INJECTION SYSTEM W-VIZ/A4/W-VIZ/HCR M16 TO M24

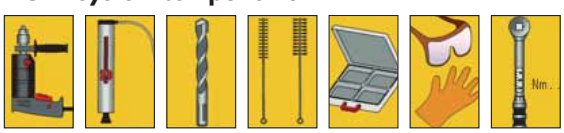
Characteristic values **W-VIZ/A4** (W-VIZ/HCR see ETA-04/0095)

Anchor diameter [mm]		**M16** h_{ef} 90		**M16** h_{ef} 105		**M16** h_{ef} 125		**M16** h_{ef} 145		**M20** h_{ef} 115		**M20** h_{ef} 170		**M20** h_{ef} 190		**M24** h_{ef} 200		**M24** h_{ef} 225	
Minimum component thickness	$h_{min} \geq$ [mm]	130		150		170/160[5]		190/180[5]		160		230/220[5]		250/240[5]		270/260[5]		300/290[5]	
Minimal axis distance cracked concrete / non-cracked concrete	$s_{min} \geq$ [mm]	50	50	50	60	60	60	60	60	80	80	80	80	80	80	80	105	80	105
Minimal edge clearance cracked concrete / non-cracked concrete	$c_{min} \geq$ [mm]	50	50	50	60	60	60	60	60	80	80	80	80	80	80	80	105	80	105
Axial spacing	$s_{cr,N}$ [mm]	270		315		375		435		345		510		570		600		675	
Edge spacing	$c_{cr,N}$ [mm]	135		157.5		187.5		217.5		172.5		255		285		300		337.5	
Effective anchoring depth	$h_{ef} \geq$ [mm]	90		105		125		145		115		170		190		200		225	
Nom. drill dia.	d_0 [mm]	18		18		18		18		22		24		24		26		26	
Drill hole depth	$h_0 \geq$ [mm]	98		113		133		153		120		180		200		215		240	
Through-hole in the component being connected – cotter-pint mounting	$d_f \leq$ [mm]	18		18		18		18		22		24		24		26		26	
Through-hole in the component being connected – pass-through mounting[6]	$d_f \leq$ [mm]	20		20		20		20		24		26		26		28		28	
torque while installing anchor	$T_{inst} \leq$ [Nm]	50		50		50		50		80		80		80		120		120	
Cleaning brush dia.	**D** $\geq$ [mm]	19		19		19		19		23		25		25		27		27	

Performance data **W-VIZ/A4** (W-VIZ/HCR see ETA-04/0095)

Anchor diameter [mm]				**M16** h_{ef} 90	**M16** h_{ef} 105	**M16** h_{ef} 125	**M16** h_{ef} 145	**M20** h_{ef} 115	**M20** h_{ef} 170	**M20** h_{ef} 190	**M24** h_{ef} 200	**M24** h_{ef} 225
Permissible central tensile load[1] of a single anchor without edge influence	**Tensile zone** (cracked concrete C20/25[2], $s \geq 3\ h_{ef}$, $c \geq 1{,}5\ h_{ef}$)	$N_{perm.}$ [kN] = C20/25[2]	50 °C[3] / 80 °C[4]	14.6	18.4	24.0	29.9	21.1	38.0	44.9	48.5	57.9
			72 °C[3] / 120 °C[4]	9.5	14.3	23.8	23.8	14.3	28.6	28.6	35.7	35.7
	Pressure zone (non-cracked concrete C20/25[2]) Minimum axial and edge spacing ($s_{cr,sp} \geq 3\ h_{ef}$, $c_{cr,sp} \geq 1.5\ h_{ef}$)		50 °C[3] / 80 °C[4]	19.1	23.8	23.8	28.6	29.6	53.2	54.8	67.9	66.7
			72 °C[3] / 120 °C[4]	11.9	16.7	23.8	23.8	19.1	35.7	35.7	45.2	45.2
	Pressure zone (non-cracked concrete C20/25[2]) maximum carrying capacity ($s_{cr,sp}$ and $c_{cr,sp}$ see permit)		50 °C[3] / 80 °C[4]	20.5	25.8	33.5	35.7	29.6	53.2	62.9	67.9	81.0
Perm. transverse load[1] of a single anchor without edge influence	**Tensile zone** (cracked concrete C20/25[2], $c \geq 10\ h_{ef}$)	$V_{perm.}$ [kN] = C20/25[2]		29.3	36.0	36.0	36.0	42.3	74.9	74.9	89.1	89.1
	Pressure zone (non-cracked concrete C20/25[2], $c \geq 10\ h_{ef}$)			36.0	36.0	36.0	36.0	43.9	74.9	74.9	89.1	89.1
Permissible bending torque		$T_{perm.}$ [Nm]		152.0	152.0	152.0	152.0	231.6	259.4	259.4	448.0	448.0
Fire resistance duration		**F30 [kN]**		–	–	12.0	–	–	17.0	–	24.5	–
		F60 [kN]		–	–	6.4	–	–	8.8	–	12.7	–
		F90 [in kN]		–	–	4.4	–	–	6.0	–	8.6	–
		F120 [kN]		–	–	3.4	–	–	4.5	–	6.5	–

Würth system components



[1] The partial safety factors of the resistances regulated in the approval and a partial safety factor of the effects of $\gamma_F = 1.4$ have been taken into account. Please refer to the European Technical Approval Guidelines (ETAG), Appendix C, for information on combining tensile and transverse loads, edge influence and groups of anchors.

[2] The concrete has normal reinforcement. Higher values are possible for higher concrete strengths.

[3] Maximum long-term temperature.

[4] Maximum short-term temperature.

[5] The back of the concrete component must be checked to ensure that no chipping has occurred during drilling (see ETA-04/0095).

[6] The ring gap in the attached part must be completely filled with excess mortar after the setting.