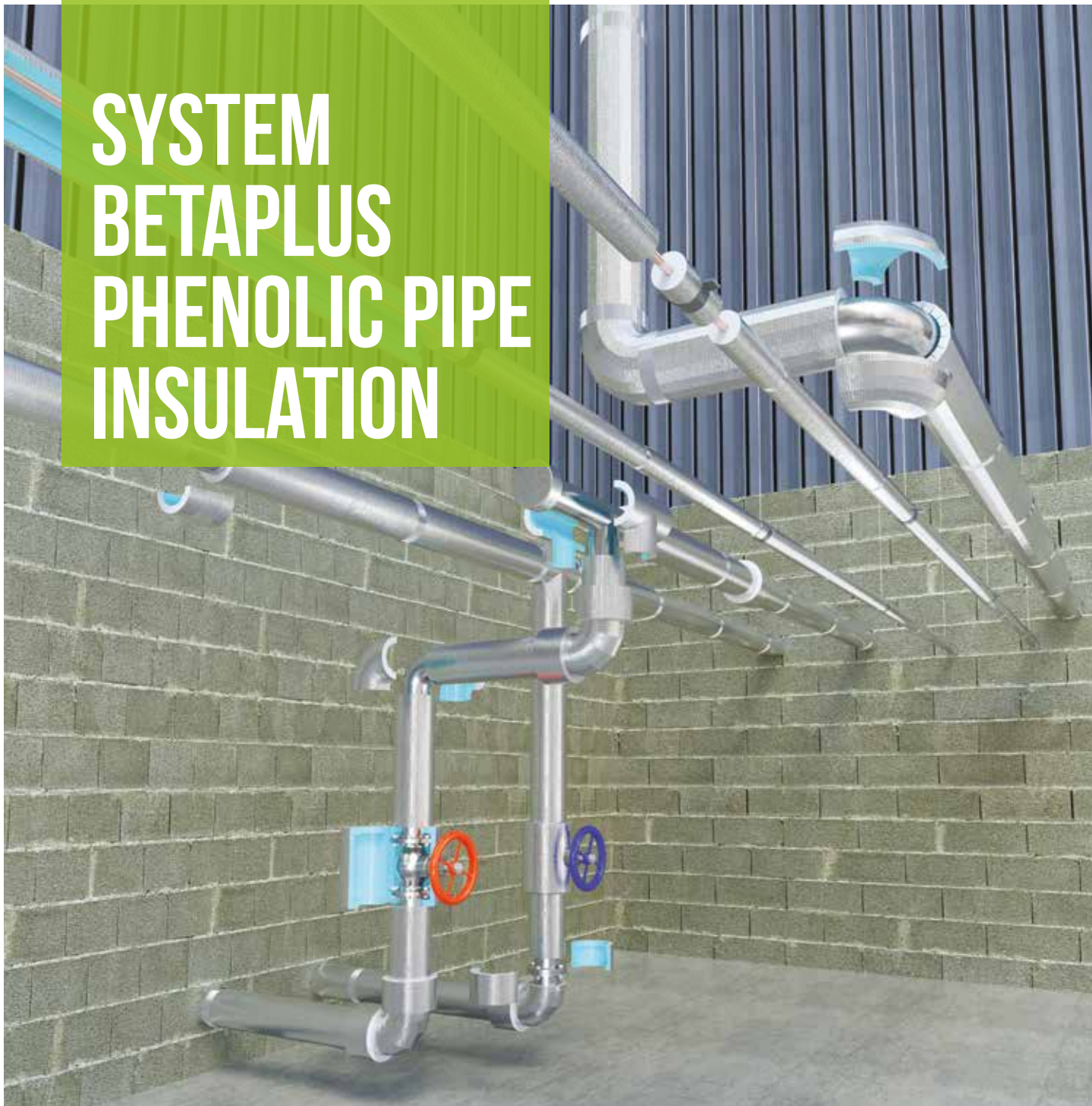


SYSTEM BETAPLUS PHENOLIC PIPE INSULATION



PRODUCT BROCHURE

GRM
Insulation Solutions

INTRODUCTION

GRM HAS BEEN MANUFACTURING MARKET-LEADING INSULATION PRODUCTS FOR THE INDUSTRIAL AND HVAC INDUSTRIES FROM ITS FACTORY IN MANCHESTER SINCE 1990.

At the forefront of innovation in PIR and phenolic insulation, GRM developed a pioneering 'cut from block' manufacturing process that set a new industry standard for speed and quality – from mass volume production to bespoke specialist designs. GRM offer brand leading pipe insulation products, design solutions, technical support and services.

Products are of the highest quality and are manufactured using traditional methods, utilising state of the art technology, to ensure products meet and exceed the demands of current and future UK and European Building Regulations.

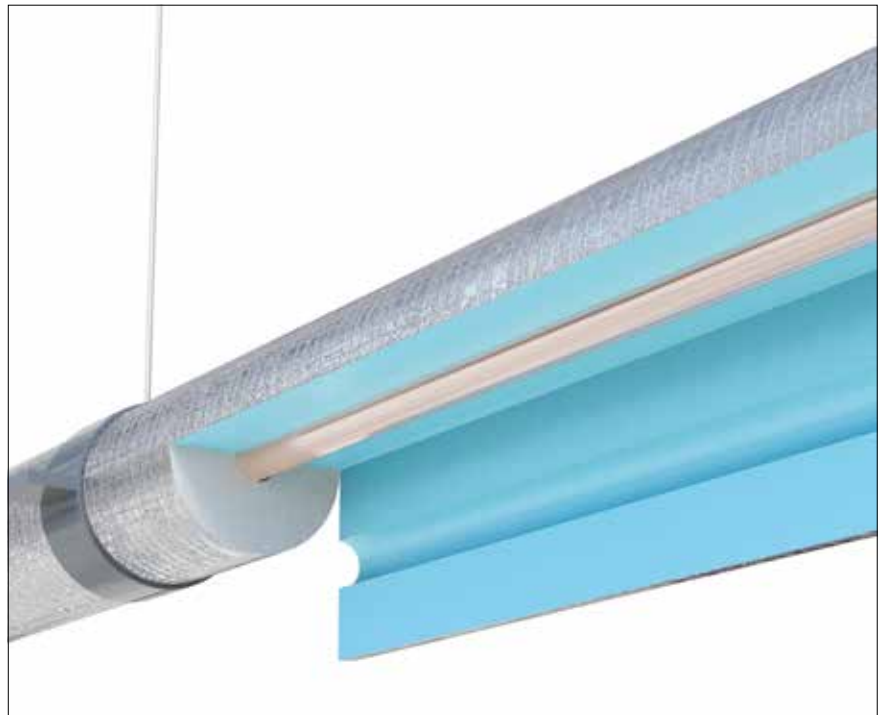
Beyond product design and manufacture, the experienced technical and production teams within GRM add further value through a dedicated technical service – giving access to a range of support including heat loss/gain calculations, site inspections, site surveys and free specification reviews.

As the industrial and HVAC insulation partner of choice for many specifiers, contractors and installers, GRM is a trusted provider of technical advice, finding commercially sound solutions to even the most challenging of applications.

GRM products are available through a national network of distributors from the 64,000 square foot manufacturing facility based in Manchester.

SUSTAINABILITY

As with any responsible insulation manufacturer, sustainability is high on the agenda for GRM, which is why the phenolic block manufacturing facility in Europe runs from renewable energy and the GRM pipe products offer superior thermal insulation properties.



TECHNICAL SUPPORT

Utilising our experience across the core areas of pipe insulation, the GRM technical team can advise on the following:

- Specification guidance
- Product advice
- Product installation support
- Building regulation compliance
- Technical assistance

BESPOKE SOLUTIONS

Along with our standard product range we also offer bespoke solutions tailored to meet your specific requirements.

CONTACT THE GRM TEAM:

Tel: 0161 2970351

Fax: 0161 2307323

Email: sales@grmltd.co.uk

Please send any technical enquiries to:
technical@grmltd.co.uk

SYSTEM BETAPLUS



SYSTEM BETAPLUS - A COMPLETE UK-FABRICATED INSULATION SYSTEM DESIGNED TO MATCH YOUR NEEDS.



System BetaPlus comprises sections of phenolic insulation faced with a factory-applied foil vapour barrier jacket, along with insulation pipe supports, bends, tee's, flanges, valves, reducers, cap ends and bespoke solutions.

The system is available in a range of thicknesses to suit different performance specifications and can be used on mild steel, stainless steel, carbon steel, copper and plastic pipework in standard and non-standard pipe diameters.

FEATURES & BENEFITS

- CE Marked in accordance with EN 14314:2009
- Supplied in 1 metre lengths with a nominal density of 37kg/m³*
- Complete insulation solution for the applicator, minimising waste, reducing installation time by offering a whole system
- Reduces the risks of condensation on the pipe work

- Minimises the amount of onsite cutting, reducing H&S risks
- Ease of removal for inspection and replacement
- Easier handling of large sections of insulation
- Manufactured in the UK
- Bespoke solutions available
- Full range is available through a national distribution network

*Higher density pipe insulation sections and insulated pipe supports fabricated from 60 kg/m³, 80 kg/m³ and 120 kg/m³ densities are also available upon request.

VAPOUR BARRIER

To maintain the reliability of System BetaPlus, all insulation products are finished with a robust and hard-wearing factory applied vapour barrier covering. This helps to save time and reduces labour costs as it removes the need for onsite application. A glass scrim provides extra strength and rigidity to the low vapour permeability aluminium barrier.

In addition to the standard BCO foil, GRM Insulation Solutions offer a mat black foil along with a matching jointing tape to complete the system. Other bespoke jacketing solutions are available upon request.

BETAPLUS

DESCRIPTION

BetaPlus phenolic pipe insulation is supplied with a factory applied Class O aluminium foil vapour barrier and a chemically applied bore coating.

It can also be provided in plain or other facings. Each section is cut from a solid block using state of the art machinery ensuring that all circular sections are concentric and precisely matched for thickness.

APPLICATION

HVAC building services suitable for copper, steel, plastic and stainless steel pipe work and small diameter ductwork.



SYSTEM BETAPLUS

Phenolic pipe insulation 'cut from block' using state-of-the-art machinery, ensuring all circular sections are concentric and precisely matched for thickness. Supplied with factory-applied Class 0

aluminium foil vapour barrier and a chemically applied bore coating. Can also be supplied with other coatings, or plain. Components are supplied tailor-made, reducing on-site cutting and installation times.

BetaPlus ■■



Standard 1m lengths and standard diameters from 15mm to 381mm.

BetaWrap ■■



To encompass large bore pipe and circular ductwork.

BetaBend ■■



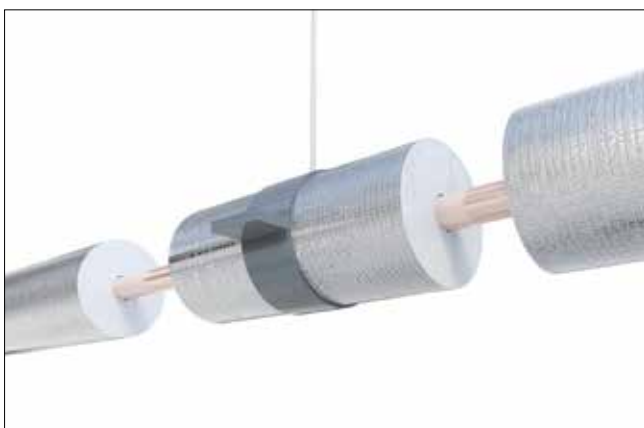
To insulate bends in pipe work.

BetaCap ■■



For closing a pipe system off at termination.

BetaPipeSupport ■■



Isolates pipework from the pipe support to limit thermal bridging and to allow for a continuous vapour barrier through the support system. Externally, BetaPipeSupport enables cladding to be carried continually through the support system, enhancing weather protection of the overall system.

BetaFlange



Encapsulates large connections between pipes.

BetaReducer



Insulates where the diameter of the pipe varies.

BetaTee



For intersections in pipework.

BetaValve



To encapsulate valves in pipework.

BetaBespoke



GRM can create bespoke insulation systems for the more obscure and technically challenging specifications. Fabrication facilities enable us to work to a high standard with low tolerances, creating complete solutions for our clients.

TECHNICAL DATA

APPLICATION

HVAC building services – suitable for copper, steel, plastic and stainless steel pipe work and small diameter ductwork.

SPECIFICATIONS

- Dimensions: Standard: 1 metre length. Standard diameters from 15mm to 381mm
- Density: 35-40 kg/m³
- Factory applied class 0 aluminium foil vapour barrier
- BetaPlus phenolic pipe section is supplied with a factory applied chemical bore coating
- Colour – Grey/Pink

PRODUCT PERFORMANCE

Thermal Conductivity EN 12667:2001

Aged (25 weeks @ 70°C) 0.025 W/m.K
Initial at +10°C 0.021 W/m.K

Temperature Range:

-50°C to +110°C

Fire Classification:

Complies with thermal insulation products for building equipment and industrial installations.

EN 14314:2009+A1:2013 and has been tested in line with Euroclass EN 13501-1:2007. Reaction to fire: B_s-s1,d0.

Class 0 performance meets BS 476-6:1989, BS 476-7:1987.

Quality Control:

ISO 9001, ISO 14001, OHSAS 18001

- Completely CFC/HFC free
- Zero ozone depletion potential

Compressive Strength

- EN 826:2013 at +23°C

Parallel	≥150 kPa
Perpendicular	≥100 kPa

Tensile Strength ASTM D1623-09

- Spec. A at +23°C

Parallel	≥150 kPa
Perpendicular	≥110 kPa

Minimum ≥90% Closed Cell Structure to EN ISO 4590:2003 meth. 1

Linear Dimensional Stability - EN 1604:2013

+93°C for 24 hours ≤1 %

-30°C for 24 hours ≤1 %

Linear Expansion Coefficient ASTM D 696 K-1 40-70 x 10⁻⁶



HEALTH & SAFETY

- GRM Insulation Solutions material handling data sheet can be downloaded from our website www.grmltd.co.uk

INSTALLATION

- Installation as per BS 5970:2012

GRM Insulation products to meet and exceed criteria of BS 5422:2009

Compliance and technical advice is available from the Technical Department.

For further information email technical@grmltd.co.uk or call 0161 301 6562.

THICKNESS TABLE

BS 5422:2009 TABLE 10

Indicative thickness of insulation for cooled and chilled water systems to control heat gain

BetaPlus Phenolic Insulation 37kg/m³ pipe insulation, outer surface $\epsilon = 0.05$

Ambient temperature +25°C in still air

OUTSIDE DIAMETER (mm)	COOLED WATER TEMPERATURES >10°C				CHILLED WATER TEMPERATURES >4.9°C TO <10°C				CHILLED WATER TEMPERATURES OF 0°C TO <4.9°C			
	t=10°C				t=5°C				t=0°C			
	BetaPlus THICKNESS (mm)	MINERAL FIBRE THICKNESS (mm)	CALCULATED HEAT GAIN (W/m)	DIFF (mm)	BetaPlus THICKNESS (mm)	MINERAL FIBRE THICKNESS (mm)	CALCULATED HEAT GAIN (W/m)	DIFF (mm)	BetaPlus THICKNESS (mm)	MINERAL FIBRE THICKNESS (mm)	CALCULATED HEAT GAIN (W/m)	DIFF (mm)
17.2	15	15	2.48	0	15	20	2.97	5	15	25	3.47	10
21.3	15	20	2.72	5	15	25	3.27	10	15	25	3.81	10
26.9	15	20	3.05	5	15	25	3.58	10	15	30	4.18	15
33.7	15	20	3.41	5	15	25	4.01	10	20	30	4.60	10
42.4	15	20	3.86	5	15	25	4.53	5	20	35	5.11	15
48.3	15	20	4.11	5	20	30	4.82	10	20	35	5.45	15
60.3	15	20	4.78	5	20	30	5.48	10	20	35	6.17	10
76.1	15	25	5.51	10	20	30	6.30	5	25	35	6.70	10
88.9	15	25	6.17	10	20	30	6.90	5	25	35	7.77	5
114.3	15	25	7.28	10	20	30	8.31	5	25	40	9.15	5
139.7	15	25	8.52	10	20	30	9.49	0	25	40	10.45	5
168.3	15	25	9.89	10	20	30	10.97	0	25	40	11.86	0
219.1	15	25	12.27	10	25	30	13.57	5	30	40	14.61	0
273	20	25	14.74	10	25	30	16.28	5	30	40	17.48	0

BS 5422:2009 TABLE 15

Indicative thickness of insulation for non-domestic heating services to control heat loss

BetaPlus Phenolic Insulation 37kg/m³ pipe insulation, outer surface $\epsilon = 0.05$

Ambient temperature +15°C in still air

OUTSIDE DIAMETER (mm)	LOW TEMPERATURE HEATING SERVICES ($\leq 95^\circ\text{C}$)			
	t=75°C			
	BetaPlus THICKNESS (mm)	MINERAL FIBRE THICKNESS (mm)	MAX HEAT LOSS (W/m)	DIFF (mm)
17.2	15	25	8.90	10.00
21.3	15	30	9.28	15.00
26.9	20	30	10.06	10.00
33.7	20	35	11.07	15.00
42.4	20	35	12.30	15.00
48.3	25	35	12.94	10.00
60.3	25	40	14.45	15.00
76.1	25	40	16.35	15.00
88.9	25	40	17.91	15.00
114.3	30	45	20.77	15.00
139.7	30	45	23.71	15.00
168.3	30	45	26.89	15.00
219.1	30	45	32.54	15.00
273	30	50	38.83	15.00

BS 5422:2009 TABLE 17

Indicative thickness of insulation for non-domestic hot water service areas to control heat loss

BetaPlus Phenolic Insulation 37kg/m³ pipe insulation, outer surface $\epsilon = 0.05$

Ambient temperature +15°C in still air

OUTSIDE DIAMETER (mm)	TEMPERATURE OF CONTENTS			
	t=60°C			
	BetaPlus THICKNESS (mm)	MINERAL FIBRE THICKNESS (mm)	MAX HEAT LOSS (W/m)	DIFF (mm)
17.2	15	25	6.60	10.00
21.3	15	25	7.13	10.00
26.9	15	30	7.83	15.00
33.7	20	30	8.62	10.00
42.4	20	30	9.72	10.00
48.3	20	35	10.21	15.00
60.3	20	35	11.57	15.00
76.1	25	35	13.09	10.00
88.9	25	35	14.58	10.00
114.3	25	40	17.20	15.00
139.7	25	40	19.65	15.00
168.3	25	40	22.31	15.00
219.1	30	40	27.52	10.00
273	30	40	32.40	10.00

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GRM products are part of the  range

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