

# Be an inspiration

**Ladies and Gentlemen,**

We are experts in the field of composite technologies. Based on **expert knowledge, research and our experience**, we know that **high quality** composite poles are an **excellent alternative** to traditional concrete or aluminium structures.

Our products are manufactured **under strictly controlled conditions**. They meet **the most stringent durability criteria and guarantee safe use**. This is confirmed by prestigious standards and certificates.

**We enjoy the trust of Polish and international customers**, especially in strategic industries that do not compromise on quality. These include: road construction, railways, energy, telecommunications, local authorities and the army.

We are innovative, so we are constantly finding new applications for composite solutions. **We are inspired by the needs of our customers and the development of new technologies**. But we also have an ambition to inspire others: to build a safer world together.

I invite you to cooperation  
**Zbigniew Szkopek**  
**President of the Management**  
**Board of NCT S.A.**

# Confirmed quality

Composite. The power of synergy

NCT solutions are made of high quality polymer composite, consisting of polyester resins, fabrics and glass mats, surrounded by a layer of gelcoat. The synergy of the properties of the materials used allows us to obtain **an exceptionally light product with high structural strength parameters, in compliance with the requirements of quality and safety standards and prestigious certificates.**

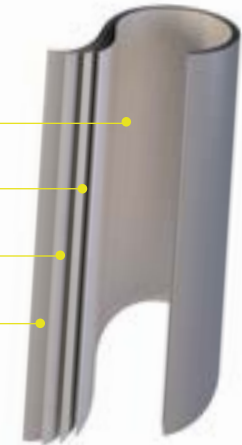


glass fabric with polyester resin

glass fabric with polyester resin

glass mat with polyester resin

gelcoat



## Solutions inspired by your needs

### Safety

Composite lighting poles absorb impact energy to a minor extent during a road collision. The composite material does not conduct electric current.

### Durability

The composite does not corrode. It is a slow-burning material, resistant to road and sea salt as well as graffiti stains.

### Ecology

The composite production process is characterized by low CO<sub>2</sub> emissions. Illuminated poles help to reduce light pollution.

### Economy

Lightweight construction, easy transport and poles installation reduce investment costs. Friendly use of composite means real savings.

### Innovation

The composite material allows the installation of receivers and transmitters inside and outside the poles (the material has a minimal degree of wave interference).

# What makes us different.

## Certifications, approvals, awards



**Certificate of Conformity (CE) with European Standard PN-EN 40-7:2004** Requirements for fibre reinforced polymer composite lighting columns.

**Certificate of Compliance with the PN-EN 12767:2019-12** Standard Passive safety of support structures for road equipment - Requirements and test methods.

**Certificate of Compliance with the PN-EN ISO 14067** Standard - Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification.

**TUV ISO 9001:2015** Certificate for design and production of composite structures.

**Factory Production Control (FPC)** Recommendation for composite power poles.



**Approval for the use of composite lighting poles for Polish railways** PKP PLK S.A.

**Recommendation of the Telecommunication Builders Association** for NCT composite telecommunication poles.

**NATO National Economy Entity Code** assigned by the Military Centre for Standardization, Quality and Codification.

**A document confirming the credibility of NCT** for the purposes of implementing contracts for NSPA.

**Positive opinion regarding composite lighting poles of the Railway Institute in Warsaw.**



**Smartpole Charger**, an electric car charging station in a lighting pole – laureate of the 10th national Fleet Derby competition.





Passive safety.  
This is important to us

# Towards Vision Zero

The Vision Zero programme, which originated in Sweden, includes activities aimed at improving road safety. The aim is to reduce the number of road deaths to zero.

**This is the approach we have in mind.**

For this reason, ensuring safe road and lighting infrastructure is our top priority. Also participate in the work of the Road Safety Team of the Polish Chamber of the Road Engineering Industry and the Polish Committee for Standardisation, which develops standards to improve road safety and comfort.

NCT's products meet the highest passive safety standards and contribute to:

- reducing the number of accidents with road infrastructure,
- reducing the consequences of vehicle collisions with poles,
- saving on road investment budgets (no need to install protective barriers to cover poles that do not meet passive safety requirements).

**HE**

High Energy absorbing



**LE**

Low Energy absorbing



**NE**

Non Energy absorbing



PN-EN 12767\* standard classifies three levels of energy absorption by supporting structures and defines them as:

- high energy absorbing (HE)
- low energy absorbing (LE)
- non Energy absorbing (NE)

\*"Passive safety of support structures for road equipment"



Innovation in thinking,  
courage in action

# Smart City. Live better

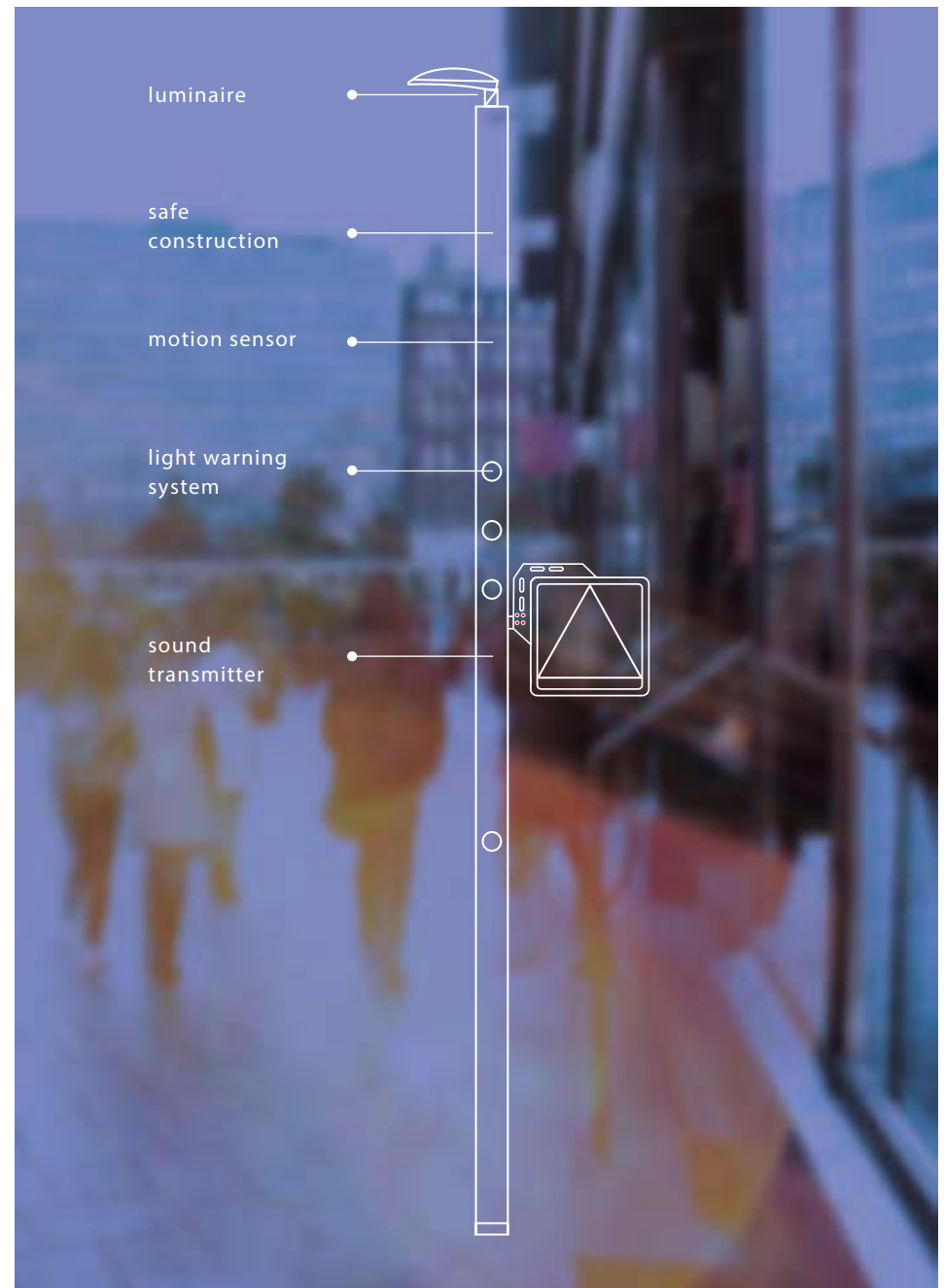
Cities are constantly looking for solutions to improve **the quality of life** of their inhabitants in terms of safety, comfort and respect for the natural environment. These are the directions in which NCT also works.

Composite solutions are characterised by **an innovative approach, openness to user needs** and improvement of products and their properties. As a result, composite structures, enhanced with technological innovations, take on completely new functions:

**Smartpole Crossing** equipped with sound transmitters, light warning systems and motion sensors makes traffic smoother and improves concentration of pedestrians and drivers, supports safety within intelligent pedestrian crossings.

**Smartpole Charger** is a lighting pole with a charging station. It is a response to the dynamic development of electromobility and the involvement of cities in providing EV drivers with access to charging infrastructure.

**Designpole** is NCT's contribution to the growing sensitivity to the order and aesthetics of urban spaces. It is aimed at cities that want to reduce their light pollution.



# Find the product you need

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**Passivepole**  
The quintessence  
of passive safety

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A dedicated solution  
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Reach higher with NCT

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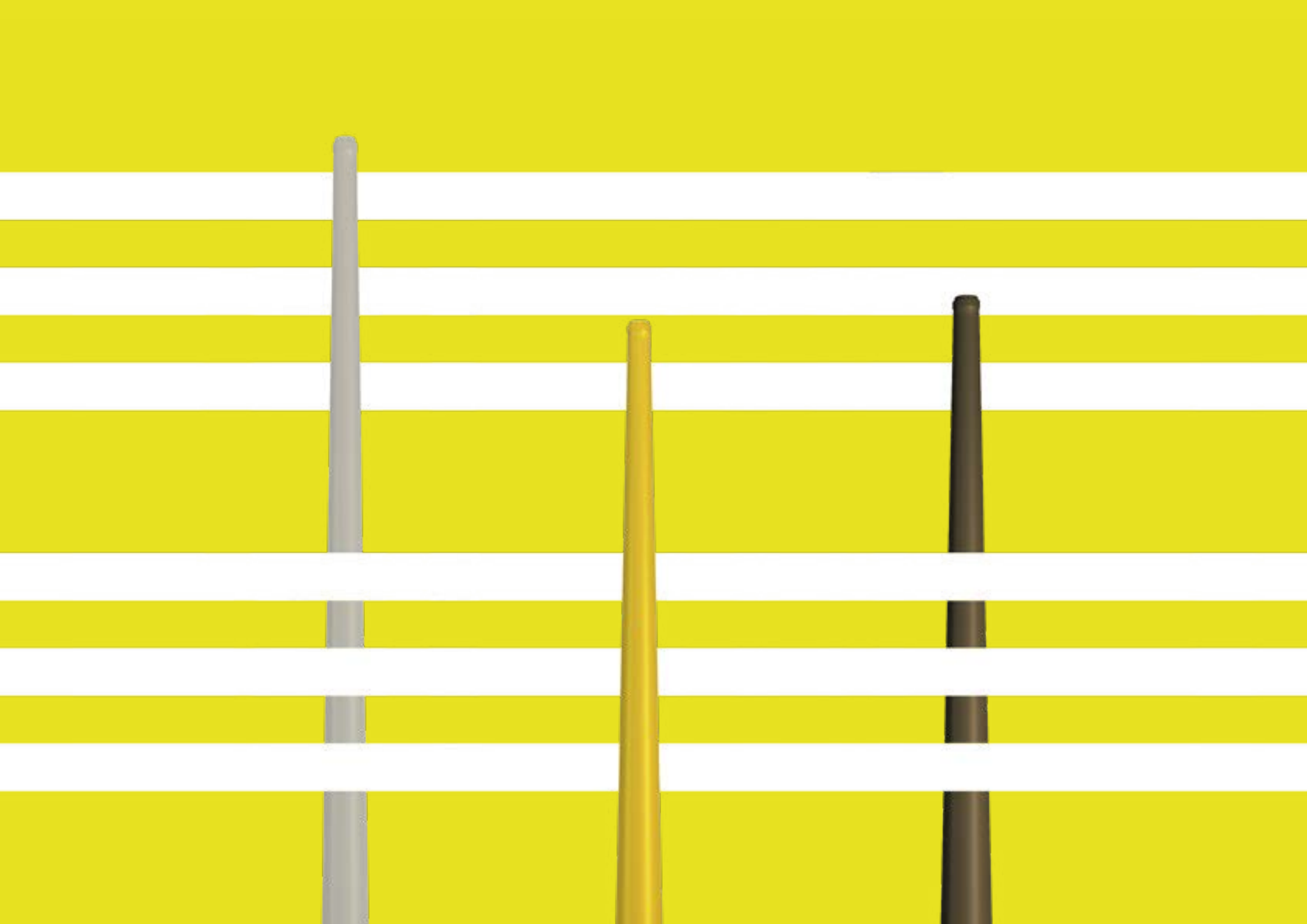
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**Herpetological  
fences**

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	Construction	Road construction	Energetics	Railways	Waterworks	Gas station	Pedestrian crossings	Playgrounds, recreational facilities	Parks, squares, monuments	Commercial facilities / shopping malls	HoReCa (hotels, restaurants, gastronomy)	Monitoring	Telecommunications / Fiber optic networks	Industrial factories	Local government, administration	Hop plantations	Areas difficult to access	Private properties	Parking lots
<b>Passivepole</b>		●																	
<b>Basicpole</b>		●	●	●	●	●	●	●	●	●	●	●		●				●	●
<b>Easypole</b>		●	●	●	●	●	●	●	●	●	●						●		
<b>Slimpole</b>							●	●	●		●								
<b>Designpole</b>						●		●	●	●	●				●				
<b>Smartpole Crossing</b>							●												
<b>Electric car charging stations (Smartpole Charger, Wallbox)</b>		●				●				●	●				●	●			●
<b>Telecommunication poles</b>	●											●	●				●		
<b>Power poles</b>	●		●														●		
<b>Lightning protection masts</b>	●		●			●								●				●	
<b>Flagpoles</b>						●		●	●	●	●			●	●			●	
<b>Herpetological road fences</b>		●																	
<b>Pultrusion structures</b>	●	●												●					
<b>Hop trellises</b>																●			





# Lighting poles

- Passivepole
- Basicpole
- Easypole
- Slimpole

**Rybnik**  
ul. Raciborska  
Foto: K. Matuszyński



# Passivepole

When safety is a priority

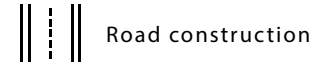
Composite lighting pole **with high durability parameters.** The lightweight structure supports the safety of road users more effectively than traditional solutions.



The product complies with the standard **EN 40-7:2002**

The product meets all categories specified in the **PN-EN 12767:2019-12** standard (passive safety)

## APPLICATION:



Road construction

## PRODUCT ADVANTAGES:

- high strength parameters: resistance to seismic shocks, vibrations and high wind pressure
- poles tested in all speed classes and selected passive safety categories according to PN-EN 12767:2019-12
- light and durable structure with high resistance to vandalism
- low transport and installation costs due to the low weight of the product (large loading capacity)
- safe construction: does not conduct electric current, has no scrap value
- resistant to pollution and weather conditions (including road salt and animal urine)
- exceptional durability: up to 40-50 years of use \*
- environmentally friendly – lower CO<sub>2</sub> emissions
- modern design
- possibility of product personalization

\*based on scientific studies

# Passivepole

## A safe lighting pole with high durability parameters

### Technical properties:

- pole height: from 3 to 12 [m] (above the ground)
- bottom diameter of the poles: from 100 to 250 [mm], upper diameter of the pole: 60 [mm] (aluminium sleeve 130 [mm] long)
- installation type: direct buried or base plate
- pole weight: from 9 to 94,5 [kg]
- possibility to produce a pole with the required technical parameters
- inspection door at a height (dimensions can be modified in compliance with EN 40 norm)
- flammability class HB, according to ASTM D635:2014
- water absorption  $\leq 10\%$ , according to PN-EN ISO 62:2000
- tensile strength  $> 300$  MPa, according to PN-EN ISO 527-4:2000
- flexural strength under the influence of external factors according to PN-EN ISO 178:2011
- hardness  $> 40$  HBa, according to PN-EN 59:2002
- surface resistivity  $2.69 \Omega\text{m} \times 10^{13}$ , WG ASTM D257:1991
- volume resistivity  $7.67 \Omega\text{m} \times 10^{12}$ , according to ASTM D257:1991
- dielectric strength  $\geq 5$  kV/mm, according to PN-EN 60243-1:2013

### Standard colours:



RAL 7032



RAL 7047



RAL 7035



RAL 7042



RAL 7024



RAL 7016



RAL 9005



RAL

Possibility to produce poles in any RAL colour



The characteristics of Passivepole composite poles perfectly **reduce the effects of vehicle collision with a pole**, ensuring the safety of the driver and passengers. When a car collides with a pole, the composite structure does not absorb the energy of the collision while maintaining the best values of the ASI and THIV passive safety indices.

**The tested Passivepole is the only one of its kind in Europe** that, in the event of a collision at a speed of 50 km/h, falls safely in front of the vehicle without disengaging from its installation position (NS) and without disturbing the vehicle interior.

### Marking of passive safety classes of lighting poles according to the PN-EN 12767:2019 standard

**1. Impact speed:** 50km/h, 70km/h, 100km/h  
(vehicle speed during the crash test)

#### **2. Categories of energy absorption during a collision:**

**NE** – poles that do not absorb energy

**LE** – poles with low energy absorption

**HE** – poles with a high level of energy absorption

#### **3. Occupant safety level:**

A, B, C, D, E (in the 2008 standard they were marked with numbers 1,2,3,4).

THIV parameters tested during the collision (theoretical head impact velocity) and ASI (acceleration severity index) determine the level of passenger safety

**4. Type of backfill:** S-standard, R-rigid surface,

X - recommended by the pole manufacturer

**5. Two collapse modes:** SE (separation), NS (no separation)

**6. Directional sensitivity:** to indicate the angle at which a crash-friendly pole can be hit:

SD - single directional

BD - bi-directional

MD - multi-directional

#### **7. Risk of roof indentation**

Class 0 (not sensitive to dents)

Class 1 (sensitive to dents)

### Pole equipment elements during the test:

- bracket arm length up to 2.0 m
- lighting fixture weight up to 11 kg
- foundation for SKPF-P and SKPF-PP version

## SKPW-P SKPW-PP

### PASSIVEPOLE direct buried



Passivepole Poles (SKPW-PP) Direct buried poles with a low connecting sleeve, available in heights from 3.0 m to 12 m and bottom diameters (at ground level) ranging from 100 mm to 250 mm, with a maximum WD1 bracket span of 2000 mm.

Impact speed	Classification according to: PN-EN 12767:2008	Classification according to: PN-EN 12767:2019
50 [km/h] 70 [km/h] 100 [km/h]	50,NE,2 70,NE,2 100,NE,2	50-NE-C-S-SE-MD-0 70-NE-C-S-SE-MD-0 100-NE-C-S-SE-MD-0

Passivepole Poles (SKPW-P) Direct buried poles, available in heights from 3.0 m to 9.9 m and bottom diameters (at ground level) ranging from 100 mm to 220 mm, with a maximum WD1 bracket span of 1500 mm.

Impact speed	Classification according to: PN-EN 12767:2008	Classification according to: PN-EN 12767:2019
50 [km/h]	50,NE,3	50-NE-B-S-NS-MD-0

Passivepole Poles (SKPW-P) Direct buried poles, available in heights from 3.0 m to 9.9 m and bottom diameters (at ground level) ranging from 100 mm to 193 mm, with a maximum WD1 bracket span of 1500 mm.

Impact speed	Classification according to: PN-EN 12767:2008	Classification according to: PN-EN 12767:2019
70 [km/h]	70,NE,3	70-NE-B-S-SE-MD-0

Passivepole Pole (SKPW-P) Direct buried pole with a height of 12 m and a bottom diameter (at ground level) of 220 mm, with a maximum WD1 bracket span of 1500 mm.

Impact speed	Classification according to: PN-EN 12767:2008	Classification according to: PN-EN 12767:2019
100 [km/h]	100,LE,3	100-LE-C-S-SE-MD-0

Passivepole Pole (SKPW-P) Direct buried pole with a height of 12 m and a bottom diameter (at ground level) of 220 mm, equipped with an anchoring plate and a maximum WD1 bracket span of 1500 mm.

Impact speed	Classification according to: PN-EN 12767:2008	Classification according to: PN-EN 12767:2019
100 [km/h]	100,HE,1	100-HE-E-S-SE-MD-0

## SKPF-P SKPF-PP

### PASSIVEPOLE with base plate



Passivepole Poles (SKPF-PP) Poles on a foundation with a low base, available in heights from 3.0 m to 12 m and bottom diameters (at ground level) ranging from 100 mm to 250 mm, with a maximum WD1 bracket span of 2000 mm.

Impact speed	Classification according to: PN-EN 12767:2008	Classification according to: PN-EN 12767:2019
50 [km/h] 70 [km/h] 100 [km/h]	50,NE,3 70,NE,3 100,NE,3	50-NE-B-S-SE-MD-0 70-NE-B-S-SE-MD-0 100-NE-B-S-SE-MD-0

Passivepole Poles (SKPF-P) Poles on a foundation with a flat base, available in heights from 3.0 m to 9.9 m and bottom diameters (at ground level) ranging from 100 mm to 193 mm, with a maximum WD1 bracket span of 1500 mm.

Impact speed	Classification according to: PN-EN 12767:2008	Classification according to: PN-EN 12767:2019
70 [km/h]	70,NE,2	70-NE-C-S-SE-MD-0



**Easy installation:** poles are installed without the use of heavy equipment.



**The recommended soil compaction index  $I_s$**  should be between 0.95 and 1.02 (according to PN-EN ISO 14688-2)

Detailed dimensions of the poles are described in the data sheets



Gliwice  
Park Sośnica  
Foto: K. Matuszyński

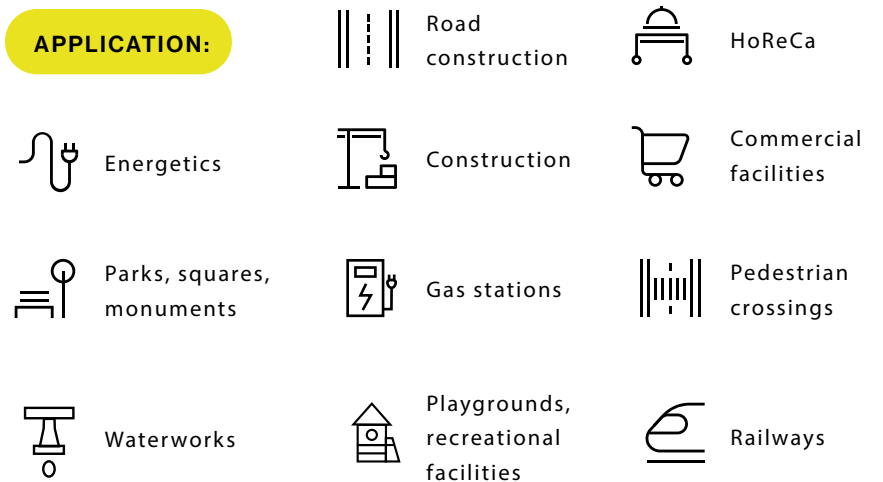
# Basicpole

For those who value solid solutions

Economical and durable composite lighting poles. **They are distinguished by high quality, modern design and versatile use.**

The product complies with the PN-EN 40-7:2004 standard.

## APPLICATION:



## PRODUCT ADVANTAGES:

- lightweight and durable construction, designed to resist vandalism
- low transport and installation costs due to product's low weight and therefore high loading capacity
- resistance to adverse weather conditions, acids, road salt, animal urine
- composite structures do not conduct electric current
- exceptional durability - approximately 40-50 years\*
- no need to use heavy and expensive equipment during installation
- no scrap value
- environmentally friendly - lower CO<sub>2</sub> emissions

\*based on scientific studies

# Basicpole

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## Technical properties:

- pole height: from 3 to 12 [m] (above the ground)
- bottom diameter of the poles: from 130 to 220 [mm], top diameter of the poles: 60 [mm]
- installation type: direct buried or base plate
- pole weight: from 9 to 85,5 [kg]
- possibility to produce a pole with the required technical parameters
- inspection door at a height (dimensions can be modified in compliance with EN 40)
- flammability class HB, according to ASTM D635:2014
- water absorption  $\leq 10\%$ , according to PN-EN ISO 62:2000
- tensile strength  $> 300$  MPa, according to PN-EN ISO 527-4:2000
- flexural strength under the influence of external factors according to PN-EN ISO 178:2011
- hardness  $> 40$  HBa, according to PN-EN 59:2002
- surface resistivity  $2.69 \Omega\text{m} \times 10^{13}$ , WG ASTM D257:1991
- volume resistivity  $7.67 \Omega\text{m} \times 10^{12}$ , according to ASTM D257:1991
- dielectric strength  $\geq 5$  kV/mm, according to PN-EN 60243-1:2013

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## Standard colours:



RAL 7032



RAL 7047



RAL 7035



RAL 7042



RAL 7024



RAL 7016



RAL 9005



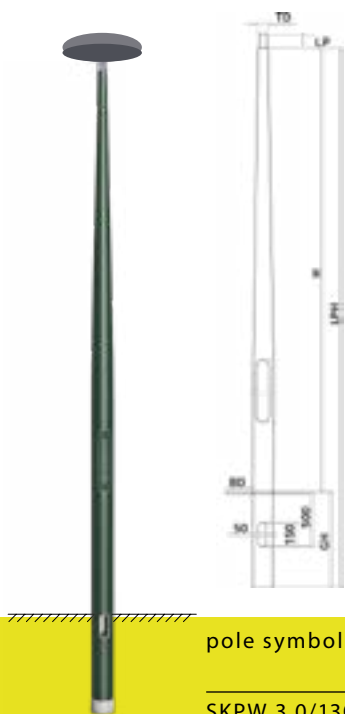
RAL

Possibility to produce poles in any RAL colour



## SKPW

BASICPOLE direct buried



**Easy installation:** poles are installed without the use of heavy equipment.



**The recommended soil compaction index  $I_s$**  should be between 0.95 and 1.02 (according to PN-EN ISO 14688-2).

pole symbol	H [m]	BD [mm]	TD [mm]	LP [mm]	LPH [m]	GH [m]	W [kg]
SKPW 3,0/130/60	3,0	130	60	130	4,0	1,0	9
SKPW 3,0/150/60	3,0	150	60	130	4,0	1,0	10
SKPW 4,0/130/60	4,0	130	60	130	5,0	1,0	10,5
SKPW 4,0/150/60	4,0	150	60	130	5,0	1,0	12
SKPW 5,0/175/60	5,0	175	60	130	6,0	1,0	19
SKPW 6,0/175/60	6,0	175	60	130	7,0	1,0	23
SKPW 7,0/193/60	7,0	193	60	130	8,2	1,2	30,5
SKPW 8,0/193/60	8,0	193	60	130	9,2	1,2	35,5
SKPW 9,0/193/60	9,0	193	60	130	10,5	1,5	47,5
SKPW 10,0/193/60	10,0	193	60	130	11,8	1,8	54,5
SKPW 11,0/193/60	11,0	193	60	130	12,8	1,8	59,5
SKPW 11,0/220/60	11,0	220	60	130	12,8	1,8	67,5
SKPW 12,0/220/60	12,0	220	60	130	13,8	1,8	72

At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions.

## SKPF

BASICPOLE with base plate



pole symbol	H [m]	BD [mm]	TD [mm]	LP [mm]	BPL [mm]	BPHD [mm]	W [kg]
SKPF 3,0/130/60	3,0	130	60	130	275	200	15
SKPF 3,0/150/60	3,0	150	60	130	275	200	16
SKPF 4,0/130/60	4,0	130	60	130	275	200	16,5
SKPF 4,0/150/60	4,0	150	60	130	275	200	18
SKPF 5,0/175/60	5,0	175	60	130	275	200	25
SKPF 6,0/175/60	6,0	175	60	130	275	200	29
SKPF 7,0/193/60	7,0	193	60	130	400	300	39,5
SKPF 8,0/193/60	8,0	193	60	130	400	300	44
SKPF 9,0/193/60	9,0	193	60	130	400	300	54
SKPF 10,0/193/60	10,0	193	60	130	400	300	61
SKPF 11,0/193/60	11,0	193	60	130	400	300	65
SKPF 11,0/220/60	11,0	220	60	130	400	300	81
SKPF 12,0/220/60	12,0	220	60	130	400	300	85,5

At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions.



**Gliwice**  
Dworzec PKP  
Foto: K. Matuszyński

# Easypole

Smart solutions at your fingertips

Composite pole **with a practical hinge mechanism** that allows you to tilt the structure at the base. This is an ideal solution, especially **in hard-to-reach areas**. The column hinged function and the buried version **further facilitate installation and maintenance.**

## APPLICATION:



Areas difficult to access



Road construction



Construction



Energetics



Waterworks



Gas stations



Railways

## PRODUCT ADVANTAGES:

- lightweight, durable construction
- pole equipped with a hinge mechanism to facilitate mounting and dismounting of the luminaire and other maintenance operations
- no need to use heavy and expensive equipment at the installation stage, especially in hard-to-reach areas
- low transport and installation costs due to the light weight of the product (large loading capacity)
- resistance to adverse weather conditions, acids, road salt, animal urine
- composite structures do not conduct electric current
- exceptional durability - approximately 40-50 years\*
- no scrap value
- environmentally friendly - lower CO<sub>2</sub> emissions

\*based on scientific studies

# Easypole

## Technical properties:

- pole height: from 5 to 12 [m] (above the ground)
- bottom diameter of the poles: from 175 to 220 [mm], top diameter of the poles: 60 [mm]
- installation type: direct buried or base plate
- pole weight: from 27,5 to 124,5 [kg]
- possibility to produce a pole with the required technical parameters
- inspection door at a height (dimensions can be modified in compliance with EN 40)
- flammability class HB, according to ASTM D635:2014
- water absorption  $\leq 10\%$ , according to PN-EN ISO 62:2000
- tensile strength  $> 300$  MPa, according to PN-EN ISO 527-4:2000
- flexural strength under the influence of external factors according to PN-EN ISO 178:2011
- hardness  $> 40$  HBa, according to PN-EN 59:2002
- surface resistivity  $2.69 \Omega\text{m} \times 10^{13}$ , WG ASTM D257:1991
- volume resistivity  $7.67 \Omega\text{m} \times 10^{12}$ , according to ASTM D257:1991
- dielectric strength  $\geq 5$  kV/mm, according to PN-EN 60243-1:2013

## Standard colours:



RAL 7032



RAL 7047



RAL 7035



RAL 7042



RAL 7024



RAL 7016



RAL 9005



RAL

Possibility to produce poles in any RAL colour



## SKPW-ŁS EASYPOLE direct buried



**Easy installation:** poles are installed without the use of heavy equipment.



**The recommended soil compaction index  $I_s$**  should be between 0.95 and 1.02 (according to PN-EN ISO 14688-2)



## SKPF-ŁS EASYPOLE with base plate



pole symbol	H [m]	BD [mm]	TD [mm]	LP [mm]	LPH [m]	GH [m]	W [kg]
SKPW-ŁS 5,0/175/60	5,0	175	60	130	6,0	1,0	41
SKPW-ŁS 6,0/175/60	6,0	175	60	130	7,0	1,0	45
SKPW-ŁS 7,0/193/60	7,0	193	60	130	8,0	1,2	69,5
SKPW-ŁS 8,0/193/60	8,0	193	60	130	9,2	1,2	74
SKPW-ŁS 9,0/193/60	9,0	193	60	130	10,5	1,5	86,5
SKPW-ŁS 10,0/193/60	10,0	193	60	130	11,8	1,8	97,5
SKPW-ŁS 11,0/193/60	11,0	193	60	130	12,8	1,8	102,5
SKPW-ŁS 11,0/220/60	11,0	220	60	130	12,8	1,8	120
SKPW-ŁS 12,0/220/60	12,0	220	60	130	13,8	1,8	124,5

At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions.

pole symbol	H [m]	BD [mm]	TD [mm]	LP [mm]	BPL [mm]	BPHD [mm]	W [kg]
SKPF-ŁS 5,0/175/60	5,0	175	60	130	260	200	27,5
SKPF-ŁS 6,0/175/60	6,0	175	60	130	260	200	31,5
SKPF-ŁS 7,0/193/60	7,0	193	60	130	400	300	48
SKPF-ŁS 8,0/193/60	8,0	193	60	130	400	300	52,5
SKPF-ŁS 9,0/193/60	9,0	193	60	130	400	300	62,5
SKPF-ŁS 10,0/193/60	10,0	193	60	130	400	300	69,5
SKPF-ŁS 11,0/193/60	11,0	193	60	130	400	300	73,5
SKPF-ŁS 11,0/220/60	11,0	220	60	130	400	300	89
SKPF-ŁS 12,0/220/60	12,0	220	60	130	400	300	95

At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions.

**Gliwice**  
Park Chrobrego  
Foto: K. Matuszyński



# Slimpole

A dedicated solution  
at an optimal price.

The slender form of the composite column, combined with the dedicated bracket and luminaire, blends perfectly into modern urban spaces. An additional advantage of the solution is its attractive price and versatility.

The product complies with the  
**PN-EN 40-7:2004** standard.

## APPLICATION:



Playgrounds,  
recreational  
facilities



HoReCa



Parks, squares,  
monuments



Pedestrian  
crossings

## PRODUCT ADVANTAGES:

- universal product with a lightweight and slender form for urban lighting
- cost-effective solution for pedestrian passage lighting
- resistance to adverse weather conditions, acids, road salt and animal urine
- composite structures do not conduct electric current
- exceptional durability: up to 40-50 years of use\*
- no need for heavy and expensive equipment during installation
- no scrap value
- environmentally friendly – low CO<sub>2</sub> emissions

\*based on scientific studies

# Slimpole

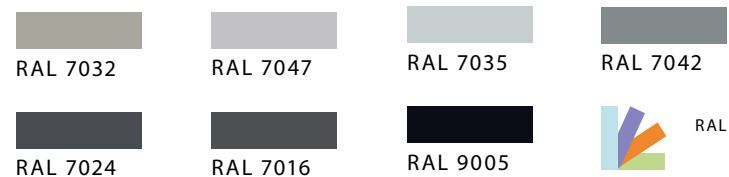
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## Technical properties:

- terrain Category II
- wind zone I / II / III (755 m above sea level) for wind speeds in m/s (22 / 26 / 28)
- dedicated bracket: WJ1/60/5/500 (or without a bracket)
- dedicated luminaire - maximum lateral surface area and weight available in the "Slimpole - Luminaire Parameters" sheet.
- only dedicated bracket WJ1/60/5/500 may be used
- flammability class HB, according to ASTM D635:2014
- water absorption  $\leq 10\%$ , according to PN-EN ISO 62:2000
- tensile strength  $> 300$  MPa, according to PN-EN ISO 527-4:2000
- flexural strength under the influence of external factors according to PN-EN ISO 178:2011
- hardness  $> 40$  HBa, according to PN-EN 59:2002
- surface resistivity  $2.69 \Omega\text{m} \times 10^{13}$ , WG ASTM D257:1991
- volume resistivity  $7.67 \Omega\text{m} \times 10^{12}$ , according to ASTM D257:1991
- dielectric strength  $\geq 5$  kV/mm, according to PN-EN 60243-1:2013

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## Standard colours:



Possibility to produce poles in any RAL colour



## SKPW-S

SLIMPOLE direct buried



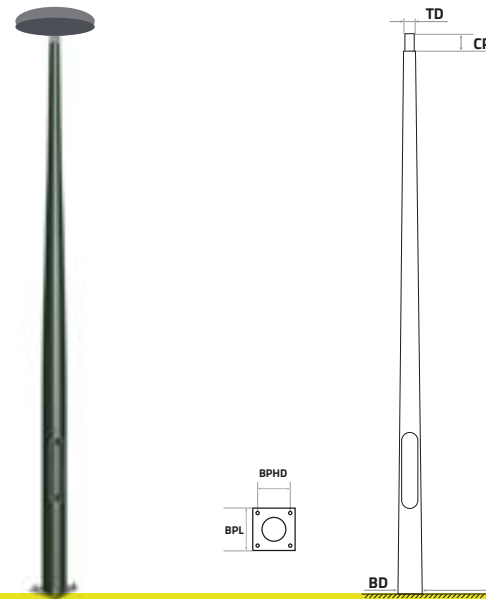
**Easy installation:** poles are installed without the use of heavy equipment.



**The recommended soil compaction index Is** should be between 0.95 and 1.02 (according to PN-EN ISO 14688-2).

## SKPF-S

SLIMPOLE with base plate



pole symbol	H [m]	BD [mm]	TD [mm]	CP [mm]	LPH [m]	GH [m]	W [kg]
SKPW-S 3,0/100/60	3,0	100	60	130	4,0	1,0	6
SKPW-S 4,0/100/60	4,0	100	60	130	5,0	1,0	9
SKPW-S 5,0/130/60	5,0	130	60	130	6,0	1,0	10,5
SKPW-S 6,0/130/60	6,0	130	60	130	7,2	1,2	15
SKPW-S 7,0/150/60	7,0	150	60	130	8,2	1,2	13

At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions.

pole symbol	H [m]	BD [mm]	TD [mm]	CP [mm]	BPL [mm]	BPHD [mm]	W [kg]
SKPF-S 3,0/100/60	3,0	100	60	130	275	200	12
SKPF-S 4,0/100/60	4,0	100	60	130	275	200	14
SKPF-S 5,0/130/60	5,0	130	60	130	275	200	17
SKPF-S 6,0/130/60	6,0	130	60	130	275	200	20,5
SKPF-S 7,0/150/60	7,0	150	60	130	275	200	25

At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions.





# Smart City

- Smartpole Crossing
- Electric car charging stations  
(Smartpole Charger)
- Designpole



Dąbrowa Górnicza  
Aleja Róż  
Foto: K. Matuszyński

# Smartpole Crossing

A system of active,  
safe pedestrian crossings

The use of advanced electronic systems (including motion detectors) and audible and visual warning signals **effectively inform the driver that a pedestrian has entered or is about to enter a pedestrian crossing.**

## APPLICATION:



Pedestrian  
crossings

## PRODUCT ADVANTAGES:

- smartpole Crossing solution improves pedestrian and driver concentration
- asymmetrical lighting improves visibility at and around the crossing, increasing pedestrian safety
- light signals alert drivers to the presence of people in the crossing area who want to cross to the other side
- intelligent motion detection sensors ensure optimal traffic flow
- algorithms ensure that the visual and acoustic warning systems are active long enough to allow disabled people, the elderly and children to cross
- a voice message informs pedestrians approaching the crossing that they need to take extra care

# Smartpole Crossing

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## Technical properties:

- pole height: 6 [m] (above the ground)
- installation type: direct burial or base plate
- pole weight with accessories: approx. 70 kg
- cylindrical pole - diameter 175 [mm]
- warning signals in the form of 9 flashing lamps placed in the pole structure
- luminaire with asymmetrical illumination
- illuminated traffic sign D-6 with translucent reflective film<sup>1</sup>
- motion sensor
- loudspeaker for broadcasting voice messages
- a radio communication system between the poles
- a system that maintains the power supply to sensors and light and sound signals after the mains power supply is disconnected
- power system (network)

<sup>1</sup> It is possible to order a different traffic sign, e.g. T-27 or D-6b

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## Standard colours:



RAL 7016



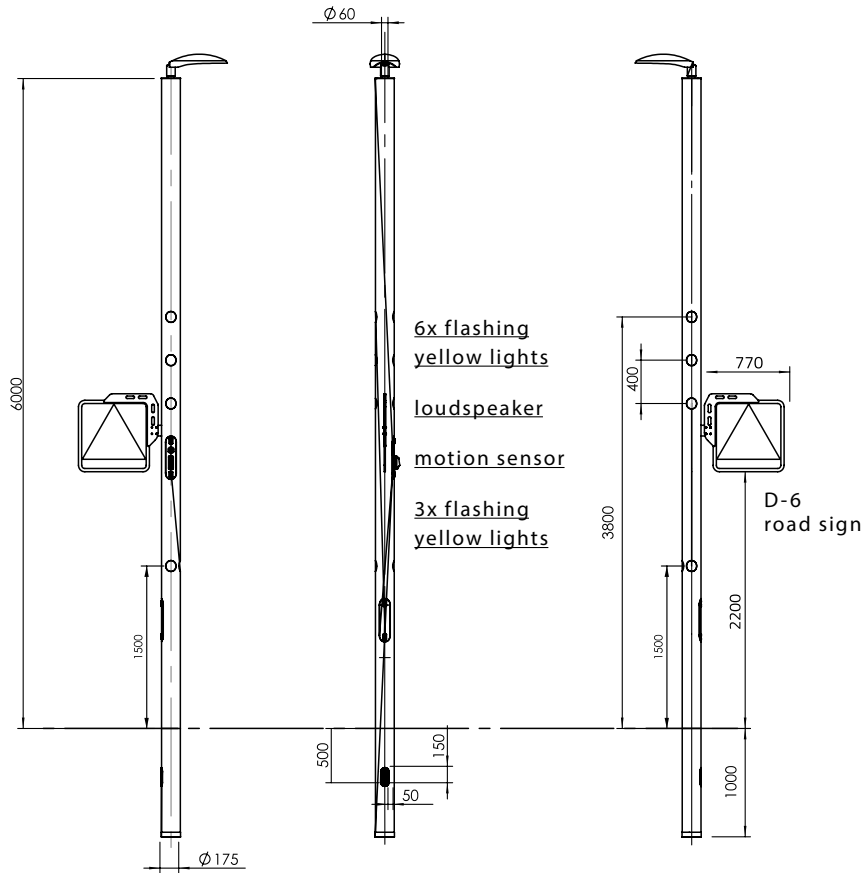
RAL

Possibility to produce poles in any RAL colour



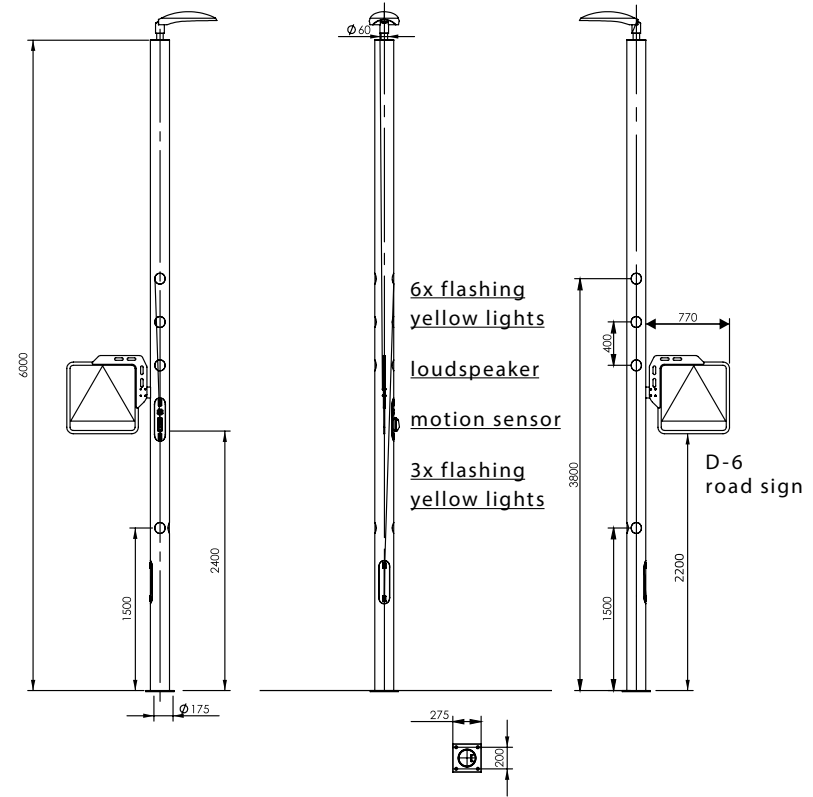
# SKPW

## SMARTPOLE CROSSING direct buried



# SKPF

## SMARTPOLE CROSSING with base plate



**The recommended soil compaction index  $I_s$  should be between 0.95 and 1.02 (according to PN-EN ISO 14688-2)**



**Ustron**  
**Hotel Wilga**  
Foto: K. Matuszyński

# Electric car charging stations (Smartpole Charger)

Composite solutions for electromobility

EV charging stations made from the highest quality composite on a low composite pole and in a composite lighting column.

## APPLICATION:



Commercial facilities



Gas stations



HoReCa



Road construction



Parking

## PRODUCT ADVANTAGES:

- low installation and operating costs ensure quick return on investment
- integrated LCD display
- the products we offer have passed rigorous tests for safety of use
- the product specifications make it possible to take advantage of many public funding programmes
- external communication according to OCCP 1.6 or newer protocol

# Electric car charging stations

- EV charging station built in a low composite pole (**Charging Pole**)
- EV charging station built in a composite lighting pole, max 6 [m] (**Charging Lighting Pole**)

**Please note: Possibility of using the existing (electrical) connection infrastructure.**

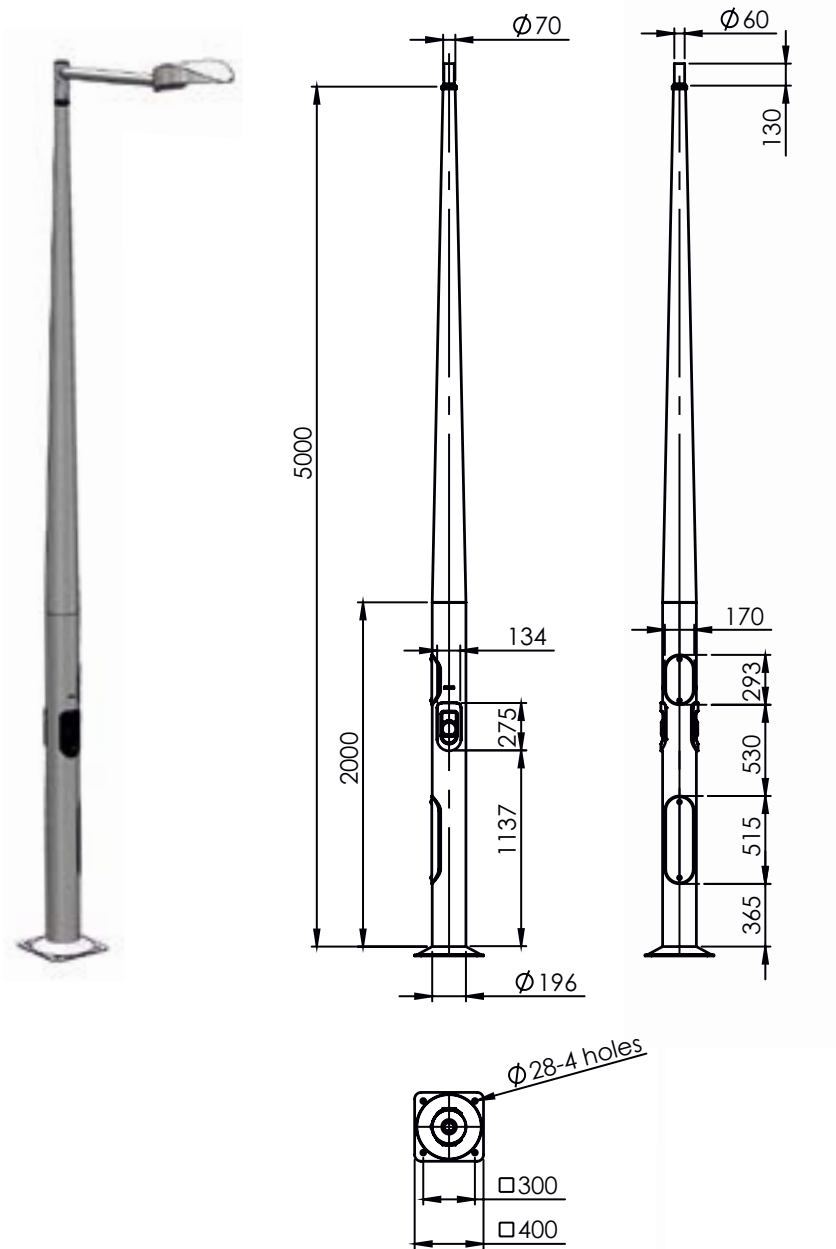
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## Technical properties:

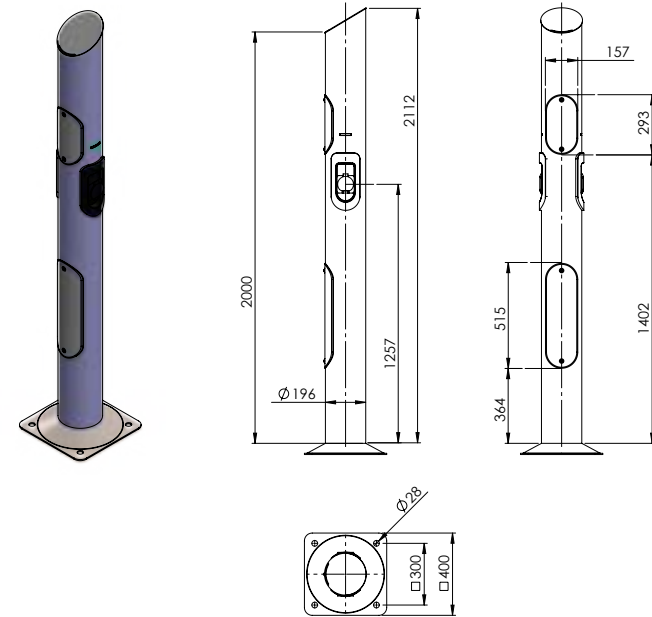
- charging power: 2×7.4 [kW] (16 [A]); 2×22 [kW] (32 [A])
- power supply: single or three-phase
- charging socket or spiral cables up to 4 [m] (type 2)
- authorization: RFID or via application (Elocity)
- protection level: IP 54 , IK 10
- approval for public use (submission and approval of documentation by the Office of Technical Inspection)
- safety: MCB overcurrent protection, residual current protection – RCB class A or B
- energy measurement: MID counter
- driver - system controller (GPS/GPRS)



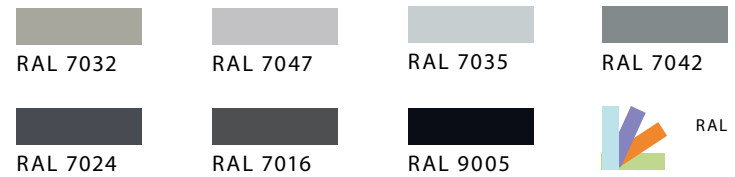
EV charging station built in a composite lighting pole, max 6 [m]  
**(Charging Lighting Pole 2 x 22 [kW])**



EV charging station built in a low composite pole  
**(Charging Pole 2 x 22 [kW])**



**Standard colours:**



Possibility to produce poles in any RAL colour

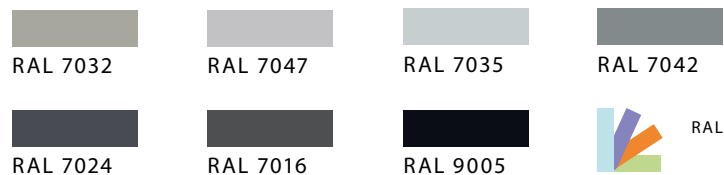
# Electric car charging stations

- EV charging station (Wallbox) built into a low composite pole with the option to backlight the logo.

## Technical properties:

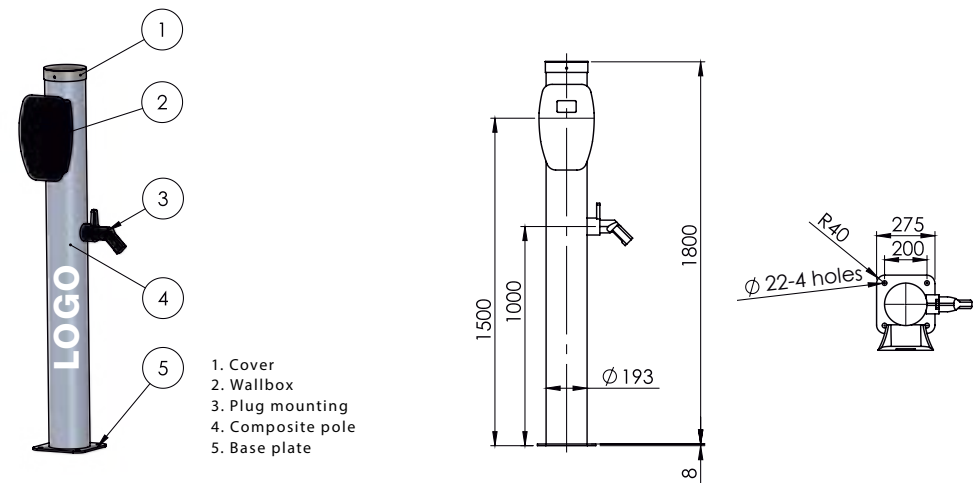
- Charging power: 3.7 [kW] (16 [A]); 7.4 [kW] (32 [A]); 11 [kW] (16 [A]); 22 [kW] (32 [A])
- Dimensions: 320 x 210 x 120 [mm]
- Energy meter compatible with external MID meters or CT sensor
- Operating temperature: from -25 to +50°C
- Protection rating: IP 55, IK 08
- There is a possibility to order only the composite pole with backlighting option

## Standard colours:

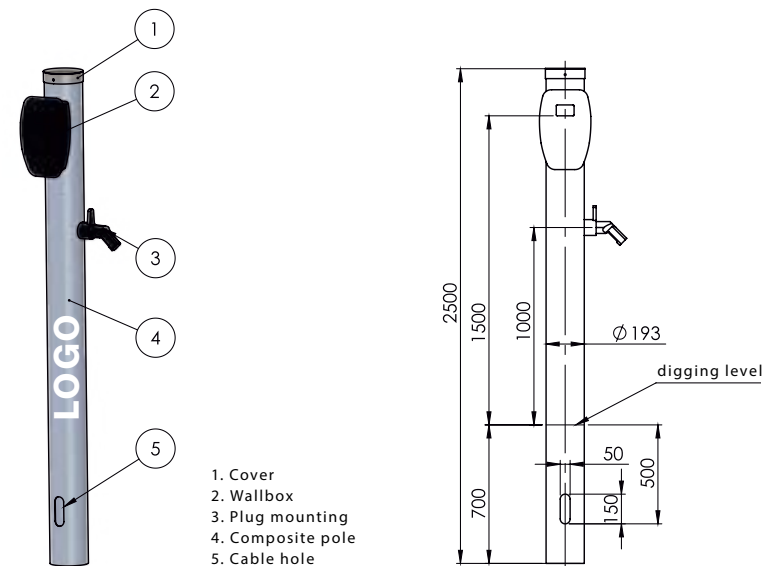


Possibility to produce poles in any RAL colour

EV charging station built into a low composite pole with a base plate and the option to backlight the logo (**WALLBOX SKWF-1,8-193**)



EV charging station built into a low composite pole with the option to backlight the logo (**WALLBOX SKWW-2,5-193**)

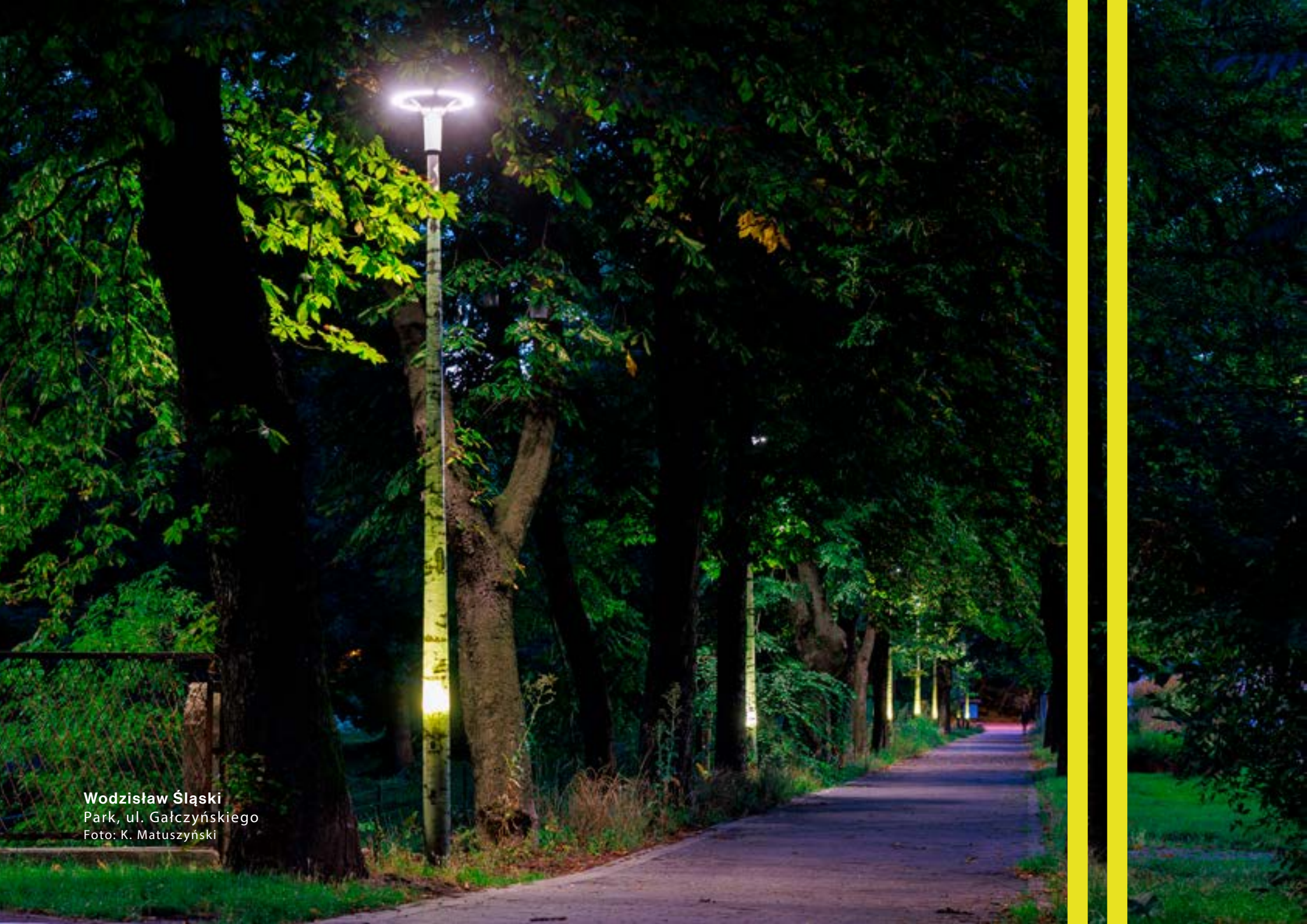


## Charging efficiency comparison table

Nominal power of the station- charging point [kW]	Increase in the range of an electric vehicle (emission-free) (km /1h of charging) <sup>1</sup>	Time required to fully recharge (7% to 90%) a 70 kWh battery [h] <sup>2</sup>	Additional information
3,7 (e.g. : factory converter + home socket)	17	19	<ul style="list-style-type: none"> <li>— long charging time· limiting the possibility of using a zero-emission vehicle·</li> <li>— relatively lower level of safety of the charging process</li> </ul>
7 (e.g. single-phase charging station EV Charge)	36	9,5	<ul style="list-style-type: none"> <li>— optimal charging time</li> <li>— competitive price</li> <li>— relatively low load on the electrical system</li> <li>— minor impact on the reduction of battery life</li> </ul>
22 (e.g. three-phase charging station EV Charge)	115	3,2	<ul style="list-style-type: none"> <li>— very short charging time.</li> <li>— relatively high load on the electrical system.</li> </ul>

<sup>1</sup> Consumption of electricity by a given vehicle as well as the level of discharge and the condition of the battery.

<sup>2</sup> The estimated value depends mainly on the condition of the battery and the outside temperature. It should be remembered that the charging power graph is exponential as it decreases with the charging time.



**Wodzisław Śląski**  
Park, ul. Gałczyńskiego  
Foto: K. Matuszyński

# Designpole

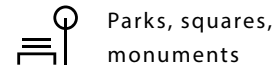
A distinctive emphasis on good design

A collection of composite lighting poles **with stylish graphics** - external pattern and internal illumination.

Order a custom design or choose from ready-made graphics (e.g., birch pattern, lentils, and more).

**Designpole is an ideal solution** for parks, squares, playgrounds, alleys and many other places where an elegant and practical solution is required.

## APPLICATION:



Parks, squares, monuments



Playgrounds, recreational facilities



Commercial facilities



HoReCa



Local government, administration

## PRODUCT ADVANTAGES:

- modern design adapted to the customer's requirements and conditions (e.g. logo, city coat of arms, advertising slogan, pattern matched to the building facade or surroundings)
- at the customer's request, a motion sensor can be installed
- the possibility of using aesthetic and practical internal lighting of the column. This is also a way to save energy (details on page 43)
- low transport and assembly costs resulting from the low weight of the product, and thus large loading possibilities
- resistance to adverse weather conditions, acids, road salt, animal urine
- composite structures do not conduct electric current
- exceptional durability - approx. 40-50 years\*
- no need to use heavy and expensive equipment at the installation stage
- no scrap value
- environmentally friendly - low CO<sub>2</sub> emissions

\*based on scientific studies

# Designpole

## Technical properties:

- pole height: from 3 to 12 [m] (above the ground)
- bottom diameter of the poles: from 130 to 220 [mm], top diameter of the poles: 60 [mm]
- installation type: direct buried or base plate
- pole weight: from 9 to 85,5 [kg]
- possibility to produce a pole with the required technical parameters
- inspection door at a height (dimensions can be modified)
- flammability class HB, according to ASTM D635:2014
- water absorption  $\leq 10\%$ , according to PN-EN ISO 62:2000
- tensile strength  $> 300$  MPa, according to PN-EN ISO 527-4:2000
- flexural strength under the influence of external factors according to PN-EN ISO 178:2011
- hardness  $> 40$  HBa, according to PN-EN 59:2002
- surface resistivity  $2.69 \Omega\text{m} \times 10^{13}$ , WG ASTM D257:1991
- volume resistivity  $7.67 \Omega\text{m} \times 10^{12}$ , according to ASTM D257:1991
- dielectric strength  $\geq 5$  kV/mm, according to PN-EN 60243-1:2013

## Pole designs in the standard offer:



birch



clover



candy



wood



Possibility of using individual graphics, examples:

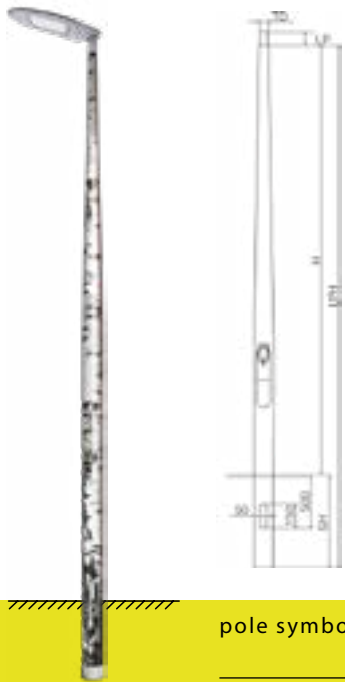


Colour saturation and tone may vary depending on the production lot.



## SKPW-D

DESIGNPOLE direct buried



**Easy installation:** poles are installed without the use of heavy equipment.



**The recommended soil compaction index Is** should be between 0.95 and 1.02 (according to PN-EN ISO 14688-2)

## SKPF-D

DESIGNPOLE with base plate

**Internal LED illumination 5W / 230 [VAC] / 4000 [K] Backlight visibility at a height of 1 [m] to 2.5 [m]**

In a situation where there is no pedestrian traffic and therefore no need to switch on the top luminaire, it is possible to take advantage of the so-called visual tracking effect\*

\* at the customer's request (motion sensor)



pole symbol	H [m]	BD [mm]	TD [mm]	LP [mm]	LPH [m]	GH [m]	W [kg]
SKPW-D 3,0/130/60	3,0	130	60	130	4,0	1,0	9
SKPW-D 3,0/150/60	3,0	150	60	130	4,0	1,0	10
SKPW-D 4,0/130/60	4,0	130	60	130	5,0	1,0	10,5
SKPW-D 4,0/150/60	4,0	150	60	130	5,0	1,0	12
SKPW-D 5,0/175/60	5,0	175	60	130	6,0	1,0	19
SKPW-D 6,0/175/60	6,0	175	60	130	7,0	1,0	23
SKPW-D 7,0/193/60	7,0	193	60	130	8,2	1,2	30,5
SKPW-D 8,0/193/60	8,0	193	60	130	9,2	1,2	35
SKPW-D 9,0/193/60	9,0	193	60	130	10,5	1,5	47,5
SKPW-D 10,0/193/60	10,0	193	60	130	11,8	1,8	54,5
SKPW-D 11,0/193/60	11,0	193	60	130	12,8	1,8	59,5
SKPW-D 11,0/220/60	11,0	220	60	130	12,8	1,8	67,5
SKPW-D 12,0/220/60	12,0	220	60	130	13,8	1,8	72

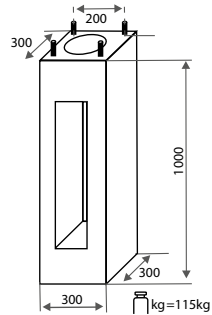
At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions.

pole symbol	H [m]	BD [mm]	TD [mm]	LP [mm]	BPL [mm]	BPHD [mm]	W [kg]
SKPF-D 3,0/130/60	3,0	130	60	130	275	200	15
SKPF-D 3,0/150/60	3,0	150	60	130	275	200	16
SKPF-D 4,0/130/60	4,0	130	60	130	275	200	16,5
SKPF-D 4,0/150/60	4,0	150	60	130	275	200	18
SKPF-D 5,0/175/60	5,0	175	60	130	275	200	25
SKPF-D 6,0/175/60	6,0	175	60	130	275	200	29
SKPF-D 7,0/193/60	7,0	193	60	130	400	300	39,5
SKPF-D 8,0/193/60	8,0	193	60	130	400	300	44
SKPF-D 9,0/193/60	9,0	193	60	130	400	300	54
SKPF-D 10,0/193/60	10,0	193	60	130	400	300	61
SKPF-D 11,0/193/60	11,0	193	60	130	400	300	65
SKPF-D 11,0/220/60	11,0	220	60	130	400	300	81
SKPF-D 12,0/220/60	12,0	220	60	130	400	300	85,5

At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions.

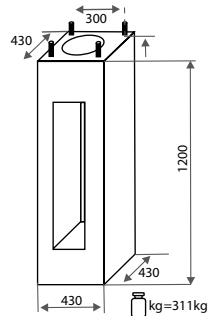
# Selected additional accessories

## Prefabricated concrete foundations



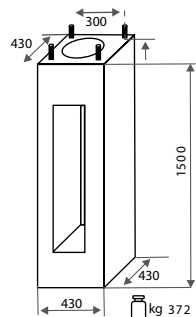
### F100/30

**For lighting poles up from 3,0 [m] - 6,0 [m]**  
For a pole with 200 mm bolt spacing with a mounting kit (nuts and bolts).



### F120/43

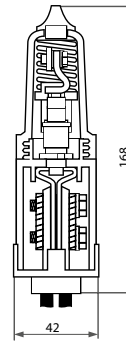
**For lighting poles from 7 [m] - 10 [m]**  
For a pole with 300 mm bolt spacing with a mounting kit (nuts and bolts).



### F/150/43

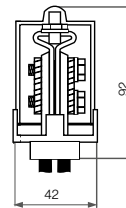
**For lighting poles from 11 [m] - 12 [m]**  
For a pole with 300 mm bolt spacing with a mounting kit (nuts and bolts).

## Cable joints



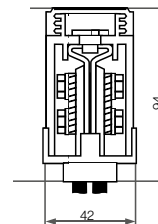
### IZK-4-01

Insulating cable joint (single-phase with fuse space). The cable joint does not include a fuse. IP 54, IK 10



### IZK-4-03

Insulating cable joints (neutral). IP 54, IK 10



### IZK-4-02

Insulating cable joint (phase). IP 54, IK 10

## Inspection door

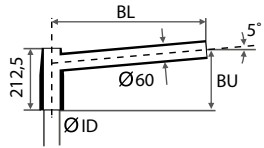
Made of composite material in colour and dimensions adapted to the poles. Complete product, ready for installation.



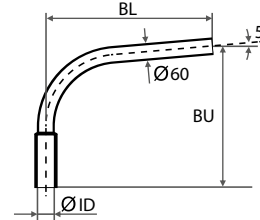
### Please note:

A Z-type allen key (6 [mm]) is required for assembly

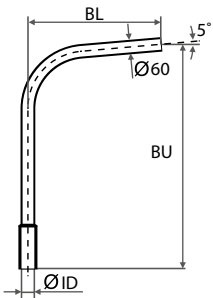
## Single arm bracket, inclination angle 5°



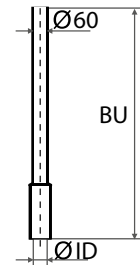
WJ1 GROUP				
bracket symbol	BL [mm]	ID [mm]	BU [mm]	W [kg]
WJ1/60/5/500	500	60	200	1,8
WJ1/60/5/1000	1000	60	249	2,6
WJ1/60/5/1500	1500	60	293	3,4



WJ3 GROUP				
bracket symbol	BL [mm]	ID [mm]	BU [mm]	W [kg]
WJ3/60/5/500	500	60	500	2,4
WJ3/60/5/1000	1000	60	500	3,4
WJ3/60/5/1500	1500	60	500	4,2

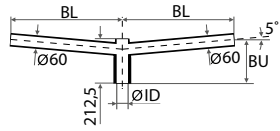


WJ2 GROUP				
bracket symbol	BL [mm]	ID [mm]	BU [mm]	W [kg]
WJ2/60/5/500	500	60	1000	3,4
WJ2/60/5/1000	1000	60	1000	4,2
WJ2/60/5/1500	1500	60	1000	5,0

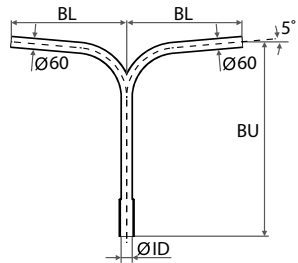


WP GROUP			
one-sided, vertical, straight			
bracket symbol	ID [mm]	BU [mm]	W [kg]
WP/60/1000	60	1000	2,6

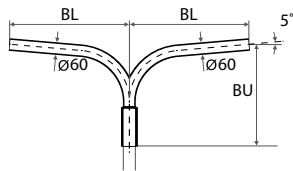
## Double arm bracket, inclination angle 5°



WD1 GROUP				
bracket symbol	BL [mm]	ID [mm]	BU [mm]	W [kg]
WD1/60/5/500	500	60	200	2,6
WD1/60/5/1000	1000	60	249	4,2
WD1/60/5/1500	1500	60	293	5,8

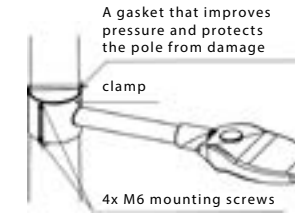


WD2 GROUP				
bracket symbol	BL [mm]	ID [mm]	BU [mm]	W [kg]
WD2/60/5/500	500	60	1000	4,2
WD2/60/5/1000	1000	60	1000	5,8
WD2/60/5/1500	1500	60	1000	7,4



WD3 GROUP				
bracket symbol	BL [mm]	ID [mm]	BU [mm]	W [kg]
WD3/60/5/500	500	60	500	3,2
WD3/60/5/1000	1000	60	500	5,0
WD3/60/5/1500	1500	60	500	6,6

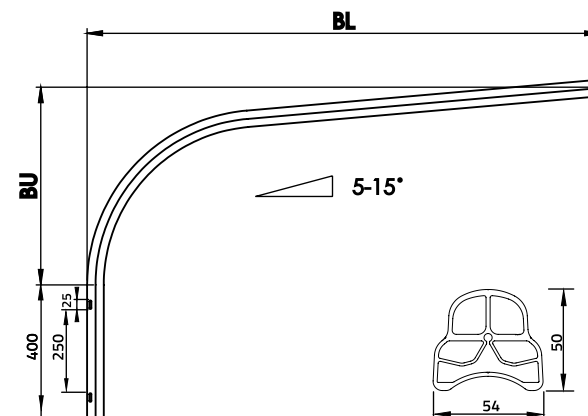
## Bracket on a clamp inclination angle 5°



BRACKET ON A CLAMP			
bracket symbol	Arm length [mm]	Arm diameter [mm]	W [kg]
WO/60/5/500	500	60	2,6
WO/60/5/1000	1000	60	4,2

Clamp diameter on order

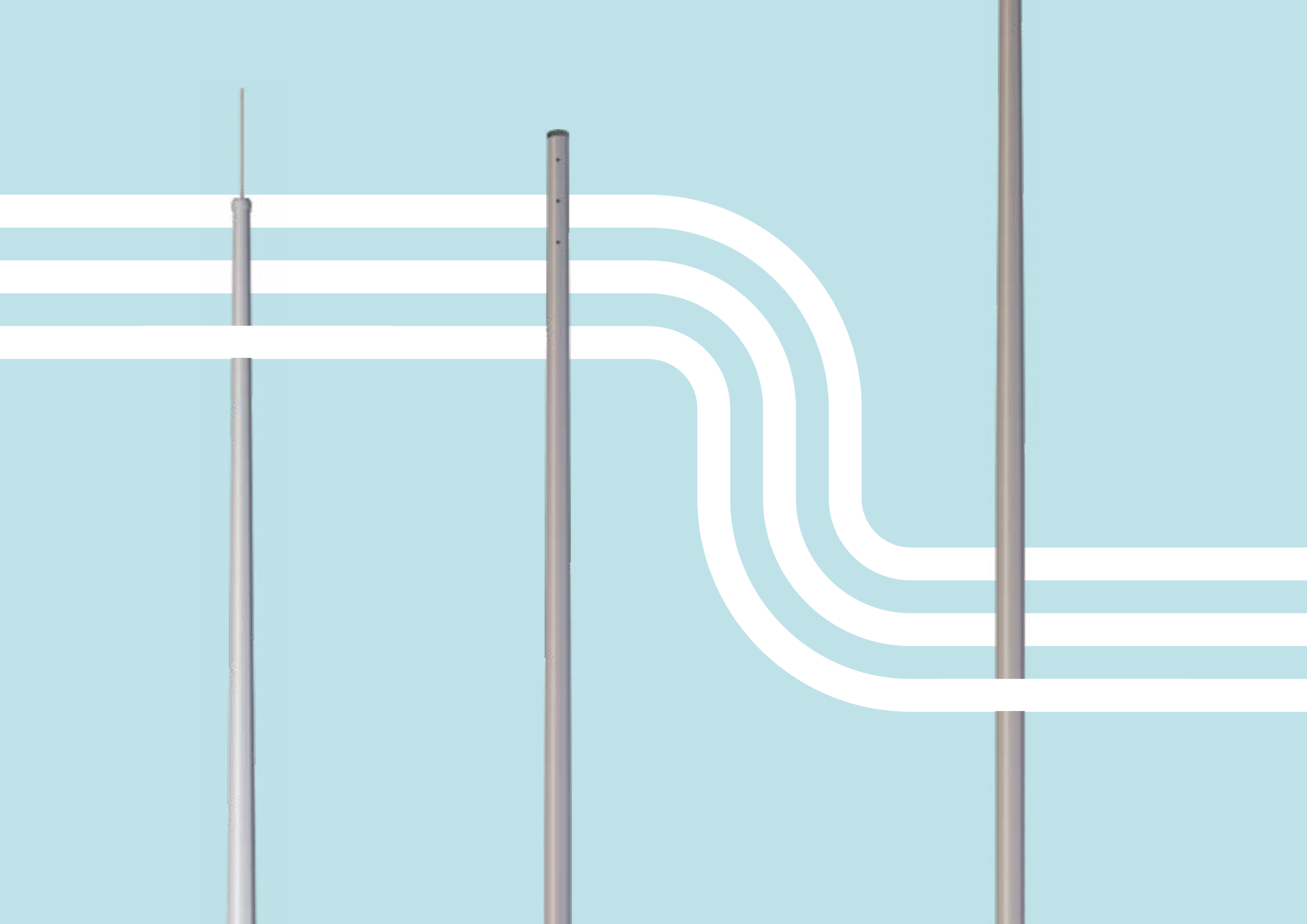
WADER  
bracket



WADER GROUP		
bracket symbol	BL [mm]	BU [mm]
wader 500/500	500	500
wader 500/1000	1000	500
wader 500/1500	1500	500
wader 1000/500	500	1000
wader 1000/1000	1000	1000
wader 1000/1500	1500	1000

Lightweight construction 1 [m] = 1,7 [kg]

Possibility of painting the bracket in any RAL color





# Specialised solutions

- Technical poles
- Masts
- Other products and accessories



# Telecommunication poles

High quality composite structure dedicated to the telecommunications, construction and electrical installation industries.

Low weight combined with high physical and chemical resistance **ensures efficient installation and long-term trouble-free operation**, e.g. fibre optic cable.

## APPLICATION:



Construction



Monitoring



Telecommunications /  
Fiber optic networks

## PRODUCT ADVANTAGES:

- an ideal alternative to wooden and concrete poles
- low transport costs and high load capacity (pole 7 [m] 0,7 [nK] 1 TIR up to 300 poles)
- manual handling of poles possible in difficult terrain
- possibility of efficient and cost-effective installation without the use of heavy equipment
- increased apical force and low coefficient of permanent deformation
- multiple apical force levels to choose from
- high resistance to vandalism, adverse weather conditions, road salt, animal urine
- wide range of applications - telecommunication cables (e.g. fibre optic, surveillance)
- short installation time using special mounting mass
- recommended by the Telecommunication Builders Association
- exceptional durability - approx. 40-50 years\*
- environmentally friendly - low CO<sub>2</sub> emissions

\*based on scientific studies

# Telecommunication poles

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## Technical properties:

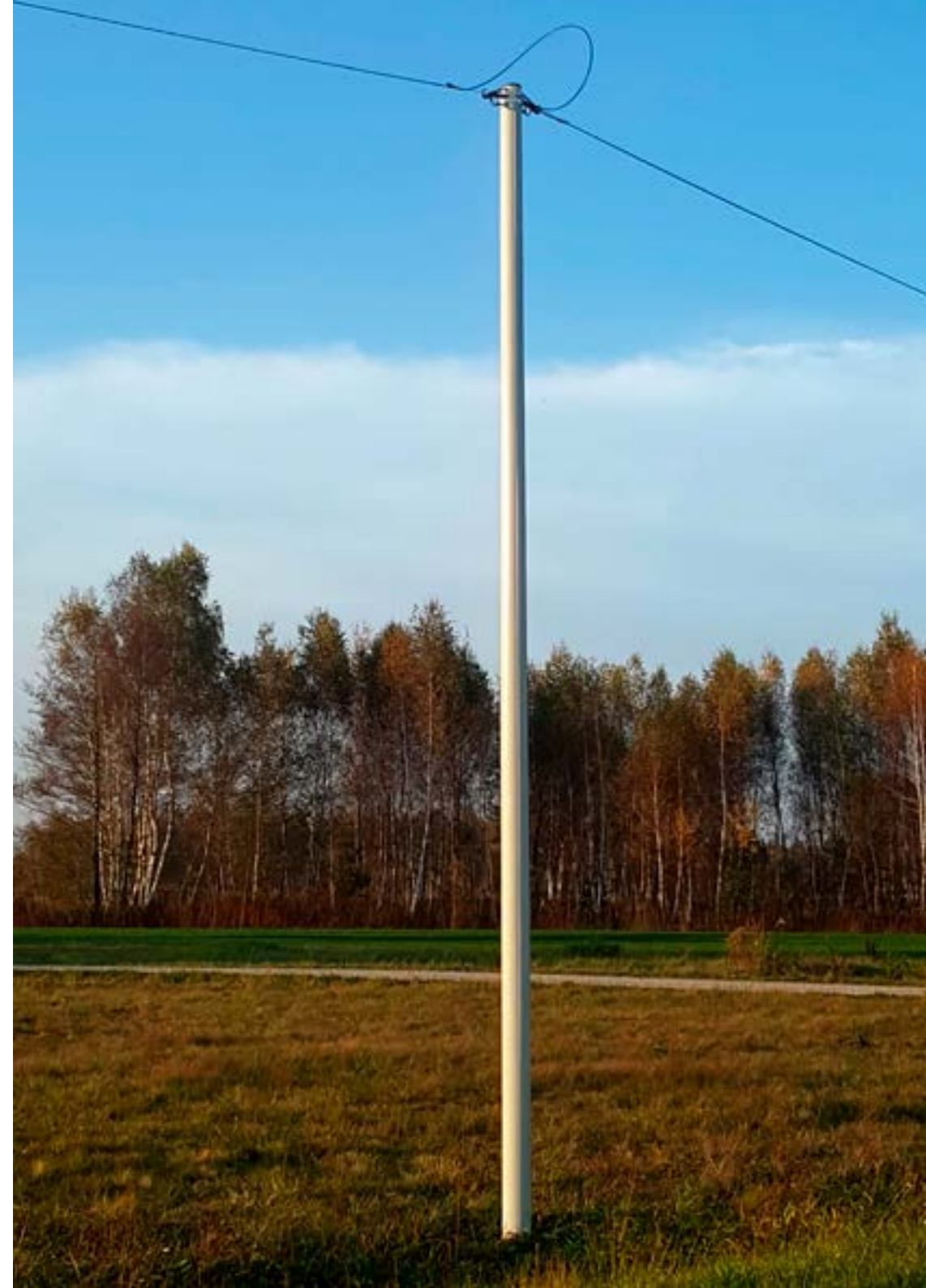
- pole height: 7 [m]; 8.5 [m]; 10 [m]
- apical force: 0,3 [kN], 0,7 [kN], 1,6 [kN], 2,5 [kN]
- possibility to produce a pole with various technical parameters
- installation type: direct burial
- pole weight: from 12 to 55 [kg]
- possibility of using individual colours or external graphics (e.g. birch, wood, advertising and information graphics)  
possibility of using two-component assembly foam
- flammability class HB, according to ASTM D635:2014
- water absorption  $\leq 10\%$ , according to PN-EN ISO 62:2000
- tensile strength  $> 300$  MPa, according to PN-EN ISO 527-4:2000
- flexural strength under the influence of external factors according to PN-EN ISO 178:2011
- hardness  $> 40$  HBa, according to PN-EN 59:2002
- surface resistivity  $2.69 \Omega\text{m} \times 10^{13}$ , WG ASTM D257:1991
- volume resistivity  $7.67 \Omega\text{m} \times 10^{12}$ , according to ASTM D257:1991
- dielectric strength  $\geq 5$  kV/mm, according to PN-EN 60243-1:2013

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## Standard colours:

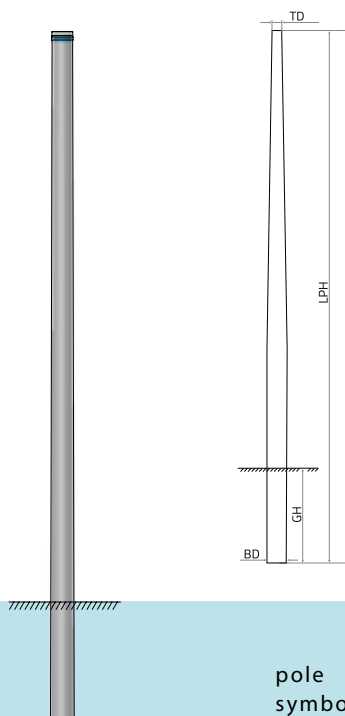


Possibility to produce poles in any RAL colour



# TKPW

## TELECOMMUNICATION POLE direct buried



**The recommended soil compaction index Is** should be between 0.95 and 1.02 (according to PN-EN ISO 14688-2)



The GH embedding value represents the minimum required for medium-grade soils.

Possibility of using two-component assembly foam

pole symbol	LPH [m]	Apical force [kN]	BD [mm]	TD [mm]	GH [m]	W [kg]
TELETECHNIK 7,0/0,3kN	7	0,3	140	110	1,2	12
TELETECHNIK 8,5/0,3kN	8,5	0,3	165	120	1,2	18
TELETECHNIK 10,0/0,3kN	10	0,3	165	120	1,5	23,5
TELETECHNIK 7,0/0,7kN	7	0,7	140	110	1,2	13,7
TELETECHNIK 8,5/0,7kN	8,5	0,7	165	120	1,2	27
TELETECHNIK 10,0/0,7kN	10	0,7	193	140	1,5	27,6
TELETECHNIK 7,0/1,6kN	7	1,6	165	120	1,2	22
TELETECHNIK 8,5/1,6kN	8,5	1,6	165	120	1,2	28,5
TELETECHNIK 10,0/1,6kN	10	1,6	193	140	1,5	48
TELETECHNIK 7,0/2,5kN	7	2,5	200	150	2,0	23
TELETECHNIK 8,5/2,5kN	8,5	2,5	240	200	2,0	41,5
TELETECHNIK 10,0/2,5kN	10	2,5	240	200	2,0	55

At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions.



Tryńcza  
Foto: K. Matuszyński

# Power poles

Composite technology for special applications

Thanks to the properties of the composite material, power poles are characterised by **high physical and mechanical strength and low weight, allowing efficient transport even in the most inaccessible terrain.** They are an ideal alternative to concrete, wood and steel poles.

## APPLICATION:



Construction



Energetics

## PRODUCT ADVANTAGES:

- high durability and mechanical resistance
- resistance to adverse weather conditions, animal urine, acids, alkalis and road salt
- no electrical conductivity
- light weight, reducing transport costs by up to 60% compared to traditional poles
- the light weight of the product allows efficient installation of a line even in the most inaccessible areas without the use of heavy equipment
- shorter investment implementation time
- no corrosion
- various colors and external graphics available
- certificate of conformity with the company standard
- exceptional durability - approx. 40-50 years\*
- environmentally friendly - low CO<sub>2</sub> emissions

\*based on scientific studies

# Power poles

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## Technical properties:

- pole height: from 9 [m], 10,5 [m], 12 [m]
- bottom diameter of the poles: from 193 to 280 [mm],
- installation type: direct buried
- pole weight: from 60 to 120 [kg]
- flammability class HB, according to ASTM D635:2014
- water absorption  $\leq 10\%$ , according to PN-EN ISO 62:2000
- tensile strength  $> 300$  MPa, according to PN-EN ISO 527-4:2000
- flexural strength under the influence of external factors according to PN-EN ISO 178:2011
- hardness  $> 40$  HBa, according to PN-EN 59:2002
- surface resistivity  $2.69 \Omega\text{m} \times 10^{13}$ , WG ASTM D257:1991
- volume resistivity  $7.67 \Omega\text{m} \times 10^{12}$ , according to ASTM D257:1991
- dielectric strength  $\geq 5$  kV/mm, according to PN-EN 60243-1:2013

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## Standard colours:

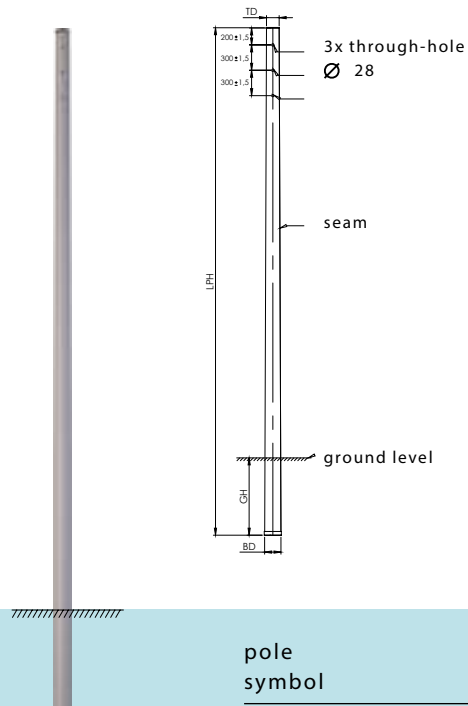


Possibility to produce poles in any RAL colour



# EKO

## POWER POLE direct burial



**The recommended soil compaction index Is** should be between 0.95 and 1.02 (according to PN-EN ISO 14688-2)



Pole equipment based on the album LnniS TOMI published by STELEN 2011

The GH embedding value represents the minimum required for medium -grade soils

## Pole reinforcement - direct buried pole



Installation without additional support elements



Installation with additional support element - slab

pole symbol	LPH [m]	GH [m]	TD [mm]	BD [mm]	Apical force [kN]	S-color*
EKO 9,0/2,5kN	9	1,8	150	193	2,5	WHITE
EKO 9,0/4,5kN	9	2,0	150	193	4,5	BLUE
EKO 9,0/6kN	9	2,0	173	220	6	BLACK
EKO 10,5/2,5kN	10,5	1,8	150	193	2,5	WHITE
EKO 10,5/4,5kN/150	10,5	1,9	150	193	4,5	BLUE
EKO 10,5/4,5kN/173	10,5	1,9	173	193	4,5	BLUE
EKO 10,5/6kN	10,5	2,1	173	250	6	BLACK
EKO 10,5/11kN	10,5	2,2	173	280	11	RED
EKO 12,0/2,5kN	12	1,9	173	220	2,5	WHITE
EKO 12,0/4,5kN	12	2,1	173	250	4,5	BLUE
EKO 12,0/6kN	12	2,2	218	250	6	BLACK

At the customer's request, it is possible to produce poles with non-standard parameters. Possibility to reinforce the pole for difficult operating conditions. The digging depth depends on the soil class, height and apical force of the pole.

### Optional accessories:

1. Slab U-85 (dimensions: 85x60 [cm]), 2 x OU-1 clamp, nuts and washers
2. Slab U-130 (dimensions: 130x60 [cm]), 2 x OU-1 clamp, nuts and washers
3. Slab 35 x 35 [cm]
4. WADER bracket (extended lead time, ask about availability)

\*Color of the tape marking apical force



Chmielniki  
Jastków  
Foto: K. Matuszyński

**Innovative composite solutions** for hop growing are working perfectly at, i.e. the Jastków, Gutanów, Karczmiska, Puławy, Bielkówek and many more plantations in Poland. We also have **experience in bioremediation** of PAH-contaminated land.



High quality hop production and processing

The use of composite structures in hop trellises allows us to obtain the highest quality raw material, free from pollution.



Effective transport

A single full truckload (24-ton capacity) can carry approximately 100 hop trellis poles – maximizing delivery efficiency.



Quick and economical installation

With a weight range of just 28–65 kg, the poles can be installed effortlessly – no need for heavy machinery.

# Composite hop trellis

Advanced technology  
for hop cultivation

NCT is **the world's only manufacturer of a complete system of technologically advanced composite hop trellis.**

This makes it possible to monitor and increase the efficiency of hop cultivation without PAHs.

## APPLICATION:



Agriculture

## PRODUCT ADVANTAGES:

- the poles are made of composite materials: fiberglass and polyester resins
- the composite structure of the hop field does not emit harmful substances (including PAHs)
- the properties of the composite are ideal for the challenging environment of the hop field agrocenosis
- possibility to create an environmental monitoring system in hop fields
- long lifespan of the pole: 40-50 years\*
- transportation and installation are easy and economical: composite structures are lightweight and do not require heavy equipment

\*based on scientific studies

# Composite hop trellis

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## Technical properties:

- pole height: 8 - 9,2 [m] (total length)
- installation type: direct buried
- the hop field structure is based on composite cylindrical poles with a diameter of 200 [mm]. The structure includes:
  - central poles
  - line end poles and beam end poles
  - corner poles
- possibility to produce masts on request in a wide range of technical parameters
- loading capacity: TIR [24t] - approx. 100 - 120 poles
- possibility of using individual colours or external graphics (e.g. birch pattern, advertising and information graphics)

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## Standard colours:

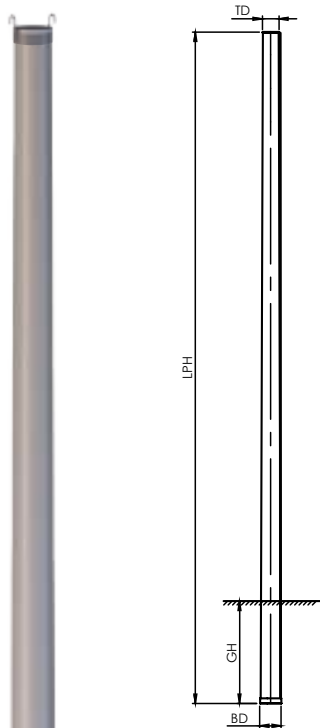


For easy identification, corner poles will be manufactured in a different RAL color

Possibility to produce poles in any RAL colour



## COMPOSITE STRUCTURES FOR HOP TRELLIS



type pole	LPH [m]	BD [mm]	TD [mm]	GH [m]	pole load force in axis [kN]	W [kg]	Apical force [kN]
central pole	8	200	200	1,0	20	30	1,6
line end pole	9	200	200	1,20	44,9	54	5,4
beam end pole	9	200	200	1,20	44,9	54	5,4
corner pole	9,2	200	200	1,30	46,2	62	6

At the customer's request, it is possible to produce poles with non-standard parameters.  
Possibility to reinforce the pole for difficult operating conditions.

### Pole covers for net installation



Central poles cover



End poles cover



Pole sinking prevention cover



# Stormpole

Effective lightning protection

Polymer composites are an ideal material for lightning protection structures.

The purpose of the mast is to **protect homes and industrial installations from the effects of lightning.**

The composite lightning protection mast provides the required separation from the protected objects while minimising the costs of installation, maintenance and use.

## APPLICATION:



Construction



Gas stations



Waterworks



Industrial  
factories



Private  
properties

## PRODUCT ADVANTAGES:

- the mast insulates the lightning conductor and protects the surrounding area
- protected area: from 20 to 40 meters depending on the protection level
- resistance to adverse weather conditions and acids, road salt, animal urine
- composite structures do not conduct electric current
- a composite lightning pole has no scrap value
- lightweight and durable construction with high resistance to vandalism
- exceptional durability - approx. 40-50 years\*
- environmentally friendly - low CO<sub>2</sub> emissions

\*based on scientific studies

# Stormpole

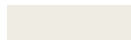
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## Technical properties:

- mast height: from 5-19 [m]
- bottom diameter of the masts: from 120 to 200 [mm],
- installation type: direct buried or with base plate
- mast weight: from 15 to 172 [kg]
- flammability class HB, according to ASTM D635:2014
- water absorption  $\leq 10\%$ , according to PN-EN ISO 62:2000
- tensile strength  $> 300$  MPa, according to PN-EN ISO 527-4:2000
- flexural strength under the influence of external factors according to PN-EN ISO 178:2011
- hardness  $> 40$  HBa, according to PN-EN 59:2002
- surface resistivity  $2.69 \Omega\text{m} \times 10^{13}$ , WG ASTM D257:1991
- volume resistivity  $7.67 \Omega\text{m} \times 10^{12}$ , according to ASTM D257:1991
- dielectric strength  $\geq 5$  kV/mm, according to PN-EN 60243-1:2013

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## Standard colours:

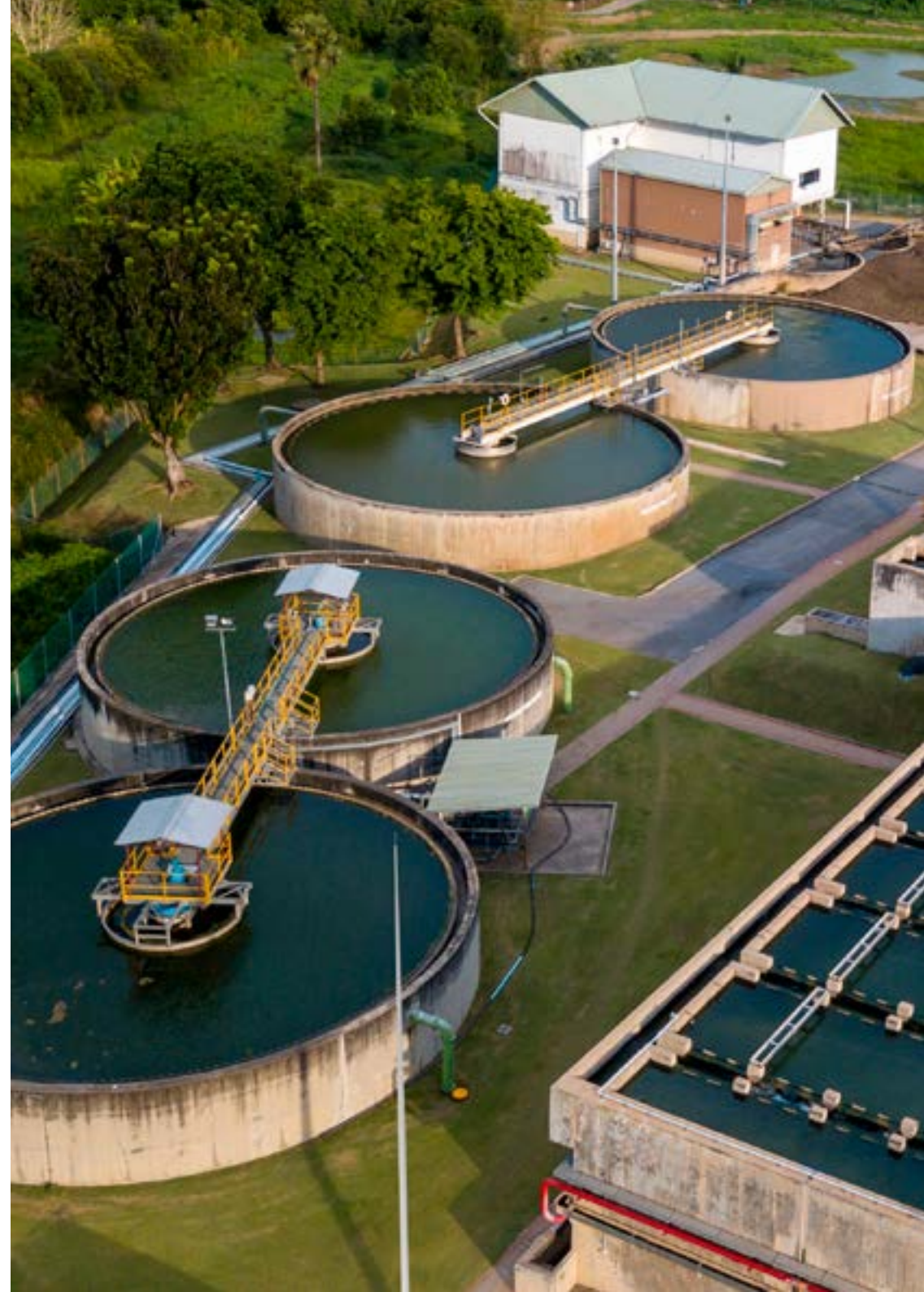


RAL

Gelcoat base: 10000

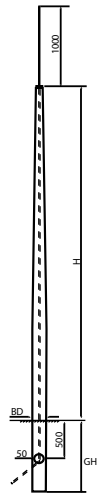
RAL palette (equivalent): 9010

Possibility to produce poles in any RAL colour



## SKPW-OD

direct buried lightning mast



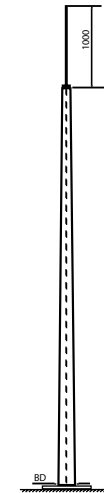
The recommended soil compaction index  $I_s$  should be between 0.95 and 1.02 (according to PN-EN ISO 14688-2)

mast symbol	H [m]	BD [mm]	GH [m]	W [kg]
SKPW-OD 5,0/120/65	5,0	120	1,0	15
SKPW-OD 6,0/120/65	6,0	120	1,0	18
SKPW-OD 7,0/120/65	7,0	120	1,2	21
SKPW-OD 8,0/120/65	8,0	120	1,2	23
SKPW-OD 9,0/145/65	9,0	145	1,5	29
SKPW-OD 10,0/145/65	10,0	145	1,5	31
SKPW-OD 11,0/145/65	11,0	145	1,5	41
SKPW-OD 12,0/175/65	12,0	175	1,8	54
SKPW-OD 13,0/175/65	13,0	175	2,0	92
SKPW-OD 14,0/175/65	14,0	175	2,0	102
SKPW-OD 15,0/175/65	15,0	175	2,0	105
SKPW-OD 16,0/175/65	16,0	175	2,0	112
SKPW-OD 17,0/175/65	17,0	175	2,0	116
SKPW-OD 18,0/200/65	18,0	200	2,0	125
SKPW-OD 19,0/200/65	19,0	200	2,0	128

Masts of 13 meters and above require the installation of guy wires.

## SKPF-OD

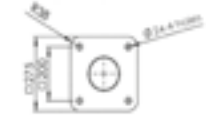
lightning mast with hinged base



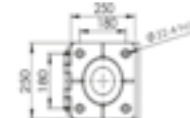
### Steel base plate



Embossed base 6 [mm]  
For masts 5 – 8 [m]



Flat base 10 [mm]  
For masts 9 – 12 [m]



Flat base with hinge 12 [mm]  
For masts 13 – 17 [m]



Flat base with hinge 20 [mm]  
For masts 18 – 19 [m]



The final decision as to the location of the foundations, the choice of foundation and the burial depth lies with the investor.

mast symbol	H [m]	BD [mm]	W [kg]
SKPF-OD 5,0/120/65	5,0	120	17
SKPF-OD 6,0/120/65	6,0	120	20
SKPF-OD 7,0/120/65	7,0	120	22
SKPF-OD 8,0/120/65	8,0	120	25
SKPF-OD 9,0/145/65	9,0	145	29
SKPF-OD 10,0/145/65	10,0	145	35
SKPF-OD 11,0/145/65	11,0	145	40
SKPF-OD 12,0/145/65	12,0	145	50
SKPF-OD 13,0/145/65	13,0	175	95
SKPF-OD 14,0/145/65	14,0	175	102
SKPF-OD 15,0/145/65	15,0	175	111
SKPF-OD 16,0/145/65	16,0	175	118
SKPF-OD 17,0/145/65	17,0	175	125
SKPF-OD 18,0/145/65	18,0	200	162
SKPF-OD 19,0/200/65	19,0	200	172

Masts of 13 meters and above require the installation of guy wires.

# Flagpoles

Composite structures  
of the highest quality

**They are perfect to advertise  
or represent and meet the needs**  
of institutional and corporate clients.

## APPLICATION:



Industrial  
factories



Local government,  
administration



Private  
properties



Commercial  
facilities



HoReCa



Parks, squares,  
monuments



## Available versions of composite flagpoles



### STANDARD

The flag is raised and lowered by a rope that is outside the mast. The rope is tied to a cleat placed 1.5 m above the ground. The exposure of the flag depends on the wind gusts.



### SUPER

The rope is located inside of the mast. The flag is raised and lowered by a rope attached to the internal cleat, which is hidden inside the mast tube. This solution provides partial protection against flag theft. A flag weight is attached to the underside of the flag to tension it.



### SUPERWINDTRACKER

It is a version with a rope inside and a horizontal arm at the top, attached to a rotating socket. This solution allows the flag to be fully displayed regardless of the wind.

# Fiberglass flagpoles

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## Product advantages:

- wide range of parameters and accessories
- exceptionally lightweight and easy to assemble composite structure
- no scrap value
- high resistance to vandalism, road salt, animal urine
- exceptional durability - approximately 40-50 years\*
- environmentally friendly - lower CO<sub>2</sub>

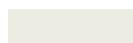
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## Technical properties:

- height of composite masts from 5 to 12 [m]
- MAXIMA masts: from 14 to 20 [m]
- installation type: hinged base
- fiberglass flagpoles weight: from 9 to 25 [kg]
- MAXIMA flagpoles weight: from 80 to 170 [kg]

---

## Standard colours:



RAL

Gelcoat base: 10000

RAL palette (equivalent): 9010

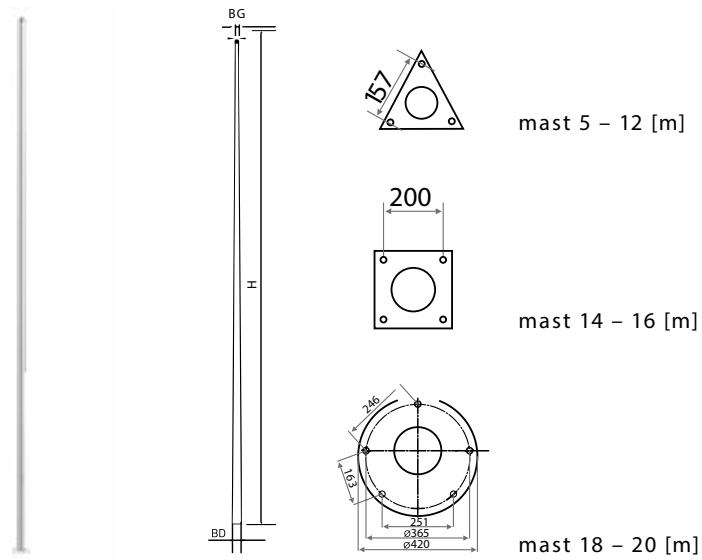
Possibility to produce poles in any RAL colour

\*based on scientific studies



# MFK

## fiberglass flagpoles



mast 5 – 12 [m]

mast 14 – 16 [m]

mast 18 – 20 [m]

## types of base plate



hinged base plate  
5 – 12 [m]



hinged base plate  
14 – 16 [m]



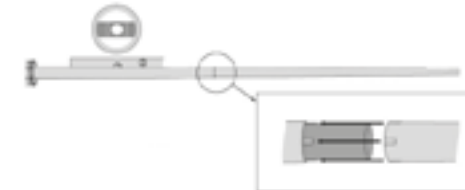
hinged base plate  
18 – 20 [m]

## additional mounting accessories



Portable steel base for MFK  
<= 12 [m] (for paving slabs).  
The number of slabs is  
determined after verification  
by the technical department.

### Mast assembly method



flagpole symbol	H [m]	BD [mm]	BG [mm]	Number of sections	Division height [m]
MFK 5,0	5	120	63	1	-
MFK 6,0	6	120	63	1	-
MFK 7,0	7	120	63	1	-
MFK 8,0	8	120	63	1	-
MFK 10,0	10	145	63	1	-
MFK 12,0	12	145	63	1	-
MFK 14,0	14	175	63	2	7
MFK 16,0	16	175	63	2	8
MFK 18,0	18	200	63	2	9
MFK 20,0	20	200	63	2	10

### The hinged base set includes:

1. Foundation bolts
2. Washers
3. Nuts
4. Caps

The set is sufficient for mast installation  
on the foundation according to the instructions.

# Pultrusion technology

## PRODUCT ADVANTAGES:

### Low weight

Lighter structure compared to traditional construction materials (steel or concrete) significantly reduces transport costs and facilitates installation.

### High durability

The low weight and high strength of pultrusion products allow them to be used in structures exposed to heavy loads.

### Dimensional stability

Our products show only minor dimensional changes with fluctuations in temperature and humidity. This guarantees the stability of the structure in the changing environmental conditions.

### Resistance to material fatigue

Pultrusion products are characterised by high resistance to material fatigue. They withstand repeated loads for a long time without cracking or damage.

### Design and moulding

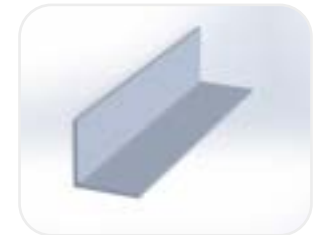
The pultrusion process allows to create profiles with complex shapes and precise dimensions. We can design a variety of forms and structures for you.

## Composite profiles

NCT composite profiles are an ideal alternative to traditional materials: concrete, aluminium, steel and wood. Strong, lightweight and durable construction made using the pultrusion method allows you to save on operating costs throughout the entire period of use. Exceptionally easy to process and install, they shorten assembly time and reduce expenses on specialised machines.

### A wide selection of profiles for demanding industries

In our standard offer we have a wide selection of profile shapes (U profiles, I-beams, and closed profiles), which are perfect even for demanding industries such as the maritime and shipbuilding sectors, railways, swimming pools, sewage treatment plants, cooling towers, and many others.



## Composite bars and meshes

Composite bars and meshes are an innovative, ecological and economical building material that can successfully replace reinforcing steel and geotechnical fabrics.

Mesh in rolls	Mesh in sheets	Bars
<b>bar diameter:</b> 2,2 [mm], 3 [mm], 4 [mm], 5 [mm]	<b>bar diameter:</b> 5 [mm], 6 [mm], 8 [mm]	<b>bar diameter:</b> 4 [mm] - 18 [mm]
<b>roll diameter:</b> 1,5 [m], 2 [m]	<b>sheet dimensions:</b> 1,5 [m] x 4 [m], 2 [m] x 3 [m]	<b>packed in rings:</b> 25 [mb] - 350 [mb]
<b>length of mesh in roll:</b> 25 [mb], 50 [mb]		

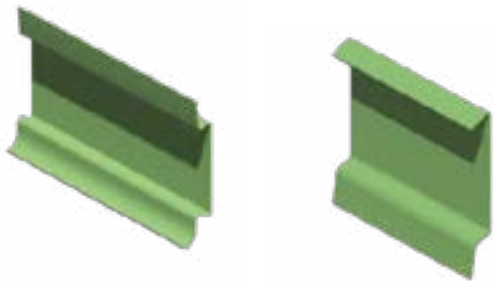
### PRODUCT ADVANTAGES:

- 18% cheaper storage (bars from 4 [mm] to Ø 18 [mm] inclusive can be packed in coils from 150 to 350 [m], which minimises the need for overlapping and waste), and also facilitates transport
- 4 times lighter construction (compared to steel bars of the same diameter)
- 2.5 times more tensile strength (compared to steel bars)
- full resistance to corrosion, aggressive and difficult environments
- dielectricity and antimagnetism
- concrete structures reinforced with composite bars or meshes do not require subsequent maintenance, repairs or renovations, which meets the requirements of design taking into account the life cycle cost (LCC)
- in the production of GFRP materials, CO<sub>2</sub> emissions are almost 10 times lower and the carbon footprint is minimal



# Herpetological fences

Protection of amphibians and reptiles on expressways and highways



Herpetological fencing is a **complete system that protects amphibians and other species from the dangers of road traffic**. Our herpetological fences are successfully used on motorways and highways. Thanks to their high quality and ease of installation, composite herpetological fences **have gained recognition among leading companies in the road construction industry**.

## PRODUCT ADVANTAGES:

- low product weight, which reduces transport costs and investment implementation time
- high quality and aesthetics
- easy and safe installation
- resistance to extremely adverse weather and road conditions, e.g. road salt

## Supplementary accessories:

recurrent and mounting brackets