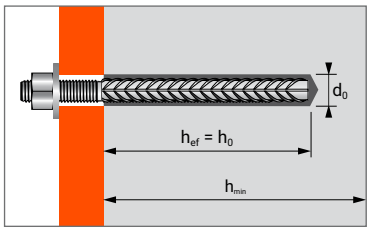
EPCON C8 XTREM

ETA - 10/0309

High performance pure epoxy resin for starter bar fastenings, for use in cracked and non-cracked concrete



CHARACTERISTICS

XTREM

WRAS APPROVED PRODUCT

APPLICATION

- Starter bar fastenings in non-reinforced concrete
- Connections for shear loads

FIELD OF USE

Shelf life : 36 months
Installation temperature: 0°C / +40°C
In-Service temperature range:
- Range 1: -40°C / +40°C
- Range 2: -40°C /+80°C

Installation conditions:
- Category 1: Dry or wet concrete
- Category 2: Flooded holes

TECHNICAL DATA

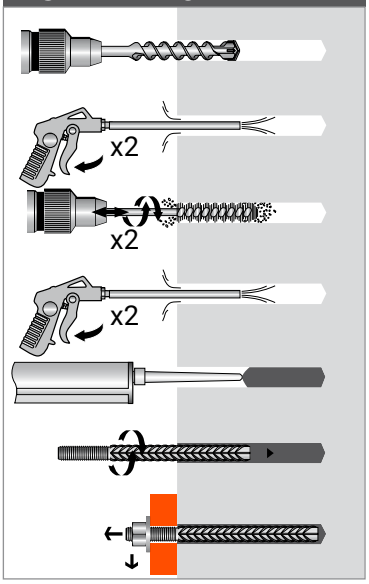
SIZE	Minimum anchor depth (mm) h_{ef} min	Maximum anchor depth (mm) h_{ef} max	Minimum thickness of base material (mm) h_{min}	Drilling diameter (mm) d_0
Ø8	40	160	h_{ef} + 30 mm ≥ 100 mm	10
Ø10	60	200		12
Ø12	70	240		15
Ø14	70	240	$h_{ef} + 2d_0$	18
Ø16	80	320		20
Ø20	90	400		25
Ø25	100	500		30
Ø32	128	640		40
EPCON C8 XTREM cartridge 450 ml				055887

MECHANICAL CHARACTERISTICS

NOMINAL DIAMETER			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Sections	[cm²]		0,503	0,785	1,13	1,54	2,01	3,14	4,91	8,04
Min. resistance to failure	[kN]	Fe E400	21,13	32,97	47,46	64,68	84,42	131,88	206,22	337,68
		Fe E500	25,90	40,43	58,20	79,31	103,52	161,71	252,87	414,06
Ultimate limit load N_{Rd}	[kN]	Fe E500	21,85	34,15	49,17	66,93	87,42	136,59	213,43	349,56

The mechanical characteristics of the high adhesion rebars are defined in the NFA 35-016 and NFA 35-017 standards.

INSTALLATION



* PREMIUM CLEANING:
- 2 blowing with compressed air
- 2 brushing with brushed fitted on a drilling machine
- 2 blowing with compressed air

SETTING TIME

TEMPERATURE	MAX. TIME FOR INSTALLATION	WAITING TIME FOR 45 % LOAD	CURING TIME
5°C	26 min.	15 h	26 h
10°C	20 min.	12 h	23 h
20°C	14 min.	6 h	12 h
30°C	8 min.	5 h	8 h
40°C	5 min.	3 h	6 h

CHEMICAL RESISTANCE OF THE SPIT EPCON C8

CHEMICAL SUBSTANCES	CONCENTRATION %	RESISTANCE	CHEMICAL SUBSTANCES	CONCENTRATION %	RESISTANCE
Sulfuric acid	10	(o)	Toluene		(o)
Hydrochloric acid	10	(o)	Ethanol		(o)
Nitric acid	10	(o)	Methyl-ethyl-ketone (MEK)		(-)
Acetic acid	10	(o)	Methanol		(-)
Ammonium hydroxide	10	(o)	Demineralized water		(+)
Sodium Hypochlorite	5	(o)	Sea water	100	(+)
Sodium hydroxide	50	(o)	Engine Petrol	100	(+)
Acetone		(-)	Motor oil	100	(+)

Resistant (+): the samples in contact with the substances did not show any Screwible damage such as cracks, attacked surfaces, burst corners nor large swelling. Sensitive (o): use with care regarding exposure of the field of usage, precautions to be taken. The samples in contact with the substance slightly attacked the material.

EPCON C8 XTREM

MINIMUM THICKNESS OF CONCRETE, CHARATERISTIC & MINIMUM DISTANCES FOR SPACING, EDGE

SIZE			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Anchorage depth	h_{ef}	[mm]	80	100	120	160	200	250	320
Minimum thickness of base material	h_{min}	[mm]	110	130	150	200	250	310	400
Characteristic edge and spacing distance for full anchor capacity	$C_{cr} \geq$	[mm]	120	150	180	240	300	375	480
	$S_{cr} \geq$	[mm]	240	300	360	480	600	750	960
Minimum distances for cracked and non-cracked concrete	C_{min}	[mm]	40	50	60	80	100	125	160
	$S \geq$	[mm]	40	50	60	80	100	125	160
	S_{min}	[mm]	40	50	60	80	100	125	160
	$C \geq$	[mm]	40	50	60	80	100	125	160

CHARACTERISTIC RESISTANCES [kN]

Characteristic resistances are shown as informative, and have to be used by application of safety factors .

In tensile loads, the table below shows bond strength in N/mm². All dimensions can be installed with embedment length between 7d to 20d.

The characteristic tensile load is determined with the formular : $N^{0}_{Rk,p} = \Pi.d\ h_{ef}\ .\ \tau_{Rk}$

TENSILE

NON-CRACKED CONCRETE – C20/25

SIZE		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
$h_{ef\ min}$	[mm]	40	60	70	80	90	100	128
$h_{ef\ max}$	[mm]	160	200	240	320	400	500	640
Rebar Fe E500								
$\tau_{Rk,uncr}$	[N/mm²]	14,0	14,0	14,0	14,0	13,0	13,0	12,0

CRACKED CONCRETE – C20/25

SIZE		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
$h_{ef\ min}$	[mm]	40	60	70	80	90	100	128
$h_{ef\ max}$	[mm]	160	200	240	320	400	500	640
Rebar Fe E500								
$\tau_{Rk,cr}$	[N/mm²]	8,0	8,0	7,5	7,5	7,5	7,0	7,0

SHEAR

CRACKED AND NON-CRACKED CONCRETE – C20/25 to C50/60

SIZE		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
$h_{ef\ min}$	[mm]	40	60	70	80	90	100	128
$h_{ef\ max}$	[mm]	160	200	240	320	400	500	640
Rebar Fe E500								
V_{Rks}	[kN]	*14,0*	*22,0*	*31,0*	*55,0*	*86,0*	*135,0*	*221,0*

RECOMMENDED LOADS OF ONE ANCHOR WITHOUT INFLUENCE OF SPACING & CONCRETE EDGE [kN]

Recommended values are determined from performances given in the ETA, and are guaranteed for spacing ≥ S_{cr} and edge distance ≥ C_{cr}.

TENSILE

NON-CRACKED CONCRETE – C20/25

SIZE		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
h_{ef}	[mm]	80	100	120	160	200	250	320
Rebar Fe E500								
N_{Rec}	[kN]	11,2	17,5	25,1	39,5	55,2	77,2	111,7

CRACKED CONCRETE – C20/25

SIZE		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
h_{ef}	[mm]	80	100	120	160	200	250	320
Rebar Fe E500								
N_{Rec}	[kN]	6,4	10,0	13,5	23,9	37,4	54,0	78,2

$N_{Rec} = \min [N_{Rd,p}\ ;\ N_{Rd,c};\ N_{Rd,s}] / \gamma_F\ ;\ \gamma_F = 1,4$

SHEAR

CRACKED AND NON-CRACKED CONCRETE – C20/25 to C50/60

SIZE		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
h_{ef}	[mm]	80	100	120	160	200	250	320
Rebar Fe E500								
V_{Rec}	[kN]	*6,7*	*10,5*	*14,8*	*26,2*	*41,0*	*64,3*	*105,2*

$V_{Rec} = V_{Rd,s} / \gamma_F\ ;\ \gamma_F = 1,4$

Nota: The values indicated *in italics and underlined* correspond to steel failure

EPCON C8 XTREM

i-Expert Software

Design resistances for static loads are determined from performances given in the ETA, and are guaranteed for spacing ≥ S_{cr} and edge distance ≥ C_{cr}. For project with reduced spacing and edge distance, we recommend to use SPIT i-Expert software to design your project according to EN 1992-4.

DESIGN RESISTANCE FOR STATIC LOADS IN NON CRACKED CONCRETE [kN]

TENSILE

SIZE			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
h_{ef}	[mm]		80	100	120	160	200	250	320
Rebar Fe E500									
$N_{Rd,uncr}$	[kN]	C20/25	15,6	24,4	35,2	55,3	77,3	108,0	156,4
$N_{Rd,uncr}$	[kN]	C40/50	17,2	27,4	40,5	75,1	109,3	152,8	221,2

Distances S_{cr} and C_{cr} must be fulfilled

$N_{Rd,uncr} = \min[N_{Rk,p,uncr} / \gamma_{Mc} ; N_{Rk,s} / \gamma_{Ms,N}]$

$\gamma_{Mc} = 1,8$

Rebar Fe E500: $\gamma_{Ms,N} = 1,4$

SHEAR

SIZE			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
h_{ef}	[mm]		80	100	120	160	200	250	320
Rebar Fe E500									
$V_{Rd,s}$	[kN]	≥C20/25	*9,3*	*14,7*	*20,7*	*36,7*	*57,3*	*90,0*	*147,3*

$V_{Rd,s} = V_{Rk,s} / \gamma_{Ms,V}$

Rebar Fe E500: $\gamma_{Ms,V} = 1,5$

DESIGN RESISTANCE FOR STATIC LOADS IN CRACKED CONCRETE [kN]

TENSILE

SIZE			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
h_{ef}	[mm]		80	100	120	160	200	250	320
Rebar Fe E500									
$N_{Rd,cr}$	[kN]	≥C20/25	8,9	14,0	18,8	33,5	52,4	75,6	109,5

Distances S_{cr} and C_{cr} must be fulfilled

$N_{Rd,cr} = \min[N_{Rk,p,cr} / \gamma_{Mc} ; N_{Rk,s} / \gamma_{Ms,N}]$

$\gamma_{Mc} = 1,8$

Rebar Fe E500: $\gamma_{Ms,N} = 1,4$

SHEAR

SIZE			Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
h_{ef}	[mm]		80	100	120	160	200	250	320
Rebar Fe E500									
$V_{Rd,s}$	[kN]	≥C20/25	*9,3*	*14,7*	*20,7*	*36,7*	*57,3*	*90,0*	*147,3*

$V_{Rd,s} = V_{Rk,s} / \gamma_{Ms,V}$

Rebar Fe E500: $\gamma_{Ms,V} = 1,5$

Nota: The values indicated *in italics and underlined* correspond to steel failure