

# OPTICAL ENCODER DISC

100% CUSTOMIZED SOLUTION



 **Honest Sensor<sup>®</sup>**

Bring the honest motion, Inspire the precise future!

## Properties - High Reflection Aluminium Encoder Disc

### Substrate

Material	high reflection aluminium substrate
Thickness	0.5 mm
Flatness	≤ 0.03
Operating Temperature	-40~120 °C
<b>Optical Properties</b>	
Total light reflection	≥ 95 % (to DIN 5036-3 (U-Globe))
Diffuse light reflection	< 5 % (to DIN 5036-3)
Total light reflection	≥ 95 % (to ASTM E-1651 (TR-2))
<b>Brightness</b>	
along	91 (to ISO 7688 (60° / calibrated 91.8))
across	91 (to ISO 7688 (60° / calibrated 91.8))
<b>Surface Properties</b>	
Treatment (front)	brightened, anodised and PVD-coated
PVD Coating (front)	PVD AL 99.99
Iridescence Assessment (front)	Absolutely free of interference colors
Treatment (rear)	anodised
<b>Mechanical Properties</b>	
Alloy	AL 99.9 (to DIN EN 573-3)
Hardness	Hard (to DIN EN 485-2)
Tensile strength	23,2 ~ 29,0 MPa
Yield strength	20.3 ~ 26.1 MPa
Elongation (A50)	≥ 2 %
Deformation / Bending	≥ 1,5 x gauge of material (Bending radius)
Expansion	23.1 x 10 <sup>-6</sup> / K

### Coating Layer

Material	black Ink
Thickness	1000 nm
Standard density	≥ 4.0

### Customization-Capabilities

Max. resolution	1270 LPI
Bar / Window accuracy	≤ 0.003 mm
Concentricity of code track	≤ 0.005 mm
Shaping Accuracy	≤ 0.02 mm
Shaping Burrs	≤ 0.2 mm
Max Diameter	180 mm (approx.)

## Specification - Polycarbonate Encoder Disc

### Substrate

Material	PanLite
Thickness	0.18 / 0.25 / 0.5 / 0.7 / 1.0 / 1.5 / 2.0 mm
Flatness	≤ 0.03
Operating Temperature	-40~120 °C
Melting (Freezing) point	> 240 °C
Flash point	> 522 °C
Auto-ignition temperature	> 550 °C
Specific gravity	1.2
Expansion	7 x 10 <sup>-5</sup> /°C (ISO 11359-2)
Density	1200 kg/m <sup>3</sup> (ISO 1183)
Water absorption	0.2 % (ISO 62)
Transmittance	88 % (ISO 13468-1)
Reflectance	1.585 (ASTM D542)
Bending stress	91 Mpa (ISO 178)
Retardant	VTM-2 0.09mm V-2 0.38mm (UL 94)

### Coating Layer

Material	chromium
Thickness	100 nm
Standard density	≥ 3.0

### Customization-Capabilities

Max. resolution	1270 LPI
Bar / Window accuracy	≤ 0.003 mm
Concentricity of code track	≤ 0.005 mm
Shaping Accuracy	≤ 0.02 mm
Shaping Burrs	≤ 0.2 mm
Max Diameter	180 mm (approx.)
Function	transmissive / reflective

## Properties - Soda Lime Glass Encoder Disc

### Substrate

Material	NSG
Thickness	0.55 / 0.7 / 1.1 mm
Flatness	≤ 0.01
Operating Temperature	-40~120 °C
Melting (Softening) point	730 °C
Strain point	500 °C (approx.)
Annealing point	540 °C (approx.)
Thermal Conductivity Coefficient of Thermal	0.65 Kcal/mh°C
Expansion	90 x 10 <sup>-7</sup> /°C (from room temp. up to 350°C)
Density	2.5 g/cm <sup>3</sup>
Hardness	6.5 Moh's scale
Transmittance	91% (λ=400~700nm)
Reflectance	4% (approx.)
Specific Heat	0.18 cal/g°C (approx.)
Compressive stress	> 550 Mpa
Composition	SiO <sub>2</sub> (70~73 %), Al <sub>2</sub> O <sub>3</sub> (1.0~2.2 %), Fe <sub>2</sub> O <sub>3</sub> (0.08~0.14 %), CaO (7~12 %), MgO (1.0~4.5 %), R <sub>2</sub> O (13~15 %)

### Coating Layer

Material	chromium
Thickness	100 nm
Standard density	≥ 3.0

### Customization-Capabilities

Max. resolution	1270 LPI
Bar / Window accuracy	≤ 0.003 mm
Concentricity of code track	≤ 0.005 mm
Shaping Accuracy	≤ 0.1 mm
Edge chipping	≤ 0.05 mm
Max Diameter	180 mm (approx.)
Function	transmissive / reflective

## Properties - Photographic Film Encoder Disc

### Substrate

Material	Fuji SPR
Thickness	0.18 mm
Flatness	≤ 0.05
Standard density	≥ 4.0
Operating Temperature	-20~85 °C
Ignition Temp.	485 °C
Flash Point	390 °C
Ingredients	polyethylene terephthalate (PET) (80-95 %), gelatine (1-10 %), silver halides (unprocessed film) (1-10 %), additives (<5 %)

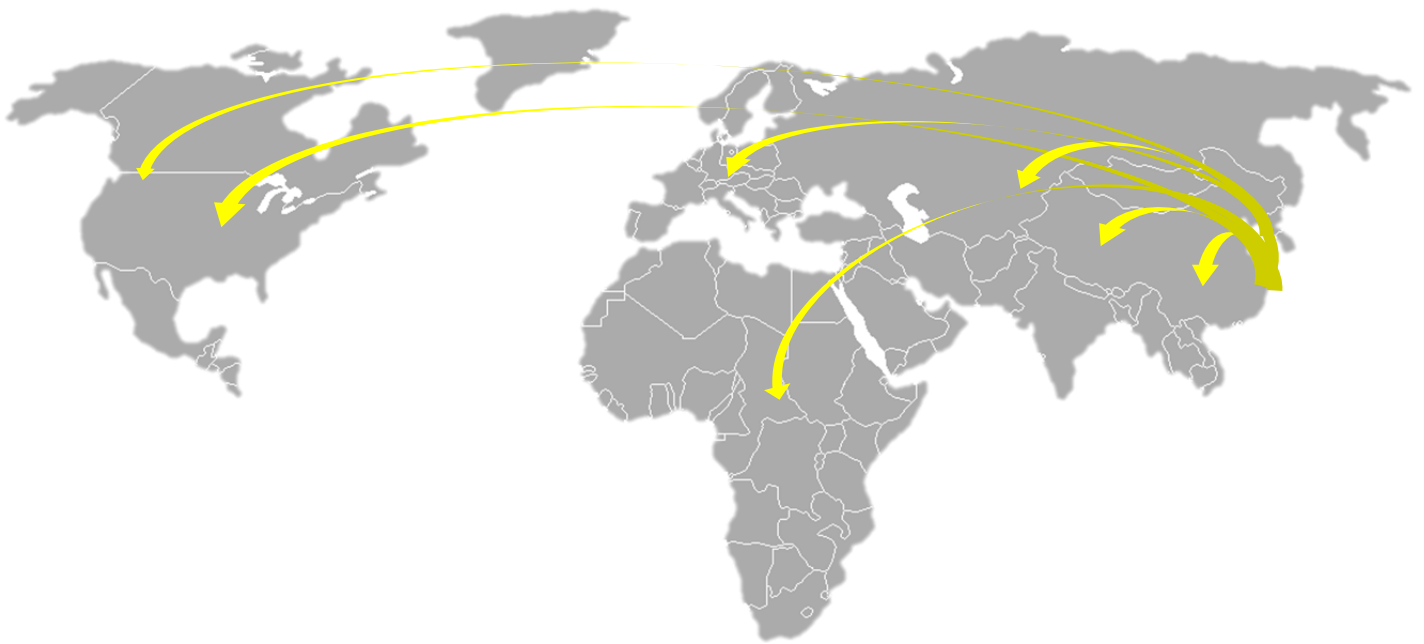
### Customization-Capabilities

Max. resolution	1000 LPI
Bar / Window accuracy	≤ 0.003 mm
Concentricity of code track	≤ 0.005 mm
Shaping Accuracy	≤ 0.02 mm
Shaping Burrs	≤ 0.2 mm
Max Diameter	450 mm (approx.)
Function	transmissive



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