

AC

Denomination: **CAPSULE**

Codes: AACCA, AACCI, AACCTO, AACES, AACAR, AACGA

Reference: **FT AC-en**

Date: **30/07/18**

Revision: 3

Page: **1 de 6**



AC-CA



AC-CI



AC-TO



AC-ES



AC-AR



AC-GA

CHARACTERISTICS

Metallic anchor, with functioning principle by expansion and installation by controlled torque.

Male thread

Use in non-cracked concrete

Easy assembly

Use for high loads

Anchor must be installed before the fixture

Versions:

- Shield
- Stainless steel shield
- 6.8 loose bolt
- Bolt projecting
- Eye bolt
- Hook bolt
- Zinc plated yellow passivated covering and stainless steel

BASE MATERIAL

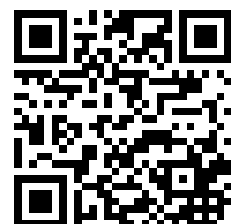


APPLICATION EXAMPLES



Fixing signs, racks, panels, gates, handrails, street furniture and fence posts.

WEB PROFILE



AC

Denomination: **CAPSULE**

Codes: **AACCA, AACCI, AACCTO, AACES, AACAR, AACGA**

Reference: **FT AC-en**

Date: **30/07/18**

Revision: 3

Page: **2 de 6**

1. RANGE

ITEM	CODE	SIZE	PHOTO	COMPONENT	MATERIAL
1	AACCA	M6 a M16		Capsule	Carbon steel, zinc plated $\geq 5 \mu\text{m}$
2	AACCI	M6 a M12		Capsule	Stainless Steel A4
3	AACCTO	M6 a M16		Capsule Screw Washer	Carbon steel, zinc plated $\geq 5 \mu\text{m}$
4	AACES	M6 a M12		Capsule Stud Washer	Carbon steel, zinc plated $\geq 5 \mu\text{m}$
5	AACAR	M6 a M12		Capsule Eye Washer	Carbon steel, zinc plated $\geq 5 \mu\text{m}$
6	AACGA	M6 a M12		Capsule Hook Washer	Carbon steel, zinc plated $\geq 5 \mu\text{m}$

AC

Denomination: **CAPSULE**

Codes: AACCA, AACCI, AACCTO, AACES, AACAR, AACGA

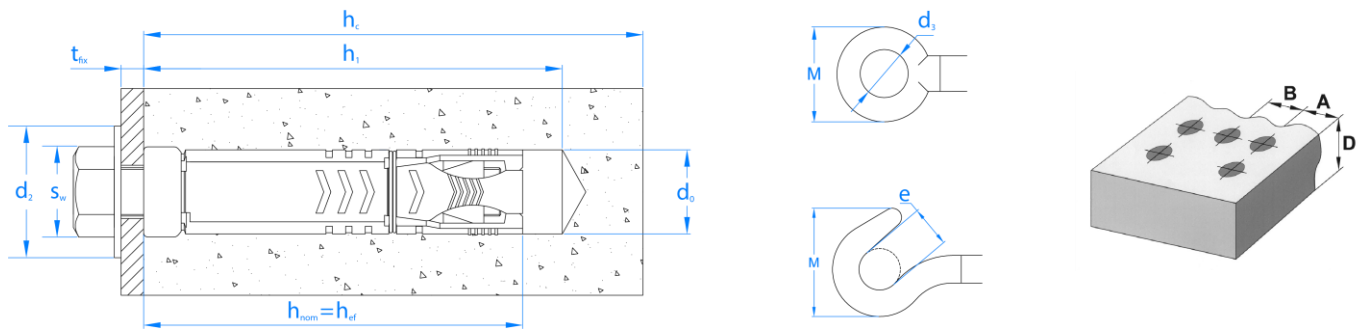
Reference: **FT AC-en**

Date: **30/07/18**

Revision: 3

Page: **3 de 6**

2. INSTALLATION DATA



SIZES		M6	M8	M10	M12	M16
d ₀ : drill diameter	[mm]	10	14	16	20	25
d ₂ : washer diameter	[mm]	18	20	23,5	30	40
h _{nom} : embedment depth	[mm]	40	50	60	80	100
h _{ef} : effective depth	[mm]	40	50	60	80	100
h ₁ : drill depth ≤	[mm]	45	60	70	90	110
h _e : base material thickness ≤	[mm]	100	100	120	160	200
s _{sp} : critical spacing (splitting)	[mm]	240	300	360	480	600
c _{sp} : critical edge distance (splitting)	[mm]	120	150	180	240	300
s _{cr} : critical spacing (concrete cone)	[mm]	120	150	180	240	300
c _{cr} : critical edge distance (concrete cone)	[mm]	60	75	90	120	150
s _{min} : minimum spacing	[mm]	60	75	90	120	150
c _{min} : minimum edge distance	[mm]	60	75	90	120	150
t _{ins} : installation torque	[Nm]	10	25	50	85	120
t _{fix} : maximum fixture thickness	[mm]	8,5	8,5	8,0	17,5	17,0
d ₃ : interior eye diameter	[mm]	10	12	14	17	--
e: hook minimum gap	[mm]	10	11	14	18	--
S _w : nut key	[mm]	10	13	17	19	24

AC

Denomination: **CAPSULE**

Codes: AACCA, AACCI, AACCTO, AACES, AACAR, AACGA

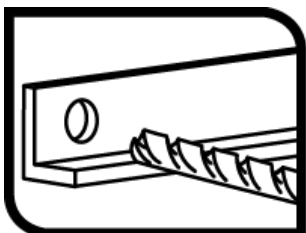
Reference: **FT AC-en**

Date: **30/07/18**

Revision: 3

Page: 4 de 6

3. INSTALLATION PROCEDURE



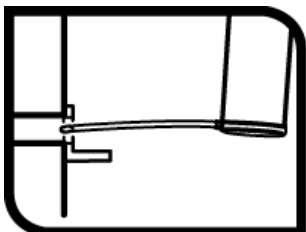
1. DRILLING

Check the concrete base is compact and porosity is insignificant.

Suitable for wet, dry or flooded drill holes.

Use drill in hammer mode.

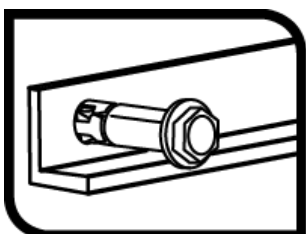
Drill to the specified diameter and depth values.



2. BLOW AND CLEAN

Clear the drill holes completely of dust and fragments.

Use air pump and brush.

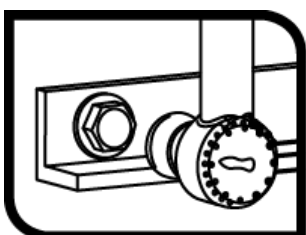


3. INSTALL

Insert the anchor in the hole until the red ring mark is flat with concrete surface.

Use hammer in case of need; DOMTA tool could be used alternatively.

The installation could be done through the fixture baseplate.



4. APPLY TORQUE

Apply nominal installation torque using a torque wrench.

AC

Denomination: **CAPSULE**

Codes: AACCA, AACCI, AACCTO, AACES, AACAR, AACGA

Reference: **FT AC-en**

Date: **30/07/18**

Revision: 3

Page: 5 de 6

4. RESISTANCES

Characteristic resistance in non-cracked concrete C20 / 25 for an isolated anchor (no effects edge distance or distances between anchors) is indicated in the following table:

CHARACTERISTIC RESISTANCE								
METRICA				M6	M8	M10	M12	M16
6.8 loose bolt		N _{R,K} : tension [KN]		3,43	3,92	12,57	14,75	20,65
		V _{R,K} : shear [KN]		<u>6</u>	<u>11</u>	<u>17,4</u>	<u>25,3</u>	<u>47,1</u>
Stainless steel shield		N _{R,K} : tension [KN]		3,43	3,92	8,82	10,78	--
		V _{R,K} : shear [KN]		<u>7</u>	<u>12,8</u>	<u>20,3</u>	<u>29,5</u>	--
Projecting bolt		N _{R,K} : tension [KN]		3,43	3,92	12,57	14,75	20,65
		V _{R,K} : shear [KN]		<u>4,2</u>	<u>7,7</u>	<u>12,2</u>	<u>17,7</u>	--
Eye bolt		N _{R,K} : tension [KN]		<u>4,2</u>	9,3	<u>15,8</u>	<u>16,9</u>	--
		V _{R,K} : shear [KN]		--	--	--	--	--
Hook bolt		N _{R,K} : tension [KN]		<u>1,64</u>	<u>3,2</u>	<u>5</u>	<u>8,1</u>	--
		V _{R,K} : shear [KN]		--	--	--	--	--

DESIGN RESISTANCE								
METRICA				M6	M8	M10	M12	M16
6.8 loose bolt		N _{Rd} : tension [KN]		1,91	2,18	6,98	8,19	11,47
		V _{Rd} : shear [KN]		<u>4,80</u>	<u>8,80</u>	<u>13,92</u>	<u>20,24</u>	<u>37,68</u>
Stainless steel shield		N _{Rd} : tension [KN]		1,91	2,18	4,90	5,99	--
		V _{Rd} : shear [KN]		<u>4,49</u>	<u>8,21</u>	<u>13,01</u>	<u>18,91</u>	--
Projecting bolt		N _{Rd} : tension [KN]		1,91	2,18	6,98	8,19	11,47
		V _{Rd} : shear [KN]		<u>3,36</u>	<u>6,16</u>	<u>9,76</u>	<u>14,16</u>	--
Eye bolt		N _{Rd} : tension [KN]		<u>2,80</u>	5,17	<u>10,53</u>	<u>11,27</u>	--
		V _{Rd} : shear [KN]		--	--	--	--	--
Hook bolt		N _{Rd} : tension [KN]		<u>1,09</u>	<u>2,13</u>	<u>3,33</u>	<u>5,40</u>	--
		V _{Rd} : shear [KN]		--	--	--	--	--

RECOMMENDED RESISTANCE								
METRICA				M6	M8	M10	M12	M16
6.8 loose bolt		N _{recom} : tension [KN]		1,4	1,6	5,0	5,9	8,2
		V _{recom} : shear [KN]		<u>3,4</u>	<u>6,3</u>	<u>9,9</u>	<u>14,5</u>	<u>26,9</u>
Stainless steel shield		N _{recom} : tension [KN]		1,4	1,6	3,5	4,3	--
		V _{recom} : shear [KN]		<u>3,2</u>	<u>5,9</u>	<u>9,3</u>	<u>13,5</u>	--
Projecting bolt		N _{recom} : tension [KN]		1,4	1,6	5,0	5,9	8,2
		V _{recom} : shear [KN]		<u>2,4</u>	<u>4,4</u>	<u>7,0</u>	<u>10,1</u>	--
Eye bolt		N _{recom} : tension [KN]		<u>2,0</u>	3,7	<u>7,5</u>	<u>8,0</u>	--
		V _{recom} : shear [KN]		--	--	--	--	--
Hook bolt		N _{recom} : tension [KN]		<u>0,78</u>	<u>1,5</u>	<u>2,38</u>	<u>3,9</u>	--
		V _{recom} : shear [KN]		--	--	--	--	--

* Underline and cursive values correspond to steel failure.

AC

Denomination: **CAPSULE**

Codes: AACCA, AACCI, AACCTO, AACES, AACAR, AACGA

Reference: **FT AC-en**

Date: **30/07/18**

Revision: 3

Page: **6 de 6**

5. EJEMPLO DE CALCULO

Calculation example

Fixing a load tension of 1.000 kg

1.000 kg = 9.8 KN

Increasing coefficient for loads:

1.4

Using two M10 AC anchors

Pull load characteristic resistance for M10 AC anchor:

12.57 KN

Concrete failure

Concrete reduction for resistances coefficient:

1.8

Checking: increased load must be lower than reduced resistance

$9.8 \text{ KN} \times 1.4 \leq 2 \times 12.57 \text{ KN} / 1.8$

Wedges distance must be longer than 90 mm and distance to any edge must be longer than 90 mm as well.