ARMCO

V A I

A3 Application Functions
Material Tracking

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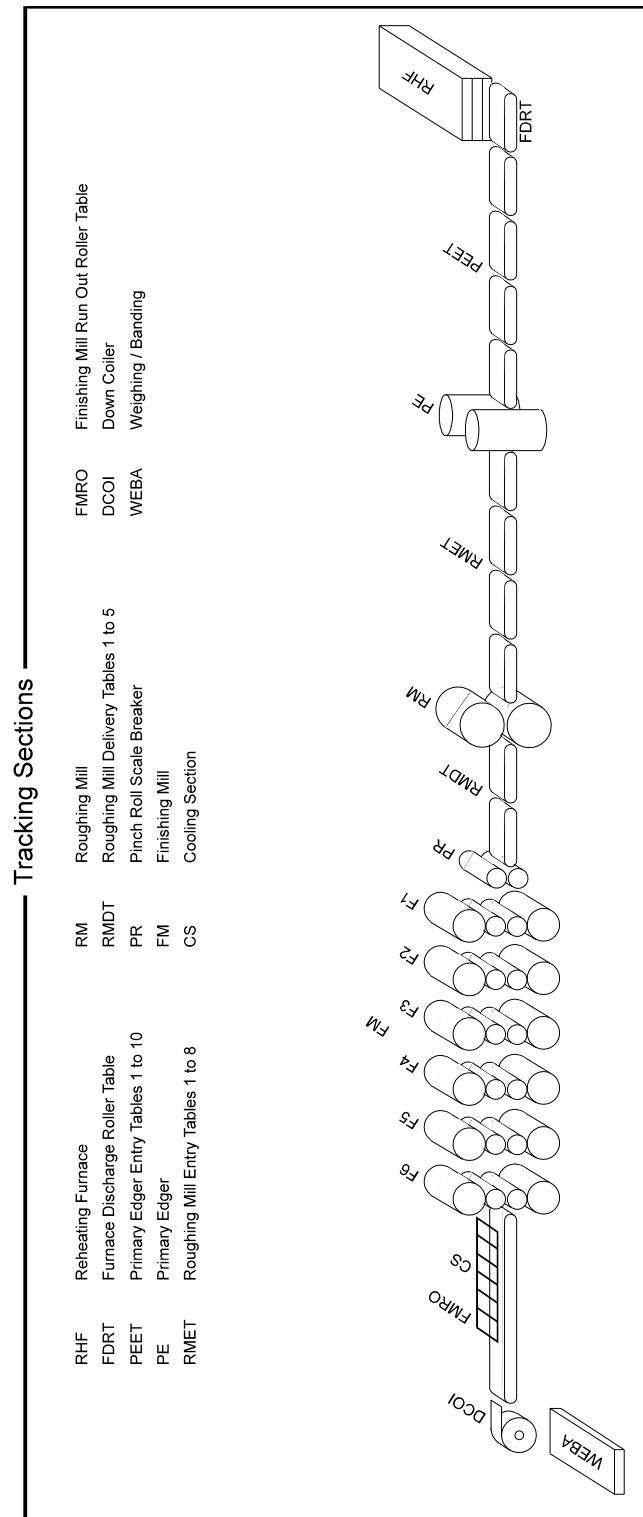| Author TAP 4	Document HSM_A31 Material Tracking.doc		Date 1996-02-28	Version as built	Page 1

1.   General

The description of the material tracking function defines the characteristics of the material flow through the mill and how it will be tracked by HSM_L2.

For this reason the entire tracking area is divided into tracking sections. Each material within the tracking area is located in one or more of these tracking sections at any time. A tracking section consists of none, one or more physical devices. These physical devices are described in *DTS_HSM / Chapter A (Plant Description).*

The entire tracking area is divided into tracking sections, shown on the next page.

Tracking Sections

RHF	Reheating Furnace	RM	Roughing Mill	
FDRT	Furnace Discharge Roller Table	RMDT	Roughing Mill Delivery Tables 1 to 5	
PEET	Primary Edger Entry Tables 1 to 10	PR	Pinch Roll Scale Breaker	
PE	Primary Edger	FM	Finishing Mill	
RMET	Roughing Mill Entry Tables 1 to 8	CS	Cooling Section	

FMRO	Finishing Mill Run Out Roller Table
DCOI	Down Coiler
WEBA	Weighing / Banding

1.1 General Definitions

Material Head / Tail:

Terms *Head* and *Tail* are used in relation to the main material flow direction, where it is applicable.

Device Entry / Exit:

Terms *Entry* and *Exit* are used in relation to the main material flow direction, where it is applicable.

1.2   Explanation

Physical device: List of physical devices which make-up the related tracking section. Main characteristics of these physical devices are described in *DTS_HSM / File 1*, chapter *Plant Description.*

Max. material number: Maximum number of material pieces, which can occupy the tracking section at the same time.

Loading: Defines all possible events, which cause a loading of the tracking section.
Following items are shown:
      E   loading event
      M   related material
      O   origin section of material

Unloading[1] *:*   Defines all possible events, which cause an unloading of the tracking section.
Following items are shown:
      E   unloading event
      M   related material
      D   destination section of material

From Section: Possible origins of arriving material

To Section: Possible destinations for leaving material

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[1] Material deletion is not explicitly mentioned as unloading event;

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2. Tracking Sections

2.1 Reheating Furnace

Physical device: walking beam furnace

Max. material number: 27

Loading:	*E*	charging of furnace
	M	material, which is charged
	O	none

	E	recharging of furnace
	M	material, which is recharged
	O	FDRT

	E	furnace map from reheating furnace (set up of material tracking)
	M	materials from furnace map
	O	none

Unloading:	*E*	discharging of reheating furnace
	M	material, which is discharged
	D	FDRT

	E	furnace map from reheating furnace
	M	materials which disappeared from furnace map
	D	none

From Section: - in case of recharging FDRT, otherwise
       - none

To Section: - FDRT

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2.2   Furnace Discharge Roller Table

Physical device:	roller table at furnace delivery

Max. material number: 1

Loading:	E	discharging of reheating furnace
	M	material from reheating furnace
	O	RHF

Unloading:	E	material moves to PEET
	M	related material
	D	PEET
	E	furnace recharging
	M	related material
	D	RHF

From Section: - RHF

To Section: - PEET
                 - RHF

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2.3 Primary Edger Entry Roller Tables 1 to 10

Physical device:	roller tables at furnace delivery down to Primary Edger

Max. material number: 1

Loading:	E	material moves to PEET
	M	discharged material
	O	FDRT

	E	material moves to PEET
	M	related material
	O	PE

Unloading:	E	material moves to PE
	M	related material
	D	PE

	E	material moves to FDRT
	M	related material
	D	FDRT

From Section:	- FDRT
	- PE

To Section:	- PE
	- FDRT

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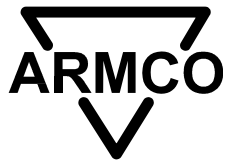
2.4 Primary Edger

Physical device:	primary edger

Max. material number:	1

Loading:

E	start of rolling in PE
M	material from PEET
O	PEET

E	material moves to PE
M	material from RMET
O	RMET

Unloading:

E	end of rolling in PE
M	related material
D	RMET

E	material moves to PEET
M	related material
D	PEET
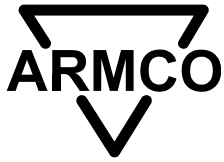
From Section: - PEET
                         - RMET

To Section: - RMET
                       - PEET

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2.5 Roughing Mill Entry Roller Tables 1 to 8

Physical device:	roller tables at entry side of RM

Max. material number:	1

Loading:

E	material moves to RMET
M	material from PE
O	PE

E	material moves to RMET
M	material from RM
O	RM

Unloading:

E	material disappears from RMET
M	related material
D	RM

E	material disappears from RMET
M	related material
D	PE

From Section:	- PE
	- RM

To Section:	- RM
	- PE

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2.6   Roughing Mill

Physical device:	roughing mill stand

Max. material number: 1

Loading:	E	start of pass (direction RHF to DCOI) in RM
	M	material from RMET
	O	RMET

	E	start of pass (direction DCOI to RHF) in RM
	M	material from RMDT
	O	RMDT

Unloading:	E	end of pass (direction RHF to DCOI) in RM
	M	related material
	D	RMDT

	E	end of pass (direction DCOI to RHF) in RM
	M	related material
	D	RMET

	E	end of rolling in RM
	M	related material
	D	RMDT

From Section:	- RMET
	- RMDT

To Section:	- RMDT
	- RMET

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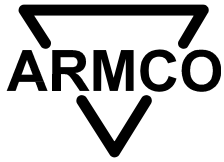
2.7 Roughing Mill Delivery Roller Tables 1 to 5

Physical device:	roughing mill delivery roller table

Max. material number:	1

Loading:	E	material moves to RMDT
	M	material from RM
	O	RM

Unloading:	E	material disappears from RMDT
	M	related material
	D	PR

	E	material disappears from RMDT
	M	related material
	D	RM

From Section:	- RM

To Section:	- PR
	- RM

2.8　Pinch Roll Scale Breaker

Physical device:　　　pinch roll scale breaker

Max. material number:　1

Loading:　　　　　*E*　material moves to PR or first measured entry
　　　　　　　　　　　　data received
　　　　　　　　　M　material from RMDT
　　　　　　　　　O　RMDT

Unloading:　　　　*E*　material disappears from PR
　　　　　　　　　M　related material
　　　　　　　　　D　FM

From Section:　　　- RMDT

To Section:　　　　- FM

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2.9   Finishing Mill

Physical device:	6-stand finishing mill

Max. material number:	1

Loading:

	E	start of rolling in FM
	M	material from PR
	O	PR

Unloading:

	E	end of rolling in FM
	M	related material
	D	FMRO

From Section: - PR

To Section: - FMRO

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2.10 Finishing Mill Run Out Roller Table

Physical device:	- finishing mill run out roller table - strip cooling section

Max. material number: 1

Loading:	E	material moves to FMRO or first measured rolling exit data received
	M	material from FM
	O	FM

Unloading:	E	material disappears from FMRO
	M	related material
	D	DCOI

From Section: - FM

To Section: - DCOI

2.11   Down Coiler

Physical device:	down coiler

Max. material number: 1

Loading:	E	first measured finishing data received
	M	material from FM
	O	FMRO

Unloading:	E	start of rolling for next strip
	M	related material
	D	WEBA

From Section: - FMRO

To Section: - WEBA

2.12   Weighing / Banding

Physical device:	weighing / banding station

Max. material number:	5

Loading:

E	start of rolling for next strip
M	material from DCOI
O	DCOI

Unloading:

E	coil weight from level 1 received and confirmed by operator
M	related material
D	none

E	manual deletion by operator
M	related material
D	none

From Section:	- DCOI

To Section:	- none

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3. Revision and Document Distribution List

R E V I S I O N L I S T			
Date	**Version**	**Author**	**Description**
94-Feb-28	V1.0	F.Dvo	in progress
94-Apr-25	V1.1	F.Dvo	revised
94-May-20	V2.0	F.Dvo	revised
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94-Jul-22	V3.0	F.Dvo	for approval
96-Feb-28	as built	F.Dvo	as built

D I S T R I B U T I O N L I S T	
Version	**Receiver**
V1.0	ARMCO
V1.1	ARMCO
V2.0	ARMCO
V3.0	ARMCO
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