



# CF 1000



## Epoxy Resin Chemical Anchoring System for Rebar Application in Concrete

TDS\_Pat CF 1000\_GCC\_1209

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### CHARACTERISTICS

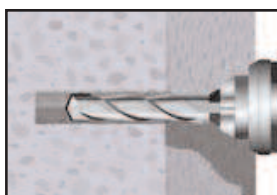
- ▶ High chemical resistance
- ▶ Flexible working time at elevated temperatures
- ▶ Good wetting ability
- ▶ Flexible setting the bore diameter/angular gap
- ▶ Good performance in diamond driller holes
- ▶ No shrinkage
- ▶ Performance approved by the independent institute EMPA (report no. 431 899 1)
- ▶ Strong and secure anchoring even under water

### FIELDS OF APPLICATION

- ▶ For Concrete
- ▶ For Building works of reconstruction and renovation
- ▶ For difficult anchoring in each kind of material

### APPLICATION INSTRUCTIONS

1.) Concrete, Solid stone



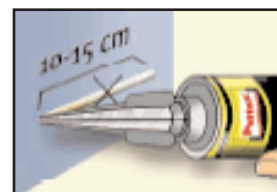
1. Drill hole with percussion drill



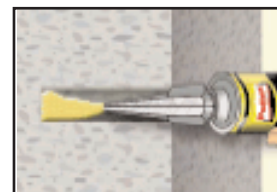
2. Clean drill hole (blowout: 4x, brush out: 4x, blow out: 4x)



3. Screw mixer to cartridge



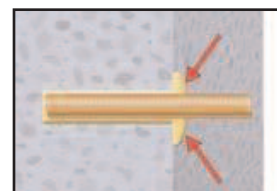
4. Squeeze out and discard approx. 10 cm of compound before use



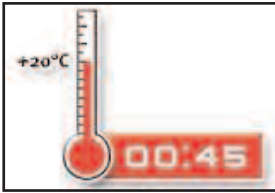
5. Starting from the back end, fill hole completely with mortar



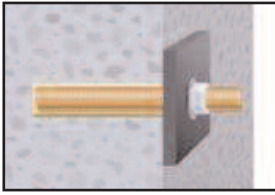
6. Push anchor up to base of hole whilst turning it slightly



7. Visual check of mortar filling



8. Observe hardening time



9. Install component, apply torque

## PERFORMANCE DATA / HOLLOW BRICK WITH STANDARD SLEEVE

### DESIGN VALUES:

Resin	Concerte			M8	M10	M12	M16	M20
Tension loads	≥ C20/25	N <sub>Rk</sub>	[kN]	26.4	37.2	54.5	82.6	124.7
		N <sub>Rd</sub>	[kN]	14.7	20.6	30.3	45.9	69.3
Safety factor for tension loads 1,8 acc. to ETAG								
		V <sub>Rk</sub>	[kN]	9.9	15.8	22.9	43.2	67.5
Steel quality 5.8	V <sub>Rd</sub>	[kN]	7.9	12.6	18.3	34.6	54.0	
Share loads	Steel quality A4		rec.torque	12.9	25.6	44.8	113.7	222.9
		V <sub>Rk</sub>	[kN]	13.8	22.1	32.0	60.5	94.5
		V <sub>Rd</sub>	[kN]	8.9	14.1	20.5	38.8	60.6
			rec.torque	12	23.9	41.9	106.7	207.9
Safety factor for share loads 1.56 according to ETAG								

### RECOMMENDED LOADS:

Resin	Concerte			M8	M10	M12	M16	M20
Recommended Load in every Direction	≥ C20/25	F <sub>rec</sub>	[kN]	10.5	14.7	21.6	32.8	49.5

### INSTALLATION PARAMETERS

Edge distance	C <sub>cr,N</sub>	[mm]	80	90	110	130	170
Min edge distance	C <sub>min</sub>	[mm]	40	50	60	70	90
Axial distance	S <sub>cr,N</sub>	[mm]	160	180	220	250	340
Min axial distance	S <sub>min</sub>	[mm]	80	90	110	125	170
Anchorage depth	h <sub>ef</sub>	[mm]	80	90	110	125	170
Minimum part thickness	h <sub>min</sub>	[mm]	130	140	160	175	220
Thread diameter	d	[mm]	8	10	12	16	20
Drill diameter	d <sub>B</sub>	[mm]	10	12	14	18	24
Hole diameter in part	d <sub>Bau</sub>	[mm]	9	11	13.5	17.5	22
Tightening torque	T <sub>inst.</sub>	[Nm]	10	20	40	60	120

## REACTION CHARACTERISTICS

Static cartridges	Curing start	Curing end Dry concrete submerged	Curing end Wet or concrete
0°C	180Min.	50h	100h
10°C	120Min.	24h	48h
20°C	30Min.	10h	20
30°C	20Min.	6h	12h
40°C	12Min.	4h	8h

## PERFORMANCE DATA FOR REBAR APPLICATION IN CONCRETE

### PARAMETERS:

Rebar diameter	$D_{rebar}$	[mm]	8	10	12	14	16	18	20	22	25	28	32	36	40
Stress area	$A_g$	[mm <sup>2</sup> ]	50.3	78.5	113.1	153.9	201.1	254.5	314.2	380.2	490.9	615.8	804.2	1017.9	1256.6
Tensile strength	$f_{uk}$	[N/mm <sup>2</sup> ]	550												
Yield stress	$f_{yk}$	[N/mm <sup>2</sup> ]	500												
Hole diameter	min D	[mm]	10	12	16	18	20	22	25	28	30	35	40	42	48
	max D	[mm]	12	14	18	20	22	25	28	30	32	37	40	42	48
Embedment depth	min $h_{gf}$	[mm]	80	90	110	115	125	150	170	190	210	260	310	340	370

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### BONDING STRENGTH without influence of edge-and axial distance

Bonding strength	$f_{b,m}$	[N/mm <sup>2</sup> ]	23.1	23.1	23.1	23.1	23.1	21.5	20.1	18.9	17.4	16.2	14.9	13.8	12.9
Bonding strength	$f_{b,k}$	[N/mm <sup>2</sup> ]	15.7	15.7	15.7	15.7	15.7	14.6	13.6	12.8	11.8	11.0	10.1	9.4	8.8
Bonding strength	$f_{b,d}$	[N/mm <sup>2</sup> ]	7.3	7.3	7.3	7.3	7.3	6.8	6.3	5.9	5.5	5.1	4.7	4.4	4.1

1)  $f_{b,m}$  = Ultimate bonding strength

2)  $f_{b,k}$  = Characteristics value of the bonding strength

3)  $f_{b,d}$  = Design value of the bonding strength including the safely factor 2.16

### Factor of the concrete strength $f_{sc}$

Factor for wet or submerged Concrete $f_{wc}$		
Strength class	C20/25	0.83
	C25/30	0.92
	C30/37	1.00
	C40/50	1.15

The basic anchorage length  $l_b$  can be calculated from

$$l_b = (0 \times f_{y,d}) / (4 \times f_{b,d} \times f_{sc})$$

with  $f_{y,d}$  design yield strength of post installed rebar.

### Factor for wet or submerged concrete $f_{wc}$

Factor for wet or submerged Concrete $f_{wc}$		
Dry Concrete	Wet Concrete	Submerged Concrete
1.0	0.9	0.6

**Should you need support or advice, please consult our advisory service for architects and craftsmen on the hotline numbers**

**Phone: +971 6 572 2282**

**Fax: +971 6 572 2289**

Apart from the information given here it is also important to observe the relevant guidelines and regulations of various organisations and trade associations as well as the respective standards. The aforementioned characteristics are based on practical experience and applied testing. Warranted properties and possible uses which go beyond those warranted in this information sheet require our written confirmation. All data given was obtained at an ambient and material temperature of +23 °C and 50 % relative air humidity unless specified otherwise. Please note that under other climatic conditions hardening can be accelerated or delayed.

The information contained herein, particularly recommendations for the handling and use of our products, is based on our professional experience. As materials and conditions may vary with each intended application, and thus are beyond our sphere of influence, we strongly recommend that in each case sufficient tests are conducted to check the suitability of our products for their intended use. Legal liability cannot be accepted on the basis of the contents of this data sheet or any verbal advice given, unless there is a case of wilful misconduct or gross negligence on our part. This technical data sheet supersedes all previous editions relevant to this product.

**Henkel AG & Co. KGaA – Bautechnik**  
Henkelstraße 67 · D-40589 Düsseldorf  
Telefon +49 211 797 0  
Telefax +49 211 798 2152  
Internet: [www.chemical-anchoring.com](http://www.chemical-anchoring.com)

