



WAVIN K1 TIGRIS MULTILAYER PRESS-FIT SPECIFICATION

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1. General

Wavin K1 Tigris is a multilayer composite pipe and press-fit fittings system designed for potable water, sanitary and heating applications. Wavin K1 Tigris is approved by regulatory body WRAS and DVGW.

2. Wavin K1 Tigris Specification Clause

The heating and cooling system shall be Wavin Tigris K1___mm diameter, comprising of an inner layer pipe made of cross-linked polyethylene (PEX-c), an outer layer made of High Density Polyethylene (HDPE) and a middle layer of butt welded aluminium and is passed and certified to WRAS and DVGW. Wavin K1 Tigris is manufactured in accordance with quality management system ISO 9001 and environmental management system ISO 14001. All products must be installed in accordance with instructions issued by Wavin Limited.

3. Wavin K1 Tigris Applications

The Wavin K1 Tigris system can be installed in the following fields of application:

- Potable water
- Hot and cold water services
- Heating installations
- Fan coil units

Wavin K1 Tigris is also suitable for installation where health and hygiene are of particular importance for example, in operating theatres or food preparation facilities.

4. Wavin K1 Tigris Pipes and Fittings Characteristics

The Wavin multilayer pipes for plumbing and heating applications are made of a diffusion-resistant composite pipe with 5 layers. The Wavin multilayer pipe consists of an inner layer pipe made of cross-linked polyethylene (PEXc), an outer layer made of stabilized Polyethylene (PERT or PEHD) and a middle layer of butt welded aluminum. The three layers are connected by bonding agents.

Pipe

Material PEXc (inner layer)
 Aluminum (middle layer)
 HDPE (outer layer)

Diameters

Diameter (mm)	14	16	20	25	32	40	50	63
Wall Thickness (mm)	2.0	2.0	2.3	2.5	3.0	4.0	4.5	6.0

Color White



The Wavin K1 Tigris press-fit fittings are manufactured from High performance plastic polyphenylsulphone (PPSU), resistance to high temperatures and corrosion. PPSU's extremely high notch impact strength and resistance to stress cracking make K1 Tigris fittings extremely robust and strong. The unique fitting design with the hexagonal shape enables the 'Defined Leak Function', for a fast and safe detection of un-pressed connections, and also significantly reduces the required push-in forces.

Wavin K1 Tigris Fitting

Material	Polyphenylsulfon (PPSU) Stainless Steel EPDM
Diameter	14 / 16 / 20 / 25 / 32 / 40 / 50 / 63
Color	Blue

5.0 Operating Temperature and Resistance

The Wavin K1 Tigris system has a maximum operating temperature of 85°C with a maximum operating pressure of 6 bar. A maximum permanent operating pressure of 10 bar can be achieved when the maximum operating temperature is at 75°C.

The Pipe

Oxygen-barrier	100%	
Maximum operating pressures (according to ISO10508)	Class 1 (Sanitary / 60°C)	10 bar
	Class 2 (Sanitary / 70°C)	10 bar
	Class 4 (Underfloor Heating)	10 bar
	Class 5 (Radiator Heating)	6 bar
Max. permanent operating temperature	85°C (with a max. pressure of 6 bar)	
Max. short-term operating temperature	100°C (max. 100 h in 50 years)	
Max. permanent operating pressure	10 bar (with a max. temperature of 70°C)	
Thermal expansion coefficient	0,025 – 0,030 mm/mK	
Thermal conduction	0,4 W/mK	
Roughness	0,007 mm	

K1 Tigris Fitting

Maximum operating pressures (according to EN21003)	Class 1 (Sanitary / 60°C)	10 bar
	Class 2 (Sanitary / 70°C)	10 bar
	Class 4 (Underfloor Heating)	10 bar
	Class 5 (Radiator Heating)	6 bar
Max. permanent operating temperature	85°C (with a max. pressure of 6 bar)	
Max. short-term operating temperature	100°C (max. 100 h in 50 years)	
Max. permanent operating pressure	10 bar (with a max. temperature of 70°C)	

6.0 Installation

The system shall be installed all in accordance with Wavin's installation recommendations and be compliant with current Building Regulations. For further information about installation of the Wavin K1 Tigris system please refer to the Wavin K1 Tigris Product and Installation Guide.

6.1 Bracketing Fixing Instructions

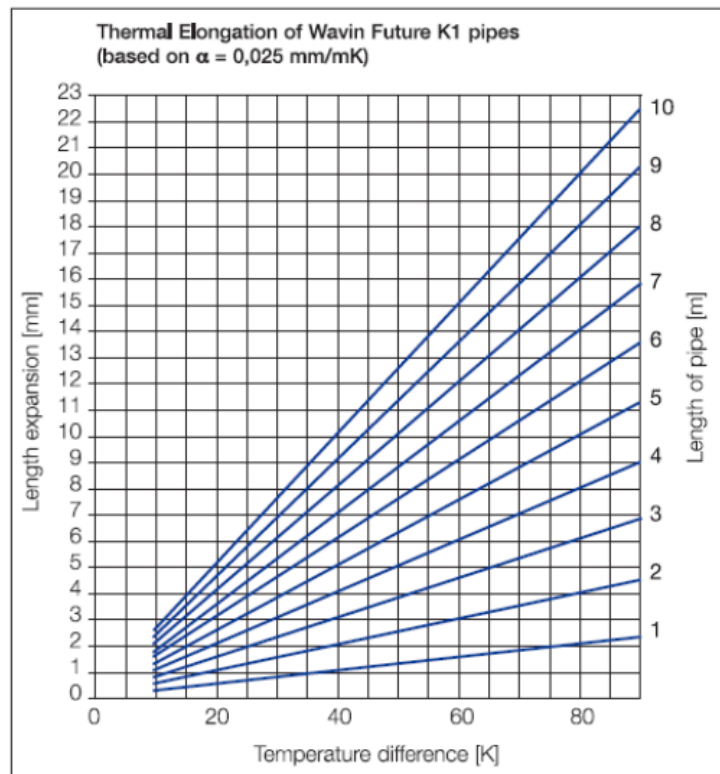
Pipes must be clipped and bracketed at regular intervals. Maximum distances are indicated in the table below.

Dimension (mm)	Fastening Distance
16 x 2.0	1.00
20 x 2.25	1.20
25 x 2.5	1.50
32 x 3.0	1.50
40 x 4.0	1.80
50 x 4.5	1.80

In addition, at least two fastening mechanisms (in front and behind the elbows) should be used where pipes change direction.

6.2 Control of Thermal Movement

Temperature differences and the length of the pipes both influence the extent of thermal linear expansion. The expansion co-efficient of K1 Tigris pipes is 0.025 - 0.030 mm/mK, irrespective of the pipe dimensions. The expected expansion of K1 Tigris pipes for different pipe lengths during operation and temperature differences are shown below.



6.3 Bending

The minimum bending radii for the Wavin K1 Tigris system is shown below.

Dimension Diameter x Size (mm)	Bending Radii By Hand (mm)	Bending Radii Spiral Spring (mm)
16 x 2.0	5 x Da = 80	4 x Da = 64
20 x 2.25	5 x Da = 100	4 x Da = 80
25 x 2.5	5 x Da = 125	4 x Da = 100
32 x 3.0	-	-
40 x 4.0	-	-
50 x 4.5	-	-
63 x 6.0	-	-

6.4 Insulation

Wavin recommend you comply with the insulation requirements as laid out in the British Standards. Where applicable, pipes should be lagged and labelled in accordance with the colour-code standard to indicate their application.

7. Standards

7.1 Approvals

The Wavin K1 Tigris System is approved by the following regulatory bodies:

- WRAS Approved
- DVGW

7.2 Guarantee

Wavin guarantees K1 Tigris for 10 years after the date of delivery if the system has been professionally installed in compliance with the currently valid technical regulations and Wavin installation instructions. Further details of the terms of the guarantee are available upon request.

8. Testing

The pipe and fitting system fulfills all drinking water requirements, proven by external certification authorities:

- WRAS
- EN21003
- DVGW – Report Number DW-8501CL0199

The system components are subject to permanent internal quality controls and a continuous external quality monitoring.



9. Storage

When storing Wavin K1 Tigris the following points should be observed:

- Pipes and fittings should not be stored or used below -10°C
- Press-fit tools should not be stored or used in temperatures below freezing or above 40°C
- The optimal temperature range for storage and use of Wavin K1 Tigris pipes and fittings and other components is from 5°C to 25°C
- Wavin K1 Tigris pipes and fittings should be stored in the original packaging
- Pipes should be protected from direct, intense sunlight and stress through UV radiation in storage and when installed.

10. Contact Details

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