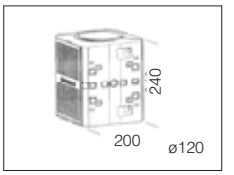
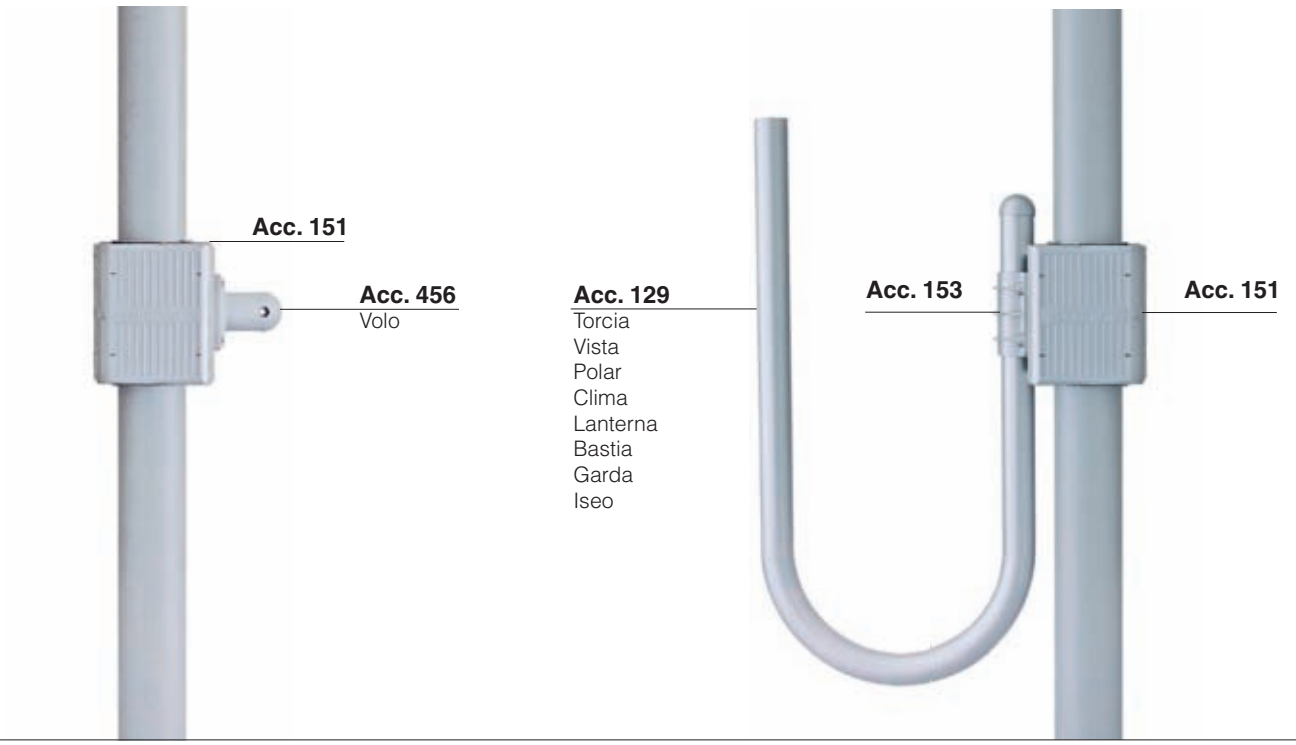
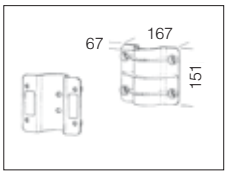
For Ø120 poles

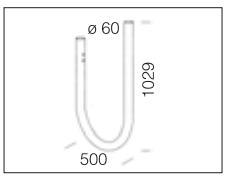


acc. 151 Lione cube	
s. silver	991365-00
graphite	991310-00
Made of die-cast aluminium. To be used when installing the products on poles Ø120.	

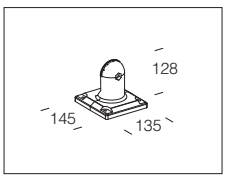




acc. 153 Arm connection	
s. silver	991359-00
Made of die-cast aluminium. To be used with acc. 151 when installing curved arms (acc. 129) on poles.	



acc. 129 bent arm	
s. silver	991329-00
graphite	991321-00
Tropicalised steel. Apply to accessories 151-153.	



acc. 456 small wall connection	
graphite	991402-00
s. silver	991403-00
To be used to install art. Volo, on 'Lione' cube. With anti-slip rack. Adjustable connection.	

A range of Disano floodlights can also be fixed to the "Lione" cube:

Punto
Litio
Indio

UNI EN 40 STANDARD

The UNI standard contains specific prescriptions concerning lighting poles, defined as supports designed to hold one or more lighting fixtures and composed of one or more parts: a stem, an extension, and an arm if required. The regulation applies to pole of a nominal height of 20 m or less, and poles with shelf of a nominal height of 18 m or less. The regulation applies both to straight poles for lighting fixtures with top mast mounting, and poles for fixtures with side mast mounting. The standard specifies the materials to be used in manufacturing poles for public illumination, provides recommendations on corrosion protection treatments, and determines the characteristics of electric gear compartments, cable raceways and grounding terminals of straight poles. Part 3-1 specifies the loads to be considered in designing lighting poles, providing bases for the calculation carried out when designing the illuminant's support structure, represented by the pole. The same part indicates the procedures for the correct measurement of the load due to the wind, as well as all the load variables to be considered. The standard enables a calculation of the action of the wind throughout the entire national territory, divided into nine geographic areas depending on wind intensity. The regulation refers directly to UNI standard ENV 1991-2-4; based on the latter, it provides the speed of the wind to be considered for the relevant installation area. The regulation indicates that the reference speed determines the calculation pressure, which in turn has to be adjusted applying the appropriate coefficients depending on the components' shapes, installation area characteristics, pole physical and geometric characteristics, etc.

TESTING OF THE COMPOSITIONS IN THE SHOWN CATALOGUE - All metal pole assemblies in the "urban decoration" and "residential" lines presented in the catalogue can be tested by Disano in accordance with UNI standard EN 40. Testing for conformity with UNI STANDARD EN 40 can be obtained upon request from our headquarters.
Testing of lighting systems is performed to determine:
- pole's resistance to bending due to wind thrust.
- pole's resistance to twist due to wind thrust on asymmetric assemblies.
- maximum vertical and horizontal warp due to wind thrust and to the assembly's own loads.

For those particular assemblies which are not tested in accordance with UNI standards EN 40/6 no area-related data are provided; however, indications are given on maximum estimated tolerable wind speed (in red) and anchor base dimensioning calculated according to the latter measure.

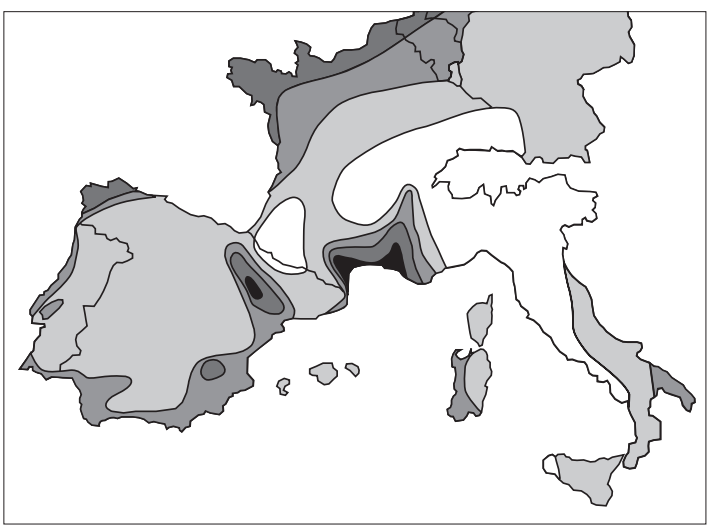
TEST - The action of the wind causes bending stress on the pole due to the momentum generated by the horizontal thrust force acting upon the elements that make up the lighting system with arms equal to the height of the respective centres of gravity.
Tests have been carried out on the lighting systems to ascertain:
- the resistance of the pole to the compressive stress caused by the weights of all the elements making up the composition;
- the resistance of the pole to the bending stress generated by the thrust stress of the wind;
- the resistance of the pole to the torsion stress generated by the thrust stress of the wind;
- the resistance of the pole to the shear stress at the base due to the con trast exercised by the inertia of the concrete foundation plinth;
- the size of foundation plinth required to ensure stability of the combined compressive and bending stress transmitted to the pole.

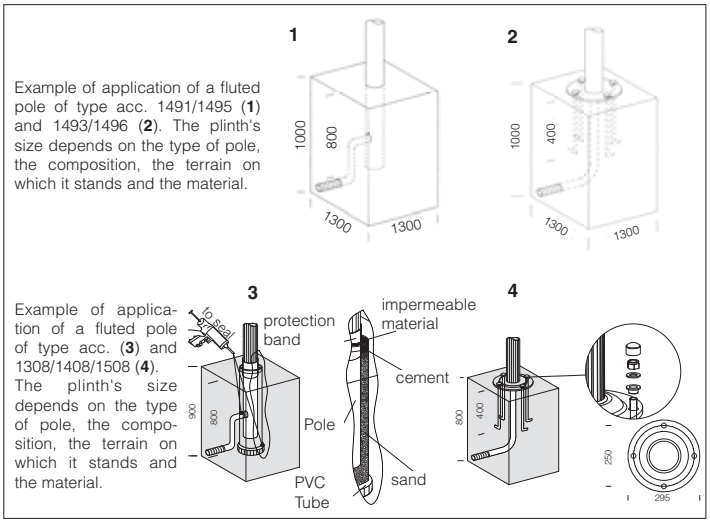
The bending test was carried out using the yield point as the maximum stress value. Resistance was ascertained as in UNI EN standard 40/8, at the critical points in the structure that is at the base of the pole and at the lower edge of the inspection window where present. All calculations were carried out according to the definitions described below:
The load system considered included the weight of each lighting fixture and the thrusts caused by the action of the wind.
The weights of each of the main elements making up the compositions studied were taken into consideration, including:
- weight of the pole and of all the accessories;
- weight of the overall lighting fixture or of the reflectors and related bases.

The vertical forces due to these masses were considered as it applied in the respective fields of gravity.
The dynamic pressure for the calculations due to the wind were obtained by multiplying the basic dynamic pressure, set down by the regulations as 50ON/sq mm, by various factors which take account of the variation in the height above ground level, of the nominal height of the pole, of its dynamic behaviour when there are gusts of wind, of the location where it is installed. The basic dynamic pressure refers to a height of 10 m above ground level. Variation in the height above ground level has been assumed to be half the nominal height of the pole, considering the fact that, in general, poles for urban decor are installed at ground level. If they are installed at a different level, specific tests must be carried out. The dynamic increase coefficient, defined by UNI EN standard 40/6 takes account of the increase in loads when there are oscillations caused by gusts of wind. Coefficients which take into account the shape of the lighting fixture and of the pole have been calculated for each type and height.

SIZING OF THE FOUNDATION PLINTH

In calculating the correct size for the foundation plinth, reference is made to low quality concrete with low resistance since this permits a wide margin of safely. The depth used in the calculations, at which the pole should be buried in the concrete, is given in the catalogue and varies according to the type of pole used in the composition; the depth of the plinth is increased by 10 cm over that measurement to avoid punching and sinking of the pole within the concrete. The base chosen is square shaped to ensure the same response to the action of the wind from whatever direction it blows. In the case of fluted poles with base (acc. 1408 - 1508) which do not need to be buried in a foundation plinth, but are connected to it by log bolts, it is assumed that the log bolts to be buried in the concrete of which the foundation plinth is made are suitably sized to withstand the stress conditions generated by the load assumptions. The stability of the foundation plinth also depends upon the type of ground on which it is laid; the tests were carried out with a ground resistance value of 1.5 kg/sq cm, corresponding to medium to low resistance ground. With these conditions, a check of the force required to overturn the lighting fixture-plinth system was carried out, considering the plinth as simply standing on the ground. The system is subject to the moment generated by the horizontal thrust stresses acting on the elements that make up the lighting system with arms equal to the distance of the respective centres of gravity from the deepest point of the plinth. Stability against overturn is ensured by the weight of the lighting fixture, by the correct size of the concrete plinth and by the resistance offered by the ground. These calculations have permitted the identification of the minimum size of plinth required to prevent overturning, sliding or sinking.





Example of application of a fluted pole of type acc. 1491/1495 (**1**) and 1493/1496 (**2**). The plinth's size depends on the type of pole, the composition, the terrain on which it stands and the material.

Example of application of a fluted pole of type acc. (**3**) and 1308/1408/1508 (**4**). The plinth's size depends on the type of pole, the composition, the terrain on which it stands and the material.