



MPS Roll Handling

The automated roll logistics and tracking system

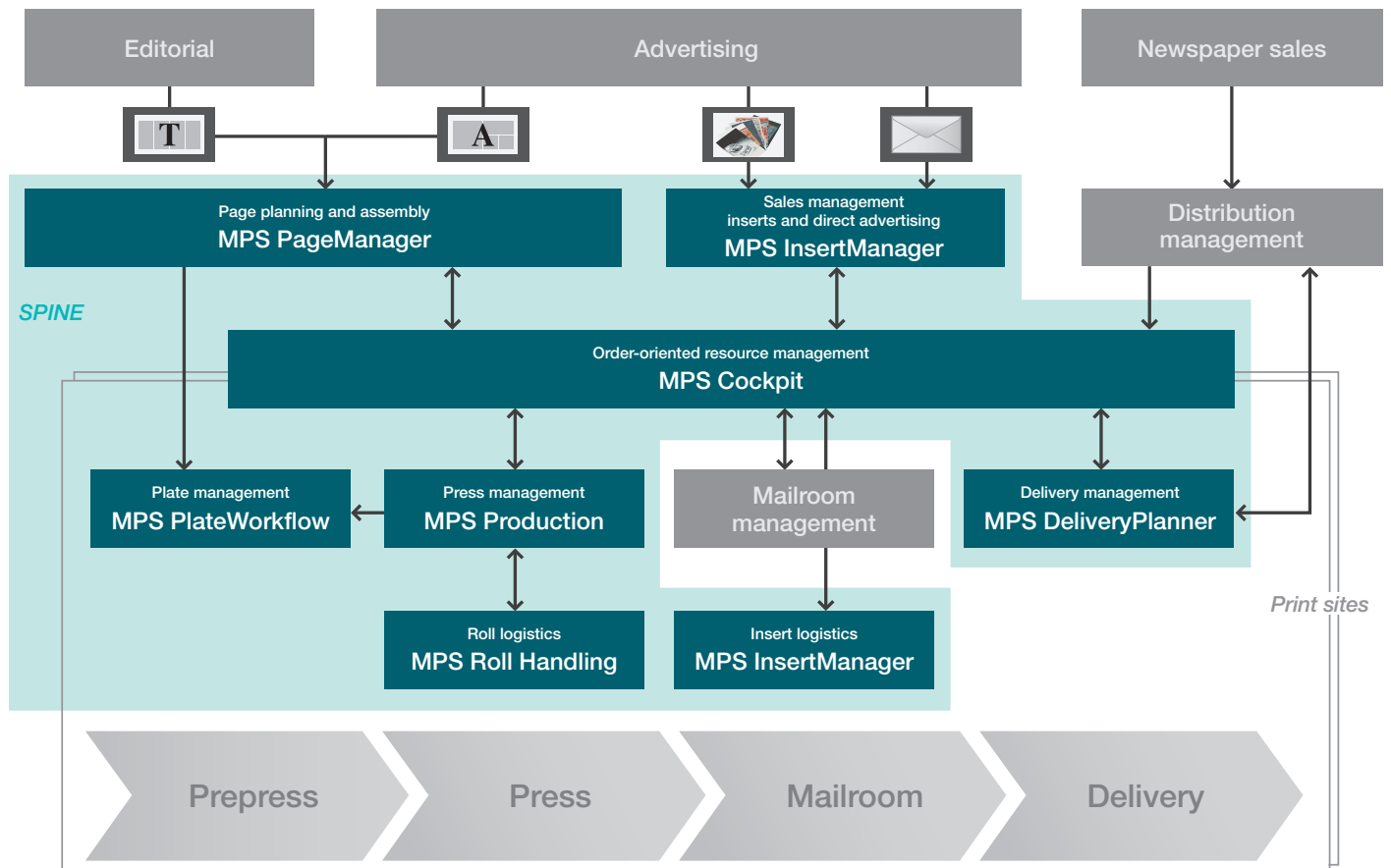
Whether you are looking for a fully automated roll logistics system or simply want to track the newsprint rolls at your site, MPS Roll Handling provides the solution you need.

The Roll Logistics module of MPS Roll Handling is a complete roll logistic system that automates all movement of the rolls from their identification at the goods-in station to their use at the reelstands and on to the disposal of the core.

The Roll Track module of MPS Roll Handling is a complete tracking and analysis system that generates detailed statistics about, for example, the paper consumption per production, the rolls used per reelstand, and the web breaks per paper manufacturer.

The Roll Logistic Viewer is a simple solution which displays the rolls that are required at the reelstands and should be obtained from the intermediate storage. MPS Roll Handling can work together with third-party production planning systems, but when customer benefits are even greater when it is fully integrated into the ABB workflow.

Overview of the fully integrated ABB workflow



The roll handling process

The general roll handling process can vary in detail from site to site, but the basic process is as described below. The handling of error conditions, e.g. the rejection of a roll for quality reasons, is not shown in order to maintain clarity.

Paper rolls are delivered, normally by lorry, to the goods in department, where they are unloaded and identified via a bar code or RFID tag. If the identity cannot be read for any reason, the code can be recorded manually.

In the event that the roll is urgently required for a production, it can be transferred directly to the preparation station. In the normal case, however, it will be transferred to the main storage, which could be a high-rack store but can also take other forms. These and all subsequent movements of the rolls are made by either a fork-lift truck or, in the fully automated case, via automatic guided vehicle (AGV) or equivalent.

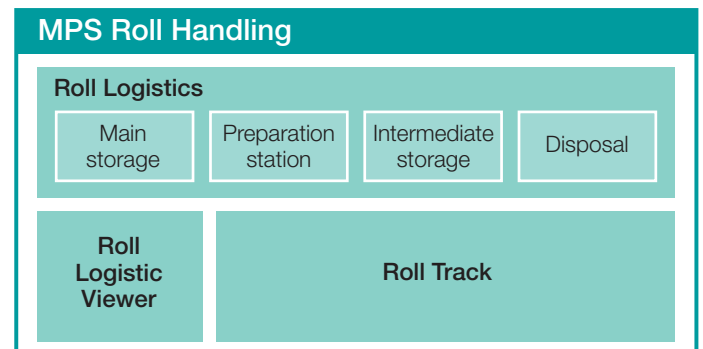
At the preparation station the rolls are unwrapped and prepared for splicing. They are then transferred to the intermediate storage.

Prepared rolls are transferred from the intermediate storage to the reelstands as required.

When the roll has been used up on the reelstand, the core is transferred to the waste disposal point. If the roll has been only partially used and has to be removed from the reelstand to make place for a different roll, the half-used roll is transferred back to the preparation station and then to the intermediate storage for subsequent reuse. Alternatively it can be transferred all the way back to the main storage.

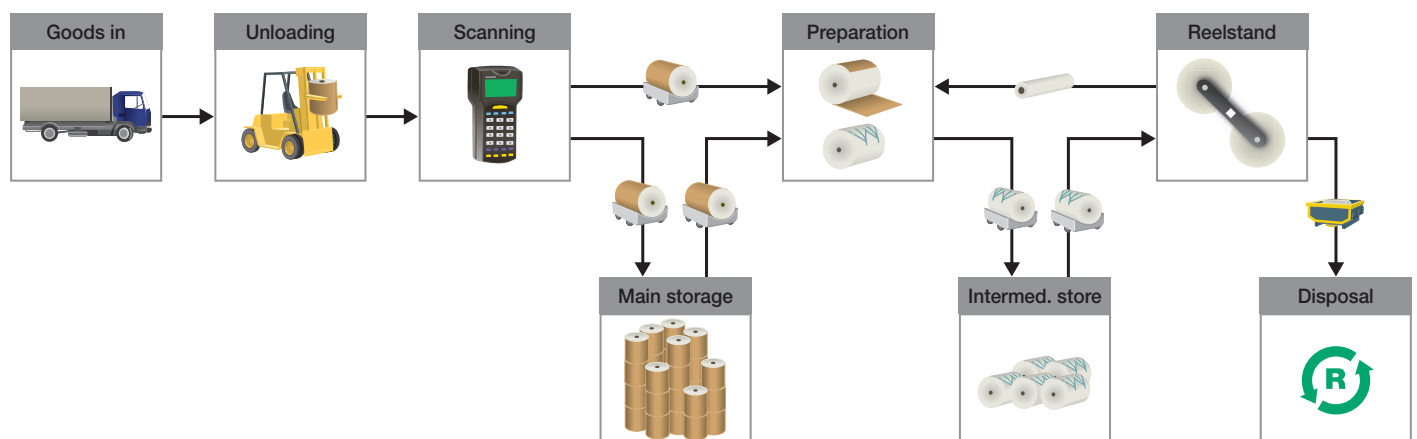
MPS Roll Handling, configured to meet your needs

The modular structure of MPS Roll Handling means that the customer can simply select the functions required. As well as the three main modules (Roll Logistics, Roll Track and the Roll Logistic Viewer) there is a set of submodules within Roll Logistics corresponding to the various process steps. It is therefore possible to configure the Roll Logistics system to automate some process steps but not others. This is particularly useful to the customers when they already own various roll handling systems that do not permit full automation, e.g. a manually operated main storage.



Graphical representation of the modules of MPS Roll Handling

General roll handling process



Roll Logistics

The Roll Logistics module of MPS Roll Handling is a complete roll logistic system that automates all movements of the rolls from their identification at the goods in station to their use at the reelstands and on to the disposal of the core.

The rolls are identified on delivery by means of a bar code or RFID tag. The addition of papiNet data or equivalent to the database is available in the Roll Track module.

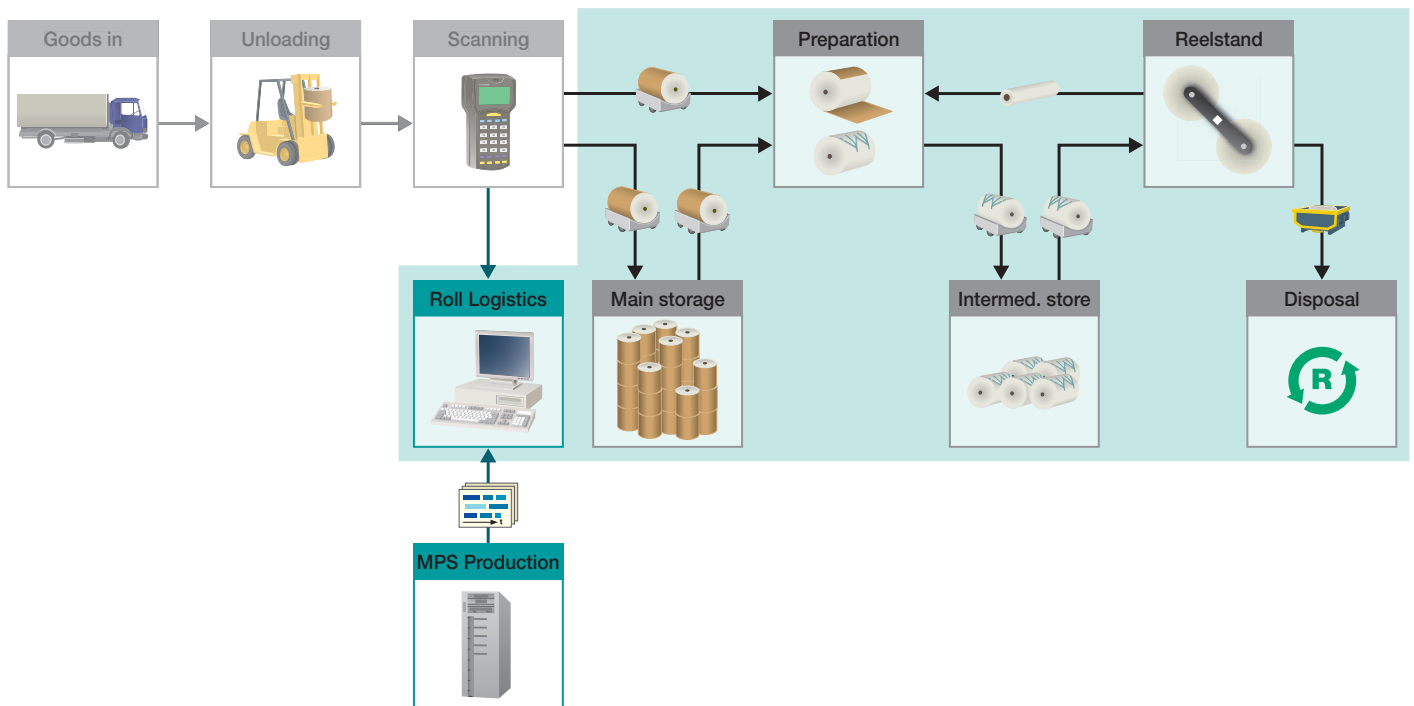
The Roll Logistics module of MPS Roll Handling uses the production planning data from the press management system, typically MPS Production, to identify the needs for paper in the coming days and ensures that the intermediate storage is kept sufficiently stocked. Rolls required for the intermediate storage are transferred automatically from the main storage.

All movements are carried out by AGVs (or equivalent) based on the orders from the Roll Logistics module. As a result, the Roll Logistics module knows not only which rolls of which type are in stock but also their exact location. It therefore also knows exactly which roll is transferred to which reelstand. It also knows the exact details of any partially used roll transferred back to storage without the need for any further identification.

At some sites the main storage is not included in MPS Roll Handling. In this case the rolls are identified for the first time by a scanner at the preparation station.

The disposal of roll cores can also be handled by the Roll Logistics module. This function is an option.

Functions and responsibilities of the complete Roll Logistics module of MPS Roll Handling marked by the light green field



User interface

The user interface of the Roll Logistics module is always divided into three main areas:

– Layout area

The upper part of the screen shows a graphical representation of the roll storage (intermediate storage and, when required, the main storage). The different newsprint roll types are represented by color-coded rectangles and the status by various symbols. This part can vary from site to site depending on the layout of the storage areas.

– Stock overview

The lower left-hand part of the screen shows an overview of the stock levels of each type of roll. This uses the same color-coding as on the layout part of the screen.

– Dialog area

The lower right-hand part of the screen is used for interaction with the user. It shows a list of possible commands as well as the latest event messages from the system.

Roll Logistic Viewer

The Roll Logistic Viewer is a low-cost option for plants where the scale of the operation would not justify a fully automated solution. It consists of a monitor that displays the rolls that are required at the reelstands and should be obtained from the intermediate storage.

The Roll Logistic Viewer can, however, be supplied together with any other module or modules of MPS Roll Handling.



User interface of the Roll Logistics module of MPS Roll Handling

The functions at a glance

Fully automated

Easy operation

Clear overview of stock requirements

Selection of modules according to customer needs

Your benefits

The right paper at the right place at the right time; avoidance of errors, lower costs

Low training costs

Simplified purchasing, optimization of stock levels

Reduced investment costs

Roll Track

The Roll Track module of MPS Roll Handling is a complete tracking system that provides information on which rolls were used for which production.

This data is used to provide a wide range of detailed statistics including:

- paper consumption per edition
- rolls used per production run
- number of web breaks per 1000 km per manufacturer, grammage and cause

The rolls are identified on delivery via bar code or RFID tag. If papiNet data are available, additional information about each roll (e.g. exact width in millimeters and the paper quality) is obtained from this source, otherwise it has to be entered manually.

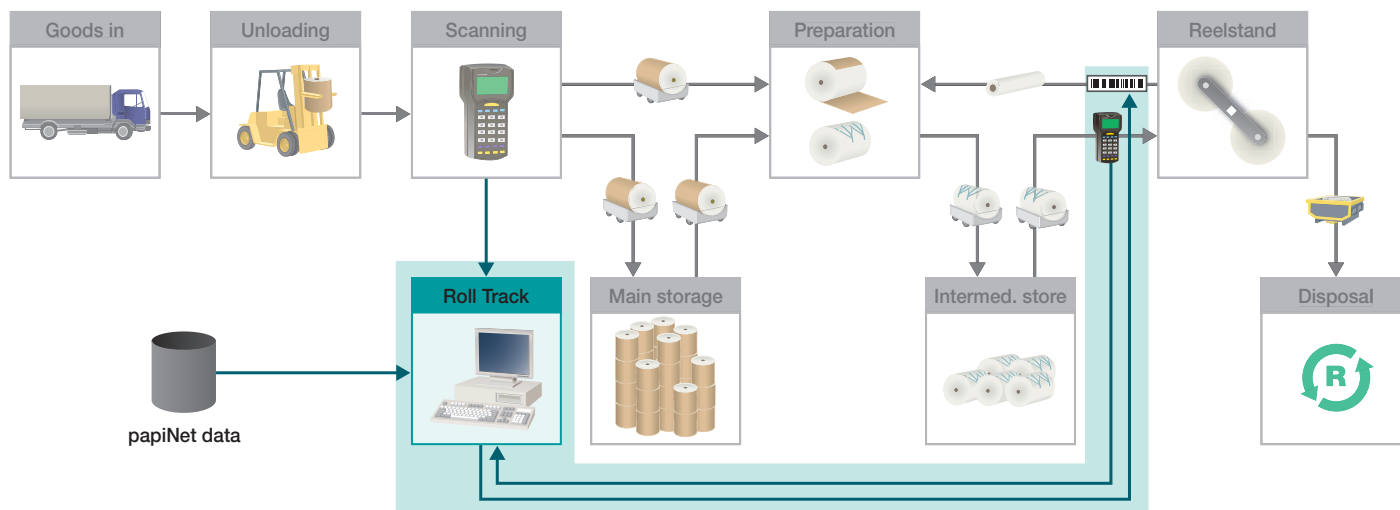
Roll Track needs to know which roll is mounted onto which reelstand. It is therefore necessary that the roll is identified at this stage, either via the RFID tag or by scanning a bar code. An additional scanner is therefore required at each reelstand

unless the Roll Logistics module is also in use (see “Roll Track and Roll Logistics” opposite).

RFID tags have the advantage that any partially used rolls that are removed from the reelstand and returned to storage can be identified easily at any time. If bar codes are being used, then either the old bar code has to be reused or a new label has to be printed to identify the partially used roll before it is transferred back to storage.

The combination of the roll identification and the production data that is obtained from the press management system (normally MPS Production) enables Roll Track to compile statistics of the rolls used per reelstand, the rolls used per production, the number of web breaks per roll per supplier and so on. The production manager therefore has detailed evidence about the quality of the rolls that have been used and can present this evidence to the paper manufacturer if required.

Functions and responsibilities of Roll Track marked by the light green field



Roll Track and Roll Logistics

The key difference between Roll Track and the Roll Logistics module of MPS Roll Handling is that Roll Track does not manage the storage areas and does not initiate the transporting of rolls within the plant. However, it knows which rolls are in stock and which ones are on which reelstands. As an option, additional scanner stations can be built into the roll transport routes so that Roll Track can maintain an exact inventory of both the main storage and the intermediate storage.

If Roll Track is in use in combination with the Roll Logistics module, then the identification of the roll being delivered to the reelstand is obtained from the Roll Logistics module without the need for the additional scanner mentioned above. Similarly, no bar code printer would be necessary for the partially used rolls as the Roll Logistics module always knows which roll is where.

Reelstand	Unfinished Time	End	Barcode	Type	Paper Manufacturer	Gr/mt	Used (m)	Used (kg)	Start (mm)	End (mm)	Paiste at	Issue
R12	02:41:15		4505115-1870-1-2-09	IFRA	Norske 46	45	21154	2295	1386	569		S0IR
R13	01:59:35		4505103-1880-1-2-09	IFRA	Stora	45	3683	464	519	139		S0IR
R13	02:41:15		4505103-1880-1-2-09	IFRA	Stora	45	17628	2273	1248	542	01:59:35	S0IR
R14	02:41:15		23850376-1603-1-2-46	IFRA	Norske 46	45	21153	1620	1320	301		S0IR
R21	02:41:15		4505183-1884-1-2-09	IFRA	Stora	45	18954	2409	1162	139		S0IR
R21	02:41:15		4505184-1884-1-2-09	IFRA	Stora	45	2967	333	1225	1145	02:31:27	S0IR
R22	02:26:08		4505294-1870-1-2-09	IFRA	Stora	45	30833	2762	1077	143		S0IR
R22	02:41:15		44961842-1850-1-2-09	IFRA	Stora	45	5043	654	1242	1091	02:26:08	S0IR
R12	02:54:58		24854314-2021-1-2-46	IFRA	Norske 46	45	4481	484	588	142		S0IR
R12	03:16:19		34480733-2210-1-2-18	IFRA	Palm	45	2703	292	1462	1385	02:54:58	S0IR
R13	02:52:52		4505103-1880-1-2-09	IFRA	Stora	45	2968	313	145	141		S0IR
R13	03:16:19		45054113-1886-1-2-09	IFRA	Stora	45	3223	418	1227	1126	02:53:52	S0IR
R14	02:47:29		23850376-1603-1-2-46	IFRA	Norske 46	45	971	84	289	142		S0IR
R14	03:16:19		23850392-1657-1-2-46	IFRA	Norske 46	45	6226	538	1929	1338	02:47:29	S0IR
R21	03:16:19		45052942-1684-1-2-09	IFRA	Stora	45	7215	905	1144	989		S0IR
R22	03:16:20		44961842-1850-1-2-09	IFRA	Stora	45	7215	905	1090	921		S0IR
R21	01:19:33		4505161-1870-1-2-09	IFRA	Stora	45	2981	430	570	145		S0IR
R12	01:49:56		24854314-2021-1-2-46	IFRA	Norske 46	45	4320	467	1498	1387	01:19:33	S0IR

Statistics on rolls used in a given period



Comparison of web breaks of different causes per paper manufacturer

Date	Issue	Print Product	Press	Reelstand	Paiste at	Barcode	Paper Manufacturer	Gr/mt	Pes.	Length (m)	Used (kg)	Paper Breaks
Ma,16.01.2006	S0IR	BRUX	F1	R12		24854314-2021-1-2-46	Norske 46 45 S	45	ABCE	21154	2295	
Production Run: 1 R12												
Ma,16.01.2006	S0IR	BRUX	F1	R13		4505103-1880-1-2-09	Stora 45 S	45	ABCE	3683	464	
Ma,16.01.2006	S0IR	BRUX	R13			4505103-1880-1-2-09	Stora 45 S	45	ABCE	17338	2273	
Production Run: 2 R13												
Ma,16.01.2006	S0IR	BRUX	F1	R14		23850376-1603-1-2-46	Norske 46 45 S	45	CDEF	21153	1620	
Production Run: 1 R14												
Ma,16.01.2006	S0IR	BRUX	F1	R21		4505183-1884-1-2-09	Stora 45 S	45	ABCE	18954	2409	
Ma,16.01.2006	S0IR	BRUX	R21			4505183-1884-1-2-09	Stora 45 S	45	ABCE	2967	333	
Production Run: 2 R21												
Ma,16.01.2006	S0IR	BRUX	F1	R22		4505294-1870-1-2-09	Stora 45 S	45	ABCE	16030	2082	
Ma,16.01.2006	S0IR	BRUX	R22			44961842-1850-1-2-09	Stora 45 S	45	ABCE	5043	654	
Production Run: 2 R22												
Print Product: BRUX										8	105656	12322
Ma,16.01.2006	S0IR	BRWA	F1	R12		24854314-2021-1-2-46	Norske 46 45 S	45	ABCE	4481	484	
Ma,16.01.2006	S0IR	BRWA	R12			34480733-2210-1-2-18	Palm 45 S	45	ABCE	2703	292	
Production Run: 1 R12												
Ma,16.01.2006	S0IR	BRWA	F1	R13		4505103-1880-1-2-09	Stora 45 S	45	ABCE	3223	418	
Ma,16.01.2006	S0IR	BRWA	R13			45054113-1886-1-2-09	Stora 45 S	45	ABCE	3787	476	
Production Run: 2 R13												
Ma,16.01.2006	S0IR	BRWA	F1	R14		23850376-1603-1-2-46	Norske 46 45 S	45	CDEF	971	84	
Ma,16.01.2006	S0IR	BRWA	R14			23850392-1657-1-2-46	Norske 46 45 S	45	CDEF	6226	538	
Production Run: 2 R14												

Listing of rolls used per production

The functions at a glance

- Exact records of the paper used per product
- Detailed records of the web breaks for each paper manufacturer
- Extensive data on paper consumption and quality without the need for complete automation of roll supply
- Provides accurate inventory information
- Works with barcodes or RFID tags

Your benefits

- Clear and reliable basis for invoicing
- Clear evidence for claiming against suppliers resulting in fast return on investment for Roll Track
- Economical solution, low investment cost
- Basis for just-in-time ordering and optimized stock levels, reduced inventory costs
- Flexible system with choice of technology

Comparison of the modules of MPS Roll Handling

The following table summarizes the functions of and the difference between the modules.

Function	Roll Logistic Viewer	Roll Track	Roll Logistics ¹
Display of roll requirements at reelstands	✓	–	–
Use of papiNet data to extend roll data	–	✓	–
Scanners and bar code printers required at reelstands	–	✓	–
Generation of statistics, analysis of web breaks	–	✓	–
Identity of rolls in stock known	–	✓	✓
Full inventory of main storage and intermediate storage	–	– ²	✓
Exact location of every roll known	–	–	✓
Management of main storage	–	–	✓
Management of intermediate storage	–	–	✓
Coordination of AGVs	–	–	✓
Movement of rolls based on press production planning	–	–	✓

Notes:

¹) Applies to complete version. If some subprocesses are left as manual, then some positions may differ.

²) Available as an option with additional scanners.

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