

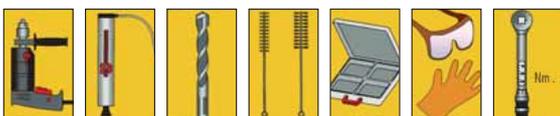
INJECTION SYSTEM W-VIZ/S M16 TO M24

23.1

| Anchor diameter [mm] | | M16 hef 90 | M16 hef 105 | M16 hef 125 | M16 hef 145 | M20 hef 115 | M20 hef 170 | M20 hef 190 | M24 hef 200 | M24 hef 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 |
| 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_o [mm] | 18 | 18 | 18 | 18 | 22 | 24 | 24 | 26 | 26 |
| Drill hole depth | $h_o \geq$ [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 mounting⁶⁾ | $d_f \leq$ [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 |

| Anchor diameter [mm] | | M16 hef 90 | M16 hef 105 | M16 hef 125 | M16 hef 145 | M20 hef 115 | M20 hef 170 | M20 hef 190 | M24 hef 200 | M24 hef 225 | | |
|---|---|--|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|------|
| Permissible central tensile load¹⁾ of a single anchor without edge influence | Tensile zone (cracked concrete C20/25 ²⁾ , $s \geq 3 h_{ef}$, $c \geq 1.5 h_{ef}$) | 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 ($s_{cr,sp} \geq 3 h_{ef}$, $c_{cr,sp} \geq 1.5 h_{ef}$) | $N_{perm.}$ [kN] | 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 | |
| Permissible transverse load¹⁾ 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⁾ | 20.5 | 25.8 | 33.5 | 35.7 | 29.6 | 53.2 | 62.9 | 67.9 | 81.0 | |
| | Pressure zone (non-cracked concrete C20/25 ²⁾ , $c \geq 10 h_{ef}$) | | 29.3 | 36.0 | 36.0 | 36.0 | 35.7 | 76.0 | 85.1 | 97.0 | 101.7 | |
| Permissible bending torque | $T_{perm.}$ [Nm] | | 152.0 | 152.0 | 152.0 | 152.0 | 200.0 | 296.6 | 296.6 | 512.0 | 512.0 | |
| | F30 [kN] | | - | - | 12.0 | - | - | 17.0 | - | 24.5 | - | |
| Fire resistance duration | 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.