



HI-CA



HI-CI



HI-TO



HI-ES



HI-AR



HI-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 medium loads.
- Anchor must be installed before the fixture.
- Zinc plated covering and stainless steel.

## APPLICATIONS

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

## SIZE RANGE

M6 – M16

## DRILL HOLE CONDITION



DRY



WET

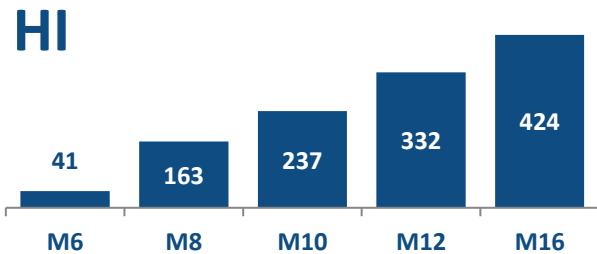


FLOODED

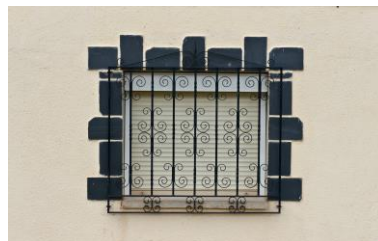
## BASE MATERIAL



## MAXIMUM LOADS RECOMMENDED IN NON-CRACKED CONCRETE [kg]



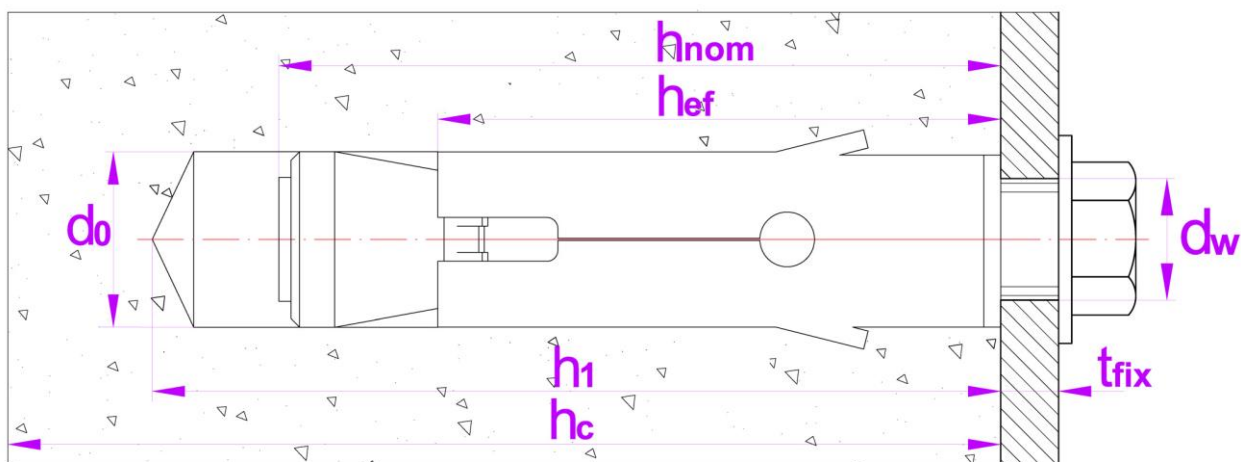
## APPLICATIONS EXAMPLES



1. RANGE						
ITEM	CODE	SIXE	PHOTO	COMPONENT	MATERIAL	COVERING
1	AHICA	M6 to M16		Capsule	Carbon steel, zinc plated $\geq 5\mu\text{m}$	
2	AHICI	M6 to M12		Capsule	A2 stainless steel	
3	AHITO	M6 to M16		Capsule Screw Washer	Carbon steel, zinc plated $\geq 5\mu\text{m}$	
4	AHIES	M6 to M16		Capsule Stud Washer	Carbon steel, zinc plated $\geq 5\mu\text{m}$	
5	AHIAR	M6 to M16		Capsule Eye Washer	Carbon steel, zinc plated $\geq 5\mu\text{m}$	
6	AHIGA	M6 to M16		Capsule Hook Washer	Carbon steel, zinc plated $\geq 5\mu\text{m}$	

2. INSTALLATION DATA

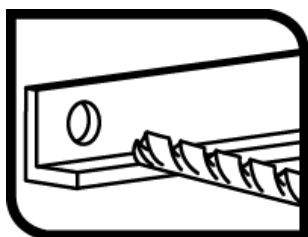
2.1 DRAWING



		M6	M8	M10	M12	M16
d <sub>0</sub> : drill diameter	[mm]	12	14	16	20	24
d <sub>2</sub> : washer diameter	[mm]	18	20	23,5	40	50
h <sub>nom</sub> : embedment depth	[mm]	45	50	60	70	100
h <sub>ef</sub> : effective depth	[mm]	30	35	45	55	75
h <sub>1</sub> : drill minimum depth ≥	[mm]	60	65	75	90	105
h <sub>c</sub> : base material thickness ≥	[mm]	100	100	100	110	140
d <sub>w</sub> : fixture diameter ≤	[mm]	7	9	12	14	18
t <sub>ins</sub> : installation torque	[Nm]	10	20	40	65	150
t <sub>fix</sub> : fixture thickness ≤	[mm]	3	8	17	22	17
s <sub>cr</sub> : critical spacing	[mm]	90	105	135	165	210
c <sub>cr</sub> : critical edge distance	[mm]	45	55	70	85	105
d <sub>3</sub> : eye bolt inner diameter	[mm]	10	11,6	14,5	17	23,5
e: hook bolt minimum gap	[mm]	8	10	12,5	16	19
S <sub>w</sub> : nut key	[mm]	10	13	17	19	24

**3. INSTALLATION PROCEDURE**

**3.1. CONCRETE INSTALLATION**



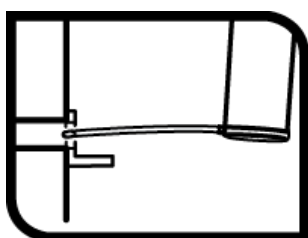
**1. DRILLING**

Check the concrete base is compact and porosity is insignificant.

Suitable for wet, dry or flooded drill holes.

Use drill in hammer mode. In case of hollow materials do not use the hammer mode to prevent damages inside the base material. Reduce the speed when are about to finish the drill.

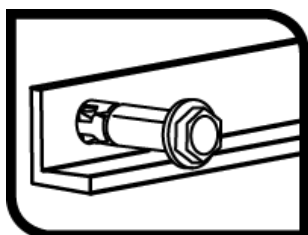
Drill to the specified diameter and depth values in previous table



**2. BLOW AND CLEAN**

Clear the drill holes completely of dust and fragments.

Use air pump and brush.

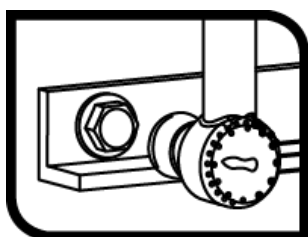


**3. INSTALL**

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 THE TORQUE**

Apply nominal installation torque using a torque wrench

#### 4. RESISTANCES

Resistances in concrete class C20/25 for an isolated anchor without spacing or concrete edge effects are indicated in the following table:

##### 4.1 CHARACTERISTIC RESISTANCE [kN]

Family	Code	Sizes	Tension	Shear
			N <sub>Rk</sub>	V <sub>Rk</sub>
HI-CA	AHICA0645	M6 x 45 Ø12	1,02	8,08
	AHICA0855	M8 x 55 Ø14	4,03	10,19
	AHICA1065	M10 x 65 Ø16	5,87	14,85
	AHICA1275	M12 x 75 Ø20	8,21	<u>33,72</u>
	AHICA1690	M16 x 90 Ø24	10,49	57,62
HI-CI	AHICI0645	M6 x 45 Ø12	<b>8,90</b>	<u>7,04</u>
	AHICI0855	M8 x 55 Ø14	<b>13,39</b>	<u>12,81</u>
	AHICI1065	M10 x 65 Ø16	<b>17,39</b>	<b>17,39</b>
HI-TO	AHITO0645	M6 x 45 Ø12	1,02	8,08
	AHITO0855	M8 x 55 Ø14	4,03	10,19
	AHITO1065	M10 x 65 Ø16	5,87	14,85
	AHITO1275	M12 x 75 Ø20	8,21	<u>33,72</u>
	AHITO1690	M16 x 90 Ø24	10,49	57,62
HI-ES	AHIES0645	M6 x 45 Ø12	1,02	<u>4,22</u>
	AHIES0855	M8 x 55 Ø14	4,03	<u>7,69</u>
	AHIES1065	M10 x 65 Ø16	5,87	<u>12,18</u>
	AHIES1275	M12 x 75 Ø20	8,21	<u>17,70</u>
	AHIES1690	M16 x 90 Ø24	10,49	<u>32,97</u>
HI-AR	AHIAR0645	M6 x 45 Ø12	1,02	-
	AHIAR0855	M8 x 55 Ø14	4,03	-
	AHIAR1065	M10 x 65 Ø16	5,87	-
	AHIAR1275	M12 x 75 Ø20	8,21	-
	AHIAR1690	M16 x 90 Ø24	10,49	-
HI-GA	AHIGA0645	M6 x 45 Ø12	1,02	
	AHIGA0855	M8 x 55 Ø14	4,03	
	AHIGA1065	M10 x 65 Ø16	5,87	
	AHIGA1275	M12 x 75 Ø20	8,21	
	AHIGA1690	M16 x 90 Ø24	10,49	

1 kN ≈ 100 kg

Values underlined and in italics show steel failure, **bold** values concrete failure and other indicate pull out failure.

4.2 DESIGN RESISTANCES [kN]					
Family	Code	Sizes	Tension	Shear	
			$N_{Rk}$	$V_{Rk}$	
HI-CA	AHICA0645	M6 x 45 Ø12	0,57	5,39	
	AHICA0855	M8 x 55 Ø14	2,24	6,79	
	AHICA1065	M10 x 65 Ø16	3,26	9,90	
	AHICA1275	M12 x 75 Ø20	4,56	<u>25,29</u>	
	AHICA1690	M16 x 90 Ø24	5,83	38,41	
HI-CI	AHICI0645	M6 x 45 Ø12	<b>4,95</b>	<u>4,52</u>	
	AHICI0855	M8 x 55 Ø14	<b>7,44</b>	<u>8,24</u>	
	AHICI1065	M10 x 65 Ø16	<b>9,66</b>	<b>11,60</b>	
HI-TO	AHITO0645	M6 x 45 Ø12	0,57	5,39	
	AHITO0855	M8 x 55 Ø14	2,24	6,79	
	AHITO1065	M10 x 65 Ø16	3,26	9,90	
	AHITO1275	M12 x 75 Ø20	4,56	<u>25,29</u>	
	AHITO1690	M16 x 90 Ø24	5,83	38,41	
HI-ES	AHIES0645	M6 x 45 Ø12	0,57	<u>3,38</u>	
	AHIES0855	M8 x 55 Ø14	2,24	<u>6,15</u>	
	AHIES1065	M10 x 65 Ø16	3,26	<u>9,74</u>	
	AHIES1275	M12 x 75 Ø20	4,56	<u>14,16</u>	
	AHIES1690	M16 x 90 Ø24	5,83	<u>26,38</u>	
HI-AR	AHIAR0645	M6 x 45 Ø12	0,57	-	
	AHIAR0855	M8 x 55 Ø14	2,24	-	
	AHIAR1065	M10 x 65 Ø16	3,26	-	
	AHIAR1275	M12 x 75 Ø20	4,56	-	
	AHIAR1690	M16 x 90 Ø24	5,83	-	
HI-GA	AHIGA0645	M6 x 45 Ø12	0,57	-	
	AHIGA0855	M8 x 55 Ø14	2,13	-	
	AHIGA1065	M10 x 65 Ø16	3,26	-	
	AHIGA1275	M12 x 75 Ø20	4,56	-	
	AHIGA1690	M16 x 90 Ø24	5,83	-	

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4.3 MAXIMUM LOADS RECOMMENDED [kN]					
Family	Code	Sizes	Tension	Shear	
			$N_{Rk}$	$V_{Rk}$	
HI-CA	AHICA0645	M6 x 45 Ø12	0,40	3,85	
	AHICA0855	M8 x 55 Ø14	1,60	4,85	
	AHICA1065	M10 x 65 Ø16	2,33	7,07	
	AHICA1275	M12 x 75 Ø20	3,26	<u>18,06</u>	
	AHICA1690	M16 x 90 Ø24	4,16	27,44	
HI-CI	AHICI0645	M6 x 45 Ø12	<b>3,53</b>	<u>3,23</u>	
	AHICI0855	M8 x 55 Ø14	<b>5,31</b>	<u>5,88</u>	
	AHICI1065	M10 x 65 Ø16	<b>6,90</b>	<b>8,28</b>	
HI-TO	AHITO0645	M6 x 45 Ø12	0,40	3,85	
	AHITO0855	M8 x 55 Ø14	1,60	4,85	
	AHITO1065	M10 x 65 Ø16	2,33	7,07	
	AHITO1275	M12 x 75 Ø20	3,26	<u>18,06</u>	
	AHITO1690	M16 x 90 Ø24	4,16	27,44	
HI-ES	AHIES0645	M6 x 45 Ø12	0,40	<u>2,41</u>	
	AHIES0855	M8 x 55 Ø14	1,60	<u>4,39</u>	
	AHIES1065	M10 x 65 Ø16	2,33	<u>6,96</u>	
	AHIES1275	M12 x 75 Ø20	3,26	<u>10,12</u>	
	AHIES1690	M16 x 90 Ø24	4,16	<u>18,84</u>	
HI-AR	AHIAR0645	M6 x 45 Ø12	0,40	-	
	AHIAR0855	M8 x 55 Ø14	1,60	-	
	AHIAR1065	M10 x 65 Ø16	2,33	-	
	AHIAR1275	M12 x 75 Ø20	3,26	-	
	AHIAR1690	M16 x 90 Ø24	4,16	-	
HI-GA	AHIGA0645	M6 x 45 Ø12	0,40	-	
	AHIGA0855	M8 x 55 Ø14	1,52	-	
	AHIGA1065	M10 x 65 Ø16	2,33	-	
	AHIGA1275	M12 x 75 Ø20	3,26	-	
	AHIGA1690	M16 x 90 Ø24	4,16	-	

1 KN ≈ 100 kg  
 Values underlined and in italics show steel failure, **bold** values concrete failure and other indicate pull out failure