Press Acceptance Tests

Master of Science

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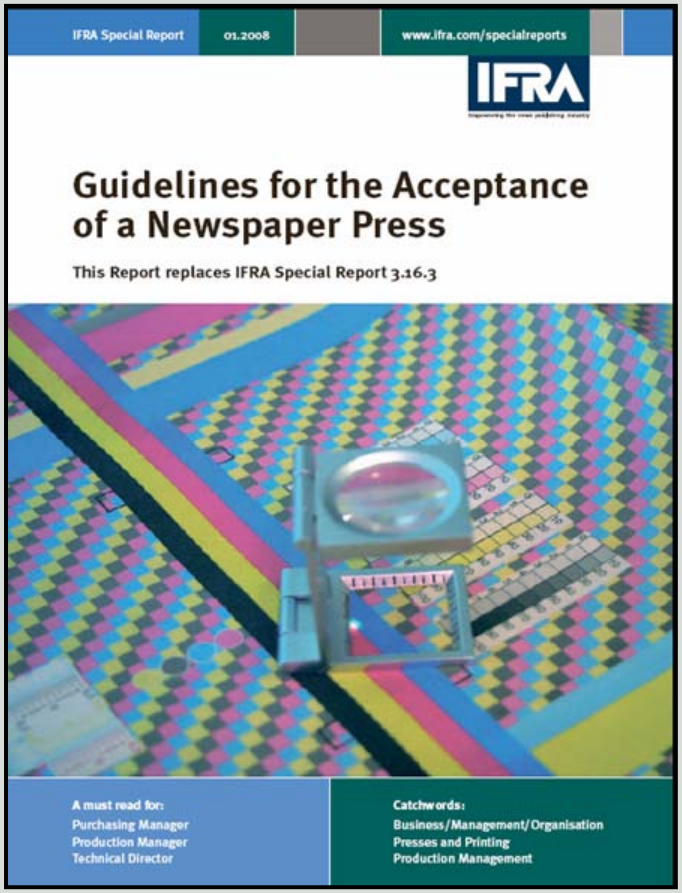

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General Remarks

IFRA Acceptance Tests

- **Aim: helping newspapers buying and checking investments**
- **Acceptance tests for CTP, press, and mailroom**
- **Test procedures were developed and approved by the IFRA Newspaper Production committee**
- **Members in the committees:**
  - Press Manufacturers
  - Newspapers
  - IFRA
- **Results are published in Special Reports:**
  - Press: 3.16 (1991), 3.16.2 (1999), 3.16.3 (2003), **1-2008**
  - Mailroom: 4.11.1 (1996), 4.11.2 (2001)

IFRA Acceptance Tests

- **The test should be performed:**
  - After new installation
  - After reconstructions
  - In parts as necessary
- **Different tests for:**
  - Acceptance of print quality
  - Checking of the folder performance
- **It should be determined weather:**
  - Press performance in accordance with sales contract
  - Waste is in accordance with contract
  - Quality is in accordance with guaranteed values

IFRA Acceptance Test Benefits

- Find hidden problems
- Security for further processing (mailroom)
- Independent checking of investments
- Detailed report gives documentation of status for future reference which is useful for the buyer, manufacturer, operators etc.

IFRA Acceptance Tests Organisation

- **Presence of:**
  - Press manufacturer representative
  - Buyer representative
  - Experienced printers from buyer/manufacturer
  - Third neutral party (WAN-IFRA)

IFRA Press Tests Organisation

- **Manufacturer and buyer must agree on:**
  - Materials
  - Underpacking
  - Blankets
  - Roller and impression settings
  - Tension controls
  - Dampening values/curves (temperature, …)
  - Press hall air conditions
- **If necessary manufacturer must be given opportunity to check and change settings and materials**

IFRA Press Tests

- **Conditions during test:**
  - Use a warm press
  - Print measuring targets on one side only
  - Go up to specified speeds
  - No big changes (web lead, inks, plates) during test
  - Particular tests should be collected from one paper reel
  - No adjusting or changes during sampling
- **Random set of 5 copies are evaluated from each sample set (20 copies)**
- **Always run some minutes in same conditions before taking samples (not valid for changing speed tests)**

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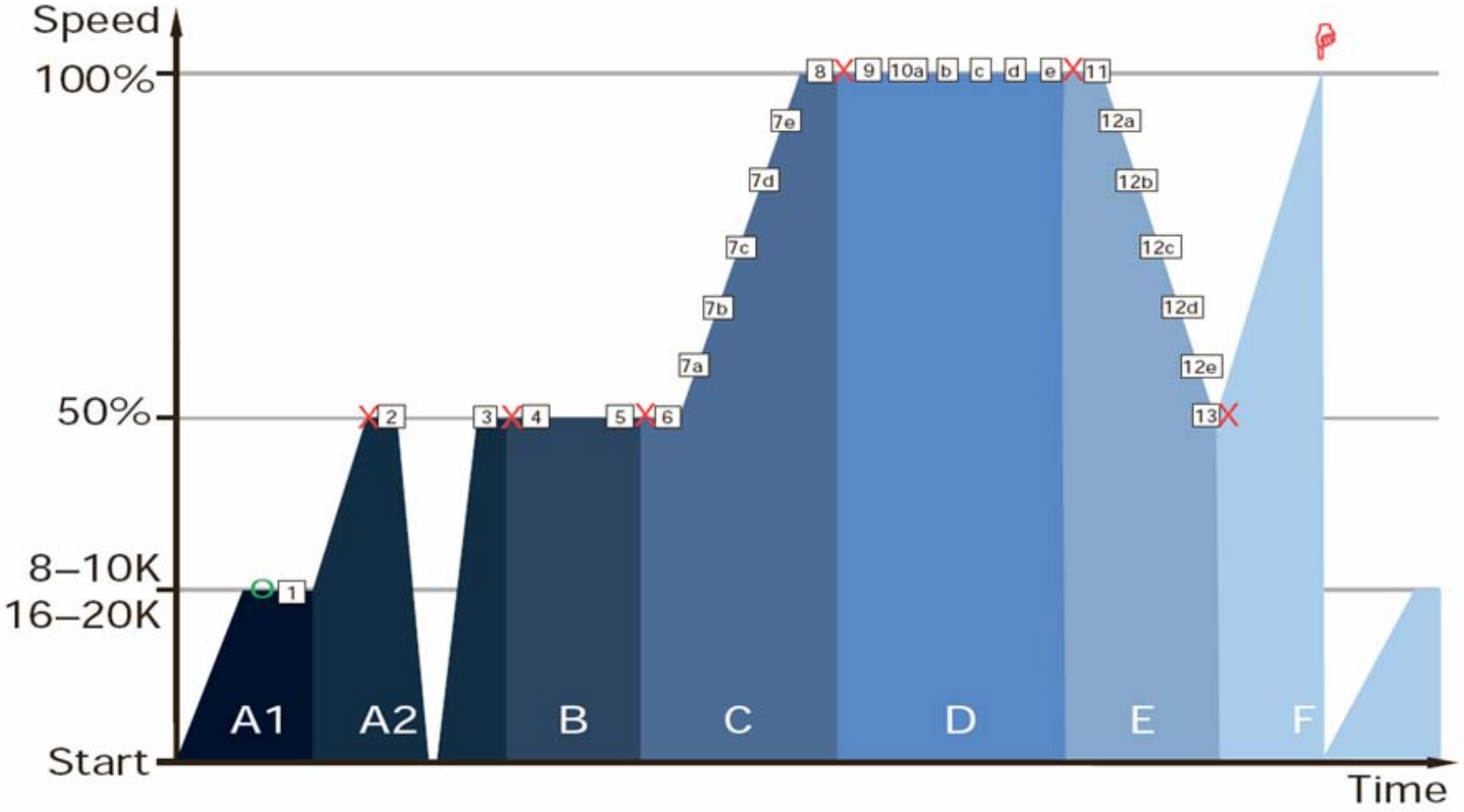
Quality Acceptance Tests

Subparts of Quality Acceptance Tests

- A1 – Pre-setting according to scanner or RIP data
- A2 – Pre-setting according to stored data
- B – Register repeatability
- C – Increasing speed
- D – Max. production speed
- E – Decreasing speed
- F – Safety stop

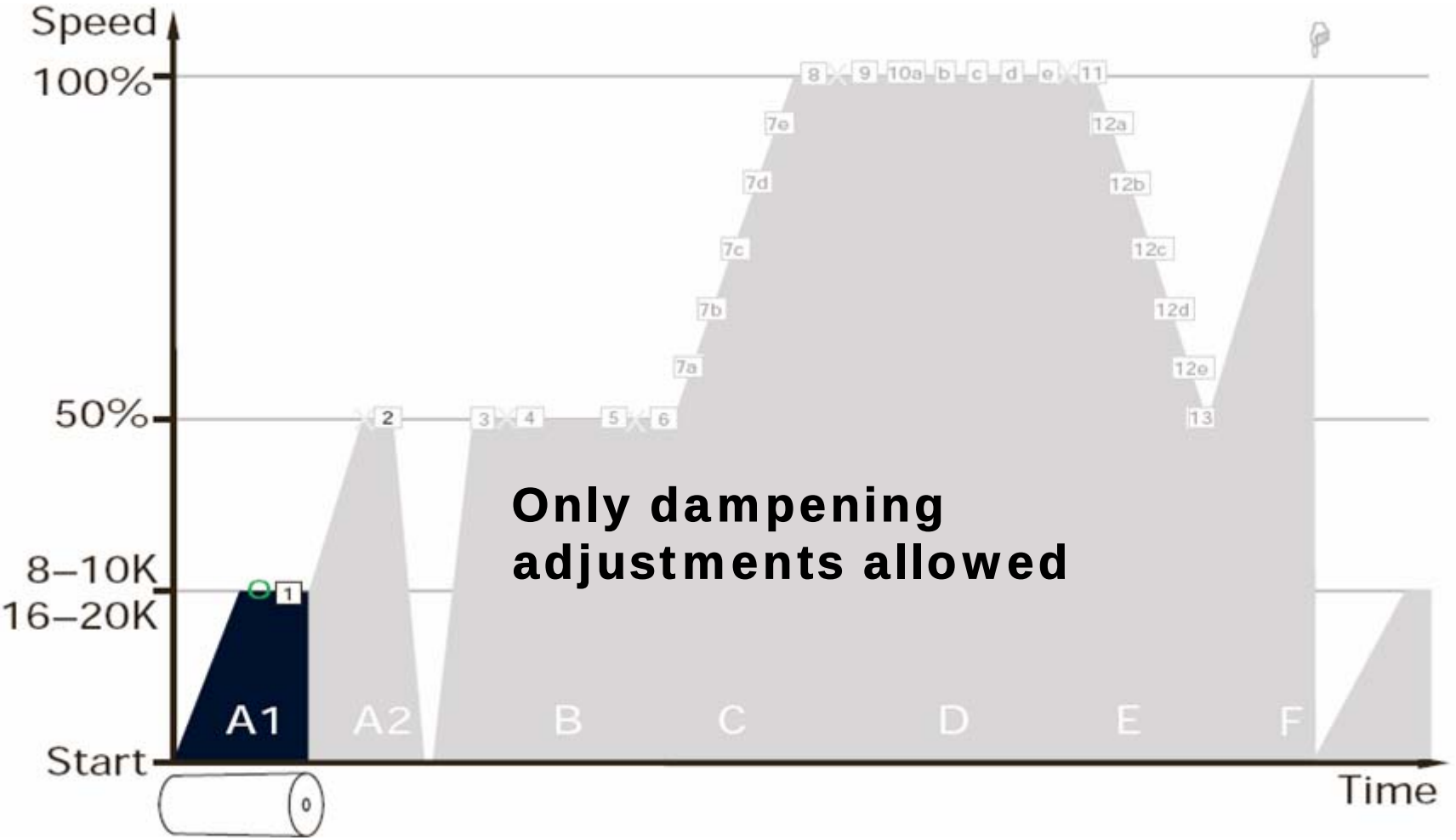
Sequence of Press Quality Tests



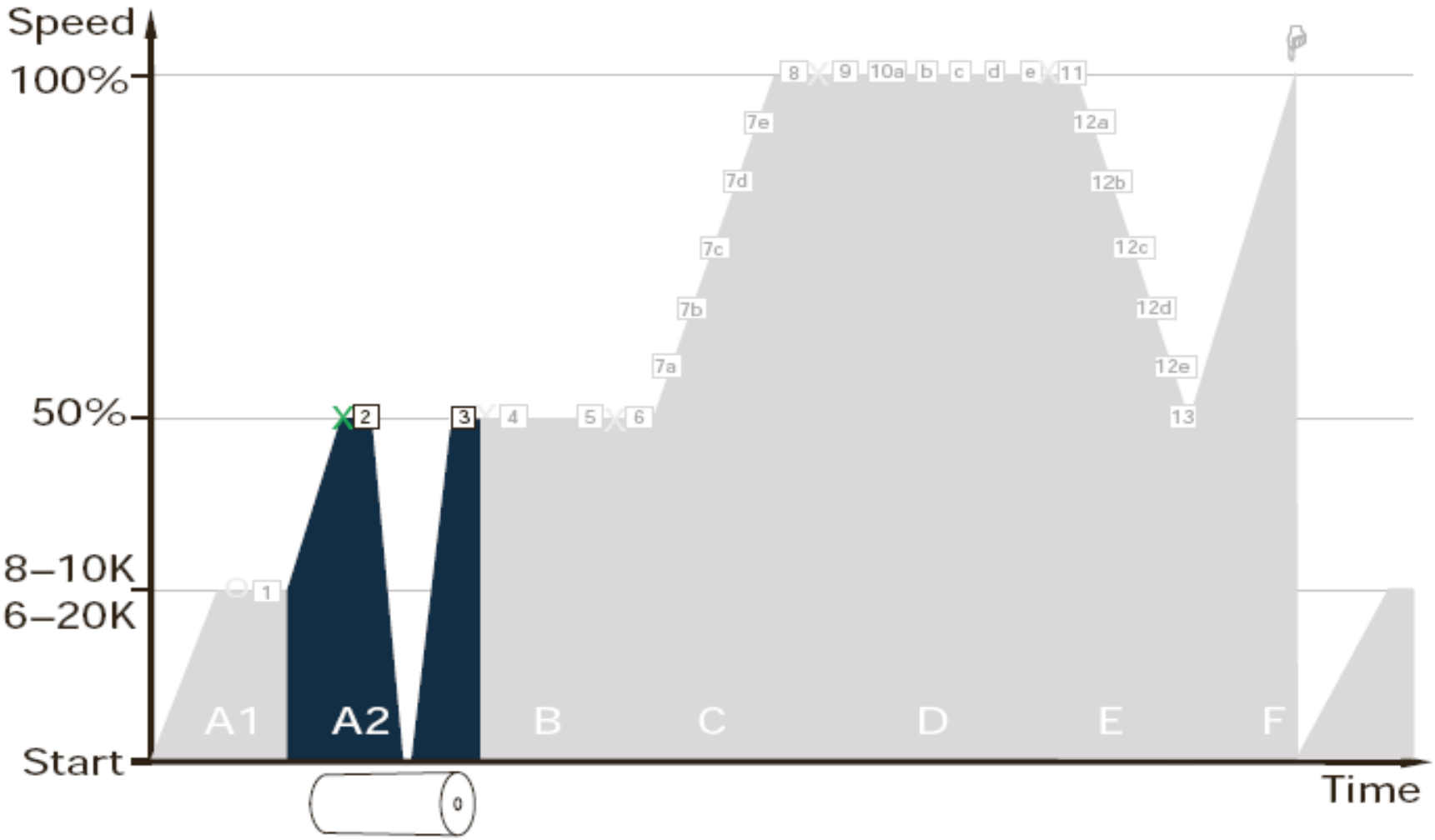
○: Dampening adjustments permitted
□: Taking samples
X: Adjustments permitted
: Safety stop

If settings and materials did not change, the following samples can be combined: 3+4, 5+6, 8+9, 10e+11

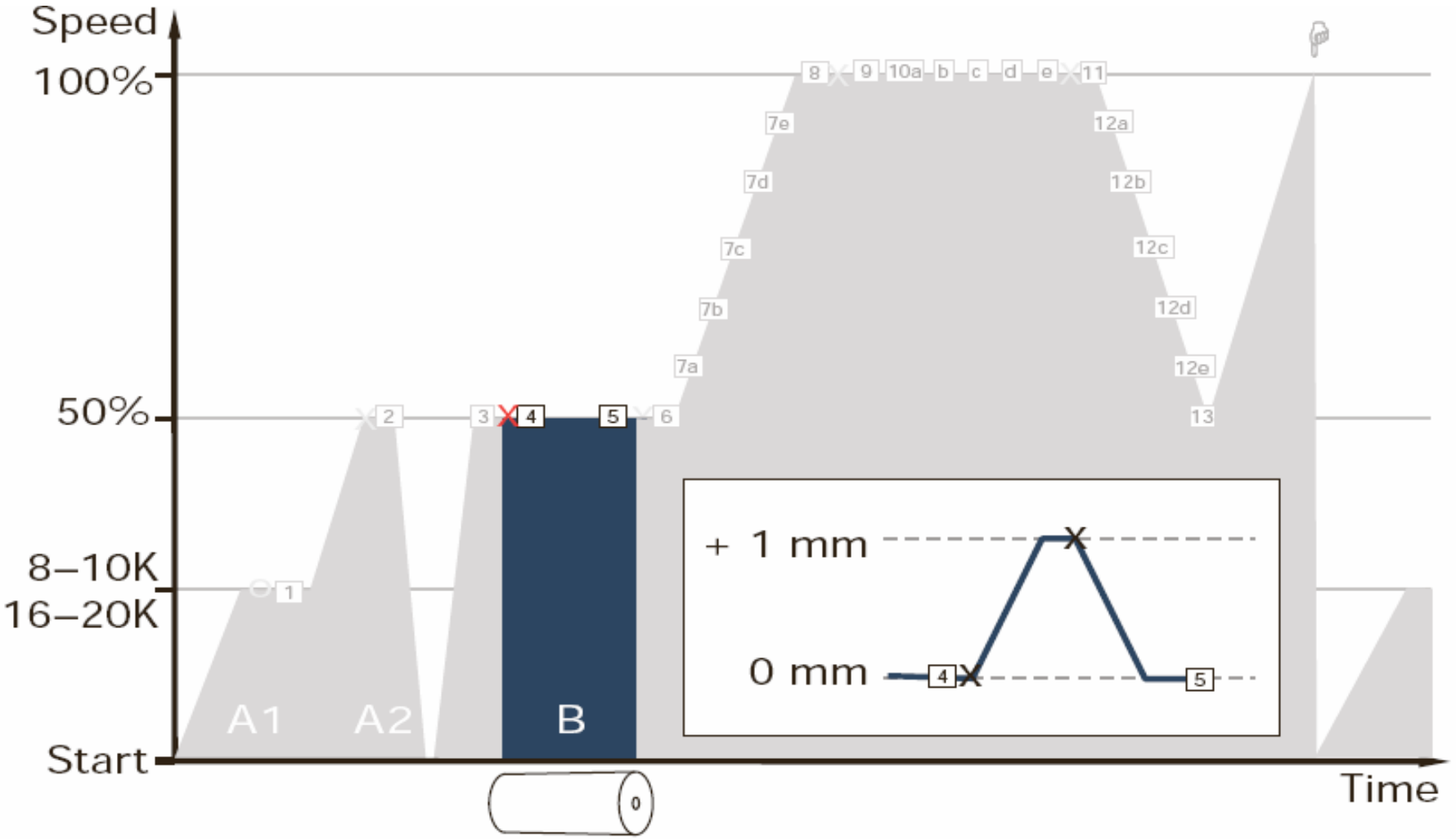
Test A1 – Presetting to RIP Data



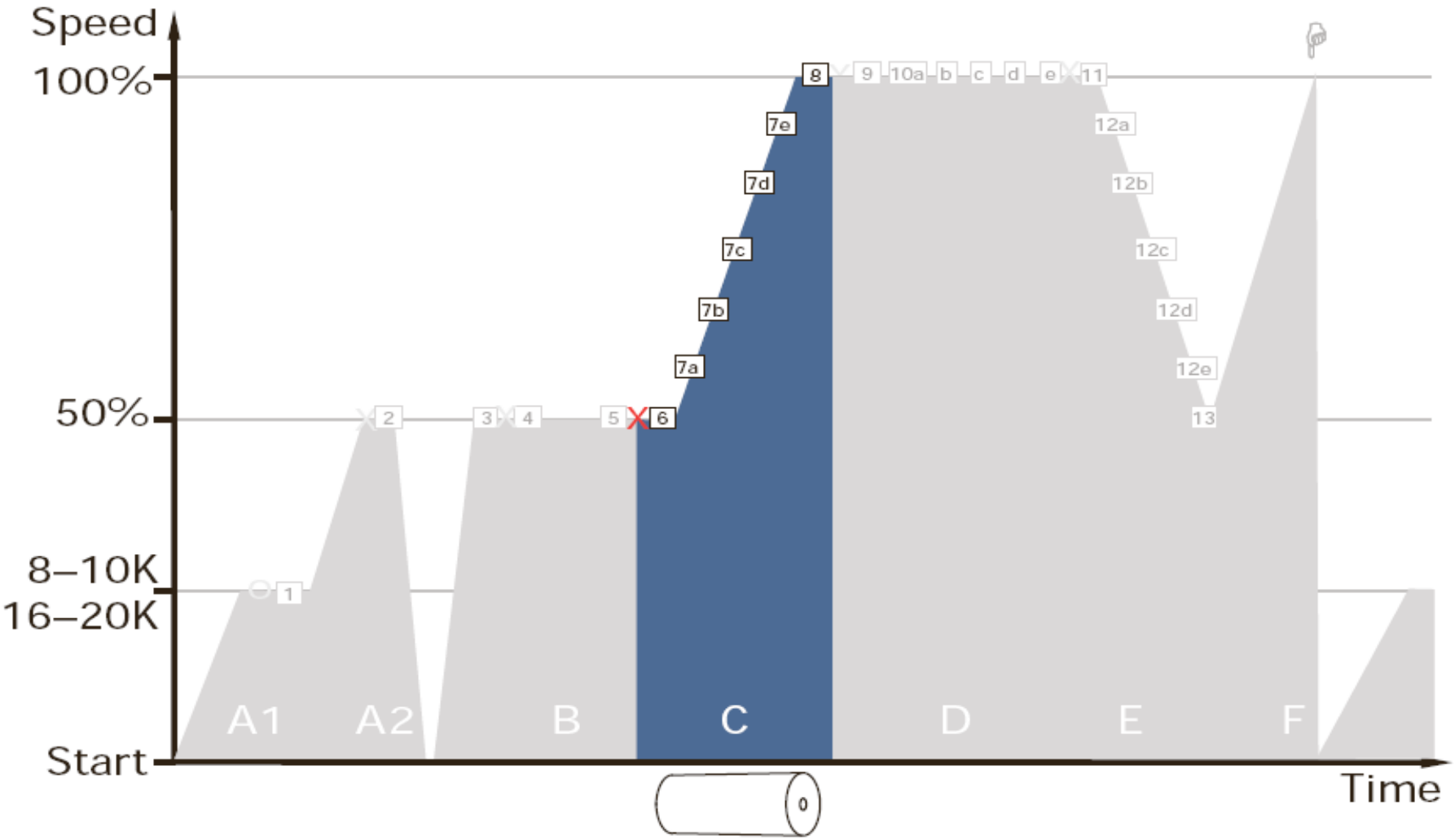
Test A2 – Presetting to stored Data



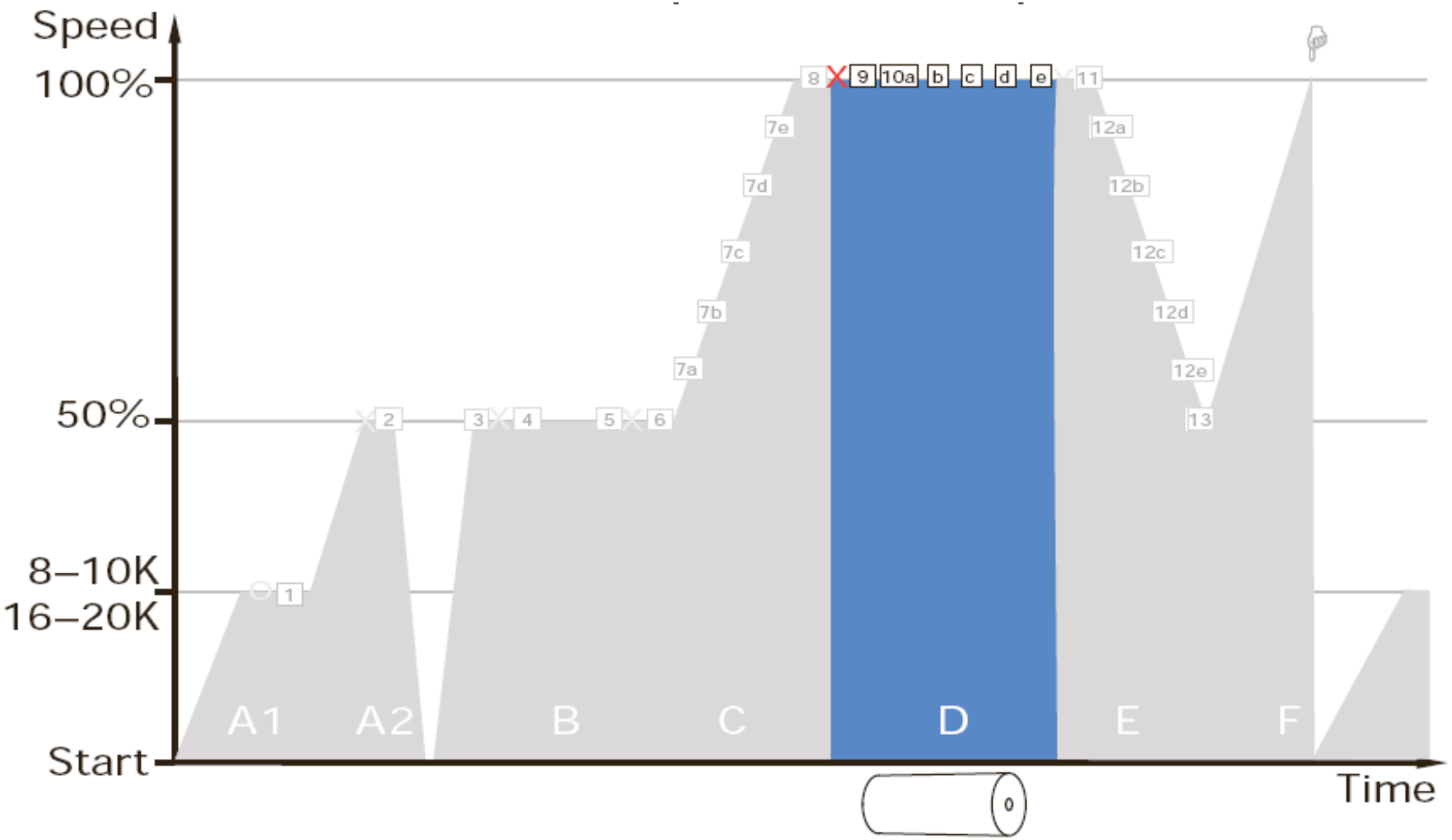
Test B – Register Repeatability



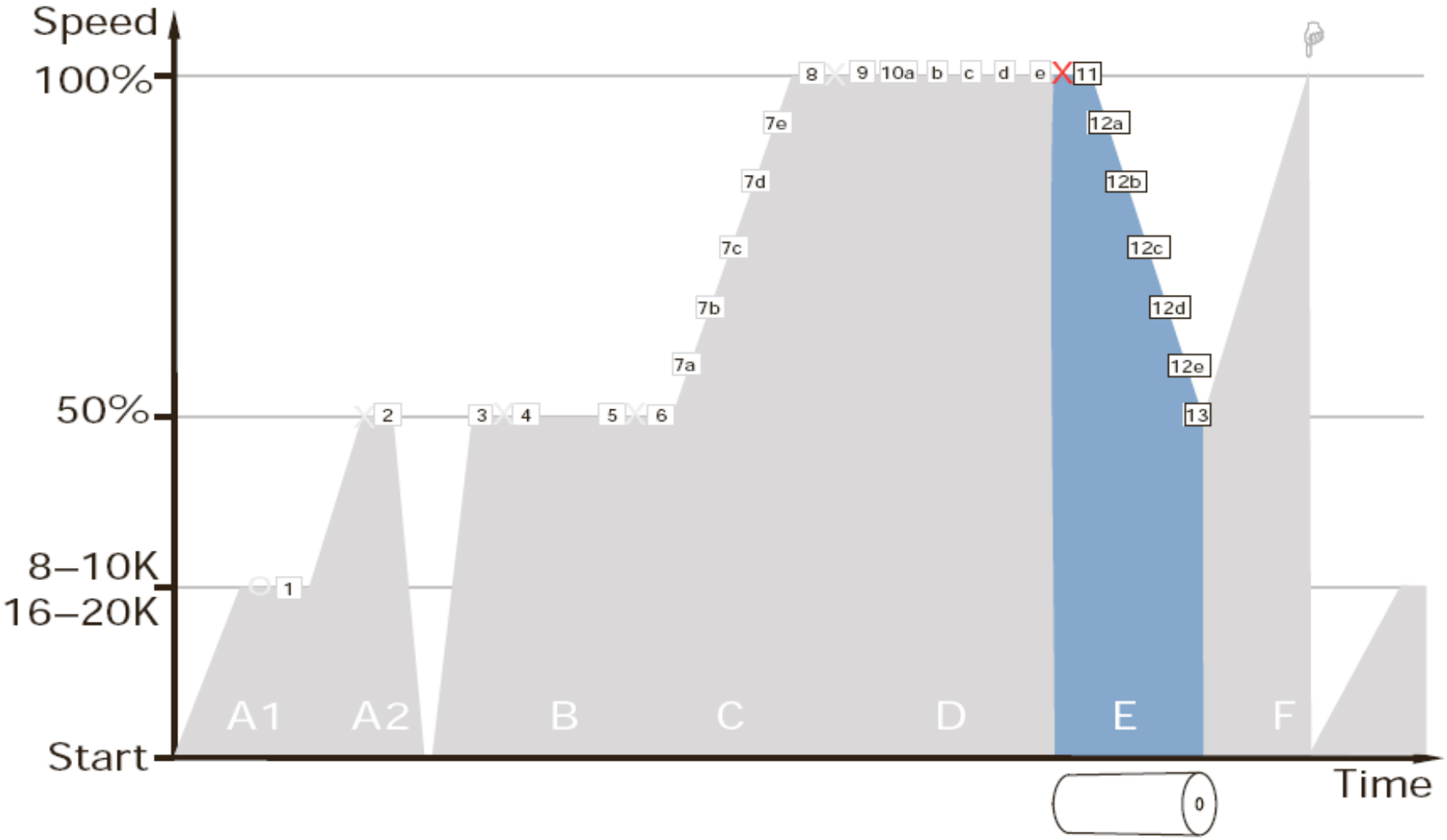
Test C – Increasing Speed



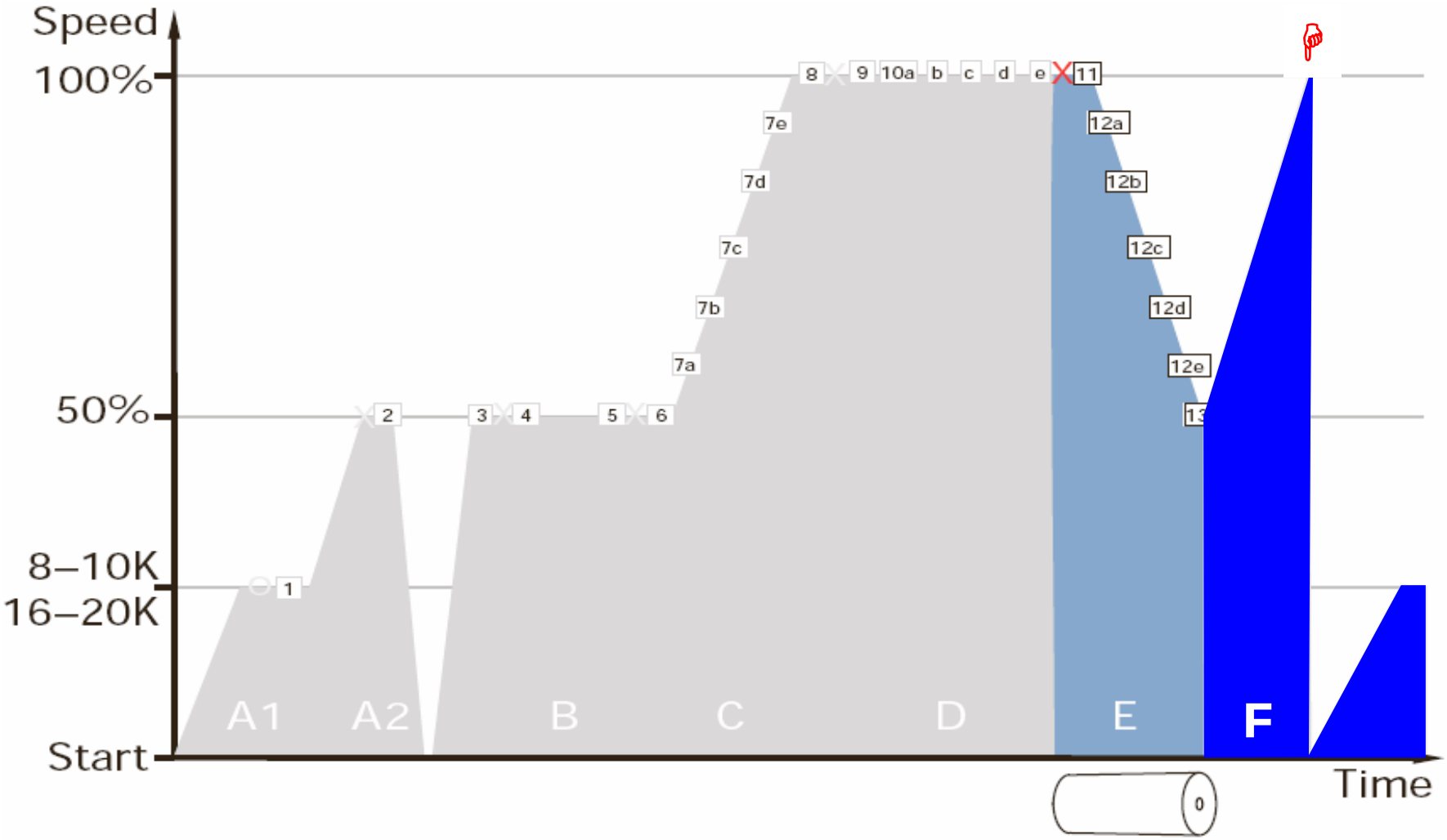
Test D – Process Quality and Stability



Test E – Decreasing Speed



Test F – Emergency Stop



Tested Parameters

Key quality indicators	A1	A2	B	C	D	E	F
Density deviation from target value	X						
Density deviation from initial value		X		X	X	X	
Doubling/Slurring					X		
Starvation					X		
Ghosting					X		
4c Mid-tone spread (4 Farben)					X		
Dot-gain					(X)*		
Colour register from initial value:							
– circumferential		X	X	X	X	X	
– lateral		X	X	X	X	X	
Colour register deviation:							
– circumferential	(X)*				(X)*		
– lateral	(X)*				(X)*		
– diagonal	(X)*				(X)*		
Standard deviation of densities							
Safety stop behavior							X

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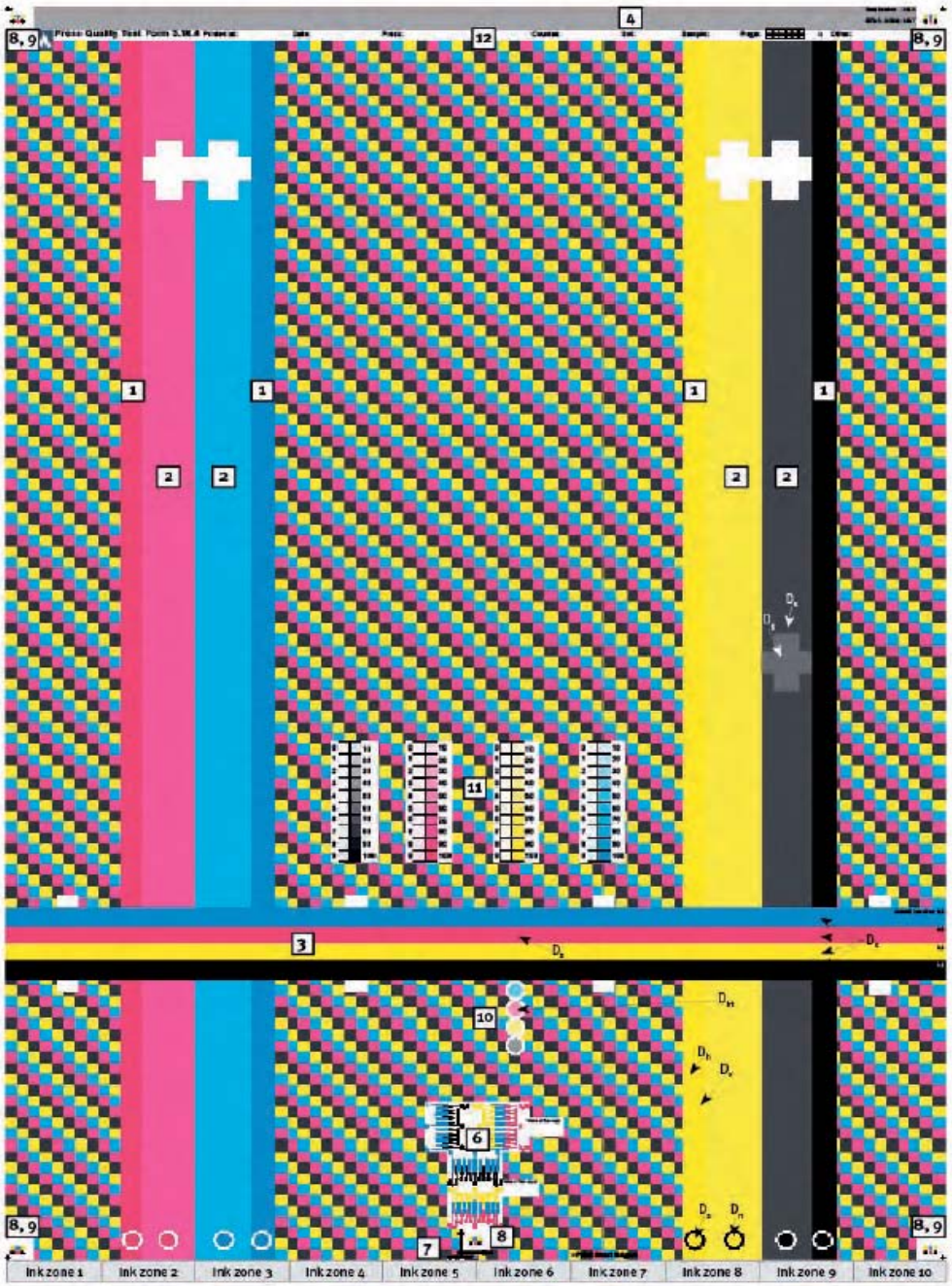
Testform



First printed edge →

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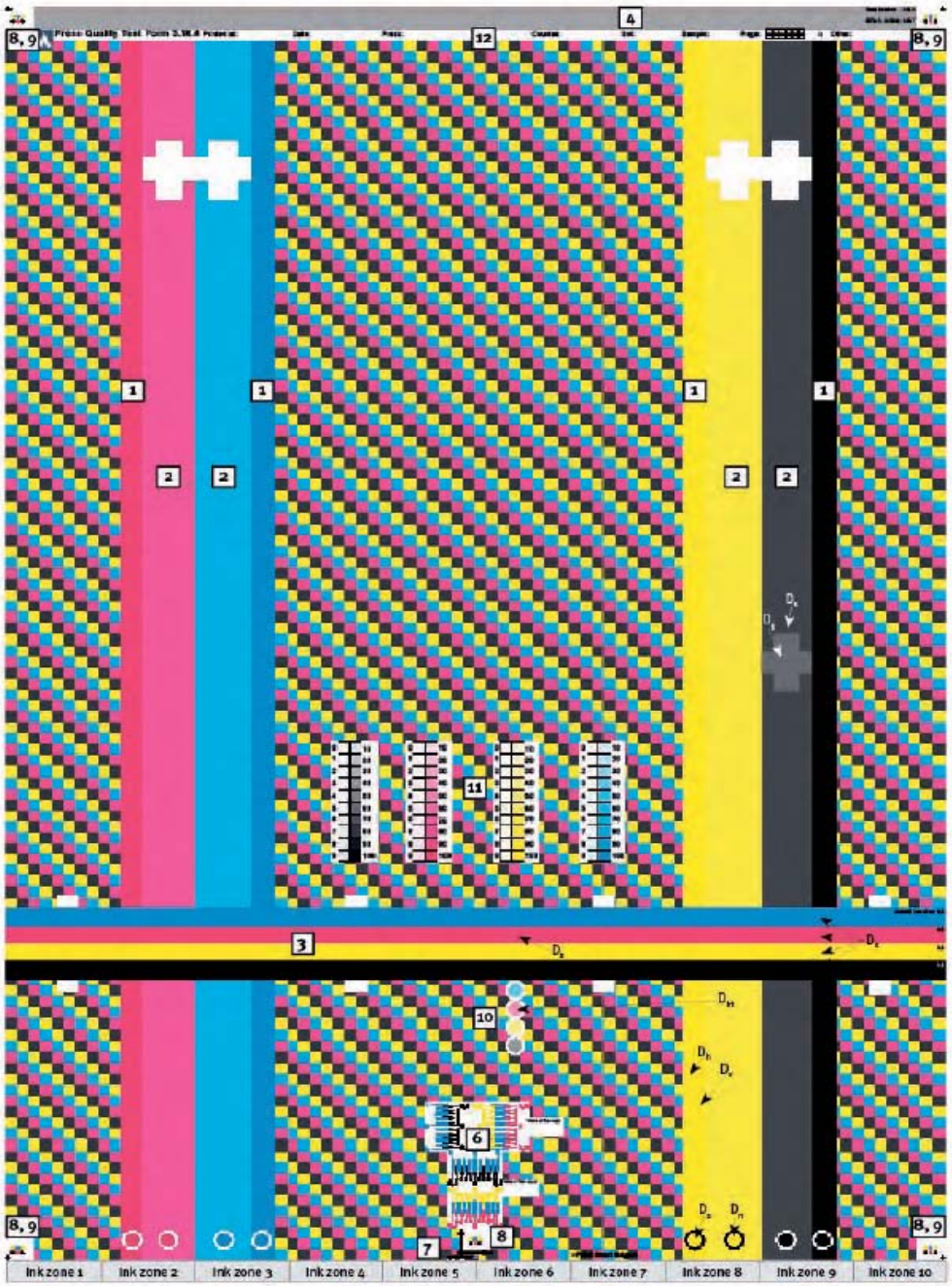
Testform

Custom made to:

- **page size**
- **press ink zones**

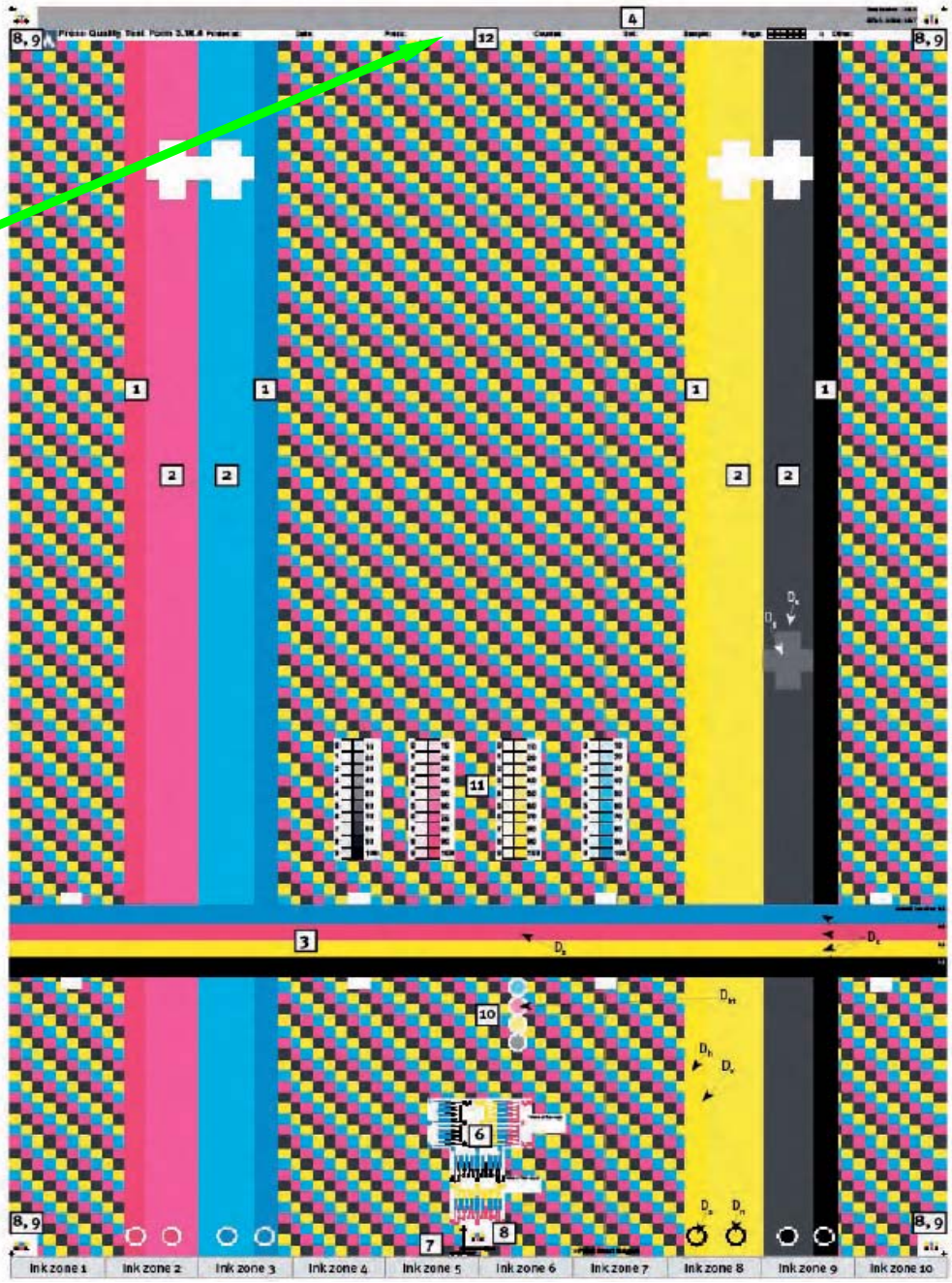
Aims:

- **Even distribution of ink across press**
- **Check printing problems**
- **Evaluate quality indicators**



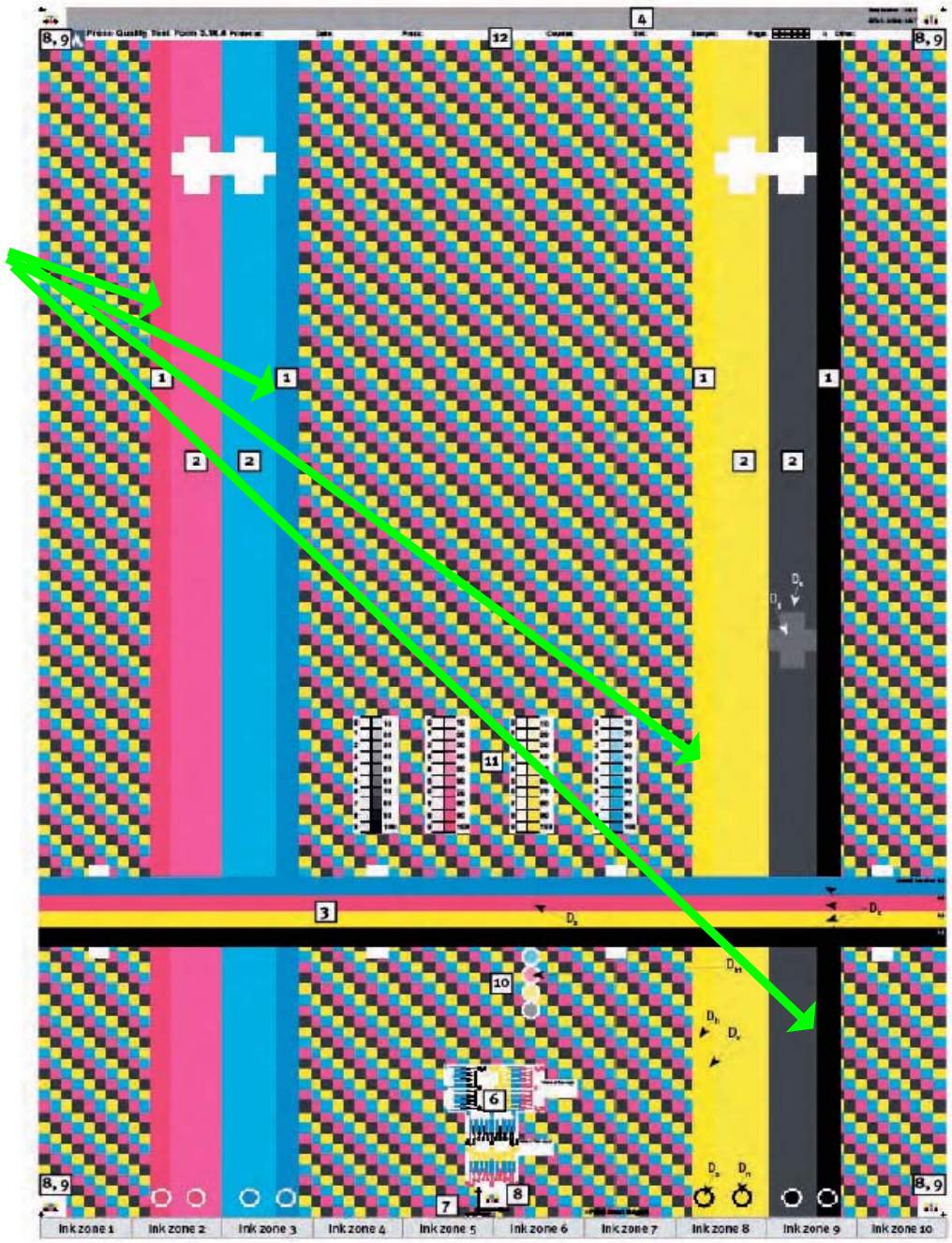
Testform

- **Information fields**



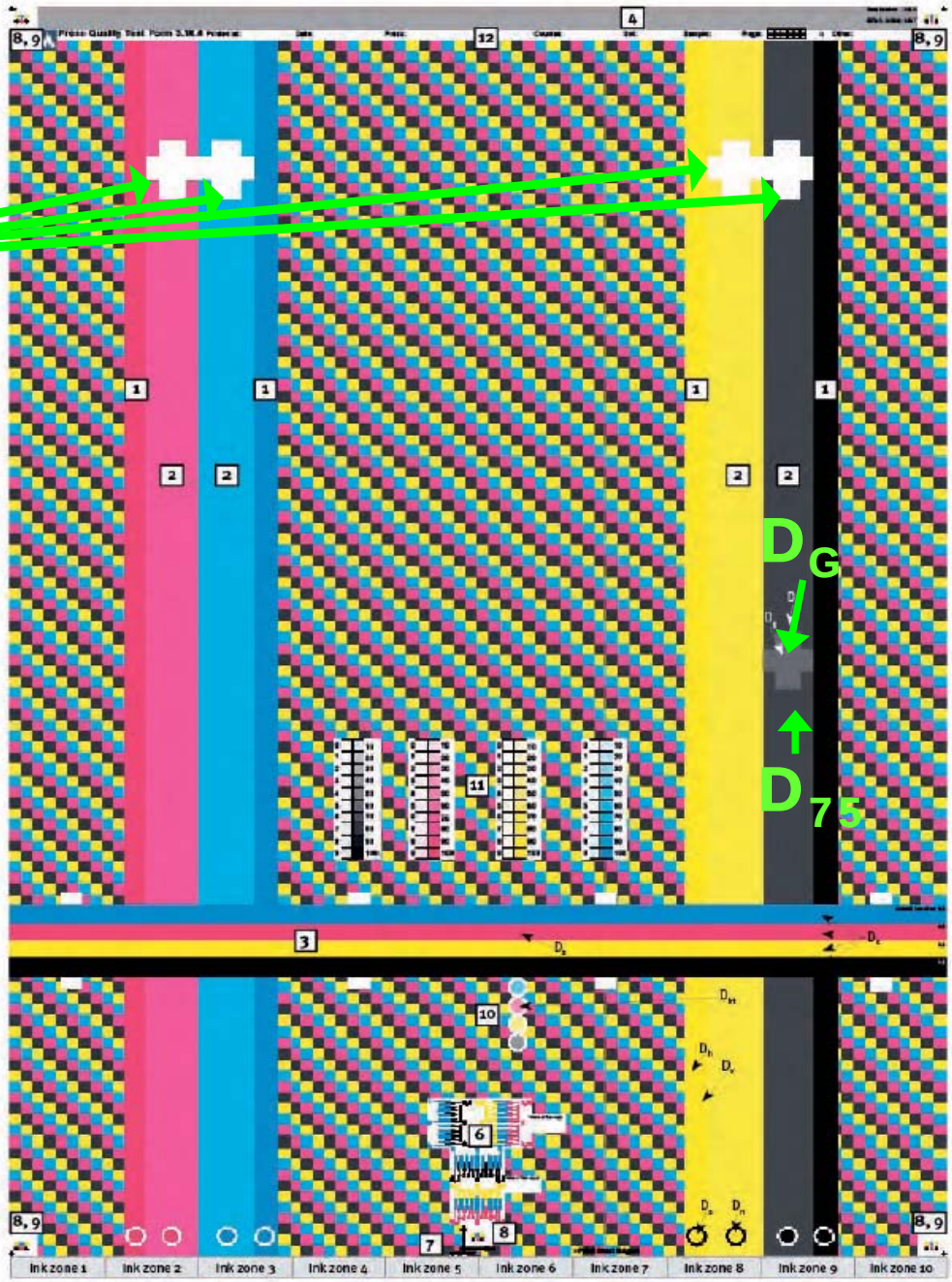
Testform

- Slurring
- Dot doubling



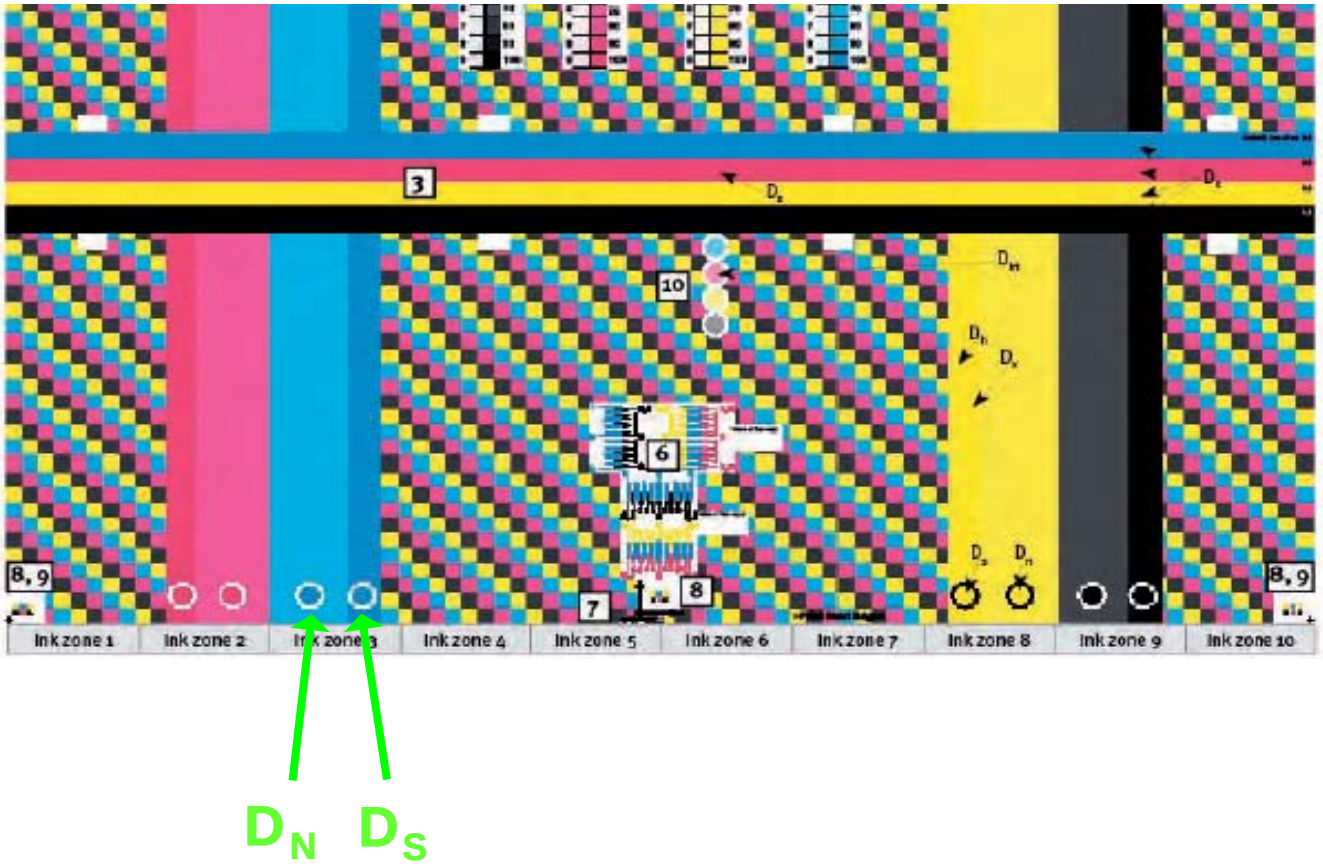
Testform

- Ghosting



Testform

- **Starvation**



Testform

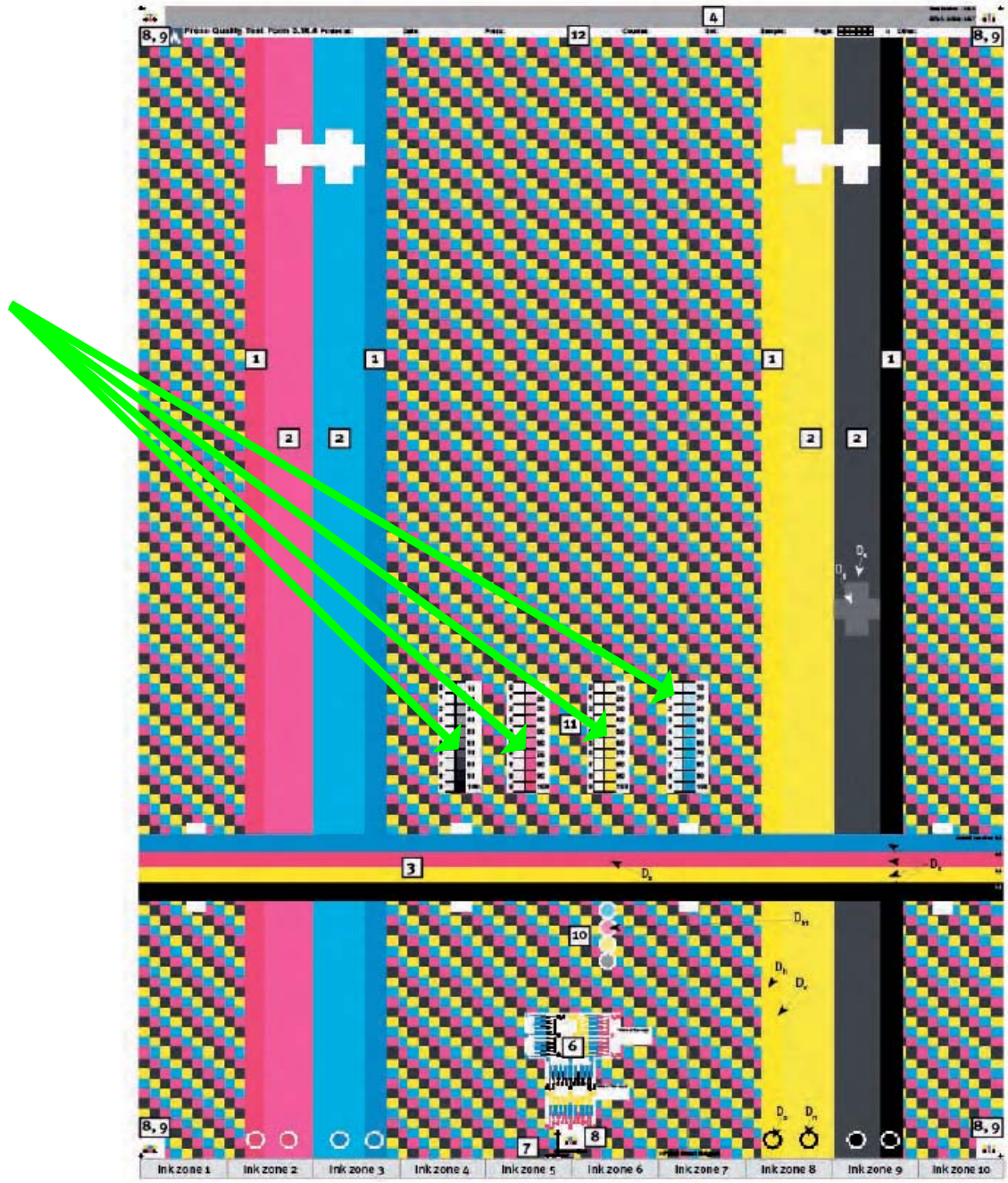
- Greybalance bar = C 30%, M 24%, Y 24%
- Black halftone bar = K 34%

- Horizontal solid bars to adjust ink distribution
- Aim dry solid densities:
  C, M, Y = 0,90; K = 1,10

Testform

Monochrome halftones:

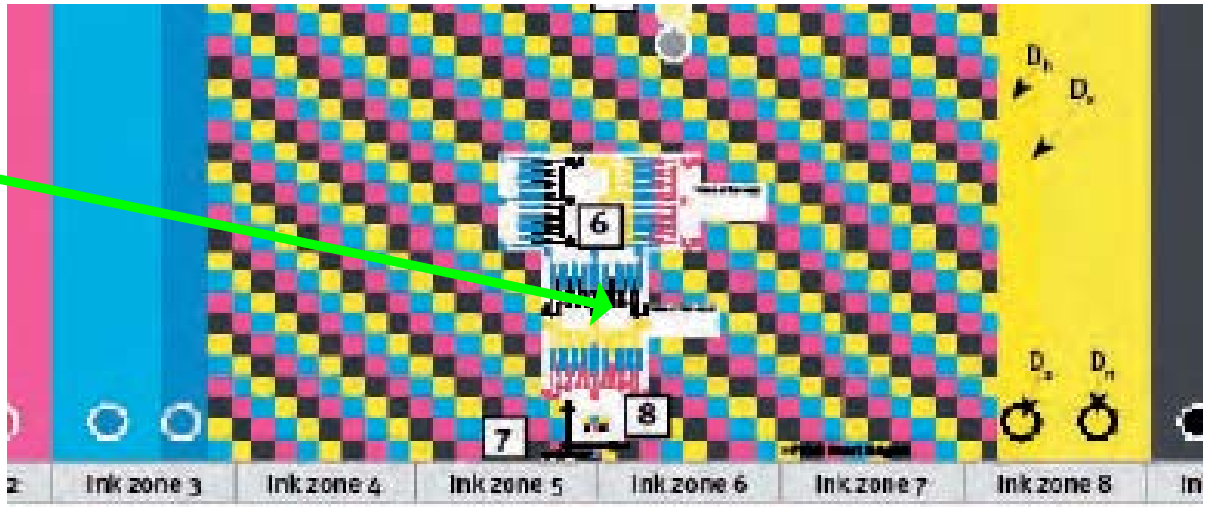
- **Plate curve**
- **Print curve**



Testform

Vernier marks / Techkon dots :

- **Color-to-color register**
- **Register stability**
- **Fan-out**
- **Register in each page**



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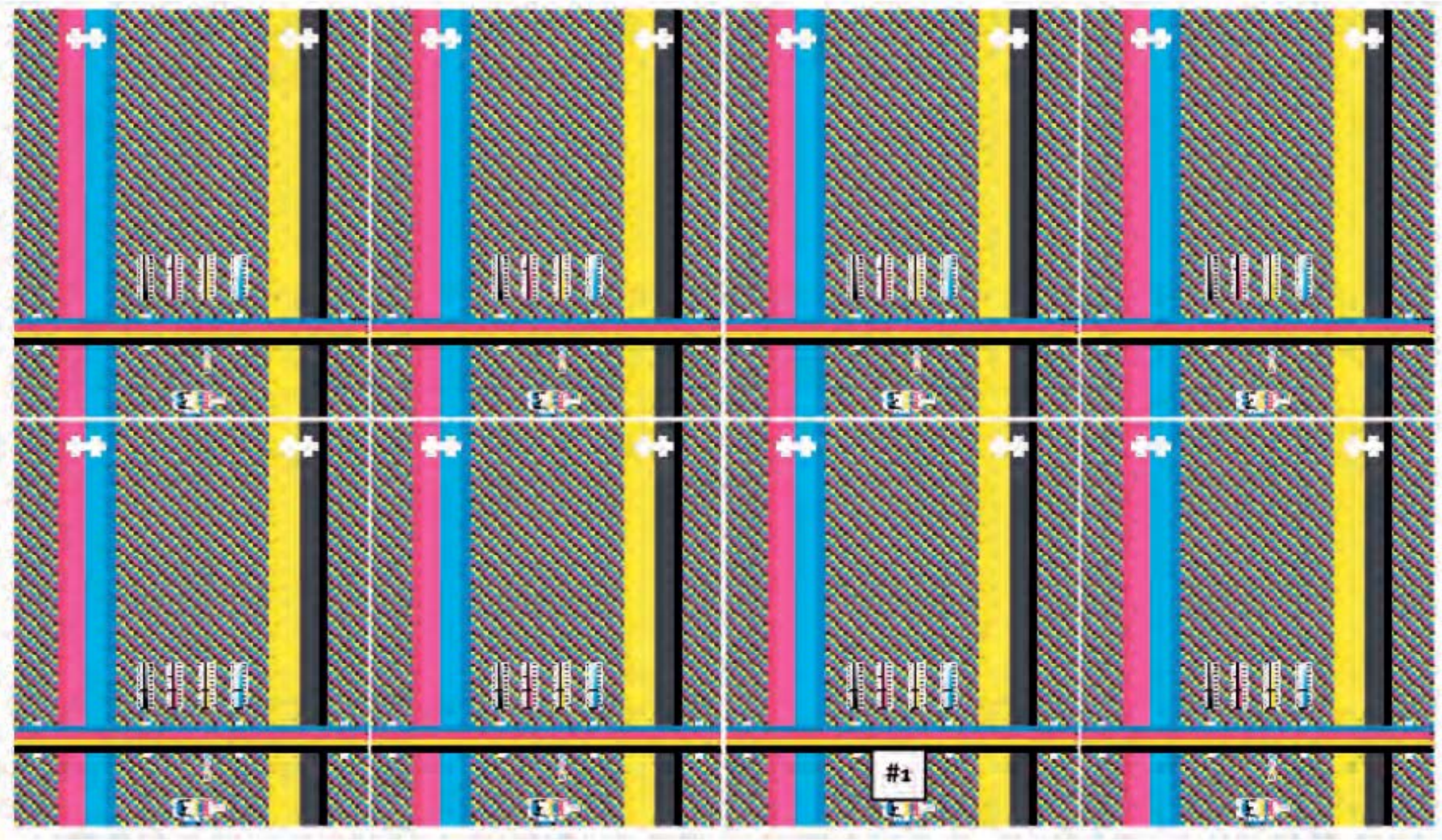
Testform Placement Example 4/2 press



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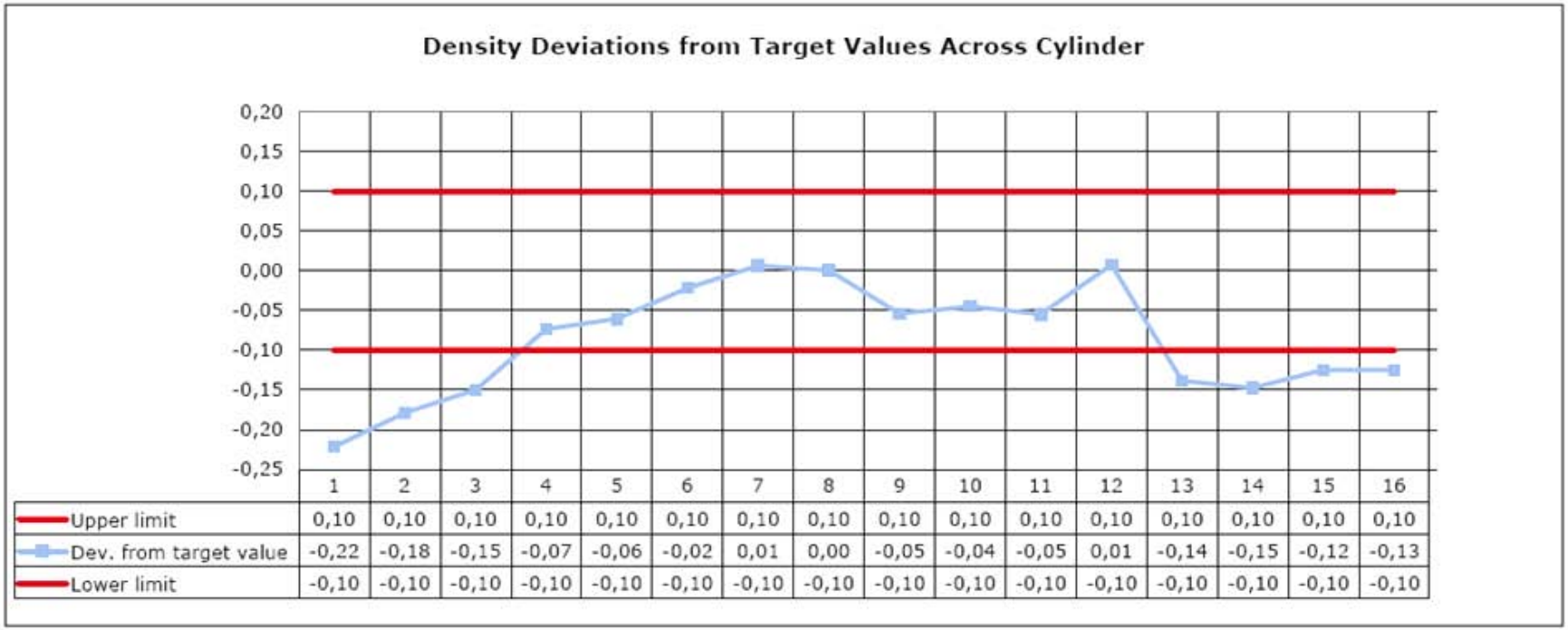
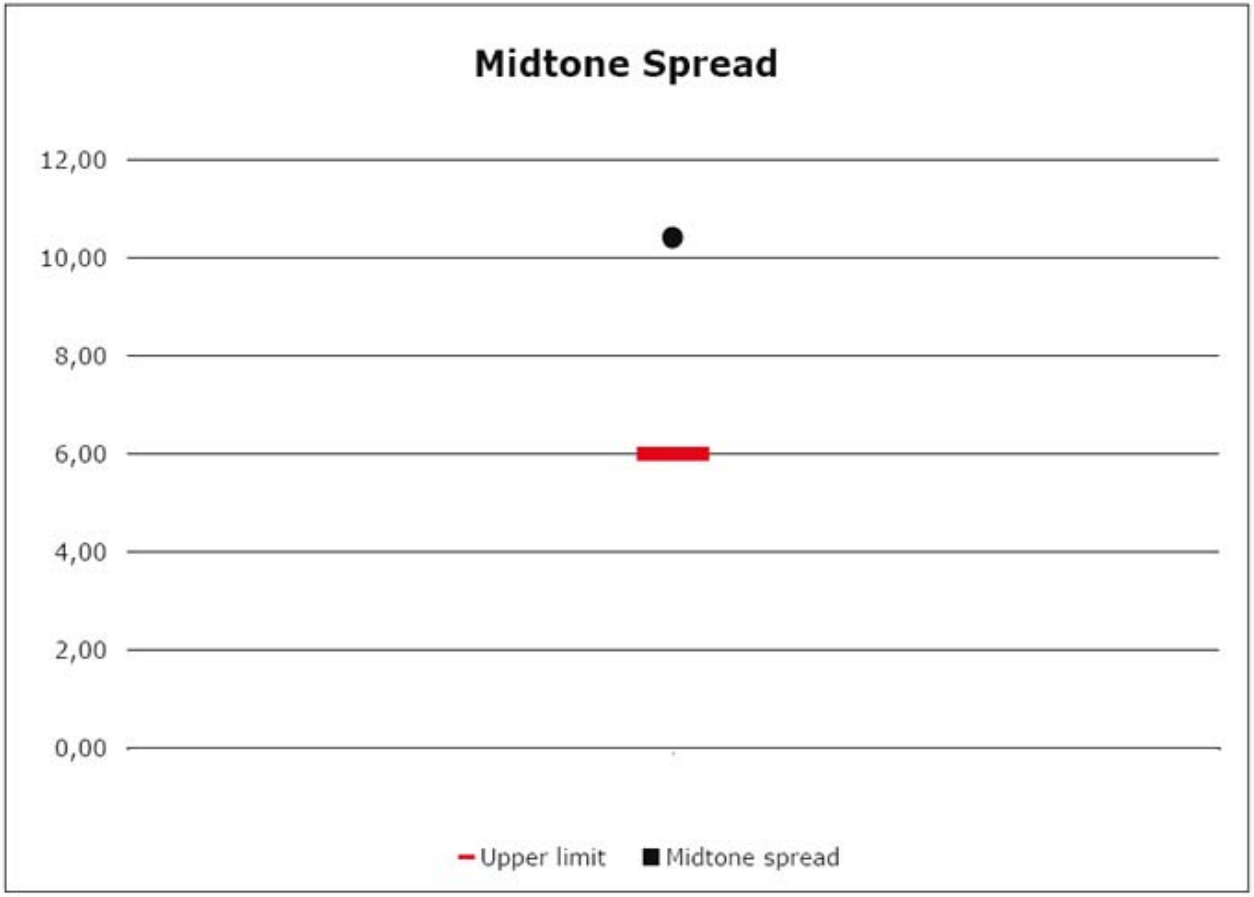
Average Density Deviation from Target Value

Cyan	Operating side												Dive side				Standard
Position	A				B				C				D				deviation
Ink Zone	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Actual value copy 1	0,64	0,67	0,70	0,82	0,81	0,88	0,82	0,86	0,82	0,80	0,80	0,85	0,74	0,73	0,71	0,76	0,07
Actual value copy 2	0,64	0,70	0,76	0,82	0,85	0,88	0,91	0,93	0,84	0,86	0,83	0,91	0,77	0,73	0,79	0,85	0,08
Actual value copy 3	0,72	0,73	0,76	0,83	0,85	0,87	0,93	0,93	0,83	0,86	0,85	0,92	0,77	0,80	0,81	0,71	0,07
Actual value copy 4	0,71	0,75	0,76	0,83	0,85	0,88	0,94	0,91	0,89	0,89	0,87	0,92	0,77	0,75	0,79	0,75	0,07
Actual value copy 5	0,69	0,76	0,77	0,84	0,84	0,88	0,94	0,87	0,86	0,87	0,87	0,93	0,77	0,76	0,78	0,81	0,07
Average	**0,68**	**0,72**	**0,75**	**0,83**	**0,84**	**0,88**	**0,91**	**0,90**	**0,85**	**0,86**	**0,85**	**0,91**	**0,76**	**0,75**	**0,78**	**0,78**	0,07
Target value	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	
Dev. from target value	**-0,22**	**-0,18**	**-0,15**	**-0,07**	**-0,06**	**-0,02**	**0,01**	**0,00**	**-0,05**	**-0,04**	**-0,05**	**0,01**	**-0,14**	**-0,15**	**-0,12**	**-0,13**	0,07
Upper limit	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	
Lower limit	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	-0,10	



4c-Midtone Spread

	C	M	Y	B
Dot gain of print in %	22,24	28,77	32,65	27,93
Midtone spread	10,41			
Upper limit	6,00			



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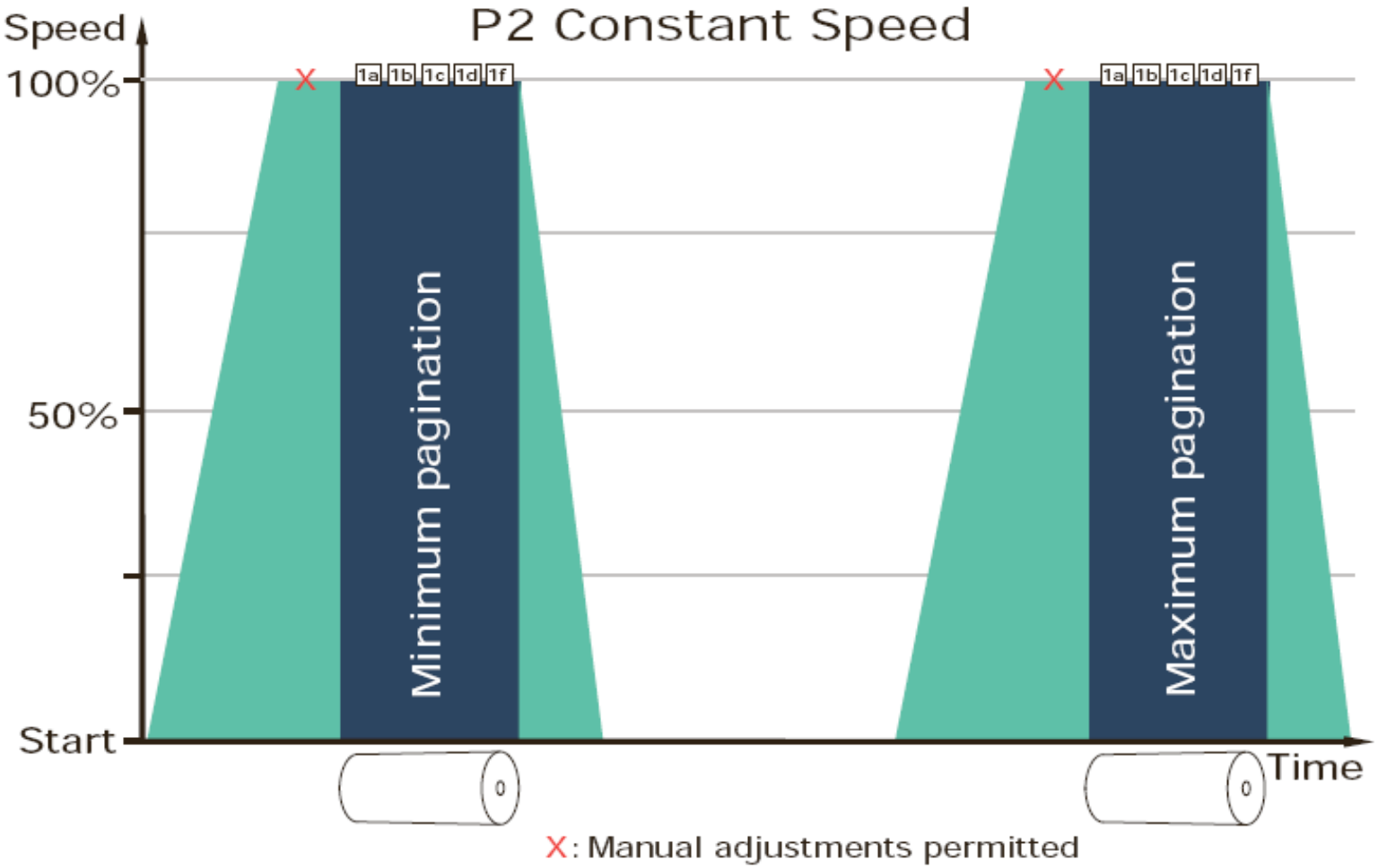
Performance Tests

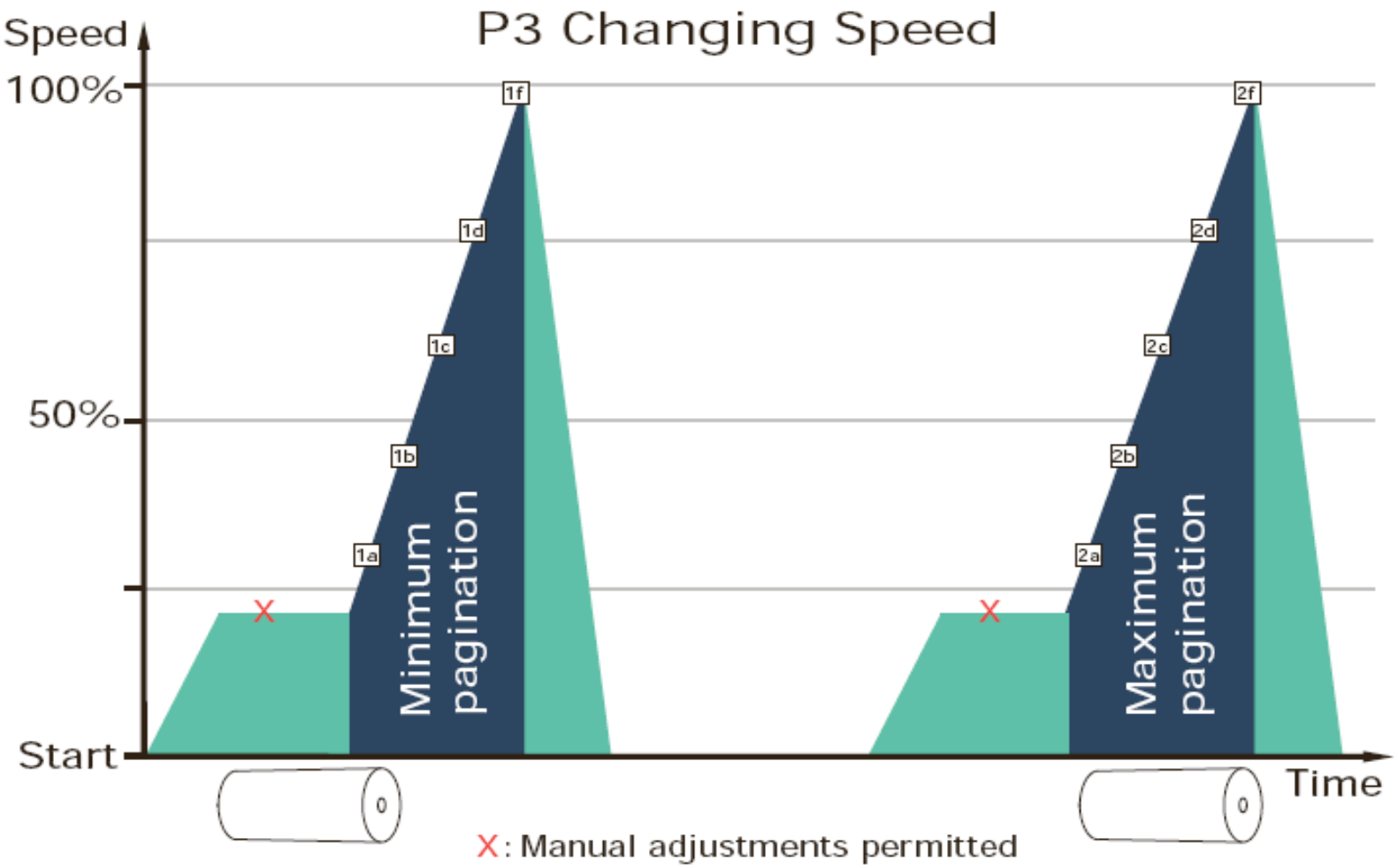
Performance Tests

- **Aims:**
  - Achieved net production (folder capacity)
  - Quality check at different productions
  - Test P1: paper waste level(s)
- **Tests run conditions:**
  - constant speed
  - changing speed
  - minimum pagination
  - maximum pagination

Performance Tests Conditions



Performance Tests Conditions

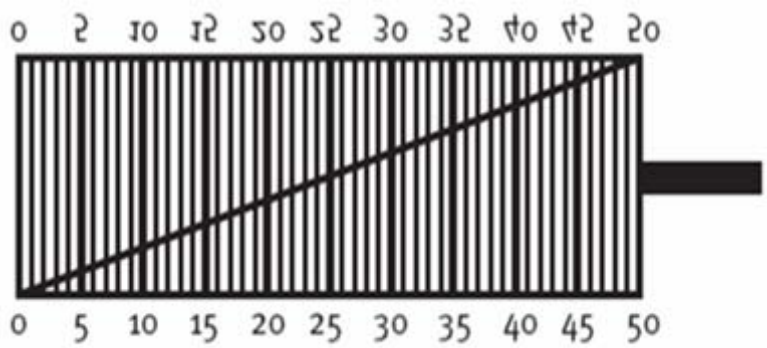


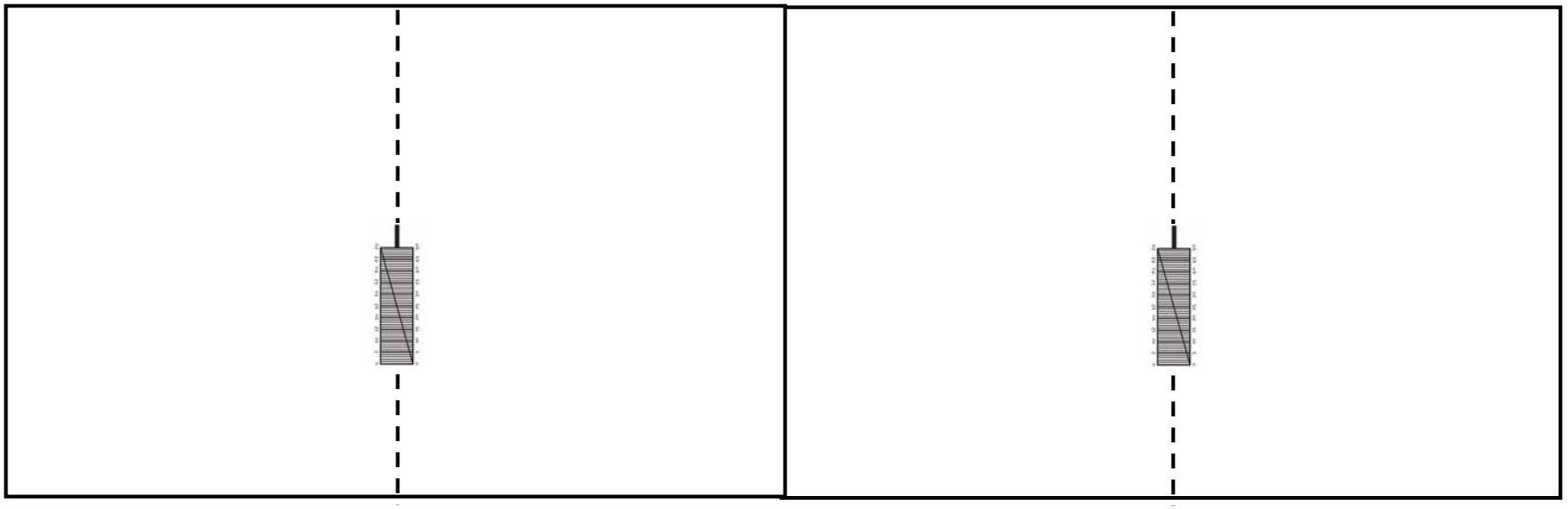
Performance Tests Indicators

- **Tested indicators:**
  - Pasting/splicing failures
  - Waste during reel splice, press start, press restart
  - Fold quality:
    - Fold height
    - Over fold
    - Former fold registers
    - Cylinder fold registers
    - Quarter fold registers
  - Slitting register
  - Cylinder cut-off register
  - Shingle stream delivery

Performance Tests Indicators

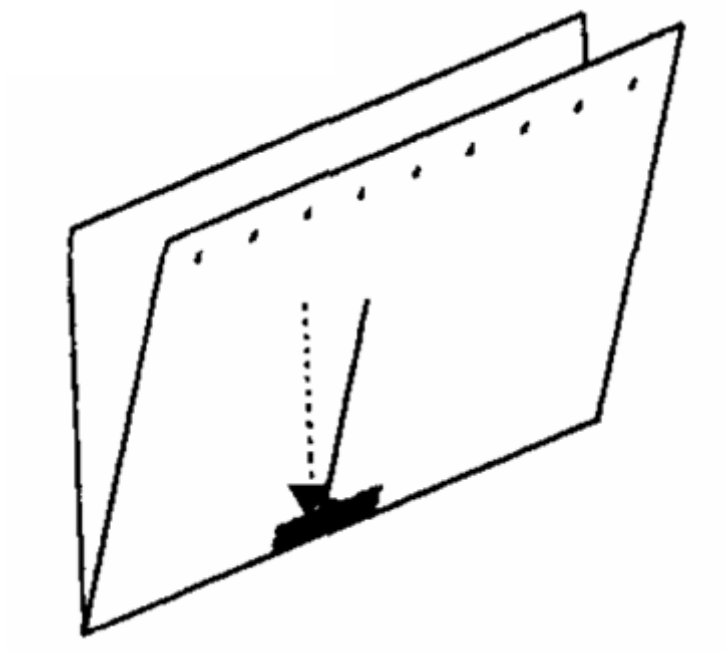
- **Former fold register**

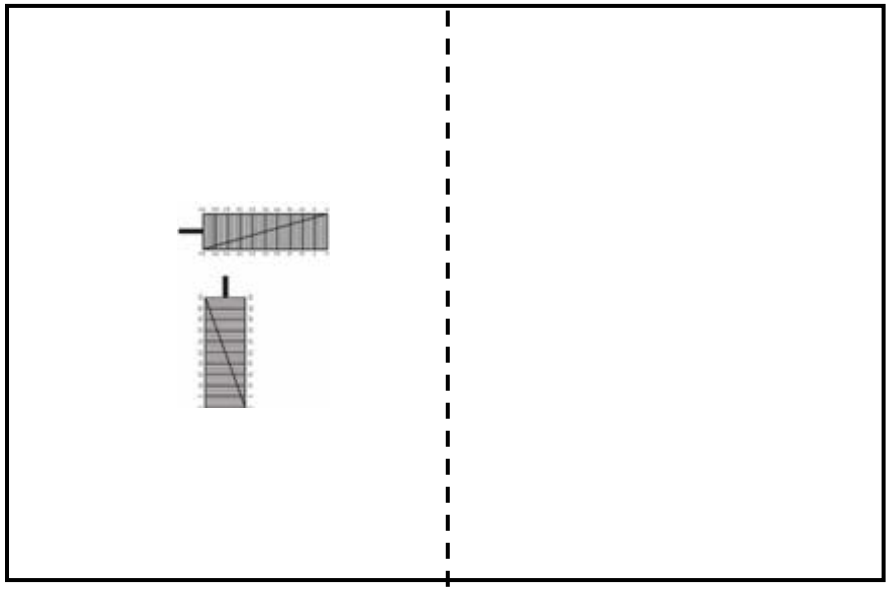




Performance Tests Indicators

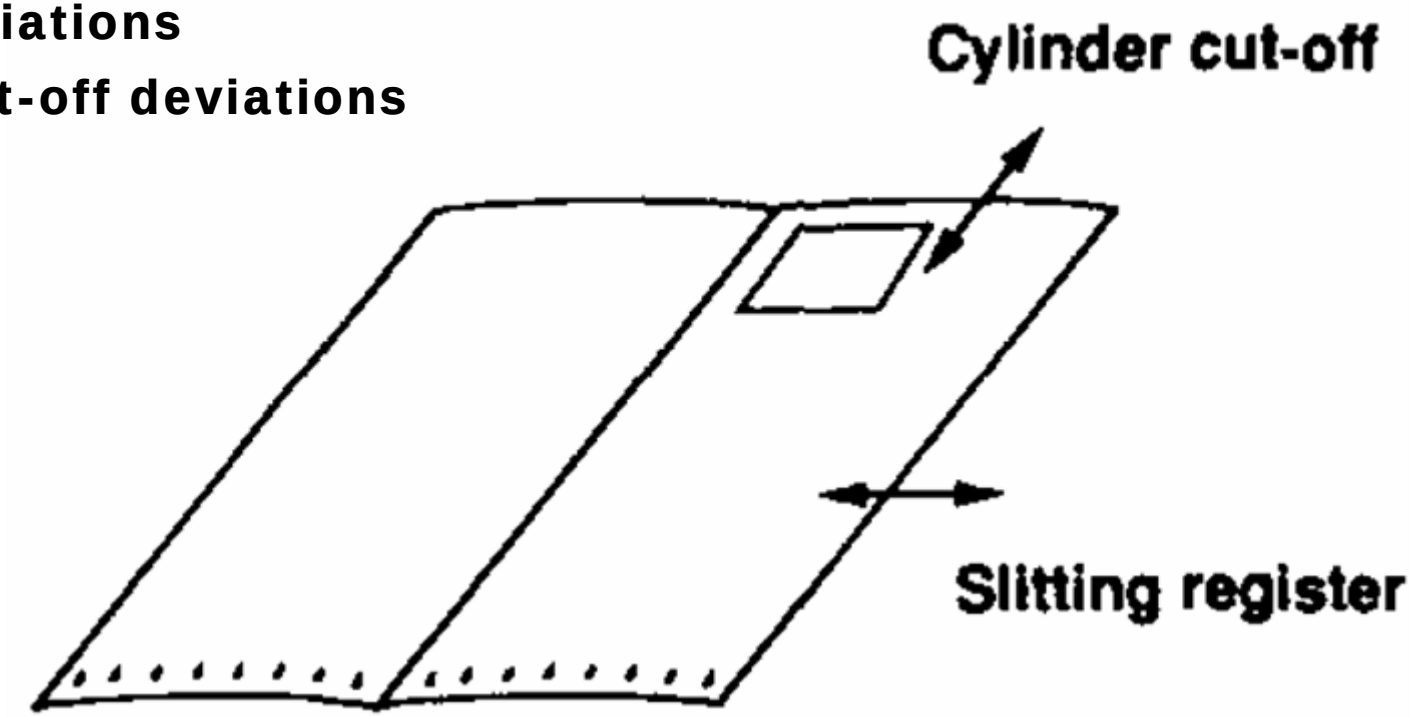
- Cylinder fold register
- Quarter fold register





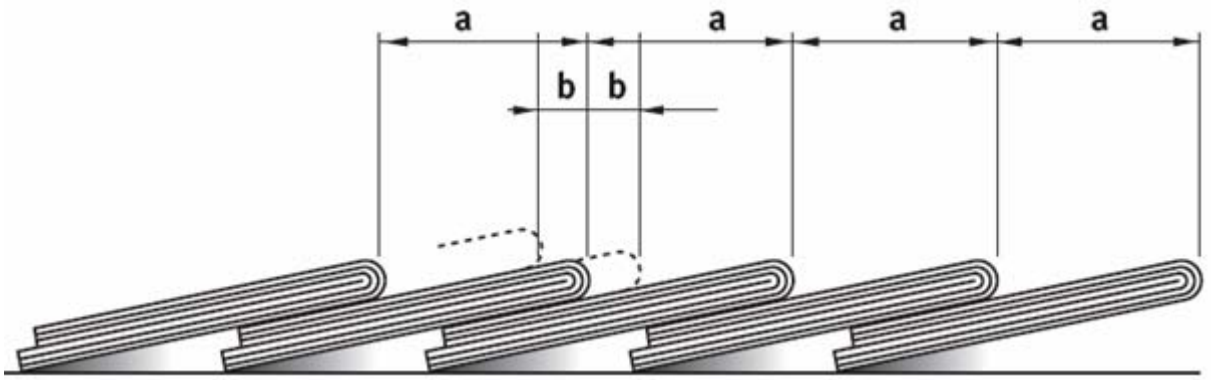
Performance Tests Indicators

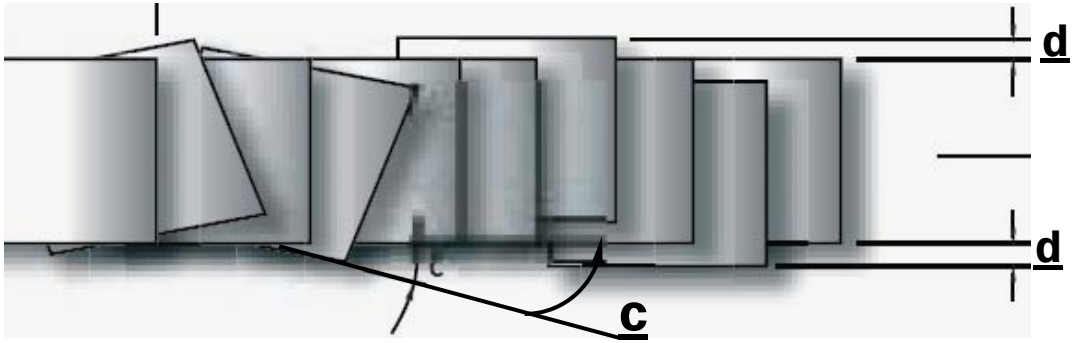
- Cut-off register
- Slitting deviations
- Cylinder cut-off deviations



Performance Tests Indicators

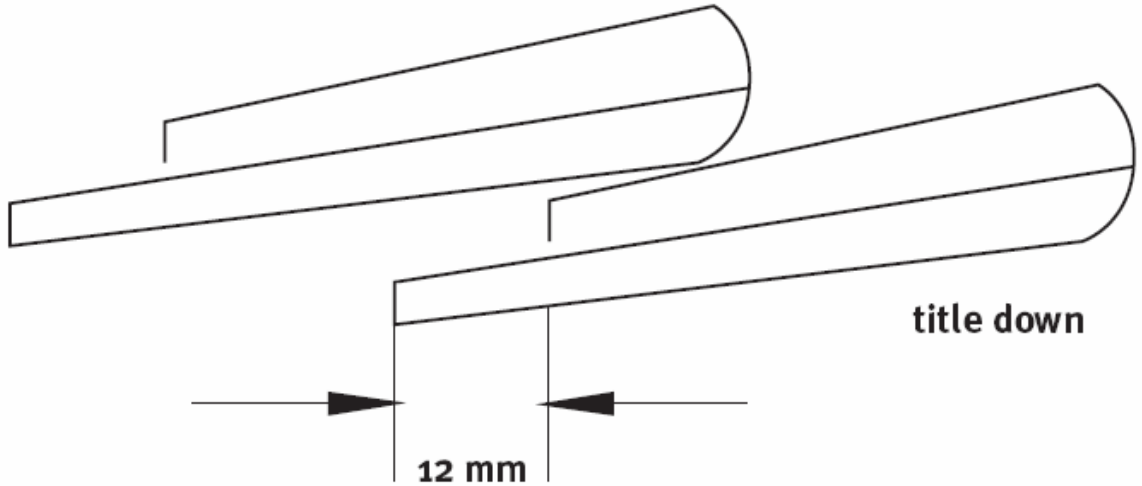
- **Shingle stream quality for single and double production**
  - a: longitudinal distance
  - b: tolerance
  - c: inclined position
  - d: lateral offset



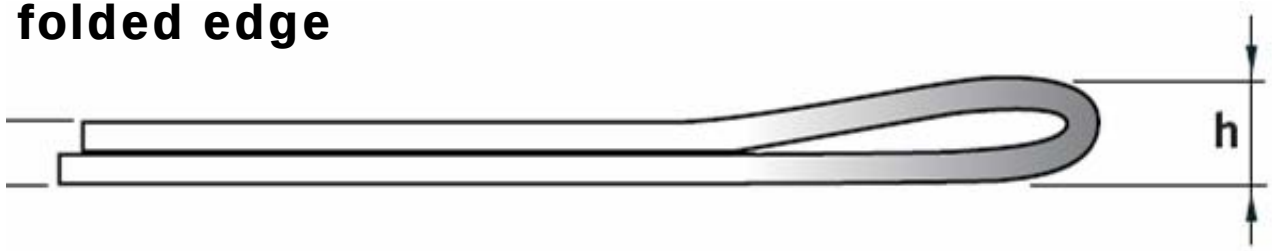


Performance Tests Indicators

- **Prefold accuracy:**

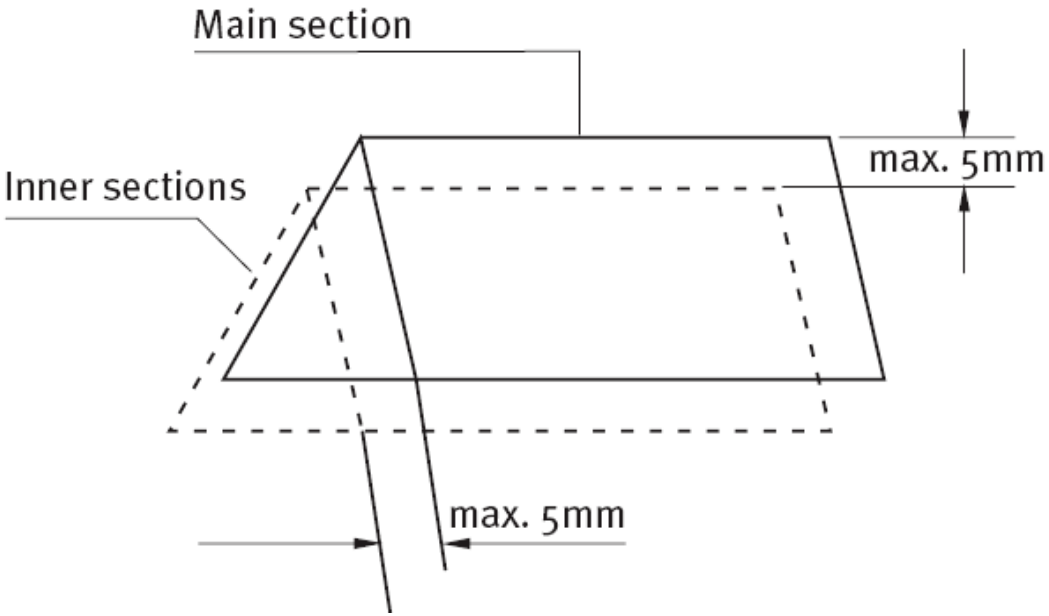


- **h: height of folded edge**



Performance Tests Indicators

- **Web wander**

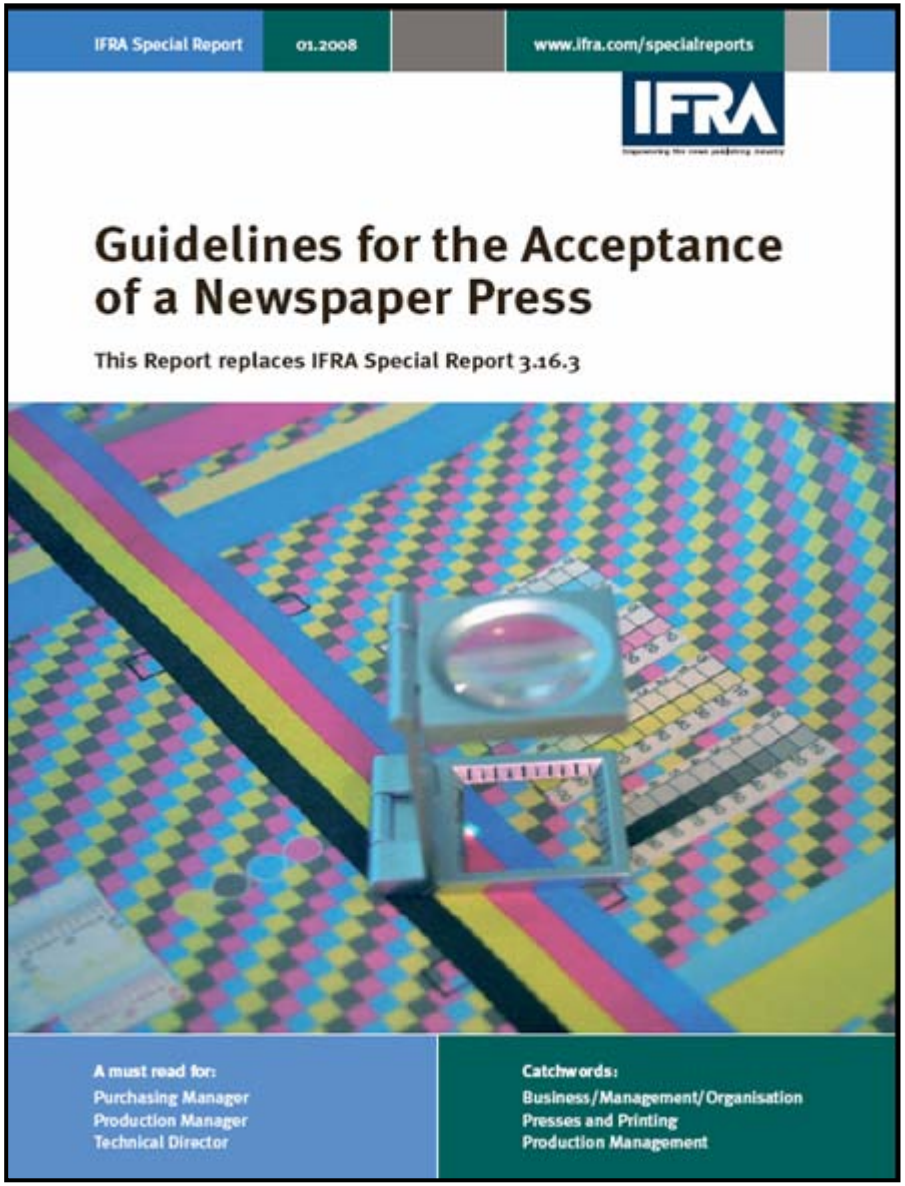


- **Size and position of pinholes on product**

Further readings

Special Report 1-2008 includes:

- Acceptance test description
- Evaluation method
- Testform layout
- Tolerances applicable on an average modern press



Further readings

Special Report 4.11.2