Evaluation Report

Project	**21802_2** **Tension resistance of MKT Concrete screws BSZ in hollow core slabs**
Employer	**MKT Metall-Kunststoff-Technik GmbH & Co. KG** **Auf dem Immel 2** **67685 Weilerbach** **Deutschland**
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Table of content

1 General

The MKT Metall-Kunststoff-Technik GmbH & Co. KG has engaged the Ingenieurbüro Thiele GmbH to evaluate the usability of MKT concrete screws BSZ in hollow core slabs (e.g. Cobiax). In the following chapter the evaluated concrete screws were given. Tests have been performed in thin concrete members with different concrete strengths. The results of these evaluations and recommendations for practice are the topics of this evaluation report.

2 Anchor Types

In this evaluation report the following products were considered:

- Concrete screws BSZ (ETA-16/0204 [2]) in sizes 6, 8 and 10

3 Characteristic values and recommendations

In the following table the characteristic values for tension loads for the concrete screws BSZ in hollow core slabs are given.

Table 3-1: Characteristic values for tension loads an effective anchorage depth

	BSZ 6		BSZ 8		BSZ 10	
nominal flange thickness	$N_{Rk,p,cr,HKD}$	$h_{ef,HKD}$	$N_{Rk,p,cr,HKD}$	$h_{ef,HKD}$	$N_{Rk,p,cr,HKD}$	$h_{ef,HKD}$
[mm]	[kN]	[mm]	[kN]	[mm]	[kN]	[mm]
60	1,0	18,5	2,1	18,0	2,0	13,0
70	1,6	27,0	3,4	26,5	3,6	21,5
80	2,4	35,5	5,0	35,0	5,6	30,0

The maximum grain size of the ceiling concrete must not exceed 16 mm in the area of the anchorage.

The transfer of the loads in the hollow core slabs is not the subject of this report.

Due to the locally generally worse concreting situation below the hollow bodies and therefore possibly rather poor concrete quality, the stated characteristic loads may not be increased for higher concrete strengths than C20/25. Ceiling areas with voids or defects are not suitable as base material.

Installation in hollow core slabs should be done with only 50% of the installation torque specified in the ETA. These are shown in the table below. If the concrete screws slip through during installation, this attachment point must be considered as non-load bearing.

Table 3-2: Maximum installation torque

	BSZ 6	BSZ 8	BSZ 10
T_{inst} [Nm]	5,0	10,0	20,0

4 Literature

[1] Guideline for European Technical Approval of Metal Anchors for Use in concrete, ETAG 001

[2] ETA-16/0204 of 9. December 2016, Concrete screw BSZ in den Größen 6, 8, 10, 12 and 14 mm for use in concrete; Metall-Kunststoff-Technik GmbH & Co. KG

[3] Gutachten zur Tragfähigkeit von Dübeln in Hohlkörperdecken, 21620 vom 23.7.2016, Hinterlegt bei der Unterzeichnerin.

[4] Test report 16026/15511: TU KL 20.7.2017.Hinterlegt bei der Unterzeichnerin.

[5] Evaluation Report 29.10.2015. DIBT, Hinterlegt bei der Unterzeichnerin

[6] Evaluation Report 26.1.2015 DIBT Hinterlegt bei der Unterzeichnerin.

Pirmasens, 2.01.2018

C. Thiele

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