DBZ

METAL LIGHT DUTY

Technical Datasheet

Update: Jan-23

DBZ Light duty metal anchors

Economical wedge anchor

Anchor version	Benefits

DBZ

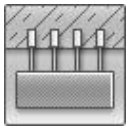
(d6)

- 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

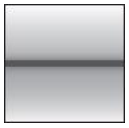
Concrete (non-cracked)

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 / 2022-12-12
Fire test report	DIBt, Berlin	ETA-06/0179 / 2022-12-12

a) All data given in this section according ETA-06/0179, issue 2022-12-12. The anchor is to be used only for redundant fastening for non-structural applications.

Static and quasi-static loading (for a single anchor)

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

Anchorage depth

Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Resistance, all load directions	$h_{ef} \geq$	[kN]	32	

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.

Fire resistance

All data in this section applies to:
- Correct setting (See setting instruction)
- No edge distance and spacing influence
- Steel failure
- Minimum base material thickness
- Concrete C 20/25, $f_{ck,cyl}$ = 20 N/mm² (EN 1992-4 design)
- partial safety factor for resistance under fire exposure $\gamma_{M,fi}$=1,0 (in absence of other national regulations)

Anchorage depth

Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Resistance, all load directions	$h_{ef} \geq$	[kN]	32	

Characteristic resistance

Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Fire exposure R30				
Resistance, all load directions	$F_{Rk,fi}$	[kN]	0,6	
Fire exposure R120				
Resistance, all load directions	$F_{Rk,fi}$	[kN]	0,2	

Design resistance

Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Fire exposure R30				
Resistance, all load directions	$F_{Rd,fi}$	[kN]	0,6	
Fire exposure R120				
Resistance, all load directions	$F_{Rd,fi}$	[kN]	0,2	

For more information about diffrent failure modes and fire resistance times please see the full ETA-06/0179 report.

The definition of redundant fastening according to Member States is given in the EN 1992-4 and CEN/TR 17079. 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 kN
4	1	3 kN

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
Characteristic bending resistance	$M^0_{Rk,s}$	[Nm]	5,0	5,0

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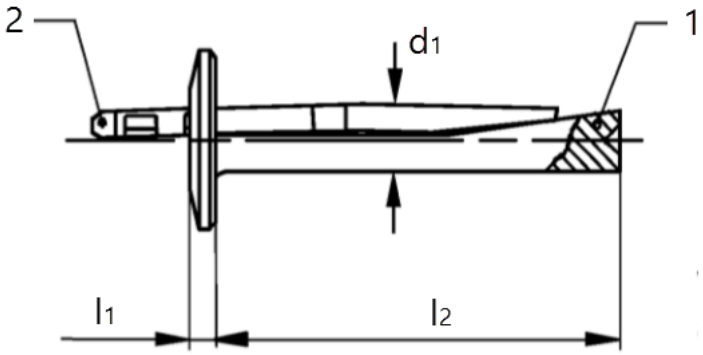
Material quality

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

Anchor dimension

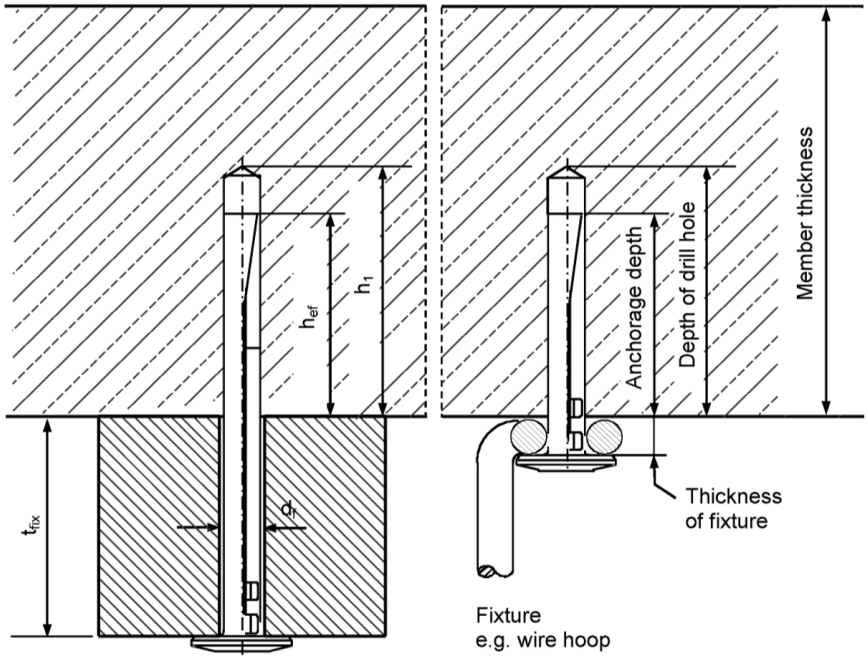
Anchor size			DBZ 6 / 4,5	DBZ 6 / 35
Height anchor head	l_1	[mm]	2,5	2,5
Max. distance	d_1	[mm]	6,4	6,4
Length of anchor shaft	l_2	[mm]	37,5	68



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		



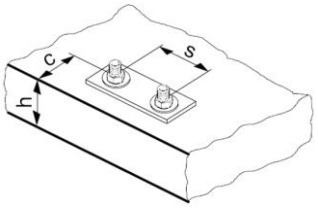
Installation equipment

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		
Minimum spacing	s_{min} = s_{cr}	[mm]	200		
Minimum 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.**

h_1 [mm]	t_{fix} [mm]
≥55	20...35
≥70	5...20