NEW **FIX 3**

Stud Anchors for Non-Cracked Concrete

European Technical Approval

ETA OPTION 7
nº 13/0005

Ramset™

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Corporate Profile

Illinois Tool Works, Inc. (NYSE: ITW) is a diversified manufacturing company with 100 years of history delivering specialized expertise, innovative thinking and value-added products to meet critical customer needs in a variety of industries. ITW has 875 decentralized business units in 54 countries.

There are 7 main divisions:

Industrial Packaging. Steel, plastic and paper products used for bundling, shipping and protecting goods in transit.

Power Systems & Electronics. Equipment and consumables associated with specialty power conversion, metallurgy and electronics.

Transportation. Transportation-related components, fasteners, fluids and polymers, as well as truck remanufacturing and related parts and service.

Food Equipment. Commercial food equipment and related service.

Polymers & Fluids. Adhesives, sealants, lubrication and cutting fluids, and hygiene products.

Construction Products. Tools, fasteners and other products for construction applications.

All Other. All other operating segments.

ITW employs approximately 65,000 women and men. These talented individuals, many of whom have specialized engineering or scientific expertise, contribute to our global leadership in patents. Our current number of patents and patent applications exceeds 21,000.

The Construction Products division established its base in Asia in 1973 by opening, in Singapore, a wholly owned subsidiary of ITW known today as ITW Construction Products (Singapore).

With the objective of providing customers' satisfaction, ITW expanded its presence in Asia by opening local entities in various markets such as Hong Kong, Mainland China (1998), Thailand (2008), Indonesia (2011) and Vietnam (2012). Today, ITW Construction Products (Singapore) also sells through selected distributors in Malaysia and the Philippines.

The product offer in Asia mainly includes:

- Fastening Systems (RAMSET™)
- Metal Self-drilling Screws (Buildex® and Boustead)
- Lifting Systems (Reid)

With a local presence, ITW Construction Products in Asia offers various services such as product availability ex-stock, assistance on jobsites, special products development and anchors load calculation.

Ramset™ Buildex® BOUSTEAD FASTENERS reid CONSTRUCTION SYSTEMS

ITW Construction Products (Singapore)
4 Changi South Lane, #06-01 Nan Wah Building, Singapore 486127
Tel: +65 6746 1177 Fax: +65 6746 1482
www.itwcpsea.com

RAMSET FIX3 Stud Anchor

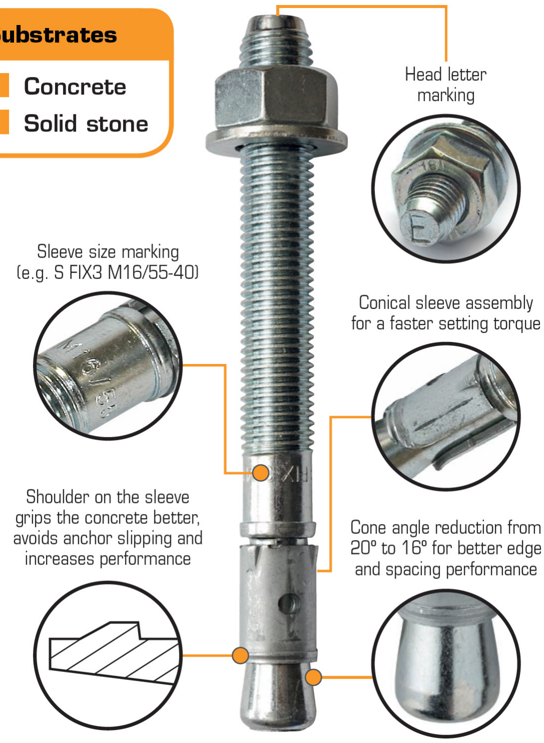
Fast and convenient the New FIX3 stud anchor is suitable for a broad range of applications in the compression zone of concrete, either pre-fastened or through fixed. This innovative new product has high load capacity, limited only to the concrete cone failure, plus excellent edge and spacing limitations.

Product Advantages

- **Versatile anchor** for columns, beams, brackets and plates in concrete.
- Offers one of the **highest loads** of any ETA Option 7 approved anchor.
- **30% higher performance** - limited only by the type of concrete used.
- **Reduced edge and spacing distance**.
- **Clear sleeve and head marking** - offering pre-installation and post-installation guidance.

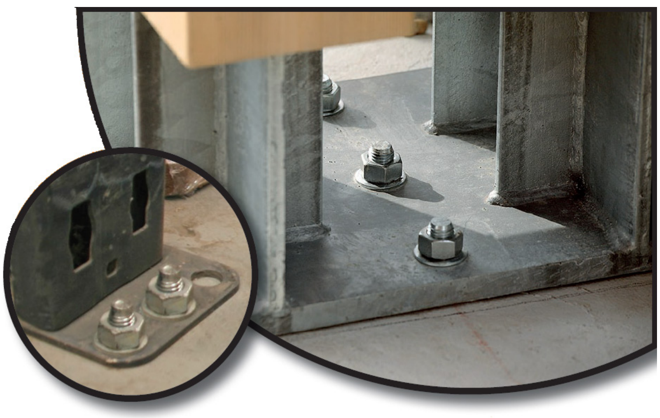
Substrates

- Concrete
- Solid stone



Typical Applications

- Curtain wall
- Guide rails / railings / machinery
- Industrial doors and gates
- Brickwork support angles
- Storage systems / pallet racking
- Stadium seating / fencing posts
- Steel and timber framework



Product Specifications

Material Bolt	Carbon Steel
Head Style	Hex Nut
Fixing Method	Through Fixture
Setting Method	Torque-Controlled
Anchoring Method	Expansion
Substrates	Concrete (non-cracked)

Description	Part No.	Qty/Bx
FIX3 M6x 45/ 5	7C-FIX3-645V	100
FIX3 M6x 55/20-10	7C-FIX3-655V	100
FIX3 M6x 85/50-40	7C-FIX3-685V	100
FIX3 M8x 55/ 5	7C-FIX3-855V	100
FIX3 M8x 70/20-10	7C-FIX3-870V	100
FIX3 M8x 90/40-30	7C-FIX3-890V	50
FIX3 M8x100/50-40	7C-FIX3-8100	50
FIX3 M8x115/65-55	7C-FIX3-8115	50
FIX3 M8x130/80-70	7C-FIX3-8130	50
FIX3 M8x160/110-90	7C-FIX3-8160	50
FIX3 M10x 65/ 5	7C-FIX3-1065	50
FIX3 M10x 75/ 15	7C-FIX3-1075	50
FIX3 M10x 85/ 25- 15	7C-FIX3-1085	50
FIX3 M10x 95/ 36- 26	7C-FIX3-1095	50
FIX3 M10x110/ 50- 40	7C-FIX3-1011-0V	25
FIX3 M10x125/ 65- 55	7C-FIX3-1012-5V	25
FIX3 M10x140/ 80- 70	7C-FIX3-1014-0V	25
FIX3 M10x160/100- 90	7C-FIX3-1016-0V	25

Description	Part No.	Qty/Bx
FIX3 M12x 80/ 5	7C-FIX3-1280	25
FIX3 M12x100/ 25-10	7C-FIX3-1210-0V	25
FIX3 M12x115/ 40-25	7C-FIX3-1211-5V	25
FIX3 M12x125/ 50-35	7C-FIX3-1212-5V	25
FIX3 M12x140/ 65-50	7C-FIX3-1214-0V	25
FIX3 M12x160/ 85-70	7C-FIX3-1216-0V	25
FIX3 M12x180/105-90	7C-FIX3-1218-0V	25
FIX3 M12x220/145-130	7C-FIX3-1222-0V	20
FIX3 M16x100/ 5	7C-FIX3-1610-0V	20
FIX3 M16x125/ 30-15	7C-FIX3-1612-5V	20
FIX3 M16x150/ 55-40	7C-FIX3-1615-0V	10
FIX3 M16x170/ 75-60	7C-FIX3-1617-0V	10
FIX3 M16x185/90-75	7C-FIX3-1618-5V	10
FIX3 M20x125/ 10	7C-FIX3-2012-5V	10
FIX3 M20x165/50-25	7C-FIX3-2016-5V	10
FIX3 M20x220/105-80	7C-FIX3-2022-0V	10

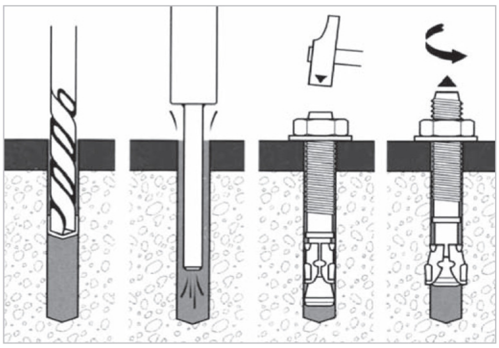
Installation Instructions

1. Drill the correct diameter hole to the same diameter as the Fix3 stud anchor selected.

2. Remove debris from hole by blowing out with compressed air or hand held blow out pump.

3. Install the anchor in the hole with a hammer until washer seats on fixture.

4. Tighten bolt with a torque wrench to recommended assembly torque.



METHOD STATEMENT FOR NON-DESTRUCTIVE TENSILE TEST ON RAMSET FIX 3

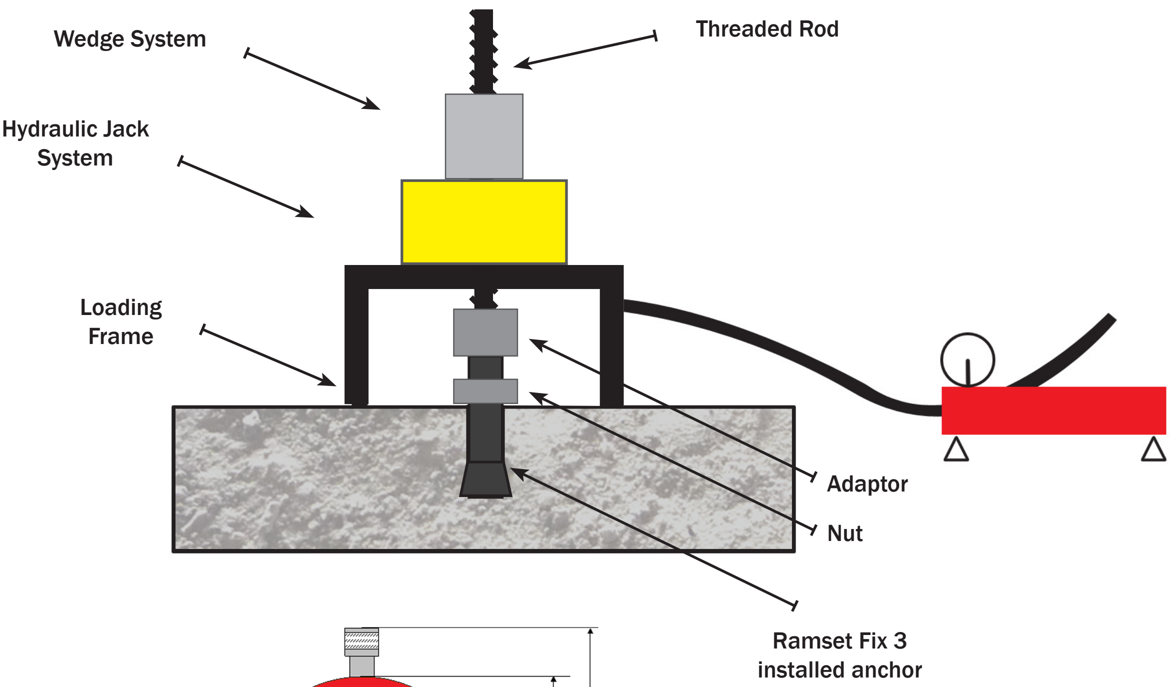
1. Prior to carrying out the test, the test equipment (Hydraulic Jack System with calibration certification attached) must be setup in position according to BS5080 Part 1.

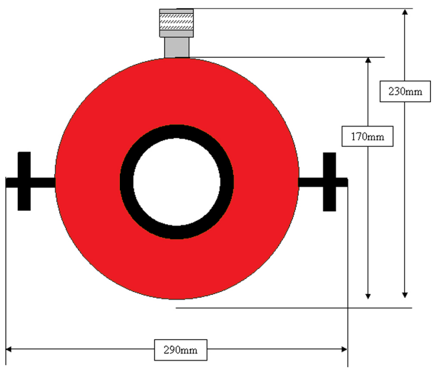
2. The loading frame is placed through the anchor and sits directly on the base concrete. The appropriate type of hydraulic jack is mounted on top of the loading frame and wedged in place with a corresponding wedge system to engage the anchor tightly at the end of the setup before applying the load.

3. A central load is applied gradually by means of the hydraulic jack system, via a hollow piston cylinder onto the wedges to create a reaction force equaling to a tensile pull-out effect, up to the required design test load.

4. The load achieved is indicated in the calibrated pressure gauge, usually expressed in KiloNewtons (kN) for ease of load determination. During or at the end of the loading, the achieved load and the mode of failure, if any, are recorded in the field test record form. The recorded field test record form shall be acknowledged by all parties present, namely the tester, the contractor and the consultant and shall form part of the final test report to be submitted to the contractor for filing purpose.

TEST SETUP (N.T.S.)





** For different diameters of anchors, the dimensions of the hollow jack may vary*

DIMENSION OF HOLLOW JACK

FIX 3 Stud Anchors - Galvanized Steel

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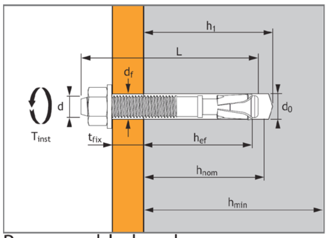
¬ Torque controlled expansion anchor, made of zinc coated steel for use in non cracked concrete



Pre-assembled anchor

Technical data

FIX3	Minimum anchor depth						Maximum anchor depth									
	Letter marking	Min. anchor depth (mm)	Depth before expans (mm)	Max thick of part to be fixed (mm)	Drilling Depth (mm)	Min thick of base material (mm)	Max. anchor depth (mm)	Depth before expans (mm)	Max thick of part to be fixed (mm)	Drilling Depth (mm)	Min thick of base material (mm)	Ø thread (mm)	Ø drill bit (mm)	Ø clear-ance (mm)	Total anchor length (mm)	Max. tighten torque (Nm)
		$h_{ef,min}$	h_{nom}	t_{fix}	h_1	h_{min}	$h_{ef,max}$	h_{nom}	t_{fix}	h_1	h_{min}	d	d_0	d_f	L	T_{inst}
M6x45/5*				5					-						45	
M6x55/15*		25,6	35	20	41	100	35	45	10	51	100	6	6	8	55	10
M6x85/45*				50					40						85	
M6x64 percée*				-					-						64	
M8x55/5	-			5					-						55	
M8x70/20-10	C			20					10						70	
M8x90/40-30	E			40					30						90	
M8x100/50-40	F	30	38	50	50	100	40	48	40	60	100	8	8	9	110	15
M8x115/65-55	G			65					55						115	
M8x130/80-70	H			80					70						130	
M8x160/110-100	J			110					100						160	
M10x65/5	-			5					-						65	
M10x75/15-5	C			15					5						75	
M10x85/25-15	D			25					15						85	
M10x95/36-26	E			36					26						95	
M10x110/50-40	F	40	50	50	60	100	50	60	40	70	100	10	10	12	110	30
M10x125/65-55	G			65					55						125	
M10x140/80-70	I			80					70						140	
M10x160/100-90	J			100					90						160	
M12x80/5	-			5					-						80	
M12x100/25-10	F			25					10						100	
M12x115/40-25	G			40					25						115	
M12x125/50-35	H			50					35						125	
M12x140/65-50	I	50	62	65	75	100	65	77	50	90	130	12	12	14	140	50
M12x160/85-70	J			85					70						160	
M12x180/105-90	L			105					90						180	
M12x220/145-130	O			145					130						220	
M12x290/215-200*	-			215					200						290	
M16x100/5	-			5					-						100	
M16x125/30-15	G			30					15						125	
M16x150/55-40	I			55					40						150	
M16x170/75-60	K	65	80	75	95	130	80	95	60	110	160	16	16	18	170	100
M16x185/90-75	L			90					75						185	
M16x235/140-125*	-			140					125						235	
M16x300/200*	-			200					178						300	
M20x125/10	-			10					-						125	
M20x165/50-25	J	75	93	50	110	150	100	118	25	135	200	20	20	22	165	160
M20x220/105-80	N			105					80						220	

* do not belongs to ETA

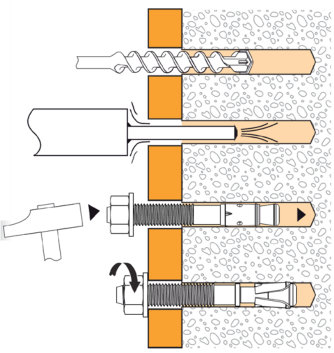
APPLICATION

- ¬ Steel and timber framework and beams
- ¬ Lift guide rails
- ¬ Industrial doors and gates
- ¬ Brickwork support angles
- ¬ Storage systems

MATERIAL

- ¬ Bolt M8-M20: Cold formed NFA 35-053 / Zinc electroplates (5 µm)
- ¬ Sleeve: Cold formed, NFA 35-231
- ¬ Washer: NF E25 513
- ¬ Hexagonal nut: Steel strength grade 6 or 8, ISO 898-2

INSTALLATION



Anchor mechanical properties

		M6	M8	M10	M12	M16	M20
Cross-section above cone							
f_{uk} (N/mm^2)	Min. tensile strength	700	750	750	750	700	600
f_{yk}(N/mm^2)	Yield strength	580	600	600	600	570	570
As (mm^2)	Stressed cross-section	-	23,8	34,7	56,1	103,9	172
Threaded part							
f_{uk} (N/mm^2)	Min. tensile strength	600	650	650	650	600	580
f_{yk}(N/mm^2)	Yield strength	480	520	520	520	480	480
As (mm^2)	Stressed cross-section	20,1	36,6	58	84,3	157	245
W_{el} (mm^3)	Elastic section modulus	12,71	31,23	62,3	109,17	277,47	540,9
$M^0_{Rk,s}$ (Nm)	Characteristic bending moment	9	24	49	85	200	376
M (Nm)	Recommended bending moment	3,7	9,8	20,0	34,7	81,6	153,5

FIX 3 Stud Anchors - Galvanized Steel

The loads specified on this page allow judging the product's performances, but cannot be used for the designing.
The data given in the pages "CC method" have to be applied.

Ultimate ($N_{Ru,m}$, $V_{Ru,m}$) / characteristic loads (N_{Rk}, V_{Rk}) in kN

Mean Ultimate loads are derived from test results in admissible service conditions, and characteristic loads are statistically determined.

TENSILE

Anchor size	M6	M8	M10	M12	M16	M20
Minimum anchorage depth						
h_{ef}	25	30	40	50	65	75
$N_{Ru,m}$	0,6	10,3	15,5	23,3	39,0	40,6
N_{Rk}	4,5	7,8	11,0	19,2	31,4	33,7
Maximum anchorage depth						
h_{ef}	35	40	50	65	80	100
$N_{Ru,m}$	9,4	15,6	22,0	33,8	47,1	69,0
N_{Rk}	7,0	14,0	18,0	28,3	42,0	56,1

SHEAR

Anchor size	M6	M8	M10	M12	M16	M20
$V_{Ru,m}$	6,8	14,3	22,6	32,8	56,5	85,2
V_{Rk}	2,9	9,9	13,7	29,4	36,5	62,2

Design Loads (N_{Rd}, V_{Rd}) for one anchor without edge or spacing influence in kN

$$N_{Rd} = \frac{N_{Rk}^{*}}{\gamma_{Mc}}$$

$$V_{Rd} = \frac{V_{Rk}^{*}}{\gamma_{Ms}}$$

*Derived from test results

TENSILE

Anchor size	M6	M8	M10	M12	M16	M20
Minimum anchorage depth						
h_{ef}	25	30	40	50	65	75
N_{Rd}	2,5	5,2	7,3	12,8	20,9	22,5
Maximum anchorage depth						
h_{ef}	35	40	50	65	80	100
N_{Rd}	3,8	9,3	12,0	18,9	28,0	37,4

$\gamma_{Mc} = 1{,}5$

SHEAR

Anchor size	M6	M8	M10	M12	M16	M20
V_{Rd}	2,3	7,9	11,0	23,5	29,2	41,5

$\gamma_{Ms} = 1{,}25$ (M6-M16)

$\gamma_{Ms} = 1{,}5$ (M20)

Recommended loads (N_{rec}, V_{rec}) for one anchor without edge or spacing influence in kN

$$N_{Rec} = \frac{N_{Rk}^{*}}{\gamma_{M}.\gamma_{F}}$$

$$V_{Rec} = \frac{V_{Rk}^{*}}{\gamma_{M}.\gamma_{F}}$$

*Derived from test results

TENSILE

Anchor size	M6	M8	M10	M12	M16	M20
Minimum anchorage depth						
h_{ef}	25	30	40	50	65	75
N_{Rec}	1,7	3,7	5,2	9,1	15,0	16,0
Maximum anchorage depth						
h_{ef}	35	40	50	65	80	100
N_{Rec}	2,7	6,7	8,6	13,5	20,0	26,7

$\gamma_{F} = 1{,}4$; $\gamma_{Mc} = 1{,}5$

SHEAR

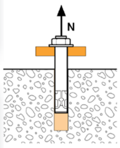
Anchor size	M6	M8	M10	M12	M16	M20
V_{Rec}	1,7	5,7	7,8	16,8	20,9	29,6

$\gamma_{Ms} = 1{,}25$

FIX 3 Stud Anchors - Galvanized Steel

CC- Method (values issued from ETA)

TENSILE in kN

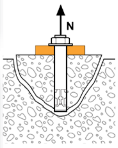


Pull-out resistance

$$N_{Rd,p} = N^{O}_{Rd,p}.f_b$$

$N^0_{Rd,p}$ Anchor size	M8	M10	M12	M16	M20
	Design pull-out resistance				
Minimum anchorage depth					
h_{ef}	30	40	50	65	75
$N^0_{Rd,p}$ (C20/25)	5,0	-	-	-	-
Maximum anchorage depth					
h_{ef}	40	50	65	80	100
$N^0_{Rd,p}$ (C20/25)	-	-	-	-	-

$\gamma_{Mc} = 1,5$

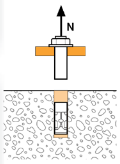


Concrete cone resistance

$$N_{Rd,c} = N^{O}_{Rd,c}.f_b.\Psi_s.\Psi_{c,N}$$

$N^0_{Rd,c}$ Anchor size	M8	M10	M12	M16	M20
	Design cone resistance				
Minimum anchorage depth					
h_{ef}	30	40	50	65	75
$N^0_{Rd,c}$ (C20/25)	5,5	8,5	11,9	17,6	21,8
Maximum anchorage depth					
h_{ef}	40	50	65	80	100
$N^0_{Rd,c}$ (C20/25)	8,5	11,9	17,6	24,0	33,6

$\gamma_{Mc} = 1,5$

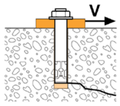


Steel resistance

$N_{Rd,s}$ Anchor size	M8	M10	M12	M16	M20
	Steel design tensile resistance				
$N_{Rd,s}$	11,9	17,3	28,1	48,5	73,7

$\gamma_{Ms} = 1,5$ (M8-M16)
$\gamma_{Ms} = 1,4$ (M20)

SHEAR in kN

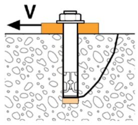


Concrete edge resistance

$$V_{Rd,c} = V^{O}_{Rd,c}.f_b.f_{\beta,V}.\Psi_{S-C,V}$$

$V^0_{Rd,c}$ Anchor size	M8	M10	M12	M16	M20
	Design concrete edge resistance at minimum edge distance (C_{min})				
Minimum anchorage depth					
h_{ef}	30	40	50	65	75
C_{min}	50	65	100	100	115
S_{min}	40	50	100	100	100
$V^0_{Rd,c}$ (C20/25)	2,7	4,6	9,7	11,1	15,1
Maximum anchorage depth					
h_{ef}	40	50	65	80	100
C_{min}	55	65	70	105	120
S_{min}	45	60	70	90	100
$V^0_{Rd,c}$ (C20/25)	3,3	4,8	6,0	12,5	17,0

$\gamma_{Mc} = 1,5$

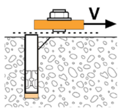


Pryout failure

$$V_{Rd,cp} = V^{0}_{Rd,cp}.f_b.\Psi_s.\Psi_{c,N}$$

$V^0_{Rd,cp}$ Anchor size	M8	M10	M12	M16	M20
	Design pryout resistance				
Minimum anchorage depth					
h_{ef}	30	40	50	65	75
$V^0_{Rd,cp}$ (C20/25)	5,5	8,5	11,9	35,2	43,6
Maximum anchorage depth					
h_{ef}	40	50	65	80	100
$V^0_{Rd,cp}$ (C20/25)	8,5	11,9	35,2	48,0	67,2

$\gamma_{Mcp} = 1,5$



Steel resistance

$V_{Rd,s}$ Anchor size	M8	M10	M12	M16	M20
	Steel design shear resistance				
$V_{Rd,s}$	8,0	11,0	21,9	29,2	47,4

$\gamma_{Ms} = 1,25$ (M8-M16)
$\gamma_{Ms} = 1,5$ (M20)

$$N_{Rd} = \min(N_{Rd,p} ; N_{Rd,c} ; N_{Rd,s})$$
$$\beta_N = N_{Sd} / N_{Rd} \leq 1$$

$$V_{Rd} = \min(V_{Rd,c} ; V_{Rd,cp} ; V_{Rd,s})$$
$$\beta_V = V_{Sd} / V_{Rd} \leq 1$$

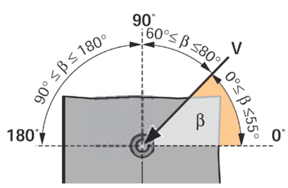
$$\beta_N + \beta_V \leq 1,2$$

f_B INFLUENCE OF CONCRETE

Concrete class	f_B	Concrete class	f_B
C25/30	1,1	C40/50	1,41
C30/37	1,22	C45/55	1,48
C35/45	1,34	C50/60	1,55

$f_{\beta,V}$ INFLUENCE OF SHEAR LOADING DIRECTION

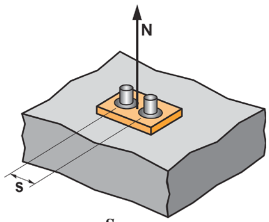
Angle β [°]	$f_{\beta,V}$
0 to 55	1
60	1,1
70	1,2
80	1,5
90 to 180	2



FIX 3 Stud Anchors - Galvanized Steel

CC- Method (values issued from ETA)

Ψ_s INFLUENCE OF SPACING FOR CONCRETE CONE RESISTANCE IN TENSILE LOAD



$$\Psi_S = 0{,}5 + \frac{s}{6.h_{ef}}$$

$S_{min} < S < S_{cr,N}$
$S_{cr,N} = 3.h_{ef}$
Ψ_S must be used for each spacing influenced the anchors group.

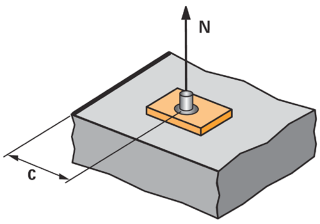
Reduction factor Ψ_s – Minimum anchorage depth

SPACING S	M8	M10	M12	M16	M20
40	0,72				
50	0,78	0,71			
65	0,86	0,77			
90	1,00	0,88			
100		0,92	0,83	0,76	0,72
120		1,00	0,90	0,81	0,77
150			1,00	0,88	0,83
180				0,96	0,90
195				1,00	0,93
225					1,00

Reduction factor Ψ_s – Maximum anchorage depth

SPACING S	M8	M10	M12	M16	M20
45	0,69				
60	0,75	0,70			
70	0,79	0,73	0,68		
90	0,88	0,80	0,73	0,69	
100	0,92	0,83	0,76	0,71	0,67
120	1,00	0,90	0,81	0,75	0,70
150		1,00	0,88	0,81	0,75
195			1,00	0,91	0,83
220				0,96	0,87
240				1,00	0,90
300					1,00

$\Psi_{c,N}$ INFLUENCE OF EDGE FOR CONCRETE CONE RESISTANCE IN TENSILE LOAD



$$\Psi_{c,N} = 0{,}23 + 0{,}51.\frac{c}{h_{ef}}$$

$C_{min} < C < C_{cr,N}$
$C_{cr,N} = 1{,}5.h_{ef}$
$\Psi_{c,N}$ must be used for each distance influenced the anchors group.

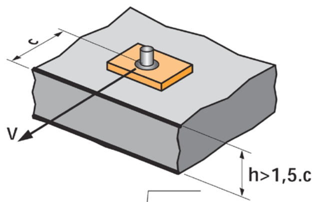
Reduction factor $\Psi_{c,N}$ – Minimum anchorage depth

EDGE C	M8	M10	M12	M16	M20
50	1,00				
65		1,00			
100			1,00		
100				1,00	
115					1,00

Reduction factor $\Psi_{c,N}$ – Maximum anchorage depth

EDGE C	M8	M10	M12	M16	M20
55	0,93				
60	1,00				
65		0,89			
70		0,94	0,78		
75		1,00	0,82		
100			1,00		
105				0,90	
110				0,93	
120				1,00	0,84
130					0,89
150					1,00

$\Psi_{s-c,V}$ INFLUENCE OF SPACING AND EDGE DISTANCE FOR CONCRETE EDGE RESISTANCE IN SHEAR LOAD

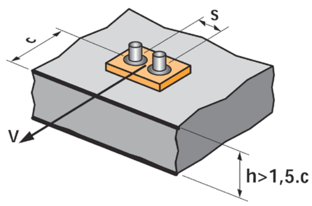


$$\Psi_{s-c,V} = \frac{c}{c_{min}}.\sqrt{\frac{c}{c_{min}}}$$

¬ For single anchor fastening

Factor $\Psi_{s-c,V}$ – Non-cracked concrete

$\frac{c}{c_{min}}$	1,0	1,2	1,4	1,6	1,8	2,0	2,2	2,4	2,6	2,8	3,0	3,2
$\Psi_{s-c,V}$	1,00	1,31	1,66	2,02	2,41	2,83	3,26	3,72	4,19	4,69	5,20	5,72

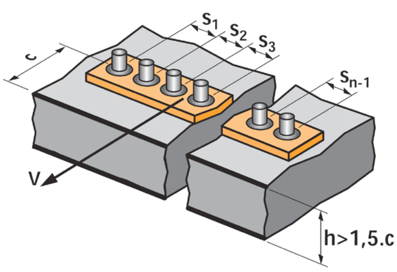


$$\Psi_{s-c,V} = \frac{3.c + s}{6.c_{min}}.\sqrt{\frac{c}{c_{min}}}$$

¬ For 2 anchors fastening

Factor $\Psi_{s-c,V}$ – Non-cracked concrete

$\frac{s}{c_{min}}$ \ $\frac{c}{c_{min}}$	1,0	1,2	1,4	1,6	1,8	2,0	2,2	2,4	2,6	2,8	3,0	3,2
1,0	0,67	0,84	1,03	1,22	1,43	1,65	1,88	2,12	2,36	2,62	2,89	3,16
1,5	0,75	0,93	1,12	1,33	1,54	1,77	2,00	2,25	2,50	2,76	3,03	3,31
2,0	0,83	1,02	1,22	1,43	1,65	1,89	2,12	2,38	2,63	2,90	3,18	3,46
2,5	0,92	1,11	1,32	1,54	1,77	2,00	2,25	2,50	2,77	3,04	3,32	3,61
3,0	1,00	1,20	1,42	1,64	1,88	2,12	2,37	2,63	2,90	3,18	3,46	3,76
3,5		1,30	1,52	1,75	1,99	2,24	2,50	2,76	3,04	3,32	3,61	3,91
4,0			1,62	1,86	2,10	2,36	2,62	2,89	3,17	3,46	3,75	4,05
4,5				1,96	2,21	2,47	2,74	3,02	3,31	3,60	3,90	4,20
5,0					2,33	2,59	2,87	3,15	3,44	3,74	4,04	4,35
5,5						2,71	2,99	3,28	3,71	4,02	4,33	4,65
6,0						2,83	3,11	3,41	3,71	4,02	4,33	4,65



¬ For 3 anchors fastening and more

$$\Psi_{s-c,V} = \frac{3.c + s_1 + s_2 + s_3 + \ldots + s_{n-1}}{3.n.c_{min}}.\sqrt{\frac{c}{c_{min}}}$$

Centre Scientifique et
Technique du Bâtiment
84 avenue Jean Jaurès
CHAMPS-SUR-MARNE
F-77447 Marne-la-Vallée Cedex 2
Tél. : (33) 01 64 68 82 82
Fax : (33) 01 60 05 70 37

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CSTB le futur en construction

MEMBRE DE L'EOTA

European Technical Approval ETA-13/0005

(English language translation, the original version is in French language)

Nom commercial : Trade name:	**SPIT FIX3**
Titulaire : Holder of approval:	Société Spit Route de Lyon F-26501 BOURG-LES-VALENCE France
Type générique et utilisation prévue du produit de construction : Generic type and use of construction product:	Cheville métallique à expansion par vissage à couple contrôlé, de fixation dans le béton non fissuré: diamètres M8, M10, M12 M16 et M20. Torque-controlled expansion anchor for use in non cracked concrete: sizes M8, M10, M12 M16 et M20
Validité du : **au :** Validity from / to:	01/05/2013 30/04/2018
Usine de fabrication : Manufacturing plant:	Société Spit Route de Lyon F-26501 BOURG-LES-VALENCE France
Le présent Agrément technique européen contient : This European Technical Approval contains:	15 pages incluant 8 annexes faisant partie intégrante du document. 15 pages including 8 annexes which form an integral part of the document.

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