



Bevestigingssysteem door
spreidkracht.



[ETA-11/0080](#), [NL-DoP-e11/0080](#)

KENMERKEN



Materiaal

- Elektrolytisch verzinkt staal.

Voordelen

- Kleine hart- en randafstand,
- Eenvoudige en snelle plaatsing : voorgemonteerde moer en sluitring en beperkte verankeringsdiepte; draad-Ø = boorgat-Ø,
- Schroefdraad blijft beschermd tijdens plaatsing : versterkt inslagpunt.



TOEPASSINGEN

Ondergrond

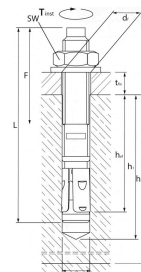
- Ongescheurd beton,
- Harde natuursteen.

Toepassingsgebieden

- **Bevestiging van houtconstructies** : ophangbeugels voor kapconstructies, ...
- **Bevestiging van metaalprofielen** : borstweringen, consoles en kabelgoten,
- **Bevestiging voor statische of quasi statische belastingen** : portalen en machines.

TECHNISCHE GEGEVENS

Afmetingen en karakteristieke waarden



Referentie	Artikelcode	Schroefdraaddiameter [mm]	Boorgat- Ø x min. boorgatdiepte [d0 x h1] [mm]	Max. dikte te bevestigen bouwdeel [tfix] [mm]	Max. Ø te bevestigen bouwdeel [df] [mm]	Verankeringsdiepte [hef] [mm]	Totale lengte [L] [mm]	Schroefdraadlengte [f] [mm]	Verpakking [pcs] [pce]
WA M8-68/5	WA08068	8	8x65	5	9	45	68	40	50
WA08068RP	WA08068RP	8	8x65	5	9	45	68	40	50
WA M8-73/10	WA08073	8	8x65	10	9	45	73	45	50
WA M8-83/20	WA08083	8	8x65	20	9	45	83	45	50
WA M8-93/30	WA08093	8	8x65	30	9	45	93	50	50
WA M8-103/40	WA08103	8	8x65	40	9	45	103	50	50
WA M8-113/50	WA08113	8	8x65	50	9	45	113	60	50
WA M8-133/70	WA08133	8	8x65	70	9	45	133	85	50
WA M8-163/100	WA08163	8	8x65	100	9	45	163	100	50
WA M10-78/5	WA10078	10	10x70	5	12	50	78	40	50
WA10078RP	WA10078RP	10	10x70	5	12	50	78	40	50
WA M10-83/10	WA10083	10	10x70	10	12	50	83	40	50
WA M10-93/20	WA10093	10	10x70	20	12	50	93	50	50
WA M10-103/30	WA10103	10	10x70	30	12	50	103	50	50
WA M10-113/40	WA10113	10	10x70	40	12	50	113	60	50
WA M10-123/50	WA10123	10	10x70	50	12	50	123	60	50
WA M10-143/70	WA10143	10	10x70	70	12	50	143	70	50
WA M10-173/100	WA10173	10	10x70	100	12	50	173	80	50
WA M10-213/140	WA10213	10	10x70	140	12	50	213	100	50
WA M12-104/5	WA12104	12	12x90	5	14	65	104	60	25
WA12104RP	WA12104RP	12	12x90	5	14	65	104	60	25
WA M12-109/10	WA12109	12	12x90	10	14	65	109	60	25
WA M12-119/20	WA12119	12	12x90	20	14	65	119	70	25
WA M12-129/30	WA12129	12	12x90	30	14	65	129	70	25
WA M12-139/40	WA12139	12	12x90	40	14	65	139	80	25
WA M12-149/50	WA12149	12	12x90	50	14	65	149	100	25
WA M12-179/80	WA12179	12	12x90	80	14	65	179	110	25
WA M12-199/100	WA12199	12	12x90	100	14	65	199	110	25
WA M12-219/120	WA12219	12	12x90	120	14	65	219	125	25
WA M12-239/140	WA12239	12	12x90	140	14	65	239	125	25
WA M12-259/160	WA12259	12	12x90	160	14	65	259	125	20
WA M16-110/5	WA16110	16	16x110	5	18	70	110	50	20
WA M16-151/30	WA16151	16	16x110	30	18	80	151	80	20
WA M16-171/50	WA16171	16	16x110	50	18	80	171	80	20

Referentie	Artikelcode	Schroefdraaddiameter [mm]	Boorgat- Ø x min. boorgatdiepte [d0 x h1] [mm]	Max. dikte te bevestigen bouwdeel [tfix] [mm]	Max. Ø te bevestigen bouwdeel [df] [mm]	Verankeringsdiepte [hef] [mm]	Totale lengte [L] [mm]	Schroefdraadlengte [f] [mm]	Verpakking [pcs] [pce]
WA M16-201/80	WA16201	16	16x110	80	18	80	201	100	10
WA M16-221/100	WA16221	16	16x110	100	18	80	221	100	10
WA M16-261/140	WA16261	16	16x110	140	18	80	261	110	10

* Is niet opgenomen in ETA-11/0080, optie 7

Design capacities - single anchor - no edge distances

Referentie	Design capacity - Non-cracked concrete ⁽³⁾								Bending moment M _{Rd} [Nm]
	Tension - N _{Rd} ⁽¹⁾ [kN]				Shear - V _{Rd} ⁽¹⁻²⁾ [kN]				
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60	
WA M8-68/5	8	9.8	11.3	12.4	7.6	7.6	7.6	7.6	19.3
WA08068RP	8	9.8	11.3	12.4	7.6	7.6	7.6	7.6	19.3
WA M8-73/10	8	9.8	11.3	12.4	7.6	7.6	7.6	7.6	19.3
WA M8-83/20	8	9.8	11.3	12.4	7.6	7.6	7.6	7.6	19.3
WA M8-93/30	8	9.8	11.3	12.4	7.6	7.6	7.6	7.6	19.3
WA M8-103/40	8	9.8	11.3	12.4	7.6	7.6	7.6	7.6	19.3
WA M8-113/50	8	9.8	11.3	12.4	7.6	7.6	7.6	7.6	19.3
WA M8-133/70	8	9.8	11.3	12.4	7.6	7.6	7.6	7.6	19.3
WA M8-163/100	8	9.8	11.3	12.4	7.6	7.6	7.6	7.6	19.3
WA M10-78/5	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA10078RP	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA M10-83/10	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA M10-93/20	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA M10-103/30	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA M10-113/40	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA M10-123/50	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA M10-143/70	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA M10-173/100	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA M10-213/140	10.7	13	15	16.5	11.9	13.6	13.6	13.6	38
WA M12-104/5	17.6	21.5	24.9	27.3	20	20	20	20	66
WA12104RP	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M12-109/10	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M12-119/20	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M12-129/30	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M12-139/40	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M12-149/50	17.6	21.5	24.9	27.3	20	20	20	20	66

Referentie	Design capacity - Non-cracked concrete ⁽³⁾								Bending moment M _{Rd} [Nm]
	Tension - N _{Rd} ⁽¹⁾ [kN]				Shear - V _{Rd} ⁽¹⁻²⁾ [kN]				
	C20/25	C30/37	C40/50	C50/60	C20/25	C30/37	C40/50	C50/60	
WA M12-179/80	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M12-199/100	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M12-219/120	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M12-239/140	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M12-259/160	17.6	21.5	24.9	27.3	20	20	20	20	66
WA M16-110/5	24.1	29.4	34	37.3	37.6	37.6	37.6	37.6	155.3
WA M16-151/30	24.1	29.4	34	37.3	37.6	37.6	37.6	37.6	155.3
WA M16-171/50	24.1	29.4	34	37.3	37.6	37.6	37.6	37.6	155.3
WA M16-201/80	24.1	29.4	34	37.3	37.6	37.6	37.6	37.6	155.3
WA M16-221/100	24.1	29.4	34	37.3	37.6	37.6	37.6	37.6	155.3
WA M16-261/140	24.1	29.4	34	37.3	37.6	37.6	37.6	37.6	155.3

1. The design loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). 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 10mm or smaller.

2. 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.

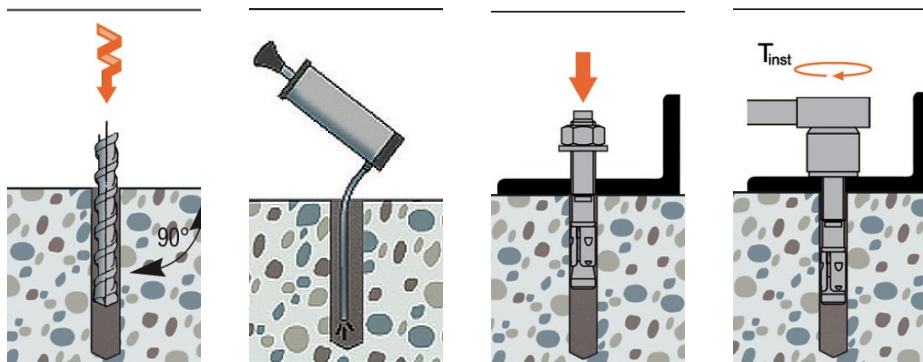
3. Concrete is considered non-cracked when the tensile stress within the concrete is $\sigma_L + \sigma_R \leq 0$. In the absence of detailed verification $\sigma_R = 3 \text{ N/mm}^2$ can be assumed (σ_L equals the tensile stress within the concrete induced by external loads, anchors loads included).

*Not covered by ETA-11/0080

PLAATSING

Plaatsing

Bij het aandraaien gaat de kegelpunt door de uitzettingsring waardoor de segmenten openbreken en platgedrukt worden tegen de wand. Daardoor ontstaat hechtingskracht door wrijving op het ondergrondmateriaal. Hierdoor ontstaat een **verankering door spreidkracht** via momentgecontroleerd inschroeven zonder bijzonder gereedschap.



Gat boren

Boorgat stofvrij maken

Plug plaatsen vóór bouwdeel schroeven

Vastzetten met het juiste aandraaimoment

Hartafstand, randafstand en ondergronddikte

Referentie	boorgat-Ø [d0] [mm]	Min. boorgatdiepte [h1] [mm]	Boorgat-Ø in het te bevestigen bouwdeel (doorsteekmontage) [df] [mm]	Sleutelwijdte [SW] [mm]	Aandraaimoment [Tinst] [Nm]	Verankeringsdiepte [hef] [mm]	Minimale hartafstand (beton) [hmin] [mm]	Karakteristieke hartafstand ⁽⁵⁾ [scr,N] [mm]	Karakteristieke randafstand [ccr,N] [mm]
WA M8-68/5	8	65	9	13	15	45	100	135	68
WA08068RP	8	65	9	13	15	45	100	135	68
WA M8-73/10	8	65	9	13	15	45	100	135	68
WA M8-83/20	8	65	9	13	15	45	100	135	68
WA M8-93/30	8	65	9	13	15	45	100	135	68
WA M8-103/40	8	65	9	13	15	45	100	135	68
WA M8-113/50	8	65	9	13	15	45	100	135	68
WA M8-133/70	8	65	9	13	15	45	100	135	68
WA M8-163/100	8	65	9	13	15	45	100	135	68
WA M10-78/5	10	70	12	17	30	50	100	150	75
WA10078RP	10	70	12	17	30	50	100	150	75
WA M10-83/10	10	70	12	17	30	50	100	150	75
WA M10-93/20	10	70	12	17	30	50	100	150	75
WA M10-103/30	10	70	12	17	30	50	100	150	75
WA M10-113/40	10	70	12	17	30	50	100	150	75
WA M10-123/50	10	70	12	17	30	50	100	150	75
WA M10-143/70	10	70	12	17	30	50	100	150	75
WA M10-173/100	10	70	12	17	30	50	100	150	75
WA M10-213/140	10	70	12	17	30	50	100	150	75
WA M12-104/5	12	90	14	19	50	65	130	195	98
WA12104RP	12	90	14	19	50	65	130	195	98
WA M12-109/10	12	90	14	19	50	65	130	195	98

Referentie	boorgat-Ø [d0] [mm]	Min. boorgatdiepte [h1] [mm]	Boorgat-Ø in het te bevestigen bouwdeel (doorsteekmontage) [df] [mm]	Sleutelwijdte [SW] [mm]	Aandraaimoment [Tinst] [Nm]	Verankeringsdiepte [hef] [mm]	Minimale hartafstand (beton) [hmin] [mm]	Karakteristieke hartafstand ⁽⁵⁾ [scr,N] [mm]	Karakteristieke randafstand [ccr,N] [mm]
WA M12-119/20	12	90	14	19	50	65	130	195	98
WA M12-129/30	12	90	14	19	50	65	130	195	98
WA M12-139/40	12	90	14	19	50	65	130	195	98
WA M12-149/50	12	90	14	19	50	65	130	195	98
WA M12-179/80	12	90	14	19	50	65	130	195	98
WA M12-199/100	12	90	14	19	50	65	130	195	98
WA M12-219/120	12	90	14	19	50	65	130	195	98
WA M12-239/140	12	90	14	19	50	65	130	195	98
WA M12-259/160	12	90	14	19	50	65	130	195	98
WA M16-110/5	16	110	18	24	100	80	160	240	120
WA M16-151/30	16	110	18	24	100	80	160	240	120
WA M16-171/50	16	110	18	24	100	80	160	240	120
WA M16-201/80	16	110	18	24	100	80	160	240	120
WA M16-221/100	16	110	18	24	100	80	160	240	120
WA M16-261/140	16	110	18	24	100	80	160	240	120

* Is niet opgenomen in ETA-11/0080, optie 7

Plaatsingsgegevens

Referentie	Min. randafstand [cmin] [mm]	Min. hartafstand [smin] [mm]	Karakteristieke hartafstand ⁽⁵⁾ [scr,N] [mm]	Karakteristieke randafstand [ccr,N] [mm]
WA M8-68/5	40	40	135	68
WA08068RP	40	40	135	68
WA M8-73/10	40	40	135	68
WA M8-83/20	40	40	135	68
WA M8-93/30	40	40	135	68
WA M8-103/40	40	40	135	68
WA M8-113/50	40	40	135	68
WA M8-133/70	40	40	135	68
WA M8-163/100	40	40	135	68
WA M10-78/5	50	50	150	75
WA10078RP	50	50	150	75
WA M10-83/10	50	50	150	75
WA M10-93/20	50	50	150	75
WA M10-103/30	50	50	150	75
WA M10-113/40	50	50	150	75
WA M10-123/50	50	50	150	75
WA M10-143/70	50	50	150	75
WA M10-173/100	50	50	150	75
WA M10-213/140	50	50	150	75
WA M12-104/5	70	70	195	98
WA12104RP	70	70	195	98
WA M12-109/10	70	70	195	98
WA M12-119/20	70	70	195	98
WA M12-129/30	70	70	195	98
WA M12-139/40	70	70	195	98
WA M12-149/50	70	70	195	98
WA M12-179/80	70	70	195	98
WA M12-199/100	70	70	195	98
WA M12-219/120	70	70	195	98
WA M12-239/140	70	70	195	98
WA M12-259/160	70	70	195	98
WA M16-110/5	90	90	240	120

Referentie	Min. randafstand [cmin] [mm]	Min. hartafstand [smin] [mm]	Karakteristieke hartafstand ⁽⁵⁾ [scr,N] [mm]	Karakteristieke randafstand [ccr,N] [mm]
WA M16-151/30	90	90	240	120
WA M16-171/50	90	90	240	120
WA M16-201/80	90	90	240	120
WA M16-221/100	90	90	240	120
WA M16-261/140	90	90	240	120