

3M

Gripping Material

Plain (fabric)-backed 3M™ Gripping Material

- GM613 (Ultra Soft)
- GM630 (Very Soft)
- GM640 (Soft)
- GM530 (Soft Firm)
- GM110 (Firm)

Preliminary Technical Data & Application Guide

March 2014

Product Description

3M™ Gripping Materials utilizes 3M's proprietary micro-replication technology to create a high-friction surface, which can enhance grip and reduce slippage. The plain-backed versions have a nylon knit backing that provides stretch in the cross-web direction; and would typically be attached to other substrates by sewing. It is ideally suited for applications requiring some stretch, such as work or athletic gloves. 3M™ Gripping Material products are designed to be used alone, or as a two-part mated system. When used alone (on a single surface), the 3M™ Gripping Materials provide a strong secure grip. When used as a two-part mated system, for example, on a glove and handle bar, grip strength is maximized. As firmly as 3M™ Gripping Material holds, it releases just as easily.

Product Construction

Product	Color	Standard Roll Width	Standard Roll Length
3M™ Gripping Material; Plain-backed	Black: GM110, GM530 & GM640; Grey: GM630 & GM613	24 inches (61 cm)	36 yards (32.9 m), 72 yards (65.8 m)

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Typical Physical Properties

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

Property	3M™ Gripping Material				
	GM613	GM630	GM640	GM530	GM110
Weight - oz/yd ² (g/m ²)	12.4 (420)	12.4 (420)	12.4 (420)	11.6 (394)	10.9 (370)
Thickness - mils (mm)	39 (0.99)	39 (0.99)	39 (0.99)	37 (0.94)	32 (0.81)
Gripping Polymer Hardness (Shore A) ASTM D2240	13	30	40	59	73
Coefficient of Friction (COF): ASTM D1894 Grip to Grip System ¹ – Dry / Wet Grip to Synthetic Classic Leather ² – Dry / Wet	2.3 / 2.1 2.1 / 1.4	2.2 / 1.7 1.9 / 1.3	2.0 / 1.7 1.5 / 1.1	2.4 / 1.7 1.3 / 1.2	2.4 / 1.5 1.4 / 1.1
Abrasion Resistance: ASTM D3389 (H18, 500g load) Wear through – revolutions Wear rate – mg/revolution	500 0.53	1200 0.34	2500 0.19	5000 0.10	>10,000 0.02
Tensile Strength: ASTM D5035 - lbf/inch (N/cm)	MD* CD* 47.1 (82.5) 33.9 (59.4)	48.1 (84.3) 25.6 (44.9)	49.4 (86.4) 31.2 (54.6)	55.0 (96.4) 35.4 (62.0)	58.0 (101.6) 33.8 (59.1)
Elongation at Break: Modified ASTM D882 - % Elongation	MD* CD* 118 199	81 158	86 192	93 189	85 224
Tear Resistance: ASTM D5734 - lb (N)	MD* CD* – –	1.4 (6.3) –	1.4 (6.4) –	1.2 (5.6) –	1.7 (7.8) –
Stiffness – Flexural Rigidity: ASTM D1388 - μjoule/m	MD* CD* 6.6 3.6	13.7 6.3	47.3 22.2	52.7 28.2	67.3 27.9

¹COF of 3M™ Gripping Material to itself.

²Synthetic Nassimi Classic Faux Leather (Vinyl)

*MD: machine direction, *CD: cross direction.

Features

- Composed of tough, durable thermoplastic urethane (GM110 and GM530) or thermoplastic elastomer (GM640, GM630 and GM613) **Note:** GM640, GM630 and GM613 contain mineral oil which can migrate out of the product under some conditions
- The 3M™ Gripping Materials contain 3,000 stems or ‘tiny fingers’ per square inch to provide excellent grip performance in both wet and dry conditions
- Stems can provide a cushioned feel for many applications
- Good abrasion resistance
- Durable nylon fabric backing
- Wide useable temperature range: -40°F to 140°F (-40°C to 60°C)
(Dependent upon the particular application)

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Application Ideas

If needed, the 3M™ Gripping Material can be bonded in place prior to sewing to prevent it from moving during the sewing process. 3M™ 6035PC or 6038PC Pressure Sensitive Adhesives work well for this purpose. Consult the Technical Data Sheets for these products for additional information.

Please Note: Use of adhesive may make it slightly harder to sew due to the adhesive sticking to the needle. When possible, place adhesive in areas where it will not come in contact with the sewing needle.

Application Techniques

Provided below are the recommended sewing conditions for the plain-backed 3M™ Gripping Materials:

Sewing Machine Foot: Use a walking leather type foot

Needle Size & Type: The needle used will be dependant on the type of material the 3M™ Gripping Material will be attached to. Some needle types that have been successfully used in the past include a DP-11 needle with a round tip and a special left angle pointed tip needle.

Thread: Bulked continuous filament nylon 6 for the needle thread and looper thread.

The 3M™ Gripping Materials should be attached to the body fabric prior to other sewing operations. Attach using a “half pique” seam with a stitch length of 9 to 11 stitches per inch sewn using a double row of stitches with a double type needle to maintain a row distance of 1.5mm.

It is important that the entire surface of the 3M™ Gripping Material be in contact with the substrate. Minimum tension should be used to avoid stretching and distortion of the product.

Converting

The plain-backed 3M™ Gripping Material products can be shear cut, die-cut, or converted by other applicable methods, and can be sewn to a wide variety of substrates using most commercially available equipment. Excessive thread tension may cause tearing or cutting of the material. Minimum tension should be used to avoid stretching and distortion of the product. Avoid direct contact with heated processing surfaces, in excess of 160°F (71°C), for prolonged periods of time.

Care & Maintenance

Can be hand washed with mild detergent in cool to warm water. Surface contamination, such as lint or other debris, can be easily removed with Scotch® Tape, Scotch® Lint Roller, Scotch® Lint Sheets, or other lint removing mechanisms.

Important: Test each application following the appropriate care instructions required for the finished product. The actual life of the 3M™ Gripping Material depends on the cleaning method and wear conditions.

- Do not iron
- Do not bleach
- Do not use in a dryer
- Do not dry clean

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Storage Store under normal conditions of 60° to 80°F (16° to 27°C) and 40% to 60% Relative Humidity in the original carton.

Shelf Life To obtain best performance, use this product within 18 months from date of manufacture.

Technical Information The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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