

Spiral Anchor System For Masonry Reconstruction

Repair of cracks with the Ruberstein[®] Spiral Anchor System

Crack causes

Unplanned tensile loads exceeding the tensile strength of the masonry due to:

- Uneven setting in the foundation soil
- Shrinkage deformation
- Temperature deformation
- Load relocations / notch stress
- Vibrations
- Defective or damaged construction among other things

Most common situation = crack formation due to a single or fading event, however remaining crack movement due to repeated processes

Reconstruction targets

Obstruction of the movement of existing cracks and prevention of the formation of new cracks at other positions in the masonry –

i. e. masonry reinforcement for a damage-free deflection of future loads

Reconstruction procedures

Embedding of Ruberstein[®] Spiral Anchors using Ruberstein[®] Anchor Grout in previously opened joints or slits of the existing masonry in horizontal direction to the wall level

Construction rules

- ⇒ Laying direction preferably horizontal, or vertical to the course of the crack
- \Rightarrow Anchor diameter preferably Ø 8 mm or Ø 10 mm
- Anchor length / distance from course of the crack ≥ 40 cm on both sides, additionally lateral offset of approx. 20 cm in case of several vertically consecutive anchor positions, overall length min. 100 cm
- Solution ⇒ Number of anchors according to measuring, or vertical distance of the anchor positions ≤ 35 cm constructively
- ⇒ Please observe anomalies in border areas, near wall openings as well as in corner formations and arches (if necessary ask for sketches with detailed solutions)
- ⇒ If possible, bridge crack groups with common, longer spiral anchors
- \Rightarrow Overlap joints \geq 50 cm
- Slit height (h) usually 10...20 mm (or height of the horizontal joint)
- ⇒ Slit depth (t) usually 40...50 mm (observe static stability)
- \Rightarrow effective joint circumference (t + 0.5 h) \ge 50 mm
- ⇒ Laying depth of the spiral anchors in the wall section ≥ 20 mm (without plaster layer)











Material and accessories

Ruberstein[®] Spiral Anchors, type Standard (without tip) Ruberstein[®] Anchor grout Commercially available wall chaser/slitter or angle grinder Mortar gun (with standard jet)

Processing

- ① Cut the joint e. g. with wall chaser
- ② Blow out the joint, moisten with water
- ③ Apply first layer of anchor grout with mortar gun into the joint
- ④ Cut spiral anchor to length, press into anchor grout
- ⑤ Apply second layer of anchor grout into the joint
- 6 Close the remaining joint with anchor grout or coloured joint mortar



| | Joint / slit depth t _F | | | | | |
|------------------------|-----------------------------------|--------|--------|--------|--------|-------|
| | 25 mm | 30 mm | 40 mm | 50 mm | 60 mm | 70 mm |
| Consumption per m | 0.30 I | 0.37 l | 0.49 l | 0.62 l | 0.75 l | 0.87 |
| Yield per bucket (6 L) | ≈ 20 m | ≈ 16 m | ≈ 12 m | ≈ 10 m | ≈8 m | ≈ 7 m |

Calculated consumption / yield of the Ruberstein® Anchor Grout (joint/slit height h_F = 12 mm, anchor volume neglected)

Advantages of the Ruberstein[®] Spiral Anchor System

- ⊕ Flexible crack bridging without load concentrations and thus long-lasting joining of cracks with high safety against new crack formation in spite of still existing component deformation
- ⊕ Simple processing, no heavy machinery necessary
- ⊕ Little invasion into the building structure

Crack reconstruction accompanying applications

Stabilisation of building corners/building sections

Replacement of ring anchors/circular beams; utilization of barrel effect (e. g. chimney reconstruction) Subsequent masonry reinforcement / formation of reinforced lintels

Ruberstein[®] Service

Further information under www.spiralankersystem.de - Project consulting on request

