IBB GmbH - Ingenieurbüro für Brandschutz von Bauarten
Dr.-Ing. Peter Nause
Dipl.-Ing. (FH) Cord Meyerhoff

IBB GmbH ▪ Braunschweiger Str. 65 ▪ 38179 Groß Schwülper

Abridged Version of Expert Opinion

- Translation -

Document No.:	GA-2017/019 –Nau of 13/08/2021
Client:	Upat Vertriebs GmbH Bebelstraße 11 792108 Freiburg im Breisgau
Order date:	13/08/2021
Order Ref.:	Mr Schillinger
Order received:	13/08/2021
Subject:	Expert Opinion on the use of "Upat UKA 3 Plus" bonded anchors for fire safety purposes in accordance with ETA-17/0197, when set in both cracked and uncracked concrete

This abridged version of the Expert Opinion consists of 4 pages.

1 Background and commission

With their mail of 05/08/2021, Upat Vertriebs GmbH, Freiburg im Breisgau/Germany commissioned the IBB GmbH consulting engineers at Groß Schwülper to prepare an abridged version of Expert Opinion No. GA-2017/019 of 13/08/2021 on the use of "Upat UKA 3 Plus" bonded anchors for fire safety purposes in accordance with ETA-17/0197, when set in both cracked and uncracked concrete.

2 Description of the system

Regarding the description of the system, reference is made to Letter No. 2017/019 of 13/08/2021

3 Fire-safety assessment

Table 1: Maximum tensile load as a function of fire exposure of Upat Patrone UKA 3 Plus with anchor rod, strength class 5.8, made from stainless steel A4, strength class 50, or highly corrosion-resistant steel C, strength class 50

Thread	Nominal drill diameter	Anchoring depth	Characteristic tensile load as a function of fire resistance time			
	mm	mm	kN			
			R30	R60	R90	R120
M8	10	80	0.90	0.60	0.40	0.40
M10	12	90	1.60	1.10	0.80	0.70
M12	14	110	2.60	1.80	1.40	1.20
M16	18	125	6.40	4.70	3.80	3.30
M20	25	170	10.10	7.30	5.90	5.20
M24	28	210	14.50	10.50	8.60	7.60

Table 2: Maximum tensile load as a function of fire exposure of Upat Patrone UKA 3 Plus with anchor with inside thread, strength class 5.8

Thread	Nominal drill diameter	Anchoring depth	Characteristic tensile load as a function of fire resistance time			
	mm	mm	kN			
			R30	R60	R90	R120
M8	14	90	0.90	0.60	0.40	0.40
M10	18	90	1.60	1.10	0.80	0.70
M12	20	125	2.60	1.80	1.40	1.20
M16	24	160	6.40	4.70	3.80	3.30
M20	32	200	10.10	7.30	5.90	5.20

Table 3: Maximum tensile load as a function of fire exposure of Upat Patrone UKA 3 Plus with anchor rod made from stainless steel A4, strength class 70

Thread	Nominal drill diameter	Anchoring depth	Characteristic tensile load as a function of fire resistance time			
	mm	mm	kN			
			R30	R60	R90	R120
M8	10	80	1.31	0.88	0.61	0.53
M10	12	90	2.45	1.58	1.14	0.88
M12	14	110	4.11	2.63	1.93	1.49
M16	18	125	10.50	6.74	4.81	3.85
M20	25	170	16.45	10.50	7.53	6.04
M24	28	210	23.63	15.14	10.94	8.75

Table 4: Maximum tensile load as a function of fire exposure of Upat Patrone UKA 3 Plus with anchor with inside thread made from stainless steel A4, strength class 70, or highly corrosion-resistant steel C, strength class 70

Thread	Nominal drill diameter	Anchoring depth	Characteristic tensile load as a function of fire resistance time			
	mm	mm	kN			
			R30	R60	R90	R120
M8	14	90	1.31	0.88	0.61	0.53
M10	18	90	2.45	1.58	1.14	0.88
M12	20	125	4.11	2.63	1.93	1.49
M16	24	160	10.50	6.74	4.81	3.85
M20	32	200	16.45	10.50	7.53	6.04

Table 5: Maximum tensile load as a function of fire exposure of Upat Patrone UKA 3 Plus with anchor rod, strength class 8.8, made from stainless steel A4, strength class 80, or highly corrosion-resistant steel C, strength class 80

Thread	Nominal drill diameter	Anchoring depth	Characteristic tensile load as a function of fire resistance time			
	mm	mm	kN			
			R30	R60	R90	R120
M8	10	80	1.50	1.00	0.70	0.60
M10	12	90	2.80	1.80	1.30	1.00
M12	14	110	4.70	3.00	2.20	1.70
M16	18	125	12.00	7.70	5.50	4.40
M20	25	170	18.80	12.00	8.60	6.90
M24	28	210	27.00	17.30	12.50	10.00

4 Additional information

Structural and design details (that may be deduced from this Expert Opinion) may be modified or added only after consultation with IBB GmbH, Groß Schwülper.

Proper workmanship is the sole responsibility of the contracting companies.

The validity of this abridged version of the Expert Opinion will expire on 13/08/2026, together with Expert Opinion No. GA-2017/019 of 13/08/2021:

Kind regards

Dr.-Ing. Peter Nause
Fire safety expert