



## Product certificate K5100/04

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Replaces K5100/03

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### Fiberglass reinforced epoxy piping systems with filament-wound pipes, for the transport of drinking water

#### STATEMENT BY KIWA

With this product certificate, issued in accordance with the Kiwa Regulations for Certification, Kiwa declares that legitimate confidence exists that the products supplied by

### Future Pipe Industries B.V.

as specified in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate may, on delivery, be relied upon to comply with Kiwa evaluation guideline BRL-K17104 "Glass fibre reinforced epoxy piping systems with filament wound pipes, for the transport of drinking water and raw water" dated 30-09-2016.

Ronald Karel  
Kiwa

*Publication of this certificate is allowed.*

*Advice: consult [www.kiwa.nl](http://www.kiwa.nl) in order to ensure that this certificate is still valid.*

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Certification process  
consists of initial and  
regular assessment of:

- quality system
- product

## Glass fibre reinforced epoxy piping systems with filament-wound pipes, for the transport of drinking water

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### PRODUCT SPECIFICATION

#### General

Glass fibre reinforced epoxy piping systems according to evaluation guideline K17104: "Glass fibre reinforced epoxy piping systems with filament wound pipes, for the transport of drinking water and raw water".

#### Technical specification

The following types of pipes and fittings are delivered under the trade name Wavistrong: EWT and EWN.

#### Nominal diameters (DN) and pressure class (PN)

For the nominal diameters and pressure classes covered by this product certificate, reference is made to tables 1, 2 and 3.

#### Nominal stiffness (SN)

In Europe, the nominal stiffness is based on the initial stiffness (STIS). In The Netherlands it is usual to classify pipes by means of the STES-value, which represents the expected end-stiffness after a lifetime of 50 years. For underground applications in The Netherlands, a minimum STES-value of 2000 N/m<sup>2</sup> is required. The STES/STIS ratio amount to approximately 0,9 for Future Pipe Industries BV filament-wound epoxy pipes.

#### Detailed specification

The dimensions as indicated in the tables belong to this product certificate.

## Glass fibre reinforced epoxy piping systems with filament-wound pipes, for the transport of drinking water

Table 1 – Wavistrong, glued joint, tensile resistant (EWT)

DN	Class					
	0,1/0,4/0,8	1,25	1,6	2,0	2,5	3,2
25						B/H
40						B/H
50						B/H
80						B/H
100					B/H	B/H
150				B/H	B/H	B/H
200			B/H	B/H	B/H	B/H
250		B/H	B/H	B/H	B/H	B/H
300		B/H	B/H	B/H	B/H	B/H
350	B/H	B/H	B/H	B/H	B/H	
400	B/H	B/H	B/H	B/H	B/H	
450			B/H			
500			B/H			
600			B/H			
700						
750						
800						
900						
1000						
1200						
1400						

B = Pipes (EWT)      - Pipe with spigot and socket end  
                              - Pipe with spigot ends

H = Fittings (EWT)      - Coupler  
                              - Fitting piece  
                              - Bend 45° or 90°, R=1,5 DN  
                              - T-piece, reducing T-piece  
                              - Reducing saddle  
                              - Y-piece 45°  
                              - Eccentric or concentric reducer  
                              - Flange with socket and spigot end  
                              - Blind flange  
                              - Measuring flange with nipple: ¼" - ½" - ¾" NPT  
                              - Saddle with nipple: ¼" - ½" - ¾" - 1" BSP/ NPT  
                              - Short reducing piece  
                              - Fixing saddle

Table 2 – Wavistrong with unprocessed ends, tensile resistant (EWT)

DN	Class						
	0,1/0,4/0,8	1,0	1,25	1,6	2,0	2,5	3,2
25							B
40							B
50							B
80							B
100						B	B
150					B	B	B
200				B	B	B	B
250			B	B	B	B	B
300			B	B	B	B	B
350	B		B	B	B	B	
400	B		B	B	B	B	
450	B/H	H	B/H	B/H	B/H	B/H	
500	B/H	H	B/H	B/H	B/H	B/H	
600	B/H	H	B/H	B/H	B/H	B/H	
700	B/H	H	B/H	B/H			
750	B/H	H	B/H	B/H			
800	B/H	H	B/H	B/H			
900	B/H	H	B/H				
1000	B/H	H	B/H				
1200	B/H						
1400	B/H						

B = Pipes (EWT)      - Pipe with unprocessed ends

H = Fittings (EWT)      - Laminate joint  
                              - Bend 45° or 90°, R=1,5 DN  
                              - T-piece, reducing T-piece  
                              - Y-piece 45°  
                              - Eccentric or concentric reducer

H = Fittings (EWT)      - Flange with unprocessed end  
                              - Reducing saddle  
                              - Wall flange

## Glass fibre reinforced epoxy piping systems with filament-wound pipes, for the transport of drinking water

Table 3 – Wavistrong, rubber ring joint, tensile resistant (EWT) and non-tensile resistant (EWN)

DN	Class						
	0,1/0,4/0,8	1,0	1,25	1,6	2,0	2,5	3,2
25							
40							
50							
80							B/H/b
100						B/H	B/H/b
150					B/H	B/H	B/H/b
200				B/H	B/H/b	B/H/b	B/H/b
250		H/b	B/H	B/H/b	B/H/b	B/H/b	B/H/b
300		H/b	B/H	B/H/b	B/H/b	B/H/b	B/H/b
350	B/H	H/b	B/H	B/H/b	B/H/b	B/H/b	
400	B/H	H/b	B/H	B/H/b	B/H/b	B/H/b	
450	B/H	H/b	B/H	B/H/b	B/H/b	B/H/b	
500	B/H	H/b	B/H	B/H/b	B/H/b	B/H/b	
600	B/H	H/b	B/H	B/H/b	B/H/b	B/H/b	
700	B/H	H/b	B/H	B/H/b			
750	B/H	H/b	B/H	B/H/b			
800	B/H	H/b	B/H	B/H/b			
900	B/H	H/b	B/H				
1000	B/H	H/b	B/H				
1200	B/H	H/b					
1400	B/H	H/b					

B = Pipes  
(EWT) - Pipe with spigot and socket end

H = Fittings  
(EWT) - Bend 45° or 90°, R=1,5 DN  
- T-piece, reducing T-piece  
- T-piece 45°  
- Eccentric or concentric reducer  
- Flange with socket or spigot end  
- Fitting piece with socket end (80 till 1400 mm)  
- Fitting piece with spigot end (80 till 1400 mm)  
- Blind flange (450 till 1400 mm)

b = Pipes  
(EWN) - Pipe with spigot and socket end

### Fitness for contact with drinking water

This product is approved on the basis of the requirements for hygienic aspects set in the "Regeling materialen en chemicaliën drink- en warm tapwatervoorziening" ("Materials and chemicals in the supply of drinking water and warm tap water Regulation" dated 01-07-2017; published in the Government Gazette).

These hygienic aspects are based on two main criteria. The product shall permanently comply with:


- The product recipe approved during the assessment procedure. This recipe is not to be changed without prior approval by Kiwa according to the Kiwa approval procedure for the hygienic aspects;
- Specific product requirements for the hygienic aspects.

The recipe and specific product requirements are laid down in the for confidentiality reasons undisclosed 'appendix hygienic aspects' to this certificate.

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### MARKING

The certified products are – besides the compulsory marks as indicated for the pipes and fittings below - marked with the Kiwa Water Mark: " KIWA  "

#### Pipes

Location of the marks: at least on both ends.

Compulsory specifications pipes:

- manufacturer's trade name or logo;
- E (Epoxy);
- T (tensile resistant) or NT (non-tensile resistant);
- nominal size DN;
- nominal pressure PN;
- nominal stiffness SN;
- production date or code;
- above ground application (in case applicable).

#### Fittings

Location of the marks: on each fitting.

Compulsory specifications fittings:

- manufacturer's trade name or logo;
- E (Epoxy);
- T (tensile resistant) or NT (non-tensile resistant);
- nominal size DN;
- nominal pressure PN;
- nominal stiffness SN;
- production date or code;
- above ground application (in case applicable).

Method of marking:

- imprint
- non-erasable;
- visible after assembly.

### APPLICATION AND USE

The pipes and fittings are suitable for underground and above ground transport of drinking or raw water with temperatures between –20°C and +40°C, through whether or not polluted soil.

Depending on the operational circumstances, the piping system may be provided with non-tensile resistant joints.

### RECOMMENDATIONS FOR CUSTOMERS

Check at the time of delivery whether:

- the supplier has delivered in accordance with the agreement;
- the mark and the marking method are correct;
- the products show no visible defects as a result of transport etc.

If you should reject a product on the basis of the above, please contact:

- Future Pipe Industries B.V.;
- and, if necessary,
- Kiwa Nederland B.V.

Consult the supplier's processing guidelines for the proper storage and transport methods.