84, avenue Jean-Jaurès
Champs-sur-Marne
FR-77447 Marne-la-Vallée Cedex 2
Téléphone : + 33 (0)1 64 68 82 82
Fax: + 33 (0)1 60 05 70 37
Internet : www.cstb.fr

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www.eota.eu

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European Technical Assessment ETA-18/0016 of 2018/02/15

General Part

Technical Assessment Body issuing the European Technical Assessment: Centre Scientifique et Technique du Bâtiment 84, avenue Jean Jaurès CHAMPS SUR MARNE F-77447 Marne-la-Vallée Cedex 2	
Trade name of the construction product	**Moshi, Moshi XL, Siléa, Siléa XL, Mézenc, Nova, Jupiter, Sumu, Sumu XL, Dôme, Dôme XL.**
Product family to which the construction product belongs	**Wood & Metal Composite lighting columns**
Manufacturer	AUBRILAM S.A 83, rue Fontgiève 63057 CLERMONT-FERRAND
Manufacturing plant(s)	AUBRILAM S.A 31 rue Guynemer 43100 BRIOUDE
This European Technical Assessment contains	45 pages including 12 Annexes which form an integral part of this assessment.
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 120017-00-0106 Wood and metal lighting columns
This version replaces	ETA 10/0089, issued on 12/04/2010

Specific parts

1. Technical description of the product

The **Moshi, Moshi XL, Siléa, Siléa XL, Mézenc, Nova, Jupiter, Sumu,Sumu XL, Dôme, Dôme XL,** are wood-based composite lighting columns with a hollowed cross section. A metal base compartment is located at the ground interface. The shape of the mast can be conical or straight.

The lighting columns have heights of no more than 16 m with the lantern directly fixed to the top of a mast or fixed to a straight or curved bracket. The wood and metal composite lighting columns have a minimum height of 3 m. Tolerances are in conformity with EN 40-2, Article 5.

The lighting columns can be fixed to the ground either by anchorage on a concrete foundation or by rooted base compartment. The metal base compartment is either of cylindrical, polygonal or four-divided squared geometry (Nova and Jupiter type). The junction between the columns and the base compartment is made by a tight connection and by the filling with an adhesive; or by the use of mechanical fasteners such as dowel type class 6.8.

The columns are made from glue laminated timber using phenol-resorcinol glue type 1 according to EN 301 and from a wood graded GL24h according to EN 10480 with an additional requirement on the maximum knot size limited to 20 mm.

The electrical equipment (including lantern, wiring devices, electrical boxes or enclosures), the traffic signal masts as well as the foundation bolts are not covered by the present ETA.

The kit families are gathered by type of section, type of connection between the mast and the base compartment, and by the position of the door opening. The different families are described in the following Table as defined in EAD *EOTA file N°120017-00-0106 : "*Wood & metal lighting columns."

Table 1: kit families

	Polygonal hollow section		Circular hollow section		Other type of section	
	Connection mast/base compartment by fitting	**Connection mast/base compartment by mechanical fasteners**	**Connection mast/base compartment by fitting**	**Connection mast/base compartment by mechanical fasteners**	**Connection mast/base compartment by fitting**	**Connection mast/base compartment by mechanical fasteners**
Door opening within the base compartment	*A1B1C1* *Moshi* *Siléa*	*A1B1C2* *Nova* *Jupiter* *Mézenc*	*A2B1C1* *Dôme* *Sumu*	*A2B1C2*	*A3B1C1*	*A3B1C2*
Door opening within the wood mast	*A1B2C1* *Moshi XL* *Siléa XL*	*A1B2C2*	*A2B2C1* *Dôme XL* *Sumu XL*	*A2B2C2*	*A3B2C1*	*A3B2C2*

The base compartment are made of pre-galvanized steel Grade S235JR or S355JR according to EN 10025-2, pre-galvanized steel Grade S235JRH or S355JRH according to EN 10210 or aluminium alloy EN AC 421000 (chemical symbol EN AC-AI Si7Mg0,6) according to EN 1706:1998.

2. Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

The **Moshi, Moshi XL, Siléa, Siléa XL, Mézenc, Nova, Jupiter, Sumu,Sumu XL, Dôme, Dôme XL** are intended to be used as circulation fixtures placed in any public or private areas. With regard to moisture behaviour of the product and type of glue, the use is possible in service classes 1, 2 and 3 defined in the European standard EN 1995-1-1:2004.

The wood lighting columns are intended for use in areas supporting static or quasi static loading. They are not intended to be used in areas where they might support seismic actions.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the lighting columns of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3. Performance of the product and references to the methods used for its assessment

The **Moshi, Moshi XL, Siléa, Siléa XL, Mézenc, Nova, Jupiter, Sumu, Sumu XL, Dôme, Dôme XL** in the range covered by this ETA corresponds to the drawings and provisions given in Annexes 1 to 12. The characteristic material values, dimensions and tolerances of the products not indicated in Annexes 1 to 12 shall correspond to

the respective values laid down in the technical documentation[1] of this European Technical Assessment. The mechanical properties of the products are given in Annexes 1 to 12.

3.1 BWR 1 Mechanical resistance and stability

The mechanical properties of the standard products sections are given in Annexes 1 to 12. They have been determined on the basis of a calculated design (according to EN 1990, EN 1995-1-1, EN 1993-1-1, 1991-1-4 and EN 40-3-1, EN 40-3-2, EN 40-3-3) and confirmed by testing. Steel base compartment and/ or bracket comply with EN 40-5. Aluminium base compartment and/ or bracket shall comply with EN 40-6.

When directly drive into the ground, the depth below the ground level of the base compartment is defined according to EN40-2, article 4.5.1.

According to EAD *EOTA file N°120017-00-0106*, article 2.2.6, the reduction factor, used in design and defined as the ratio of the mean value of glue line shear strength after the last cycle to the mean value of glue line shear strength, has been fixed to 0,60.

The glued laminated timber used is graded GL24h according to EN 14080. The knot size is limited to 20 mm. The Young modulus is taken equal to 11600 N/mm².

The moisture content of the wood masts is (12±2) % at the time of manufacturing for installation in normal climate, and (10±2)% for installation in hot climate.

The characteristic values of the relevant wind actions are determined according to EN 40-3-1. The fundamental value of the basic wind velocity shall be derived from EN 1991-1-4 and its National Annexes. The characteristic values of aerodynamic effects resulting from passing trains shall be considered according to EN 1991-2, section 6.6. The characteristic values of the self-weight actions shall be determined according to EN 1991-1-1.

The design values of the actions are determined by multiplying the characteristic values with an appropriate partial coefficient established as a function of the nominal height of the lighting column and according to EN 40-3-3 and EN 1990 (see Table below).

Table 2: Partial coefficients

Nominal height of the lighting columns	Class of partial coefficient	Wind loads	Self-weight
[0 m; 7 m[	Class B (Class B in EN 40)	1,2	1,2
[7 m; 14 m[	Class A (Class A in EN 40)	1,4	1,2
[14 m; 20 m]	Class A+ (EN 1990)	1,5	1,35

[1] The technical documentation of this European Technical Assessment is deposited at the Centre Scientifique et Technique du Bâtiment and, as far as relevant for the tasks of the approved bodies involved in the attestation of conformity procedure, is handed over to the approved bodies.

When directly drive into the ground within or not a concrete foundation, the depth below ground level of the base compartment shall be verified according to EN 40-2, Article 4.5.1. If a plate is attached to the base compartment below ground level, it shall follow the regulation given in EN 40-2, Article 4.5.2.

In case the lighting column is rigidly fixed at the ground level by a flange plate, it shall be verified by calculation or by testing and the design shall follow regulations according to EN 40-2, Article 4.6.

The windage $S_{cx} = c_f \times A_{ref}$ and mass of the lantern (including the bracket) are declared in Annex 1 to 12 as a function of the fundamental value of the basic wind velocity vb and terrain category for the case of centred equipment.

c_f is the force coefficient of the structural element as defined in EN 1991-1-4.

A_{ref} is the reference area as defined in EN 1991-1-4.

The geometry of the connection between the base compartment and the ground are declared in Annex 1 to 12.

3.2. BWR 3 Hygiene, health and environment

Based on the declaration of the manufacturer, the columns do not contain harmful or dangerous substances as defined in the EU database.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.3. BWR 4 Safety in use

No performance assessed for resistance against shocks of vehicles as described in EN 12767. The wood and metal composite lighting columns are deemed to satisfy class 0 according to EN 12767.

External surfaces of the assembled system do not present any risks of injuries for the people (pedestrians, people in charge of maintenance) and the door opening are smooth and free from obstructions, and do not present any sharp edges, bur or another asperity likely to wound.

The products have a protection category of IP3X according to EN 60529.

3.4. Aspects of durability, serviceability and identification

The adhesive is of type I which allows use in service classes 1, 2 and 3.

According to the EN 40-3-3, the wood-composite lighting columns are relevant of the following class for horizontal deflection:

Columns with square hollow section (Moshi, Moshi XL, Siléa, Siléa XL, Mézenc, Nova, Jupiter)

<u>*Class 1*</u> for a ≥ 220mm if $M_{t,d}/M_{t,Rd} \leq 0,10$

for a < 220mm if $M_{t,d}/M_{t,Rd} \leq 0,25$

Class 2 for a ≥ 220mm if $0,10 < M_{t,d}/M_{t,Rd} \leq 0,35$

for a < 220mm if $0,25 < M_{t,d}/M_{t,Rd} \leq 0,55$

Class 3 otherwise.

Where a is the side dimension of the mast at the base compartment level,

$M_{t,d}$ is the design moment in torsion,

$M_{t,Rd}$ is the design moment capacity of the column in torsion,

Columns with circular hollow section (Sumu,Sumu XL, Dôme, Dôme XL)

Class 1 if $M_{t,d}/M_{t,Rd} \leq 0,70$

Class 2 if $0,70 < M_{t,d}/M_{t,Rd} \leq 1,0$

4. Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

4.1. Attestation of conformity system

According to European Commission Decision 1996/579/EC, the AVCP system 1 applies (further described in Annex V to Regulation (EU) No 305/2011).

The manufacturer shall draw up the declaration of performance and determine the product-type on the basis assessments and verifications of constancy of performance carried out under the system 1 on the basis of:

(a) The manufacturer shall carry out:

(1) Factory production control;

(2) Further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan;

(b) The notified product certification body shall decide on the issuing, restriction, suspension or withdrawal of the certificate of constancy of performance of the construction product on the basis of the outcome of the following assessments and verifications carried out by that body

(3) Determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product;

(4) Initial inspection of the manufacturing plant and of factory production control;

(5) Continuous surveillance, assessment and evaluation of factory production control.

5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

5.1. Tasks of the manufacturer

5.1.1. Factory production control

All the elements, requirements and provisions, adopted by the manufacturer, shall be documented in a systematic manner in the form of written policies and procedures. This production control system shall ensure that the product is in conformity with the European Technical Assessment (ETA). The manufacturer shall keep a record including any essentials information about gluing. Manufacturers having a RPC system that complies with En ISO 9001 or EN ISO 9002 and which addresses the requirement of an ETA are recognised as satisfying the RPC requirements of the Directive.

The following components of the lighting columns shall be subjected to the following controls:

Dimensions of component parts:

- Dimensions of the wood mast and cross-section;
- Dimension of the base compartment;
- Incoming material properties: Glued laminated timber and metallic components,
- Mechanical resistance of the columns against the wind loads,
- Moisture content of the glued laminated planks,
- Shear strength of the bonding glue line.

The frequency of controls and tests conducted during production is laid down in the prescribed test plan.

The results of factory production control are recorded and evaluated. The records include at least the following information:

- Designation of the product, basic material and components;
- Type of control or testing;
- Date of manufacture of the product and date of testing of the product or basic material and components;
- Result of control and testing and, if appropriate, comparison with requirements;
- Signature of person responsible for factory production control.

The records shall be presented to the inspection body during the continuous surveillance. On request, they shall be presented to the Centre Scientifique et Technique du Bâtiment.

Details of the extent, nature and frequency of testing and controls to be performed within the factory production control shall correspond to the prescribed test plan which is part of the technical documentation of this European Technical Assessment.

5.1.2. Declaration of performance

The manufacturer is responsible for preparing the declaration of performance. When all the criteria of the assessment and verification of constancy of performance are met, including the certificate of conformity issued by the notified product certification body, the manufacturer shall draw up a declaration of performance.

5.2. Tasks of notified bodies

5.2.1. Initial inspection of manufacturing plant and factory production control

An assessment of each production unit shall be carried out to demonstrate that the factory production control is in conformity with the ETA and any subsidiary information. This assessment shall be based on an initial inspection of the factory. Initial inspection of the factory, as far as gluing is concerned, shall include the inspection of the premises, technical equipment of the factory and qualification of the personnel.

5.2.2. Continuous surveillance, assessment and evaluation of factory production control

The notified body shall visit the factory at least twice a year for regular inspection. It has to be verified that the factory production control and the specified manufacturing process are performed and maintained according to the manufacturer's quality manual, including test of samples according to the prescribed test plan.

The results of product certification and continuous surveillance shall be made available on demand by the certification body or inspection body, respectively, to the Centre Scientifique et Technique du Bâtiment. In cases where the provisions of the European Technical Assessment and the prescribed test plan are no longer fulfilled the conformity certificate shall be withdrawn.

5.3. Manufacture of the kit

Wood and metal lighting composite are intended to be manufactured as laid down in the relevant technical documentation.

Special care is needed to ensure durability of bond integrity. The procedures and recommendations determined by manufacturer of glue shall be observed carefully.

5.4. Assembly and Installation of the kit in the works

It is recommended to install the wood and metal composite lighting column assembled with a flange plate directly on the concrete foundation if it is reasonably smooth and flat. If that is not the case, it is possible to incorporate a semi-rigid device able to ensure the verticality of the lighting column as well as the correct position of the flange plate. It is advisable to use adjusting blots under the flange plate only if they were taken into account in the design.

If the flange plate must be covered, it is advised to make sure that the materials considered are not aggressive. Otherwise, an insulating material should be envisaged between the base flange and the covering material.

If there is a cavity between the mast and the flange plate, the distance between the level of the finished ground and the wood mast shall be at least 100mm.

5.5. Identification of the kit

The kit and its components which are the subject of the technical assessment shall be identified by

- Testing of product characteristics as laid in the EAD
- Detailing, drawing

5.6. Packing, transport and storage

The manufacturer must provide information relating to the handling of the storage of the product to prevent any damage or deterioration. The manufacturer must also provide information on the support and the fixing of the segment of the lighting columns on the vehicle used for transport.

The length of members may be limited by handing or transport considerations.

On site, the product must be stored clear of the ground.

5.7. Use, maintenance and repair

To maintain the performances of the wood and metal composite lighting columns, the type and the frequency of the maintenance should be done according to the specification of the manufacturer.

Issued in Champs sur Marne on 01.03.2018

By

Charles BALOCHE, Technical Director.

- **Materials properties and partial safety coefficient retained for the design capacity provided in the following Annex:**

  - Steel : grade S235 or S355;

    γ_{M0}=1,0 ; γ_{M2}=1,25

  - Aluminium : EN AC-Al Si7Mg0,6 ;

    γ_{M0}=1,15 ; γ_{M2}=1,30

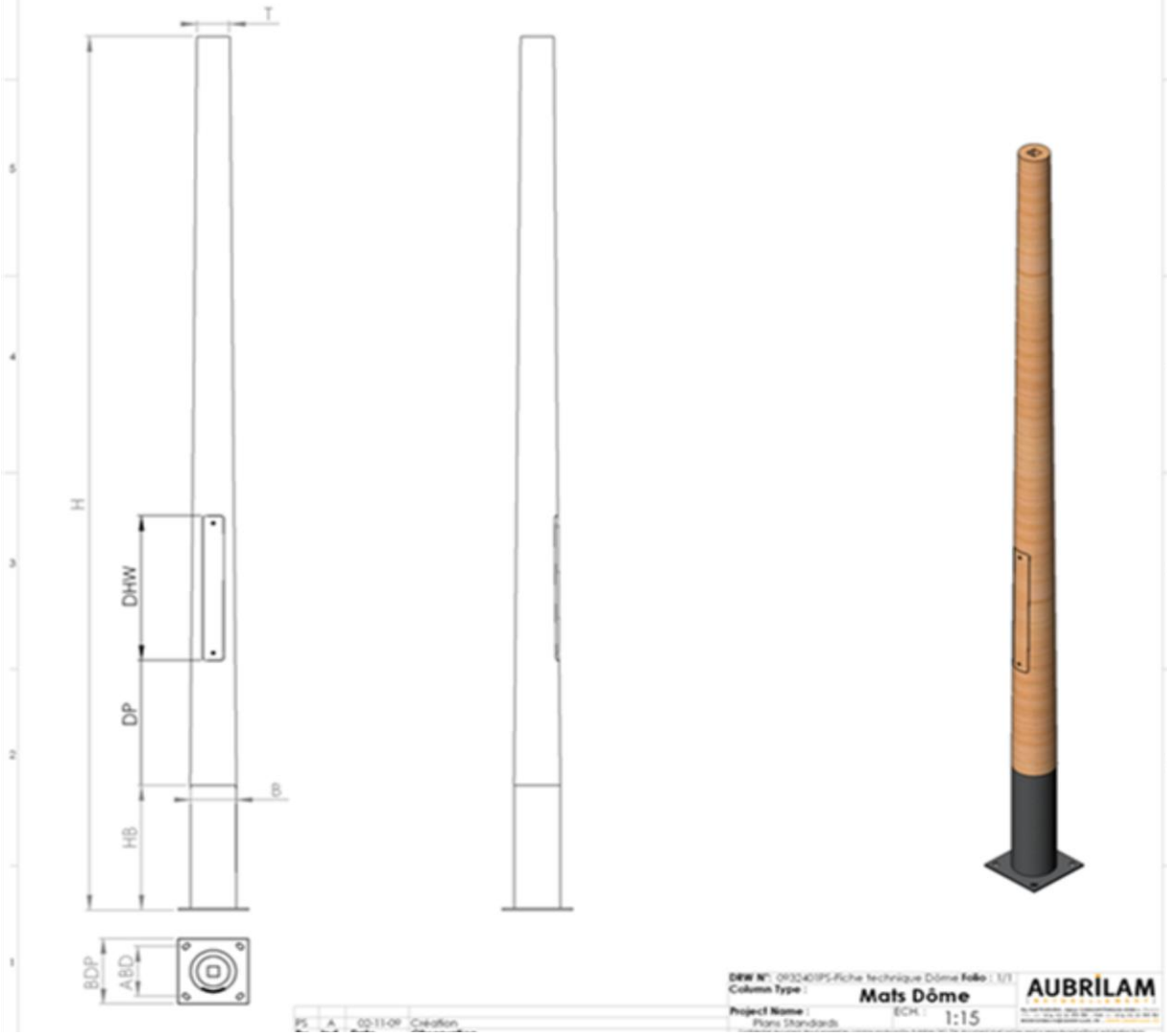
  - Glued laminated timber : GL24h; γ_M =1,25 ; k_{mod}=0,9 (Service Class 3 and Short term action of wind loads)

  - Timber connection with mechanical fasteners: γ_M =1,30 ; k_{mod}=0,9 (Service Class 3 and Short term action of wind loads)

- **Tolerances on timber cross-section** : ±5%

Properties	**Main tolerances and coefficients**	**Annex 1** of European Technical Assessment **ETA – 16/0089**

Height (m)	Base (mm)	Top (mm)	Height Of Base (mm)	Door Position (mm)	Door Height x Width (mm)	Base Plate Dim (mm)	Anchor Bolts Distance (mm)	Wall Thickness (mm)	Recommanded anchorage HA S500
H	B	T	HB	DP	DHW	BPD	ABD		
3	140	60	450	300	580x70	260	200	30	4 HA16/M14 - 300
	140	76	450	450	580x70	260	200	35	4 HA16/M14 - 300
	168	120	500	500	580x80	260	200	40	4 HA16/M14 - 300
3.5	140	60	450	300	580x70	260	200	30	4 HA16/M14 - 300
	140	76	450	450	580x70	260	200	35	4 HA16/M14 - 300
	168	120	500	500	580x80	260	200	40	4 HA16/M14 - 300
4	140	60	450	300	580x70	260	200	30	4 HA16/M14 - 300
	140	76	450	450	580x70	260	200	35	4 HA16/M14 - 300
	168	120	500	500	580x80	260	200	40	4 HA16/M14 - 300
5	140	76	450	450	580x70	260	200	35	4 HA16/M14 - 300
	168	120	500	500	580x80	260	200	40	4 HA16/M14 - 300
	194	120	600	600	580x80	260	200	45	4 HA20/M18 - 400
6	168	120	500	500	580x80	260	200	40	4 HA16/M14 - 300
	194	120	600	600	580x80	260	200	45	4 HA20/M18 - 400
	220	140	600	700	580x100	400	300	55	4 HA20/M18 - 400
7	194	120	600	600	580x80	260	200	45	4 HA20/M18 - 400
	220	140	600	700	580x100	400	300	55	4 HA20/M18 - 400
	275	140	750	750	580x120	400	300	60	4 HA20/M18 - 400
8	194	120	600	600	580x80	260	200	45	4 HA20/M18 - 400
	220	140	600	700	580x100	400	300	55	4 HA20/M18 - 400
	275	140	750	750	580x120	400	300	60	4 HA20/M18 - 400
9	220	140	600	700	580x100	400	300	55	4 HA20/M18 - 400
	275	140	750	750	580x120	400	300	60	4 HA20/M18 - 400
10	275	140	750	750	580x120	400	300	60	4 HA20/M18 - 400



Dôme	**Dimensions and drawing of the Lighting columns**	**Annex 2** of European Technical Assessment **ETA – 16/0089**

Height	Pole size	Maximum design value of the forces at the base of the lighting column: Bending M_d (daN.m)	Shear V_d (daN)
3,0	140-60	190	112
	140-76	232	128
	168	487	226
3,5	140-60	195	99
	140-76	232	117
	168	482	213
4,0	140-60	203	94
	140-76	239	110
	168	487	208
5,0	140-76	234	86
	168	475	176
	194	820	288
6,0	168	465	148
	194	815	246
	220	1 096	328
7,0	194	790	219
	220	1 093	298
	275	2 013	527
8,0	194	769	184
	220	1 063	250
	275	1 998	480
9,0	220	1 038	213
	275	1 958	433
10,0	275	1 926	370

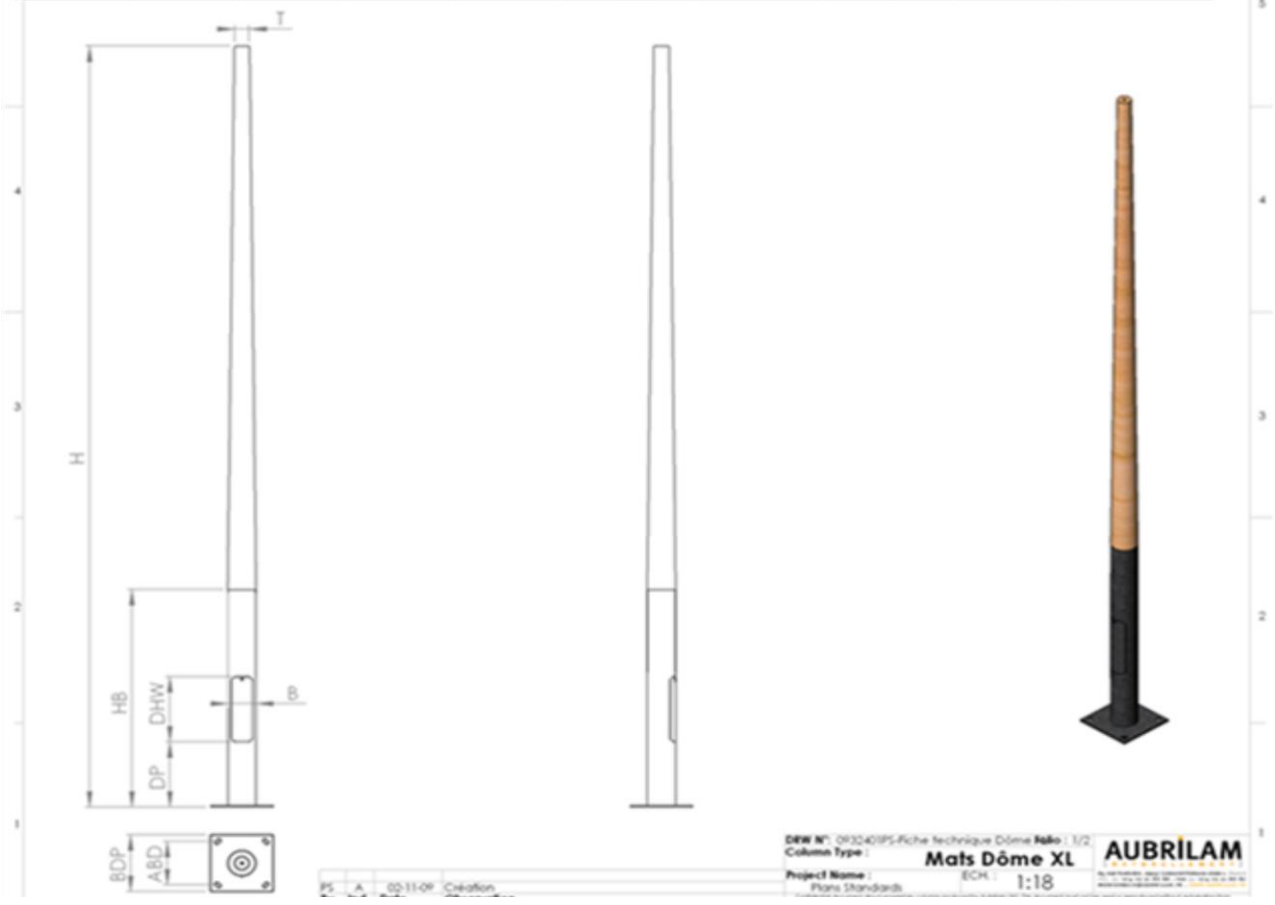
Pole size	Moment capacity in torsion: $M_{t,Rk}$ (daN.m)	$M_{t,Rd}$ (daN.m)
140-60	41,3	28,6
140-76	41,3	28,6
168	61,9	42,9
194	77,0	53,3
220	141	97,7
275	215	149

Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	140-60	0,31	0,49	0,60	0,28	0,44	0,55	0,24	0,37	0,46	0,21	0,34	0,43	0,17	0,29	0,36	0,14	0,24	0,31	0,09	0,19	0,25	0,06	0,15	0,20
	140-76	0,42	0,64	0,80	0,38	0,59	0,74	0,32	0,50	0,62	0,29	0,46	0,57	0,23	0,39	0,49	0,19	0,33	0,42	0,13	0,25	0,34	0,09	0,19	0,26
	168	1,07	1,63	2,02	0,96	1,47	1,82	0,80	1,23	1,55	0,73	1,13	1,43	0,61	0,96	1,21	0,51	0,82	1,05	0,39	0,65	0,84	0,30	0,52	0,67
3,5	140-60	0,25	0,39	0,53	0,22	0,35	0,49	0,17	0,29	0,40	0,15	0,26	0,38	0,11	0,22	0,31	0,08	0,18	0,26		0,12	0,19		0,08	0,14
	140-76	0,32	0,50	0,69	0,28	0,45	0,63	0,22	0,37	0,53	0,19	0,34	0,48	0,14	0,27	0,40	0,11	0,22	0,33	0,06	0,16	0,24		0,11	0,18
	168	0,78	1,20	1,63	0,70	1,08	1,49	0,57	0,90	1,25	0,52	0,82	1,15	0,42	0,69	0,96	0,34	0,58	0,81	0,25	0,45	0,64	0,17	0,35	0,51
4,0	140-60	0,20	0,32	0,47	0,17	0,29	0,42	0,12	0,23	0,35	0,10	0,20	0,31		0,16	0,26		0,12	0,21		0,07	0,14			0,09
	140-76	0,24	0,41	0,59	0,20	0,37	0,54	0,15	0,29	0,44	0,12	0,25	0,39	0,08	0,20	0,32		0,15	0,25		0,09	0,18			0,12
	168	0,62	0,96	1,36	0,52	0,88	1,27	0,43	0,72	1,04	0,39	0,65	0,95	0,30	0,53	0,79	0,23	0,43	0,66	0,15	0,32	0,51	0,08	0,23	0,38
5,0	140-76	0,09	0,21	0,39	0,06	0,17	0,34		0,11	0,25		0,09	0,22			0,15			0,10						
	168	0,33	0,57	0,95	0,28	0,50	0,86	0,19	0,38	0,69	0,16	0,34	0,62	0,10	0,25	0,49		0,18	0,39		0,10	0,27			0,17
	194	0,79	1,18	1,88	0,70	1,09	1,73	0,55	0,88	1,43	0,49	0,79	1,30	0,38	0,64	1,08	0,29	0,53	0,90	0,18	0,39	0,69	0,10	0,28	0,53
6,0	168	0,13	0,31	0,62	0,09	0,26	0,53		0,17	0,40		0,13	0,34		0,07	0,25									
	194	0,50	0,80	1,33	0,42	0,71	1,20	0,30	0,55	0,95	0,25	0,49	0,85	0,17	0,37	0,70	0,09	0,28	0,57		0,17	0,41		0,08	0,28
	220	0,75	1,17	1,91	0,65	1,04	1,70	0,49	0,83	1,40	0,43	0,75	1,27	0,31	0,58	1,04	0,21	0,45	0,85	0,10	0,31	0,63		0,19	0,46
7,0	194	0,15	0,37	0,72	0,10	0,31	0,63		0,19	0,46		0,14	0,40			0,28			0,19						
	220	0,33	0,62	1,11	0,26	0,53	0,98	0,14	0,38	0,76	0,09	0,31	0,67		0,20	0,51		0,11	0,38			0,22			0,10
	275	1,00	1,46	2,28	0,88	1,31	2,08	0,66	1,06	1,72	0,57	0,96	1,56	0,42	0,76	1,32	0,29	0,60	1,10	0,14	0,40	0,81		0,25	0,60
8,0	194		0,16	0,44		0,10	0,36			0,23			0,18												
	220	0,10	0,34	0,74		0,27	0,64		0,14	0,45		0,09	0,38			0,24			0,14						
	275	0,68	1,10	1,76	0,57	0,97	1,60	0,39	0,75	1,30	0,31	0,64	1,18	0,18	0,47	0,94		0,34	0,74		0,16	0,51			0,32
9,0	220		0,12	0,45			0,36			0,21			0,14												
	275	0,40	0,77	1,38	0,31	0,65	1,22	0,15	0,45	0,93		0,36	0,82		0,22	0,61		0,10	0,45			0,24			
10,0	275	0,16	0,50	1,02		0,38	0,86		0,20	0,62		0,13	0,51			0,34			0,20						

Dôme **SCx for centered equipments**

Annex 2 of European Technical Assessment **ETA – 16/0089**

Height (m)	Base (mm)	Top (mm)	Height Of Base (mm)	Door Position (mm)	Door Height x Width (mm)	Base Plate Dim (mm)	Anchor Bolts Distance (mm)	Max Wall Thickness (mm)	Recommanded anchorage HA 5500
H	B	T	HB	DP	DHW	BPD	ABD		
3	115	60	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	115	76	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	140	76	1100	300	400x90	260	200	40	4 HA16/M14 - 300
3.5	115	60	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	115	76	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	140	76	1100	300	400x90	260	200	40	4 HA16/M14 - 300
4	115	60	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	115	76	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	140	76	1100	300	400x90	260	200	40	4 HA16/M14 - 300
	168	120	1200	350	450x90	260	200	45	4 HA16/M14 - 300
5	115	60	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	115	76	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	140	76	1100	300	400x90	260	200	40	4 HA16/M14 - 300
	168	120	1200	350	450x90	260	200	45	4 HA16/M14 - 300
	194	120	1200	350	450x100	260	200	50	4 HA20/M18 - 400
6	140	76	1100	300	400x90	260	200	40	4 HA16/M14 - 300
	168	120	1200	350	450x90	260	200	45	4 HA16/M14 - 300
	194	120	1200	350	500x100	260	200	50	4 HA20/M18 - 400
7	168	120	1200	350	450x90	260	200	45	4 HA16/M14 - 300
	194	120	1200	350	450x100	260	200	50	4 HA20/M18 - 400
	220	140	1350	350	500x100	400	300	65	4 HA20/M18 - 400
8	194	120	1200	350	450x100	260	200	50	4 HA20/M18 - 400
	220	140	1350	350	500x100	400	300	65	4 HA20/M18 - 400
	245	140	1500	350	500x120	400	300	65	4 HA20/M18 - 400
	275	140	1500	350	500x120	400	300	65	4 HA25/M24 - 600
9	194	120	1200	350	450x100	260	200	50	4 HA20/M18 - 400
	220	140	1350	350	500x100	400	300	65	4 HA20/M18 - 400
	245	140	1500	350	500x120	400	300	65	4 HA20/M18 - 400
	275	140	1500	350	500x120	400	300	65	4 HA20/M18 - 400
10	220	140	1350	350	500x100	400	300	65	4 HA20/M18 - 400
	245	140	1500	350	500x120	400	300	65	4 HA20/M18 - 400
	275	140	1500	350	500x120	400	300	65	4 HA25/M24 - 600



Dôme XL	**Dimensions and drawing of the Lighting columns**	**Annex 3** of European Technical Assessment **ETA – 16/0089**

Height	Pole size	Maximum design value of the forces at the base of the lighting column Bending M_d (daN.m)	Shear V_d (daN)
3,0	115-60	390	175
	115-76		
	140-76	702	288
3,5	115-60	374	160
	115-76		
	140-76	668	254
	168	1158	409
4,0	115-60	359	151
	115-76		
	140-76	648	235
	168	1 070	358
5,0	115-60	341	125
	115-76		
	140-76	619	215
	168	1 050	324
	194	1 557	440
6,0	140-76	567	175
	168	1 032	311
	194	1 495	405
7,0	168	955	251
	194	1 462	390
	220	2 332	577
8,0	194	1 394	327
	220	2 239	517
	245	3 081	692
	275	4 048	843
9,0	194	1 321	273
	220	2 113	432
	245	2 987	626
	275	4 020	827
10,0	220	2 030	381
	245	2 823	523
	275	3 893	749

Pole size	Moment capacity in torsion $M_{t,Rk}$ (daN.m)	$M_{t,Rd}$ (daN.m)
115-60	25,2	17,4
115-76	25,2	17,4
140-76	39,3	27,2
168	59,5	41,2
194	74,4	51,5
220	132,6	91,8
245	178,8	123,8
275	210,2	145,5

Dôme XL **Mechanical properties Bending, shear and torsion**

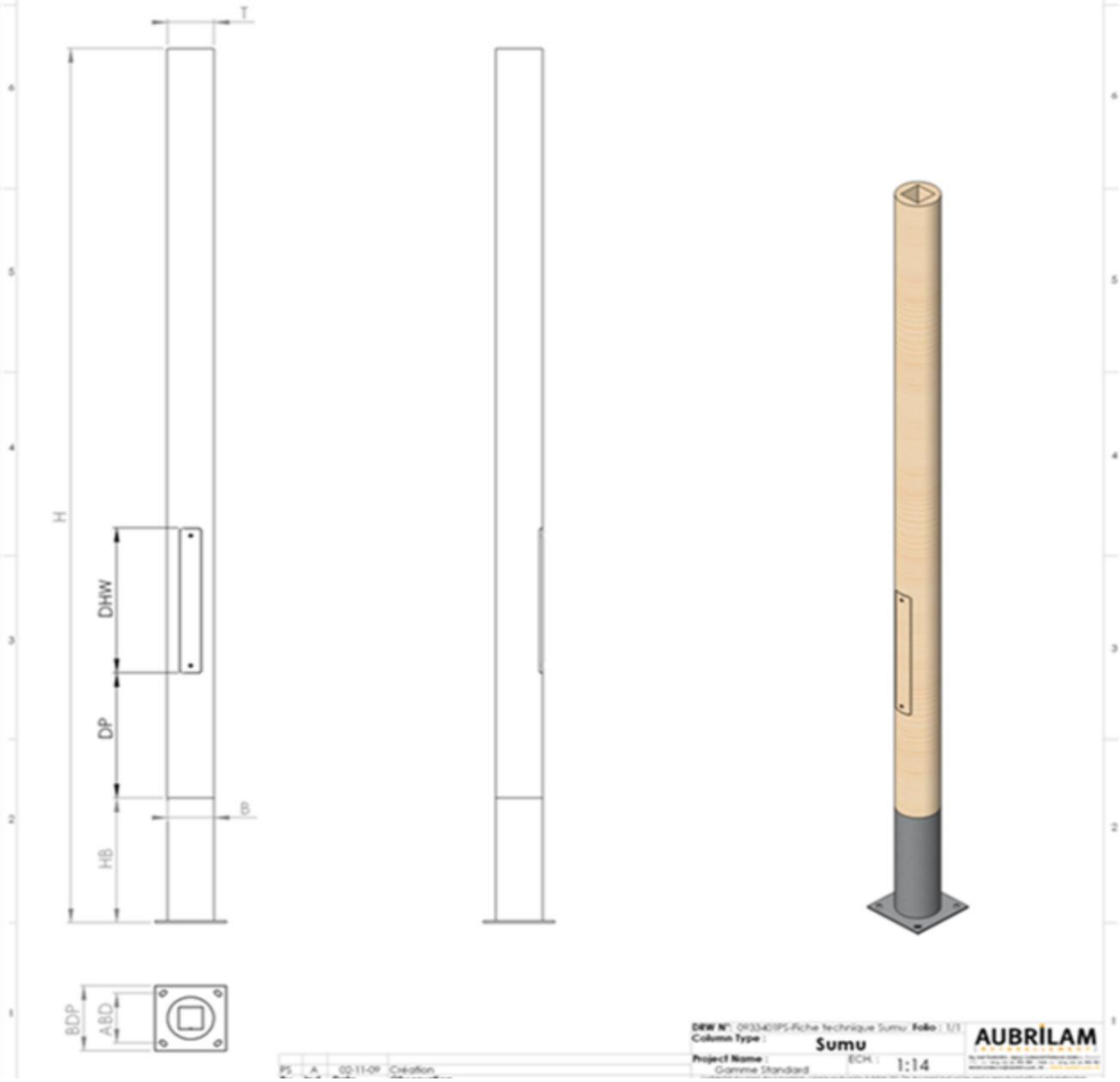
Annex 3 of European Technical Assessment **ETA – 16/0089**

Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	115-60	0,88	1,32	1,63	0,80	1,21	1,50	0,67	1,01	1,27	0,61	0,94	1,17	0,52	0,80	0,99	0,43	0,68	0,86	0,35	0,56	0,70	0,27	0,45	0,57
	115-76	0,86	1,30	1,61	0,78	1,19	1,48	0,65	0,99	1,25	0,59	0,92	1,15	0,50	0,78	0,97	0,42	0,66	0,84	0,33	0,54	0,68	0,25	0,43	0,55
	140-76	1,65	2,45	3,02	1,52	2,25	2,80	1,27	1,90	2,37	1,18	1,77	2,19	1,00	1,52	1,89	0,86	1,32	1,63	0,69	1,07	1,34	0,56	0,88	1,11
3,5	115-60	0,64	0,96	1,30	0,58	0,88	1,19	0,48	0,73	1,00	0,44	0,67	0,92	0,36	0,56	0,78	0,30	0,48	0,66	0,23	0,38	0,54	0,17	0,30	0,43
	115-76	0,62	0,94	1,28	0,56	0,86	1,17	0,46	0,71	0,98	0,42	0,65	0,90	0,34	0,54	0,76	0,28	0,46	0,64	0,21	0,36	0,52	0,15	0,28	0,41
	140-76	1,23	1,81	2,42	1,12	1,65	2,24	0,93	1,38	1,89	0,85	1,25	1,70	0,72	1,08	1,49	0,61	0,94	1,28	0,48	0,75	1,04	0,38	0,61	0,85
	168	2,10	3,05	4,14	1,93	2,80	3,78	1,62	2,37	3,21	1,49	2,19	2,96	1,27	1,88	2,54	1,08	1,62	2,20	0,87	1,32	1,81	0,70	1,08	1,50
4,0	115-60	0,49	0,75	1,06	0,44	0,68	0,97	0,35	0,56	0,80	0,31	0,51	0,73	0,25	0,42	0,62	0,20	0,35	0,52	0,14	0,27	0,40	0,09	0,20	0,31
	115-76	0,47	0,73	1,04	0,42	0,66	0,95	0,33	0,54	0,78	0,29	0,49	0,71	0,23	0,40	0,60	0,18	0,33	0,49	0,12	0,25	0,39	0,07	0,18	0,30
	140-76	0,98	1,45	2,03	0,88	1,32	1,85	0,73	1,10	1,56	0,67	1,01	1,43	0,55	0,85	1,20	0,46	0,72	1,04	0,35	0,57	0,82	0,27	0,46	0,68
	168	1,68	2,45	3,41	1,52	2,25	3,12	1,27	1,89	2,65	1,16	1,73	2,44	0,97	1,47	2,08	0,82	1,26	1,79	0,64	1,01	1,45	0,50	0,82	1,18
5,0	115-60	0,27	0,44	0,73	0,23	0,39	0,66	0,17	0,31	0,53	0,14	0,27	0,48	0,10	0,21	0,39		0,16	0,31		0,11	0,23			0,16
	115-76	0,25	0,42	0,70	0,21	0,37	0,64	0,15	0,28	0,50	0,12	0,25	0,45	0,08	0,19	0,36		0,14	0,29		0,08	0,20			0,13
	140-76	0,61	0,92	1,46	0,54	0,83	1,32	0,43	0,68	1,10	0,38	0,61	1,00	0,30	0,50	0,84	0,23	0,41	0,70	0,15	0,30	0,54	0,09	0,22	0,42
	168	1,12	1,65	2,58	1,00	1,49	2,34	0,81	1,23	1,96	0,74	1,12	1,79	0,60	0,94	1,52	0,48	0,78	1,28	0,35	0,60	1,02	0,24	0,46	0,80
	194																0,85	1,30	2,04	0,65	1,03	1,66	0,50	0,82	1,35
6,0	140-76	0,34	0,56	0,94	0,29	0,50	0,84	0,21	0,39	0,68	0,17	0,34	0,61	0,11	0,26	0,49		0,19	0,39		0,11	0,28			0,19
	168	0,75	1,15	1,84	0,67	1,03	1,65	0,51	0,83	1,37	0,45	0,74	1,25	0,34	0,60	1,04	0,25	0,48	0,86	0,14	0,34	0,65		0,22	0,49
	194	1,25	1,82	2,84	1,12	1,65	2,58	0,90	1,35	2,15	0,81	1,23	1,97	0,65	1,02	1,66	0,51	0,84	1,40	0,36	0,64	1,10	0,24	0,48	0,86
7,0	168	0,30	0,56	0,99	0,24	0,48	0,88	0,14	0,35	0,69	0,10	0,29	0,60		0,20	0,47		0,12	0,35			0,22			0,11
	194	0,68	1,07	1,73	0,59	0,95	1,56	0,44	0,75	1,26	0,37	0,66	1,14	0,26	0,51	0,93	0,16	0,39	0,76		0,25	0,55		0,13	0,39
	220	1,31	1,92	2,98	1,16	1,73	2,72	0,92	1,40	2,24	0,81	1,26	2,04	0,63	1,03	1,70	0,48	0,84	1,42	0,31	0,61	1,10	0,17	0,43	0,85
8,0	194	0,40	0,72	1,23	0,33	0,61	1,09	0,20	0,45	0,86	0,14	0,38	0,75		0,26	0,59		0,16	0,45			0,28			0,15
	220	0,91	1,40	2,24	0,78	1,24	2,00	0,58	0,97	1,63	0,49	0,86	1,47	0,34	0,67	1,19	0,22	0,51	0,97	0,08	0,32	0,71		0,17	0,50
	245	1,46	2,12	3,28	1,29	1,90	2,96	1,00	1,53	2,45	0,88	1,38	2,23	0,68	1,12	1,85	0,52	0,90	1,55	0,31	0,64	1,18	0,16	0,44	0,89
	275													1,07	1,63	2,60	0,86	1,35	2,20	0,59	1,02	1,72	0,39	0,75	1,35
9,0	194	0,17	0,43	0,84	0,11	0,34	0,73		0,21	0,54		0,15	0,45			0,31			0,20						
	220	0,56	0,96	1,62	0,46	0,83	1,44	0,29	0,61	1,14	0,21	0,52	1,00		0,36	0,78		0,23	0,60			0,38			0,22
	245	1,06	1,62	2,56	0,92	1,42	2,28	0,67	1,12	1,86	0,57	0,98	1,67	0,39	0,76	1,36	0,25	0,58	1,10	0,08	0,36	0,80		0,19	0,56
	275													0,75	1,24	2,04	0,56	0,99	1,70	0,33	0,70	1,29	0,15	0,47	0,97
10,0	220	0,29	0,63	1,18	0,21	0,52	1,02		0,33	0,77		0,25	0,66		0,12	0,47			0,32			0,14			
	245	0,69	1,15	1,90	0,56	0,98	1,68	0,36	0,73	1,32	0,27	0,61	1,17	0,12	0,43	0,92		0,28	0,70		0,10	0,45			0,26
	275	1,22	1,80	2,86	1,05	1,62	2,58	0,77	1,27	2,10	0,65	1,12	1,88	0,45	0,86	1,53	0,28	0,65	1,24	0,08	0,40	0,89		0,20	0,62

Dôme XL **SCx for centered equipments**

Annex 3 of European Technical Assessment **ETA – 16/0089**

Height (m)	Base (mm)	Top (mm)	Height Of Base (mm)	Door Position (mm)	Door Height x Width (mm)	Base Plate Dim (mm)	Anchor Bolts Distance (mm)	Wall Thickness (mm)	Recommanded anchorage H.A 1500
H	B	T	HB	DP	DHW	BPD	ABD		
3	140	140	450	450	580x70	260	200	35	4 HA16/M14 - 300
3.5	140	140	450	450	580x70	260	200	35	4 HA16/M14 - 300
	168	168	500	500	580x80	260	200	40	4 HA16/M14 - 300
4	140	140	450	450	580x70	260	200	35	4 HA16/M14 - 300
	168	168	500	500	580x80	260	200	40	4 HA16/M14 - 300
5	140	140	450	450	580x70	260	200	35	4 HA16/M14 - 300
	168	168	500	500	580x80	260	200	40	4 HA16/M14 - 300
6	168	168	500	500	580x80	260	200	40	4 HA16/M14 - 300
	194	194	600	600	580x80	260	200	45	4 HA20/M18 - 400



Sumu	**Dimensions and drawing of the Lighting columns**	**Annex 4** of European Technical Assessment **ETA – 16/0089**

		Maximum design value of the forces at the base of the lighting column	
		Bending	**Shear**
Height	*Pole size*	M_d *(daN.m)*	V_d *(daN)*
3,0	*140*	342	171
3,5	*140*	340	165
	168	585	248
4,0	*140*	313	134
	168	577	239
5,0	*140*	286	102
	168	525	180
6,0	*168*	489	145
	194	903	256

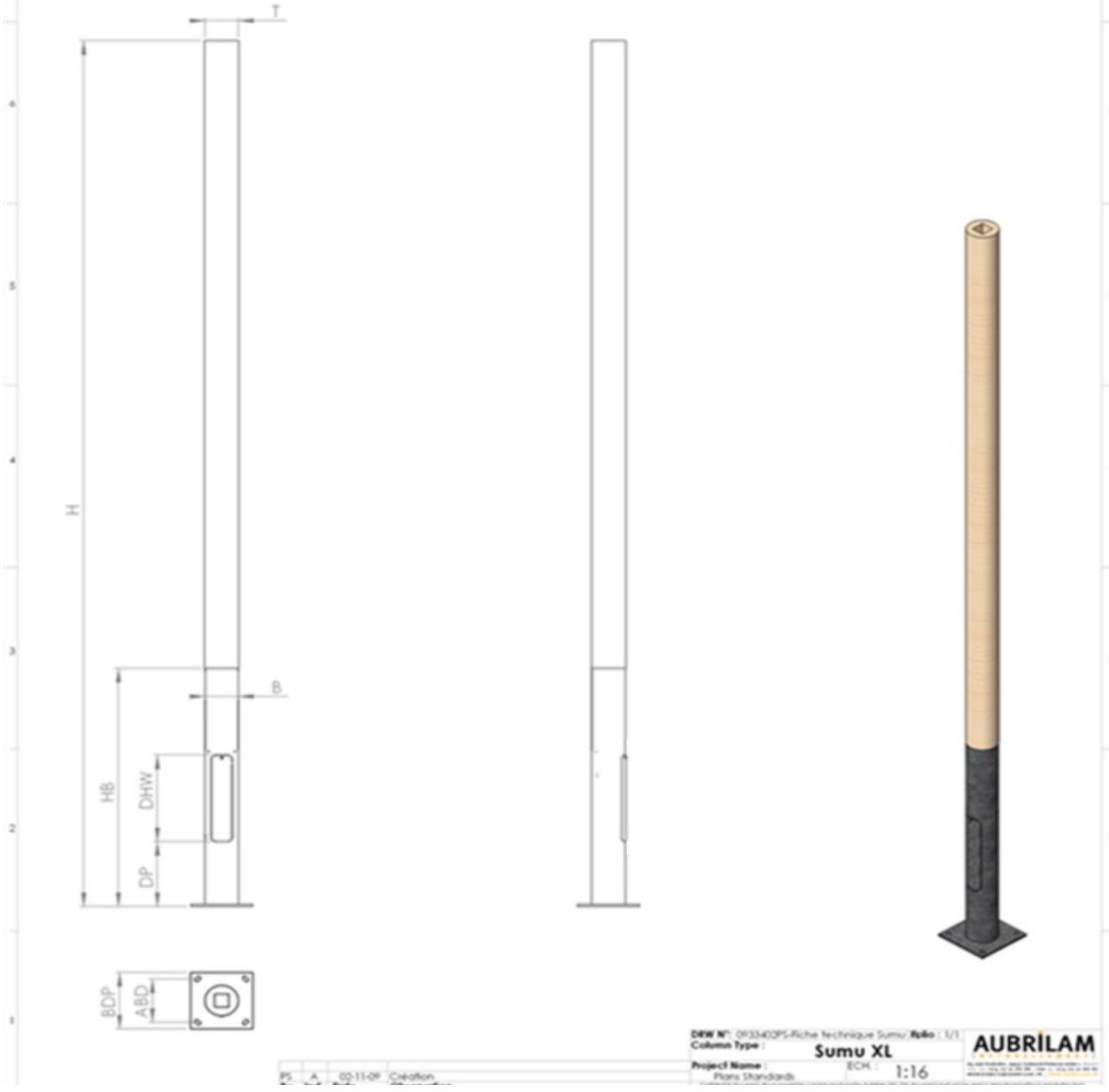
	Moment capacity in torsion	
Pole size	$M_{t,Rk}$ *(daN.m)*	$M_{t,Rd}$ *(daN.m)*
140	41,3	28,6
168	61,9	44,6
194	77,0	53,3

Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	140	0,67	1,06	1,34	0,60	0,96	1,22	0,48	0,79	1,01	0,44	0,73	0,92	0,36	0,61	0,78	0,29	0,51	0,66	0,20	0,38	0,51	0,14	0,29	0,40
3,5	140	0,47	0,74	1,03	0,42	0,68	0,95	0,32	0,55	0,78	0,28	0,49	0,70	0,22	0,40	0,59	0,16	0,33	0,49	0,09	0,23	0,36		0,16	0,27
	168	0,95	1,44	1,98	0,85	1,30	1,81	0,68	1,08	1,51	0,62	0,99	1,38	0,50	0,83	1,16	0,41	0,70	0,98	0,29	0,53	0,77	0,20	0,40	0,60
4,0	140	0,29	0,52	0,78	0,24	0,46	0,70	0,17	0,35	0,55	0,14	0,31	0,50	0,09	0,24	0,40		0,17	0,31		0,10	0,21			0,13
	168	0,71	1,13	1,62	0,64	1,02	1,48	0,50	0,83	1,22	0,44	0,75	1,10	0,34	0,81	0,92	0,26	0,50	0,77	0,16	0,36	0,58	0,09	0,25	0,44
5,0	140	0,05	0,21	0,42		0,16	0,36		0,09	0,26			0,22			0,14			0,08						
	168	0,32	0,58	1,02	0,26	0,51	0,91	0,16	0,38	0,71	0,13	0,33	0,64		0,24	0,50		0,16	0,38			0,24			0,14
6,0	168		0,26	0,57		0,20	0,48		0,10	0,34			0,29			0,18			0,10						
	194	0,45	0,81	1,41	0,37	0,70	1,24	0,24	0,52	0,98	0,19	0,45	0,88	0,08	0,32	0,69		0,22	0,54		0,09	0,35			0,21

Sumu **SCx for centered equipments**

Annex 4 of European Technical Assessment **ETA – 16/0089**

Height (m)	Base (mm)	Top (mm)	Height Of Base (mm)	Door Position (mm)	Door Height x Width (mm)	Base Plate Dim (mm)	Anchor Bolts Distance (mm)	Wall Thickness (mm)	Recommanded anchorage HA S500
H	B	T	HB	DP	DHW	BPD	ABD		
3	115	115	1000	300	300x90	260	200	35	4 HA16/M14 - 300
3.5	115	115	1000	300	300x90	260	200	35	4 HA16/M14 - 300
4	115	115	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	140	140	1100	300	400x90	260	200	40	4 HA16/M14 - 300
5	115	115	1000	300	300x90	260	200	35	4 HA16/M14 - 300
	140	140	1100	300	400x90	260	200	40	4 HA16/M14 - 300
	168	168	1200	350	450x90	260	200	45	4 HA16/M14 - 300
6	140	140	1100	300	400x90	260	200	40	4 HA16/M14 - 300
	168	168	1200	350	450x90	260	200	45	4 HA16/M14 - 300
	194	194	1200	350	450x100	260	200	50	4 HA20/M18 - 400



Sumu XL	**Dimensions and drawing of the Lighting columns**	**Annex 5** of European Technical Assessment **ETA – 16/0089**

		Maximum design value of the forces at the base of the lighting column	
		Bending	**Shear**
Height	***Pole size***	M_d *(daN.m)*	V_d *(daN)*
3,0	***115***	**391**	**178**
3,5	***115***	**383**	**166**
4,0	***115***	**365**	**157**
	140	**650**	**242**
5,0	***115***	**331**	**119**
	140	**615**	**209**
	168	**1 032**	**328**
6,0	***140***	**568**	**170**
	168	**1 011**	**295**
	194	**1 515**	**424**

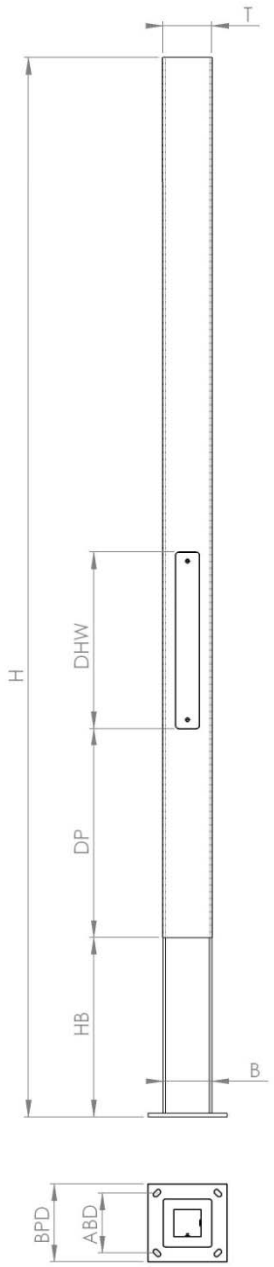
	Moment capacity in torsion	
Pole size	$M_{t,Rk}$ *(daN.m)*	$M_{t,Rd}$ *(daN.m)*
115	**25,2**	**17,4**
140	**39,3**	**27,2**
168	**59,5**	**41,2**
194	**74,4**	**51,5**

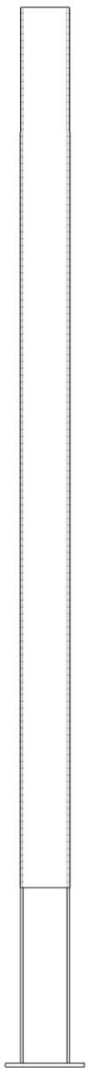
Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	115	0,83	1,28	1,60	0,75	1,17	1,46	0,62	0,98	1,23	0,57	0,90	1,13	0,47	0,76	0,96	0,39	0,64	0,82	0,30	0,51	0,65	0,23	0,40	0,53
3,5	115	0,61	0,93	1,29	0,54	0,85	1,17	0,44	0,70	0,98	0,40	0,64	0,89	0,32	0,53	0,75	0,25	0,44	0,63	0,18	0,34	0,49	0,12	0,25	0,38
4,0	115	0,44	0,70	1,01	0,38	0,63	0,92	0,30	0,51	0,75	0,26	0,46	0,69	0,20	0,37	0,57	0,14	0,29	0,46	0,08	0,21	0,34		0,14	0,26
	140	0,91	1,37	1,94	0,81	1,25	1,78	0,66	1,03	1,48	0,60	0,95	1,36	0,48	0,79	1,15	0,39	0,65	0,97	0,28	0,50	0,76	0,19	0,38	0,60
5,0	115	0,18	0,35	0,62	0,14	0,30	0,54	0,08	0,22	0,42		0,18	0,38		0,12	0,29		0,07	0,21			0,13			
	140	0,51	0,82	1,35	0,44	0,73	1,21	0,33	0,58	0,99	0,28	0,52	0,89	0,20	0,41	0,73	0,14	0,31	0,59		0,21	0,43		0,12	0,31
	168	1,02	1,54	2,44	0,91	1,38	2,22	0,72	1,13	1,84	0,64	1,03	1,68	0,51	0,84	1,40	0,39	0,69	1,18	0,30	0,53	0,91	0,16	0,37	0,70
6,0	140	0,23	0,45	0,82	0,18	0,38	0,73	0,09	0,27	0,56		0,23	0,50		0,15	0,37		0,08	0,28			0,16			
	168	0,65	1,04	1,70	0,55	0,92	1,54	0,40	0,72	1,25	0,34	0,64	1,13	0,24	0,49	0,91	0,15	0,37	0,74		0,23	0,53		0,12	0,37
	194	1,14	1,72	2,75	1,00	1,54	2,49	0,78	1,24	2,05	0,69	1,12	1,87	0,53	0,91	1,55	0,39	0,73	1,29	0,23	0,52	0,98	0,11	0,35	0,74

<u>Sumu XL</u> **SCx for centered equipments**

Annex 5 of European Technical Assessment **ETA – 16/0089**

D			C			B			A
Height (m)	**Base** (mm)	**Top** (mm)	**Height of the base** (mm)	**Door position** (mm)	**Door H x W** (mm)	**Size of the base slab** (mm)	**Anchor bolts distance** (mm)	**Partition thickness** (mm)	**Recommended anchoring** *HA S500*
H	B	T	HB	DP	DHW	BPD	ABD		
3	120	120	500	700	580x70	260	200	25	*4 HA16/M14 - 300*
	140	140	600	600	580x80	260	200	30	*4 HA16/M14 - 300*
3.5	120	120	500	700	580x70	260	200	25	*4 HA16/M14 - 300*
	140	140	600	600	580x80	260	200	30	*4 HA16/M14 - 300*
4	120	120	500	700	580x70	260	200	25	*4 HA16/M14 - 300*
	140	140	600	600	580x80	260	200	30	*4 HA16/M14 - 300*
5	120	120	500	700	580x70	260	200	25	*4 HA16/M14 - 300*
	140	140	600	600	580x80	260	200	30	*4 HA16/M14 - 300*
	160	160	600	700	580x80	260	200	35	*4 HA16/M14 - 300*
6	140	140	600	600	580x80	260	200	30	*4 HA16/M14 - 300*
	160	160	600	700	580x80	260	200	35	*4 HA16/M14 - 300*
	200	200	750	650	580x100	400	300	40	*4 HA20/M18 - 400*





Moshi

Dimensions and drawing of the Lighting columns

Annex 6 of European Technical Assessment **ETA – 16/0089**

Height	Pole size	Maximum design value of the forces at the base of the lighting column	
		Bending	Shear
		M_d *(daN.m)*	V_d *(daN)*
3,0	120	539	262
	140	839	377
3,5	120	537	251
	140	839	357
4,0	120	518	225
	140	817	339
5,0	120	466	167
	140	770	280
	160	1 252	451
6,0	140	738	232
	160	1 158	345
	200	2 249	642

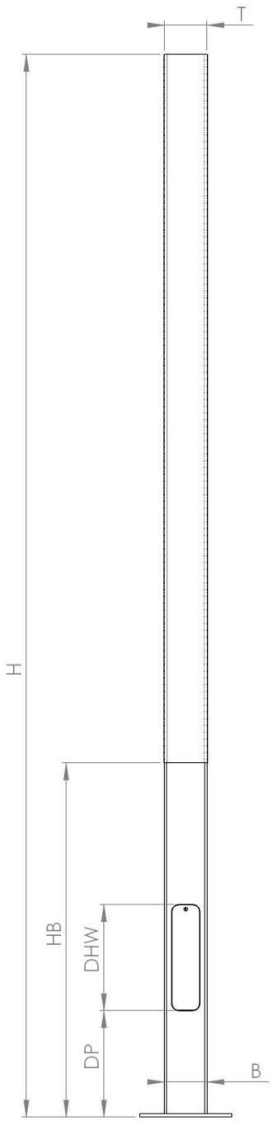
Pole size	Moment capacity in torsion	
	$M_{t,Rk}$ *(daN.m)*	$M_{t,Rd}$ *(daN.m)*
120	99,4	42,9
140	160	69,3
160	248	107
200	467	202

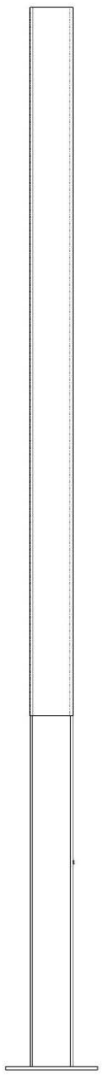
Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	120	1,06	1,62	2,03	0,98	1,48	1,81	0,80	1,26	1,55	0,71	1,15	1,44	0,58	0,97	1,23	0,49	0,83	1,07	0,36	0,65	0,84	0,26	0,51	0,67
	140	1,55	2,40	3,00	1,40	2,19	2,74	1,15	1,82	2,30	1,04	1,65	2,10	0,86	1,41	1,78	0,72	1,19	1,52	0,54	0,94	1,21	0,59	0,95	1,21
3,5	120	0,70	1,08	1,50	0,63	0,99	1,38	0,51	0,82	1,15	0,45	0,74	1,04	0,36	0,61	0,88	0,30	0,52	0,75	0,19	0,39	0,58	0,12	0,30	0,46
	140	1,16	1,79	2,48	1,03	1,62	2,24	0,82	1,33	1,86	0,74	1,20	1,70	0,59	1,00	1,41	0,47	0,83	1,20	0,33	0,63	0,93	0,33	0,58	0,84
4,0	120	0,47	0,78	1,15	0,42	0,70	1,04	0,32	0,56	0,85	0,27	0,50	0,76	0,20	0,40	0,63	0,14	0,32	0,52		0,22	0,39		0,15	0,28
	140	0,84	1,35	1,94	0,74	1,22	1,79	0,56	0,98	1,46	0,50	0,88	1,32	0,37	0,71	1,08	0,27	0,57	0,89	0,15	0,40	0,67		0,27	0,49
5,0	120	0,15	0,35	0,67	0,12	0,30	0,60		0,21	0,45		0,16	0,38		0,09	0,29			0,21			0,09			
	140	0,36	0,68	1,23	0,28	0,60	1,10	0,16	0,43	0,85	0,11	0,36	0,74		0,24	0,57		0,15	0,43			0,25			0,12
	160	0,91	1,43	2,33	0,81	1,30	2,14	0,62	1,04	1,76	0,54	0,91	1,58	0,40	0,74	1,30	0,29	0,60	1,09	0,15	0,42	0,83		0,28	0,62
6,0	140		0,28	0,68		0,21	0,58		0,09	0,39			0,31			0,18			0,08						
	160	0,44	0,82	1,48	0,37	0,72	1,33	0,22	0,53	1,05	0,14	0,43	0,92		0,30	0,71		0,19	0,56			0,36			0,18
	200	1,29	2,00	3,28	1,14	1,81	3,01	0,87	1,44	2,47	0,73	1,26	2,20	0,51	1,00	1,82	0,38	0,80	1,52	0,16	0,53	1,13		0,33	0,83

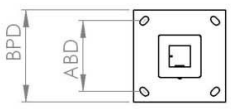
Moshi **SCx for centered equipments**

Annex 6 of European Technical Assessment **ETA – 16/0089**

	D		C			B			A
Height (m)	**Base** (mm)	**Top** (mm)	**Height of the base** (mm)	**Door position** (mm)	**Door H x W** (mm)	**Size of the base slab** (mm)	**Anchor bolts distance** (mm)	**Partition thickness** (mm)	**Recommended anchoring** *HA S500*
H	B	T	HB	DP	DHW	BPD	ABD		
3	120	120	1000	300	300x80	260	200	30	*4 HA16/M14 - 300*
3.5	120	120	1000	300	300x80	260	200	30	*4 HA16/M14 - 300*
4	120	120	1000	300	300x80	260	200	30	*4 HA16/M14 - 300*
	140	140	1200	350	400x90	260	200	30	*4 HA16/M14 - 300*
5	120	120	1000	300	300x80	260	200	30	*4 HA16/M14 - 300*
	140	140	1200	350	400x90	260	200	30	*4 HA16/M14 - 300*
6	140	140	1200	350	400x90	260	200	30	*4 HA16/M14 - 300*
	160	160	1200	350	450x90	260	200	40	*4 HA20/M18 - 400*







Moshi XL **Dimensions and drawing of the Lighting columns**

Annex 7 of European Technical Assessment **ETA – 16/0089**

		Maximum design value of the forces at the base of the lighting column	
		Bending	**Shear**
Height	*Pole size*	M_d *(daN.m)*	V_d *(daN)*
3,0	*120*	742	330
3,5	*120*	707	300
4,0	*120*	689	285
	140	1 117	414
5,0	*120*	643	230
	140	1 071	386
6,0	*140*	974	293
	160	1 532	463

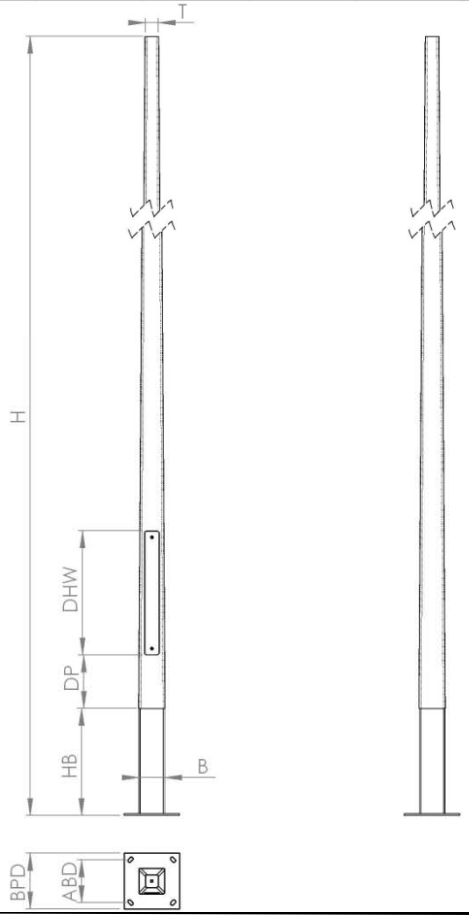
	Moment capacity in torsion	
Pole size	$M_{t,Rk}$ *(daN.m)*	$M_{t,Rd}$ *(daN.m)*
120	79	56,7
140	118	84,7
160	187	134

Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	120	1,62	2,47	3,07	1,47	2,26	2,81	1,22	1,89	2,37	1,11	1,74	2,18	0,93	1,47	1,85	0,78	1,26	1,59	0,60	1,00	1,28	0,47	0,81	1,04
3,5	120	1,15	1,76	2,42	1,03	1,60	2,20	0,84	1,32	1,83	0,75	1,20	1,68	0,61	1,00	1,41	0,50	0,84	1,20	0,36	0,65	0,94	0,25	0,50	0,74
4,0	120	0,87	1,35	1,95	0,77	1,23	1,78	0,60	1,00	1,47	0,53	0,90	1,33	0,41	0,73	1,10	0,32	0,60	0,92	0,20	0,44	0,70	0,11	0,31	0,53
	140	1,57	2,35	3,32	1,41	2,16	3,07	1,14	1,78	2,56	1,03	1,62	2,33	0,83	1,36	1,97	0,68	1,14	1,67	0,49	0,87	1,32	0,34	0,67	1,04
5,0	120	0,41	0,74	1,26	0,34	0,64	1,13	0,22	0,49	0,90	0,17	0,42	0,80	0,09	0,30	0,62		0,21	0,49		0,10	0,32			0,19
	140	0,91	1,40	2,28	0,79	1,29	2,12	0,60	1,03	1,74	0,51	0,90	1,53	0,37	0,72	1,26	0,26	0,57	1,06	0,12	0,38	0,78		0,24	0,57
6,0	140	0,41	0,79	1,42	0,32	0,67	1,26	0,18	0,48	0,98	0,11	0,40	0,86		0,26	0,65		0,15	0,49			0,29			0,14
	160	0,92	1,50	2,50	0,78	1,33	2,27	0,56	1,03	1,83	0,46	0,89	1,63	0,29	0,68	1,31	0,17	0,51	1,06		0,30	0,75		0,13	0,51

Moshi XL **SCx for centered equipments**

Annex 7 of European Technical Assessment **ETA – 16/0089**

D			C			B			A
Height (m)	**Base** (mm)	**Top** (mm)	**Height of the base** (mm)	**Door position** (mm)	**Door H x W** (mm)	**Size of the base slab** (mm)	**Anchor bolts distance** (mm)	**Partition thickness** (mm)	**Recommended anchoring** *HA S500*
H	B	T	HB	DP	DHW	BPD	ABD		
3	120	60	500	250	580x70	260	200	25	*4 HA16/M14 300*
	120	76	500	250	580x70	260	200	25	*4 HA16/M14 - 300*
	140	100	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
	140	76	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
3.5	120	60	500	250	580x70	260	200	25	*4 HA16/M14 - 300*
	120	76	500	250	580x70	260	200	25	*4 HA16/M14 - 300*
	140	100	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
	140	76	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
4	120	60	500	250	580x70	260	200	25	*4 HA16/M14 - 300*
	120	76	500	250	580x70	260	200	25	*4 HA16/M14 - 300*
	140	100	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
	140	76	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
5	120	60	500	250	580x70	260	200	25	*4 HA16/M14 - 300*
	120	76	500	250	580x70	260	200	25	*4 HA16/M14 - 300*
	140	100	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
	140	76	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
	160	120	600	500	580x80	260	200	35	*4 HA16/M14 - 300*
6	140	100	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
	140	76	600	300	580x80	260	200	30	*4 HA16/M14 - 300*
	160	120	600	500	580x80	260	200	35	*4 HA16/M14 - 300*
7	160	120	600	500	580x80	260	200	35	*4 HA16/M14 - 300*
	200	120	750	550	580x100	400	300	40	*4 HA20/M18 - 400*
	220	140	750	550	580x100	400	300	45	*4 HA20/M18 - 400*
8	200	120	750	550	580x100	400	300	40	*4 HA20/M18 - 400*
	220	140	750	550	580x100	400	300	45	*4 HA20/M18 - 400*
	250	140	750	650	580x100	400	300	45	*4 HA25/M24 - 600*
9	220	140	750	550	580x100	400	300	45	*4 HA20/M18 - 400*
	250	140	750	650	580x100	400	300	45	*4 HA25/M24 - 600*
	300	160	1000	600	580x120	500	400	50	*8 HA20/M18 - 400*
10	250	140	750	650	580x100	400	300	45	*4 HA25/M24 - 600*
	300	160	1000	600	580x120	500	400	50	*8 HA20/M18 - 400*
	350	160	1200	800	580x120	550	450	50	*8 HA25/M24 - 600*
11	300	160	1000	600	580x120	500	400	50	*8 HA20/M18 - 400*
	350	160	1200	800	580x120	550	450	50	*8 HA25/M24 - 600*
	400	160	1200	800	580x120	600	500	50	*8 HA25/M24 - 600*
12	300	160	1000	600	580x120	500	400	50	*8 HA20/M18 - 400*
	350	160	1200	800	580x120	550	450	50	*8 HA25/M24 - 600*
	400	160	1200	800	580x120	600	500	50	*8 HA25/M24 - 600*
14	300	160	1000	600	580x120	500	400	50	*8 HA20/M18 - 400*
	350	160	1200	800	580x120	550	450	50	*8 HA25/M24 - 600*
	400	160	1200	800	580x120	600	500	50	*8 HA25/M24 - 600*
16	300	160	1000	600	580x120	500	400	50	*8 HA20/M18 - 400*
	350	160	1200	800	580x120	550	450	50	*8 HA25/M24 - 600*
	400	160	1200	800	580x120	600	500	50	*8 HA25/M24 - 600*



Siléa

Dimensions and drawing of the Lighting columns

Annex 8 of European Technical Assessment **ETA – 16/0089**

Height	Pole size	Bending M_d *(daN.m)*	Shear V_d *(daN)*
3,0	*120-60*	343	185
	120-76	390	203
	140	646	307
	140-76	578	280
3,5	*120-60*	368	187
	120-76	396	199
	140	642	291
	140-76	596	272
4,0	*120-60*	373	173
	120-76	384	180
	140	635	282
	140-76	596	265
5,0	*120-60*	360	147
	120-76	366	140
	140	601	219
	140-76	587	225
	160	1 027	362
6,0	*140*	577	179
	140-76	563	186
	160	986	304
7,0	*160*	952	268
	200	1 824	496
	220	2 563	678
8,0	*200*	1 775	441
	220	2 501	604
	250	3 609	853
9,0	*220*	2 465	550
	250	3 601	786
	300	6 158	1 325
10,0	*250*	3 528	702
	300	6 040	1 201
	350	9 366	1 762
11,0	*300*	5 936	1 077
	350	9 483	1 771
	400	12 465	2 034
12,0	*300*	5 838	982
	350	9 376	1 610
	400	12 560	1 997
14,0	*300*	5 679	828
	350	9 036	1 333
	400	12 700	1 874
16,0	*350*	8 938	1 151
	400	12 345	1 580

	Moment capacity in torsion	
Pole size	$M_{t,Rk}$ *(daN.m)*	$M_{t,Rd}$ *(daN.m)*
120/60	90	39
120/76	90	39
140/76	142	61
140	148	64
160	227	98
200	364	157
220	584	252
250	806	348
300	1349	583
350	1919	829
400	2639	1140

Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2			2	3			3	0			0	2			2	3			3	0		
3,0	120-60	0,60	0,91	1,13	0,56	0,86	1,07	0,46	0,72	0,90	0,42	0,66	0,82	0,35	0,56	0,70	0,31	0,49	0,61	0,22	0,39	0,49	0,17	0,31	0,40
	120-76	0,72	1,10	1,37	0,66	1,03	1,28	0,56	0,86	1,08	0,49	0,79	0,99	0,41	0,66	0,84	0,34	0,57	0,72	0,26	0,45	0,58	0,19	0,36	0,46
	140	1,31	1,99	2,48	1,22	1,86	2,31	1,01	1,57	1,95	0,93	1,44	1,80	0,78	1,23	1,54	0,66	1,06	1,33	0,51	0,85	1,07	0,40	0,69	0,88
	140-76	1,12	1,67	2,07	1,05	1,57	1,94	0,86	1,32	1,64	0,81	1,22	1,52	0,69	1,05	1,31	0,58	0,91	1,13	0,46	0,74	0,93	0,37	0,60	0,77
3,5	120-60	0,45	0,69	0,95	0,42	0,65	0,89	0,33	0,54	0,75	0,31	0,48	0,68	0,25	0,41	0,57	0,20	0,35	0,49	0,14	0,27	0,39	0,10	0,21	0,31
	120-76	0,51	0,79	1,10	0,46	0,73	1,02	0,38	0,58	0,83	0,33	0,54	0,77	0,26	0,45	0,64	0,21	0,38	0,55	0,14	0,28	0,43	0,09	0,21	0,33
	140	0,95	1,44	1,97	0,88	1,34	1,84	0,70	1,11	1,54	0,65	1,02	1,41	0,54	0,86	1,20	0,43	0,72	1,02	0,32	0,56	0,81	0,23	0,44	0,65
	140-76	0,86	1,27	1,72	0,79	1,18	1,62	0,64	0,99	1,35	0,60	0,91	1,25	0,50	0,77	1,07	0,41	0,66	0,92	0,31	0,52	0,74	0,24	0,42	0,60
4,0	120-60	0,36	0,57	0,81	0,32	0,52	0,75	0,24	0,42	0,62	0,22	0,38	0,55	0,17	0,31	0,46	0,14	0,26	0,39	0,08	0,19	0,30		0,14	0,23
	120-76	0,38	0,62	0,90	0,33	0,55	0,81	0,25	0,45	0,67	0,22	0,39	0,60	0,16	0,32	0,49	0,11	0,25	0,41		0,17	0,30		0,11	0,22
	140	0,73	1,15	1,63	0,65	1,03	1,49	0,51	0,84	1,23	0,47	0,76	1,12	0,37	0,63	0,94	0,28	0,52	0,79	0,18	0,39	0,61	0,10	0,28	0,47
	140-76	0,69	1,05	1,49	0,63	0,96	1,36	0,49	0,79	1,13	0,46	0,73	1,04	0,37	0,60	0,88	0,30	0,51	0,75	0,20	0,39	0,59	0,13	0,30	0,47
5,0	120-60	0,19	0,34	0,57	0,16	0,29	0,52	0,10	0,23	0,41		0,20	0,36		0,14	0,29		0,10	0,23			0,16			0,09
	120-76	0,16	0,32	0,59	0,12	0,28	0,52		0,20	0,40		0,17	0,35		0,11	0,26			0,19			0,11			
	140	0,38	0,65	1,11	0,32	0,57	0,99	0,20	0,44	0,79	0,16	0,38	0,71	0,08	0,28	0,57		0,20	0,45		0,11	0,31			0,20
	140-76	0,41	0,66	1,08	0,36	0,58	0,97	0,25	0,46	0,79	0,22	0,41	0,72	0,14	0,33	0,59	0,08	0,25	0,49		0,16	0,35		0,09	0,24
	160	0,81	1,27	2,06	0,72	1,13	1,86	0,54	0,91	1,53	0,48	0,82	1,39	0,36	0,66	1,15	0,25	0,53	0,96	0,13	0,37	0,72		0,25	0,54
6,0	140	0,11	0,34	0,67		0,27	0,60		0,17	0,44		0,12	0,39			0,25			0,15						
	140-76	0,18	0,40	0,72	0,13	0,34	0,64		0,23	0,49		0,19	0,44		0,10	0,32			0,22			0,13			
	160	0,44	0,78	1,37	0,36	0,68	1,22	0,22	0,51	0,97	0,16	0,44	0,86		0,31	0,68		0,20	0,53		0,09	0,35			0,21
7,0	160		0,27	0,67		0,20	0,57			0,39			0,30			0,17									
	200	0,59	1,00	1,74	0,49	0,88	1,56	0,31	0,66	1,24	0,23	0,57	1,10	0,09	0,41	0,87		0,27	0,69		0,09	0,45			0,25
	220	1,03	1,62	2,66	0,88	1,44	2,40	0,64	1,12	1,94	0,53	0,99	1,75	0,34	0,76	1,42	0,18	0,57	1,15		0,33	0,83		0,14	0,57
8,0	200	0,26	0,63	1,22	0,16	0,52	1,07		0,33	0,80		0,24	0,69		0,09	0,50			0,32			0,17			
	220	0,61	1,10	1,93	0,48	0,95	1,72	0,25	0,68	1,34	0,15	0,57	1,18		0,36	0,92		0,18	0,69			0,40			0,18
	250	1,25	1,94	3,16	1,08	1,73	2,84	0,78	1,34	2,30	0,64	1,18	2,06	0,40	0,90	1,68	0,21	0,67	1,36		0,38	0,98		0,14	0,66
9,0	220	0,24	0,68	1,39	0,12	0,55	1,20		0,31	0,88		0,21	0,75			0,51			0,30						
	250	0,82	1,41	2,42	0,67	1,22	2,15	0,39	0,89	1,69	0,26	0,74	1,49		0,51	1,16		0,29	0,89			0,55			0,28
	300	1,97	2,94	4,60	1,71	2,61	4,16	1,28	2,06	3,40	1,09	1,82	3,09	0,78	1,42	2,52	0,49	1,09	2,06	0,15	0,70	1,51		0,37	1,10
10,0	250	0,42	0,95	1,83	0,27	0,79	1,59		0,49	1,19		0,35	1,00		0,12	0,73			0,47			0,16			
	300	1,40	2,24	3,69	1,18	1,95	3,29	0,80	1,47	2,62	0,62	1,26	2,33	0,30	0,91	1,84		0,63	1,45		0,24	0,98			0,59
	350										1,72	2,63	4,20	1,29	2,11	3,49	0,89	1,68	2,90	0,43	1,16	2,20		0,70	1,64

Siléa

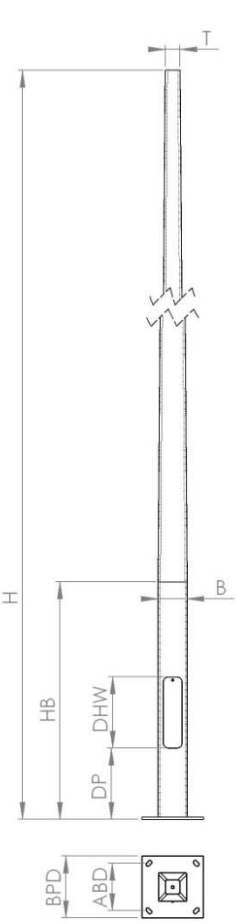
SCx for centered equipments

Annex 8 of European Technical Assessment **ETA – 16/0089**

Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
11,0	300	0,92	1,66	2,91	0,72	1,40	2,56	0,33	0,97	1,96	0,17	0,79	1,72		0,46	1,29		0,18	0,94			0,50			0,14
	350	2,24	3,31	5,00	1,92	2,92	4,62	1,40	2,28	3,74	1,18	2,00	3,37	0,81	1,53	2,74	0,46	1,14	2,22		0,68	1,59		0,27	1,10
	400													1,58	2,71	4,56	1,10	2,11	3,74	0,53	1,39	2,76		0,84	2,01
12,0	300	0,47	1,16	2,26	0,26	0,93	1,94		0,53	1,42		0,34	1,20			0,82			0,53						
	350	1,67	2,65	4,25	1,39	2,29	3,79	0,92	1,70	3,00	0,72	1,45	2,68	0,33	1,02	2,10		0,67	1,63		0,21	1,06			0,68
	400										1,59	2,75	4,62	1,05	2,07	3,73	0,61	1,52	2,99		0,87	2,10		0,37	1,42
14,0	300		0,28	1,23			0,97			0,50			0,30												
	350	0,72	1,53	2,88	0,44	1,24	2,49		0,74	1,82		0,51	1,54		0,11	1,06			0,66			0,13			
	400	1,90	3,18	5,00	1,52	2,73	4,52	0,87	1,93	3,56	0,60	1,59	3,16	0,14	1,01	2,40		0,54	1,77			1,02			0,44
16,0	350		0,42	1,54		0,15	1,21			0,65			0,42												
	400	0,48	1,54	3,28	0,17	1,16	2,76		0,50	1,89		0,23	1,53			0,90			0,39						

Siléa	**SCx for centered equipments**	**Annex 8** of European Technical Assessment **ETA – 16/0089**

	D		C			B			A
Height (m)	Base (mm)	Top (mm)	Height of the base (mm)	Door position (mm)	Door H x W (mm)	Size of the base slab (mm)	Anchor bolts distance (mm)	Partition thickness (mm)	Recommended anchoring HA S500
H	B	T	HB	DP	DHW	BPD	ABD		
3	120	60	1000	300	300x80	260	200	25	4 HA16/M14 - 300
	120	76	1000	300	300x80	260	200	25	4 HA16/M14 - 300
3.5	120	60	1000	300	300x80	260	200	25	4 HA16/M14 - 300
	120	76	1000	300	300x80	260	200	25	4 HA16/M14 - 300
4	120	60	1000	300	300x80	260	200	25	4 HA16/M14 - 300
	120	76	1000	300	300x80	260	200	25	4 HA16/M14 - 300
	140	76	1200	350	400x90	260	200	30	4 HA16/M14 - 300
5	120	60	1000	300	300x80	260	200	25	4 HA16/M14 - 300
	140	76	1200	350	400x90	260	200	30	4 HA16/M14 - 300
	160	120	1200	350	450x90	260	200	40	4 HA20/M18 - 400
6	140	76	1200	350	400x80	260	200	30	4 HA16/M14 - 300
	160	120	1200	350	450x90	260	200	40	4 HA20/M18 - 400
	200	120	1500	400	500x100	400	300	40	4 HA20/M18 - 400
7	160	120	1200	350	450x90	260	200	40	4 HA20/M18 - 400
	200	120	1500	400	500x100	400	300	40	4 HA20/M18 - 400
8	200	120	1500	400	500x100	400	300	40	4 HA20/M18 - 400
	220	140	1500	400	500x100	400	300	50	4 HA25/M24 - 600
	250	140	1500	400	500x120	400	300	50	4 HA25/M24 - 600
9	200	120	1500	400	500x100	400	300	40	4 HA20/M18 - 400
	220	140	1500	400	500x100	400	300	50	4 HA25/M24 - 600
	250	140	1500	400	500x120	400	300	50	4 HA25/M24 - 600
10	220	140	1500	400	500x100	400	300	50	4 HA25/M24 - 600
	250	140	1500	400	500x120	400	300	50	4 HA25/M24 - 600
	300	160	1500	350	500x120	500	400	55	8 HA25/M24 - 600
11	300	160	1500	350	500x120	500	400	55	8 HA25/M24 - 600
	350	160	1500	350	500x120	550	450	55	8 HA25/M24 - 600
12	300	160	1500	350	500x120	500	400	55	8 HA25/M24 - 600
	350	160	1500	350	500x120	550	450	55	8 HA25/M24 - 600
14	300	160	1500	350	500x120	500	400	55	8 HA25/M24 - 600
	350	160	1500	350	500x120	550	450	55	8 HA25/M24 - 600
16	300	160	1500	350	500x120	500	400	55	8 HA25/M24 - 600
	350	160	1500	350	500x120	550	450	55	8 HA25/M24 - 600



Siléa XL	**Dimensions and drawing of the Lighting columns**	**Annex 9** of European Technical Assessment **ETA – 16/0089**

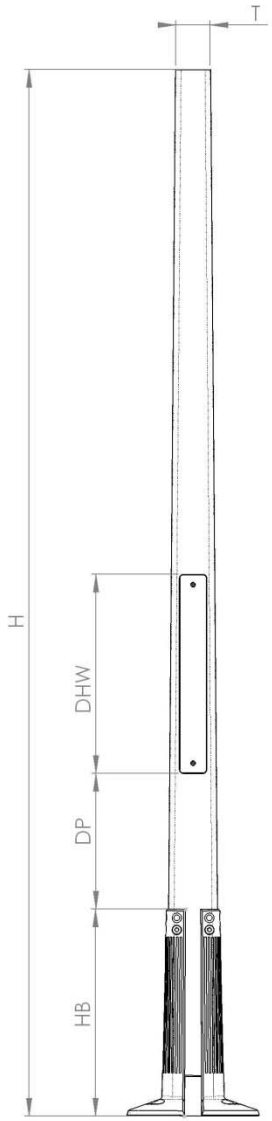
Height	Pole size	Maximum design value of the forces at the base of the lighting column: Bending M_d (daN.m)	Shear V_d (daN)
3,0	120-60	688	304
3,5	**120-60**	**654**	**273**
4,0	120-60	638	258
	140-76	1 088	394
5,0	**120-60**	**619**	**246**
	140-76	**1 047**	**361**
	160	**1 588**	**506**
6,0	140 - 76	1 009	323
	160	1 512	445
	200	2 944	775
7,0	**160**	**1 436**	**393**
	200	**2 968**	**813**
8,0	200	2 756	661
	220	3 866	934
	250	5 357	1 234
9,0	**200**	**2 636**	**588**
	220	**3 643**	**778**
	250	**5 219**	**1 151**
10,0	220	3 454	657
	250	4 900	932
	300	8 415	1 698
11,0	**300**	**7 981**	**1 421**
	350	**12 439**	**2 214**
12,0	300	7 800	1 291
	350	12 118	2 012
14,0	**300**	**7 358**	**1 044**
	350	**11 412**	**1 602**
16,0	350	10 950	1 409
	400	16 159	2 031

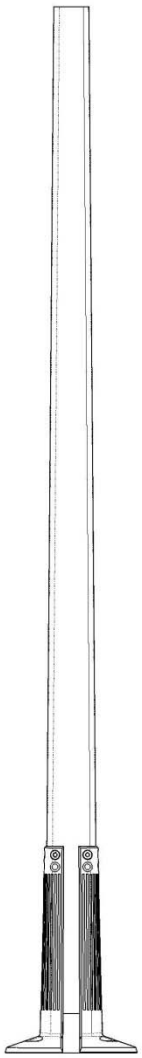
Pole size	Moment capacity in torsion: $M_{t,Rk}$ (daN.m)	$M_{t,Rd}$ (daN.m)
120/60	**73**	**52,6**
140/76	**118**	**84,7**
160	**187**	**134**
200	**332**	**239**
220	**468**	**337**
250	**648**	**467**
300	**1070**	**770**
350	**1551**	**1117**
400	**2121**	**1527**

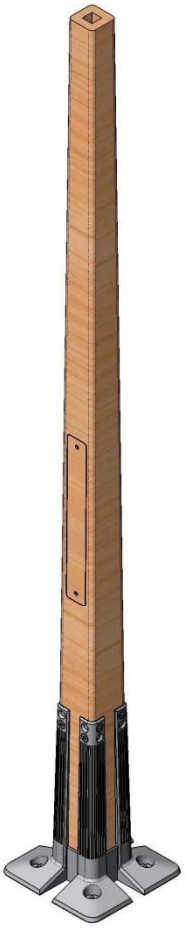
Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	120-60	1,58	2,37	2,93	1,45	2,18	2,70	1,22	1,85	2,30	1,11	1,69	2,10	0,93	1,44	1,80	0,81	1,26	1,57	0,63	1,00	1,26	0,51	0,83	1,05
	120-76	1,55	2,34	2,90	1,42	2,16	2,68	1,19	1,82	2,27	1,08	1,66	2,07	0,91	1,41	1,76	0,78	1,23	1,54	0,61	0,98	1,23	0,49	0,80	1,02
3,5	120-60	1,16	1,72	2,33	1,06	1,58	2,15	0,87	1,32	1,81	0,79	1,21	1,65	0,66	1,02	1,40	0,56	0,88	1,22	0,43	0,69	0,96	0,33	0,56	0,79
	120-76	1,12	1,69	2,29	1,03	1,55	2,11	0,87	1,32	1,81	0,76	1,17	1,62	0,63	0,98	1,36	0,53	0,85	1,18	0,39	0,66	0,93	0,30	0,53	0,76
4,0	120-60	0,91	1,38	1,93	0,83	1,26	1,78	0,68	1,04	1,48	0,60	0,95	1,35	0,49	0,79	1,14	0,41	0,67	0,98	0,29	0,51	0,76	0,22	0,40	0,61
	120-76	0,87	1,34	1,89	0,79	1,22	1,74	0,64	1,01	1,45	0,57	0,91	1,31	0,45	0,75	1,10	0,37	0,64	0,94	0,26	0,48	0,72	0,18	0,37	0,57
	140-76	1,66	2,45	3,41	1,52	2,25	3,14	1,26	1,88	2,65	1,13	1,72	2,41	0,94	1,45	2,06	0,80	1,25	1,78	0,61	0,98	1,41	0,47	0,79	1,16
5,0	120-60	0,55	0,87	1,39	0,49	0,79	1,27	0,38	0,63	1,04	0,33	0,56	0,93	0,25	0,45	0,77	0,18	0,36	0,64	0,10	0,25	0,48		0,17	0,36
	120-76	0,51	0,82	1,34	0,45	0,74	1,22	0,33	0,59	0,99	0,28	0,52	0,88	0,20	0,40	0,72	0,14	0,32	0,59		0,21	0,42		0,13	0,31
	140-76	1,06	1,59	2,49	0,96	1,44	2,28	0,76	1,18	1,90	0,67	1,07	1,72	0,53	0,88	1,44	0,43	0,73	1,23	0,29	0,54	0,94	0,19	0,41	0,74
	160																0,69	1,15	1,91	0,48	0,86	1,48	0,33	0,66	1,18
6,0	140-76	0,67	1,06	1,71	0,59	0,95	1,57	0,44	0,75	1,28	0,37	0,66	1,14	0,26	0,52	0,93	0,18	0,41	0,77		0,26	0,55		0,16	0,41
	160	1,03	1,62	2,63	0,92	1,46	2,39	0,69	1,16	1,96	0,58	1,02	1,75	0,42	0,80	1,43	0,30	0,64	1,19	0,14	0,42	0,87		0,27	0,65
	200																1,11	1,76	2,87	0,79	1,33	2,24	0,57	1,04	1,81
7,0	160	0,39	0,79	1,42	0,31	0,67	1,27	0,15	0,47	0,98	0,08	0,38	0,84		0,23	0,63		0,12	0,47			0,26			0,15
	200	1,52	2,28	3,55	1,35	2,04	3,24	1,03	1,65	2,70	0,88	1,47	2,44	0,65	1,17	2,01	0,48	0,93	1,68	0,25	0,63	1,24		0,42	0,94
8,0	200	0,92	1,53	2,54	0,78	1,34	2,30	0,53	1,02	1,82	0,41	0,87	1,61	0,23	0,63	1,27	0,09	0,45	1,02		0,21	0,68			0,44
	220										0,83	1,46	2,50	0,57	1,12	2,03	0,38	0,87	1,67	0,11	0,53	1,19		0,30	0,86
	250																0,88	1,55	2,65	0,52	1,08	2,00	0,26	0,76	1,54
9,0	200	0,50	1,00	1,82	0,38	0,85	1,61	0,17	0,58	1,22		0,45	1,05		0,25	0,77		0,10	0,56			0,28			0,09
	220	0,94	1,63	2,76	0,78	1,42	2,48	0,48	1,04	1,93	0,35	0,87	1,70	0,14	0,59	1,32		0,38	1,03		0,11	0,64			0,37
	250										0,96	1,69	2,88	0,66	1,29	2,33	0,43	1,00	1,91	0,12	0,60	1,36		0,32	0,97
10,0	220	0,46	1,03	1,95	0,32	0,85	1,72		0,54	1,27		0,40	1,07		0,16	0,76			0,52			0,20			
	250	1,14	1,94	3,24	0,94	1,68	2,90	0,60	1,23	2,28	0,43	1,04	1,99	0,18	0,70	1,55		0,46	1,21		0,13	0,75			0,44
	300										1,35	2,29	3,84	0,94	1,77	3,12	0,62	1,36	2,56	0,20	0,83	1,83		0,46	1,32

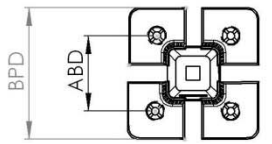
Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
11,0	300	1,94	3,05	4,90	1,62	2,65	4,40	1,10	2,00	3,46	0,88	1,72	3,10	0,51	1,25	2,44	0,21	0,87	1,90		0,42	1,27		0,10	0,93
	350													1,75	2,88	4,72	1,29	2,30	3,90	0,72	1,57	2,96	0,32	1,05	2,20
12,0	300	1,36	2,35	3,95	1,08	2,00	3,50	0,61	1,41	2,70	0,42	1,16	2,36	0,12	0,76	1,80		0,40	1,30			0,80			0,35
	350										1,65	2,76	4,60	1,12	2,11	3,73	0,71	1,59	3,02	0,21	0,96	2,15		0,47	1,48
14,0	300	0,32	1,10	2,36	0,10	0,82	2,00		0,34	1,36		0,15	1,09			0,66			0,28						
	350	1,66	2,85	4,80	1,31	2,41	4,20	0,72	1,66	3,21	0,47	1,37	2,80		0,86	2,12		0,43	1,51			0,86			0,34
16,0	350	0,33	1,27	2,82		0,92	2,35		0,33	1,56		0,10	1,25			0,69			0,23						
	400	1,80	3,20	5,00	1,38	2,68	4,72	0,67	1,80	3,62	0,38	1,42	3,12		0,82	2,30		0,28	1,57			0,76			0,15

	D		C			B			A
Height (m)	**Base** (mm)	**Top** (mm)	**Height of the base** (mm)	**Door position** (mm)	**Door H x W** (mm)	**Size of the base slab** (mm)	**Anchor bolts distance** (mm)	**Partition thickness** (mm)	**Recommended anchoring** *HA S500*
H	B	T	HB	DP	DHW	BPD	ABD		
3	140	100	600	400	580x80	380	215	30	*4 HA20/M18 - 400*
3.5	140	100	600	400	580x80	380	215	30	*4 HA20/M18 - 400*
4	140	100	600	400	580x80	380	215	30	*4 HA20/M18 - 400*
5	140	100	600	400	580x80	380	215	30	*4 HA20/M18 - 400*
6	140	100	600	400	580x80	380	215	30	*4 HA20/M18 - 400*
	200	120	700	600	580x100	560	305	40	*4 HA25/M24 - 600*
7	200	120	700	600	580x100	560	305	40	*4 HA25/M24 - 600*
	250	140	700	700	580x100	615	360	45	*4 HA25/M24 - 600*
8	250	140	700	700	580x100	615	360	45	*4 HA25/M24 - 600*
9	250	140	700	700	580x100	615	360	45	*4 HA25/M24 - 600*
10	250	140	700	700	580x100	615	360	45	*4 HA25/M24 - 600*









Nova

Dimensions and drawing of the Lighting columns

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		Maximum design value of the forces at the base of the lighting column	
		Bending	**Shear**
Height	*Pole size*	M_d *(daN.m)*	V_d *(daN)*
3,0	*140*	572	282
3,5	*140*	574	271
4,0	*140*	573	248
5,0	*140*	572	212
6,0	*140*	569	178
	200	1 872	586
7,0	*200*	1 811	493
	250	3 313	876
8,0	*250*	3 326	815
9,0	*250*	3 328	733
10,0	*250*	3 337	674

	Moment capacity in torsion	
Pole size	$M_{t,Rk}$ *(daN.m)*	$M_{t,Rd}$ *(daN.m)*
140	103	44,7
200	255	110
250	564	244

Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	140	1,19	1,85	2,31	1,08	1,70	2,12	0,90	1,42	1,78	0,80	1,28	1,62	0,66	1,08	1,37	0,56	0,93	1,18	0,41	0,72	0,92	0,31	0,57	0,75
3,5	140	0,89	1,39	1,91	0,81	1,27	1,76	0,64	1,04	1,45	0,56	0,93	1,31	0,45	0,77	1,09	0,37	0,65	0,94	0,25	0,48	0,71	0,17	0,37	0,56
4,0	140	0,67	1,09	1,58	0,61	1,00	1,45	0,46	0,80	1,18	0,40	0,71	1,05	0,30	0,57	0,87	0,25	0,46	0,73	0,12	0,32	0,53		0,22	0,40
5,0	140	0,34	0,63	1,10	0,29	0,56	1,00	0,18	0,42	0,78	0,13	0,35	0,67		0,25	0,52		0,17	0,41			0,25			0,14
6,0	140	0,10	0,33	0,68		0,27	0,60		0,16	0,43		0,11	0,35			0,23			0,15						
	200	1,22	1,83	2,91	1,08	1,64	2,66	0,85	1,33	2,19	0,75	1,20	1,99	0,58	0,97	1,66	0,41	0,79	1,39	0,25	0,57	1,07	0,11	0,40	0,82
7,0	200	0,58	1,00	1,72	0,48	0,87	1,52	0,31	0,65	1,23	0,22	0,56	1,08		0,40	0,86		0,27	0,68		0,08	0,44			0,26
	250	1,62	2,50	3,98	1,55	2,27	3,65	1,09	1,79	2,97	0,91	1,58	2,65	0,66	1,23	2,17	0,47	0,99	1,83	0,20	0,63	1,31		0,40	0,98
8,0	250	1,11	1,84	3,07	0,96	1,64	2,80	0,64	1,24	2,21	0,50	1,06	1,94	0,28	0,76	1,54	0,12	0,56	1,25		0,25	0,82			0,54
9,0	250	0,68	1,32	2,35	0,55	1,15	2,11	0,28	0,79	1,62	0,14	0,64	1,38		0,37	1,03		0,20	0,78			0,50			0,17
10,0	250	0,32	0,87	1,77	0,20	0,72	1,55		0,41	1,12		0,27	0,92			0,62			0,40			0,15			

Nova — **SCx for centered equipments**

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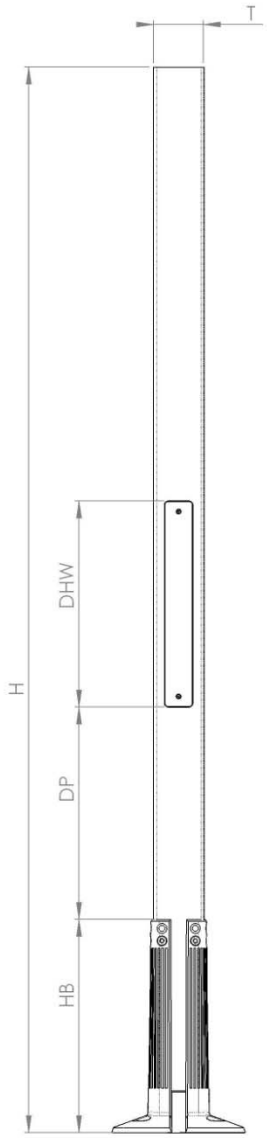
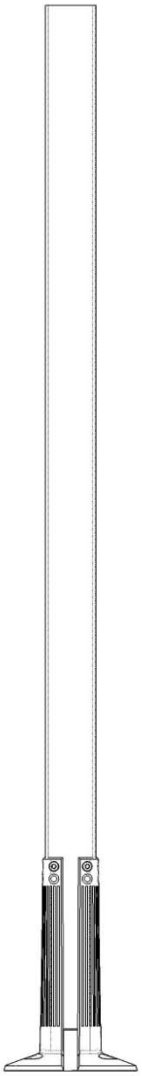
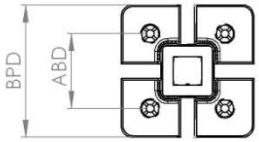
	D		C			B			A
	Height (m)	**Base** (mm)	**Top** (mm)	**Height of the base** (mm)	**Door position** (mm)	**Door H x W** (mm)	**Size of the base slab** (mm)	**Anchor bolts distance** (mm)	**Partition thickness** (mm)	**Recommended anchoring** *HA S500*
	H	B	T	HB	DP	DHW	BPD	ABD		
	3	140	140	600	600	580x80	372	210	30	*4 HA20/M18 - 400*
8	**3.5**	140	140	600	600	580x80	372	210	30	*4 HA20/M18 - 400*
	4	140	140	600	600	580x80	372	210	30	*4 HA20/M18 - 400*
	5	140	140	600	600	580x80	372	210	30	*4 HA20/M18 - 400*
	6	140	140	600	600	580x80	372	210	30	*4 HA20/M18 - 400*







Jupiter	**Dimensions and drawing of the Lighting columns**	**Annex 11** of European Technical Assessment **ETA – 16/0089**

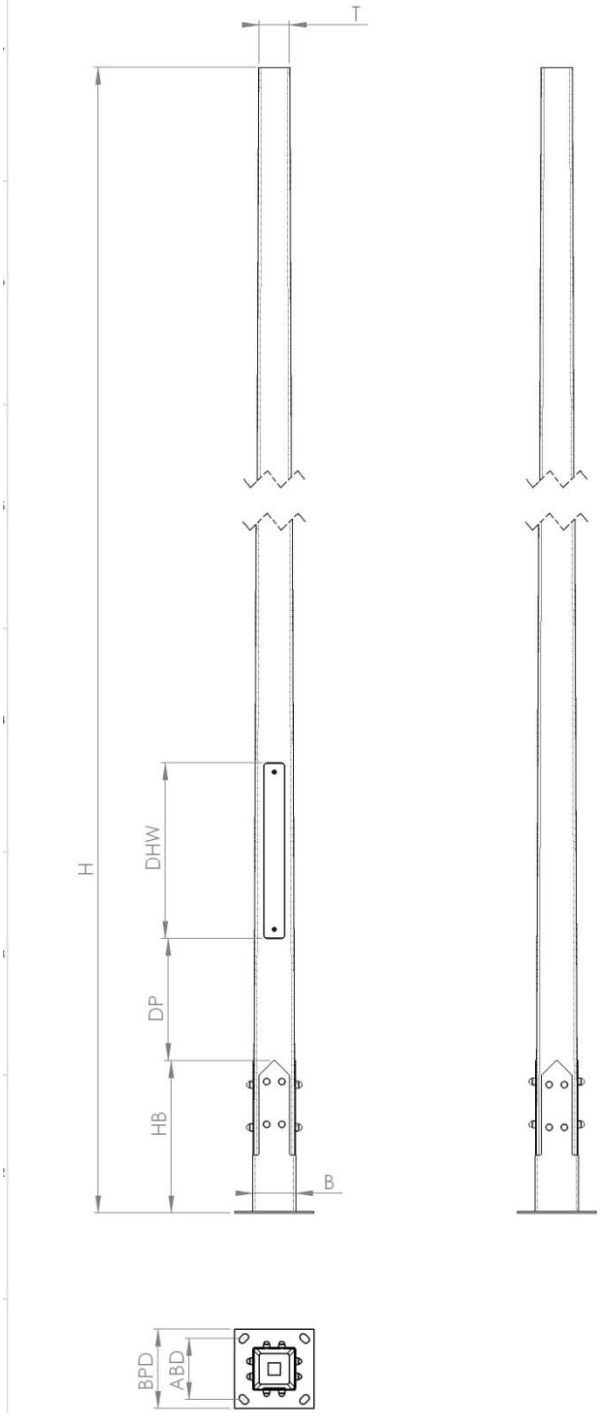
		Maximum design value of the forces at the base of the lighting column	
		Bending	**Shear**
Height	*Pole size*	M_d *(daN.m)*	V_d *(daN)*
3,0	*140*	**565**	**288**
3,5	*140*	**568**	**279**
4,0	*140*	**571**	**242**
5,0	*140*	**569**	**205**
6,0	*140*	**569**	**175**

	Moment capacity in torsion	
Pole size	$M_{t,Rk}$ *(daN.m)*	$M_{t,Rd}$ *(daN.m)*
140	**112**	**48,5**

Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	140	1,10	1,75	2,21	1,00	1,61	2,03	0,81	1,33	1,68	0,72	1,19	1,52	0,58	0,99	1,28	0,48	0,84	1,09	0,33	0,63	0,84	0,26	0,54	0,71
3,5	140	0,79	1,28	1,80	0,71	1,17	1,65	0,55	0,94	1,35	0,47	0,84	1,20	0,36	0,68	0,99	0,28	0,56	0,83	0,16	0,39	0,61		0,25	0,44
4,0	140	0,57	0,99	1,48	0,50	0,89	1,34	0,36	0,70	1,08	0,30	0,61	0,95	0,20	0,47	0,76	0,13	0,36	0,62		0,22	0,43		0,11	0,28
5,0	140	0,21	0,51	0,96	0,16	0,44	0,86		0,29	0,64		0,22	0,54		0,12	0,39			0,28			0,12			
6,0	140		0,18	0,54		0,13	0,45			0,28			0,20			0,09									

Jupiter	**SCx for centered equipments**	**Annex 11** of European Technical Assessment **ETA – 16/0089**

Height (m)	Base (mm)	Top (mm)	Height of the base (mm)	Door position (mm)	Door H x W (mm)	Size of the base slab (mm)	Anchor bolts distance (mm)	Partition thickness (mm)	Recommended anchoring HA S500
H	B	T	HB	DP	DHW	BPD	ABD		
3	140	100	500	400	580x80	260	200	30	4 HA16/M14 - 300
3.5	140	100	500	400	580x80	260	200	30	4 HA16/M14 - 300
4	140	100	500	400	580x80	260	200	30	4 HA16/M14 - 300
5	140	100	500	400	580x80	260	200	30	4 HA16/M14 - 300
6	140	100	500	400	580x80	260	200	30	4 HA16/M14 - 300
7	200	120	750	550	580x100	400	300	40	4 HA20/M18 - 400
8	200	120	750	550	580x100	400	300	40	4 HA20/M18 - 400
9	200	120	750	550	580x100	400	300	40	4 HA20/M18 - 400
10	200	120	750	550	580x100	400	300	40	4 HA20/M18 - 400



Mézenc

Dimensions and drawing of the Lighting columns

Annex 12 of European Technical Assessment **ETA – 16/0089**

		Maximum design value of the forces at the base of the lighting column	
		Bending	**Shear**
Height	***Pole size***	M_d *(daN.m)*	V_d *(daN)*
3,0	***140***	**626**	**300**
3,5	***140***	**629**	**286**
4,0	***140***	**620**	**278**
5,0	***140***	**591**	**217**
6,0	***140***	**579**	**195**
7,0	***200***	**1 824**	**496**
8,0	***200***	**1 775**	**441**
9,0	***200***	**1 708**	**370**
10,0	***200***	**1 694**	**343**

	Moment capacity in torsion	
Pole size	$M_{t,Rk}$ *(daN.m)*	$M_{t,Rd}$ *(daN.m)*
140	**103**	**44,7**
200	**255**	**110**

Wind speed (m/s)		24			25			27			28			30			32			35			38		
Roughness category		0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3	0	2	3
Height	Pole size																								
3,0	140	1,29	1,96	2,43	1,18	1,80	2,24	0,98	1,51	1,88	0,89	1,39	1,73	0,75	1,18	1,48	0,64	1,01	1,28	0,48	0,81	1,03	0,37	0,66	0,85
3,5	140	0,93	1,42	1,94	0,85	1,30	1,79	0,69	1,07	1,48	0,62	0,98	1,36	0,51	0,82	1,15	0,42	0,69	0,99	0,30	0,54	0,78	0,22	0,43	0,63
4,0	140	0,71	1,11	1,59	0,63	1,00	1,44	0,50	0,81	1,18	0,44	0,74	1,09	0,35	0,61	0,91	0,27	0,50	0,76	0,16	0,37	0,58	0,09	0,27	0,46
5,0	140	0,36	0,63	1,08	0,31	0,56	0,97	0,20	0,42	0,77	0,15	0,37	0,69		0,27	0,55		0,19	0,43		0,08	0,28			0,17
6,0	140	0,11	0,33	0,67		0,27	0,58		0,17	0,44		0,12	0,36			0,25			0,16						
7,0	200	0,59	1,01	1,74	0,49	0,88	1,55	0,32	0,66	1,23	0,23	0,57	1,10	0,09	0,41	0,87		0,28	0,68		0,09	0,45			0,26
8,0	200	0,26	0,63	1,22	0,18	0,51	1,06		0,33	0,80		0,24	0,69		0,09	0,49			0,34			0,11			
9,0	200		0,29	0,82		0,21	0,68			0,45			0,32			0,14									
10,0	200			0,46			0,37			0,15															

Mézenc **SCx for centered equipments**

Annex 12 of European Technical Assessment **ETA – 16/0089**