

**Environmental conditions and properties, SPELSBERG® empty enclosure TG PC + TG ABS**

**Spelsberg empty enclosures TG PC** (Polycarbonate)  
**Spelsberg empty enclosures TG ABS** (Acrylonitrile-Butadiene-Styrene)  
 BN 22851 – BN 22854

- 9 basic enclosures of various heights
- High-quality design with a stylish high-gloss appearance
- Color: grey, similar to RAL 7035
- Grey or transparent covers
- Plastic: choice of ABS (TG ABS) or polycarbonate (TG PC)
- Time savings due to stainless steel quick-release fastener
- Recess in cover facilitates placement of decals or membrane keypads
- Smooth side walls for added flexibility
- Modular tools: cost-effective adaptation according to customer wishes
- Captive cover
- Attachment points in the usual positions
- Comprehensive range of accessories

**Overview of the environmental conditions of the els installation systems**

Material	Ambient temperature: minimum value	Ambient temperature: maximum value	Ambient temperature: average value over 24 h	Maximum relative humidity at 40 °C	Maximum relative humidity at 25 °C (short-term)	Protection rating according to IEC/EN 60529/ VDE 0470-1	Shock-proof as per IEC/ EN 50102/ VDE 0470 Part 100	Flammability acc. to UL 50/ UL 746C
TG (Polycarbonate)	-35 °C	80 °C	60 °C	50 %	100 %	IP 67	IK 08	5 VA
TG (ABS) (Acrylonitrile-Butadiene-Styrene)	-25 °C	40 °C	35 °C	50 %	100 %	IP 67	IK 07	HB

(Source: Spelsberg GmbH + Co. KG)

**Overview of the properties of the materials used in els enclosure systems**

Material	Use in the products	Use in the products														Flammability acc. to ICE/EN 60695 (VDE 0471)/UL94
		Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia	Vegetable fats	Animal fats	Free of halogens, heavy metals, PVC and silicone		
Polycarbonate	TG PC	●	●	○	○	●	●	○	●	●	○	●	●	yes	960 °C/V-2	
ABS (Acrylonitrile-Butadiene-Styrene)	TG ABS	●	●	●	●	●	○	○	●	●	○	●	●	yes	650 °C/HB	

● resistant   ● partially resistant   ○ not resistant

(Source: Spelsberg GmbH + Co. KG)

## Environmental conditions and properties, SPELSBERG® empty enclosure TK PC + TK PS

**Spelsberg empty enclosures TK PC** (Polycarbonate)

**Spelsberg empty enclosures TK PS** (Polystyrene)

BN 22864 – BN 22873

- 13 basic enclosures with up to three different cover heights
  - Color: grey, similar to RAL 7035
  - Grey or transparent covers
  - Plastic: choice of polystyrene (TK PS) or glass-fibre-reinforced polycarbonate (TK PC)
  - Side walls smooth or with metric knockouts
  - Modular tools: economical customisation
- Upon inquiry: enclosure with ® permit
  - Comprehensive range of accessories

### Overview of the environmental conditions of the els installation systems

Material	Ambient temperature: minimum value	Ambient temperature: maximum value	Ambient temperature: average value over 24 h	Maximum relative humidity at 40 °C	Maximum relative humidity at 25 °C (short-term)	Protection rating according to IEC/EN 60529/ VDE 0470-1	Shock-proof as per IEC/EN 50102/ VDE 0470 Part 100	Flammability acc. to UL 50/ UL 746C
TK (Polycarbonate) Empty enclosures	–35 °C	80 °C	60 °C	50 %	100 %	IP 66	IK 08	5 VA
TK (Polystyrene) Empty enclosures	–25 °C	40 °C	35 °C	50 %	100 %	IP 66	IK 07	HB

(Source: Spelsberg GmbH + Co. KG)

### Overview of the properties of the materials used in els enclosure systems

Material	Use in the products	Resistance to various substances												Free of halogens, heavy metals, PVC and silicone	Flammability acc. to IEC/EN 60695 (VDE 0471)/UL94		
		Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia	Vegetable fats	Animal fats				
Polystyrene, shock-proof	TK PS, RK/RKA, AKL	●	○	●	●	●	○	○	●	○	●	○	○	●	○	yes	650 °C/HB
Polycarbonate, glass fibre-reinforced	TK PC, GTI-system, AKi	●	●	○	○	●	●	○	●	●	○	●	●	●	yes	960 °C/V-2	

● resistant ○ partially resistant ○ not resistant

(Source: Spelsberg GmbH + Co. KG)

**Environmental conditions and properties, SPELSBERG® empty enclosure AKL + AKI**

**Spelsberg empty enclosures AKL/AKI**

BN 22901 – BN 22904

- 4 basic enclosures up to 600 x 300 mm, with two different cover heights
- Color: grey, similar to RAL 7035
- Grey or transparent covers
- Plastic: choice of polystyrene (AKI-L) or glass fibre-reinforced polycarbonate
- Side walls with metric knockouts
- Can be combined up to protection class IP65
- Comprehensive range of accessories

**Overview of the environmental conditions of the els installation systems**

Material	Ambient temperature: minimum value	Ambient temperature: maximum value	Ambient temperature: average value over 24 h	Maximum relative humidity at 40 °C	Maximum relative humidity at 25 °C (short-term)	Protection rating according to IEC/EN 60529/ VDE 0470-1	Shock-proof as per IEC/ EN 50102/ VDE 0470 Part 100	Flammability acc. to UL 50/ UL 746C
AKI Empty enclosures	-35 °C	80 °C	60 °C	50 %	100 %	IP 65	IK 08	V-2
AKL Empty enclosures	-25 °C	40 °C	35 °C	50 %	100 %	IP 65	IK 07	HB

(Source: Spelsberg GmbH + Co. KG)

**Overview of the properties of the materials used in els enclosure systems**

Material	Use in the products	Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia	Vegetable fats	Animal fats	Free of halogens, heavy metals, PVC and silicone	Flammability acc. to IEC/EN 60695 (VDE 0471)/UL94
		●	◐	◑	◒	◓	◔	◕	◖	◗	◘	◙	◚	◛	
Polystyrene, shock-proof	TK PS, RK/RKA, AKL	●	◐	●	●	●	◐	◐	◐	◐	●	◐	◐	yes	650 °C/ HB
Polycarbonate, transparent	Lid AKL, AKI, GTi, TK	●	●	◐	◐	◐	◐	◐	●	◐	◐	●	●	yes	960 °C/ V-2

● resistant   ◐ partially resistant   ◑ not resistant

(Source: Spelsberg GmbH + Co. KG)

## Environmental conditions and properties, SPELSBERG® empty enclosure AL/ALS (aluminum)

### Spelsberg empty enclosures AL/ALS

BN 22917/ BN 22322

- 16 standard enclosure sizes up to 330 x 230 mm
- Powder coating to prevent corrosion
- Color: silver grey, similar to RAL 7001
- Material: Aluminum AlSi12
- Effective protection against electromagnetic interference (EMI) and electrostatic discharges (ESD)
- An even higher level of protection can be achieved by using conductive seals (available on request) between the components of the enclosure
- Upon inquiry: enclosure with ® permit
- High resistance to chemicals

### Overview of the environmental conditions of the els installation systems

Material	Ambient temperature: minimum value	Ambient temperature: maximum value	Ambient temperature: average value over 24 h	Maximum relative humidity at 40 °C	Maximum relative humidity at 25 °C (short-term)	Protection rating according to IEC/EN 60529/ VDE 0470-1	Shock-proof as per IEC/EN 50102/ VDE 0470 Part 100	Flammability acc. to UL 50/ UL 746C
AL/ALR/ALS Aluminum enclosure	-35 °C	75 °C	60 °C	50 %	95 %	IP 66	IK 09	-

(Source: Spelsberg GmbH + Co. KG)

### Overview of the properties of the materials used in els enclosure systems

Material	Use in the products														
		Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia	Vegetable fats	Animal fats	Free of halogens, heavy metals, PVC and silicone	Flammability acc. to ICE/EN 60695 (VDE 0471)/UL94
Aluminum AlSi12	AL, ALR, ALS	●	◐	●	●	◐	●	○	●	●	●	◐	◐	yes	-

● resistant   ◐ partially resistant   ○ not resistant

(Source: Spelsberg GmbH + Co. KG)