



ATENA S.P.A. HAS A QUALITY MANAGEMENT SYSTEM CERTIFICATED BY RINA IN COMPLIANCE WITH ISO 9001

## METAL CELLS

### Logico

#### OPEN CELL ELEMENTS

Blades with mechanical coupling base 100 H100 | 120 | 150 mm  
100/120 mm pitch

#### BLADES MATERIAL

Steel | Aluminum 8/10

#### MODULE DIMENSION

100x1200 mm  
with adjustable blades at 90° without any tools

#### DOUBLE INTEGRATED STRUCTURE

"U" shaped and punched profile L=4050 in 15/10 galvanised steel  
Carriers in 8/10 black pre-painted steel  
Main carriers for module coupling L= 2400 mm  
Secondary carriers for blades hanging L= 1200 mm  
Wire steel springs for carriers hanging

#### HANGERS

Threaded bars and brackets for "U" profiles.  
Suspension to be evaluated according to the load per m<sup>2</sup>, project features and anti-seismic kits when supplied.

#### COLORS

Atena standard white and silver pre-painted steel  
Atena standard white and silver pre-painted aluminium  
RAL / NCS post-painting on both sides  
Also available with different colored blades

#### BLADES FINISHING

Plain surface

#### ACCESSORIES

Joints both for carriers and "U" profiles.

#### INCIDENCES

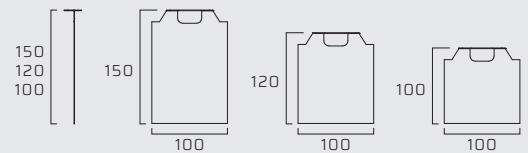
MODEL	STRUCTURE	LENGHT (mm)	INCIDENCE (pcs/mq)		WEIGHT Kg/m <sup>2</sup>
			Blades pitch 100	Blades pitch 120	
LOGICO	Secondary carrier	1200	8,33	6,94	5,46   4,55
	Main carrier	2400	0,35	0,35	0,37
	Main carrier joint	200	0,35	0,35	0,31
	"U" punched profile	4050	0,21	0,21	0,75
	"U" punched profile joint	200	0,21	0,21	0,04
	<i>Structure total weight</i>				

BLADES	PASSO	BLADES INCIDENCES		BLADES WEIGHTS		SYSTEM WEIGHT	
		(pz/trav.)	(pz/mq)	Ste. 8/10 Kg/m <sup>2</sup>	All. 8/10 Kg/m <sup>2</sup>	Ste. Blades Kg/m <sup>2</sup>	All. Blades Kg/m <sup>2</sup>
B100 H100	100	12	100	7,22	2,53	13,87	9,17
B100 H120	100	12	100	8,48	2,97	15,12	9,61
B100 H150	100	12	100	10,36	3,63	17,01	10,27
B100 H100	120	10	69,44	5,02	1,76	10,75	7,49
B100 H120	120	10	69,44	5,89	2,06	11,62	7,79
B100 H150	120	10	69,44	7,20	2,52	12,93	8,25

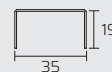
For specific project requirements, the hanger incidence may vary. Please check with the Atena S.p.A technical department.



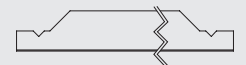
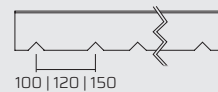
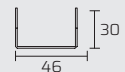
#### Sections



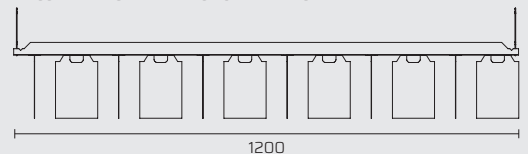
#### PRIMARY CARRIER



#### SECONDARY CARRIER











#### SECONDARY CARRIER MODULE WITH GRAFTED BLADES














#### EXAMPLE OF COMPOSITION WITH DIFFERENT HEIGHTS

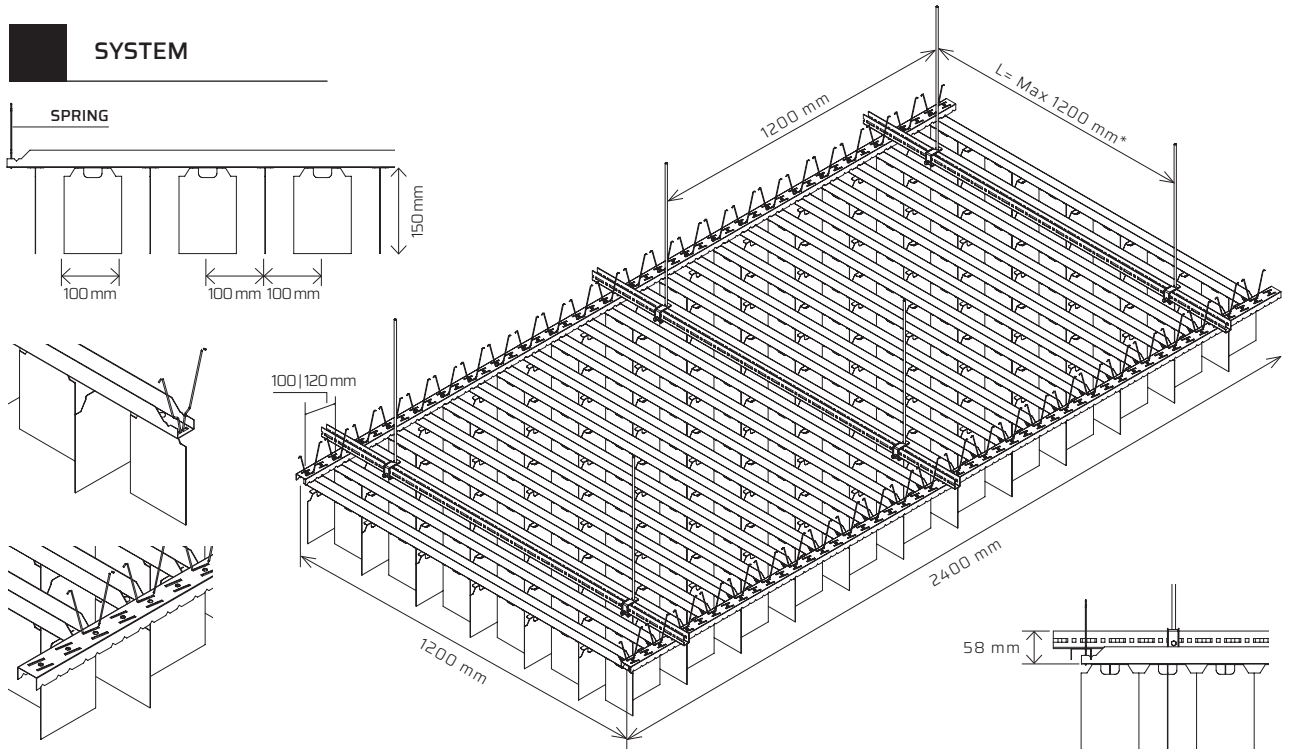


## TECHNICAL PERFORMANCES

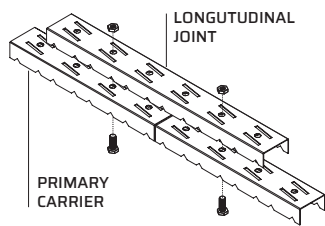
	<b>FLEXION RESISTANCE</b>	Maximum span mm 1200 - <b>1 Class</b> EN13964
	<b>CORROSION RESISTANCE</b>	Galvanized steel products: <b>C2 Class</b> Pre-painted galvanized steel products: <b>C3 Class</b> Post-painted galvanized steel products: <b>C4 Class</b> Pre/post-painted aluminum products: <b>C5 Class</b>
	<b>(RH%) RELATIVE HUMIDITY RESISTANCE</b>	Galvanized steel products: <b>≤ 90%</b> Pre/post-painted galvanized steel products: <b>&gt; 90%</b> Stainless steel and aluminium products: <b>&gt; 90%</b>
	<b>FIRE REACTION</b> UNI EN 13501-1	<b>A1 Class</b>
	<b>CLEANING</b>	Wet cloth with warm water and neutral non-abrasive detergents.
	<b>COLOR STABILITY</b>	In compliance with technical tolerances standard. Test according the ΔE - CIELab method. ISO 7724-2 (3)
	<b>PAINTED ITEMS DURABILITY</b>	C Class EN13964
	<b>GALVANIZED ITEM DURABILITY</b>	B Class EN13964

<b>SUSTAINABILITY</b>		Data declared according to ISO 14021 standard and validated during the EPD verification. Type III environmental labelling.	
	<b>RECYCLED PRODUCT CONTENT</b>	Compliance CAM 2.5.8	 <b>GREEN BUILDING</b>
		Requirements compliance: <b>LEED®   BREEAM®   WELL™</b> CAM 1.3.4	
	<b>MATERIAL DEMOLITION AND REMOVAL</b>	Non hazardous waste in compliance with CAM 2.6.2.	 <b>GREEN ENERGY</b>
		Renewables prevalent use CAM 1.2	
	<b>DISASSEMBLY</b>	Steel   Aluminium 100% recyclable CAM 2.6.2   2.4.14	 <b>WASTE MANAGEMENT</b>
		Compliance CAM 2.6.2.	
	<b>ACOUSTIC PERFORMANCE</b>	Not applicable	 <b>BIM DESIGN AND MAINTENANCE PLAN OF THE WORK</b>
		CAM 2.7.3   2.4.13	
	<b>SVHC PRESENCE</b>	Compliance CAM 2.5.7	 <b>FORMALDEHYDE</b>
		Absent E1 Class CAM 2.5.1.   3.2.8	
	<b>RELEASE OF DANGEROUS SUBSTANCES</b>	None CAM 2.5.1.   3.2.8 EN13964	<b>FORMALDEHYDE</b>
		Requirement 2.5.1 - Compliance on all products. Rewarding requirement 3.2.8 - Compliance for post painted products with "Gold Leaf" high performance coating.	

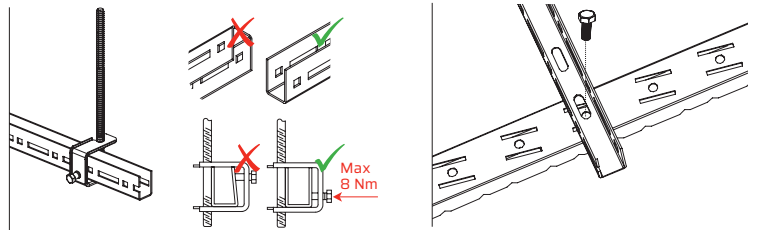
## SYSTEM



## DETTAGLIO GIUNZIONE



## SUSPENSION DETAILS



## COMPONENT INCIDENCES

ID	DESCRIPTION	INCIDENCE (with blades 100 pitch)	INCIDENCE (with blades 120 pitch)
1	PRIMARY CARRIER L=2400 mm	0,35 pcs/sqm	0,35 pcs/sqm
2	PRIMARY CARRIER JOINT	0,35 pcs/sqm	0,35 pcs/sqm
3	SECONDARY CARRIER 100   120 PITCH L=1200	8,33 pcs/sqm	6,94 pcs/sqm
4	BLADES ON SECONDARY CARRIER 100   120 PITCH	12 pcs/module	10 pcs/module
5	PUNCHED "U" SHAPED PROFILE	0,21 pcs/sqm	0,21 pcs/sqm
6	PUNCHED "U" SHAPED PROFILE JOINT	0,21 pcs/sqm	0,21 pcs/sqm
7	Ø6mm THREADED BAR AND BRACKET HANGING	1 pcs/sqm	1 pcs/sqm

Verify **interaxes** and **hanger models** according to the load at m<sup>2</sup> the antiseismic report and particular conditions.

The **fastening** must be checked with regard to the loads, the anchoring base features and the installation accuracy, in order not to compromise the stability of the metal ceiling system. Lightings, accessories and systems must not weigh on the metal ceiling system, but must be independently suspended.

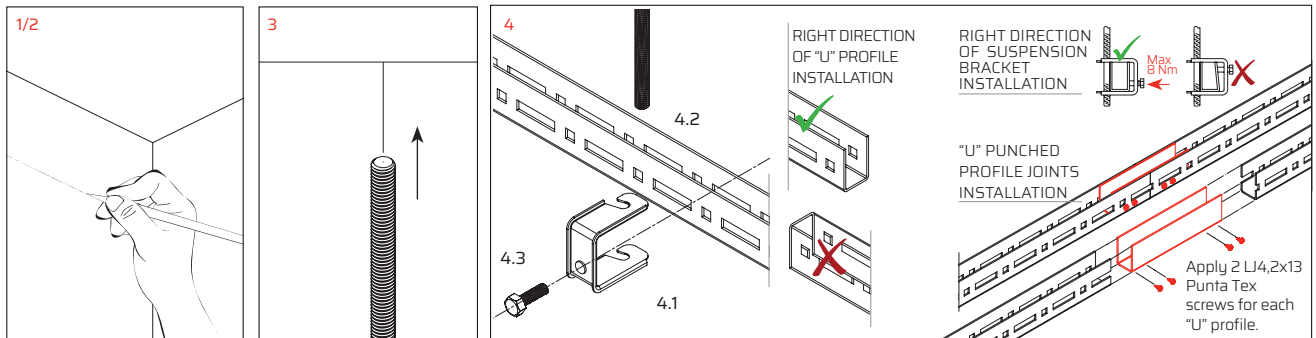
## ANTISEISMIC EQUIPMENTS

According to the NTC 2018, when the non-structural element is assembled on site: structure designer is in charge of identifying the request, the supplier and / or installer is in charge of providing elements and connection systems of adequate capacity, the project manager is in charge of verifying the accuracy of installation". Therefore it is necessary to communicate to Atena the stresses acting on the false ceiling (seismic acceleration, wind load,..) in order to allow a proper calculation of the single elements. For more information on Atena's anti-seismic systems, contact the reference sales offices. The documentation on the site is for example only. (NTC 2018 § 7.2.3-7.2.4).

**Continuous open cell false ceilings are not suitable for use in seismic risk areas.**

**Where anti-seismic open cell ceilings are required, it is recommended to choose the option with BASE 4 panels and EASY ANTISEISMIC base 24 T structure and to contact the Atena S.p.A. technical department to define the appropriate sizing.**

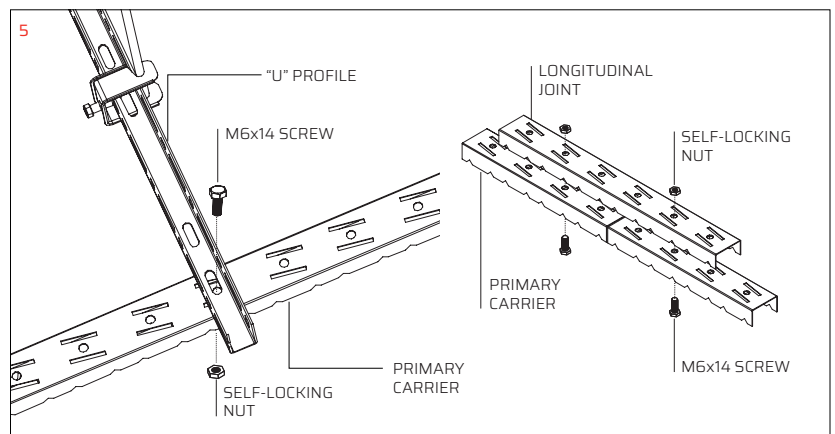
## SCHEMA DI INSTALLAZIONE



1/2 Draw the lines of the perimeter frame. Determine the height of the ceiling with a level and mark it with a string.

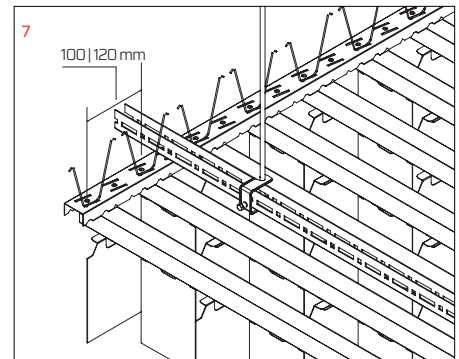
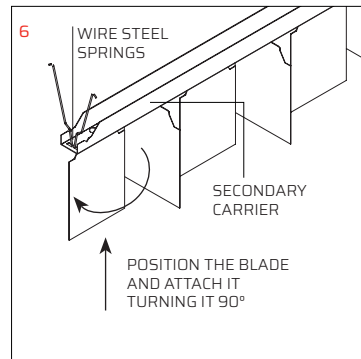
3 Prepare the suspension by anchoring the threaded bars to the deck with a maximum interaxe of 1200x1200 mm\*.

4 Hang the bracket to "U" profile, then hook it.  
Where applicable, fix the longitudinal joints using 4 LJ4.2x13 Punta Tex self-drilling screws.



5 Fix the primary carriers for modules coupling to the punched "U" profiles using 2 M6x14 screws and self-locking nuts with an interaxe of 1200 mm.  
Where necessary, apply the longitudinal joints, fixing them using 2 M6x14 screws and self-locking nuts.

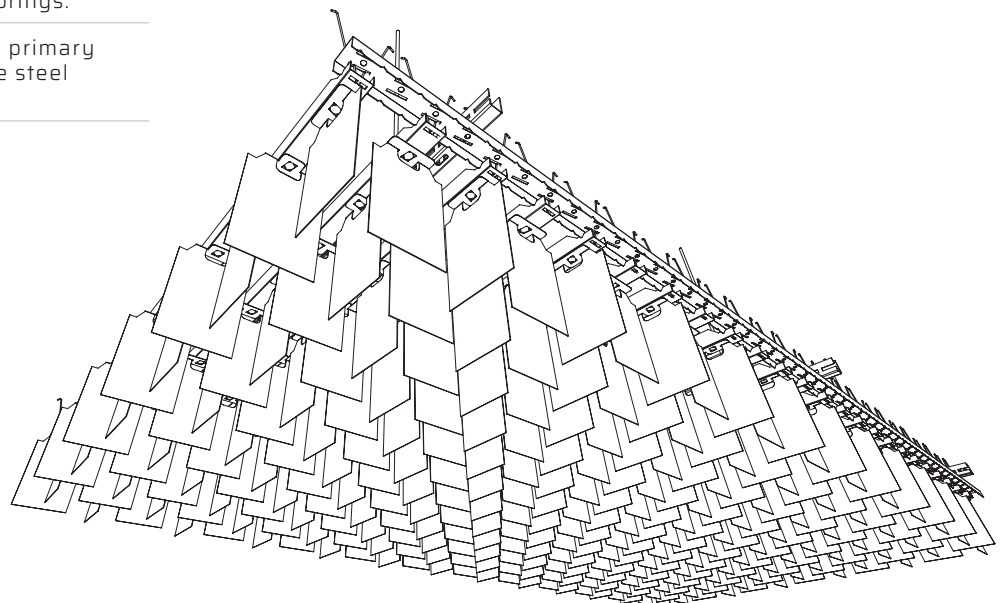
6 Build the modules by hooking the mechanical coupling blades to the secondary carriers, according to the desired arrangement.  
Insert the wire steel springs.



7 Fix the modules to the primary carriers using the wire steel springs.

\*Verify **interaxes** and **hanger models** according to the load at m<sup>2</sup> the antiseismic report and particular conditions.

The **fastening** must be checked with regard to the loads, the anchoring base features and the installation accuracy, in order not to compromise the stability of the metal ceiling system.  
Lightings, accessories and systems must not weigh on the metal ceiling system, but must be independently suspended.



## CLEANING, MAINTENANCE AND REMOVAL INSTRUCTIONS

Cleaning and maintenance require some attention and care even though are easy to make and don't take much time. It is necessary to use warm water and neutral and non-abrasive detergents. Metal ceilings maintenance usually refers to: placement, alignment or replacement of damaged or broken modules (panels, staves, baffles, open cells) which can be also removed for restoration or maintenance of the system below.

In order to ensure an excellent results, the maintenance work must be carried out by specialised workers trained with technical data sheets about setting, removal and maintenance of the metal ceilings. Using inadequate tools can damage the bearing structure, causing adherence loss or even accidental modules fall. All the maintenance intervention must follow the technical data sheet instructions or specific information when provided and every diversity has to be promptly reported. Each worker charged with maintenance operation must carefully remove the modules, perform the intervention and do not alter the metal ceiling structure, the hanging system and the connection between these elements.

When the maintenance is over, modules must be installed again, checking that these are well hooked or positioned if they are lay-in/on a visible structure and that the flatness of the assembly is guaranteed. Any difference in level is caused by wrong installation and, for this reason, the system must be quickly controlled.

## STORAGE MODE

Materials supplied by Atena S.p.A. shall be maintained in good condition from purchase to installation. Materials must be stored in a closed, clean and dry site, not under direct light. Atena S.p.A. protects its products with resistant packaging under normal handling. Please handle packages with care to avoid shocks and inappropriate handling that might damage what is provided. The manual handling must be carried out with caution and in compliance with safety regulations at work. For carriage of packaged products on pallets, provide a mechanical transport to avoid damages or risks resulting from inadequate transport.

## SUSTANABILITY AND SAFETY

All Atena metal ceilings are made with products that do not release dangerous substances into the environment including formaldehyde. Coating and / or sublimation are free from Volatile Organic Compounds (VOC). The products will be recyclable and as a whole manufactured using recycling processes materials, the recycled material percentage is calculated for each type of product, in compliance with CAM requirements and declared according to the ISO 14021 standard. The metal ceiling systems contribute to getting credits for the certification of building design, construction and sustainable and efficient management according to the LEED protocol and to the BREEAM and ITACA cross-cutting aspects.

## FASTENERS

Atena supplies the hangers and accessories such as screws, washers and nuts to connect the elements of its own supply only. Lightings, accessories and systems must not weigh on the metal ceiling system, but must be independently suspended. The fastening must be checked with regard to the loads, the anchoring base features and the installation accuracy, in order not to compromise the stability of the metal ceiling system.

## **NORMATIVE REQUIREMENTS**

Atena S.p.A. has adopted a quality management system in compliance with the UNI EN ISO 9001 standard.

All Atena metal ceilings are produced for indoor applications, in compliance with Technical Standards for Construction NTC 2018 and relative circular requirements, the Minimum Environmental Criteria CAM (Ministerial Decree 11 October 2017), the specific technical standards applicable UNI EN 13964 and 14195. Each Atena S.p.A. product has its own DOP (CE Declaration of Performance) according to the European Law for construction products 305/2011.

The performance properties declared in D.o.P. Declarations of Performance provided by Atena S.p.A. are guarantees, if the metal ceiling is installed in the environment conditions for which it has been conceived and the recommended maintenance is executed.

Precisely, metal ceilings are non-structural construction elements therefore they must be properly sized in order to withstand with adequate safety against all actions that can stress the building, such as, but not limited to, earthquakes, winds, thermal expansion, humidity, etc., in relation to the installation site, the building use and the project technical features. Check with Atena technical department the specific environmental conditions to which the product will be subjected, in order to choose the most suitable materials for the installation site.

In the case of outdoor installation, the metal ceilings are not covered by an harmonized technical standard, therefore they are not subject to the regulation 305/2011. They are in any case subjected to the NTC 2018 and to the safety checks of civil constructions, and must be properly sized according to the installation site environmental conditions, to the structural features and to the project specifications.

Independently by information, suggestions, advices and technical opinions exchanged between the parts, during pre-agreement negotiations Atena S.p.A. will manufacture the products only according to the orders received and the technical drawings/projects attached, having no responsibility on what is not indicated in the order, in the technical drawings or in the project.

All rights are reserved and subject to industrial protection. Changes to the illustrated products, even if partial, can be carried out only if explicitly authorized by the company Atena S.p.A. All data provided and illustrated are indicative and Atena S.p.A. reserves the right to make changes at any time according the business needs and the production processes.

The information contained in this following sheet must to be considered updated at the date of writing. Changes in product performance occurred after that date may affect the accuracy of the data sheet: it is compulsory for users to make sure to have the latest version of this sheet.

## **WARRANTY**

Atena S.p.A. as a manufacturer, covers the manufacturing defects of its products; Except as provided in the specific warranty extensions, the warranty period is one year from delivery of goods. Any complaints must be communicated in accordance with the sales terms and conditions.

The Atena metal celings system components have been conceived for this purpose only, any other use is considered improper.