1. Punched hole detection on transparent plastic film

Punched holes should be detected on transparent plastic films. For this purpose a color sensor type **SPECTRO-3-FIO-SL** in connection with an optical fiber type **R-S-A2.0-(2.5)-1200-67°** and an optical front end type **KL-M34-XL-A2.0** will be used. At this, the distance to the object is approximately 100mm and the angle of the optical axis of the front end is around 45° to the vertical. Furthermore, the spot size at this distance is elliptical in shape and roughly 3mm x 4.5mm. The punched holes can be proper detected as shown in the screen shots.