

Tank Guerilla [http://www.ansgear.com/Guerrilla\\_Air\\_Carbon\\_Fiber\\_Tri\\_Label\\_Compressed\\_Ai\\_p/ysnguerrillactanke2tri-48.htm](http://www.ansgear.com/Guerrilla_Air_Carbon_Fiber_Tri_Label_Compressed_Ai_p/ysnguerrillactanke2tri-48.htm)  
 Pressure 4500 psi weight 1.75 lbs  
 Volume 48 in^3 length x dia. 9 x 3.7 inches

The data collected showed that Americans, on average, took **5,117** steps a day

**Avg Daily Steps** **5,200** [http://weil.blogs.nytimes.com/2010/10/19/the-pedometer-test-americans-take-fewer-steps/?\\_php=true&\\_type=blogs&\\_r=0](http://weil.blogs.nytimes.com/2010/10/19/the-pedometer-test-americans-take-fewer-steps/?_php=true&_type=blogs&_r=0)  
**Target Steps** 3000 Assume 6000 steps per day/2 feet  
**Muscle**

| Torque required | Lever arm | lb-in/N-m | Force required* | ROBO ant force |
|-----------------|-----------|-----------|-----------------|----------------|
| N*m             | in        | lb-in/N-m | lb              | lb             |
| 4               | 3         | 8.9       | <b>12</b>       | 30             |

Note: The ROBO Ant team reported their muscles exceeded 30lbs of force

\*This was a rough initial calculation, please refer to the ankle torque feasibility test

| Row | Pressure | Initial Length | Deflection | I. dia. (deflated) | I. dia. (inflated) | Vt @ Press. | V <sub>Muscle</sub> | Vt/V <sub>Muscle</sub> | Corrected  |
|-----|----------|----------------|------------|--------------------|--------------------|-------------|---------------------|------------------------|------------|
| #   | psi      | in             | in         | in                 | in                 | in^3        | in^3                | steps                  | steps*108% |
| 1   | 60       | 8              | 1.3        | 0.13               | 0.4                | 3600        | 3.00                | <b>1200</b>            | 1200       |
| 2   | 60       | 7.75           | 1.3        | 0.13               | 0.4                | 3600        | 2.89                | <b>1247</b>            | 1247       |
| 3   | 60       | 7.5            | 1.3        | 0.13               | 0.4                | 3600        | 2.77                | <b>1298</b>            | 1298       |
| 4   | 60       | 7.25           | 1.3        | 0.13               | 0.4                | 3600        | 2.66                | <b>1353</b>            | 1353       |
| 5   | 60       | 7              | 1.3        | 0.13               | 0.4                | 3600        | 2.55                | <b>1414</b>            | 1414       |
| 6   | 60       | 6.75           | 1.3        | 0.13               | 0.4                | 3600        | 2.43                | <b>1479</b>            | 1479       |
| 7   | 60       | 6.5            | 1.3        | 0.13               | 0.4                | 3600        | 2.32                | <b>1552</b>            | 1552       |
| 8   | 60       | 6.25           | 1.3        | 0.13               | 0.4                | 3600        | 2.21                | <b>1632</b>            | 1632       |
| 9   | 60       | 6              | 1.3        | 0.13               | 0.4                | 3600        | 2.09                | <b>1720</b>            | 1720       |
| 10  | 60       | 5.75           | 1.3        | 0.13               | 0.4                | 3600        | 1.98                | <b>1818</b>            | 1818       |
| 11  | 60       | 5.5            | 1.3        | 0.13               | 0.4                | 3600        | 1.87                | <b>1929</b>            | 1929       |
| 12  | 60       | 5.25           | 1.3        | 0.13               | 0.4                | 3600        | 1.75                | <b>2054</b>            | 2054       |
| 13  | 60       | 5              | 1.3        | 0.13               | 0.4                | 3600        | 1.64                | <b>2196</b>            | 2196       |
| 14  | 60       | 4.75           | 1.3        | 0.13               | 0.4                | 3600        | 1.53                | <b>2359</b>            | 2359       |
| 15  | 60       | 4.5            | 1.3        | 0.13               | 0.4                | 3600        | 1.41                | <b>2548</b>            | 2548       |
| 16  | 60       | 4.25           | 1.3        | 0.13               | 0.4                | 3600        | 1.30                | <b>2771</b>            | 2771       |
| 17  | 60       | 4              | 1.3        | 0.13               | 0.4                | 3600        | 1.19                | <b>3036</b>            | 3036       |
| 18  | 60       | 3.75           | 1.3        | 0.13               | 0.4                | 3600        | 1.07                | <b>3356</b>            | 3356       |
| 19  | 60       | 3.5            | 1.3        | 0.13               | 0.4                | 3600        | 0.96                | <b>3753</b>            | 3753       |
| 20  | 60       | 3.25           | 1.3        | 0.13               | 0.4                | 3600        | 0.85                | <b>4256</b>            | 4256       |
| 21  | 60       | 3              | 1.3        | 0.13               | 0.4                | 3600        | 0.73                | <b>4915</b>            | 4915       |
| 22  | 60       | 2.75           | 1.3        | 0.13               | 0.4                | 3600        | 0.62                | <b>5816</b>            | 5816       |
| 23  | 60       | 2.5            | 1.3        | 0.13               | 0.4                | 3600        | 0.51                | <b>7120</b>            | 7120       |
| 24  | 60       | 2.25           | 1.3        | 0.13               | 0.4                | 3600        | 0.39                | <b>9179</b>            | 9179       |

