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NELA Plate Automation

NELA PSC

Plate Sorting Commercial

- Fully automatic stacking of printing plates
- Sort by definable criteria
- Job-oriented providing of printing plates
- Solutions for Transport and Logistics

General Function

The NELA sorting software (NELA PSC Plate Sorting Commercial) provides a convenient solution for commercial printers to sort imaged offset plates into plate carts according to their own sorting scheme. All information required in order to find the correct plate cart for each plate must be included in the barcode. As soon as the barcode on a plate has been scanned, the software will assign the right cart, based on the barcode information.

If no barcode is available, or if the barcode could not be scanned, plates can still be sorted according to their size. Plates can thus be sorted according to barcode information (and if this fails according to size), or just according to size.

All information included in the barcode can be used for sorting. For example, plates can be sorted into different carts depending on which press they have been dedicated to, provided that this information is encoded in the barcode.

Depending on the overall design of the NELA system, more than one plate stack may be stacked into one plate cart. Another criterion in the barcode (e.g. the job number) then determines, which plates are placed onto which stack. As the result, all plates with one similar value in the barcode will be within the same stack in the cart, for example all plates for one job.

Full carts can be disconnected, emptied, and connected to the sorter again and are then ready to receive the next plates. The software always treats a newly connected cart as "empty".

Static Cart Assignment

For static cart assignment, several carts need to be positioned along the plate conveyor. Plates can be sorted according to size or according to barcode information.

Plates can be sorted according to any information that is included in the barcode such as, for example, press, face and reverse print, or others. The only requirement is that the barcode

includes the relevant information. The barcodes of the plates that have been placed into one stacker are always displayed on the user interface.

To guarantee a smooth operation, full carts should be disconnected and replaced with an empty cart, which will then be filled with the next plates. A newly connected cart is always considered "empty".





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Sorting by fixed cart assignment

The easiest way to sort plates is by fix assignment of carts to printing presses, i.e. each cart is paired with a specific press. Printing plates are identified by size or by barcode contents so that the system knows which press each plate is dedicated to and can place it into the corresponding cart.

■ Example for sorting profile for static cart assignment:

- Cart 1: Printing press 1
- Cart 2: Printing press 2
- Cart 3: Printing press 3
- Cart 4: Printing press 4

A maximum number of plates is pre-defined for each cart. When the limit is reached, the next plate will wait on the roller conveyor and an optical or acoustical signal will announce that there is a problem. Stacking will continue as soon as the full cart has been emptied and re-connected to the system.

Creation of a cart group

When a larger number of plates is needed for a print job, several plate carts can be pooled in a cart group. The sorting software then treats the carts belonging to one group as a unity that can have its own specific sorting criteria. It is possible, for example, to determine that plates are automatically stacked into the next cart of that group if one cart is full.

The assignment of a cart to a group is always dependant on the plate format. All carts within

NELA Plate Automation create efficient processes that are geared to support production on press.

a group must be registered for the plate size of the corresponding print job.

There are two possible sorting modes within a cart group:

Mode 1: Charging of all carts with a pre-defined number of plates

In this mode, the carts of a cart group are charged one after another with a pre-defined number of plates. When the first cart is full, the next plate is automatically stacked into the next one until all carts are full. If, while stacking is going on, a cart is emptied and then re-attached it will automatically be filled within the same sorting sequence.

■ Example of a sorting profile:

- Cart 1: Group 1
- Cart 2: Group 1
- Cart 3: Printing press 3
- Cart 4: Printing press 4

Carts 1 and 2 are charged one after the other with, for example, 48 plates. As soon as both carts are full, the system automatically stops and waits for an empty cart to be attached. If cart 1 is emptied while cart 2 is charged, then cart 1 is automatically charged next. In the meantime, plates for carts 3 and/or 4 can be imaged.

Mode 2: Distributing the plates according to certain criteria within a cart group (Job-related cart assignment)

With job-related cart assignment, the software independently assures that a cart is reserved for each new job, and that all plates belonging to a job are placed into the correct cart. Each cart then holds the complete plate set for one job. This means, however, that the number of jobs imaged at the same time should not exceed the number of stacking positions (carts) that are available in the system.

■ Example 1:

- Cart 1: Job 1
- Cart 2: Job 2
- Cart 3: Job 3
- Cart 4: Job 4

■ Example 2:

- Cart group 1 (comprising carts 1 to 3):
- Cart 1: Printing job 1, Edition 1, Edition 4, ...
- Cart 2: Printing job 1, Edition 2, Edition 5, ...
- Cart 3: Printing job 1, Edition 3, Edition 6, ...

- Cart 4: Printing job 2

The carts are assigned fully automatic. As soon as one cart contains a complete plate set for one job, this cart may be pulled away and replaced with an empty cart. The next new job in line will then automatically be sorted into the new cart.

If orders are imaged in a mixed sequence, the software remembers the corresponding plate carts, as long as the number of simultaneously imaged jobs does not exceed the number of available carts. In the example shown above,

4 jobs can be imaged at the same time.

If, in example 1, a fifth job is imaged at the same time, these plates will be automatically placed into cart one. A delayed plate for job 1 would then be placed into cart 2, since the information that job 1 is in cart 1, has been overwritten.

The sorting system can only correctly process these plates correctly when "express recognition" is activated and a cart has been reserved just for these plates. All plates with this characteristic are then placed into the corresponding cart. The total number of jobs that can be imaged simultaneously is then reduced.

This sorting sequence will work as long as the individual plates for one job are imaged directly one after the other. When jobs are imaged in a mixed sequence, then the system recognizes a new job number for each plate and places it

into the next stacker position. To avoid this, the NELA PSCsmart software package is needed. The system then remembers the job number and places the plates of one job into the pre-defined cart.

Possible Options

NELA PSCsmart

The function of the sorting software can be extended as follows with the NELA PSCsmart package:

Verification of completeness

If the total number of plates for one job can be included in the barcode, then the software can deliver the information whether the job is complete and in the cart and – in case it is not complete – how many plates are still expected in the cart.

Display of current cart status

To better find individual plates, the NELA computer screen shows a table with the current cart status. The highlighted bar in the table shows the next sorter bin to be allocated.

Cascaded Stacking (*)

If the stacker bins possess a second stacking position, plates can also be stacked in a 'cascaded' or staggered manner. In this mode, the plates are placed slightly offset on top of each other so that they form separate stacks. For this function it is required that the relevant information is included in the barcode.

This function can be used to

- Stack several jobs in one stacker
- Identify different colors or language versions belonging to one job.

Examples for sorting profiles with dynamic sorting and cascaded stacking (note that the sorting profiles cannot be created for individual carts but only for the entire stacker system):

■ Example 1:

- Job 1, CMYK front
- Job 1, CMYK back

■ Example 2:

- Job 2, CMY
- Job 2, K German
- Job 2, K English
- Job 2, K French

Visualization of stacker status (*)

By connection of a second screen directly above the sorter station, the table with the current sorter status can be displayed directly where the plates are collected.

This option is only available with NELA PSCsmart

(*) This option does require additional hardware on the conveyor system.



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