

JSCE-E 705-2010

Test method for the resistance of plastic sheath for prestressed concrete under uniform compressive loading (draft)

1 Scope

This standard specifies the requirements for carrying out the test for the resistance under uniform compressive loading of a plastic sheath used to form a duct to arrange inner cables of prestressed concrete structures. The plastic sheath considered in this standard should use high-density polyethylene or a material with performance not lower than that of high-density polyethylene.

2 References

By being cited herein, the following standards constitute part of the definition of this standard. This standard is based on the latest versions of these cited documents.

JIS G 3101 Rolled steels for general structure

JIS G 3109 Steel bars for prestressed concrete

JIS G 3536 Steel wires and strands for prestressed concrete

JSCE-E 707 Test method for leak tightness for plastic sheath of prestressed concrete (draft)

3 Definitions

The following terminology is used in this standard:

Sheath specimen: specimen made by cutting the sheath

4 Outline of test

4.1 Purpose of test

The resistance under uniform compressive loading of a plastic sheath used for PC steel bars specified by JIS G 3109 and PC steel wires and PC steel strands specified by JIS G 3536 is examined.

4.2 Conditions of testing room

The standard temperature of the testing room is 23 ± 5 °C unless otherwise specified. The relative humidity is not specified.

4.3 Specimens

The number of sheath specimens is three unless otherwise specified. The length of the sheath specimen is at least four times as large as the inner diameter (nominal diameter) of the sheath.

4.4 Test apparatus

The testing machine should be such that can measure loads with accuracy with a margin of error of no more than $\pm 5\%$.

5 Test method

a) Apply to the sheath specimen the load calculated by the following equation for 10 minutes by the method shown in Fig.1 and check the deformation condition of the sheath specimen. Insert a sponge⁽²⁾ between the loading plate⁽¹⁾ and the sheath specimen. In case a load larger than the value given by Eq.(1) is expected, the specimen is tested for that load value.

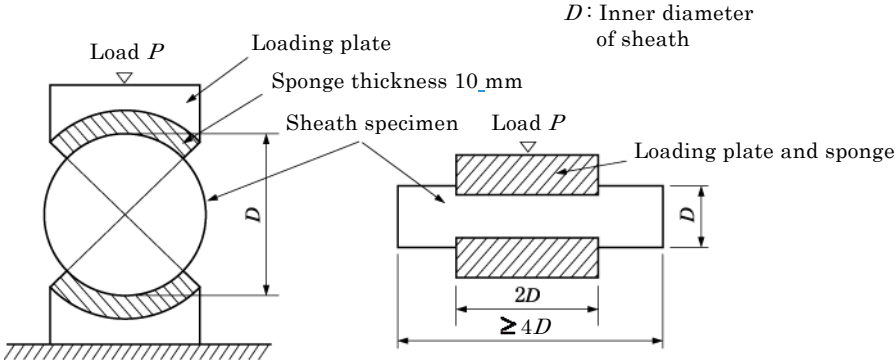


Fig.1 Outline of test

$$P = 0.1\pi D^2 \dots\dots\dots (1)$$

where P : load(N)

D : inner diameter of sheath (mm)

Note⁽¹⁾: The material of loading plate should be rolled steel plate for general structures (JIS G 3101).

Note⁽²⁾: The sponge inserted between the loading plate and the sheath specimen should have the shape-following property to secure uniform lateral pressure on the sheath specimen.

- b) After the test described in a), check the condition of damage to the sheath specimen.
- c) After the check described in b), the leak tightness test is conducted in accordance with JSCE-E 707.

6 Report

6.1 Compulsory reporting

The report must provide the following information:

- a) Date of test
- b) Name, type and capacity of testing machine
- c) Material, inner diameter, outer diameter, shape and brand of sheath
- d) Number of sheath specimens
- e) Temperature of testing room
- f) Damage condition of sheath specimen

6.2 As-needed reporting

The report should provide the following information where relevant:

a) Name of testing organization

b) Relative humidity of testing room