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Brandestini et al.

[54] ANCHORING BODY FOR KEY ANCHORING TENSION MEMBERS

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- [58] Field of Search 24/126; 52/230, 223; 254/29.5; 249/83; 425/111
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[57] ABSTRACT

In an anchorage for tendons, such as strands, an anchorage body for anchoring tendons with wedges, having a central passage or bore for the tendon, at least one part or section of which passage widening conically from the inlet end to the outlet end in order to form a seat for wedges, a first section of said passage, adjacent to the inlet opening of the passage, tapering conically in order to form a seat for a combined centering- and sealing-element to be inserted between said tendon and said anchorage body.

1 Claim, 6 Drawing Figures



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ANCHORING BODY FOR KEY ANCHORING TENSION MEMBERS

The present invention relates to an anchorage body for anchoring tendons with wedges, such as strands, 5 having a central passage for the tendon, at least one section of which passage widening conically from the inlet end to the outlet end in order to form a seat for wedges.

Such anchorage bodies for tendons, known in various 10 forms, do not fulfill all conditions as end anchorages inserted in the formwork or shuttering.

Either the tendons are poorly centered in the anchorage body, so that the anchoring with wedges becomes problematic, or the inlet opening in the anchorage 15 must be possible to push said tendon through this conbody is not adequately sealed, this leading to the wedge seats being fouled by grout, etc.

The present invention has for its object to provide an anchorage body which avoids the above-mentioned disadvantages.

The anchorage body according to the invention is characterised in that the first section of the passage, adjacent the inlet opening, tapers conically in order to form a seat for a centering - and sealing-element to be inserted between tendon and anchorage body.

The invention will be better understood, and objects other than those set forth above, will become apparent, when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein generally the same 30 reference numerals or characters have usually been employed to denote the same or analogous elements, and wherein:

FIG. 1 shows a longitudinal section through an end anchorage by means of an anchorage body according ³⁵ to the invention.

FIG. 1a is a front view of the anchorage according to FIG, 1.

FIG. 2 shows a longitudinal section through the inlet section of a similar anchorage.

FIG. 3 shows a section through the inlet opening of a further embodiment of an anchorage, and

FIGS. 4 and 5 show longitudinal sections through two anchorages in finished state.

When placing the tendon 1 and the end anchorages 45in a shuttering, the following must be heeded:

A. The tendon 1 (together with sheathing 1a) must be exactly centered at the inlet point A in the anchorage body, so that when the tendon is later stressed, this 50 centering remains true.

B. Care must be taken that no grout can penetrate into the conical space 3a which will later receive the wedges 3, either on the front side B of the anchorage body or above all on the later inaccessible rear side A 55 thereof.

Furthermore, the following condition should also be heeded:

C. The anchorage body 2 must be fixable in the correct position, immovable with respect to the shuttering 60 or formwork 7, so that, during concreting, the position of the anchorage body remains unaltered and said shuttering or formwork may easily be removed after the concrete has hardened.

In the embodiments shown, conditions A and B are 65 fulfilled (FIGS. 1-5), in that the anchorage body has on its rear side A an extension 2a internally provided with a conical recess 2b, which tapers in direction B. After

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the tendon 1, which may be enveloped in a paper sheathing 1a, has been inserted, a tubular resilient sealing body 4 is pressed in direction B into said recess. By the deformation of the sealing body 4 due to the conical inner face of the anchorage body extension 2a, the inside of the sealing body lies tightly against the tendon 1, 1a and its outside tightly against the inner wall of the recess 2b of the anchorage body. In this way, a centering of the tendon 1 and a seal against the penetration of grout is obtained. A local constriction 2c of the conical recess 2b can prevent the penetration of the sealing body 4 into the wedge space 3a. The inner diameter of the constriction 2c must however be considerably larger than the outer diameter of the tendon, since it striction without difficulty. Particularly when using strands as tendons, considerable thickenings are often formed at the ends thereof due to cutting by means of cutting torches, which thickenings must be guided 20 through the constriction 2c. A centering of the tendon by means of this constriction must therefore be omitted, for practical reasons.

The sealing body 4 may be composed of rubber, plastic material or even metal; it may also be provided with 25 a longitudinal slit at least at one place over at least a certain length. Especially when using a sealing body composed of metal, the seal at point A can be additionally reinforced by the interposition of a sealing ring 5 (FIG. 1,2) made of soft material. On the other hand, when using a sealing body 4 composed of comparatively soft material, a ring 5a consisting for example of two parts may be placed on the constriction 2c as centering means (FIG. 3), before the seal 4 is pressed in. The sealing body 4 may be of any desired length. FIG. 1 shows by way of example a comparatively short body; the tendon here consists of a strand with a lubricating and rust-protection coating and a paper sheathing 1a. The tendon may however also pass through a rigid conduit (e.g. metal hose) 1b (FIG. 2), the space between tendon and sheathing being grouted after stressing. The seal 4a between the conduit and the anchorage body 2, 2a may in this case be constructed as shown in FIG. 2, and it may also take over the function of a connecting piece, i.e., may be provided with another inlet opening 4b for the connection of the pipe for the grout.

The sealing body 4 may also be additionally glued to the conical inner face 2b. This inner face may have a rough surface for better adhesion.

Condition C is also fulfilled by the present invention. To this end, the anchorage body 2 is securely connected (for example by screwing) to a holding sleeve 6 (FIGS. 1-5). The shuttering or formwork 7 is for its part securely connected to the holding sleeve 6 by being pressed against the shoulder 6b of the holding sleeve 6 by means of the nut 6d. It is important that the holding sleeve 6 is not only securely, but also tightly connected to the anchorage body 2. It is shown that when using a suitable plastic material, a multiple thread 6f is sufficient for the seal against grout penetrating in to the wedge space 3a. In order to increase the seal, the teeth of the thread or the surface 6b and 6g may be provided with thin fins which are pressed together when the holding sleeve 6 is screwed in and thereby improve the seal.

After the concrete has hardened, the holding sleeve 6 is removed, this being simplified by the cone 6a. The finished anchorage is shown in FIG. 4.

FIG. 5 shows the same anchorage when it is not to be fixed against a shuttering or formwork, but is to lie inside the concrete structure as so-called fixed anchorage. In this case, the wedges 3 are from the beginning firmly seated in the wedge space 3a and the tendon will 5 thereby be anchoraged. In order to secure the wedges 3, a cap 8 with spring 9 located inside the cap is screwed onto the anchorage body 2.

The outer surface or side of the conically tapering section may be provided with a thread 10.

What we claim is:

1. An anchoring device for anchoring tendons with wedges, comprising: an anchor body having a central passage therein for receiving said tendon, said passage having an inlet end, and outlet end, an outlet section of said passage widening conically toward said outlet end * 4

to form a seat for said wedges, and an inlet section of said passage widening conically toward said inlet end, the outer surface of said inlet section having a threaded portion; an annular shoulder between said inlet section 5 and said outlet section; a centering and sealing element inserted between said tendon and the inner conical surface of said inlet section, whereby said centering and sealing element is seated on said inlet section and stopped against said annular shoulder to provide cen-10 tering for said tendon and a seal between said tendon and said inlet section; and a holding sleeve for holding said anchor body to a fixed support and wherein said passage has a threaded widened part near said outlet end for removably securing said holding sleeve in said 15 part of said passage.

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