

**Comparison of industrial marking systems**

Comparison of industrial marking systems			PrintoLUX®	Screen printing	Engraving	CO <sub>2</sub> laser	YAG laser	Tampo printing	Digital printing with solvent ink	Digital printing with UV ink	Sublimation	Anodic printing (screen/digital)	
<b>Material</b>	<b>Type of material</b>	Acrylic	yes, verso	yes	yes	yes	yes	yes	Only possible with sprayed-on primer EM	yes	Only possible with polyester coated material	no/no	
		Aluminium, anodized coloured, AL	yes	yes	yes	yes	yes	yes		yes		yes	yes/yes
		Aluminium, white matt, AS	yes	yes	yes	no	yes	yes		yes		yes	no/no
		Aluminium, anodized natural, AL	yes	yes	yes	no	yes	yes		yes		yes	yes/yes
		Aluminium dibond, DB	yes	yes	Yes	no	no	yes		yes		yes	no/no
		Glass, matt or pretreated	yes, verso	yes	yes	no	no	yes		yes		yes	no/no
		Adhesive foil, polyester (white, silver, transparent) PK	yes	yes	no	no	yes	yes		yes		yes	no/no
		PrintoLUX® aluminium, AE	yes	yes	yes	yes	yes	yes		yes		yes	no/no
		PrintoLUX® stainless steel, VE	yes	yes	yes	yes	yes	yes		yes		yes	no/no
		PrintoLUX® brass, ME	yes	yes	yes	no	no	yes		yes		yes	no/no
		Laminated board (formica-like), RP	yes	yes	yes	yes	no	yes		yes		yes	no/no
		Plastic plates, polyester, PY	yes	yes	yes	no	yes	yes		yes		yes	no/no
		Keyboard foils, PD	yes	yes	no	no	yes	no		yes		yes	no/no
<b>Resistance (material-dependent)</b>	<b>UV</b>	at least 1 year	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes/yes	
		at least 3 years	yes	yes	yes	yes	yes	yes	yes	scarcely resistant	scarcely resistant	yes/ scarcely	
		at least 8 years	yes	yes	yes	yes	yes	yes	yes	not resistant	not resistant	not resistant	
	<b>Chemical</b>	Alcohol/ethanol	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes/yes
		Oils	yes	yes	yes	yes	yes	yes	yes	scarcely resistant	scarcely resistant	yes	yes/yes
		Cold cleaner	yes	yes	yes	yes	yes	yes	yes	not resistant	not resistant	yes	yes/yes
		Acetone	yes	yes	yes	material-dependent	yes	not resistant	not resistant	scarcely resistant	not resistant	yes	yes/yes
		Acid	yes	not resistant	not resistant	material-dependent	not resistant	not resistant	not resistant	not resistant	not resistant	yes	yes/yes
		Toluene	yes	yes	yes	yes	yes	not resistant	not resistant	scarcely resistant	not resistant	yes	yes/yes
	<b>Physical</b>	Fingernail test	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes/yes
		Tape test	yes	yes	yes	yes	yes	yes	yes	yes	scarcely resistant	yes	yes/yes
		Flying sparks test	yes	not resistant	yes	yes	yes	not resistant	not resistant	not resistant	not resistant	yes	yes/yes
		High pressure cleaning/Dry ice cleaning	yes	scarcely resistant	yes	yes	yes	not resistant	not resistant	not resistant	not resistant	yes	yes/yes
<b>Design</b>	<b>Colours</b>	Monochrome	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes/yes	
		Polychrome (RAL and Pantone)	yes	yes	not available	not available	not available	yes	partly possible	yes	not available	not available	
		Infinitely variable colour transitions	very good	not available	not available	not available	not available	not available	not available	good	good	good	not available good
		Photo quality	very good	not available	not available	not available	not available	not available	not available	good	not available	good	not available good
	<b>Printing mode</b>	Reproduction text files	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes/yes
		Reproduction graphic files	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes/yes
		Reproduction photo files	yes	no	no	yes	yes	no	yes	yes	yes	yes	no yes
		Reproduction barcode files	yes	no	no	yes	yes	yes	yes	no	no	yes	no yes
		Changes between texts, charts, barcodes	yes	no	yes	yes	yes	no	yes	yes	yes	complex	no yes
	<b>Resolution</b>	Resolution (300 to 5.760 dpi)	photorealistic (5.760 dpi)	medium (up to 720 dpi)	not available	monochrome high (up to 2.880 dpi)	high (up to 2.880 dpi)	high (up to 2.880 dpi)	high (up to 2.880 dpi)	photorealistic (5.760 dpi)	photorealistic (5.760 dpi)	photorealistic (5.760 dpi)	medium (up to 720 dpi)/ photorealistic (5.760 dpi)
<b>Specialist knowledge</b>	<b>Software</b>	Windows printer driver	yes	no	no	yes	no	no	yes	yes	yes	no yes	
		Macintosh printer driver	yes	no	no	yes	no	no	yes	yes	yes	yes/yes	
		No special software required	yes	no	yes	no	no	no	yes	yes	yes	yes/yes	
	Training requirements	Basic training	Intensive training	Intensive training	Intensive training	Intensive training	Intensive training	Intensive training	Intensive training	Intensive training	Intensive training	Intensive training	
<b>Production</b>	<b>Operation and serial printing</b>	Single piece production	yes	yes	yes	yes	yes	yes	yes	yes	yes	very expensive/yes	
		In-line/integration	no	no	no	no	yes	no	no	no	no	no/no	
		Direct printing	yes	not available	yes	yes	yes	no	yes	yes	no	yes/yes	
		Special preparation required	Pretreatment	Screen	no	no	Radioprotection	Pad	Primer	no	Heat press	Sealing bath	
	<b>Workplace safety</b>	General workplace environment	Office (noiseless)	Workshop	Workshop	Noisy (air filter system)	Noisy (air filter system)	Workshop (Odour)	Workshop (Odour)	Workshop (Odour)	Workshop (Odour)	Workshop (Odour)	Workshop (Odour)
		Impairments (in-office use)	Slight odour	Odour	Sound	Sound	Safety	Odour	Odour	Odour	Odour	Odour	Odour
Notes on workplace safety	None	Odour	Sound	Sound	Safety	Odour	Odour	Odour	Odour	keine	Odour		
<b>Cost</b>	<b>Investment for industrial workstation</b>	Expenditure	from 3.540 € to 18.380 €	30.000 € upwards	5.000 € upwards	8.000 € upwards	30.000 € upwards	2.500 € upwards	12.000 € upwards	20.000 € upwards	2.000 € upwards	16.000 € upwards digital printing 30.000 € upwards screen printing	