M-SPRING CONSTANT MAGNETIC SPRING
GRAVITY COMPENSATION SYSTEM

- Compact Design
- Built-German Plastic Bearing
- Full travel range constant force output
- Constant force range: 20N-110N
- No external power supply, high safety factor
- Special specification requirements can be customized

When the vertical linear motor used to keep the device in the absence of external circumstances, the traditional approach is often a large margin by selecting thrust linear motor or increase common spring (including pneumatic springs, hydraulic springs, etc.) to compensate for the additional load caused by gravity. This will not only increase the cost of the system, the same load rise and large decline in real output power difference when needed thrust fluctuations in the system increase, the speed limited, reducing the positioning accuracy, settling time of the extension and the loss of high-speed response performance.

Elshin’s suppliers are well known in high performance magnetic correlation areas (including special motors, magnetic encoders, magnetic springs, etc). This is because of the deep understanding of material and magnetic field in the new design ideas, so that we can provide customers with a variety of customized solutions to meet the specific needs of customers in different areas.

M-Spring constant magnetic springs with different traditional mechanical spring can provide a constant thrust or pull the entire travel range. The series uses innovative circuit design; a magnetic field is achieved through compensation and counteracts gravity, and the structure is simple, containing only the stator and mover components.

M-Spring constant magnetic springs are completely passive device, without any external energy supply, such as hydraulic, pneumatic, power, etc., that constant output can be achieved. In systems that require high safety factor, or need constant thrust stretching occasions is the best choice, including the need for a smooth stretch and recovery, balance mechanism applied tensile load applications, gravity compensation and offset vertical maintained. Thus M-Spring constant magnetic force of the spring can be widely used in the aerospace and defence, medical equipment, industrial automation, automotive, machine tools, numerical control system, damping system.

In some areas, the magnetic force of the spring needs to change as spring tension force reduction is a negative slope (gradient) of the spring; as stretching, force increase is a positive slope spring. We can help customers design a variety of magnetic gradient springs wherein you can significantly shorten design and production cycles, high quality and at a reasonable price.

<table>
<thead>
<tr>
<th>Model and parameter</th>
<th>ELM-MS-16</th>
<th>ELM-MS-25</th>
<th>ELM-MS-32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stator Diameter(mm)</td>
<td>16</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Mover Diameter(mm)</td>
<td>23</td>
<td>33</td>
<td>40</td>
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<tr>
<td>Force (N)</td>
<td>10-20</td>
<td>20-65</td>
<td>65-110</td>
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</tbody>
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