

RAMSES CCL

Level 2 Automation System for Color Coating Lines

A Completely New Approach

Since 1988, ROSIN have been designing and delivering

- Level 2 Automation Systems for Meltshops
- Laboratory Information Management Systems
- Level 2 Automation Systems for Color Coating Lines

Our automation systems are

- hardware-independent,
- independent of the operating system,
- work with almost any database and
- can communicate with any peripherals using any protocol (TCP/IP, UDP, XML, CSV, JDBC, CORBA proprietary formats, ...)

A RAMSES based automation will fit into any existing environment.

- **RAMSES CCL** allows to follow and supervise the production in a **Color Coating Line**, from order handling to packaged and released coils.
- **RAMSES CCL** is easy to use, the user interface can be entirely defined by the customer.
- In the following slides, we give an overview of the functionalities which **RAMSES CCL** offers.

Basic Data

Parameters

Quality Codes

Delays

Defects

Materials

Paints

Recipes

Stations

Users

Crews

Crew Times

Basic Data Screens

The basic data screens permit the maintenance of the database.

The Parameters Screen permits the experienced administrator to set the parameters for RAMSES:

- Colours
- Refresh intervals
- Default directories

The user can enter and maintain

- quality codes
- delays
- defects
- materials
- paints

Through the Screens for Recipes and Stations, the complete production environment is mapped. All stations and their position in the factory are maintained here, as well as all substations and the various production parameters that have to be defined for these substations.

RAMSES allows complete user management with various levels of authorisation.

Production

OrderHandling	F1
CCL Overview	
Job Definition	F3
Production Planning	F4
CCL 1	F5
CCL 2	F6

Production Screens

The production screens permit following and controlling the production process.

- The Order Handling Screen allows matching orders with the coils in the coil yard.
- The CCL Overview is a graphic overview that shows in real-time the movement of the coils through the factory.
- Through the screens for Production Planning and Job Definition, the production can be planned, output coils and the treatment recipes can be defined.
- The CCL Screens are used by the operators and inspectors during the treatment of coils (see slides 23 - 28)

Reporting

Order Report

Coil Report

Coil Summary

Delay Summary

Defects Summary

Resource Consumption Summary

Maintain Delays

Maintain Defects

Maintain Resource Consumptions

Maintain Archives

Send SAP Files

Reporting Screens

The reporting screens permit the maintenance of production data and the creation (automatic and manual) of various report types.

- The Order Report shows a summary of a pending or produced order.
- Coil Reports give detailed information about all events, delays, defects and resource consumption pertaining to the production of a single coil.
- The system offers various Summary Reports that can be drawn for a given period (hours, days, weeks, months) or for a given shift.
- All Delays, Defects and Resource Consumptions can be maintained.
- Additionally, the system permits to manually generate all production reports over a given period to be stored in the Long-term Archive and to send Production Summaries to SAP.

Help

- Show Sql Selects
- Show Sql Modifies
- Show Status Messages
- Show Debug Messages
- Show Tool Tips
- Switch Language

Help Screens

The help screens facilitate the use of the system, error detection and switching to another display language.

For the present demonstration, the display languages English and Italian are offered.

In the following presentation, we will be observing the handling of three orders in the Color Coating Line 1 of the (fictitious) company SteelCorp.

- Order No. 10110000:
 - 7 coils for Miele, already completely produced, waiting for shipment
- Order No. 10100000:
 - 7 coils for Bosch, ordered and planned for the production “today”.
- Order No. 10110001:
 - 22 coils for Bosch, just ordered, not yet planned for production today

- We assume that orders are coming in from a different department, but that the production manager has to match the available resources (parent coils, paints) to the order.
- **RAMSES** proposes the coils that match the order criteria (weight range, material, width, thickness) to the manager.
- For each parent coil, the system also proposes paints that match the order criteria (paint type, varnish, purpose and color).
- To terminate the order process, the manager then selects the paint that matches the order.
- The system automatically sends a message to the coil yard, requesting the needed parent coils.

Order Handling

File Edit Basic Data Production Reporting Administration Help

Steel Corp. OrderHandling CCL Overview Production Planning Job Definition CCL1 CCL2

Find Clear List Delete Save Prev Next USER: ramses 20.11.2010 16:15:32

Order Number: 10100001 Lot: 1

Customer: Bosch

Id Mat.: DC03 Purpose: HA

Color Type: SP RAL: 3,024 Color: ■

Coating Weight: 150.00 g/m² Single/Double Sided: D

Order Weight: 100.00 tons Coil weight min: 10.00 tons Coil weight max: 15.00 tons

Width: 1,000.0 mm Thickness: 1.000 mm inner D.: 550.0 mm

Delivery Date: 19.11.2010

N | D | M Jobs associated with order

Job Id	Parent Coil Id	Weight [Tons]	Length [m]	inner D. [mm]	outer D. [mm]	Paint Id	Supplier	Color Code
11150000	AFL	15.00	1,910.8	550.0	778.7	2	Akzo Nobel	AKZ12
11150001	AKB	15.00	1,910.8	550.0	778.7	2	Akzo Nobel	AKZ12
11150002	AGP	15.00	1,910.8	550.0	778.7	2	Akzo Nobel	AKZ12
11150003	AHT	15.00	1,910.8	550.0	778.7	2	Akzo Nobel	AKZ12
11150004	AIX	15.00	1,910.8	550.0	778.7	2	Akzo Nobel	AKZ12
11150005	AFM	15.00	1,910.8	550.0	778.7	2	Akzo Nobel	AKZ12
11150006	AKC	10.00	1,273.9	550.0	635.4	2	Akzo Nobel	AKZ12
		100.00						

NOTES:

- Customer
- Material
- Purpose
- Color Type
- Color

can be selected from a list dialog (see next slide).

If customers' preferences are available, then the system will also propose min. and max. coil weight, width, thickness and inner diameter.

From the total order weight and the min. and max. coil weight, the number of parent coils is computed, so that it best matches the total order weight.

RAMSES List Dialog

FIND CLEAR SELECT CANCEL

Order Number

Customer

Order Weight tons

Order Number	Customer	Order Weight [tons]
10110001	Bosch	250.00
10110002	Bosch	50.00
10110003	Philips	60.00
10110004	Miele	100.00

RAMSES List Dialog

FIND CLEAR SELECT CANCEL

Code

Description

Code	Description
1000	Green beige
1001	Beige
1016	Sulphur yellow
1026	Luminous yellow
2004	Pure orange
2005	Luminous orange
2012	Salmon orange
3000	Flame red
3013	Tomato red
3015	Light pink
3024	Luminous red
4001	Red lilac
4008	Red lilac
5002	Ultramarine blue
5007	Brilliant blue
5012	Light blue
5022	Night blue

EP Epoxide
HDP High Durable Polyester
PUR Polyurethane
SP Polyester

CANCEL

NOTES:

- Customer
- Material
- Purpose
- Color Type
- Color

can be selected from a list dialog.

Paint Definitions

File Edit Basic Data Production Reporting Administration Help

Steel Corp. OrderHandling CCL Overview Production Planning Job Definition CCL 1 CCL 2

Find: Clear List: Delete Save Prev Next USER: ramses 20.11.2010 14:05:48

Paint Id	Supplier	Color Code	RAL	Color	Color Type	Viscosity [s F#4]	Emissivity	Description
1	Colour House	CCL34	6,001		SP	15	0.124	Excellent for materials FE*
2	Akzo Nobel	AKZ12	3,024		SP	8	0.450	
3	Colour House	CCL33	4,008		SP	15	0.124	Excellent for materials FE*
4	Colour House	CCL24	5,007		HDP	15	0.124	Excellent for materials FE*
5	Colour House	CCL98	9,005		PUR	15	0.124	Excellent for materials FE*
6	Colour House	CCL77	1,016		PUR	15	0.124	Excellent for materials FE*
7	Colour House	CCL65	1,001		EP	15	0.124	Excellent for materials FE*
8	Akzo Nobel	AKZ16	3,015		EP	15	0.450	
9	Akzo Nobel	AKZ17	2,004		SP	16	0.123	
10	Colour House	CCL35	4,008		PUR	15	0.124	Excellent for materials FE*
11	Colour House	CCL35	5,002		PUR	15	0.124	Excellent for materials FE*
12	Colour House	CCL66	1,001		EP	15	0.124	Excellent for materials FE*
13	Colour House	CCL67	1,026		EP	15	0.124	Excellent for materials FE*
14	Colour House	CCL68	9,003		EP	15	0.124	Excellent for materials FE*
15	Colour House	CCL69	3,024		SP	15	0.124	Excellent for materials FE*
16	Akzo Nobel	AKZ16	1,026		EP	15	0.450	
17	Akzo Nobel	AKZ16	9,003		EP	15	0.450	
18	Akzo Nobel	AKZ16	5,002		EP	15	0.450	
19	Akzo Nobel	AKZ16	5,002		PUR	15	0.450	
20	BASF	BASF14	5,002		PUR	12	0.300	
21	BASF	BASF15	5,007		PUR	12	0.300	
22	Akzo Nobel	AKZ26	5,007		PUR	15	0.450	
23	Colour House	CCL59	5,007		PUR	15	0.124	Excellent for materials FE*

NOTES:

Paints that match the order criteria are offered for selection.

Information about all paints is kept in the database and can be maintained through the Basic Data Screen for Paints Definition.

RAMSES Material Definitions

File Edit Basic Data Production Reporting Administration Help

Steel Corp. OrderHandling CCL Overview Production Planning Job Definition CCL 1 CCL 2

Find Clear List Delete Save Prev Next USER: ramses 20.11.2010 14:06:35

Id. Material

Yield Strength MPa Tensile Strength MPa Total elongation %

Hardening Exponent Anisotropy

Specific weight kg/m³ Cold/Hot rolled

Price €/kg Supplier

Material Chemistry

Rest [%]	C [%]	P [%]	S [%]	Mn [%]	Si [%]
99.380	0.100	0.035	0.035	0.450	

NOTES:

Materials that match the order criteria are offered for selection.

Information about all materials including their chemical composition are kept in the database and can be maintained through the Basic Data Screen for Material Definition.

- As order no 10110000 is already completed, we can draw the “Order Report” for this order, which gives a general overview of the produced coils.
- Should any delays or defects have occurred during the production of a coil, the user can draw specific “Coil Reports”, with detailed information about the events, delays and defects that occurred or were noticed during the production of this coil.

Steel Corp.

Order Production Report

Order produced in Color Coating Line 1

Order Number: 10110000
Customer: Miele

Order Weight: 100 tons
Order completed: Y

Material: S280GD
Purpose: HA - Household Appliances
Varnish: EP - Other
Color Code: RAL1026 - Luminous yellow
Coating weight: 100 g/mm²
Single/Double sided: D

Strip Width: 800 mm
Strip Thickness: 0.5 mm
Inner Diameter: 550 mm

Number of Coils: 7

Start of production: 18.11.2010

End of production: 18.11.2010

NOTES:

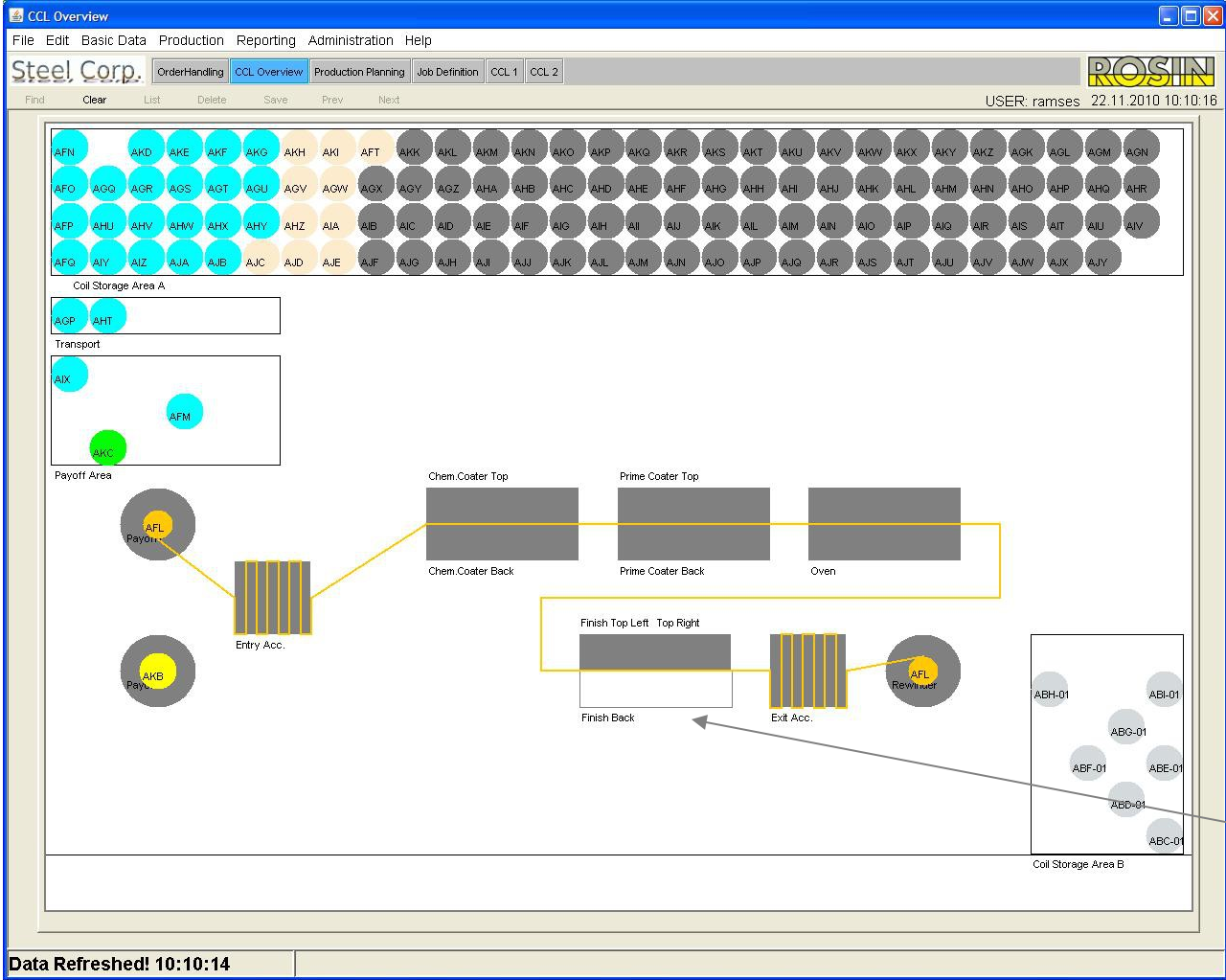
Reports are produced using a report tool.

This allows complete freedom in defining the layouts.

Job Id	Sub Id	Parent Coil Id	Output Coil Id	Coil Status	Location	Position in Coil Storage	Weight [Tons]	Length [m]	inner D. [mm]	outer D. [mm]	Paint Id	Color Code	Shift / Crew	Start time	End time
10270000	0000	ABC	ABC-01	Packaged	Coil Storage	(1,1,0)	15.00	4,777.1	550.0	1,742.8	16	AKZ16	M/A	10:16	10:32
10270001	0000	ABD	ABD-01	Produced	Coil Storage	(0,1,0)	15.00	4,777.1	550.0	1,742.8	16	AKZ16	M/A	10:53	11:13
10270002	0000	ABE	ABE-01	Released	Coil Storage	(3,0,0)	15.00	4,777.1	550.0	1,742.8	16	AKZ16	M/A	11:15	11:30
10270003	0000	ABF	ABF-01	Produced	Coil Storage	(0,2,0)	15.00	4,777.1	550.0	1,742.8	16	AKZ16	M/A	11:31	11:48
10270004	0000	ABG	ABG-01	Packaged	Coil Storage	(1,0,0)	15.00	4,777.1	550.0	1,742.8	16	AKZ16	M/A	11:49	12:05
10270005	0000	ABH	ABH-01	Produced	Coil Storage	(0,0,0)	15.00	4,777.1	550.0	1,742.8	16	AKZ16	M/A	12:09	12:25
10270006	0000	ABI	ABI-01	Released	Coil Storage	(3,1,0)	10.00	3,184.7	550.0	1,422.8	16	AKZ16	M/A	12:29	12:39
							100.00								

Version 08.02.2008 18:00

- To follow the state of an order, to get an overview of the production or to see whether all stations are online, we designed the “Factory Overview” Screen.

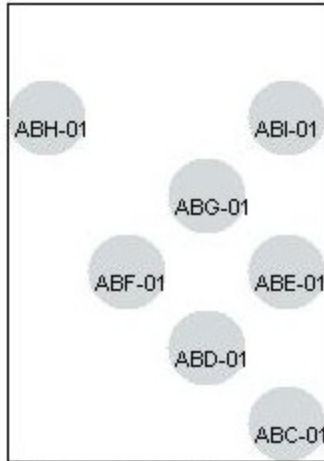


NOTES:

The Overview shows coils through the factory:

- in Coil Yard (top)
 - Any coil (gray)
 - Ordered (ivory)
 - Planned (cyan)
- in Transport to Payoff Area
- in Payoff Area
 - Planned (cyan)
 - Ready for Payoff (green)
- on Payoff
 - Loaded (yellow)
 - in Treatment (orange)
- in Storage (bottom right)
 - Produced
 - Packaged
 - Released for shipping

The Finish Back Coater is shown in white, which indicates that this station is offline.



Coil Storage Area B

Order 1011000 for Miele:
was already produced. The coils are waiting in Storage

- Produced (pink)
- Packaged (blue)
- Released for shipping (gray)

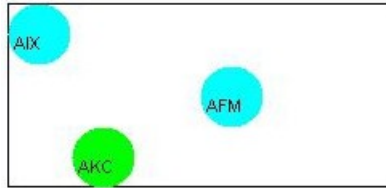
Order 1011001 for Bosch:
is already planned.
22 coils are waiting in the Coil Yard A, marked as

- Planned (Cyan)

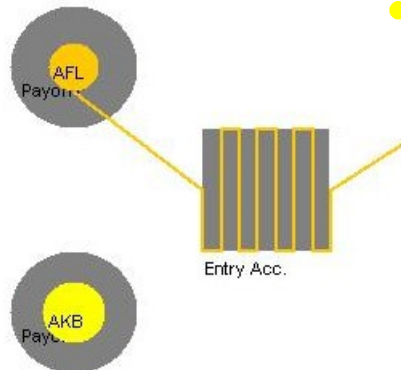




Transport



Payoff Area



Entry Acc.

Order 1010001 for Bosch is presently in production. The coils are in

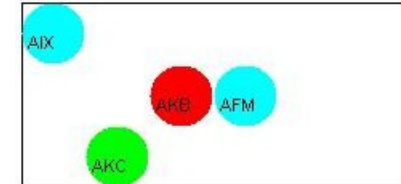
- Transport
 - AGP and AHT, both in Status Planned (cyan)
- Payoff Area
 - AIX and AFM in Status Planned (cyan)
 - AKC in Status "Ready for Payoff" (green)
- Loaded on Payoff 2
 - AKB is loaded on Payoff 2 (yellow)
- in Treatment
 - AFL is in Treatment, already decoiled (orange)

A moment later:

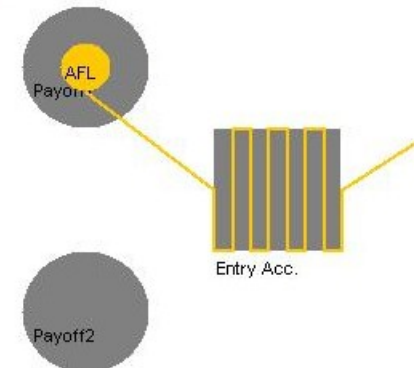
The operator rejected the coil AKB.

The coil goes back to the

- Payoff Area
 - AKB rejected (red)
 - AKC is ready, so it will go now onto Payoff 2
- Payoff 1
 - AFL is still in Treatment



Payoff Area



Entry Acc.

Production Planning

File Edit Basic Data Production Reporting Administration Help

Steel Corp. OrderHandling CCL Overview Production Planning Job Definition CCL1 CCL2

Find Clear List Delete Save Prev Next USER: ramses 22.11.2010 11:01:24

N	D	M	Production Planning	Line 1	Line 2												
Line	Coil Status	Location	Job Id	Parent Coil Id	Planned Payoff	Id Mat.	Width [mm]	Thickness [mm]	Weight [Tons]	Est. start at Payoff	Est. end at Rewinder	Start at Payoff	End at Rewinder				
1	In Treatment	CCL	11150000	AFL	1	S280GD	800.0	0.500	15.00		11:16	11:00					
1	Rejected	Payoff area	11150001	AKB	2	S280GD	800.0	0.500	15.00								
1	Planned	Transport	11150002	AGP	1	S280GD	800.0	0.500	15.00								
1	Planned	Transport	11150003	AHT	2	S280GD	800.0	0.500	15.00								
1	Planned	Payoff area	11150004	AIX	1	S280GD	800.0	0.500	15.00								
1	Planned	Payoff area	11150005	AFM	2	S280GD	800.0	0.500	15.00								
1	Ready	Payoff area	11150006	AKC	1	S280GD	800.0	0.500	10.00	11:06	11:21						
1	Planned	Coil yard	11160000	AGQ	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160001	AHU	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160002	AIY	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160003	AFN	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160004	AKD	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160005	AGR	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160006	AHV	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160007	AIZ	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160008	AFO	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160009	AKE	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160010	AGS	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160011	AHW	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160012	AJA	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160013	AFP	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160014	AKF	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160015	AGT	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160016	AHX	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160017	AJB	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160018	AFQ	2	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160019	AKG	1	DC03	1,000.0	1.000	12.00								
1	Planned	Coil yard	11160020	AGU	2	DC03	1,000.0	1.000	8.00								
1	Planned	Coil yard	11160021	AHY	1	DC03	1,000.0	1.000	8.00								

Data Refreshed! 11:01:16 <c:\paintShopV101122_PCoilScheduleScreen_259.jpg>

NOTES:

The Production Planning Screen permits planning the production for the two Color Coating Lines. In the example, we show the plan for Line 1.

For each Job, the Shift Manager can plan the Payoff or select another parent coil.

The screen shows the

- location of the coils,
- their production status
- if applicable, their start time
- and end time at the payoff
- and at the re-winder.

This screen shows only coils, that are still in production.

Job Definition

Steel Corp. | OrderHandling | CCL Overview | Production Planning | Job Definition | CCL 1 | CCL 2

Find: Clear List: Delete Save: Prev Next

USER: ramses 22.11.2010 11:06:59

Job Id: 11150004 | Parent Coil Id: AIX | Weight: 15.00 Tons | Width: 800.0 mm | Thickness: 0.500 mm

N	D	M	Sub Id	Output Coil Id	Length [m]	Weight [Tons]	inner D. [mm]	outer D. [mm]
			0000	AIX-01	4,777.1	15.00	550.0	1,742.8
S						15.00		

Selection of Recipes for each Station

Line	Wet	ChemCoatTop	ChemCoatBack	PrimeCoatTop	PrimeCoatBack	Oven	FinishTopLeft	FinishTopRight	FinishBack
3	1	1	1	1	1	1	1	1	1

Line and Wet Recipes | Chem. Coaters | Prime Coaters | Oven & Finish Back | Finish Top

Line					Wet				
Substation	Parameter Name	Value	Unit	D	Substation	Parameter Name	Value	Unit	D
PayOff	Tension	25	N/mm ²		PreCleanZone1	Temperature	85	°C	
EntryAccumulator	Tension	20	N/mm ²		PreCleanZone1	Conc	15	%	
Leveller	Speed	150	m/min		PreCleanZone21	Temperature	15	°C	
Leveller	Tension	15	N/mm ²		PreCleanZone22	Temperature	15	°C	
Leveller	Elongation	3	%		CleanZone3	Temperature	15	°C	
Leveller	SetPositionFlexRoll1	15	%		CleanZone3	Conc	15	%	
Leveller	SetPositionFlexRoll2	15	%		CleanZone5	Temperature	15	°C	
Leveller	SetPositionCrossBow	2.0	%		CleanZone5	Conc	15	%	
Leveller	LoopControl	ON			CleanZone6	Temperature	15	°C	
Bridle3	Tension	20	N/mm ²		CleanZone7	Temperature	15	°C	
ExitAccumulator	Tension	15	N/mm ²		CleanZone8	Temperature	15	°C	
Rewinder	Tension	45	N/mm ²		Passivation	Conc	15	%	

NOTES:

For each Job, the Shift Manager has to select the recipes, used at the different treatment stations.

In the example, the Finish Back is offline (background in gray, no recipe selection necessary).

The screen shows the

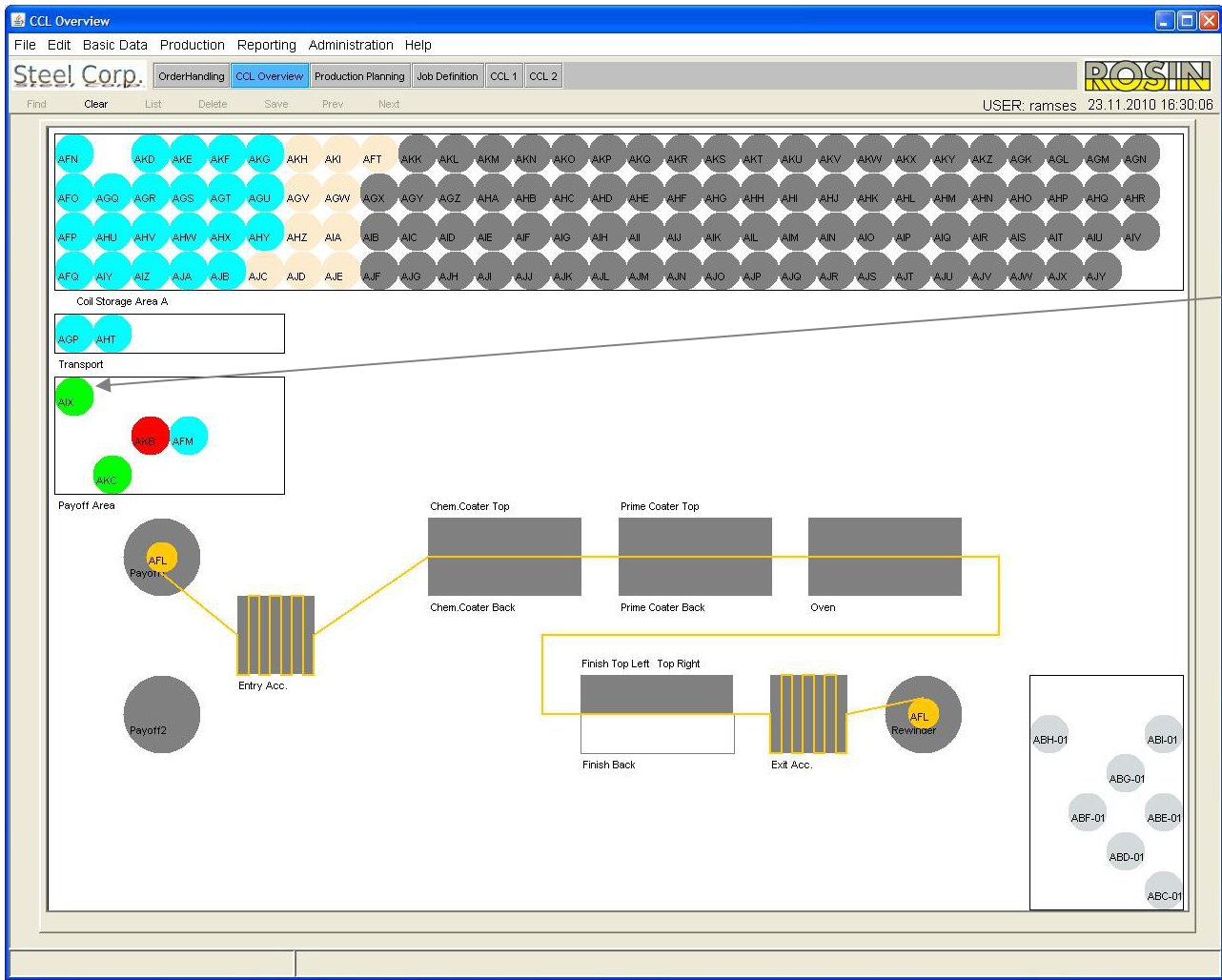
- line recipe and the
- wet recipe.

Other recipes are shown

- on the following tabs.

A Job passes from status "Planned" to status "Ready to go on Payoff", once all recipes for this job were selected.

If desired, a job can be split, thus producing two or more coils from one parent coil.



NOTES:

In the Job Definition Screen (previous slide) the Job for processing coil AIX was completely defined.

Coil AIX is now ready to go on Payoff 2.

CCL 1

File Edit Basic Data Production Reporting Administration Help

Steel Corp. OrderHandling CCL Overview Production Planning Job Definition CCL 1 CCL 2

Find: Clear List: Delete Save Prev Next USER: ramses 23.11.2010 16:32:00

Coils ready to go on payoff

PON	Coil Id	Location	Coil Status	Id Mat.	Weight [Tons]	Est. start at Payoff	Est. end at Rewinder	Payoff 1	Payoff 2
2	AIX	Payoff area	Ready	S280GD	15.00	17:06	17:21	Payoff 1	Payoff 2
1	AKC	Payoff area	Ready	S280GD	10.00	16:51	17:06	Payoff 1	Payoff 2

Coils on Payoffs

Payoff	Coil Id	Location	Coil Status	Start	Reject Coil	Coil back in line	Est. end at Rewinder
1	AFL	CCL	In Treatment	Start	Reject Coil	Coil back in line	16:46

Coil in Treatment | Delays | Defects

NOTES:

The operators will mostly use the Production Screens CCL1 and CCL2, respectively.

This screen allows to

- move coils to the Payoffs,
- send them back in line,
- reject them altogether,
- start the treatment,
- specify automatically-generated delays
- signal and specify defects.

In the example, Coils AKC and AIX are now ready to go on a Payoff.

The Finish Back Coater is not operational, therefore it is shown in white.

CCL 1

File Edit Basic Data Production Reporting Administration Help

Steel Corp. OrderHandling CCL Overview Production Planning Job Definition CCL 1 CCL 2

Find: Clear List: Delete Save Prev Next USER: ramses 23.11.2010 18:55:32

Coils ready to go on payoff

PON	Coil Id	Location	Coil Status	Id Mat.	Weight [Tons]	Est. start at Payoff	Est. end at Rewinder	Payoff 1	Payoff 2
1	AIX	Payoff area	Ready	S280GD	15.00	19:15	19:30	Payoff 1	Payoff 2

Coils on Payoffs

Payoff	Coil Id	Location	Coil Status	Start	Reject Coil	Coil back in line	Est. end at Rewinder
2	AKC	CCL	In Treatment	Start	Reject Coil	Coil back in line	19:25

Coil in Treatment | Delays | Defects

Data Refreshed! 18:55:24

NOTES:

In the example, Coil AKC was loaded on Payoff 2, and started after Coil AFL had finished.

Coil AFL-01, the output coil produced from AFL, is now visible as "Produced" in the Coil Storage Area next to the re-winder.

Coils that were already packaged or released are not shown in this screen.

CCL 1

File Edit Basic Data Production Reporting Administration Help

Steel Corp. OrderHandling CCL Overview Production Planning Job Definition CCL 1 CCL 2

Find: Clear List: Delete Save: Prev: Next USER: ramses 23.11.2010 19:43:02

Coils ready to go on payoff

PON	Coil Id	Location	Coil Status	Id Mat.	Weight [Tons]	Est. start at Payoff	Est. end at Rewinder	Payoff 1	Payoff 2
6	AFM	Payoff area	Ready	S280GD	15.00	21:17	21:32	Payoff 1	Payoff 2
1	AIX	Payoff area	Ready	S280GD	15.00	20:02	20:17	Payoff 1	Payoff 2

Coils on Payoffs

Payoff	Coil Id	Location	Coil Status	Start	Reject Coil	Coil back in line	Est. end at Rewinder
2	AKC	CCL	In Treatment	Start	Reject Coil	Coil back in line	20:12

Coil in Treatment Delays Defects

N | D | M | Delays

Date	Start	Date	End	Duration [min]	Delay Id	Description	Comment
22.11.2010	18:19:58	22.11.2010	19:24:00	65	1300	Stop of Rewinder for maintenance	Stop was planned by management
22.11.2010	19:31:00	22.11.2010	19:55:04	24	2591	Water leak in pretreatment cabin	Breakage in Cable 1 E2
				89			

Data Refreshed! 19:42:55

NOTES:

In this example, Delays occurred during the treatment of Coil AKC.

The system enters delays automatically.

The operator can then select the correct Delay ID from the delays saved in the data base. He can also add a comment.

The delay times are noted to the nearest millisecond. They can be displayed by the minute or by the second.

The delays will appear in the Coil Report for Coil AKC.

In addition, RAMSES offers delay reports per shift, day, week, months for specific or all delays.

CCL 1

File Edit Basic Data Production Reporting Administration Help

Steel Corp. OrderHandling CCL Overview Production Planning Job Definition CCL 1 CCL 2

Find: Clear List: Delete Save: Prev: Next USER: ramses 26.11.2010 08:55:20

Coils ready to go on payoff

PON	Coil Id	Location	Coil Status	Id Mat.	Weight [Tons]	Est. start at Payoff	Est. end at Rewinder	Payoff 1	Payoff 2
2	AFM	Payoff area	Ready	S280GD	15.00	09:30	09:45	Payoff 1	Payoff 2
1	AHT	Payoff area	Ready	S280GD	15.00	09:15	09:30	Payoff 1	Payoff 2

Coils on Payoffs

Payoff	Coil Id	Location	Coil Status	Start	Reject Coil	Coil back in line	Start at Payoff	Est. end at Rewinder
1	AIX	Payoff area	Loaded	Start	Reject Coil	Coil back in line		09:25
2	AKC	CCL	In Treatment	Start	Reject Coil	Coil back in line	08:22	09:10

Coil in Treatment | Delays | Defects

Defects

Job Id: 11150006 Parent Coil Id: AKC Output Coil Id: AKC-01

User Id: Inspector1 Inspector's Position: 6

Start time: 26.11.2010 08:22

Start Defect (red button) ← End Defect (green button) ←

Defects

N	D	M	Defect	Defect start	Start [m]	Defect end	End [m]	Description	Face	Position	Severity	Intensity	Area	Comment
			1	08:24:00	110.0	08:25:10	175.1	Surface imperfections	Top	Operator Side	severe	high	huge	Surface not sufficiently clean
			2	08:29:37	419.8	08:30:22	461.1	Irregular paint	Top	Drive Side	light	low	small	Dirty paint

Data Refreshed! 08:55:13

NOTES:

In this example, Defects were diagnosed during the treatment of Coil AKC.

The inspector identifies himself and his position.

The inspector can then indicate defects by pressing the “Start Defect” and “End Defect” buttons.

The defects are recorded in the database and shown in the detail panel below. The inspector can edit the defects as to the type, face, positions, severity, intensity, area and add a comment.

Defects can also later be edited from the Maintain Defects Screen.

The defects will appear in the Coil Report for Coil AKC.

Steel Corp.

Coil Production Report

Coil AKC-01 produced in Color Coating Line 1

Order Number:	10100001	Coil Weight:	10 tons
Job Number:	11150006	Coil Length:	3,184.7 m
Material:	DC03	Strip Width:	800 mm
Purpose:	HA - Household Appliances	Strip Thickness:	0.5 mm
Varnish:	SP - Packaging	Inner Diameter:	550 mm
Color Code:	RAL3024 - Luminous red	Outer Diameter:	1,422.6 mm
Coating weight:	150 g/mm ²		
Single/Double sided	D		

Start of production: 26.11.2010 08:22

End of production: 26.11.2010 09:12

Events:

Date	Event type	Value	Unit
26.11.2010 08:22	Decoiling start	-1	AUTO
26.11.2010 08:23	Oven temperature	151	°C
26.11.2010 08:23	Oven temperature	153	°C
26.11.2010 08:24	Oven temperature	155	°C
26.11.2010 08:36	Power on	1	MAN
26.11.2010 08:36	Power off	2	
26.11.2010 08:39	Power on	1	MAN
26.11.2010 08:39	Power off	2	
26.11.2010 08:40	Power on	1	MAN
26.11.2010 09:01	Finishing temperature	159	°C
26.11.2010 09:04	Finishing temperature	160	°C
26.11.2010 09:05	Power off	2	
26.11.2010 09:05	Finishing temperature	163	°C
26.11.2010 09:12	Decoiling end	-1	

Delays

Start	End	Duration [sec]	Code	Description	Comment
08:31	08:36:19	5	1300	Stop of Rewind for maintenance	Ordered by Shift management
08:36	08:36:30	0	2150	Power interruption	
08:39	08:39:26	0	2150	Power interruption	
08:40	09:05:04	25	2150	Power interruption	
		30			

Defects

Defect	Start time [min]	End time [min]	Description	Face	Position	Severity	Intensity	Area	Comment		
1	08:23	110.0	08:24	115.0	Surface imperfections	Top	Operator Side	severe	high	huge	Surface not sufficiently clean
2	08:29	419.5	08:30	461.1	irregular paint	Top	Drive Side	light	low	small	Dirty paint

NOTES:

During the treatment of Coil AKC, delays occurred and defects were diagnosed.

The shift manager would most likely want to see a detailed Coil Report.

Obviously, the contents and layout of reports can be freely chosen.

In this example, we show tables with the events that occurred during the coil production, the delays and defects.

It is also possible to integrate the resource consumptions.

CCL 1

File Editare Basic Data Produzione Rapportare Administration Aiuto

Steel Corp. Ordinanze Panoramica CCL Pianificazione Compiti CCL 1 CCL 2

Ricerca Cancellare Listare Sopprimere Salvare Preced. Prossimo USER: ramses 26.11.2010 09:34:50

Bobine preparate

PON	Id Bobina	Ubicazione	Stato di bobine	Id Mat.	Peso [ton.]	Inizio Payoff previsto	Fine prevista riavvolgere	Payoff 1	Payoff 2
2	AFM	Payoff area	Ready	S280GD	15.00	10:09	10:24	Payoff 1	Payoff 2
1	AHT	Payoff area	Ready	S280GD	15.00	09:54	10:09	Payoff 1	Payoff 2

Bobine nelle Payoff

Payoff	Id Bobina	Ubicazione	Stato di bobine	Inizio	Rifutare bobina	Ritornare bobina	Inizio Payoff	Fine prevista riavvolgere
1	AIX	Payoff area	Loaded	Inizio	Rifutare bobina	Ritornare bobina		10:04
2	AKC	CCL	In Treatment	Inizio	Rifutare bobina	Ritornare bobina	08:22	09:49

Bobina en trattamento | Fermate | Difetti

NOTES:

In order to facilitate the commissioning in other countries, the language can be changed at any moment through the menu "Help -> Switch language"

All languages are possible. That includes languages which use other alphabets, like Chinese and Arabic.

A Level 2 Automation based on the RAMSES Automation Core consists of

- a customer-independent part, for which we grant a license to the customer, and
- a customer-specific part which we need to develop specifically for him.

The customer-independent part

The customer-independent part consists of

- the standardized database interface,
- the communication modules for data interchange with PLCs, other automation systems, and the ERP,
- the modules for the construction of the user interface.

The customer-specific part

The customer-specific part consists of

- the screens of the user interface,
- the reports and
- the handling of the information coming from the PLCs.

The customer-independent part

The license fee for the use of the customer-independent part has to be paid at the end of commissioning. We waive this license fee if the customer decides to sign a Support and Maintenance contract with a duration of at least 24 months.

This maintenance contract includes

- a hotline service,
- significantly reduced prices for any modifications and
- regular updates to the latest version of the RAMSES automation core functions.

The customer-specific part

The cost of the customer-specific part for the Color Coating Line depends on the PLC communication, and the number of reports and screens that the customer demands.

The commissioning should ideally take one week, two weeks at most. If the customer allows us remote access to his servers (via a secure VPN connection), the cost for commissioning will be much lower compared to commissioning on-site. We can then install the system and do all necessary communication tests remotely.

We also offer turnkey solutions with all hardware included.

ROSIN will be very happy to answer any questions you may have.

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