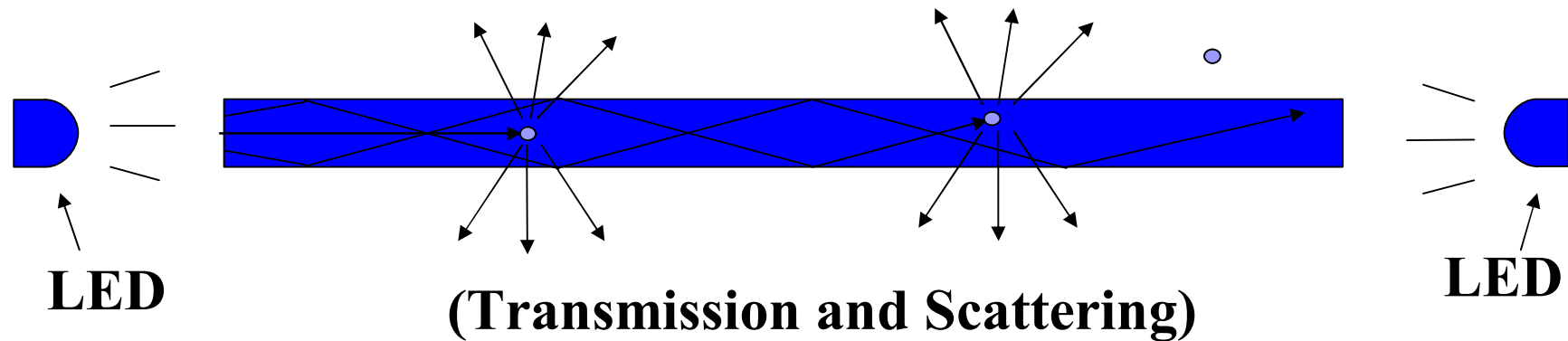
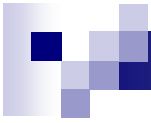


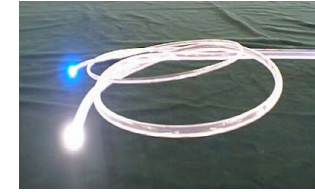
LED응용 제품

LIGHT GUIDE (Optic Fiber)





LIGHT GUIDE



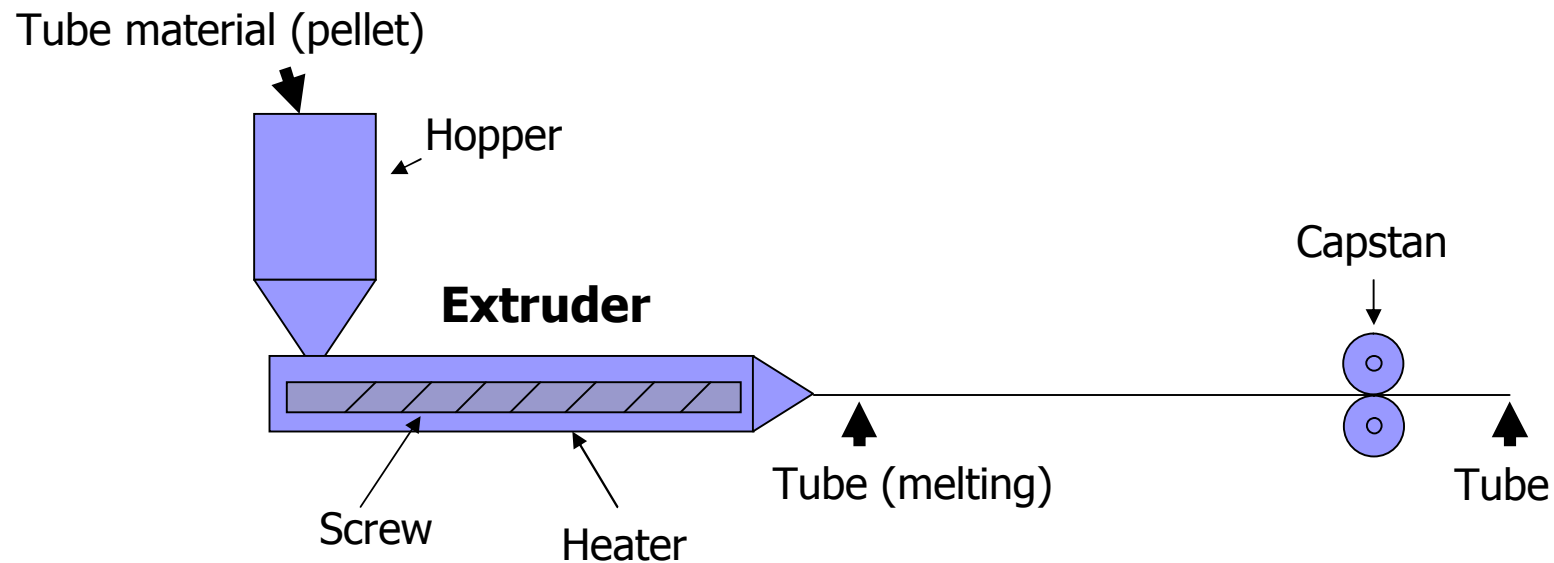
Light Guide is a useful item of line illumination: excellent flexibility, uniformity illuminance and simplicity at the end of the surface treatment. Because of the features, Light Guide can realize various illuminations for

- Automotive Industry**
- Telecommunication Network**
- IT Business**
- Home Appliances**
- Digital Media Business**
- Kitchen Built-in Appliances**
-etc.**



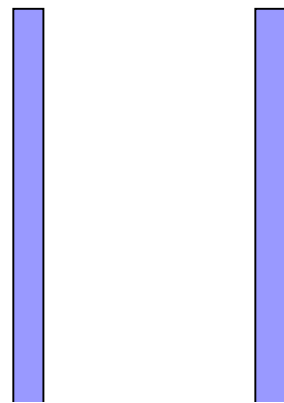
Manufacturing process of Light Guide

1. Fluorine Tube is prepared by a thermoplastic polymer extruder.

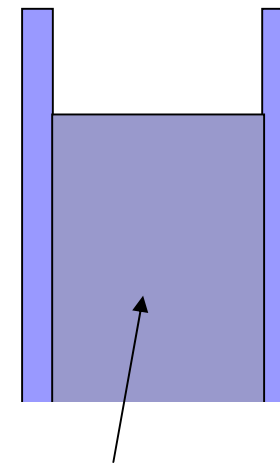


Manufacturing process of Light Guide

2.The fluorine tube is filled up with core mixture.



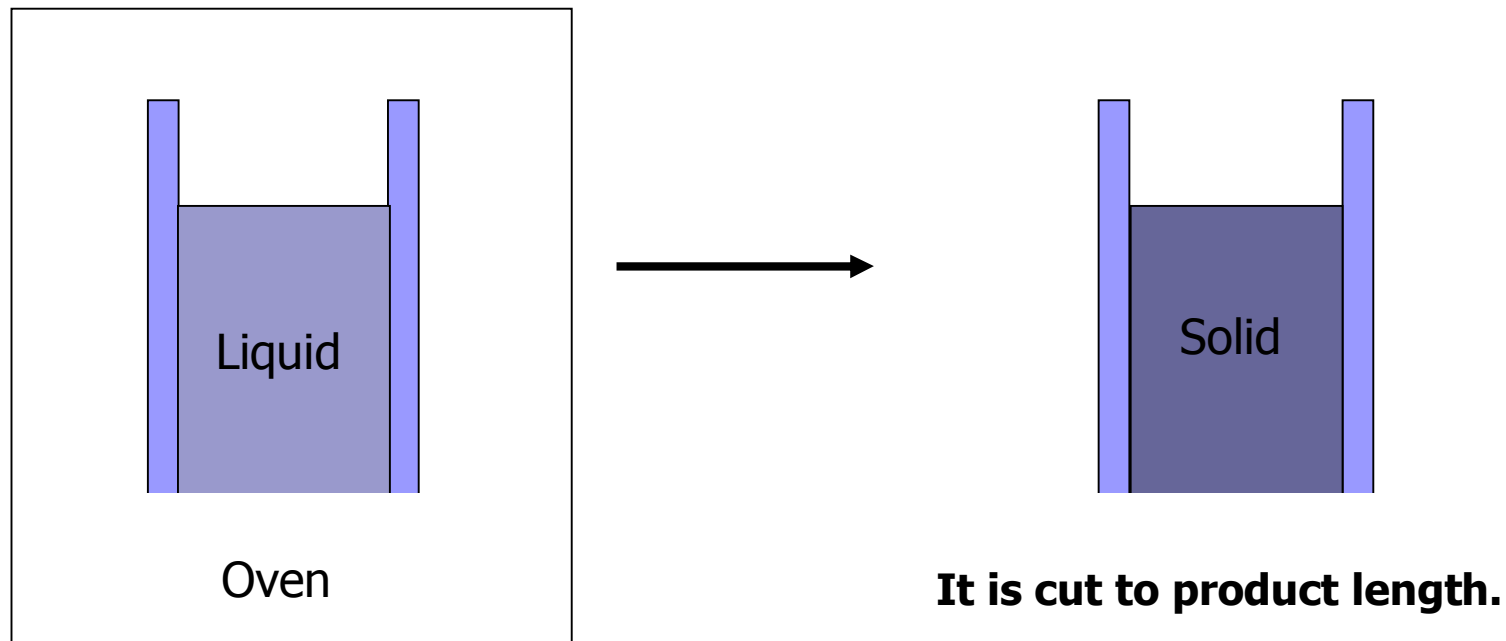
Tube



Core mixture

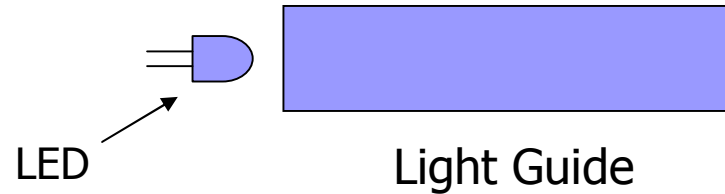
Manufacturing process of Light Guide

3. Core mixture is stiffened by heating.



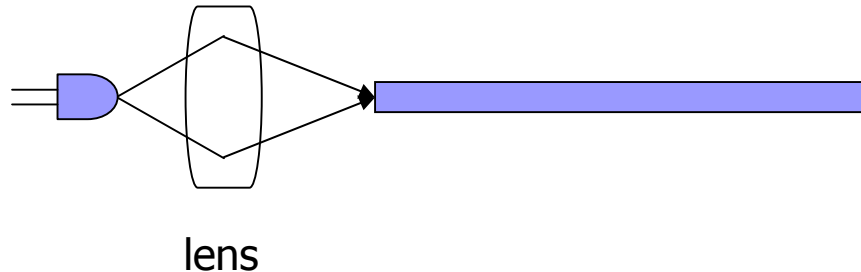
Coupling with LED

When Light guide outside diameter is larger than LED outside diameter, every LED can be used for Light Guide.



If Light guide outside diameter is smaller than LED outside diameter, take care of the coupling.

But coupling cost (lens, some covers etc.) is expensive.

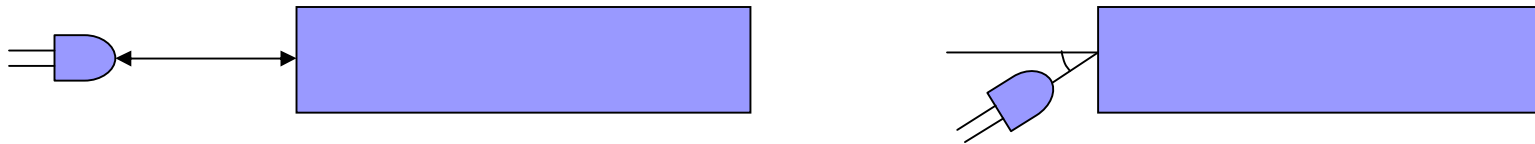


Balance of cost and brightness is important for design.

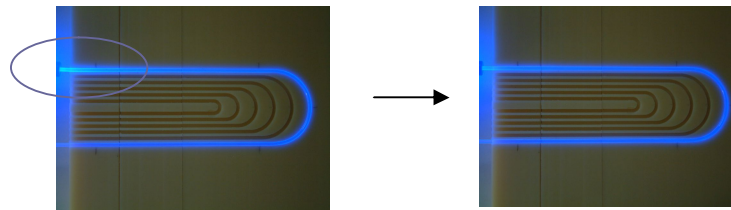
Coupling with LED

Cancellation of excess scattering near LED is following;

- **keep LED from the end of the Light guide**
- **some angles take LED away from the end of the Light guide (Not straight)**



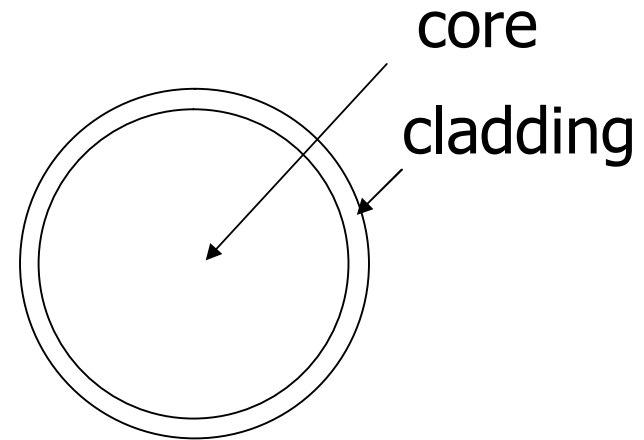
Balance of uniformity and brightness is important for design.



PRODUCTS

1. Elastomer Light Guide S (ELGS)

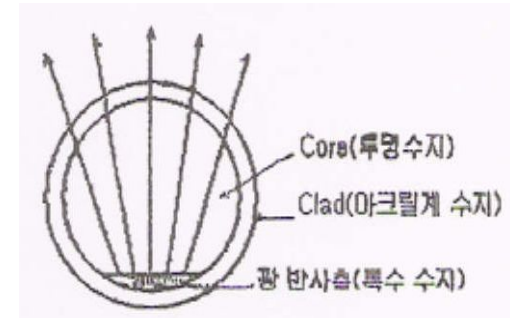
➤ 연질로써 형상이 자유



Type	단면도	품번	입경
원형 2층구조		E L G S 1.0	Ø1.0
		E L G S 1.4	Ø1.4
		E L G S 3.0	Ø3.0
		E L G S 6.0	Ø6.0
		E L G S 10.0	Ø10.0

3. Acrylic

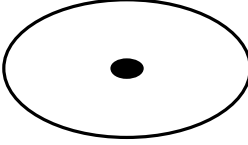
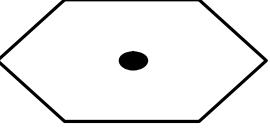
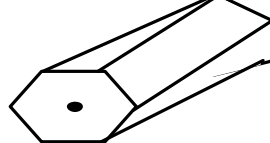

- 경질이지만 요구에 따라 L/U자형 가공 가능
- 광 반사층 착색 대응 가능



A. 표준 반사형 (標準 反射型)

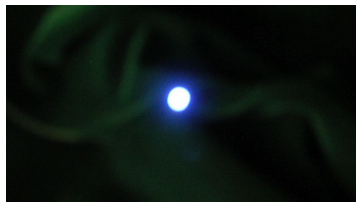
형상	Type	단면도	품번	외경
① 원형	표준형 (P Type)		R05P	Ø5.0
			R07P	Ø6.5
			R08P	Ø8.0
			R10P	Ø10.0
			R14P	Ø14.0
	광각형 (S Type)		R10S	Ø10.0
			R14S	Ø14.0
고지향 형		R10H	Ø10.0	
		R14H	Ø14.0	
② 직접형	표준형 (D Type)		R05D	Ø5.0
			R07D	Ø8.5
			R08D	Ø8.0
			R10D	Ø10.0
			R14D	Ø14.0

B. 전방향 반사형 (全方向 反射型)

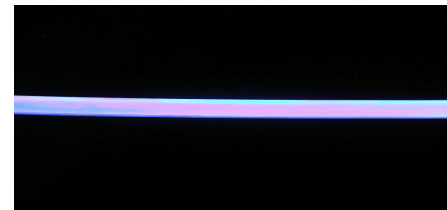
형상	Type	단면도	품번	입경
③ 원기 포형	백선 센터형 (C Type)		R03C	Ø3.0
			R05C	Ø5.0
			R07C	Ø6.5
			R08C	Ø8.0
			R10C	Ø10.0
			R14C	Ø14.0
형상	Type	단면도	품번	입경
④ 육각 기포형	액선 센터형 (HE Type)		R07HE	6.5
			R08HE	8.0
			R10HE	10.0
형상	Type	단면도	품번	입경
⑤ 육각 기포형	비 형 (HT Type)		R07HT	6.5
			R07HT	8.0
			R10HT	10.0
형상	Type	단면도	품번	입경
⑥ 원기 포형	중양부 기포형 (V Type)		R10V	Ø10.0
			R14V	Ø14.0

Strong points of Light Guide are

1. Allows line illuminations instead of spot illuminations only with LED.



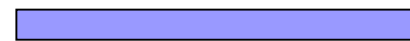
Point source



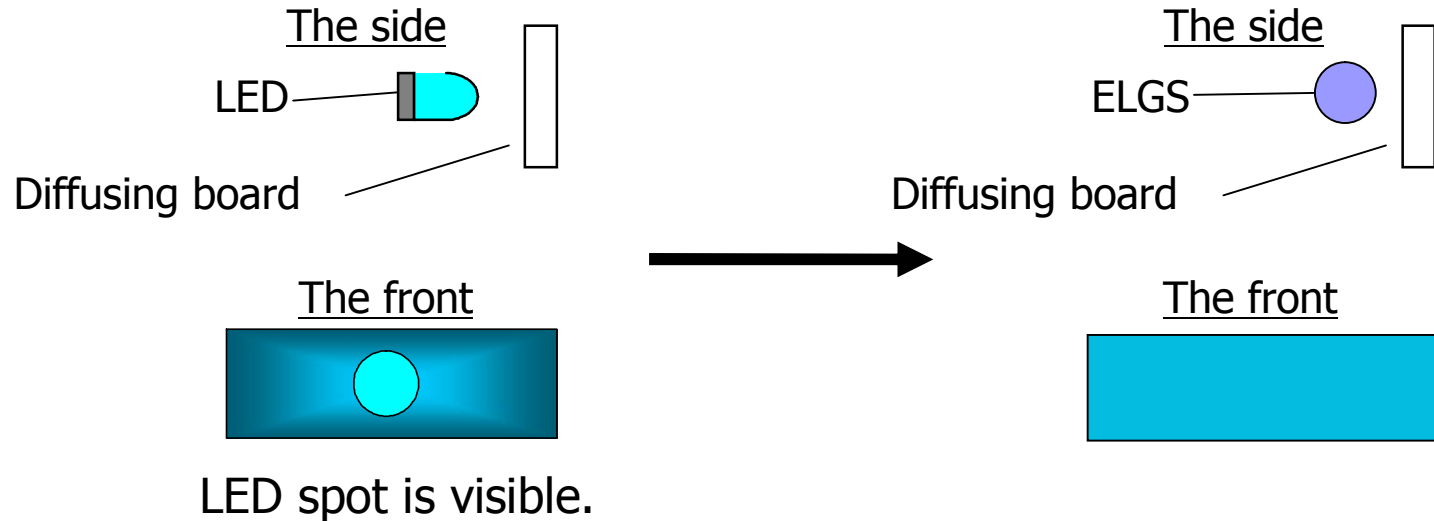
Homogeneous strip

2. Can be used for line illuminations with a simple circuit having an LED, no need for many LEDs.

There is no need for sorting the same brightness and chromaticity for LEDs.



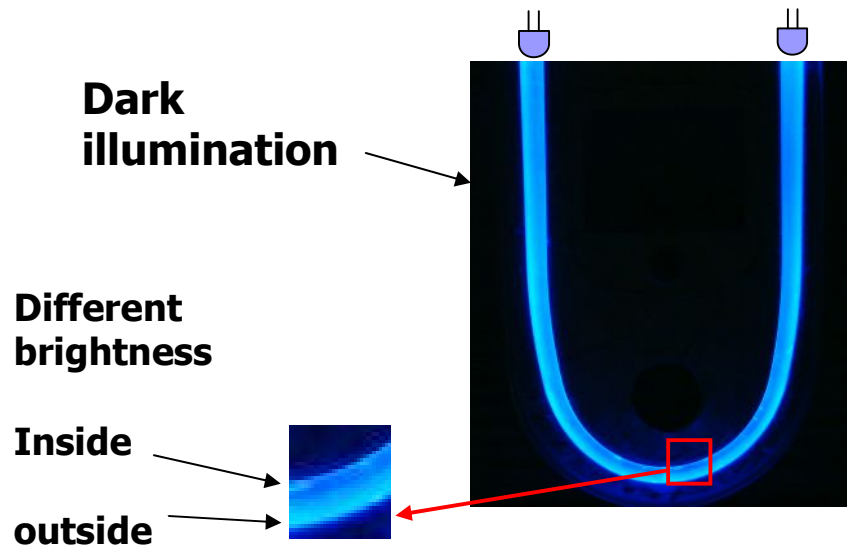
**3. LED and diffusing board is unevenness in illumination.
For evenness in illumination, depth is needed.
But it is difficult to use for thin products (cellular telephone etc).
Light Guide is no need for length of depth.**



4. Advantages to acrylic resin plate

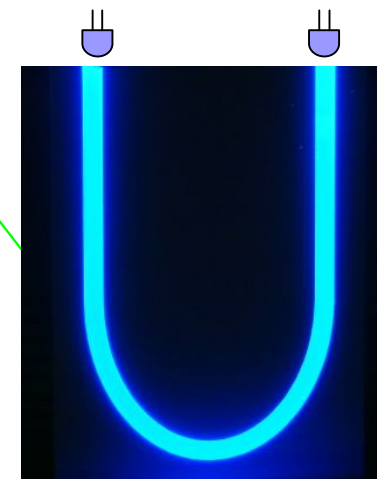
U pattern acrylic resin plate

Light guide



Scattering

Uniform and bright illumination



Transmission and scattering

Application 1

■ Cellular telephone



Motorola Korea



Lenovo china

SAMSUNG Electronics



Armani Night Effect

■ Mouse Razer



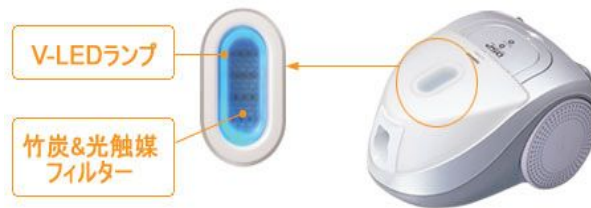
■ Amusement Daiwa seisakusyo (giant kong)



Application 2

■ Home appliances

TOSHIBA cleaner



SHARP cleaner



NEC Server

Indication lamp
for LED on a
PCB



Application 3 - HONDA

- MOOD LAMP in Vehicles
ELYSION
STEP WAGON
Mobilio Spike



Application 4 - HONDA

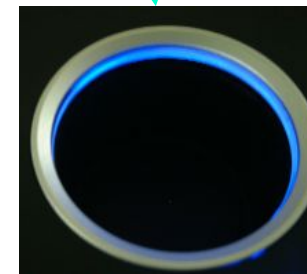
■ MOOD LAMP in Vehicles

**LIFE
FIT**



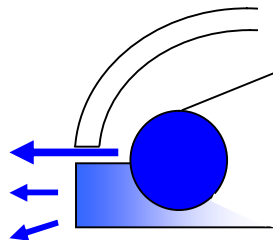
Application 5 - HONDA

- CUP HOLDER MOOD LAMP STREAM



Application 6 - MITSUBISHI

■ CENTER FACIA MOOD LAMP



Application 7 – HYUNDAI/KIA

■ INTERIOR

(IP/Dash Board, Door trim, Console,.....etc)



For SEOUL MOTOR SHOW(2007)