



FLEXIBLE THERMAL INSULATION MADE OF SILICONE

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1. FLEXIBLE, THERMAL INSULATION MADE OF SILICONE

Where heat is not an undesirable by-product, but is purposefully induced, it is important to conserve it. For example, in heating industrial installations and chemical processes. Insulation plays an important role here. Only with the right insulation material does a heating system really work efficiently.

Energy and cost savings make insulation an important element of heated systems. But reduced temperature fluctuations also help, e.g. in the chemical industry, to ensure consistent process temperatures or to keep outdoor installations frost-free. At the same time, thermal insulation protects the user against burns from hot surfaces and the heated object from mechanical stress and harmful environmental influences, such as UV radiation.

We only use silicone to manufacture our insulation materials. The material is suitable for applications in the temperature range from -60 °C to +200 °C. On pages 4-5 of this catalogue you will find moulded parts made of solid silicone, which we manufacture precisely according to your specifications. For instance, they are used for fitting connections, pump bodies or other complex geometries. Insulation made of silicone foam, such as silicone foam hose and silicone mats, are presented from page 6. We also offer moulded products from this material, but you can also get involved yourself and cut the suitable insulation for you to size.

Depending on the insulation grade and temperature difference, a reduction in the necessary heating power of up to 80% is possible with silicone insulation. But our insulation materials have many other positive properties. They can be fitted and dismantled quickly and easily and, above all, retroactively. This raises the service-friendliness of the relevant installation. After dismantling, the insulation can be reused without problems or renewal, any damage to the very robust exterior is adhesive bonded. We offer the option of colour screen printing for your company logo or warning sign. The manufacture of silicone insulation materials is even economically viable in small quantities - ask our Customer Service for an offer at sales @winkler.eu.

1.1 Features and benefits

Low thermal conductivity	→	High degree of thermal insulation, protection against accidental contact
Aging resistance, weathering, ozone and UV resistance, water repellent	→	Long lifetime of insulation, no embrittlement
Breakproof, permanently elastic, impact resistant	→	Mechanical protection against projectiles etc. and reduced transportation damage
Permanent temperature stability from -60 °C to +200 °C	→	Wide range of applications
Processable with injection moulding, compression moulding, casting, foaming	→	Precisely adaptable to the object insulated, complex geometries possible
Flame retardant, non-toxic gassing	→	Fulfils the relevant statutory requirements, also railway standards
Physiologically safe, chemically resistant, cleanroom compatible	→	Applicable in the food, chemical and pharmaceutical industries without reservations
Easy to repair by adhesive bonding	→	No expensive repair or replacement

1.2 Designs

For every application there is the right silicone mixture.

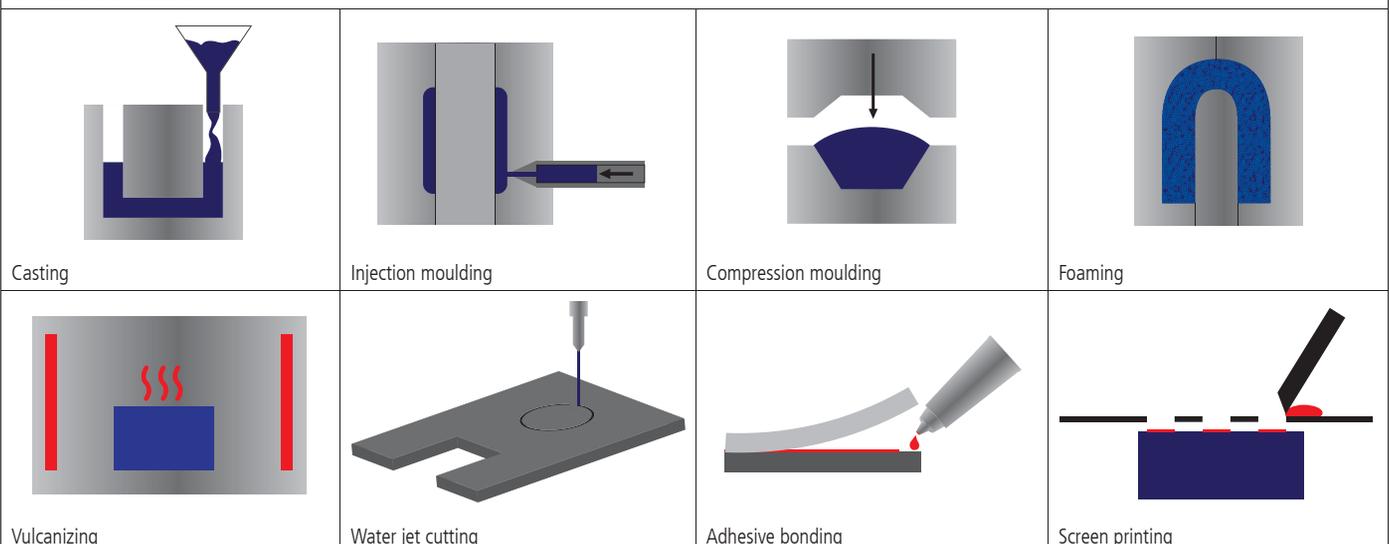
Different degrees of hardness ensure different stability and insulation properties. For example, a relatively hard mixture like SHF-20 for insulation which, at the same time, forms self-contained, robust housing for the object insulated (see p. 5). Other mixtures (SHF-50 and SHF-33) with their high flexibility are made for applications where they can be frequently fitted and removed, e.g. insulation caps and jackets (see p. 4-5).

	Solid silicone SHF-50	Solid silicone SHF-33	Solid silicone SHF-20	Solid silicone SHF-50-G-T50 (DIN 5510-2)	Silicone foam
Shore hardness A	38	40	71	62	—
Density	750 Kg/m ³	640 Kg/m ³	580 Kg/m ³	1200 Kg/m ³	260 Kg/m ³
Thermal conductivity	0,1 W/m K	0,08 W/m K	0,1 W/m K	0,2 W/m K	0,062 W/m K

1.3 Silicone processing at Winkler

Our aim is to offer a bespoke insulation solution for every application. That is why we have developed and tested a variety of methods for manufacturing and processing silicone parts. This is how we guarantee you top quality.

We combine the different methods as necessary and by integrating additional functional elements, such as heat conductors, sensors, cables and fasteners, we make a heating system out of the insulation.



2. SOLID SILICONE: MOULDED PARTS ACCORDING TO CUSTOMER SPECIFICATIONS

Applications

Moulded parts made of silicone serve to improve the efficiency of electrical heating systems and at the same time protect against accidental contact. Their robust construction also makes them extremely suitable for protecting the insulated object against mechanical damage and UV radiation. The flexible insulation is used on filters, pumps, fittings and many other three-dimensional geometries.

We manufacture the moulded part to your specifications. So every insulation fits precisely to your application and attains a high degree of efficiency. We offer insulation in the form of caps, jackets, housings or plugs for the different geometries of your application. With additives, we are in a position to cater for your needs with regard to fire protection and mechanical stability. You also have a free choice of colours. Colouring and screen printing the silicone in all RAL colours is possible.

Handling and installation are very simple: Caps and jackets are snapped on, housings have a removable cover with openings for cable outlets and control elements.

Tell us your task, we offer the solution!

2.1 Insulation caps

Task	Solution
	
<p>Insulation of a fire extinguisher head used down to -50 °C</p>	<p>Insulation cap to snap on (material: SHF-50-G-T50)</p>
	
<p>Insulation of a T-piece, continuous temperature 200 °C</p>	<p>Insulation cap to snap on (material: SHF-33)</p>

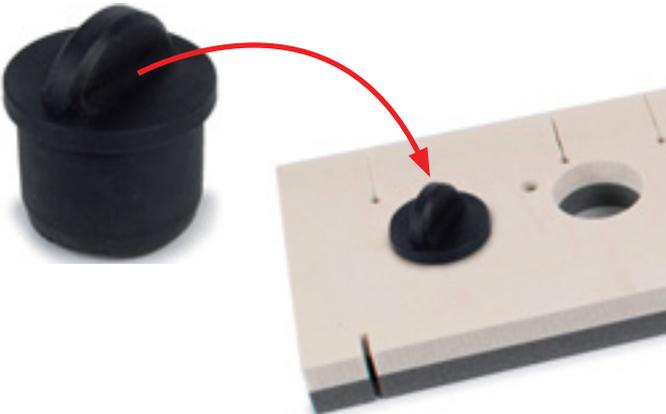
2.2 Insulation jackets

Task	Solution
	
<p>UV protection for a plastic valve</p>	<p>Insulation cap to snap on (material: SHF-50)</p>

2.3 Insulation housings

Task	Solution
	
<p>Insulation of a measuring device, continuous temperature 200 °C</p>	<p>Insulation housing (with abrasion resistant screen printing)</p>

2.4 Insulation plugs

Task	Solution
	
<p>Removable seal of the apertures in an insulation plate</p>	<p>Silicone plug filled with silicone foam</p>

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3. SILICONE FOAM: MOULDED PARTS AND SEMI-FINISHED PRODUCTS

3.1 Silicone foam hoses

Applications

Winkler supplies silicone foam hoses by the metre, which you can cut to size for your application with a cutter and scissors and process with silicone adhesive. So you have the maximum flexibility in design and are free to put your ideas into practice independently.

The silicone foam hoses are suitable for insulating piping, fittings and transitions and are simply pushed on. Insulation jackets can also be produced using the accessories on page 8 by cutting open the hoses lengthways and fastening a Velcro strip.

Material properties

The silicone foam hoses consist of highly tear resistant, hot-vulcanized silicone. The closed cell structure and the silicone jacket ensure mechanical stability and excellent performance in damp or liquid environments: The moisture uptake is < 1.5 percent by weight. These properties remain at continuous temperatures between -60 °C and +200 °C; brief temperature peaks of up to 300 °C are no problem

Product	Article number	Description
	WZI03314-008SB042	ID 8 mm, OD 42 mm, colour black Shore hardness A: 50 Density: 0,55 ±0,5 g/cm ³
	WZI04706-018SB032	ID 18 mm, OD 32 mm, colour black Shore hardness A: 40 Density: 0,55 ±0,5 g/cm ³
	WZI04707-021SB042	ID 21 mm, OD 42 mm, colour black Shore hardness A: 40 Density: 0,55 ±0,5 g/cm ³
	WZI04710-034SB052	ID 34 mm, OD 52 mm, colour black Shore hardness A: 40 Density: 0,55 ±0,5 g/cm ³
	WZI04705-018SW032	ID 18 mm, OD 32 mm, colour white Shore hardness A: 40 Density: 0,55 ±0,5 g/cm ³
	WZI04709-021SW042	ID 21 mm, OD 42 mm, colour white Shore hardness A: 40 Density: 0,55 ±0,5 g/cm ³
	WZI04708-034SW052	ID 34 mm, OD 52 mm, colour white Shore hardness A: 40 Density: 0,55 ±0,5 g/cm ³

5.1.3 Insulation jackets

Applications

In order to spare you having to adapt silicone foam hoses to your application yourself, we offer prefabricated insulation jackets made of silicone foam. For insulation of fittings between heated lines and heated wall bushings or of sections of piping, we stock the standard dimensions listed below.

Handling is very easy: The jackets are snapped on and secured by means of Velcro straps.

Material properties

The silicone foam hoses consist of high-strength, hot-vulcanized silicone. The closed-cell structure and the silicone jacket ensure mechanical stability and excellent performance in damp or liquid environments: The moisture uptake is < 1.5 percent by weight. These properties remain at continuous temperatures between -60 °C and +200 °C; brief temperature peaks of up to 300 °C are no problem.

Product	Article number	Description
	WAZX1032	Insulation jacket for connecting fittings between heated lines or to heated wall bushings <ul style="list-style-type: none"> · ID 20 mm · OD 42 mm · Length 30 mm · Colour black · 1 Velcro fastener, securely bonded
	WAZX1027	Insulation jacket for connecting fittings between heated lines or to heated wall bushings <ul style="list-style-type: none"> · ID 20 mm · OD 42 mm · Length 60 mm · Colour black · 1 Velcro fastener, loose
	WAZX1020	Insulation jacket for connecting fittings to heated lines <ul style="list-style-type: none"> · ID 20 mm · OD 42 mm · Length 80 mm · Colour black · 2 Velcro fasteners, loose
	WAZX1023	Insulation jacket for connecting fittings to heated lines with glass-silk braiding Insulation jacket: <ul style="list-style-type: none"> · ID 20 mm · OD 42 mm · Length 80 mm · Colour black · 2 Velcro fastener, loose Glass-silk braiding: <ul style="list-style-type: none"> · Width 50 mm · Length 220 mm
	WAZA8342	Insulation angle for angled fitting connection to heated lines <ul style="list-style-type: none"> · ID 18 mm · OD 30 mm · Length 48 mm (end without Velcro fastener) · Length 57 mm (end with Velcro fastener) · Colour black · 1 Velcro fastener, securely bonded

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3.3 Silicone caps

Applications

With silicone end caps you can insulate the ends of pipes, tubes and cables. The diameters are matched to those of the silicone foam hose (see p. 6) and the insulation jackets (see p. 7) so they can be combined with one another. Velcro strip or silicone adhesive are used for attachment.

Material properties

Wall thickness approx. 3 mm · Dimensional tolerance $\pm 10\%$ · Elastic and very tear resistant · High chemical resistance · Excellent elastic recovery · Low moisture uptake

Product	Article number	Description
	WZK00715-028SB034	ID 28 mm, OD 34 mm, length 100 mm, colour black
	WZK00709-038SB044	ID 38 mm, OD 44 mm, length 110 mm, colour black
	WZK04249-048SB054	ID 48 mm, OD 54 mm, length 110, colour black
	WZK04246-028SW034	ID 28 mm, OD 34 mm, length 100 mm, colour white
	WZK04248-038SW044	ID 38 mm, OD 44 mm, length 110 mm, colour white
	WZK04250-048SW054	ID 48 mm, OD 54 mm, length 110, colour white

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3.4 Accessories

	WZZ00622-005HF020	Velcro tape: hooks on front side, fleece on rear side, 20 mm wide, 5 mm strong, 5 m reel
	WZZ00629-000ST090	Silicone glue transparent: 90 ml tube incl. nozzle and winding hook

3.5 Silicone foam mats

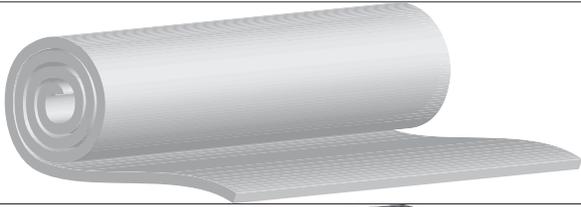
Applications

Winkler supplies silicone foam mats by the metre, which you can cut to size for your application with a cutter and scissors and process with silicone adhesive (see p. 8). So you have the maximum flexibility in design and are free to put your ideas into practice independently.

The silicone foam mats are suitable for insulating surfaces, housings and hose fittings, where they are simply laid or bonded.

Material properties

Closed cell silicone foam · Water repellent · Density → approx. 260 kg/m³ · Thermal conductivity → 6.2·10⁻² W/(m·K) · Available in rolls and mats of 100 cm width

Product	Article number	Description
	WZISILSM-005SW100	Thickness 5 mm, max. length 10 m, width 100 cm, colour white
	WZISILSM-010SW100	Thickness 10 mm, max. length 10 m, width 100 cm, colour white
	WZISILSM-015SW100	Thickness 15 mm, max. length 10 m, width 100 cm, colour white
	WZISILSM-005SG100	Thickness 5 mm, max. length 10 m, width 100 cm, colour grey
	WZISILSM-010SG100	Thickness 10 mm, max. length 10 m, width 100 cm, colour grey
	WZISILSM-015SG100	Thickness 15 mm, max. length 10 m, width 100 cm, colour grey

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3.6 Silicone foam parts according to customer specifications

Applications

In order to spare you having to adapt silicone foam hoses to your application yourself, we offer prefabricated insulation pads made of silicone foam. The flexible pads starting at a thickness of 20 mm consist of two silicone foam mats bonded together. We manufacture insulation pads up to a maximum size of 980 mm · 980 mm according to your specifications. The pads are cut to size using water jet technology from CAD data thus guaranteeing the smallest details cut out and a very accurate fit.

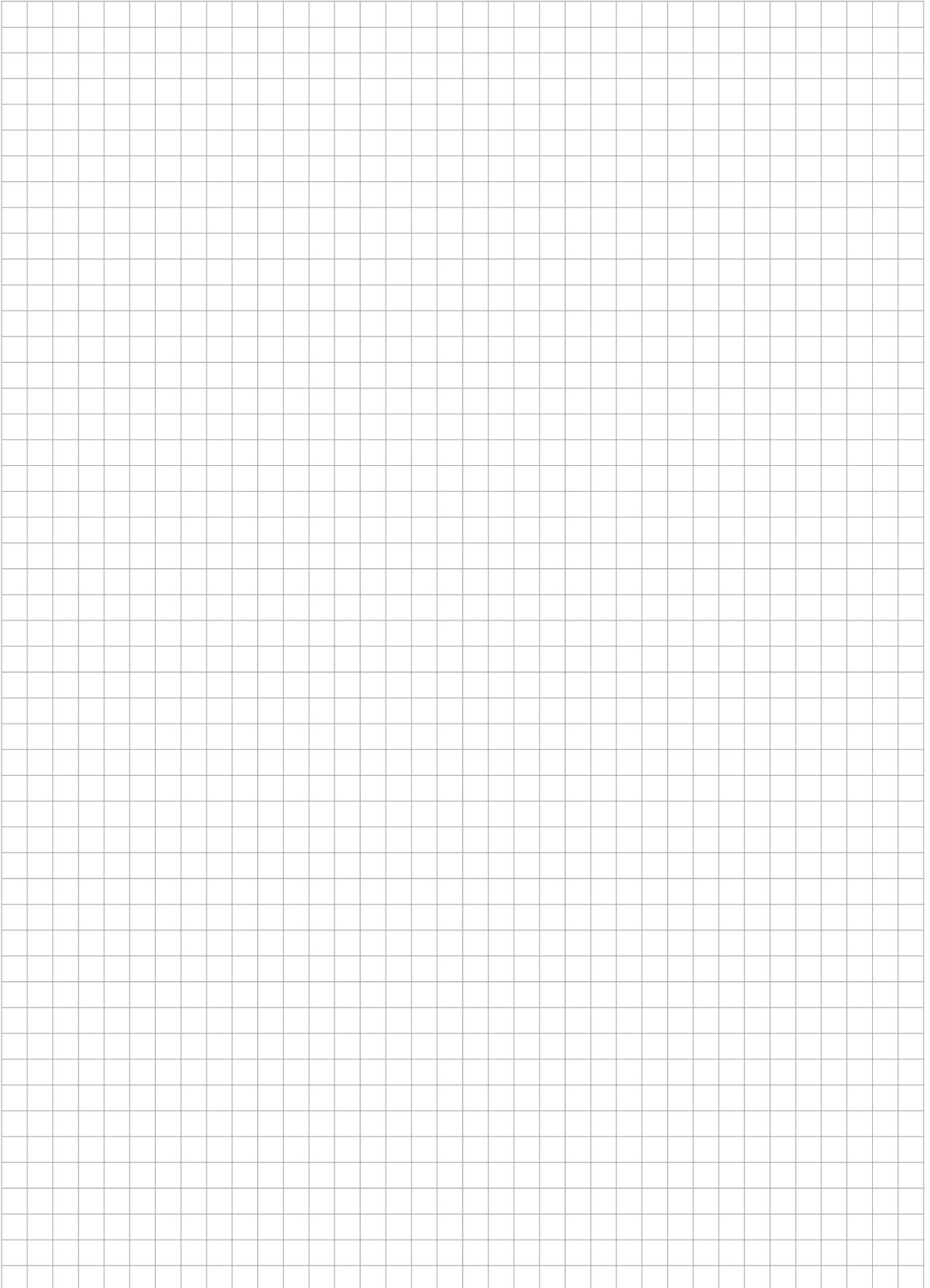
The silicone foam pads are suitable for insulating surfaces, housings and hose fittings, where they are simply laid or bonded.

Material properties

Closed cell silicone foam · Water repellent · Density → approx. 260 kg/m³ · Thermal conductivity → 6.2·10⁻² W/(m·K) · Available up to max 980 mm · 980 mm

Product examples

	
Insulation for a valve block	Insulation for heated measuring gas pump



FOR YOUR NOTES

A large grid area for taking notes, consisting of many small squares. The grid is approximately 30 columns wide and 40 rows high, providing a structured space for writing or drawing.

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Winkler GmbH – who we are and what distinguishes us

Our work not only centres on the product itself, but also on developing complete solutions. It is with this belief in mind that our employees plan and manufacture electrical heating devices - adapted precisely to your requirements as a customer. **Your temperature problem is our inspiration.** Our resourceful developers and skilled manufacturing specialists do everything within their power to make your enquiry into a Winkler heating solution. This way we can respond flexibly and quickly deliver you a ready-for-connection result from a single source. We're proud of that!

There is not only enthusiasm for innovation in our 60 employees' heads, but also comprehensive knowledge from a wide range of technologies. We have continuously transferred the experience gained since the company's foundation in 1979 into new product and application areas, such as explosion protection. This versatility allows us to supply **customers in industry, in the laboratory and in railway technology** – worldwide. But no matter where: We are in close contact with every customer. Because the better we fulfil your requirements, the more convincing the results. And that is what matters for us!



Our headquarter



Our production site in Walldorf

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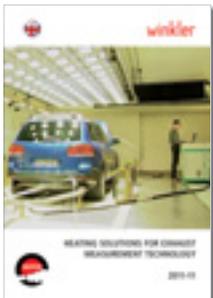
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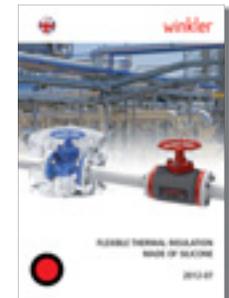
Heated hoses for glueing technology and for filling and dosing systems



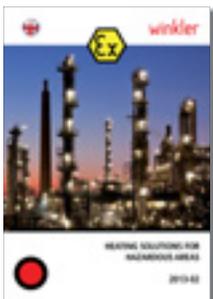
Heating solutions for rail technology



Heating solutions for chemical and thermal process engineering



Flexible thermal insulation made of silicone



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Silicone heaters and heating foils

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