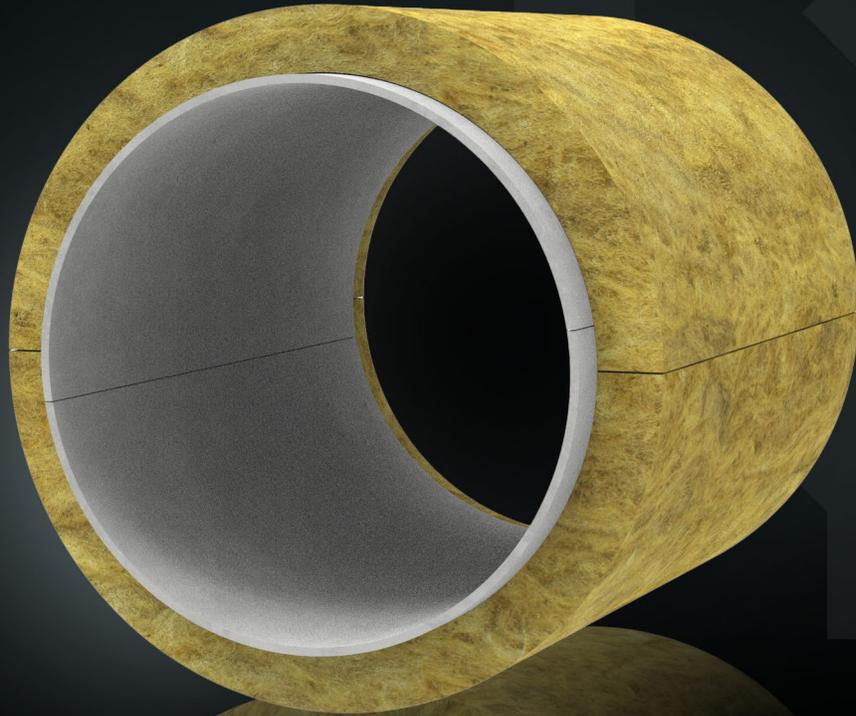




INTEGRITY
PRODUCTS

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INTEGRITY PRODUCTS
INTEGRITY
AEROWOOL SERIES





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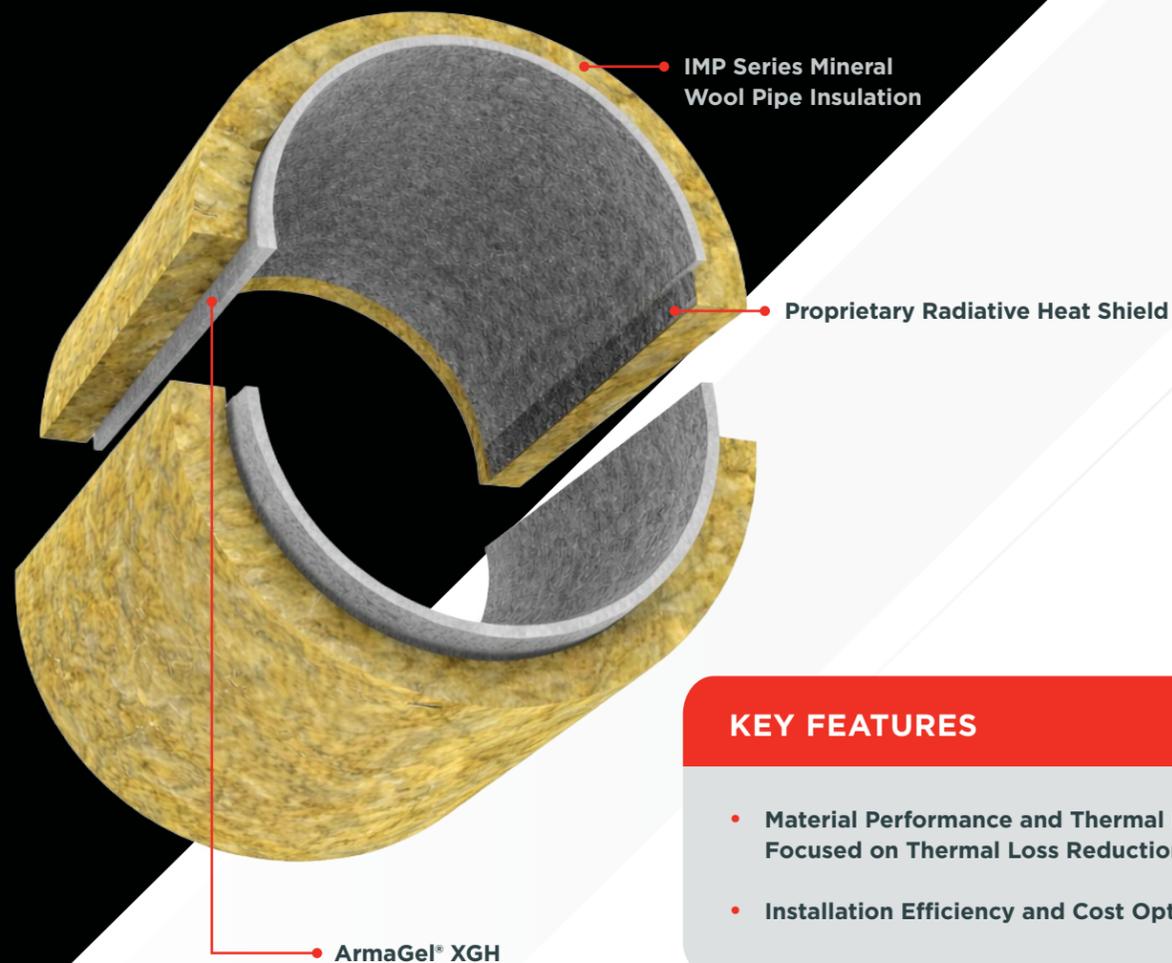
THREE TECHNOLOGIES. ONE SUPERIOR THERMAL SYSTEM

The Integrity IMP™ Hybrid Insulation System is an engineered, high-performance thermal solution for industrial piping, pipelines, and equipment operating at elevated temperatures, delivering exceptional energy efficiency and long-term reliability.

This advanced triple-layer system integrates three complementary technologies:

- **ArmaGel® XGH Aerogel Insulation** offering ultra-low thermal conductivity, hydrophobic performance, and a binder-free composition
- **A Proprietary Radiative Heat Shield** air-permeable and designed to reduce radiative heat transfer
- **Integrity IMP™ Mineral Wool** providing mechanical strength, structural stability, and high-temperature durability

Together, these technologies function as a single, optimized thermal system, maximizing heat-loss reduction while ensuring robust performance in demanding industrial environments.



KEY FEATURES

- **Material Performance and Thermal Efficiency Focused on Thermal Loss Reduction**
- **Installation Efficiency and Cost Optimization**

MATERIAL PERFORMANCE & THERMAL EFFICIENCY

Ultra Low Thermal Conductivity with Reduced Thickness

The hybrid system combines the exceptional thermal efficiency of aerogel with the thermal mass and durability of mineral wool achieving equivalent or superior thermal performance compared to traditional multi-layer fibrous or cast insulation systems at significantly reduced thickness and weight.

Proprietary Radiative Heat Shield Interface

An integrated, air permeable reflective material reduces electromagnetic radiative heat transfer enhancing overall system efficiency with minimal impact to the system's thickness.

High Temperature Fire Resistant Structural Performance

High density Integrity IMP Mineral Wool provides dimensional stability and fire resistance maintaining continuous performance at operating temperatures up to 650°C (1200°F).

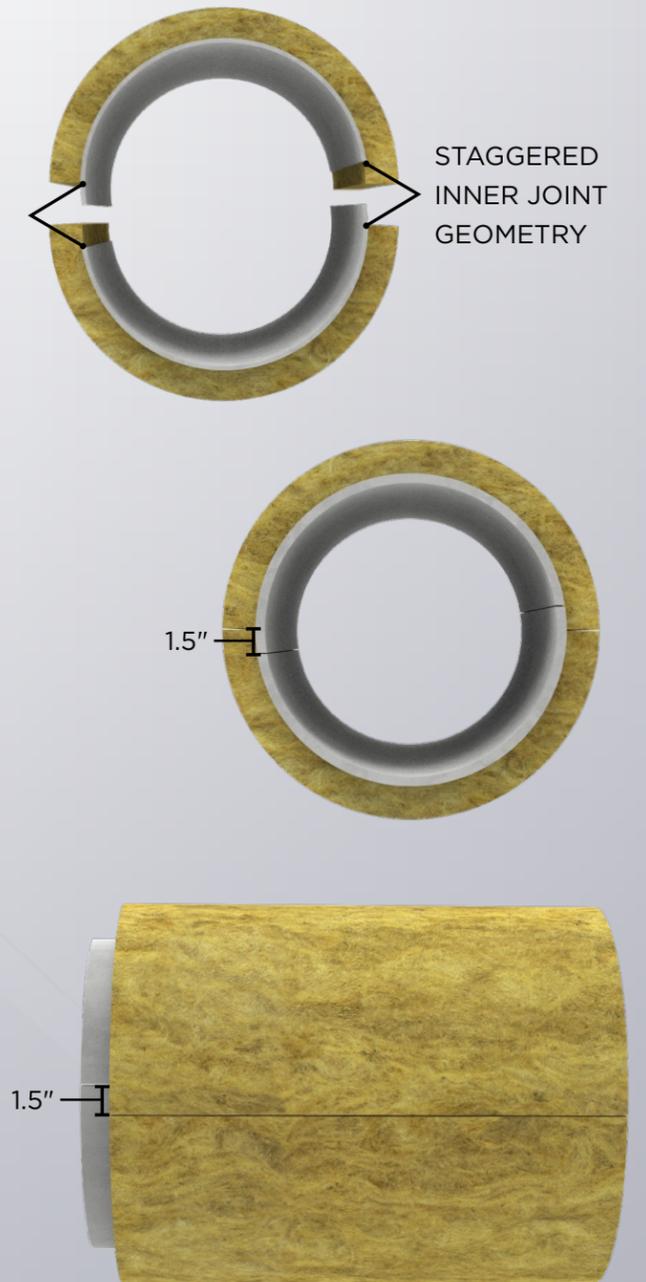
Moisture Resistance Supporting Sustained Thermal Performance

When in operation, the tri-layer system allows the process heat to drive any humidity out beyond the inner hydrophobic aerogel based ArmaGel XGH layer. In ultra-high efficiency systems, Integrity's PVC Dimpled Wrap is added as a fourth layer to ensure that any water vapour within the mineral wool layer is actively driven out as wet insulation has much lower thermal performance.

Under shut-in conditions or when assets are operated within temperature range conducive to corrosion under insulation, the naturally hydrophobic binder free ArmaGel XGH inner layer repels moisture and limits water vapor sorption.

By supporting long-term asset protection and reducing maintenance and inspection demands, the system contributes to lower lifecycle costs while maintaining thermal performance. By minimizing moisture ingress and actively promoting its egress, the system helps maintain insulation effectiveness over time, preventing degradation that can increase heat loss over its service life.

STAGGERED INNER JOINT GEOMETRY TO MAXIMIZE THERMAL BRIDGING EFFECT



INSTALLATION EFFICIENCY & COST OPTIMIZATION

Single Step Clean Installation

The ArmaGel XGH, Radiative Heat Shield, plus Integrity IMP Mineral Wool Hybrid Insulation System installs as a single integrated insulation assembly, replacing complex insulation system builds with one streamlined installation step. The binder-free Armagel inner layer and consolidated construction eliminate loose fibers mixing and airborne dust typically associated with hydrophobic insulation systems supporting cleaner work areas and improved installer safety.

Reduced Labor and Reduced Cladding

Simplified handling and reduced cutting, fitting and seam work decrease overall labor hours by limiting the number of installation steps required in the field. The single integrated insulation assembly reduces time spent on layer sequencing alignment and rework which contributes to competitive installed cost compared to traditional systems where labor efficiency is critical.

Higher efficiency leads to the same heat loss with thinner cross-sectional insulation profiles. This results in a smaller finished asset diameter, reducing cladding costs. On racked piping and pipelines, this smaller diameter can also lead to substantial savings in structural steel and piling costs.

The single integrated insulation assembly reduces time spent on layer sequencing alignment and rework which contributes to competitive installed cost compared to traditional systems where labor efficiency is critical.

Reduced Rework and Installation Risk

The integrated system design makes for simple, repeatable installation, reducing field assembly variability, supports consistent thermal performance and lowers the likelihood of installation errors. Projects remain on schedule and within budget. Assets stay drier and more thermally protected over time.

Staggered Interlocking Joint Geometry

Offset circumferential and longitudinal seams eliminate continuous thermal pathways by reducing linear thermal bridging and supporting a continuous high performance thermal assembly.

THE RESULT

A high-performance thermal insulation system that measurably reduces heat loss, installs faster, and lowers total installed and lifecycle cost, giving asset owners a clear advantage in energy efficiency, project execution, and long-term asset performance.

By bringing advanced materials together under controlled manufacturing and system-level design, Integrity delivers a single integrated solution that removes complexity from the field while maximizing thermal and economic performance.

INTEGRITY IMP SERIES MINERAL WOOL PIPE INSULATION

IMP Series is a mandrel wound mineral fibre insulation made from inorganic fibres, designed for steam and process mechanical piping systems operating at temperatures up to 1200°F (650°C). IPM Series provides superior thermal, acoustical and personal protection. This high quality mineral wool insulation is non-wicking, provides high water repellent characteristics and is non-combustable.

IMP Series is a rigid mandrel wound pipe section with excellent thermal protection. It is wound in 1 meter lengths, split and conveniently hinged as a one piece pipe up to 12" pipe diameter or two piece half sections from 14" pipe diameter up to 30" O.D.

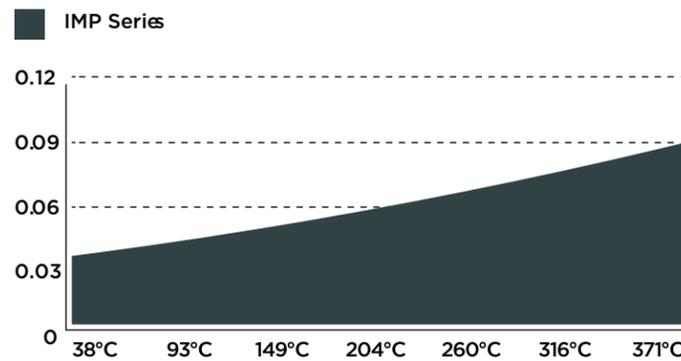
AVAILABLE FORMS & SIZES

- 1/2" - 12" split and hinged
- 4" - 30" 2 piece half sections
- Standard thickness: 1"- 4" in 1/2" increments

Pipe sections are 1 meter in length. Shipped in poly bags for weather protection and easy clean-up.

THERMAL CONDUCTIVITY // ASTM C335

λ (W/mK)



COMPLIANCE TABLE

Standard Specification for Mineral Fiber Preformed Pipe Insulation	
CERTIFIED	ASTM C547-17
Maximum Temperature Use	
1200°F / 650°C	ASTM C447-15
Sag Resistance, Max Thickness Change	
3.4%	ASTM C411-17
Standard Test Method for Linear Shrinkage of Preformed High-Temperature	
0.08%	ASTM C356-17
Surface Burning Characteristics	
Flame Spread Index = 0 Smoke	ASTM E84-17a
Development Index = 0 Complies	CAN/ULC S102-10
Standard Test Method for Measuring Non-Fibrous Content of Man-Made Rock and Slag Mineral Fiber Insulation	
Passes	ASTM C1335-12 Re-approved 2017
Standard Test Method for Thermal Insulation for Use In Contact with Austenitic Stainless Steel	
Passes	ASTM C795-08 Re-approved 2013
Standard Test Method for Determining the Water Vapour Sorption of unfaced Mineral Fiber Insulation	
0.7%	ASTM C1104/C1104M-13a Re-approved 2017
Standard Test Method for Measuring Non-Fibrous Content of Man-Made Rock and Slag Mineral Fiber Insulation	
Passes	ASTM C1335-12 Re-approved 2017
Water Absorption	
Passes	EN 13472

ARMAGEL XGH MATERIAL SPECIFICATIONS

Property	Value / Assessment	Standard / Test method
TEMPERATURE RANGE		
Service temperature	Max °C 650 // Max °F 1200	ASTM C411, ASTM C447
THERMAL CONDUCTIVITY		
Declared thermal conductivity	0m	ASTM C177
	$\lambda_d \leq [W/(m \cdot K)]$	
	$k \leq [Btu \cdot in / (h \cdot ft^2 \cdot ^\circ F)]$	0, 14 0, 15 0, 16 0, 18 0, 20 0, 22 0, 25 0, 30
TEMPERATURE RESISTANCE		
Hot surface performance	Pass	ASTM C411
Linear shrinkage under soaking heat	<2% in width and length	ASTM C356
FIRE PERFORMANCE AND APPROVALS		
Reaction to fire	A2-s1,d0, Non-combustible	EN 13501-1
Surface burning characteristics	≤ 5 flame spread index ≤ 10 smoke development	ASTM E84
RESISTANCE TO WATER VAPOUR		
Water vapour sorption	$\leq 5\%$ by weight	ASTM C1104
RESISTANCE TO WATER		
Hydrophobic	Yes	
Water absorption	Pass	ASTM 1763
CORROSION MITIGATION		
Corrosiveness to steel	Pass	ASTM C1617, Procedure A
Stress corrosion cracking	Pass, no cracks	ASTM G692, ASTM C795
PHYSICAL ATTRIBUTES		
Nominal density	180 kg/m ³ (11 lb/ft ³)	ASTM C303
MECHANICAL PROPERTIES		
Compressive strength	≥ 3 psi/ 20.7 kPa at 10% compression	ASTM C165
Flexibility of insulation blankets	Flexible	ASTM C1101
WEATHER AND UV RESISTANCE		
Weather resistance	In all industrial applications the outer layer of the material must be protected with an adequate covering likemetal jacketing or preformed UV-cured GRP (Glass-Reinforced Plastic) cladding. Please contact TechnicalServices for guidance on the temperature construction considerations which need to be made for eachjacketing system.	
HEALTH AND ENVIROMENT		
Fungal growth	No growth	ASTM C1338
Health aspects	Neutral	

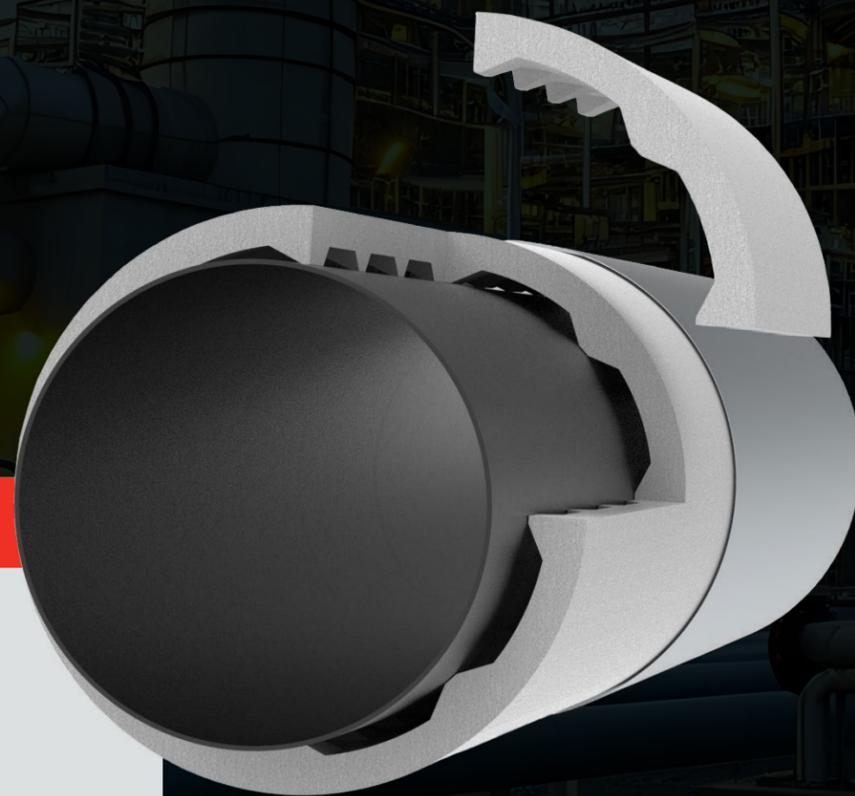
INTEGRITY CF SERIES

Integrity-CF™ Calcium Silicate represents the next evolution in high-performance, hydrophobic insulation technology designed for modern industrial applications. Engineered to deliver exceptional corrosion protection, mechanical durability, and thermal efficiency, this prefabricated system combines the proven reliability of calcium silicate with advanced full-volume hydrophobic performance.

Its contact-free design and integrated inspection accessibility redefine maintenance standards by minimizing water ingress and enabling rapid, non-destructive inspection without removing cladding. Developed for demanding industrial environments, Integrity-CF™ provides longterm protection against heat loss, mechanical stress, and corrosion under insulation (CUI).

Manufactured from high-strength, full-volume hydrophobic calcium silicate, the system withstands compressive forces exceeding 750 kPa, resists temperatures up to 650 °C (1200 °F), and maintains stability for more than 35 years under proper installation and service conditions.

This innovation delivers unmatched performance and reliability, ensuring your assets remain protected, efficient, and inspection-ready for decades.



KEY FEATURES

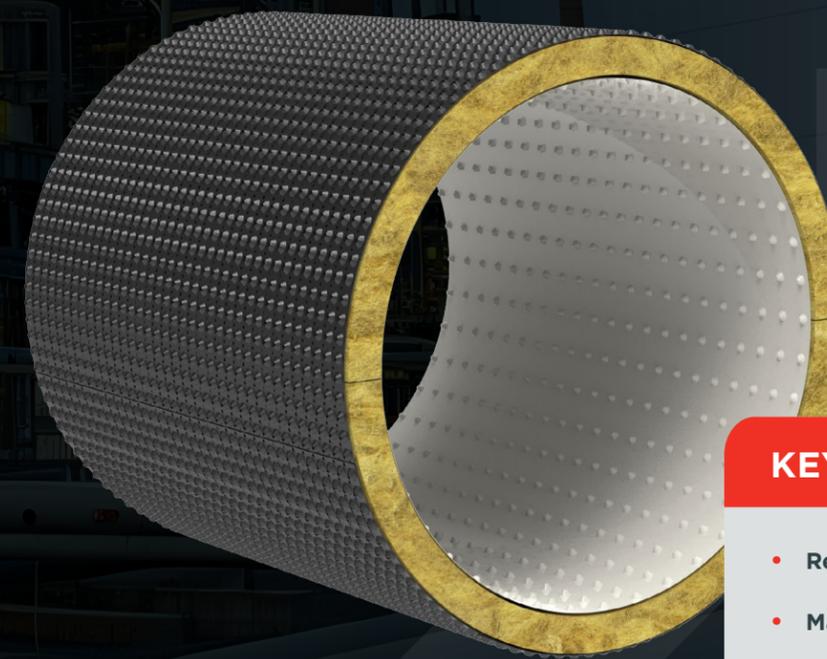
- Contact-Free Design.
- CUI Protection.
- Full-Volume Hydrophobicity.
- High Mechanical Strength.
- Thermal & Fire Resistance.

INTEGRITY MLS LAMINATED SERIES

In a drive to reduce installed cost, Integrity worked with our suppliers to develop a bonded PTFE/Mineral Wool/PVC Dimple Wrap assembly, leading to the Laminated Series. This pipe cover half shells can now be installed as a single piece instead of three separate layers, saving a lot of installation time and effort.

The multi-layer functionality of an active water egress system remains, but it's recognized that the overlap of the inner PTFE layer is gone. There is now a circumferential seam at every pipe section.

After years of successful development of the Multi-Layered System in response to IGSCC, the asset owners are being asked to trade-in a slight increase in likelihood risk with a decrease in total installed cost.



KEY FEATURES

- Reduced Labour Costs.
- Material Savings.
- Improved System Integrity.
- Precision Fit.



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