3M Science. Applied to Life.™

3M™ Gripping Material

Micro-replication technology. Increasing holding power at work or play.



Get a grip on applications in dry, wet and oily conditions.

Thousands of gripping fingers to increase traction, reduce slippage, and improve grip.

If you design or manufacture products where getting a grip is a performance requirement, strengthen your competitive advantage with 3M™ Gripping Material products. This 3M innovation utilizes 3M patented micro-replication technology to add thousands of micro gripping fingers on one side of a flexible backing to enhance control and improve performance in applications such as jackhammers, kayak paddles, therapeutic medical equipment, wheelchairs, handrails, and more.

At work, home, or play, your customers will see a noticeable increase in holding power, while using less force, no matter what the end use application. Ultimately this can lead to enhanced performance and decreased fatigue.

Performance features at a glance

- Increases friction to reduce slippage even in wet conditions
- Immediate release when the hand lets go
- Abrasion and puncture resistance for tough use in a factory or on a field
- Water resistance for secure attachment
- Performs across a broad temperature range from -40 to 140°F (-40 to 60°C) indoors and out

3M™ Gripping Material for sure hold with less fatigue









Versatile application in many markets.

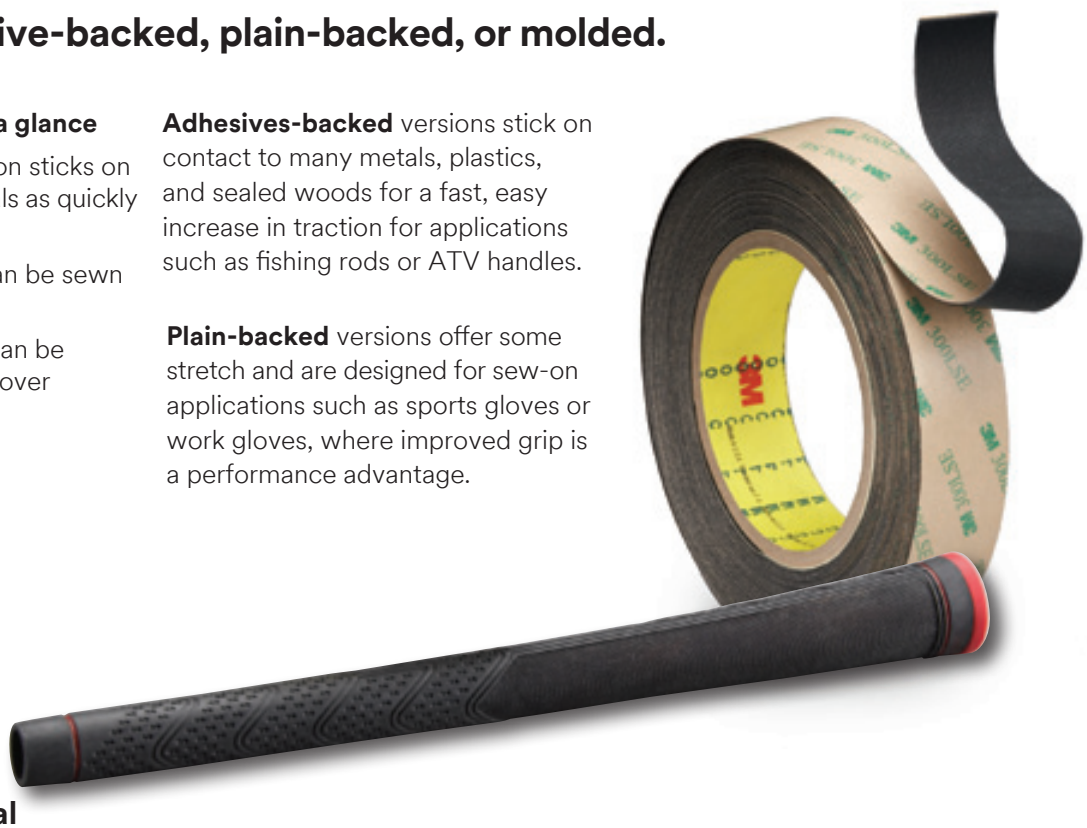
Choice of adhesive-backed, plain-backed, or molded.

Application features at a glance

- Adhesive-backed version sticks on contact to most materials as quickly and easily as tape
- Plain-backed version can be sewn to fabric and leather
- Custom molded grips can be designed to be slipped over handles and shafts

Adhesives-backed versions stick on contact to many metals, plastics, and sealed woods for a fast, easy increase in traction for applications such as fishing rods or ATV handles.

Plain-backed versions offer some stretch and are designed for sew-on applications such as sports gloves or work gloves, where improved grip is a performance advantage.



3M™ Gripping Material

At Work	At Play	At Home
• Work gloves	• Bat wraps	• Power tools
• Industrial tool handles and levers	• Baseball batting gloves	• Garden tools
• Automotive and construction hand tools	• Golf club gloves and grips	• Lawn care equipment
• Construction equipment steering wheels and levers	• Water ski gloves and equipment	• Snow blowers
• Truck, forklift and auto steering wheels	• Snow ski gloves and equipment	• Medical assistive and therapeutic products
• Handrails	• Racquetball gloves and grips	• And more
	• Bicycle handlebars and gloves	
	• Fishing rods	

5 Steps

for choosing the right products for your application.

Five easy steps can help you narrow the range of 3M™ Gripping Material products to a selection for testing and evaluation:

1. Determine if you need adhesive-backed, plain backed, or custom molded grips.
2. Determine if you need a 1-part or 2-part system.
3. Determine the end use condition of dry, wet, or oily.
4. Select the balance of tactility (soft/firm), durability (low/high), and friction.
5. Select appropriate trial bags for testing.

1 Determine adhesive-backed, plain, or molded

Adhesive-backed sticks on contact

3M pressure sensitive acrylic adhesive sticks on contact to many metals, plastics, and sealed woods. It sticks even to hard-to-bond low surface energy plastics, such as polypropylene and powder-coated metals.

Plain-backed for sew-on applications

Plain-backed products provide some stretch, and are designed for sew-on applications such as gloves, where fabrics or leather are used. Plain-backed products can be washed if necessary.

Molded grips

3M high durability molded grips can be custom designed and manufactured for different high volume applications.







2 Determine 1-part or 2-part system

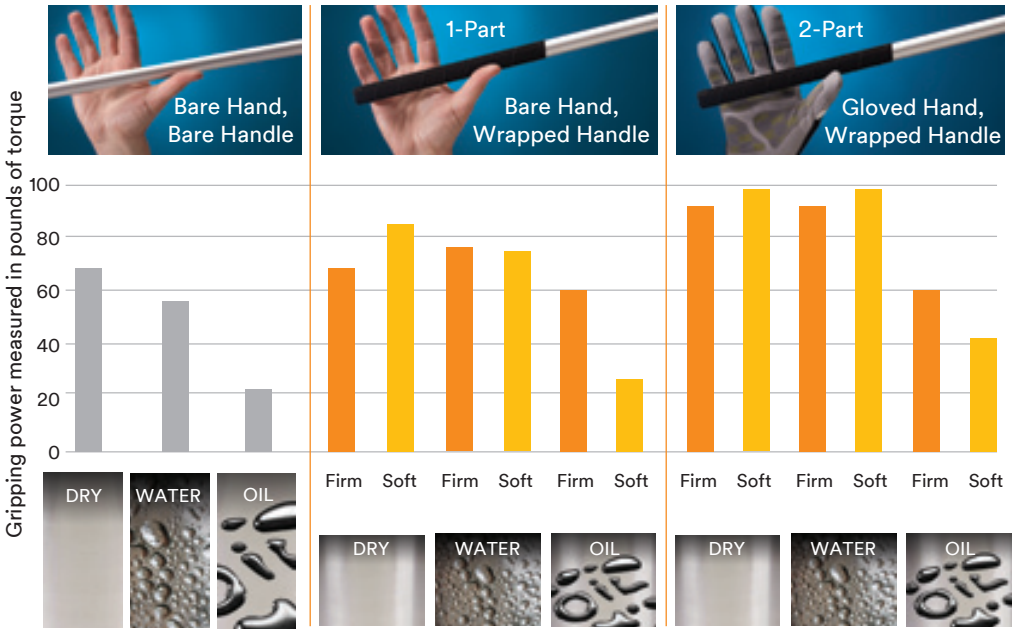
Gripping power increases with a 2-part system

In a **one-part system**, the 3M™ Gripping Material product is either on a glove or on the surface to be gripped. In a **two-part systems**, 3M™ Gripping Material is on both the glove and the surface to be gripped.

Specific results depend on the tactility (firmness/softness) of the 3M™ Gripping Material and the dryness/wetness of the gripped surface during use.

Firm gripping materials are best for oily conditions.

Soft gripping materials improve performance, but are not designed for oily conditions.



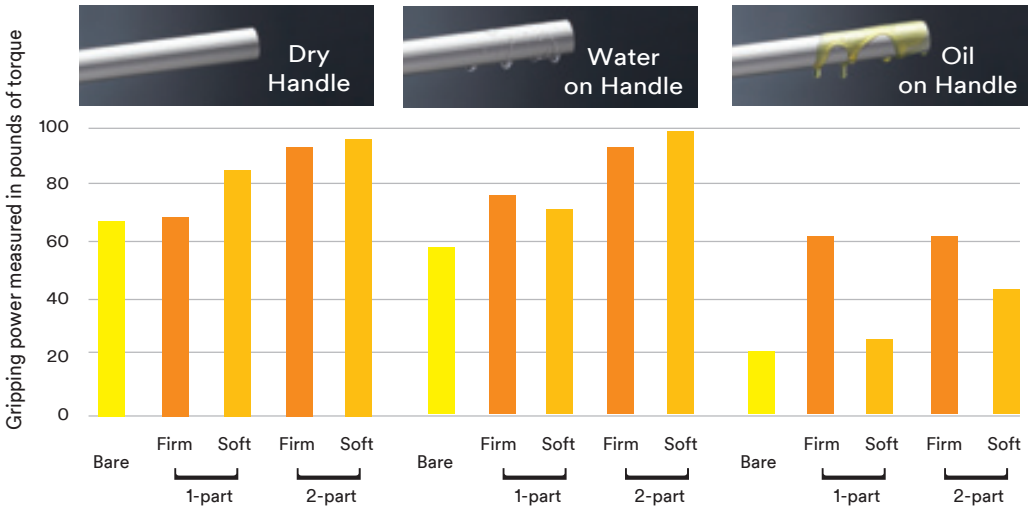
Note: All technical information and data should be considered representative or typical only and should not be used for specification purposes.

3 Determine end use conditions

Increase friction when dry, wet, or oily

The information in this chart is the same as above but presented from the perspective of end use conditions rather than a 1-part or 2-part system.

In most environmental conditions, a 1-part or 2-part system increases friction compared to a bare hand on a bare surface.





4 Select the balance of tactility, durability and friction

Durability matched to the job

3M™ Gripping Material products are available with a range of tactility from very soft to firm.

Soft Gripping Material products are designed to be more comfortable during skin contact. Softer products tend to be more flexible to contour more easily to curves with small radii. Firm Gripping Material products are extremely durable, and tend to be stiffer.

If prolonged service life in harsh use conditions is a critical feature for your product, durability of the gripping material increases with firmness. Actual service life will depend on frequency of use and severity of end use conditions, but typically, most 3M™ Gripping Material may outlast leather in a factory or in the field.



Chemicals



Heat resistance

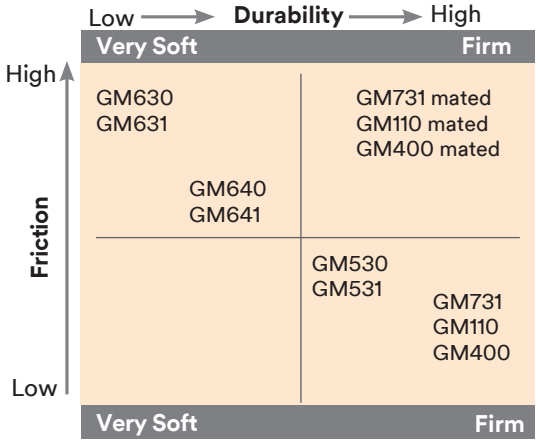


Sunlight

Each product in the line is engineered to resist abrasion, puncturing, water, chemicals, heat, and sunlight. Results will vary, depending on specific product and application combinations.

- No degradation after a 15 minute submersion in brake fluid, regular unleaded gasoline, W30 motor oil, diesel fuel, and other chemicals
- Physical characteristics retained at up to 140°F (60°C)
- GM640 and GM641 offer good resistance to UV sunlight with only some fading over time

Relative Product Properties



As shown in the chart, Gripping Material products offer a range of durability, tactility, and friction. The softer the product, the greater the friction, and lower the durability. The firmer the product, the lower the friction (unless mated) and greater the durability. The position of the product numbers will help you determine the balance of properties you need for selecting a product to test.







5 Select appropriate trial bags for testing

Gripping study results

University of Minnesota

In one University of Minnesota study, driving distance increased for golfers with 3M™ Gripping Material on their gloves, taking each competitor 10-feet closer to pin.

University of Wisconsin

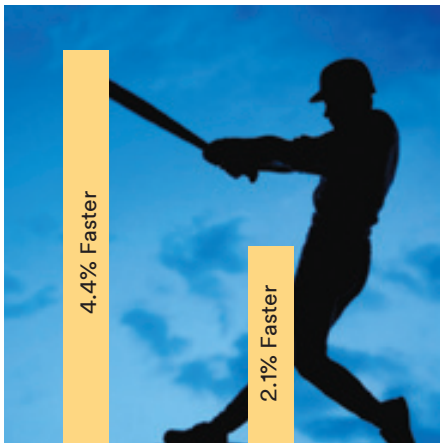
At the University of Wisconsin, a two-part system in dry conditions more than doubled friction compared to a leather glove on a rubber grip. Friction tripled in wet conditions, and was 70x higher in oily conditions.

NCAA Division II

Varsity baseball players' bat speed increased 4.4% for players using batting gloves made with 3M™ Gripping Material along with bat wrap tape. In going for the home run, fly ball distance increased 16.6 feet when material was also added to the bat grip.







3M™ Gripping Material glove on 3M™ Gripping Material grip versus leather glove/leather grip

Leather glove on 3M™ Gripping Material grip versus leather glove/leather grip

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See the performance in a gripping video demo on YouTube...



http://www.youtube.com/watch?v=YAVtg4apJos

Get a grip with a 3M Technical Service Representative (TSR) and use Trial Bags for testing

3M™ Gripping Materials are available in black, grey or clear rolls and as custom molded grips. Custom colors are available for qualifying quantities.

Before investing in production quantities, you can purchase any adhesive-backed materials as rolls or sheets for testing in your application. (see back for details).

A 3M TSR representative will help you determine what works best for your specific application. Contact your 3M Sales Representative for additional information.

3M™ Gripping Material

Product	Color	Durability 1-10 Low-High	Friction 1-10 Low-High		Tactility 1-10 Soft-Firm	Thickness mils (mm) without liner	Weight oz/yd² (g/m²) without liner	Temp. Use Range °F (°C)	Chemical Resistance 1-10 Low-High	UV Resistance 1-10 Low-High	Size	Trial Bags
			Mated	Unmated								
Adhesive-backed: 3M pressure sensitive acrylic for bonding to high and low surface energy materials												
GM400	Black	10	10	3	10	32 (0.81)	9.5 (323)	-40 to 140° (-40 to 60)	10	4	24" x 72 yds.	TB400
GM531	Black	8	9	6	8	36 (0.91)	10.9 (372)		8	2		TB531
GM631	Grey	4	8	10	2	38 (0.97)	11.5 (389)		5	1		TB631
GM641	Black	6	9	8	4				7	10		TB641
GM731	Clear	10	10	3	10	32 (0.81)	9.5 (323)		10	3*		TB731
Plain-backed: washable nylon knit with moderate stretch for sew-on applications												
GM110	Black	10	10	3	10	32 (0.81)	11.6 (393)	-40 to 140° (-40 to 60)	10	4	24" x 72 yds.	N/A
GM530	Black	8	9	6	8	37 (0.94)	11.9 (404)		8	2		
GM630	Grey	4	8	10	2	39 (0.99)	12.4 (420)		5	1		
GM640	Black	6	9	8	4				7	10		

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* GM731 will turn yellow/brown in sunlight exposure.

Purchase trial bag(s) for your application testing



Before investing in production quantities, you can purchase any adhesive-backed materials as rolls or sheets for testing in your application. Two 1" x 15' rolls per bag or six 6" x 7" sheets per bag.



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