ETA Ankerbolt

FIRE RESISTANCE DATA

Drill Diam (d_0)	Overall Embedment Depth (h_{nom})	Minimum Concrete Thickness (h_{min})	Design Resistance Tensile ($N_{Rd,fi}$) or Shear ($V_{Rd,fi}$) (kN)**				Approved Resistance Tensile ($N_{Ra,fi}$) or Shear ($V_{Ra,fi}$) (kN)			
mm	mm	mm	30min (R30)	60min (R60)	90min (R90)	120min (R120)	30min (R30)	60min (R60)	90min (R90)	120min (R120)
8	75	120	0.4	0.4	0.3	0.2	0.28	0.28	0.21	0.14
10	85	125	1.1	0.9	0.7	0.6	0.78	0.64	0.50	0.42
12	95	140	2.0	1.5	1.3	1.0	1.42	1.07	0.92	0.71
14	110	170	2.8	2.1	1.8	1.4	2.00	1.50	1.28	1.00
16	120	190	3.7	2.8	2.4	1.8	2.64	2.00	1.71	1.28

Fire Resistance Data (C20/25 to C50/60 cracked or non-cracked concrete)

* The determination covers anchors with a fire attack from one side only. If the fire attack is from more than one side, the design method may be taken only, if the edge distance of the anchor is c ≥ 300 mm and ≥ 2 h_{ef}.

**For combined loads, use Anchor Calculation Program.

SUPPLEMENTARY DATA

Influence Of Concrete Strength (Cracked/Non-cracked Concrete)

Concrete strength		C20/25	C30/37	C40/50	C50/60
Cylinder	N/mm²	20	30	40	50
Cube	N/mm²	25	37	50	60
Factor	M8, M10, M12	1.0	1.17	1.32	1.42
	M14, M16	1.0	1.22	1.41	1.55

Important Note:
When using concrete factors ensure that loads do not exceed Steel Design Resistance.

Steel Failure

Drill Diam (d_0)	Tensile Resistance Characteristic Resistance ($N_{Rk,s}$)	Design Resistance ($N_{Rd,s}$)*	Approved Resistance ($N_{Ra,s}$)	Shear Resistance Characteristic Resistance ($V_{Rk,s}$)	Design Resistance ($V_{Rd,s}$)**	Approved Resistance ($V_{Ra,s}$)
mm	kN	kN	kN	kN	kN	kN
8	44.2	31.6	22.6	28.5	19.0	13.6
10	70.1	50.1	35.8	46.4	30.9	22.1
12	101.2	72.3	51.6	57.2	38.1	27.2
14	140.0	100.0	71.4	80.4	53.6	38.3
16	183.9	131.4	93.8	84.4	56.3	40.2

* A partial safety factor (γ_{MS}) equal to 1.4 is included.
** A partial safety factor (γ_{MS}) equal to 1.5 is included.

For variations in structure thickness, reduced spacing and edge calculations download the free Anchor Calculation Program from www.jcpfixings.co.uk