



HOSE CONSTRUCTION EXPLAINED

FLUID POWER





TRADITIONAL ONE-WIRE HOSE



Gates Most Popular Traditional One-Wire Hose Constructions:

G1

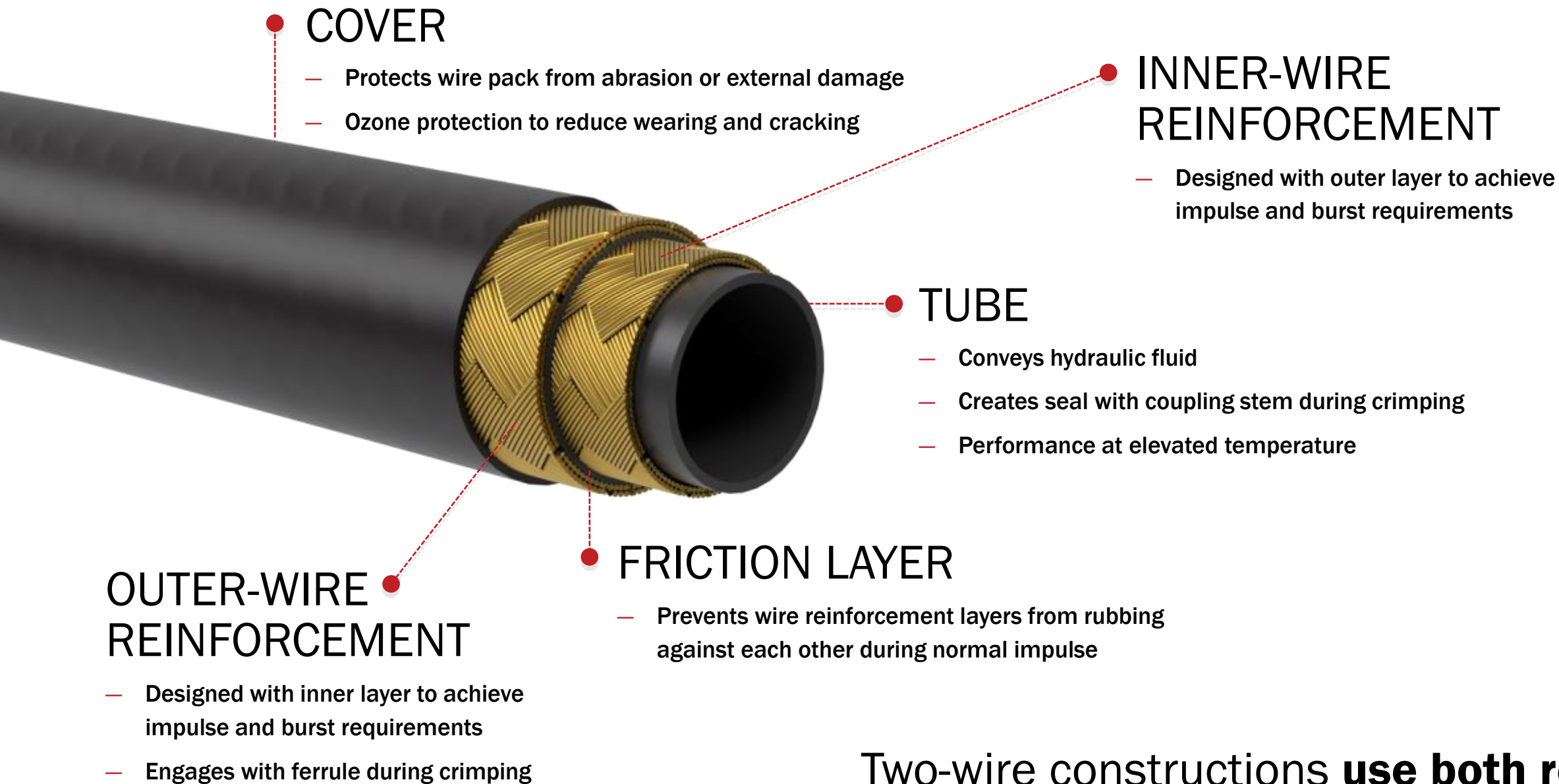
M3K
(up to 1/2")

CR1

One-wire constructions **use a single reinforcement layer to meet industry specification requirements** of burst and impulse.



TRADITIONAL TWO-WIRE HOSE



Gates Most Popular Traditional Two-Wire Hose Constructions:

G2
M2T
M4K
CR2

Two-wire constructions **use both reinforcement layers to meet industry specification requirements** of burst and impulse.



NEXT GENERATION ONE-WIRE HOSE



NEW INNOVATIVE ONE-WIRE REINFORCEMENT

- Designed to achieve impulse and burst requirements
- Engages with ferrule during crimping
- Made with premium materials for higher tensile strength
- Increased wire braid pack density (includes nearly the same length of wire as two-wire reinforcement with higher tensile strength wire)
- Engineered with enhanced wire technology
- Manufactured with our proprietary new wire-braiding process
- Designed to deliver the BEST performance

Gates NEW Next Generation
One-Wire Hose Constructions:

MXT

NEW one-wire constructions **exceed industry performance standards** by leveraging materials science and processing expertise **with less weight and more flexibility.**



COMMON MISCONCEPTIONS HOSE CONSTRUCTIONS

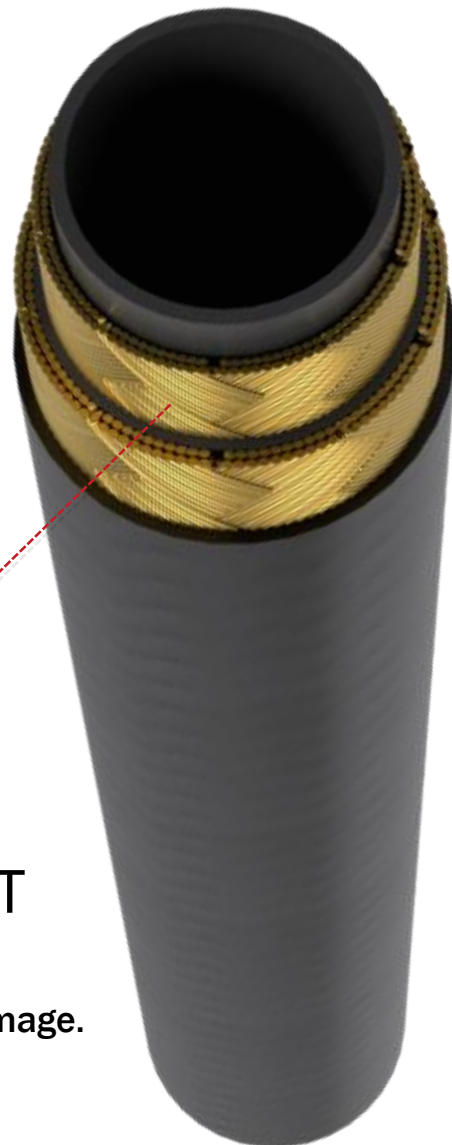
MYTH #1:

The inner reinforcement layer provides a “safety factor” if the outer reinforcement is damaged.

- The inner and outer reinforcement layer are **NOT** redundant — they don’t work independently; they are designed to meet pressure and performance **TOGETHER**
- The inner and outer reinforcement layer are **NOT** capable of performance without the other
- The inner and outer reinforcement layer are designed to meet the industry specifications **TOGETHER** — they are designed to **WORK AS A SYSTEM**
- **ANY REINFORCEMENT DAMAGE** compromises the performance of the hose and **SHOULD NOT BE USED** – regardless of hose construction

INNER REINFORCEMENT

It’s not a back-up plan or an insurance policy against damage. Ever.

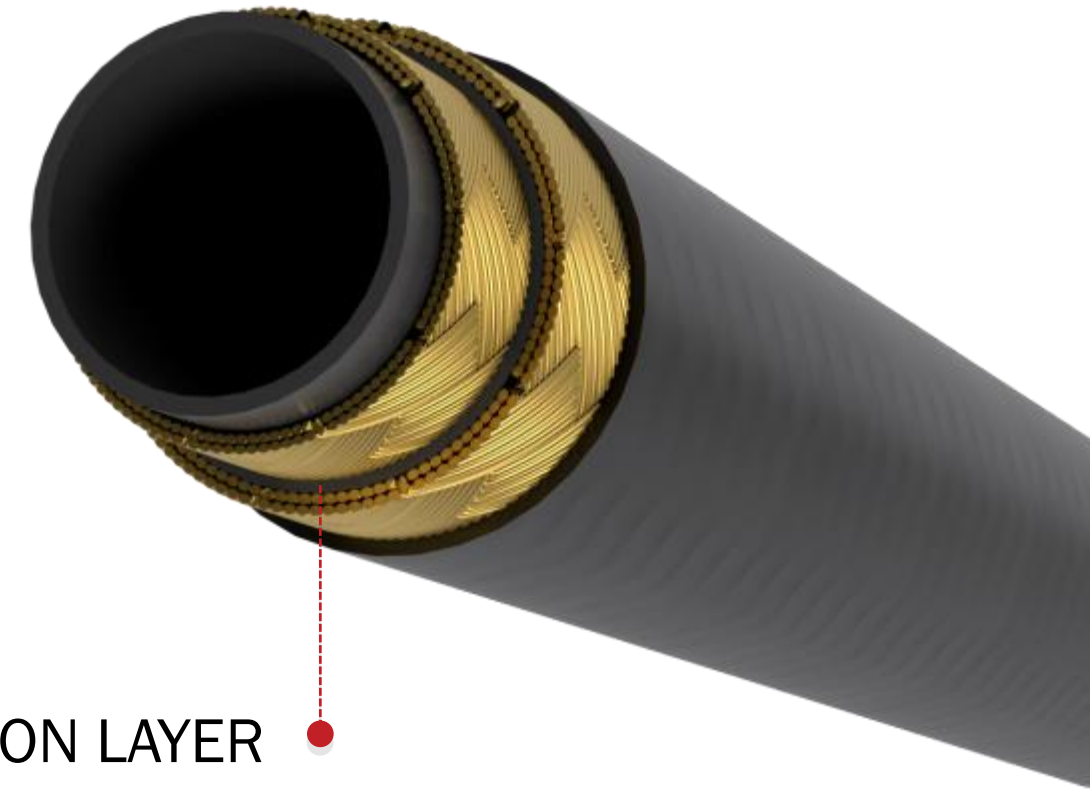


COMMON MISCONCEPTIONS HOSE CONSTRUCTIONS

MYTH #2:

The friction layer between the two wire reinforcement layers provides extra sealing.

- A thin layer of material is **NOT** sufficient to contain hydraulic fluid at the pressures in hydraulic applications
- The friction layer material properties are there to prevent rubbing between the two reinforcement layers – they do **NOT** provide sealing



FRICTION LAYER

It's not a seal. It's **ONLY** job is to prevent the two layers of wire braid from rubbing against each other.



IT'S THE NEXT BIG THING IN WIRE BRAID.

OUR NEXT-GEN WIRE PACK IS **DIFFERENT...**

- Made with premium materials for higher tensile strength
- Increased wire braid pack density (includes nearly the same length of wire as two-wire reinforcement with higher tensile strength wire)
- Engineered with enhanced wire technology
- Manufactured with our proprietary new wire-braiding process
- Designed to deliver the **BEST** performance

COMMON MISCONCEPTIONS HOSE CONSTRUCTIONS

MYTH #3:

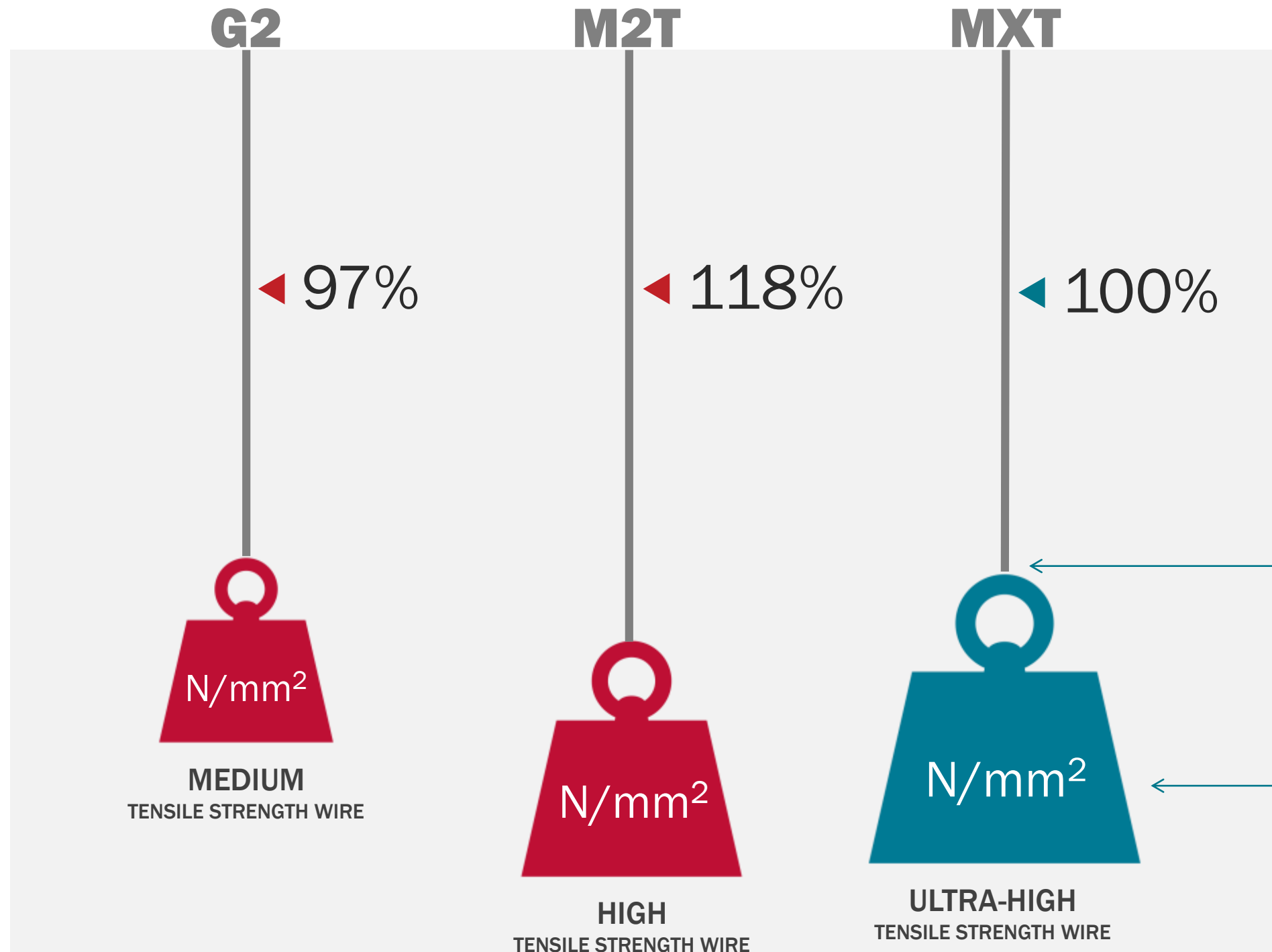
All wire braid layers are the same.

- **WIRE DENSITY** in the wire pack changes the amount of wire in the reinforcement layer based on the design and pressure requirements
- **THE WIRE ITSELF CHANGES** – Various wire gauge or tensile strengths are used to adjust for the performance needs of the design
- **BRAID ANGLES** are adjusted based on the required wire density, wire selection, and hose performance requirements.



WIRE LENGTH VS. STRENGTH

8



The unique wire pack means MXT is **flexible** without comprising performance.

The **length** of wire in MXT is similar to comparable hoses.

The **strength** of wire in MXT is greater than comparable hoses.



HYDRAULIC SYSTEMS AND APPLICATION DICTATE HOSE CONSTRUCTION

1

HYDRAULIC SYSTEM REQUIREMENTS

Define the primary criteria for hose selection – primarily pressure and temperature.

3

INDUSTRY STANDARDS

Define hose minimum performance parameters, including pressures by sizes, minimum bend radius or impulse cycle requirements.

2

APPLICATION REQUIREMENTS

Define other hose selection criteria, such as minimum bend radius, abrasion resistant covers, or impact of failure.

4

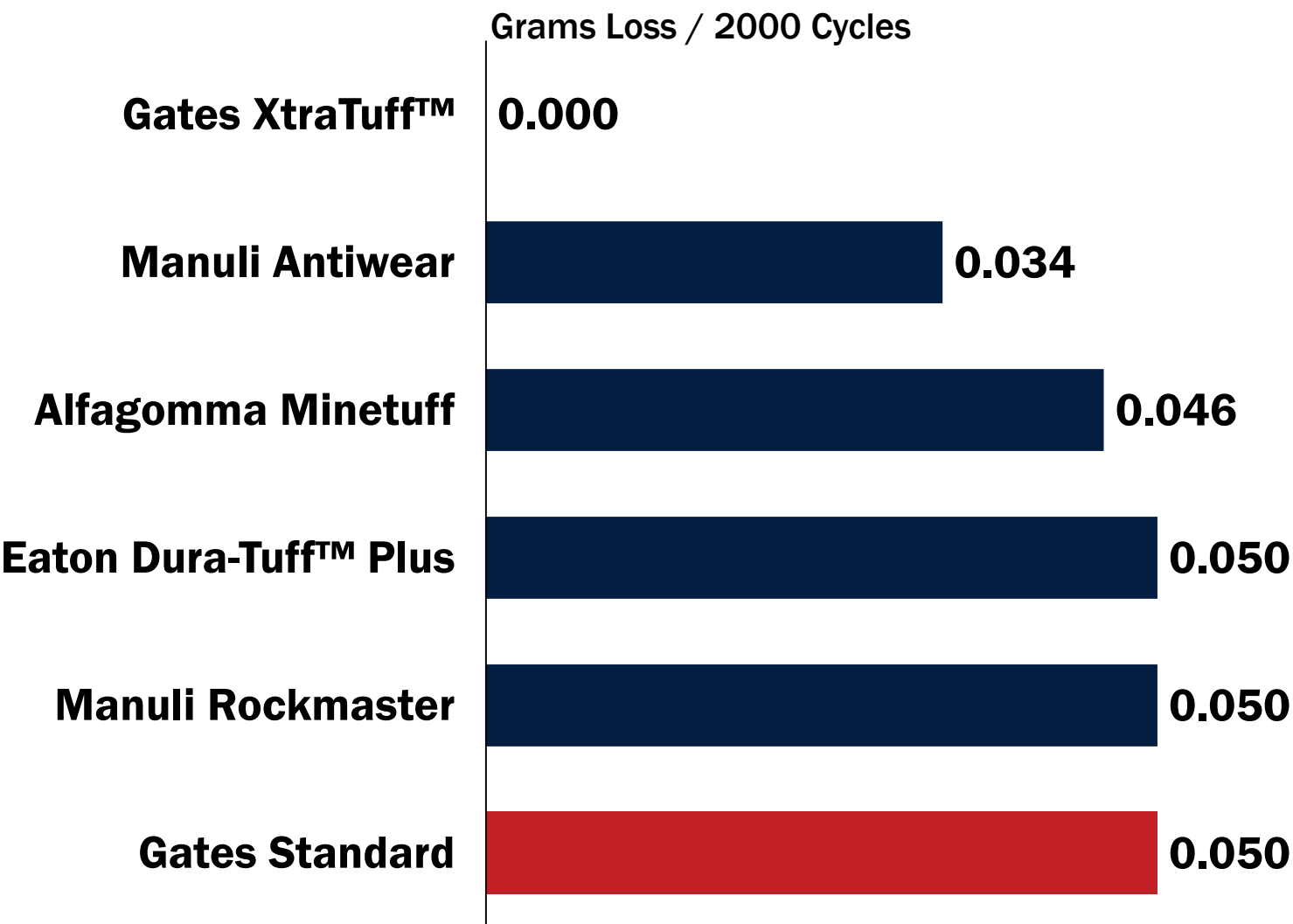
HOSE MANUFACTURERS

Differentiate product performance by exceeding industry performance standards, primarily by impulse cycles, minimum bend radius and pressures – and also differentiate with reliability and quality.

ALWAYS CHOOSE THE BEST HOSE AND COUPLING FOR YOUR CUSTOMER'S APPLICATION – REGARDLESS OF HOSE CONSTRUCTION.



GATES STANDARD VS. COMPETITOR ABRASION RESISTANT COVERS



TEST DETAILS:

- Abrasion testing performed per ISO 6945 with 25N force
- All tests were performed on the same abrasion tester in June 2018
- All hoses tested were ½” (-8) hoses
- Hoses were 2-4 years old when tested

Mfg	Hose	Cover	Code Date
Gates	M3K-XTF	XtraTuff™	I0062416 Y32108
Manuli	Goldeniso/21	Antiwear	2Q16 04 05 2016
Alfagomma	Flexor	MINETUFF	2Q16 T0426516
Eaton	FC639	Dura-Tuff™ Plus	08/10/14 03:34
Manuli	Rockmaster/2SC	Rockmaster®	2Q17 27 04 2017
Gates	M4K	Standard nitrile	AM103115 1344

GATES STANDARD COVER IS AS ABRASION RESISTANT AS SOME COMPETITOR MID-TIER ABRASION RESISTANT COVERS.