

bvdm.

Bundesverband Druck
und Medien e.V.



ISO standards provide sustainable support (references) for quality management, economic and ecologic print production

Karl Michael Meinecke

German Printing and Media Industries Federation (bvdm), Berlin

Senior consultant, Premedia, Prepress, Standardisation

ISO TC 130 Graphic Technology (Head of German delegation)

bvdm.

Bundesverband Druck
und Medien e.V.



ISO standards provide sustainable support (reference) for quality management, economic and ecologic print production

Abstract: International standards in print production are of great importance for process control, quality assurance, communication and customer relations of printers and prepress service providers. Printers are offering – and print buyers are increasingly demanding – print production and process control according to ISO standards such as **ISO 15930** (PDF/X Data File Format), **ISO 12647** (Process Standard Offset etc.), **ISO 16759** (carbon footprint of print media products). Associations (**bvdm**, ECI, Fogra, Intergraf, Ugra, vdma, WAN-Ifra etc.) are supporting standardisation on national and international level (ISO TC 130) for many years.

bvdm.

Bundesverband Druck
und Medien e.V.



ISO Standards for Premedia, Prepress, Print: ISO Technical Committee 130 Graphic Technology (TC/130)

www.iso.org ISO TC 130: established in 1969 | Sec. at DIN 1986-2012

Today: **14 Working Groups** (WG), 7 Task Forces, 160+ experts from
27 P-Member countries (Voting/Ballots), **18 O-Member** countries,
72 ISO Standards developed in ISO TC 130 by now, incl. reviews, updates

- ISO TC 130 WG 2 – Prepress Data Exchange (e.g. PDF/X-Standards, ICC Tech.)
- ISO TC 130 WG 3 – Process Control Metrology (e.g. ISO 12647 Series)
- ISO TC 130 WG 4 – Media and Materials (e.g. ISO 2846 Series printing inks)
- ISO TC 130 WG 5 – Safety and Ergonomics (e.g. ISO 12643 Series)
- ISO TC 130 WG 11 – “Carbon Footprint” (e.g. ISO 16759, CO₂)

bvdm.

Bundesverband Druck
und Medien e.V.



Example 1

Prepress Data Exchange [print data creation and processing]

PDF/X Standards

bvdm.

Bundesverband Druck
und Medien e.V.



■ ISO 15930 PDF/X

Standard series for print data creation and processing
ISO 15930 PDF/X – state of the art print data workflows

■ Developed with significant input and support from **bvdm**, ECI, Fogra, Ugra in ISO TC 130 Graphic Technology from 2000 to 2014 (continued)

■ **ISO 15930-4 PDF/X-1a (2003)** – CMYK, spot colours only (final print data)

■ **ISO 15930-6 PDF/X-3 (2003)** – plus colour managed workflows (overprint)

■ **ISO 15930-7 PDF/X-4 (2010)** – plus transparencies, layers

bvdm.



Supporting Tools, Materials:

Characterisation Data www.fogra.org

ICC-Profiles www.eci.org

Altona Test Suite 2.0

Application Kit

www.altonatestsuite.com

www.eci.org

bvdm.

Bundesverband Druck
und Medien e.V.



Example 2

Process Control – Printing Processes

[colour separation, proofing, printing forme, print run]

ISO 12647 Series

bvdm.

Bundesverband Druck
und Medien e.V.



■ ISO 12647 Series – Printing Processes

Standard series for print production (data, proof, print run)

ISO 12647 – state of the art print production workflows

■ Developed with significant input and support from **bvdm**, ECI, Fogra, Ugra in ISO TC 130 Graphic Technology from 1990 to 2014 (cont.)

■ **ISO 12647-1** (1996, 2004, **2013**) – Parameters and measurement methods

■ **ISO 12647-2** (1996, 2004/2007, **2013**) – Sheetfed Offset, Heatset Web Offset

■ **ISO 12647-3** (1997, 2005, **2013**) – Coldset Web Offset (newspaper)

■ **ISO 12647-4** (2005, **2014**) – Gravure Publication (catalogue, magazine, comm.)

■ **ISO 12647-7** (2007, **2012**) – Proofing processes (digital proof, hardcopy)

bvdm.

Bundesverband Druck
und Medien e.V.



- **ISO 12647-2:2013 – Process Standard Offset (SFO, HSWO)**
- **Changes, Improvements of the new Standard**
- **New TVI curves A-E, based on linear plates (CtP)**
Input: results of 200+ test print series (TVI 16-19-22-25-28 %)
- **Eight paper categories (4 coated, 4 uncoated) representing the market well – up to now: only five paper types**
- **Moderate changes of paper shades (PS1 : b^*-4 , Tol. +/- 4)**
- **Measurements: M0 (allowed), M1 (should)**
CIELAB tolerances: ΔE_{ab} (normative) – ΔE_{00} (informative)
- **Deletion of film-based requirements (CtP)**



ISO 12647-2:2013 – Process Standard Offset (SFO, HSWO)

- New TVI curves A-E, based on linear plates (CtP) (see figure on left side)
Input: results of 200+ test print series (TVI 16-19-22-25-28 %)

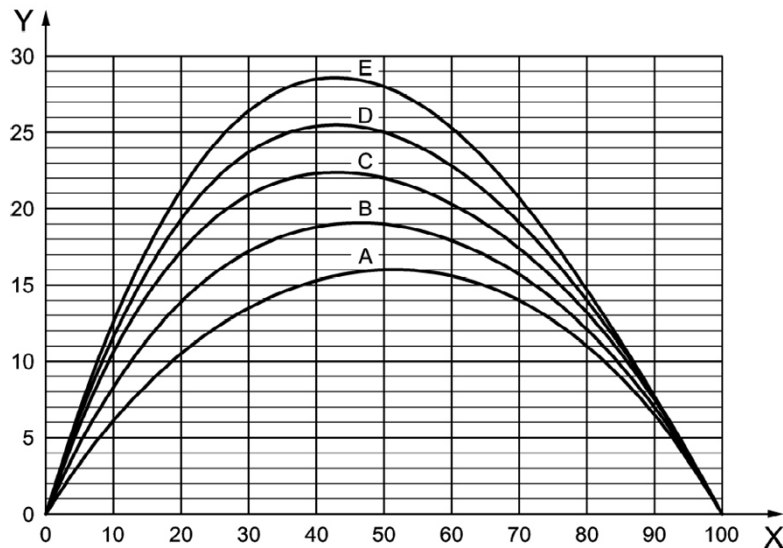
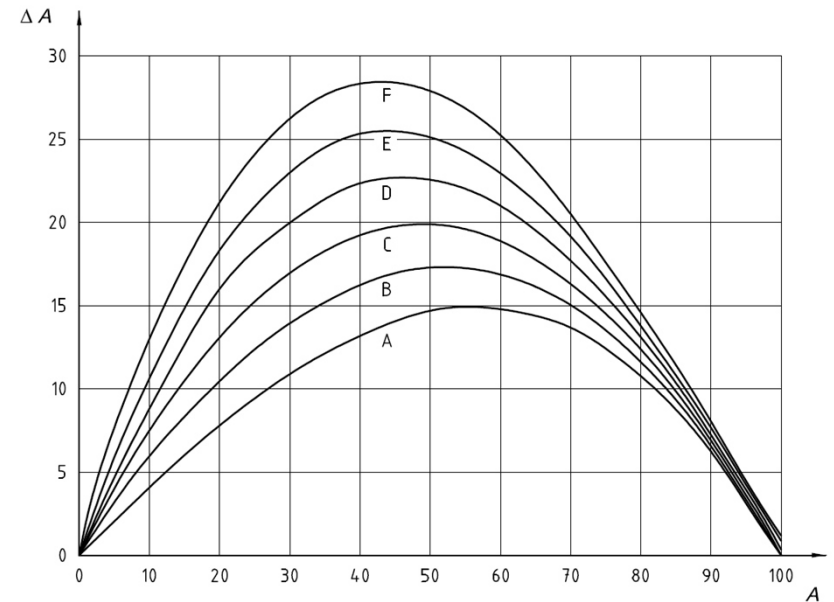


Figure 3 — Tone value increase curves for the printing conditions defined in [Table 1](#)



bvdm.

Bundesverband Druck
und Medien e.V.



ISO 12647-2:2013 – Process Standard Offset (SFO, HSWO)

- New TVI curves A-E, table with intermediate steps 5 %, 10 %

Table 9 — Tone value increase values for the printing conditions defined in [Table 1](#)

Tone value	Tone value increase				
	A	B	C	D	E
%	%	%	%	%	%
0	0,0	0,0	0,0	0,0	0,0
5	3,3	4,6	5,8	6,4	6,8
10	6,1	8,3	10,6	11,6	12,6
20	10,5	13,9	17,2	19,3	21,2
30	13,5	17,2	20,9	23,7	26,4
40	15,3	18,8	22,3	25,4	28,5
50	16,0	19,0	22,0	25,0	28,0
60	15,6	17,9	20,3	22,8	25,3
70	14,0	15,7	17,4	19,1	20,7
80	11,0	12,1	13,2	14,0	14,7
90	6,5	7,0	7,5	7,7	7,7
95	3,5	3,8	4,0	4,0	3,9
100	0,0	0,0	0,0	0,0	0,0



ISO 12647-2:2013 – Process Standard Offset (SFO, HSWO)

■ 8 Standard printing conditions and different screenings – up to now: 5

Table 1 — Standard printing conditions for typical print substrates

Printing condition	Print substrate description (Table 2 and 3)	Colorant description (Table 5 and 6)	Screening description			
			Periodic screens		Non-periodic screens	
			TVI curve	Frequency (cm ⁻¹)	TVI curve	Spot size (µm)
PC1	PS1	CD1	A	60 to 80	E	20(25)
PC2	PS2	CD2	B	48 to 70	E	25
PC3	PS3	CD3	B	48 to 60	E	30
PC4	PS4	CD4	B	48 to 60	E	30
PC5	PS5	CD5	C	52 to 70	E	30(35)
PC6	PS6	CD6	B	48 to 60	E	35
PC7	PS7	CD7	C	48 to 60	E	35
PC8	PS8	CD8	C	48 to 60	E	35

bvdm.

Bundesverband Druck
und Medien e.V.



ISO 12647-2:2013 – Process Standard Offset (SFO, HSWO)

■ 8 paper categories (4 coated, 4 uncoated) – up to now: 5

Table 2 — CIELAB coordinates, mass-per-area, and CIE Whiteness for print substrates (informative)

Characteristic	Paper type and surface											
	PS1			PS2			PS3			PS4		
Type of surface	Premium coated			Improved coated			Standard glossy coated			Standard matte coated		
Mass-per-area ^a g/m ²	80 to 250 (115)			51 to 80 (70)			48 to 70 (51)			51 to 65 (54)		
CIE Whiteness ^b	105 to 135			90 to 105			60 to 90			75 to 90		
Gloss ^c	10 to 80			25 to 65			60 to 80			7 to 35		
Colour ^d	Coordinates			Coordinates			Coordinates			Coordinates		
	L*	a*	b*	L*	a*	b*	L*	a*	b*	L*	a*	b*
White backing	95	1	-4	93	0	-1	90	0	1	91	0	1
Black backing	93	1	-5	90	0	-2	87	0	0	88	0	-1
Tolerance	±3	±2	±4	±3	±2	±2	±3	±2	±2	±3	±2	±2
Fluorescence ^e	moderate			low			low			low		



ISO 12647-2:2013 – Process Standard Offset (SFO, HSWO)

■ 8 paper categories (4 coated, 4 uncoated) – up to now: 5

Table 3 — CIELAB coordinates, mass-per-area, and CIE Whiteness for print substrates (informative)

Characteristic	Paper type and surface											
	PS5			PS6			PS7			PS8		
Type of surface	Wood-free uncoated			Super calendered uncoated			Improved uncoated			Standard uncoated		
Mass-per-area ^a g/m ²	70 to 250 (120)			38 to 60 (56)			40 to 56 (49)			40 to 52 (45)		
CIE Whiteness ^b	140 to 175			45 to 85			40 to 80			35 to 60		
Gloss ^c	5 to 15			30 to 55			10 to 35			5 to 10		
Colour ^d	Coordinates			Coordinates			Coordinates			Coordinates		
	L*	a*	b*	L*	a*	b*	L*	a*	b*	L*	a*	b*
White backing	95	1	-4	90	0	3	89	0	3	85	1	5
Black backing	92	1	-5	87	0	2	86	-1	2	82	0	3
Tolerance	±3	±2	±2	±3	±2	±2	±3	±2	±2	±3	±2	±2
Fluorescence ^e	high			low			faint			faint		



- ISO 12647-2:2013 – Process Standard Offset (SFO, HSWO)
- Each paper category comprises several typical products

Table 4 — Examples of typical coated and uncoated papers (informative)

	Paper type and surface			
	PS1	PS2	PS3	PS4
Type of surface	Premium coated	Improved coated	Standard glossy coated	Standard matte and semi-matte coated
Typical process	Sheet-fed offset Heat-set web offset	Heat-set web offset	Heat-set web offset	Heat-set web offset
Typical papers	Wood-free coated, gloss, semi-matte, matte (WFC) High and medium weight coated (HWC, MWC)	Medium weight coated (MWC) Light weight coated (LWC Improved)	Light weight coated, gloss and semi-matte (LWC)	Machine finished coated (MFC) Light weight coated, semi-matte (LWC)
	PS5	PS6	PS7	PS8
Type of surface	Wood-free uncoated	Super calendered uncoated	Improved uncoated	Standard uncoated
Typical process	Sheet-fed offset Heat-set web offset	Heat-set web offset	Heat-set web offset	Heat-set web offset
Typical papers	Offset, wood-free uncoated (WFU)	Super calendered (SC-A, SC-B)	Uncoated mechanical improved (UMI) Improved newsprint (INP)	Standard newsprint (SNP)

bvdm.



Supporting Tools, Materials, Services:

ProzessStandard Offsetdruck (bvdm)
www.prozess-standard.com

Characterisation Data www.fogra.org
ICC Profiles www.eci.org

Certification bvdm/Fogra
www.psoinsider.de

bvdm.



Supporting Tools, Materials:

roman16 bvdm Reference Images

www.roman16.com

Characterisation Data www.fogra.org

ICC Profiles www.eci.org

bvdm.



Supporting Tools, Materials:

Altona Test Suite 2.0
Application Kit

www.altonatestsuite.com

www.eci.org

Characterisation Data www.fogra.org

ICC Profiles www.eci.org

bvdm.

Bundesverband Druck
und Medien e.V.



Sources, Downloads

ISO TC 130 Graphic Technology www.iso.org

Best Practice ISO 12647 European Experts www.psoinsider.de
Printing Standard Network www.intergraf.eu

MedienStandard Druck www.point-online.de/download/pdf/free/86035.pdf

Ghent PDF Working Group www.GWG.org
PDF/X-ready www.pdfx-ready.ch

CO₂ compensation print products www.klima-druck.de

bvdm.

Bundesverband Druck
und Medien e.V.



Thank you for your attention!
Vielen Dank für Ihre Aufmerksamkeit!

Karl Michael Meinecke km@bvdm-online.de

German Printing and Media Industries Federation (bvdm) Berlin

Senior consultant, Premedia, Prepress, Standardisation

ISO TC 130 Graphic Technology (Head of German delegation)