



Walstead  
CENTRAL EUROPE

PRESS DELIVERED  
Final Product  
Quality Specification

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SPOUT05

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## I. GENERAL

This document defines general quality standards for final product manufactured at Walstead CE and defines parameters as well as acceptance criteria for the final product - books.

## 2. DEFINITIONS

**FUNCTIONALITY** – ability to use according to intended or specified purpose

Considering the booklet, it is assumed that it loses its functionality if:

- The booklet is not complete – does not possess all ordered elements.
- The booklet cannot be used in the most common sense of this word – it cannot be read, looked or flicked through.

**NONCONFORMITY** – non-fulfillment of a requirement.

**DEFECT** – non-fulfillment of a requirement related to an intended or specified use.

**COLOR GUIDELINE** – digital or material guidelines defining color.

**PROFIL ICC** – a file that describes how a particular device reproduces color. The profile defines device gamut in the context of a device-independent color space.

**PROOF / REFERENCE PRINTOUT** – comparative printout imitating the results achievable on the real painting machine.

**COLOR OK.** – comparative signature chosen from printed count that best matches the proof – signed up by the Customer, Walstead CE Shift Leader or authorized Walstead CE Press Operator. Printed on the machine remains the real, achievable color guideline for the operator and is treated as reference for the rest of the count.

**$\Delta E$**  – color difference between master and measured sample – value calculated as Euclidean distance in the CIE  $L^*a^*b$  color space.

**CONTROL PATCHES** – color patches placed on signature enabling both visual and instrumental control of print quality.

**SPECTROPHOTOMETER** - device that measures color – obtained results define position of particular color in universal three-dimensional Lab color space.

**JOB TICKET** – main instruction (specification) of job realization - document used internally at Walstead CE, created by CSR based on information delivered by the Customer in the production order.

**AQL** – Acceptable Quality Level.

## 3. PROCESS COLORS

### 3.1. COLOR GUIDELINE

The information presented on proof is the main color guideline for process colors. Proof shall be prepared in accordance with the recommendations gathered in QMPR-I2SPIN01 Preparation of materials for printing and QMPR-I2SPIN02 External proof verification. Lack of conformance to mentioned documents may result in differences in color between final product and delivered proof.

In case no proof has been delivered or delivered proof is not conforming to Walstead CE recommendations the standard digital values are considered the color guideline. Those target values describing print parameters are defined in appropriate, used in production Walstead CE ICC profile.

The type of Walstead CE ICC profile to be used in production is agreed between Customer and Walstead CE before the production start-up. In case of no agreements Walstead CE applies standard Walstead CE ICC profile adequate for paper type, screening and product characteristics.

All Walstead CE ICC profiles were defined in order to achieve in the process the color parameters conforming to guidelines described in ISO standard ISO 12647-2:2004(E).

Based on visual and/or instrumental conformance assessment of printed page with delivered color guidelines the Color OK signature is signed.

When signed up the Color OK signature is the color guideline for the operator and is treated as reference for the rest of the count.

**ATTENTION!** Surface finishing (e.g. varnish, lamination) may influence the color – Walstead CE does not bear responsibility for color changes appeared due to surface finishing off painting press.

### 3.2. VISUAL CONTROL

The main method of color control is the visual assessment.

#### VISUAL CONTROL CONDITIONS:

The assessment should be conducted in standard viewing conditions according to ISO 3664:2000. Special recommendations include:

- the relative spectral distribution of the illuminant should be close to CIE illuminant D50 (corresponding color temperature of approximately 5000 K), CRI index should not be lower than 90 (recommended value > 95),
- the intensity of illumination on the viewed surface should be  $2000 \text{ lx} \pm 500 \text{ lx}$ ,
- the surrounding area and background used for evaluation of the materials should be in neutral grey and matt.

Color OK signature as well as count signatures shall match the color guidelines.

ACCEPTABLE	NOT ACCEPTABLE
Color insignificantly different from color guideline	Color significantly different from color guideline

### 3.3. SPECTRAL CONTROL

All kind of measurements are considered additional method of color control. The spectral measurement becomes the main method of print quality assessment when:

- No proof has been delivered
- Delivered proof does not conform to Walstead CE recommendations

#### MEASUREMENT CONDITIONS:

Device:	SpectroEye (GretagMacbeth)
Substrate:	self backing
Physical filter:	UV Cut
Illumination:	D 50
Observer angle:	2 °

### TOLERANCES:

L\*a\*b coordinates of process color solids on Color OK as well as count signature shall conform to standard target L\*a\*b values defined for those solids by adequate Walstead CE ICC profile.

Deviations from target values shall not exceed the tolerance range specified in ISO standard 12647-2:2004(E), chapter 4.3.2.3. Ink Set Colors (paragraph 4, note 2, table 3).

Table below presents the range of acceptable deviations for process color solids.

COLOR	BLACK I)	CYAN I)	MAGEN-TA I)	YELLOW I)
acceptable deviation from target value for Color OK signature	5	5	5	5
acceptable deviation from Color OK signature for the count 2)	4	4	4	5

1) Hue share in total difference shall not exceed 2,5

2) In specified tolerance range shall stay at least 68% of total count

### 3.4. DOT GAIN

Dot gain characteristic for Color OK. as well as count signatures shall conform to standard defined by curve B described in ISO standard 12647-2:2004(E). Table below presents target values and deviations acceptable on patches of different tone value.

tone value of control patch [%]	25	40	50	70	70	80
target value [%]	12	16	17	15	13	12
acceptable deviation from target value for Color OK [%]	4	4	4	3	3	3
acceptable deviation from target value for count average [%]	4	4	4	4	4	4
acceptable value of count standard deviation [%]	4	4	4	3	3	3
acceptable value of range between chromatic colors [%]	5	5	5	5	5	5

Assuring the above parameters (pt 3.3. and 3.4.) in the case of heatset production, when at the same time the count is lower than 30 000 rpm, printing is done on a machine without an automatic ink control system, and color proofs have not been delivered or color proofs

have not been verified (see SPIN02 External proof verification). In this situation, the statistical scatter may be larger.

### 3.5. INFORMATION REGARDING STOCHASTIC PRINTING STACCATO IO

As the process of stochastic printing is more variable, acceptable degree of discrepancy between printed sheet and correctly prepared proof can be higher.

Due to technical reasons Walstead CE may change the method of screening at the last moment, while making Customer Representative the only person notify of it.

### 3.6. INFORMATION REGARDING PRINT OF VIGNETTES

Due to technological reason acceptable degree of print discrepancy for vignettes located on pages edge may be higher.

## 4. SPECIAL COLORS

### 4.1. COLOR GUIDELINE

The main color guideline for special color printouts are the digital values describing color parameters defined based on Pantone guidelines specified in SpectroEye Colorguide Pantone 2004.

Additional guideline for special color setting, are the reference printout from Walstead CE Ink Laboratory or current paper swatchbook Pantone Special Colors.

For metallic special colors the main and only guideline is the current paper swatchbook Pantone Metallic Special Colors.

Based on visual and/or instrumental conformance assessment of printed page with delivered color guidelines the Color OK signature is signed.

When signed up the Color OK signature is the color guideline for the operator and is treated as reference for the rest of the count.

**ATTENTION!** Surface finishing (e.g. varnish, lamination) may influence the color – Walstead CE does not bear responsibility for color changes appeared due to surface finishing off painting press.

### 4.2. VISUAL CONTROL

The Visual assessment is considered additional method of color control. The visual assessment becomes the

main method of print quality control in case of no digital guideline is available.

VISUAL CONTROL CONDITIONS – see point 3.2

Color OK signature as well as count signatures shall match the color guidelines.

ACCEPTABLE	NOT ACCEPTABLE
Color insignificantly different from color guideline	Color significantly different from color guideline

### 4.3. SPECTRAL CONTROL

The main method of color control is the spectra measurement.

MEASUREMENT CONDITIONS – see point 3.3.

#### TOLERANCES:

L\*a\*b coordinates of special color solids on Color OK as well as count signature shall conform to standard target L\*a\*b values defined for those solids in SpectroEye Colorguide Pantone 2004.

Printout conformance to guidelines is verified using Best Match function available in SpectroEye device that additionally takes into consideration the print process variables (e.g. substrate/paper or surface finishing)

Deviations from target values shall not exceed the tolerance range specified in the table below.

acceptable deviation from Best Match value for Color OK	1
acceptable deviation from Color OK for the count 1)	3

In specified tolerance range shall stay at least 68% of total count

In non standard cases like:

- lack of any guideline for special color,
- overprint of process colors on special color,
- printing of double layer of special ink (from two consequent ink units),
- special color separation is not solid.

The given above tolerances are not in force any more.

In such cases the Customer is obliged to notify Walstead CE much earlier in order to both sides have enough time to prepare the print process assuring the final color effect possibly close to Customer requirements.



#### 4.4. LIMITATIONS IN PRINTING WITH SPECIAL INKS

##### Using metallic inks in heatset printing

Metallic pigments may react with fountain solution (lower pH value) and go matt, which may be seen as “dull” or subdued” color.

Uncoated metallic ink surface is not resistant to rubbing and scratching under pressure.

With larger pigment particles, such inks are less suitable for printing raster surfaces and fine lines.

UV varnish on a surface heatset-printed with metallic ink visibly reduces the metallic effect (especially for metallic silver).

UV varnish adhesion to metallic ink is lower, causing a risk of chipping. A thicker metallic ink layer makes even UV varnish application difficult, which may cause an “orange peel” effect on the coating surface.

##### Using fluorescent inks

The light-fastness of fluorescent printing inks is very poor. Also, they are not resistant to spirit varnishes, nitro varnishes, or alkalies. The printing company assumes no responsibility for fluorescent inks changing color after exposure to light, dispersion varnishes, UV varnishes, and after film lamination.

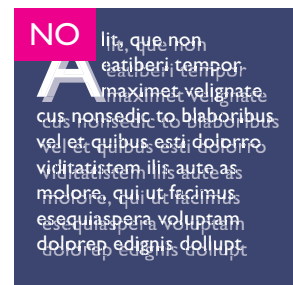
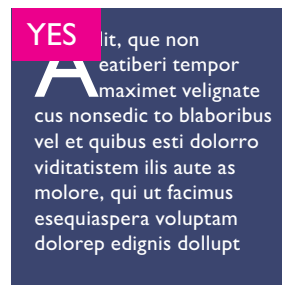
Because of higher pigments such inks are not suitable

to print halftone areas and fine line drawings (see: QM.PRI2. LI01.SPIN01 Preparation of materials for printing). Achieving the desired optical effect requires a high inking, which can cause killing delicate areas of the halftone.

#### 5. REGISTER

Relative misplacements of images printed from CMYK or PMS inks shall be within acceptable tolerance range.

ACCEPTABLE	NOT ACCEPTABLE
Register off by $\leq 0,2$ mm	Register off by $> 0,2$ mm



#### 6. IMAGE AND MECHANICAL NONCONFORMITIES

Tolerance range for IMAGE AND MECHANICAL NONCONFORMITIES shows the table below.

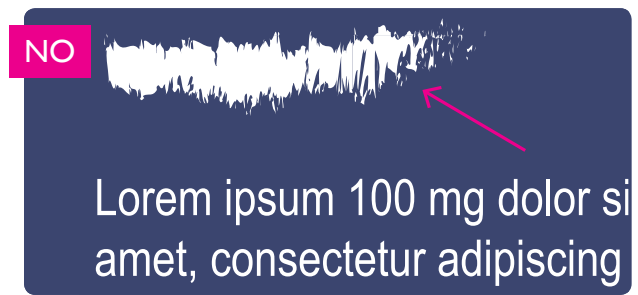
NON CONFORMITY	ASSESSMENT METHOD	PLACE	ACCEPTABLE	NOTACCEPTABLE
CLEAR LINE	Measure length	1 <sup>st</sup> page, customer logo	length $\leq 5$ mm and $n^*=1$	length $> 5$ mm or $n>1$
		other pages	length $\leq 20$ mm; and $n\leq 5$	length $> 20$ mm; or $n>5$
CLEAR SPOT	Estimate coverage	1 <sup>st</sup> page, customer logo	single cov $\leq 3$ mm <sup>2</sup> and $n=1$	single cov $> 3$ mm <sup>2</sup> or $n>1$
		other pages	single cov $\leq 5$ mm <sup>2</sup> and $n=5$	single cov $> 5$ mm <sup>2</sup> or $n>5$
DIRTY AREA, STAIN, CATCH UP	Measure dE for color difference	1 <sup>st</sup> page, customer logo	$\Delta E \leq 7$	$\Delta E > 7$
		other pages	$\Delta E \leq 10$	$\Delta E > 10$

NON CONFORMITY	ASSESSMENT METHOD	PLACE	ACCEPTABLE	NOTACCEPTABLE
COLOR DIFFERENCES ON LOGO, VIGNETTES	Measure dE for color difference	1st page, customer logo	$\Delta E \leq 7$	$\Delta E > 7$
		other pages	$\Delta E \leq 10$	$\Delta E > 10$
WRINKLES, BENDS, WAVES, CRUMPLES	Measure length	1st page, customer logo	not pressed and length $\leq 5\text{mm}$ and $n^* \leq 3$	pressed or length $> 5\text{mm}$ or $n > 3$
	visual	other pages	not pressed and functional	pressed or not functional
TEARS, CUTS, CRACKS	Measure length	All pages	length $\leq 5\text{mm}$ and $n^* \leq 2$	length $> 5\text{mm}$ or $n > 2$

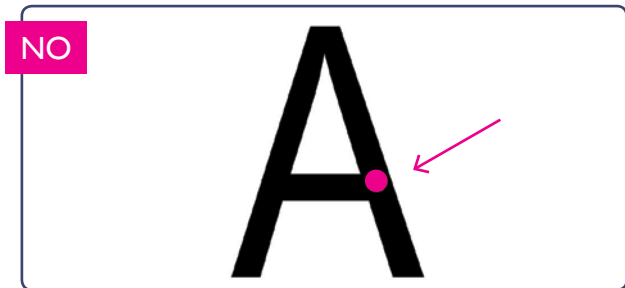
\* n means acceptable quantity of one type nonconformity per page (text must be legible in all cases)



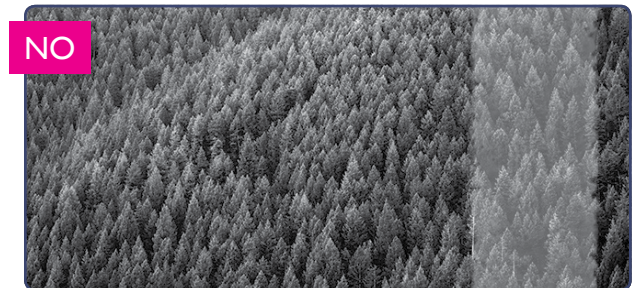
Line on the page with LOGO  $> 5\text{mm}$



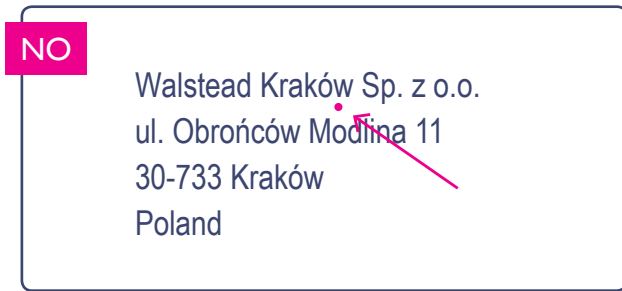
Dirty area on body pages



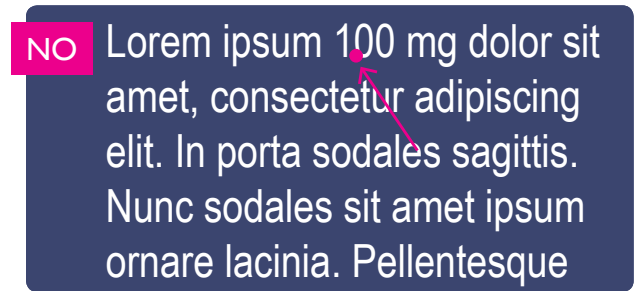
Spot on LOGO cov  $> 3\text{mm}^2$



Water spot on cover



Text illegible - spot on contact data



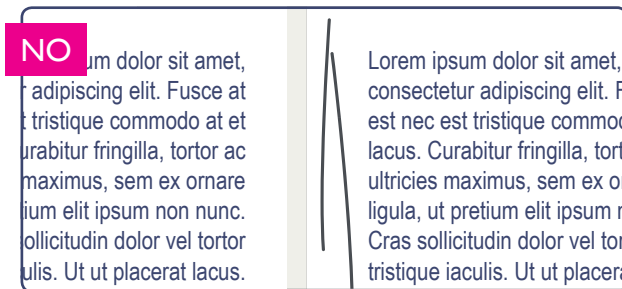
Text illegible - spot on measurement unit



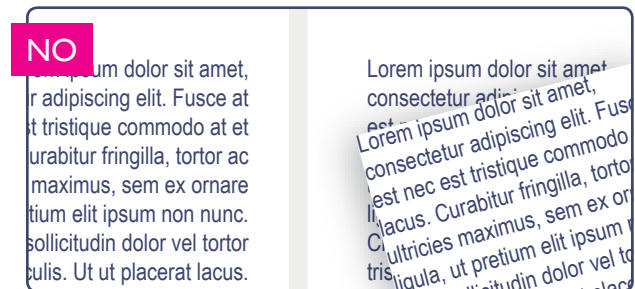
Length of both tears > 3 mm



Crack > 3 mm



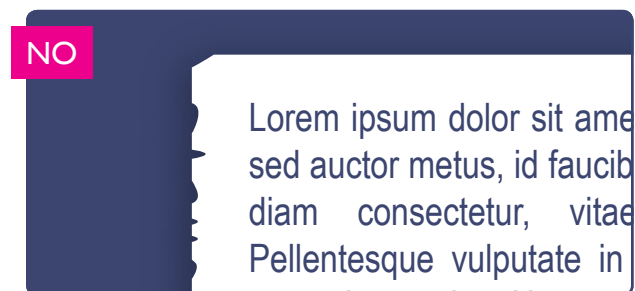
Wrinkle on body page > 30 mm



Bends on the body page > 30 mm



Dog Ears



Torn cutting edges



## 7. IN-LINE GLUING

In-line gluing should ensure functionality of the product, pages cannot fall out.

The strength of in-line gluing we check manually in the following way:

- we catch the booklet for the any single page and shake with moderate strength,
- the strength of gluing is consider as good if the page can keep the weight of the entire newspaper even during shaking.

In-line glued product should have glue layer evenly distributed on the entire backbone of the signature.

It is technically justifi ed and it is permissible to leave the glue path in the foot and head of the book up to 3cm. Longer, non-glued sections located in the middle of the backbone are evidence of insuffi cient amount of glue applied. Flowing the glue on the sides or even gluing the pages of the newspaper proves that too much of glue is applied.



Pages fall out

## 8. IN-LINE STITCHING

In-line stitching should provide the functionality of the product ie maintaining the pages of the booklet.

Due to technological limitations of the process:

- the size, shape and degree of bending of the staple remains unchanged irrespective of the thickness of the specimen (in case of particularly low volumes (12pp, 16pp) the staple may appear too loose)
- the distance of the top staple from the top edge of the newspaper cut varies from 2 to 8 cm
- the staple spacing is unchangeable and is 14 cm from the top edge of the top staple to the bottom edge of the second staple
- the limitations of above paragraphs mean that for some products the vertical position of the staple can not be maintained.
- staples should not move horizontally by turning to the first or last page of the book; we allow shifts up to 1mm.

## 9. GEOMETRY

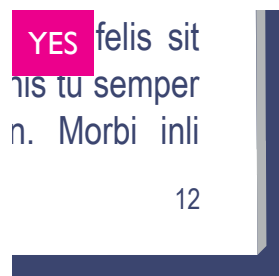
### 9.1. TRIM SIZE

Trim size is understood as physical dimensions of the book (x: horizontal, y: vertical) given in millimeters and specified in Job Ticket.

When signed up the Format OK book is the trim size guideline for the operator and is treated as reference for the rest of the count.

The trim size of Format OK book deviates from target value only if it is crucial in order to keep image within the net size of the page. It is allowable within the tolerance range given below.

ACCEPTABLE	NOT ACCEPTABLE
deviation from target value $\leq 3\text{mm}$ and all graphics in format	deviation from target value $> 3\text{ mm}$ or lack of graphics

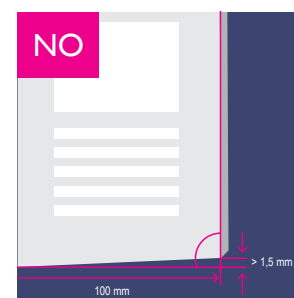


Cut text. Size decrease  $> 3\text{ mm}$

### 9.2. SQUARENESS

Trimmed, perpendicular product edges shall create 90 degrees angle. Squareness deviation is measured with reference to backbone. Deviation shall not exceed the tolerance range given below.

ACCEPTABLE	NOT ACCEPTABLE
deviation $\leq \pm 1,5\text{ mm}$ over 100 mm and max 3 mm over longer side of the book	deviation $> \pm 1,5\text{ mm}$ over 100 mm and more than 3 mm over longer side of the book



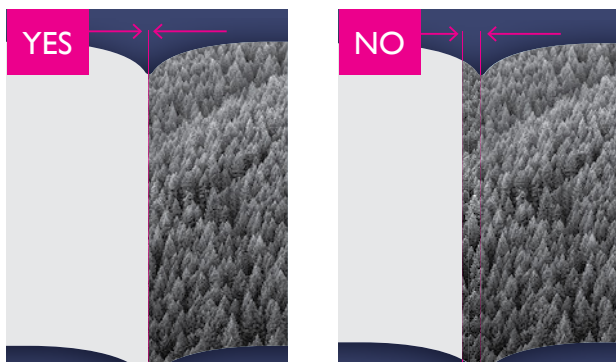
Skew  $> \pm 1,5\text{ mm}$  over 100 mm

### 9.3. IMAGE POSITION ON PAGE

Improper image position may be result of many phenomena like push out, fold or cut failures and is visible either as vertical/horizontal shift or skew of image on the page.

Shift or skew of the image on the page is commonly measured on characteristic image elements (e.g. margins, vignettes) and shall not exceed the tolerance range between pages/books.

ACCEPTABLE	NOT ACCEPTABLE
shift $\leq \pm 3$ mm	shift $> \pm 3$ mm
skew $\leq 1,5$ mm over 100 mm and no more than 3 mm over backbone	skew $> 1,5$ mm over 100 mm or more than 3 mm over backbone



Shift  $> \pm 3$  mm

### 10. NON STANDARD PRODUCTION

Non standard production mean every product or service that either is not regulated by this document or considering special requirements of the Customer cannot meet the specified in this document tolerances.

Non-standard requirements shall always be discussed and agreed separately between customer and Walstead CE.

Agreed standards shall be based on Walstead CE experience and/or performed tests and shall be clearly stated in the contract or any other quality document signed by the customer and Walstead CE prior to production.

### 11. PACKAGING AND SHIPPING

Packaging description specified in Job Ticket is considered the main guideline. In the absence of special Customer requirements Walstead CE applies their own internal packaging standards.

Packaging method shall be adjusted to product characteristics in order to ensure protection against potential damages while storing and transportation. The packed pallet shall be marked in the way enabling product identification.

For Press Delivered products the total amount of count and quantity of ordered pallets is guaranteed by Walstead CE. On the other hand, due to the technological limitations of the process, the individual packages may show differences in the number of plus and minus within 10 copies.

### 12. ACCEPTANCE CRITERIA

The delivery is considered conforming (fulfills the requirements of the Customer) if 99.5 % of the product possesses all quality parameters within the acceptable tolerance ranges specified by this document.



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