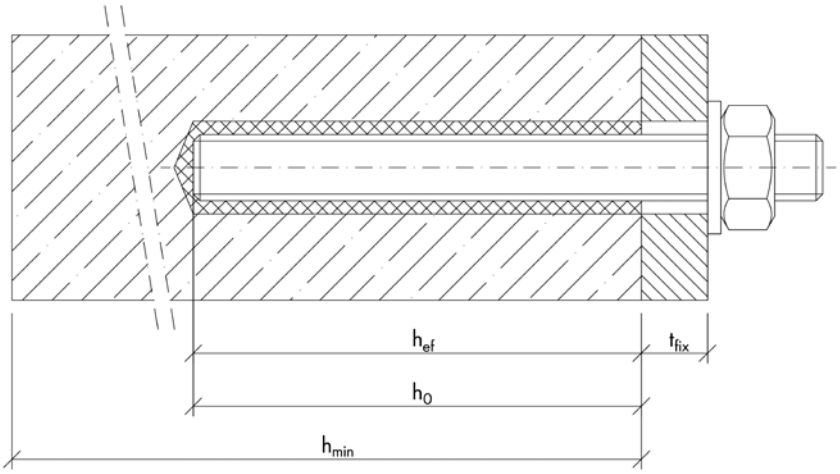
INJECTION SYSTEM WIT-VM 250

Loads – concrete

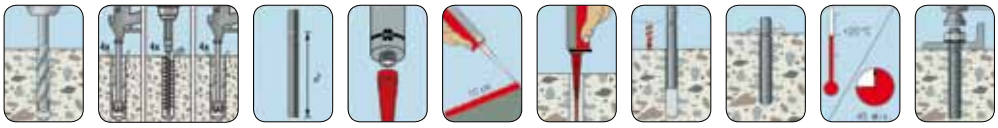
Thread size				M8	M10	M12	M16	M20	M24	M27	M30
Effective anchorage depth		$h_{ef,typ}$	[mm]	80	90	110	125	170	210	240	270
Non-cracked Concrete											
Tension	5.8	N_{rec}	[kN]	8.7	13.5	19.7	27.3	43.3	59.4	72.6	86.6
	8.8			9.6	13.5	19.7	27.3	43.3	59.4	72.6	86.6
	A4-70			9.6	13.5	19.7	27.3	43.3	59.4	57.4	70.2
Shear	5.8	V_{rec}	[kN]	6.3	9.9	14.5	26.9	42.0	60.5	78.7	96.2
	8.8			8.6	13.1	19.4	36.0	56.0	80.6	105.1	128.0
	A4-70			6.0	9.2	13.7	25.2	39.4	56.8	34.5	42.0
Cracked Concrete											
Tension	5.8/8.8/A4-70	N_{rec}	[kN]	3.8	5.6	9.1	13.7	23.3	34.6	50.8	60.6
Shear	5.8	V_{rec}	[kN]	6.3	9.9	14.5	26.9	42.0	60.5	78.7	96.2
	8.8			7.7	11.2	18.1	27.4	46.6	69.1	101.6	121.2
	A4-70			6.0	9.2	13.7	25.2	39.4	56.8	34.5	42.0

[1] Loads are valid for single anchors. Normal spaced reinforcement in ≥ C20/25. Material safety factor γ_M and safety factor for action γ_L = 1.4 are included. The material safety factor depends on the failure mode.
[2] Loads for anchorages close to edge and/or with small spacing have to be reduced and should be calculated based on performance data given in the ETA.

Clearance-hole in fixture	d_f	[mm]	9	12	14	18	22	26	30	33
Drill depth	h_1	[mm]	80	90	110	125	170	210	240	270
Minimum thickness of concrete member	h_{min}	[mm]	110	120	140	161	214	266	300	340
Minimum edge distance	c_{min}	[mm]	40	50	60	80	100	120	135	150



Installation Concrete



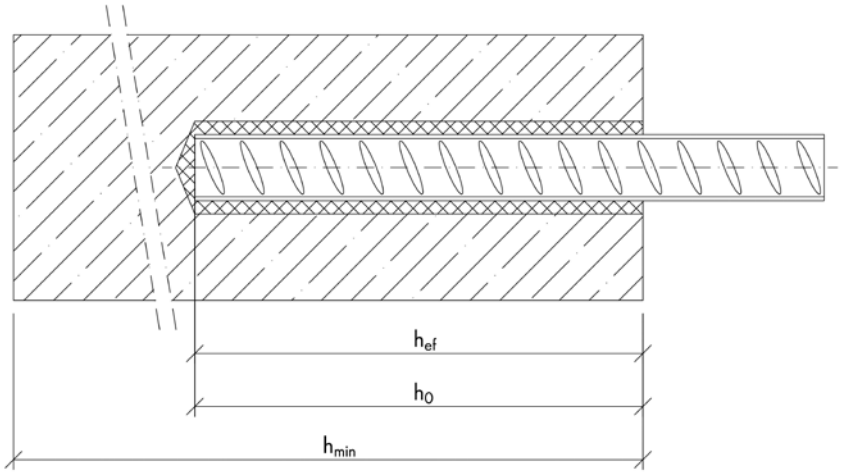
INJECTION SYSTEM WIT-VM 250

Loads – REBAR

Rebar size				Ø 8	Ø 10	Ø 12	Ø 15	Ø 14	Ø 20	Ø 25	Ø 28	Ø 32
Effective anchorage depth		$h_{ef,typ}$	[mm]	80	90	110	125	125	170	210	270	300
Non-cracked Concrete												
Tensile	B500 A	N_{rec}	[kN]	9.6	13.5	19.7	26.2	27.3	43.3	59.4	86.6	101.4
Shear	B500 A	V_{rec}	[kN]	6.5	10.3	14.8	20.2	26.3	41.1	64.3	80.7	105.3
Minimum edge distance		c_{min}	[mm]	40	50	60	70	80	100	125	140	160
Cracked Concrete												
Tensile	B500 A	N_{rec}	[kN]	3.8	5.6	9.1	12.0	13.7	23.3	36.0	60.6	71.0
Shear	B500 A	V_{rec}	[kN]	6.5	10.3	14.8	20.2	26.3	41.1	64.3	80.7	105.3
Minimum edge distance		c_{min}	[mm]	40	50	60	70	80	100	125	140	160

[1] Loads are valid for single anchors. Normal spaced reinforcement in ≥ C20/25. Material safety factor γ_M and safety factor for action γ_L = 1.4 are included. The material safety factor depends on the failure mode.
[2] Loads for anchorages close to edge and/or with small spacing have to be reduced and should be calculated based on performance data given in the ETA.

Drill hole diameter	d_0	[mm]	12	14	16	18	20	24	32	35	40
Drill depth	h_1	[mm]	80	90	110	125	125	170	210	270	300
Minimum thickness of concrete member	h_{min}	[mm]	110	120	142	161	165	218	274	340	380
Minimum effective anchorage depth	$h_{ef,min}$	[mm]	60	60	70	75	80	90	100	112	128
Maximum effective anchorage depth	$h_{ef,max}$	[mm]	160	200	240	280	320	400	480	540	640



Installation Rebar

INJECTION SYSTEM WIT-VM 250

Loads – masonry

Brick and Block	Type	Size	Compressive strength	Density	Drilling method	Sleeve	Metric thread size	Embedment depth	Edge distance	Tensile [1),2)]	Shear [1),2)]
		l x b x h	f_b	ρ		Ø x l	M	h_{ef}	c	N_{rec}	V_{rec}
		[mm]	[N/mm²]	[kg/dm³]				[mm]	[mm]	[kN]	[kN]
Fired clay brick Mz	solid	240 x 115 x 55	20	1.6	Hammer	–	M8	80	120	1.29	1.43
						–	M10	90	135	1.57	1.43
						–	M12	100	150	1.71	1.43
						–	M16	100	150	1.71	2.29
Fired clay brick Hlz	perforated	497 x 240 x 238	12	0.8	Rotary	SH12x80	M8	80	100	1.00	0.71
						SH16x85	M8 / M10	85	100	1.00	0.71
						SH16x130	M8 / M10	130	100	1.43	0.71
						SH20x85	M12 / M16	85	120	1.00	0.71
						SH20x130	M12 / M16	130	120	1.43	0.71
Light aggregate block Vbl	solid	300 x 123 x 248	2	0.6	Rotary	–	M8	80	120	0.86	0.86
						–	M8/M10	90	135	0.86	0.86
						–	M12	100	150	1.00	0.86
						–	M16	100	150	0.86	0.86
Light aggregate block B40	hollow	495 x 200 x 190	4	0.8	Rotary	SH12x80	M8	80	100	0.34	0.71
						SH16x85	M8 / M10	85	100	0.34	0.71
						SH16x130	M8 / M10	130	100	0.34	0.71
						SH20x85	M12 / M16	85	120	0.34	0.71
						SH20x130	M12 / M16	130	120	0.34	0.71
Calcium silicate brick KS	solid	240 x 115 x 71	20	2.0	Hammer	–	M8	80	120	1.71	1.14
						–	M10	90	135	1.71	1.29
						–	M12	100	150	1.71	1.14
						–	M16	100	150	1.43	1.14
Calcium silicate block KSL	hollow	498 x 175 x 238	12	1.4	Rotary	SH12x80	M8	80	100	0.21	0.71
						SH16x85	M8 / M10	85	100	0.21	0.71
						SH16x130	M8 / M10	130	100	0.86	0.71
						SH20x85	M12 / M16	85	120	0.43	0.71
						SH20x130	M12 / M16	130	120	0.86	0.71
Aerated concrete block AAC	solid	499 x 240 x 249	6	0.6	Rotary	–	M8	80	120	0.89	2.14
						–	M10	90	135	1.43	3.03
						–	M12	100	150	1.79	3.57
						–	M16	100	150	2.32	3.57

[1)] Loads are valid for single anchors and the given edge distance. Shear loads are acting parallel to the edge. Material safety factor γ_M and safety factor for action γ_L = 1.4 are included. The material safety factor depends on failure mode and type of brick.

[2)] Loads for anchorages close to edge and/or with small spacing have to be reduced and should be calculated based on performance data given in the ETA.

[3)] The loads given are valid for the bricks and blocks which have been given. The loads can be taken for bricks and blocks of larger sizes, larger compressive strength of the masonry unit and same configuration of the cavities. The loads of the injection anchor may be determined by the so-called "job site tests" according to ETAG029 and TR053.

Installation Masonry perforated

Installation Masonry solid