Option 1 Throughbolt

Non-Cracked concrete

Performance Data (20/25 Concrete)									
Thread Diam	Characteristic Resistance		Design Resistance (γ_{Ms} from ETA)		Approved Resistance (γ_F=1.4)		Design Spacing	Design Edge Distance	
mm	kN		kN		kN		mm	mm	
	Tensile	Shear	Tensile	Shear	Tensile	Shear	Tensile & Shear	Tensile	Shear
8	12.0	15.0	8.0	12.0	5.7	8.5	200	100	135
10	16.0	22.0	10.6	17.6	7.6	12.6	240	120	170
12	25.0	30.0	16.6	24.0	11.9	17.1	320	160	225
16	35.0	60.0	23.3	48.0	15.5	38.4	340	170	395

Shear Loads towards a free edge are for single anchors where Spacing ≥ 3 x Edge Distance

Cracked concrete

Performance Data (20/25 Concrete)									
Thread Diam	Characteristic Resistance		Design Resistance (γ_{Ms}frpm ETA)		Approved Resistance (γ_F=1.4)		Design Spacing	Design Edge Distance	
mm	kN		kN		kN		mm	mm	
	Tensile	Shear	Tensile	Shear	Tensile	Shear	Tensile & Shear	Tensile	Shear
8	5.0	15.0	3.3	12.0	2.3	8.6	40 (C_{min}70)	40	195
10	9.0	22.0	6.0	17.6	4.0	12.6	45 (C_{min}75)	50	250
12	16.0	30.0	10.6	24.0	7.5	17.1	110 (C_{min}105)	75	330
16	25.0	60.0	16.6	37.6	11.8	26.9	200 (C_{min}130)	110	400

(C_{min} = Minimum Edge Distance for Spacing, S_{min} = Minimum Spacing for Edge Distance)

Shear Loads towards a free edge are for single anchors where Spacing ≥ 3 x Edge Distance