

## SOLUTIONS TO HOT STAMP DECORATING PROBLEMS

<b>PROBLEM</b>	<b>CAUSE</b>	<b>SOLUTION</b>
Flattened characters when tipping raised letters or beads.	Die too hot, too much pressure on die, or excessive dwell time.	Lower heater setting or head pressure. Reduce dwell timer setting.
Distorted imprint on plastic part.	Skidding of die on contact with foil due to fixture deflection.	Realign die on head side so that it is directly under the press ram. Modify or redesign fixture.
Blurred image or imprint.	Excessive die heat.	Reduce heater temperature.
Weak impression or no imprint.	Insufficient air pressure.	Check for obstruction in air line or need for larger air line.
Inconsistent transfer of decoration to the part.	Variation in parts (thickness, warpage, sink marks)	Modify heat, pressure, dwell time settings to optimize for parts from all mold cavities.
	Heat variations at die face.	Check that heat control is holding pre-set tolerances. Look for air gaps between heater block and die dove-tail due to die shim, or heat loss due to riser block.
Decoration fails to adhere to plastic.	Insufficient cure time or strip delay.	To determine if stripping time is a problem, manually lay a section of foil on the part, cycle the press and peel the foil off. If the imprint is good, stripping must be adjusted, either by reducing head up-stroke speed, or adjusting stripper bar springs.
	Air trapped under foil.	Check foil feed and die contact with foil to determine cause of entrapment.
	Contamination on part.	Determine what the contamination is and its source and eliminate it.
	Wrong foil used.	Check compatibility of foil; replace with correct foil.
	Special coating on plastic.	Determine what coating is and change to a foil that is formulated to be compatible.
Imprint deeper on one end of part than the other.	Machine is not level.	Level machine and mount directly under arm.
Flaking in decoration, feathery edges, or fill in.	Dwell time too long.	Shorten dwell time by adjusting air flow control valve.
Loss of gloss in foil.	Dwell time too long.	Shorten dwell time.
Inconsistent imprints in multiple part set-ups.	Part irregularities, i.e., sinks, thickness variations.	Shim the fixtures to compensate for part irregularities.
Inconsistent transfer of decoration of the parts.	Die temperature too low, or inadequate pressure.	If die impresses the plastic, increase die temperature. If imprint does not impress the plastic, boost pressure on die.
	Dwell time too short.	Lengthen dwell time.
	Off-spec foil.	Manually place a section of foil from a roll that has run well on a part and cycle the press. If it prints well, replace the roll on the machine.
Uneven imprint.	Unevenly heated die. Die head cocked off center. Fixture may have shifted.	Check die temperature, look for cartridge heater outage. Determine why die head is cocked and realign as necessary. Reset fixtures as needed.
Repeated void in decoration at same location.	Mold-in part feature, i.e., rib or boss, unsupported by fixture.	Shim or modify fixture.

**INTRODUCTION TO THE INSPECTION METHOD BY ATTRIBUTES WITH ACCEPTABLE QUALITY LEVEL (AQL)**

LOT/SHIPMENT SIZE IN UNITS	AQL 1.5		AQL 2.5		AQL 4.0	
	SAMPLE SIZE	MAX. NO. DEFECTIVES	SAMPLE SIZE	MAX. NO. DEFECTIVES	SAMPLE SIZE	MAX. NO. DEFECTIVES
51 - 90	8	0	20	1	13	1
91 - 150	32	1	20	1	20	2
151 - 280	32	1	32	2	32	3
281 - 500	50	2	50	3	50	5
501 - 1200	80	3	80	5	80	7
1201 - 3200	125	5	125	7	125	10
3201 - 10000	200	7	200	10	200	14
10001 - 35000	315	10	315	14	315	21
35001 - 150000	500	14	500	21	315	21
150001 + MORE	800	21	500	21	315	21

An extract from the MIL-STD 105 E Sampling Plans usually applied for consumer products (single sampling plan, sample size level II, normal severity level) with the respective AQLs which we usually apply unless otherwise instructed by the client:

- For critical defects      nil
- For major defects      AQL 2.5
- For minor defects      AQL 4.0

Example: for a lot size of 5,000 units

AQL 2.5 for major defects:  
Sample size 200, max. acceptable number of defective samples 10

AQL 4.0 for minor defects:  
Sample size 200, max. acceptable number of defective samples 14

**DEFINITION OF THE INSPECTION  
METHOD BY ATTRIBUTES**

MIL-STD 105 E / ABC-STD 105 (or the equivalent standards ISO 2859, BS 6001, DIN 40.080, NF x 06-021 / 022) is the most widely accepted method of sampling by attributes. It is based on the mathematical theory of probability and offers the advantage to clearly define the number of samples to be drawn for inspection from a given lot or consignment and the maximum number of defective samples allowed in the sample size. Unless otherwise instructed, SGS follows this inspection method for consumer products which are manufactured in individual units. (For fabrics, another sampling method applies).

**ACCEPTABLE QUALITY LEVEL AQL**

The AQL is the maximum percent defective that, for purposes of sampling inspection, can be considered satisfactory as a process average. (The AQL may also be used as the maximum number of defects per hundred units which application however is uncommon for consumer products). Different AQLs may be designated for different defects such as critical, major and minor defects. The AQLs should be agreed upon between buyer and supplier.

**PRINCIPLE OF DEFECT CLASSIFICATION**

**CRITICAL DEFECT**

A defect that is likely to result in a hazardous or unsafe condition for an individual using the product or that is contravening against mandatory regulations.

**MAJOR DEFECT**

A defect that is likely to result in failure reducing the usability of the product and obvious appearance defects affecting the saleability of the product.

**MINOR DEFECT**

A defect that does not reduce the usability of the product but is nevertheless a workmanship defect beyond the defined quality standard.

SGS services can be adapted to your needs and requirements taking into consideration the risks, importance and complexity of the import transactions involved. In order to find out how to use SGS services most efficiently and economically, and how to stipulate the payment protection clause correctly in the Letter of Credit, please contact the Consumer Products Department at the nearest SGS office:

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# SAMPLING & INSPECTION BY ATTRIBUTES METHOD

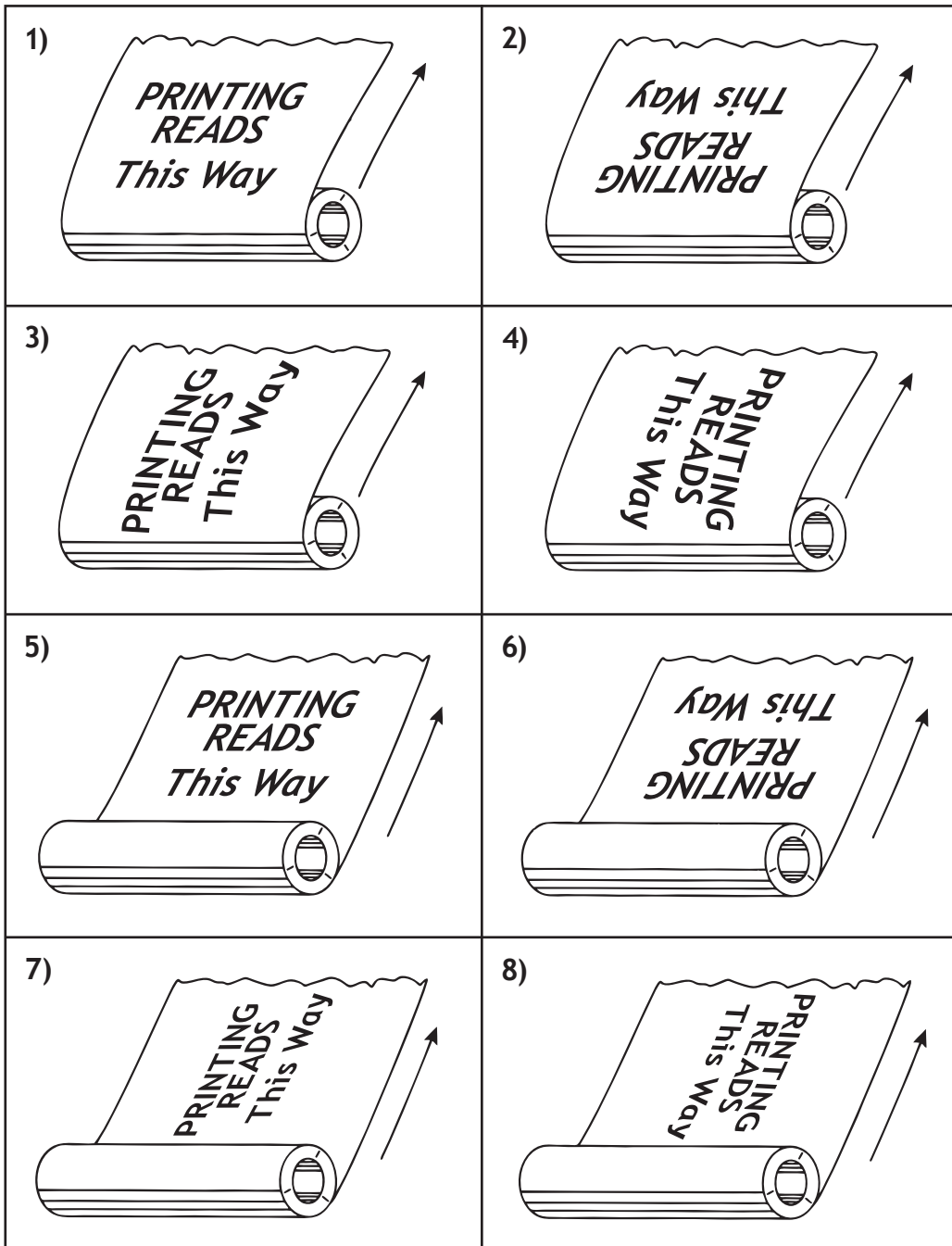
## MIL-STD 105 E/ABC-STD 105/DIN 40080/BS 6001 SINGLE SAMPLING PLAN, NORMAL SEVERITY LEVEL

CATEGORY OF INSPECTION	FRI - FINAL RANDOM INSPECTION	DUPRO = DURING PRODUCTION CHECK	FRI SPECIAL CASE	- TEST PERFORMANCE MEASUREMENTS
SAMPLE SIZE LEVEL	NORMAL - II OF SHIPMENT QUANTITY	REDUCED - I OF ALREADY PRODUCED UNITS	INCREASED - III	SPECIAL - S-3
LOT SIZE	AQL MAXIMUM 1.0 1.5 2.5 4.0	AQL MAXIMUM 1.0 1.5 2.5 4.0	AQL MAXIMUM 1.0 1.5 2.5 4.0	AQL MAXIMUM 1.0 1.5 2.5 4.0
51 - 90	*13 8 20 13 +0 0 1 1	13 8 5 3 0 0 0 0	13 32 20 20 0 1 1 2	13 8 5 3 0 0 0 0
91 - 150	13 32 20 20 0 1 1 2	13 8 5 13 0 0 0 1	50 32 32 32 1 1 2 3	13 8 5 3 0 0 0 0
151 - 280	50 32 32 32 1 1 2 3	13 8 20 13 0 0 1 1	50 50 50 50 1 2 3 5	13 8 5 13 0 0 0 1
281 - 500	50 50 50 50 1 2 3 5	13 32 20 20 0 1 1 2	80 80 80 80 2 3 5 7	13 8 5 13 0 0 0 1
501 - 1200	80 80 80 80 2 3 5 7	50 32 32 32 1 1 2 3	125 125 125 125 3 5 7 10	13 8 20 13 0 0 1 1
1201 - 3200	125 125 125 125 3 5 7 10	50 50 50 50 1 2 3 5	200 200 200 200 5 7 10 14	13 8 20 13 0 0 1 1
3201 - 10,000	200 200 200 200 5 7 10 14	80 80 80 80 2 3 5 7	315 315 315 315 7 10 14 21	13 32 20 20 0 1 1 2
10,001 - 35,000	315 315 315 315 7 10 14 21	125 125 125 125 3 5 7 10	500 500 500 315 10 14 21 21	13 32 20 20 0 1 1 2
35,001 - 150,000	500 500 500 315 10 14 21 21	200 200 200 200 5 7 10 14	800 800 500 315 14 21 21 21	50 32 32 32 1 1 2 3
150,000 - 500,000	800 800 500 315 14 21 21 21	315 315 315 315 7 10 14 21	1250 800 500 315 21 21 21 21	50 32 32 32 1 1 2 3
150,001 + MORE	1250 800 500 315 21 21 21 21	500 500 500 500 10 14 21 21	1250 800 500 315 21 21 21 21	50 50 50 50 1 2 3 5

“AQL MAXIMUM” = “Acceptable Quality Level” i.e., maximum number of defective samples

- \* = Sample Size
- + = AQL Number

STANDARD UNWIND ROLL CHART



## INDUSTRY TRADE SHOWS

West Pack .....	January 29-31, 2008 .....	<a href="http://www.westpackshow.com">www.westpackshow.com</a>
Interphex .....	March 26-28, 2008 .....	<a href="http://www.interphex.com">www.interphex.com</a>
Packaging Summit .....	May 13-15, 2008 .....	<a href="http://www.pkgsummit.com">www.pkgsummit.com</a>
Luxe Pack .....	May 21-22, 2008 .....	<a href="http://www.luxepacknewyork.com">www.luxepacknewyork.com</a>
East Pack .....	June 3-5, 2008 .....	<a href="http://www.eastpackshow.com">www.eastpackshow.com</a>
Plastec East .....	June 3-5, 2008 .....	<a href="http://www.plastecshow.com">www.plastecshow.com</a>
HBA Show .....	September 9-11, 2008 .....	<a href="http://www.hbaexpo.com">www.hbaexpo.com</a>
Pack Expo .....	November 9-13, 2008 .....	<a href="http://www.packexpo.com">www.packexpo.com</a>
In Store Marketing Expo .....	November 13-14, 2008 .....	<a href="http://www.instoreexpo.com">www.instoreexpo.com</a>



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