

3M Advanced Materials Division

3M™ Nextel™ Ceramic Sewing Threads 312 and 440 and 3M™ Sewing Threads

Introduction

3M™ Nextel™ Ceramic Sewing Threads 312 and 440

3M™ Nextel™ Ceramic Sewing Threads 312 and 440 are high temperature machine sewable threads made from a combination of 3M™ Nextel™ Ceramic Fibers and rayon.

Nextel ceramic sewing threads 312 and 440 are ideal for sewing Nextel textiles and other high temperature fabrics. Nextel 312 sewing threads offer resistance up to 2192°F (1200°C), and Nextel 440 threads are resistant up to 2372°F (1300°C).¹

To impart resiliency, abrasion resistance and improve sewability, Nextel ceramic sewing threads 312 and 440 are wrapped with rayon fiber² and have an organic coating.

3M™ Sewing Threads

3M™ Sewing Threads are manufactured from high temperature continuous glass fiber. 3M sewing threads are ideal for industrial applications and are resistant up to 1400°F (760°C).³ To improve sewability, 3M sewing threads are coated with polytetrafluoroethylene (PTFE).

¹ 40% fiber strength retention tested at room temperature after 100 hours soak.

² Rayon fiber is selected to provide temporary protection for Nextel fiber in sewing threads and to decompose or burn away below typical use temperatures.

³ Based on 70% fabric seam strength retention tested at room temperature after 48 hours soak.

Typical Applications

Product	Typical Applications
3M™ Nextel™ Ceramic Sewing Threads 312 and 440	Aerospace: Sewn refractory parts and shapes: flame barriers, thermal shields Industrial: Sewn refractory parts and shapes: furnace curtains, linings, insulation, and seals
3M™ Sewing Threads	Industrial: Filtration, Sewn parts and shapes, seals

Features and Benefits

- Non-oxidizing
- Good thermal resistance
- Abrasion resistant
- For use on specialized industrial sewing machines

Important Processing Information

Nextel ceramic sewing threads 312 and 440 and 3M sewing threads are coated during manufacture with sizings or finishes to serve as aids in textile processing. When these products are first heated, adequate ventilation and/or personal protective equipment must be used according to a site-specific exposure assessment as vapors can be emitted and may be hazardous if inhaled. See Safety Data Sheet or contact 3M for more information.

Additional Information

For additional information about 3M Nextel ceramic sewing threads and 3M sewing threads, please call **1-800-367-8905**, or contact your local 3M representative.

Typical Properties (Not for specification purposes.)

			3M™ Nextel™ Ceramic Sewing Threads 312 and 440 and 3M™ Sewing Threads		
Style	Thread diameter in. (mm)	Approximate yield yd/lb (m/kg)	Breaking strength lb (kg)		Knot strength lb (kg)
			with sizing	heat cleaned	with sizing
3M™ Nextel™ Ceramic Sewing Threads 312					
AT-21*	0.020 (0.51)	1590 (3200)	33 (15)	19 (8.6)	9 (4.1)
AT-30	0.028 (0.71)	820 (1650)	50 (23)	28 (13)	15 (6.8)
3M™ Nextel™ Ceramic Sewing Threads 440					
BT-30	0.028 (0.71)	720 (1450)	49 (22)	34 (15)	14 (6.4)
3M™ Sewing Threads					
GT-15*	0.015 (0.38)	2030 (4090)	29 (13)	N/A	11 (5.0)
GT-23	0.022 (0.56)	1210 (2440)	40 (18)	N/A	17 (7.7)

*Non-standard item; available by special order.

Test Methods:

- Yield – ASTM D581
- Thread Diameter – 3/8 inch diameter presser foot, 3.5 psi pressure
- Breaking Strength – ASTM D2256
- Knot Strength – ASTM D2256

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