

Aluminum

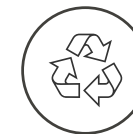
Columns



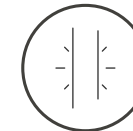
salvi
lighting barcelona



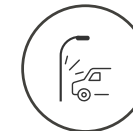
Our columns of aluminum



CIRCULAR ECONOMY
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**EASY TO INSTALL, LIGHTWEIGHT AND
RESISTANT**
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Economy circular

100% recyclable material

L'alumini is the most abundant element in Terrestrial Escorça after the oxygen source and the silicone and it is recycled infinitely sense Perdre cap de les Seves Grans Facultats.

The columns of the circular economy will make you a leading role for its Capacitat de recycling. Thanks to its design and material, they are 100% recyclable and allow them to extend their useful life during Molt temps. Furthermore, unlike many materials, they do not lose quality in the Procés.

The Utilització de l'alumini as a material for the columns of lighting is a great Avantatge with respect to Altres components where Molt is valued with residu, which supposes a great economic incentive that needs a lower environmental cost in the 'Extracted from Matèries primeres i su industrialització.

Els seus principals virtuts són: la seva lleugeresa (on a terç de l'pes de l'coure i l'acer), resistance to corrosion (characteristic molt useful for those products that require protection and conservation), high mechanical resistance , it is a conductive and heat bon, it is not magnetic or toxic, it is a reflector of llum (suitable for the installation of lighting), waterproof and toilet, ductile molt. The essential and essential characteristic is that it is a 100% recyclable metall, that is to say, it is possible to recycle as many crops as it is common to keep totes les seves particularitats.

75% of l'alumini produced in 100 years is troba faces ús gràcies a l'reciclat. The recycling tax from l'alumini to Europe is molt alta i is distributable by 50% in packaging, 85% in construction and 95% in transport. Així is produced in 4 million tons of aluminum recycling. It is a bar of tots to improve the sustainability indexes that affect the climate change and preserve the resources of our planet.

Per això every tot performs a follow-up of studies related to the different main sustainability indicators. But there is a need for a sincere commitment on the part of the governments to develop, at the cost of the industry, the most efficient environmental policies for such a front to the climatic canvi. The relationship between the industry and the governments must be complicity, and must be based on the collaboration at the time of defining the development processes. Al seu torn, the governs have the deure to inform and raise awareness of the people, from the manufacturers to the consumers, of the importance of which is the most convenient mesures in each stage of the life of the aluminum.

A material respectuós amb media environment, idoni per al món en què vivim.



Resistant to corrosion

Antioxidant

MATERIALS

L'alumini is a chemical element, with the symbol A atomic name 13. It is tracta d'un metall no ferromagnètic. With metall s'extreu only of l'mineral conegut amb the name of bauxite, but it transformed first into alumina mitjançant the procés Bayer i tot Seguit in aluminum metàl·lic mitjançant electròlisi.

This metall posseeix a combination of properties that the fan molt useful in mechanical engineering, such as high density (2,700 kg / m³) and high resistance to corrosion. Mitjançant aliatges adequades is to significantly increase the mechanical resistance (fins als 690 MPa). It is a good conductor of heat, it is a mechanism with ease and it is relatively cheap. Per tot això es des mitjans de segle XX el metall que s'utilitza està de l'acer.

The aliatge that emprem en les nostres columnes d'extrusió d'alumini is l'EN AW-6063, d'high resistance to corrosion and amb great mechanical robustness, aptes per a la seva instal·lació in coastal areas insular and peninsulars , supporting the high salinity and are suitable for the most demanding applications.

ALLOY ON AW-6063

Chemical composition according to s/ EN 573-3

	Si	Fe	Mn	Mg	Cu	Cr	Zn	Ti
Min	0,30	0,1	-	0,35	-	-	-	-
Max	0,60	0,30	0,10	0,60	0,10	0,05	0,15	0,10

Mechanical characteristics guaranteed according to EN 755-2					
Resistance state	e (mm)	Forc tensile Rm (MPa)	0.2 % límit elàstic Rp (MPa)	Elasticity	
				A (%)	A50 (%)
T4	-	120	60	16	14
T66	0<e<3 3<e<25	215 195	150 160	8 8	6 6

Mechanical characteristics socks			Mechanical characteristics of Mitjanes after welding		
Rm	Rp	A (%)	HB	Rm	Rp
160	80	20	40	16	14
T66	0<e<3 3<e<25	215 195	150 160		



ANTIOXIDANT



WITHOUT MAINTENANCE



100% RECYCLED



PASSIVE SECURITY





Security passive

Your safety is the most important

The European regulation EN-12767 specifies the behavioral requirements and defines levels in terms of passive safety aimed at reducing the severity of injuries to vehicle occupants in the event of impact with permanent support structures of road equipment.

Injuries are caused by different factors, including the lack of stopping distance, high deceleration forces experienced by crash victims, intrusion of objects into the passenger compartment, deformation of the survival space, passengers without belts who are displaced inside the vehicle and occupants thrown out of the vehicle. The severity of injuries also depends on the speed of the vehicle and the shape, size, and stiffness of the object it crashes into.

All the studies consulted agree that in the event of an impact, the severity of the accident for the occupants of a vehicle depends on the effectiveness of the supporting structures of the road equipment. Therefore, based on safety reasons, studies recommend the installation of equipment manufactured so that, in the event of an impact with a vehicle, they deform or break, so that they absorb energy.

The energy absorption categories are: high energy absorption (HE), low energy absorption (LE) and no energy absorption (NE). In the case of our aluminum columns, they are prepared for low energy absorption (LE) in the event of an accident. This means that passengers are exposed to less deceleration, and the passenger compartment that surrounds passengers is subject to less loads and will receive less energy. If the absorption category were high absorption (HE), the column would receive all the energy of the impact, which could cause serious injuries.

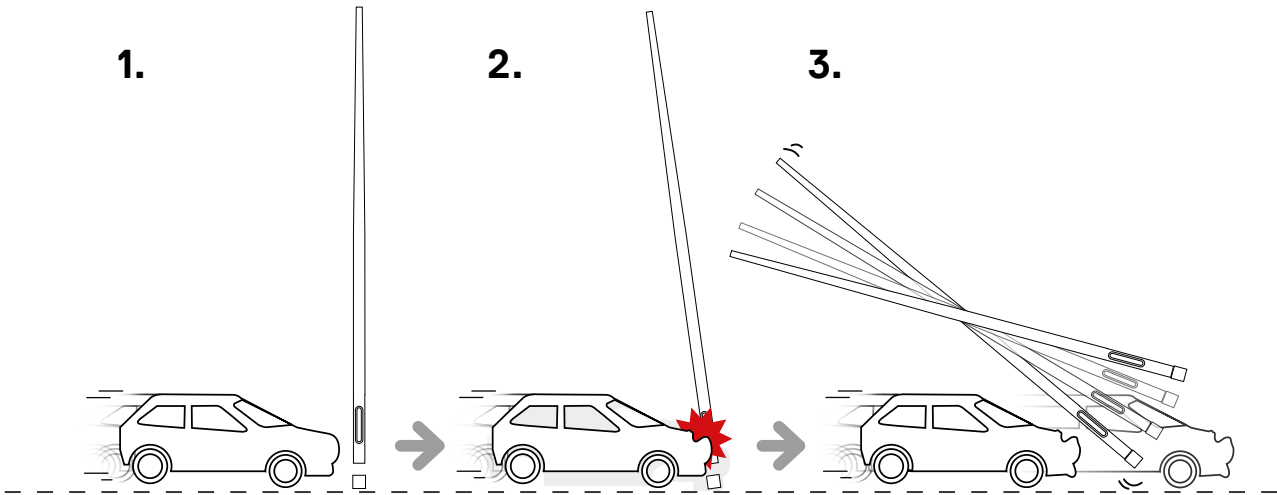
Aluminum columns are already a reality on many European roads thanks to the entry into force of the European Union's safety regulations EN-12767, regarding the "passive safety of supporting structures for road equipment", which it recommends expressly its installation. Currently their use is not mandatory, but there are already several countries that have begun to install them on their roads.

SAFETY TEST SIMULATION

Impact speed 50, 70 o 100 km / h

Speed class	50	70	100
Cat. Energy absorption	Exit speed, Ve, en Km/h		
HE	Ve = 0	0 ≤ Ve ≤ 5	0 ≤ Ve ≤ 50
LE	0 < Ve ≤ 5	5 < Ve ≤ 30	50 < Ve ≤ 70
NE	5 < Ve ≤ 50	30 < Ve ≤ 70	70 < Ve ≤ 100

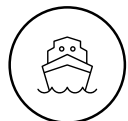
Energy absorption categories according to EN-12767



For the applications more demanding

Prevents electrogalvanic corrosion

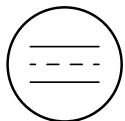
Aluminum is a raw material with many unique properties that make it ideal for demanding applications such as: coastal areas, humid and corrosive environments. This is one of the reasons why we can develop the perfect lighting column for any environment and any type of floor. Let's take a wide range, from our collision-proof lighting columns for provincial highways and highways to classic lighting columns for market places ... The ground level base, separate from the lighting column, is completely insulated to prevent electrogalvanic corrosion. For these reasons they are ideal for any application and / or location.



Ports



Zones pedestrian



Roads



Urbanizations



Walks maritime



Vials urban



Polygons industrial



Parks and gardens

CATEGORY OF GROUND

According to EN40 standard

1. Open sea, coastline.
2. Lakes or open terrain with sparse vegetation and unobstructed.
3. Open ground with low plants, grass, trees, or buildings, located more than 20 times their height from each other.
4. Regularly covered areas with plants, buildings, or individual obstructions located less than 20 times their height from each other (for example, towns, suburban areas, forests).
5. Urban areas, where at least 15% of its surface is covered with buildings with an average height of more than 15 m.



Technically perfect

Seamless extruded aluminum

TECHNICALLY PERFECT

The quality of our aluminum columns is the result with more than 50 years of experience in combination with continuous product research and development.

DOUBLE TUBE AND RAIL INTEGRATED

An expanded inner tube acts as a reinforcement around the service door. The reinforcement acts from the motherboard up to approximately 20 cms. above the door of service.

Rail integrated in the inner tube to install components electrical. Incorporates connection for grounding.

The dimensions of the rail comply with the standards of DIN 49778 market.

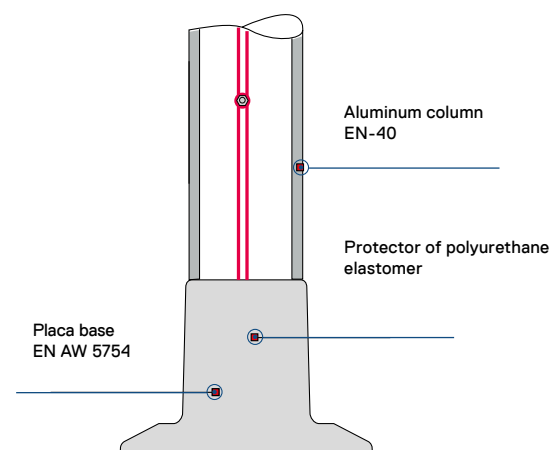
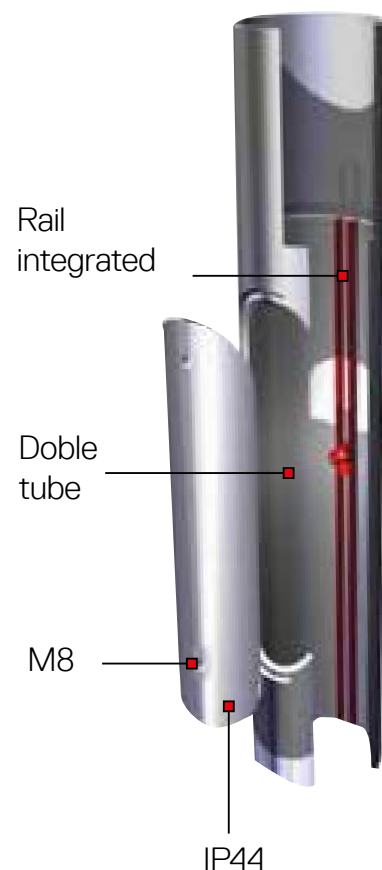
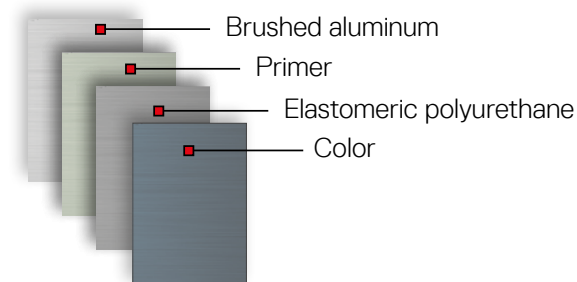
The IP44 door is equipped with 2 triangular screws M8 security

FINISH SUPERFICIAL

Salvi aluminum columns are supplied in a finish brushed. Optionally they can be chosen in a lacquered finish according to RAL colors.

COLORS AVAILABLE

(For others consult)



TECHNOLOGY

A patented combined hot deformation process with high pressure, it allows us to obtain profiles ranging from 3 to 12 meters high in conical formats, cylindrical and telescopic. The main stages of this process are:

- Selection of raw material.
- Transformation into extrusion ingot.
- Homogenized of the molecular structure.
- Profile extrusion.
- Taper
- Heat treatment.
- Door opening.
- Reinforcement tube.
- Surface finish.

NORMATIVE

The result is one-piece columns without welding, subject to strict quality control based on the **EN-ISO 9001 certification**. The design and manufacturing standards comply with the UNE-EN 40 standard, **being the first company to obtain the CE marking for extruded aluminum columns.**

DIMENSIONS

Standard height
3 | 3,5 | 4 | 4,5 | 5 | 6 | 8 | 10 | 12 m.
Thickness
2,5 | 3 | 4 mm.
Bottom diameter Ø
114, 120, 135, 145, 165, 177, 190, 200, 202, 222 mm.
Top diameter Ø
60, 76, 90 mm.

ALLOWABLE LOADS AND CE MARKING

The design of the aluminum lighting columns is based on the EN 40 standard:
EN 40-2 - General requirements and dimensions.
EN 40-3-1 - Specification for characteristic loads.
EN 1991-1-4 - Actions on structures. Wind actions
EN 40-3-2 - Verification by testing
EN 40-3-3 - Verification by calculation.
EN 40-6 - Requirements for aluminum lighting columns and staves.

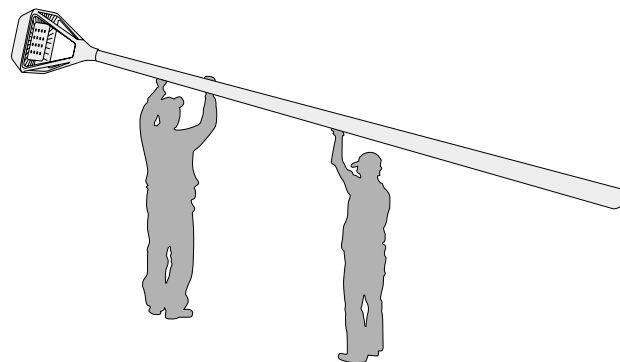


Easy to install, light and strong

Without lifting means. Easy to carry.

Salvi aluminum columns optimize and streamline the installation process on streets, highways, squares ... to the maximum thanks to their high manageability, low weight and simplicity of fixing.

Its low weight allows a maximum of two operators to carry out an assembly without lifting means. As a result, a reduction in installation time and costs is obtained.



RECOMMENDATION

The installation of lighting columns with base plate is recommended to always be carried out above ground level.

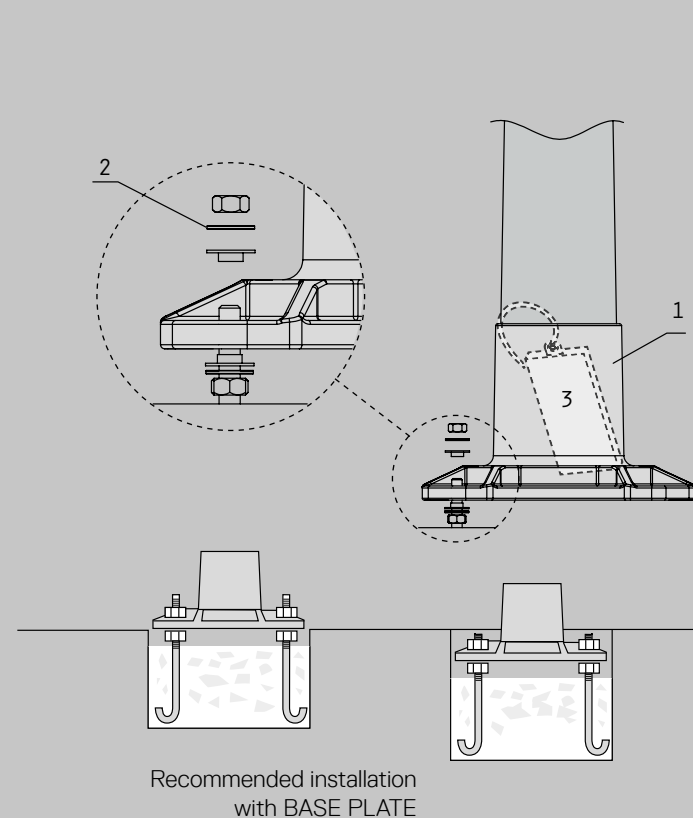
Otherwise the base must be protected with an electrical insulator to avoid galvanic torques.

The durability of the aluminum column is guaranteed by Salvi through the following insulations:



1. **Thermoplastic treatment on base plate.**
2. **Polyamide bushings to isolate bolt, washers and nuts.**
3. **Sacrificial anode.**

Optional: In the case of columns embedded in the floor they will be supplied without a base plate.



SACRIFICIAL ANODE

1. Insert the zinc anode into the column and leave it on the ground.
2. Close the column door.
3. The sacrificial anode will protect the column from corrosion, corroding it first. The corrosion rate and durability of this component will depend on the aggressiveness of the environment in which it is located.
4. During maintenance operations, check the integrity of the zinc anode.
5. During the existence of the zinc anode, the column will be protected.
6. Replace the zinc anode with a new one before it completely disappears.



Solution for each project

We analyze your project to offer a customized solution

COLUMN SELECTION CRITERIA

The selection of the column will be determined by the wind speed (136 or 161 km / h) and the surface of the luminaire. The tables of the boulevard and faubourg models shown in this catalog are valid for zones 3-4 and one with a luminaire less than 20Kg in weight. For different configurations, a study must be requested from our technical office, since Salvi through an accredited calculation program to issue the CE certificate, where it introduces the variables necessary to select the most optimal column according to the guidelines of the EN-40 standard. .

The main variables are described below.

COLUMN

- Profile: Type and height
- Door: Dimensions and position
- Arms: Quantity, length and angle





DRAFT

- Wind speed (calculation base 136 km / h)
- Life cycle (calculation basis 25 years)
- Terrain category (from 1 to 5)
- Number of lights:
 - Wind resistance: Ac (m2)
 - Weight (Kg)

After analyzing all these data Salvi offers a tailored solution for each project, always taking into account the costs and safety of the installation.

CERTIFICATE OF CONFORMITY

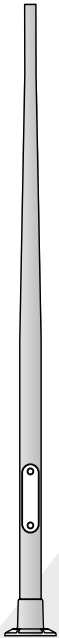
According to EN 40

Certificate				
	Number	0620-CPD-44024/08		
	Issued	2011-03-15		
	Valid until	n/a		
	Replaces	0620-CPD-44024/07		
	First edition	2009-06-15		
	Scope			
EC-CERTIFICATE OF CONFORMITY 0620-CPD-44024 AoC-level 1				
Notified Body 0620, Kiwa Certification has determined that Nedal Aluminium b.v. Fulfills all provisions concerning the attestation of conformity and the performances described in Annex ZA of the standard (resp. in) EN 40-6:2002 and are applied and that the product fulfils all the prescribed requirements.				
Product: Aluminium lighting columns				
<table><tr><td>Task Nedal Aluminium b.v. Factory Production Control Further testing of factory samples</td><td>Task Kiwa Certification Initial Type Testing Certification of FPC Surveillance of FPC</td></tr></table>			Task Nedal Aluminium b.v. Factory Production Control Further testing of factory samples	Task Kiwa Certification Initial Type Testing Certification of FPC Surveillance of FPC
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Kiwa N.V.  Bouke Meekma Director Kiwa N.V.				
This certificate consists of 3 pages. Publication of the certificate is allowed.				
<small>Kiwa B.V. St W. Chaminade 373 P.O. Box 70 2280 AB Rijswijk ZH The Netherlands Phone +31 70 414 44 00 Fax +31 70 414 44 20 E-mail cert@kiwa.nl www.kiwa.nl</small>	<small>Name of the producer Nedal Aluminium b.v. Groenewoudsluis 1 3528 BG UTRECHT Postbus 2030 3500 GA UTRECHT Phone +31 30 292 57 55 Fax +31 30 293 95 12 www.nedal.nl</small>	<small>Name of the factory Nedal Aluminium b.v. Groenewoudsluis 1 3528 BG UTRECHT Postbus 2030 3500 GA UTRECHT Phone +31 30 292 57 55 Fax +31 30 293 95 12 www.nedal.nl</small>  		





Boulevard



Reference	Height (h) mm	Ø Base mm	Ø Pointed mm	Thick mm	Sup 136kn/h	Sup 160kn/h	Weight Kg	Distance Bolts	Door	Bolts Metric / Long	Diameter terminal
NBL450AA2T13	4,5 m	114	76	2,5	0,12	0,08	12	200x200	400x85	M-18/500	Ø60 / Ø76
NBL600AB2T13	6 m	120	76	3	0,12	0,08	18	200x200	400x85	M-18/500	Ø60 / Ø76
NBL700AC2T13*	7 m	135	76	3	0,11	0,07	22	200X200	400X86	M-22/600	Ø60 / Ø76
NBL800AD2T13*	8 m	145	76	3	0,09	0,06	26	300x300	400x85	M-22/600	Ø60 / Ø76
NBLA00AG2T13*	10 m	177	76	4	0,1	0,07	47	300x300	500x100	M-22/600	Ø60 / Ø76

Standard

*Columns with a minimum order of 5 units.

Other sizes available

Faubourg



Reference	Height (h) mm	Ø Base mm	Ø Pointed mm	Thick mm	Sup 136kn/h	Sup 160kn/h	Weight Kg	Distance Bolts	Door	Bolts Metric / Long	Diameter terminal
NFU400AAAT13*	4 m	114	N/A	2,5	0,21	0,14	12	200X200	400x85	M-18-500	Ø60 / Ø76
NFU600ABBT13	4 m	120	N/A	3	0,28	0,18	17	200X200	400x85	M-18-500	Ø60 / Ø76
NFU450ABBT13	4,5 m	120	N/A	3	0,26	0,17	19	200X200	400x85	M-18-500	Ø60 / Ø76
NFU500ABBT13	5 m	120	N/A	3	0,21	0,14	20	200X200	400x85	M-18-500	Ø60 / Ø76
NFU600ABBT13	6 m	120	N/A	3	0,114	0,09	22	200X200	400x85	M-18-500	Ø60 / Ø76
NFU800ABBT13*	8 m	165	N/A	4	0,29	0,16	48	300X300	400x85	M-18-500	Ø60 / Ø76
NFUA00AHDT13*	10 m	200	N/A	4	0,26	0,10	70	300X300	400x85	M-18-500	Ø60 / Ø76

Standard

*Columns with a minimum order of 5 units.

Other sizes available

Due to the constant technological evolution, SALVI reserves the right to modify the specifications without prior notice. The information contained in this document is indicative and does not imply any contractual commitment.



salvi
lighting barcelona

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