

Mechbox.com

(The old spring guide chart)

The new URL

<http://www.mechbox.com/data/airsoft-spring-comparison-chart>

NOTICE

This airsoft spring guide is better used as a reference guide to compare relative performance between spring types and manufacturer than an ACTUAL speed/performance chart. The values used in this chart were NOT tested by us at Mechbox.com. The performance numbers in this article are based on data compiled by Brian at Airsoftcanada.com and reused with his permission.

From personal experience, I would highly recommend NOT to install springs any higher than the Systema M120, PDI 170% or Guarder SP120 unless you are prepared to replace your gear set on a regular interval and/or spend lots of cash to modify nearly every component INCLUDING the actual mechbox itself. *-6mm*

All springs tested were in brand new condition

Your results will vary from these published below. Different upgrades will provide different results. The data contained in this chart should only be used as a reference and as a comparison between springs. Not as a precise predictor of your results. Details regarding the testing conditions and other test notes are listed in the fine print below.

Less than 350 FPS Chart

| BRAND | MODEL | FPS |
|------------|--------------|---------|
| Angel | 130% 95-110m | 340.745 |
| KM | 100M | 340.56 |
| Prometheus | MS100SP | 340.185 |
| Guarder | SP90 | 339.15 |
| King Arms | M100 | 336.6 |
| PDI | 120% | 327.95 |
| Angel | 120# 85-95m | 327.655 |
| King Arms | M90 | 327* |
| PGC | M80 | 325.2 |
| KM | 90M | 315.05 |
| Prometheus | MS90P | 312.725 |
| Guarder | SP85 | 308.07 |
| Systema | 1 Joule | 307.435 |

This chart illustrates the springs made by a variety of manufacturers that typically produce velocities below 350 feet per second.

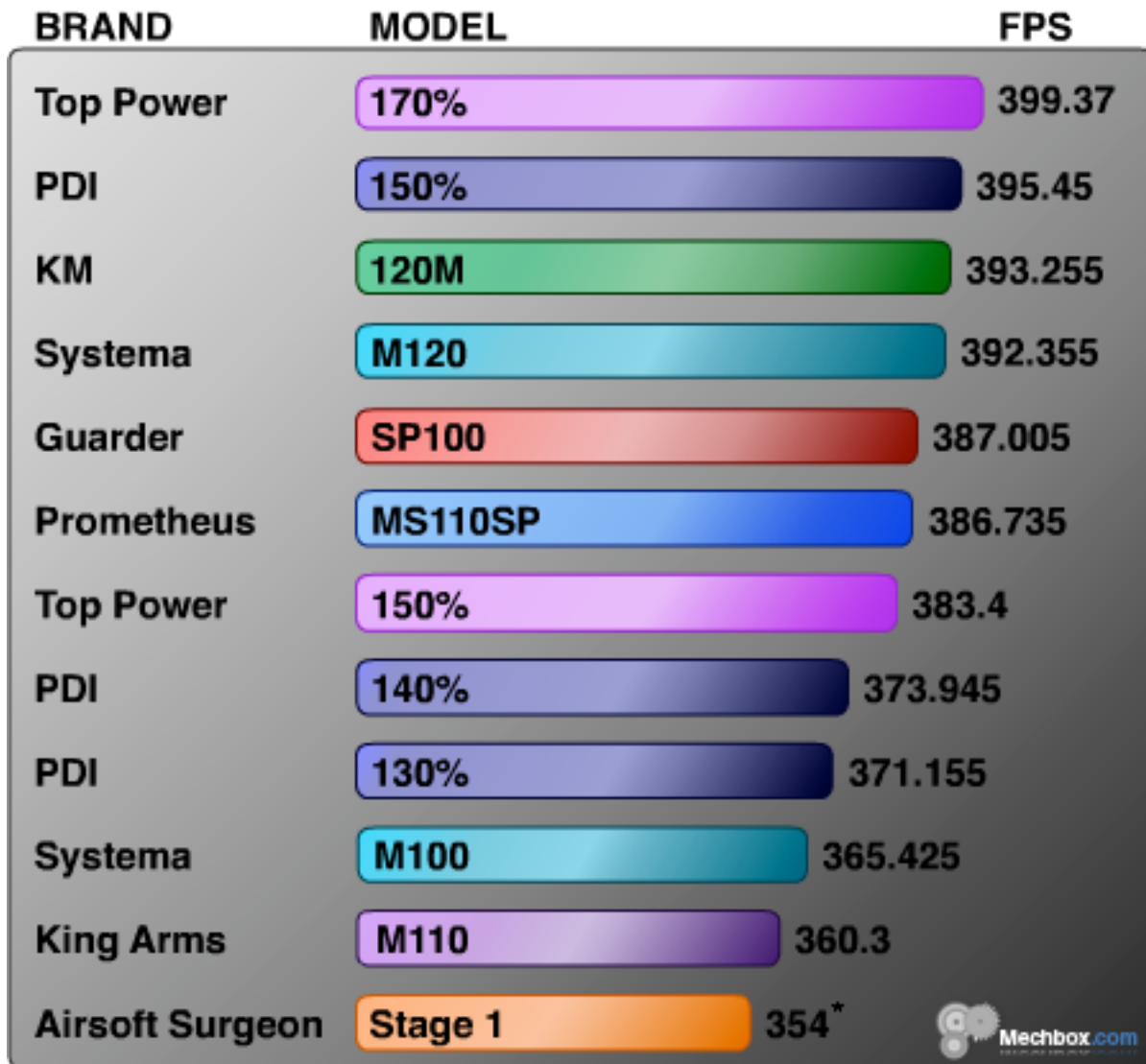
While it's not a guarantee that your mechbox will never break or crack when upgrading to stronger springs, it's very unlikely that you will need to upgrade a reinforced mechbox, torque up gears or motors when using any of these springs rated below 350 FPS.

It is ALWAYS a good idea to reshim your gears and either add metal bushings or check the quality of the bushings in your AEG when installing an upgraded spring.

Suggested improvements

- Metal bushings (Tokyo Marui owners, don't skip this part - it's worth the small investment!)

Less than 400 FPS Chart



This chart illustrates the springs made by a variety of manufacturers that typically produce velocities below 400 feet per second.

Upgrading the mechbox with springs that create between 350 FPS and 400 FPS will increase stresses on most AEG stock components. In most cases it is not required to upgrade more than the bushings. It is still a good idea to reshim your gears while adding bushings or confirm you have metal bushings.

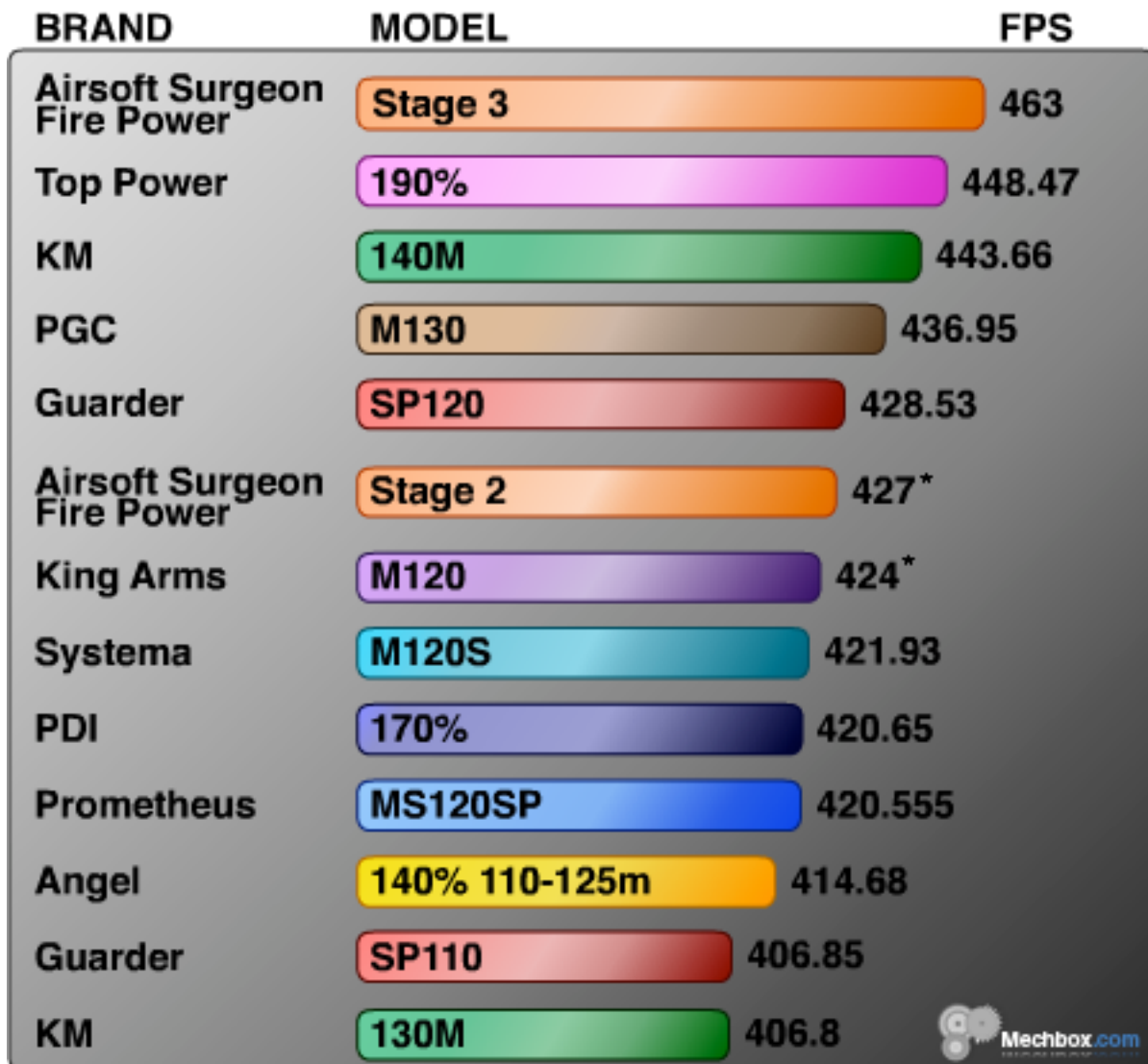
For most players (myself included), this is the sweet spot for creating an AEG with good shooting distance and solid reliability. I'm not going to endorse one spring over

another, but I typically stick with something in the PDI 150% or Systema M120 range. Guarder and KM also produce fairly consistent and high quality parts and are worth a look.

Suggested improvements

- Reinforced gears (especially for Tokyo Marui owners)
- Metal bushings

Over 400 FPS Chart



This chart illustrates the springs made by a variety of manufacturers that typically produce velocities over 400 feet per second.

Upgrading the mechbox with springs that create more than 400 feet per second results can create very high pressures and stresses on most AEG stock components. It's highly recommended that the following items also be upgraded when considering an upgraded spring at this level.

Recommended improvements

- Reinforced gearbox (the actual metal case)

- Reinforced gears (especially for Tokyo Marui owners)
- Metal bushings
- Torque Up gears (recommended)
- Higher mAh and/or voltage battery



CAUTION

It's worth noting that any time you are upgrading AEGs to these levels, you significantly increase the chances for future failures and reduced reliability. AEGs can be upgraded to levels beyond 400 FPS with reliability, but great care and expense often comes along with upgrades in the territory of 450 FPS or higher.

Credits

How these springs were tested

These springs were tested on a using the following equipment, upgrades and conditions:

AEG: Tokyo Marui P90 TR

BB: Excel 0.20g

Piston: Systema Red Polycarbonate Piston (modified)

Piston Head: Systema Aluminum w/ Bearings

Cylinder Head: Prometheus

Cylinder: KM TN Taper

Nozzle: Systema

Spring Guide: Prometheus v2 w/ Bearings

Inner Barrel: SystemA 6.04mm BS (335mm)

Chronograph: Shooting Chrony F-1

Average Temperature: 24.54° C (76° F)

Hop Up: KM Triple Camber RH 55 set OFF

Note: * Velocities indicated with an asterisk were derived by obtaining velocities using Airsoft Elite 0.25g BBs through a Guarder Optical Chrony, converting the result to Joules, and then applying that work (J) amount to 0.20g for a calculated result.

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The data used to create these charts was created with permission by the original author (by Brian Wong, aka ILLusion) at <http://www.airsoftcanada.com> (Thank you Brian!