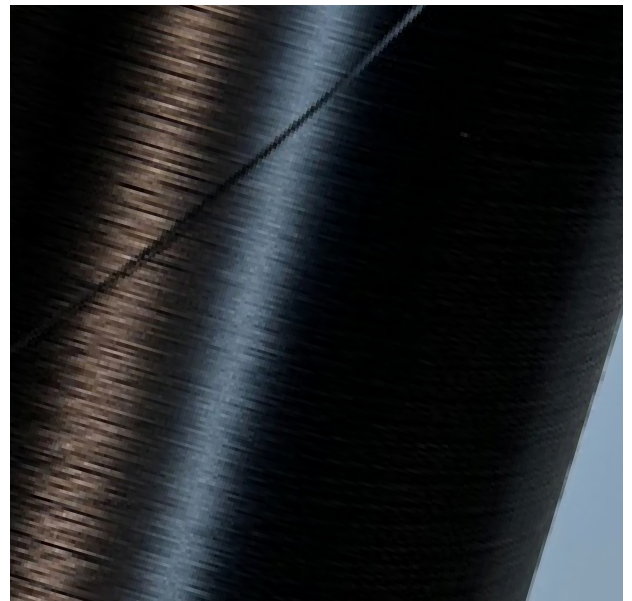


GALVORN

SPECIFICATIONS SHEET



GALVORN OVERVIEW

Galvorn's combination of high-performance properties beat incumbent materials without the climate tradeoff.

Galvorn carbon nanomaterials conduct electricity like metals, have the softness and flexibility of cotton, while being lightweight and corrosion resistant like polymers—and it is even flame-resistant. With a carbon-negative impact at scale, it offers the best of all worlds.

HIGHLIGHTS

- STRONGER THAN STEEL
- LIGHTER THAN ALUMINUM
- CONDUCTIVE
- SUPER FLEX TOLERANT
- CUT-RESISTANT
- CORROSION-RESISTANT
- FLAME-RESISTANT
- RECYCLEABLE

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GALVORN PROPERTIES

STRONGER

10x stronger than steel

Weight for weight, Galvorn is 10x stronger than some of the strongest forms of steel—and 30x stronger than stainless steel and other common structural steels.

CONDUCTIVE

Like metals, but softer, stronger, and lighter

Electrical and thermal conductivity in a textile form opens new doors in everything from smart textiles to thermoelectric generation. It can also displace traditional metal wiring.

CUT-RESISTANT

Backed by science (and lumberjacks)

The cut-resistance of Galvorn fibers have been tested by scientists (and lumberjacks!), handily outperforming Kevlar, Dyneema, and fiberglass.

LIGHTER

½ the weight of aluminum

With half the density of aluminum yet 30x its strength, Galvorn’s potential in lightweighting applications is boundless, especially as we ‘electrify everything.’

FLEXIBLE

100x flex life of copper and carbon fiber

Galvorn’s superior flex tolerance offers manufacturing and distribution efficiencies, as well as superior durability in the end-user application.

CORROSION-RESISTANT

Ready for even the toughest conditions

Galvorn is pure carbon—densely packed and aligned carbon nanotubes to be exact. It does not corrode—or melt or burn.

STATE OF THE ART MATERIAL COMPARISONS*

Properties	Galvorn	Steel	Carbon Fiber	Copper	Aluminum	Aramids (Kevlar)	Dyneema
Strength, GPa	3	1	6.4	0.38	0.41	3	3.9
Density, g/cm ³	1.6	8	2.1	9.0	2.7	1.4	0.98
Conductivity, MS/m	10	3.4	0.1	58	33	Insulating	Insulating
Thermal Conductivity, W/m-K	450	50	200 - 1000	385	237	0.04	20
Specific Conductivity (Sm ² /kg)	6150	400	50	6300	12200	-	-
Young's Modulus, GPa	200	200	200 - 400	100	68	130	132
Tenacity (N/tex)	2.00	0.13	3	0.04	0.15	2.1	3.9

*Properties are based on tests performed on single filament fiber or solid metal wire.

GALVORN PROPERTIES

Galvorn Single Filament Fiber	
Linear Density, tex	0.6
Conductivity, MS/m	10
Resistance, Ω /m	200
Density, g/cm ³	1.6
Tensile Strength, GPa	3
Tenacity (N/tex)	2
Thermal Conductivity, W/m-K	450
Young's Modulus, GPa	200
Diameter, μ m	30
Available lengths, m	1 - 10,000

Galvorn Fiber Tow	
Linear Density, tex	5 - 200
Conductivity, MS/m*	5 - 7
Resistance, Ω /m	1 - 40
Density, g/cm ³ *	1.3
Tensile Strength, GPa	1 - 2
Tenacity (N/tex)*	0.8 - 1.5
Thermal Conductivity, W/m-K*	200 - 300
Young's Modulus, GPa	40 - 150
Diameter, μ m*	15 - 30
Available lengths, m	1 - 10,000
Available number of filaments per tow	5 - 200

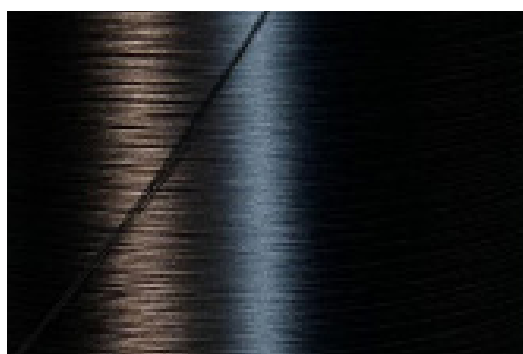
* Properties for individual filaments in the tow

*Note: Listed Galvorn properties were measured at $21 \pm 2^\circ\text{C}$
and $50 \pm 10\%$ relative humidity.*



SINGLE FILAMENT FIBER

Galvorn single filament fiber exhibit the highest grade of properties.



FIBER TOW

Galvorn fiber tow consisting of many individual fiber filaments.

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GALVORN PROPERTIES

Galvorn Yarn	
Linear Density, tex	17 - 175
Conductivity, MS/m	3 - 5.5
Resistance, Ω/m	1.2 - 10
Density, g/cm ³	0.7 - 1.2
Tensile Strength, GPa	0.5 - 1.6
Thermal Conductivity, W/m-K	200 - 300
Young's Modulus, GPa	50 - 95
Diameter, μm	150 - 5000
Available lengths, m	1 - 10,000

Galvorn Fabric	
Fabric thickness, mm	0.1 - 0.6
Fabric weight, g/m ²	10 - 500
Sheet Resistance, Ω/sq	0.01 - 1.0
Available dimensions, m	Up to 0.4 m in length / width



YARN

Galvorn fibers are twisted or braided into yarn to hold fibers together and increase diameter.



FABRIC

Galvorn yarns or fibers assembled into textile fabrics.

GALVORN PROPERTIES

Galvorn Film	
Linear Density, tex	0.27 - 900
Conductivity, MS/m	3 - 5
Resistance, Ω/m	0.3 - 1
Density, g/cm ³	1.5
Tensile Strength, GPa	0.7
Thermal Conductivity, W/m-K*	150
Width, cm	1 - 6
Thickness, μm	10 - 20
Available lengths, m	1 - 100

*Longitudinal



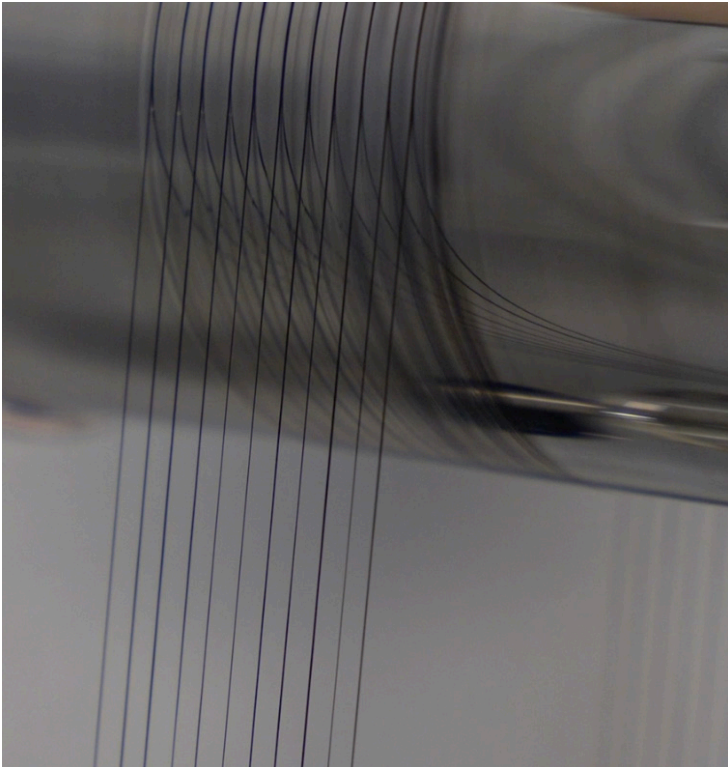
FILM

Flexible and conductive thin film made of Galvorn.

ADDITIONAL RESOURCES



VISIT:
dexmat.com/blog
dexmat.com/resource-center

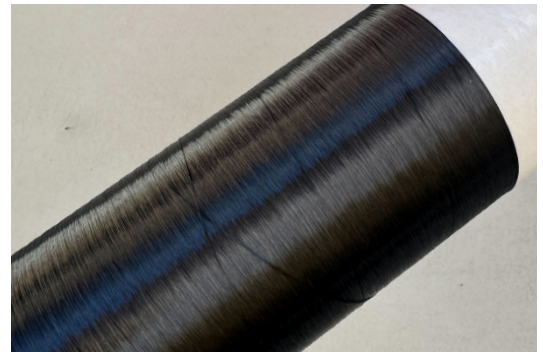


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GALVORN C PROPERTIES

Galvorn C ("Conductivity") is a grade of Galvorn that we have optimized for conductivity and compatibility with standard textile manufacturing equipment. Consider this new conductive yarn if you are in need of a lightweight conductor but do not want the full strength of traditional Galvorn.

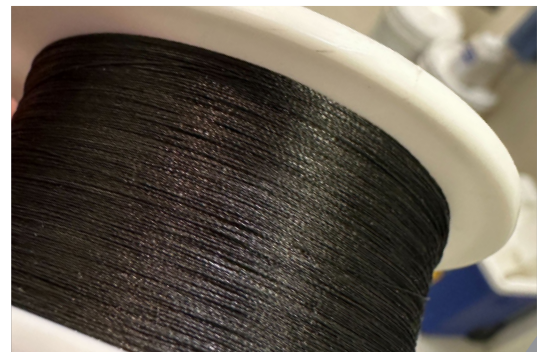
Galvorn C Fiber Tow	
Linear Density, tex	5 - 15
Conductivity, MS/m*	4.9
Resistance, Ω /m	25 - 50
Density, g/cm ³ *	1.3
Break Force, kg	0.35 - 0.7
Tensile Strength, GPa*	0.8
Tenacity (N/tex)	0.65
Young's Modulus, GPa	25
Diameter, μ m	22
Available lengths, m	1 - 10,000
Available number of filaments per tow	10 - 200



GALVORN C FIBER TOW

Galvorn C fiber tow consisting of many individual fiber filaments.

Galvorn C Yarn	
Linear Density, tex	30
Conductivity, MS/m	3
Resistance, Ω /m	10
Density, g/cm ³	1
Break Force, kg	2.5
Tensile Strength, GPa	0.75
Tenacity (N/tex)	0.65
Young's Modulus, GPa	25
Diameter, μ m	200
Available lengths, m	1 - 10,000



GALVORN C YARN

Galvorn fibers are twisted or braided into yarn to hold fibers together and increase diameter.

GALVORN CAN DO THE WORK OF INCUMBENT MATERIALS WITH FAR LOWER EMISSIONS

It's time to re-think how materials get the job done. Galvorn's specific strength is higher than incumbents so you need less of it to do the same work. And because producing it is fundamentally more efficient, displacing these GHG-intense incumbents in structural applications has a massive impact. Likewise, though Galvorn has a lower specific conductivity than copper or aluminum, their displacement leads to lower emissions—even if you need more Galvorn to conduct the same amount of electricity.

WATCH: Materials at Work

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