

# Accessories

## Magnets



### Product features

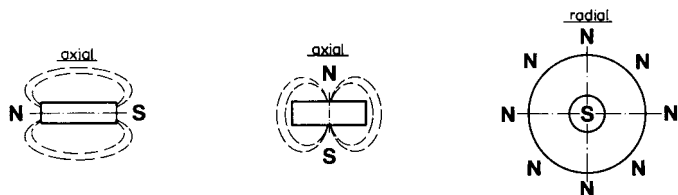
- Shapes: round Ø 5 mm – 31 mm/square
- Enclosure: with and without encapsulation/enclosure
- Enclosure material: PA 6.6, PBT, aluminium
- Temperature range: From –40°C to +150 °C

### Good to know ...

Permanent magnets can lose their magnetisation if they are exposed to radioactive radiation.

### Directions of magnetisation

The term preferred direction refers to the alignment of the magnetic elements in a certain direction. The magnet achieves its highest magnetic values in this preferred direction and must therefore be magnetised in this direction.



### Mounting a magnetic switch system on ferromagnetic materials

The nominal distance may be reduced when magnetic limit switches and their actuating magnets are mounted on magnetisable material (Fe, etc.). To ensure trouble-free operation, a minimum gap of 15 mm between the magnetic switch and any material that can be magnetised should be maintained as a reference value. The same applies to the actuating magnets.

## 1. Hard ferrite magnets

Barium and strontium hard ferrites are economically priced, reliable components that are also widely used in automation, control and measurement applications.

When operated in high temperature ranges, the specified switching distance will decrease by a factor of 0.2 % per 1 °C.

- **Chemical properties:**

Ferrite magnets are oxide ceramics. They are made of approx. 80 % iron oxide and 20 % barium oxide or strontium oxide. The magnets are resistant to a large number of chemicals, including solvents, caustic solutions and weak acids. If strong organic and inorganic acids, e.g. hydrochloric, sulphuric and hydrofluoric acid, are used, their resistance will basically be determined by the temperature, concentration and reaction time of the medium. In general, the resistance should first be determined by means of long-term tests.

- **Mechanical properties:**

Due to their ceramic characteristic, ferrites are brittle and sensitive to shock and bending loads.

## 2. Rare-earth magnets

Permanent magnets made from samarium cobalt and neodymium iron boron are high performance and high quality

components that are widely used in drive and control engineering. When operated in high temperature ranges, the specified switching distance will decrease by a factor of 0.02 % per 1 °C.

- **Chemical properties:**

All rare-earth magnets are metallic materials and show the corresponding characteristics associated with these materials, e.g. a polished shine immediately after being machined. The magnets are surface-treated (e.g. nickel coating) to protect them from environmental influences.

- **Mechanical properties:**

Minor chips may occur if rare-earth magnets are subjected to impact stress. They respond very sensitively to vibrations and may become demagnetised.

## 3. Plastic-bound magnets

Plastic-bound permanent magnets have an attractive price-performance ratio and, thanks to the way they are formed, they can be produced with complex geometries. Injection-moulded magnets are typical composite materials. The magnetic powder is embedded in thermoplastic materials (polyamides). One of the main advantages of plastic-bound magnets is that they can be formed into a wide range of shapes.

- **Chemical properties:**

Surface corrosion can rarely be found on plastic bound magnets. For this reason, they can be used in most fields of application without additional coating.

- **Mechanical properties:**

Plastic-bound magnets can be subjected to buckling and bending without breaking or chipping.

## Use in potentially explosive atmospheres

Magnets must not be used in potentially explosive atmospheres as they can cause sparks. Grinding dust and chips from rare-earth magnets are self-igniting and burn off at high temperatures. They should therefore only be machined using ample amounts of water and never in dry conditions since even dried grinding dust can ignite.

## Strong magnetic fields

Strong magnetic fields can interfere with or even damage electronic or mechanical equipment. This includes cardiac pacemakers. Appropriate safety distances are specified in the corresponding manuals or may be requested from the manufacturers.

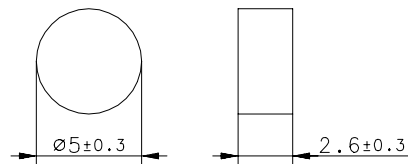
## ACCESSORIES ACTUATING MAGNETS WITHOUT ENCAPSULATION

To ensure stable, reproducible actuation, we recommend using our actuating magnets. You can find the exact switch travel in the following table.

### T-75 Actuating magnet



Product range	
Article number	Designation
6301175057	T-75



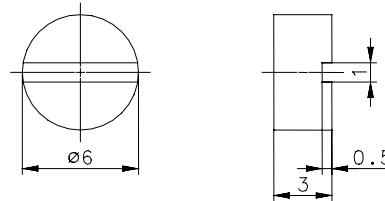
#### Mechanical data

Magnet material	$\text{Sm}_2\text{Co}_7$ (Samarium cobalt), axially magnetised
Ambient temperature	-20°C ... +100°C

### T-06 N/S Actuating magnet



Product range	
Article number	Designation
6301106065	T-06 N/S



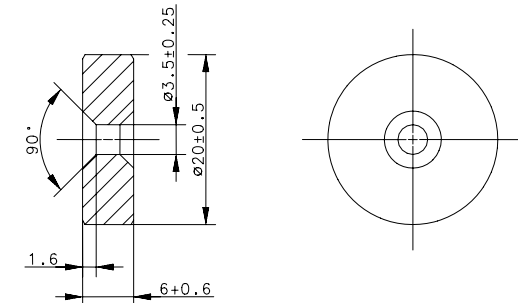
#### Mechanical data

Magnet material	Neodymium iron boron (NdFeB) (Sn-Ni coating)
Ambient temperature	-40°C ... +150°C

### T-61 N/S Actuating magnet



Product range	
Article number	Designation
6301261035	T-61 N/S



#### Mechanical data

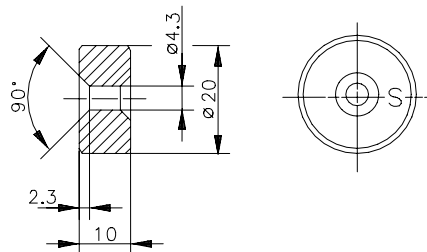
Magnet material	Barium ferrite Hard ferrite 24/23; axially magnetised; marking on the south-pole side
Ambient temperature	-40°C ... +150°C

**T-67 N/S Actuating magnet**



**Product range**

Article number	Designation
6301167054	T-67 N/S



**Mechanical data**

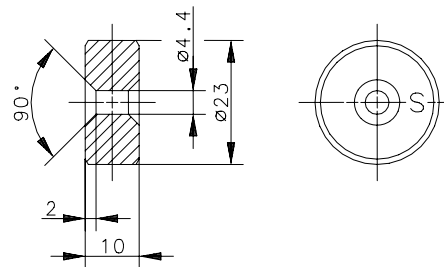
Magnet material	Hard ferrite 24/23; axially magnetised; marking on the south-pole side
Ambient temperature	-40°C ... +150°C

**T-62 N/S Actuating magnet**



**Product range**

Article number	Designation
6301262039	T-62 N/S



**Mechanical data**

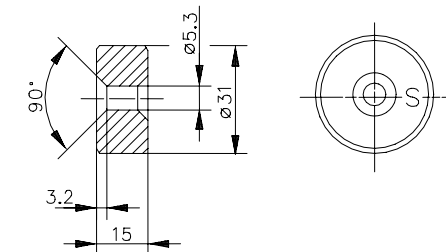
Magnet material	Hard ferrite 24/16; axially magnetised; marking on the south-pole side
Ambient temperature	-40°C ... +150°C

**T-69 N/S Actuating magnet**



**Product range**

Article number	Designation
6301269031	T-69 N/S



**Mechanical data**

Magnet material	Hard ferrite 24/16; axially magnetised; marking on the south-pole side
Ambient temperature	-20°C ... +80°C

ACCESSORIES **ACTUATING MAGNETS WITHOUT ENCAPSULATION**



**T-68 N Actuating magnet**



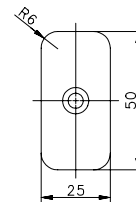
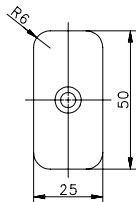
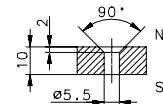
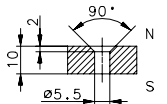
**T-68 S Actuating magnet**

**Product range**

Article number	Designation
6301268028	T-68 N

**Product range**

Article number	Designation
6301368033	T-68 S



**Mechanical data**

Magnet material	Hard ferrite 24/16; axially magnetised
Ambient temperature	-20°C ... +80°C

**Mechanical data**

Magnet material	Hard ferrite 24/16; axially magnetised
Ambient temperature	-20°C ... +80°C

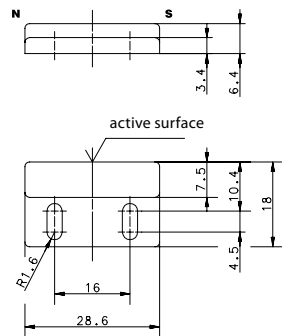
## ACCESSORIES ACTUATING MAGNETS IN A PLASTIC ENCLOSURE

**TK-11-11 Actuating magnet**



**Product range**

Article number	Designation
6302111047	TK-11-11



**Mechanical data**

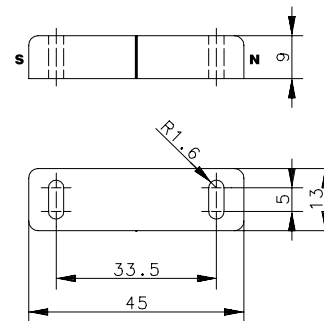
Magnet material	AlNiCo – 500
Ambient temperature	-20°C ... +80°C
Enclosure material	PA 6.6, black

**TK-11-01 Actuating magnet**



**Product range**

Article number	Designation
6303111001	TK-11-01



**Mechanical data**

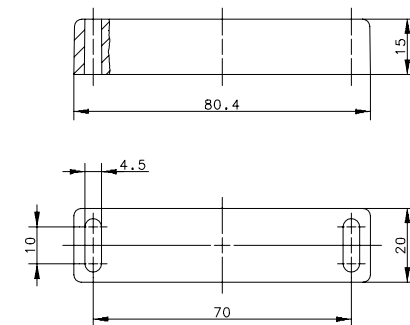
Magnet material	AlNiCo – 500
Ambient temperature	-20°C ... +80°C
Enclosure material	PA 6.6, black

**TK-21-02 Actuating magnet**



**Product range**

Article number	Designation
6303121002	TK-21-02



**Mechanical data**

Magnet material	AlNiCo – 500
Ambient temperature	-20°C ... +80°C
Enclosure material	PA 6.6, black

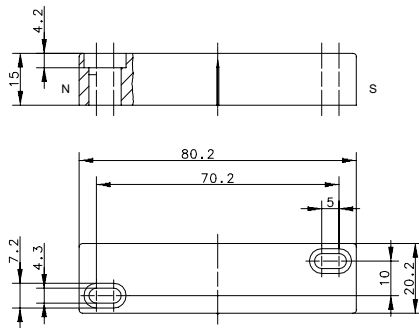
## ACCESSORIES ACTUATING MAGNETS IN A PLASTIC ENCLOSURE

### TK-21-12 Actuating magnet



**Product range**

Article number	Designation
6302121030	TK-21-12



**Mechanical data**

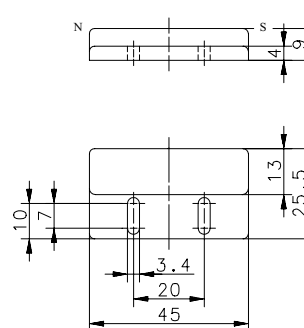
Magnet material	AlNiCo – 500
Ambient temperature	-20°C ... +80°C
Enclosure material	PA 6.6, red

### TK-45 Actuating magnet



**Product range**

Article number	Designation
6302145048	TK-45



**Mechanical data**

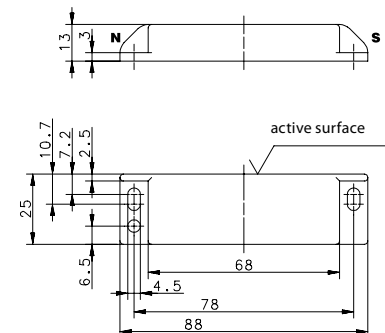
Magnet material	AlNiCo – 500
Ambient temperature	-20°C ... +70°C
Enclosure material	PA 6.6, black

### TK-42 Actuating magnet



**Product range**

Article number	Designation
6302142049	TK-42



**Mechanical data**

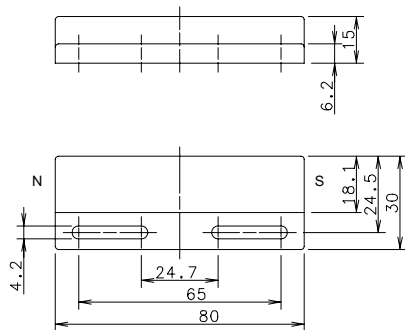
Magnet material	AlNiCo – 500
Ambient temperature	-20°C ... +80°C
Enclosure material	PA 6.6, black

### TK-44 Actuating magnet



#### Product range

Article number	Designation
6302144050	TK-44



#### Mechanical data

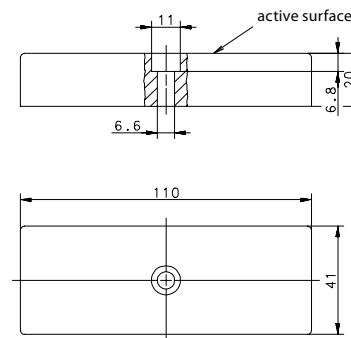
Magnet material	AlNiCo – 500
Ambient temperature	-20°C ... +80°C
Enclosure material	PA 6.6, black

### TK-50 Actuating magnet



#### Product range

Article number	Designation
6302100053	TK-50



#### Mechanical data

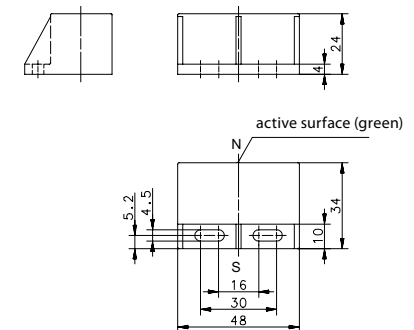
Magnet material	Hard ferrite
Ambient temperature	-20°C ... +80°C
Enclosure material	PA 6.6, black

### TK-57 N Actuating magnet



#### Product range

Article number	Designation
6302257060	TK-57 N



#### Mechanical data

Magnet material	Hard ferrite
Ambient temperature	-20°C ... +80°C
Enclosure material	PBT, black



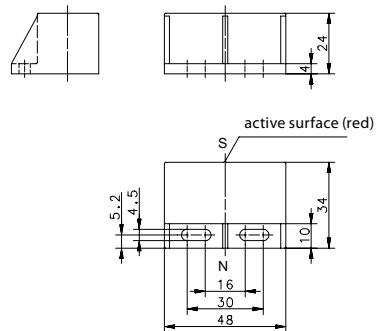
## ACCESSORIES ACTUATING MAGNETS IN A PLASTIC ENCLOSURE

### TK-57 S Actuating magnet



#### Product range

Article number	Designation
6302357061	TK-57 S



#### Mechanical data

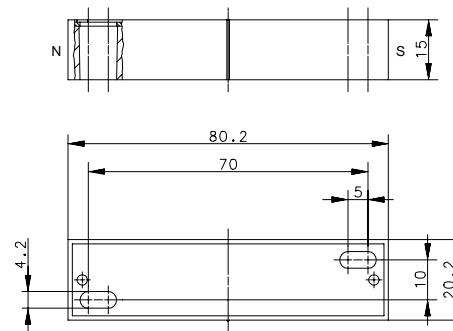
Magnet material	Hard ferrite
Ambient temperature	-20°C ... +80°C
Enclosure material	PBT, black

### TK-21-02 Actuating magnet



#### Product range

Article number	Designation
6305121064	TK-21-02



#### Mechanical data

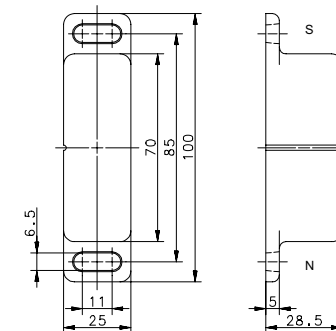
Magnet material	AlNiCo - 500
Ambient temperature	-40°C ... +150°C
Enclosure material	Al, red

### TA-31 Actuating magnet



#### Product range

Article number	Designation
6303131005	TA-31



#### Mechanical data

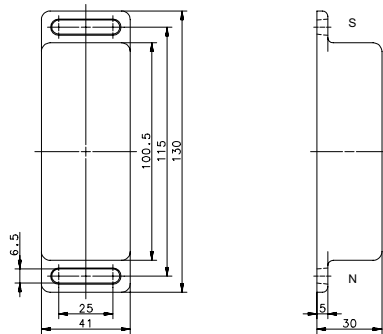
Magnet material	AlNiCo - 500
Ambient temperature	-20°C ... +80°C
Enclosure material	Al, black

## TA-33 Actuating magnet



### Product range

Article number	Designation
6303133034	TA-33



### Mechanical data

Magnet material	Hard ferrite 24/16
Ambient temperature	-20°C ... +80°C
Enclosure material	Al, black