Canon

Océ ColorStream 3000 Series

Marks Specifications

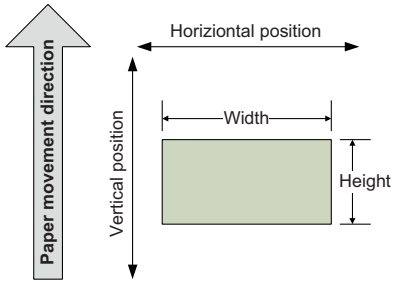
VERSION JULY 2012

Océ ColorStream 3000 Series Marks Specifications

Version July 2012

The purpose of the document is to give the application designer and/ or user background information on the used marks and guidelines for positioning these marks on the Océ ColorStream® 3000 Series.

Positioning and size information is always defined for the paper movement direction. Horizontal represents the position across the web, vertical the positioning in paper movement direction on the printed form.



PREPRINT MARKS

	In order to synchronize the printed images with preprinted forms or with pre-processed paper (perforated, tractor feed holes) preprint marks are used. Alternatively synchronization on sprocket holes can be used.	
Protected area (non printed area)	Horizontal:	1 mm left and right of the mark
	Vertical:	10 mm prior to mark
Size	Height:	min. 1.0 mm + 0.1 mm
	Width:	min. 6 mm depending on paper, recommended 10 mm.
Position	Standard position is the front of the web. With and optional second preprint mark sensor they can be positioned on the back of the web.	
	Vertical:	flexible on the form with a max. deviation from the position of ±0.25 mm
	Horizontal:	flexible
Color	Preprint marks should be black, readability of other colors must be tested.	

POST PROCESSING MARKS

These marks trigger post processing functionalities and are generated by the printer. Users can configure printer generated PPU (Post Processing Units) marks by means of the operators' GUI. Size and positioning can be defined depending on the requirements of the post processing. One can only print one mark per web side and form length, even when printing 2-up. Printer generated PPU marks can also be printed on refresh pages. Post processing marks generated in the application are treated as normal print data, i.e. they cannot be printed on refresh pages.

CUE MARKS

Cue marks, a.k.a. Synch-marks, are used to synchronize the second print engine with the images printed on engine number 1 (top-of-form and front/back). As cue mark the black Data Integrity mark is used.

Sizes, positioning and protected areas as described in Data Integrity marks apply.

DATA INTEGRITY MARKS

Data Integrity marks, a.k.a. DI marks, assure the correct page sequence and correct integrity of front and back data. The Océ DI concept is unique in the industry and worldwide patented using very discreet and small marks in a binary code system, i.e. thin and thick marks. DI marks are printed for all colors active.

Protected area (non printed area)	Horizontal:	1 mm left and right of the mark	
	Vertical:	10 mm prior to mark, 5 mm after mark, 50 mm at the first page	
Size per mark	Height:	thin mark	1.525 mm
		thick mark	4.575 mm
	Width:	all mark	4.572 mm
		space between two marks	2.286 mm
Total mark area	Monochrome:	4.57 mm (19.57 mm incl. protected area)	
	Full color:	25.15 mm (40.15 mm incl. protected area)	
	5 colors:	32.00 mm (47.00 mm incl. protected area)	
	6 colors:	38.86 mm (53.86 mm incl. protected area)	
Position	Vertical:	flexible	
	Horizontal:	flexible	
	Recommended position is a 6mm area on the gear side on tower 1 and the operator side on tower 2. The position can be set on the GUI by the operator. In case of very thin papers, a vertical shift of front and back mark areas can be recommended to prevent wrong DI measurements due to shine through of the marks printed on the front.		

EXAMPLES OF POSITIONING OF MARKS

The following example images show various arrangements of data integrity marks (black DI mark = cue mark). Each image shows the view onto the paper, meaning that the side printed on the duplex print module is on top. The images show the recommended standard arrangement with the marks on the reference edge of the paper.

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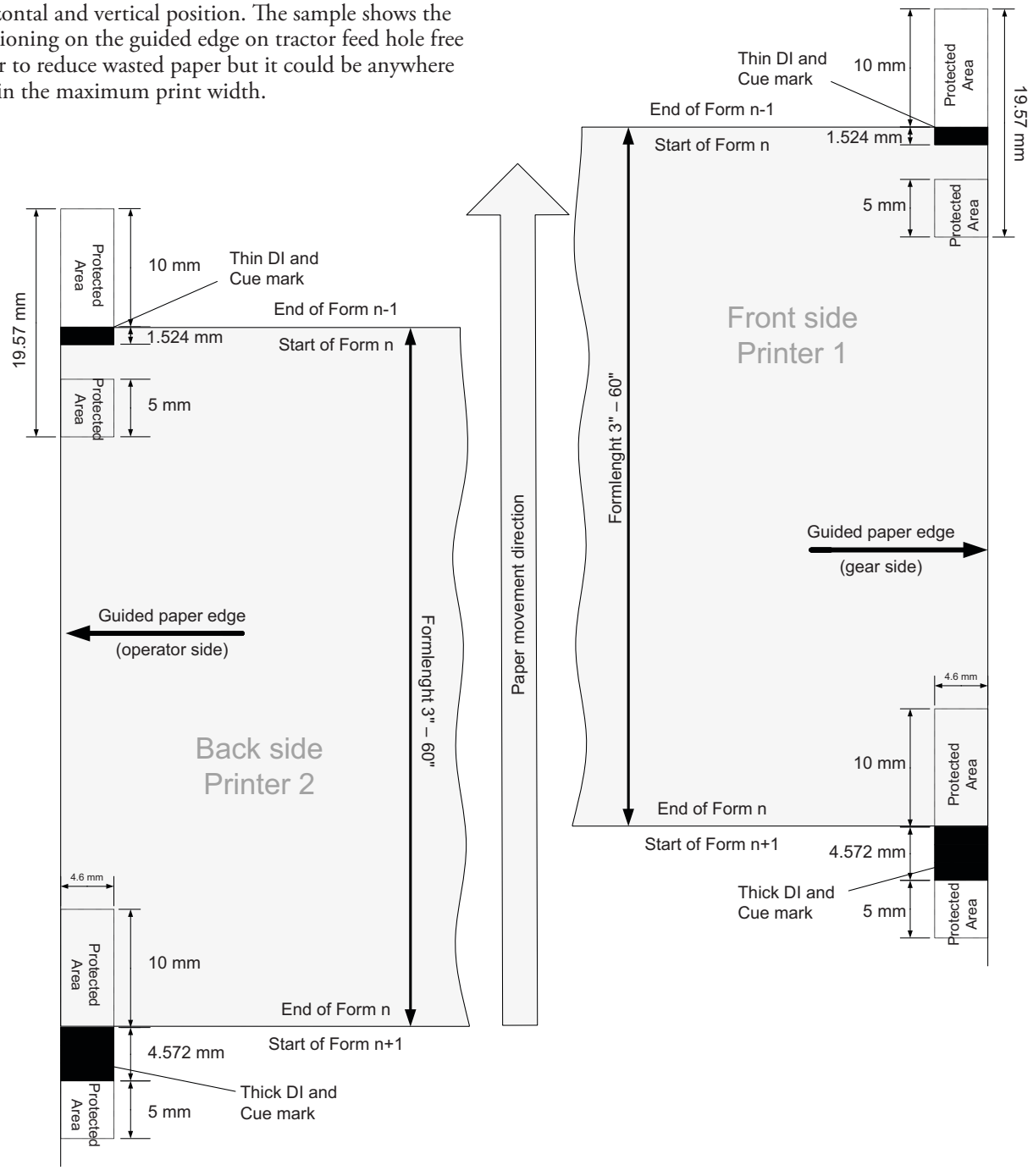
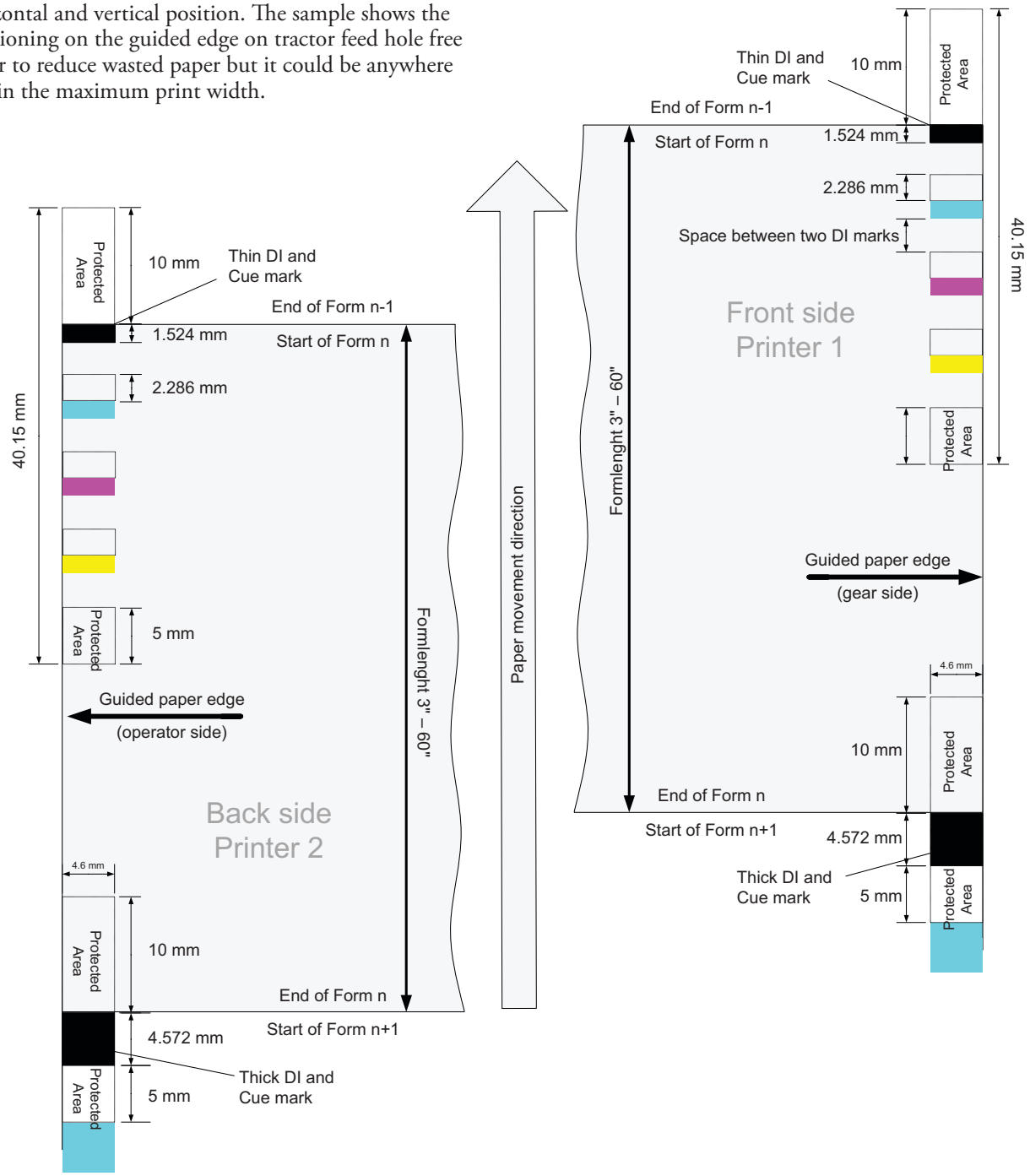
MONOCHROME TWIN DI AND CUE MARKS ON PAPER EDGE, PINLESS PAPER

Mark areas on front and rear side are fully flexible in horizontal and vertical position. The sample shows the positioning on the guided edge on tractor feed hole free paper to reduce wasted paper but it could be anywhere within the maximum print width.



FULL-COLOR TWIN DI AND CUE MARKS ON PAPER EDGE, PINLESS PAPER

Mark areas on front and rear side are fully flexible in horizontal and vertical position. The sample shows the positioning on the guided edge on tractor feed hole free paper to reduce wasted paper but it could be anywhere within the maximum print width.



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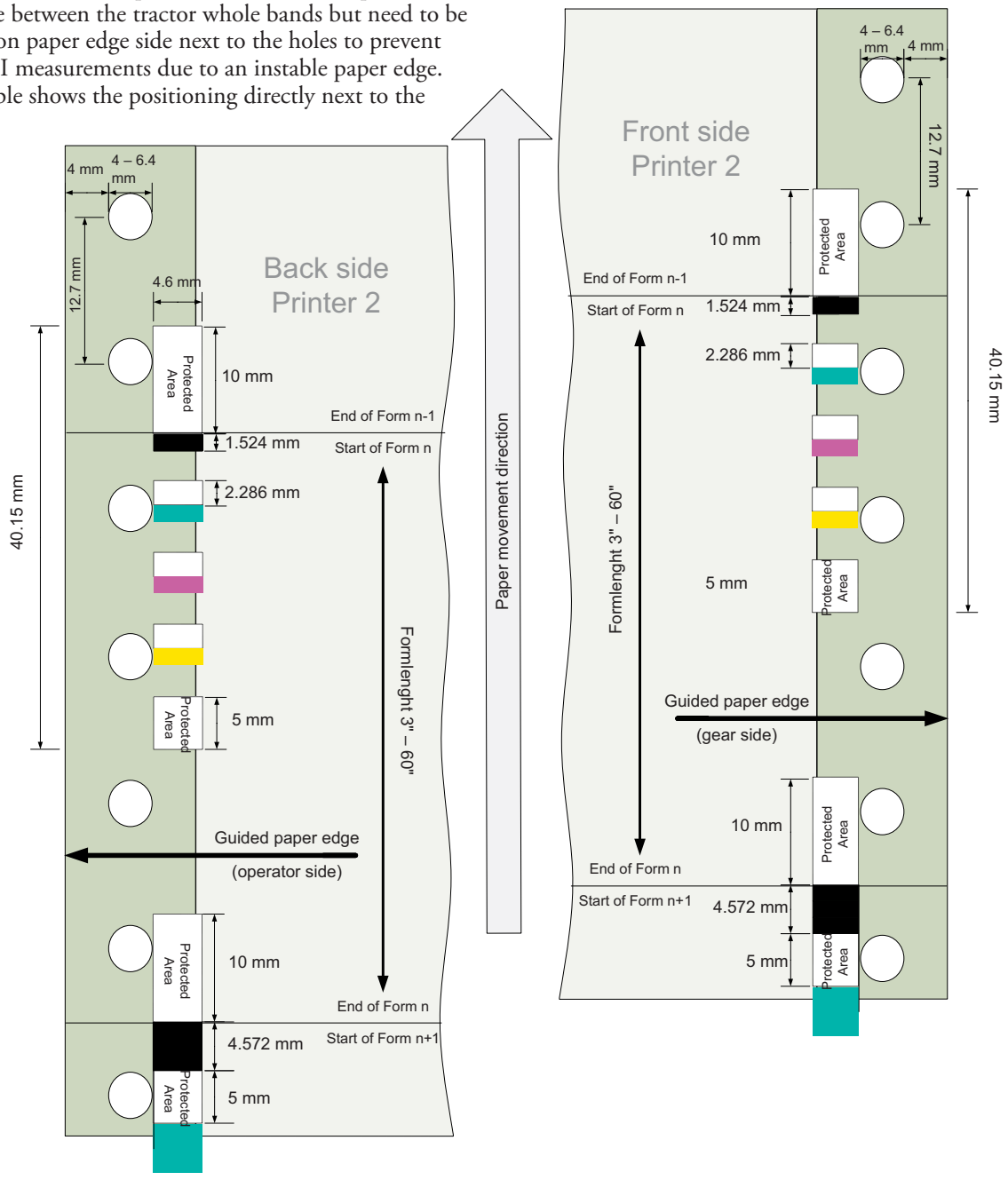
MONOCHROME TWIN DI MARKS ON CUE MARKS ON TRACTOR HOLE AKA. PINFED PAPER

Mark areas on front and rear side are fully flexible in horizontal and vertical position. Marks can be printed anywhere between the tractor whole bands but need to be on the non paper edge side next to the holes to prevent wrong DI measurements due to an instable paper edge. The sample shows the positioning directly next to the tractor holes on the guided edge on to reduce wasted paper. Space between tractor holes and the paper edge must be approx. 4mm, the distance between the holes and the printed images must be > 4.6 mm or traces of the DI marks may remain visible.

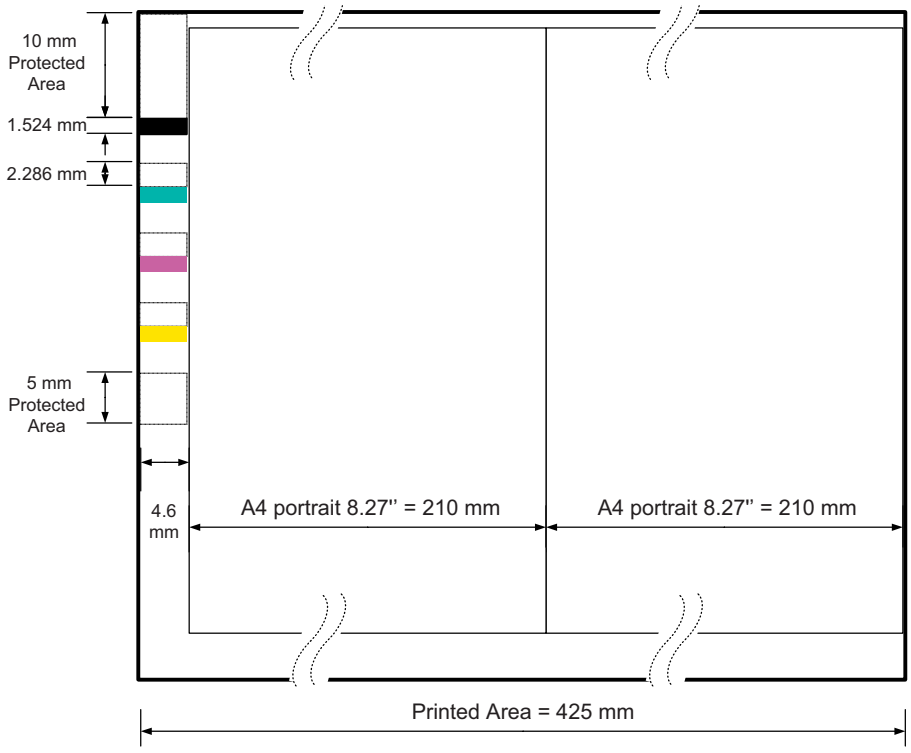


POSITIONING OF DI MARKS ON THE WEB

The following pages show a limited number of examples on how the marks can be positioned on a 17" or 21.25" print width system next to actual applications. A myriad of other examples would be possible based on the free positioning of the marks on the web.

17" (431.8 mm) print width 2-up A4 with pinless paper – Marks on guide edge

DI and Cue mark are printed on the guided paper edge and cut out in finishing. No trim included, a single knife is used for a central middle cut.

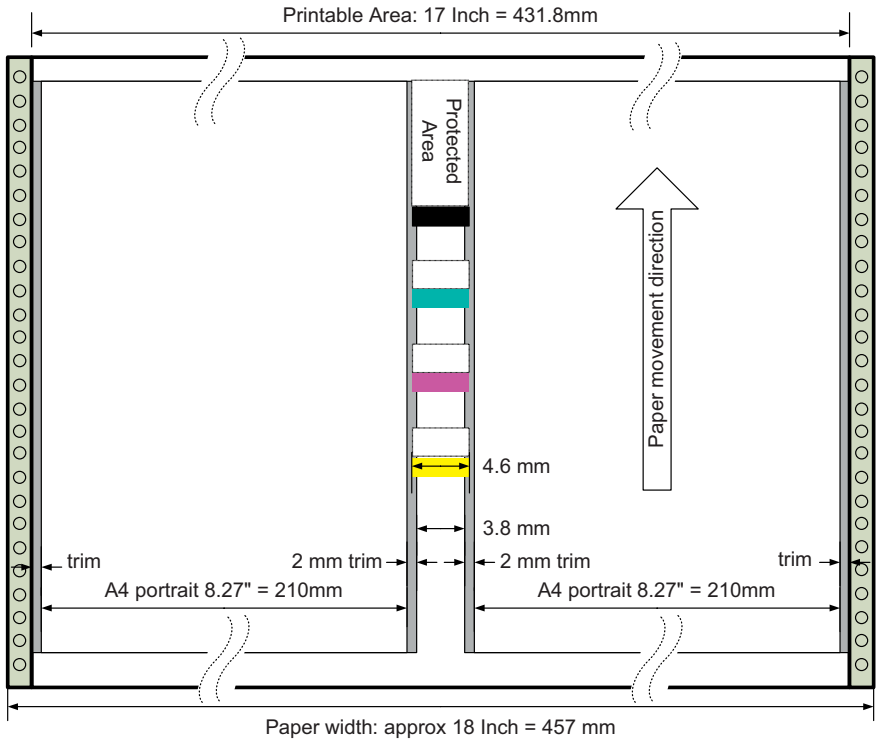


ColorStream 3000 (17Inch), A4 2-up mit einfachen Mittenschnitt, Marken seitlich

In this setup, the narrowest paper requirements eliminating the DI marks is shown. The two A4 images and marks which are cut out require a standard paper and print width of approximately 425 mm.

17" (431.8 mm) print width
2-up A4 with tractor feed

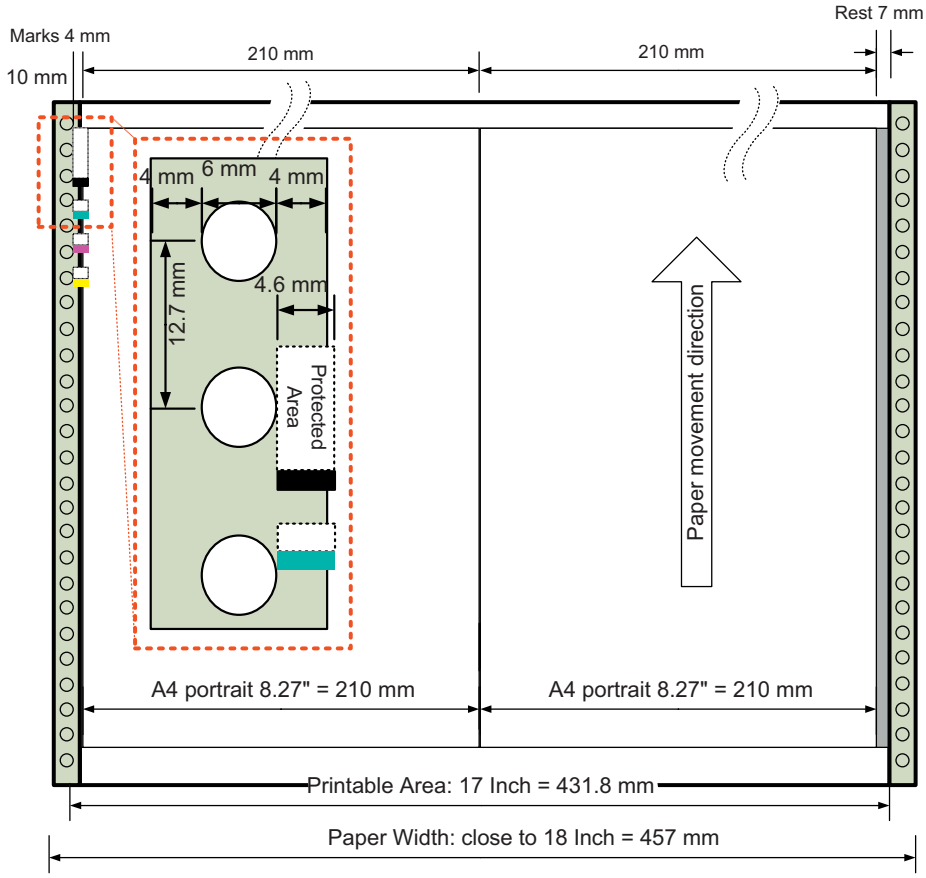
DI and Cue mark are printed in the middle between, e.g. two A4 images. Marks are cut out with a centered double cut. A middle cut with dual knife allows complete removal of DI marks.



The required paper width of approximately 18" (457 mm) requires a mechanical modification of the paper edge sensors which can be done at the customer site. Modification generates a white, non printable area on the guided edge of the paper of approx. 12–13 mm on all papers. This solution is also suitable for 17" pinless paper, without the mechanical modification.

17" (431.8 mm) print width 2-up A4 with tractor feed paper – Marks on paper edge

DI and Cue mark are printed on the side. Large tractor holes and marginal perforation is used. The DI marks are printed next to the tractor holes resulting in a small visible remainder of 0.6 mm of the marks on the final printed pages. No bleed included, just a single knife for central middle cut. 7mm of remaining print width would allow a full cut out of DI marls if an additional knife is used or could allow a double cut in the middle.



The remaining 7 mm of possible print width could be omitted.

The required paper width of close to 18" (457 mm) requires a mechanical modification of the paper edge sensors which can be done at the customer site. Modification generates a white, non printable area on the guided edge on all papers.

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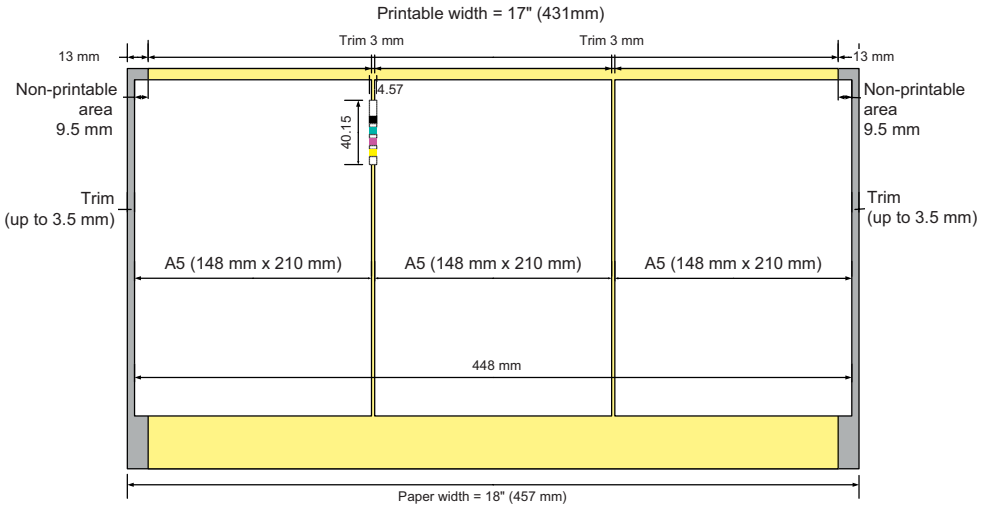
17" print width 3up A5 with pinless paper – Marks in image area

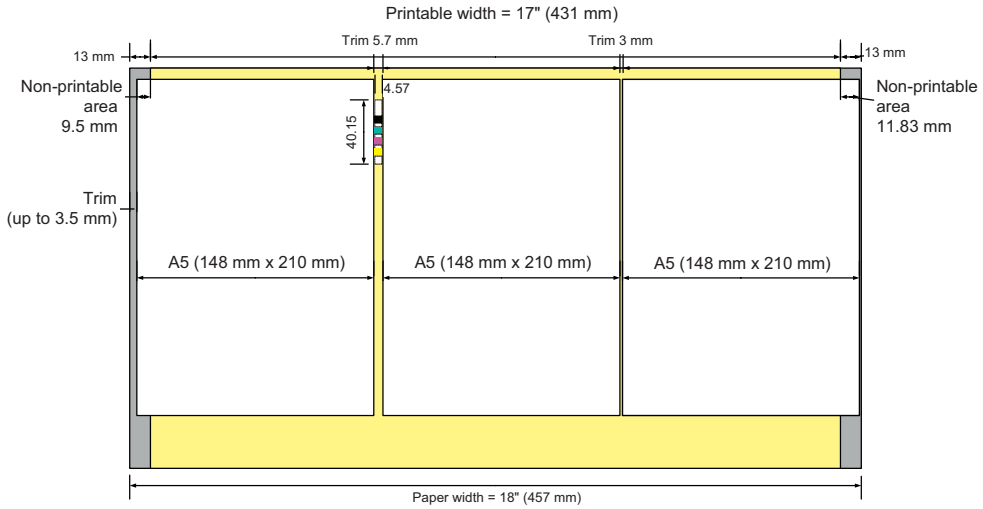
3-up A5 requires a broader than 431 mm print width. To generate the application permanent non printable areas in the document remain. Two scenarios are possible:

1. Approximately 9 mm of the outer images remains white. DI marks are printed between the pages but can not be completely eliminated during the trim.



Depending on the wanted trim on the edges a paper width of min. 448 mm (approx. 18") is required.

2. Approximately 9 mm of the left image remains white, 12 mm of the right image remain white. DI marks are printed between the pages and are completely eliminated during the trim.

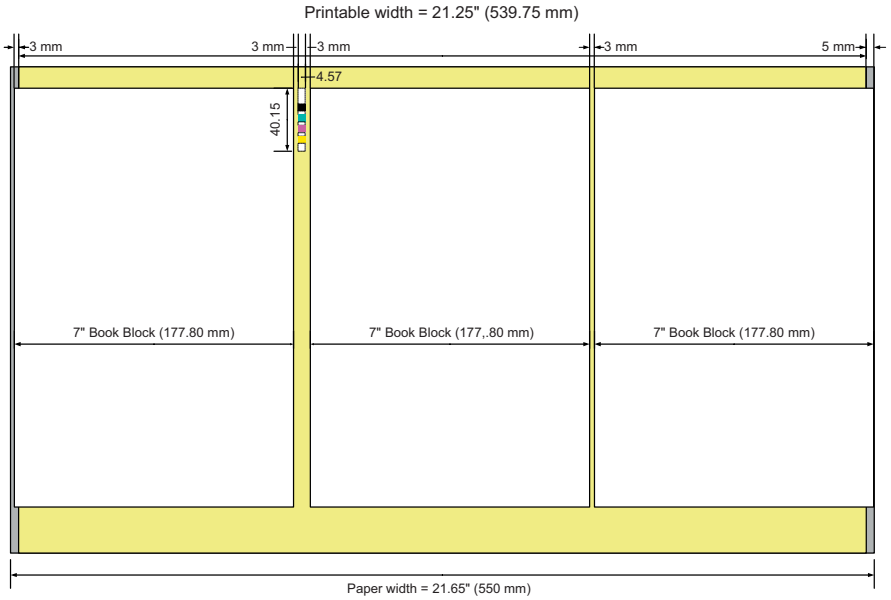


Depending on the wanted trim on the edges a paper width of min. 452 mm (approx. 18") is required.

Both alternatives require a mechanical modification of the paper edge sensors which can be done at the customer site. Modification generates a white, non printable area on the guided edge of the paper of approx. 12–13 mm on all papers.

21.25" print width 3up 7", e.g. book blocks with pinless paper – Marks in image area

3-up 7" requires a broader than 21.25 mm paper width. To generate the application white areas in the document remain. Approximately 3 mm of the left image remain white 5 mm of the right image remain white. DI marks are printed between the pages and are completely eliminated during the trim.



This approach requires the full print width and a mechanical modification of sensors for a 21.65" (550 mm) paper width. Modification generates a white, non printable area on the guided edge of the paper of approx. 5 mm on all papers.

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