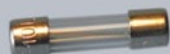


Operating  
since 1950



May 1st  
**Electro-technical  
Work Co-operative**



**Cracow**

**Dunikowskiego 3, tel./fax: 48 12 648 62 11**

**e-mail: [info@spel.com.pl](mailto:info@spel.com.pl), [www.spel.com.pl](http://www.spel.com.pl)**



## WTA-F/L

Quick-action glass fuse with a small breaking capacity.

### Breaking capacity

Rated breaking capacity:  $I_n 10$ , but not less than 35 A, tests on alternating current.

### Application

Quick-acting fuse is recommended for protecting electrical, telecommunication, electronic systems and equipment from short circuit and overload.

nominal current $I_n$	maximum voltage drop in mV
80 mA	4000
100 mA	3500
125 mA	2000
160 mA	2000
200 mA	1700
250 mA	1400
315 mA	1300
400 mA	1200
500 mA	1000
630 mA	650
800 mA	240
1,0 A	200
1,25 A	200
1,6 A	190
2,0 A	170
2,5 A	170
3,15 A	150
4,0 A	130
5,0 A	130
6,3 A	130
8,0 A	130
10,0 A	130

# Fuses and fuse sockets





## WTA-T/L

Slow-blow glass fuse  
cameras with small  
breaking capacity  
Breaking capacity  
Rated breaking capacity:  
10  $I_n$ , but not less  
than 35 A, tests on alter-  
nating current.

### Application

Delayed action fuse is  
recommended for  
protecting electrical,  
telecommunication,  
electronic systems and  
equipment from short  
circuit and overload.

nominal current $I_n$	maximum voltage drop in mV
50 mA	3500
63 mA	3000
80 mA	3000
100 mA	2500
125 mA	2000
160 mA	1900
200 mA	1500
250 mA	1300
315 mA	1100
400 mA	1000
500 mA	900
630 mA	300
800 mA	250
1,0 A	150
1,25 A	150
1,6 A	150
2,0 A	150
2,5 A	120
3,15 A	100
4,0 A	100
5,0 A	100
6,3 A	100
8,0 A	100
10,0 A	100

# Fuses and fuse sockets



## WTA-F/H

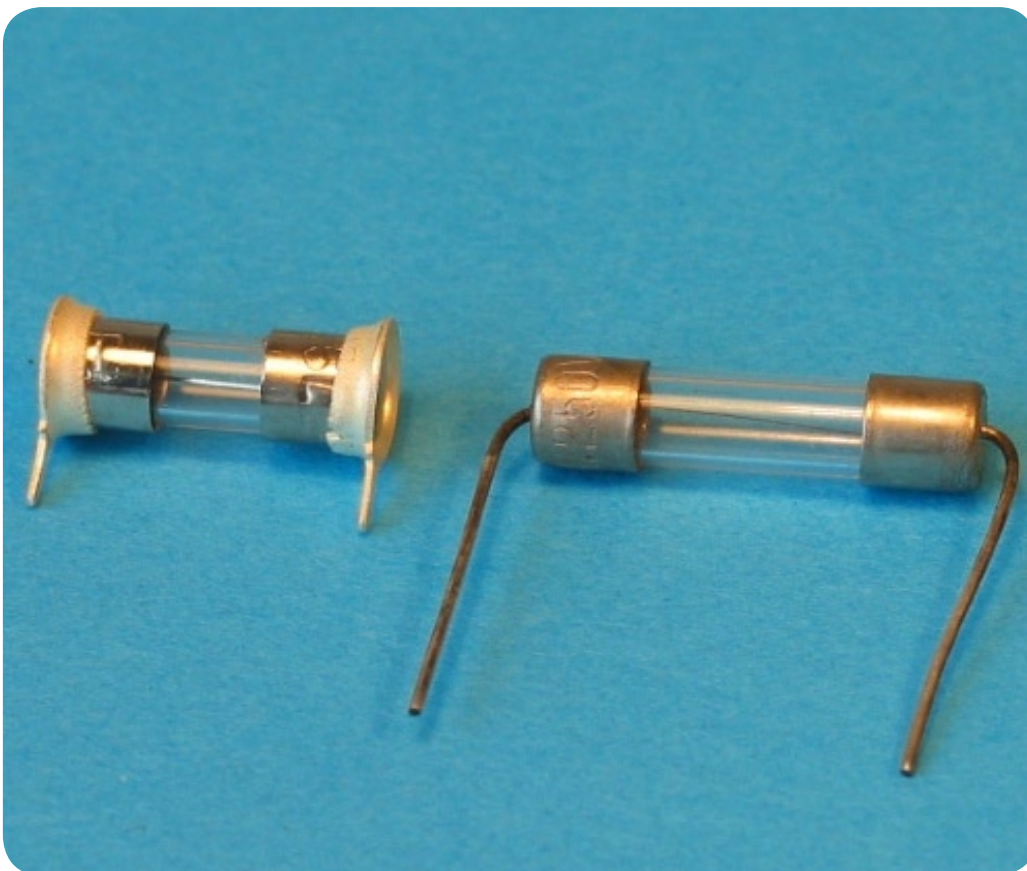
Quick-action glass fuse  
with a large  
breaking capacity

**Breaking capacity**  
tested with alternating  
current - 1500 A

**Application**  
A very quick acting fuse  
is recommended for  
protecting electrical,  
telecommunication, elec-  
tronic systems and equip-  
ment from short circuit  
and overload.

nominal current $I_n$	maximum voltage drop in mV
250 mA	2000
315 mA	2500
400 mA	2000
500 mA	1800
630 mA	1500
800 mA	1200
1,0 A	1000
1,25 A	800
1,6 A	600
2,0 A	500
2,5 A	400
3,15 A	350
4,0 A	300
5,0 A	250
6,3 A	200
8,0 A	200
10,0 A	200

# Fuses and fuse sockets



## WTA-F/L

Glass fuse with solder tags

### Breaking capacity

Rated breaking capacity:  
In 10, but not less  
than 35 A, tests on alter-  
nating current.

### Application

Quick-acting fuse is rec-  
ommended for  
protecting electrical,  
telecommunication,  
electronic systems and  
equipment from short  
circuit and overload.  
It is mounted in electrical  
circuits printed  
by soldering.

nominal current In	maximum voltage drop in mV
160 mA	2000
200 mA	1700
250 mA	1400
315 mA	1300
400 mA	1200
500 mA	1000
630 mA	650
800 mA	240
1,0 A	200
1,25 A	200
1,6 A	190
2,0 A	170
2,5 A	170
3,15 A	150
4,0 A	130
5,0 A	130
6,3 A	130

# Fuses and fuse sockets





**GBA-zm**

#### **Application**

The sockets are mounted in housings of machinery, equipment, electrical, telecommunications and electronics systems where protection of circuits from short circuits and overloading is required.

# **Fuses and fuse sockets**



**GBA-zB-5**

#### **Application**

The sockets are mounted in housings of machinery, equipment, electrical, telecommunications and electronics systems where protection of circuits from short circuits and overloading is required.

# **Fuses and fuse sockets**



**GBA-zB-4**

#### **Application**

The sockets are mounted in housings of machinery, equipment, electrical, telecommunications and electronics systems where protection of circuits from short circuits and overloading is required.

# **Fuses and fuse sockets**





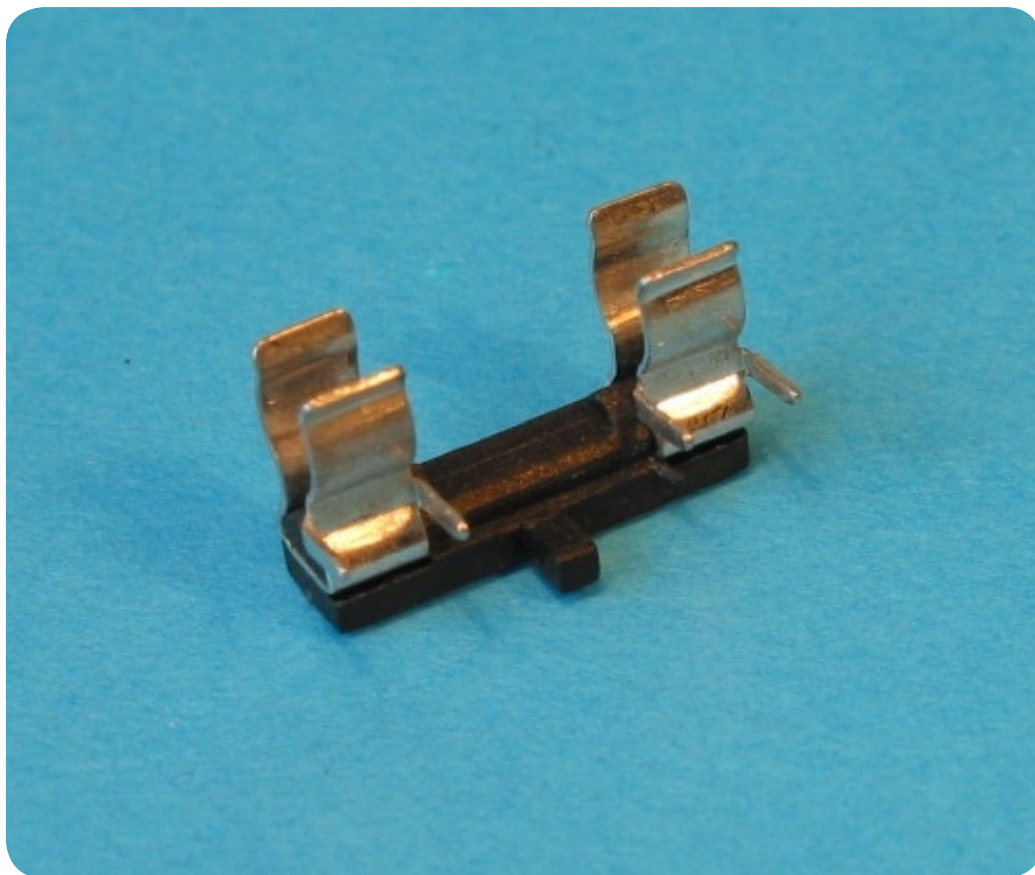
**GBAZ-D**

#### **Application**

The sockets are designed to be mounted on printed circuits of protections of circuits and telecommunication, electrical and electronic equipment.

# **Fuses and fuse sockets**

[www.spel.com.pl](http://www.spel.com.pl)

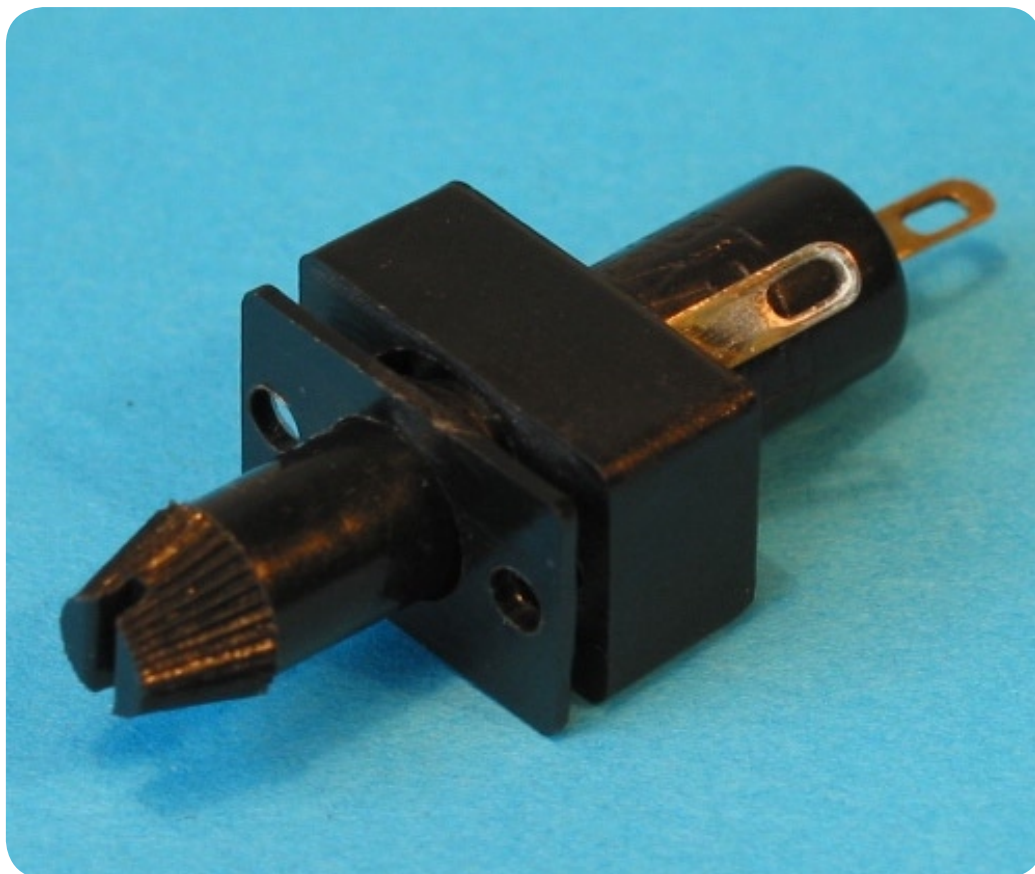


**XP**

#### **Application**

The sockets are designed to be mounted on printed circuits of protections of circuits and telecommunication, electrical and electronic equipment.

# **Fuses and fuse sockets**



## GBT - Z

Telecommunication fuse sockets and fuse sockets printed circuits.

### Application

GBT-z sockets are designed for protection of systems and telecommunications, electrical and electronic equipment.

# Car and telecommunication fuses and fuse sockets





## GBSP

Wired car fuse socket

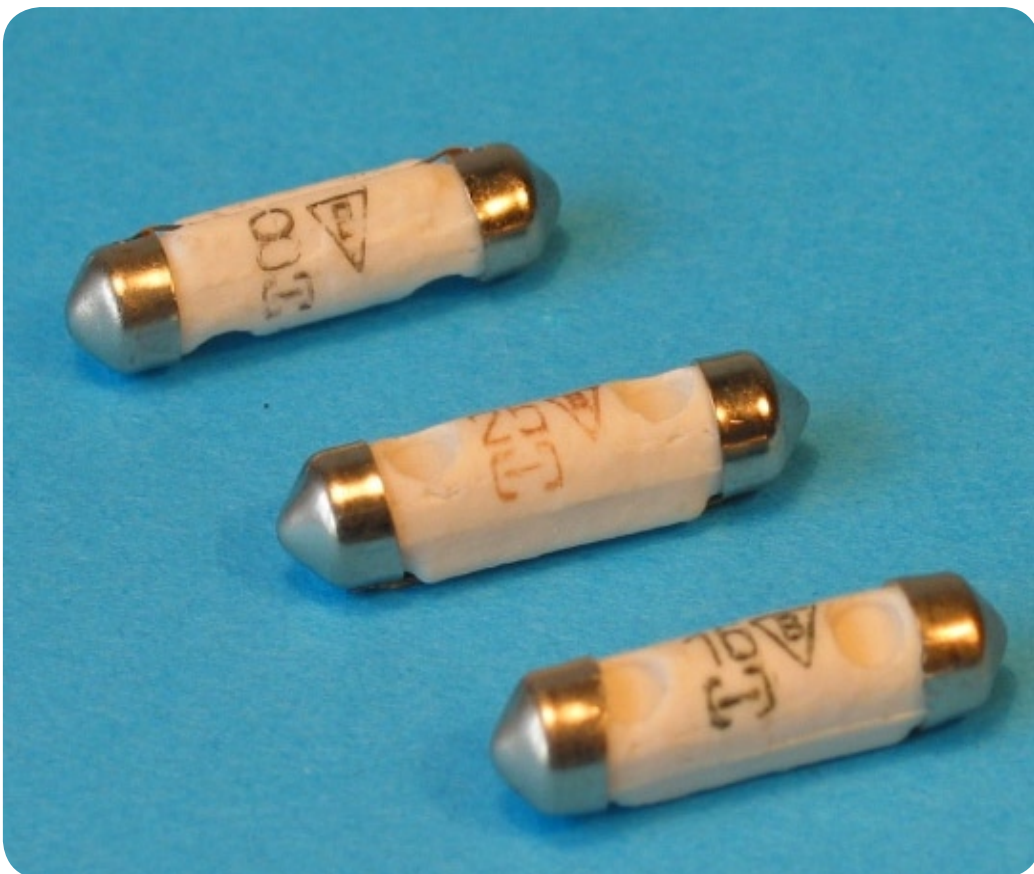
### Design

GBSP sockets are made in two versions  
a - with cylindrical car fuse holders  
25 x 06 mm b - with holders  
for glass fuses 20 x 05 mm

### Application

GBSP socket is designed to be mounted  
(placed) in electric car systems  
to hold car fuses  
or glass fuses

# Car and telecommunication fuses and fuse sockets



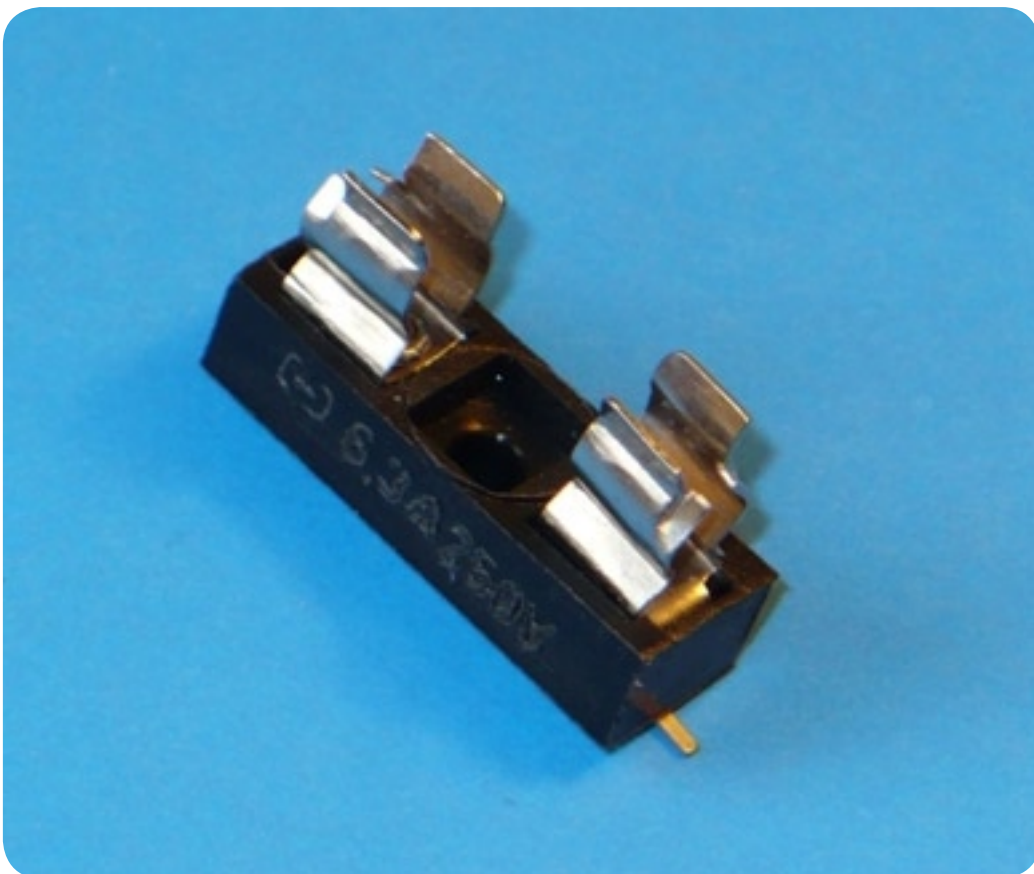
**Wb - S**

Car Fuse

**Application**

A Wb-s car fuse is designed to protect circuitry of cars against overload and short circuits.

**Car and telecommunication fuses and fuse sockets**



## PBA-D

Fuse socket for PBA-D printed circuits  
6.3 A / 250 V

### Application

The PBA-D sockets are designed to be soldered on printed circuits of protections of circuits and telecommunication, electrical and electronic equipment.

# Car and telecommunication fuses and fuse sockets





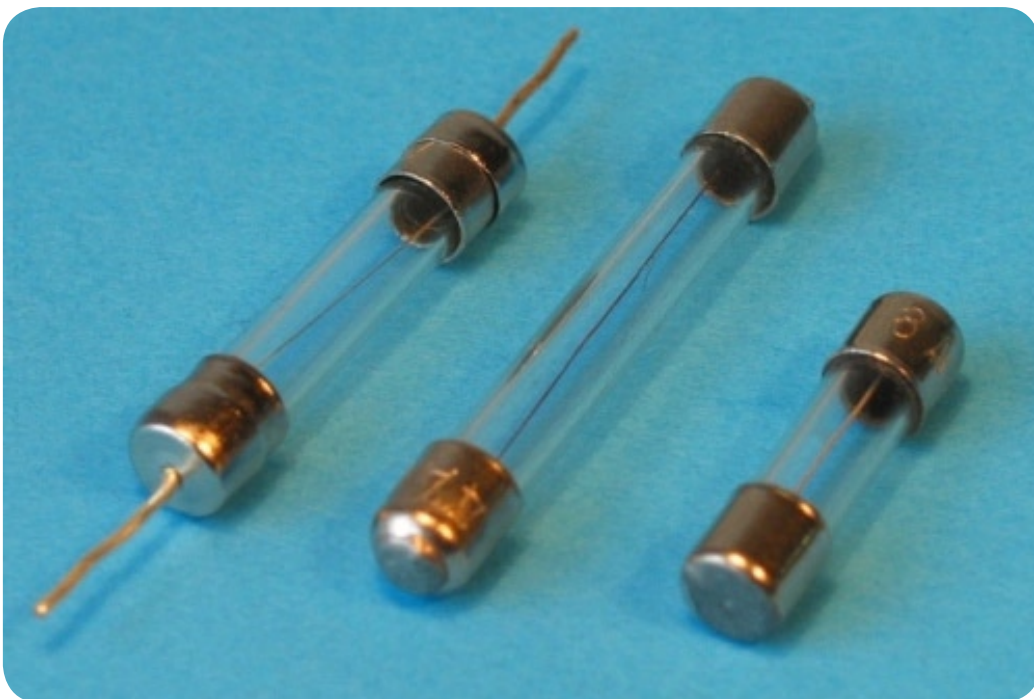
**WP1-1**

**Application**

Fuse designed to protect electric circuits from short circuit and overload.

# Special fuses and fuse sockets

[www.spel.com.pl](http://www.spel.com.pl)



**WB-C, WB-K**

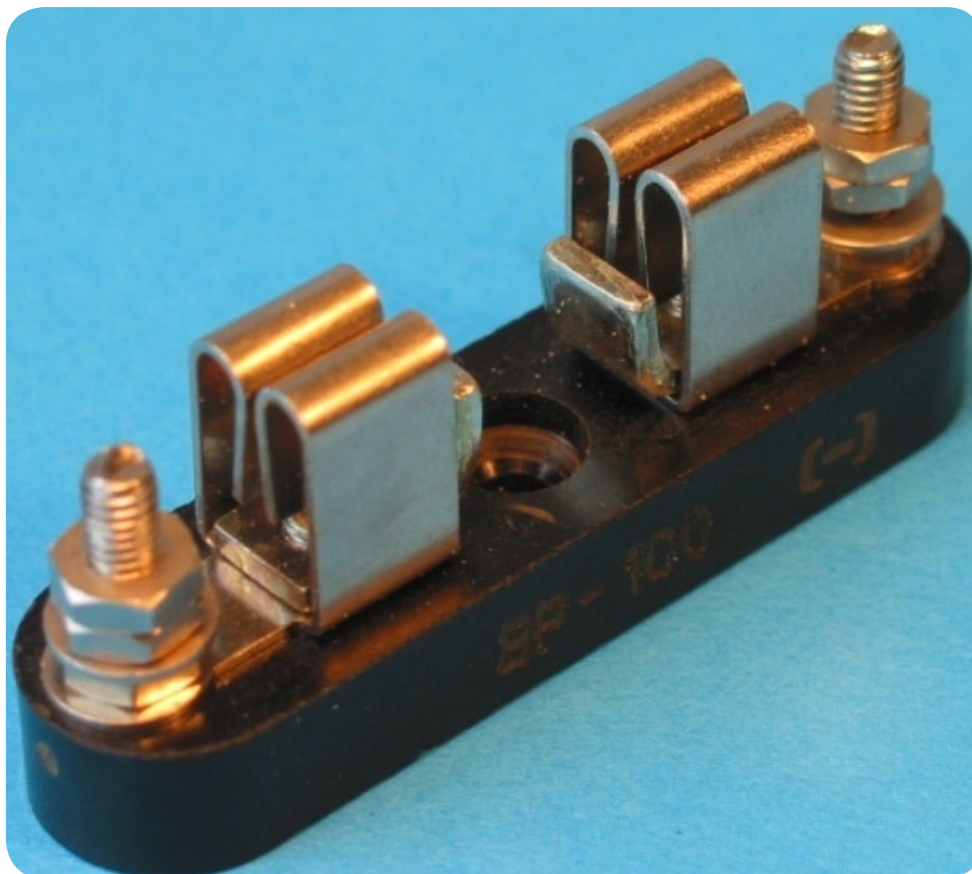
Tubular fuse with cylindrical tags  
Tubular fuse with cone tags

**Application**

The fuses are designed to protect electric circuits from short circuit and overload.

# Special fuses and fuse sockets

[www.spel.com.pl](http://www.spel.com.pl)



## BZ-20, BZ-30

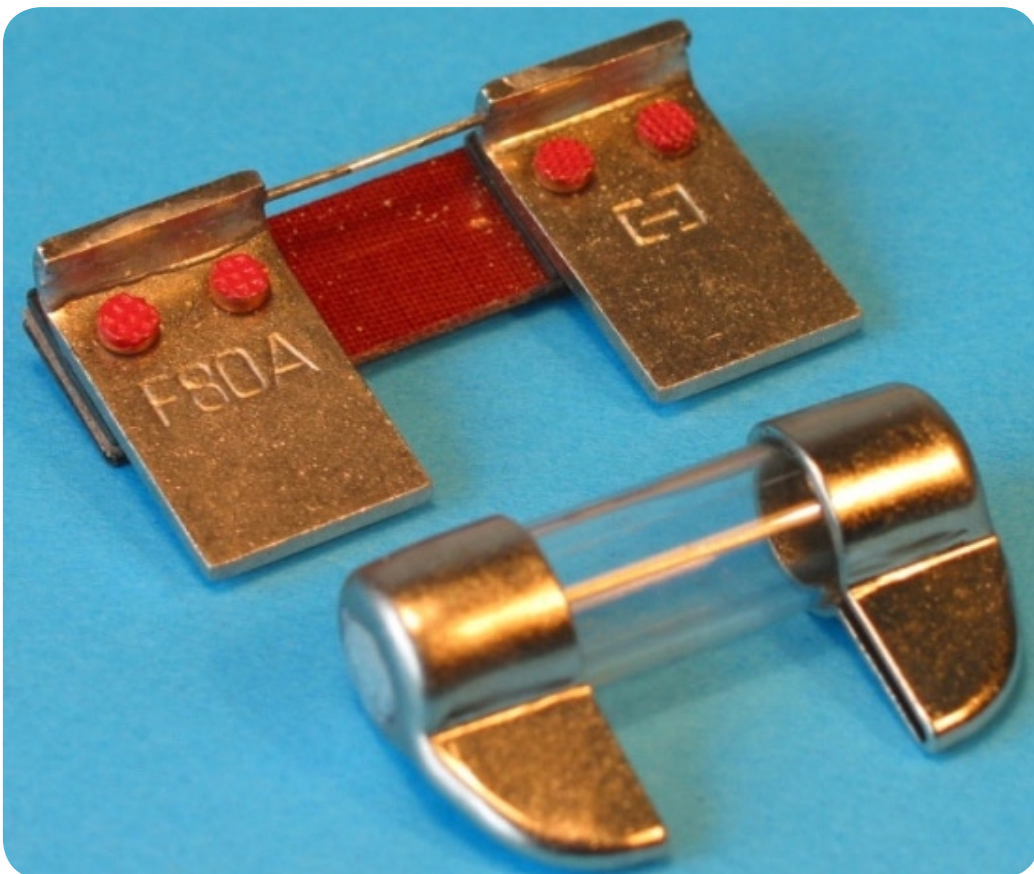
Fuse cases (sockets) type BZ - 20, BZ - 30  
(BP - 100, BP - 200)

### Application

Bz-20 and Bz-30 fuse cases are applicable  
in electrical systems for mounting and connection to the  
PW fuses circuits.

# Special fuses and fuse sockets





**PW 2 - 100A**

Fuses type:

- a) PW from 2 to 50 A
  - a) PW from 60 to 100 A
- Nominal voltage 30 V

#### **Application**

Fuse designed to protect electric circuits from short circuit and overload.

# **Special fuses and fuse sockets**



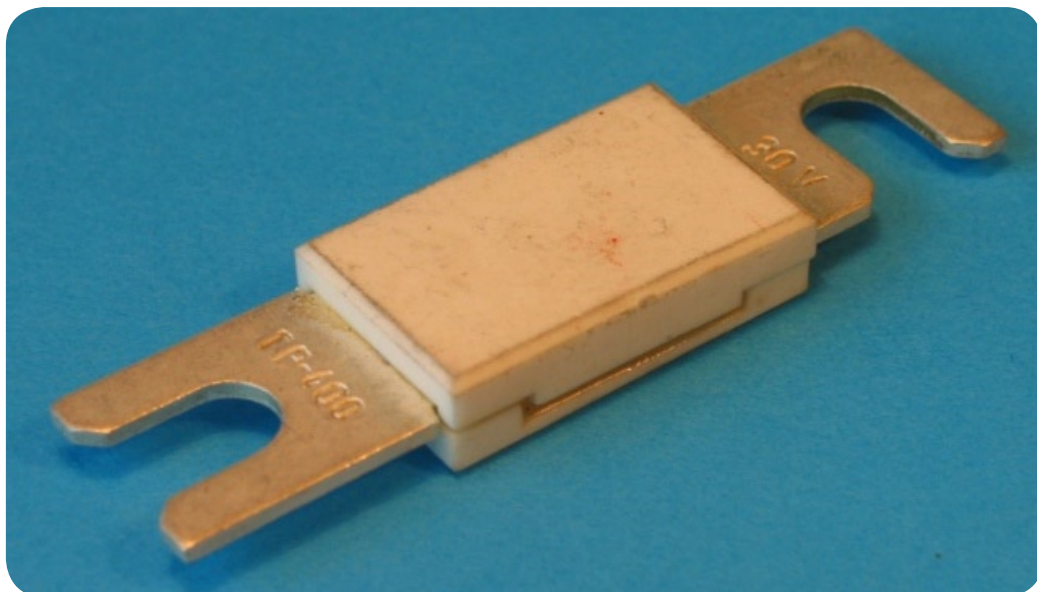
**BD**

Wire fuses type:  
125 A; 140 A; 150 A; 200 A and 250 A  
For nominal voltage of 30 V ~

**Application**

Fuse designed to protect electric circuits  
from short circuit and overload.

# Special fuses and fuse sockets



TP

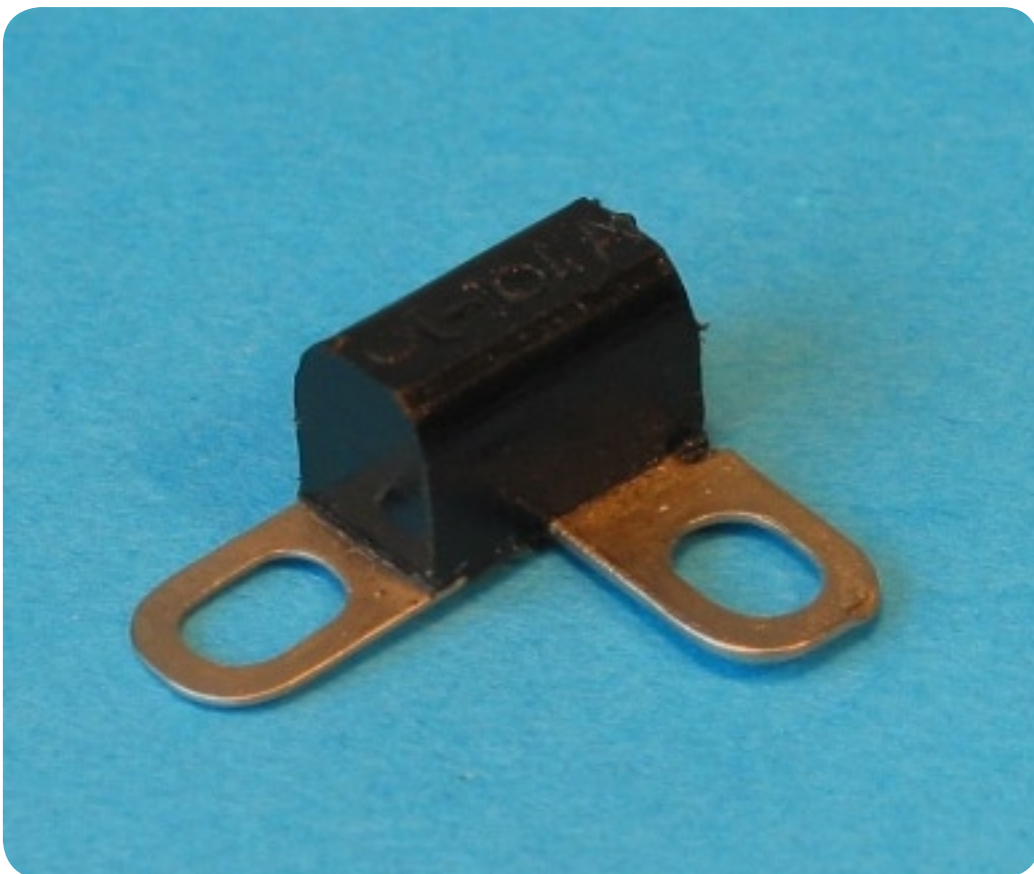
#### Application

Fuse designed to protect electric circuits from short circuit and overload.

# Special fuses and fuse sockets

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**WBO-W**

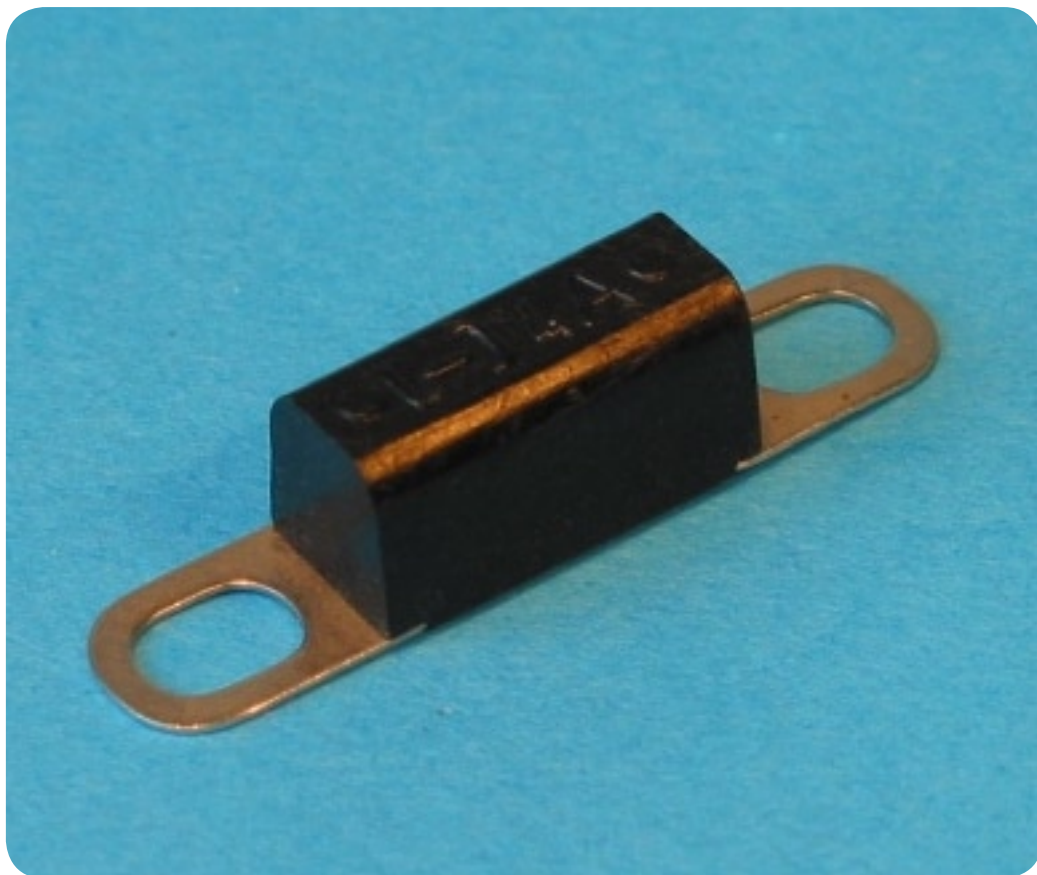
Insulated fuses

**Application**

The fuse is designed to work in mining lamps and for short circuit and overload protection of operating and charging systems of the lamp battery.

# Special fuses and fuse sockets

[www.spel.com.pl](http://www.spel.com.pl)



**WBO**

Insulated fuses

**Application**

The fuse is designed to work in mining lamps and for short circuit and overload protection of operating and charging systems of the lamp battery.

# Special fuses and fuse sockets

[www.spel.com.pl](http://www.spel.com.pl)



SP

Quick-action tubular fuses

**Application**

Fuse designed to protect electric circuits from short circuit and overload.

# Special fuses and fuse sockets

[www.spel.com.pl](http://www.spel.com.pl)





**BP-G**

Flexible wire fuse

**Application**

Fuse designed to protect electric circuits and fiscal cash register circuits from overloading and short circuits

# Special fuses and fuse sockets

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**On  
/Off WABO  
Switch  
(door-bell  
+ push-button)**

#### **Application**

On/off WABO switch (door-bell + push-button) is designed for turning on and off electric circuits . These are monostable switches.

# **Push-button and sliding switches**



## WABO Switch

Build-in push-button switches 1-2,5 A/250 V ~

### Application

A WABO switch is designed for switching on and off electrical circuits and lamp circuits . It is a bistable switch.

# Push-button and sliding switches





**Push-button  
switch  
in a pear  
case  
2,5A/250V**

#### **Application**

Push-button switch in pear case is designed for turning on and off electric circuits lamp and wall lamp circuits. It can be in monostable and bistable version.

# **Push-button and sliding switches**



**Sliding,  
Through,  
Bipolar switch  
2,5A/250V**

#### **Application**

The sliding through bipolar switch 2.5 A/250V is designed to turn on/off electrical circuits, lamps circuits, and wall lamps circuits.

# **Push-button and sliding switches**



**Through ,  
push-button  
foot-operated  
round switch  
2,5A/250V**

#### **Application**

The through, push-button, foot-operated round switch is designed for turning on and off electric circuits, lamp and wall lamp circuits. It can be in monostable and bistable version.

## **Push-button and sliding switches**





**Through ,  
push-button  
foot-operated,  
rectangular switch  
2,5A/250V**

#### **Application**

The through, push-button, foot-operated rectangular switch is designed for turning on and off electric circuits, lamp and wall lamp circuits. It can be in monostable and bistable version.

# **Push-button and sliding switches**



**Laboratory clip  
handles  
“Crocodile  
clips”**

**Application**

Laboratory “Crocodile clip” handles are designed for connecting cables ending with banana plugs, as well as cable connection directly to the “crocodile” tightening with a screw.

# Electro-technical products

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**KD-6**

Clip handle (crocodile)

**Galvanization: Nickel**

The handle can hold a pin with  $\Phi$  max = 20 mm

**Application**

Kd-6 clip handle is designed for connection cables for example, connecting the charger with the battery.

# Electro-technical products

[www.spel.com.pl](http://www.spel.com.pl)





**WB-1**

**Banana plug**

- Body color: black, red, white, and others.
- Operating voltage: 250 V
- current of load: max. 10 A

**Application**

Banana plugs are designed for connecting cables and laboratory wires.

# Electro-technical products

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## Soldering tags

### Design

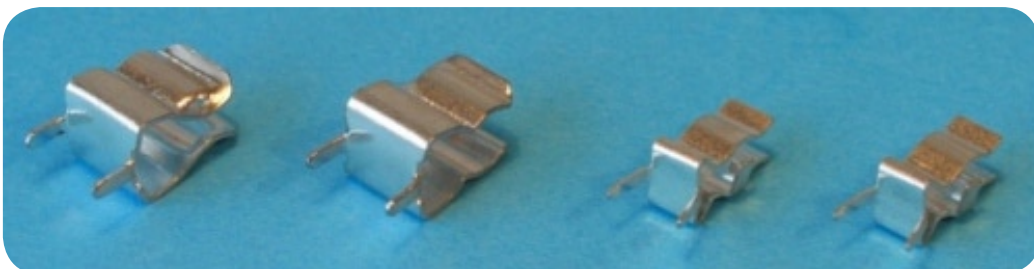
- 0.5mm brass band
- galvanisation: silver

### Application

Soldering tags are designed for connecting cables

# Electro-technical products

[www.spel.com.pl](http://www.spel.com.pl)



## Fuse holder WTA i WB-C

### Application

Fuse holder is designed for mounting in PCBs in order to hold a fuse.

# Electro-technical products

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### Connecting cables - laboratory

Dimension "L" - 350, 500, 600, 1000 mm and the other according to the order.

Cable colour - black, red, blue, green and other according to the order.

Colour of insulation of banana plugs and spade plugs - as above.

NOTE:

**When ordering, please specify:**

- the type of manufacturing, the length of the "L", the diameter and the colour of the wire.

#### **Application**

-The laboratory connecting cables are designed for connecting into electrical circuits.

# Electro-technical products

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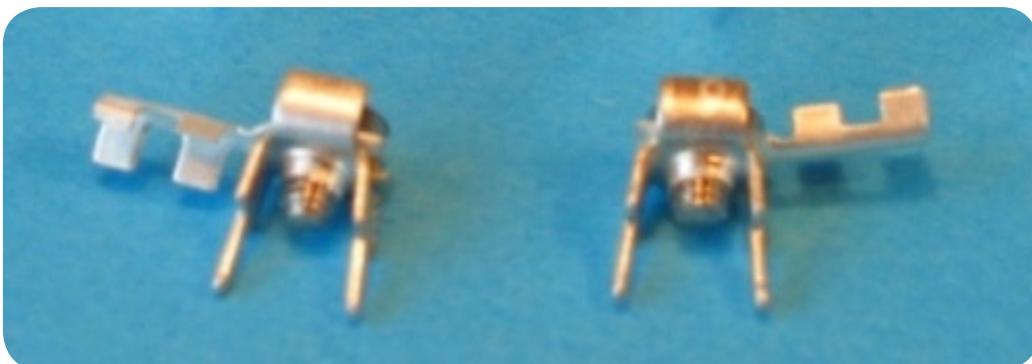
## CDS Sensor

### Application

A CDS sensor is used in twilight switches and cooperating systems with a photo-resistance sensor. It can be used in confined spaces and outside (degree of protection IP 64).

# Electro-technical products

[www.spel.com.pl](http://www.spel.com.pl)



### Connection module for printed circuits

#### Application

A PCB connection module is designed for mounting on printed circuits in order to connect wires.

# Electro-technical products

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## Garden Palisade

### Application

a Garden palisade is used in squares, gardens to fence off lawns, plants, flower beds, etc.

# Garden palisade and knobs

[www.spel.com.pl](http://www.spel.com.pl)



## Knobs

Knobs made of plastic. Designed for door locks.  
It is possible to produce various knobs on request.

# Garden palisade and knobs

[www.spel.com.pl](http://www.spel.com.pl)



**LK-5, LK-10,  
LK-20**

#### **Application**

a Garden palisade is used in squares, gardens to fence off lawns, plants, flower beds, etc.

# **Lamps and bulbs**

[www.spel.com.pl](http://www.spel.com.pl)





**LS-D**

**Technical data:**

- \* Power supply voltage: 12V and 24V - or other agreed.
- \* Power consumption - max 0.25 W.
- \* Lamps are manufactured in the following colours: red, green, orange or other, chosen by the customer.

**Application**

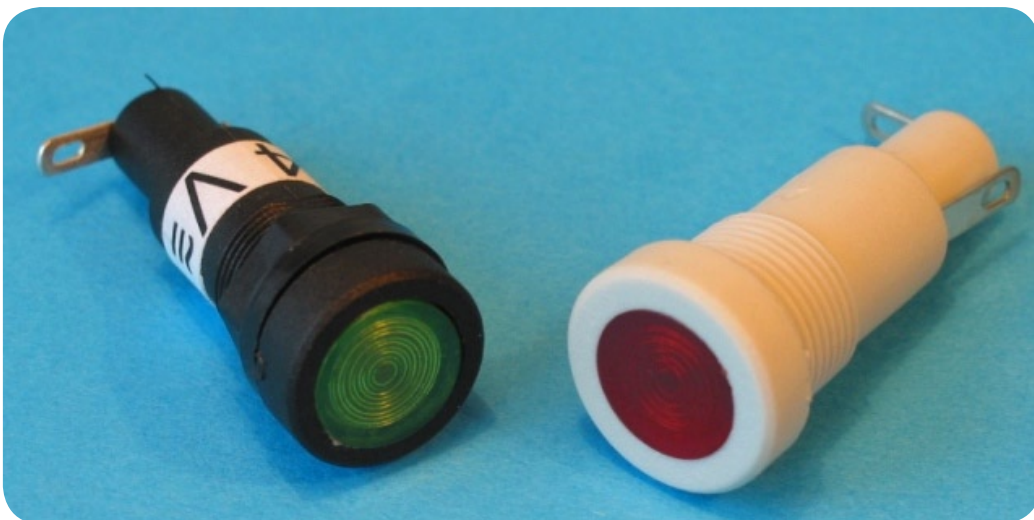
Indicator lamps with Ls-d LED have an application for signalling the following states: on - off of devices, electrical equipment and circuits.

The advantage of LEDs is their long life and low power consumption.

**NOTE:** Supplying the lamp with direct current requires appropriate connection of the lamp in relation to the polarity of the supply voltage.

# Lamps and bulbs

[www.spel.com.pl](http://www.spel.com.pl)



## LS-1

Nominal voltage 220 V consumed power  $\sim 1.5$  mW

### Application

Indicator lamps with LS-1 neon diode have an application for signalling the following states: on - off of devices, electrical equipment and circuits.

The advantage of the lamps is their low power consumption.

### Colours:

red, green, orange

Note: On request, the neon diode can be replaced with LED.

# Lamps and bulbs

[www.spel.com.pl](http://www.spel.com.pl)



## LS-2

Indicator light with LED

**Manufactured with:**

- connection module
- connectors
- wires

**Technical data:**

Power supply voltage: 12V, 24V, 48V, 230V, or any other voltage, according to customer requirements.

Power consumption - max 1W.

The lamps are manufactured in the following colours: yellow, red, orange, green, blue, white

**Application**

Indicator lamps with Ls-2 diode have an application for signalling the following states: on - off of devices, electrical equipment and circuits.

The advantage of LEDs is their long life and low power consumption.

# Lamps and bulbs

[www.spel.com.pl](http://www.spel.com.pl)





**UZ-90**

#### **Technical Data**

- \* Power supply Voltage 65V - AC, 85V - DC
- \* Resistance - 180/220 kOhm
- \* Power consumption - 0.6 mA

#### **Application**

- \* Indicator of the presence of voltage in an electrical circuit
- \* ON-OFF indicator of electrical equipment

# **Lamps and bulbs**

[www.spel.com.pl](http://www.spel.com.pl)



## LED lighting lamp

### Application

- 12V, 3W can be used in machine tools, assembly tables, etc.

# Lamps and bulbs



## Tubular LED bulbs

### Characteristics:

- \* Very long life
- \* Minimum power consumption (at least 25 times smaller)
- \* They do not heat up
- \* They are resistant to shock

### Application

- \* Interior lighting
- \* Lighting the luggage compartment
- \* Lighting the license plates

**They are replacements for the C5W/C10W bulbs.**

# Lamps and bulbs

[www.spel.com.pl](http://www.spel.com.pl)





## LED Bulbs - R10/T10

LED bulbs in socket R10/T10 12V, 0,2W 24V, 0,3W

### Characteristics:

- \* Very long life
- \* Minimum power consumption (at least 15 times smaller)
- \* They do not heat up
- \* They are resistant to shock

### Application

- \* Parking lights
- \* Licence plates
- \* Lighting doors and drawers
- \* Side directions
- \* Car interior lighting
- \* Cockpit and clocks lighting

They are alternatives for W3W and W5W bulbs.

# Lamps and bulbs

[www.spel.com.pl](http://www.spel.com.pl)



## LED Bulbs - R5/T5

LED bulbs in socket R5/T5 12V, 0,2W 24V, 0,3W

### Characteristics:

- \* Very long life
- \* Minimum power consumption (at least 6 times smaller)
- \* They do not heat up
- \* They are resistant to shock

### Application

- \* Car interior lighting
- \* Lighting dashboards
- \* Lighting cockpits
- \* Lighting clocks

# Lamps and bulbs

[www.spel.com.pl](http://www.spel.com.pl)



## Racks

### Application

Racks are used for decorations, Christmas decorations, banners. They are made of brass, shined to golden colour or nickel-plated.

# Racks

[www.spel.com.pl](http://www.spel.com.pl)





## Bialecki Rings

### Application

It is used to fill the columns and process equipment in chemical and metallurgical industries and many more. Columns filled with Bialecki rings are characterized by:

- \* Low resistance to flowing gas
- \* Steady flow of liquids and gases in the entire cross-section of the column
- \* The possibility of tripling of the flow of gases and liquids
- \* Ideal conditions for producing emulsion regime
- \* Increase in mass transfer coefficient

### Bialecki rings apply:

- \* In biological waste-water treatment plants
- \* Aeration of water and sewage
- \* Potable and boiler water treatment
- \* As a static mixer for liquids and gases
- \* In areators in absorption and desorption processes,

# Bialecki rings, window anchors and sections

## Window anchors



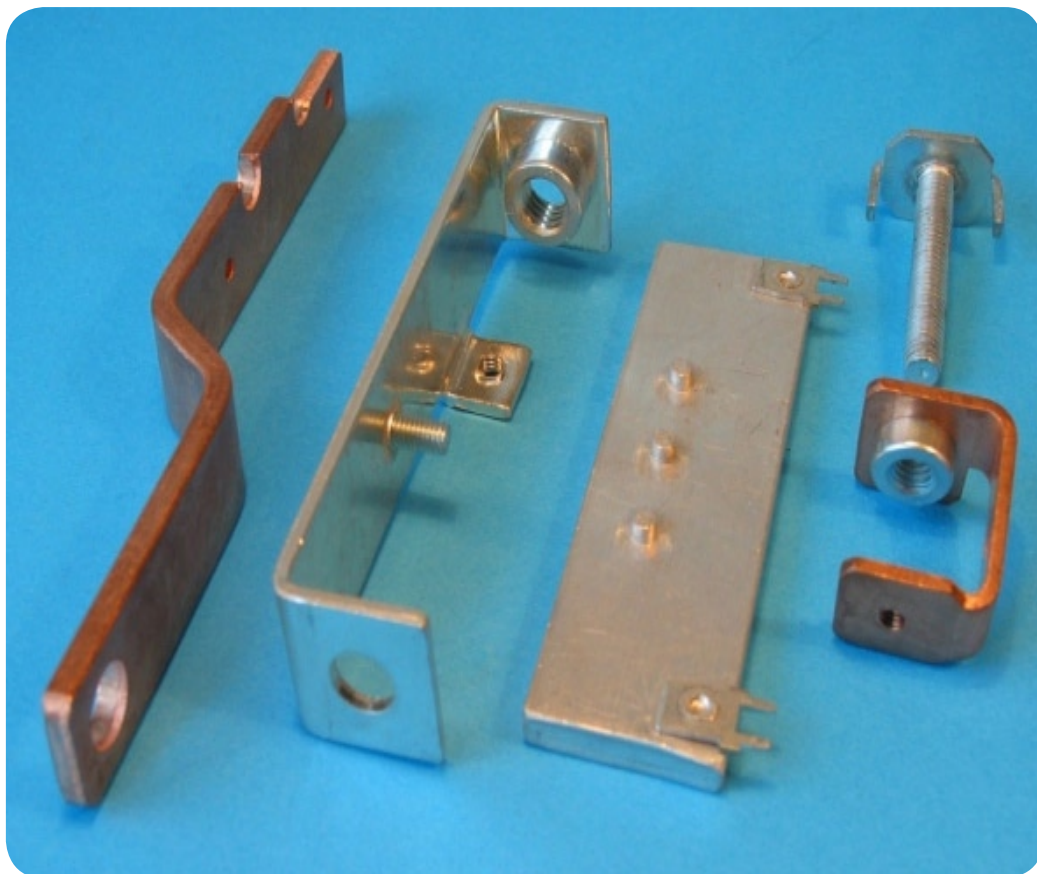
The Anchors are manufactured from steel sheets, galvanized for window frames, PVC and wood.

### **Application**

Window anchors are used to attach various types of windows.

# Bialecki rings, window anchors and sections

[www.spel.com.pl](http://www.spel.com.pl)



## Sections

The plant produces a variety of profiles of such materials as: steel, copper, brass, aluminium.

# Bialecki rings, window anchors and sections

[www.spel.com.pl](http://www.spel.com.pl)