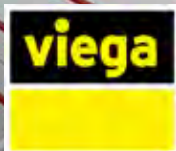


Application technology, 5th edition

Volume III:

Fonterra radiant heating and cooling



Fonterra Sport

System description

Ensuring individually adjustable temperatures in indoor sports and event halls, tailored to the current usage, is a goal which is hard to reach – and if at all possible, at unreasonably high expenses.

Nowadays, these buildings are equipped with two types of floors to meet the requirements of each different usage. The point-elastic floor and the elastic sports hall floor make heating systems with special features necessary.

System features

- Whether elastic or point elastic: For both types of sports hall floor, the Viega portfolio has state-of-the-art solutions.
- The radiation area brings the heat to the area where it is needed. In the movement zone up to a height of approx. 1.80 m, radiant heat feels particularly agreeable.
- Since temperature layers – warm at the ceiling, cool at the floor – are avoided, economically efficient heating is possible.
- Already during the heat-up phase, the room feels comfortable.
- Modern regulation systems as those used by Viega help to further reduce the heating costs.

System benefits

- Easy and quick installation
- Low convection – little dust is blown up
- Large radiation area ensures agreeable temperatures
- Economical due to high radiation quota
- Thanks to pipe fasteners, no interference with the structure of the sports hall floor
- Thanks to de-coupling, no reduction of the vibration properties of the sports hall floor
- Lower investment compared to other heating systems

**Technical data
Fonterra Sport**
Technical data

Fonterra Sport	
Pipe dimensions	15 x 1.5 mm
	20 x 2.0 mm
	25 x 2.3 mm
Installation clearances	variable
Max. heating circuit length	100 m with 15 x 1.5 mm
	150 m with 20 x 2.0 mm
	200 m with 25 x 2.3 mm
Average clearance of the clamping rails	200 cm

Tab. 117: Technical data Fonterra Sport

**Technical data
system pipes**

System pipes		PB	PE-Xc	PE-Xc
Dimensions	[mm]	15 x 1.5	20 x 2.0	25 x 2.3
Minimum bending radius		5 x d _a	6 x d _a	
Operating condition acc. to ISO 10508	Class/[MPa]	4-5/0.8		
Operating condition acc. to ISO 15875-1	Class/[MPa]		4/0.8	4/0.6
	Class/[MPa]		5/0.6	
Max. operating temperature	[°C]	95	90	
Mounting temperature	[°C]	≥ -5	≥ +5	
Water volume	[l/m]	0,11	0,2	0,32
Heat conductivity λ	[W/(m·K)]	0,22	0,35	
Linear coefficient of length expansion	[K ⁻¹]	1.3 x 10 ⁻⁴	2.0 x 10 ⁻⁴	
Weight	[g/m]	67	118	172

Tab. 118: Technical data system pipes

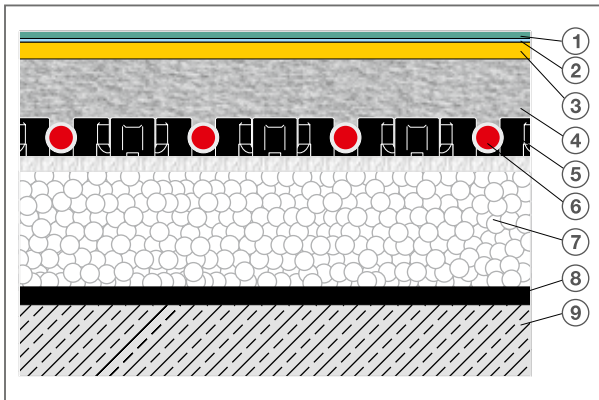
Point elastic sports hall floors

Point elastic floors consist of an elastic layer and a top coat which is applied to a concrete panel (screed) adjusted to the respective utilisation.

These screeds must fulfil increased requirements (increased payload, impact loads, or rolling movement of heavy loads).

The screed must be executed according to DIN 18560, part 2 table 2 to 4.

The levelness tolerances according to DIN 18202 must be met.



**Fonterra Sport -
Sub-construction
of a point elastic
floor**

Fig. 242: Fonterra Sport - Sub-construction of a point elastic floor

Key

- ① Floor covering [4 mm]
- ② Load distribution panel [2 mm]
- ③ Elastic layer [9.5 mm]
- ④ Screed [55 to 60 mm]
- ⑤ Snap plate with insulation
- ⑥ Heating pipe
- ⑦ Additional heat insulation
- ⑧ Building waterproofing
- ⑨ Foundation/concrete ceiling



Mixed-elasticity floor coverings have a higher thermal resistance (R value) of approx. $0.25 \text{ m}^2\text{K/W}$. For surface heatings, floor coverings with a maximum R value of 0.15 are considered suitable. Higher values must be coordinated with the customer in writing, and taken into consideration when defining the system dimensions.

Area-elastic sports hall floor

The area-elastic sports hall floor (sprung floor) consists of an elastic layer or structure, a flexurally rigid load distribution layer, and the floor covering. The heating pipes are fastened with clamping rails.

Fonterra Sport Sub-construction of an area-elastic floor

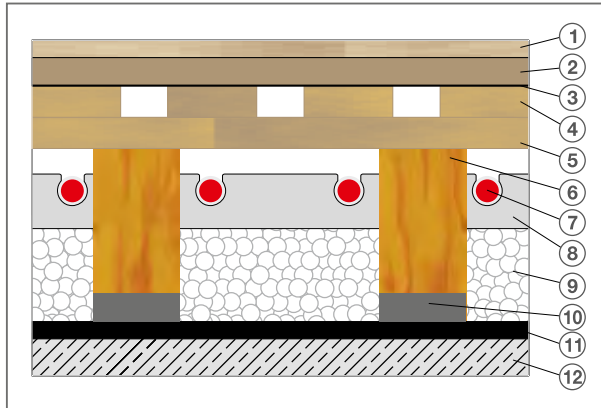



Fig. 243: Fonterra Sport Sub-construction of an area-elastic floor

Key

- ① Parquet [10mm]
- ② Load distribution panel [16mm]
- ③ PE foil
- ④ Blind floor [18mm]
- ⑤ Swing beams [18mm]
- ⑥ Lining pad
- ⑦ Heating pipe
- ⑧ Clamping rail
- ⑨ Heat insulation against the soil [53mm]
- ⑩ Permanently elastic spring pads [approx. 10mm]
- ⑪ Building waterproofing
- ⑫ Foundation/concrete ceiling

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