

Quick Start.

Prepress Connection Prinect Inspection Control 4.



Languages

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About This Documentation

This documentation applies to the inline sheet inspection system "Prinect Inspection Control 4".

The Quick Start Guide is the compressed version of "User's Guide - Prepress Connection", see: [Prepress Connection, Prinect Inspection Control 4](#).

In this manual, all the settings required to create the prepress files for production inspection, PDF inspection and sheet inspection are described in brief. All the settings needed for HEIDELBERG prepress and for a third-party prepress are described.



Note: Remember that the Online Help may not always be up-to-date with the current version of the software. Consequently, no claims can be made for changes to the software and documentation.



Note: The names (e.g. job names, customer names, etc.) and quantities or dimensions (e.g. delivery quantities, sheet dimensions, paper dimensions, etc.) given in the following documentation - and in particular in the screenshots shown - as well as other individual designations used are intended as examples to illustrate how the respective settings and processes work and should **under no circumstances** be adopted without checking in your configurations or production processes.

What You Should Already Know

We assume that you are familiar with the basic functions of Prinect Signa Station and Prinect Production. If you are using a different prepress system to Prinect, we assume that you are familiar with this as well.

Further Documentation

You can find more information in the following documentation and videos:

- User's Guide (PDF): [Prepress Connection Prinect Inspection Control 4](#)
- Video Tutorial: [Prinect Inspection Control 4 - Theory](#)
- Video Tutorial: [Prinect Inspection Control 4 - Practice](#)
- Video Tutorials: [HEIDELBERG Customer Portal - Videos Apps](#)
- Online help (Prinect CR): [Prinect Cockpit](#)
- Online help (Prinect CR): [Prinect Signa Station](#)
- Quick Start Guide (PDF): [Prinect Manager CR 55](#)

Before you start ...

Typographical Conventions

The following typographical conventions are used in this manual:

- References to other chapters and sections are [blue](#) (on the screen) and underlined.

Example: See ["Typographical Conventions", page 6](#).

- Quotes are used to indicate menus, folders, names of functions, hardware conditions, switch settings, system messages, etc.

Example: Set the switch to "off".

- Menus, functions and sub-functions are separated by ">".

Example: Select "File > Open...".

- Keys which you must hold down simultaneously are connected with a plus character.

Example: Press "Alt + A".

Important Information

Important information in the text is marked by symbols in the margin which are used as follows:



Warning: Contains information that must be taken into consideration to protect the user from injury.



Caution: Contains information that must be taken into consideration to prevent damage to hardware or software.



Note: Contains important general or supplementary information about a specific topic.



Prerequisite: Lists requirements which must be met before the subsequent steps can be performed.

What's Prinect Inspection Control 4?

Prinect Inspection Control 4 is an inline sheet inspection system for quality control of press sheets in the press. This allows misprints to be detected during production. We will refer to this inspection as "production inspection".

Production Inspection

During production inspection, Prinect Inspection Control 4 performs an ongoing comparison of printed sheets with a "digital reference sheet" created in the machine. The digital reference sheet is a sheet calculated from multiple sheets captured by the camera. The objective of production inspection is to check each sheet in order to prevent misprints during production.

PDF Inspection

PDF inspection compares a digital reference sheet of the inspection system with the imposed prepress reference. PDF inspection makes sure that the content of the print job matches that of the customer job.

The imposed sheet reference can be created either with a HEIDELBERG prepress system or with a third-party prepress system.

Inspection Level File

An "inspection level file" containing the inspection areas with respective inspection levels is useful for all of the inspections. (You can also define the inspection areas on the press - we recommend performing an inspection using the inspection level file from prepress).

The inspection level file is a PNG/ PDF file where all the areas of a press sheet that will be checked are defined. An inspection area is a grayscale area based on which the inspection system recognizes the level of sensitivity with which it will check an area.

An inspection area can have a gray value of 80%, 40%, 20%, 10% or 5%. 80% stands for the highest sensitivity = level 1. Areas with this level are checked extremely critically. 5% stands for the lowest sensitivity = level 5.

Inspection level	Grayscale value	C	M	Y	K	Mandatory name of the inspection level color
Level 1 (most critical level)	80%	0	0	0	80	InspL_1
Level 2	40%	0	0	0	40	InspL_2
Level 3	20%	0	0	0	20	InspL_3
Level 4	10%	0	0	0	10	InspL_4
Level 5 (least critical level)	5%	0	0	0	5	InspL_5

Inspection level table

Introduction

You can generate the inspection data for creating the inspection level file automatically and/or manually. Automatically generated inspection data is offset against any manually defined inspection data contained in the PDF.

Automatic generation of inspection data

An automatically generated inspection area covers the printed area of a surface. For the pages in the commercial workflow, the inspection area has the dimensions of the trimmed final format (TrimBox). For the 1ups in the packaging workflow, the area of the inspection area corresponds to the area within the die-cut contour (or the area within the trim path, which must lie on the contour). For the automatic creation of inspection data, you must enable the respective option in the ImposePDF sequence, see ["ImposePDF" sequence: Creation of the PNG inspection level file, page 11](#).

Manual generation of inspection data in the PDF



Note: Please note that inspection data from the PDF is only taken into account when creating the inspection level file if the ImposePDF sequence is parameterized correctly, see ["ImposePDF" sequence: Creation of the PNG inspection level file, page 11](#).

The manual generation of inspection levels expands your options if checking with an automatically generated inspection level is not sufficient. You can use a PDF editor (e.g. Coating Editor) to manually define different inspection areas for your PDF with inspection levels 1 to 5 (see [Inspection level table, page 7](#)) accurately according to your requirements. This means that several different areas with up to 5 different levels of accuracy can be inspected on your surface.

Manual inspection data creation is done in the PDF **before** the workflow using a PDF editor.

HEIDELBERG provides the necessary functions for PDF editing in the Prinect PDF Toolbox via the Coating Editor and Object Editor modules.

General procedure:

1. A color is defined for each required inspection level, which is assigned an obligatory color name with an equally obligatory gray value (levels 1 to 5, see [Inspection level table, page 7](#)).
2. The inspection areas are then defined in the PDF, to which the previously created colors ("InspL_1" to "InspL_5") can be assigned. These areas of the PDF are later checked on the press according to the assigned gray value (corresponds to the inspection level).

There are two ways for defining the inspection level colors in Coating Editor:

- When creating the coating layer, you parameterize the color correctly with all parameters.
- The color has already been correctly defined in the Global Color Table. When creating the coating layer, you can copy the desired color from the Global Color Table to Coating Editor.

There are three ways to define the areas to be inspected in the PDF using PDF Toolbox:

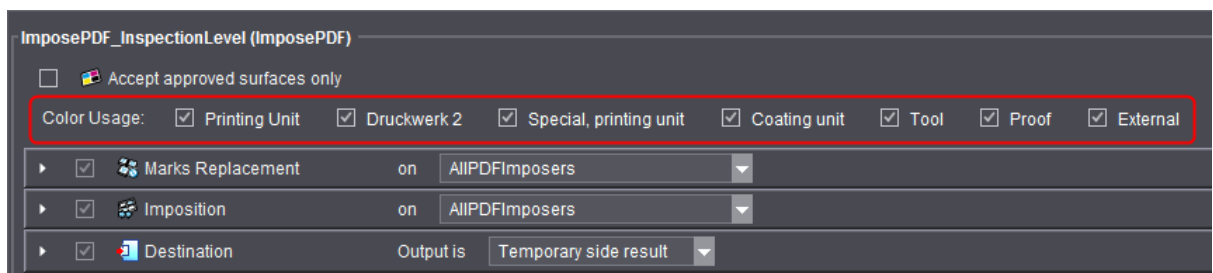
- In Coating Editor:
 - Draw a rectangle over the desired area to which the varnish is to be assigned.
 - Click the mouse button to select Individual objects to which the coating color is then assigned. These objects can be letters, text strings, small graphics, etc. It is important that the object can be selected individually.
- In Object Editor:
 - A closed path is defined around a desired area. The coating color is then assigned to the enclosed area.

Settings for HEIDELBERG Prepress/third-party prepress for experienced users

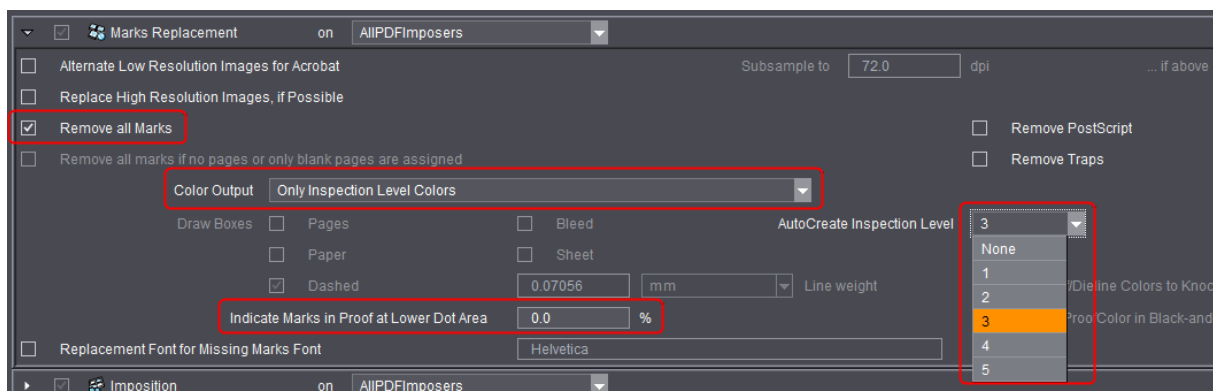
Settings for HEIDELBERG prepress system

"ImposePDF" sequence: Creation of the PNG inspection level file

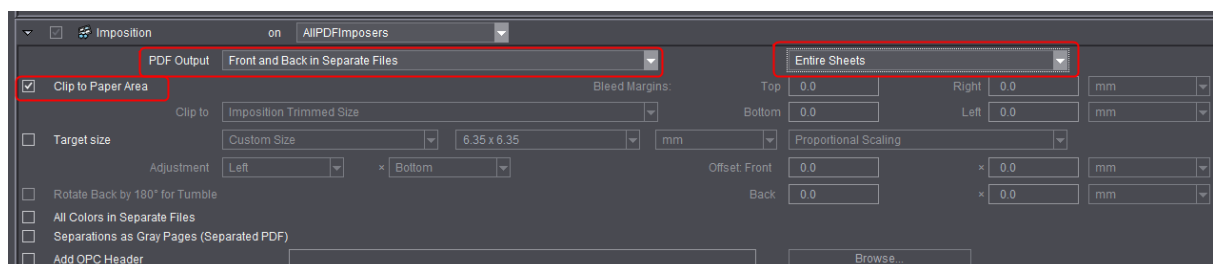
Make the settings according to your requirements as shown in the red-bordered areas of the images:



"Marks Replacement" section

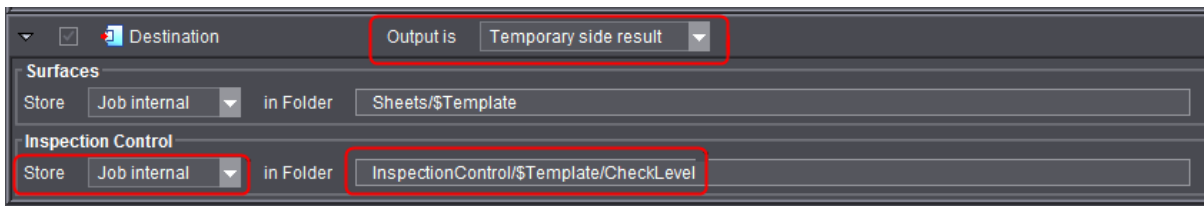


"Imposition" section



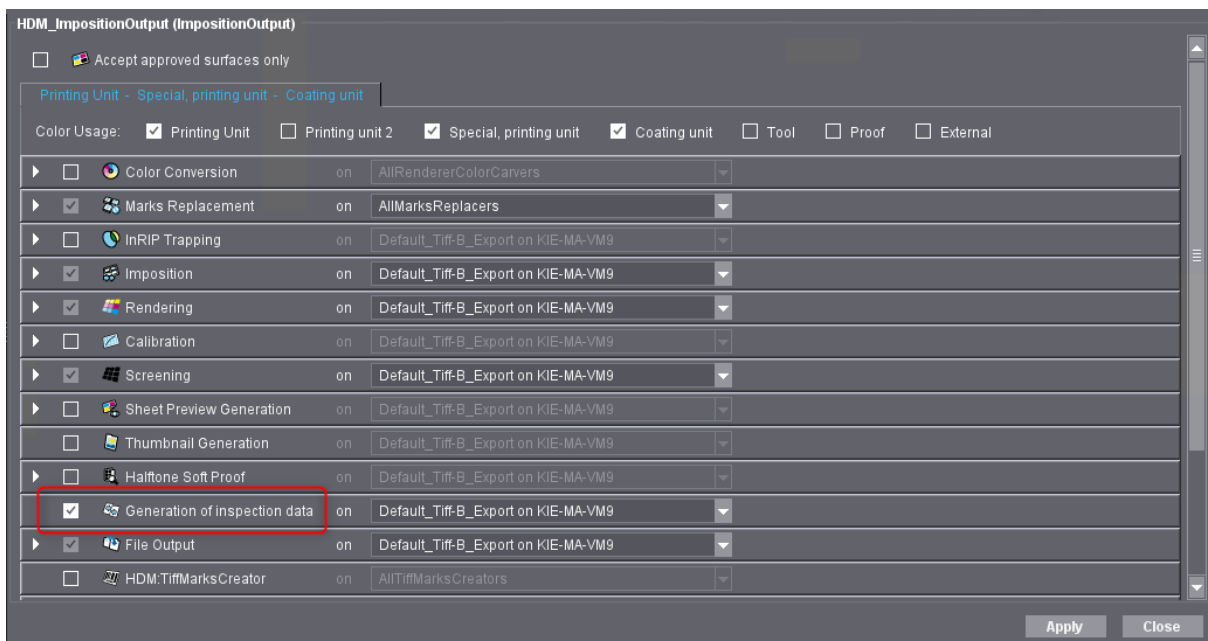
Settings for HEIDELBERG Prepress/third-party prepress for experienced users

"Target" section



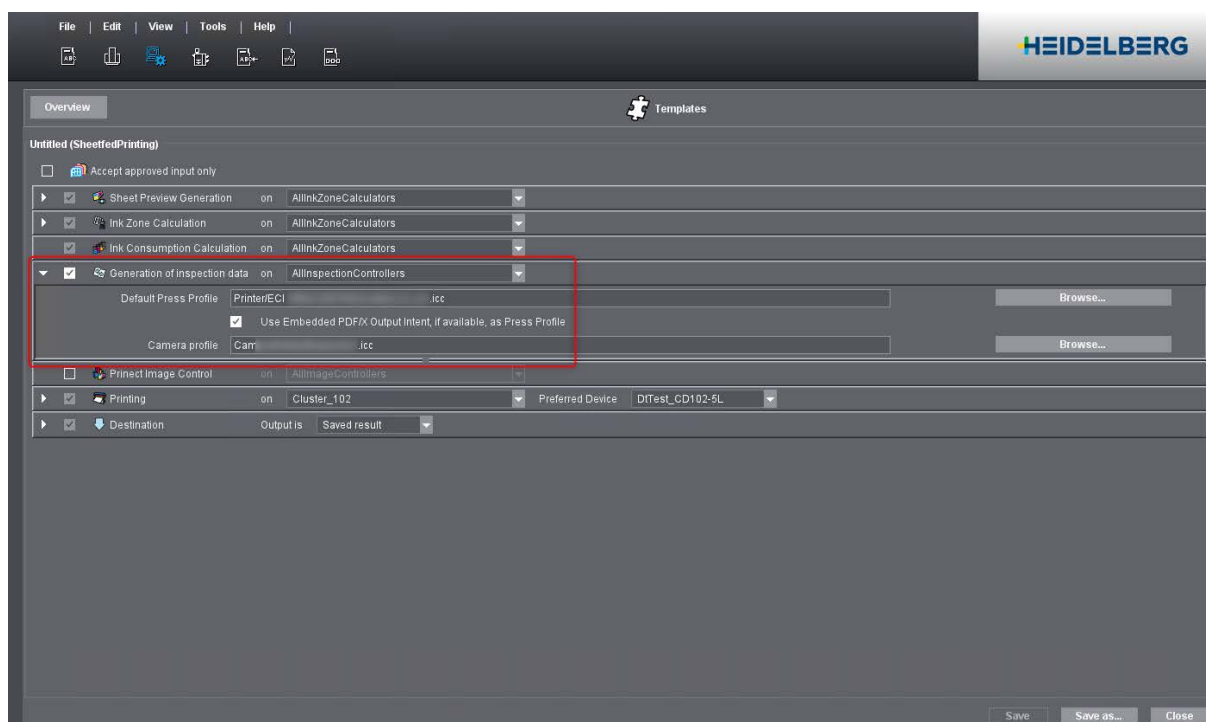
"ImpositionOutput sequence: Creation of the PNG reference file and the PNG inspection level file

Enable "Generation of inspection data".



"SheetfedPrinting" sequence: Color space mapping and data storage

Enable "Generation of inspection data" and select the default and camera profiles:



"Coating Editor": Define inspection levels (optional)

- Alternate color "CMYK"
- The color separations must meet the following conventions:

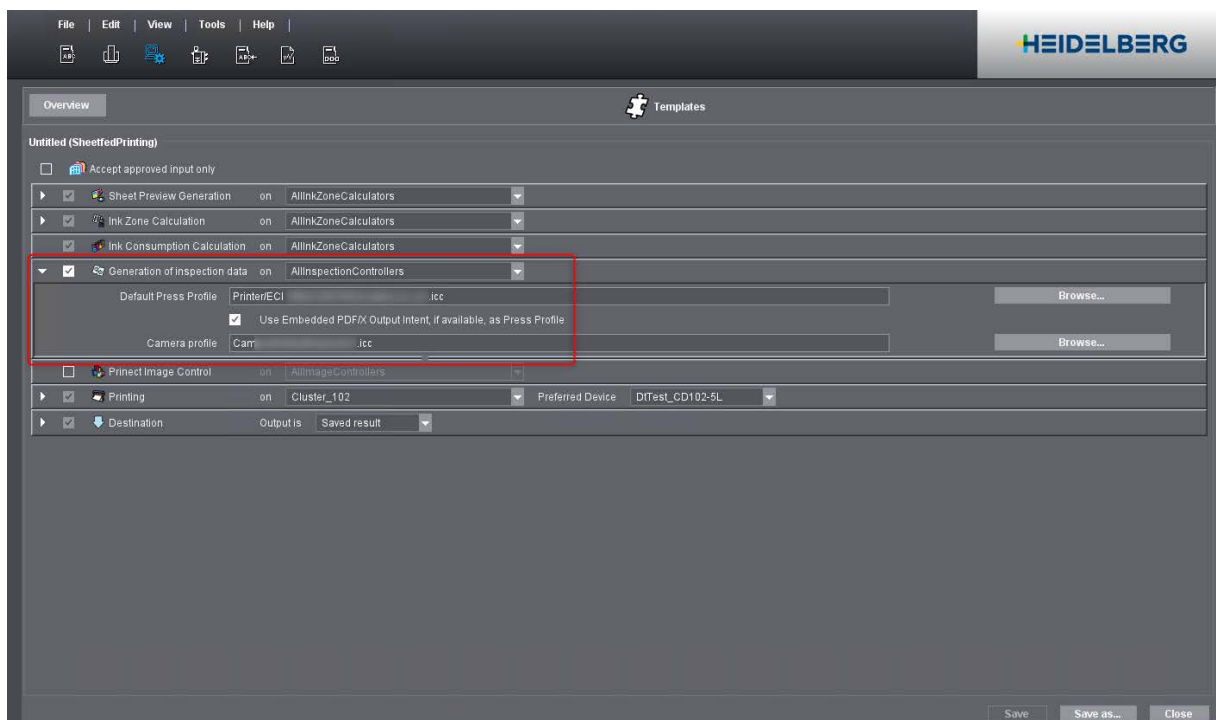
Inspection level	Name of the color separation	Grayscale
Level 1 (most critical level)	InspL_1	80°
Level 2	InspL_2	40%
Level 3	InspL_3	20°
Level 4	InspL_4	10°
Level 5 (least critical level)	InspL_5	5%

For more details, please refer to [Prepress Connection, Prinect Inspection Control 4](#) in chapter "Manual creation of inspection data in the PDF".

Settings for third-party prepress systems

"SheetfedPrinting" sequence: Color space mapping and data storage

Enable "Generation of inspection data" and select the default and camera profiles (the primary recommendation is to embed a PDF/X output intent in your reference PDF):



Inspection level file

File format

- PDF as a composite file

Color space

- CMYK + spot colors

Marks

- **All marks** must be **removed**

Structure

- Pixel PDF or vector PDF

Resolution

- 400 dpi (for bitmap PDF only)

Anti-aliasing

- Anti-aliasing must be **disabled**.

Inspection area colors

- **100% area coverage** of the **inspection areas**

Size

- The file must match the **size** of the **printed image**.

Color separation

- The PDF may have only **one** of the color separations.

Reference Image

File format

- PDF as a composite file

Structure

- Pixel PDF

Color space

- CMYK

Resolution

- 400 dpi

Settings for HEIDELBERG Prepress/third-party prepress for experienced users

Anti-aliasing

- Anti-aliasing must be **enabled**.

Size

- The file must match the **size** of the **printed image**.

Marks

- All **marks** to be printed must be **present**

Press Profile

- Recommendation: A PDF/X output intent should be embedded in the reference file and in this case the corresponding option should be enabled in the SheetfedPrinting sequence.
- If it is not possible to embed a PDF/X output intent in the reference file, the appropriate print profile must be set in the SheetfedPrinting sequence.

See [section "'SheetfedPrinting" sequence: Color space mapping and data storage", page 15](#).

File names

- PPF, inspection level file and reference image must be named in the same way (only the file extension is different)
- File extension for inspection level file: "<surface>_pruef_<level of sensitivity>.pdf"
- File extension for the reference image: "<surface>_ref.pdf"
- Start of file: Any; recommended: at the minimum job number

Example:

PPF file:

160511_FB001_F.ppf

Inspection level file:

160511_FB001_F_pruef_3.pdf

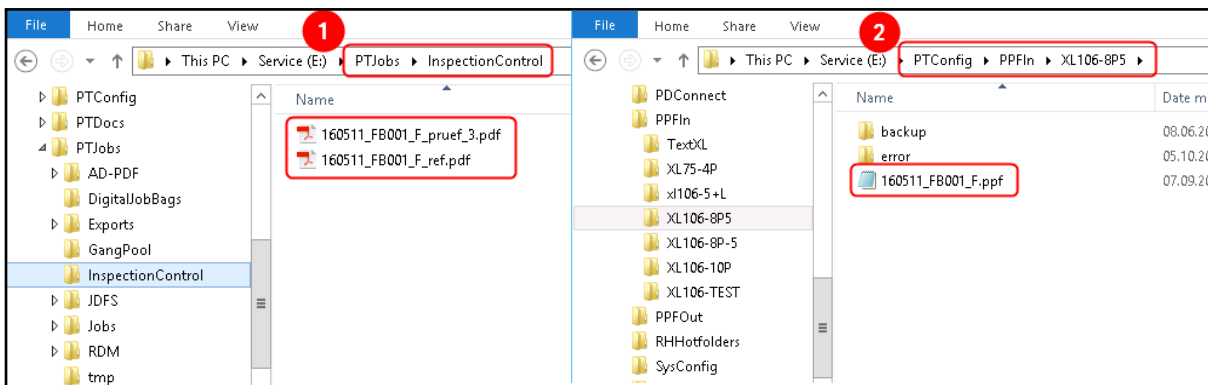
Reference image:

160511_FB001_F_ref.pdf

File Repository

In order for the inspection files to be assigned to a PPF, the files must be filed in a set order in a specific folder:

- Inspection level file and reference image must be filed before the PPF arrives.
- Inspection level file and reference image must be filed in the "...PTJobs\InspectionControl" hotfolder (1).
- The PPF file must be filed as usual in the machine-specific "...PTConfig\PPFIn" hotfolder (2).



Introduction

Both the Prinect Production workflow (with HEIDELBERG prepress) and the Prinect Pressroom workflow (third-party prepress) generate PNG reference sheets and PNG inspection level data for press-based comparison. The printed sheet is compared with the reference sheet (target) based on the inspection accuracy specified by the inspection level data. The corresponding report is sent to the customer portal and the evaluation is displayed using the "Insights" application if there are deviations.



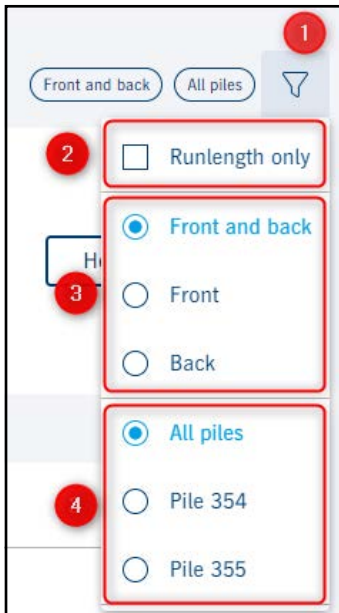
Note: HEIDELBERG requires the customer's explicit permission to upload the printed sheet with the associated reference press sheets. Please contact a HEIDELBERG Service employee to have sheet uploading enabled. Data can be displayed in the "Insights" app only after the service employee has successfully enabled uploading.

"Inspection" view in "Insights"

1. Log in to HEIDELBERG Customer Portal.
2. Go to the "All Apps" view and click the "Insights" app.
3. Go to the "Operations" view and click the desired operation.
4. Go to the "Inspection" view.
This tab is visible only if there are inspection data for a job.

"Inspection Report" area

Filters



[1] Click the Filter icon.

[2] "Runlength only": Enabling this option restricts the following calculations only to the production run but not to the waste.

[3]: You can specify if the entire report is to include calculations for "Front and back", only for the "Front" or only for the "Back".

[4] : If the printed sheets were stacked on multiple piles, you can apply a filter here.

"Sheets" and "Deviations" area

1. Row: Inspection for front and back

2. Row: Inspection only for the front

3. Row: Inspection only for the back

Use the filter to control the rows to be displayed, see ["Filters", page 20](#).

Sheets				Deviations		
1	2	3	4	5		6
Inspected:	Correct:	With deviations:	Uninspected:	Small:	Medium:	Large:
↔ 0	↔ 0	↔ 0	↔ 3093	↔ 0	↔ 0	↔ 0
↔ 1132	↔ 1095 (96.73%)	↔ 37 (3.27%)	↔ 1961	↔ 0	↔ 6	↔ 21
↔ 0	↔ 0	↔ 0	↔ 3093	↔ 0	↔ 0	↔ 0

Our example provides the following data:

Single-sided

Quantity: 3000 sheets

Waste sheets: 93 sheets

Columns:

- [1]: "Inspected": Number of inspected sheets. 1132 front sheets of a total of 3093 sheets were inspected.
- [2]: "Correct": Of the inspected sheets, this is the number of correct sheets. 1095 sheets of a total of 1132 inspected front sheets matched the reference sheet.
- [3]: "With deviations": Of the inspected sheets, this is the number of deviating sheets. 37 sheets of a total of 1132 inspected front sheets deviated from the reference sheet.
- [4]: "Uninspected": Number of sheets that were not inspected. 1961 sheets of 3093 front sheets were not inspected.

Deviations

There are "Small", "Medium" and "Large" defect classes. The displayed number refers to the number of different errors of the respective defect class. See also [""Error class" column", page 25](#).

In this example, there were 6 different errors of the medium deviation category [5] and 21 errors of the large deviation category [6].

This information does not specify the number of sheets on which the errors are located.

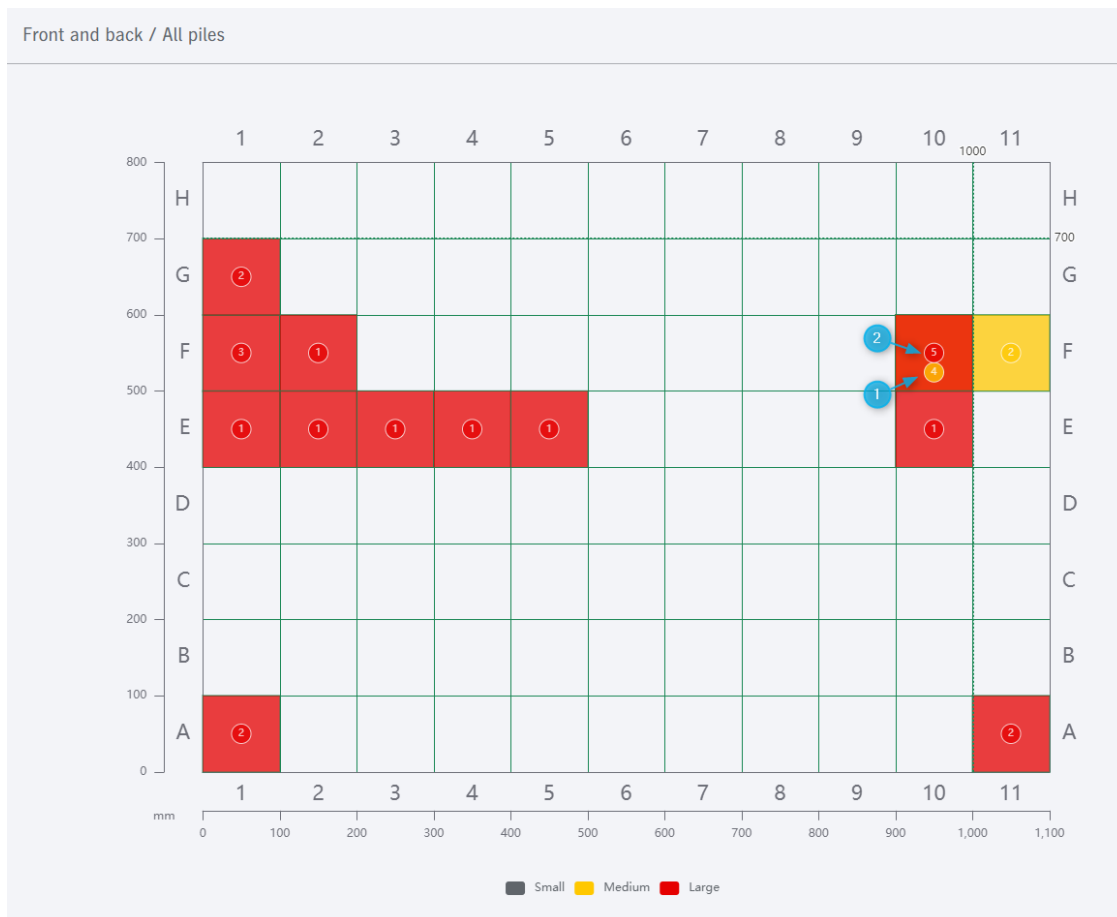
Error report in the Customer Portal (Insights)

Heatmap

Click "Heatmap" to open the heatmap:

Heatmap

Heatmap of our example:



The heatmap gives an overview of the sheet areas in which different errors are located and to which defect class they belong.

You will see an sheet view that has been divided into small areas with a number-letter code.

If you set the filter (see ["Filters", page 20](#)) to either "Front" or "Back", the respective thumbnail of the surface is displayed with the heatmap areas.

In this example (above image), the filter has been set to "Front and Back". In this case, a mono-chrome background displays instead of the thumbnail,

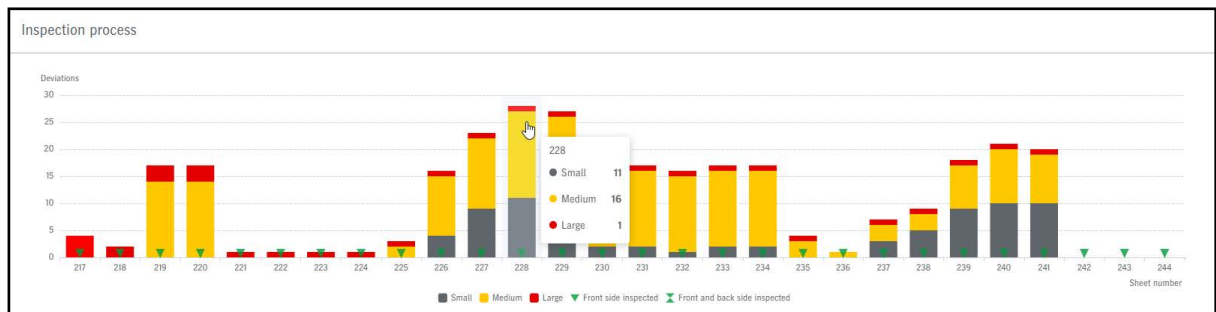
If a deviation was detected in an area, this area is highlighted with the color of the most serious error that occurred. The numbers in the red-colored area indicate how many different errors were detected in total for all inspected sheets in the area. The color of the number indicates the defect class "Small" (black), "Medium" (orange) and "Large" (red).

Error report in the Customer Portal (Insights)

In this example, area "10-F" contains 4 different errors of defect class "Medium" (number 4 in orange) [1] and 5 different errors of defect class "Large" (number 5 in red) [2].

The header "Heatmap..." changes according to the filter you selected in "Heatmap front and back", "Heatmap front" or "Heatmap back".

"Inspection process" area



You can scale up and scale down the view with the mouse wheel.

In the diagram, the bar height reflects the number of deviations for each individual sheet. Depending on the defect class, the bars have different colors: small deviations are dark gray, medium deviations are yellow, large deviations are red. This illustration shows the evaluation for front sheets (green triangle, tip facing down).

If you move the mouse over a bar, the sheet number is displayed and below it the exact numbers of deviations, in this example sheet 228 with 11 small and 16 medium deviations as well as one large deviation.

"Sheet Status" table

Columns requiring explanation:

"Inspection state front" and "Inspection state back" columns

These two columns separately display the error states of Inspection Control for front and back. There are the error states:

- "-": Unknown state.
- "N/a": Inspection Control state not available. This means that either there is no Inspection Control or it is not licensed or not switched on.
- "Active": Inspection Control was active, and the surface was inspected.
- "Inactive": Inspection Control was inactive, and the surface was not inspected.
- "Error": Inspection Control was active. Inspection was impossible due to an unknown error.
- "Learning (PDF)": This sheet side is intended for learning the printed reference image for inspecting all subsequent surfaces. In this case, the default reference image (the PDF target image, for example) is not used.
- "Learning": This surface is intended for learning the printed reference image for inspecting all subsequent sheets. In this case, the default reference image (the PDF target image, for example) is not used.

Table "Detected deviations"

To change the display in this table, click [1] and enable or disable the "Group by sheets" [2] option. The effect is described in the "Number of sheets" and "Details" columns.

Sheet class	First sheet counter	Last sheet counter	Sheet count	Small	Medium	Large	Position	Details
Good	217	217	1	0	0	4		
Good	218	218	1	0	0	2		
Good	219	220	2	0	14	3		
Good	221	224	4	0	0	1		

Columns requiring explanation:

"Error class" column

The "Error class" column is visible if you disable the "Group by sheets" [2] option (see before).

You define defect classes with the inspection system of the printing press. The criterion for a defect class is the size of the area of a defect on the press sheet. There are the defect classes "Small", "Medium" and "Large" for small, medium or large deviations in mm². The device assistant of the press defines for each error class which action the press is to perform in the event of an error in the respective category.

The number of items per defect class is identical to the information in ["Deviations", page 21](#).

"Number of sheets" column

- "Group by sheets" option [2] disabled:
"Number of sheets" indicates the number of sheets on which the error was found.
- "Group by sheets" option [2] enabled: "Number of sheets" indicates the number of sheets on which the same combination of errors was found.

Error report in the Customer Portal (Insights)

Columns "First sheet" / "Last sheet"

"First sheet" indicates the ID of the first sheet on which the error occurred.

"Last sheet" indicates the ID of the last sheet on which the error occurred.

"Details" column

- "Group by sheets" option [2] disabled:
If you click the arrow below "Details", the section of the printed sheet surface with the error is displayed as well as the corresponding section on the reference press sheet surface.
- "Group by sheets" option [2] enabled:
If you click the arrow below "Details", a list of all front and back surfaces in this group is displayed.
If you click the arrow below "Details" in this table, the section of the printed sheet surface with the error is displayed as well as the corresponding section on the reference press sheet surface.

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