

WA-RL  
**Wedge anchor bolt with large washer**

*The expansion mechanical anchor WA-RL has a large washer that enhances the head pull-through capacity compared to standard version.*

## Features

### Material

- Stahl galvanisch verzinkt, passiviert.

### Vorteile

- Geringe Achs- und Randabstände.
- Rationelle und wirtschaftliche Montage: vormontierte Mutter und Unterlegscheibe.
- Verringerter Bohraufwand: Ø-Bohren = Ø-Gewinde.
- Angeformter Schlagzapfen am Dübelkopf verhindert Beschädigung des Gewindes bei der Montage.

## Applications

### Anwendbare Materialien

- Ungerissener Beton
- Naturstein mit dichtem Gefüge

### Anwendungsbereich

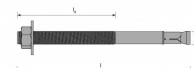
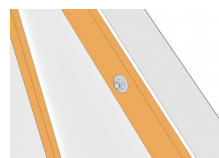
- Befestigung von Holzkonstruktionen: Balkenschuhe, etc.
- Befestigungen im Stahl- und Metallbau: Geländer, Konsolen, Kabeltrassen, etc.
- Statische und quasi-statische Verankerungen von Toren und Maschinen.



Pin



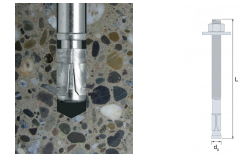
Befestigungen im Stahl- und Metallbau.



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## Technical Data

Rozměry a typické hodnoty



Pin

Art. nr.	description	M Gewinde [mm]	L [L] [mm]	max. Klemmdicke [tfix] [mm]	Gewindelänge [F] [mm]	Ø Loch im Anbauteil [df] [mm]	Verankerungstiefe [hef] [mm]	Bohrmenn-durchmesser [d0] [mm]	Min. drill depth [h1] [mm]
WA12179RL	WA12/80 + U-SCHEIBE DIN440	12	179	80	110	14	65	12	90
WA12219RL	WA12/120 + U-SCHEIBE DIN440	12	219	120	125	14	65	12	90
WA12239RL	WA12/140 + U-SCHEIBE DIN440	12	239	140	125	14	65	12	90
WA12259RL	WA12/160 + U-SCHEIBE DIN440	12	259	160	125	14	65	12	90

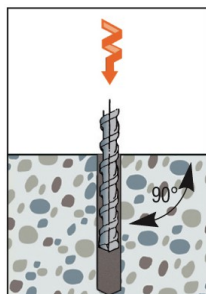
Recommended capacities - single anchor - no edge distances

Art. nr.	Recommended capacity - Non-cracked concrete								
	Tension - $N_{rec}^{(1-2)}$ [kN]				Shear - $V_{rec}^{(1-3)}$ [kN]				Bending moment $M_{rec}^{(1-6)}$ [Nm]
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60	
WA12179RL	12.6	15.4	17.8	19.5	14.3	14.3	14.3	14.3	47.1
WA12219RL	12.6	15.4	17.8	19.5	14.3	14.3	14.3	14.3	47.1
WA12239RL	12.6	15.4	17.8	19.5	14.3	14.3	14.3	14.3	47.1
WA12259RL	12.6	15.4	17.8	19.5	14.3	14.3	14.3	14.3	47.1

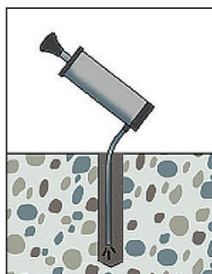
- The recommended loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s) and with a partial safety factor for actions of  $\gamma_F=1.4$ . The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing  $s \geq 15$  cm (any diameter) or with a rebar spacing  $s \geq 10$  cm, if the rebar diameter is 10 mm or smaller.
- The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges ( $c \leq \max [10 \text{ hef}; 60d]$ ) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
- Concrete is considered non-cracked when the tensile stress within the concrete is  $\sigma_L + \sigma_R \leq 0$ . In the absence of detailed verification  $\sigma_R = 3 \text{ N/mm}^2$  can be assumed ( $\sigma_L$  equals the tensile stress within the concrete induced by external loads, anchors loads included).

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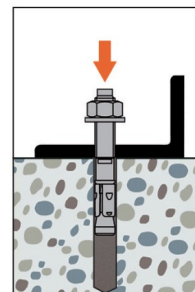
## Installation



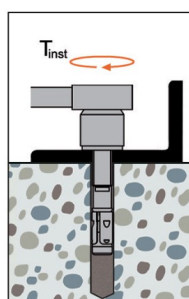
Drilling



Dusting off the hole



Set the anchor through the plate



Apply installation tork

Spacing, Edge distance and member thickness

Art. nr.	Bohrmenn-durchmesser [d0] [mm]	Min. drill depth [h1] [mm]	&Oslash;smash drilling fixture [df] [mm]	Schlüsselweite [SW] [mm]	Montage-drehmoment [Tinst] [Nm]	Verankerungstiefe [hef] [mm]	Mindestbauteildicke [hmin] [mm]	Characteristic spacing <sup>(5)</sup> - S <sub>cr,N</sub> [scr.N] [mm]	Characteristic edge distance [ccr.N] [mm]
WA12179RL	12	90	14	19	50	65	130	195	98
WA12219RL	12	90	14	19	50	65	130	195	98
WA12239RL	12	90	14	19	50	65	130	195	98
WA12259RL	12	90	14	19	50	65	130	195	98

Instalační parametry

Art. nr.	Min. Randabstand [c min] [mm]	Min. rozestupy [smin] [mm]	Characteristic spacing <sup>(5)</sup> - S <sub>cr,N</sub> [scr.N] [mm]	Characteristic edge distance [ccr.N] [mm]
WA12179RL	70	70	195	98
WA12219RL	70	70	195	98
WA12239RL	70	70	195	98
WA12259RL	70	70	195	98

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