



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

Structures for plasterboard ceiling system

27x60 "C" profiles and
28x43 DUPLEX carriers



DESCRIPTION

Structures for plasterboard ceiling system made up of 60x27 "C" channels and 28x43 Duplex carriers.

MATERIALS AND WEIGHTS

"C" channels:

27x60x27 mm of Standard Zinc | Aluzink | Zinc-Magnesium
Lenght 3000 | 4000 mm
Weight 0,53 kg/lm

Carriers:

28x43x28 mm of 7/10 galvanised steel
Lenght 3000 | 4000 mm
Weight 0,604 kg/lm

ANTI-SEISMIC EQUIPMENTS

Atena Antiseismic Kit for $\leq 1,2$ m plenum
Atena Antiseismic Kit for $> 1,2$ m high plenum

HANGERS

Duplex/Prim hook with hanger with eye
Suspensions to evaluate according to the load at m^2 , to the project features and antiseismic requirements.















WALL ANGLES

28x30x28 mm "U" channel
of Standard Zinc | Aluzink | Zinc-Magnesium
Lenght 3000 | 4000 mm
Weight 0,35 kg/lm

ACCESSORIES

"C" channels and carrier joints

TECHNICAL PERFORMANCES

	CORROSION RESISTANCE	Galvanised steel products: Classe C2
	(RH%) RELATIVE HUMIDITY RESISTANCE	Galvanised steel products: ≤ 90%
	FIRE REACTION UNI EN 13501-1	Classe A1
SUSTAINABILITY Data declared according to ISO 14021 standard and validated during the EPD verification. Type III environmental labelling.		
	RECYCLED PRODUCT CONTENT	Compliance CAM 2.5.8
	GREEN BUILDING	Requirements compliance: LEED® BREEAM® WELL™ CAM 1.3.4
	MATERIAL DEMOLITION AND REMOVAL	Non hazardous waste in compliance with CAM 2.6.2.
	GREEN ENERGY	Renewables prevalent use CAM 1.2
	DISASSEMBLY	Steel Aluminium 100% recyclable CAM 2.6.2 2.4.14
	WASTE MANAGEMENT	Compliance CAM 2.6.2.
	ACOUSTIC PERFORMANCE	CAM 2.4.11
	BIM DESIGN AND MAINTENANCE PLAN OF THE WORK	CAM 2.7.3 2.4.13
	SVHC PRESENCE	Compliance CAM 2.5.7.
	FORMALDEHYDE	Absent E1 Class CAM 2.5.1. 3.2.8
	RELEASE OF DANGEROUS SUBSTANCES	None CAM 2.5.1. 3.2.8 EN13964

Requirement 2.5.1 - Compliance on all products.
Rewarding requirement 3.2.8 - Compliance for post painted products with "Gold Leaf" high performance coating.

MATERIAL FEATURES OF "C" PROFILES

STANDARD ZINC

- Zinc coating: from 120 to 140 gr/m²
- Nominal thickness: 0,6 mm
- Thickness tolerances: +/- 10% (UNI 10143)
- Tensile strength: according to UNI 10346 extract.

Hot galvanised steel coils with zinc capping are characterized by excellent corrosion resistance and excellent processing features.

ALUZINK

- Aluminium and zinc alloy capping (ALUZINK):
aluminium 55% silicon 1,5% zinc 43,5%
- Nominal thickness: 0,6-0,8 mm
- Thickness tolerances: +/- 10% (UNI 10143)
- Tensile strength: according to UNI 10327 extract.

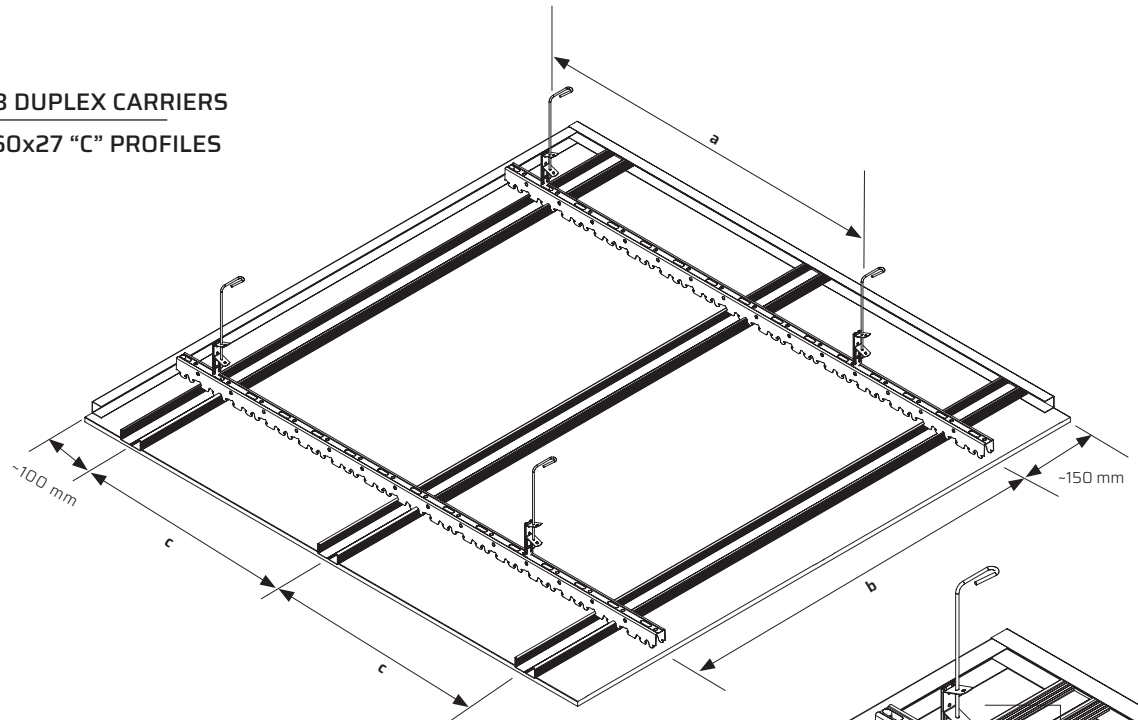
The chemical composition of Aluzink is excellent to improve corrosion resistance. The hot-galvanized steel coils with aluminum and zinc capping are characterized by very high corrosion resistance and excellent processing features. The hot-galvanized aluminum and zinc material is manufactured by hot immersion in continuous-cycle systems which, compared to the traditional zinc coating, offer higher protection against corrosion.

ZINC-MAGNESIUM

- Zinc-Magnesium (ZM90): aluminium 3,5%
magnesium 3%
- Nominal thickness: 0,6-0,8 mm
- Thickness tolerances: +/- 10% (UNI 10143)
- Tensile strength: according to UNI 10327 extract.

The chemical composition of Zinc-Magnesium is excellent to improve corrosion resistance. 3% magnesium is essential to provide stability and durability to the upper coating and it is an effective protection against corrosion. The Zinc-Magnesium is an hot-dip galvanized material manufactured by hot immersion in continuous cycle systems. The addition of aluminium and magnesium in the zinc tank increases the anti-corrosion resistance of the coating zinc layer.

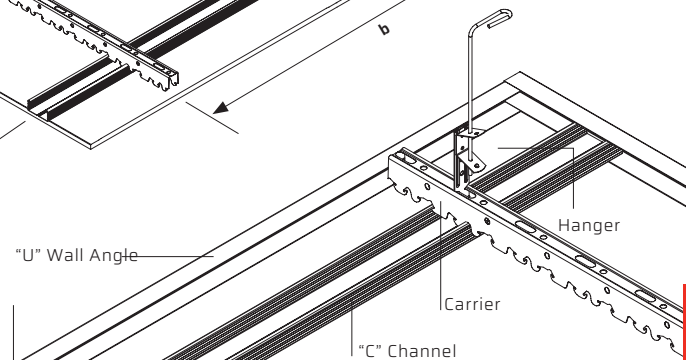
28x43 DUPLEX CARRIERS AND 60x27 "C" PROFILES



CALCULATIONS

Verify **interaxes** and **hanger models** considering the project features, the load at m^2 , the antiseismic report and **the laboratory tests of the plasterboard manufacturer**. 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.

NOTE: FOR CORRECT SIZING, CHECK THE TEST REPORTS OF THE PLASTERBOARD MANUFACTURER.



COMPONENT INCIDENCES

ID	DESCRIZIONE	INCIDENZA*
1	PLASTERBOARD PANEL	1,05 pcs/smq
2	28X43 DUPLEX CARRIER	0,85 lm/smq
3	DUPLEX CARRIER JOINT	0,25 pcs/smq
4	27X60X27 "C" CHANNEL	2 lm/smq
5	"C" CHANNEL JOINT	0,50 pcs/smq
6	HANGER	1,1 pcs/smq
7	"U" CHANNEL WALL ANGLE	0,8 lm/smq

* Component incidences calculated considering profiles with a length of 4000 mm, installed with the following interaxes: primary structure 1200 mm, secondary structure 500 mm.

PRIMARY STRUCTURE INTERAXES

CARRIERS INTERAXE in mm	SUSPENSION INTERAXEX in mm Load class kg/m^2	
	≤ 15	$15 < p \leq 30$
500	1200	950
600	1150	900
700	1100	850
800	1050	800
900	1000	800
1000	950	750
1100	900	750
1200	900	-

The hanger must be distributed considering a minimum number of 0.8 hangers per m^2 , taking into account the allowable load, determined starting from the breaking load with a safety coefficient according to the technical indications provided by the manufacturer; the hanger must withstand the loads foreseen in point 5.3.2.1 of Uni 11424.

The first hanger must be placed on the head of the primary profile; in standard condition, the maximum distance between the "U" shaped perimeter wall angles and the first hanger must not be greater than 600 mm. §5.3.4.2 Uni 11424.

ANTISEISMIC EQUIPPMENTS

Check with the designer of the structure the need to apply the anti-seismic kits. For further information on Atena anti-seismic systems, contact the sales offices. All documents published on line are intended as an example. The sizing of an anti-seismic false ceilings requires a specific calculation based on the characteristics of the false ceiling to be applied, the building features, and the place of installation. It is therefore necessary to request specific sheets and reports. (NTC 2018 § 7.2.3-7.2.4)

"C" PROFILES MAX INTERAXE

SHEETS THICKNESS	WITHOUT ACCESSORY LOADS
$\geq 12,5$ mm	500 With transversely screwed sheets to the metal structure
Lower thicknesses not recommended	400 With lengthwise screwed sheets to the metal structure

Maximum distance of the secondary profile from the side wall: 100mm §5.3.4.2 Uni 11424.

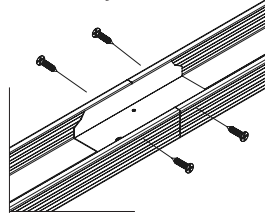
PROFILES JOINTS

§ 5.3.5 UNI 11424

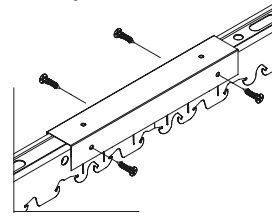
When the dimensions of the room in which the false ceiling must be installed exceed the profiles length, a suitable connection must be made, in compliance with the following requirements:

- » the joints must be placed staggered between profiles, so that the connections are not aligned.
- » the mechanical resistance must at least be equivalent to profile one in correspondence with the sections in use.

"C" Channel joint



Carrier joint



To fix the joints, use 4 self-drilling screws with drill bit and round head "LJ4,2x13 Punta Tex"
2 screws for each "C" channel / carrier.
For fixing a suitable punching tool can be used.

EXPANSION JOINTS

§ 5.3.5 UNI 11424

The false ceiling must be interrupted by expansion joints, suitable to allow differential movements. The joints must be made:

- » In correspondence with the expansion joints of the building bearing structure;
- » when supports of different nature or different behavior are present;
- » when false ceilings are very large; in this case the joints must be made approximately every 12 or 15m, according to the instructions provided by the plasterboard manufacturer.

PLASTERBOARD SHEETS FIXING

The fixing elements must comply with the provisions of UNI EN 14566. To fix the sheets to the profiles, use self-drilling screws with countersunk heads. Use countersunk self-tapping screws with cross recess and nail tip, classified at least in "class 24" for corrosion protection (UNI EN 14566).

The length of the screw must be at least equal to the thickness of the sheet plus 1 cm.
Screw interaxe 170 mm approx.

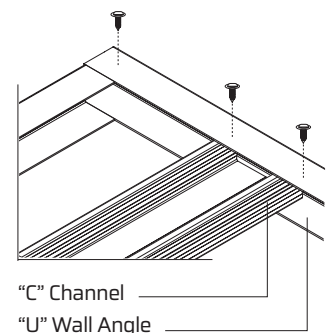
SHEETS THICKNESS in mm	SREW LENGHT in mm
12,5 - 15	25
18 - 25	35
2x12,5	25 + 35
2x15	25 + 45
18 + 15	35 + 45
2x20 / 25+18	35 + 55

The plasterboard sheet fixing above indicated must be considered as an example and must be checked with the plasterboard manufacturer; the type of screws must be suitable for use as per "Table 2" § 4.3.UNI 11424.

LAYING INSTRUCTIONS

1. After **checked with the designer** that the **system has been appropriately sized**, proceed with the installation of the structure, then, in relation to the type of installation, to the profiles model and their orientation trace both the hangers and structure, marking the alignments with a laser or a wire.
2. **Fix the wall angles** using suitable fastening for the anchoring base. Fixing distance 400-500 mm. Secure the profiles together at the corners;
3. **Fix the hangers to the slab**: type of hangers, interaxes and anchors must be sized and verified, according to the project features, which must also take into account any hooks for heavy loads. The first hanger must be placed on the head of the primary profile; in standard conditions, the maximum distance between the "U" wall angle and the first hanger must not be greater than 600 mm.
4. **Hook the primary profiles to the hangers** and secure the connection between the profiles using the suitable longitudinal joints.
5. **Hook the secondary profiles to the primary ones** and secure the connection between the profiles using the suitable longitudinal joints. Fix the "C" channels to the wall angles
6. **Proceed with plasterboard fixing.**

To fix the metal profiles to each other, use self-drilling screws with drill bit and round head "LJ4,2x13 Punta Tex". For fixing a suitable punching tool can be used.



PACKAGING AND STORAGE

Atena profiles for dry construction systems are packaged in bundles, and secured with plastic straps. These are placed in bundles secured with iron straps. The accessories are supplied in cardboard boxes. Atena Steel Strong B43 structures for plasterboard are packaged in brown cardboard boxes with white straps and delivered on pallets secured with iron straps. Materials supplied by Atena S.p.A. shall be maintained in good condition from purchase to installation. 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. Products are not provided with protective packaging for external storage, for this reason, materials must be stored in a closed, clean, dry site and not under direct light. In case of outside storing goods must be protected with a complete coverage that allows a total protection from the weather. To assure the necessary ventilation, materials must also be inclined stored avoiding direct contact between the surfaces.

INDICATIONS

All data reported in data sheets, in catalogs concerning lengths, distances, profile thicknesses and incidences, are maximum nominal values, written in millimeters and depend on the architectural features of the building, the fire protection requirements and the technical standards in relation to the intended use of the building. The evaluation of these parameters must be carried out by a qualified technician.

SUSTANABILITY AND SAFETY

All Atena components for dry construction system 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. Atena products 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. 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.

NORMATIVE REQUIREMENTS

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

All products supplied by Atena S.p.A. for dry construction systems are CE marked and therefore comply with laws regulating commerce within the European Community. Products are made according to EN 14195 harmonized European standards and satisfy the attestation of conformity established. According to European Construction Products Regulation 305/2011, Atena's products are supplied with the telematic Declaration of Performance DOP containing information about reaction to fire, release of dangerous substances, thickness, durability, load and yield strength as established in EN 14195:2005 ZA Annex.

CE mark and all information to be declared according to EN 14195 are printed directly on

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

Precisely non-structural construction elements 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.

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 ceilings system components have been conceived for this purpose only, any other use is considered improper.