

Flat jack testing method is used to determine the acting stresses (single flat jack) or to evaluate the mechanical parameters of the masonry/concrete structures.

FLAT JACK TESTING



The testing technique is based on the release of the stress in a small area of a structure by a plane cut perpendicular to its surface. The flat jack is then loaded in the cut and the pressure is gradually increased by a hydraulic pump until the state of strain is equal to the previously existing condition before the cut.

Measurement between the reference points, glued symmetrically about the cut, are taken at various pressures.

The test can also be applied with double flat jack: a second cut is made parallel to the first one and a second jack is inserted. The two jacks delimit a portion of appreciable size to which a uni-axial

compression stress can be applied.

The pressure is increased in increments until the point of non linearity is highlighted in the load-strain curve to avoid damage in the structure.



Double flat jacks test



Single flat jack



Slot cutting equipment



Mechanical gauge extensometer

Hydraulic Pump
Glötzl M2H
Flat jack
Semi-oval
Dimensions 350x260x4
Effective area 761.5 cm ²
Mechanical gauge extensometer
Gage length: 100/240 mm
Dial gage: 0-50 mm

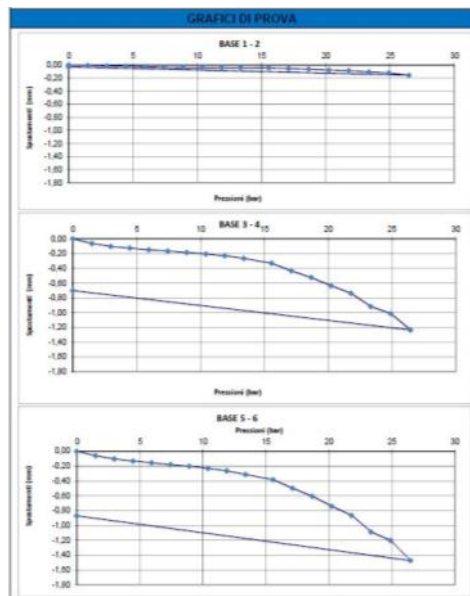


Pump

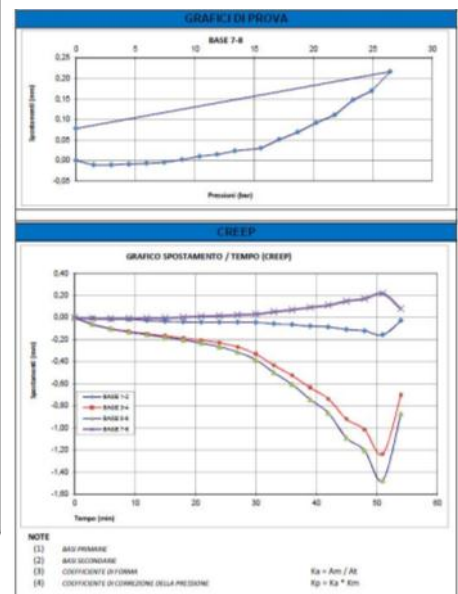
DATA PROCESSING

Knowing the technical specifications of the flat jack (geometrical efficiency constant, area of the jack and of the slot) and measuring the pressure, the stress in the structure can be calculated.

Double flat jack tests allow the calculation of modulus of elasticity.



Test results



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