DBZ Light duty metal anchors

Economical wedge anchor

Anchor version	Benefits
 DBZ (M6)	- Well proven - Simple installation - Small drill bit diameter - Suitable for cracked and non-cracked concrete C20/25 to C50/60 - Redundant fastening only, e.g. suspended ceilings

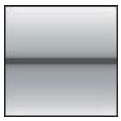
Base material


Concrete (non-cracked)


Concrete (cracked)


Redundant fastening

Load conditions


Static / quasi-static


Fire resistance

Other information


European Technical Assessment


CE conformity

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European Technical Assessment a)	DIBt, Berlin	ETA-06/0179 / 2016-09-15
Fire test report	DIBt, Berlin	ETA-06/0179 / 2016-09-15
Assessment fire report	warringtonfire	WF364181 / 2016-05-03

a) All data given in this section according ETA-06/0179, issue 2016-09-15. The anchor is to be used only for redundant fastening for non-structural applications.

Basic loading data

All data in this section applies to:

- Correct setting (See setting instruction)
- No edge distance and spacing influence
- Concrete C20/25 to C50/60
- Anchors in redundant fastening

Characteristic resistance

Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Resistance, all load directions	F_{Rk}	[kN]	5,0	

Design resistance

Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Resistance, all load directions	F_{Rd}	[kN]	3,3	

Recommended loads [a)]

Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Resistance, all load directions	F_{Rec}	[kN]	2,4	

a) With overall partial safety factor for action γ = 1,4. The partial safety factors for action depend on the type of loading and shall be taken from national regulations.

The definition of redundant fastening according to Member States is given in the ETAG 001 Part six, Annex 1. In Absence of a definition by a Member States the following default values may be taken.

Minimum number of fixing points	Minimum number of anchors per fixing point	Maximum design load of action N_{Sd} per fixing point[a)]
3	1	2
4	1	3

a) The value for maximum design load of actions per fastening point N_{Sd} is valid in general that means all fastening points are considered in the design of the redundant structural system. The value N_{Sd} may be increased if the failure of one (=most unfavourable) fixing point is taken into account in the design (serviceability and ultimate limit state) of the structural system e.g. suspended ceiling.

Materials

Mechanical properties

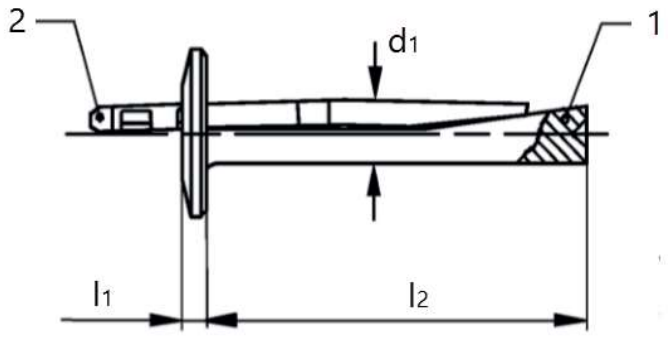
Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Nominal tensile strength	f_{uk}	[N/mm²]	390	390
Yield strength	f_{yk}	[N/mm²]	310	310
Stressed cross-section	A_s	[mm²]	26	26
Char. bending resistance	$M^0_{Rk,s}$	[Nm]	5,0	5,0

Material quality

Part	Material
Anchor shank (1)	Cold-formed steel, galvanized ≥ 5µm
Expansion pin (2)	Cold-formed steel, galvanized ≥ 5µm

Anchor dimension

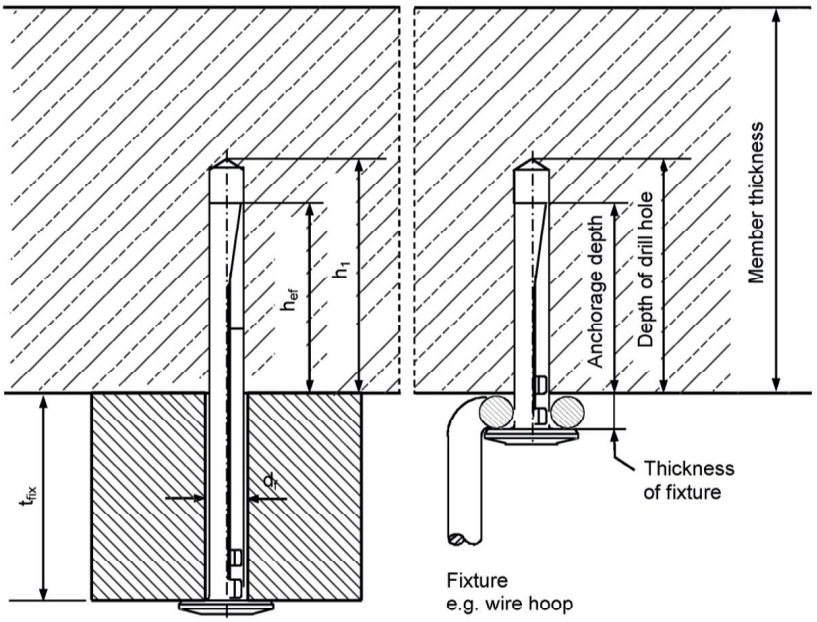
Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Height anchor head	l_1	[mm]	2,5	2,5
Max. distance	d_1	[mm]	6,4	6,4
Length of anchor shaft	l_2	[mm]	37,5	68



Setting information

Setting details

Anchor size			DBZ 6 / 4,5	DBZ 6 / 35	
Thickness of fixture	t_{fix}	[mm]	≤ 4,5	20 ≤ t_{fix} ≤ 35	5 ≤ t_{fix} ≤ 20
Depth of drill hole	h_1 ≥	[mm]	40	55	70
Cutting diameter of drill bit	d_{cut} ≤	[mm]	6,4		
Nominal diameter of drill bit	d_0	[mm]	6		
Clearance hole diameter	d_f ≤	[mm]	7		



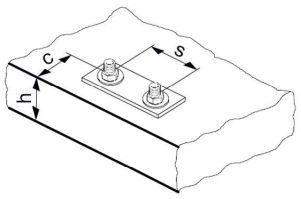
Installation equipment

Anchor size	DBZ 6 / 4,5	DBZ 6 / 35
Rotary hammer	TE 2 -TE 7	
Other tools	Hammer, blow out pump	

Setting parameters

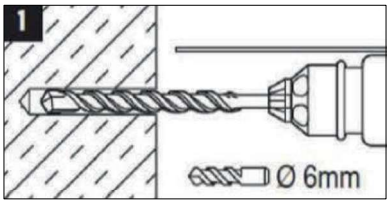
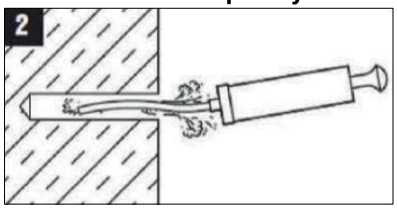
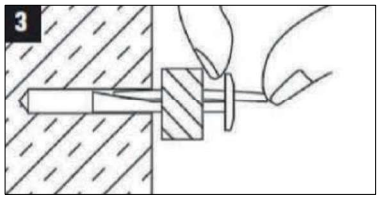
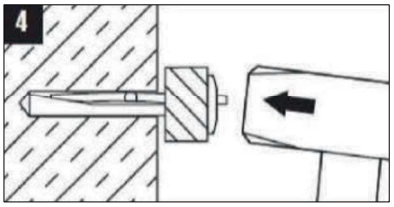
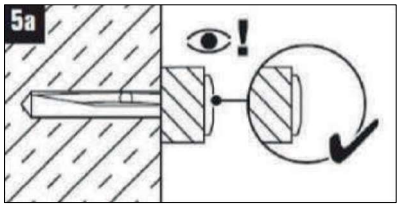
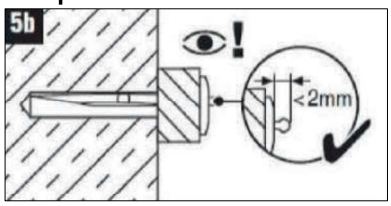
Anchor size			DBZ 6 / 4,5	DBZ 6 / 35	
Thickness of fixture	t_{fix}	[mm]	≤ 4,5	20 ≤ t_{fix} ≤ 35	5 ≤ t_{fix} ≤ 20
Minimum member thickness	h_{min} ≥	[mm]	80		100
Effective anchorage length	h_{ef} ≥	[mm]	32		
Spacing	s_{min}= s_{cr}	[mm]	200		
Edge distance	c_{min}= c_{cr}	[mm]	150		

a) The critical spacing (critical edge distance) shall be kept. Smaller spacing (edge distance) than critical spacing (critical edge distance) are not covered by the design method.



Setting instruction

***For detailed information on installation see instruction for use given with the package of the product.**

Setting instructions		
Drill hole with drill bit 	Blow out dust completely 	Insert anchor with fixture 
Hammer down the expansion pin 	Check if the pin is completely flattened 	Max. exceedance of 2mm can be accepted 
In case the pin exceedance is larger than 2mm replace the used drill bit with a new drill bit