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TEST REPORT

For various fischer fixings in SL-decks

June 2014
KT & JH

Technical department
Report no. Idt.:SL-Dæk.doc

Per request of Abeo, load tests at Perstrup's precast concrete factory were carried out with various fischer fixings mounted in SL-decks. The tests were carried out in June 2014 by Kristian Tolstrup, Morten Kjær and Jesper Hebbelstrup from fischer a/s.

Purpose

To demonstrate with tests the load capacity of fischer fixings mounted in the underside of SL-decks.

Test

Tests are carried out in according with "fixing and mounting data" in fiscer's main catalogue 4DK. The pull-out tests were carried out steadily rising in the fixings's axial direction (direct pull). For the tests, calibrated pull-out device, model 2000/C, 10 kN and 25 kN were used. Idt. no. AF58C 5103 (10 kN) and AF58E 3903 (25 kN)

The test results proved to be very consistent. As a result, 5 individual tests were made in each of the 5 test series.

Mounting

Correct mounting is a prerequisite to achieve the stated values. Drilling of holes should therefore be made carefully and with the stated bit diameter. Drilled holes need to be cleaned for dust before mounting the fixing.

Test material

Bottom surface of SL-deck. Leca-based light-weight concrete.

Average density: X kg/m³
Pressure strength: Unknown
Dimension: Unknown

Fixing type:
FPX-I M6-M10

SXRL 10 with matching fischer safety screw

fischer injection mass, type FIS VT 300 T with threaded rod/bar (quality 5.8).
Drill hole diameter is 2,0 mm bigger than the diameter of the threaded rod/bar.
Depth of anchorage (hv = depth of drill holes) as stated in the table.

Test results

Fixing type	Screw diameter (mm)	Mean failure value (x in kN)	Design load (Ntill) in kN using safety factor (γ) of 4
FPX-I M6	6,0	4,04	1,01
FPX-I M8	8,0	4,04	1,01
FPX-I M10	10,0	4,04	1,01
SXRL M10		4,16	1,04
FIS VT 300 T	M8 hv = 80 mm	11,2	2,80
FIS VT 300 T	M10 hv = 100 mm	18,0	4,50
FIS VT 300 T	M 12 hv = 120 mm	18,3	4,58

In Denmark, some producers of fixings use a safety factor (γ) of 3 for nylon fixings. fischerwerke recommend a safety factor (γ) for nylon fixings of 7 of the mean failure value. It is recommended that the safety factor (γ) is determined based on the consequence of failure.

Køge, 30 June 2014
fischer a/s

Jesper Hebbelstrup
Product manager

Appendix: Calibration certificate for pull-out device, model 2000/C, 10 kN and 25 kN, idt. nr. AF58C 51103 (10 kN) and AF58E 39103 (25 kN)
Please notice, that the calibration period of pull-out device, according to ISO 9001 hand book, is 2 years.