

Engineering Guide: Nylon Webbing Stretch & Performance

1. Stretch Comparison Table

Material	Dry Stretch @ 300N	Wet Stretch @ 300N	Max Elongation
Nylon	20-30%	28-42%	35%
Polyester	2-8%	3-10%	12%

2. Recommended Use Cases

- Nylon: Climbing gear, rescue equipment, energy-absorbing straps
- Polyester: Cargo restraints, optical mounts, outdoor gear

3. Stretch Reduction Techniques

- Heat-setting: Reduces stretch by 40-50%
- High-tension weaving: Reduces to 5-7% max elongation
- Nylon-polyester hybrid: 10-18% total stretch

4. Environmental Influence Summary

- Cold (< -34°C): Up to 85% elasticity loss
- Heat (> 40°C): Up to 50% increased stretch
- Moisture (RH > 65%): 40% more elongation in nylon

5. Testing Standards & Protocols

- ASTM D5035: Tensile & elongation testing
- ASTM D1776: Environmental conditioning
- ISO 13934-1: Elongation testing for webbing

6. Decision Matrix: Nylon vs Polyester

Requirement	Use Nylon?	Use Polyester?
Needs shock absorption	Yes	No
Must prevent load shift	No	Yes
Exposed to moisture	No	Yes

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Tight tolerance mount	No	Yes
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