Australian Standard®

Plastics—Glass filament reinforced plastics (GRP)—Methods of test

Method 8: Determination of long-term ring stiffness of glass filament reinforced plastics pipes

1 SCOPE. This Standard sets out the method for determining the long-term ring stiffness of glass filament reinforced plastics pipes.

2 PRINCIPLE. A section of pipe is subjected to a constant, diametral, compressive load and the deflection is measured as a function of time.

3 REFERENCED DOCUMENTS. The documents below are referred to in this Standard.

AS
3572 Plastics—Glass filament reinforced plastics (GRP)—Methods of test
3572.1 Method 1: Preparation of glass filament reinforced plastics test specimens
3572.3 Method 3: Determination of loss on ignition of glass filament reinforced plastics pipes
3572.4 Method 4: Determination of the dimensions of glass filament reinforced plastics pipes
3572.10 Method 10: Determination of the initial ring stiffness of glass filament reinforced plastics pipes

4 APPARATUS. The following apparatus is required:

(a) *General.* The apparatus consists of two parallel bearing plates or beam bars between which the specimen is compressed by an external load. This specimen is submerged in a water bath and the load is applied to the specimen with only negligible friction losses. (See Figure 1.)

(b) *Loading plates.* Loading plates, if used, shall be not less than 5 mm thick and should not bend or deform during the test. Their length shall be equal to, or greater than, the specimen length.

(c) *Beam bars.* For pipe specimens with a nominal diameter less than 300 mm, beam bars, if used, shall be 20 ± 5 mm diameter. For larger diameter pipes the bars shall be 50 ± 5 mm diameter.

(d) *Force and deflection measuring equipment.* The accuracy of measurement of force shall be ± 1.0 percent of the indicated value. For measurement of deflection, the accuracy shall be within ± 1.0 percent of the maximum measured value of change or 0.1 mm, whichever is the larger.

(e) *Water bath.* The water bath, containing tap water, shall be capable of being maintained at a temperature of 23 ± 2°C.

5 PREPARATION OF TEST SPECIMENS. Test specimens shall be taken from normal production pipes. The length of the test specimen is specified in Table 1.

TABLE 1
LENGTH OF TEST SPECIMEN

millimetres

Nominal size of pipe (DN)	Length (*L*)
< 300	DN
≥ 300 ≤ 1 500	300
> 1 500	0.2DN

Before testing, the test specimen shall have its ends squared and cleaned. It shall not have any burrs, notches or other markings which may affect the test result.

A tolerance of ± 5 percent on the length is permitted.