

Thomas Scientific

# Cleanroom Solutions Catalog



**XTRACLEAN™**  
CLEANROOM ESSENTIALS

**CE-Force™**  
powered by Thomas Scientific

**M1**  
TECHNOLOGY

**Thomas**  
Scientific

[ThomasSci.com](http://ThomasSci.com)



Thomas Scientific’s cleanroom product guide features the most utilized cleanroom apparel styles used in a wide variety of controlled environment applications. These exceptionally tailored products are produced in ISO 9001 Certified Manufacturing Facilities, maintaining high-quality workmanship and consistently clean packaging for your most critical environments.

With the introduction of CE-Force™ branded products, Thomas Scientific is committed to the development and expansion of its controlled environment portfolio. New product designs are in development to support technologies for expanding controlled environment industries.

Thomas Scientific Controlled Environment Specialists are poised to provide custom-design apparel solutions for your unique work environment. Contact your Thomas Scientific representative for details.

Maximum concentration limits (particles/m<sup>3</sup> of air) for particles equal to and larger than the sizes listed below.

Class	FED STD 209E Equivalent	0.1 micron	0.2 micron	0.3 micron	0.5 micron	1 micron	5 micron
ISO 1		10	2				
ISO 2		100	24	10	4		
ISO 3	1	1,000	237	102	35	8	
ISO 4	10	10,000	2,370	1,020	352	83	
ISO 5	100	100,000	23,700	10,200	3,520	832	29
ISO 6	1,000	1,000,000	237,000	102,000	35,200	8,320	293
ISO 7	10,000				352,000	83,200	2,930
ISO 8	100,000				3,529,000	832,000	29,300
ISO 9						8,320,000	293,000

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## XtraClean™ Polypropylene XC7000 Series Lab Coats & Coveralls

This economical protective apparel is made of an anti-static treated polypropylene. The cloth-like material is lightweight, breathable and durable for cool comfort all day. Ideal for non-hazardous applications in a dry setting.



### XC7020 Series Lab Coats

- White
- Elastic wrists
- Standard collar
- 5 snap closure

Case: 30

Thomas No.	Size
20A00J366	Small
20A00J367	Medium
20A00J368	Large
20A00J369	X-Large
20A00J370	2X-Large
20A00J371	3X-Large
20A00J372	4X-Large
20A00J373	5X-Large



### XC7214W Series Lab Coats

- White
- Knit wrists
- Knit collar
- Snap closure
- 3 pockets

Case: 30

Thomas No.	Size
20A00L745	Small
20A00L746	Medium
20A00L747	Large
20A00L748	X-Large
20A00L749	2X-Large
20A00L750	3X-Large
20A00L751	4X-Large
20A00L752	5X-Large



### XC7214B Series Lab Coats

- Blue
- Knit wrists
- Knit collar
- Snap closure
- 3 pockets

Case: 30

Thomas No.	Size
20A00L737	Small
20A00L738	Medium
20A00L739	Large
20A00L740	X-Large
20A00L741	2X-Large
20A00L742	3X-Large
20A00L743	4X-Large
20A00L744	5X-Large



### XC7030 Coveralls

- White
- Elastic wrists & ankles
- Standard collar
- Zipper

Case: 25

Thomas No.	Size
20A00J375	Medium
20A00J376	Large
20A00J377	X-Large
20A00J378	2X-Large
20A00J379	3X-Large
20A00J380	4X-Large
20A00J381	5X-Large

### XC7000 Material

Physical Properties		
Test Item	Test Standard	Result
Weight (g/m <sup>2</sup> )	ASTM D3776/D-3776M-20 (option C)	39.0
Ball Burst Strength, lbf	ASTM D3787-16	17.1
Mullen Burst Strength, psi	ASTM D3786/D3786M-18	20.0
Tearing Strength Length, lbf Width, lbf	ASTM D5587-15	17.1
		6.9
Tensile Strength Length, lbf Width, lbf	ASTM D 5034-09, Grab Method	20.7
		18.0
Particle Shedding (Helmke Drum)	IEST-RP-CC003.4	Category II
Electrostatic Decay of Fabric	FTMS 101C - Method 4046	PASS
Barrier Properties		
Bacterial Filtration Efficiency	ASTM F2101	35%
Differential Pressure (mm H <sup>2</sup> O/cm <sup>2</sup> )		3.56

► See Page 4 for Apparel Sizing Chart

## Basic Controlled Environment Protection Guideline

Protection Product	ISO 8	ISO 7	ISO 6	ISO 5 non-sterile
Frock	R	R	AS	AS
Labcoat	AS	NR	NR	NR
Coverall	AS	AS	R	R
Hair Cover	R	R	R	R
Beard Cover/Hood	R	R	R	R
Facemask	R	R	R	R
Shoe Cover	AS	R	R	R
Cleanroom Glove	AS	R	R	R
Sticky Mat	R	R	R	R

Key: "R" Recommended; "AS" Application Specific; "NR" Not Recommended

# Apparel

## XtraClean™ SMS XC8000 Series Lab Coats

The XC 3-layer SMS fabric provides breathable comfort with a cloth-like feel. The polypropylene filtration layer is ideal for an all day cool and protects against light liquid splash.



### XC8614W Series Lab Coats

- White
- Knit wrists
- Knit collar
- Snap closure
- 3 pockets

Case: 30

Thomas No.	Size
20A00K926	Small
20A00K927	Medium
20A00K928	Large
20A00K929	X-Large
20A00K930	2X-Large
20A00K931	3X-Large



### XC8614B Series Lab Coats

- Blue
- Knit wrists
- Knit collar
- Snap closure
- 3 pockets

Case: 30

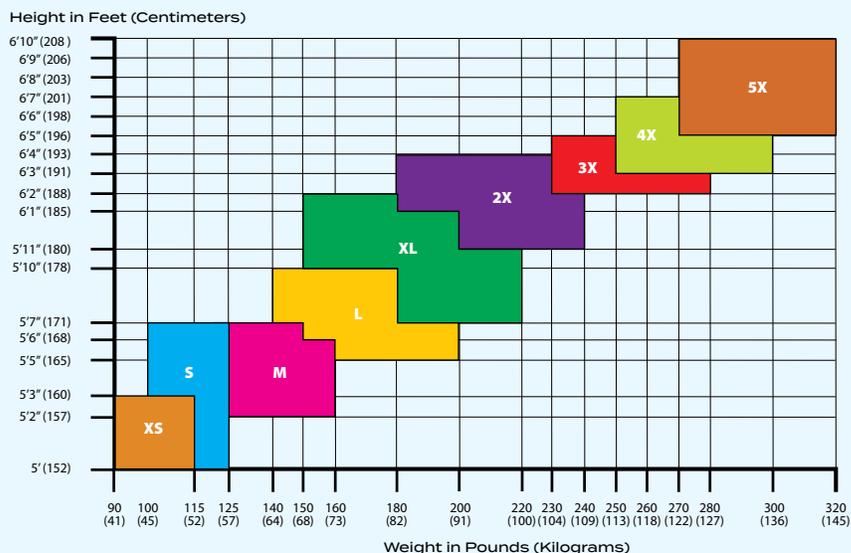
Thomas No.	Size
20A00K920	Small
20A00K921	Medium
20A00K922	Large
20A00K923	X-Large
20A00K924	2X-Large
20A00K925	3X-Large

### XC8000 Material

Physical Properties		
Test Item	Test Standard	Result
Weight (g/m <sup>2</sup> )	ASTM D3776/D-3776M-20 (Option C)	64.1
Ball Burst Strength, lbf	ASTM D3787-16	151.5
Mullen Burst Strength, psi	ASTM D3786/D3786M-18	38.0
Tearing Strength Length, lbf Width, lbf	ASTM D5587-15	18.5
		9.6
Tensile Strength Length, lbf Width, lbf	ASTM D 5034-09, Grab Method	43.2
		27.9
Water Vapor Transmission, g/24h/m <sup>2</sup>	ASTM E96/E96M-16 (Procedure B)	1034
Particle Shedding (Helmke Drum)	TEST-RP-CC003.4	Category II
Electrostatic Decay of Fabric	FTMS 101C - Method 4046	PASS
Barrier Properties		
Bacterial Filtration Efficiency	ASTM F2101-19	96%
Differential Pressure (mm H <sup>2</sup> O/cm <sup>2</sup> )		6.16
Water Resistance, Impact	AATCC 42-2017e	0.00
Synthetic Blood Resistance Penetration, 100%	ASTM F1670/F1670M-2017, (Procedure B)	PASS

## Apparel Sizing Chart

ANSI/ISEA 101-2014  
Recommended Sizing Chart for  
Limited Use Disposable Apparel



## XtraClean™ Microporous XC6000 Series Frocks, Coveralls & Sleeves

XC microporous fabric is a low linting protective fabric ideal for cleanroom use. It is latex-free and anti-static treated. It has a heavyweight blend of polyethylene and polypropylene that creates a membrane suitable for some hazardous liquids, blood-borne pathogens and where liquid splash is a concern. The polypropylene filtration layer is ideal for an all day cool and protects against light liquid splash.



### Microporous XC6000 Series Frocks

- White
- Elastic wrists
- Mandarin collar
- 5-Snap closure

Case: 30

Thomas No.	Size
20A00J455	Small
20A00J456	Medium
20A00J457	Large
20A00J458	X-Large
20A00J459	2X-Large
20A00J460	3X-Large
20A00J461	4X-Large
20A00J462	5X-Large



### Microporous XC6000 Series Coveralls

- White
- Elastic wrists & ankles
- Standard collar
- Zipper

Case: 25

Thomas No.	Size
20A00J463	Small
20A00J464	Medium
20A00J465	Large
20A00J466	X-Large
20A00J467	2X-Large
20A00J468	3X-Large
20A00J469	4X-Large
20A00J470	5X-Large



### Microporous XC6000 Series Sleeves

- White
- Elastic bound ends

Case: 200

Thomas No.	Size
20A00J454	18"

### XC6000 Material

Physical Properties		
Test Item	Test Standard	Result
Weight (g/m <sup>2</sup> )	ASTM D3776/D-3776M-20 (Option C)	57.7
Ball Burst Strength, lbf	ASTM D3787-16	105.0
Mullen Burst Strength, psi	ASTM D3786/D3786M-18	32
Tearing Strength Length, lbf Width, lbf	ASTM D5587-15	11.5 4.8
Tensile Strength Length, lbf Width, lbf	ASTM D 5034-09, Grab Method	29.2 18.4
Water Vapor Transmission, g/24h/m <sup>2</sup>	ASTM E96/E96M-16 (Procedure B)	878
Particle Shedding (Helmke Drum)	TEST-RP-CC003.4	Category II
Electrostatic Decay of Fabric	AATCC TM 76-2000e3(2018)e	PASS
Barrier Properties		
Water Resistance, Impact	AATCC 42-2017e	0.00
Synthetic Blood Resistance Penetration, 100%	ASTM F1670/F1670M-2017, (Procedure B)	PASS
Chemical Resistance		
Household Bleach 100%	ASTM F903-03	PASS
Hydrogen Peroxide	ASTM F903-03	PASS
Phosphoric Acid 85%	ASTM F903-03	PASS
Sulfuric Acid 70%	ASTM F903-03	FAIL

► See Page 4 for Apparel Sizing Chart

## XtraClean™ Bouffant Caps & Beard Covers

XC bouffant caps are made of a spun-bonded polypropylene fabric. The elastic band is latex-free and available in several sizes for full coverage. They are packaged flat or pleated in a variety of colors.

XC beard covers are made from a light-weight, spun bound polypropylene material. The elastic band is latex-free for a secure fit.



Thomas No.	Description	Case Qty.
<b>Bouffant Caps</b>		
20A00J384	XC2100-B5 Bouffant Cap, Blue, 21"	500
20A00J385	XC2100-W5 Bouffant Cap, White, 21"	500
20A00J386	XC2400-B5 Bouffant Cap, Blue 24"	500
20A00J387	XC2400-W5 Bouffant Cap, White, 24"	500
20A00J388	XC2100-W1 Bouffant Cap, White, 21"	1000
20A00J389	XC2400-B1 Bouffant Cap, Blue, 24"	1000
20A00J390	XC2400-W1 Bouffant Cap, White, 24"	1000
20A00J391	XC2600-W1 Bouffant Cap, White, 26"	1000
<b>Pleated Bouffant Caps - Double Elastic</b>		
20A00M387	Pleated Bouffant Cap, White, 21"	1000
20A00M388	Pleated Bouffant Cap, White, 24"	1000
20A00M389	Pleated Bouffant Cap, Blue, 21"	1000
20A00M390	Pleated Bouffant Cap, Blue, 24"	1000
21A00A450	Pleated Bouffant Cap, Red, 21"	1000
21A00A451	Pleated Bouffant Cap, Red, 24"	1000
<b>Beard Covers</b>		
20A00K117	XC2000 Beard Cover, White, Universal	500
20A00K118	XC2000 Beard Cover, White, Universal	1000

XC2000 Material		
Physical Properties		
Test Item	Test Standard	Result
Weight (g/m <sup>2</sup> )	ASTM D3776/D-3776M-20 (Option C)	11.7
Tensile Strength Length, lbf Width, lbf	ASTM D 5034-09, Grab Method	5.0 4.2

## XtraClean™ Ninja-Style Hood

This XtraClean hood features a latex-free elastic eye opening and side ties for a secure fit. This shoulder length hood allows the user the ability to tuck this hood underneath a coverall for an improved seal.



Thomas No.	Description	Case Qty.
<b>Protective Cleanroom Ninja-Style Hood</b>		
XC7130	XC7000 Polypropylene Ninja Hood, White, Universal	200

XC7130 Material		
Physical Properties		
Test Item	Test Standard	Result
Weight (g/m <sup>2</sup> )	ASTM D3776/D-3776M-20 (option C)	29.3
Ball Burst Strength, lbf	ASTM D3787-16	40.5
Mullen Burst Strength, psi	ASTM D3786/D3786M-18	6.0
Tearing Strength Length, lbf Width, lbf	ASTM D5587-15	4.8 8.1
Tensile Strength Length, lbf Width, lbf	ASTM D 5034-09, Grab Method	10.1 12.1
Particle Shedding (Helmke Drum)	IEST-RP-CC003.4	Category II
Barrier Properties		
Bacterial Filtration Efficiency	ASTM F2101	38.5%
Differential Pressure (mm H <sup>2</sup> O/cm <sup>2</sup> )		0.18
Water Resistance, Impact	AATCC 42-2007	26.5

### XtraClean™ Face Masks

XC face masks are constructed with 3 layers of non-woven polypropylene. They have 7" of protection and a flexible aluminum nose bridge for a proper seal. They provide 99% bacterial and particulate filtration. Available in earloop and K-Style featuring a unique heat seal on both sides for a more secure fit.



**Thomas No. 20A00J392**  
 • Blue  
 • Earloop  
 Size: 7"  
 Case: 500



**Thomas No. XC3200-KW5**  
 • White  
 • K-style  
 Size: 7"  
 Case: 500

Thomas No.	Description	Case Qty.
<b>Cleanroom Face Masks</b>		
20A00J392	XC3000-5B Face Mask, Blue, Earloop	500
XC3200-KW5	XC3200-KW5 Face Mask, White, K-Style	500

<b>XC3000-5B Face Mask</b>		
Physical Properties		
Test Item	Test Standard	Result
Bacterial Filtration Efficiency (BFE)	ASTM F2101	>99%
Differential Pressure (mm H <sup>2</sup> O/cm <sup>2</sup> )		5.28
Latex Particle Challenge (PFE)	ASTM F2299/F2299M-03	>98.6%

### CE-Force™ Face Masks

CE-Force disposable 3-ply sterile masks are gamma irradiated to Sterility Assurance Level (SAL) of 10<sup>-6</sup> with a pliable nose band. The mask construction has two outer layers of non-woven polypropylene with a high filtration inner layer of melt blown poly-propylene. Manufactured and double bagged in a cleanroom environment. Solvent-free and ultrasonic bonded for a cleaner mask. The masks are sterile packed in individual bags.



**Thomas No. 20A00K896**  
 • White  
 • Earloop  
 Size: 8.25"  
 Case: 500



**Thomas No. 20A00K897**  
 • White  
 • Ties  
 Size: 8.25"  
 Case: 500

Thomas No.	Description	Case Qty.
<b>Cleanroom Face Masks</b>		
20A00K896	Face Mask, Sterile, White, Earloop	500
20A00K897	Face Mask Sterile White, Tie-On	500

<b>CE-Force™ Face Masks</b>	
Material Composition for 3-Ply Face Mask	
Inner material	ES material, 17gsm
Middle layer	MBPP material, 18gsm
Outer material	ES material, 17gsm
Nose Piece	Coated metal strip
Loop Type	Tie-on, made from polyester material Ear loop, with option of PU or OP material
Mask Dimension	210 mm x 90 mm
Particle Filtration Efficiency, PFE (0.1µm) (ASTM F2299)	97.60%
Airborne Particle Count, (≥0.5µm size) IEST-RP-CC003.4, Helmke drum	70 counts/pc

## General Protection

### Standard Polypropylene Shoe Covers

These basic disposable shoe covers are made of durable polypropylene and are 100% latex and silicon free. Added anti-skid print on sole. Excellent for transitions between “clean” and “unclean” areas.

Packaging: 150/Pack; 300/Case

Color: Blue



Thomas No.	Description	Case Qty.
<b>CE-Force™ Polypropylene Shoe Covers</b> Made in North America		
20A00G711	CE-Force Basic Shoe Cover, Polypropylene, Anti-Skid Print Pattern, Universal	300
20A00G712	CE-Force Basic Shoe Cover, Polypropylene, Anti-Skid Print Pattern, X-Large	300

Thomas No.	Description	Case Qty.
<b>XtraClean™ Polypropylene Shoe Covers</b> Made in China		
20A00J382	XC4438 Shoe Cover, Polypropylene Non-Skid, Large	300
20A00J383	XC4438 Shoe Cover, Polypropylene Non-Skid, X-Large	300

### CE-Force™ Material Physical Properties

Test Item	Test Standard	Result
<b>Coefficient of Friction</b> Machine Direction	ASTM D1894-14	
	Static	<b>0.492</b>
	Kinetic	<b>0.406</b>
<b>Coefficient of Friction</b> Cross Direction	ASTM D1894-14	
	Static	<b>0.935</b>
	Kinetic	<b>0.998</b>
<b>Breaking Strength and Elongation - Grab Test (lbf)</b> Machine Direction	ASTM D5034-09(2017)	
		<b>15.3</b>
<b>Breaking Strength and Elongation - Grab Test (lbf)</b> Cross Direction	ASTM D5034-09(2017)	
		<b>12.0</b>
<b>Trapezoid Tearing Strength (lbf)</b> Machine Direction	ASTM D5587-15(2019)	
		<b>8.9</b>
<b>Trapezoid Tearing Strength (lbf)</b> Cross Direction	ASTM D5587-15(2019)	
		<b>6.0</b>
<b>Ball Burst Strength (lbf)</b>	ASTM D3787-16 MOD.	<b>11.1</b>
<b>Helmke Drum Partide Count</b>	IEST-RP-CC003.4	<b>Category I</b>

## CPE Shoe Covers

These single use shoe covers are made of compressed polyethylene (CPE). Seamless sole better for grip in wet applications. Commonly used as a liner under laundered boot covers.

Available in two thicknesses, 2.5 mil (lightweight) and 5.5 mil (heavyweight).



Thomas No.	Description	Case Qty.
<b>XtraClean™ CPE Shoe Covers</b>		
20A00K906	Lightweight, Blue, Large	1000
20A00K907	Lightweight, Blue, X-Large	1000
20A00K908	Lightweight, White, Large	1000
20A00K909	Lightweight, White, X-Large	1000
20A00K910	Heavyweight, Blue, X-Large	1000
20A00K911	Heavyweight, White, X-Large	1000

### Material Physical Properties

Test Item	Test Standard	Result Thomas Nos. 20A00K906-K909	Result Thomas Nos. 20A00K910-K911
<b>Weight (g/m<sup>2</sup>)</b>	ASTM D3776/D-3776M-20 (option C)	<b>27.8</b>	<b>53.5</b>
<b>Ball Burst Strength, lbf</b>	ASTM D3787-16	<b>3.7</b>	<b>6.5</b>
<b>Mullen Burst Strength, psi</b>	ASTM D3786/D3786M-18	<b>6.0</b>	<b>9.0</b>
<b>Tearing Strength</b> Length, ibf Width, ibf	ASTM D5587-15	<b>2.8</b>	<b>5.2</b>
		<b>2.0</b>	<b>4.1</b>
<b>Tensile Strength</b> Length, ibf Width, ibf	ASTM D 5034-09, Grab Method	<b>6.5</b>	<b>11.9</b>
		<b>5.7</b>	<b>11.1</b>
<b>Water Vapor Transmission, g/24h/m<sup>2</sup></b>	ASTM E96/E96M-16 (Procedure B)	<b>5</b>	<b>12</b>

## High Grip Protection

This series is designed to give maximum anti-skid protection on smooth, wet or powdered surfaces while remaining suitable for controlled environments due to the low linting, multi-layer materials. All have seamless soles, ultrasonic welding and are latex-free. These strong and durable shoe covers are available in two sizes. Universal fits most shoe sizes. X-Large fits big shoes, snow or work boots.



## ISO 5 Shoe Covers

These shoe covers are built to conform up to ISO 5 level cleanrooms. The proprietary fabrics offers strength, anti-skid, fluid resistance and durability. Finished with seamless soles and side. Double bag packaged for cleanroom compliance.

Packaging: Universal - 150/Pack; 300/Case, X-Large - 120/Pack; 240/Case

Color: Blue

Thomas No.	Description	Case Qty.
<b>CE-Force™ I5 Shoe Covers</b>		
20A00G713	I5 Shoe Cover, Blue, Waterproof, Anti-Skid, Universal	300
20A00G714	I5 Shoe Cover, Blue, Waterproof, Anti-Skid, X-Large	240

### Material Physical Properties

Test Item	Test Standard	Result
<b>Coefficient of Friction</b> Machine Direction	ASTM D1894-14 Static	<b>0.870</b>
	Kinetic	<b>0.899</b>
<b>Coefficient of Friction</b> Cross Direction	ASTM D1894-14 Static	<b>0.935</b>
	Kinetic	<b>0.998</b>
<b>Breaking Strength and Elongation - Grab Test (lbf)</b> Machine Direction	ASTM D5034-09(2017)	<b>24.6</b>
<b>Breaking Strength and Elongation - Grab Test (lbf)</b> Cross Direction	ASTM D5034-09(2017)	<b>21.3</b>
<b>Trapezoid Tearing Strength (lbf)</b> Machine Direction	ASTM D5587-15(2019)	<b>11.5</b>
<b>Trapezoid Tearing Strength (lbf)</b> Cross Direction	ASTM D5587-15(2019)	<b>8.6</b>
<b>Water Resistance Impact Penetration</b>	AATCC TM42-2017e	<b>None Seen</b>
<b>Ball Burst Strength (lbf)</b>	ASTM D3787-16 MOD.	<b>19.1</b>
<b>Helmke Drum Particle Count</b>	IEST-RP-CC003.4	<b>Category I</b>

## XtraGrip II Shoe Covers

Ideal for a variety of floor surfaces, including tile, coated concrete and epoxy floors. Seamless bottom design is ideal for wet environments and maximum non-skid performance.

Features: Sonic welding, Seamless bottom

Packaging: 100/Bag; 3 Bags/Case; 300/Case

Colors: White and Blue



Thomas No.	Description	Case Qty.
<b>XtraClean™ XtraGrip II Shoe Covers</b>		
20A00U840	XtraGrip II Shoe Covers, White, Universal	300
20A00U841	XtraGrip II Shoe Covers, White, X-Large	300
20A00U842	XtraGrip II Shoe Covers, Blue, Universal	300
20A00U843	XtraGrip II Shoe Covers, Blue, X-Large	300

### Material Physical Properties

Test Item	Test Standard	Result
<b>Weight (g/m<sup>2</sup>)</b>	ASTM D3776/D-3776M-20 (Option C)	<b>56.5</b>
<b>Ball Burst Strength, lbf</b>	ASTM D3787-16	<b>15.6</b>
		<b>0.509</b>
<b>Mullen Burst Strength, psi</b>	ASTM D3786/D3786M-18	<b>16.0</b>
<b>Tearing Strength</b> Length, ibf Width, ibf	ASTM D5587-15	<b>11.8</b>
		<b>8.6</b>
<b>Tensile Strength</b> Length, ibf Width, ibf	ASTM D 5034-09, Grab Method	<b>24.5</b>
		<b>20.1</b>
<b>Water Vapor Transmission, g/24h/m<sup>2</sup></b>	ASTM E96/E96M-16 (Procedure B)	<b>11</b>
<b>Coefficient of Friction</b> Static; $\mu_s$ Kinetic; $\mu_k$	ASTM D1894	<b>0.846</b>
		<b>0.839</b>
<b>Particle Shedding (Helmke Drum)</b>	IEST-RP-CC003.4	<b>Category II</b>
<b>Barrier Properties</b>		
<b>Water Resistance, Impact, grams</b>	AATCC 42-2017e	<b>0.00</b>

## High Grip Protection

### CE-Force™ HydroGrip Shoe Covers

Provides good control on smooth, wet or powdered floors. Added protection from wet shoes, thanks to their inner layer that absorbs liquids. Low linting and fit for clean environments.

Features: Multi-layer, Hydrophilic inner layer, Seamless bottom

Packaging: Universal - 150/Pack; 300/Case, X-Large - 120/Pack; 240/Case

Color: Blue



Thomas No.	Description	Case Qty.
<b>CE-Force™ HydroGrip Shoe Covers</b>		
20A00T853	HydroGrip Shoe Covers, Blue, Universal	300
20A00T854	HydroGrip Shoe Covers, Blue, X-Large	240

#### Material Physical Properties

Test Item	Test Standard	Result
<b>Coefficient of Friction</b> Machine Direction	ASTM D1894-14 Static	<b>0.756</b>
	Kinetic	<b>0.743</b>
<b>Coefficient of Friction</b> Cross Direction	ASTM D1894-14 Static	<b>0.710</b>
	Kinetic	<b>0.694</b>
<b>Breaking Strength and Elongation - Grab Test (lbf)</b> Machine Direction	ASTM D5034-09(2017)	<b>26.6</b>
<b>Breaking Strength and Elongation - Grab Test (lbf)</b> Cross Direction	ASTM D5034-09(2017)	<b>21.4</b>
<b>Trapezoid Tearing Strength (lbf)</b> Machine Direction	ASTM D5587-15(2019)	<b>11.8</b>
<b>Trapezoid Tearing Strength (lbf)</b> Cross Direction	ASTM D5587-15(2019)	<b>8.1</b>
<b>Water Resistance Impact Penetration</b>	AATCC TM42-2017e	<b>None Seen</b>
<b>Water retention rate (%)</b>	NF G 07-166-1993 (MOD.)	<b>229.6</b>
<b>Drying duration, Ts (min)</b>	NF G 07-166-1993 (MOD.)	<b>100</b>
<b>Ball Burst Strength (lbf)</b>	ASTM D3787-16 MOD.	<b>26.0</b>

### CE-Force™ CE-Grip Shoe Covers

Provides a foot barrier with excellent waterproofing and anti-skid properties. High level of protection for environments such as pharmaceutical manufacturing, animal labs and industries like rubber, steel or oil. Offers good control on smooth, wet or powdered surfaces and are strong enough to be used on rough floors. Durable and low linting.

Features: Multi-layer, Seamless bottom, Anti-skid grip

Packaging: Universal - 150/Pack; 300/Case, X-Large - 120/Pack; 240/Case

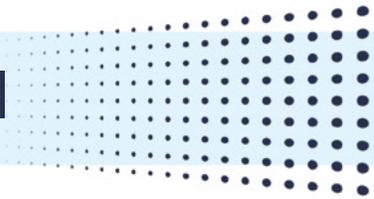
Color: Blue



Thomas No.	Description	Case Qty.
<b>CE-Force™ CE-Grip Shoe Covers</b>		
20A00G715	CE-Grip Shoe Cover, HD Blue, Waterproof, Anti-Skid, Universal	300
20A00G716	CE-Grip Shoe Cover, HD Blue, Waterproof, Anti-Skid, X-Large	240

#### Material Physical Properties

Test Item	Test Standard	Result
<b>Coefficient of Friction</b> Machine Direction	ASTM D1894-14 Static	<b>0.689</b>
	Kinetic	<b>0.699</b>
<b>Coefficient of Friction</b> Cross Direction	ASTM D1894-14 Static	<b>0.652</b>
	Kinetic	<b>0.666</b>
<b>Breaking Strength and Elongation - Grab Test (lbf)</b> Machine Direction	ASTM D5034-09(2017)	<b>26.6</b>
<b>Breaking Strength and Elongation - Grab Test (lbf)</b> Cross Direction	ASTM D5034-09(2017)	<b>21.4</b>
<b>Trapezoid Tearing Strength (lbf)</b> Machine Direction	ASTM D5587-15(2019)	<b>14.6</b>
<b>Trapezoid Tearing Strength (lbf)</b> Cross Direction	ASTM D5587-15(2019)	<b>10.2</b>
<b>Water Resistance Impact Penetration</b>	AATCC TM42-2017e	<b>None Seen</b>
<b>Ball Burst Strength (lbf)</b>	ASTM D3787-16 MOD.	<b>25.3</b>



## CE-Force™ Cleanroom Nitrile Gloves

CE-Force nitrile cleanroom gloves are designed for use in Class 10 and higher cleanrooms. Made from virgin nitrile copolymer material, these high quality powder-free gloves are accelerator-free and feature beaded cuffs for secure seal and textured fingers for added grip. In order to control defects and ensure the specified product is consistently manufactured, these gloves are produced at high quality standards, consisting of stringent quality checks as well as laboratory testing at every stage of our production process.

Packaging: 50 pcs x 2 into double cleanroom sealed bag;  
10 bags into carton liner; 1000 gloves per master case

Color: White



Thomas No.	Description	Case Qty.
<b>Cleanroom Nitrile Gloves</b>		
20A00K183	Nitrile Gloves, 12" White, X-Small	1000
20A00K184	Nitrile Gloves, 12" White, Small	1000
20A00K185	Nitrile Gloves, 12" White, Medium	1000
20A00K186	Nitrile Gloves, 12" White, Large	1000
20A00K187	Nitrile Gloves, 12" White, X-Large	1000
20A00K188	Nitrile Gloves, 12" White, 2X-Large	1000

Physical Properties		
Parameter	Test Method	Specifications
<b>Tensile Strength (MPa)</b>	ASTM D 412	> 18
<b>Modulus @300 (MPa)</b>	ASTM D 412	< 9
<b>Ultimate Elongation (%)</b>	ASTM D 412	> 500
<b>Pinhole</b>	ASTM D 5151	G1 AQL 1.5
<b>LPC (≥ 0.50 micron, counts/cm2)</b>	IEST RP-CC 005.4	Max 650
<b>Chloride, Cl- (ug/cm2)</b>	IEST RP-CC 005.4	Max 0.300
<b>Nitrate, NO3- (ug/cm2)</b>		Max 0.150
<b>Sulfate, SO42- (ug/cm2)</b>		Max 0.020
<b>Sodium, Na+ (ug/cm2)</b>		Max 0.050
<b>Potassium, K+ (ug/cm2)</b>		Max 0.030
<b>Lithium, Li+ (ug/cm2)</b>		Max 0.0001
<b>Magnesium, Mg2+ (ug/cm2)</b>		Max 0.010
<b>Calcium, Ca2+ (ug/cm2)</b>		Max 0.300
<b>Zinc, Zn2+ (ug/cm2)</b>		Max 0.050
<b>Total Non Volatile Residues (TNVR) in water (ug/cm2)</b>		Max 5.0
<b>Silicone, Amide, DOP By FTIR</b>		Absent
<b>Surface Resistance (ohms)</b>	ANSI/ESD STM 11.11	Max 5 X 10 <sup>11</sup>
<b>Static Decay (seconds)</b>	WI-QA/15-11	Max 2.0

Dimensional Parameters - 12" Gloves						
Parameter	XS	S	M	L	XL	2XL
<b>Thomas No.</b>	20A00K183	20A00K184	20A00K185	20A00K186	20A00K187	20A00K188
<b>Glove Weight (gram/pc)</b>	5.5 + 0.5	6.0 + 0.5	6.5 + 0.5	7.0 + 0.5	7.5 + 0.5	8.0 + 0.5
<b>Palm Width (mm)</b>	75 + 5	85 + 5	95 + 5	105 + 5	115 + 5	125 + 5
<b>Glove Weight (gram/pc)</b>	Min 300					
<b>Thickness - Cuff (mm)</b>	0.08 – 0.10					
<b>Thickness - Palm (mm)</b>	0.10 – 0.12					
<b>Thickness - Finger (mm)</b>	0.12 – 0.14					

# Floor Mats

## CE-Force™ Sticky Floor Mats

CE-Force multi-layered clean-film full adhesive layers form mats that effectively capture dirt and dust from foot-traffic and equipment wheels before they enter the controlled environment. Each of the numbered layers of the mat peels off easily to reveal a new clean surface. Peel-off sheets eliminate the need for messy cleaning and resealable to make it easy to maintain a clean surface. Smooth, effective surface is not damaged by shoes, booties, or cart wheels. Numbered corner tabs for easy tracking of remaining sheets.



Perfect for cleanrooms, laboratories and any other dust/dirt free environment.

Aerospace, Biotechnology, Laser optics, Pharmaceutical

Packaging: 4 x 30 Sheets/Case

Thomas No.	Description	Case Qty.
<b>Sticky Floor Mats</b>		
1140X99	Sticky Mat, 18" x 36", Blue	4 x 30 Sheets
1140Y00	Sticky Mat, 18" x 36", Gray	4 x 30 Sheets
1140Y01	Sticky Mat, 18" x 36", White	4 x 30 Sheets
1140Y02	Sticky Mat, 18" x 45", Blue	4 x 30 Sheets
1140Y03	Sticky Mat, 18" x 45", Gray	4 x 30 Sheets
1140Y04	Sticky Mat, 18" x 45", White	4 x 30 Sheets
1140Y05	Sticky Mat, 24" x 36", Blue	4 x 30 Sheets
1140Y06	Sticky Mat, 24" x 36", Gray	4 x 30 Sheets
1140Y07	Sticky Mat, 24" x 36", White	4 x 30 Sheets
1140Y08	Sticky Mat, 26" x 45", Blue	4 x 30 Sheets
1140Y09	Sticky Mat, 26" x 45", Gray	4 x 30 Sheets
1140Y10	Sticky Mat, 26" x 45", White	4 x 30 Sheets
1140Y11	Sticky Mat, 36" x 36", Blue	4 x 30 Sheets
1140Y12	Sticky Mat, 36" x 36", Gray	4 x 30 Sheets
1140Y13	Sticky Mat, 36" x 36", White	4 x 30 Sheets
1140Y14	Sticky Mat, 36" x 45", Blue	4 x 30 Sheets
1140Y15	Sticky Mat, 36" x 45", Gray	4 x 30 Sheets
1140Y16	Sticky Mat, 36" x 45", White	4 x 30 Sheets
1140Y17	Sticky Mat, 36" x 60", Blue	4 x 30 Sheets
1140Y18	Sticky Mat, 36" x 60", Gray	4 x 30 Sheets
1140Y19	Sticky Mat, 36" x 60", White	4 x 30 Sheets

### Technical Details

<b>Mat Composition</b>	LDPE (Low Density Polyethylene)
<b>Thickness/Sheet</b>	0.035mm, 0.045mm, 0.05mm; Tolerance : ±8%
<b>Tensile Strength</b>	≥ 10MPa (Lengthways) / ≥ 8MPa (Transverse)
<b>Elongation</b>	≥ 150% (Lengthways) / ≥ 200% (Transverse)
<b>Peel Adhesion</b>	Medium Tack (MT): 400g/25mm (Top Layer); 600g/25mm (Bottom Layer) <i>Note: High Tack (HT) options available upon request - please inquire.</i>
<b>Colors</b>	Blue, Grey, White
<b>Dimensions</b>	18" x 36"; 18" x 45"; 24" x 36"; 26" x 45"; 36" x 36"; 36" x 45"; 36" x 60" <i>Note: Dimension Tolerance is ±1.5%</i>
<b>Packaging</b>	30 sheets/mat; 4 mats/case

*Note: Data shown are typical values and should not be used as specifications.*

## XtraClean™ Cleanroom Paper

XtraClean "Class 10" cleanroom paper and stationery meets or exceeds ISO Standards for use in cleanrooms and sterile environments. Latex Free 22# cleanroom paper, 80/g/m weight, 5. mil Caliper 4.8 million Particles /m. Tear strength of 5 kg/ 15 mm machine direction and 2.5 kg cross direction.

Paper comes in White, Blue, Pink, Canary, Green, Grey, Goldenrod, and Ivory.

Sizes: 8½" x 11" and 11" x 17". Other sizes available.

Packaging: 8½" x 11" - 250/Pack, 10 Packs/Case, 2500/Case;

11" x 17" - 250/Pack, 5 Packs/Case, 1250/Case



Thomas No.	Description	Case Qty.
<b>Cleanroom Paper - 8½" x 11"</b>		
XC228511LF-WHT	Cleanroom Paper, White	2500
XC228511LF-BLU	Cleanroom Paper, Blue	2500
XC228511LF-GRN	Cleanroom Paper, Green	2500
XC228511LF-PNK	Cleanroom Paper, Pink	2500
XC228511LF-YLW	Cleanroom Paper, Canary Yellow	2500
XC228511LF-CRE	Cleanroom Paper, Cream	2500
XC228511LF-GOL	Cleanroom Paper, Goldenrod	2500
XC228511LF-GRY	Cleanroom Paper, Grey	2500
XC228511LF-IVO	Cleanroom Paper, Ivory	2500
<b>Cleanroom Paper - 11" x 17"</b>		
XC221117LF-WHT	Cleanroom Paper, White	1250
XC221117LF-BLU	Cleanroom Paper, Blue	1250
XC221117LF-GRN	Cleanroom Paper, Green	1250
XC221117LF-PNK	Cleanroom Paper, Pink	1250
XC221117LF-YLW	Cleanroom Paper, Yellow	1250
XC221117LF-CRE	Cleanroom Paper, Cream	1250
XC221117LF-GOL	Cleanroom Paper, Goldenrod	1250
XC221117LF-GRY	Cleanroom Paper, Grey	1250
XC221117LF-IVO	Cleanroom Paper, Ivory	1250

### Performance Characteristics

Property	Test Method	Typical Value
<b>Basis Weight</b>	TM2 The Determination of Basis Weight	<b>0.756</b> <b>0.743</b>
<b>Caliper</b>		<b>0.710</b> <b>0.694</b>
<b>Tear Strength</b> Machine Direction Cross Direction	Elmendorf of Tear	<b>26.6</b>
<b>Surface Resistivity</b>	The determination of surface resistivity of thin, flat materials adapted from EOS-S11, 11-1993	<b>21.4</b>

### Contamination Characteristics

<b>Particles (0.5)</b>	Particles released from paper under conditions of minimal stress	<b>4.8 million particles / m</b>
<b>E.S.S</b>		<b>.018</b>
<b>Ions</b> Sodium Ammonium Potassium (k+)	The determination of ions in paper by capillary ion analysis ( CIA ) Technique	<b>85 ppm 0.390 uq / cm2</b> <b>50 ppm 0.24 uq / cm</b> <b>.068 uq / cm2</b>

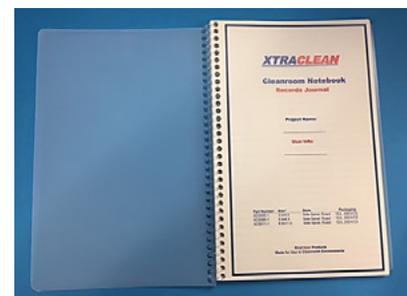
*Note: Data in this table represents typical analysis of these products. These are not specifications. CCR continually refines both its processes and its products. This is the most accurate representation of the typical properties of these products at the time of production.*

## XtraClean™ Latex Cleanroom Notebooks

Side spiraled cleanroom notebooks are used to make notes and record events of daily operations. Printed with college rule lines or engineering grids on all pages. Spiral notebooks include semi-transparent, high density polyethylene covers. Manufactured to cleanroom standards from 22# latex-impregnated bond and assembled and packaged in an ISO Class 5 cleanroom, these notebooks are designed to keep particle burdens to a minimum.

Includes 100 pages (50 sheets).

Each notebook is individually shrink-wrapped and packaged in a polyethylene bag.



Thomas No.	Description	Case Qty.
<b>Cleanroom Notebooks</b>		
XC3555	Latex Notebooks, Size 3½" x 5½"	30
XC5585	Latex Notebooks, Size 5½" x 8½"	30
XC5585GRID	Latex Notebooks, Grid Paper, Size 5½" x 8½"	30
XC8511	Latex Notebooks, Size 8½" x 11"	20
XC8511GRID	Latex Notebooks, Grid Paper, Size 8½" x 11"	20

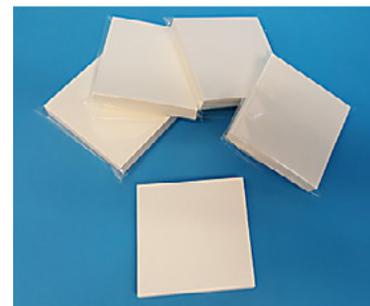
# Stationery

## XtraClean™ Cleanroom Sticky Notes

Clean Notes “sticky notes” are the answer when all you want to leave behind is a quick message. A special adhesive backing lets Clean Notes easily stick to any surface without leaving particles when the note is removed.

Made from ultra-clean latex-free 28# white bond paper.

Available in 3" x 3" only.



Thomas No.	Description	Case Qty.
<b>Sticky Notes</b>		
XC33PINW-1PK	Sticky Notes, 3" x 3", 100 Sheets/Pad, White, Individually wrapped	24
XC33PINW-24PK	Sticky Notes, 3" x 3", 100 Sheets/Pad, White	24

## XtraClean™ Cleanroom Pens & Markers

A low-sodium ink pen designed with a special poly barrel to limit particle generation. The ink cartridge is a two piece container constructed of a metal body with a roller for ink dispense. Pen bodies are manufactured from a molded single piece, extruded high density, white polyethylene.

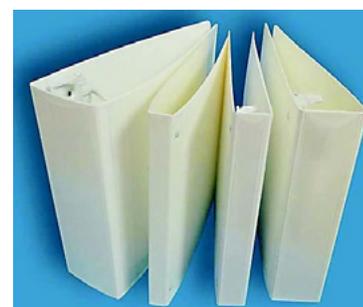


Thomas No.	Description	Pack Qty.	Case Qty.
<b>Pens with Caps</b>			
XCPEN-BLK	Pens w/Caps, Black	10	100
XCPEN-BLU	Pens w/Caps, Blue	10	100
XCPEN-RED	Pens w/Caps, Red	10	100
<b>Pens, Click-style</b>			
XCPENCLK-BLK	Pens, Click-style, Black	10	100
XCPENCLK-BLU	Pens, Click-style, Blue	10	100
XCPENCLK-RED	Pens, Click-style, Red	10	100

Thomas No.	Description	Pack Qty.	Case Qty.
<b>Markers</b>			
XCCRFTM-BLK	Markers, Black	12	—
XCCRFTM-BLU	Markers, Blue	12	—
XCCRFTM-RED	Markers, Red	12	—

## XtraClean™ Cleanroom Binders

Constructed of white dissipative .75 gauge, high-density polyethylene. Transparent poly pockets on front & spine allow identification sheet insertions. Powder coated metal rings, ESD safe.



Thomas No.	Description	Case Qty.
<b>Cleanroom Binders</b>		
XCBIND-PCM1	Cleanroom Binders, 1"	10
XCBIND-PCM2	Cleanroom Binders, 2"	10
XCBIND-PCM3	Cleanroom Binders, 3"	10

## XtraClean™ Cleanroom Sheet Protectors

Cleanroom sheet protectors are designed to protect documents in a non-particulating poly pouch from harsh environments. These static dissipative protectors are three-hole punched for easy insertion into binders.



Thomas No.	Description	Pack Qty.
<b>Cleanroom Sheet Protectors</b>		
XCPROT8511ESD3	Cleanroom Sheet Protectors	100



# Thomas Services: Controlled Environments

Welcome to Thomas Scientific's Controlled Environments and Cleanroom Solutions Specialists. A team of controlled environment experts dedicated to providing you with products and service solutions for all your manufacturing requirements for cleanrooms and controlled environments, in markets such as biopharma and advanced technologies.



## Experienced, cleanroom and supply chain experts

who drive technical application engagement for products, inventory solutions, and productivity improvements for our customers and supplier partners.



## Dedicated Production Customer Service (PCS) Specialist

who ensure quality management of customer specific requirements, order accuracy, on-time delivery, certifications, and provide 360° supply chain communication.



## Provide Assurance of Supply

through Thomas's Customer Inventory Reserve Program which delivers business continuity, mitigates the risk of production shutdowns, and improves inventory forecasting, planning collaboration and visibility.



## (VMI) Vendor Managed Inventory Service Solutions

delivers enhanced supply chain value by delivering increased productivity and process efficiencies across the customer operations.



## Provides Access to the Broadest Supplier Portfolio of Products Supporting Cleanroom and Clean Manufacturing Environments

which provides choice, innovative sourcing options, quality, availability, and environmentally sustainable solutions.

To learn more about Thomas Controlled Environment Services,  
visit [ThomasSci.com/Controlled Environments](https://www.ThomasSci.com/Controlled Environments)

# Cleanroom Construction



In collaboration with cleanroom design and construction experts, Ångström Technology, Thomas Scientific brings an experienced and world-class design-build solution to our customers. Completing a high quality cleanroom build has never been more convenient.

## PRODUCTS

- Cleanrooms – Hardwall & Softwall
- Cleanroom Furniture
- Facilities Equipment
- Cleanroom & Gowning Supplies
- Clean Build Construction Protocol Services

## Cleanroom Masterclass:

### How to Successfully Design & Build Your Cleanroom

Cleanroom design is informed by a variety of different factors ranging from the technical to the practical.

If this is your first cleanroom design or redesign project, knowing where to begin and all the things you need to consider can be a difficult and daunting task.

This is especially true since much on the information available on the subject is highly technical and virtually incomprehensible.

That's why we've created this **FREE LIVE MASTERCLASS** to help you determine the type of cleanroom you need, along with all of the other necessary components, lighting, wall material, equipment, and more.

Visit [ThomasSci.com/cleanroom-construction](https://www.thomasci.com/cleanroom-construction) to reserve your seat!

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