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Autore	Mallee Rainer
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Nota di contenuto	Design of Fastenings for Use in Concrete - the CEN/TS 1992-4 Provisions; Contents; Editorial; 1 Introduction; 2 Fields of application; 3 Basis of design; 3.1 General; 3.2 Verifications; 3.3 Partial factors; 3.3.1 General; 3.3.2 Actions; 3.3.3 Resistance; 3.3.3.1 Ultimate limit state; 3.3.3.2 Serviceability limit state; 4 Derivation of forces acting on fasteners; 4.1 General; 4.2 Tension loads; 4.2.1 Tension loads on fastenings with post-installed fasteners and headed fasteners; 4.2.2 Tension loads on fastenings with anchor channels; 4.3 Shear loads 4.3.1 Shear loads on fastenings with post-installed and headed fasteners4.3.2 Shear loads on fastenings with anchor channels; 4.4 Tension forces in a supplementary reinforcement; 5 Verification of ultimate limit state by elastic analysis for post-installed fasteners (mechanical systems); 5.1 General; 5.2 Tension load; 5.2.1 Required verifications; 5.2.2 Steel failure; 5.2.3 Pull-out/pull-through failure; 5.2.4 Conical concrete break-out failure; 5.2.4.1 Characteristic resistance of a single fastener; 5.2.4.2 Effect of spacing and edge

distance

5.2.4.3 Effect of heavy surface reinforcement (shell spalling)5.2.4.4 Effect of the eccentricity of the load; 5.2.4.5 Special cases: three or four edges with  $c_i < c_{cr,n}$ ; 5.2.5 Splitting; 5.2.5.1 Splitting failure during installation of post-installed fasteners; 5.2.5.2 Splitting failure of loaded post-installed fasteners; 5.3 Shear load; 5.3.1 Required verifications; 5.3.2 Steel failure without lever arm; 5.3.3 Steel failure with lever arm; 5.3.4 Pry-out failure; 5.3.5 Concrete edge failure; 5.3.5.1 Characteristic resistance of a single fastener; 5.3.5.2 Effect of spacing  
5.3.5.3 Effect of edge distances parallel to the load direction5.3.5.4 Effect of member thickness; 5.3.5.5 Effect of the eccentricity of the load; 5.3.5.6 Effect of load direction; 5.3.5.7 Effect of the position of the fastening; 5.3.5.8 Special case: narrow thin member; 5.4 Combined tension and shear load; 5.4.1 Steel failure decisive for tension and shear load; 5.4.2 Other modes of failure decisive; 6 Verification of post-installed fasteners (chemical systems) for the ultimate limit state based on the theory of elasticity; 6.1 General; 6.2 Tension load; 6.2.1 Required verifications  
6.2.2 Steel failure6.2.3 Combined pull-out and concrete failure; 6.2.3.1 Characteristic resistance of a single fastener; 6.2.3.2 Edge distance and spacing; 6.2.3.3 Effect of closely spaced fasteners; 6.2.3.4 Effect of heavy reinforcement (shell spalling); 6.2.3.5 Effect of the eccentricity of the load; 6.2.3.6 Special case: three or four edges with  $c_i < c_{cr,Np}$ ; 6.2.4 Concrete cone failure; 6.2.5 Splitting; 6.3 Shear load; 6.3.1 Required verifications; 6.3.2 Steel failure due to shear load without and with lever arm; 6.3.3 Concrete pry-out; 6.3.4 Concrete edge failure  
6.4 Combined tension and shear

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## Sommario/riassunto

The European standard draft CEN/TS 1992-4 for the design of fastenings by means of headed studs, anchor channels, mechanical and chemical anchors is ready for use. This book delivers a detailed description of the determination of tension and shear load actions. Furthermore plastic load capacity design and a plastic design approach are given. Durability, fire resistance and earthquake action are exposed to a particular treatment. Selected chapters of the German concrete yearbook ""Beton-Kalender"" are now available in English. The new English BetonKalender Series delivers internationally

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