

Continuous Fiber Rope **CORDOY** (Registered)

Outline

CORDOY is Continuous Fiber Rope (CF Rope) made of Aramid fiber or Vinylon fiber developed to apply for the reinforcement of concrete members and structures.

Continuous Fiber Reinforcement (CF Reinforcement) is made of fiber impregnated with resin and shaped in the form such as rod or grid. The researches on CF Reinforcement were started in the beginning of 1980s, when the durability of concrete structures that were damaged by salt attack was discussed. Continuous Fiber Sheet (CF Sheet) is bonded with resin to the surface of an existing concrete member to retrofit it. CF Sheet became noticed after the big earthquakes such as Kobe Earthquake (1995).

CF Reinforcement or CF Sheet should be impregnated with resin in the factory or at the construction site. In order to improve this time-consuming work CORDOY has been newly developed.



Characteristics

It is characterized by a lightweight, a high tensile strength and an excellent durability compared with reinforcing steel bar. It has also a good transportability, and it is flexible to be easily arranged at the construction site. Only the surface of CORDOY was coated with urethane resin. Through coating with urethane resin, the fibers were prevented from being unbraided, moreover CORDOY became a little harder and easy for handling.

Type

According to “Quality Specifications for Continuous Fiber reinforcing Materials” (JSCE-E 131-1995), the type of CORDOY is classified as follows. The specific gravity is the datum of the fiber itself.

A: Aramid fiber

V: Vinylon fiber

C: Rope (Cord)

Type	Fiber	Coating resin	Specific gravity
AC	Aramid fiber	Urethane resin	1.39
VC	Vinylon fiber	Urethane resin	1.30

Application

Seismic retrofitting of concrete pier or column:

Round section, Rectangular section, Column with wall

Lateral reinforcement:

Shear reinforcement, Erection bar

Seismic retrofitting of concrete column

When CORDOY is used for seismic retrofitting of an existing RC column, it is wound around the surface of the column. The concrete jacketing was expected to protect CORDOY during service stage and to effectively transfer stress to CORDOY just after cracking. The ductility of the RC column was improved.



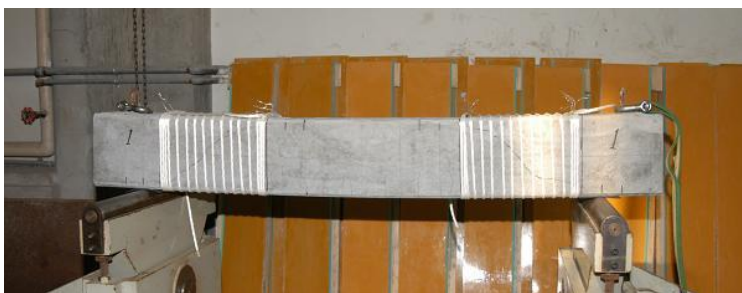
Column wound with CORDOY



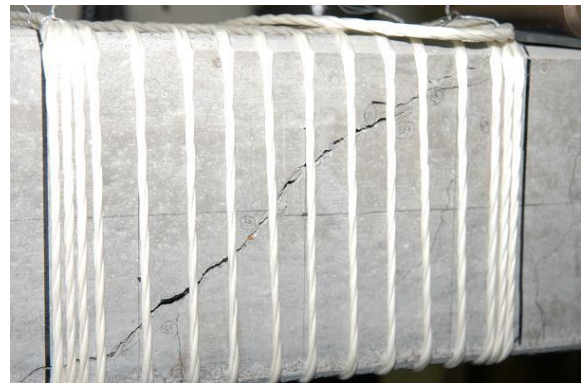
CORDOY did not rupture after loading test.

Shear reinforcement of concrete beam

The shear-reinforcing effect of CORDOY on the RC beams that were pre-damaged in shear was investigated. Through the test results, it was confirmed that CORDOY was effective for the pre-damaged RC beams.



Pre-damaged RC beam wound with CORDY



Diagonal tension crack

Secretariat of CORDOY Research Association

Tokyo Branch Office, Kyokuto-Kowa Co., Ltd.

Berutekkusu-bld. 2F, Takinogawa 7-2-13, Kita-ku, Tokyo 114-0023, Japan

E-mail: rkimura@kkn.co.jp

<http://www.cordoy.justhpbs.jp>