

Introduction

In the litho offset process the pressure that is essential for transmitting the printing ink is produced by the indentation of the blanket in the printing nip. Due to the partial incompressibility this indentation causes a virtual increase of the circumference of the blanket cylinder with respect to its geometric dimension, which depends on the indentation depth and the used blanket. The unwind process of blanket and form or impression cylinder was investigated in several publications. The first "contact rolling experiment" was done by Willer (1960). He investigated the unwinding process of two cylinders of equal diameter one bearing a blanket under pressure. One of those cylinders was external driven and the second cylinder was driven by friction. He measured different numbers of revolution of both cylinders and assumed that the surface of the blanket cylinder is stretched which causes an increased effective diameter of the blanket cylinder (Figure 1).

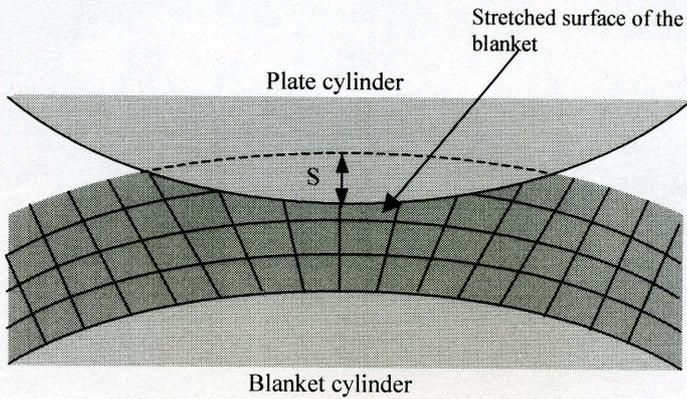


Figure 1: Stretched surface of the printing blanket in the printing nip

Based on his experiments he derived the appropriate diameters of the printing cylinders. Heyne (1978) investigated with a similar test device the rolling condition of blanket cylinders under pressure. He proposed that each printing blanket has its own rolling characteristic which varies with the blankets' indentation. This means that the rolling behaviour of the used printing blanket must be taken into consideration when determining the cylinder diameters or the packing. In his publication he calculated analytically the transmission ratio between rubber and plate cylinder depending on the indentation with the help of the equation of continuity. Based on this equation we define in our investigation two ideal cases for the transmission ratio between form and blanket cylinder, the