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# TROUBLESHOOTING

## GUIDE FOR PAD PRINTING



POSSIBLE SOURCE OF PROBLEM	POSSIBLE SOURCE OF PROBLEM					POSSIBLE SOURCE OF PROBLEM	POSSIBLE SOURCE OF PROBLEM				
	INK	PLATE	PAD	SUBSTRATE	OTHER		INK	PLATE	PAD	SUBSTRATE	OTHER
<b>PROBLEM</b>	<b>PAD DOES NOT TAKE UP INK</b>					<b>PROBLEM</b>	<b>COLOUR DOES NOT MATCH PRINTED SAMPLE</b>				
<b>POSSIBLE SOLUTIONS</b>	<ul style="list-style-type: none"> <li>ink too thick</li> <li>dried up ink on the plate</li> <li>wrong thinner used</li> </ul>	<ul style="list-style-type: none"> <li>depth too shallow</li> <li>surface of plate is damaged</li> <li>worn plate</li> </ul>	<ul style="list-style-type: none"> <li>pad too flat</li> <li>pad surface damaged</li> <li>worn pad</li> </ul>		<ul style="list-style-type: none"> <li>speed of pad stroke set too fast</li> </ul>	<ul style="list-style-type: none"> <li>ink too thin</li> <li>colour too transparent</li> <li>wrong formulation (if special shade)</li> <li>changed substrate colour</li> </ul>	<ul style="list-style-type: none"> <li>variation on etch depth</li> <li>wrong plate type</li> <li>wrong screen ruling</li> </ul>	<ul style="list-style-type: none"> <li>incorrect pad shape</li> <li>rough surface</li> </ul>	<ul style="list-style-type: none"> <li>changing substrate colour</li> <li>sample copy was printed on another substrate colour</li> </ul>	<ul style="list-style-type: none"> <li>sample copy was printed with either a single or double hit</li> </ul>	<ul style="list-style-type: none"> <li>check to see if single or double hit</li> </ul>
<b>POSSIBLE SOLUTIONS</b>	<ul style="list-style-type: none"> <li>re-thin</li> <li>clean the plate</li> <li>use the recommended type of thinner</li> </ul>	<ul style="list-style-type: none"> <li>use deeper plate</li> <li>make new plate</li> </ul>	<ul style="list-style-type: none"> <li>use pad with steep point</li> <li>replace with new pad</li> </ul>		<ul style="list-style-type: none"> <li>adjust pad stroke to a lower speed</li> </ul>	<ul style="list-style-type: none"> <li>adjust colour</li> <li>mix more opaque colour</li> <li>formulate colour on correct substrate colour</li> </ul>	<ul style="list-style-type: none"> <li>measure image depth</li> <li>use correct type of plate</li> <li>use correct screen ruling</li> </ul>	<ul style="list-style-type: none"> <li>use recommended pad shape</li> <li>replace with a new pad</li> </ul>	<ul style="list-style-type: none"> <li>mix ink colour on substrate colour or similar</li> <li>pre-print white</li> </ul>		
<b>PROBLEM</b>	<b>PAD DOES NOT RELEASE INK</b>					<b>PROBLEM</b>	<b>INK SPLASHES ON SUBSTRATE</b>				
<b>POSSIBLE SOLUTIONS</b>	<ul style="list-style-type: none"> <li>ink dried on the pad</li> <li>ink too "wet" at the pad; incomplete transfer</li> </ul>	<ul style="list-style-type: none"> <li>depth too shallow</li> <li>image too deep</li> </ul>	<ul style="list-style-type: none"> <li>pad too flat</li> <li>pad surface damaged</li> <li>worn pad surface</li> </ul>	<ul style="list-style-type: none"> <li>surface contaminated with grease, sweat, oil or mold release</li> </ul>	<ul style="list-style-type: none"> <li>process speed too slow</li> <li>high ambient temperature</li> </ul>	<ul style="list-style-type: none"> <li>ink is too thick</li> <li>build up of ink on pad</li> </ul>	<ul style="list-style-type: none"> <li>etch is too deep</li> </ul>	<ul style="list-style-type: none"> <li>pad is too flat</li> <li>rough surface</li> </ul>	<ul style="list-style-type: none"> <li>static charge on surface</li> </ul>	<ul style="list-style-type: none"> <li>low humidity</li> <li>process speed is too high</li> </ul>	<ul style="list-style-type: none"> <li>check &amp; set humidity and temperature</li> <li>slower printing speed</li> </ul>
<b>POSSIBLE SOLUTIONS</b>	<ul style="list-style-type: none"> <li>use slower thinner</li> <li>use faster thinner</li> </ul>	<ul style="list-style-type: none"> <li>etch image deeper on the plate</li> <li>use a shallower plate</li> </ul>	<ul style="list-style-type: none"> <li>use pad with steeper point</li> <li>replace with new pad plate</li> </ul>	<ul style="list-style-type: none"> <li>clean surface with methylated spirit</li> </ul>	<ul style="list-style-type: none"> <li>adjust process to a faster speed</li> <li>set print room temperature to 18-24°C</li> </ul>	<ul style="list-style-type: none"> <li>re-thin the ink</li> <li>mix ink with other thinner</li> </ul>	<ul style="list-style-type: none"> <li>measure image depth</li> <li>use a shallower etch depth</li> </ul>	<ul style="list-style-type: none"> <li>use pad with sharp point</li> <li>use new pad</li> </ul>	<ul style="list-style-type: none"> <li>ionize surface</li> </ul>		
<b>PROBLEM</b>	<b>INK DOES NOT SHOW SUFFICIENT ADHESION ON SUBSTRATE</b>					<b>PROBLEM</b>	<b>DISTORTION IN THE PRINTED IMAGE</b>				
<b>POSSIBLE SOLUTIONS</b>	<ul style="list-style-type: none"> <li>wrong type of ink system</li> <li>wrong type of hardener, no hardener or insufficient amount of hardener</li> <li>insufficient drying or curing time</li> </ul>		<ul style="list-style-type: none"> <li>weeping of silicone oil from pad</li> </ul>	<ul style="list-style-type: none"> <li>surface contaminated, check surface tension</li> <li>check post-treatment of surface</li> </ul>	<ul style="list-style-type: none"> <li>unknown substrate or surface coating.</li> </ul>			<ul style="list-style-type: none"> <li>wrong form</li> <li>wrong hardness</li> <li>pressure too high</li> <li>pressure on plate and substrate not the same</li> <li>pad hits on difficult contour on part</li> </ul>	<ul style="list-style-type: none"> <li>substrate too soft not distortion-free</li> <li>surface height variation</li> <li>image distorts due to shape of product</li> </ul>	<ul style="list-style-type: none"> <li>unsuitable part tooling</li> <li>no horizontal position</li> </ul>	<ul style="list-style-type: none"> <li>stable &amp; firm part tooling</li> <li>substrate must be in a horizontal position to the plate</li> </ul>
<b>POSSIBLE SOLUTIONS</b>	<ul style="list-style-type: none"> <li>use recommended ink system for substrate</li> <li>add recommended hardener according to product data sheet</li> <li>sufficient curing time</li> </ul>		<ul style="list-style-type: none"> <li>clean pad with methylated spirits</li> </ul>	<ul style="list-style-type: none"> <li>clean surface, with methylated spirit</li> <li>pre-treat surface</li> <li>post-treat surface</li> </ul>	<ul style="list-style-type: none"> <li>obtain information about substrate</li> <li>check adhesion with various ink types before printing</li> </ul>			<ul style="list-style-type: none"> <li>use correct form</li> <li>use correct hardness</li> <li>use less pressure</li> <li>use same pressure on plate and substrate</li> <li>use other touch-down point</li> </ul>	<ul style="list-style-type: none"> <li>use other material or jig</li> <li>pad assembly</li> <li>use special pad</li> </ul>		
<b>PROBLEM</b>	<b>UNEVEN PRINT QUALITY</b>					<b>PROBLEM</b>	<b>INSUFFICIENT OPACITY</b>				
<b>POSSIBLE SOLUTIONS</b>	<ul style="list-style-type: none"> <li>ink too thin</li> <li>colour shade is too transparent</li> </ul>	<ul style="list-style-type: none"> <li>image on plate not deep enough</li> <li>large image not on an angle (open ink system only)</li> </ul>	<ul style="list-style-type: none"> <li>pad too flat</li> <li>pad too soft</li> <li>surface too rough</li> </ul>	<ul style="list-style-type: none"> <li>surface very rigid</li> <li>surface contaminated</li> </ul>	<ul style="list-style-type: none"> <li>doctor blade scoops ink from plate image (open ink system only)</li> </ul>	<ul style="list-style-type: none"> <li>ink film too thin</li> <li>colour too transparent</li> <li>ink transfer insufficient</li> </ul>	<ul style="list-style-type: none"> <li>shallow image on plate</li> <li>not screened</li> <li>image parallel to doctor blade</li> <li>wrong screen ruling</li> </ul>	<ul style="list-style-type: none"> <li>pad too flat</li> <li>pad too soft</li> <li>rough surface</li> </ul>	<ul style="list-style-type: none"> <li>surface contaminated</li> <li>dark substrate colour</li> <li>tension cracks in injection moulded materials</li> </ul>	<ul style="list-style-type: none"> <li>doctor blade scoops ink out of image (open ink system only)</li> </ul>	<ul style="list-style-type: none"> <li>use rigid doctor blade, change screen ruling and change image angle on plate.</li> </ul>
<b>POSSIBLE SOLUTIONS</b>	<ul style="list-style-type: none"> <li>adjust ink to a higher viscosity</li> <li>use a more opaque ink</li> </ul>	<ul style="list-style-type: none"> <li>deeper image on plate</li> <li>angle image on the plate (open ink system only)</li> </ul>	<ul style="list-style-type: none"> <li>use pad with steep point</li> <li>use harder pad</li> <li>angle image on the plate (open ink system only)</li> <li>use a new pad</li> </ul>	<ul style="list-style-type: none"> <li>use steep point, hard pad</li> <li>blow air on pad during ink transfer</li> <li>clean pad with methylated spirit</li> </ul>	<ul style="list-style-type: none"> <li>use rigid doctor blade</li> <li>screen image and angle image on the plate</li> </ul>	<ul style="list-style-type: none"> <li>adjust colour</li> <li>mix more opaque colour</li> <li>check plate and pad</li> </ul>	<ul style="list-style-type: none"> <li>use deeper etched plate</li> <li>use plate screen</li> <li>angle image on plate</li> <li>use coarse screen ruling</li> </ul>	<ul style="list-style-type: none"> <li>use sharper pad</li> <li>use correct hardness</li> <li>use a new pad</li> </ul>	<ul style="list-style-type: none"> <li>clean surface</li> <li>use a double hit</li> <li>use a mild ink system with a mild thinner</li> </ul>		