



Prototypes in 24 hours or less

Mass Production in weeks!

Products

- Offloading
- Extra Stretch Extension Springs
- Retractable Tool Lanyards/Tethers
- Shock Cords
- Retraction Springs for Hydraulic Pumps
- Seismic Springs
- Premium Tie-Down/Retaining Straps
- Hose Guide Bungee

Services

- 24-hour Prototyping
- In-house full product development
- Fully customizable
- On Site Testing/Quality Control
- Pick – Pack – Ship
- Small assemblies and unique packaging

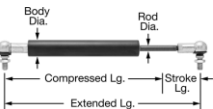
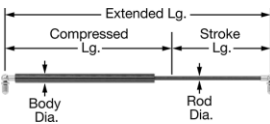
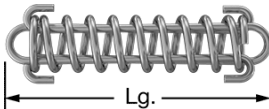
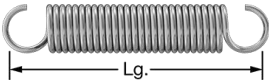
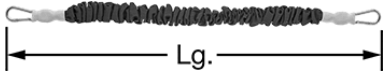
Customers



Aerospace Industry
MM Systems
NHK Automotive
Melitron
United Airlines
Diamond Mowers
Dillon Supply
Floyd's Kubota

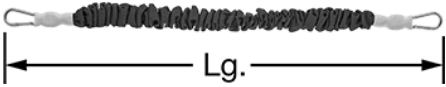
Comparative Analysis of Extra Stretch Elastic Extension Springs to Products in Similar Categories

Category	Reference	Base length range	Typical Stretch Ratios	Min-Max Tension	Safety Stretch Stop	Flexible, Semi Flexible, Rigid	Different custom color options	Small Volume Quick Customization	Multiple different end connect options	Permanent deformation if overstretched	Costs	Deteriorate quickly in sunlight
Extra Stretch Extension Springs	https://www.mcmaster.com/products/extension-springs/extra-stretch-extension-springs/	8 inches to 100 feet	3x with 4x potential	3 to 150 lbs	Yes	Flexible	Yes	Yes	Dozens of options	No	Medium	No
Adjustable Length Springs / Tie Downs	New category	Elastic Base length 8 inches to 100ft. Overall length 200 yards	3x with 4x potential	3 to 150 lbs	Yes	Flexible	Yes	Yes	Dozens of options	No	Medium	NO
Metal Hook end Extension Springs	https://www.mcmaster.com/products/extension-springs/extension-springs-with-hook-ends-7/	0.25 to 20 inches	< 2x Mostly < 1.6x	0.3 to 250	No	Semi	No	No	2 or 3	Yes	Low	No
Overload Protection Extension Springs	https://www.mcmaster.com/products/extension-springs/overload-prevention-extension-springs-6/	4 to 16 inches	< 1.5x	5 to 330 lbs	Yes	Rigid	No	No	1 end style	No	Medium	No
Counter Balancers	https://www.mcmaster.com/products/counterbalancers/	20 inches	7 feet Max	8 to 250 lbs	Yes	Semi	Mo	No	No	No	Very High	No
Tool Tethering / lanyards	https://www.mcmaster.com/products/tool-tethers/too-lanvards-5/	31 to 38 inches	Minimal	5 to 15 lbs	Yel	flexible	No	No	No	No	Medium	No
Abrasive Resistance Elastic Tie Downs	https://www.mcmaster.com/products/elastic-tie-downs/abrasion-resistant-elastic-tie-downs-5/	8 to 72 inches	< 1.7x	Low	Yes	Flexible	Yes	Yes	Yes	Yes	Low	Yes
Rubber all weather tie downs	https://www.mcmaster.com/products/elastic-tie-downs/all-weather-epdm-rubber-tie-downs-5/	7 to 45 inches	< 1.6x	Low	No	Flexible	No	No	No	Yes		Yes
Gas Springs	https://www.mcmaster.com/products/gas-springs/	5 to 21 inches	< 1.6x	350 lbs	Yes	Rigid	No	No	No	No	Medium	No
Shock Absorbers	https://www.mcmaster.com/products/shock-absorbers/linear-speed-limiters-4/	4 to 18 inches	< 1.3x	< 720 lbs	Yes	Rigid	No	No	No	No	Med-High	No



Extra Stretch Extension Springs

<https://www.mcmaster.com/products/extension-springs/extra-stretch-extension-springs/>



Other Categories for Extra Stretch Elastic Extension Springs

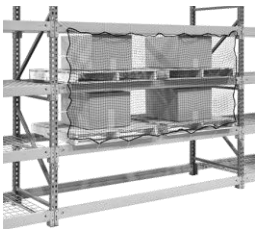
Elastic Tie Down

<https://www.mcmaster.com/products/elastic-tie-downs/>



Pallet Rack Safety

<https://www.mcmaster.com/products/pallet-racks/rack-and-conveyor-netting/>



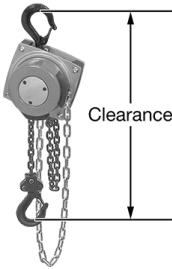
Winch

<https://www.mcmaster.com/products/winches/>



Lifts

<https://www.mcmaster.com/products/lifts/>



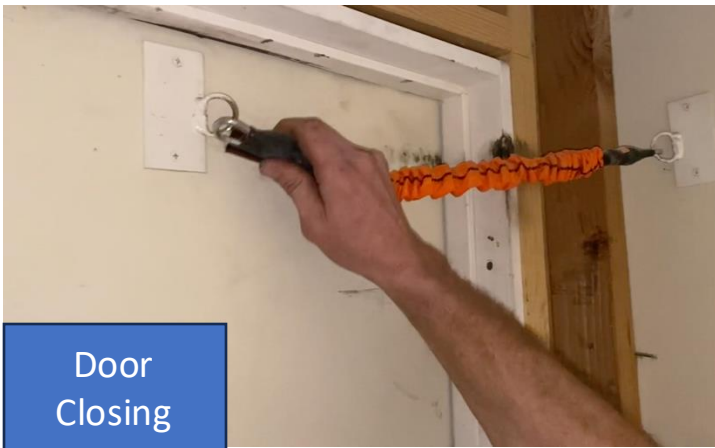
Retractors

<https://www.mcmaster.com/products/retractors/>



Retractable Barriers

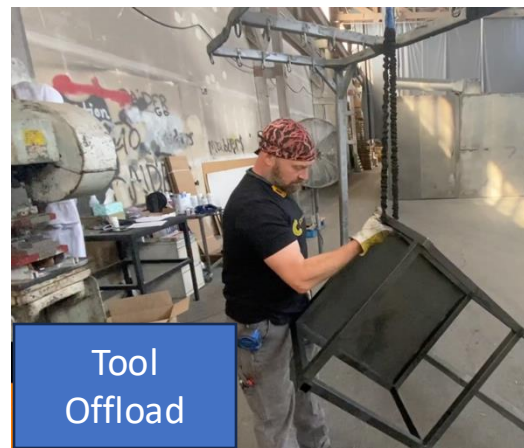
<https://www.mcmaster.com/products/retractable-barriers/>



Door
Closing



Lift Assist



Tool
Offload



Reduce
Cycle Time

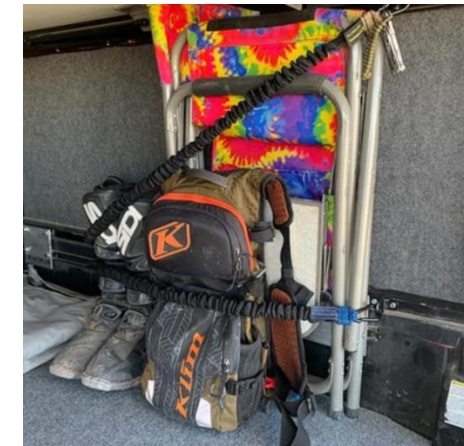


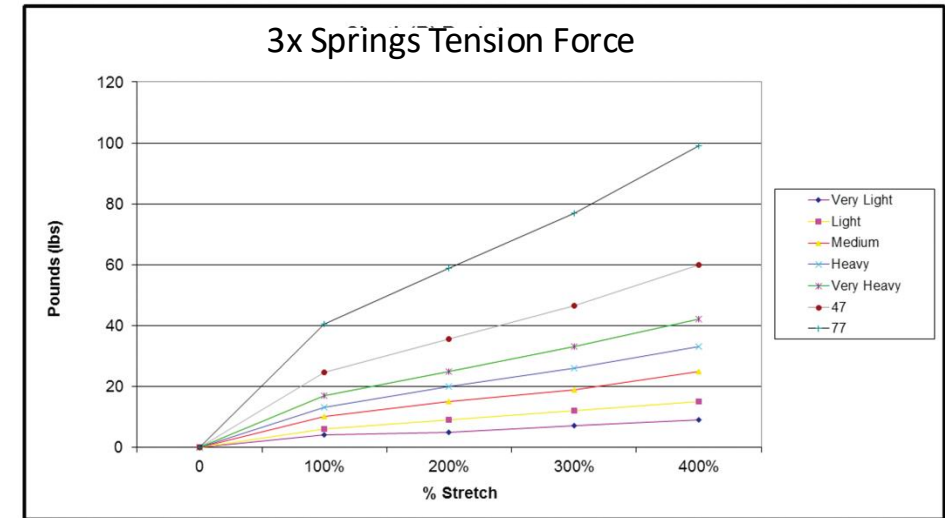
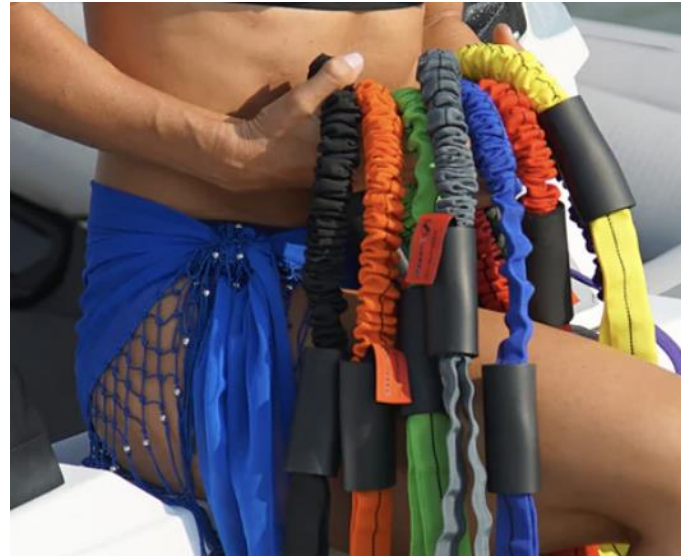
Equipment
Secure



Sky Tie

Holds:
Electric Cords
Hydraulic Lines
Pneumatic Lines





Nearly any resistance from 3 lbs to 150 lbs.

Note: Not all resistances shown in chart

Unstretched Length: Minimum 4", Max 200 ft

Max Stretch length: 100 yards



Colors	Diameters		
	1"	1.5"	2"
Black	X	X	X
Charcoal	X		
Red	X		
Yellow	X	X	X
Lime Green	X		X
Blue	X		
Purple	X		

Primary Materials

Covering: Polypropylene

Inner Stretch Member:
Dipped Latex

STRETCH RATIO is the ratio of max stretch to initial length not including the end pieces. Stretch ratios are set but the length of the fabric covering. Stretch ratios can be set at anything above 1:1 up to 4:1. The bigger the stretch ratio, the shorter the life of the extension spring



Optional 3x Spring Ends



A large variety of shapes and sizes
beyond what is shown here

Optional fabric loop ends
or adjustable length fabric





GENERAL FEATURES

	3X Elastic Extension Springs			Traditional Metal Extension Spring		
	Poor	OK	Great	Poor	OK	Great
Range of Movement			X		X	
Base lengths from 24in to 100ft			X	X		
Base lengths Between 6" and 24"			X			X
Base lengths Under 6"	X					X
Stretch ratios < 2x			X			X
Stretch ratios > 2x			X	X		
Built in Overstretch Protection			X	X		
Anti Rust, No Electrical Conductivity			X	X		
Color options			X	X		
Small Qty, Quick Turn Around, Low Cost			X	X		
End Connector Options			X	X		
Rapid, High Quantity Cycles	X					X
Temperatures < 0F and >200F	X				X	

APPLICATIONS

OFFLOADING						
TOOL TETHERING						
TIE DOWNS						
EXTENSION SPRINGS						
VIBRATION DAMPENING						
FALL PROTECTION						
FLEXIBLE LANYARDS						
HOSE, LINE, ELECTRICAL FLEX SUPPORT						
HYDRAULIC / PNEUMATIC CYLINDER RETRACTION						

Summary

1. No other product has greater than 2x stretch ratio. No other product gets close to stretch of 4x or even 3x over original length
2. No traditional metal spring has a safety stretch limiter unless a very low stretch spring is used.
3. Most metal extension springs are less than 25 inches long and have FAR less than 2x stretch over original length
4. Traditional bungee cords break down quickly in sunlight, don't have great strength and are usually have less than 1.7x original stretch
5. Traditional rubber tie downs deteriorate quickly in sunlight and usually have less than 1.6x stretch over original base length. These also do not have a stretch limiter.

Comparing to most metal springs.

1. Most metal springs have a preload required on them before any stretching occurs
2. Most metal springs do NOT have a stretch limiter to keep the spring from overstretching and deforming
3. Steel springs break down in water and other chemicals
4. Most traditional metal extension springs have less than 2x stretch over original length. Most have less than a 1.6x stretch over original length
5. Most traditional metal springs only have ends of a hook, loop, or straight cut ends.
6. Heavier metal springs when moved quickly can have inertia problems.
7. Some metal springs in certain application has vibrational resonance problems.
8. Traditional extension springs are NOT designed to be able to go around non-straight pathways



Why 3x Springs?

1. It's rare to find traditional extension springs that stretch up to even twice their original lengths. Most will stretch less than 50% of their original length. 3X Springs specializes in extensions that offer a 3x stretch capacity and can stretch up to 4x their original length. <https://www.mcmaster.com/products/extension-springs/extension-springs-with-loop-ends-7/>.
2. Traditional overload protection extension springs will almost never extend more than 30% beyond their initial length before the safety overstretch stopping mechanism kicks in. This doesn't allow for much range of motion. The max stretch for a 3X Springs extension is set by the amount of external fabric. This can be set to just slightly over the initial unstretched length all the way up to 4x the base length.
<https://www.mcmaster.com/products/extension-springs/overload-prevention-extension-springs-6/>
3. The base components of 3X Springs extensions are accustomed to water applications. The external fabric is the same material used in most life jackets. The inner latex core is often used in ocean spearguns.
4. 3X Springs have the ability to easily bend around a corner if needed.
5. Rubber erodes quickly when exposed to sunlight. The exterior fabric acts as a sunshield to the internal latex member providing significantly increased product life over-exposed rubber tie-downs.
6. We can quickly customize just a single unit if desired. Trying to make a custom extension spring is very expensive and often requires high minimums.
7. If super urgent, we can customize your 3X Spring in less than 24 hours.
8. Customized lengths are anywhere from 4 inches to 200 feet (unstretched).
9. Customized tension can be anywhere from a pound or two up to 150 pounds.
10. Multiple 3X Springs can be combined together, increasing the max tensile force. We have done some applications in excess of 750 pounds!
11. Customized fabric exterior – We have even made leather exterior sleeves for offloading heavy metal items that needed to be manually welded.
12. We have a huge variety of sleeve colors and sizes
13. Just about any end connection you want can be used, even adjustable ends!
14. 3X Springs are proudly made in the U.S.A!