

## **INSTRUCTIONS FOR TRANSPORT, UNLOADING, STORAGE, ASSEMBLY AND OPERATION OF COMPOSITE LIGHTING POLES**

### **I. TRANSPORT**

1. The party organizing the transport is responsible for the proper protection of the product during loading and transport. In the event of contamination of poles on the way to the investment site, the obligation to remove them rests with the Ordering Party.
2. The transport organizer should ensure that the means of transport is adapted to carry elements of considerable length. The transport of transported products must not interfere with or create a danger in road traffic. The transport organizer should ensure that the means of transport has:
  - a. Unless otherwise agreed, a transport platform with a minimum length 20% longer than the longest transported element,
  - b. With sides removed, for loading by forklift, crane or manually.
  - c. Platform transport equipped with tarpaulin to cover the transported products for the duration of transport during adverse weather conditions (snowfall, slush, wet road salt), the tarpaulin should be removed immediately after delivery of the goods to the place of unloading, do not store products under the tarpaulin,
  - d. Attested belts made of soft material, meeting the requirements of standards, to properly protect products during transport.
  - e. Transport conditions in accordance with Incoterms 2020
3. NCT S.A. reserves the right to refuse to load products if the means of transport does not meet the requirements set out in point 2. If the party organizing the transport requests loading despite failure to meet the above requirements, full responsibility for damage caused during transport and the resulting consequences is borne by its own responsibility. NCT S.A. reserves the right to refuse to load products, without incurring any legal and financial consequences, in any case when transport for any objective reason may pose a threat to human health or life.
4. In the case of embedded columns manufactured by NCT S.A., they should be transported evenly stacked, secured with a packing sleeve, in the case of transport of foundation columns, the columns must be laid in piles, on one level there should be columns arranged alternately, then secured with cardboard between the steel base and the composite column.
5. Products should not be thrown, dragged, or rolled.
6. After loading, the poles should be secured with certified belts, preventing the poles from moving during transport, it is recommended to tighten the transport lanes after driving about 5 km.
7. Booms and other elements are recommended to be placed on pallets during transport and properly secured in a way that prevents them from being moved or tipping over.

## II. UNLOADING

- 1) Unloading must be carried out with extreme caution in compliance with health and safety rules in a manner that ensures the safety of all persons involved in the process.
- 2) Before proceeding with the unloading procedure, prepare a place to deposit the products (for a description of a properly prepared place, see Section III "Storage").
- 3) Unloading should be done in such a way as not to damage the products being unloaded. It is forbidden to load and unload on the bare forks of the truck, due to the high risk of damaging the surface of the poles. It is recommended to manually load (in the case of lighter poles) on the car or manually load on the secured forks of the forklift using, for example, a pallet and manually transfer from the secured forks and place on the car. For heavier poles, belts can be used, the poles can be lifted with a suitable loading means and lowered onto the car, stacking them flush with the dividers that allow the belts to be put on and taken off. Do not use chains, rods, wires, hooks or other means for loading and unloading, which may damage the surface of the poles.
- 4) During unloading, it is not allowed:
  - dropping products from the car,
  - dragging products along the side of the car or dragging on surfaces that may damage the surface of the pole,
  - hitting the product while moving,
  - any other action that threatens to damage the surface or the entire pole.
- 5) After unloading, check the completeness of all items included in the kit and the condition of the products after the transport. Any damage noticed should be documented with a photo and immediately reported to the manufacturer.

### III. STORAGE

- 1) The yard, the area where the products will be stored, must first be cleaned of sharp and hard objects that can damage the stored items and pose a danger to people working during storage.
- 2) Storage of products should be in places inaccessible to animals, away from chemical storage areas.
- 3) Products should be stored in a dry place on paved surfaces, should not be stored directly on the ground. Before placing the poles on the surface, the spacers should be placed first to guarantee stable placement of the prism.
- 4) It is not advisable to cover or wrap stored items with foils or tarps.
- 5) Products should not be thrown, dragged, or rolled.
- 6) Even stacks or heaps should be stacked according to the arrangement for transportation. Dug-in poles should be stored in evenly stacked. In the case of transporting foundation poles, the poles must be stacked in heaps, one level should have poles stacked alternately, successive levels should be preceded by a board (with minimum dimensions of 15cm wide, 2cm thick) resting on the poles in the place of installing the base, the next level should be arranged so that the bases of the poles of the next level rest on the board, forming a prism.
- 7) The poles must be unpacked/unwound from the protective foil within 72 hours.
- 8) Booms and other components for storage should be placed on pallets.

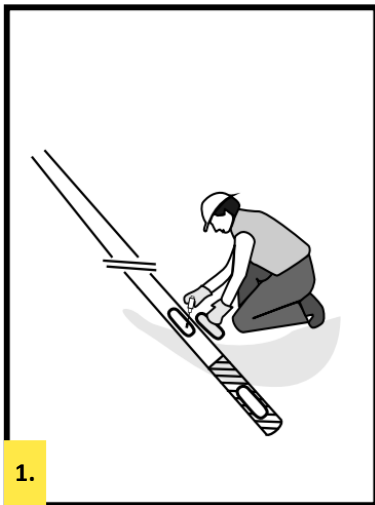
## IV. ASSEMBLY

- 1) Putting and assembly of poles should be carried out by qualified persons with caution while observing health and safety rules in a way that ensures the safety of all persons involved in this process.
- 2) Before starting the foundation in the ground, you should check the correctness of the building with the land development project and the construction project.
- 3) Earthworks are carried out in accordance with the Polish Standard PN-86 / B-02480 or the currently applicable standard in the country.
- 4) Prefabricated foundations are intended for foundation in the ground with a depth of ground freezing up to 1.00 m.
- 5) Before commencing excavations, the Contractor is obliged to check:
  - Location,
  - utilities of underground terrain,
  - soil and water conditions.
- 6) Changes and deviations from the foundation conditions require the preparation of a project or, if it has been made, consultation and approval of the author of the project.
- 7) The excavation should be made using technology that considers the depth of the excavation, terrain, ground conditions in accordance with the construction project, foundation height and width adapted to the type of excavation compaction machines.
- 8) Installation of booms, heads, crown crossbars on the top of the pole as well as electrical equipment should be mounted in a horizontal position, it is possible to mount these elements in a vertical position performed after placing the pole with the use of an increase. Depending on the connection used, it is carried out by planting the element ended with a stamping on the top of the column and clamping it with screws supplied in the set, paying attention to the axial location of the column stem with the mounted element. The mounting screws should be tightened with a force of 5 Nm.  
The operation of placing poles should be preceded by unscrewing the inspection door, which is intended for the pole from which they were unscrewed – **do not replace the covers between the poles.**
- 9) If the column consists of two or more segments, the pole merge operation must be carried out before the installation begins. This operation consists of arranging the segments opposite each other using wooden pads in such a way that it is possible to slide the segments on top of each other. Particular attention should be paid to the axial arrangement of the segments relative to each other.

10) **Installation of a dug pole (SKPW / SKPW-LS type)** requires the following steps:

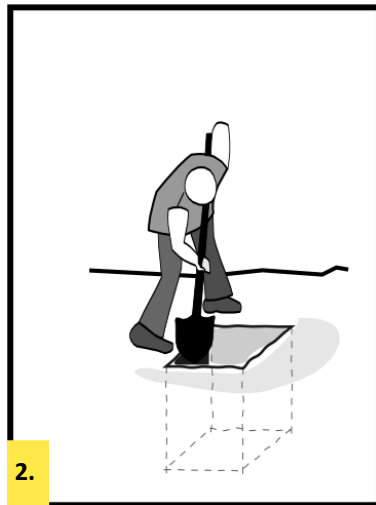
- 1 Carry out the installation of lighting pole accessories (in accordance with Appendix 1), and run full cabling inside the pole, the length of the cabling depends on the height of the pole and the length of the boom arms.
- 2 Prepare a suitable excavation with a minimum depth equal to the nominal depth of the column foundation and a width of 100x100cm in the case of excavation with an excavator, or smaller in the case of excavation performed using the manual method. An alternative way of mounting a dug pole is to drill a well in cohesive native soil, using a specialized drilling rig. The width of the excavation must allow the soil to be compacted in layers every 30cm.
- 3 With the help of workers (in the case of light poles) or a lifting device equipped with plastic belt slings, it is necessary to:
  - a) For the SKPW type - attach the pole in such a way as not to damage the external surface and place it in the trench.
  - b) For the SKPW-LS type - fasten the lower part of the pole with part of the steel base in such a way as not to damage the external surface and place it in the trench (lower part of the steel base aligned with the ground surface), then attach the provided screw fitting to the holes in the bottom plate.
- 4 Power cables must be routed. The cable should be led through the cable entry slot, with an outlet at the inspection flap. In the case of angled poles, the cable has an outlet inside the lower base pole.
- 5 **SKPW** - Make the column vertical (using a spirit level), backfill it with material obtained from the excavation or standard backfill with a grain size of 0-31.5 (natural crushed aggregate), an alternative method is to use a cement and sand mixture. The backfilled material should be compacted in layers approximately every 30 cm using a combustion jumper until the soil compaction index "Is" is obtained in the range from 0.95 to 1.02. The column is placed in a vertical position and should be supported with slings or with the help of workers until it is completely covered. its underground part to the height of the ground and compaction of the backfill together with the soil around it.
- 6 **SKPW-LS** - verify the level of the lower part of the steel base, backfill with material obtained from the excavation or standard backfill with a grain size of 0-31.5 (natural crushed aggregate), an alternative method is to use a cement and sand mixture. The backfilled material should be compacted in layers approximately every 30 cm using a combustion jumper until the soil compaction index "Is" is obtained in the range from 0.95 to 1.02. Then add the upper part of the pole with the upper part of the steel base to the lower part of the base. Secure the pin connecting the lower and upper parts of the steel base by locking it using a set of cotter pins. Pull the cable through the opening of the inspection door. Verticalize the pole, verify with a level, if it is necessary to adjust the verticality, it can be done by adjusting the screws fastening the lower part to the upper part of the steel base. After putting the pole and adjusting it, screw together the lower and upper bases using the provided screw fitting.
- 7 Start installing the internal cable with the **IZK-4-X** connector (X- depending on the type of connector selected), and then connect the luminaire's power cable with the above-mentioned connector. It is recommended to wrap the excess cable length inside the pole.

### Quick Visual Instruction for Installation of the Embedded Pole:



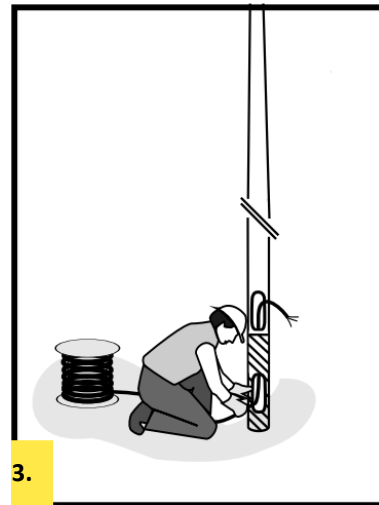
1.

Installation of pole lighting equipment



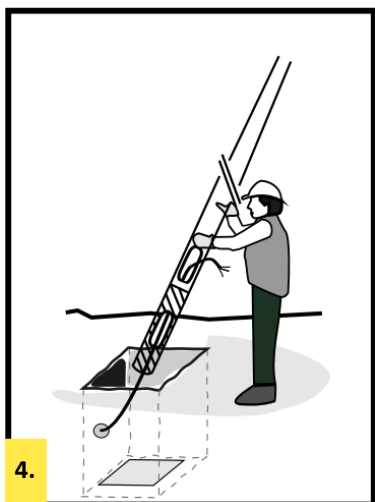
2.

Preparation of the trench



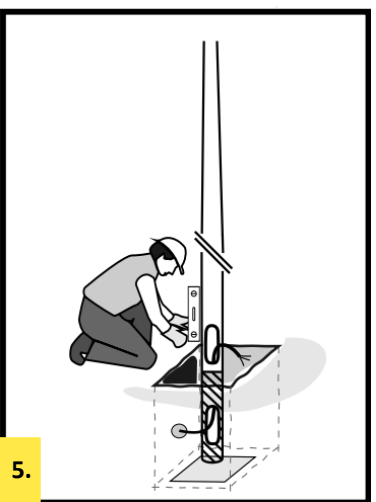
3.

Running the power cable in the absence of a cable in the ground



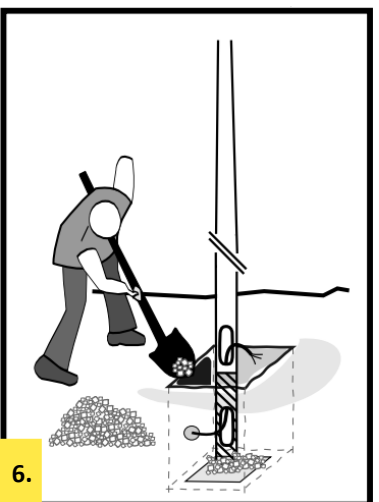
4.

Pole foundation, power cable routing



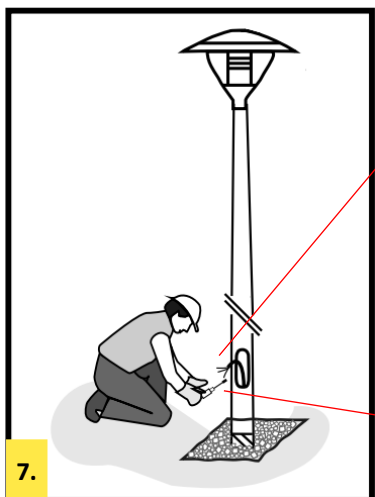
5.

Pole verticalization



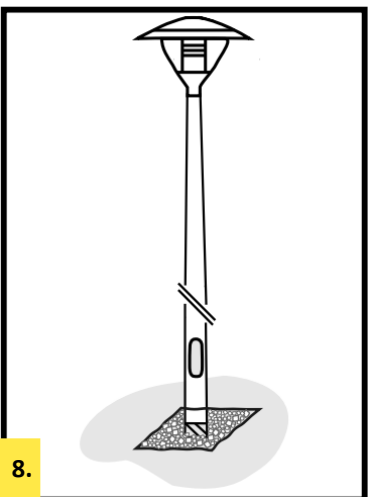
6.

Pole backfilling



7.

Final assembly of cables with IZK connector



8.

Ready-to-use pole

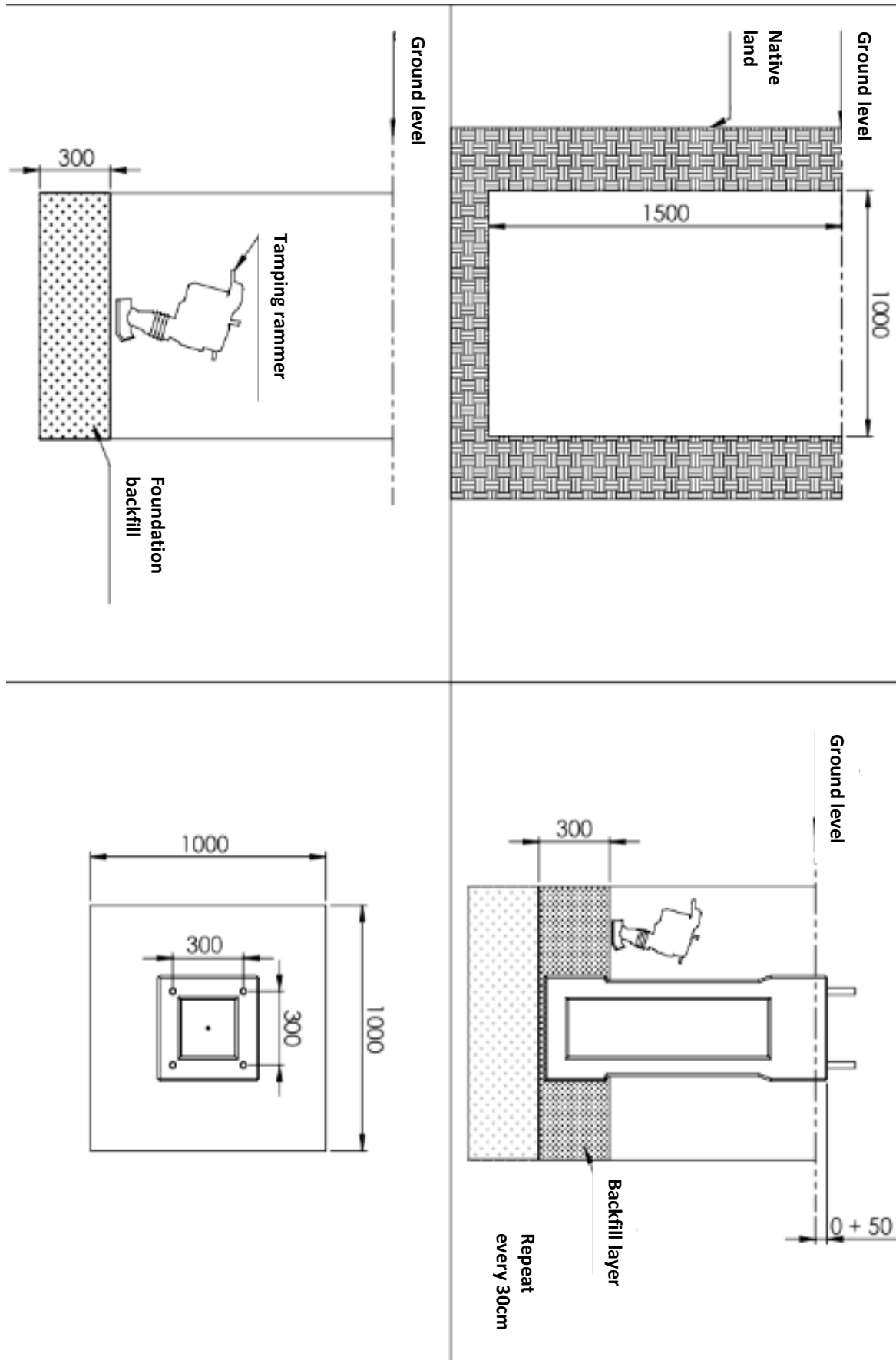
11) **Installation of a foundation** column (type **SKPF / SKPF-LS**) requires the following steps:

- 1 Carry out the installation of lighting pole fittings (in accordance with Appendix 1), and route full wiring inside the pole.
- 2 Preparing an appropriate excavation with a minimum depth of 150 cm and a width of 100x100 cm in the case of excavation using an excavator, or smaller in the case of excavation carried out manually. The width of the excavation must allow the soil to be compacted in layers every 30 cm.
- 3 Using a lifting device, it is necessary to set vertically the prefabricated foundation in the trench. It should be, unless the project says otherwise, set the foundation with a cable hole parallel to the road, usually the power cables run along the road, which will allow them to be easily installed.
- 4 Power cables must be run through. The cable should be led through the foundation's inlet slot and exit through the upper outlet of the foundation base.
- 5 Make the foundation vertical (using a level), backfill with material obtained from the excavation or standard backfill with a grain size of 0-31.5 (natural crushed aggregate), an alternative method is to use a cement and sand mixture. The backfilled material should be compacted in layers approximately every 30 cm using a combustion jumper until the soil compaction index "Is" is obtained in the range from 0.95 to 1.02
- 6 The foundation should be completely covered. If green areas are planned around the pole, the prefabricated element should be left so that it is not exposed more than 5 cm.
- 7 Fixing the pole using workers (in the case of light poles) or a lifting device equipped with belt slings made of plastic. For type:
  - a) SKPF - the pole should be placed in such a way as not to damage the surface and placed on the foundation, centering the holes of the steel base with the foundation pins.
  - b) SKPF-LS, should initially screw the lower steel base to the foundation by turning it, verify the horizontality of the base, and then add a pole with the upper part of the steel base to the lower part of the base. Secure the pin connecting the lower and upper parts of the steel base by locking it using a set of cotter pins. Verticalize the pole, verify with a level, if it is necessary to adjust the verticality, it can be done by adjusting the screws fastening the lower part to the upper part of the steel base. After putting the pole and adjusting it, screw together the lower and upper bases using the provided screw fitting.
- 8 Vertical poles tighten screw alternately with the torque corresponding to the size of the foundation bolts (according to Table 1).

Size of foundation bolts	Tightening torque
M18	140Nm
M20	140Nm
M24	241Nm
M27	355Nm
M30	483Nm

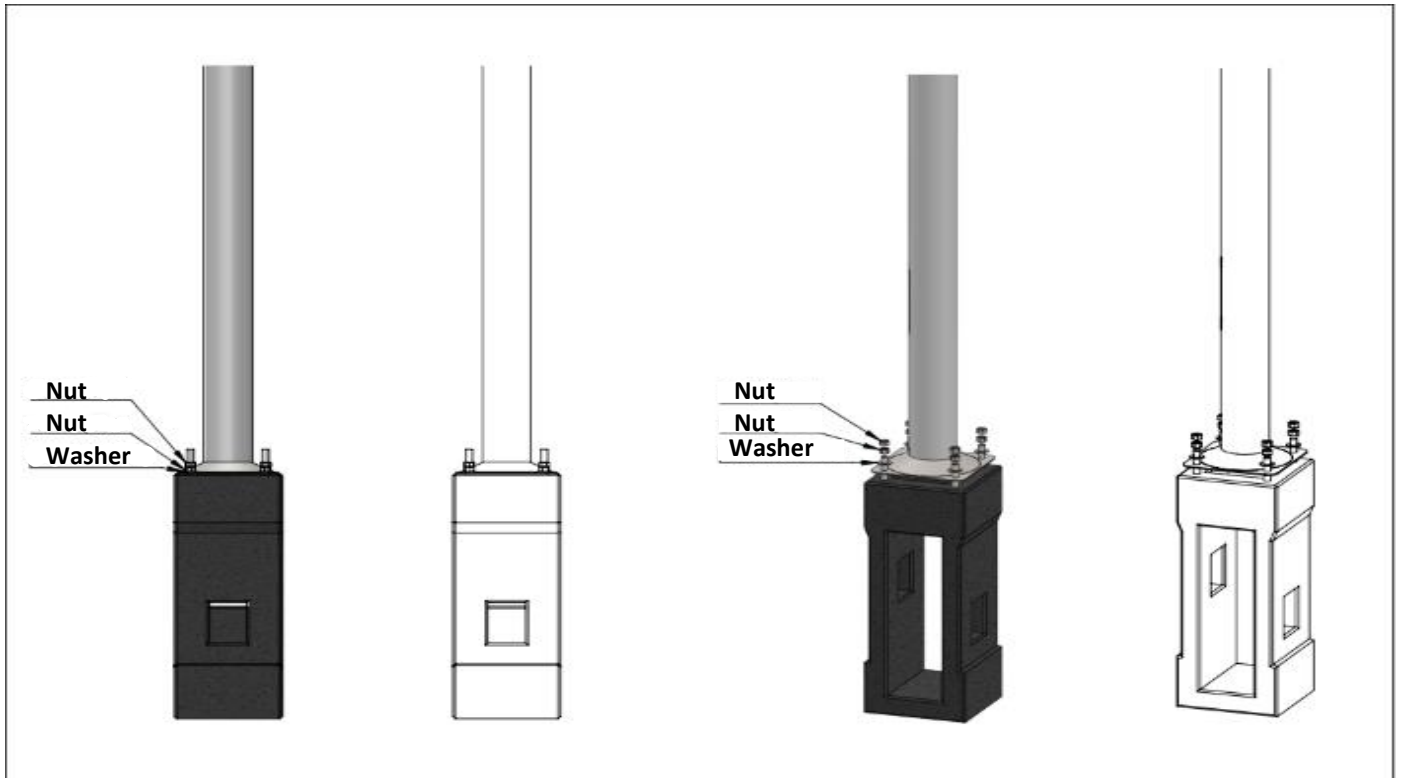
- 9 After completing all the assembly activities, check the correct foundation and leveling of the pole. It is possible to adjust the verticality of the pole foundation in accordance with the graphic instructions, it is recommended to add additional washers and nuts for leveling.
- 10 Start installing the internal cable with the **IZK-4-X** connector (X- depending on the type of connector selected), and then connect the luminaire's power cable with the above-mentioned connector. It is recommended to wrap the excess cable length inside the pole.

### Quick Visual Instruction for Precast Foundation Assembly:

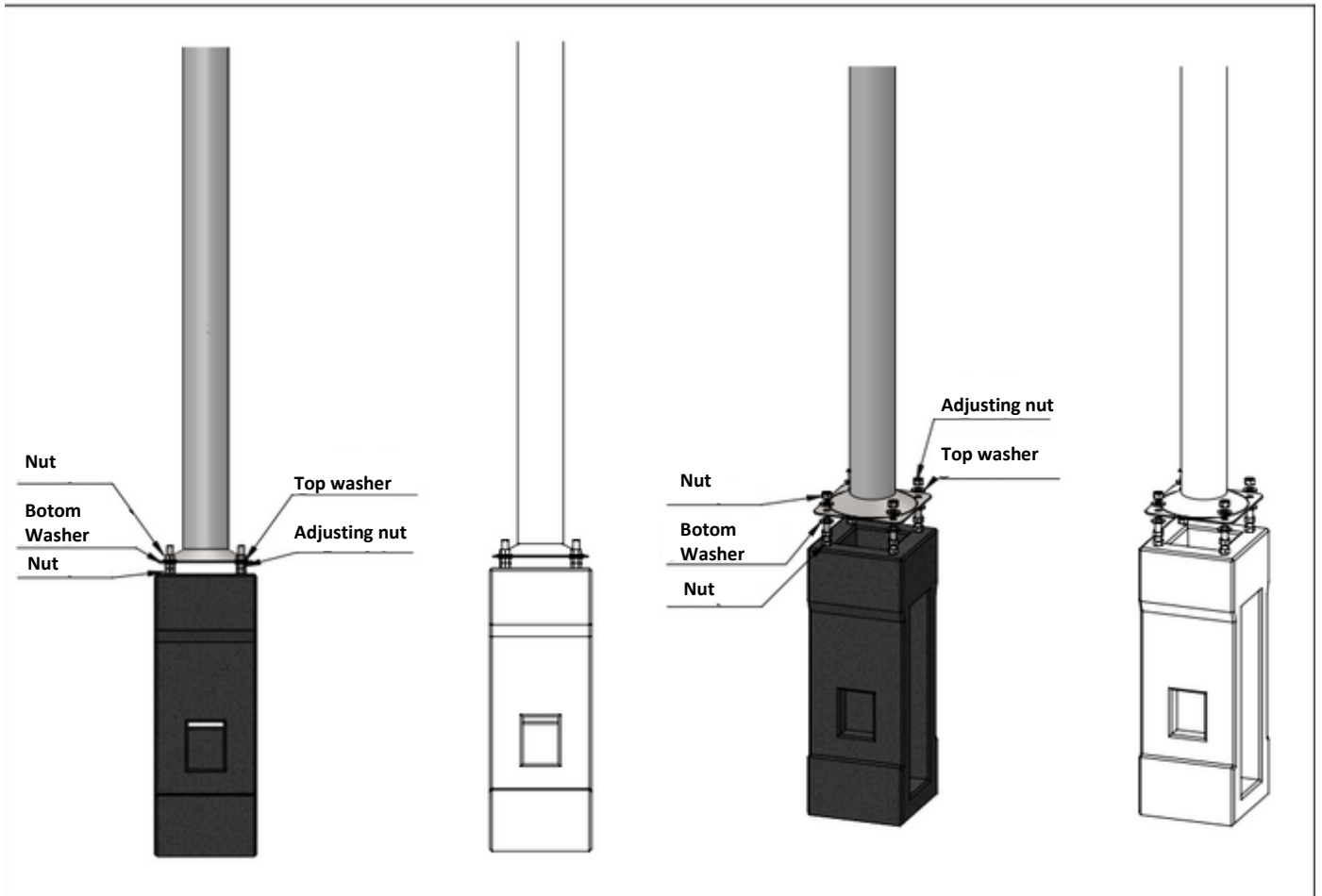




**Short Visual Instruction for pole installation without adjustment.**



**Short Visual Instruction for pole installation with adjustment.**



## V. INSPECTIONS AND MAINTENANCE

Long-term and safe use will ensure that this instruction is followed.

During the operation of lighting poles, exceptional events may occur, which may lead to damage to the gelcoat or varnish coating. The procedure in such a case is described in this chapter. It is recommended to comply with the requirements described below, for regular operational inspections.

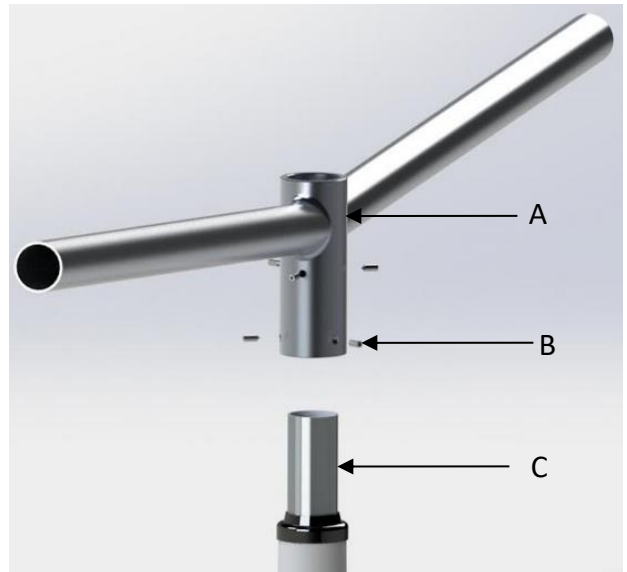
### INSPECTIONS AND MAINTENANCE

- 1) The use of the product and the warranty period begin when the lighting pole is received.
- 2) Under penalty of losing the warranty imposed by the manufacturer, during use of the products it is not allowed to:
  - Any type of additional load on the structure contrary to the manufacturer's recommendations contained in the catalog cards and/or rating plates. Installation of additional elements such as road signs, Christmas decorations, information boards, etc. is only possible with the written consent of the manufacturer.
  - Carrying out any modifications or repairs to the structure (drilling holes, installing handles), covering the structure with posters, leaflets, etc.
- 3) It is recommended to carry out a detailed operational inspection at least once every two years.
- 4) If irregularities are found, it is recommended to correct the foundation of the pole in accordance with the above assembly instructions. If mechanical damage is found, posing a threat to safe operation, it is necessary to contact the manufacturer and/or replace the pole with a new one.
- 5) If mechanical damage to the surface is detected, contact the manufacturer.
- 6) When replacing lighting fixtures, it is recommended to use a lifting device. In the case of folding poles (SKPW-ŁS / SKPF-ŁS), this operation can be performed by lowering the pole with at least two employees. To do this, unscrew the screws securing the upper mounting plate to the lower mounting plate and then lower the pole to the ground surface. The pole is lowered to an angle that allows for safe and easy replacement of attachments. If the pole is lowered to an angle  $\geq 90$  degrees, care should be taken not to damage the outer surface in the event of possible contact between the surface and the ground. After replacement, follow the steps in chapter 4 of this manual.

## ANNEX 1

### A. BOOM INSTALLATION TYPE WP, WJ, WD, WT, WC:

1. Mount the boom(A) on the aluminium sleeve(C).
2. Adjust and mount the boom with a hexagonal
3. wrench using six  
adjustment and mounting screws(B).
4. Assemble the luminaire in accordance with  
the recommendations of the luminaire manufacturer.

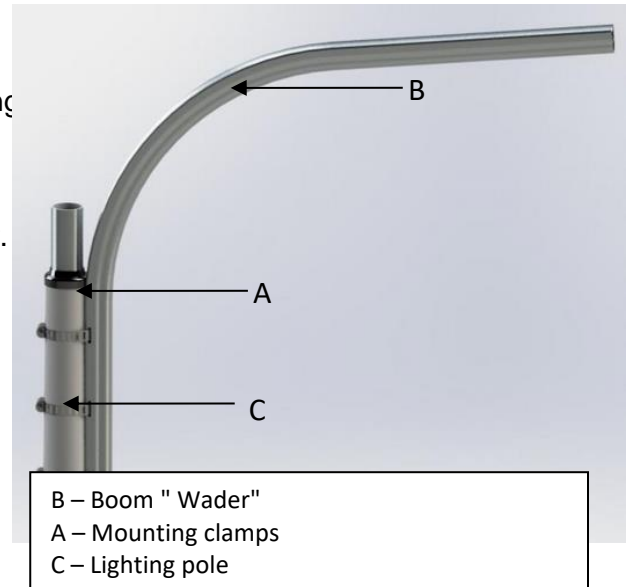


A – Boom  
B – adjustment and mounting screws  
C – Aluminum sleeve

## ANNEX 1

### B. WADER BOOM MOUNTING

1. Carry out mounting clamps (A) through the holes boom mounting (B).
2. Place the boom on the light pole, adjust the mounting bands (A) with screwdriver.
3. Assemble the luminaire in accordance with the recommendations of the luminaire manufacturer.



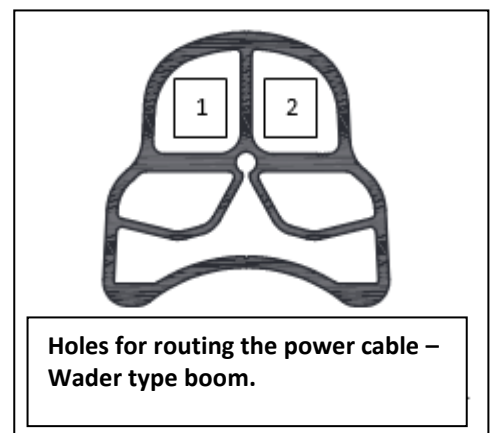
Before buying, make sure that the design and internal diameter of the installation head of a given luminaire will allow it to be safely and stably mounted on the boom. This is especially true for the booms of the WADER series.

**Note:** If only the WADER series boom is used on a given lighting pole, we recommend ordering the upper end cover of the column installation sleeve to protect the structure against water and/or other contaminants getting inside.

\*mounting clamps - steel strip "Band IT" or screw band made of stainless steel with a width of  $\geq 12\text{mm}$  and a thickness of  $\geq 0.6\text{mm}$ .

### Power cable routing

If there is difficulty in running the power cable through the boom, use the so-called "remote control", in the form of a flexible wire or rod. The "remote control" should be routed through the appropriate boom arm, then temporarily connected to the power cable (e.g. by adhesive tape). After connecting, pull the power cable over the frame and proceed to connect the luminaire. In the case of mounting a Wader boom, the power cable should be preceded by deburring the inner edges of one of the two larger boom openings intended for the power cable.



## ANNEX 1

### B. WADER BOOM MOUNTING

#### **Making and securing the hole in the wall of the lighting pole**

If it is necessary to make holes in the lighting pole to lead the power cable, after obtaining prior consent from NCT S.A.. The hole should be made with a lace or drill, without applying a stroke. The hole made should be protected against water penetration, for this we recommend using a cable pass-through. Cable grommet selected according to the cross-section of the cable and the hole made with properties ensuring trouble-free operation, in the conditions present at the installation site.



## ANNEX 1

### C. CLAMP BOOM INSTALLATION

1. Carry out the mounting clamp (A) on the column part.
2. Pay attention to whether the seal (B) correcting the pressure is correctly mounted between the clamp and the column.
3. Place the boom (C) on the light pole, adjust the mounting bands (D) and then use the screwdriver to tighten the band. The mounting screws should be tightened with a force of 5 [Nm].
4. Assemble the luminaire (E) in accordance with the recommendations of the luminaire manufacturer.
5. The selected amount established in the order process or at a later stage agreed with the Manufacturer.

