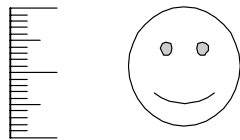
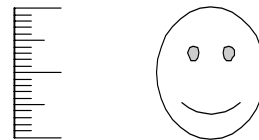


**Topics of the month: Print elongation****=Facts=**

When a photopolymer plate is mounted onto a press cylinder, the relief surface tends to elongate in the direction of printing. This elongation will provoke a disproportion between the original and the print result. Therefore the negative film (or image on black mask layer in case of digital plate) has to be scaled down in advance by the estimated amount of elongation in the printing direction, in order to compensate this disproportion.

**Fig.1 Original design****Fig.2 Printing****=Tips=****1. Scaling calculation**

This scaling will be calculated easily with a simple formula that takes into account the different factors implied in the elongation. The elongation will be mainly affected by the plate thickness (the thicker the plate the more distortion) and by the diameter of the cylinder (the smaller the diameter the more distortion). The compensation can be calculated as follows:

**Formula : % reduction = (K x 100) / R**

K = parameter depending on the polymer thickness (minus Base film)

= 2 x Pi x (Plate thickness – Base film thickness)

R = repeat length

= printing circumference

= Pi x {cylinder diameter +(2 x Total plate thickness) + (2 x Adhesive mounting tape thickness)}

\* Pi = 3.14

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As for the adhesive mounting tape thickness, double-side tape and cushion material must be included. In case of corrugated board printing, carrier sheet should be also included.

## 2. K value

K value for various thickness of AFP plate is shown as below. It is very important to choose a chart corresponding to the measurement unit you use. For measurement on a millimeter basis, use chart 1. For an inch basis, use chart 2.

**Chart 1) mm base**

Plate Thickness (mm)	Base film (mm)		
	ER	All other grades	
	0.100	0.125	0.188
1.14	-	-	5.979
1.70	-	9.8910	-
2.28	-	13.533	-
2.54	-	15.166	-
2.72	-	16.297	-
2.84	-	17.050	-
3.18	19.342	19.185	-
3.94	24.115	23.958	-
4.32		26.345	-
4.70	28.888	28.731	-
5.00	30.772	30.615	-
5.50	33.912	33.755	-
6.00	37.052	36.895	-
6.35	39.250	39.093	-
7.00	-	-	42.779

**Chart 2) inch base**

Plate Thickness (inch)	Base film (inch)		
	ER	All other grades	
	0.004	0.005	0.007
0.045	-	-	0.239
0.067	-	0.389	-
0.090	-	0.534	-
0.100	-	0.597	-
0.107	-	0.641	-
0.112	-	0.672	-
0.125	0.760	0.754	-
0.155	0.948	0.942	-
0.170	1.042	1.036	-
0.185	1.137	1.130	-
0.197	1.212	1.206	-
0.217	1.338	1.331	-
0.236	1.457	1.451	-
0.250	1.545	1.539	-
0.276	-	-	1.689