TEMPLATE OF MICROSOFT WORD FORMAT FOR JCI ANNUAL CONVENTION PROCEEDINGS

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ABSTRACT

Braided aramid fiber bar is used in pretensioned bond test. Local bond stress-local slip relationships were obtained from the strain distribution along the embedded bar. The embedded length was made large enough not to cause strain change at center of specimen. The local bond stress-slip relationship of braided aramid fiber bar varies with test method such as a pretensioned bond test, a pull bond test with long embedment and a pullout test with short embedment. The effect of concrete strength on the local bond stress-slip relationship differs with test method.

Keywords: aramid fiber, bond stress, pretensioned bond test, concrete strength, bond test

1. INTRODUCTION

Continuous fiber reinforcing materials such as braided aramid fiber bar and carbon fiber strand are going to be applied to concrete structures [1]. A design concept of concrete structures reinforced or prestressed with continuous fiber reinforcing materials has already been reported by JSCE committee [2]. However, bond characteristics between the reinforcing materials and concrete have not been clarified yet.

In the bond characteristics, a local bond stress-slip relationship is the most basic law for representing interaction between .....
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2. TEST PROGRAMS

2.1 Materials

(1) Reinforcing materials

Braided aramid fiber bars having 16.0 and 6.0 mm nominal diameter are used. The characteristics of reinforcements are shown in Table 1.....
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(2) Concrete

The specified concrete strength is 30MPa using maximum 20mm of coarse aggregate size and compressive strength and splitting tensile strength at 28 days are 33.2MPa and 2.56MPa, respectively.

Table 1 Characteristics of reinforcements

Type	Elastic Modulus (kN/mm^2)	Tensile strength (N/mm^2)	Remark
Braided	59	1320	Tendon
Braided	59	1320	Stirrup
Deformed	178	684	Tendon
Deformed	200	994	Stirrup

2.2 Loading Method

The specimens are subjected to monotonic pull out load using.....
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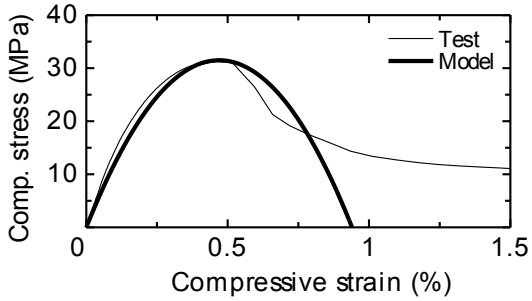

Fig.1 Stress - strain curves

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The sectional area is given as follows:

$$A = V / l_0 \quad (1)$$

where,

A : sectional area
V : volume
l_0 : length

The volume is obtained by measurements of test piece .....
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3. CONCLUSIONS

(1) Local bond stress-slip relationship of braided aramid fiber is .....

(2) The specified concrete strength is 30MPa using maximum 20mm of coarse aggregate size and compressive strength and splitting tensile strength.

ACKNOWLEDGEMENT

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