

Spiral Anchor System For Masonry Reconstruction

Stabilisation by needling with the Ruberstein® Spiral Anchor System

Damage causes

Unplanned tensile loads exceeding the tensile strength or internal load carrying capacity of the masonry due to:

- Uneven setting in the foundation soil
- Load increases after change of use
- Vibrations
- Defective or damaged construction
- Material fatigue, among other things

In many cases, natural stone walls, mixed masonry, brick walls with high wall thickness, arched constructions as well as decorative elements, are affected.

Reconstruction targets

Constructive reinforcement of the support structure / improvement of the transversal tension capability of masonry constructions for the recovery of the fitness for use / conservation of static stability

Reconstruction procedures

Embedding of Ruberstein® Spiral Anchors using Ruberstein® Anchor Grout in bores in transversal direction resp. in direction of the effective transversal forces (needling)



Construction rules

- ⇒ Anchor diameter preferably Ø 10 mm or Ø 12 mm
Smaller diameters are possible depending on the application
- ⇒ Anchor length according to static requirements, however ≥ 100 mm
- ⇒ Number/arrangement of anchors $\geq 2,5$ anchors per m^2 , if not specified otherwise,
 $d_{\text{horizontal}} \leq 900$ mm, $d_{\text{vertical}} \leq 450$ mm
- ⇒ Bore diameter depending on anchor diameter at least 12, 14, 16 or 20 mm

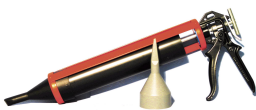
Material and accessories

Ruberstein® Spiral Anchors, type Standard (without tip)

Ruberstein® Anchor grout

Commercially available hammer drill

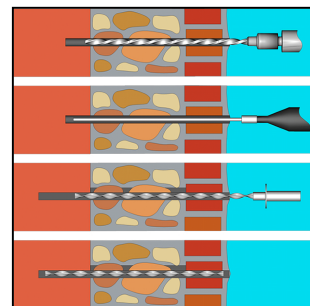
Mortar gun (with filling tube), if necessary pneumatic or spiral pump





Processing

- ① Prepare a bore in the masonry
- ② Blow out the bore, moisten with water
- ③ Cut the spiral anchor to length and prepare the anchor grout
- ④ Press the anchor grout into the bore
- ⑤ Turn in the spiral anchor straight into the fresh grout
- ⑥ Close the wall surface with anchor grout, joint mortar or stone restoration mortar



| | Bore diameter d | | | | | |
|------------------------|-----------------|--------|--------|--------|--------|--------|
| | 12 mm | 14 mm | 16 mm | 18 mm | 20 mm | 22 mm |
| Consumption per m | 0.11 l | 0.15 l | 0.20 l | 0.25 l | 0.31 l | 0.38 l |
| Yield per bucket (6 L) | ≈ 53 m | ≈ 39 m | ≈ 30 m | ≈ 24 m | ≈ 19 m | ≈ 16 m |

Consumption / yield of the Ruberstein® Anchor Grout (anchor volume neglected)

Advantages of the Ruberstein® Spiral Anchor System

- ⊕ Effective reinforcement with high bonding action in almost all wall materials
- ⊕ Little invasion into the building structure; application possible even on sensitive surfaces
- ⊕ Simple processing, no heavy machinery necessary
- ⊕ Easy storage and transport
- ⊕ Delivery on rolls - no material loss due to cutting scrap

Main areas of application

Reinforcement / stabilisation of natural stone walls and thick brick walls

Crack needling (cross-wise) in thick wall constructions

Stabilisation and load carrying capability increase of arched constructions

Securing of decorative / design elements



Ruberstein® Service

Further information under www.spiralankersystem.de

– Project consulting on request

