 60 | | | 60 | 6.17 | { 0.63 } | 24.0 | | 27.0 | | 30.0 | |
| 65 | | | 65 | 5.70 | { 0.58 } | 26.0 | | 29.3 | | 32.5 | |
| 70 | | | 70 | 5.29 | { 0.54 } | 28.0 | | 31.5 | | 35.0 | |
| 75 | | | 75 | 4.94 | { 0.50 } | 30.0 | | 33.8 | | 37.5 | |
| 80 | | | 80 | 4.63 | { 0.47 } | 32.0 | | 36.0 | | 40.0 | |
| 90 | | | 90 | 4.12 | { 0.42 } | 36.0 | | 40.5 | | 45.0 | |
| 100 | | | 100 | 3.70 | { 0.38 } | 40.0 | | 45.0 | | 50.0 | |
| 125 | | | 125 | 2.96 | { 0.30 } | 50.0 | | 56.3 | | 62.5 | |
| 150 | 150 | 2.47 | { 0.25 } | 60.0 | 67.5 | 75.0 | | | | | |

1N = 0.102 Kgf

荷重(N) = ばね定数(N/mm) × たわみ(mm)

| 呼 称 | 外径 (mm) | 内径 (mm) | 自由長 (mm) | ばね定数 | | 自由長×40.0% 100万回 | | 自由長×45.0% 50万回 | | 自由長×50.0% 30万回 | |
|------------|------------|------------|-------------|--------|----------|--------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | | | | (N/mm) | (kgf/mm) | たわみ (mm) | 荷 重 N [kgf] | たわみ (mm) | 荷 重 N [kgf] | たわみ (mm) | 荷 重 N [kgf] |
| TR 21 × 30 | 21.0 | 13.0 | 30 | 13.80 | { 1.41 } | 12.0 | 166.7 {17.0} | 13.5 | 186.3 {19.0} | 15.0 | 205.9 {21.0} |
| 35 | | | 35 | 11.83 | { 1.21 } | 14.0 | | 15.8 | | 17.5 | |
| 40 | | | 40 | 10.35 | { 1.06 } | 16.0 | | 18.0 | | 20.0 | |
| 45 | | | 45 | 9.20 | { 0.94 } | 18.0 | | 20.3 | | 22.5 | |
| 50 | | | 50 | 8.28 | { 0.84 } | 20.0 | | 22.5 | | 25.0 | |
| 55 | | | 55 | 7.53 | { 0.77 } | 22.0 | | 24.8 | | 27.5 | |
| 60 | | | 60 | 6.90 | { 0.70 } | 24.0 | | 27.0 | | 30.0 | |
| 65 | | | 65 | 6.37 | { 0.65 } | 26.0 | | 29.3 | | 32.5 | |
| 70 | | | 70 | 5.91 | { 0.60 } | 28.0 | | 31.5 | | 35.0 | |
| 75 | | | 75 | 5.52 | { 0.56 } | 30.0 | | 33.8 | | 37.5 | |
| 80 | | | 80 | 5.18 | { 0.53 } | 32.0 | | 36.0 | | 40.0 | |
| 90 | | | 90 | 4.60 | { 0.47 } | 36.0 | | 40.5 | | 45.0 | |
| 100 | | | 100 | 4.14 | { 0.42 } | 40.0 | | 45.0 | | 50.0 | |
| 125 | | | 125 | 3.31 | { 0.34 } | 50.0 | | 56.3 | | 62.5 | |
| 150 | | | 150 | 2.76 | { 0.28 } | 60.0 | | 67.5 | | 75.0 | |
| TR 26 × 30 | 26.0 | 16.5 | 30 | 26.87 | { 2.74 } | 12.0 | 323.6 {33.0} | 13.5 | 362.8 {37.0} | 15.0 | 402.1 {41.0} |
| 35 | | | 35 | 23.03 | { 2.35 } | 14.0 | | 15.8 | | 17.5 | |
| 40 | | | 40 | 20.16 | { 2.06 } | 16.0 | | 18.0 | | 20.0 | |
| 45 | | | 45 | 17.92 | { 1.83 } | 18.0 | | 20.3 | | 22.5 | |
| 50 | | | 50 | 16.12 | { 1.64 } | 20.0 | | 22.5 | | 25.0 | |
| 55 | | | 55 | 14.66 | { 1.49 } | 22.0 | | 24.8 | | 27.5 | |
| 60 | | | 60 | 13.44 | { 1.37 } | 24.0 | | 27.0 | | 30.0 | |
| 65 | | | 65 | 12.40 | { 1.26 } | 26.0 | | 29.3 | | 32.5 | |
| 70 | | | 70 | 11.52 | { 1.17 } | 28.0 | | 31.5 | | 35.0 | |
| 75 | | | 75 | 10.75 | { 1.10 } | 30.0 | | 33.8 | | 37.5 | |
| 80 | | | 80 | 10.08 | { 1.03 } | 32.0 | | 36.0 | | 40.0 | |
| 90 | | | 90 | 8.96 | { 0.91 } | 36.0 | | 40.5 | | 45.0 | |
| 100 | | | 100 | 8.06 | { 0.82 } | 40.0 | | 45.0 | | 50.0 | |
| 110 | | | 110 | 7.33 | { 0.75 } | 44.0 | | 49.5 | | 55.0 | |
| 125 | | | 125 | 6.45 | { 0.66 } | 50.0 | | 56.3 | | 62.5 | |
| 150 | | | 150 | 5.37 | { 0.55 } | 60.0 | | 67.5 | | 75.0 | |
| 175 | | | 175 | 4.61 | { 0.47 } | 70.0 | | 78.8 | | 87.5 | |
| 200 | 200 | 4.03 | { 0.41 } | 80.0 | 90.0 | 100.0 | | | | | |
| TR 32 × 40 | 32.0 | 21.0 | 40 | 25.06 | { 2.56 } | 16.0 | 402.1 {41.0} | 18.0 | 451.1 {46.0} | 20.0 | 500.1 {51.0} |
| 45 | | | 45 | 22.28 | { 2.27 } | 18.0 | | 20.3 | | 22.5 | |
| 50 | | | 50 | 20.05 | { 2.04 } | 20.0 | | 22.5 | | 25.0 | |
| 60 | | | 60 | 16.71 | { 1.70 } | 24.0 | | 27.0 | | 30.0 | |
| 70 | | | 70 | 14.32 | { 1.46 } | 28.0 | | 31.5 | | 35.0 | |
| 80 | | | 80 | 12.53 | { 1.28 } | 32.0 | | 36.0 | | 40.0 | |
| 90 | | | 90 | 11.14 | { 1.14 } | 36.0 | | 40.5 | | 45.0 | |
| 100 | | | 100 | 10.02 | { 1.02 } | 40.0 | | 45.0 | | 50.0 | |
| 110 | | | 110 | 9.11 | { 0.93 } | 44.0 | | 49.5 | | 55.0 | |
| 125 | | | 125 | 8.02 | { 0.82 } | 50.0 | | 56.3 | | 62.5 | |
| 150 | | | 150 | 6.68 | { 0.68 } | 60.0 | | 67.5 | | 75.0 | |
| 175 | | | 175 | 5.73 | { 0.58 } | 70.0 | | 78.8 | | 87.5 | |
| 200 | | | 200 | 5.01 | { 0.51 } | 80.0 | | 90.0 | | 100.0 | |
| 250 | | | 250 | 4.01 | { 0.41 } | 100.0 | | 112.5 | | 125.0 | |
| 300 | | | 300 | 3.34 | { 0.34 } | 120.0 | | 135.0 | | 150.0 | |

1N = 0.102 Kgf

荷重(N) = ばね定数(N/mm) × たわみ(mm)

| 呼 称 | 外径 (mm) | 内径 (mm) | 自由長 (mm) | ばね定数 | | 自由長×40.0% 100万回 | | 自由長×45.0% 50万回 | | 自由長×50.0% 30万回 | |
|------------|------------|------------|-------------|--------|----------|--------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | | | | (N/mm) | (kgf/mm) | たわみ (mm) | 荷 重 N {kgf} | たわみ (mm) | 荷 重 N {kgf} | たわみ (mm) | 荷 重 N {kgf} |
| | | | | | | | | | | | |
| TR 39 × 40 | 39.0 | 26.0 | 40 | 27.24 | { 2.78 } | 16.0 | 431.5 {44.0} | 18.0 | 490.3 {50.0} | 20.0 | 539.4 {55.0} |
| 45 | | | 45 | 24.21 | { 2.47 } | 18.0 | | 20.3 | | 22.5 | |
| 50 | | | 50 | 21.79 | { 2.22 } | 20.0 | | 22.5 | | 25.0 | |
| 60 | | | 60 | 18.16 | { 1.85 } | 24.0 | | 27.0 | | 30.0 | |
| 70 | | | 70 | 15.57 | { 1.59 } | 28.0 | | 31.5 | | 35.0 | |
| 80 | | | 80 | 13.62 | { 1.39 } | 32.0 | | 36.0 | | 40.0 | |
| 90 | | | 90 | 12.11 | { 1.23 } | 36.0 | | 40.5 | | 45.0 | |
| 100 | | | 100 | 10.90 | { 1.11 } | 40.0 | | 45.0 | | 50.0 | |
| 110 | | | 110 | 9.91 | { 1.01 } | 44.0 | | 49.5 | | 55.0 | |
| 125 | | | 125 | 8.72 | { 0.89 } | 50.0 | | 56.3 | | 62.5 | |
| 150 | | | 150 | 7.26 | { 0.74 } | 60.0 | | 67.5 | | 75.0 | |
| 175 | | | 175 | 6.23 | { 0.63 } | 70.0 | | 78.8 | | 87.5 | |
| 200 | | | 200 | 5.45 | { 0.56 } | 80.0 | | 90.0 | | 100.0 | |
| 250 | | | 250 | 4.36 | { 0.44 } | 100.0 | | 112.5 | | 125.0 | |
| 300 | | | 300 | 3.63 | { 0.37 } | 120.0 | | 135.0 | | 150.0 | |
| TR 46 × 50 | | | 46.0 | 32.0 | 50 | 24.41 | | { 2.49 } | | 20.0 | |
| 60 | 60 | 20.34 | | | { 2.07 } | 24.0 | 27.0 | 30.0 | | | |
| 70 | 70 | 17.43 | | | { 1.78 } | 28.0 | 31.5 | 35.0 | | | |
| 80 | 80 | 15.26 | | | { 1.56 } | 32.0 | 36.0 | 40.0 | | | |
| 90 | 90 | 13.56 | | | { 1.38 } | 36.0 | 40.5 | 45.0 | | | |
| 100 | 100 | 12.20 | | | { 1.24 } | 40.0 | 45.0 | 50.0 | | | |
| 110 | 110 | 11.09 | | | { 1.13 } | 44.0 | 49.5 | 55.0 | | | |
| 125 | 125 | 9.76 | | | { 1.00 } | 50.0 | 56.3 | 62.5 | | | |
| 150 | 150 | 8.14 | | | { 0.83 } | 60.0 | 67.5 | 75.0 | | | |
| 175 | 175 | 6.97 | | | { 0.71 } | 70.0 | 78.8 | 87.5 | | | |
| 200 | 200 | 6.10 | | | { 0.62 } | 80.0 | 90.0 | 100.0 | | | |
| 250 | 250 | 4.88 | | | { 0.50 } | 100.0 | 112.5 | 125.0 | | | |
| 300 | 300 | 4.07 | | | { 0.41 } | 120.0 | 135.0 | 150.0 | | | |

1N = 0.102 Kgf

荷重 (N) = ばね定数 (N/mm) × たわみ (mm)