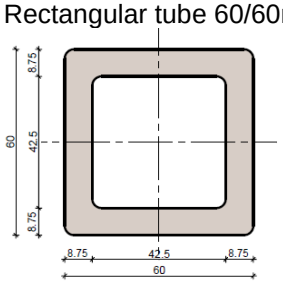
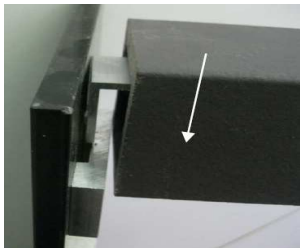
DEUTSCHE STEINZEUG AGROB BUCHTAL

Test with structural element at rectangular tube 60/60mm
Fixed horizontal with fastening set Art. No. 606

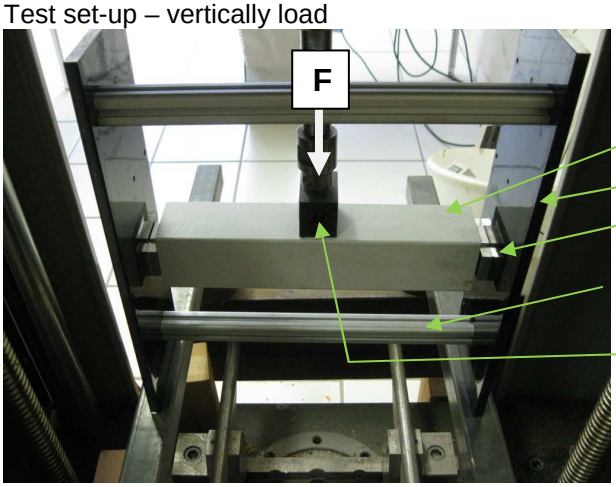
Rectangular tube 60/60mm



installation with set #606



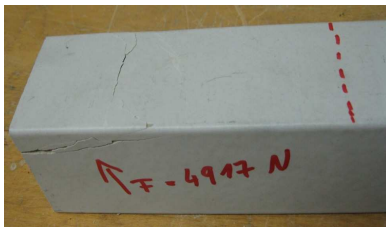
Test set-up – vertically load



- rectangular tube 60/60mm
  length: 300mm
- vert. Al-Profiles 150 x 10 mm
- fixing base plate from set #606 with screws M5 x 20mm
- the test rig is stabilised with 2 Al-profiles 25 x 25 mm with M6 x40mm
- plastic block 35x45x55mm used as layer between steel and ceramic for load transmission

Load at fail: 4917 N

Broken pieces stay together, because of the glued built-in unit.

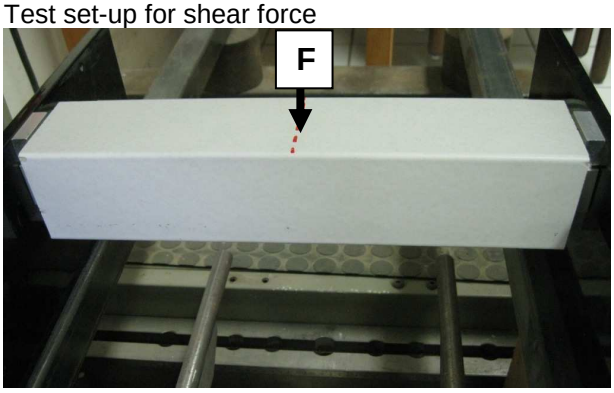


Rectangular tube 60/60mm
Breaking moment: M =750 Nm
Fail load at specimen: 4917 N reduced with 20% F = 3933,6 N
Length of the tube at a comparable load: L = M x 4 / F
L = 750 x 4 / 3933,6
L = 0,76 m = 760 mm

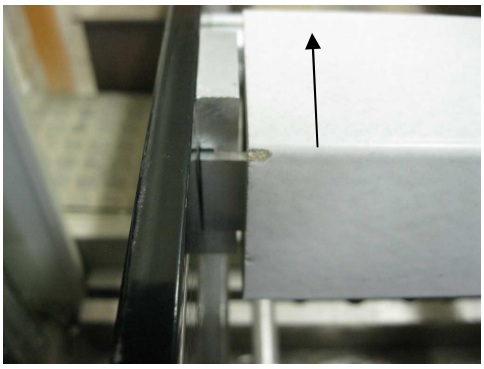
Fazit: At a tube length L=760mm a similar value can be expected as the fail load F=3933,6 from the vertically force. E. g. at length >760mm the breaking load of the tube, resulting from the breaking moment, is significant for the calculation – at length <760mm the fail load F=3933,6 N is significant for the calculation. The weight of 4,5 kg/m is unconsidered.

DEUTSCHE STEINZEUG AGROB BUCHTAL

Test set-up for shear force



installation of the tube



Fail load – shear force: 3852 N

Broken pieces stay together, because of the glued built-in unit.

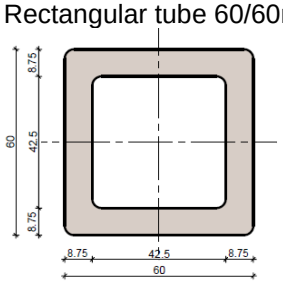
Rectangular tube 60/60mm
Breaking moment: M =750 Nm
Shear force at specimen: 3852 N reduced with 20% F = 3081,6,6 N
Length of the tube at a comparable load: L = M x 4 / F
L = 750 x 4 / 3081,6,6
L = 0,97 m = 970 mm

Fazit: At a tube length L=970mm a similar value can be expected as the shear force F=3081,6 N
E. g. at length >760mm the breaking load of the tube, resulting from the breaking moment, is significant for the calculation – at length <970mm the shear force F=3081,6N is significant for the calculation. The weight of 4,5 kg/m is unconsidered.

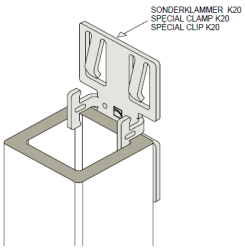
DEUTSCHE STEINZEUG AGROB BUCHTAL

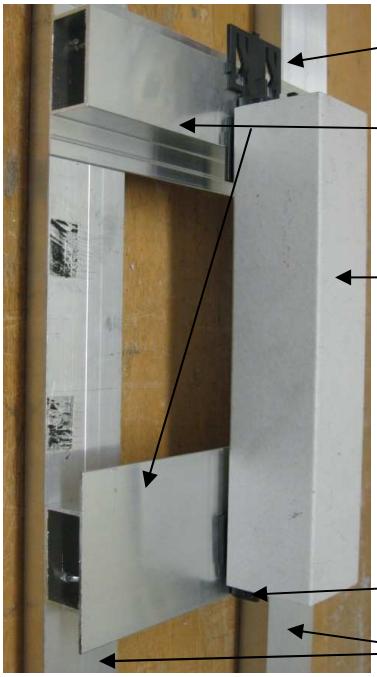
Test with structural element at rectangular tube 60/60mm
Fixed vertically with clamps Art. No. 686-6060 and 686R-6060

Rectangular tube 60/60mm



installation with clamps





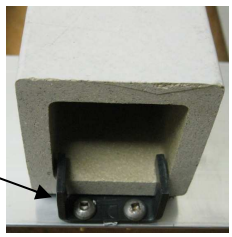
clamp 686-6060

top hat profile
98x30x54,5x2,5

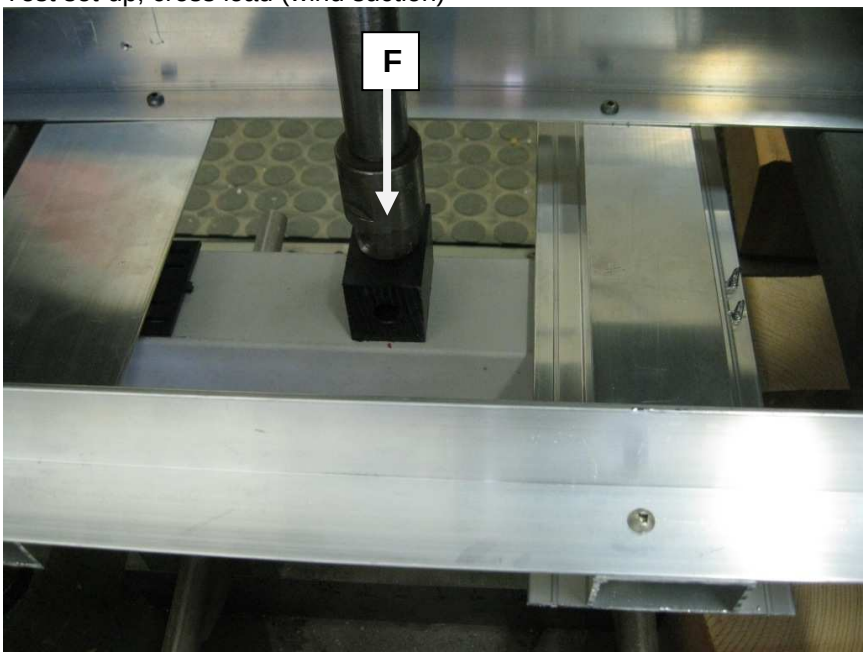
rectangular tube 60/60

clamp 686R-6060

vert. T-profiles



Test set-up, cross load (wind suction)



DEUTSCHE STEINZEUG AGROB BUCHTAL

Fail load: 3728 N

Rectangular tube 60/60mm
Breaking moment: M =750 Nm
Shear force at specimen: 3728 N reduced with 20% F = 2982,4 N
Length of the tube at a comparable load: L = M x 4 / F
L = 750 x 4 / 2982,4
L = 1,01 m = 1010 mm

Fazit: At a tube length L=1010mm a similar value can be expected as the cross load F=2982,4. E. g. at length >1010mm the breaking load of the tube, resulting from the breaking moment, is significant for the calculation – at length <1010mm the cross load F=2982,4 N is significant for the calculation. The weight of 4,5 kg/m is unconsidered.

Schwarzenfeld, 27.11.2014 Gerhard Plank