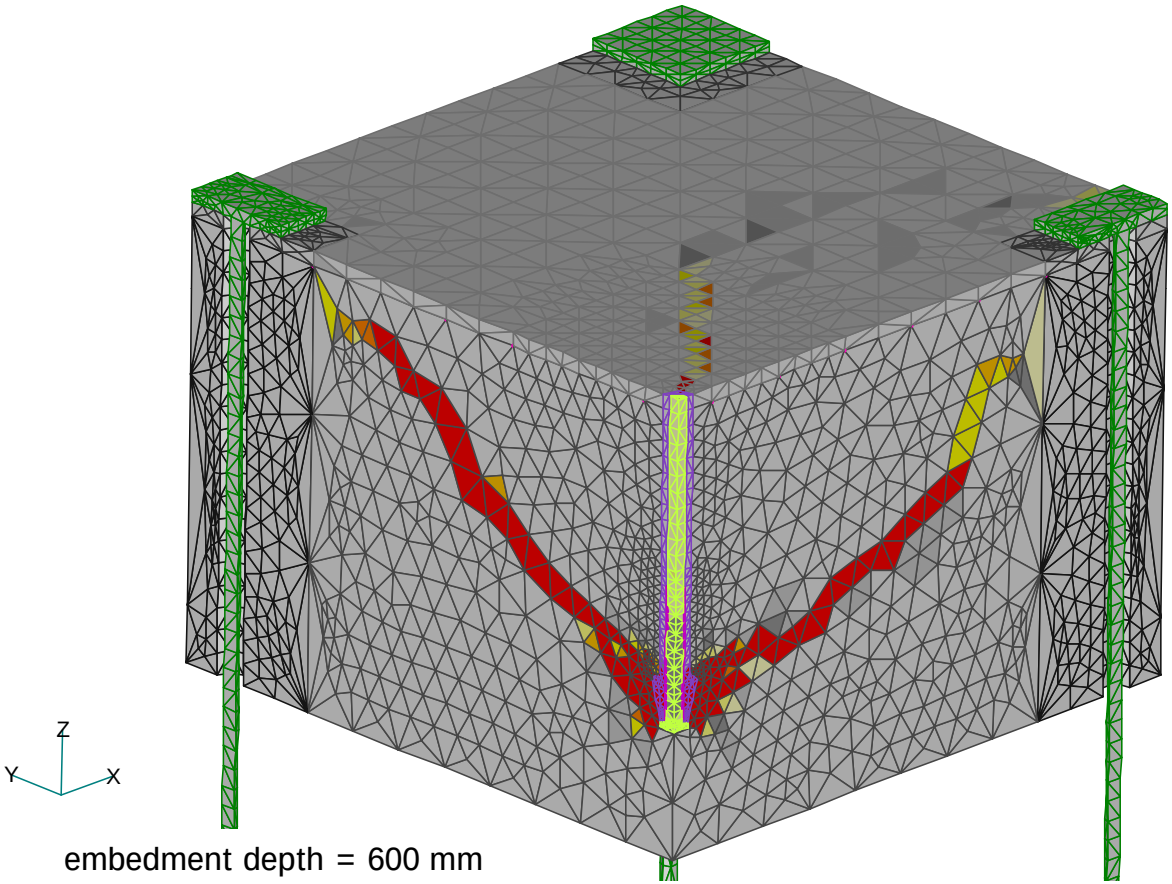
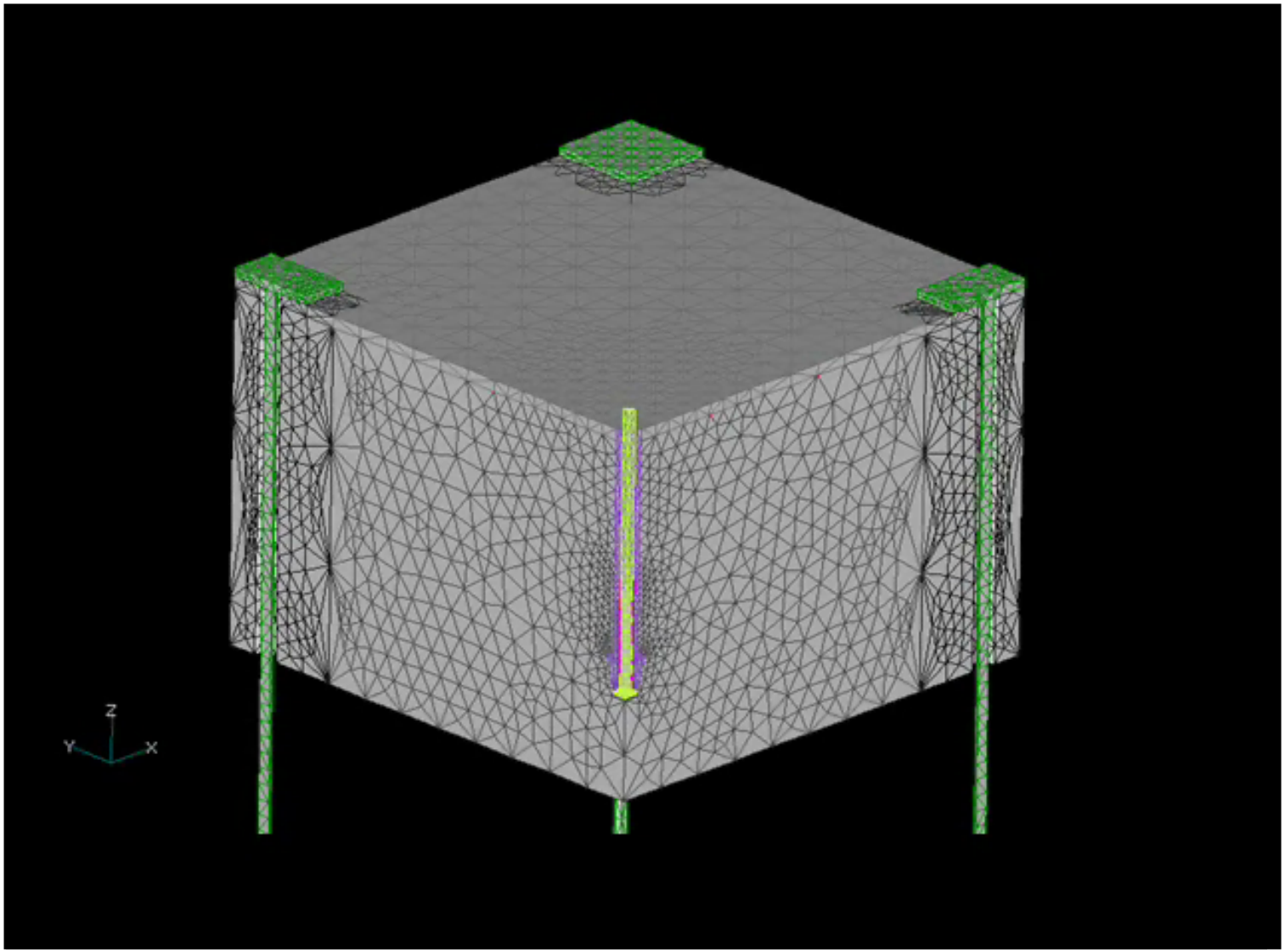
Pull-out of headed stud anchor from a concrete block

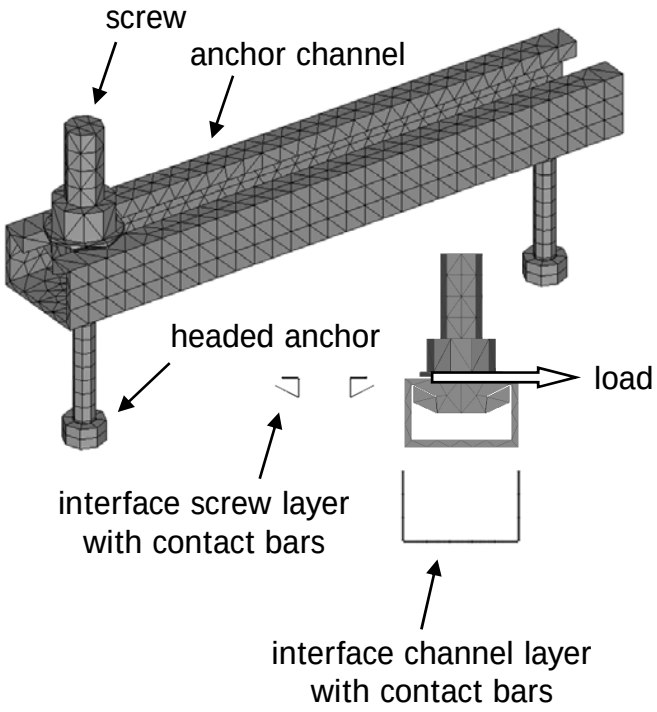


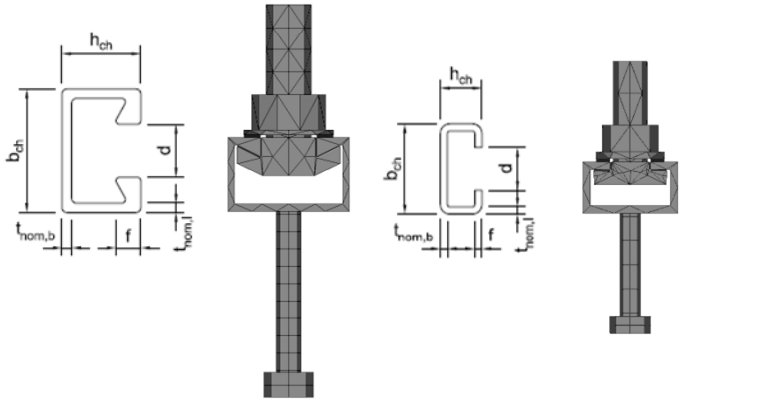
embedment depth = 600 mm

Pull-out of headed stud anchor from a concrete block



3D FE analysis of anchor channels under shear load close to the edge



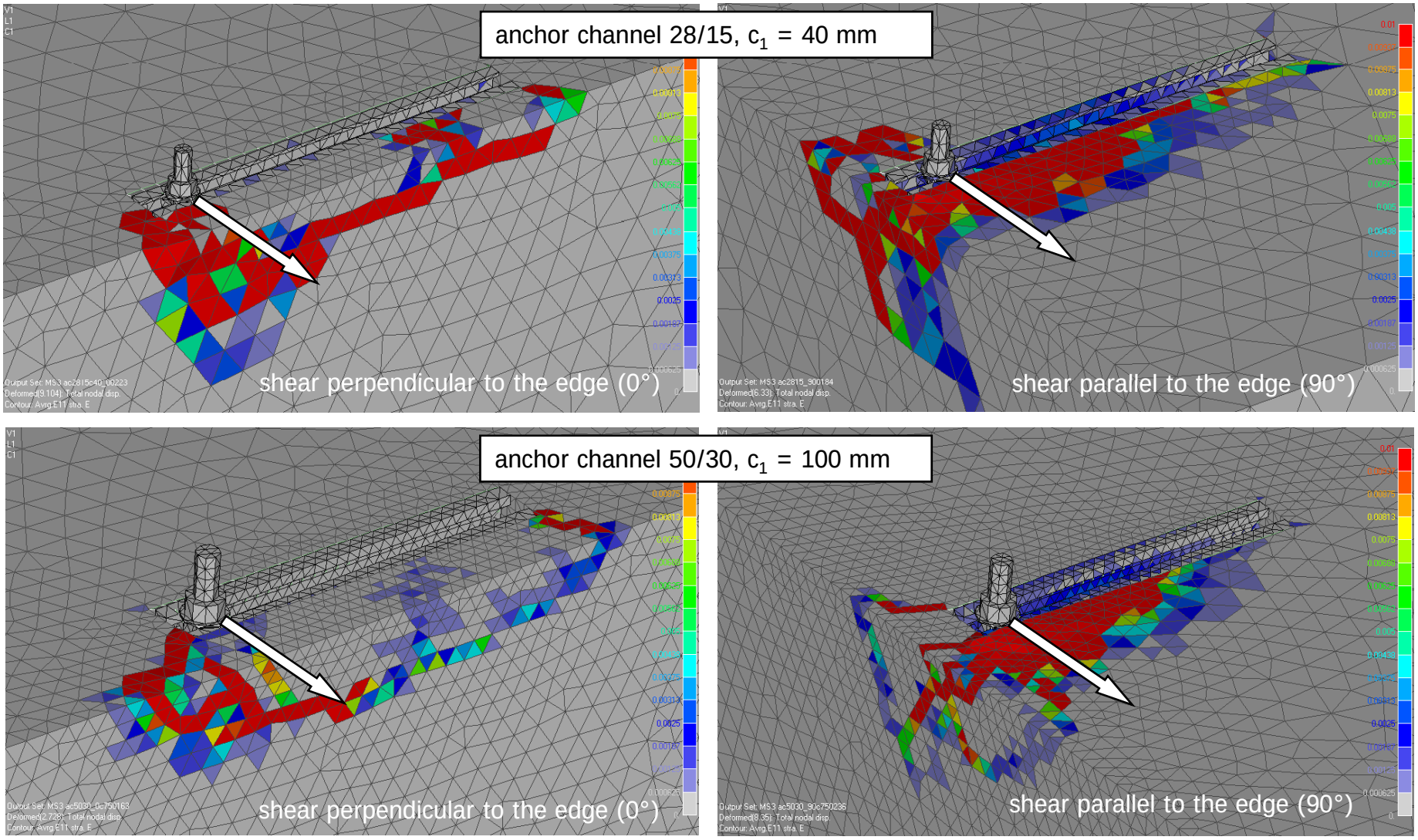


Hot rolled profile (type 1)

Cold rolled profile (type 2)

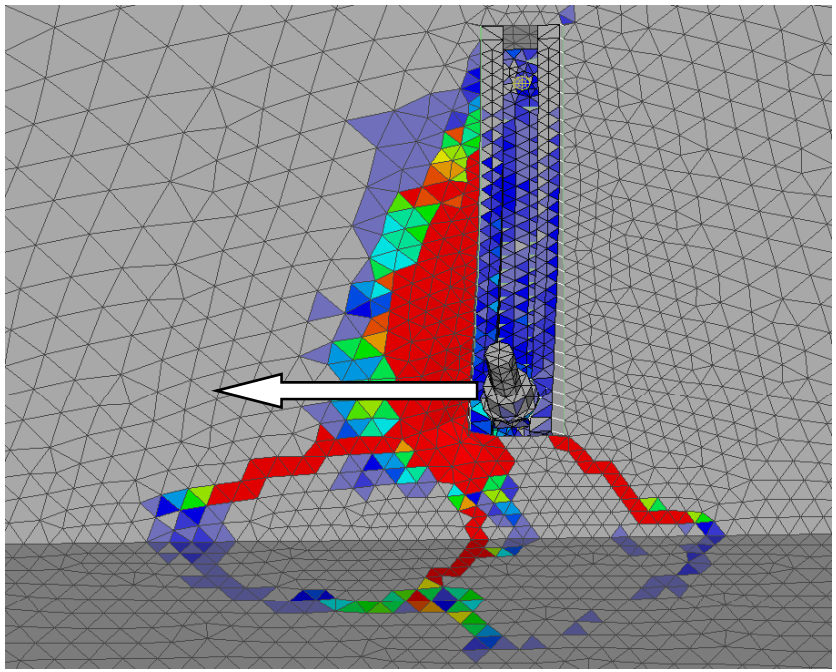
Anchor channel

Anchor channels close to the edge loaded by a shear load perpendicular & parallel to the edge



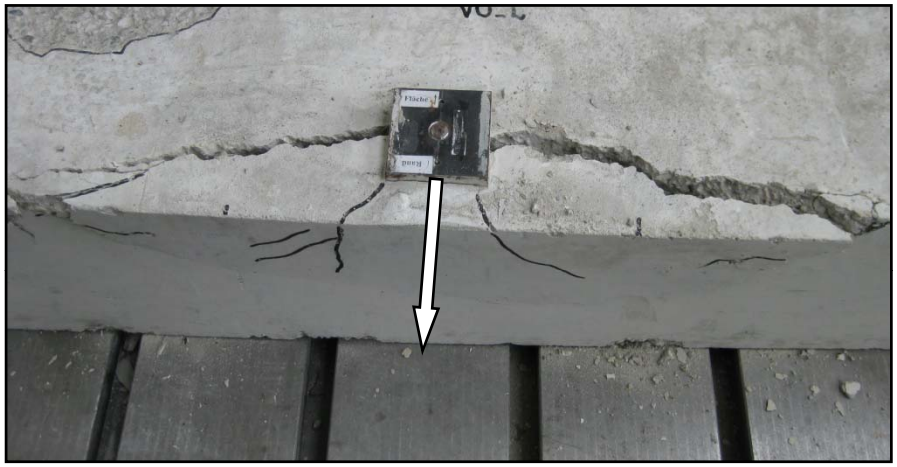
Anchor channel close to the edge loaded by a shear load parallel to the edge

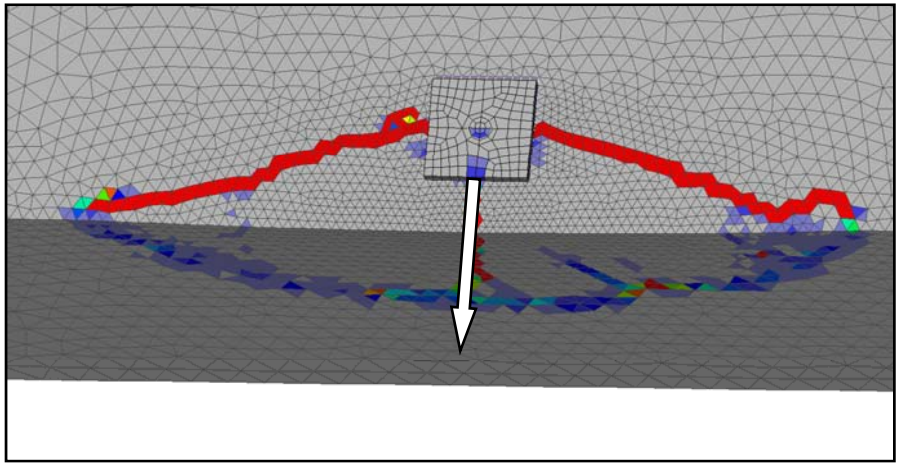
Post peak crack pattern, anchor channel 50/30, c_1 = 100 mm (edge distance), s = 150 mm (spacing), tests by Roik, company HALFEN (2009)

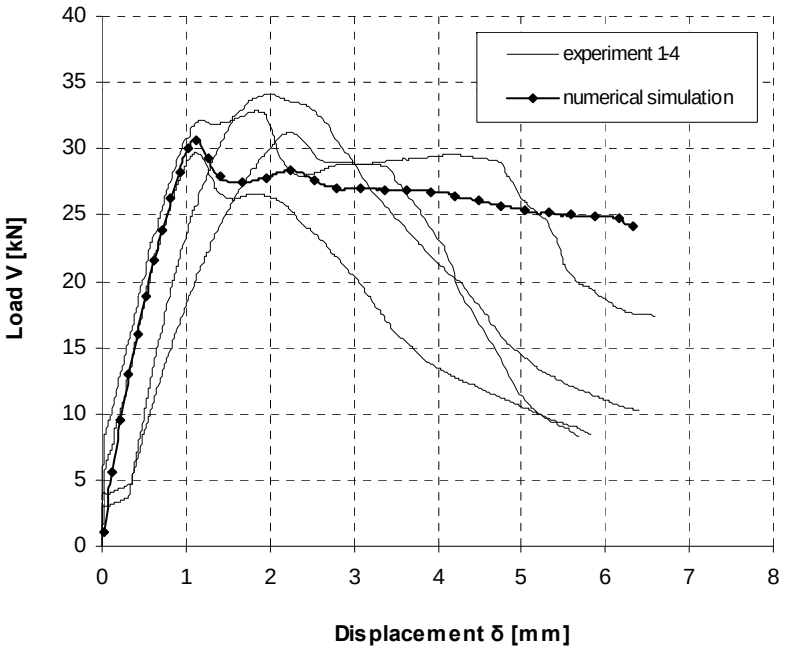


Numerically obtained post peak crack pattern, anchor channel 50/30, c_1 = 100 mm (edge distance), s = 250 mm (spacing)

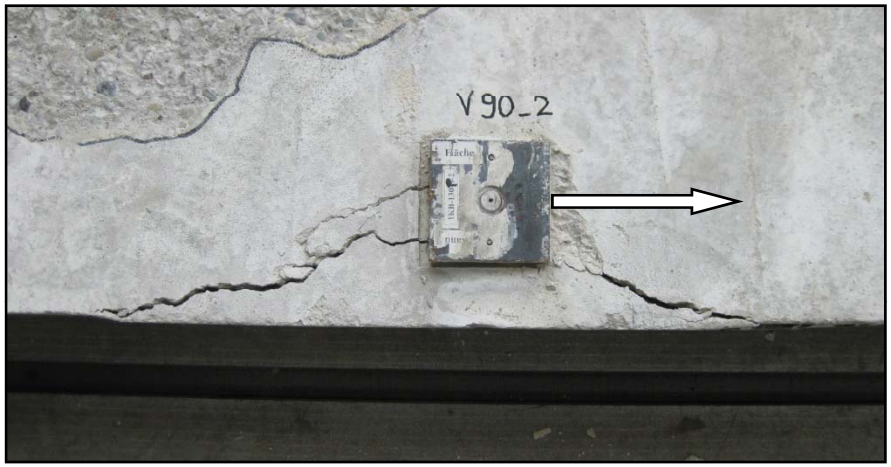
3D FE analysis of headed anchors close to the edge under shear load perpendicular to the edge

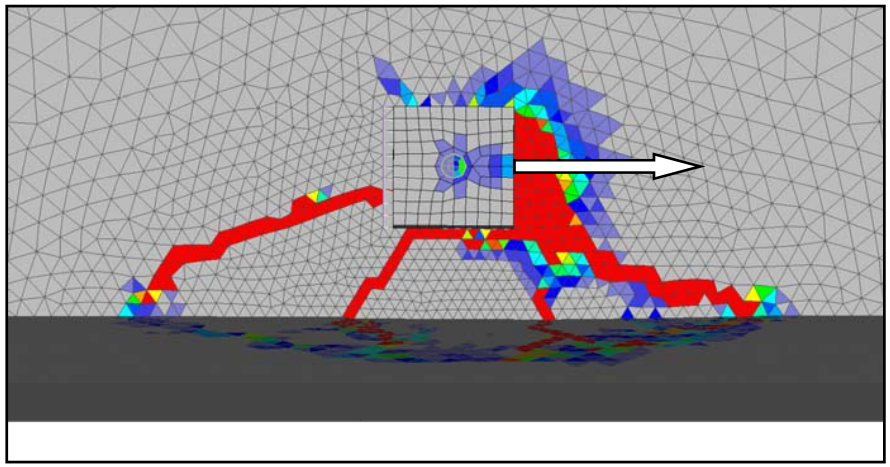


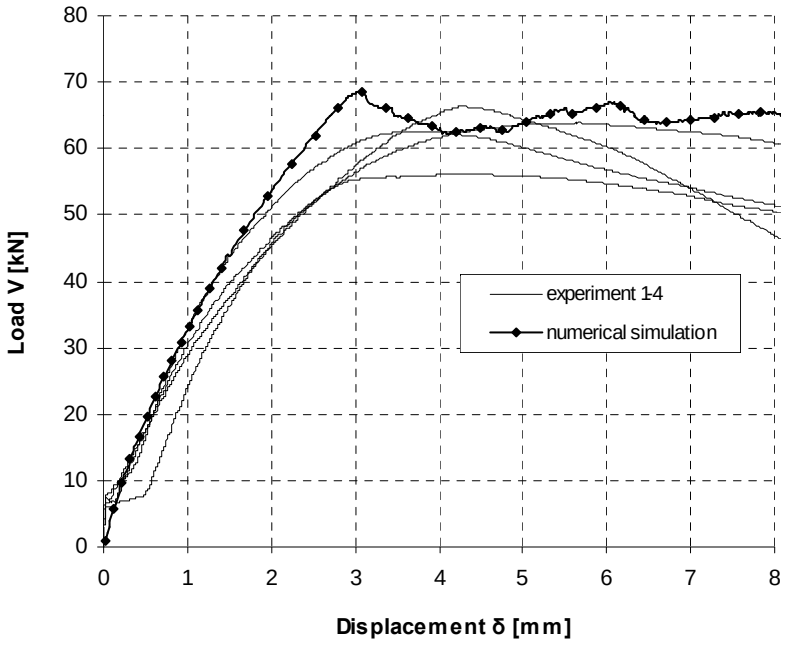




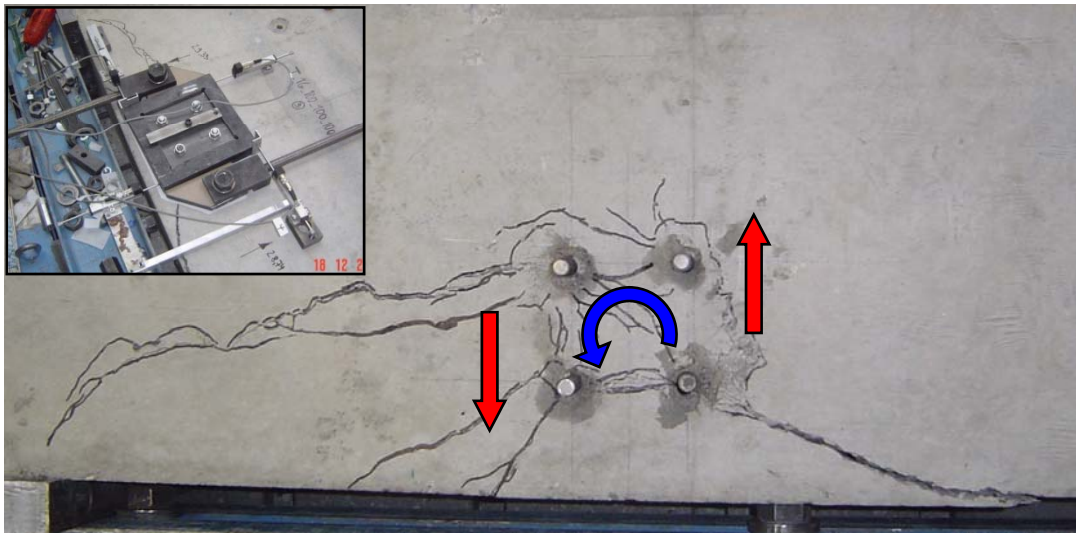
3D FE analysis of headed anchors close to the edge under shear load parallel to the edge

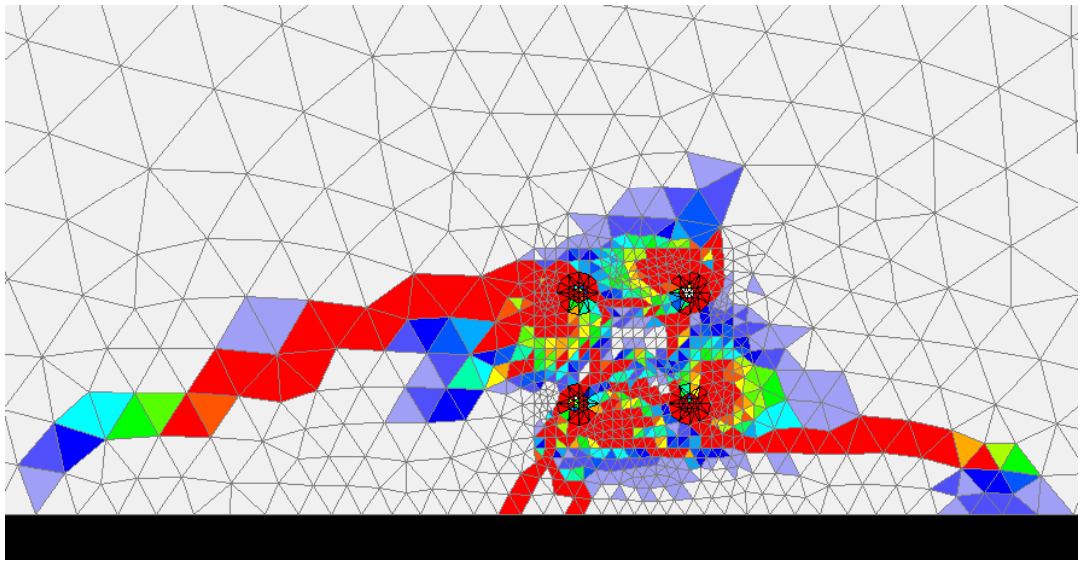




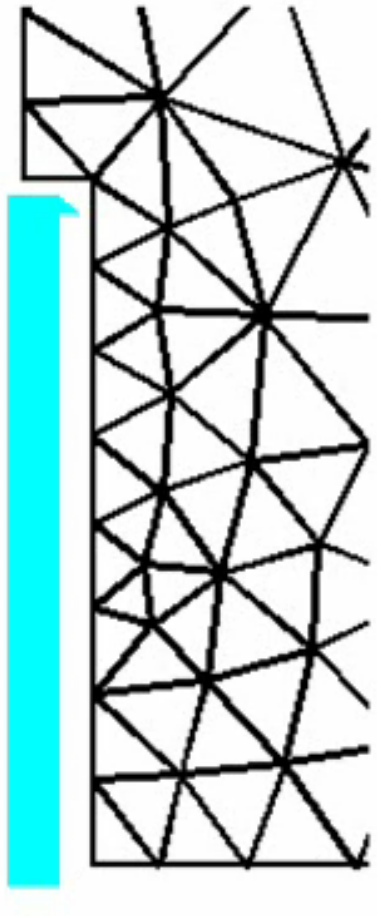


3D FE analysis of anchor groups close to the edge under torsion loading

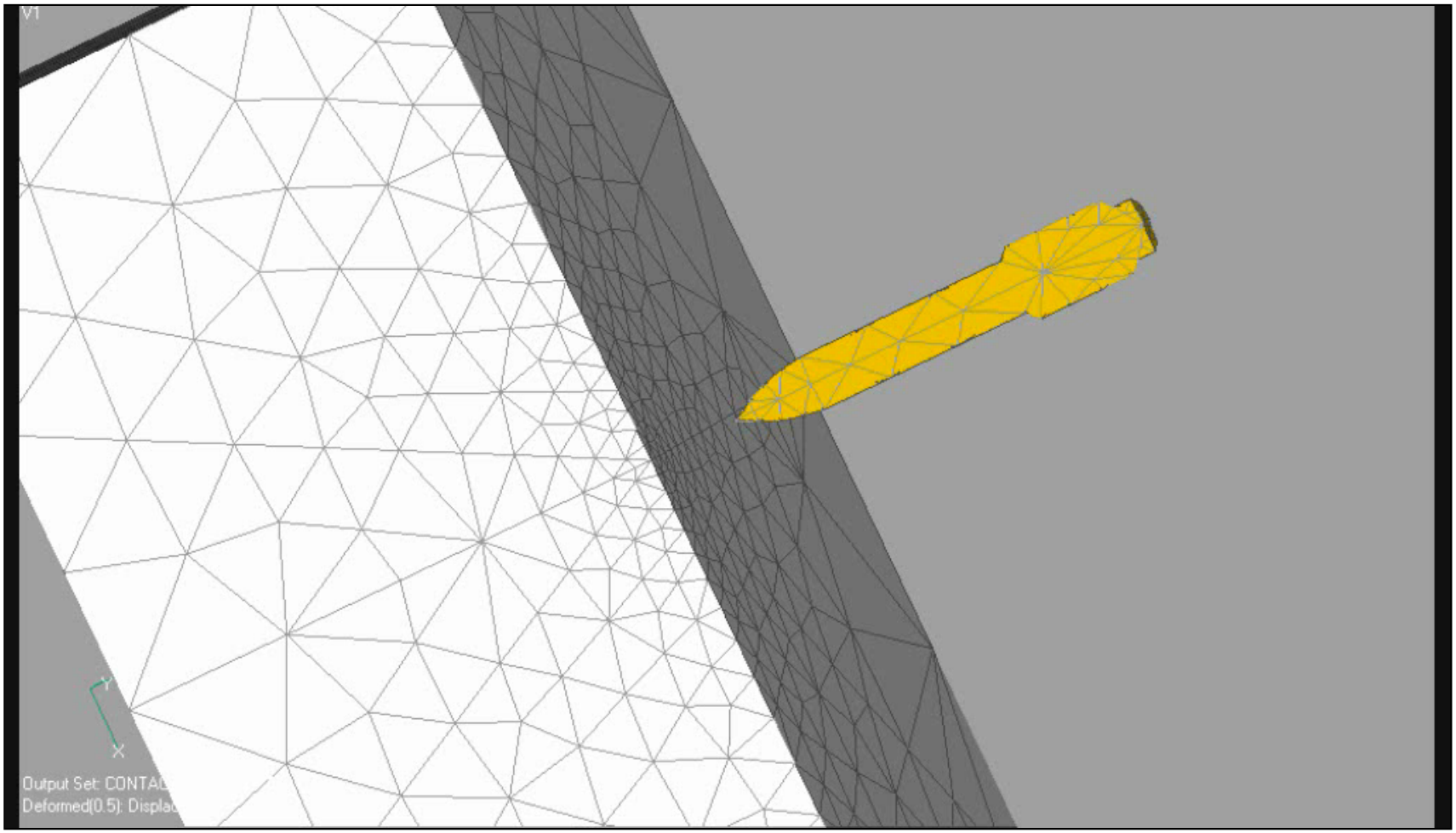




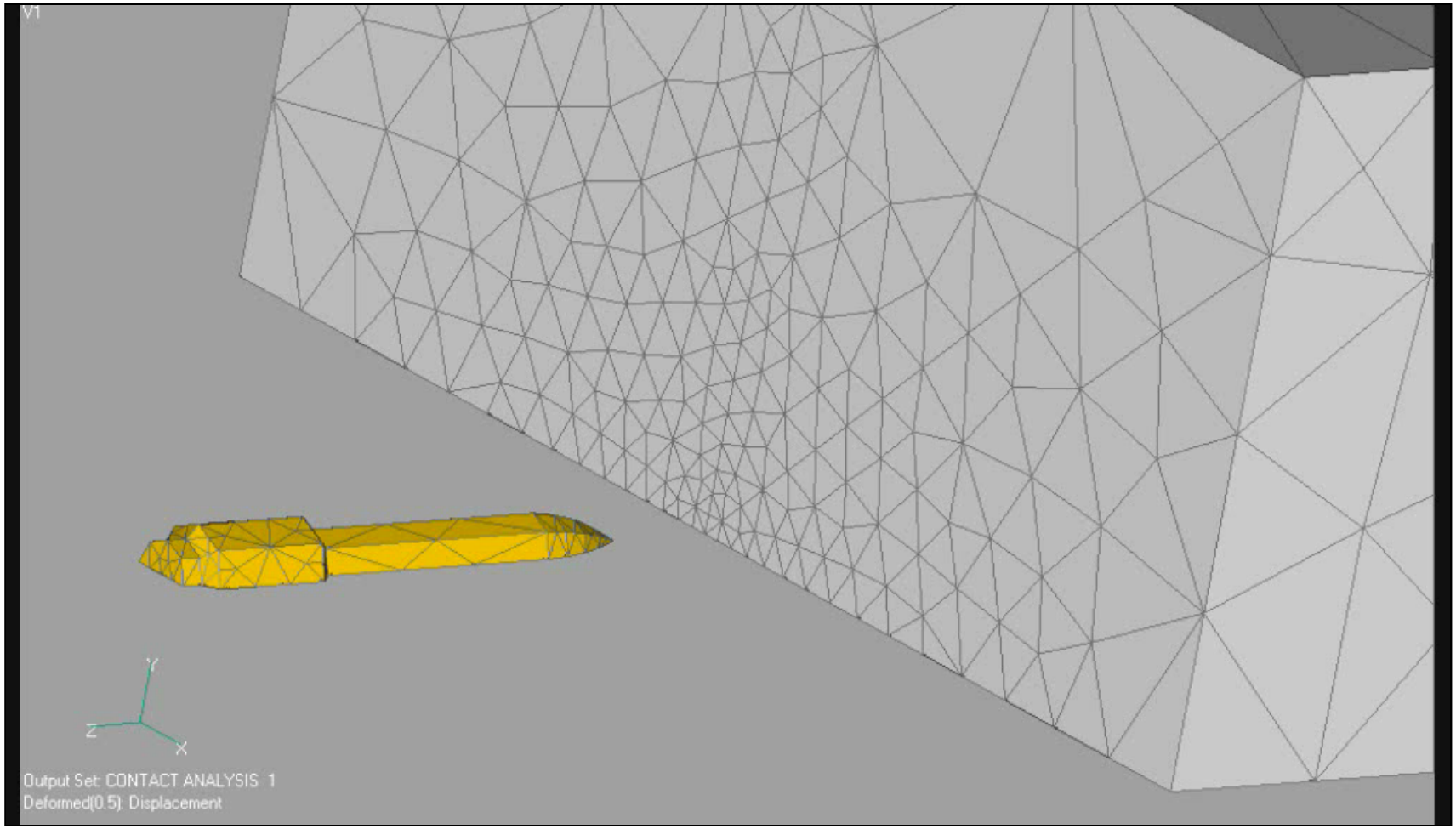
Push-in pull-out simulation



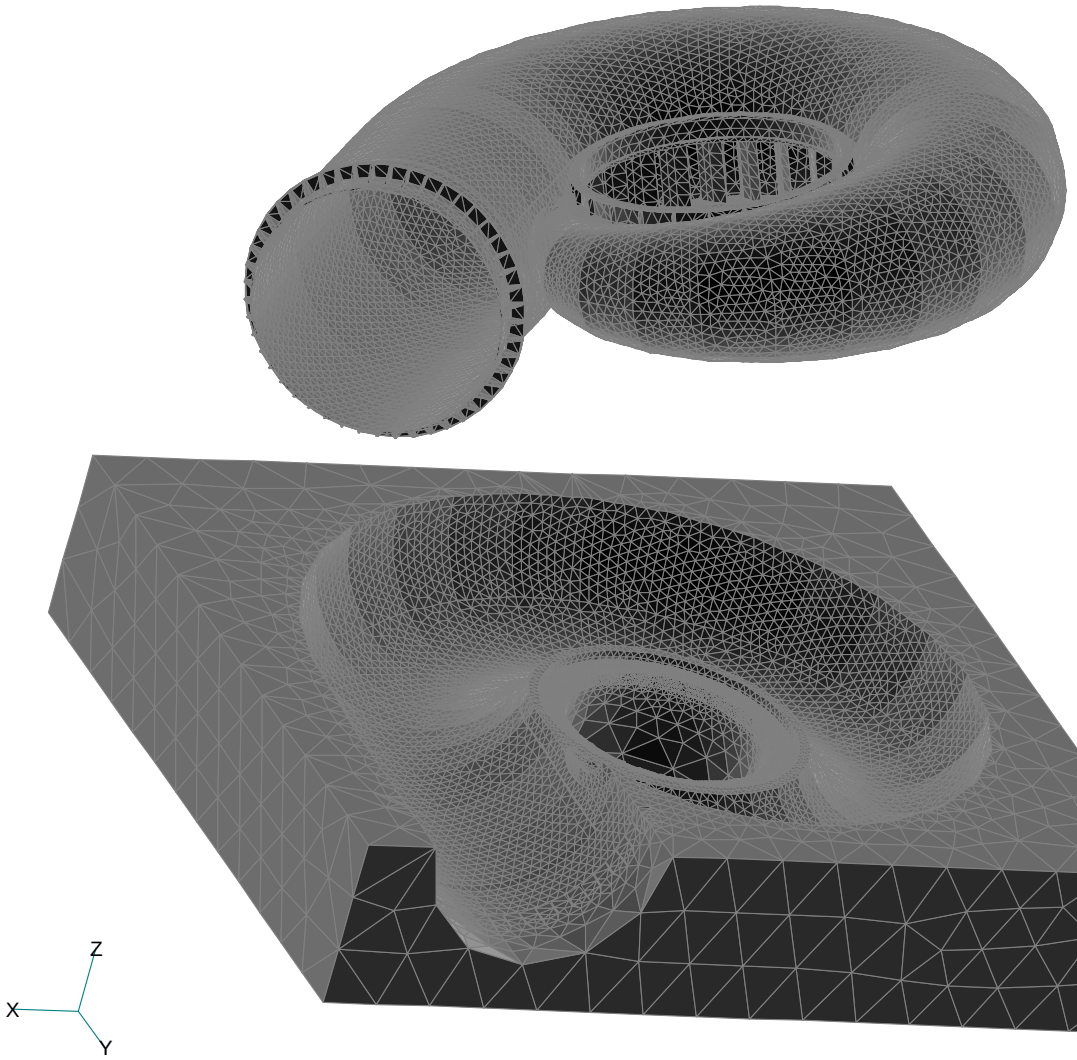
Penetration of anchor into a concrete block



Penetration of anchor into a concrete block



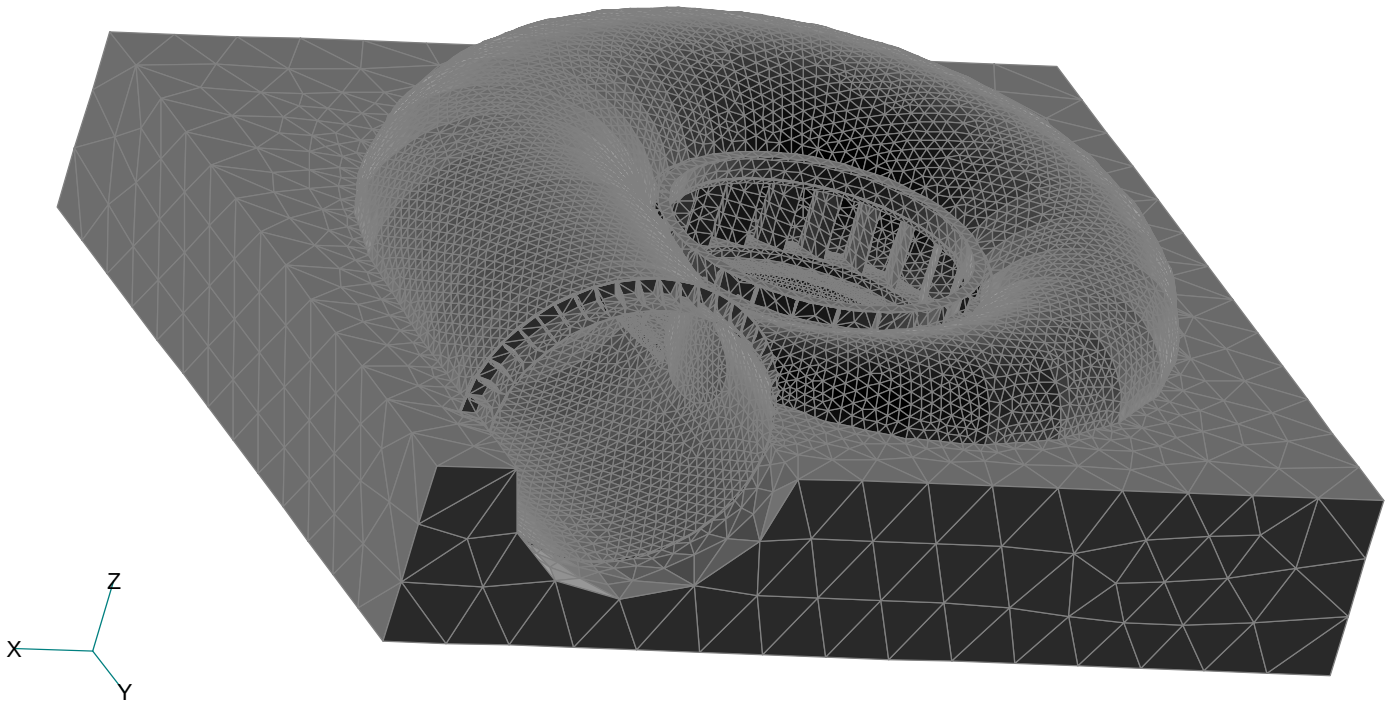
Anchorage of steel hydraulic turbine into a concrete block



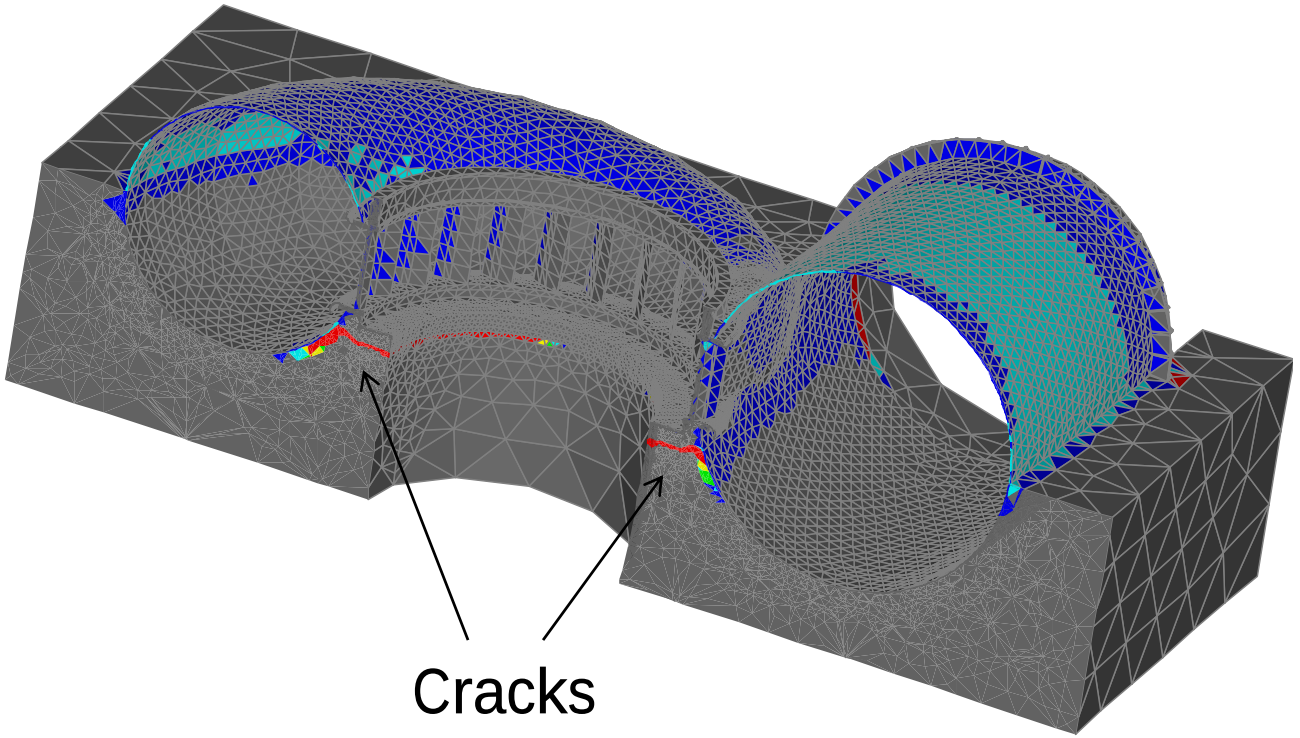
Turbine

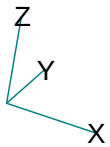
Concrete block
(cca. 30x30x8 m)

Anchorage of steel hydraulic turbine into a concrete block

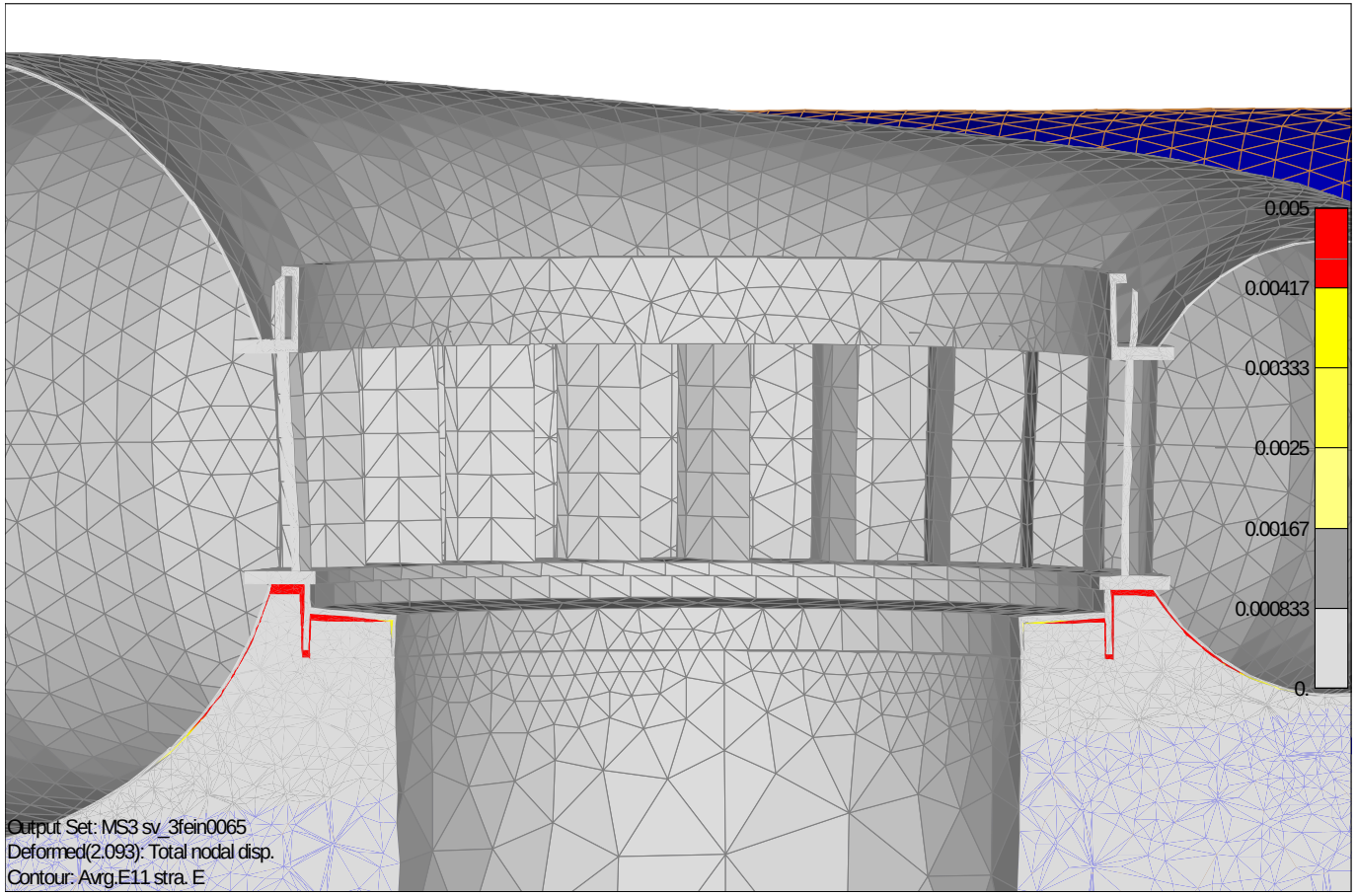
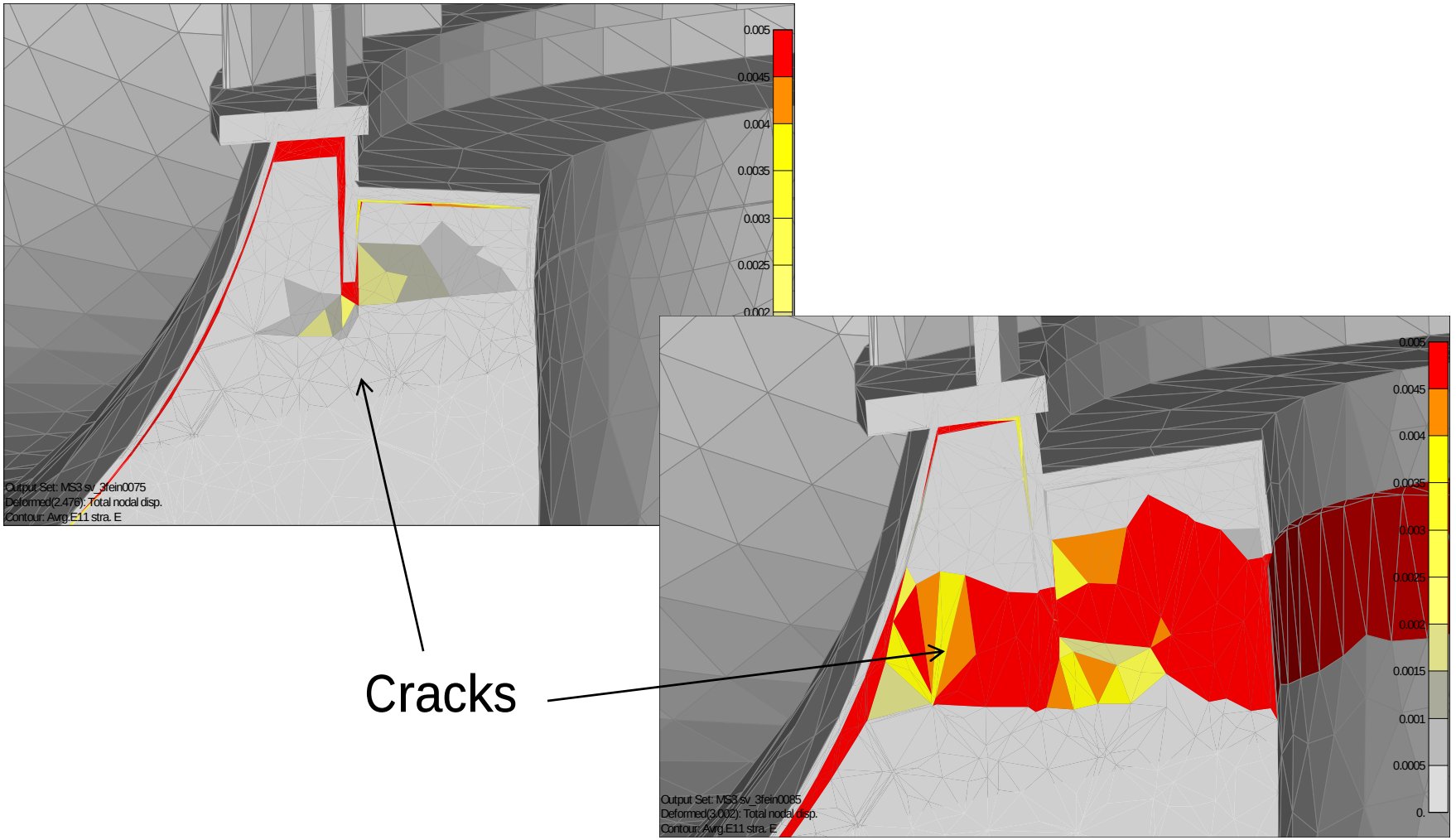


Anchorage of steel hydraulic turbine into a concrete block





Anchorage of steel hydraulic turbine into a concrete block - detail



Anchorage of steel hydraulic turbine into a concrete block - detail