

**DARK to LIGHT**

**2018**  
**Custom Made Outdoor Lighting**  
**and Street Furniture**

## ELTE Licht Catalogues

- Indoor Lighting
  - Funktional Lighting
- Outdoor Lighting
  - Standard Lighting Fixtures
- Flexible Linear Lighting
- Customized Lighting
  - Tailor Made Outdoor Lighting
  - Decorative Lighting Fixtures
  - Street Furniture

## ELTE Licht Catalogues

|                                 |        |
|---------------------------------|--------|
| <u>Indoor Lighting</u>          | Part 1 |
| <u>Outdoor Lighting</u>         | Part 2 |
| <u>Flexible Linear Lighting</u> | Part 3 |
| <u>Customized Lighting</u>      | Part 4 |

ELTE Licht GmbH

D 47533 Kleve

[eltelicht.com](http://eltelicht.com)

[info@eltelicht.com](mailto:info@eltelicht.com)

The ELTE Company was established in 1972 in Kleve, Germany. Three partners started a small factory to design, manufacture and import lighting fixtures of indoor and outdoor application. The production program of ELTE's range developed rapidly to include public and amenity lighting.

From 1974 onwards ELTE ensured its annual presence at the World Light Fair in Hannover. During the same period the first shipments to the Middle East also started.

ELTE's program continued to develop as such the consumers' range was handed over to a partnering company. ELTE itself concentrated on planning, developing and manufacturing light fixtures exclusively for projects in the EU and some for the Middle East.

Our present goal is to re-position the ELTE brand worldwide following trends of new technologies in lighting industry and demands for energy saving. Therefore, we have developed an extensive range of lighting fixtures for internal and external applications to satisfy latest projects' and endclients' requirements.

Having had exclusive agreements with a number of factories in several regions such as China, Germany, UK and Russia, all equipped with skilled design teams offering state of the art manufacturing facilities.

ELTE is committed to provide a complete lighting solution for the interior or exterior of any project.

ELTE's quality control in manufacturing process starts from raw materials selection and ends with complete products tested and certified to comply with industry standards.

To meet specific requirements of designers and planners a division has been created specializing in design and manufacture of custom-made light fixtures of any shape, dimension or finish required.

All ELTE products either standard or customized are certified according to European Certification laboratories.

We specialize in LED/LES technology and receive their elements from reputed manufacturers such as Bridgelux, OSRAM, SHARP, CREE, Nichia, etc. The performance of LEDs rely on sophisticated designed housings made for efficient heat dissipation. Therefore, the LED drivers are provided by superior quality brands such as Tridonic, HEP, Meanwell, Vossloh Schwabe, etc. as such ELTE offers warranties of between 2 and 10 years in accordance with our terms and conditions, available on request.

In case traditional lamping would be required for a project we can meet our clients' requirements and supply the required light sources. All items in ELTE's range contain IES and LDT files for easy inserting into lux calculating programs.

The ELTE lighting catalogue contains a variety of internal and external technical LED lighting solutions.

We believe it will be a good companion for all specifiers, industry professionals and end users who are looking for superior and reliable luminaires. ELTE lighting stands by its reputation as one of the best and most reliable companies in its class.

This catalogue "Custom Made Fixtures" makes it possible, to offer custom made fixtures and structures in any required quantity at realistic prices. It is a useful companion for Light Designers, Project Developers, und Architects, looking for modern, safe, efficient and reliable LED light fixtures of high quality. The catalogue shows a part of our experience in turning into reality creatif ideas and designs - even it is about only one piece, which is not repeatable.

# Custom Made Fixtures and Poles, Street Furniture

| Chapter   | Contents                                            | Group                                  | Articles                                                                                                                                                                           | Pages              |
|-----------|-----------------------------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
|           | <b>Introduction</b>                                 |                                        |                                                                                                                                                                                    |                    |
| <b>60</b> | <b>Bollard Lighting</b>                             | 60<br>61<br>62                         | Bollards made of Steel<br>Bollards made of Aluminum<br>Bollards made of Stainless Steel                                                                                            | <b>6000 - 6099</b> |
| <b>61</b> | <b>Light Columns</b>                                | 63                                     | Light COLUMNS                                                                                                                                                                      | <b>6101 - 6120</b> |
| <b>62</b> | <b>Wall Fixtures<br/>Recessed Wall<br/>Fixtures</b> | 65<br>66<br>67<br>68                   | Ceiling Fixtures<br>Recessed Wall Fixtures<br>Wall fixtures with Brackets<br>Bracket Fixtures for Poles                                                                            | <b>6201 - 6210</b> |
| <b>63</b> | <b>Ingrade Lighting</b>                             | 70<br>71                               | Recessed Ground Fixtures<br>Heavy Load Fixtures                                                                                                                                    | <b>6301 - 6308</b> |
| <b>64</b> | <b>Pole Top Fixtures</b>                            | 73<br>74<br>75                         | Decorative Lighting<br>Street Lighting<br>Retro Style                                                                                                                              | <b>6401 - 6412</b> |
| <b>65</b> | <b>Custom made Poles</b>                            | 78<br>79<br>80<br>81<br>85<br>86<br>88 | Steel Poles with Decoration<br>Cylindrical Steel Poles<br>Seamless Conical Steel Poles<br>Aluminum Poles<br>Pole/Bracket Combinations<br>Special Constructions<br>Street Furniture | <b>6501 - 6518</b> |
| <b>69</b> | <b>Projekte</b>                                     |                                        |                                                                                                                                                                                    | <b>6901 - 6908</b> |
|           | <b>Anhang<br/>Register</b>                          |                                        |                                                                                                                                                                                    |                    |

**Construction system**

**Bollard Ligting**

**Wall Fixtures**

**Light Collumns**

ELTE tailor made production makes it possible, to realize individual concepts and designs. Productions of small series and single-piece jobs at acceptable prices are possible. Quality and respect of technical regulations is always guaranteed.

The ELTE system of tailor made light fixtures allows to produce bollards, wall fixtures, pole top fixtures, light columns and special constructions, on clients request. This complete programme of high quality light with high protection degrees is designed for the use in contemporary or modern architecture. Fixtures are decorative, equipped with the most modern LED light sources. The programme can be used to illuminate areas, structures, buildings and edifices.

ELTE tailor made outdoor fixtures are produced to individually illuminate pedestrian areas and streets, bridges and private or public parks and gardens correctly. The ELTE fixtures are made to match and support the design and architectural ideas and features chosen by the client.

ELTE offers a complete programme of light fixtures with high standard quality, easy to maintain, durable and long lasting. The guarantee periods are 2 years for lamps with lampholders and up to 10 years for products from ELTE production. Maintenance and changing of light sources is as easy and simple: ELTE developed a modular system. This allows to simply take out the luminary unit from the housing of the fitting. The luminary units have the protection classes from IP 54 to IP 69, depending on the use of the complete fixture. The final product is combined of luminary unit and housing components. We always try to present a complete product which exactly meets the requirements and ideas of the client.

The material ELTE used for the manufacturing of the housings are precision tubes made of steel, aluminum and or stainless steel, or extruded profiles and cast or pressed parts made of corrosion free aluminum alloys.

ELTE products made of steel always hot dip galvanized. Small size parts are electrocoated. After this, parts will be prepared for powder coating. There is no standard color, the client can select any color of the RAL chart.

ELTE Light fixtures are perfectly protected against corrosion. We guarantee the quality of the coating for 10 years.

Light fixtures made from stainless steel are being produced in the same way - without the galvanizing. On request fittings made of stainless steel can be supplied in electrocoating in colors. Finish in polished or grinded is possible. We advise to seal this finish by powder coating with transparent lacquer, to conserve the surface.

Light fixtures made from corrosion free aluminum are always PE-powder coated, any RAL color can be selected. On special request, aluminum parts can also be electro coated in color.

ELTE Light products are designed in a way, that the housing of the light fixture and the light emitting part are independent units. This modular system is applied with bollards, pole top luminaires, wall and ceiling fixtures, and recessed up- and down lights. This design principle allows the interchange of luminaire units, without removing the housing structures. Upgrading and modernizing of light sources becomes easy and is possible at lowest possible costs. The housing unit (the housing of the bollard for instance) is installed first. When this is done and ready, the luminary unit is placed into the housing and is connected to the supply cable. The luminary unit is protected by the housing against effects from outside, like weather, shocks, damages etc. Protection against corrosion is always guaranteed.

All luminary units are CE-certified and in accordance with Norm **EN60598**. The complete light fixture - the bollard or the light column always are protection class 1, have at least **IP54** and **IK08**. Where necessary or required, housings and luminary units are **IP 69**. For covers and some construction parts, we use stainless steel, either A2 or A4.

ELTE Light fixtures are designed and manufactured in a way that the light fixtures and accessories can be used in the public sector. They are suitable to be installed and used in extreme climate conditions, in areas with high corrosion potential, as well as in areas with difficult social conditions.

We offer, on request, a self-cleaning coating, as protection against graffiti.



## **Bollards, Light Columns, Wall- and Ceiling Fixtures, Pole Top Fixtures, Tailor Made Constructions, In Grade Fixtures IP 69, Street Furniture**

All ELTE light fixtures are alternatively made of steel, stainless steel or aluminum. Most round or square tubes are standard material offered by the industry. Profiles not available as standard with round, square, rectangular or triangular cross sections are welded or sheets or fixed to skeleton constructions.

Our production facilities are flexible enough to enable us to produce non standard constructions if needed. Production of small quantities or even single-piece jobs can be realized on request. We always care for a perfect protection against corrosion. The static requirements for constructions are being taken into account. Our experience for decades in this field allows us to find solutions for nearly all ideas and designs for tailor made light fixtures or street furniture.

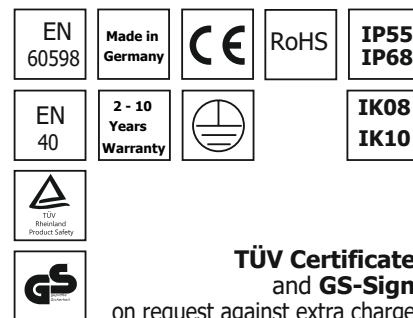
**Bollard Head:** Round Form: Made from cast aluminum or formed stainless steel sheet. Or made from steel: Formed and hot dip galvanized. cylindrical forms: Aluminum or steel, hot dip galvanized.

**LED light sources:** Build-in chips, SMD/COB, LED fixed on sheet aluminum. LED lamps (with lamp holders E27, E14, G4, G8, G9, GU5,3, GU10, as well as tubular lamps, L600, L1200, or L1500 mm) are being built in on clients request, or will be supplied separately. For changeable lamps the guarantee periode of the manufacturer will be applied.

**Removable light unit:** Conical reflector, cylinder made from hardened glass (ESG), PC or Pmma8H (acrylic). Metal parts: made from aluminum or stainless steel sheet. Protection degree: IP 54 and higher, protection class I. . Driver: alternatively with or without dimming. Cable: HOSRN-F 3x1,5mm<sup>2</sup> lenght on request.

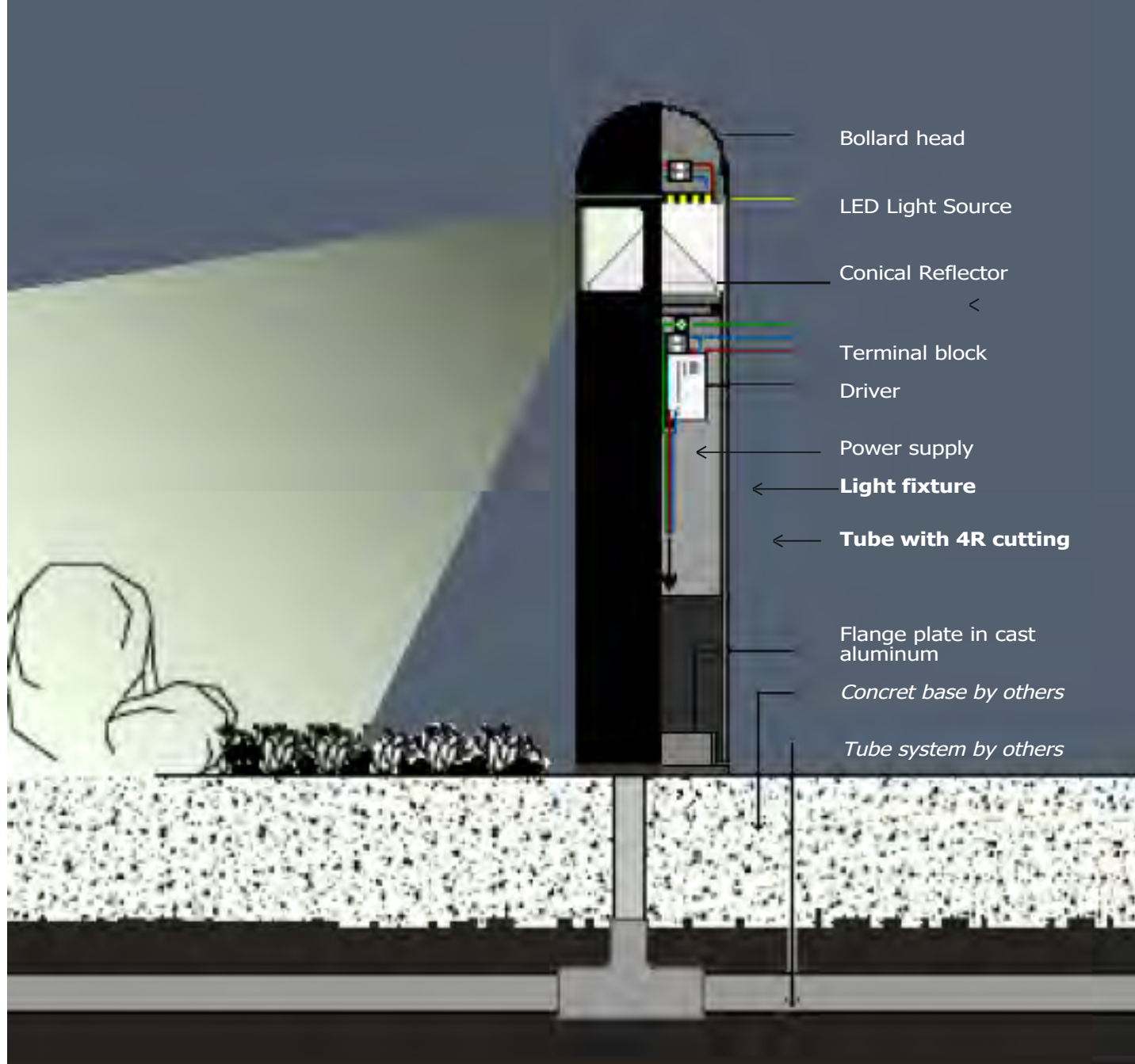
**Bollard body: tube with cut out openings,** on request with inspection door. Inspection door is a standard feature with bollard bodies higher than 1 m. Material: aluminum, steel, hot dip galvanized, or stainless steel.

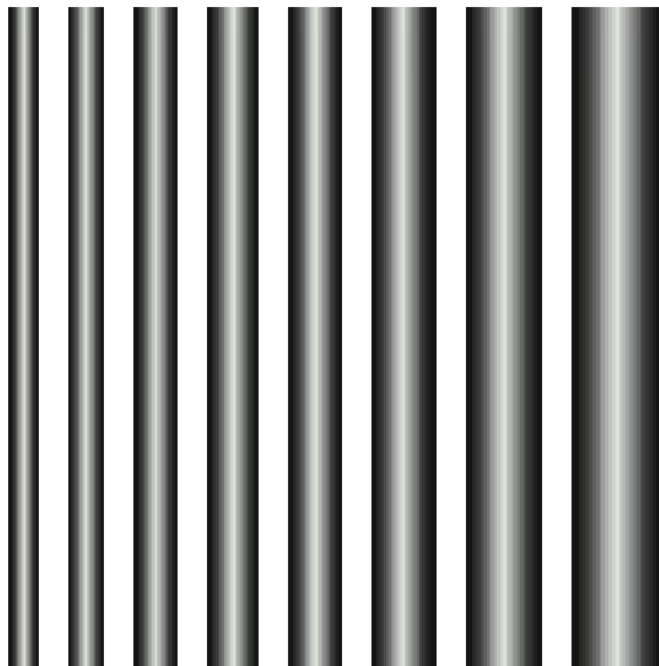
**Flange plate:** Steel or cast Aluminum



**On request against extra charge:**  
**Anchor bolt set,**  
**Concrete foundation,**  
**Tubular system for power supply, or Drainage.**

Schematic Structure of a Bollard Fixture





### Diameters of Steel, Aluminum and Stainless Steel Tubes

Round tubes for Bollards, Light Poles and matching Wall Fixtures are available in different standardized diameters

Material: Steel, Aluminum or Stainless Steel



#### Nominal Diameters of Tubes in mm

|    |     |     |     |     |     |     |     |
|----|-----|-----|-----|-----|-----|-----|-----|
| 80 | 100 | 120 | 150 | 180 | 200 | 220 | 250 |
|----|-----|-----|-----|-----|-----|-----|-----|

#### Real Diameters of Tubes for different Materials in mm

|    |     |     |     |     |     |     |     |                 |
|----|-----|-----|-----|-----|-----|-----|-----|-----------------|
| 76 | 108 | 121 | 159 | 178 | 203 | 219 | 254 | Steel           |
| 80 | 100 | 120 | 150 | 180 | 200 | 220 | 250 | Aluminum        |
| 78 | 105 | 129 | 153 | 179 | 204 | x   | 254 | Stainless Steel |



### Inspection door (EN40)

The inspection door is available as option for shorter Bollards on request. Width of the doors is depending on the diameter of the tube, height of the door depends on length of the bollard

The bollards with length of 1000 mm and more are equipped with door as a standard feature.

On request, these bollards can be manufactured without inspection door

In the pole or bollard tube a rail with two sliding nuts is fixed. A terminal for earthing is welded on the inner back side of the tube.

### Other Cross Sections

#### Triangle:

Skeleton construction, short bollards made from bended steel sheet with one welding seam.

#### Square:

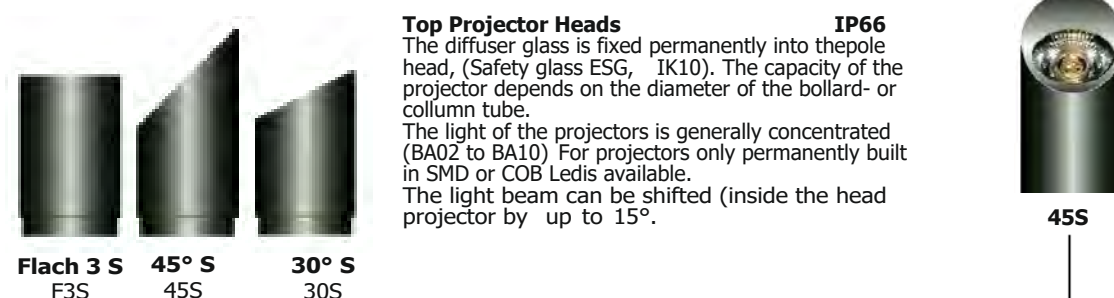
Standard tubes with square cross section or made of steel or stainless steel with welding seam lengthways.

Example: Individualized Bollard **460004**

## Pole Heads: Standard forms for Bollards and Light Columns



## Option: Top Projectors for Bollards and Light Columns



### Top Projector Heads

The diffuser glass is fixed permanently into the pole head, (Safety glass ESG, IK10). The capacity of the projector depends on the diameter of the bollard- or column tube.  
The light of the projectors is generally concentrated (BA02 to BA10). For projectors only permanently built in SMD or COB Ledis available.  
The light beam can be shifted (inside the head projector by up to 15°.

### IP66



45S

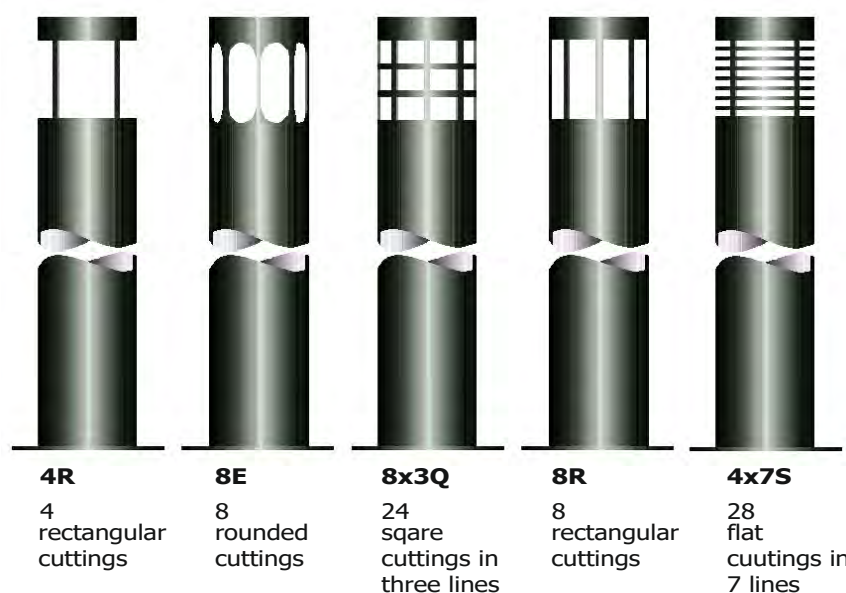


TK - E27

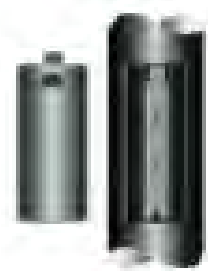
## Einsatzleuchte Standard form of diffusers in light units



## Standard cut out forms of bollards and light columns



## Inspection door



### On request: Inspection door accdg to EN 40

This option is recommended for short bollards, too, if used in public areas.

All bollards come with door as standard feature starting with a height of 1000 mm and a diameter of 120 mm.

Bodenbefestigung: Siehe Zubehör Kapitel 69

Art. Nr: **460044**  
**Bollard Fixture**

Ordering guide

**Bollard**

- Material: Steel
- Diameter: 159 mm,
- Cutting **8R**
- Height: 1200 mm
- square flange plate
- Service door accdg to EN 40.
- **Head 45°**
- **(or 45S with projector)**
- Luminary unit with E27 lampholder
- Diffuser: basic cone
- max performance: LED 15 W
- Color: black RAL 9005 matt

to order the fixture shown left please add:

Fixture + 45°Head + cutting:

**460044 + 45°+8R**

with lampholders E27, or E14, G4, G8, G9, GU5,3, GU10

Chosen color without extra charge. If any different color is required please mention the RAL-Nr. f.i. white RAL 9003, or opal-green RAL 6026.

**Tube**  
with welded flange plate and door EN40

|                             |  |      |             |              |
|-----------------------------|--|------|-------------|--------------|
| 2 - 10<br>years<br>warranty |  |      | EN<br>60598 | IP45<br>IP68 |
| Made in<br>Germany          |  | RoHS | EN<br>40    | IK05<br>IK10 |

In these information-icons remarks to certificates, EN guidelines, protections degrees, guarantee periods and origin are given

## Standard forms of luminary units



TÜV Certification and GS-Sign for complete lighting fixtures available on request against additional charge

## Removable Luminary Units

The removable luminary units (RLU) are self contained luminary fixtures. The RLU are complete, equipped with LED Light source, driver, reflector and power cable and can be exchanged as unit easily. They are supplied with cable H05RN-F and comply with protection class 1, CE, protection degree IP54. or on request up to IP69. The recommended capacity of the RLU and the Head Projector depends on the diameter or cross section of the tube or profile.

### LED

**Direct beam:** with lamp holders E27, E14, G4, G8, G9, GU5,3, or GU10,- for replacable LED lamps.

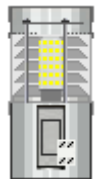
**Reflector lamps:** with mirror reflector, base cone or top cone.

**Permanently built in LED :** SMD and COB with driver. High performance COB have a capacity up to 140 lm/W.

**Driver:** Standard: not dimmable (ND), on request phase dimmable (PH), 0-10V dimmable (010V) oder DALI - compatible.

### Life Span and Maintenance

The nominal life span of a LED lamp is dependig on the type of lamp 30.000 to 50.000 h. That is equivalent from 3 1/2 to 5 1/2 years with 24 h operation per day. If it is only 12 h per day, the life span is is extended to 7 bis 11years. The required maintenance work is limited to the cleaning of the fixture from time to time, depending on surrounding of the fixtures (leaves, dust, insects).



with E27  
LED lamp



Built in  
LED COB/SMD  
with driver



## Bollards made of steel:

Precision steel tube, hot dip galvanized and PE-powder coated RAL 9005, black matt. All other RAL-colors on request. Flange plate.

### Standard version:

Flat head (90°), 4 equal cuttings, on request with inspection door. Buried portion or anchor cage, on request.

## Luminary unit

The luminary unit is placed from top into the already installed tube, and is fastened from inside the tube. With power supply cable.

### IP54

### Standard version:

Cylindrical diffuser from clear acrylic (PMMA8H) Conical reflector made of pure aluminum, COB-LED, with built-in Driver. Recommended performance max. 20 W

**The Diameter** of the basic bollard form made of steel is 159 mm (nominal 150 mm), other diameters on request from the list of diameters.

**The Length** is characterized by the last digit of the article number, a length on request has the letter S instead of the last cypher. Length of the basic bollard: 1200 mm, It comes with welded square flange plate, for being fixed to a flat surface or 4 anchor bolts.

**The Form of the Cutting** of the basic bollard are 4 rectangular cuttings (4R). Width of the cutting depends on the diameter of the tube. Other cuttings are 8R, 6E, 8E, 8x3QR, 7x4S. We can also offer free forms of cuttings, like cyphers, letters, words or ornaments. Please send us your enquiry for an offer.

**The Bollard Head** of the basic bollard has a flat cover. On request we supply other forms (30°, 45°, cone or round head

**The Luminary unit** of the basic bollard version is equipped with a top cone reflector.

**The LED Chip** is installed below the cutting under the cone reflector. The standard performance is 10 W. Other wattages or LED lamps with lampholder on request. Please specify on your order.

**The Driver:** the luminary units are equipped with a not dimmable driver (ND), on request we supply dimmable drivers.

## Ordering Guide:

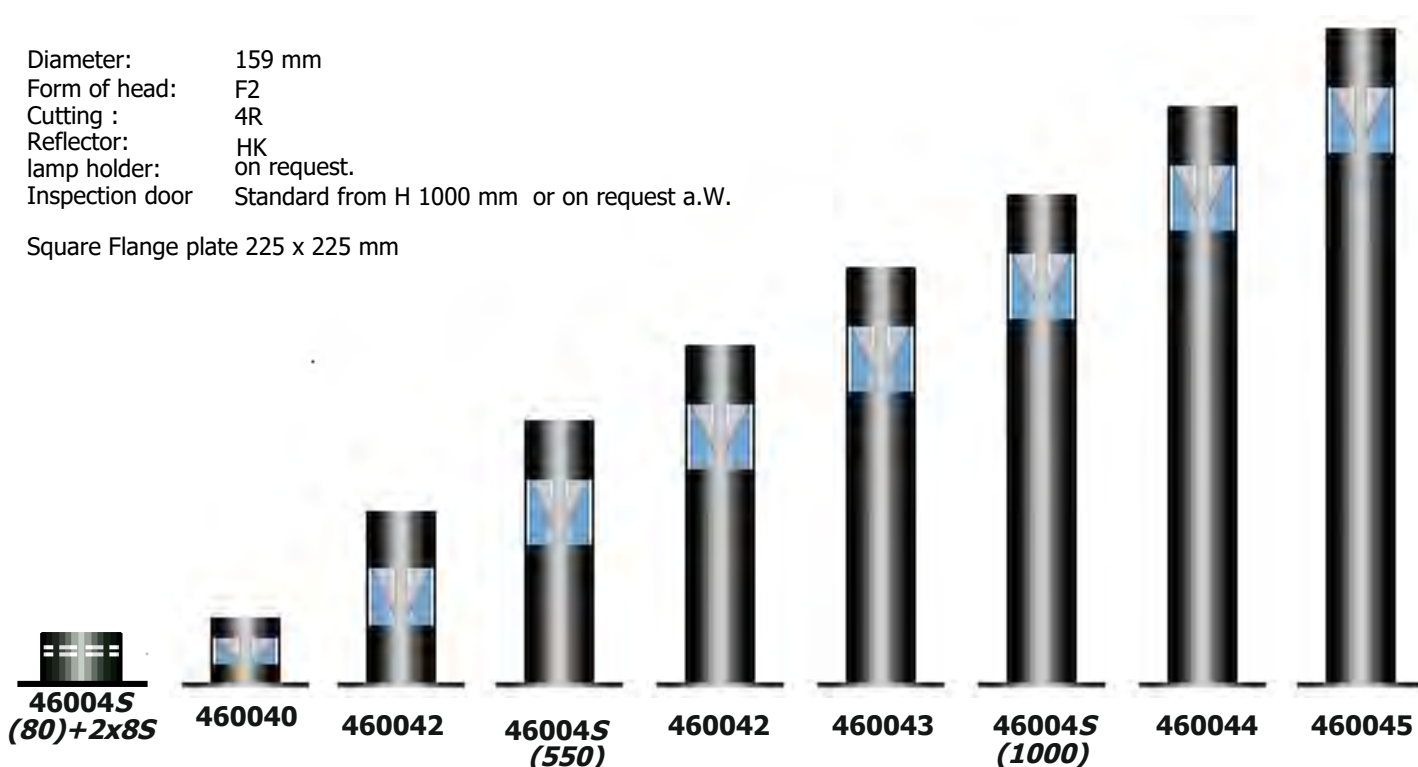
### Bollards made of Steel.

#### Material:

Precision steel tubes, hot dip galvanized and PE powder coated. RAL-colors. With flange plate. **IK10**

#### Standard Version of a bollard family:

Flat head (**F1 90°**), 4 equal cuttings: **4R**. On request with inspection door, standard features from H1000 mm on, buried portion or anchor cage. Socket **IP 68** on request.





## Chapter 60 Bollard Lighting

Group 60  
Bollards made of steel



Group 61  
Bollards made of aluminum



Group 62  
Bollards made of stainless steel



## Bollard fixtures made of Steel:

Precision steel tube, hot dip gal-vanized and PE powder coated. RAL- colors from RAL list. With flange plate

**IK10, EN 40**

## Basic version:

Flat head (90°), 4 rectangular cuttings, on request with inspection door - standard from H 1000 mm. Buried portion or anchor bolts set (not included), on request with socket (**IP68**).

## Removable luminary unit:

The luminary unit is placed from top into the already installed tube, fixed inside the tube. With power supply cable.

**IP54**, on request **IP67**

## Basic version:

Cylindrical diffuser made of clear acrylic (PMMA8H). With conical reflector made of 99.9% pure aluminium.

SMD/COB LED, build in driver, max. 20 W.

Option: LED lamp with lampholder.

## Application

public/private places, streets, gardens, parks, pedestrian areas, etc. Vandal proof housing



## 460043

Ø 159 mm, H 900 mm, flat head, 4 rectangular cuttings, inspection door, acrylic diffuser, Top cone mirror, GU 10 for LED reflector lamps



## 46005 S

Ø 174 mm, special height 1000 mm, flat head, 6 rectangular cuttings, inspection door, Opal acrylic diffuser, for LED lamps with E27 lampholder

## Bollards made of steel

### Basic versions

|                |           | Ø 89   | Ø 114  | Ø 133  | Ø 159  | Ø 174  | Ø 194  | Ø 219  |
|----------------|-----------|--------|--------|--------|--------|--------|--------|--------|
| Ground fixture | H 160mm   | 460000 | 460020 | 460030 | 460040 | 460050 | 460060 | 460070 |
| Bollard        | H 300mm   | 460001 | 460021 | 460031 | 460041 | 460051 | 460061 | 460071 |
| Bollard        | H 700mm   | 460002 | 460022 | 460032 | 460042 | 460052 | 460062 | 460072 |
| Bollard        | H 900 mm  | 460003 | 460023 | 460033 | 460043 | 460053 | 460063 | 460073 |
| Bollard        | H 1200 mm | 460004 | 460024 | 460034 | 460044 | 460054 | 460064 | 460074 |
| Bollard        | H 1500 mm | 460005 | 460025 | 460034 | 460045 | 460055 | 460065 | 460075 |

Ordering guide: 1300 mm, Ø 114 mm: **46002S**



TÜV Certification and GS-sign on request against extra charge



**460055** (45°, H 1000, 6E, OP. E27 or GU10, RAL 9005)

Ø 177 mm, H 1000 mm, black, inspection door, square flange plate, 6 elliptical cuttings, opal diffuser, acrylic PMMA8H, E 27 for max 20 W LED lamps



**460024** (45°, 8E, OP, E27, RAL 9006)

Ø 114 mm, H 1200 mm, color: aluminum-silver, inspection door, square flange plate, 8 elliptical cuttings, opal diffuser, acrylic PMMA8H, sand blasted finish, E 27 for max 20W LED lamps



**460034** (45°, 8E, OP, E27, RAL 9010)

Ø 159 mm, H 1200 mm, white, inspection door, square flange plate, 8 elliptical cuttings, opal diffuser, acrylic PMMA8H, sand blasted finish, E 27 for max 20W LED lamps



The **RAL color** range gives the necessary flexibility to fit ELTE custom made fixtures optimally in every project.

Wherever the RAL Chart does not match the color range of a project, we are prepared to adjust the color of the custom made fixtures exactly to the wanted color.

**Please simply ask.**

## Warranty against Corrosion

**ELTE** Bollard fixtures made of steel are always hot dip galvanized.

The sophisticated and perfect procedure to protect the surfaces of ELTE fixtures, makes it possible to guarantee the coating for 6 years .

ELTE is using this coating procedure (Qualicoat) since more than 25 years. According to our experience ELTE fixtures with this coating are free of corrosion after 25 years.

When the fixtures are assembled, only fastening material made of stainless steel is used.



TÜV Certification and GS-sign on request against extra charge

## Application

public/privat  
places, streets, gardens, parks  
etc.  
Vandal proof housing

## Bollard fixtures made of Steel Removable luminary unit (RLU)

**Material: Precision steel tube**  
hot dip galvanized and PE-powder coated, all colors from RAL chart. Flat head (90°), 4 rectangular cuttings.

The luminary unit is placed from top into the already installed tube, an will be fastened from inside the tube. With power supply cable. **IP54**, on request **IP67**

### Basic version:

Flat head (90°), 4 rectangular cuttings, shaded with 4 lamellas 45° made of steel, with inspection door Buried portion or anchor bolts set (optional), on request with socket and / or cable connecting box.

### Basic version:

Cylindrical diffuser made of clear acrylic (PMMA8H) Conical Reflector made of 99.9% pure aluminum, SMD/COB, build in driver, recommended max 20 W, or LED lamp with lampholder.

### IP67

### IP 54

These vandal proof bollards have 4 rigid lamellas made from steel. They guarantee complete protection against any mechanical damage. The solid lamellas perfectly remove the glare of the light source, the beam of light is equally spread over 360°. The core of the illuminated circle has a diameter of 6 m with a height of light source of 1 m. 20W or 2000 lm performance of the LED should be the maximum.

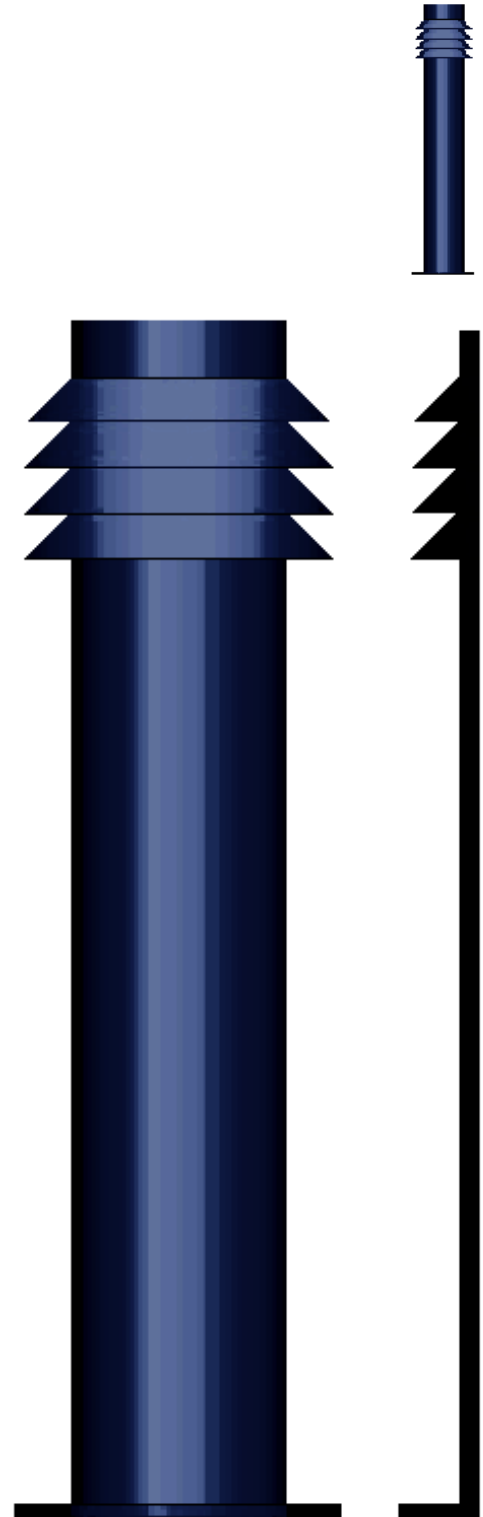
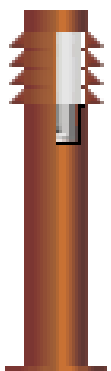
On request LED lamps with socket can be used. The RLU then is supplied without driver.

The luminary unit is equipped with LED chips, a driver, and a power supply cable. Ready to be connected to the optional cable connection box. The tubular diffuser is made of hardened acrylic PMMA8H. Gaskets are made of EPDM.

### List of Diameters for the luminary unit:

Ø 150 for tubes of Ø 174 mm steel tube  
Ø 180 for tubes of Ø 194 mm steel tube  
Ø 200 for tubes of Ø 219 mm steel tube  
Standard heights: 1000, 1200, and 1500 mm.  
220-240V, 50/60Hz, Protection class 1

### IP67 - IK10



| Art.Nr. | Ref Code | Lamp      | Watt | Performance | Tube Ø x Height  | Luminary Unit Ø x H |
|---------|----------|-----------|------|-------------|------------------|---------------------|
| 460454  |          | SMD / COB | 20W  | 2000 lm     | 174 mm x 1200 mm | Ø 150 mm / 300 mm   |
| 460664  |          | SMD / COB | 25W  | 2500 lm     | 194 mm x 1200 mm | Ø 180 mm / 300 mm   |
| 460474  |          | SMD / COB | 30W  | 3000 lm     | 219 mm x 1500 mm | Ø 200 mm / 300 mm   |



TÜV Certification and GS-sign on request against extra charge

## Decorative Bollards.

Precision steel tube Ø 194 mm, hot dip galvanized and PE powder coated. Standard color: RAL 9005 black, RAL-colors from RAL chart. Inspection door. With round flange plate.  
**IK08, EN 40**

### Basic version:

Flat head (90°), 4 cuttings, in form of an ellipse positioned on the perimeter. Separate buried portion or anchor bolts set as option.

## Removable luminary unit

The luminary unit is placed from the top into the already installed tube, and is fastened inside the tube. With power supply cable.

**IP54**, on request **IP67**

## Application

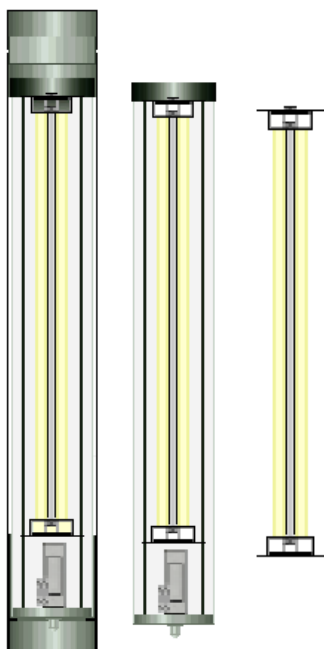
public/private places, streets, gardens, parks etc.  
Vandal proof housing

### Basic version:

Cylindrical diffuser made of opal acrylic (PMMA8H) for 2 or 3 tubular LED lamps L 600 mm, with built in driver ND. 2 or 3x 10 W, 2600 or 2900 lm

The range **PANAM** contains light columns, lengths between 2500 mm to 4000 mm. See Chapter 61: Light columns.

## Removable Luminary Unit



| Art.Nr. | Lamp      | Watt  | Height | Output  | Outer Ø x Height | Luminary Unit Ø x H |
|---------|-----------|-------|--------|---------|------------------|---------------------|
| 460664  | LED Röhre | 1x10W | 600 mm | 1200 lm | 194 x 1200 mm    | Ø 180 800 mm        |
| 460665  |           | 2x10W | 600 mm | 2400 lm |                  |                     |
| 460666  |           | 3x10W | 600 mm | 3600 lm |                  |                     |



TÜV Certification and GS-sign on request against extra charge

## Application

public/privat  
places, streets, gardens, parks  
etc.  
Vandal proof housing



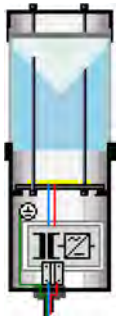
## Bollard fixtures made of Steel

### Material:

Precision steel tube hot dip galvanized and PE powder coated  
RAL- colors from RAL list, with flange plate **IK10, EN 40.**  
with inspection door, Buried portion, anchor cage cable  
connection box or socket (IP68). Basic version:  
Flat head (90°), 4 rectangular cuttings, with inspection door.

### Options:

Buried portion, anchor bolts set, socket (IP68) or cable connecting  
box.



### Removable luminary unit

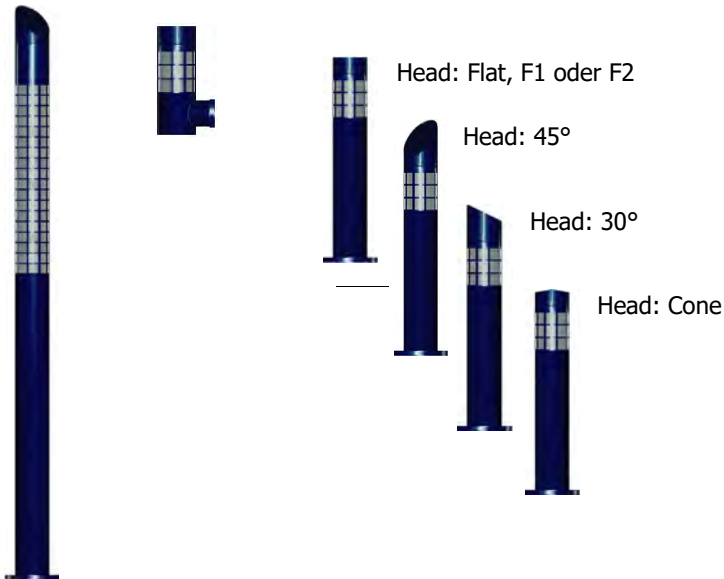
The luminary unit is placed from top into the already installed  
tube, fastened from inside the tube. With power supply cable.

**IP54**, on request **IP67**

### Basic version:

Cylindrical diffuser from clear acrylic  
(PMMA8H). With conical reflector made from 99.9% pure  
aluminium, SMD/COB LED, build in driver, recommended max  
30 W ~ 3000 lm.

**Option:** LED lamp with lampholder.



Matching light columns see chapter 61,  
matching wall fixtures see chapter 52

**Art. Nr. 460044**  
(addition to order: acryl sat, 8x3Q)

**Abb.:** 24 cuttings, 8 x 3 rows.



| Art.Nr. | Ref Code | Lamp      | Watt | Performance | TubeØ x Height   | Einsatzleuchte Ø x L |
|---------|----------|-----------|------|-------------|------------------|----------------------|
| 460454  |          | SMD / COB | 20W  | 2000 lm     | 174 mm x 1200 mm | Ø150 mm / 300 mm     |
| 460664  |          | SMD / COB | 25W  | 2500 lm     | 194 mm x 1200 mm | Ø180 mm / 300 mm     |
| 460474  |          | SMD / COB | 30W  | 3000 lm     | 219 mm x 1200 mm | Ø200 mm / 300 mm     |



## Bollard fixtures with square cross section

### Material:

Square extruded aluminum tube, PE-powder coated, RAL-colors, with square flange plate. **IK10, EN 40**

### Basic version:

4 rectangular cuttings, with flush inspection door. Diffuser: acrylic sheet, PMMA8H clear or Opal-transparent or on request: Safety glass ESG.

Recommended options: buried portion with flange plate made of steel, hot dip galvanized, or anchor bolt set, socket IP68, cable connecting box.

### Removable luminary unit

The luminary unit is placed from top into the already installed tube, fastened inside the tube. With power supply cable.

**IP 55, or IP 67**

### Basic version:

Cylindrical diffuser from clear acrylic tube PMMA8H. Diameter of RLU depends on size of cross section of the tube.

With conical reflector made from 99.9% pure aluminium, SMD/COB LED, built in driver.

Option: LED lamp with lampholder.

These fixtures are manufactured on order only.

**Article Numbers: 460800 bis 460829**

**Matching Light Columns (Chapter 61) and Wall Fixtures (Chapter 62)**

## Bollard fixtures with triangular cross section

### Material:

Steel sheet, electro-galvanized, attached to a skeleton made of steel. PE-powder coated, RAL-colors with round flange plate **IK10, EN 40**

### Standard version:

3 rectangular cuttings. Flush inspection door

Empfohlen: Buried portion or anchor cage.

Option on request: Schuko socket (**IP68**)

### Removable luminary unit:

The luminary unit is placed into the already installed triangular fixture, fastened inside the triangle. With power supply cable.

**P55, on request IP67.** Power supply cable.

### Basic version:

Cylindrical diffuser from clear acrylic tube PMMA8H. Diameter of RLU depends on size of cross section of the tube.

With conical reflector made from 99.9% pure aluminium, SMD/COB LED, built in driver.

Option: LED lamp with lampholder.

**These fixtures are manufactured on order only.**

**Article Numbers: 460900 to 460929**

**Matching Light Columns (Chapter 61) and Wall Fixtures (Chapter 62)**





TÜV Certification and GS-sign on request against extra charge



## Construction:

Bollard fixtures made of aluminum are designed and manufactured according EN 40 norms. Compared with Bollards made of steel, wall thickness of the extruded tubes is bigger, to reach the same strength as steel tubes.

## Protection against corrosion:

The bollard fixtures are made of an corrosion-free aluminum alloy. The preparation of the parts before PE-powder coating is more complicated as with hot dip galvanized steel. As a result we receive a product with a coating that lasts for 10 and more years. The warranty on coated material, no matter whether it is steel or aluminum is 10 years.

## Bollard Fixtures made of Aluminum Material:

Extruded, corrosion proof aluminum tube, PE-powder coated, RAL-colors from the RAL chart, with Flange plate.

**IK10, EN 40**

## Basic Versions:

Heads of all forms, 4 equal cuttings. Cutting designs as with steel bollard housings.

## Inspection Door:

Standard from H 1000 mm. Optional also for shorter bollards.

## Flange plate:

Made of Aluminum round or square

**Optional accessories:** Buried portion with flange plate, Anchor bolt set, cable connection box, socket IP 68

## Removable Luminary Unit:

The luminary unit is placed from top into the already installed tube, and is fixed from inside the tube. With power supply cable.

**IP54, on request IP67**

## Basic Version:

Cylindrical diffuser from clear acrylic (PMMA8H). With conical reflector made of 99.9% pure aluminium, SMD/COB LED, built in driver, recommended max 20 W.

Option: LED lamp with lampholder. IP55, IK08

## left:

**46105**

Ø 200 mm, H 1200 mm. Round Head, RAL 9003

Removable luminary unit:

Ø 180 mm, mirror reflector, LED 20 W, built in driver ND,

**IP 67**

optional for LED lamps with socket

## right 461045

Ø 180 mm  
H 1200 mm  
head 45°



## Standard bollard fixtures made of Aluminum - Heights and tube diameter

| Group           | Height Ø  | 100 mm | Ø 120 mm | Ø 150 mm | Ø 180 mm | Ø 200 mm | Ø 220 mm | Ø 250 mm | Ø 300 mm |
|-----------------|-----------|--------|----------|----------|----------|----------|----------|----------|----------|
| Floor fixture   | H 160mm   | 461011 | 461021   | 461031   | 461041   | 461051   | 461061   | 461071   | 461081   |
| Wall top        | H 300mm   | 461012 | 461022   | 461032   | 461042   | 465052   | 461062   | 461072   | 461082   |
| Bollard fixture | H 700mm   | 461013 | 461023   | 461033   | 461043   | 461053   | 461063   | 461073   | 461083   |
| Bollard fixture | H 900 mm  | 461014 | 461024   | 461034   | 461044   | 461054   | 461064   | 461074   | 461084   |
| Bollard fixture | H 1200 mm | 461015 | 461025   | 461035   | 461045   | 461055   | 461065   | 461075   | 461085   |
| Bollard fixture | H 1500 mm | 461016 | 461026   | 461036   | 461045   | 461056   | 461066   | 461075   | 461086   |

|                 |                                                                                   |      |                                                                                   |                  |       |          |      |      |
|-----------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------------------|-------|----------|------|------|
| Made in Germany |  | RoHS |  | 5 years Warranty | EN 40 | EN 60598 | IK10 | IP65 |
|-----------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------------------|-------|----------|------|------|

TÜV Certification and GS-sign on request against extra charge



## Application

public/privat  
places, streets, gardens,  
parks etc.  
Vandal proof housing



**left: 461035  
RAL 6027  
turquoise green,  
Detail: cutting and  
inspection door**

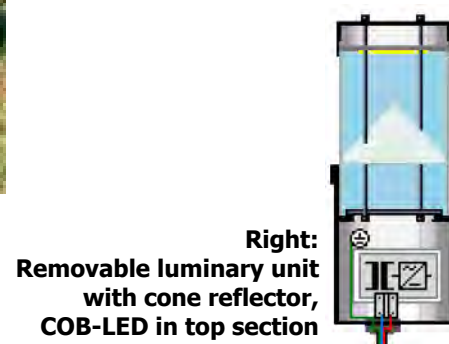
**right: 461035 RAL  
6027 turquoise  
green, with square  
flange plate**



**461044  
RAL 9005  
black, with painting in  
acrylic paint by  
Huberta Hoppe**



**461053  
RAL 5015 sky-blue,  
louvered diffuser,  
inspection door.**



**Right:  
Removable luminaire unit  
with cone reflector,  
COB-LED in top section**

**right:**

**461045**

Ø 200 mm, H 1200 mm  
45° head  
RAL 9016 traffic-white  
PE-powder coated

**Luminary unit**

Ø 180 mm,  
with 4 lamellas  
made of 99.9% pure aluminum  
LED COB 20 W, ND,  
on request for LED Lamps  
with socket E27

**IP 67, IK09**



**links:**



**left:**

**Product line**

**461 . . .**  
**Bollard fixtures,**  
Aluminum 150x150  
mm , H 1200 mm ,  
with flange plate  
PE-powder coated  
RAL 9003 signal white

**Luminary unit:**

Ø 140 mm,  
6 lamellas louver, 20W  
Driver ND, on request  
for LED Lamps with  
socket E27

**IP 65**

**right:**

**461---**

Aluminum Cube  
shaped head 250x250  
mm with 36 square  
cuttings.  
Acrylic diffuser, opal  
H 1200mm,  
PE-powder coated

**Luminary unit:**

Ø 180 mm,  
20 W, on request for  
LED Lamps with  
socket E27

**IP65**



## Material:

corrosion proof aluminum tubes, PE-powder coated, RAL-colors, with flange plate.

**IK10, EN40**



TÜV Certification and GS-sign on request against extra charge

**Options:** Buried portion, anchor bolts, cable connecting box or socket (IP 68) as Option.

**Luminary Unit:** The luminary unit is placed from top into the already installed tube, fastened inside the tube. With power supply cable. **IP54**, or **IP67** on request

## Basic Version:

Cylindrical diffuser made of clear acrylic (PMMA8H). With conical reflector made of 99.9% pure aluminium, SMD/COB LED, build in driver, recommended max 20 W.

Option: LED lamp with lampholder.

**IP55, IK08**

**left:**

**Production line 460 . . .**

## Application

public/privat  
places, streets, gardens, parks  
etc.  
Vandal proof housing

**right:**

**Production line 461 . . .**

**Luminary  
unit:**

## Decorative Bollard Fixture: Luminary Unit

Ø 500 mm, H 1200 mm. The semi-spheres made of aluminum sheet is fixed on the bollard housing. PE-powder coated.

## Bollard fixture:

Steel, hot dip galvanized  
Ø 150 mm, H 1200 mm,  
4 cuttings, inspection door.  
Pure-white, RAL 9010,  
other RAL-colors on request

Ø 140 mm,  
Acrylic cylinder  
made of clear  
PMMA8H SMD or  
COB, driver ND,  
**IP67**  
on request for  
LED Lamps with  
socket E27

## Bollard fixture:

Ø 200 mm, H 1200  
mm 45°Head,  
traffic-blue RAL 5017  
4 cuttings, inspection  
door. PE-Powder  
coated, other RAL-colors  
on request

Ø 180 mm, Louvers  
made of 99.9% pure  
aluminum, clear  
acrylic cylinder  
SMD oder COB ND,  
**IP 67**  
on request for LED  
Lamps with socket E27



## Construction:

Bollard fixtures made of stainless steel (A2 oder A4)  
Identical design with the version in steel.  
Construction norm is **EN 40**.

|                 |      |    |                  |       |          |      |      |
|-----------------|------|----|------------------|-------|----------|------|------|
| Made in Germany | RoHS | CE | 5 Years Warranty | EN 40 | EN 60598 | IK10 | IP65 |
|-----------------|------|----|------------------|-------|----------|------|------|

## Protection against corrosion:

Constructions made of stainless steel are rust proof. Most of the fixtures have a grinded surface. To avoid damage on this surface finish, a PE powder coating with clear lacquer is applied. We guarantee the powder coating for 5 years.

## Basic version:

Flat head (90°), 4 cuttings, with inspection door  
Additional option: buried portion with flange plate, anchor cage, cable connecting box and/or socket (**IP68**)

## Luminary Unit:

The luminary unit is placed from top into the already installed tube, fastened inside the tube.  
With power supply cable.

**IP54**, on request **IP67**

## Basic Version:

Cylindrical diffuser made of clear acrylic (PMMA8H).  
With conical reflector made of 99.9% pure aluminum-SMD/COB LED, build in driver, recommended max 20 W.  
Option: LED lamp with lampholder.

**IP55, IK08**



left:

**462054**

Ø 204 mm, H1200 mm round head  
grinded and clear transparent PE-powder coated

## Luminary unit

Ø 180 mm, SK, 20W, ND.  
on request for LED Lamps with socket E27

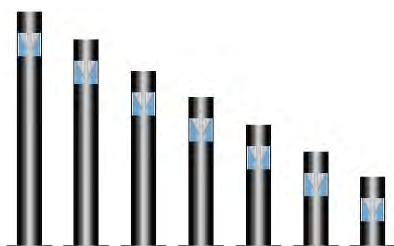
**IP 65**

## Standard Bollard fixtures made of stainless steel

| Group            | Height    | Diameter | Ø 78,1 | Ø 105  | Ø 129  | Ø 153  | Ø 204  | Ø 254  |
|------------------|-----------|----------|--------|--------|--------|--------|--------|--------|
| Ground fixture   | H 160mm   |          | 462000 | 462020 | 462030 | 462040 | 462050 | 462060 |
| wall top fixture | H 300mm   |          | 462001 | 462021 | 462031 | 462041 | 462051 | 462061 |
| Bollard fixture  | H 700mm   |          | 462002 | 462022 | 462032 | 462042 | 462052 | 462062 |
| Bollard fixture  | H 900 mm  |          | 462003 | 462023 | 462033 | 462043 | 462053 | 462063 |
| Bollard fixture  | H 1200 mm |          | 462004 | 462024 | 462034 | 462044 | 462054 | 462064 |
| Bollard fixture  | H 1500 mm |          | 462005 | 462025 | 462034 | 462045 | 462055 | 462065 |



TÜV Certification and GS-sign on request against extra charge



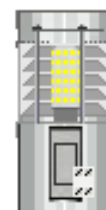
**left:**

## 462044

Ø 153 mm, H 1200 mm  
90° flat head, acrylic tube  
PMMA8H clear.  
Grinded, transparent PE-  
powder coating

### Luminary Unit:

Ø 140 mm  
LED 20 W, ND  
on request for LED-Lamps  
with Socket.



**right:**

## 462054

Ø 204 mm,  
H 1200 mm  
30° Head,  
grinded PE-powder  
coated, transparent

### Luminary Unit:

Ø 180 mm, SK, 20 W,  
ND, acrylic tube, satin  
finish  
on request for LED-  
lamps with Socket (E27)



### Matching Wall fixtures in Chapter 62



## Orientation bollard made of steel

Ø 159/174/194/219 mm IP 67 IK10

Heavy duty short orientation bollard fixture  
Maximal standard height: 300 mm. For extreme load the tube are reinforced by welded on steel fins every 90°. Complete housing made of steel, hot dip galvanized and PE powder coated. Suitable to be used in traffic areas and along Streets.  
Fixing material : Stainless steel A4.

Coating: All steel parts are hot dip galvanized and PE powder coated. according to RAL chart.  
Recommendation: Signal colors if used in public traffic areas

Interior housing: RAL 9016 traffic white.

Lateral beam angle BA

|         |            |
|---------|------------|
| BA 90°  | 1 Segment  |
| BA 180° | 2 Segments |
| BA 270° | 3 Segments |
| BA 360° | 4 Segments |

### Luminary unit:

recommended: LED, max 5 W~500 lm per segment, with driver ND.

Orientation bollards are not suitable for area illumination!

220 - 240V 50/60Hz,  
**IP 68**

deutsche  
technik  
seit 1972

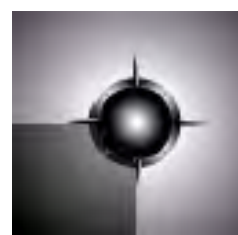
| Art.Nr.:      | Dimension  | Flange | Covering | Performance |
|---------------|------------|--------|----------|-------------|
| <b>460741</b> | Ø 159xH200 | Ø220   | 90°      | max. 5 W    |
| <b>460742</b> |            |        | 180°     | max. 10 W   |
| <b>460743</b> |            |        | 270°     | max. 15 W   |
| <b>460744</b> |            |        | 360°     | max. 20 W   |
| <b>460751</b> | Ø 174xH220 | Ø 240  | 90°      | max. 5 W    |
| <b>460752</b> |            |        | 180°     | max. 10 W   |
| <b>460753</b> |            |        | 270°     | max. 15 W   |
| <b>460754</b> |            |        | 360°     | max. 20 W   |
| <b>460761</b> | Ø 194xH240 | Ø 260  | 90°      | max. 5 W    |
| <b>460762</b> |            |        | 180°     | max. 10 W   |
| <b>460763</b> |            |        | 270°     | max. 15 W   |
| <b>460764</b> |            |        | 360°     | max. 20 W   |
| <b>460771</b> | Ø 219xH260 | Ø280   | 90°      | max. 5 W    |
| <b>460772</b> |            |        | 180°     | max. 10 W   |
| <b>460773</b> |            |        | 270°     | max. 15 W   |
| <b>460774</b> |            |        | 360°     | max. 20 W   |



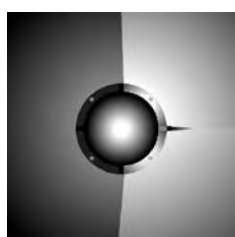
TÜV Certification and GS-sign on request against extra charge



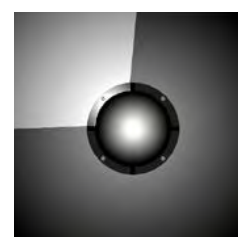
360°



270°



180°



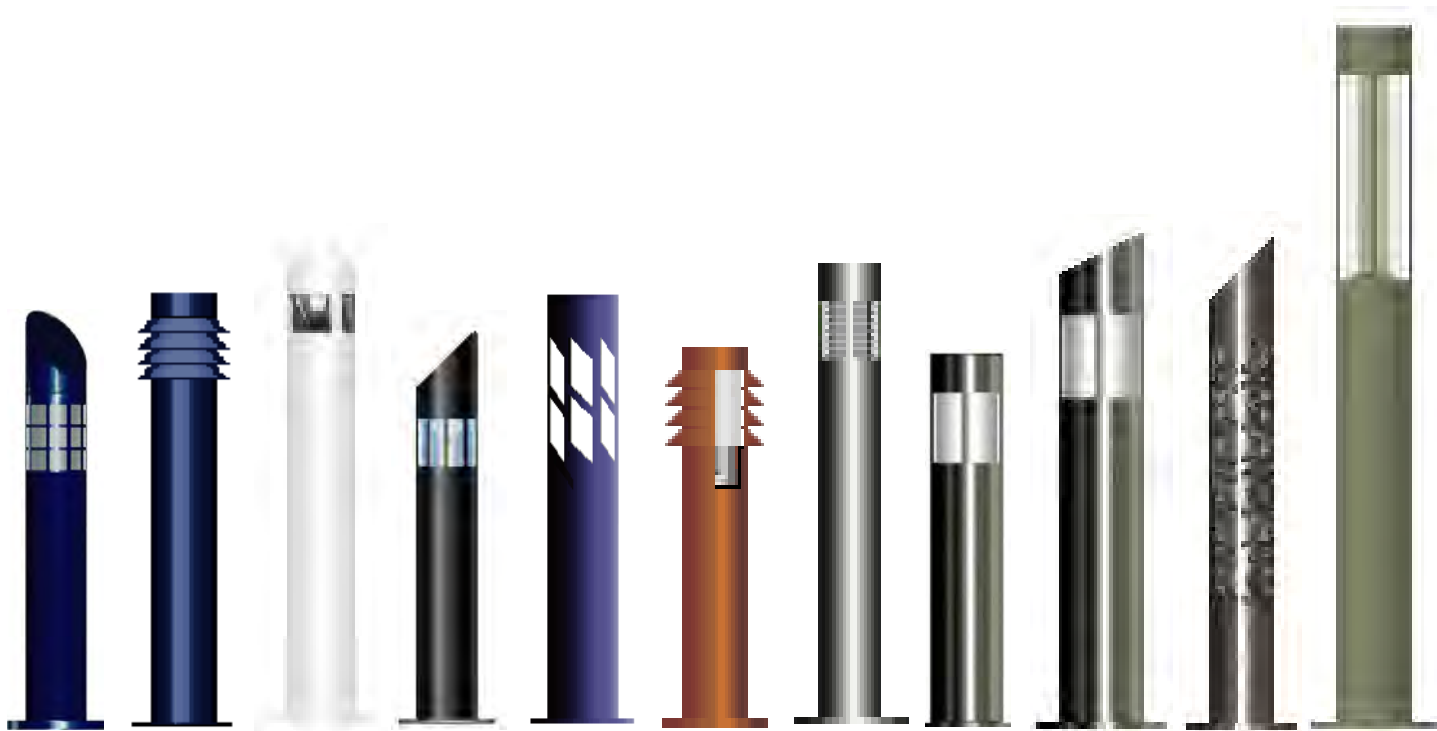
90°



Aluminum casting: Tool for base of bollards



Bollard fixtures , ready for being hot dip galvanized.



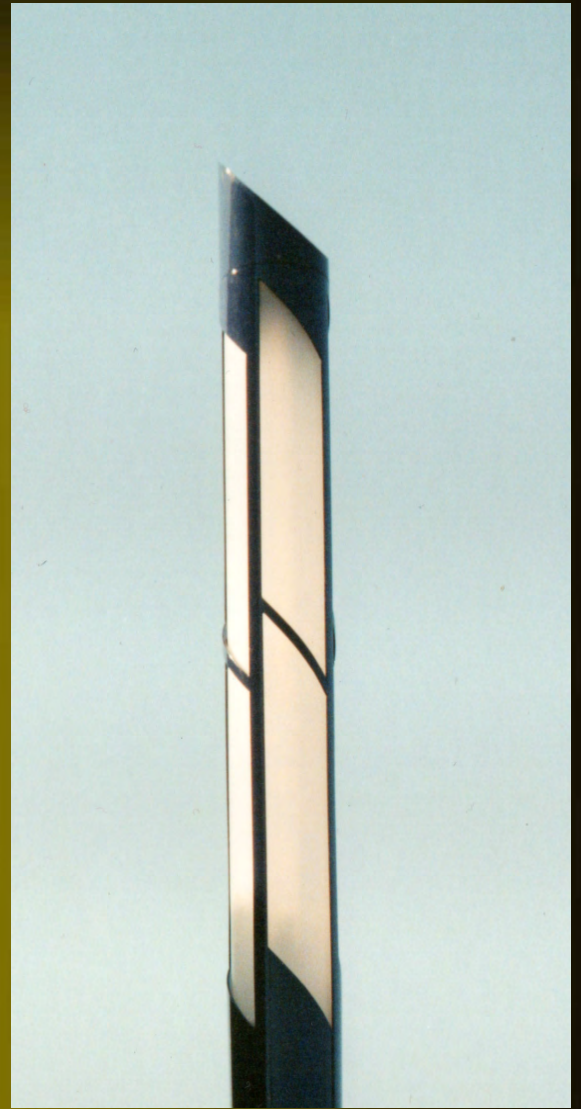
ELTE Bollards, made of Steel, Aluminum and Stainless Steel - Taylor Made Quality



Tailor made Lighting

Chapter 61

Light Columns



**ELTE Taylor made Light Columns**

**ELTE** offers a comprehensive programme of light fixtures and constructions. Light fixtures are decorative, with high protection degrees, comply with all technical requirements. They are safe and well protected against vandalism, they are fit for being used in public areas.

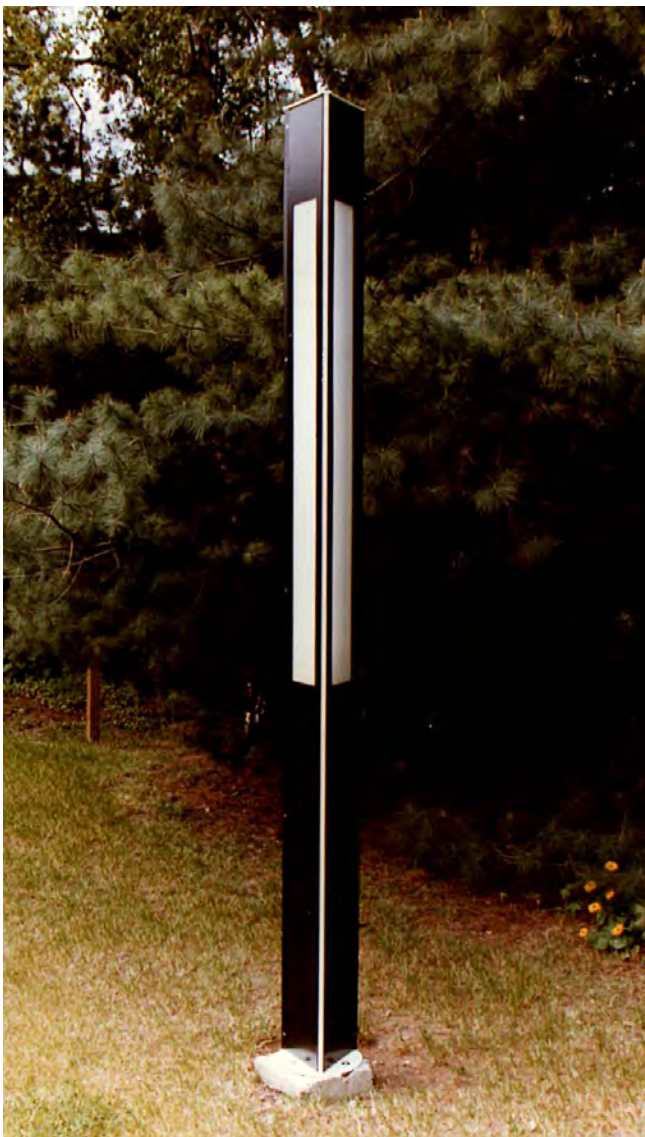
**Housing of Light fixtures:** Vandalism regreably is an important issue in the public sector.

**ELTE** Light fixtures have a strong and rigid housing protecting a retractable luminary unit. This allows the use of **ELTE** products in city centers, parking lots, public areas as parks, gardens, shopping centers, or around stadia, but also in the private sector. The high protection degree of the fixtures and the perfect protection against corrosion make it possible to install the fixtures in areas with severe wheather conditions like sea side promenades (Atlantic or North Sea)

**The Removable Luminary Unit** perfectly protects the built in LED lamps, electrical and electronic devices of the system against all influences from outside. Each luminary is a complete unit, which is placed into the housing construction, and fastened inside the housing. With the power supply cable (HO5RN-F) installed, the luminary unit can be connected to a suitable fused cable connecting box.

**The Exchange of the Light Source** - for luminary units with lampholders - is very simple: The unit can be taken out of the housing, and the lamp can be changed outside. At the same time, the unit can be cleaned easily. LED lamps with socket have a built in driver. For this reason the LED chips are exposed to higher temperatures. The life time of these LED lamps for this reason is remarkably shorter than the life span of LED chips with driver installed in a distance from the chip.

**The Luminary Unit with permanently installed LED Chips**, which have a life span of 50.000 hours, can be maintained - cleaned - in the same way. The LED has a nominal life span when used permanently (24 H every day) is about 6 years. Tunnel lighting normally are used permanently. The maintenance intervals are 3 times longer that with - for example - sodium high pressure vapour lamps, which have a nominal life span of 18.000 h. The maintenance interval for changing the lamps is therefore 2 years. LED light fixtures used only 6 h per day have a nominal light span of 24 years, before the light source has to be changed. In the regular maintenance period the maintenance is limited to cleaning the fixture.



**left:**

**Art.Nr.: 461911**

Triangular Light Collumn

Galvanized steel and acrylic opal glass. Bi-colored black and white.

Height 3,5 m

Diameter of flange plate: 300 mm

1 to 3 LED tubes TS 1500 mm



**right:**

**Art.Nr: 463099**

**Light Columns in the World**

**Trade Center**

Made of steel, stanless steel and acrylic glass

Total height: 10 m,

Cross section 0.5 x 0.5 m. 4x5

LED tubes T5 1500 mm.

**Dresden, D.**

**Lights Columns made of Steel****Material:**

Precision tubes, hot dip galvanized and PE-powder coated, all RAL-colors, with inspection door. Size and gauge of the flange plates depends on the diameter and the height of the fixture in question. It has to fulfill the static requirements. Matching buried protection, or anchor bolt set and/or cable connecting box are optional on request.

**IK10, EN 40, IP55 to IP68****Standard Version:**

Choice of different forms of heads, cuttings are similar to cuttings of bollard fixtures. Free forms of cuttings are available on request.

**Luminary Unit:**

The client determines the performance of the light source. Diameter and lengths of the luminary units depend on the diameter of the tubes used. The construction principle of all luminary units is always the same. LED - tubes of 600, 1200 or 1500 mm length and LED lamps with lamp holders can be used on request. The luminary unit has the protection degree of **IP55**, or **IP68** on request. On the base of the luminary unit the power supply is fed in, a power supply cable (HO5RN-F) is always supplied. Option: fused cable connection box. **IP68**.

**Diffuser:**

Cylindrical, made of PMMA8H in clear finish. Clear versions with reflector system made of 99.9% proof aluminum, on request with diffusers of acrylic or satin finish or Opal. Diffusers made of borosilicate glass by Schott are available as option.



deutsche  
technik  
seit 1972



**Left:**  
**Art.Nr 463095**  
**Light Columns**  
at football stade "ACTIS 2"  
in **Caen, Normandie, F.**



### Application

public/privat  
places, streets, gardens,  
parks etc.  
Vandal proof housing

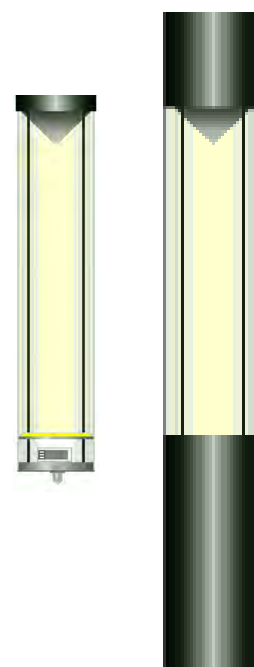
### Material:

precision steel tube, hot dip galvanized and  
PE powder coated , 4 long cuttings

Inspection door  
All RAL- colors can be  
selected

**IK10, EN40, IP65** or up to **IP67**

optional:  
buried portion with flange  
plate or anchor bolt set



### 46365

H 4000, Ø 194 mm (90°, 4R, IT, luminary unit, COB or SMD,  
42W, **IP65** or **IP67**, RAL 9005, schwarz)

**Installed on Campus of University of Reims, F**

### Retractable Luminary Unit (RLU)

with top cone reflector(HK), COB oder SMD, **IP65**,  
clear cylinder, borosilicate glass by Schott

### Article Numbers of Light Columns - cylindrical steel tube

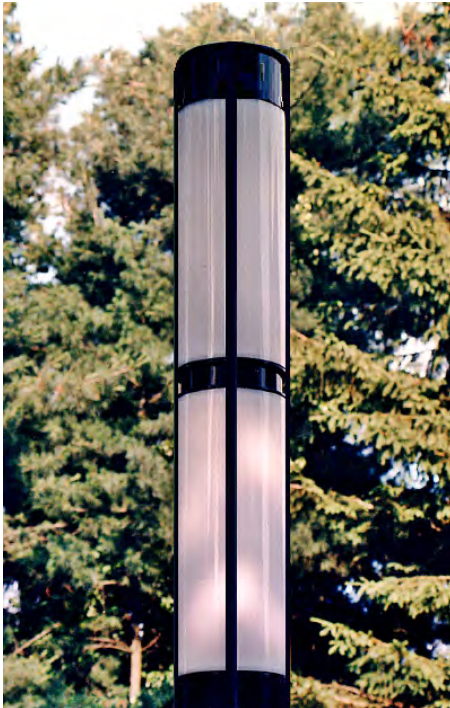
|              | Height            | Ø 114 mm | Ø 133 mm | Ø 159 mm | Ø 168 mm | Ø 179 mm | Ø 194 mm | Ø 219 mm |
|--------------|-------------------|----------|----------|----------|----------|----------|----------|----------|
| Light Column | 2000 mm           | 463111   | 463021   | 463031   | 463041   | 463051   | 463061   | 463071   |
| Light Column | 2500 mm           | 463112   | 463022   | 463032   | 463042   | 463052   | 463062   | 463072   |
| Light Column | 3000 mm           | 463113   | 463023   | 463033   | 463043   | 463053   | 463063   | 463073   |
| Light Column | 3500 mm           | 463114   | 463024   | 463034   | 463044   | 463054   | 463064   | 463074   |
| Light Column | 4000 mm           | 463115   | 463025   | 463035   | 463045   | 463055   | 463065   | 463075   |
| Light Column | 4500 mm           | 463116   | 463026   | 463036   | 463045   | 463056   | 463066   | 463075   |
| Light Column | customized height | 463119   | 463029   | 463039   | 463049   | 463059   | 463067   | 463079   |



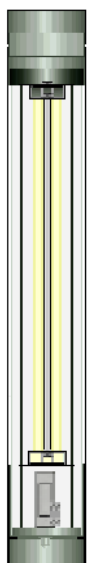
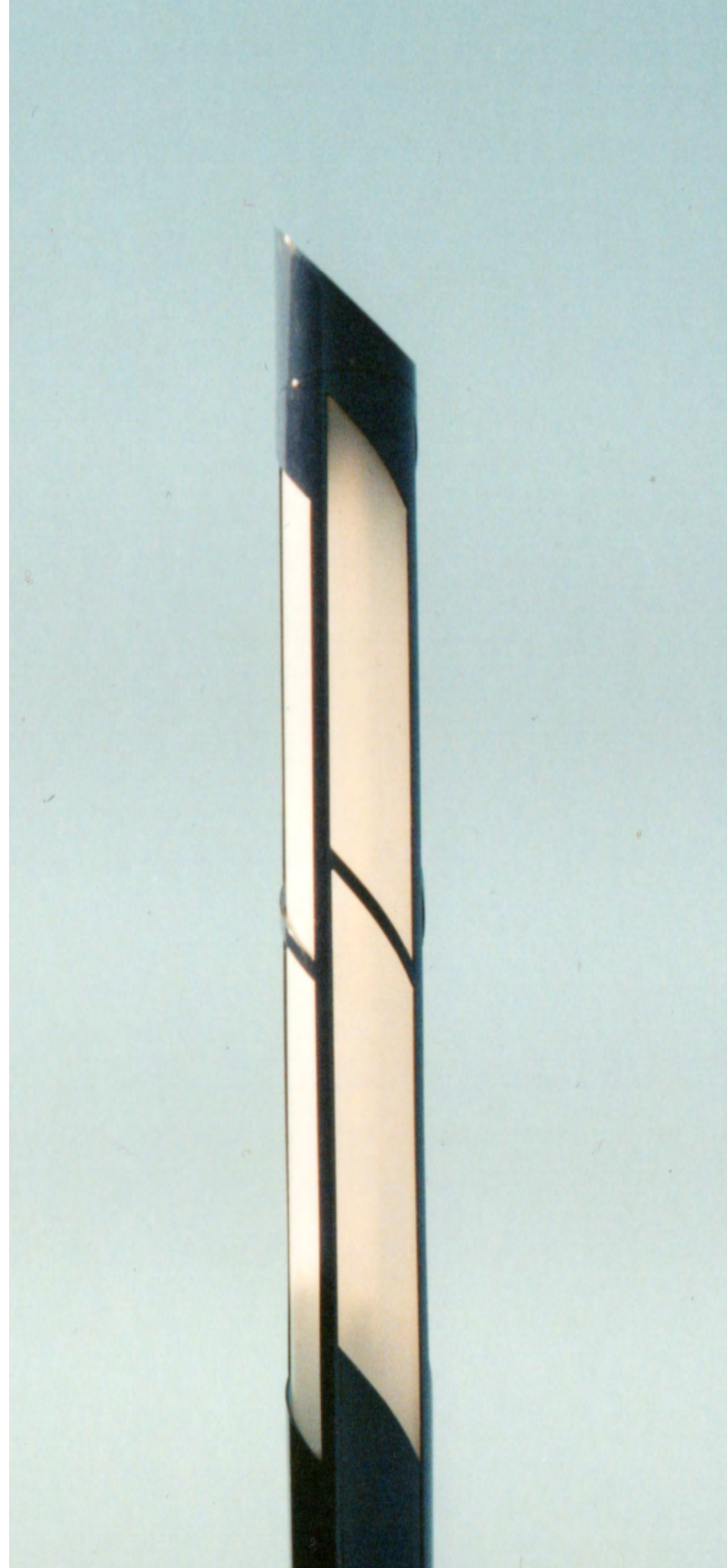
TÜV Certification and GS-sign on request against extra charge

H: 4500 mm, seamless conical,  
Top diameter 219 mm  
Base diameter 110 mm.  
Form of head 45°, 8 even trapezoid cuttings,  
inspection door. hot dip galvanized, PE-powder  
coated, all RAL - colors available.  
**IK10, EN40.**

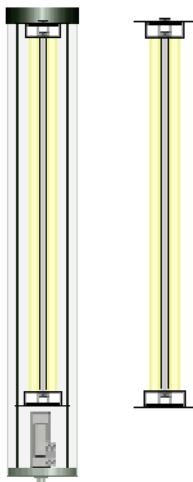
**Application**  
public/private Parks,  
Gardens, Streets,  
Pedestrian Areas



left:  
Art.Nr.:  
463399



**Retractable Luminary Unit**



**IP 65 or  
IP 67**

Cable entry at base of the luminary unit, with  
cable (HO5RN-F)

## Ausführung:

zylindrischer Acrylglassdiffuser, (PMMA8H) opal  
(OP), Kabelanschluss am Boden der  
Leuchteneinheit. Mit Anschlusskabel.

Ø200 mm, CuttingsL 1800mm für 2, 3 or 4 LED tubes,  
L 1500mm, ea 32 W,  
Option: Cylinder in borosilicate glass (by  
Schott) **IP 65**, up to **IP 67**

Cross section of the light columns is an equilateral triangle. The light columns are available in three different length of edge, 200, 250 und 300 mm. Heights: 2500 to 5000 mm or to design. Matching Bollard Fixtures of 600 to 1200 mm height and Wall Fixtures are available

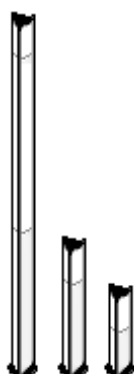
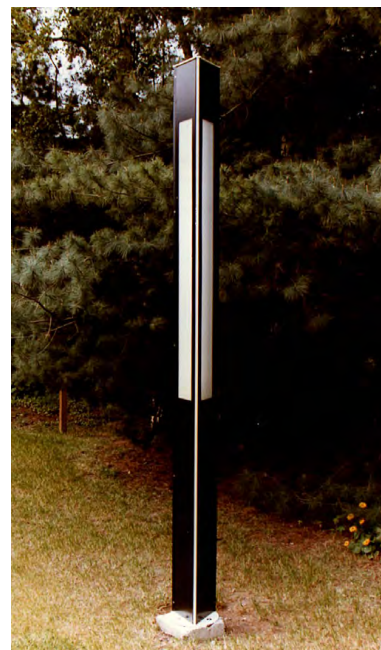


TÜV Certification and GS-sign on request against extra charge



### Triangular Light Columns

The panels with the cutting are made of stainless steel sheet. Diffusers are made of clear or opal acrylic, or safety glass ESG. Inspection door in one of the three panels. The luminary unit is tubular, diameter determined by the cross section of the skeleton construction. It is recommended to use LED tubes (L 600, 1200 or 1500 mm). The Light columns are PE powder coated, colors according to the RAL chart. **IP55 or IP68**



- Light Columns, edge 200 mm**  
H 2500 mm Nr 461900  
H 3000 mm Nr 461901
- Light Columns, edge 250 mm**  
H 3000 mm Nr 461910  
H 3500 mm Nr 461911  
H 4000 mm Nr 461912
- Light Columns, edge 300 mm**  
H 4000 mm Nr 461920  
H 4500 mm Nr 461921  
H 5000 mm Nr 461922
- Bollards, edge 200 mm**  
H 600 mm Nr 460900  
H 1200 mm Nr 460901

## Light Columns made of steel tubes

### Material:

Ø 174, 194 oder 219 mm precision steel tube, hot dip galvanized and PE powder coated, RAL-colors according to RAL chart, with inspection door, Matching buried portion or anchor cage, cable connecting box and/or socket IP 68 as option.

### IK10, EN 40, IP56

### Standard version:

Selections of forms for head. 8 square cuttings on perimeter, Qty of rows depending on diameter of tube. Example: max 20 rows of cuttings on tube diameter 219 mm.

### Luminary Unit::

Option: Driver dimmable on request.

Protection degree **IP65**, on request up to **IP67**. Supply cable (HO5RN-F)

### Diffuser:

Cylindrical diffuser in acrylic PMMA8H, version clear with reflector system made of pure aluminum (99,9% proof) On request diffuser in Opal or iced, or against extra charge borosilicate glass (by Schott), clear or sandblastet.



TÜV Zertifizierung und GS-Zeichen auf Wunsch gegen Mehrpreis



### Light Columns

#### Art.Nr. Tube Ø x Height

|               |               |
|---------------|---------------|
| <b>463454</b> | 174 x 3000 mm |
| <b>463466</b> | 194 x 4000 mm |
| <b>463478</b> | 219 x 5000 mm |

#### Matching Bollard fixtures

All fixtures of this range are made on order, they can be personalized by the client.

#### Art.Nr. Tube Ø x Height

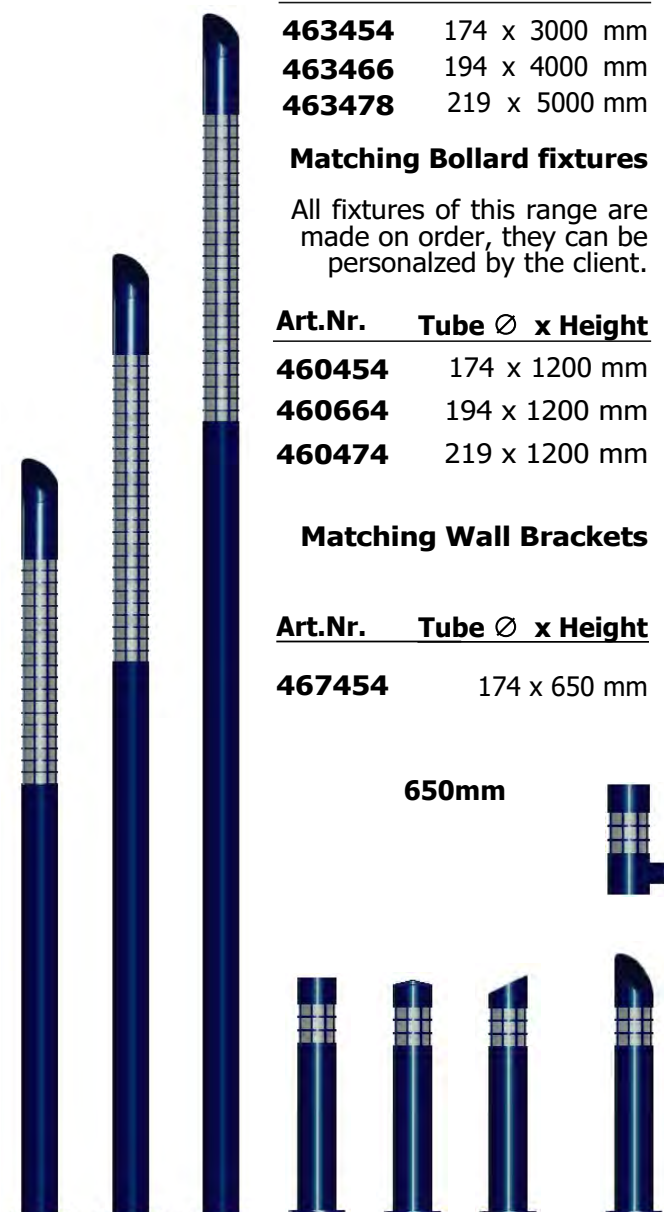
|               |               |
|---------------|---------------|
| <b>460454</b> | 174 x 1200 mm |
| <b>460664</b> | 194 x 1200 mm |
| <b>460474</b> | 219 x 1200 mm |

#### Matching Wall Brackets

#### Art.Nr. Tube Ø x Height

|               |              |
|---------------|--------------|
| <b>467454</b> | 174 x 650 mm |
|---------------|--------------|

650mm



Every fixture is made on order, individualization is possible.

Left picture: Tube and heads with cuttings, ready to be welded.





TÜV Certification and GS-sign on request against extra charge

# PANAM

deutsche  
technik  
seit 1972




Seamless precision steel tubes, hot dip galvanized, round flange plate, PE powder coating: all colors of the RAL charts Inspection door, **EN40**. Luminary unit: Cylinder of acrylic Ø 200 or 150 mm, PMMA8H Opal, suitable for LED tubes. 220/240 V 50/60Hz, IP 54, EN 60598

## Full Size Light columns

Ø 220  
H 3500 – 5500 mm

H 3500  
H 4000  
H 4500  
H 5000  
H 5500

**463084**  
**463085**  
**463086**  
**463087**  
**463088**

## Small Light Columns

Ø 200  
H 2000 – 3500 mm

H 2000  
H 2500  
H 3000  
H 3500

**463071**  
**463072**  
**463074**  
**463077**

## Bollard Sizes

Ø 180  
H 600 – 1200 mm

H 600  
H 900  
H 1200  
H 1500

**460551**  
**463552**  
**463553**  
**463554**



**Article Group 463269**

Diameter 220 mm, H: 4-9 m.  
Combinations of 360° units  
and adjustable spot  
projectors.  
Projects in Erfurt und  
Göppingen, D

|                     |          |             |      |      |
|---------------------|----------|-------------|------|------|
| 5 Years<br>Warranty | EN<br>40 | EN<br>60598 | IK10 | IP65 |
|---------------------|----------|-------------|------|------|

**Light columns and bollards****Diameter:**

200 mm, heights up to H 3000 mm,  
220 mm, heights from H 3000 mm to 7000 mm  
Higher light columns need bigger diameter of tubes

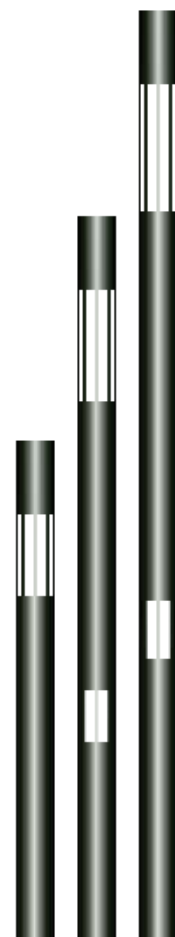
**Material:**

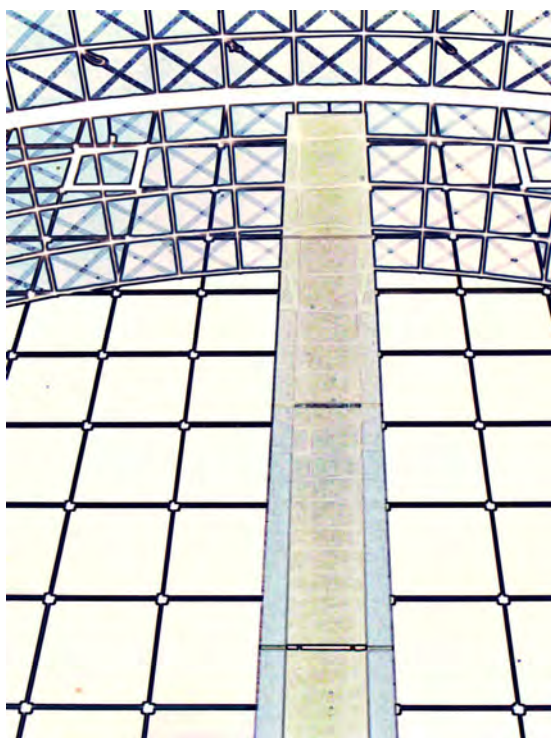
Corrosion proof extruded aluminum tubes,  
PE- powder coated . Inspection door.

**Diffuser:**

Borosilicate glass tubes by Schott

**Light columns** can be fixed to foundation or to walls by  
specially made brackets.





Special construction: height 10m, cross section 500x500mm. Base section, section 1: Stainless steel, with two doors on opposite sides, edges can be removed for maintenance of light fixtures. Sektions 2 to 5: Edges of opal acrylic, middle part of each side: stainless steel sheet. Top section, section 6: Cover made of opal acrylic, not removable, top cover: stainless steel. Core of column: 10 m pole with flange plate 600x600x30 mm. This pole carries light fixtures and complete "body work". Lamps: 4 x 5 LED Tubes TS L 1.500 mm, installed on rail. Light fixtures can be maintained on the floor, access through section 1  
**Location: World Trade Center, Dresden D**



**Light column - stainless steel and acrylic**



### Light columns

Two of the 10 m high light columns illuminate the place in front of the building.

The space between the two buildings is covered by a roof made of glass, on both sides. Two walls, made of glass, too, close the covered space. In the middle between the two buildings, the light columns are placed in a row. This line continues on the outside on to the place. The wall of glass is broken up optically.

The space inside the covered room is used for different events, exhibitions, markets, shows etc. The light columns therefore are equipped with connections for electricity, water and an audio system. Access is possible through the two doors in the middle of the first section.

Maintenance of the installed LED tube fixtures is effected through the stainless steel edge of the first section. They can be removed for access to the rail, on which the light fixtures are fixed in a row. They can be taken out one by one. The maintenance can take place at the foot of the light column. The tubes are installed in an IP67-fixture. The tubes can be changed, whenever necessary, without tools.

The outside cleaning of the light columns can be done by the window cleaners of the World Trade Center.



deutsche  
technik  
seit 1972



**Light Fixtures designed by Client**

Design is based on extruded aluminum tubes of 180 mm diameter. The light columns have an interior skeleton of 12 mm gauge stainless steel rods (2) and tube (1) for the power supply. Luminary unit is on top of the column, and is equipped with E 27 for LED lamps with sockets. Diffuser cylinders in acrylic (PMMA8H) are tightened between base and head part, gaskets EPDM, protection degree IP67, protection class 1, 230V 50/60 Hz.

Pole brackets are fixed to the stepped pole, Pole brackets: IP67. EPDM gaskets. Cover made of acrylic, reflector system made of aluminum, 99,9% proof and electropolished. E27 for LED lamps with socket.



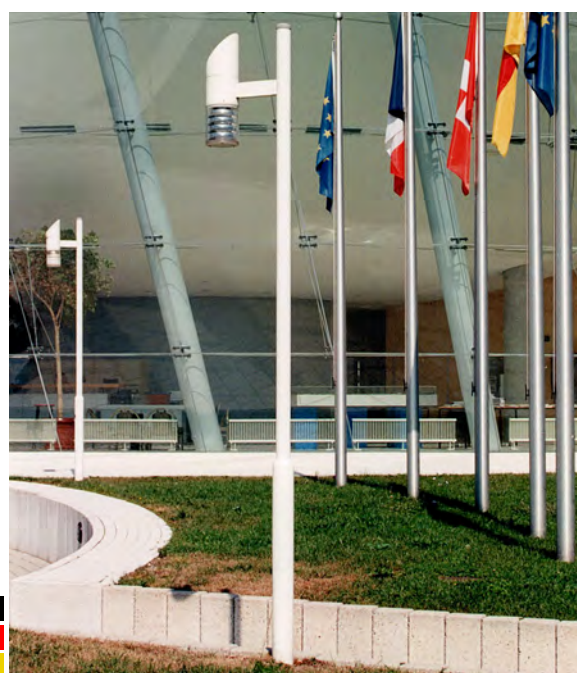
Pole brackets made of aluminum, poles for the pole brackets made of steel, hot dip galvanized and PE-powder coated in RAL 9016, traffic white.



Taylor made constructions for Campus in Illkirch, University of Strasbourg, F.



deutsche  
technik  
seit 1972



Project NEUE MESSE MÜNCHEN ( New Fair Munic ). Location: Old Munic Airport in Munic-Riem.

Light columns made of steel tube. Height: 3 m and 4,5 m. Cuttings: 4 rectangular long openings. Diffuser: Glass cylinder by Schott. Luminary unit originally with 70 and 100 W MHI-Lamps. Conversion to LED Light sources going on.  
 Bollards fixtures: H 1,5 m, luminary unit originally with 50 W MHI-Lamps  
 Pole top fixtures: Diameter of cover: 1100 mm, Cover with white reflecting surface. Housing construction made of steel, hot dip galvanized,





Projekt:  
Neue Messe München, D  
New Fair Munic, D





deutsche  
technik  
seit 1972



Light columns, height 4,5 m.  
Tubular acrylic diffuser.  
Pole is divided in 4 parts,  
additional light fixture with  
BA 150° lateral in section 2.

|      |      |       |          |                                                                                     |      |                                                                                     |                   |                 |
|------|------|-------|----------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------|-----------------|
| IK10 | IP67 | EN 40 | EN 60598 |  | RoHS |  | 10 Years Warranty | Made in Germany |
|------|------|-------|----------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------|-----------------|

TÜV Certification and GS-sign on request against extra charge

Through the door on the opposite side, the luminary unit can be placed and maintained in section 2.

Inspection door for a cable connectig box in section 1.

Luminary unit is section 4.

The column is available in different lenght, from 4 m to 7 m.

The longer versions come with longer sections 1 and 3.

Section 4 can be extended to 1.6 m to be suitable for 1500 mm LED tubes. Sections 1. 2 and 3 are welded, section 4 - luminary unit is placed on the lower sections and fixed by screws.



**left:**  
Prototyp of the  
light columns

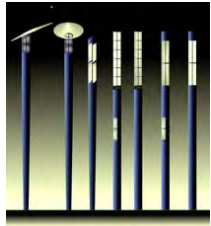
**Art.Nr.: 463199**

Projects in Belfort, F  
and "Actis II" in Caen, F



|      |      |       |          |                                                                                   |      |    |                   |                 |
|------|------|-------|----------|-----------------------------------------------------------------------------------|------|----|-------------------|-----------------|
| IK10 | IP67 | EN 40 | EN 60598 |  | RoHS | CE | 10 Years Warranty | Made in Germany |
|------|------|-------|----------|-----------------------------------------------------------------------------------|------|----|-------------------|-----------------|

TÜV Certification and GS-sign on request against extra charge



### Light Columns made of conical seamless steel poles

#### Pole:

Seamless conical steel pole  $\varnothing$  120 on base,  $\varnothing$  220 mm on top, H 5 m, with door. Reflector/cover made of aluminum, can be shaped round, elliptical, square or rectangular. Flange plate 250x250x15 mm, 4 long holes, distance of holes 200x200 mm,  $\varnothing$  22 mm.

Hot dip galvanized and PE powder coated, all RAL colors, fixing material: Stainless steel A4.

**EN40, IK10**

#### Projector:

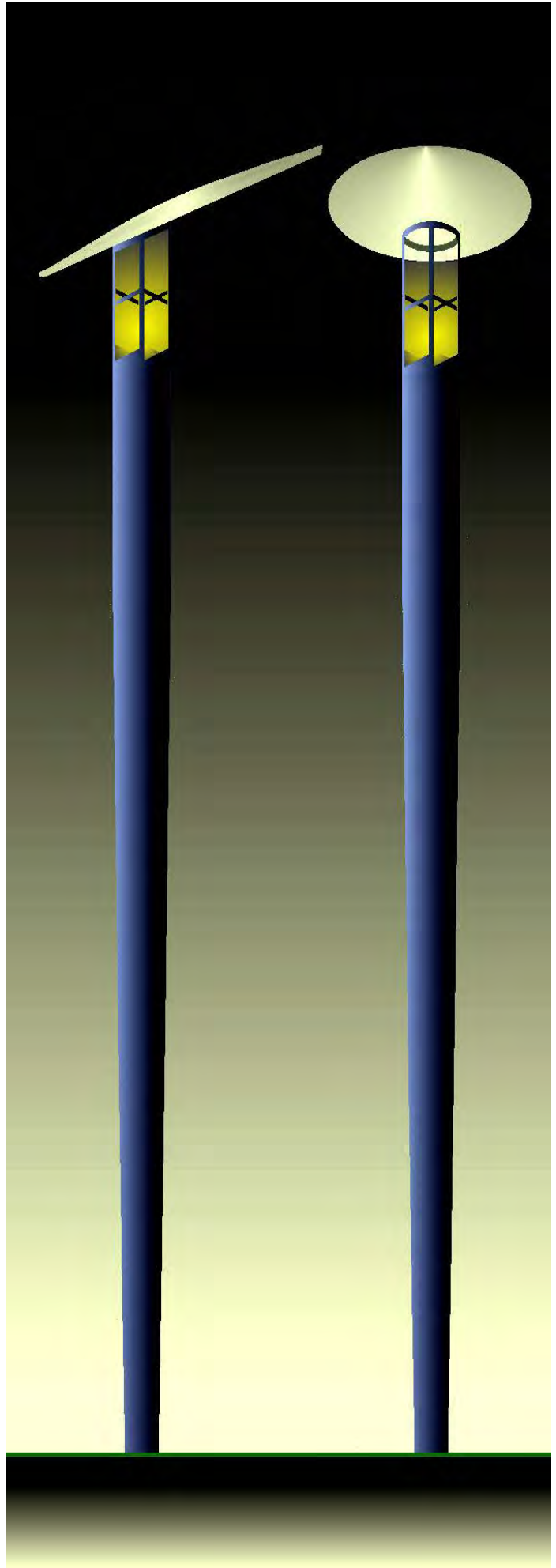
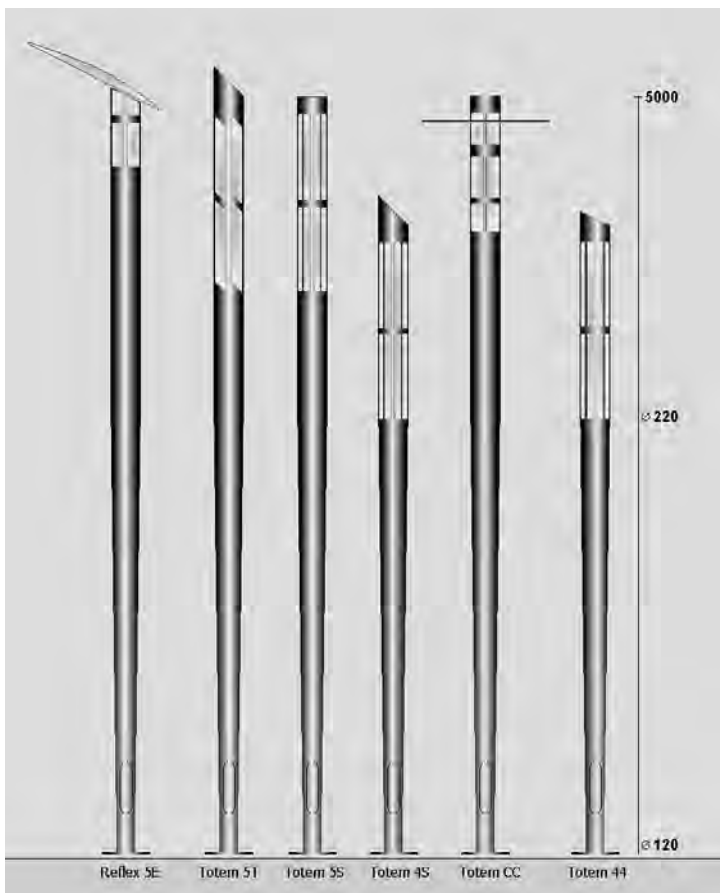
Housing: aluminium, safety glass ESG, installed in pole at 4,5 m height. Performance: 120W, 220-240V, 50/60Hz **EN60598, IP68**

#### Reflector:

Aluminum, lower surface sealed with a reflecting coating. On request: covered with high gloss aluminum mirror or with LES segments.

#### Variations:

Reflector on top of column can be supplied in different sizes. On request: with tubular tube in aluminum or galvanized steel.



## Application

public/private parks,  
gardens, streets,  
pedestrian areas

IK10

IP67

EN  
40

EN  
60598



RoHS



10 Years  
Warranty

Made in  
Germany

TÜV Certification and GS-sign on request against extra charge



## Poles made of extruded and cast aluminum

### Material:

Ø **200** mm extruded aluminum tube and foot section in cast aluminum, chromated and PE-powder coated, choice of all colors of the RAL Chart. Cast aluminum parts made of corrosion free aluminum. Inspection door 400x160 mm. Cast and extruded parts are glued together. Height of fixture on the left: 4 m. Matching buried portion as option (recommended)

**IK10, EN 40, IP56**

### Standard version:

4 long rectangular cuttings (in the extruded part):

### Luminary unit:

On request: 1 to 3 LED-tubes, max 1500 mm, or LED-chips with reflector system, driver, dimmable on request. with cable (HO5RN-F)

**Diffuser:** Acrylic tube, clear with reflector system or opal for LED-tubes.

Option: Glass tube (by Schott) in clear, with reflector system

**IP65,** or on request **IP67.**

### Variation:

Length of the pole can vary by using longer or shorter extruded aluminum tube. Max height allowed: 6.5 m. Cast foot section available only in 120 cm length.

**Light Column**      **Tube Ø x height**

**463279**

**200 mm x 4000 mm**

deutsche  
technik  
seit 1972

Matching bollards are  
available on request.



Casting process



Aluminum casting plant



# Tailor Made Lighting

## Chapter62

### Wall and Ceiling Fixtures

Ceiling fixtures  
Group 65



Recessed Fixtures  
Group 66



Wall Fixtures  
Group 67



Fixtures with  
Barckets for Poles  
Group 68

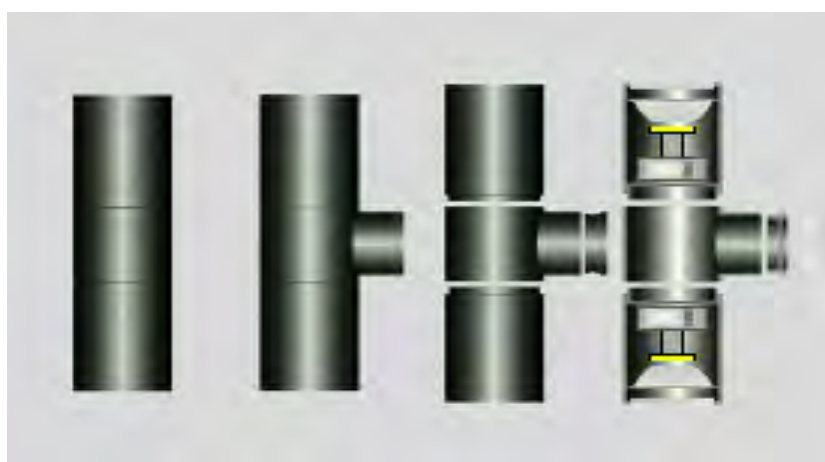


### Wall fixtures 200 IP 55

220-240V 50/60Hz.

#### Wall Fixtures – Up/Down lights

Light fixtures based on 200 mm aluminum to illuminate vertical surfaces and Walls. Suitagble for LED projectors up to 10 000 lm. 220-240V 50/60Hz. Material: Corrosion proof extruded aluminum tubes. PE-Powder coating, Standard color RAL 9005 black, all other colors of the RAL charts alternatively can be chosen without extra charge.



467215



Up and Down  
467205



For illumination of ways and vertical surfaces. They are matching in design and finish ELTE bollards and light columns.

The ELTE Licht modular system allows to combine a big quantity of decorative wall fixtures with bollards and light columns of the same product family.

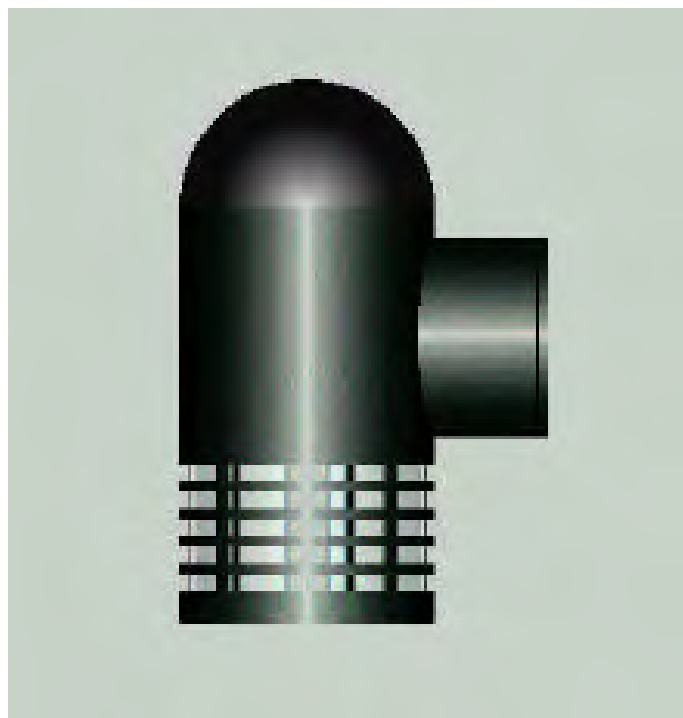
Materials are steel, hot dip galvanized and coated, corrosion proof aluminum or stainless steel.

Fixtures made of steel or aluminum will be powder coated in any RAL color, fixtures made of stainless steel and grinded surface will be coated with a clear transparent PE powder to preserve the elegant look of a new grinded stainless steel surface for years.

Like all Elte taylor made light fixtures, it consist of a housing and a luminary unit, available in IP 55 or IP 68. Warranty on the housings and coating: 10 years.

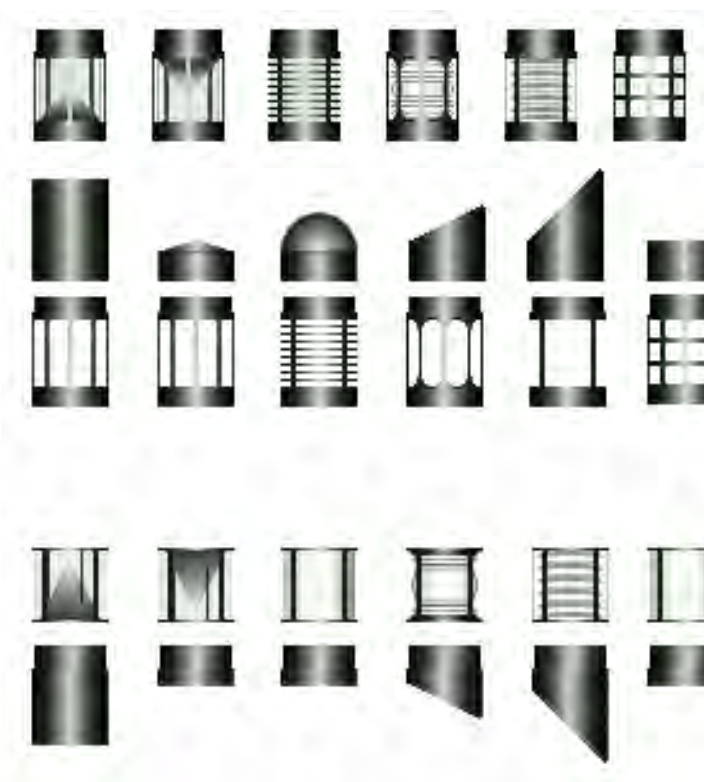
The diffusers used for ELTE fixtures are made of extruded acrylic tube (PMMA8H) or - on request - of borosilicate glass tubes. Flat glasses are always safety glass ESG. LED light sources (COB or SMD) are always covered and shielded against high temperatures, eventually caused by electrical components like drivers.

The warranty periode for luminary units with LED chips is 5 years. LED lamps with sockets come with a warranty periode of two years, as promised by the manufacturer of the LED lamps.

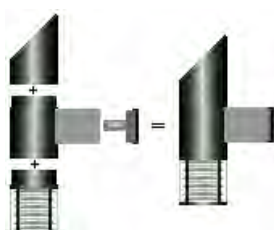


**Art. Nr.: 467302**

Downlight RK 200 IP55 or IP67. H350  
Ø200 ⇔ 270 mm

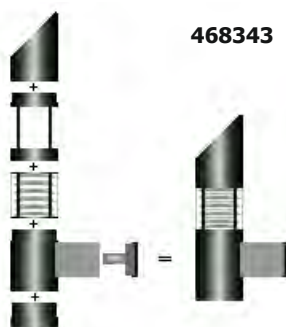


**468113**



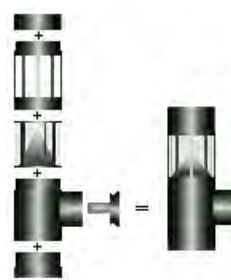
Pole fixture with bracket  
Downlight BA 180°

**468343**



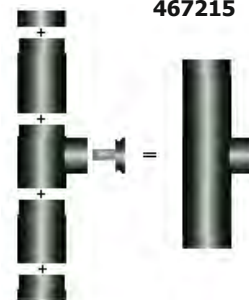
Pole fixture with bracket, all  
around- and down light BA 45°

**467335**



Wall fixture with bracket, all  
around- and down light BA 45°

**467215**



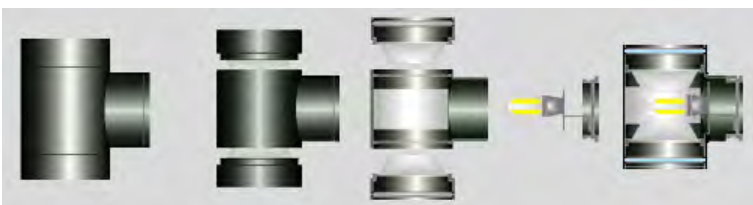
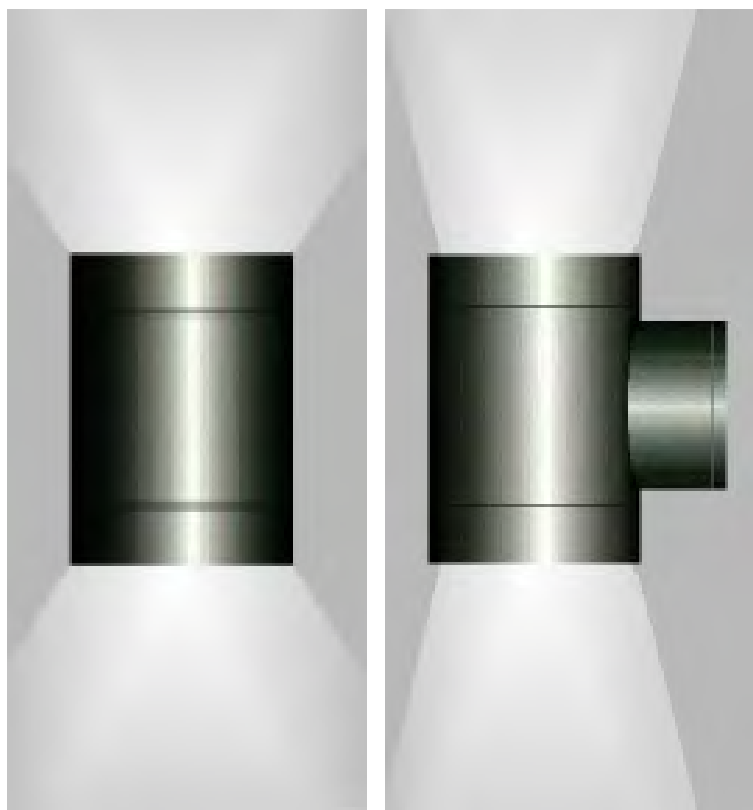
Wall fixture with up- and  
down light BA 10°

## Wall brackets IP 55

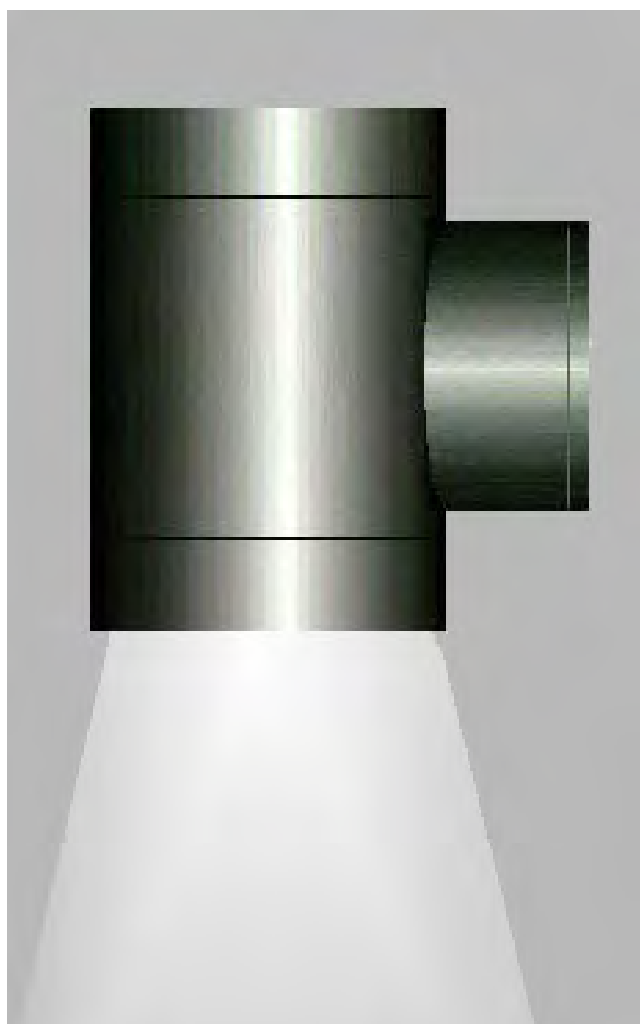
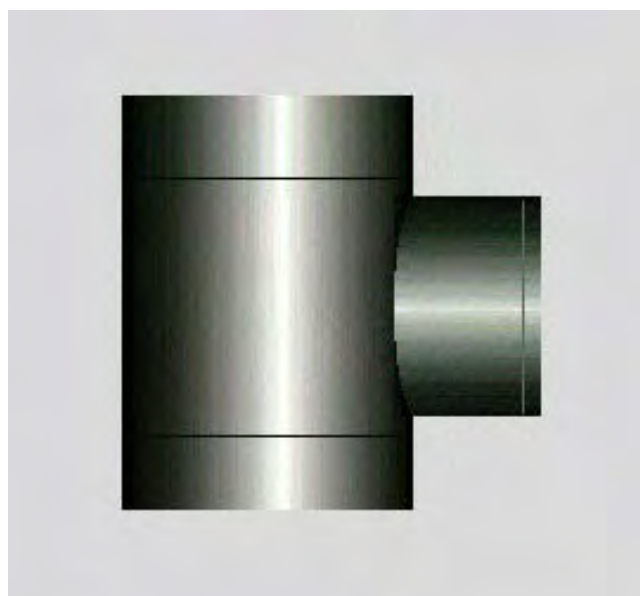
Wall brackets based on extruded tubes from 120 to 280 mm diameter. Light fixtures made of corrosion resisting, extruded aluminum, accessories made of stainless steel (A2). Up- and/or down light 220-240V 50/60 Hz. Chromated and PE-powder coated. Standard: RAL 9005 black, all other RAL-Farben available on request..

## Wall Brackets – Up/Down Light

to illuminate vertical surfaces, walls, high buildings suitable for LED projectors to max 10.000 lm; 220-240V 50/60Hz. Light fixtures made of corrosion free, extruded aluminum, PE-powder coated. All colors of the RAL chart are available.



| Wall bracket  | Pole bracket  | Dimensions                      |
|---------------|---------------|---------------------------------|
| <b>467514</b> | <b>468514</b> | H 250 Ø 120 ⇔ 200 Up-/Downlight |
| <b>467614</b> | <b>468614</b> | H 250 Ø 120 ⇔ 200 Down light    |
| <b>467524</b> | <b>468524</b> | H 300 Ø 150 ⇔ 220 Up-/Downlight |
| <b>467624</b> | <b>468624</b> | H 300 Ø 150 ⇔ 220 Down light    |
| <b>467534</b> | <b>468534</b> | H 350 Ø 180 ⇔ 240 Up-/Downlight |
| <b>467634</b> | <b>468634</b> | H 350 Ø 180 ⇔ 240 Down light    |
| <b>467544</b> | <b>468544</b> | H 400 Ø 200 ⇔ 280 Up-/Downlight |
| <b>467644</b> | <b>468644</b> | H 400 Ø 200 ⇔ 280 Downlight     |
| <b>467554</b> | <b>468554</b> | H 450 Ø 220 ⇔ 310 Up-/Downlight |
| <b>467654</b> | <b>468654</b> | H 450 Ø 220 ⇔ 310 Down light    |
| <b>467564</b> | <b>468564</b> | H 500 Ø 250 ⇔ 340 Up-/Downlight |
| <b>467664</b> | <b>468664</b> | H 500 Ø 250 ⇔ 340 Downlight     |
| <b>467574</b> | <b>468574</b> | H 600 Ø 280 ⇔ 400 Up-/Downlight |
| <b>467674</b> | <b>468674</b> | H 600 Ø 280 ⇔ 400 Down light    |



|             |                            |             |                                                                                   |      |                                                                                   |                     |                    |
|-------------|----------------------------|-------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|---------------------|--------------------|
| <b>IK10</b> | <b>IP67</b><br><b>IP55</b> | EN<br>60598 |  | RoHS |  | 5 Years<br>Warranty | Made in<br>Germany |
|-------------|----------------------------|-------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|---------------------|--------------------|

TÜV Certification and GS-sign on request against extra charge

**Application:**  
Illumination of walls, facades, buildings, etc.

## Wall Brackets - Downlights

### ELTE modular system 200

#### Wall brackets

made of 200 mm tubes to illuminate vertical surfaces, facades, walls, buildings. Or to be used as pole brackets.

Suitable for all sorts of LED lamps.

Light fixtures made of corrosion proof aluminum and stainless steel. Safety glasses ESG.

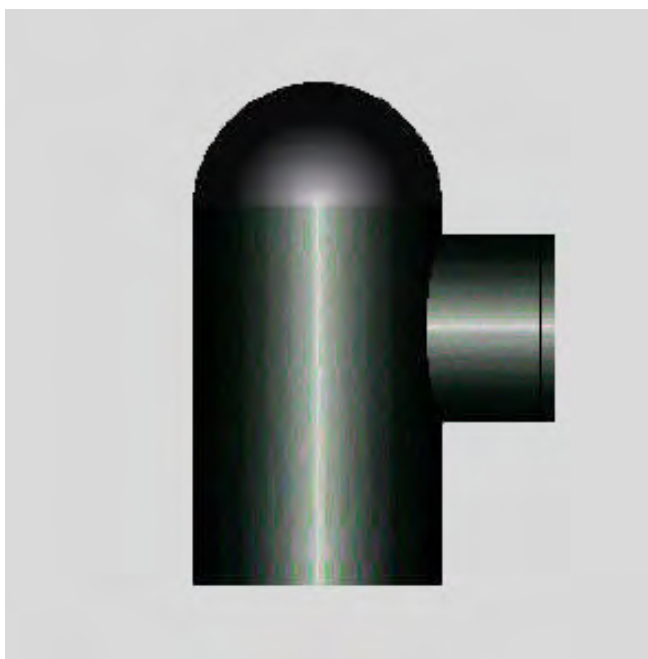
**IP67** for permanently built in LED chips (COB or SMD, life span 50.000 h). with built in driver,

**IP55** for LED lamps with socket (shorter life span)

#### Material:

Corrosion free Aluminum, PE powder coated, all colors of the RAL chart available.

Warranty for COB or SMD LED: 5 Jahre.



above:

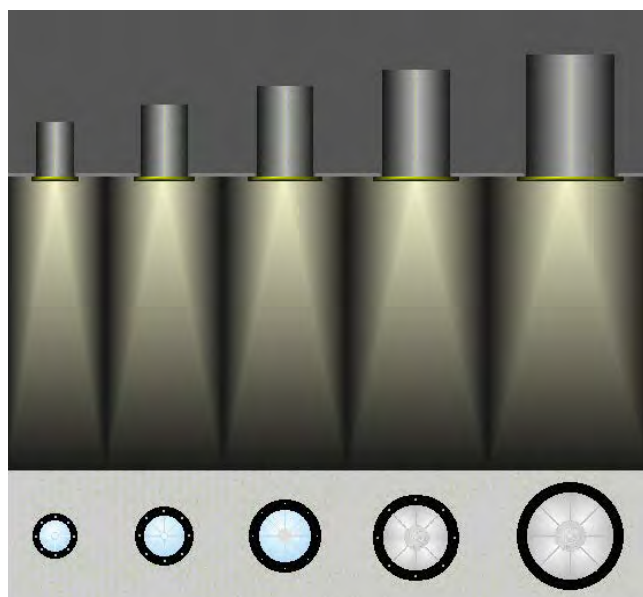
**Art.Nr . 467316**

Down light RK 200 IP55 or IP 67 H350

Ø 200 ⇔ 270 mm



TÜV Certification and GS-sign on request against extra charge



### Housing

Tube diameter 120 to 300 mm. Protection degree **IP67** Safety glass ESG, **IK10** Corrosionfree aluminum, fixing material stainless steel. Cable entry PG 13,5 PA or on request brass EN 60598 , IP 67, 220-240V 50/60Hz,

### Light distribution:

Symmetrical, Light Beam adjustable. Reflectors made of purest aluminum, electropolished.

### Coating:

PE-powdercoated, all RAL colors can be selected

### Options:

visible trim can be supplied on request in stainless steel, surface grinded and sealed by a transparent PE-powder coating.

### Light sources:

complete luminary units with COB or SMD chips and integrated drivers. On request the drivers can be arranged remote.

Units can also be supplied with lamp sockets for exchangeable LED lamps.

### Installation:

Prior to install light fixtures, the instructions advise how to use and install the fitting, which is supplied with every fixture has to be read and observed exactly. Only qualified personal is allowed to install the fixtures. Faulty installation can cause personal- and other damage, and will cause void of warranty.

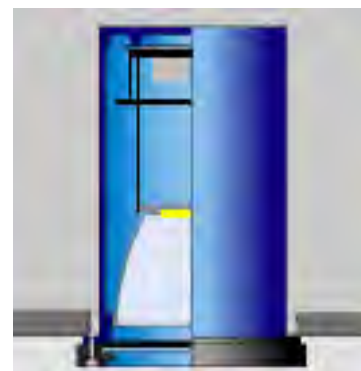
### Warranty

6 years for fixtures with built in COB/ SMD.



## Recessed Downlights IP 67

| ArtNr  | Fixture Dimension | Diameter Trim | Diameter Cut Out | accessory:        |  |
|--------|-------------------|---------------|------------------|-------------------|--|
|        |                   |               |                  | Installation ring |  |
|        |                   |               |                  | ArtNr             |  |
| 466011 | ø100xH170         | ø140          | ø110             | 466901            |  |
| 466111 | ø120xH200         | ø170          | ø130             | 466911            |  |
| 466211 | ø150xH200         | ø190          | ø160             | 466921            |  |
| 466311 | ø180xH250         | ø220          | ø190             | 466931            |  |
| 466411 | ø200xH250         | ø240          | ø210             | 466941            |  |
| 466511 | ø220xH300         | ø275          | ø230             | 466951            |  |
| 466611 | ø240xH350         | ø300          | ø250             | 466961            |  |





TÜV Certification and GS-sign on request against extra charge

## Housing:

Diameter 120 to 300 mm.

Protection degree **IP67**. Safety glass ESG, **IK10**

Extruded, sea water resisting aluminum.

Fixing material: stainless steel. Cable entry PG 13,5 PA or brass EN 60598 , IP 67, 220-240V 50/60Hz,

## Light distribution:

Symmetrical, Light Beam adjustable. Reflectors made of purest aluminum, electropolished.

## Coating:

PE-powder coated, all RAL colors can be selected

## Light sources:

complete luminary units with COB or SMD chips and integrated drivers. On request the drivers can be arranged remote.

Units can also be supplied with lamp sockets for exchangeable LED lamps.

## Installation:

Prior to install light fixtures, the instructions advise how to use and install the fitting, which is supplied with every fixture, has to be read and complied with exactly. Only qualified personal is allowed to install the fixtures. Faulty installation can cause personal- and other damage, and will cause void of warranty.

## Warranty:

6 years for fixtures with built in COB/SMD.



## Outdoor lighting: surface mounted down lights IP 67

### Surface Mounted Downlights IP 67



#### Art.Nr.:

#### Dimensions

|               |       |          |
|---------------|-------|----------|
| <b>465511</b> | H 200 | Ø 120 mm |
| <b>465521</b> | H 250 | Ø 150 mm |
| <b>465531</b> | H 300 | Ø 180 mm |
| <b>465541</b> | H 300 | Ø 200 mm |
| <b>465551</b> | H 350 | Ø 220 mm |
| <b>465561</b> | H 450 | Ø 240 mm |

## Orientation light fixtures for walls and staircases

**Frame** made of stainless steel, with square or rectangular cutting. On request of client: Text.

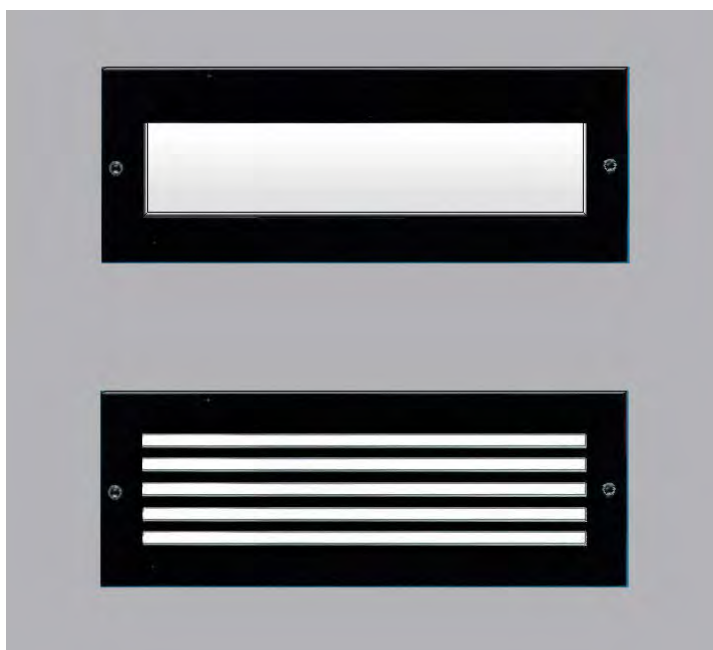
**Housings** made of corrosion free aluminum sheet, white PE powder coated. Visible parts can be coated in any Ral color on request. The version "stainless steel, grinded" is sealed with transparent PE coating.

**Safety glass** ESG 6 mm, clear, opal or ice decorated.

**Light distribution:** symmetrical or asymmetrical, reflectors made of Al 99,9, electrocoated, on request: faceted, high gloss or matt. Fixing material: stainless steel, A2 or A4.

**Dimensions:** 110x300, up to 110x1600 mm. The fixtures are equipped with a power supply cable (HO5RN-F). With cable entry PG 13,5, IP 68. In line wiring is possible. Thanks to the LED technique, the depth of the fixture can be minimized.

**Frame with opal glass ESG (above), and Frame with 5 horizontal cuttings.**



### Frame with opal glasses

| Art.Nr.:      | Dimensions           |
|---------------|----------------------|
| <b>466901</b> | H 110 L 300 ⇔ 90 mm  |
| <b>466902</b> | H 110 L 400 ⇔ 90 mm  |
| <b>466903</b> | H 110 L 600 ⇔ 90 mm  |
| <b>466904</b> | H 110 L 900 ⇔ 90 mm  |
| <b>466905</b> | H 110 L 1200 ⇔ 90 mm |
| <b>466906</b> | H 110 L 1600 ⇔ 90 mm |

### Frame with 5 horizontal cuttings and opal glasses

| Art.Nr.:      | Dimensions           |
|---------------|----------------------|
| <b>466911</b> | H 110 L 300 ⇔ 90 mm  |
| <b>466912</b> | H 110 L 400 ⇔ 90 mm  |
| <b>466913</b> | H 110 L 600 ⇔ 90 mm  |
| <b>466914</b> | H 110 L 900 ⇔ 90 mm  |
| <b>466915</b> | H 110 L 1200 ⇔ 90 mm |
| <b>466916</b> | H 110 L 1600 ⇔ 90 mm |

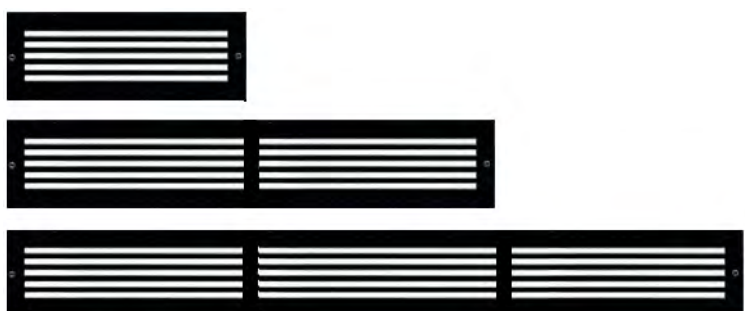
### Frames for horizontal or vertical Installation

| Art.Nr.:                               | Dimensions          |
|----------------------------------------|---------------------|
| <b>Frames with opal glasses</b>        |                     |
| <b>466921</b>                          | H 300 L 110 ⇔ 90 mm |
| <b>466922</b>                          | H 400 L 110 ⇔ 90 mm |
| <b>Frames with horizontal cuttings</b> |                     |
| <b>466931</b>                          | H 110 L 600 ⇔ 90 mm |
| <b>466932</b>                          | H 110 L 900 ⇔ 90 mm |

### Frames with Opal glasses



### Frames with 5 horizontal cuttings



### Frames with clear glass and reflektor

|               |                      |
|---------------|----------------------|
| <b>466941</b> | H 110 L 1200 ⇔ 90 mm |
| <b>466942</b> | H 110 L 1600 ⇔ 90 mm |

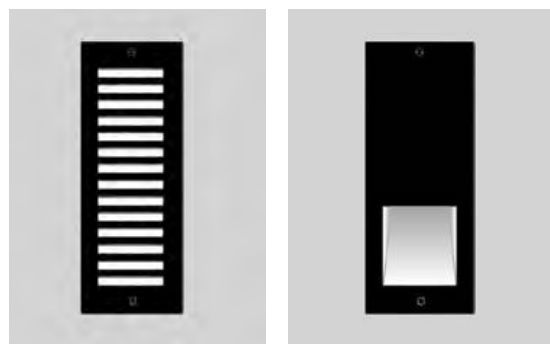
### Frames with text

|               |                      |
|---------------|----------------------|
| <b>466951</b> | H 110 L 1200 ⇔ 90 mm |
| <b>466952</b> | H 110 L 1600 ⇔ 90 mm |

### Custom made frames

|               |                      |
|---------------|----------------------|
| <b>466999</b> | H 110 L nnnn ⇔ 90 mm |
|---------------|----------------------|

### Frames for vertical installation



## Rectangular Recessed Fixtures IP55 or IP67



TÜV Certification and GS-sign on request against extra charge

Frame made of stainless steel, with square or rectangular cutting. On request of client: Text.  
Housings made of corrosion free aluminum sheet, white PE-powder coated. Visible parts can be coated in any Ral color on request. The version "stainless steel, grinded" is sealed with transparent PE coating.  
Safety glass ESG 6 mm, clear, opal or ice decorated.  
Light distribution: symmetrical or asymmetrical, reflectors made of Al 99,9, electrocoated, on request: faceted, high gloss or matt. Fixing material: stainless steel, A2 or A4.  
Available dimensions: 280x280, 400x400, up to 590x590 mm. the fixtures are equipped with a power supply cable (HO5RN-F). With cable entry PG 13,5, IP 68. In line wiring is possible.

Thanks to the LED technique, the depth of the fixture can be minimized.

## Rectangular Recessed Wall Fixtures



Opal, rectangular cutting  
Art.Nr.: Dimension mm

|        |          |
|--------|----------|
| 466801 | □175x175 |
| 466802 | □220x220 |
| 466803 | □245x245 |
| 466804 | □280x280 |
| 466805 | □300x300 |
| 466806 | □350x350 |
| 466807 | □400x400 |
| 466808 | □600x600 |



Indirect illumination, Al-reflector  
rectangular cutting

|        |          |
|--------|----------|
| 466811 | □175x175 |
| 466812 | □220x220 |
| 466813 | □245x245 |
| 466814 | □280x280 |
| 466815 | □300x300 |
| 466816 | □350x350 |
| 466817 | □400x400 |
| 466818 | □600x600 |



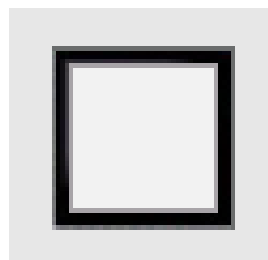
Recessed downlight,  
rectangular cutting

|        |          |
|--------|----------|
| 466821 | □175x175 |
| 466822 | □220x220 |
| 466823 | □245x245 |
| 466824 | □280x280 |
| 466825 | □300x300 |
| 466826 | □350x350 |
| 466827 | □400x400 |
| 466828 | □600x600 |



Clear, direct, square cutting

|        |          |
|--------|----------|
| 466831 | □175x175 |
| 466832 | □220x220 |
| 466833 | □245x245 |
| 466834 | □280x280 |
| 466835 | □300x300 |
| 466836 | □350x350 |
| 466837 | □400x400 |
| 466838 | □600x600 |

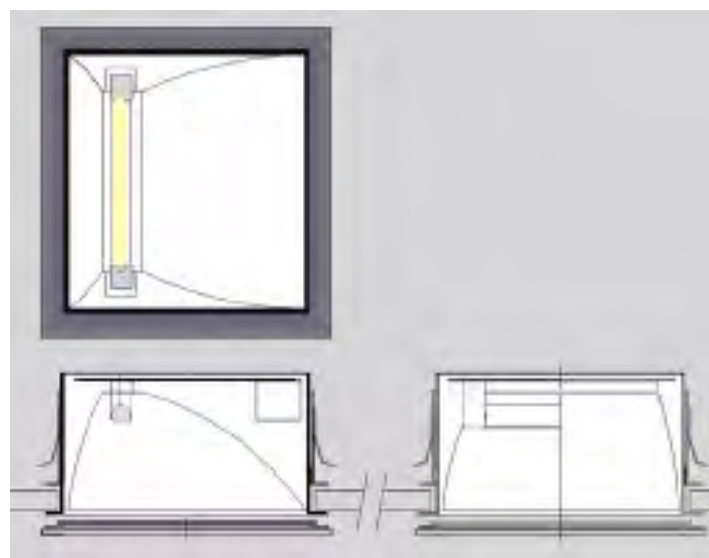


Opal, square cutting

|        |          |
|--------|----------|
| 466841 | □175x175 |
| 466842 | □220x220 |
| 466843 | □245x245 |
| 466844 | □280x280 |
| 466845 | □300x300 |
| 466846 | □350x350 |
| 466847 | □400x400 |
| 466848 | □600x600 |



Taylor made frame with text  
Art.Nr. 466899, Dimensions as per order



### Recessed wall projector

with Al-reflector

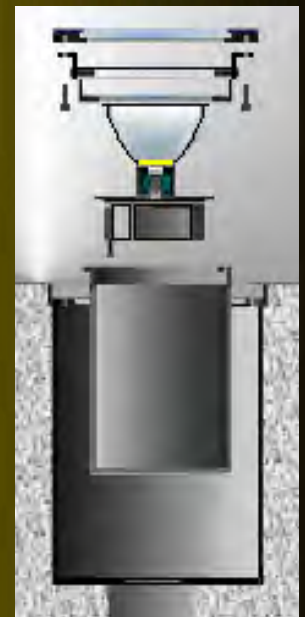
Can also be used as recessed ceiling fixture - Wall Washer  
Art.Nr. 466399 made on request only



Taylor made Lighting

## Chapter 63

### In Grade Fixtures Buried Uplights





**IP 68, EN 60598  
Safety Glass ESG**

TÜV Certification and GS-sign on request against extra charge

### Application

Outdoors: around buildings, in paths, gardens, places, streets pavement.  
Inside public buildings, air ports, hotels



### Buried uplights with rough in housing

A range of buried up light luminaires. The range comprises of a projector housing, the projector with the luminary unit, light source and a separate rough-in housing. A convection-cooled version is available.

Diameters of round fixtures depending on size of light sources from 120 to 406 mm. Depths including rough-in 150 to 600 mm. Fixtures with square footprint from 125x125 to 500x500 mm. Also available on request: Rough in housing made to design.

For maximum load of 5000 kg. Glasses for higher load up to 10 kN are available against extra charge..

### Light distribution:

Because of the arrangement of projectors deep in the in-grade tube, light distribution is free of glare, symmetric or asymmetric. BA to be determined by the client.

Reflectors made from high gloss anodised pure aluminium. Adjustable aiming. Visible glass ring: stainless steel. On request: Aluminium, PE-powder coated, standard RAL 9005

### Rough-in section

Rough in housing comprising hot dipped galvanized steel with stainless steel collar and threads. Must be fixed into a solid concrete foundation especially in those locations such as driveways. On suitable foundations, the luminaire will withstand loads up to 5000 kg excluding tracked vehicles. If in doubt, consult a qualified engineer. Suitable drainage should also be considered when there is the possibility for the settlement of stagnant water. Standard cable entry is located at the base. Other locations of cable entry are available, suitable for through-wiring.

### Cooling

In those areas such as internal public spaces where heat from the light source on the glass lens should be minimised, a rough in housing with a separate safety lens arrangement flush with the floor level can be provided. Which forms, when secured correctly, an air cushion between the projector and outer lens. To aid the convection cooling, air is drawn from the electrical conduit and drainage area.

### Projectors

The projectors are IP68, submersible, class 1. The housing is manufactured from corrosion free aluminium, PE powder coated. Gaskets are EPDM or VITON. Covering ring, screws, threads and fixing materials are all stainless steel. Reflectors are high pure anodised aluminium. Clear or frosted lenses are manufactured from high quality security glass. All internal wiring is high temperature material, PVC-free. Driver is installed on a framework and removable as a single unit.

### Electrical installation

The projectors can be removed for relamping. There is sufficient space within the rough in housing for an IP 68 wiring box and up to 1.5 m cables. Before installation, care must be taken to read the installation instruction provided with each boxed luminaire. Only qualified technicians should install these products. The visible covering ring of the in-grade housing is made from stainless steel. For decoration purposes we offer cover plates with ornamental cuttings (see page 63)

Projector: **470041**  
D200, LED 54 W ca.  
5000 Lm BA to be  
determined

**In-grade housing:**  
**471341** H 600 mm, D  
250 mm convection  
cooling

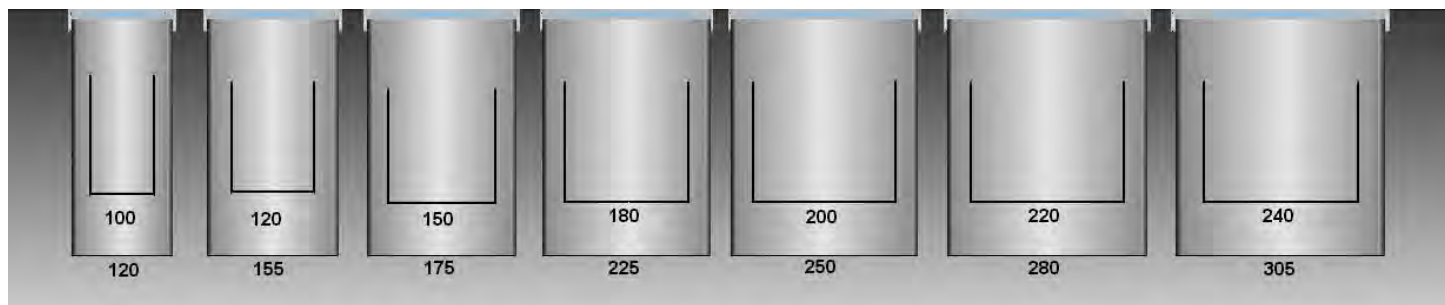
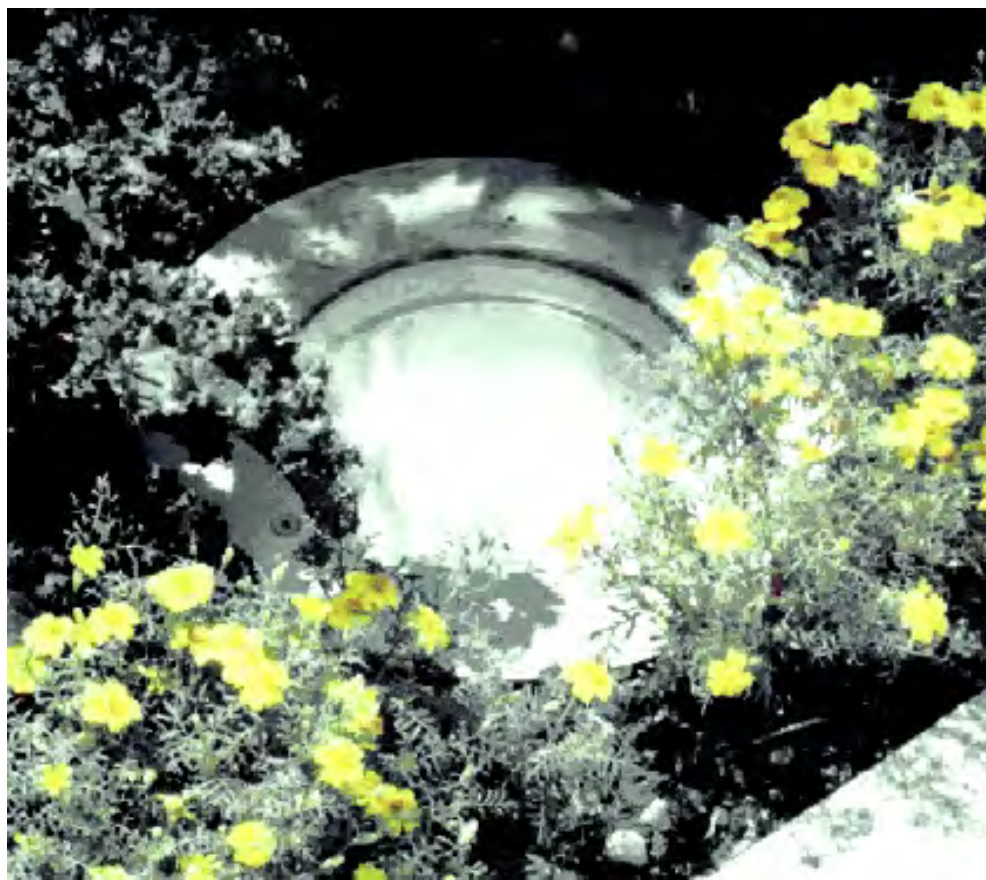


### Buried Uplights - Projectors

| Art.Nr.:      | Dimension  | max ø | ArtNr         | Dimensions of Tubes | Dimensions over all |
|---------------|------------|-------|---------------|---------------------|---------------------|
| <b>470001</b> | ø 100xH170 | ø100  | <b>471001</b> | ø120 x H170         | ø125 x H250         |
| <b>470011</b> | ø120xH200  | ø120  | <b>471011</b> | ø146 x H250         | ø150 x H300         |
| <b>470021</b> | ø150xH200  | ø150  | <b>471021</b> | ø170 x H250         | ø175 x H300         |
| <b>470031</b> | ø180xH250  | ø180  | <b>471031</b> | ø220 x H290         | ø225 x H350         |
| <b>470041</b> | ø200xH250  | ø200  | <b>471041</b> | ø245 x H290         | ø250 x H350         |
| <b>470051</b> | ø220xH300  | ø220  | <b>471051</b> | ø280 x H380         | ø280 x H450         |
| <b>470061</b> | ø240xH300  | ø240  | <b>471061</b> | ø300 x H430         | ø310 x H500         |
| <b>470062</b> | ø273xH300  | ø275  | <b>471062</b> | ø308 x H400         | ø330 x H500         |
| <b>470071</b> | ø308xH400  | ø310  | <b>471071</b> | ø335 x H550         | ø360 x H650         |
| <b>470072</b> | ø324xH400  | ø325  | <b>471072</b> | ø350 x H600         | ø415 x H600         |



TÜV Certification and GS-sign on request against extra charge

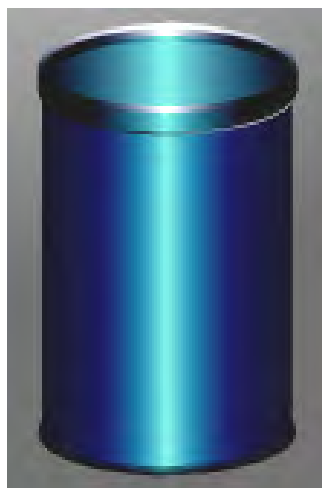
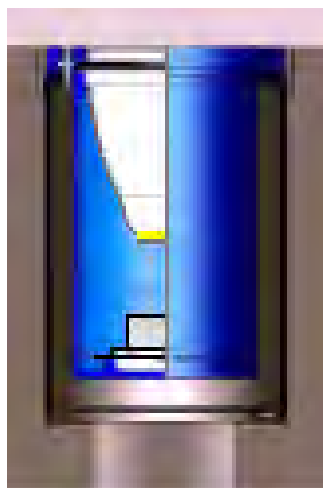


Combinations available: Max, diameter in grade tube / max diameter buried uplight.

Sectional view through in grade box and projector housing

In grade box with base plate

Buried ulight with separate box for Driver and electrical components



|      |      |       |          |                                                                                   |      |                                                                                   |                   |                 |
|------|------|-------|----------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-------------------|-----------------|
| IK10 | IP68 | EN 40 | EN 60598 |  | RoHS |  | 10 Years Warranty | Made in Germany |
|------|------|-------|----------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-------------------|-----------------|

TÜV Certification and GS-sign on request against extra charge

HD housing with installed buried upright

These lights fixtures and in-grade housings are constructed in a way, that they function even if they are submerged. The complete light fixtures are produced only on order

## BURIED UPLIGHT with VENTILATED DOOR

### Cover of In-grade housing:

Steel sheet 15 mm thickness, design of

cuttings on clients design, hot dip galvanized.

On request: Covering layer with identical cuttings

made of stainless steel, brushed finish.

Glass of Projector: Hardened safety glass (ESG),  
t= 6 mm. Projector is positioned 40 mm under cover.

### Projector: IP69

H-LED/COB, high temperature resisting wiring and terminals, 220-240V 50/60Hz, IP 69.

Luminary housing:

Seawater resisting aluminium with 2 No PG 11,5  
cable entries for tough-wiring.

### In grade tube:

Solid steel tube, installed on concrete base..

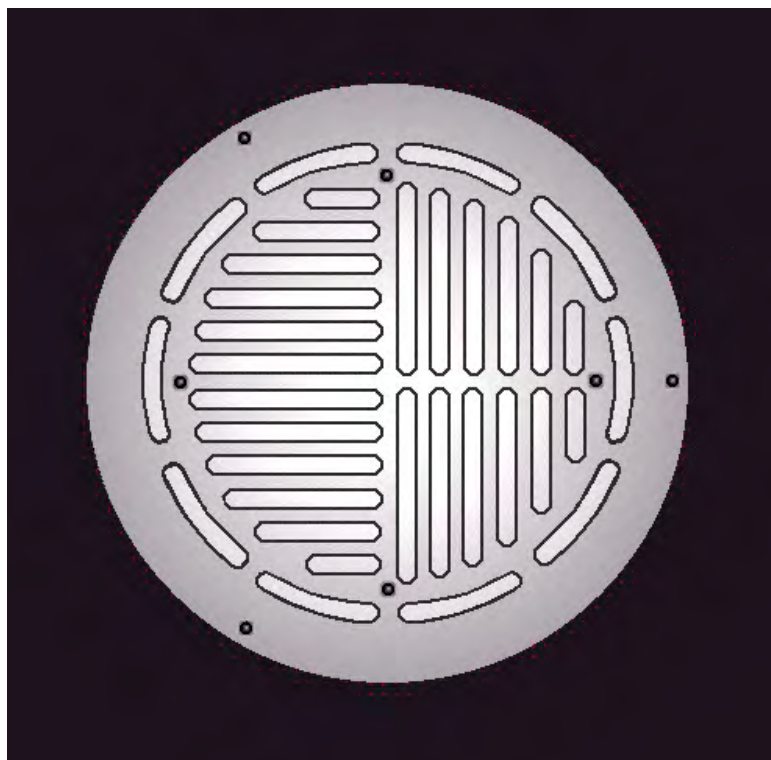
The in grade tube must be connected to an effective  
drainage system, to allow quick drainage of water in  
case light ixture is flooded.

### Protection against corrosion

All steel parts are hot dip galvanized and covered  
with a bituminous protective paint in black.

### Dimensions:

D 350 mm, H 400 mm, max load: 3000 kN



### Art.Nr.: Version

**471901** for max Load 3000 kN with heavy steel  
cover, T=15 mm, with built in projector  
IP 69



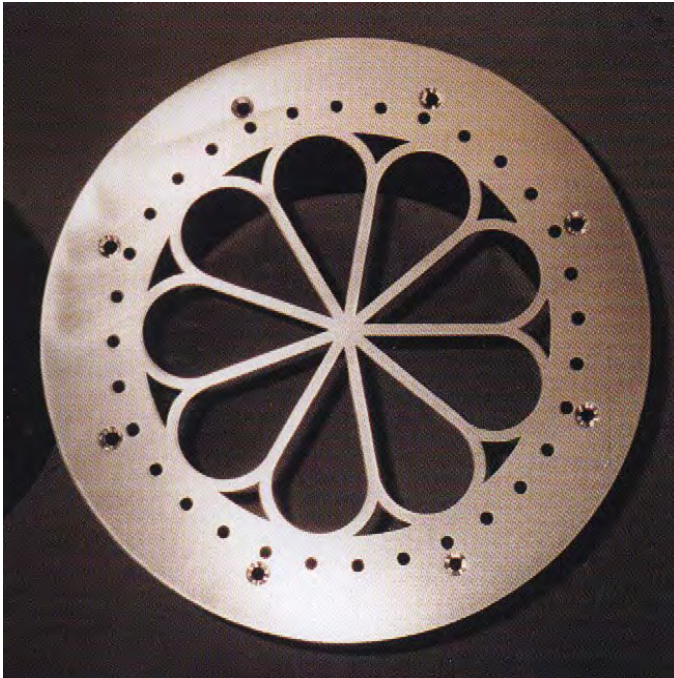
Complete buried upright with  
IP 69 Projector - sectional view

Decorative covers for doors of complete fixtures - examples

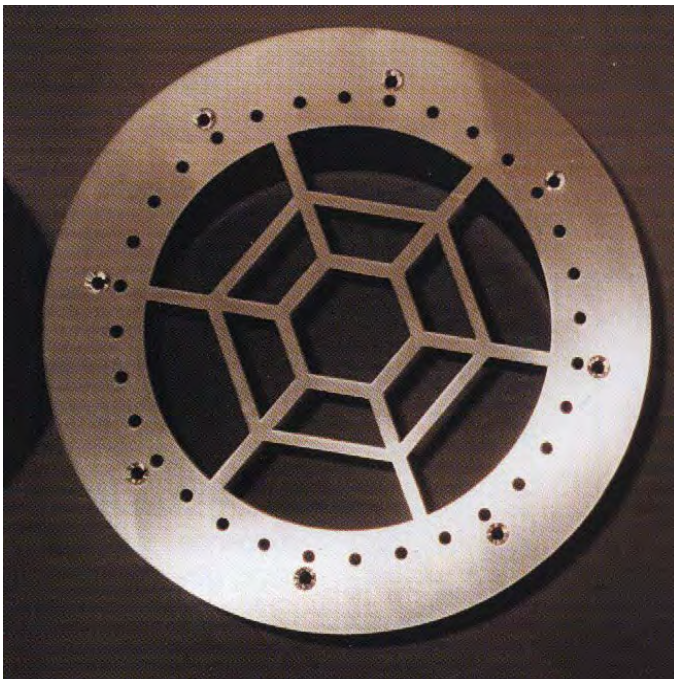
If buried uplights are installed indoors, we offer decorative covers for the doors, to protect the glasses and/or matching the design of the location. These covers must be strong enough to be walked on.

The four samples are suggestions only. The design of the covers is free. It is to be scetched by the client.

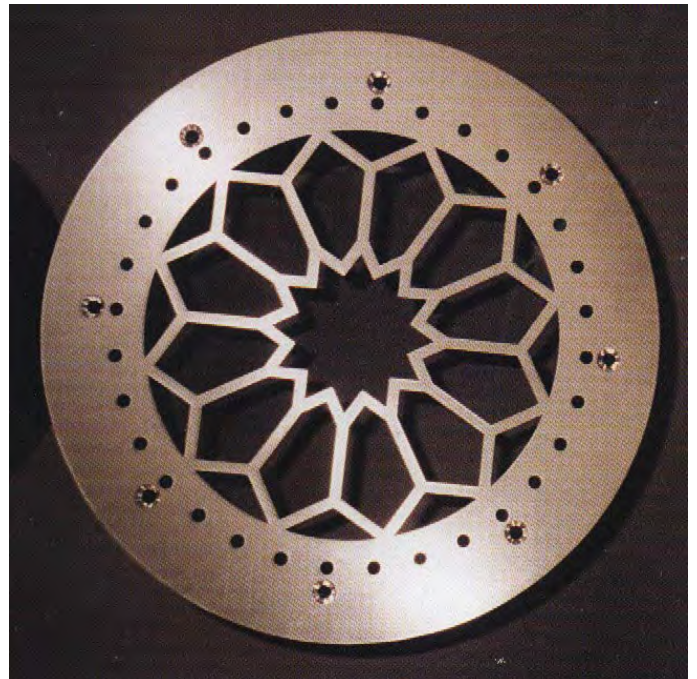
**Lotos**



**Spider's web, rounded**



**Spiders web, rounded**



**Diamond cut**

**Material:** stainless steel sheet or brass sheet, 1,5 - 2,5 mm thickness. The covers are fixed on top of the glass of the fixture and can be removed relatively simple for cleaning. The maintenance of the light fixture can be neglected: the life span of the LED chips is - with a calculated full day operation - five years.

|      |      |       |          |  |      |  |                   |                 |
|------|------|-------|----------|--|------|--|-------------------|-----------------|
| IK10 | IP68 | EN 40 | EN 60598 |  | RoHS |  | 10 Years Warranty | Made in Germany |
|------|------|-------|----------|--|------|--|-------------------|-----------------|

TÜV Certification and GS-sign on request against extra charge

The covering door of buried uplights can be varied.  
The safety glass of the fixture ist 10 to 15 mm thick,  
and an stand a load of at least 1000 kN.

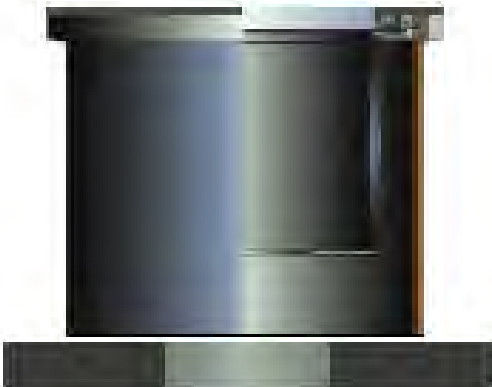
Available with round or square cover

Buried uplight with square or round cover.

- Light fixture
- Glass:
- In grade housing
- Buried uplight with in grade housing, **IP 68**, or on request **IP 69**,  
Housing: corrosion proof aluminum, max diameter 220 - 350 mm, the safety glasses, round or square are flush with the cover of the fixture. 2 PG-cable entries 11,5 mm. 220V-240V, 50/60 Hz, IP 68. Gaskets EPDM. Light sources COB/SMD on request.  
(if required we supply also high efficiency discharge lamps.)  
The in grade housing must be connected to a drainage system, if the unit is installed outside and exposed to weather conditions.  
All steel parts are hot dip galvanized and coated with a bituminous protecting coating.



| Art.Nr.: | Version                                       |
|----------|-----------------------------------------------|
| 470951   | Version square with round glass<br>T = 15 mm, |
| 470941   | Version square with square glass<br>T - 15 mm |



|             |             |          |             |                                                                                   |      |                                                                                   |                      |                    |
|-------------|-------------|----------|-------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|----------------------|--------------------|
| <b>IK10</b> | <b>IP68</b> | EN<br>40 | EN<br>60598 |  | RoHS |  | 10 Years<br>Warranty | Made in<br>Germany |
|-------------|-------------|----------|-------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|----------------------|--------------------|

TUV Certification and GS-sign on request against extra charge

The fixtures are suitable to be used in streets and places with car traffic. Therefore they have to be certified by TÜV for use in places with car traffic. They also are CE certified and according to EN60598

These light fixtures shall inform and direct the rolling traffic. They can be installed at the shoulder or in the middle of streets. They consist of a steel tube with collar and the light fixture. The collar is made of stainless steel A4. The fixture is installed into the collar. The cover of the fixture made of massive cast aluminum is firmly fixed to the collar on a gasket of EPDM. The unit is IP 69 and can be rolled over by cars. Fastening material: Steel A4



The standard size of the fixtures diameter is 100 mm. The cover is formed as a segment of a globe, maximum height is 23 mm. Light is distributed by 1 to 4 openings, cut out from the segment of the sphere. Every segment has an opening and beam angle of 92°. The segments can be arranged as shown on the drawing with 1, 2, 3, or 4 openings.

To avoid glaring, the maximal performance of the light source of any segment should not exceed the equivalent of 3 W LED.

## COVER:

Solid massive aluminum, max load 5000 kg, IP 69

## Art.Nr.: Version round 100xH23 mm

- 471971** With one window
- 471972** with two windows opposite 180°
- 471973** with two windows next to each other 90°
- 471974** with 4 windows at 90°

## Art.Nr.: Square Version 100x100x23 mm

- 471981** With one window
- 471982** with two windows opposite 180°
- 471983** with two windows next to each other 90°
- 471984** with 4 windows at 90°

deutsche  
technik  
seit 1972





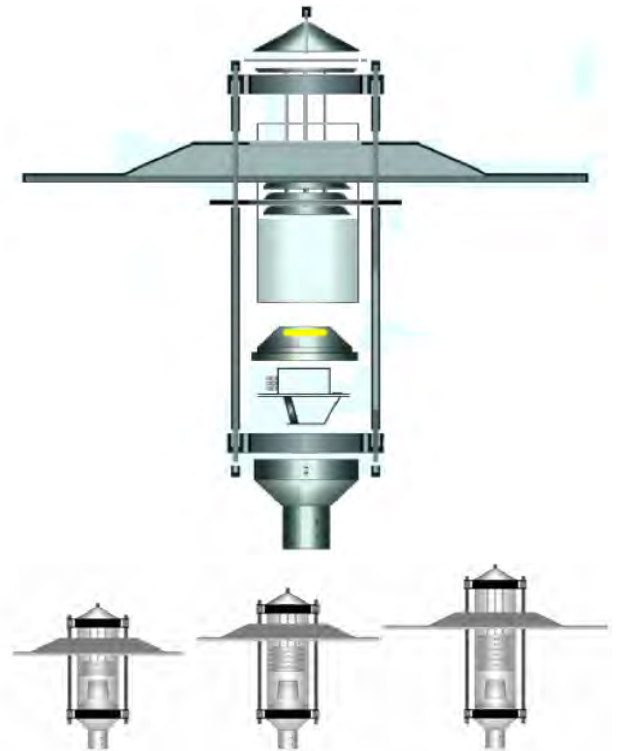
## Taylor Made Light Fixtures

### Chapter 64

#### Decorative Pole Top Fixtures Precinct Lighting



Pole top fixture CHAPEAU CHINOIS 650/750/950



**Pole:** LMKA 114/76 LPH 4000 color RAL 3005 red  
**Light fixture:** IP 55 230V50Hz EN60598

**Decorative Pole Top Fixtures**  
**Chapeau Chinois 650 – 750 – 900**

**Performance** of the pole top fixtures depends on specified value .

**Light distribution** depends on lights ource used ond the reflector system.

**Diameter of cover:** 650, 750, 900 or 1100 mm  
**Lenght of housing:** 550, 650 oder 800 mm  
**Spigot** for all sizes: 80x100 mm

The **diffuser** is made of clear or opal acryluc tube, D 200 mm, on request glasses are available. (Safety glasses by Schott)  
 The decorations on the outside are made of stainless steel or aluminum.

All **metal parts**, with exception of reflector system and cover of electrical parts, are pe-powder coated, and are available in all colors of the RAL chart.

**Fixing material:** stainless steel.  
 Power supply cable entry: PG 13,5, cable: 5 m HO5RN-F 3G or length on request.



| Art.Nr.: | Ø   | H   |
|----------|-----|-----|
| 473601   | 650 | 550 |
| 473602   | 750 | 650 |
| 473603   | 900 | 800 |

Special Version: Ø 1100 mm



## Decorative precinct lighting CHAPEAU CHINOIS P 650 – 750 – 900

Made in  
Germany

RoHS

5 Jahre  
GarantieEN  
60598

IP65

**Decorative pendant fixtures for pole brackets.****Chapeau Chinois** P650 – P750 – P900

Performance of the pendant fixtures depends on the specified Lux value .

**Light distribution** depends on the light source used and on the reflector system.

Diameter of cover: 650, 750, 900 mm

Length of housing: 550, 650 oder 800 mm

suspension for all sizes: 25x50 mm

**The diffuser** is made of clear or opal acrylic tube, D 200 mm. On request glasses are available. (Safety glasses by Schott)

**The decorations** on the outside are made of stainless steel or aluminum. All metal parts, with exception of reflector system and cover of electrical parts, are PE- powder coated, and available in all colors of the RAL chart.

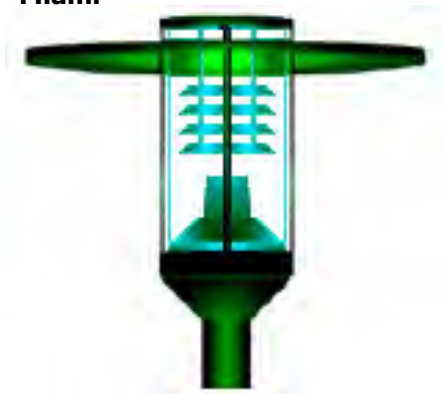
**Fixing material:** stainless steel.  
Power supply cable entry: PG 11,5,  
cable: 5 m HO5RN-F 3G or length on request.

**Chapeau Chinois Pendants**

| Art.Nr.: | Ø   | H   |
|----------|-----|-----|
| 473651   | 650 | 550 |
| 473652   | 750 | 650 |
| 473653   | 900 | 800 |



Miami



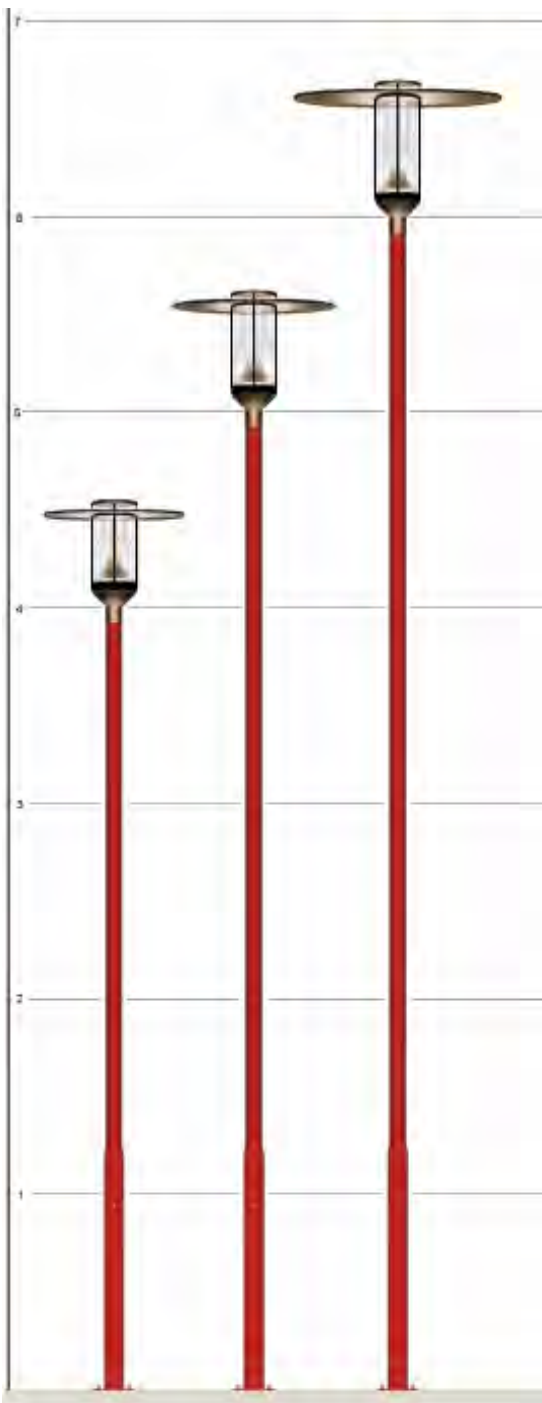
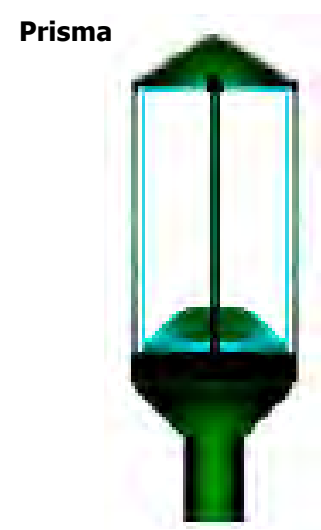
Luxo



Mikado



Prisma



Typical lengths of poles  
3 - 4 m for small version  
4 - 6 m for medium version  
5 - 7 m for big version



Left drawings:  
Explosion drawing of Luxo parts. All  
pole top luminaires of the series Miami,  
Luxo, Mikado and Prisma are identical  
in construction

**Miami**

| Art.Nr.: | Ø   |
|----------|-----|
| 473100   | 650 |
| 473101   | 750 |
| 473102   | 900 |

**Luxo**

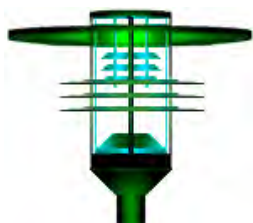
| Art.Nr.: | Ø   |
|----------|-----|
| 473200   | 650 |
| 473201   | 750 |
| 473203   | 900 |

**Mikado**

| Art.Nr.: | Ø   |
|----------|-----|
| 473300   | 650 |
| 473302   | 750 |
| 473303   | 900 |

**Chapeau Chinois**

| Art.Nr.: | Ø   |
|----------|-----|
| 473601   | 650 |
| 473602   | 750 |
| 473603   | 900 |

**Mirage**

| Art.Nr.: | Ø   |
|----------|-----|
| 473110   | 650 |
| 473111   | 750 |
| 473112   | 900 |

**Azzuro**

| Art.Nr.: | Ø   |
|----------|-----|
| 473210   | 650 |
| 473211   | 750 |
| 473212   | 900 |

**Bahia**

| Art.Nr.: | Ø   |
|----------|-----|
| 473310   | 650 |
| 473311   | 750 |
| 473312   | 900 |

**Prisma**

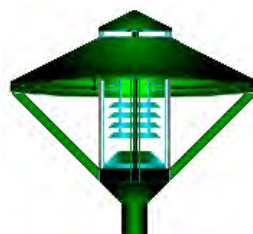
| Art.Nr.: | H   | Ø   |
|----------|-----|-----|
| 476300   | 500 | 320 |
| 476301   | 650 | 320 |
| 473302   | 800 | 320 |

**Diablo**

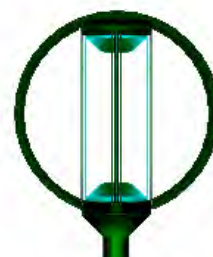
| Art.Nr.: | Ø   |
|----------|-----|
| 473120   | 650 |
| 473121   | 750 |
| 473122   | 900 |

**Rondo**

| Art.Nr.: | Ø   |
|----------|-----|
| 473220   | 650 |
| 473221   | 750 |
| 473222   | 900 |

**Calypso**

| Art.Nr.: | Ø   |
|----------|-----|
| 473320   | 650 |
| 473321   | 750 |
| 473322   | 900 |

**Sfera**

| Art.Nr.: | Ø   |
|----------|-----|
| 473411   | 550 |
| 473412   | 650 |

**Decorative Pole top  
fixtures**

**Miami 650, 750 and 900 mm**

Pole top fixtures for poles, candelabra  
and brackets

Flat cover  
Housing Ø 220 mm  
made of corrosion proof aluminum and  
stainless steel.  
Heights of body: 550, 650 or 750 mm,  
Diameter of Cover: 650, 750 oder  
900mm. Spigot for all sizes: 80x100  
mm

The diffuser is made of clear or opal  
acrylic tube, D 200 mm,  
on request glasses are available.  
(Safety glasses by Schott)

The decorations on the outside are  
made of stainless steel or aluminum.

All metal parts, with exception of  
reflector system and cover of electrical  
parts, are pe-powder coated, and are  
available in all colors of the RAL chart.

Fixing material: stainless steel.

Power supply cable entry: PG 13,5,  
cable: 5 m HO5RN-F 3G or length on  
request.

**left: Miami 650**

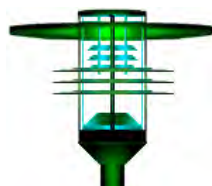
**ArtNr.: 473100  
RAL 3003 ruby  
red, Lampholder  
for LED-lamps**

**Variations of Miami - Flat cover**

**Miami**

**Mirage**

**Diable**



| Art.Nr.: | Ø   | Art.Nr.: | Ø   | Art.Nr.: | Ø   |
|----------|-----|----------|-----|----------|-----|
| 473100   | 650 | 473110   | 650 | 473120   | 650 |
| 473101   | 750 | 473111   | 750 | 473121   | 750 |
| 473102   | 900 | 473312   | 900 | 473122   | 900 |

## Decorative Pole top and Pendant Fixtures

### Luxo 650, 750 and 900 mm Luxo P 650, 750 and 900 mm

Pole top fixtures and pendants for poles, candelabra and brackets.

Conical cover.

Housing Ø 220 mm

made of corrosion proof aluminum and stainless steel.

Heights of body: 550, 650 or 750 mm,

Diameter of Cover: 650, 750 oder

900mm. Spigot for all pole top fixtures: 80x100 mm.

For pendant fixtures: 25 x 50 mm

The **diffuser** is made of clear or opal acryluc tube, D 200 mm,

on request glasses are available.

(Safety glasses by Schott)

The decorations on the outside are made of stainless steel or aluminum.

All metal parts, with exception of reflector system and cover of electrical parts, are PE-powder coated, and are available in all colors of the RAL chart.

Fixing material: stainless steel.

Power supply cable entry: PG 13,5, cable: 5 m HO5RN-F 3G or length on request.

Art.Nr.: Ø

#### Luxo P

473250 650

473251 750

#### Azzuro P

473260 650

473261 750

#### Rondo P

473270 650

473271 750

#### Luxo

473200 650

473201 750

473203 900

#### Azzuro

473210 650

473211 750

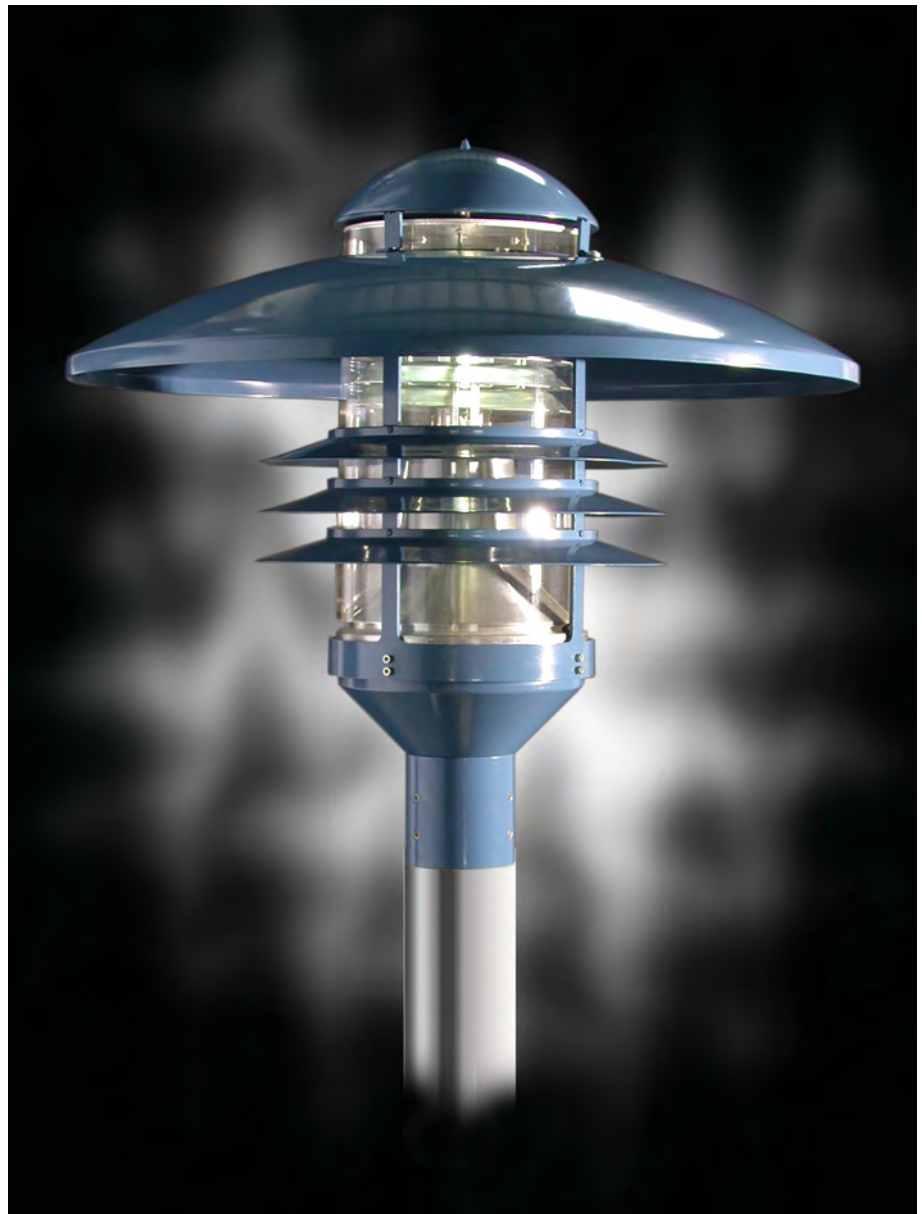
473212 900

#### Rondo

473220 650

473221 750

473222 900



above: Azzuro 750 ArtNr.: 473211  
in RAL 5015 Sky blue, Lamp holder for LED-Lamps

#### Luxo

#### Azzuro

#### Rondo



#### Luxo-P

#### Azzuro-P

#### Rondo-P



above: Calypso 650 ArtNr.: 473300  
in RAL 3000 fire red, socket for LED-Lamps

### Decorative Pole top and Pendant Fixtures

#### Calypso 650, 750 and 900 mm Calypso P 650, 750 and 900 mm

Pole top fixtures and pendants for  
poles, candelabra and brackets.

Conical cover.

Housing Ø 220 mm

made of corrosionproof aluminum and  
stainless steel.

Heights of body: 550, 650 or 750 mm,

Diameter of Cover: 650, 750 oder  
900mm. Spigot for all pole top fixtures:  
80x100 mm For pendant fixtures: 25 x  
50 mm

The diffuser is made of clear or opal  
acryluc tube, D 200 mm,  
on request glasses are available.  
(Safety glasses by Schott)

The decorations on the outside are  
made of stainless steel or aluminum.

All metal parts, with exception of  
reflector system and cover of electrical  
parts, are PE-powder coated, and are  
available in all colors of the RAL chart.

Fixing material: stainless steel.

Power supply cable entry: PG 13,5,  
cable: 5 m HO5RN-F 3G or length on  
request.

Art.Nr.: Ø

#### Mikado P

473350 650

473351 750

#### Bahia P

473360 650

473361 750

#### Calypso P

473370 473371 650

750

#### Mikado

473300 650

473301 750

473303 900

#### Bahia

473310 650

473311 750

473312 900

#### Calypso

473320 650

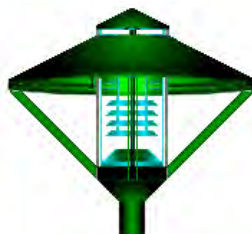
473321 750

473322 900

Mikado

Bahia

Calypso



Mikado P

Bahia P

Calypso P

**Dekorative Pole Top  
and Pendant Fixtures  
Prisma 550/650 und Sfera 550/650  
Prisma P 550/650 and Sfera P  
550/650**

Pole top fixtures and pendants for poles,  
candelabra and brackets.

Housing Ø 220 mm

Made of corrosion proof aluminum and  
stainless steel.

Heights of body: 550, 650 mm.

Spigot for all pole top fixtures: 80x100 mm

For pendant fixtures: 25 x 50 mm

The diffuser is made of clear or opal acryluc  
tube, D 200 mm,

on request glasses are available.

(Safety glasses by Schott)

The decorations on the outside are made of  
stainless steel or aluminum.

All metal parts, with exception of reflector  
system and cover of electrical parts, are  
pe-powder coated, and are available in all  
colors of the RAL chart.

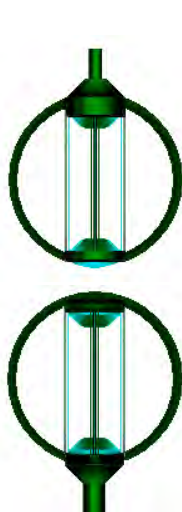
Fixing material: stainless steel.

Power supply cable entry: PG 13,5, cable: 5  
m HO5RN-F 3G or length on request.



**SFERA - P**

**PRISMA - P**



**SFERA**



**PRISMA**

**SFERA - P**

**PRISMA - P**

Art.Nr.: L

Art.Nr.: L

473411 550

473421 550

473412 650

473422 650

**SFERA**

**PRISMA**

Art.Nr.: L

Art.Nr.: L

473511 550

473551 550

473512 650

473552 650



**Top:** Prisma 550 with 3 lamellas. **Down left:** 2 bracket candelabrum mit two  
Prisma 550. **Down right:** 4 bracket candelabrum with four Prisma 550. **LPH: 4 m**

deutsche  
technik  
seit 1972



## REFLEX No. 1

### Pole top fixture with reflecting roof

#### Pole:

Stepped pole,  $\varnothing$  133/100 mm, H 4500 mm.  
Inspection door, EN40, Fixing material and threadts:  
Stainless steel. Flange plate 250x250 mm, 4 fixing  
holes at 200x200 mm,  $\varnothing$  22 mm or, on request, with  
800 mm buried portion with cable entry, hot dip  
galvanized and PE-powder coated. All colors of the  
RAL chart available.

#### Luminary Unit:

IP 67, Porjector, aluminum housing, Hight of  
installation: 4500 mm

#### Reflector:

Aluminum, lower side covered with a reflecting  
coating or on request with mirror reflectors by  
Bartenbach. the round and square forms of  
reflecting roof can also available with LES (Light  
Emitting Surface).  
The reflector system can be adjusted by the three or  
four rods carrying the reflector.



Art.Nr.:  $\varnothing$ /L x B

#### Reflex 1 - Round Reflector

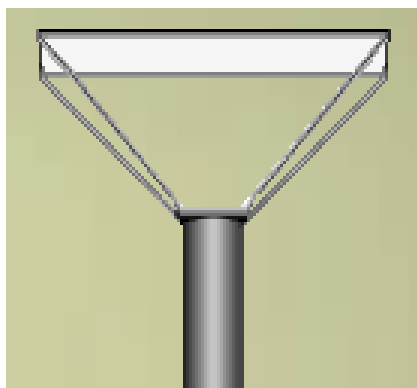
|        |     |
|--------|-----|
| 474001 | 750 |
| 473011 | 950 |

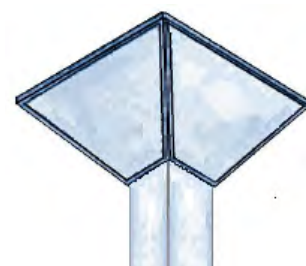
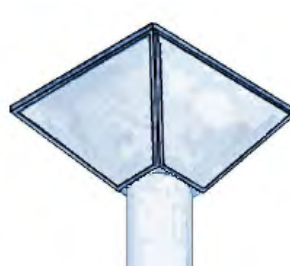
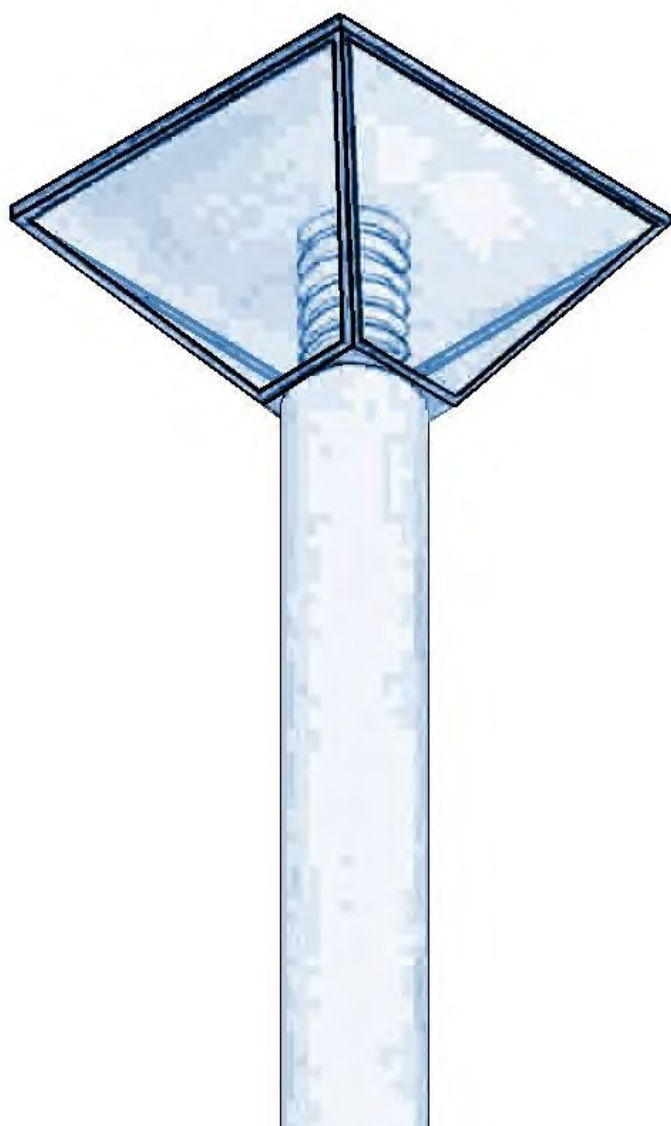
#### Reflex 2 - Square Reflector

|        |           |
|--------|-----------|
| 474201 | 650 x 650 |
| 474211 | 950 x 950 |

We offer decorative steel or aluminum poles matchig these pole to  
fixtures. See Group 68

## REFLEX No. 2 Square Construction





The Top Luminary unit is available with round or square poles. EN40 - See Chapter 65



## Reflex 3

Square Aluminum construction with safety glass ESG or acrylic windows PMMA8H in clear or opal, IP 55. Pole has to be selected separately. Roof of the fixture is a reflector. Optional it can be equipped with LES.

Art.Nr.:

Dach

474301

650 x 650

474311

950 x 950





## Chapter 65

Customised poles  
Conical seamless steel poles  
Decorative poles and pole ensembles  
Cast poles,  
Street furniture and accessories



### Stepped Steel Poles with Dekoration

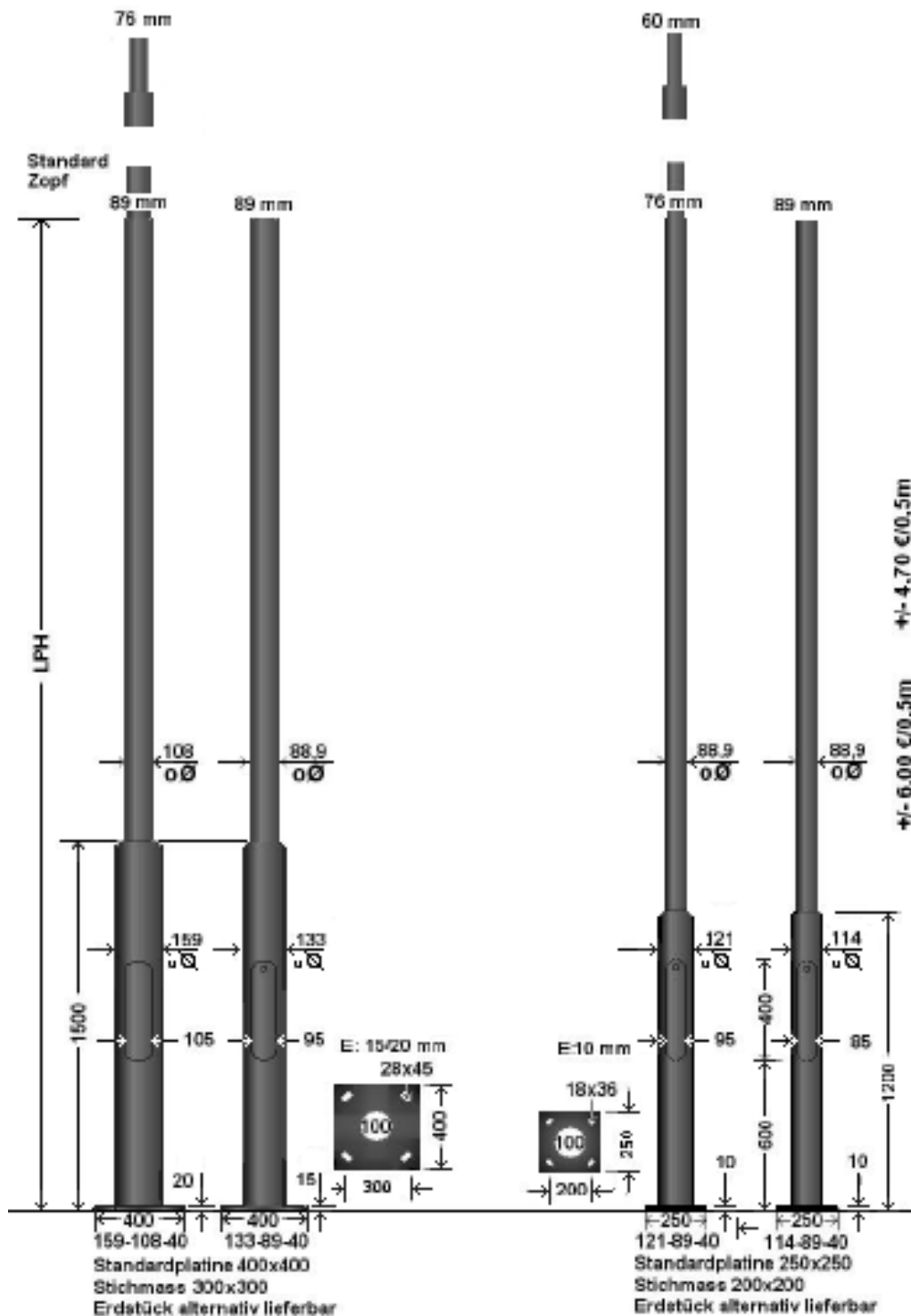
|                    |                      |          |
|--------------------|----------------------|----------|
| Made in<br>Germany | 10 Years<br>Warranty | EN<br>40 |
|--------------------|----------------------|----------|

Decorations are made of steel, hot dip galvanized and powder coated. All colors of the RAL chart are available  
The decoration can be removed, but on request welded on the pole.

TÜV Certification on request against extra charge

Group 78

|                                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |  |  |  |  |
| Konus 1                                                                          | Konus 2                                                                           | Sapin 1                                                                           | Sapin 2                                                                           | Bonnet 1                                                                          | Bonnet 2                                                                          | Etage                                                                               | Plan                                                                                |
| 478901                                                                           | 478902                                                                            | 478903                                                                            | 478904                                                                            | 478905                                                                            | 478906                                                                            | 478907                                                                              | 478908                                                                              |



**Ordering information:**  
Decorations have to be ordered separately from the poles.  
For aluminum poles: decorations are made o aluminium. too.

| Art.Nr. | <u>D top</u><br><u>D base</u> | LPH/m |
|---------|-------------------------------|-------|
| 478321  | <u>89</u><br>114              | 4,0   |
| 478331  |                               | 4,5   |
| 478341  |                               | 5,0   |
| 478351  |                               | 5,5   |
| 478361  |                               | 6,0   |
| 478421  | <u>89</u><br>121              | 4,0   |
| 478431  |                               | 4,5   |
| 478441  |                               | 5,0   |
| 478451  |                               | 5,5   |
| 478461  |                               | 6,0   |
| 478521  | <u>89</u><br>133              | 4,0   |
| 478531  |                               | 4,5   |
| 478541  |                               | 5,0   |
| 478551  |                               | 5,5   |
| 478561  |                               | 6,0   |
| 478571  | <u>108</u><br>159             | 6,5   |
| 478581  |                               | 7,0   |
| 478591  |                               | 8,0   |
| 478621  |                               | 4,5   |
| 478631  |                               | 5,0   |
| 478641  |                               | 5,5   |
| 478651  |                               | 6,0   |
| 478661  |                               | 6,5   |
| 478671  |                               | 7,0   |
| 478681  |                               | 8,0   |
| 478691  |                               | 8,0   |

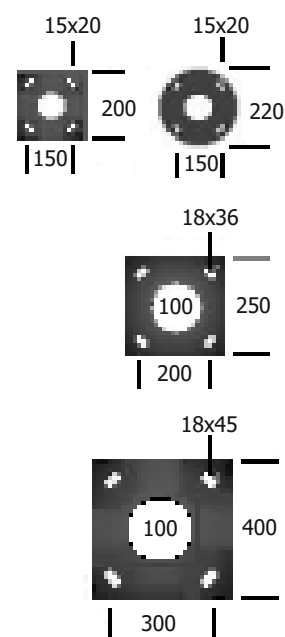
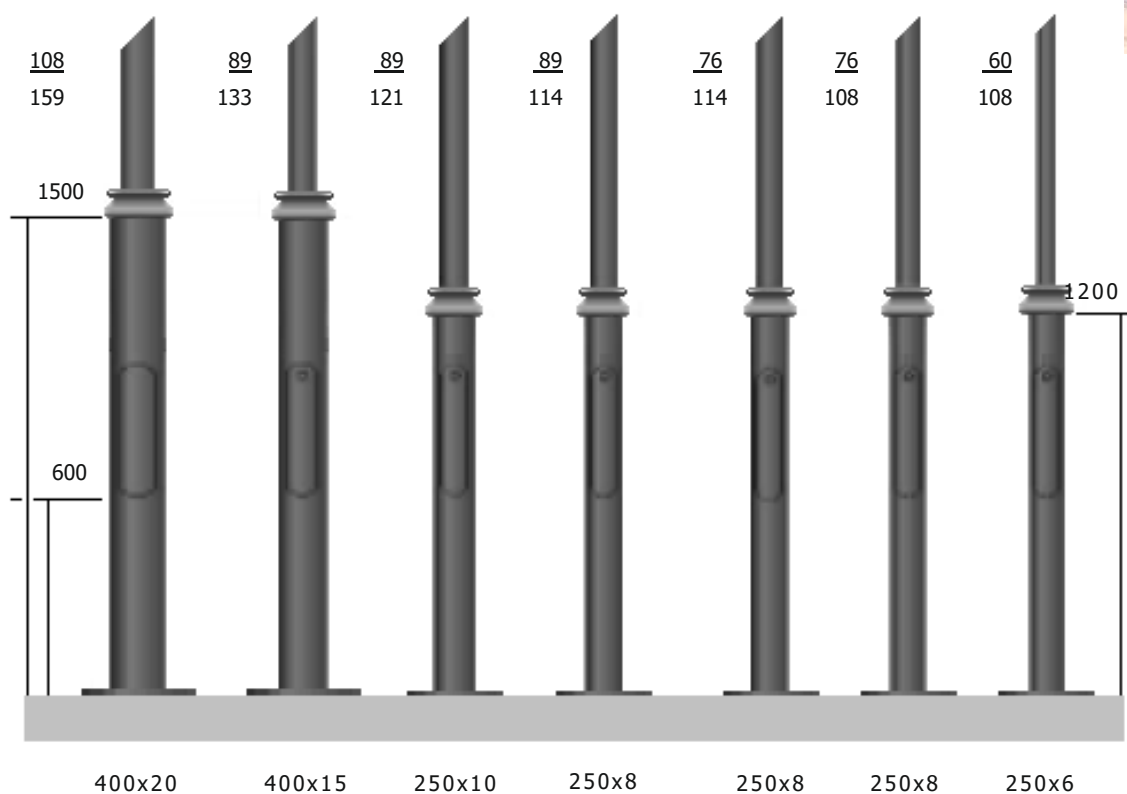
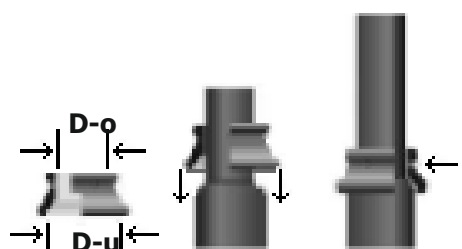
# Stepped Steel Poles with Decorations

**ELTE**

|          |                     |                    |
|----------|---------------------|--------------------|
| EN<br>40 | 10Jahre<br>Warranty | Made in<br>Germany |
|----------|---------------------|--------------------|

TÜV Certification on request against extra charge

## Group 78



Cylindrical steel poles with flange plates

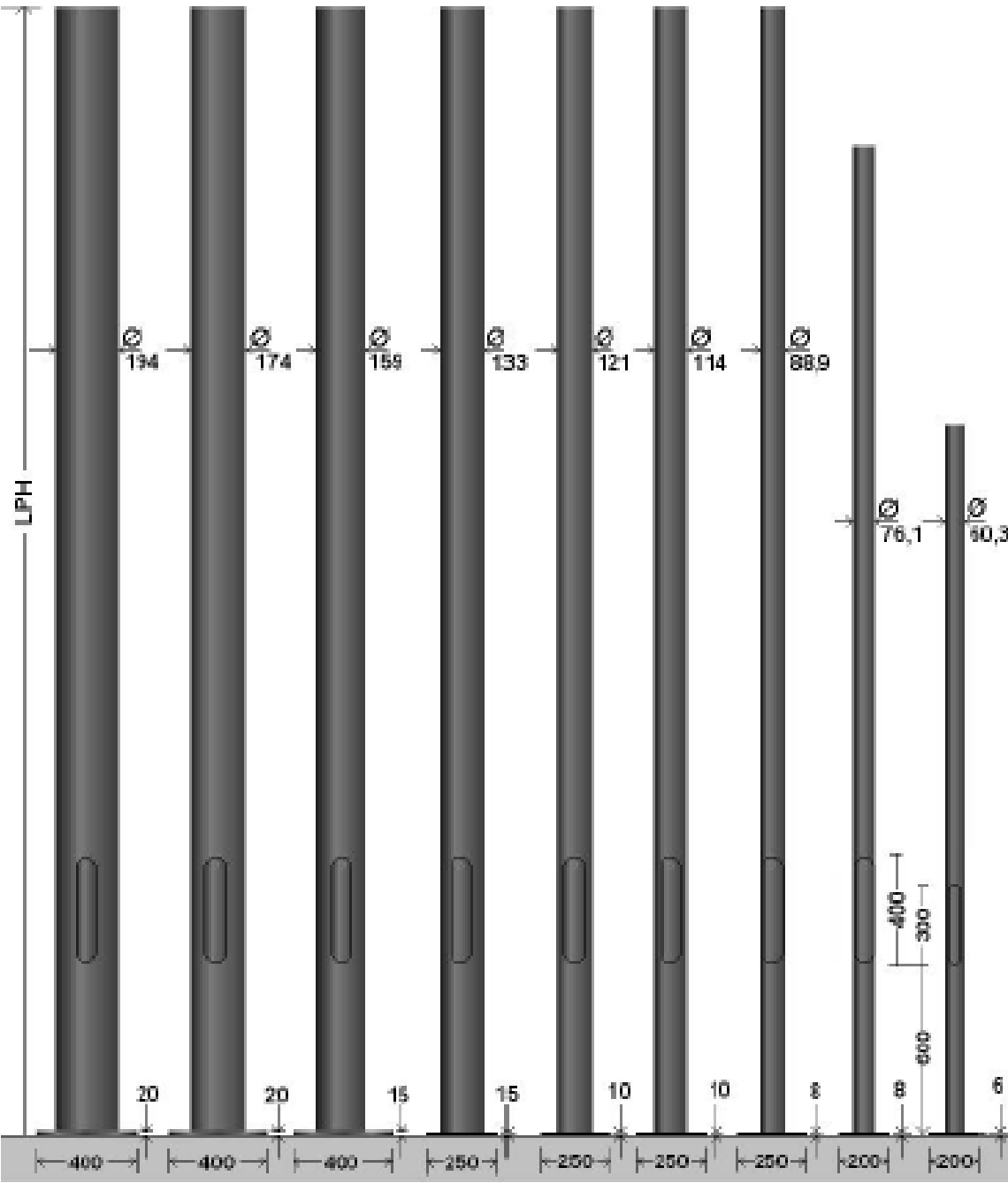
EN  
40

10Jahre  
Warranty

Made in  
Germany

TÜV Certification on request against extra charge

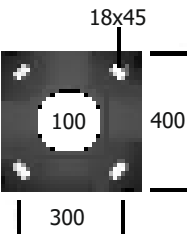
Group 79



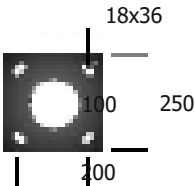
Steel,  
hot dip galvanized

| Art.Nr.: | Ø tube      |
|----------|-------------|
| 47900x   | Ø bis 59 mm |
| 479010   | Ø 60        |
| 479020   | Ø 76        |
| 479030   | Ø 89        |
| 479050   | Ø 108       |
| 479060   | Ø 114       |
| 479070   | Ø 121       |
| 479080   | Ø 133       |
| 479090   | Ø 159       |
| 479100   | Ø 168       |
| 479110   | Ø 174       |
| 479120   | Ø 194       |
| 479140   | Ø 220       |

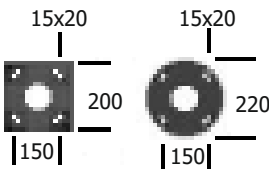
bigger Diameters:  
47917x bis 47919x



Poles with diameter +133 mm.  
Flange plate 400x400 mm,  
Holes at 300x300 mm.  
Thickness 15/20/25 mm  
Optional with buried portion



Poles with max D 159 mm  
Flange plate 250x250mm  
Holes at 200x200 mm  
Thickness 6/8/10 mm  
Optional with buried portion

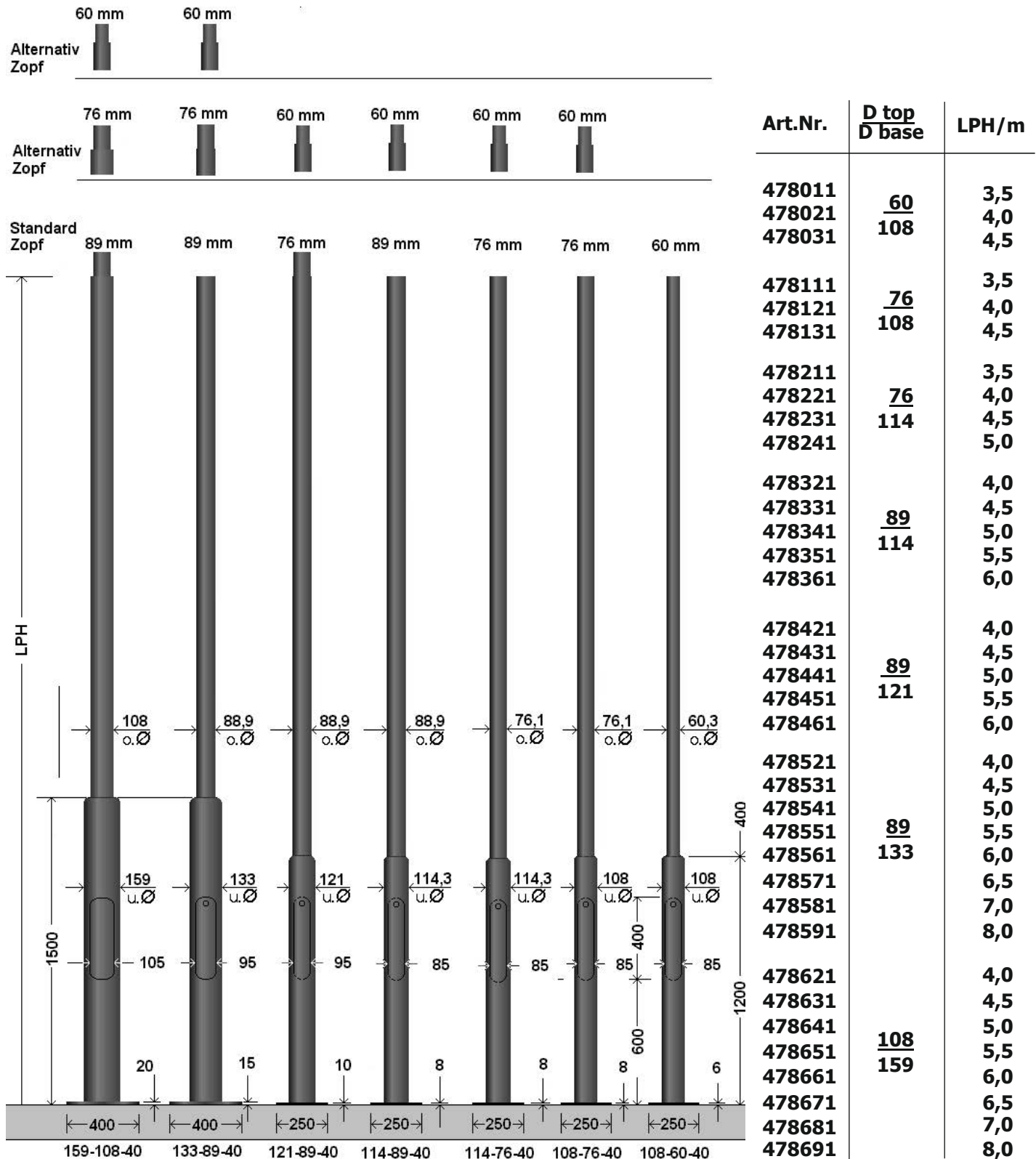


Poles with max D 121 mm  
Flange plate 200x200 mm or  
round D 220 mm. Holes at  
Stichmaß 150x150 mm  
Thickness 6/8/10 mm  
Optional with buried portion

## Group 78

TÜV Certification on request against extra charge

All poles are available alternatively with buried portion according to EN40.



TÜV Certification on request against extra charge

TÜV Certification on request against extra charge

## Conical seamless steel tubes

Made by shaping precision steel tubes. During the production process the cylindrical tubes are shaped conical continuously from the original diameter to the final diameter. The smallest diameter is ca. 60 mm. The first 1200 mm of the cylindrical tube are used for fasten the tube into machine. This cylindrical part is used for the inspection door.

It is possible to use the conical pole upside down, for example 100mm at base and 220 mm on top. On top, the toe is cylindrical for 1200 mm. The inspection door ist cut into the conical base part.

poles are hot dip galvanized after all welding and cutting work has been done. PE-powder coating in ay RAL color is recommended. Warranty periode for the powder coated poles is ten years.

| Art.Nr. | <u>D top</u><br><u>D base</u> | LPH/m |                                   |
|---------|-------------------------------|-------|-----------------------------------|
| 480110  |                               | 3,0   | Flange plate 250x250 mm           |
| 480111  | <u>76</u>                     | 4,0   |                                   |
| 480112  | <u>146</u>                    | 5,0   |                                   |
| 480233  | <u>90</u>                     | 6,0   | buried portion 1200 mm as option: |
| 480234  | <u>159</u>                    | 7,0   |                                   |
| 480235  |                               | 8,0   |                                   |
| 480416  | <u>100</u><br><u>220</u>      | 9,0   | Flange plate 400x400 mm           |
| 480419  |                               | x     | Lengths up to 16 m                |

**Accessories:** brackets and crowns for 1, 2, 3, 4, and 5 light fixtures.

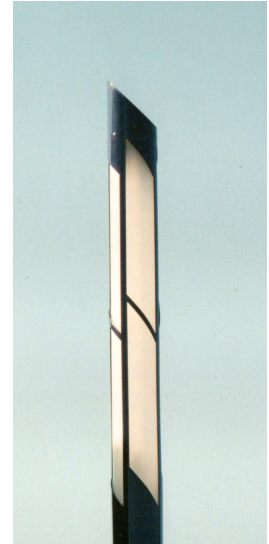
Schuko socket IP 68  
Cover for flange plate

- 480412** Straight Pole  
conical, at base  
2. v.l. 100 mm, top 220  
mm diameter  
Flange plate  
400x400 mm
- 480111** Straight Pole  
conical, at base  
3. v.l. 146 mm, top  
75 mm diameter  
Flange plate  
400x400 mm

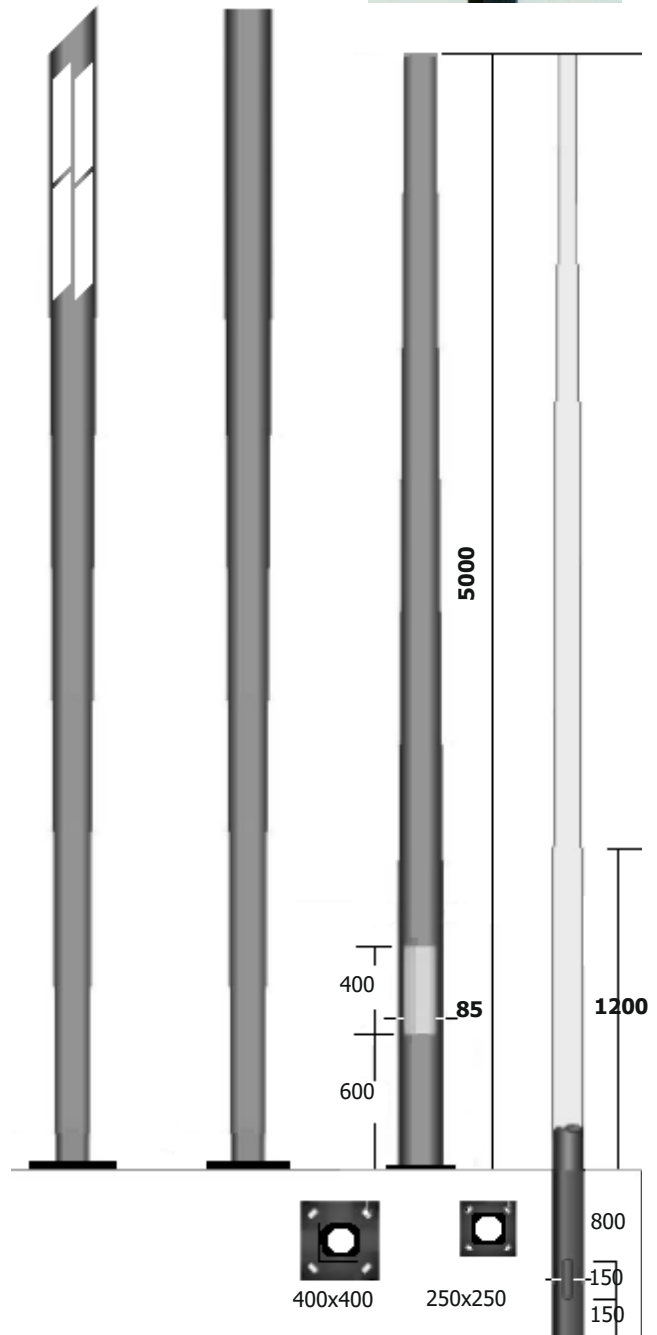
## Conical Seamless Steel Poles

**460075**

Light column H 5 m,  
100 mm at base to 220 mm  
on top,  
8 cuttings for luminary unit,  
opal diffuser,  
max 150W LED, ~ 15000 lm,  
Flange plate  
400x400x25 mm



**Photo right  
and  
first sketch from left**



|          |                     |                    |
|----------|---------------------|--------------------|
| EN<br>40 | 10Jahre<br>Warranty | Made in<br>Germany |
|----------|---------------------|--------------------|

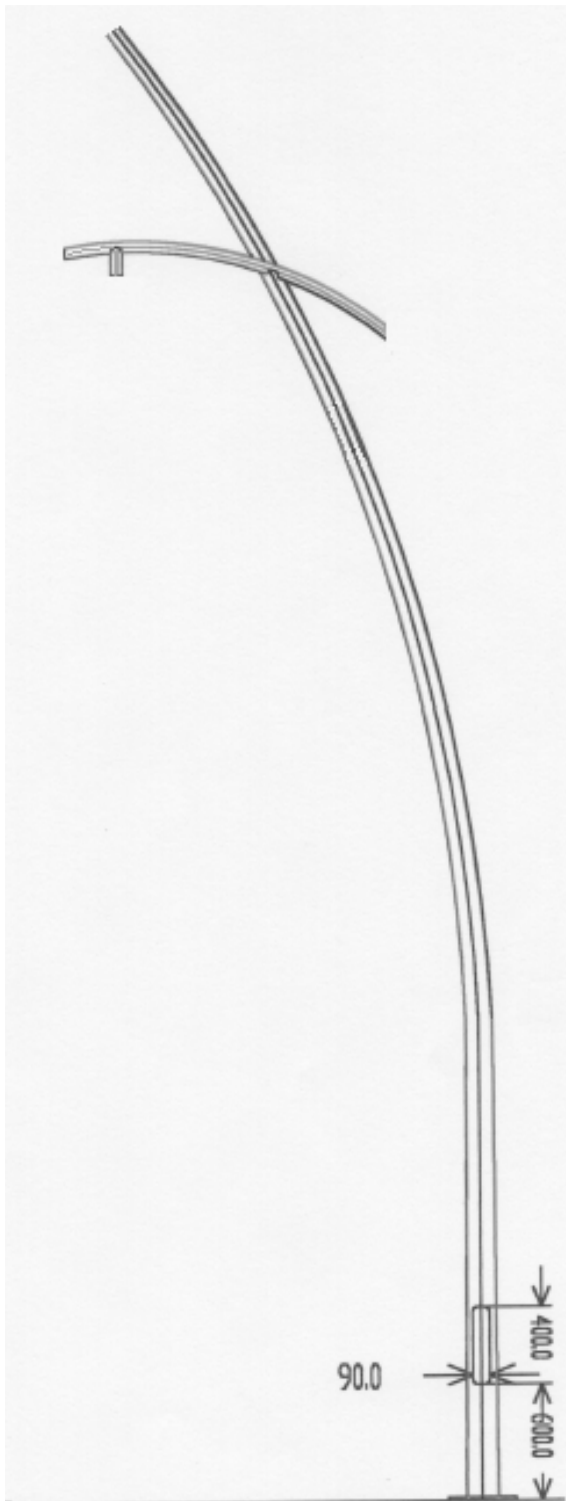
TÜV Certification on request against extra charge

## Bended conical seamless poles

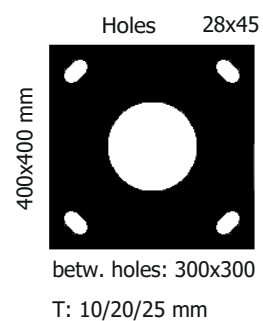
The conical seamless steel poles (Length up to 16 m) can be bended from H=2 m.

The brackets as on the sketch are made of bended tube as well. Suitable for pending light fixtures.

Application: Streets in towns and on urban motorways.



Flange plate



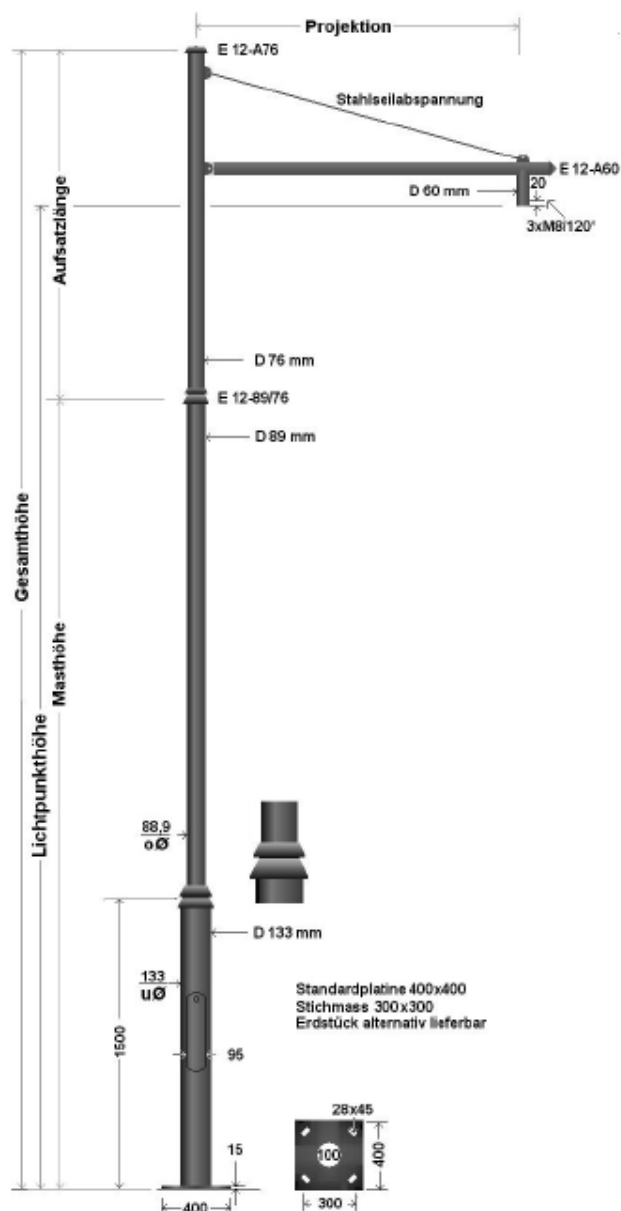
|          |                     |                    |
|----------|---------------------|--------------------|
| EN<br>40 | 10Jahre<br>Warranty | Made in<br>Germany |
|----------|---------------------|--------------------|

TÜV Certification on request against extra charge

Example: Stepped pole with decoration and bracket for pending installation of light fixtures.

Diameter of Pole: 133, 90 and 76 mm.

Bracket: Diameter 76/60 mm, spigot 60 mm



## Combinations of Poles and Decorative Brackets

**ELTE**

Pole with bracket and decoration, Diameter 140/90 mm.

For pending arrangement of Light fixtures.

Diameter tube: 90 mm. Bracket diameter 60 mm, decoration with 8 mm steel sheet, laser cut with 5 Nos cuttings. Spigot 48 mm

Application: For Streets in town areas.

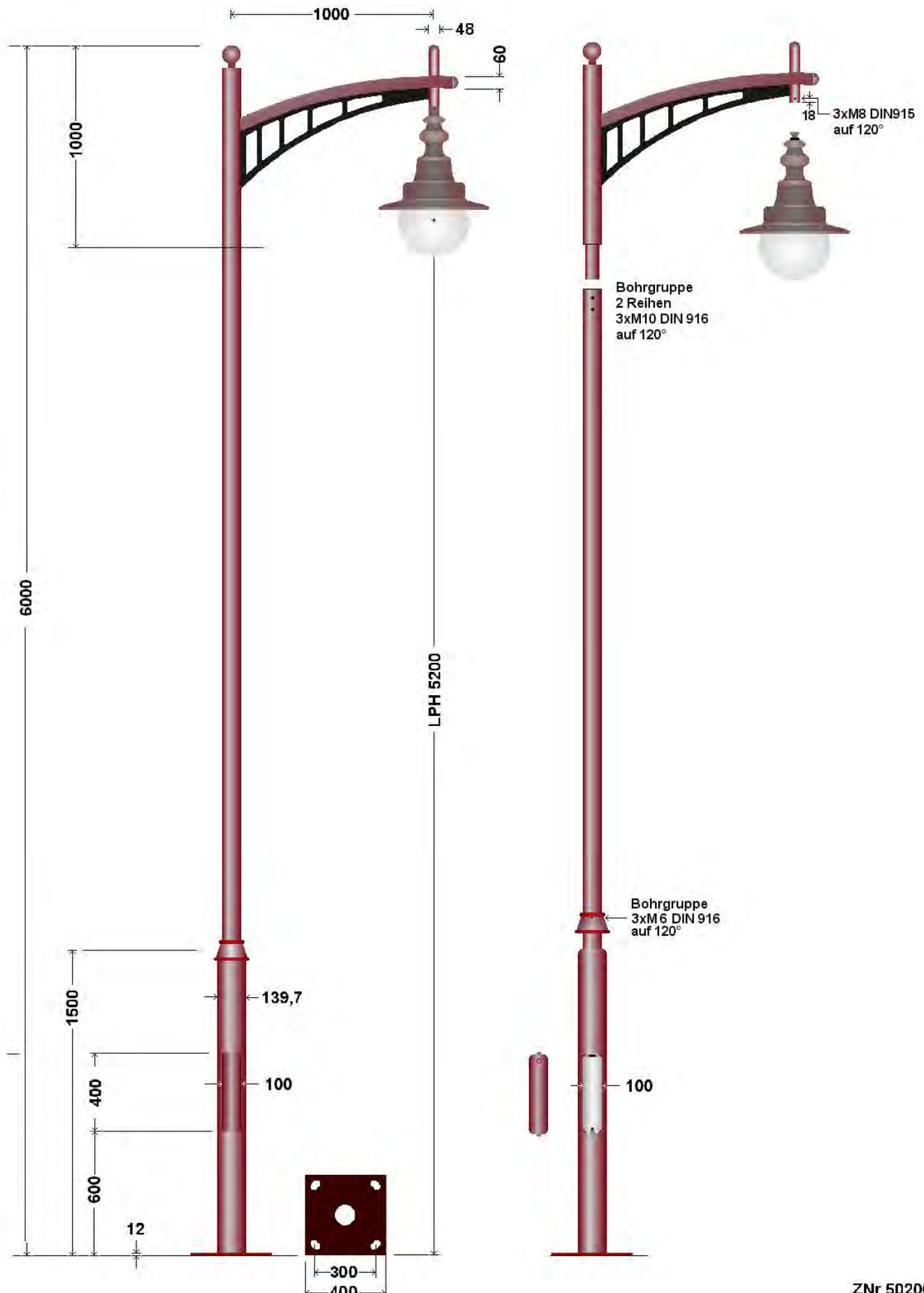
Material: Steel, hot dip galvanized, PE-powder coating.

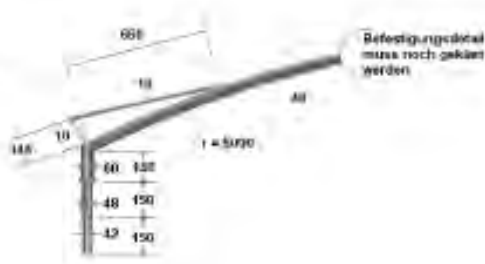
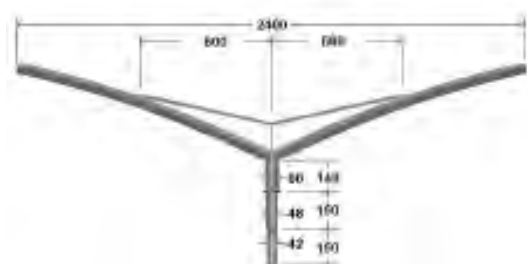
EN  
40

10Jahre  
Warranty

Made in  
Germany

TÜV Certification on request against extra charge





|          |                     |                    |
|----------|---------------------|--------------------|
| EN<br>40 | 10Jahre<br>Warranty | Made in<br>Germany |
|----------|---------------------|--------------------|

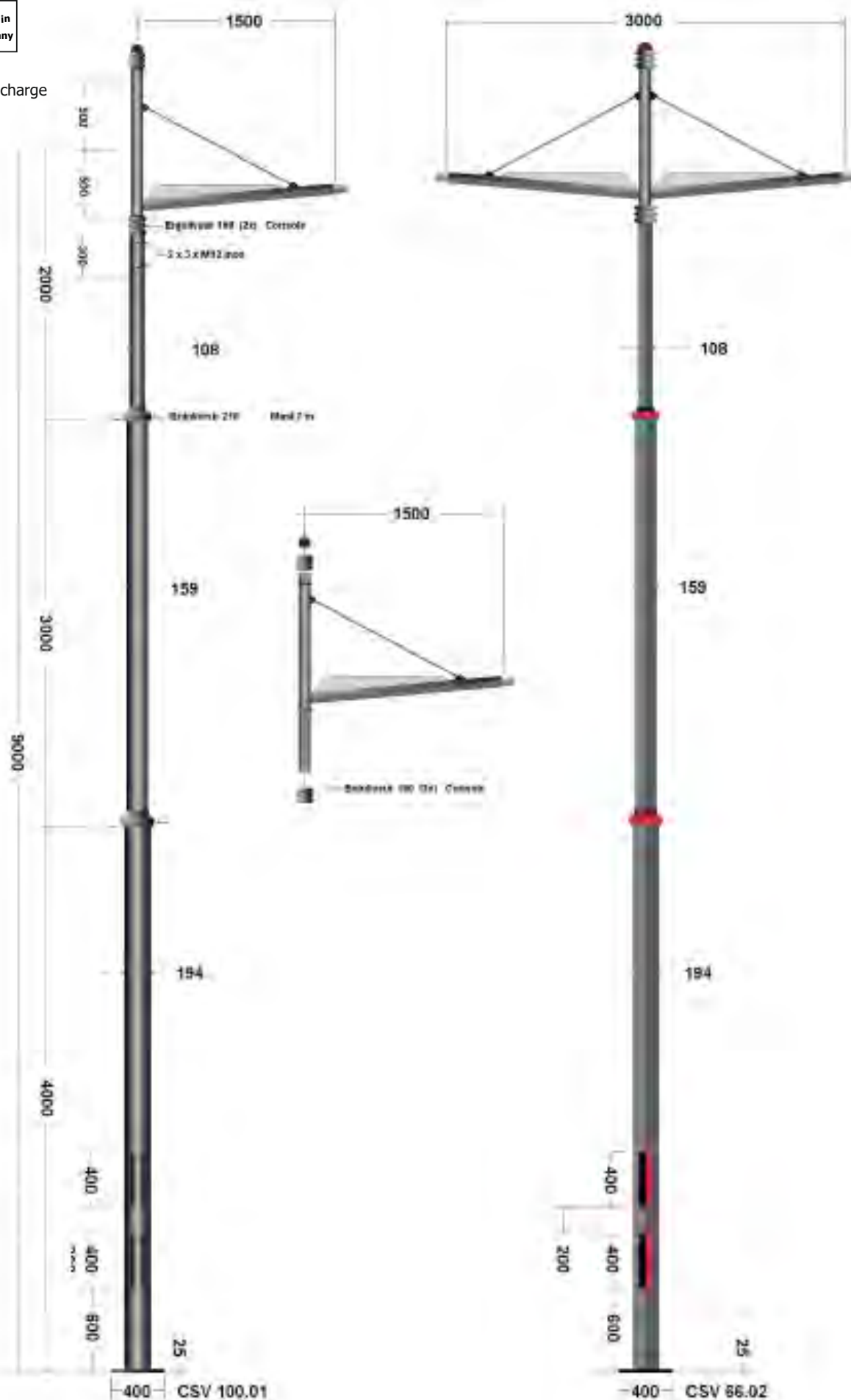
TÜV Certification on request against extra charge



**Steel poles:** conical seamless 130 - 76mm, Top spigot 60x200 mm, LPH with pole bracket: 5,6 m, pole brackets D 76 mm, spreading: 1,2 m any side. Material: Steel precision tube, hot dip galvanized. PE-powder coated. Any color on RAL chart. **Application:** Streets in towns, arterial streets, motor ways

|          |                     |                    |
|----------|---------------------|--------------------|
| EN<br>40 | 10Jahre<br>Warranty | Made in<br>Germany |
|----------|---------------------|--------------------|

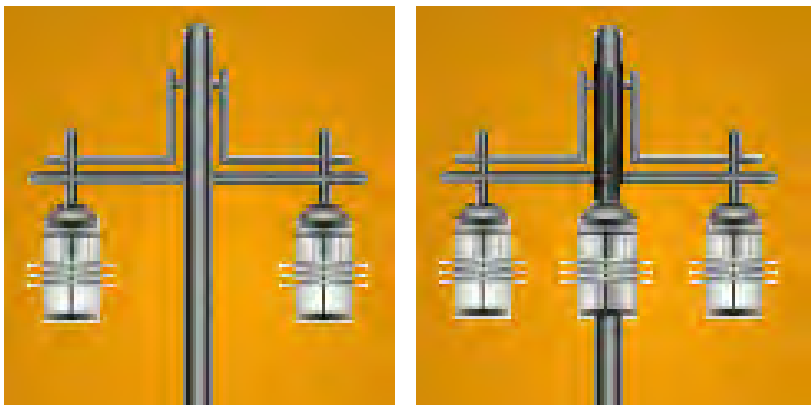
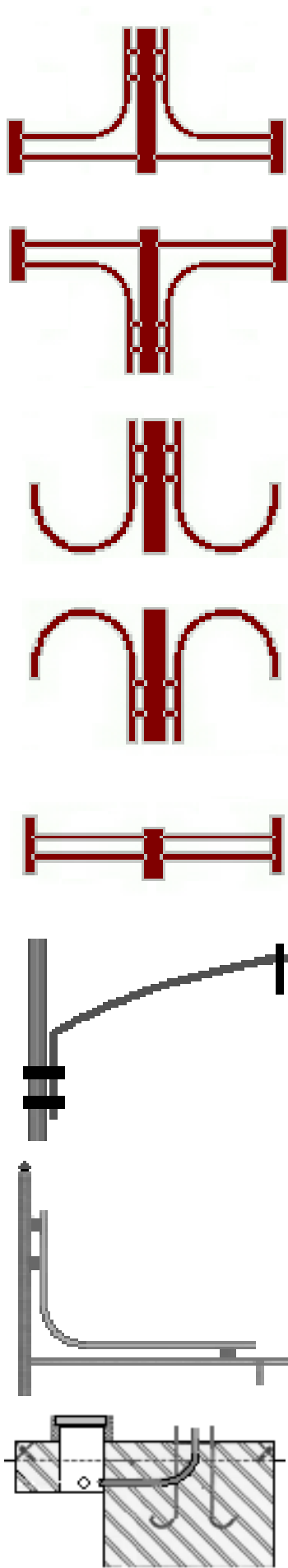
TÜV Certification on  
request against extra charge



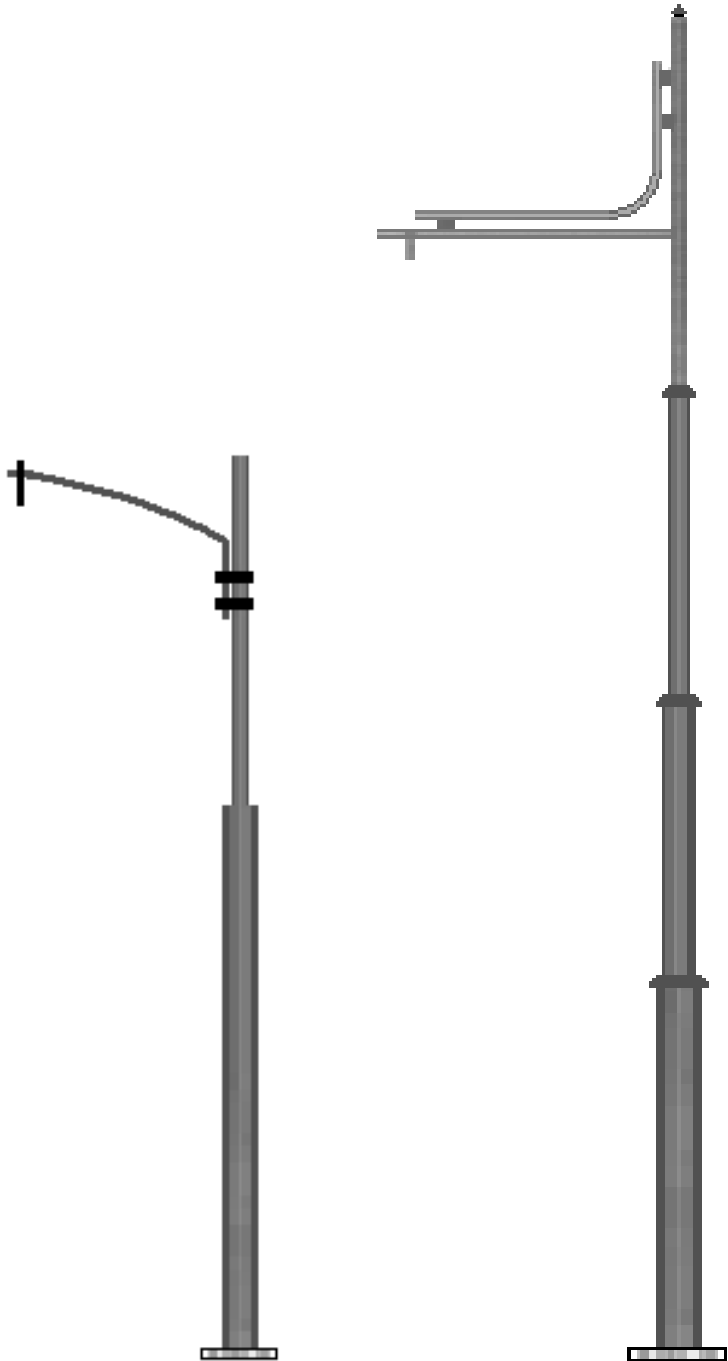
Steel poles with 2 steps, Diameter 194/159/108 mm, LPH with top bracket: 8 m Top brackets: Diameter 90 mm, spread 1,5 m either side, two inspection doors. Steps of pole and top bracket with decoration.  
Material: Steel, hot dip galvanized, PE-powder coated.

Examples for brackets

|          |                      |                    |
|----------|----------------------|--------------------|
| EN<br>40 | 10 years<br>Warranty | Made in<br>Germany |
|----------|----------------------|--------------------|



These designs stand as samples to show the quantity of possible variations.



Samples of interpretation of 180° arched tubes in pole head constuctions and pole brackets

EN  
40

5 Jahre  
Garantie

Made in  
Germany

## Poles and top brackets:

Steel, hot dip galvanized and PE powder coated.  
Semi spheres for flowers: spun aluminium. Fixing material: stinless steel.

**Forms:** cylindrical, cylindrical-stepped, conical or square. With flange plate or buried portion. Spigot for Pole top brackets: 76x90 mm, Size of inspection door according to EN 40 or on client's specification.

**Steel poles:** Hot dip galvanized and PE powder coated in any RAL color

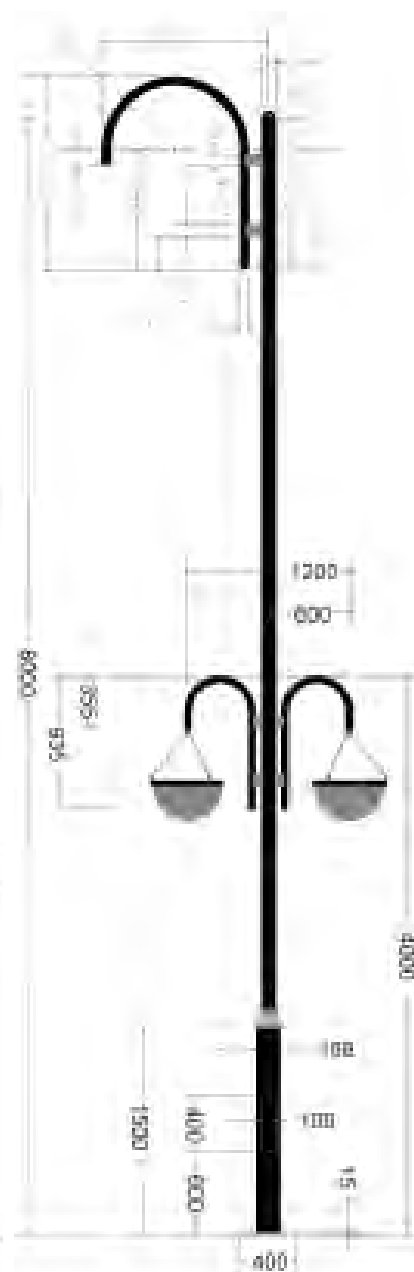
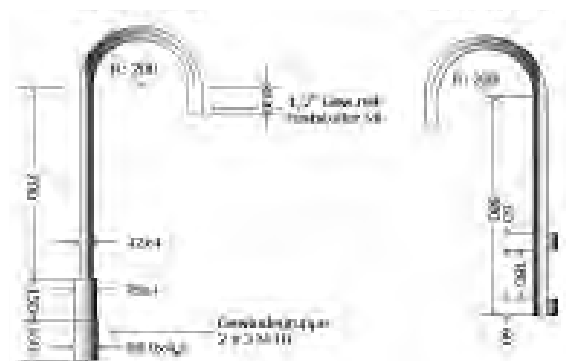
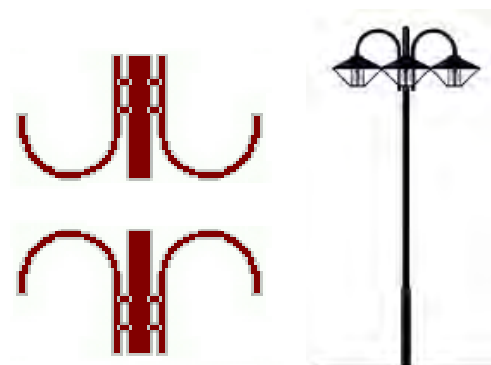
**Aluminum poles:** Chromated and PE powder coated in any RAL color or electro coating, limited choice of colors

**Edelstahlmasten:** Alternatively electro coating or grinding of surface, seald by PE powder coated in clear transparent

## Accessories:

Pole top constructions for 1 – 5 fixtures in upright position or in pending position.

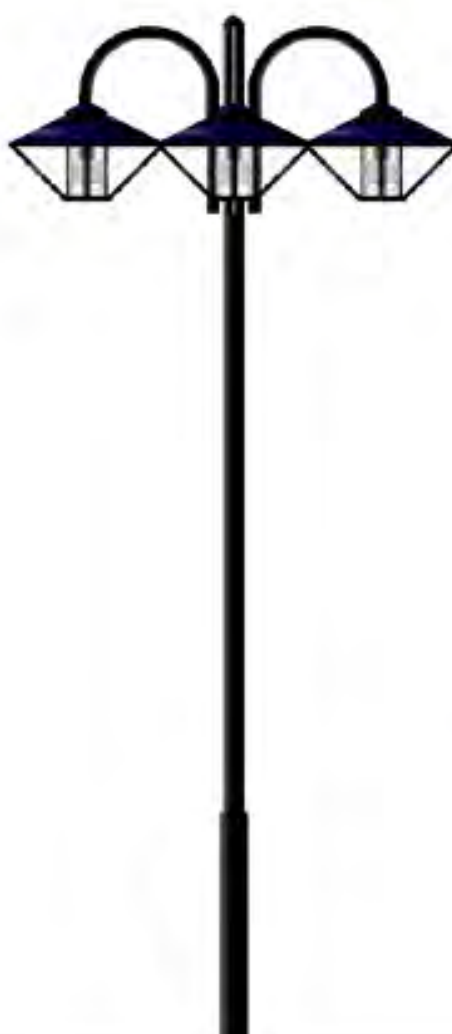
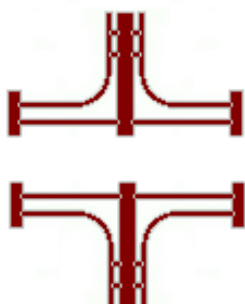
Decorations for stepped poles and covers for flange plates, Recommended.





Samples of brackets, pole top constructions with 1-4 brackets and wall brackets, for standing or pending position of light fixtures.

These sort of construction is only manufactured on order.

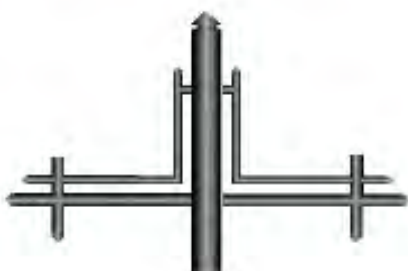
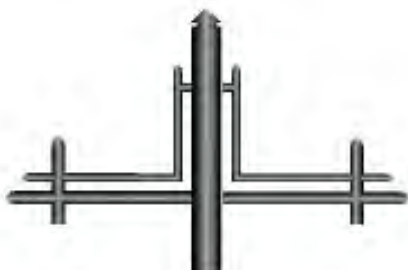
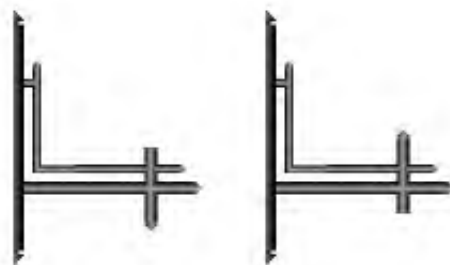
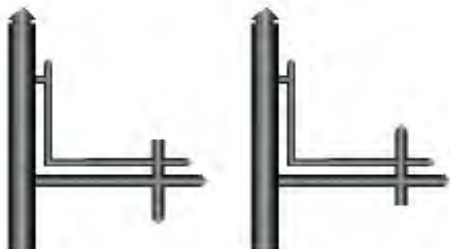


Any Order for this material is based on designs, either coming from the client or being a proposal from ELTE. Before start of production, the client receives construction drawings for his approval.

EN  
40

10 Years  
Warranty

Made in  
Germany

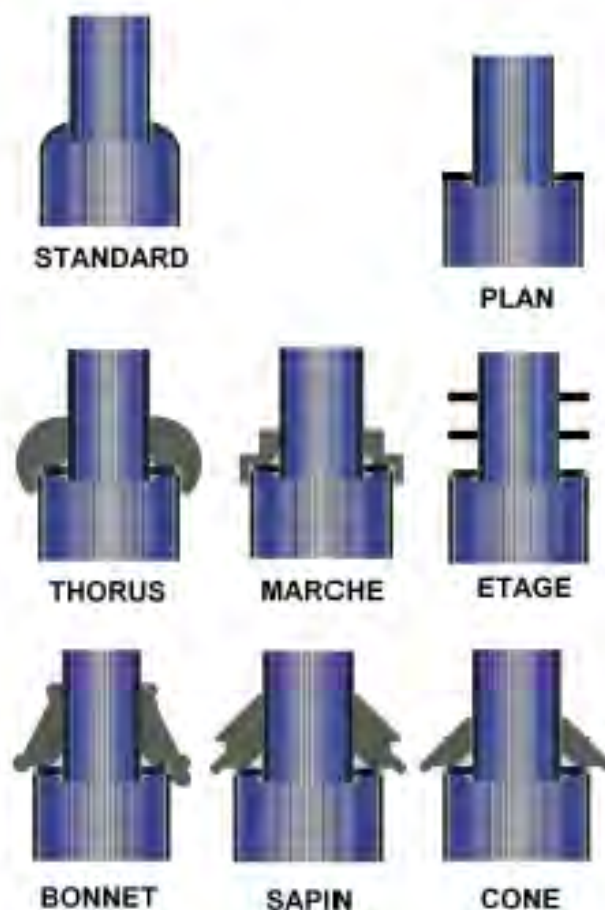
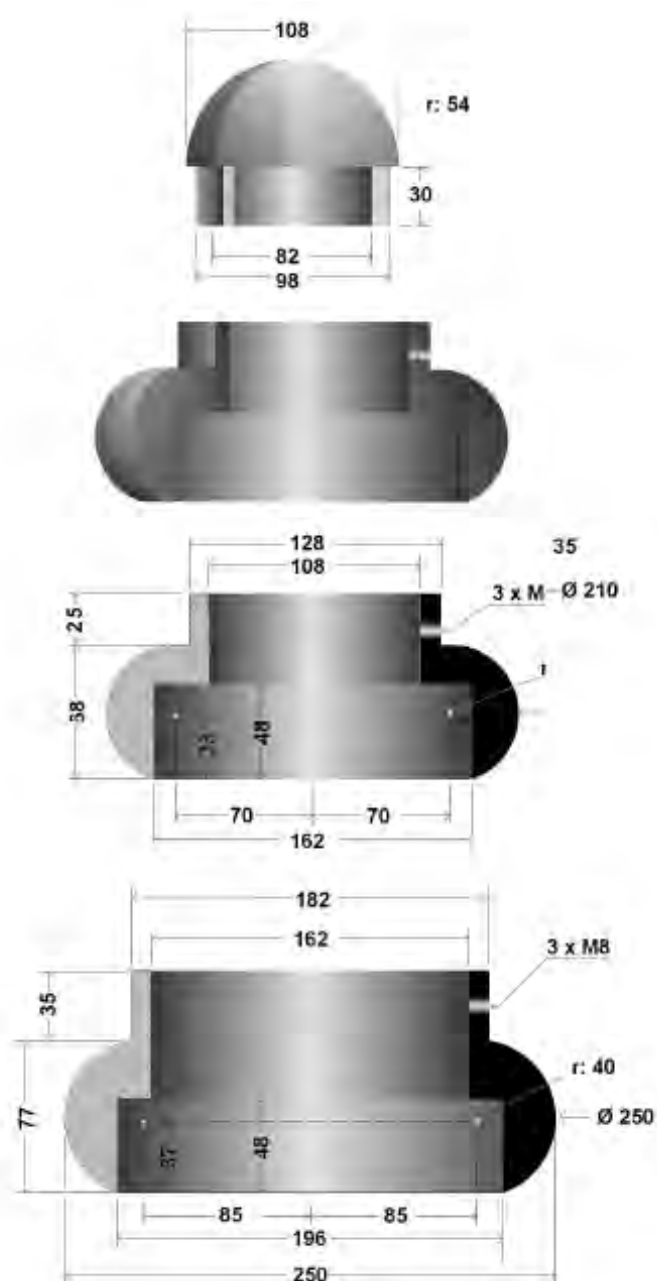


## Decorations for poles.

Elte offers a collection of decorations for poles as per designs down right. at the same time this list is to be understood as an invitation to create individual decorations for a project.

If the client has made his own design, ELTE will submit a drawing of the production design with details and dimensions for approval. (see drawing below-left.)

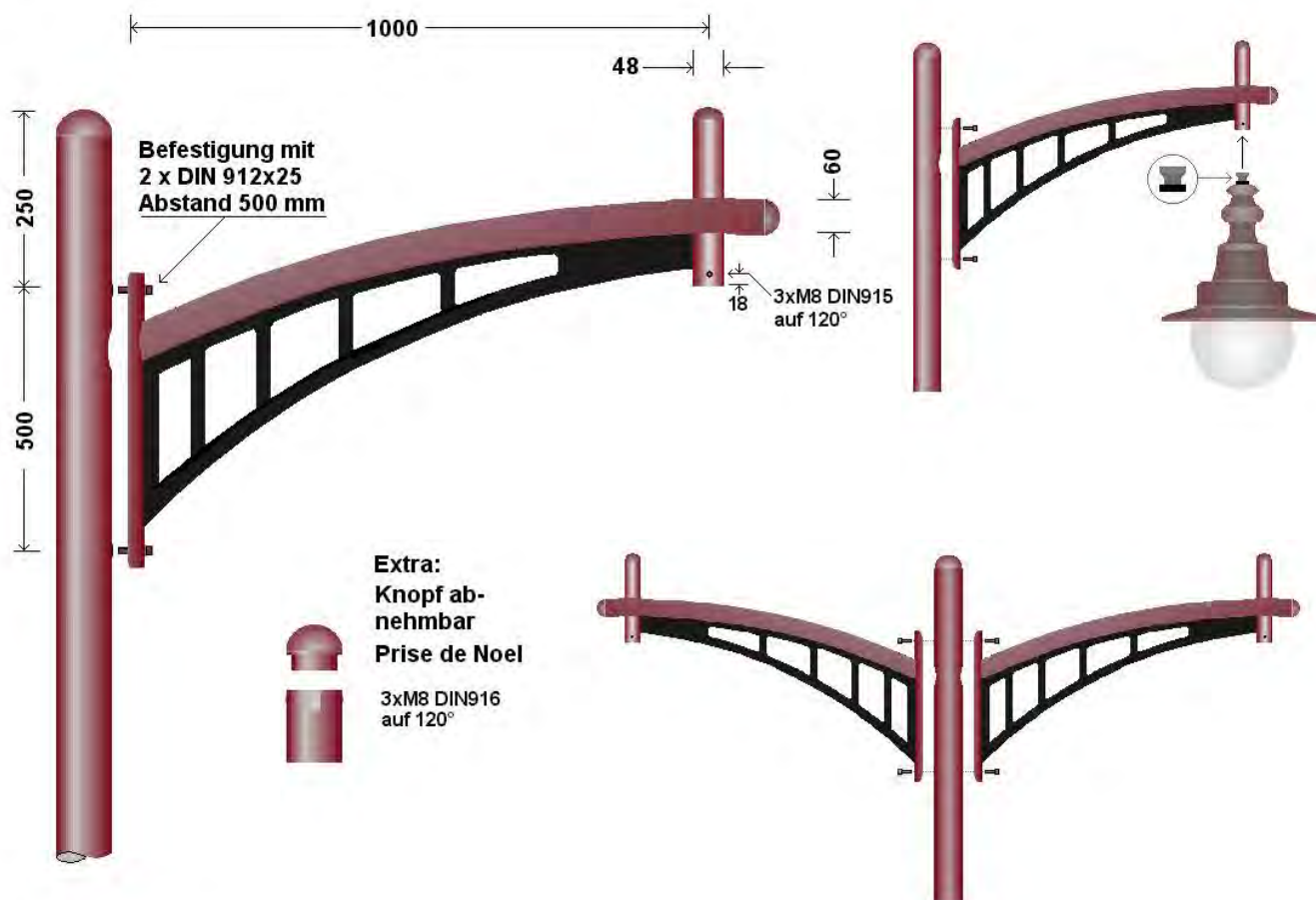
## Standard forms of decorations for stepped poles



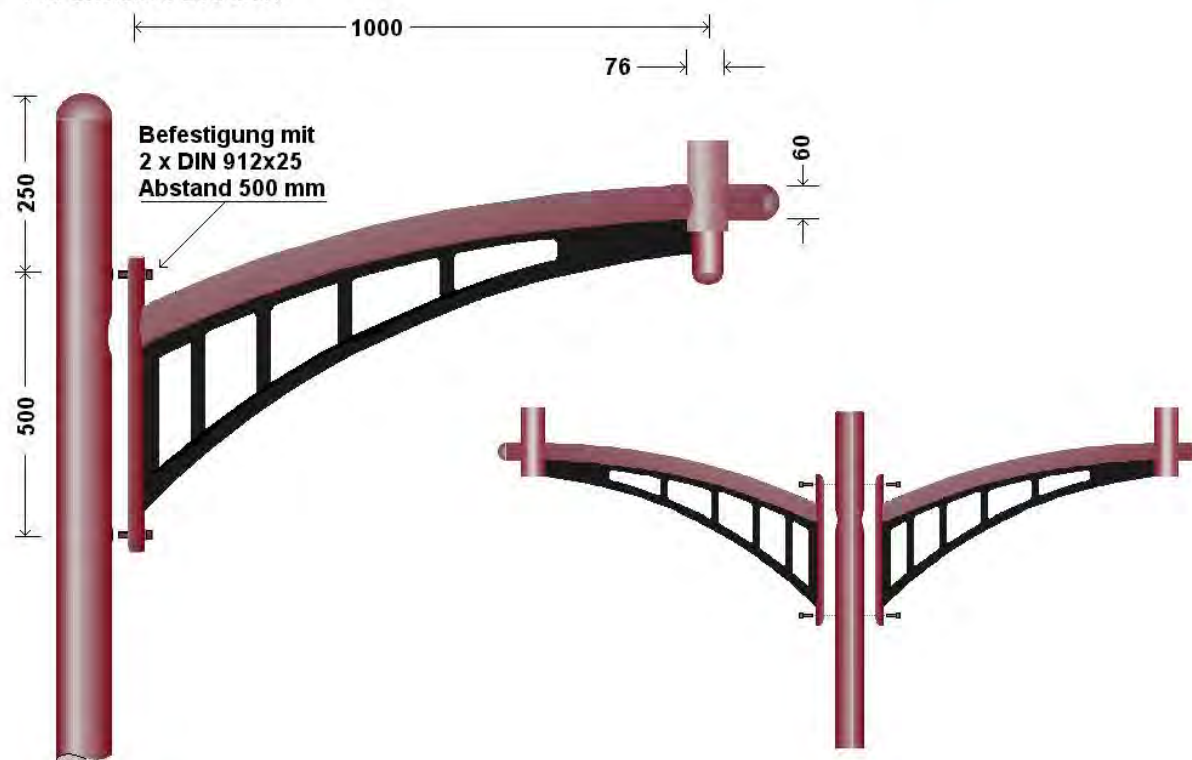
## Pole top brackets and accessories

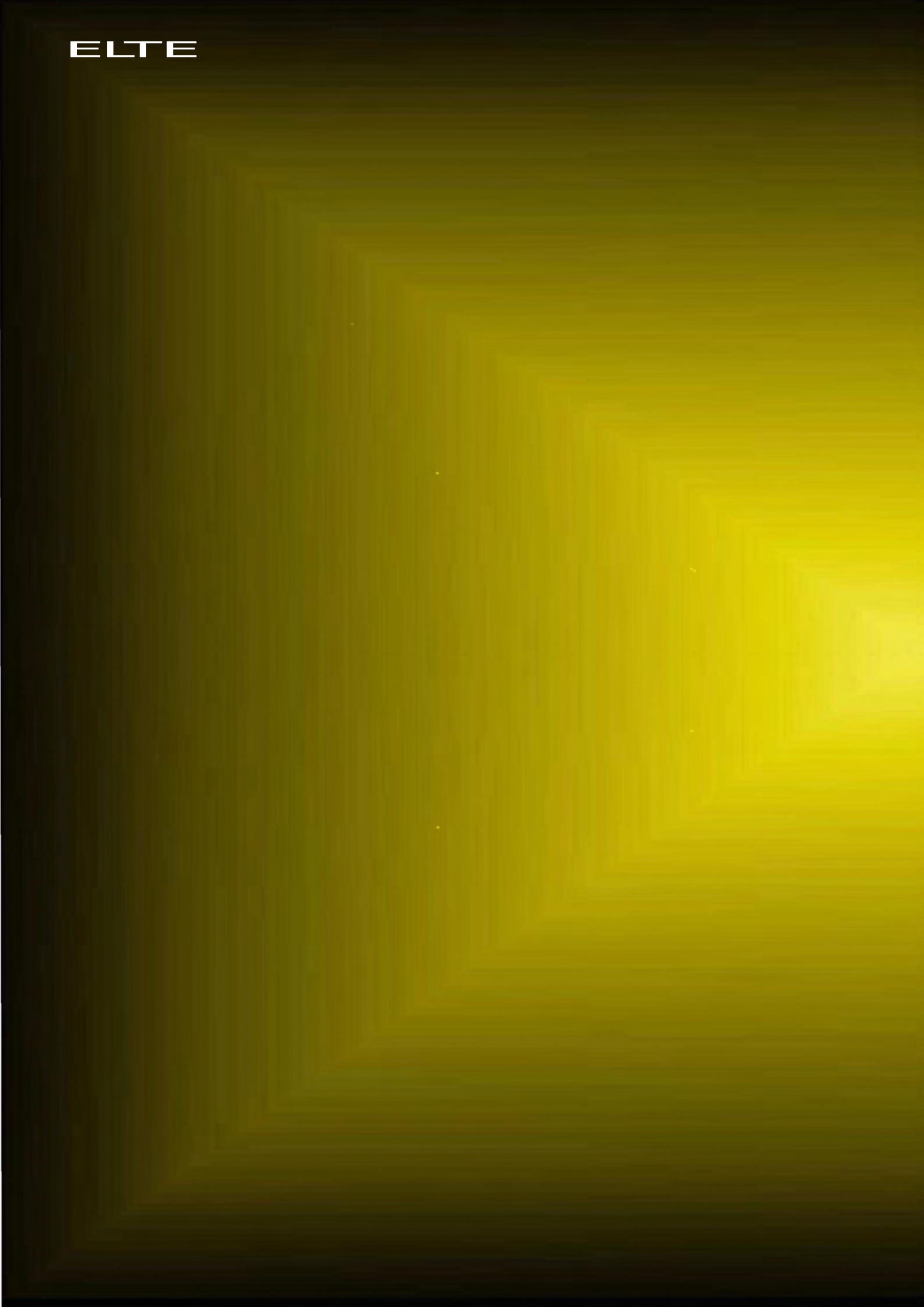
Poles and pendant light fixtures were existing. New brackets and coating should upgrade the existing installation. Elte supplied the new brackets to be attached to the existing poles. Brackets made of steel tube and sheet steel were coated in two colors. Installation and new coating if the poles was done by the client.

### Für hängende Leuchten



### Für stehende Leuchten





Taylor made Outdoor  
Lighting

Chapter 69

Projects

Production of pole fixtures for concrete columns

EN  
40

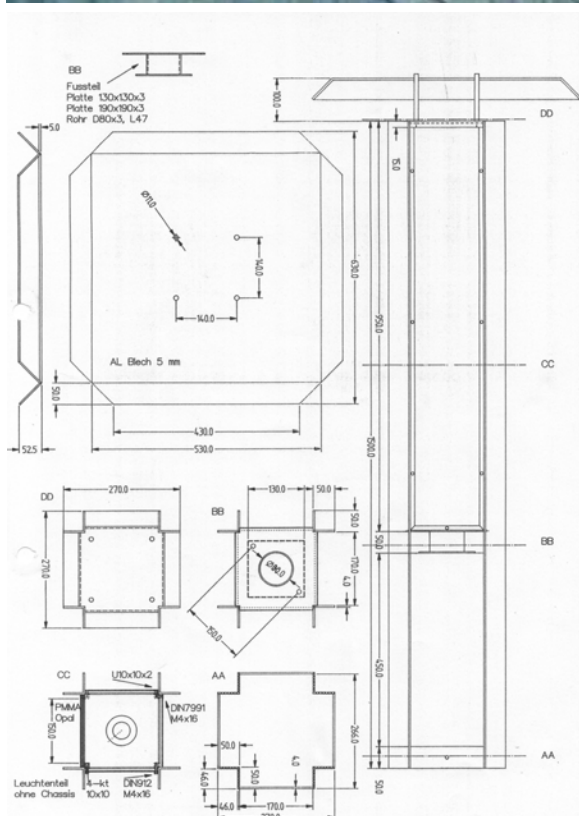
10Jahre  
Warranty

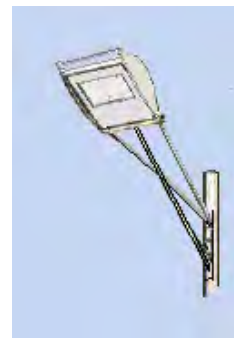
Made in  
Germany

TÜV Certification on  
request against extra charge

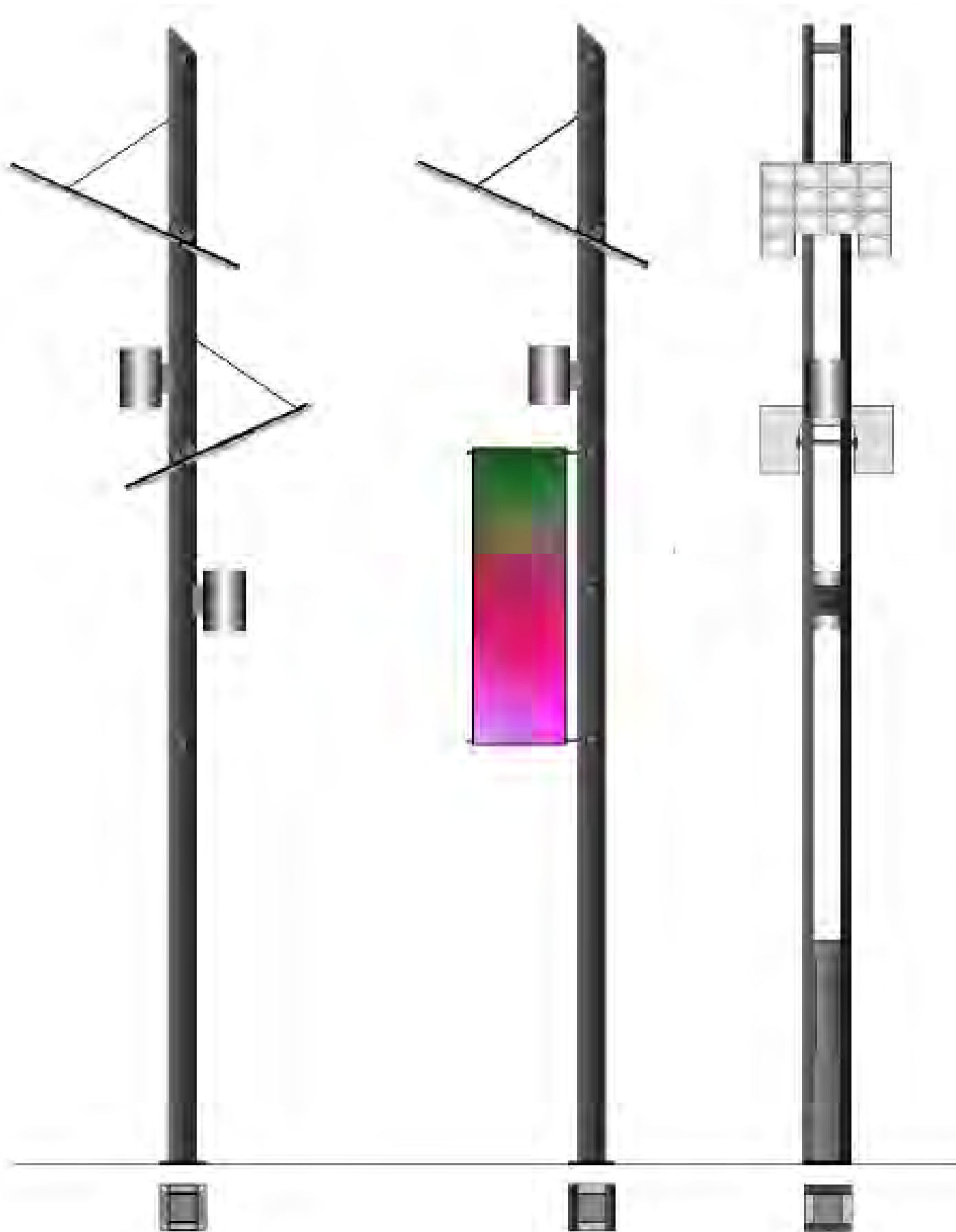


Illzach, Elsaß, F.





Design for Construction for illumination and information for a pedestrian area: Two reflecting panels with Bartenbach reflectors, brackets wit up and down lights. Konstruktion with rectangular steel tubes.





Cut steel tubes prepared to be welded



Tubes ready for  
hot dip galvanizing



Tubes for light  
columns, check and  
preparation after  
hot dip galvanizing  
and before powder  
coating



### Custom made Wall Top Fixtures

Material:  
Base and top decoration: brass  
Diffuser: Opal acrylic PMMA, formed by  
Elkamet D

deutsche  
technik  
seit 1972





Prototyp of light fixture

CAD-design



Assembly of the first fitting.  
Test for Production





Appendix

| Abbreviation                      | Meaning                   | Abbreviation | Meaning                      |
|-----------------------------------|---------------------------|--------------|------------------------------|
| ADJ                               | adjustable                | RAL xxxx     | RAL color numbers            |
| AL.SPK                            | aluminum spike            | Beispiele    | colors frequently used       |
| Examples                          | Light beam BA             | RAL 1003     | signal yellow brilliant      |
| BA                                | Beam Angle                | RAL 1026     | yellowgelb                   |
| BA15                              | BA-15°                    | RAL 3001     | signal red                   |
| BA20                              | BA-20°                    | RAL 5005     | signal blue                  |
| BA24                              | BA-24°                    | RAL 6032     | signalgreen                  |
| BA30                              | BA-30°                    | RAL 7001     | silver grey                  |
| BA35                              | BA-35°                    | RAL 8002     | signal brown                 |
| BA45                              | BA-45°                    | RAL 9003     | signal black                 |
| BA60                              | BA-60°                    | RAL 9005     | deep black                   |
|                                   | etc.                      | RAL 9006     | white aluminum-metallic      |
|                                   |                           | RAL 9016     | traffic white                |
| Light color temperatur in °Kelvin |                           | RGB          | red/yellow/blue              |
| CT100                             | 10000K                    | RGBW         | red/yellow/blue/white        |
| CT27                              | 2700K                     | kN           | kilo Newton                  |
| CT30                              | 3000K                     | lm           | Lumen (performance)          |
| CT35                              | 3500K                     | Lux          | luminance                    |
| CT40                              | 4000K                     | H            | height                       |
| CT45                              | 4500K                     | B            | width                        |
| CT50                              | 5000K                     | L            | length                       |
| CT60                              | 6000K                     | D            | diameter                     |
| RN                                | round                     | CD           | Candela                      |
| SQ                                | square                    | SCK          | socket                       |
| RE                                | rectangular               | RCS          | recessed installation        |
| TRI                               | triangular                | SFM          | surface installation         |
| SLS                               | stainless steel           | ET           | installation depth           |
| SF                                | steel, hot dip galvanized | WN1          | 1 window                     |
| Al                                | aluminum                  | WN2          | 2 windows                    |
| PC                                | polycarbonat              | WN3          | 3 windows                    |
| PMMA8H                            | hardened acrylic (glass)  | WN4          | 4 windows                    |
| ESG                               | safety glass              | LED          | light-emitting diode         |
| SYM                               | symmetric                 | HP-LED       | high performance LED         |
| ASM                               | asymmetric                | LES          | light emitting surface       |
|                                   |                           | OLED         | organic light emitting diode |
|                                   |                           | SMD          | surface mounted device LED   |
|                                   |                           | COB          | chip on board LED            |
|                                   |                           | RLU          | removable luminary unit      |



**IP-rating** (ingress protection)  
Defines levels of sealing effectiveness of electrical enclosures against intrusion from foreign bodies (tools, dirt, etc) and moisture (definiert durch EN 60598-1).



**RoHS** Lead-Free (Restriction of Hazardous Substances) restricts the use of six hazardous materials found in electrical and electronic products (Directive 2002/95/EC)



**IK-rating** (impact protection)  
Classifies the level of protection that electrical appliances provide against mechanic impacts from outside.  
It is defined by standard EN/IEC 62262



Certified on Photobiological Safety of Lamps



**TUV certified** for safety, quality, usability



**class-I**  
Electrically insulated. Earthing is provided.



**GS-certified.** Free of harmful substances, safe against breakage or reliable electrics. accdg to DIN EN 60598.



**class-II**  
Double insulation. No provision for earthing is provided



The European norm **DIN EN 60598** specifies the general requirements and norms for light fixtures. This norm is identical with VDE 0711. EN 60598 a category containing more than 30 additions, and is also applicable for special light fixtures, for example DIN EN 60598-2-18 which is applicable for swimming pool light fixtures (IP 68 or IP 69)



**class-III**  
Protection against electric shock relies on Safety Extra Low Voltage (SELV). Voltages higher than those of SELV are not generated (max. 50V ac rms)



Luminaires suitable for mounting on normally combustible surfaces (ignition temperature at least 200°C) today: only for information.



The European norm **DIN EN 40** specifies the general requirements for poles and constructions. The EN 40-2 is for light poles and light columns, bollards and accessories like buried portions and traffic installations.



**CE-certified.** Conforms to EU health and safety standards

## LED

An **LED** is a light-emitting diode (LED) product which is assembled into a lamp (or light bulb) for use in lighting fixtures. LED lamps have a lifespan and electrical efficiency which are several times longer than incandescent lamps, and significantly more efficient than most fluorescent lamps, with some chips able to emit more than 300 lumens per watt (as claimed by Cree and some other LED manufacturers). Like incandescent lamps and unlike most fluorescent lamps (e.g. tubes and compact fluorescent lamps or CFLs), LEDs come to full brightness without need for a warm-up time; the life of fluorescent lighting is also reduced by frequent switching on and off.

LED chips need to be controlled by direct current (DC) electrical power; an appropriate circuit is required to convert alternating current from the supply to the regulated low voltage direct current used by the LEDs. LEDs are adversely affected by high temperature, so LED lamps typically include heat dissipation elements such as heat sinks and cooling fins. General-purpose lighting needs white light. LEDs emit light in a very narrow band of wavelengths, emitting light of a color characteristic of the energy bandgap of the semiconductor material used to make the LED. To emit white light from LEDs requires either mixing light from red, green, and blue LEDs, or using a phosphor to convert some of the light to other colors. One method (RGB or trichromatic white LEDs) uses multiple LED chips, each emitting a different wavelength, in close proximity to generate white light. This allows the intensity of each LED to be adjusted to change the overall color.

The second method uses LEDs in conjunction with a phosphor. The CRI (color rendering index) value can range from less than 70 to over 90, and color temperatures in the range of 2700 K (matching incandescent lamps) up to 7000 K are available.

A significant difference from other light sources is that the light is more directional, i.e., emitted as a narrower beam. LED lamps are used for both general and special-purpose lighting. Where colored light is needed, LEDs that inherently emit light of a single color require no energy-absorbing filters.

White-light LED lamps have longer life expectancy and higher efficiency (more light for the same electricity) than most other lighting when used at the proper temperature. LED sources are compact, which gives flexibility in designing lighting fixtures and good control over the distribution of light with small reflectors or lenses. Because of the small size of LEDs, control of the spatial distribution of illumination is extremely flexible, and the light output and spatial distribution of an LED array can be controlled with no efficiency loss.

LEDs using the color-mixing principle can emit a wide range of colors by changing the proportions of light generated in each primary color. This allows full color mixing in lamps with LEDs of different colors. Unlike other lighting technologies, LED emission tends to be directional (or at least lambertian), which can be either advantageous or disadvantageous, depending on requirements. For applications where non-directional light is required, either a diffuser is used, or multiple individual LED emitters are used to emit in different directions.

**Efficiency:** LEDs emit more lumens per watt than incandescent light bulbs. The efficiency of LED lighting fixtures is not affected by shape and size unlike fluorescent light bulbs or tubes.

**Color:** LEDs can emit light of an intended color without using any color filters as traditional lighting methods need. This is more efficient and can lower initial costs.

**Size:** LEDs can be very small (smaller than 2 mm<sup>2</sup>) and are easily attached to printed circuit boards.

**Warm up time:** LEDs light up very quickly. A typical red indicator LED will achieve full brightness in under a microsecond. LEDs used in communications devices can have even faster response times.

**Cycling:** LEDs are ideal for uses subject to frequent on-off cycling, unlike incandescent and fluorescent lamps that fail faster when cycled often, or high-intensity discharge lamps (HID lamps) that require a long time before restarting.

**Dimming:** LEDs can very easily be dimmed either by pulse-width modulation or lowering the forward current. This pulse-width modulation is why LED lights, particularly headlights on cars, when viewed on camera or by some people, appear to be flashing or flickering. This is a type of stroboscopic effect.

**Cool light:** In contrast to most light sources, LEDs radiate very little heat in the form of IR that can cause damage to sensitive objects or fabrics. Wasted energy is dispersed as heat through the base of the LED.

**Slow failure:** LEDs mostly fail by dimming over time, rather than the abrupt failure of incandescent bulbs.

**Lifetime:** LEDs can have a relatively long useful life. One report estimates 35,000 to 50,000 hours of useful life, though time to complete failure may be longer. Fluorescent tubes typically are rated at about 10,000 to 15,000 hours, depending partly on the conditions of use, and incandescent light bulbs at 1,000 to 2,000 hours. Several DOE demonstrations have shown that reduced maintenance costs from this extended lifetime, rather than energy savings, is the primary factor in determining the payback period for an LED product.

**Shock resistance:** LEDs, being solid-state components, are difficult to damage with external shock, unlike fluorescent and incandescent bulbs, which are fragile.

**Focus:** The solid package of the LED can be designed to focus its light. Incandescent and fluorescent sources often require an external reflector to collect light and direct it in a usable manner. For larger LED packages total internal reflection (TIR) lenses are often used to the same effect. However, when large quantities of light are needed many light sources are usually deployed, which are difficult to focus or collimate towards the same target.

## Disadvantages

- **Temperature dependence:** LED performance largely depends on the ambient temperature of the operating environment – or "thermal management" properties. Over-driving an LED in high ambient temperatures may result in overheating the LED package, eventually leading to device failure. An adequate heat sink is needed to maintain long life. There are some LEDs with an operating temperature range of -40 to 100 °C, which suits the LEDs for both indoor and outdoor use in applications such as lamps, ceiling lighting, street lights, and floodlights.
- **Voltage sensitivity:** LEDs must be supplied with a voltage above their threshold voltage and a current below their rating. Current and lifetime change greatly with a small change in applied voltage. They thus require a current-regulated supply (usually just a series resistor for indicator LEDs).
- **Color rendition:** Most cool-white LEDs have spectra that differ significantly from a black body radiator like the sun or an incandescent light. The spike at 460 nm and dip at 500 nm can cause the color of objects to be perceived differently under cool-white LED illumination than sunlight or incandescent sources, due to metamerism, red surfaces being rendered particularly poorly by typical phosphor-based cool-white LEDs.
- **Area light source:** Single LEDs do not approximate a point source of light giving a spherical light distribution, but rather a lambertian distribution. So LEDs are difficult to apply to uses needing a spherical light field; however, different fields of light can be manipulated by the application of different optics or "lenses". LEDs cannot provide divergence below a few degrees. In contrast, lasers can emit beams with divergences of 0.2 degrees or less.
- **Electrical polarity:** Unlike incandescent light bulbs, which illuminate regardless of the electrical polarity, LEDs will only light with correct electrical polarity. To automatically match source polarity to LED devices, rectifiers can be used.
- **Blue hazard:** There is a concern that blue LEDs and cool-white LEDs are now capable of exceeding safe limits of the so-called blue-light hazard as defined in eye safety specifications such as ANSI/IESNA RP-27.1-05: Recommended Practice for Photobiological Safety for Lamp and Lamp Systems.
- **Light pollution:** Because white LEDs, especially those with high color temperature, emit much more short wavelength light than conventional outdoor light sources such as high-pressure sodium vapor lamps, the increased blue and green sensitivity of scotopic vision means that white LEDs used in outdoor lighting cause substantially more sky glow.
- **Efficiency drop:** The efficiency of LEDs decreases as the electric current increases. Heating also increases with higher currents which compromises the lifetime of the LED. These effects put practical limits on the current through an LED in high power applications.
- **Impact on insects:** LEDs are much more attractive to insects than sodium-vapor lights, so much so that there has been speculative concern about the possibility of disruption to food webs.

Some well-known HP-LEDs in this category are the Nichia 19 series, Lumileds Rebel Led, Osram Opto Semiconductors Golden Dragon, and Cree X-lamp. As of September 2009, some HP-LEDs manufactured by Cree now exceed 105 lm/W.

Examples for Haitz's law, which predicts an exponential rise in light output and efficacy of LEDs over time, are the CREE XP-G series LED which achieved 105 lm/W in 2009 and the Nichia 19 series with a typical efficacy of 140 lm/W, released in 2010.

## AC driven

LEDs have been developed by Seoul Semiconductor that can operate on AC power without the need for a DC converter. For each half-cycle, part of the LED emits light and part is dark, and this is reversed during the next half-cycle. The efficacy of this type of HP-LED is typically 40 lm/W. A large number of LED elements in series may be able to operate directly from line voltage. In 2009, Seoul Semiconductor released a high DC voltage LED, named as 'Acrich MJT', capable of being driven from AC power with a simple controlling circuit. The low-power dissipation of these LEDs affords them more flexibility than the original AC LED design.

## Lumen (unit)

A standard LED lamp producing 470 lumens. It consumes about one sixth the energy of an incandescent light bulb producing the same light.

The **lumen** (symbol: **lm**) is the SI derived unit of luminous flux, a measure of the total quantity of visible light emitted by a source. Luminous flux differs from power (radiant flux) in that radiant flux includes all electromagnetic waves emitted, while luminous flux is weighted according to a model of the human eye's sensitivity to various wavelengths. Lumens are related to lux in that one lux is one lumen per square meter.

The lumen is defined in relation to the candela as  $1 \text{ lm} = 1 \text{ cd} \times \text{sr}$ .

A full sphere has a solid angle of  $4\pi$  steradians, so a light source that uniformly radiates one candela in all directions has a total luminous flux of  $1 \text{ cd} \times 4\pi \text{ sr} = 4\pi \text{ cd} \times \text{sr} = 12.57 \text{ lumens}$ .

If a light source emits one candela of luminous intensity uniformly across a solid angle of one steradian, the total luminous flux emitted into that angle is one lumen ( $1 \text{ cd} \times 1 \text{ sr} = 1 \text{ lm}$ ). Alternatively, an isotropic one-candela light-source emits a total luminous flux of exactly  $4\pi$  lumens. If the source were partially covered by an ideal absorbing hemisphere, that system would radiate half as much luminous flux—only  $2\pi$  lumens. The luminous intensity would still be one candela in those directions that are not obscured.

The lumen can be thought of casually as a measure of the total "amount" of visible light in some defined beam or angle, or emitted from some source. The number of candelas or lumens from a source also depends on its spectrum, via the nominal response of the human eye as represented in the luminosity function.

The difference between the units lumen and lux is that the lux takes into account the area over which the luminous flux is spread.

A flux of 1000 lumens, concentrated into an area of one square metre, lights up that square metre with an illuminance of 1000 lux.

The same 1000 lumens, spread out over ten square metres, produces a dimmer illuminance of only 100 lux. Mathematically,  $1 \text{ lx} = 1 \text{ lm/m}^2$ .

A source radiating a power of one watt of light in the color for which the eye is most efficient (a wavelength of 555 nm, in the green region of the optical spectrum) has luminous flux of 683 lumens. So a lumen represents at least 1/683 watts of visible light power, depending on the spectral distribution.

**High-power LEDs** (HP-LEDs) or high-output LEDs (HO-LEDs) can be driven at currents from hundreds of mA to more than an ampere, compared with the tens of mA for other LEDs. Some can emit over a thousand lumens. LED power densities up to 300 W/cm<sup>2</sup> have been achieved. Since overheating is destructive, the HP-LEDs must be mounted on a heat sink to allow for heat dissipation. If the heat from a HP-LED is not removed, the device will fail in seconds. One HP-LED can often replace an incandescent bulb in a flashlight, or be set in an array to form a powerful LED lamp.

## Lux

The **lux** (symbol: **lx**) is the SI unit of illuminance and luminous emittance, measuring luminous flux per unit area. It is equal to one lumen per square metre. In photometry, this is used as a measure of the intensity, as perceived by the human eye, of light that hits or passes through a surface. It is analogous to the radiometric unit watts per square metre, but with the power at each wavelength weighted according to the luminosity function, a standardized model of human visual brightness perception. In English, "lux" is used in both singular and plural.

## Illuminance

Illuminance is a measure of how much luminous flux is spread over a given area. One can think of luminous flux (measured in lumens) as a measure of the total "amount" of visible light present, and the illuminance as a measure of the intensity of illumination on a surface. A given amount of light will illuminate a surface more dimly if it is spread over a larger area, so illuminance (lux) is inversely proportional to area when the luminous flux (lumens) is held constant.

**One lux is equal to one lumen per square metre:  $1 \text{ lx} = 1 \text{ lm/m}^2 = 1 \text{ cd} \times \text{sr/m}^2$**

A flux of 1000 lumens, concentrated into an area of one square meter, lights up that square meter with an illuminance of 1000 lux. However, the same 1000 lumens, spread out over ten square meters, produces a dimmer illuminance of only 100 lux.

Achieving an illuminance of 500 lux might be possible in a home kitchen with a single fluorescent light fixture with an output of 12000 lumens. To light a factory floor with dozens of times the area of the kitchen would require dozens of such fixtures. Thus, lighting a larger area to the same level of lux requires a greater number of lumens.

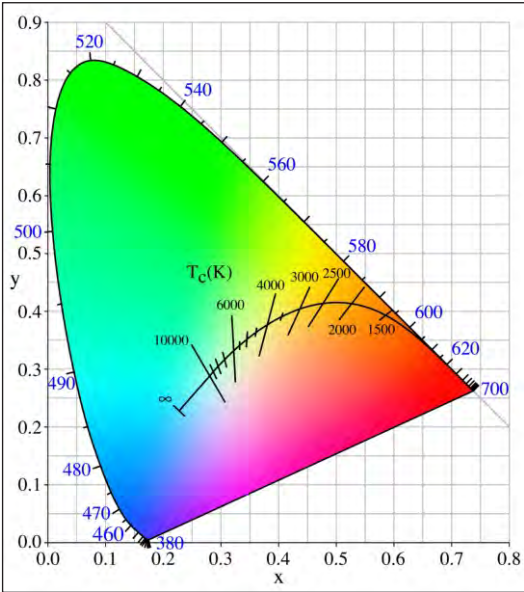
As with other SI units, SI prefixes can be used, for example a kilolux (klx) is 1,000 lux.

**The illuminance** provided by a light source, on a surface perpendicular to the direction to the source, is a measure of the strength of that source as perceived from that location. For instance, a star of apparent magnitude 0 provides 2.08 microlux at the earth's surface. A barely perceptible magnitude 6 star provides 8 nanolux. The unobscured sun provides an illumination of up to 100 kilolux on the Earth's surface, the exact value depending on time of year and atmospheric conditions. This direct normal illuminance is related to the solar illuminance constant  $E_0$ , equal to 128000 lux (see sun light).

## Luminous emittance

The lux is also a measure of luminous emittance, the number of lumens given off by a surface per square metre, regardless of how that light is distributed in terms of the directions in which it is emitted. It differs from the luminance (measured in candela per square metre or "nits"), which does depend on the angular distribution of the emission. A perfectly white surface with one lux falling on it will emit one lux.

CCT (Correlated Color Temperature, Kelvin)



The CIE 1931 x,y chromaticity space, also showing the chromaticities of black body light sources of various temperatures (Planckian locus), and lines of constant correlated color temperature.

The **color temperature** of a light source is the temperature of an ideal black body radiator that radiates light of comparable hue to that of the light source.

Color temperature is a characteristic of visible light that has important applications in lighting, photography, videography, publishing, manufacturing, astrophysics, horticulture, and other fields. In practice, color temperature is only meaningful for light sources that do in fact correspond somewhat closely to the radiation of some black body, i.e., those on a line from reddish/orange via yellow and more or less white to blueish white; it does not make sense to speak of the color temperature of, e.g., a green or a purple light. Color temperature is conventionally expressed in Kelvin, using the symbol K, a unit of measure for temperature based on the Kelvin scale. Color temperatures over 5,000K are called cool colors (bluish white), while lower color temperatures (2,700–3,000°K) are called warm colors (yellowish white through red). This relation, however, is a psychological one in contrast to the physical relation implied by Wien's displacement law, according to which the spectral peak is shifted towards shorter wavelengths (resulting in a more blueish white) for higher temperatures.

Light temperatur of different sources in °Kelvin K

| Temperature                                                                          | Source                                                                           |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 1,700 K                                                                              | Match flame, low pressure sodium lamps (LPS/SOX)                                 |
| 1,850 K                                                                              | Candle flame, sunset/sunrise                                                     |
| 2,400 K                                                                              | Standard Incandescent lamps                                                      |
| 2,550 K                                                                              | Soft White Incandescent lamps                                                    |
| 2,700 K                                                                              | "Soft White" compact fluorescent and LED lamps                                   |
| 3,000 K                                                                              | Warm White compact fluorescent and LED lamps                                     |
| 3,200 K                                                                              | Studio lamps, photofloods, etc.                                                  |
| 3,350 K                                                                              | Studio "CP" light                                                                |
| 4,100–4,150 K                                                                        | Moonlight                                                                        |
| 5,000 K                                                                              | Horizon daylight                                                                 |
| 5,000 K                                                                              | Tubular fluorescent lamps or cool white/daylight compact fluorescent lamps (CFL) |
| 5,500–6,000 K                                                                        | Vertical daylight, electronic flash                                              |
| 6,200 K                                                                              | Xenon short-arc lamp                                                             |
| 6,500 K                                                                              | Daylight, overcast                                                               |
| 6,500–9,500 K                                                                        | LCD or CRT screen                                                                |
| 15,000–27,000 K                                                                      | Clear blue poleward sky                                                          |
| These temperatures are merely characteristic; considerable variation may be present. |                                                                                  |

**IP Code**

The **IP Code, International Protection Marking**, IEC standard 60529, sometimes interpreted as **Ingress Protection Marking**, classifies and rates the degree of protection provided against intrusion (body parts such as hands and fingers), dust, accidental contact, and water by mechanical casings and electrical enclosures. It is published by the International Electrotechnical Commission (IEC). The equivalent British standard is EN 60529.

The standard aims to provide users more detailed information than vague marketing terms such as waterproof. The digits (characteristic numerals) indicate conformity with the conditions summarized in the tables below. Where there is no data available to specify a protection rating with regard to one of the criteria, the digit is replaced with the letter X. The digit 0 is used where no protection is provided.

A rating of X for one or more of the protection criteria can be erroneously misinterpreted as "no protection". To illustrate, a piece of electronic equipment rated IPX7 will almost certainly demonstrate a robust resistance to the ingress of particles, even though a rating for ingress of solids hasn't been formally assigned. Hence, an X designation shouldn't be automatically misconstrued as a lack of protection.

For example, an electrical socket rated IP22 is protected against insertion of fingers and will not be damaged or become unsafe during a specified test in which it is exposed to vertically or nearly vertically dripping water. For example, a particular cellular phone rated at IP58 is "dust resistant" and can be "immersed in 1.5 meters of freshwater for up to 30 minutes". IP22 or 2X are typical minimum requirements for the design of electrical accessories for indoor use.

The ratings for water ingress are not cumulative beyond IPX6. A device which is compliant with IPX7, covering immersion in water, need not be compliant with IPX5 or IPX6, covering exposure to water jets. A device which meets both tests is indicated by listing both tests separated by a slash, e.g. IPX5/IPX7.

**Solid particle protection**

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects.

**IP Classification - First digit**

| Level | protected against Objects | Effective against                                                                                                                                      |
|-------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0     | —                         | No protection against contact and ingress of objects                                                                                                   |
| 1     | >50 mm                    | Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part                               |
| 2     | >12.5 mm                  | Fingers or similar objects                                                                                                                             |
| 3     | >2.5 mm                   | Tools, thick wires, etc.                                                                                                                               |
| 4     | >1 mm                     | Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment. |
| 5     | Dust protected            | Most wires, slender screws, ants etc.                                                                                                                  |
| 6     | Dust tight                | No ingress of dust; complete protection against contact (dust tight). A vacuum must be applied. Test duration of up to 8 hours based on air flow.      |

**IP Classification - Second digit**

| Level | Protected against                           | Effective against                                                                                                                                  | Test duration                                                                                                     |
|-------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 0     | Not protected                               |                                                                                                                                                    |                                                                                                                   |
| 1     | Dripping water                              | Dripping water (vertically falling drops) shall have no harmful effect.                                                                            | Test duration: 10 minutes<br>Water equivalent to 1 mm rainfall per minute                                         |
| 2     | Dripping water when tilted up to 15°        | Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.                | Test duration: 10 minutes<br>Water equivalent to 3 mm rainfall per minute                                         |
| 3     | Spraying water                              | Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.                                                    | Test duration: 5 minutes<br>Water volume: 0.7 litres per minute<br>Pressure: 50–150 kPa                           |
| 4     | Splashing of water                          | Water splashing against the enclosure from any direction shall have no harmful effect.                                                             | Test duration: 5 minutes<br>Water volume: 10 litres per minute<br>Pressure: 50–150 kPa                            |
| 5     | Water jets                                  | Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects.                                           | Test duration: at least 3 minutes<br>Water volume: 12.5 litres per minute<br>Pressure: 30 kPa at distance of 3 m  |
| 6     | Powerful water jets                         | Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effects.                          | Test duration: at least 3 minutes<br>Water volume: 100 litres per minute<br>Pressure: 100 kPa at distance of 3m   |
| 6K    | Powerful water jets with increased pressure | Water projected in powerful jets (6.3 mm nozzle) against the enclosure from any direction, under elevated pressure, shall have no harmful effects. | Test duration: at least 3 minutes.<br>Water volume: 75 litres per minute<br>Pressure: 1000 kPa at distance of 3 m |

### Mechanical impact resistance

An additional number has sometimes been used to specify the resistance of equipment to mechanical impact. This mechanical impact is identified by the energy needed to qualify a specified resistance level, which is measured in joules (J). This has now been superseded by the separate 'IK code' specified in EN 62262.

Although dropped from the 3rd edition of IEC 60529 onwards, and not present in the EN version, older enclosure specifications will sometimes be seen with an optional third IP digit denoting impact resistance. Newer products are likely to be given an IK rating instead. However, there is not an exact correspondence of values between the old and new standards.

| IK number | Impact energy (joules) | Equivalent impact                         |
|-----------|------------------------|-------------------------------------------|
| 00        | Unprotected            | No test                                   |
| 01        | 0.15                   | Drop of 200 g object from 7.5 cm height   |
| 02        | 0.2                    | Drop of 200 g object from 10 cm height    |
| 03        | 0.35                   | Drop of 200 g object from 17.5 cm height  |
| 04        | 0.5                    | Drop of 200 g object from 25 cm height    |
| 05        | 0.7                    | Drop of 200 g object from 35 cm height    |
| 06        | 1                      | Drop of 500 g object from 20 cm height    |
| 07        | 2                      | Drop of 500 g object from 40 cm height    |
| 08        | 5                      | Drop of 1.7 kg object from 29.5 cm height |
| 09        | 10                     | Drop of 5 kg object from 20 cm height     |
| 10        | 20                     | Drop of 5 kg object from 40 cm height     |

**Bollard fixtures - basic versions****Standard bollards made of steel, hot dip galvanized , sorted in diameter and height**

| Group          | Height    | Ø 89   | Ø 114  | Ø 133  | Ø 159  | Ø 174  | Ø 194  | Ø 219  |
|----------------|-----------|--------|--------|--------|--------|--------|--------|--------|
| Ground fixture | H 160mm   | 460000 | 460020 | 460030 | 460040 | 460050 | 460060 | 460070 |
| Bollard        | H 300mm   | 460001 | 460021 | 460031 | 460041 | 460051 | 460061 | 460071 |
| Bollard        | H 700mm   | 460002 | 460022 | 460032 | 460042 | 460052 | 460062 | 460072 |
| Bollard        | H 900 mm  | 460003 | 460023 | 460033 | 460043 | 460053 | 460063 | 460073 |
| Bollard        | H 1200 mm | 460004 | 460024 | 460034 | 460044 | 460054 | 460064 | 460074 |
| Bollard        | H 1500 mm | 460005 | 460025 | 460034 | 460045 | 460055 | 460065 | 460075 |

**Standard Bollards made of Aluminium, sorted in diameter and height**

| Gruppe        | Höhe      | Ø 100  | Ø 120  | Ø 150  | Ø 180  | Ø 200  | Ø 220  | Ø 250  | Ø 300  |
|---------------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|
| Bodenleuchte  | H 160mm   | 461011 | 461021 | 461031 | 461041 | 461051 | 461061 | 461071 | 461081 |
| Maueraufsatz  | H 300mm   | 461012 | 461022 | 461032 | 461042 | 461052 | 461062 | 461072 | 461082 |
| Pollerleuchte | H 700mm   | 461013 | 461023 | 461033 | 461043 | 461053 | 461063 | 461073 | 461083 |
| Pollerleuchte | H 900 mm  | 461014 | 461024 | 461034 | 461044 | 461054 | 461064 | 461074 | 461084 |
| Pollerleuchte | H 1200 mm | 461015 | 461025 | 461035 | 461045 | 461055 | 461065 | 461075 | 461085 |
| Pollerleuchte | H 1500 mm | 461016 | 461026 | 461036 | 461045 | 461056 | 461066 | 461076 | 461086 |

**Standard Bollard made of stainless steel, sorted in diameter and height**

| Gruppe        | Höhe      | Ø 78   | Ø 105  | Ø 129  | Ø 153  | Ø 204  | Ø 254  |
|---------------|-----------|--------|--------|--------|--------|--------|--------|
| Bodenleuchte  | H 160mm   | 462000 | 462020 | 462030 | 462040 | 462050 | 462060 |
| Maueraufsatz  | H 300mm   | 462001 | 462021 | 462031 | 462041 | 462051 | 462061 |
| Pollerleuchte | H 700mm   | 462002 | 462022 | 462032 | 462042 | 462052 | 462062 |
| Pollerleuchte | H 900 mm  | 462003 | 462023 | 462033 | 462043 | 462053 | 462063 |
| Pollerleuchte | H 1200 mm | 462004 | 462024 | 462034 | 462044 | 462054 | 462064 |
| Pollerleuchte | H 1500 mm | 462005 | 462025 | 462034 | 462045 | 462055 | 462065 |

**Bollards made of steel, hot dip galvanized - Lamellas**

| Art.Nr. | Lamp      | Watt | Performance | Tube Ø x height | RLU Ø x Lenght |
|---------|-----------|------|-------------|-----------------|----------------|
| 460454  | SMD / COB | 20W  | 2000 lm     | 174 x 1200 mm   | Ø 150 / 300 mm |
| 460664  | SMD / COB | 25W  | 2500 lm     | 194 x 1200 mm   | Ø 180 / 300 mm |
| 460474  | SMD / COB | 30W  | 3000 lm     | 219 x 1500 mm   | Ø 200 / 300 mm |

**Bollards made of steel, hot dip galvanized, with square mesh cuttings**

| Art.Nr. | Lamp      | Watt | Performance | Tube Ø x height | RLU Ø x Lenght |
|---------|-----------|------|-------------|-----------------|----------------|
| 460454  | SMD / COB | 20W  | 2000 lm     | 174 x 1200 mm   | Ø 150/300 mm   |
| 460664  | SMD / COB | 25W  | 2500 lm     | 194 x 1200 mm   | Ø 180/300 mm   |
| 460474  | SMD / COB | 30W  | 3000 lm     | 219 x 1500 mm   | Ø 200/300 mm   |

**Bollards matching light columns PANAM made of steel, hot dip galvanized**

| Tube Ø x Height | Art.Nr.: | 174 x H 600 mm | 460551 | 174 x H 1200 mm | 460552 |
|-----------------|----------|----------------|--------|-----------------|--------|
|-----------------|----------|----------------|--------|-----------------|--------|

**Square and triangular bollards****Bollards with square cross section**

These fixtures are manufactured on order only

**Article numbers: 460800 to 460829**

Matching light columns(Chapter 61) and Wall brackets (chapter 62)

**Bollards with triangular cross section**

These fixtures are manufactured on order only

**Article numbers: 460900 to 460929**

Matching light columns(Chapter 61)

Article Numbers of poles made of cylindrical or conical tubes in Steel, Stainless Steel or Aluminum

Overview of product groups in chapter 61

- 4630 .. Light columns made of cylindrical steel tube
- 4631 .. Light columns made of Aluminum
- 4632 .. Light columns made of conical seamless steel tube
- 4633 .. Light columns made of clindrical stainless steel tube
- 4634 .. Light columns made of square profiles
- 4635 .. Light columns made of triangular profiles
- 4636 .. Luminary units for round tubes
- 4637 .. Luminary units for square and triangular profiles
- 4638 .. Bollars top projectors
- 4639 .. Special made items

**Light Columns made of cylindrical Steel Tubes, hot dip galvanized Group 4631 ..**

| H and Ø in mm | Ø 89   | Ø 114  | Ø 133  | Ø 159  | Ø 168  | Ø 179  | Ø 194  | Ø 219  | SonderØ |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| 2000 mm       | 463111 | 463121 | 463131 | 463141 | 463151 | 463161 | 463171 | 463181 | 463191  |
| 2500 mm       | 463112 | 463122 | 463132 | 463142 | 463152 | 463162 | 463172 | 463182 | 463192  |
| 3000 mm       | 463113 | 463123 | 463133 | 463143 | 463153 | 463163 | 463173 | 463183 | 463193  |
| 3500 mm       | 463114 | 463124 | 463134 | 463144 | 463154 | 463164 | 463174 | 463184 | 463194  |
| 4000 mm       | 463115 | 463125 | 463135 | 463145 | 463155 | 463165 | 463175 | 463185 | 463195  |
| 4500 mm       | 463116 | 463126 | 463136 | 463146 | 463156 | 463166 | 463176 | 463186 | 463196  |
| Sonderlänge   | 463119 | 463129 | 463139 | 463149 | 463159 | 463169 | 463179 | 463189 | 463199  |

**Light Columns made of Aluminum Group 4632 ..**

| Height  | Ø 100  | Ø 120  | Ø 150  | Ø 180  | Ø 200  | Ø 220  | Ø 250  | Ø 300  | Sonder |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2000 mm | 463211 | 463021 | 463231 | 463241 | 463251 | 463261 | 463271 | 463281 | 463291 |
| 2500 mm | 463212 | 463222 | 463232 | 463242 | 463252 | 463262 | 463272 | 463282 | 463292 |
| 3000 mm | 463213 | 463223 | 463233 | 463243 | 463253 | 463263 | 463273 | 463283 | 463293 |
| 4000 mm | 463214 | 463224 | 463234 | 463244 | 463254 | 463264 | 463274 | 463284 | 463294 |
| 5000 mm | 463215 | 463225 | 463235 | 463245 | 463255 | 463265 | 463275 | 463285 | 463295 |
| S-Länge | 463216 | 463226 | 463236 | 463245 | 463256 | 463266 | 463275 | 463286 | 463296 |

**Light Columns made of Conical Seamless Steel Tubes, hot dip galvanized Group 4633 ..**

The conical tubes are made of cylindrical precision steel tubes. For the production the first 1500 mm are used to fix the tube into the machine. With length under 3500 mm the cylindrical part is shortened accordingly.

| Tube Diameter: A Ø |         | Ø 114  | Ø 133  | Ø 159  | Ø 114  | Ø 114  | Ø 194  | Ø 219  | Special Ø |
|--------------------|---------|--------|--------|--------|--------|--------|--------|--------|-----------|
| Smallest Diameter: | Ø       | Ø 60   | Ø 70   | Ø 80   | Ø 90   | Ø 100  | Ø 110  | Ø 120  |           |
| Height             | L A Ø   |        |        |        |        |        |        |        |           |
| 2000 mm            | 0 mm    | 463311 | 463321 | 463331 | 463341 | 463351 | 463361 | 463371 | 463391    |
| 2500 mm            | 500 mm  | 463312 | 463322 | 463332 | 463342 | 463352 | 463362 | 463372 | 463392    |
| 3000 mm            | 1000 mm | 463313 | 463323 | 463333 | 463343 | 463353 | 463363 | 463373 | 463393    |
| 3500 mm            | 1500 mm | 463314 | 463324 | 463334 | 463344 | 463354 | 463364 | 463374 | 463394    |
| 4000 mm            | 1500 mm | 463315 | 463325 | 463335 | 463345 | 463355 | 463365 | 463375 | 463395    |
| 4500 mm            | 1500 mm | 463316 | 463326 | 463336 | 463345 | 463356 | 463366 | 463376 | 463396    |
| Special made       | nn mm   | 463319 | 463329 | 463339 | 463349 | 463359 | 463369 | 463379 | 463399    |

**Leuchtmasten und Stelen aus Edelstahlrohr 4634 . .**

| Höhe     | Ø 78   | Ø 105  | Ø 129  | Ø 153  | Ø 204  | Ø 250  | SonderØ |
|----------|--------|--------|--------|--------|--------|--------|---------|
| 2000 mm  | 463411 | 463421 | 463431 | 463441 | 463451 | 463461 | 463391  |
| 2500 mm  | 463412 | 463422 | 463432 | 463442 | 463452 | 463462 | 463392  |
| 3000 mm  | 463413 | 463423 | 463433 | 463443 | 463453 | 463463 | 463393  |
| 4000 mm  | 463414 | 463424 | 463434 | 463444 | 463454 | 463464 | 463394  |
| 5000 mm  | 463415 | 463425 | 463435 | 463445 | 463455 | 463465 | 463395  |
| Sonder L | 463416 | 463426 | 463436 | 463445 | 463456 | 463466 | 463399  |

**Serie Panam Poller und Stelen aus Präzisionsstahlrohr, feuerverzinkt**

| Große Stele | H 3500 | 463084 | Kleine Stele | H 2000 | 463071 | Pollerleuchte | H 600  | 460551 |
|-------------|--------|--------|--------------|--------|--------|---------------|--------|--------|
| H 3500-5500 | H 4000 | 463085 | H 2000-3500  | H 2500 | 463072 | H 600-1200    | H 1200 | 460552 |
|             | H 4500 | 463086 |              | H 3000 | 463073 |               |        |        |
|             | H 5000 | 463087 |              | H 3500 | 463074 |               |        |        |
|             | H 5500 | 463088 |              |        |        |               |        |        |

**Stelen aus Stahl, feuerverzinkt, mit Gitterausschnitt**

| Art.Nr. | Ref Code | Lampe     | Leistung      | Rohr Ø x Höhe | Einsatzleuchte Ø x L |
|---------|----------|-----------|---------------|---------------|----------------------|
| 463454  |          | SMD / COB | nach Kunden-  | 174 x 1200 mm | Ø 150 / 1500 mm      |
| 463664  |          | SMD / COB | Spezifikation | 194 x 1200 mm | Ø 180 / 1500 mm      |
| 463474  |          | SMD / COB |               | 219 x 1200 mm | Ø 200 / 1500 mm      |

|      |                                 |                                    |
|------|---------------------------------|------------------------------------|
| S 50 | Anbauleuchten, Up-/Downlights   | 467105                             |
| S 51 |                                 | 467115 467135 467213 467243 467302 |
| S 52 |                                 | 467514 - 467674 468514 - 468674    |
| S 53 | Anbauleuchten                   | 467302 - 467316                    |
| S 54 | Einbaudeckenleuchten            | 466011 - 466961                    |
| S 55 | Aufbaudeckenleuchten            | 465511 - 465561                    |
| S 56 | Orientierungsleuchten           | 466901 - 466999                    |
| S 57 | Orientierungsleuchten           | 466801 - 466848 466399 466899      |
| S 60 | Bodeneinbauleuchten,            | 470001 - 471099 471341             |
| S 61 |                                 | 471901                             |
| S 62 |                                 | 470951 - 470941                    |
| S 65 | Verkehrshinweisleuchten         | 471791 - 471974 471981 - 471984    |
| S 68 | Mastaufsatzleuchten ChCh2       | 473601 - 473603                    |
| S 69 | Mastpendeleuchten               | 473651 - 473653                    |
| S 71 | Mastaufsatzleuchten Übersicht   | 473100 - 473412                    |
| S 72 | Mastaufsatzleuchten Miami       | 473100 - 473122                    |
| S 73 | Mastaufsatzleuchten Luxo        | 473200 - 473271                    |
| S 74 | Mastaufsatzleuchten Mikado      | 473300 - 473371                    |
| S 75 | Mastpendeleuchten               | 473411 - 473552                    |
| S 76 | Mastaufsatzleuchten Reflex 1, 2 | 474001 - 474211                    |
| S 77 | Mastaufsatzleuchten Reflex 3    |                                    |

|             |                                     |                        |                        |
|-------------|-------------------------------------|------------------------|------------------------|
| <b>S 80</b> | <b>Steel poles with decoration</b>  | <b>478321 - 478691</b> | <b>478901 - 478908</b> |
| <b>S 82</b> | <b>Cylindrical Steel Poles</b>      | <b>479000 - 479199</b> |                        |
| <b>S 83</b> | <b>Cylindrical Steeped Poles</b>    | <b>478011 - 478691</b> |                        |
| <b>S 84</b> | <b>Conical Seamless Steel Poles</b> | <b>474001 - 474211</b> |                        |

**Article Numbers of cylindrical poles made of steel, stainless steel or aluminum**

| <b>Steel, hot dip galvanized</b> |                        | <b>Stainless steel</b>   |                        | <b>Aluminum</b>          |                        |
|----------------------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|
| <b>Art.Nr.:</b>                  | <b>Ø Rohr</b>          | <b>Art.Nr.:</b>          | <b>Ø Rohr</b>          | <b>Art.Nr.:</b>          | <b>Ø Rohr</b>          |
| <b>47900x</b>                    | <b>Ø bis<br/>59 mm</b> | <b>47920x</b>            | <b>Ø bis<br/>59 mm</b> | <b>47940x</b>            | <b>Ø bis<br/>59 mm</b> |
| <b>479010</b>                    | <b>Ø 60</b>            |                          |                        | <b>479410</b>            | <b>Ø 60</b>            |
| <b>479020</b>                    | <b>Ø 76</b>            | <b>479220</b>            | <b>Ø 78</b>            | <b>479420</b>            | <b>Ø 70</b>            |
| <b>479030</b>                    | <b>Ø 89</b>            |                          |                        | <b>479430</b>            | <b>Ø 80</b>            |
|                                  |                        |                          |                        | <b>479440</b>            | <b>Ø 90</b>            |
| <b>479050</b>                    | <b>Ø 108</b>           | <b>479250</b>            | <b>Ø 105</b>           | <b>479450</b>            | <b>Ø 100</b>           |
| <b>479060</b>                    | <b>Ø 114</b>           |                          |                        |                          |                        |
| <b>479070</b>                    | <b>Ø 121</b>           |                          |                        | <b>479470</b>            | <b>Ø 120</b>           |
| <b>479080</b>                    | <b>Ø 133</b>           | <b>479280</b>            | <b>Ø 129</b>           |                          |                        |
| <b>479090</b>                    | <b>Ø 159</b>           | <b>479290</b>            | <b>Ø 153</b>           | <b>479490</b>            | <b>Ø 150</b>           |
| <b>479100</b>                    | <b>Ø 168</b>           |                          |                        |                          |                        |
| <b>479110</b>                    | <b>Ø 174</b>           |                          |                        | <b>479510</b>            | <b>Ø 180</b>           |
| <b>479120</b>                    | <b>Ø 194</b>           | <b>479320</b>            | <b>Ø 204</b>           | <b>479520</b>            | <b>Ø 200</b>           |
| <b>479140</b>                    | <b>Ø 220</b>           |                          |                        | <b>479540</b>            | <b>Ø 220</b>           |
| <b>Bigger Ø</b>                  |                        | <b>Bigger Ø</b>          |                        | <b>Bigger Ø</b>          |                        |
| <b>47917x bis 47919x</b>         |                        | <b>47937x bis 47939x</b> |                        | <b>47957x bis 47959x</b> |                        |

**Article Numbers for cylindrical poles with flange plate and inspection door:**  
**The last cypher of these numbers determines sort of the poles:**

- 0: Standard version with flange plate and door,**
- 1: Buried portion accdg to EN40 with cable entry opening and door**
- 2: Special equipment as option**
- 9: Special versions, with specified description**

## ORDERS:

Every order implies full acceptance by the buyer of our current conditions of sale. Orders or markets that are referred to us whether directly or through our agents shall not be valid unless the head office, in writing, has accepted them. All our articles will be installed according to the rules of the art and valid standards. The minimum order threshold amounts to € 1000.-(\*) or the value of 1000 € in other currencies as UAE-Dirhams, Pounds or Dollars net of taxes. Every first order has to be accompanied by an identity statement and the Register Number in the trade register failing that it won't be registered.

## PRICES:

Prices quoted in our different price lists are invoicing basic prices without VAT or any other tax. If applicable, the amount of VAT or other sales taxes, added to the invoice total amount, will be calculated according to the prevailing rate on shipment day. Unless agreed to the contrary, these prices are revisable in cases where delivery is due to occur within a delay superior to two months and in cases of quantities or specifications modification and, in general, in cases where our clients dictate when placing the order a constraint unacceptable to us. Our invoices do never contain import duties: custom duties have to be born by the client.

## DELIVERY TIME:

Unless an explicit agreement, times of delivery are given for information only and can absolutely not be considered as final deadlines. We accept no responsibility whatsoever for any delay or any delivery restriction. The non-observance of delivery time shall not entail any penalty or compensation.

In case of part - delivery, the remaining undelivered quantity shall not delay the payment of the already delivered part of goods. If material's shipment is delayed due to the client, it will be stored and handled at the buyer's expenses. This provision does not affect whatsoever the obligation to pay the supply of goods.

## SHIPMENT:

The goods are dispatched at the risk of the buyer, even in cases where they are dispatched "carriage paid". Therefore, the buyer has to: (1) Check on receipt, the state and quantity of products and proceed if necessary to the opening of every dubious, outward appearance, of packages in the presence of the deliverer. (2) Formulate, in cases of damage or discrepancy, accurate reserves detailed on the transport receipt and specify namely the nature and importance of the damage, or missing packages, wet marks, breakages, etc.). Inaccurate or systematic wording of reserves such as "subject to display" or "subject to quality and quantity control" stated on the transport receipt, are null and void and have no legal validity. (2) Confirm these reserves by registered letter with acknowledgment receipt sent to the last Transport Company, within three working days following delivery. The non-compliance with these formalities will prevent any action being against the transport company. Only the buyer has the right to appeal against the transport company in cases of delays, discrepancies and/or damages

## DELIVERY TERMS:

The deliveries of standard materials from our catalogue are understood to be on an ex works basis. For any order below € 1000,- a fixed contractual contribution to the cost of freight, packaging, invoicing and documents is set at € 90.- net of taxes. The client will be charged for any special transport (express, airfreight, etc.) requested by him.

## PAYMENT:

Custom-made items are subject to special conditions, to be negotiated between the customer and ELTE, prior to the planning of, and the start of production. In any case, the plan for payment shall be according to the progress of production and maturity of final payment. The complete plan of payment has to be safeguarded and guaranteed by a German Bank.

Our invoiced prices for catalogue items have to be paid net, and without any discount at the day when goods are ready for delivery. If payment fails to be made on this date, we retain the right to suspend the execution of our engagement after ineffective formal notice. In cases where the debtor does not pay amicably, his file will be transmitted to the legal department and the due amount will be automatically increased by 10%. In case of financial difficulties on the part of the buyer, we retain the right to claim guarantees failing which the contract can be cancelled without summons or compensations. Every order corresponding to the opening of a new client account will be paid cash when placing the order.

## PROPERTY RIGHT:

The ownership of the goods remains with us until the full and effective payment of corresponding invoices. Upon receipt of the goods, the buyer shall bear the risks pertaining to them and shall take great care in watching over them and preserving them.

## RETURNED GOODS:

Return of merchandise shall not be accepted without a previously written approval from us. We will not accept the return of any specially manufactured material or of any goods not mentioned in our catalogues or valid tariffs. In case of an authorized return due to a reason not attributable to our Company, a refund can only reach a maximum of 80% of the invoiced amount, assuming the merchandise has been kept intact and in its original packaging, and after an expert evaluation made by us. Costs of restoration, packaging and transport will also be deducted from any credit note.

## GUARANTEES:

The buyer will benefit from the legal guarantee against concealed defect. This guarantee is limited by explicit agreement to the complete product and only the replacement of defective parts, without any compensation for delay, assembling and dismantling. Accidental damage directly or indirectly provoked or presumed likewise, or for any other prejudice whatsoever. Every guarantee is excluded for incidents due to accidental or cases of Force Majeure as well as for those due to a replacement or repairing resulting from deterioration due to negligence, lack of monitoring and maintenance or faulty and non-consonant use with our specifications and our agreement.

## SAMPLES - SPECIAL DEVICES

Any sample request for tender will be subject to an order. In the case where this matter cannot be attributed to us, a credit note must be issued to secure the return of the merchandise provided to the latter and assuring the good condition of the returned goods. Special devices or devices not shown in our catalogues but designed according to the technical specifications given by the buyer cannot be returned to us in any way.

## STUDIES AND PROJECTS:

The ownership of studies and documents, sent or handed over, shall remain with us. They cannot be copied, communicated, reproduced or executed without our explicit authorization and must be returned to us on our request.

## MODIFICATIONS:

As we are concerned with technical improvement, we retain the right to modify and bring improvements to our products. Dimensions indicated in our catalogues or price list can be modified without previous notice and include a certain allowance. We may also stop the production of certain products. In these cases, we shall not be obliged to supply suppressed articles or articles produced according to old specifications.

## APPLICABLE LAW - POWER OF JURISDICTION: (\*)

German law governs contracts. In case of dispute, litigation shall be in the Commercial Court of Kleve, which will have sole jurisdiction even in the case of multiple defendants or the introduction of a third party. Our bills of exchange, or payment acceptance, cause neither derogation nor renunciation towards the present power of jurisdiction clause.

(\*)

This clause refers to sales of standard material within the EU except GB, Swiss and Norway, it refers to all material – custom or standard – made

(D):1-71/1602291 Terms of trade for EU

## ELTE Licht GmbH

Albersallee 16  
D 47533 Kleve  
www.eltelicht.com  
info@eltelicht.com

## Taylor made Fixtures Catalogue 2018

### Impressum

Copyright for the catalogues  
"Outdoor Lighting",  
"Indoor Lighting",  
"Flexible Linear Lighting" and  
"Taylor made lighting " is property of  
ELTE Licht GmbH, Albersallee 16, D 47533 Kleve

HRB 14411 AG Kleve  
USt.ID: DE309778496  
St.Nr. 118/5704/4436 FA Kleve

e-Mail: [info@eltelicht.com](mailto:info@eltelicht.com)  
[www.eltelicht.com](http://www.eltelicht.com)

Managing director:  
Dr. Gerhard W. Seeger  
Albersallee 16  
D 47533 Kleve.

The ELTE catalogues in German,  
English, French,  
Italian and Russian language are  
protected by the Copyright of ELTE Licht GmbH

Any Copies of parts of, or of complete  
ELTE catalogues are forbidden, if not allowed  
by ELTE Licht GmbH in written form.  
Verbal permits are void.

Only our Terms of Trade - General  
Conditions of Sale are applicable.

Power of jurisdiction only by the  
Commercial Court of Kleve

**ELTE Licht GmbH**

web: [eltelicht.com](http://eltelicht.com)  
mail: [info@eltelicht.com](mailto:info@eltelicht.com)



**ELTE**