

# Troubleshooting Guide for Pad Printing

	INK	CLICHÉ	PAD	SUBSTRATE	OTHER
<b>PROBLEM – PAD DOES NOT PICK UP INK / OR ONLY PARTIALLY</b>					
<b>Possible Causes</b>	<ul style="list-style-type: none"> <li>&gt; insufficient thinning, ink is too thick</li> <li>&gt; dried up in the cliché</li> <li>&gt; wrong thinner (evaporation too fast)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; not deep enough</li> <li>&gt; print image in the cliché is damaged</li> <li>&gt; wear and tear</li> </ul>	<ul style="list-style-type: none"> <li>&gt; too flat</li> <li>&gt; surface damaged</li> <li>&gt; wear and tear</li> </ul>		<ul style="list-style-type: none"> <li>&gt; speed of pad stroke too fast</li> </ul>
<b>Possible Solutions</b>	<ul style="list-style-type: none"> <li>● re-thin</li> <li>● clean cliché</li> <li>● use the recommended type of thinner (slower evaporation)</li> </ul>	<ul style="list-style-type: none"> <li>● use deeper cliché</li> <li>● make new cliché</li> </ul>	<ul style="list-style-type: none"> <li>● use sharper pad</li> <li>● use new pad</li> </ul>		<ul style="list-style-type: none"> <li>● adjust pad stroke to lower speed</li> </ul>
<b>PROBLEM – PAD DOES NOT RELEASE INK / OR ONLY PARTIALLY</b>					
<b>Possible Causes</b>	<ul style="list-style-type: none"> <li>&gt; dried to the pad</li> <li>&gt; pad too wet, ink does not sufficiently stick</li> </ul>	<ul style="list-style-type: none"> <li>&gt; not deep enough</li> <li>&gt; image too deep</li> </ul>	<ul style="list-style-type: none"> <li>&gt; too flat</li> <li>&gt; surface damaged</li> <li>&gt; wear and tear</li> </ul>	<ul style="list-style-type: none"> <li>&gt; surface contaminated with grease, hand-sweat, oil, separating agents</li> </ul>	<ul style="list-style-type: none"> <li>&gt; process speed too slow</li> <li>&gt; high ambient temperature</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>● use deeper cliché</li> <li>● use more flat cliché</li> </ul>	<ul style="list-style-type: none"> <li>● use sharper pad</li> <li>● use new pad</li> </ul>	<ul style="list-style-type: none"> <li>● clean surface, e.g. with alcohol</li> </ul>	<ul style="list-style-type: none"> <li>● adjust process to faster speed</li> <li>● controlled room temperature of 18-22°C</li> </ul>
<b>PROBLEM – INSUFFICIENT ADHESION OF INK ON SUBSTRATE</b>					
<b>Possible Causes</b>	<ul style="list-style-type: none"> <li>&gt; wrong ink system</li> <li>&gt; wrong type of hardener, or insufficient hardener addition</li> <li>&gt; no hardener added</li> <li>&gt; hardener reaction time/hardener reaction temperature insufficient</li> </ul>		<ul style="list-style-type: none"> <li>&gt; leakage of silicone oil</li> </ul>	<ul style="list-style-type: none"> <li>&gt; surface contaminated, ineffective pre-treatment</li> <li>&gt; ineffective post-treatment</li> </ul>	<ul style="list-style-type: none"> <li>&gt; insufficient information about substrate</li> </ul>
<b>Possible Solutions</b>	<ul style="list-style-type: none"> <li>● use suitable ink system</li> <li>● addition of hardener according to product data sheet</li> <li>● sufficient drying time and temperature</li> </ul>		<ul style="list-style-type: none"> <li>● clean with solvents</li> </ul>	<ul style="list-style-type: none"> <li>● clean surface, e.g. with alcohol</li> <li>● effective pre-treatment of surface</li> <li>● effective post-treatment of surface</li> </ul>	<ul style="list-style-type: none"> <li>● obtain information about substrate</li> <li>● carry out adhesion tests prior to printing</li> </ul>
<b>PROBLEM – FULL IMAGES ARE NOT PRINTED EVENLY</b>					
<b>Possible Causes</b>	<ul style="list-style-type: none"> <li>&gt; too thin</li> <li>&gt; colour is too transparent</li> </ul>	<ul style="list-style-type: none"> <li>&gt; not deep enough</li> <li>&gt; large motive not inclined (open system)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; too flat</li> <li>&gt; too soft</li> <li>&gt; surface too rough</li> </ul>	<ul style="list-style-type: none"> <li>&gt; surface has too much structure</li> <li>&gt; surface contaminated</li> </ul>	<ul style="list-style-type: none"> <li>&gt; doctor blade pulls ink out of image (open system)</li> <li>&gt; high ambient temperatures</li> </ul>
<b>Possible Solutions</b>	<ul style="list-style-type: none"> <li>● adjust ink to thicker consistency</li> <li>● formulate more opaque colour</li> </ul>	<ul style="list-style-type: none"> <li>● use deeper cliché</li> <li>● incline motive (open system)</li> </ul>	<ul style="list-style-type: none"> <li>● use sharper pad</li> <li>● use new pad</li> </ul>	<ul style="list-style-type: none"> <li>● use sharp, hard pad</li> <li>● blow air towards pad during ink transfer</li> <li>● clean surface, e.g. with alcohol</li> </ul>	<ul style="list-style-type: none"> <li>● use stronger doctor blade</li> <li>● screen motive and incline lines and areas</li> </ul>
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<b>PROBLEM – PRINTED COLOUR DOES NOT MATCH REPRO COPY</b>					
<b>Possible Causes</b>	<ul style="list-style-type: none"> <li>&gt; too thin</li> <li>&gt; colour too transparent</li> <li>&gt; wrong formulation (if special colour)</li> <li>&gt; changed substrate colour</li> </ul>	<ul style="list-style-type: none"> <li>&gt; varying depth</li> <li>&gt; wrong cliché material</li> <li>&gt; wrong screening width</li> </ul>	<ul style="list-style-type: none"> <li>&gt; wrong form</li> <li>&gt; surface too rough</li> </ul>	<ul style="list-style-type: none"> <li>&gt; changing substrate colours</li> <li>&gt; repro copy was formulated on substrate with a different colour</li> </ul>	<ul style="list-style-type: none"> <li>&gt; repro copy made for double or single print?</li> </ul>
<b>Possible Solutions</b>	<ul style="list-style-type: none"> <li>● adjust colour</li> <li>● formulate a more opaque colour</li> <li>● formulate colour on changed substrate colour</li> </ul>	<ul style="list-style-type: none"> <li>● measure depth</li> <li>● use correct type of cliché material</li> <li>● use correct screening width</li> </ul>	<ul style="list-style-type: none"> <li>● use correct form</li> <li>● insert new pad with smooth surface</li> </ul>	<ul style="list-style-type: none"> <li>● formulate colour on correct substrate colour</li> <li>● preprint white</li> </ul>	<ul style="list-style-type: none"> <li>● check colour with double or single print</li> </ul>
<b>PROBLEM – INK SPLASHES ON SUBSTRATE</b>					
<b>Possible Causes</b>	<ul style="list-style-type: none"> <li>&gt; too thick</li> <li>&gt; ink residues on pad</li> </ul>	<ul style="list-style-type: none"> <li>&gt; too deep</li> </ul>	<ul style="list-style-type: none"> <li>&gt; too flat</li> <li>&gt; surface too rough</li> </ul>	<ul style="list-style-type: none"> <li>&gt; static charge on surface</li> </ul>	<ul style="list-style-type: none"> <li>&gt; low humidity</li> <li>&gt; printing speed too high</li> </ul>
<b>Possible Solutions</b>	<ul style="list-style-type: none"> <li>● adjust ink to thinner consistency, re-thin</li> <li>● adjust ink with more suitable thinner</li> </ul>	<ul style="list-style-type: none"> <li>● measure depth</li> <li>● use flatter/or deeper cliché</li> </ul>	<ul style="list-style-type: none"> <li>● use sharper pad</li> <li>● insert new pad with smooth surface</li> </ul>	<ul style="list-style-type: none"> <li>● discharge surface (ionize)</li> </ul>	<ul style="list-style-type: none"> <li>● check humidity if necessary increase (60-80%)</li> <li>● slow down printing speed</li> </ul>
<b>PROBLEM – DISTORTION IN THE PRINTED IMAGE</b>					
<b>Possible Causes</b>			<ul style="list-style-type: none"> <li>&gt; wrong form</li> <li>&gt; wrong hardness</li> <li>&gt; pressure too high</li> <li>&gt; pressure on cliché and substrate are not the same</li> <li>&gt; wrong touch-down of pad</li> </ul>	<ul style="list-style-type: none"> <li>&gt; too soft</li> <li>&gt; not distortion-free</li> <li>&gt; deep spots for pad</li> <li>&gt; interfering edges prevent pad deformation</li> </ul>	<ul style="list-style-type: none"> <li>&gt; unsuitable substrate holder</li> <li>&gt; print area is not in a horizontal position to cliché</li> </ul>
<b>Possible Solutions</b>			<ul style="list-style-type: none"> <li>● use correct form</li> <li>● use correct hardness, less pressure</li> <li>● use same pressure on cliché and substrate</li> <li>● use other touch-down point</li> </ul>	<ul style="list-style-type: none"> <li>● other material</li> <li>● pad assembly</li> <li>● special pad (special shape)</li> </ul>	<ul style="list-style-type: none"> <li>● stable, firm substrate holder</li> <li>● adjust substrate to a horizontal position to the cliché</li> </ul>
<b>PROBLEM – INSUFFICIENT OPACITY OF INK</b>					
<b>Possible Causes</b>	<ul style="list-style-type: none"> <li>&gt; too thin</li> <li>&gt; colour too transparent</li> <li>&gt; ink transfer insufficient</li> </ul>	<ul style="list-style-type: none"> <li>&gt; too flat</li> <li>&gt; not screened</li> <li>&gt; motive not inclined</li> <li>&gt; wrong screening width</li> </ul>	<ul style="list-style-type: none"> <li>&gt; too flat</li> <li>&gt; too soft</li> <li>&gt; rough surface</li> </ul>	<ul style="list-style-type: none"> <li>&gt; surface contaminated</li> <li>&gt; dark substrate colour</li> <li>&gt; tension cracks of injection moulded materials</li> </ul>	<ul style="list-style-type: none"> <li>&gt; doctor blade pulls ink out of image (open system)</li> </ul>
<b>Possible Solutions</b>	<ul style="list-style-type: none"> <li>● re-adjust colour</li> <li>● formulate a more opaque colour</li> <li>● check cliché and pad</li> </ul>	<ul style="list-style-type: none"> <li>● insert deeper cliché</li> <li>● screen motive</li> <li>● incline motive</li> <li>● use coarser screening width</li> </ul>	<ul style="list-style-type: none"> <li>● use sharper pad</li> <li>● use correct hardness</li> <li>● insert new pad</li> </ul>	<ul style="list-style-type: none"> <li>● clean surface</li> <li>● apply double prints</li> <li>● use mild ink system (e.g. TP 249) with mild thinner (e.g. VD 10)</li> </ul>	<ul style="list-style-type: none"> <li>● use stronger doctor blade</li> <li>● screen motive and incline areas and lines</li> </ul>
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