Technical Information
Phonotherm®

Phonotherm by warmotech®

Phonotherm® boards are made of high quality CFC-, HCFC- and formaldehyde-free polyurethane hard foams. In a special composition including the addition of auxiliary materials this material is pressed into high quality boards. **Phonotherm®** is a functional material that convinces through extraordinary properties. **Phonotherm®** is moisture-resistant and has excellent thermal insulation properties. Its resistance to moisture makes **Phonotherm®** very durable and prevents it from rotting. This renders **Phonotherm®** far superior to conventional wooden boards such as press boards and MDF boards, yet has similar machining properties. **Phonotherm®** can be machined using normal carbide tools and can even be milled in fine detail without danger of break-out. **Phonotherm®** is also resistant to chemicals, easy to work and can be laminated and combined with other materials.

Technical data: Phonotherm®		**RG 550**	**RG 700**
Material		CFC-, HCFC- and formaldehyde-free polyurethane hard foam material	
Raw density DIN EN 1602		550 ± 50 kg / m³	700 ± 50 kg / m³
Bending strength width between supports: 15 mm material thickness DIN EN 310		approx. 7.8 N / mm²	approx. 10.5 N / mm²
Thermal conductivity		approx. 0.076 W / (m · K)	approx. 0.10 W / (m · K)
Modulus of elasticity width between supports: 15 mm material thickness		approx. 500 N / mm²	approx. 750 N / mm²
Screw withdrawal resistance DIN EN 310	screwing depth 15 mm	approx. 650 N	approx. 800 N
	screwing depth 40 mm	approx. 3500 N	--
Compression strength at 10 % compression EN 826		approx. 7000 kPa	approx. 8100 kPa
Thickness swell after 24 h in water		approx. 1 %	approx. 1 %
Humidity-dependent change in length		± 2 mm / m	± 2 mm / m
Elongation coefficient in the range – 20 to + 60 °C		approx. 28.375 x 10^{-6}/ K	approx. 28.375 x 10^{-6}/ K
Water vapour diffusion resistance level µ		approx. 12	approx. 25
Residual moisture		approx. 2 – 4 %	
Fire behaviour	DIN 4102	building material class B2 non-flammable drop free	building material class B2 non-flammable drop free
	DIN EN 13501-1	Class E	Class E
Thickness tolerance, not sanded		± 0.4 mm	
Thickness tolerance, sanded		± 0.2 mm	
Thermal stability		– 50 °C to + 100 °C	
Resistance against ageing		resistance against putrefaction and non-rotting	

Dimensions:

Thicknesses:	RG 550 kg / m³	from 10 mm to 60 mm	2400 mm, 3600 mm 1500 mm
		from 20 mm to 60 mm	2400 mm, 3600 mm 1350 mm, 1350 mm
	RG 700 kg / m³	from 10 mm to 50 mm	2400 mm, 3600 mm 1350 mm, 1350 mm

Other sizes and thicknesses are available on request.

The advantages:

- economical
- moisture resistant
- does not age or rot
- resists roots
- good thermal insulation properties
- temperature resistant
- very good resistance to chemicals
- recyclable
- biologically and ecologically harmless, resistant against fungi
- easy to work

The Institut Bauen und Umwelt e. V has issued an EPD (Environmental Product Declaration) according to the standard DIN EN 15804 for **Phonotherm®**. In this EPD, the life cycle of **Phonotherm®** is illustrated on the basis of structural-physical, as well as energy and emission relevant information. EPDs can be used for building certification, e. g. for DGNB.

Examples of application areas:
Phonotherm® has many applications. It is used, among other, for partitions in wet and damp rooms, as concealed edges or edge bands for doors for wet and damp rooms, window finishing profiles, roller shutter boxes, working boards in kitchen, facade construction, spacers, decoupling plates in buildings and in vehicles (e.g. to prevent thermal bridges).

Environmental protection:
The created waste is 100% recyclable. **Phonotherm®** is free of formaldehydes and does not emit physiologically significant quantities of chemical substances.

Processing:
Use conventional tungsten-carbide tipped woodworking machinery for working. In principle, we recommend an extraction system. The dust created during machining (sawing, grinding, milling) is physiologically harmless and not fibrous. Predrill before screwing or use self-drill screws. **Phonotherm®** can be screwed, the material can be milled, ground, drilled and can be glued together.

Gluing:
Gluing of butt joints of boards, cuts and strips is simple, using 2-component polyurethane adhesives for instance. Single or 2-component polyurethane adhesives are suitable for gluing of surfaces. For assistance please enquire about your specific application.

Storage and transport:
Phonotherm® should be stored dry and on a flat surface. It is not subject to the Ordinance on Hazardous Substances or other storage and transport regulations.

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