



TECHNICAL BULLETIN NUMBER 106



BLANKET MESH

CUSTOM-ENGINEERED SOLUTIONS IN KNITTED WIRE MESH

For forty years, Metex design, development, and manufacturing engineers have been producing engineered components that take maximum advantage of the unique characteristics and robust nature of knitted wire mesh. Its interlocked looped structure, which offers excellent resiliency, memory—even when subjected to high temperatures as well as high-tensile or compressive stress—and strength, make knitted wire the ideal choice in materials when both performance and cost are paramount.

Metex products now meet a wide range of critical needs—from providing flexible, yet durable, seals and joints to noise attenuation, thermal insulation, and filtration—in some of the most demanding industrial applications and environments.



Complete in-house design, R&D, and test facilities



Flexibility in manufacturing for JIT requirements

Knitted Wire Mesh for Insulation Blankets, Covers, and Jackets

Insulation materials and labor costs are increasingly becoming more expensive, and user-warranty requirements more demanding. Metex insulation blanket mesh is engineered to help you protect your investment of materials and labor, while enhancing customer satisfaction.

The insulation media for blankets, covers, or jackets is typically a pliable, heat-resistant material such as asbestos, fiberglass, ceramic fibers, etc. Although this material has high temperature resistance qualities, it does not have the physical qualities to:

- Retain physical shape and strength
- Protect from exterior abrasion
- Support for lacing hooks and such devices

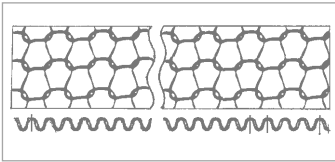
Since knitted mesh is made of metal, it is the strongest insulation covering that can be used. It supports continuous handling and resists vibration, as well as penetration by sharp objects.

Why knitted wire mesh is superior for insulation covering

Metex knitted wire mesh is distinctly different from other metallic woven materials such as fly screen or hex mesh. The unique mechanical qualities of Metex knitted wire—made possible by a unique fabrication process which yields a mesh of interlocking loops that allow two-way stretch—create an extremely robust yet flexible product. Unlike other woven products made of wire metal, the loops in Metex knitted wire move relative to each other in the same plane without distortion.

This mechanical feature makes knitted wire an ideal material for covering insulation media, since its flexibility facilitates handling. Its flexibility also permits easier fitting around irregular curves and complex shapes.





PRODUCT BENEFITS

- Retains physical shape and strength
- Protects from exterior abrasion
- Supports for lacing hooks and such devices
- Supports continuous handling
- Resists penetration of sharp objects



Metex equipment can knit various diameters and alloys to create optimal solutions



Metex knitted mesh is the strongest insulation covering that can be used

The Most Flexible, Easy-to-Install Insulation Covering You Can Specify is Also the Strongest and Most Resistant to High Vibration and Temperatures

Metex knitted wire mesh can be fabricated from practically any ductile metal—most commonly 304SS, as well as Monel and 309SS, where equipment will be subjected to corrosive environments—or knitted as a metal-synthetic composite.

Wire diameters used in manufacturing knitted wire mesh are typically .008" and .011". However, where greater strength is needed due to frequent insulation-blanket removal (such as with turbines or stress-relieving blankets) .011" is commonly used. For less frequent removal, .008" is used.

For applications which involve temperature extremes such as furnaces, the .011" diameter is recommended to reduce the weakening caused by oxidation, or furnace atmosphere conditions.

The common density (openings/inch) used is 60, as it provides the optimum balance between openings and enhances economy, yet is small enough to prevent tufting.

76 density, as well as other custom densities, can be made to fit your requirements.

Advantages

■ **Flexibility**

Because of the knitted loop structure, the mesh covering has at least two-way strength and is not stiffer than the insulation it covers. It is therefore ideally suited to fitting around irregular curves and complex surfaces. It can also work as unsupported flexible blanketing.

■ **Strength**

Because the mesh is metal, it is the strongest insulation covering that can be used. It will not come apart with vibration or continuous handling. It resists penetration by sharp objects or workers walking on it, and stays intact longer than the insulation can. When you run your hand over this mesh surface, it feels like a coat of chain mail over the insulation.

■ **Cost of Material**

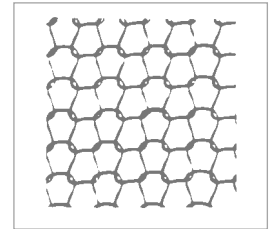
In temperature ranges of 600° to 1200° F, knitted mesh competes with other insulation coverings such as glass or asbestos cloth, or hexagonal mesh. Mesh is lower in cost than many other coverings. At temperatures over 1200° F to 2300° F, Inconel alloy knitted mesh is the only covering material able to resist heat and retain strength.

■ **Cost and Ease of Fabrication**

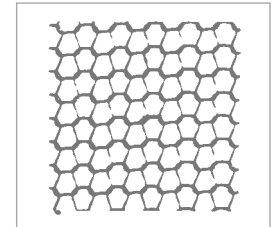
Knitted mesh is usually bought in widths to suit the blankets to be made. It is normally cut with only a scissors and can be fabricated in many ways. Most of the time it is not sewn, reducing the need for specialized labor. In many cases, a stapler is the only other tool needed. The blankets can be made quickly and easily, saving on fabrication costs by eliminating special labor skills.

Application Information for Standard Blanket Mesh Alloys¹

Wire Alloy	Temperature Range °F	Wire Diameter ²	Density ³	Yield Ft ² /lb. ⁴	Width ⁵
430 S.S.	Up to 1000	.008"	60	26	1" - 43"
		.011"	60	13	1" - 43"
304 S.S.	Up to 1200	.008"	60	24	1" - 43"
		.0095"	60	18	1" - 43"
		.011"	60	13	1" - 43"
Inconel	Up to 2300	.008"	60	22	1" - 43"
		.011"	60	12	1" - 43"



60 Density



76 Density

¹ We also have other alloys available, such as Monel, 309SS, etc., where applications are corrosive or special atmospheres.

² The common wire diameters used for insulating blankets are .008", .00095", and .011". Where greater strength is needed because of frequent removal such as turbines or stress relieving blankets, .011" is used. For less frequent remove, .008" is used. For applications which involve temperature extremes such as furnaces, the .011" diameter is recommended to reduce the weakening caused by oxidation or furnace atmosphere conditions.

³ The common density (openings/inch) used is 60, as it provides the optimum balance between large openings for economy, yet small enough openings to prevent tufting. 76 density is also available.

⁴ Yield listed is for single ply. Knitted mesh is tubular in construction (double ply) and is typically cut open by the user and installed as a single ply.

⁵ Insulating blanket mesh is made in widths of two-ply stocking from 1" to 43". However, most applications use widths of 12", 18", 24", 30", or 42".

How to Order

- Specify metal alloy, wire diameter, density and width required, i.e., 304SS, .011", 60 den., 30" wide. Standard materials are available for shipment within 24 hours. Most nonstandard materials can be shipped within 5-8 working days. Our factory-trained application engineers are always available to assist you with your special application, either by phone or at your site.



Metex Knitted Wire Mesh Products Solve Problems Cost Effectively

Metex knitted wire mesh is manufactured from an "endless" wire that is formed into loops and subsequently networked, providing elasticity and resilience not found with woven wire or powdered metal products.

The diversity and versatility of wire mesh enables Metex to produce products for a wide variety of applications, including:

- Seals
- Breathers
- Coalescers
- Gaskets
- Heat Shields
- Navin Rings
- Catalytic Converter Support Mesh
- Heat Wicks
- Noise Attenuators
- Mufflers
- Air Filters
- Electronic Shielding
- Ball Joint Seal Systems
- Air Gap Rings
- Filters
- Shock Absorbers
- Protective Coverings
- Exhaust Seals
- Catalytic Converter End Rings
- Flame Arrestors

Our Knitted Wire Mesh for **Insulation Blankets, Covers, and Jackets** continue a longstanding Metex tradition of integrating the right designs, materials, and manufacturing methods to meet customer needs for optimal performance at lowest possible cost.



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