

## R-FF1-N-K-DT Nylon frame fixing with collar hex head - zink flake

Universal frame fixing with collar and hex head, delta tone plated screw for many applications



### Approvals and Reports

- ETA-12/0398



### Product information

#### Features and benefits

- Special zinc flake corrosion-resistant coating for anti-corrosion protection
- Collared plug for fixing of hard materials (eg. steel)
- Specially-formulated nylon allows best performance installation for use in all base material categories according to ETAG 020 (A, B, C, D)
- Internal plug geometry designed to fit the screw head
- Plug design ensures multi-axis expansion

#### Applications

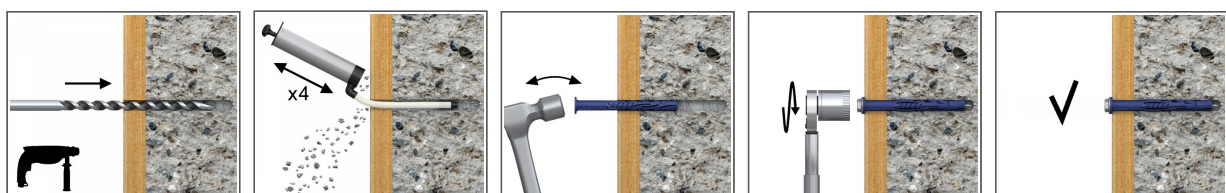
- Door and window frames
- Garage doors
- Gates
- Industrial doors
- Facade (substructures made of wood and metal)
- Wall cabinets
- Satellite dishes
- Shelves
- Handrails
- Cable trays

#### Base materials

##### Approved for use in:

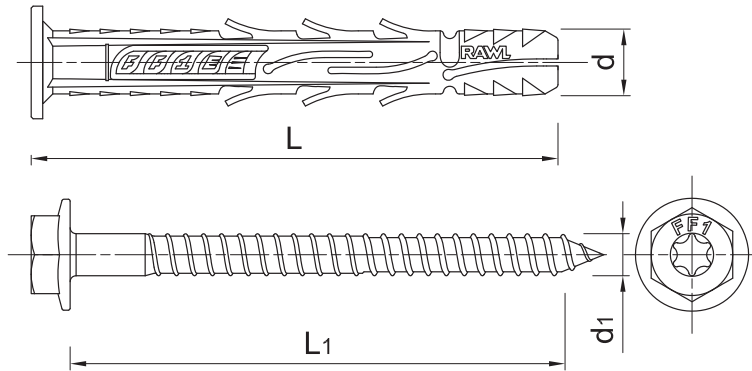
- Concrete  $\geq$  C12/15 (Use category A)
- Solid Brick (Use category B)
- Solid Sand-lime Brick (Use category B)
- Hollow Brick (Use category C)
- Hollow Sand-lime Brick (Use category C)
- Hollow Lightweight Concrete Block (Use category D)
- Aerated Concrete Block (Use category D)
- Cracked concrete  $\geq$  C12/15 (Use category A)

### Installation guide



1. Drill a hole of required diameter and depth
2. With a hammer, lightly tap the plug through the fixture into hole until fixing depth is reached
3. Tighten the FF1 screw

**Product information**



Size	Product Code	Plug		Screw		Fixture		
		Diameter	Length	Diameter	Length	Max. thickness		Hole diameter
		d	l	d <sub>1</sub>	L1	t <sub>fix</sub> 50	t <sub>fix</sub> 70	d <sub>f</sub>
[mm]								
Ø10	R-FF1-N-10K080/DT	9.8	80	7	89	30	10	10
	R-FF1-N-10K100/DT	9.8	100	7	109	50	30	10
	R-FF1-N-10K120/DT	9.8	120	7	129	70	50	10
	R-FF1-N-10K140/DT	9.8	140	7	149	90	70	10
	R-FF1-N-10K160/DT	9.8	160	7	169	110	90	10
	R-FF1-N-10K200/DT	9.8	200	7	209	150	130	10
	R-FF1-N-10K240/DT	9.8	240	7	249	190	170	10
	R-FF1-N-10K300/DT	9.8	300	7	309	250	230	10

**Installation data**

Substrate			A, B, C	A, B, C	D
Hole diameter in substrate	d <sub>0</sub>	[mm]	10	10	10
Min. hole depth in substrate	h <sub>0</sub>	[mm]	60	80	80
Min. installation depth	h <sub>nom</sub>	[mm]	50	70	70
Min. substrate thickness	h <sub>min</sub>	[mm]	100	100	100
Min. spacing	s <sub>min</sub>	[mm]	90	95	70
Min. edge distance	c <sub>min</sub>	[mm]	80	80	70
Max. installation torque	T <sub>inst</sub>	[Nm]	16	16	4.3
Wrench size	Sw	[mm]	13	13	13
Screw drive	-	[-]	T40	T40	T40
Diameter	d	[mm]	10	10	10
Effective embedment depth	h <sub>ef</sub>	[mm]	50	70	70

## Basic performance data

Performance data for single fixing without influence of edge distance and spacing

Substrate		Substrate														
		Concrete min. C12/15	Concrete min. C16/20	Solid brick min. 50MPa	Solid clay brick min 20MPa (eg Mz20/2.0)	Sand-lime brick min. 30MPa	Solid silicate brick min 20MPa (eg KS NF 20/2.0)	Perforated ceramic blocks min 15MPa (eg MEGA MAX)	Perforated ceramic blocks min 15MPa (eg Wienerberger Poro-	Sand-lime hollow block min. 20MPa	Lightweight concrete hollow block min 2.0MPa	Hollow brick min. 12MPa	Hollow brick min. 15MPa	Hollow clay block min. 7.5MPa	Autoclaved aerated concrete AAC 2	Autoclaved aerated concrete AAC 6
<b>CHARACTERISTIC LOAD</b>																
TENSION LOAD $N_{Rk}$																
Ø10, Effective embedment depth 50 mm	[kN]	1.20	2.00	-	-	-	-	-	-	-	-	-	-	-	-	-
Ø10, Effective embedment depth 70 mm	[kN]	6.00	8.50	-	-	-	-	-	-	-	-	-	-	-	-	-
SHEAR LOAD $V_{Rk}$																
Ø10, Effective embedment depth 50 mm	[kN]	5.40	5.40	-	-	-	-	-	-	-	-	-	-	-	-	-
Ø10, Effective embedment depth 70 mm	[kN]	5.40	5.40	-	-	-	-	-	-	-	-	-	-	-	-	-
TENSION AND SHEAR LOAD $F_{Rk}$																
Ø10, Effective embedment depth 70 mm	[kN]	-	-	5.00	-	-	-	1.50	1.50	3.50	0.90	0.90	0.75	0.75	0.40	0.90
Ø10, Effective embedment depth 50 mm	[kN]	-	-	-	-	1.50	-	-	-	-	-	-	-	-	-	-
<b>DESIGN LOAD</b>																
TENSION LOAD $N_{Rd}$																
Ø10, Effective embedment depth 50 mm	[kN]	0.67	1.11	-	-	-	-	-	-	-	-	-	-	-	-	-
Ø10, Effective embedment depth 70 mm	[kN]	4.28	4.72	-	-	-	-	-	-	-	-	-	-	-	-	-
SHEAR LOAD $V_{Rd}$																
Ø10, Effective embedment depth 50 mm	[kN]	3.35	3.35	-	-	-	-	-	-	-	-	-	-	-	-	-
Ø10, Effective embedment depth 70 mm	[kN]	3.35	3.35	-	-	-	-	-	-	-	-	-	-	-	-	-
TENSION AND SHEAR LOAD $F_{Rd}$																
Ø10, Effective embedment depth 70 mm	[kN]	-	-	2.00	-	-	-	0.60	0.60	1.40	0.36	0.36	0.30	0.30	0.20	0.45
Ø10, Effective embedment depth 50 mm	[kN]	-	-	-	-	0.60	-	-	-	-	-	-	-	-	-	-
<b>RECOMMENDED LOAD</b>																
TENSION LOAD $N_{rec}$																
Ø10, Effective embedment depth 50 mm	[kN]	0.48	0.79	-	-	-	-	-	-	-	-	-	-	-	-	-
Ø10, Effective embedment depth 70 mm	[kN]	3.06	3.37	-	-	-	-	-	-	-	-	-	-	-	-	-
SHEAR LOAD $V_{rec}$																
Ø10, Effective embedment depth 50 mm	[kN]	2.39	2.39	-	-	-	-	-	-	-	-	-	-	-	-	-
Ø10, Effective embedment depth 70 mm	[kN]	2.39	2.39	-	-	-	-	-	-	-	-	-	-	-	-	-
TENSION AND SHEAR LOAD $F_{rec}$																
Ø10, Effective embedment depth 70 mm	[kN]	-	-	1.43	-	-	-	0.43	0.43	1.00	0.26	0.26	0.21	0.21	0.14	0.32
Ø10, Effective embedment depth 50 mm	[kN]	-	-	-	-	0.43	-	-	-	-	-	-	-	-	-	-

## Product commercial data

Product Code	Plug	Screw		Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet		
R-FF1-N-10K080/DT <sub>1)</sub>	9.8	7	89	50	400	9600	1.73	13.8	362.0	5906675023472
R-FF1-N-10K100/DT <sub>1)</sub>	9.8	7	109	25	400	9600	1.03	16.5	427.1	5906675023489
R-FF1-N-10K120/DT <sub>1)</sub>	9.8	7	129	25	300	7200	1.21	14.5	377.9	5906675023496
R-FF1-N-10K140/DT <sub>1)</sub>	9.8	7	149	25	300	7200	1.37	16.5	425.7	5906675023502

## Product commercial data

Product Code	Plug	Screw		Quantity [pcs]			Weight [kg]			Bar Codes
	Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet		
R-FF1-N-10K160/DT 1)	9.8	7	169	25	300	7200	1.54	18.5	472.9	5906675023519
R-FF1-N-10K200/DT 1)	9.8	7	209	25	25	6000	1.91	1.91	487.9	5906675039091
R-FF1-N-10K240/DT 1)	9.8	7	249	25	25	3000	2.2	2.2	298.4	5906675039107
R-FF1-N-10K300/DT 1)	9.8	7	309	10	10	3120	1.08	1.08	365.4	5906675039114

1) ETA-12/0398