

	TECHNICAL DATA SHEET	Reference	FT CH ingles
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Designation: CH ANCHOR		Codes	ACHT, ACHT88, ACHTA2, ACHINB, ACHINN, ACHE, ACHA, ACHTPL, ACHTPI, ACHG, ACHAFO, ACHGFO

ACHT

CH bolt 6.8



ACHT88

CH bolt 8.8



ACHTA2

CH A2 stainless steel



ACHINB

CH inviolable bolt



ACHINN

CH black zinc plated inviolable bolt



ACHE

CH stud



ACHTPL

CH flat bolt



ACHTPI

CH A2 stainless steel flat bolt



ACHA

CH eye bolt



ACHG

CH hook



ACHAFO

CH forged eye bolt



ACHGFO


CH forged hook



ACHAA2

CH A2 stainless steel forged eye bolt



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ACHGA2

CH A2 stainless steel forged hook




1.-CHARACTERISTICS

- Metallic anchor, with functioning principle by expansion and installation by controlled torque.
- Male thread
- Use in non-cracked concrete
- Easy assembly
- Ensemble with built-in antispins in the collar allowing a spin-free easy installation.
- Use for medium loads
- Installation through the fixture hole itself.
- Versions:
 - Zinc plated bolt
 - 8.8 bolt
 - A2 stainless steel
 - Projecting bolt
 - Flat bolt
 - A2 stainless steel flat bolt
 - Inviolable bolt
 - Black zinc plated black bolt
 - Hook
 - Eye bolt
 - Forged hook
 - Forged eye bolt
 - A2 forged stainless steel hook
 - A2 forged stainless steel eye bolt











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2.- MATERIALS

VERSION	Bolt	Stud	Washer	Sleeve	Collar	Cone	Hook / eye bolt	Cove ring
ACHT	DIN 931, class 6.8	----	DIN 9021 (M6,M20) special (M8 to M16)	DC01	PVC	C1008	----	Zinc plated ISO 4042 ≥ 5 µm
ACHINB	Inviolab. torx 40 class 5.6		----					
ACHINN								
ACHT88	DIN 931, class 8.8		DIN 9021 (M6), special (M8 a M16)					
ACHE	Class 5.6	C4C EN 10263- 2						
ACHA / ACHG	Stud class 5.6							
ACHAFO/ ACHGFO								
ACHPL	DIN 7991 Class 10.9	----	----	AISI 304	---	AISI 303	----	----
ACHPI	DIN 7991 A2-70							
ACHTA2	DIN 931, A2-70		DIN 9021 (M6), DIN 125 (M8 a M16) AISI 304		PVC		AISI 304	
ACHAA2/ ACHGA2	----							





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3.- VERSIONS

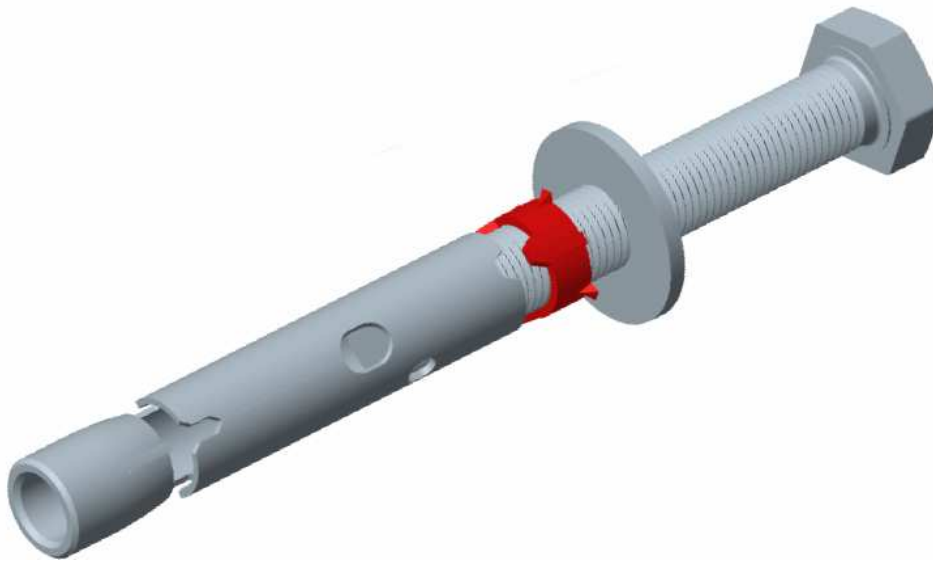
DIAMETER VERSION	8		9		10		11		12		14		16		20	25
CH 6.8 bolt 	ACHT08C	ACHT08L	ACHT09C	ACHT09L	ACHT10C	ACHT10L	ACHT11C	ACHT11L	ACHT12C	ACHT12L	ACHT14C	ACHT14L	ACHT16C	ACHT16L	ACHT20C	ACHT25C
CH 8.8 bolt 	ACHT8808C	ACHT8808L	----	----	ACHT8810C	ACHT8810L	----	----	ACHT8812C	ACHT8812L	----	----	ACHT8816C	ACHT8816L	ACHT8820C	----
CH stainless steel 	ACHTA208C	ACHTA208L	ACHTA209C	ACHTA209L	ACHTA210C	ACHTA210L	ACHTA211C	ACHTA211L	ACHTA212C	ACHTA212L	ACHTA214C	ACHTA214L	ACHTA216C	ACHTA216L	ACHTA220C	----
CH inviolable bolt 	ACHINB08C ACHINN08C	ACHINB08L ACHINN08L	----	----	ACHINB10C ACHINN10C	ACHINB10L ACHINN10L	----	----	----	----	----	----	----	----	----	----
CH flat head bolt 	ACHTPL08C ACHTTP08C	ACHTPL08L ACHTTP08L	----	----	ACHTPL10C ACHTTP10C	ACHTPL10L ACHTTP10L	----	----	ACHTPL12C ACHTTP12C	ACHTPL12L ACHTTP12L	----	----	----	----	----	----
CH projecting bolt 	ACHE08C	----	ACHE09C	----	ACHE10C	ACHE10L	ACHE11C	ACHE11L	ACHE12C	ACHE12L	ACHE14C	ACHE14L	----	----	----	----
CH eye bolt 	ACHA08C	----	ACHA09C	----	ACHA10C	----	ACHA11C	----	ACHA12C	----	ACHA14C	----	ACHAH16C	----	----	----
CH hook 	ACHG08C	----	ACHG09C	----	ACHG10C	----	ACHG11C	----	ACHG12C	----	ACHG14C	----	ACHGH16C	----	----	----
CH forged / stainless steel eye bolt 	ACHAFO08C ACHAA208C	----	----	----	ACHAFO10C ACHAA210C	----	----	----	ACHAFO12C ACHAA212C	----	----	----	----	----	----	----
CH forged / stainless steel hook 	ACHGFO08C ACHGA208C	----	----	----	ACHGFO10C ACHGA210C	----	----	----	ACHGFO12C ACHGA212C	----	----	----	----	----	----	----

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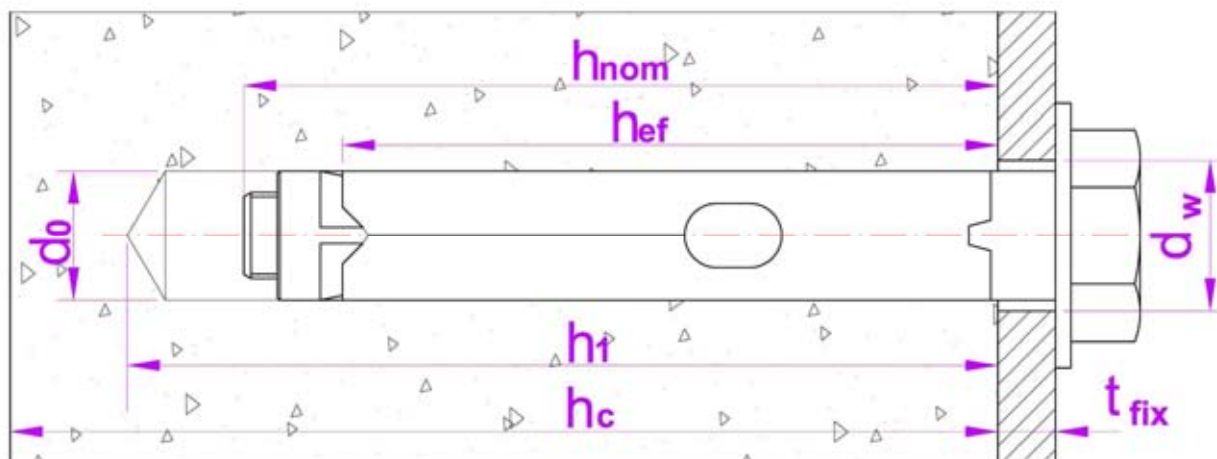
4.- DIMENSIONS


DIAMETER	8		9		10		11		12		14		16		20	25	
<div>CH 6.8 bolt</div> <div></div>	ACHT08C	ACHT08L	ACHT09C	ACHT09L	ACH10C	ACHT10L	ACHT11C	ACHT11L	ACHT12C	ACHT12L	ACHT14C	ACHT14L	ACHT16C	ACHT16L	ACHT20C	ACHT25C	
<div>CH 8.8 bolt</div> <div></div>	ACHT8808C	ACHT8808L	---	---	ACHT8810C	ACHT8810L	---	---	ACHT8812C	ACHT8812L	---	---	ACHT8816C	ACHT8816L	ACHT8820C	---	
<div>CH stainless steel</div> <div></div>	ACHTA208C	ACHTA208L	---	ACHTA209L	ACHTA210C	ACHTA210L	---	ACHTA211L	ACHTA212C	ACHTA212L	---	ACHTA214L	ACHTA216C	ACHTA216L	ACHTA220C	---	
<div>CH projecting bolt</div> <div></div>	ACHE08C	---	ACHE09C	---	ACHE10C	ACHE10L	ACHE11C	ACHE11L	ACHE12C	ACHE12L	ACHE14C	ACHE14L	---	---	---	---	
d _p : diameter [mm]	8		9		10		11		12		14		16		20	25	
l ₂ : bolt length [mm]	45	60	45	60	60	80	60	80	70	100	70	100	80	110	110	130	
l ₃ : sleeve length [mm]	30	45	30	45	40	62	40	62	48	75	48	75	55	87	82	100	
l ₄ : collar length [mm]	5				5				5				5		5	5	
l ₅ : cone length [mm]	9		10		12				15				17		21	26	
d ₃ : bolt [mm]	M6				M8				M10				M12		M16	M20	
d ₂ : washer diameter [mm]	18				20				23.5				30		40	50	
d ₂ : stainless steel washer diameter [mm]	18				24				30				37		50	---	
s ₂ : washer thickness [mm]	1.6				1.5				2				2.5		3		
s ₂ : stainless steel washer thickness [mm]	1.6				2				2.5				3		3	---	
s _w : spanner [mm]	10				13				17				19		24	30	
Eye bolt eye diameter [mm]	10				13				14				22		---		
Hook opening [mm]	10				13				14				22		---		
Forged eye bolt eye diameter [mm]	10				12				14.5				---				
Forged hook opening [mm]	8				10				12.5				---				
Spanner for inviolable heads																	
ACHINB	Torx 40								---								
ACHINN	Torx 40								---								





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5.- INSTALLATION DATA




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DIAMETER	8		9		10		11		12		14		16		20	25
CH 6.8 bolt codes 	ACHT08C	ACHT08L	ACHT09C	ACHT09L	ACH10C	ACHT10L	ACHT11C	ACHT11L	ACHT12C	ACHT12L	ACHT14C	ACHT14L	ACHT16C	ACHT16L	ACHT20C	ACHT25C
CH 8.8 bolt codes 	ACHT8808C	ACHT8808L	---	---	ACHT8810C	ACHT8810L	---	---	ACHT8812C	ACHT8812L	---	---	ACHT8816C	ACHT8816L	ACHT8820C	---
CH stainless steel codes 	ACHTA208C	ACHTA208L	---	ACHTA209L	ACHTA210C	ACHTA210L	---	ACHTA211L	ACHTA212C	ACHTA212L	---	ACHTA214L	ACHTA216C	ACHTA216L	ACHTA220C	---
CH projecting bolt 	ACHE08C	---	ACHE09C	---	ACHE10C	ACHE10L	ACHE11C	ACHE11L	ACHE12C	ACHE12L	ACHE14C	ACHE14L	---	---	---	---
d ₀ : drill diameter [mm]	8		9		10		11		12		14		16		20	25
d _w : fixture hole diameter ≤ [mm]	9		10		12		13		14		16		18		22	27
h ₁ : drill depth ≥ [mm]	50	60	50	60	60	80	60	80	75	100	75	100	85	110	110	130
h _c : base material base thickness ≥ [mm]	100		100		100	105	100	105	100	110	100	110	110	135	145	160
T _{ins} : torque [Nm]	10		10		20		20		35		35		50		80	120
h _{ef} : effective depth ≥ [mm]	30	35	30	35	40	52	40	52	48	55	50	55	55	67	72	80
t _{fix} : thickness to be fixed ≤ [mm]	5	15	5	15	5	15	5	15	5	25	5	25	5	25	15	25
s _{cr} : critical spacing [mm]	90	105	90	105	120	155	120	155	150	165	150	165	165	205	215	240
c _{cr} : critical edge distance [mm]	45	55	45	55	60	80	60	80	75	85	75	85	85	105	110	120

6.- INSTALLATION PROCEDURE



- Before placing the anchor checks to be made to ensure the strength class of the concrete is not lower than that to which the characteristic loads apply
- The concrete to be well compacted, e.g. without significant voids
- Base material temperatures during installation: -5 / + 40 °C (80 °C in a short period of time)



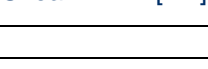

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- Anchors to be installed ensuring not less than the specified embedment depth, The edge distance and spacing to be kept to the specified values, no minus tolerances to be allowed
- Drill to the minimum depth and diameter specified, maintaining perpendicular to the surface of the base material. Fixture holes themselves can be used as template.
- When drilling holes, care to be taken not to damage reinforcement in close proximity to the hole position. Action to be taken in the event that drilling is aborted, e.g. due to encountering reinforcement. It is recommended to either install the anchors immediately beside the aborted drill hole, provide that anchoring depth is increased by the depth of the aborted drill hole, or make a new drilling at a minimum distance away of two the depth of the aborted hole. Alternatively, a smaller distance may be chosen, provided the aborted drill hole is filled with high strength mortar. However, unless the aborted drill hole is filled with mortar, it is not permissible a shear or oblique tension load in the direction of the aborted hole.
- Thoroughly clean hole from dust and drilling fragments.
- For holes to be subjected to temperatures below 0 °C, measures to be taken to avoid the ingress of water into the hole and subsequent risk of local cracking of the concrete due to ice expansion.
- To introduce the anchor into the hole up to the embedment depth through the fixture. A hammer can be use to assure this depth. Do not apply any intermediate lay between the fixture and the washer (sealant, etc.). Apply the specified torque with a torque wrench.
- In case of holes with diameters higher than specified use washers of bigger diameter and thickness, but in this case it is not assured a correct distribution of shear loads amongst all the anchors of a same group. The shear load will be applied on those anchors with the correct diameter on the fixture.
- The inviolability of CH Anchors: ACHINB and ACHINN, it is achieved by placing an inviolate zamak star in the screw's head with a hammer. This zamak alloy star is provided with the anchor in the same box.

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7.- CHARACTERISTIC RESISTANCES

7.1.- Characteristic resistances* in non-cracked concrete C20/25** for an isolated anchor (without spacing and edge distances effects) are as per this table:

DIAMETER		8		9		10		11		12		14		16		20	25
CH 6.8 bolt		ACHT08C	ACHT08L	ACHT09C	ACHT09L	ACH10C	ACHT10L	ACHT11C	ACHT11L	ACHT12C	ACHT12L	ACHT14C	ACHT14L	ACHT16C	ACHT16L	ACHT20C	ACHT25C
	Tension [KN]	7.5	9.1	7.5	9.1	9.5	13.1	9.5	13.1	12.7	20.6	12.7	20.6	17.5	27.6	26.0	36.1
	Shear [KN]	<u>6.0</u>	<u>6.0</u>	<u>6.0</u>	<u>6.0</u>	12.8	<u>11.0</u>	12.8	<u>11.0</u>	16.8	20.6	16.8	20.6	20.6	<u>25.3</u>	<u>47.1</u>	72.1
CH 8.8 bolt		ACHT8808C	ACHT8808L	---	---	ACHT8810C	ACHT8810L	---	---	ACHT8812C	ACHT8812L	---	---	ACHT8816C	ACHT8816L	ACHT8820C	---
	Tension [KN]	7.5	9.1	---	---	9.5	13.1	---	---	12.7	20.6	---	---	17.5	27.6	26.0	---
	Shear [KN]	8.28	<u>8.0</u>	---	---	12.8	<u>14.6</u>	---	---	16.8	20.6	---	---	20.6	<u>33.7</u>	60.9	---
CH stainless steel		ACHTA208C	ACHTA208L	---	ACHTA209L	ACHTA210C	ACHTA210L	---	ACHTA211L	ACHTA212C	ACHTA212L	---	ACHTA214L	ACHTA216C	ACHTA216L	ACHTA220C	---
	Tension [KN]	7.5	9.1	---	9.1	9.5	13.1	---	13.1	12.7	20.6	---	20.6	17.5	27.6	26.0	---
	Shear [KN]	<u>7.0</u>	<u>7.0</u>	---	<u>7.0</u>	<u>12.8</u>	<u>12.8</u>	---	<u>12.8</u>	16.8	<u>20.3</u>	---	<u>20.3</u>	20.6	<u>29.5</u>	<u>55.0</u>	---
CH projecting bolt		ACHE08C	---	ACHE09C	---	ACHE10C	ACHE10L	ACHE11C	ACHE11L	ACHE12C	ACHE12L	ACHE14C	ACHE14L	---	---	---	---
	Tension [KN]	7.5	-	7.5	-	9.5	13.1	9.5	13.1	12.7	20.6	12.7	20.6	-	-	-	-
	Shear [KN]	<u>6.0</u>	-	<u>6.0</u>	-	12.8	<u>11.0</u>	12.8	<u>11.0</u>	16.8	20.6	16.8	20.6	-	-	-	-


















































1KN ≈ 100 kg

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DIAMETER		8	9	10	11	12	14	16	20	25
CH inviolable bolt		ACHINB08C ACHINN08C	ACHINB08L ACHINN08L	---	---	ACHINB10C ACHINN10C	ACHINB10L ACHINN10L	---	---	---
	Tension [KN]	7.5	<u>10.1</u>	--	--	9.5	13.1	--	--	--
	Shear [KN]	<u>5.0</u>	<u>5.0</u>	--	--	<u>9.2</u>	<u>9.2</u>	--	--	--
CH flat head bolt		ACHTPL08C	ACHTPL08L	---	---	ACHTPL10C	ACHTPL10L	---	---	---
	Tension [KN]	7.5	9.1	--	--	9.5	13.1	--	--	--
	Shear [KN]	8.2	<u>10.1</u>	--	--	12.7	<u>18.3</u>	--	--	--
CH A2 stainless steel flat head bolt		ACHTPI08C	ACHTPI08L	---	---	ACHTPI10C	ACHTPI10L	---	---	---
	Tension [KN]	7.5	9.1	--	--	9.5	13.1	--	--	--
	Shear [KN]	<u>7.0</u>	<u>7.0</u>	--	--	<u>12.8</u>	<u>12.8</u>	--	--	--
CH eye bolt		ACHA08C	---	ACHA09C	---	ACHA10C	---	ACHA11C	---	ACHA12C
	Tension [KN]	<u>1.5</u>	---	<u>1.5</u>	---	<u>3.0</u>	---	<u>3.0</u>	---	<u>5.0</u>
	Shear [KN]	---	---	---	---	---	---	---	---	---
CH hook		ACHG08C	---	ACHG09C	---	ACHG10C	---	ACHG11C	---	ACHG12C
	Tension [KN]	<u>1.5</u>	---	<u>1.5</u>	---	<u>3.0</u>	---	<u>3.0</u>	---	<u>5.0</u>
	Shear [KN]	---	---	---	---	---	---	---	---	---

1KN ≈ 100 kg

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DIAMETER		8	9		10		11		12		14		16		20	25
CH forged eye bolt		ACHAFO08C				ACHAFO10C				ACHAFO12C						
	Tension [KN]	<u>4.2</u>	---	---	---	<u>11.4</u>	---	---	---	<u>15.8</u>	---	---	---	---	---	---
	Shear [KN]	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CH forged hook bolt		ACHGFO08C				ACHGFO10C				ACHGFO12C						
	Tension [KN]	<u>1.7</u>	---	---	---	<u>3.2</u>	---	---	---	<u>5.9</u>	---	---	---	---	---	---
	Shear [KN]	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CH A2 stainless steel forged eye bolt		ACHAA208C		ACHAA209C		ACHAA210C		ACHAA211C		ACHAA212C		ACHAA214C				
	Tension [KN]	<u>4.2</u>	---	<u>4.2</u>	---	<u>11.4</u>	---	<u>11.4</u>	---	<u>15.8</u>	---	<u>15.8</u>	---	---	---	---
	Shear [KN]	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CH A2 stainless steel forged eye bolt		ACHGA208C				ACHGA210C				ACHGA212C						
	Tension [KN]	<u>1.7</u>	---	---	---	<u>3.2</u>	---	---	---	<u>5.9</u>	---	---	---	---	---	---
	Shear [KN]	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

1KN ≈ 100 kg


* The characteristic resistance of an anchor is that with a 95% probability to be achieved in a tension test. It depends on the mean ultimate resistance, the number of tests and the scatter of the results.

** Concrete C20/25 per ENV206: characteristic resistance for a specimen ≥ 28 days old:

- Cylindrical sample ø 150 mm. x 300 height ≥ 200 N/mm²
- Cubic sample 150 mm. side ≥ 250 N/mm²


Underline and cursive values correspond to steel failure.

Characteristic resistance for tension and shear must be considered separately.

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7.2.- Recommended safety factors

SAFETY COEFFICIENTS		REDUCTION COEFFICIENT FOR RESISTANCES		INCREASING COEFFICIENT FOR LOADS
		CONCRETE FAILURE	<u>STEEL FAILURE</u>	
CH 6.8 bolt	Tension	1.80	---	1.4
	Shear	1.50	<u>1.25</u>	
CH 8.8 bolt	Tension	1.80	---	
	Shear	1.50	<u>1.25</u>	
CH stainless steel	Tension	1.80	---	
	Shear	1.50	<u>1.56</u>	
CH projecting bolt	Tension	1.80	--	
	Shear	1.50	<u>1.25</u>	
CH inviolable	Tension	1.80	<u>2.00</u>	
	Shear	---	<u>1.67</u>	
CH flat head	Tension	1.80	---	
	Shear	1.50	<u>1.50</u>	
CH stainless steel flat head	Tension	1.80	---	
	Shear	1.50	<u>1.56</u>	
CH eye bolt / hook	Tension	---	<u>1.50</u>	
	Shear	---	---	
CH forged eye bolt/ hook	Tension	----	<u>1.50</u>	
	Shear	---	---	
CH forged stainless steel eye bolt / hook	Tension	---	<u>1.87</u>	
	Shear	---	---	

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Designation: CH ANCHOR		Codes	ACHT, ACHT88, ACHTA2, ACHINB, ACHINN , ACHE, ACHA, ACHTPL, ACHTPI, ACHG, ACHAFO, ACHGFO	

8.- EXAMPLES OF USE

