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Maximizing Roll Shop Efficiency through Robust Process Tracking

Automation Software & Engineering, Inc.

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Connect It All Together

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REPORT EXAMPLE: ROLLS AVAILABLE - BUILT SETS AUTO-EMAILED EVERY SHIFT

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Roll Sets

Print Date: [redacted] 12:22 PM

Report Parameters

Mill HM[redacted]

Type Work

Stand	Set	Top Roll	Bot Roll	Size	Last Action	TopOP	TopDR	BotOP	BotDR	Roll Type	Last Grease	Trips since Grse	Length	Tons
F1	[redacted]	[redacted]72	[redacted]73	4.900	Out Mill	B	[redacted]	[redacted]	1	Work F1-F2	[redacted]/16/2	1	46	3,452
	[redacted]	[redacted]23	[redacted]15	4.102	Stage (Mill Ready)	D	[redacted]	[redacted]	3	Work F1-F2	[redacted]/14/2	2	57	5,791
	[redacted]	[redacted]93	[redacted]74	3.974	In Mill	B	[redacted]	[redacted]	8	Work F1-F2	[redacted]/12/2	3	115	9,728
F2	[redacted]	[redacted]1	[redacted]2	2.495	Stage (Mill Ready)	B	[redacted]	[redacted]	7	Work F1-F2	[redacted]/12/2	3	252	12,091
	[redacted]	[redacted]9	[redacted]10	2.634	In Mill	B	[redacted]	[redacted]	6	Work F1-F2	[redacted]/16/2	1	83	3,428
	[redacted]	[redacted]20	[redacted]76	2.503	Out Mill	B	[redacted]	[redacted]	2	Work F1-F2	[redacted]/14/2	2	85	3,452
F3	[redacted]	[redacted]53	[redacted]52	9.803	Stage (Mill Ready)	08	[redacted]	[redacted]	6	Work F3	[redacted]/12/2	3	383	12,091
	[redacted]	[redacted]84	[redacted]83	9.648	Stage (Mill Ready)	9	[redacted]	[redacted]	2	Work F3	[redacted]/15/2	1	120	3,428
	[redacted]	[redacted]5	[redacted]4	9.599	In Mill	3	[redacted]	[redacted]	7	Work F3	[redacted]/12/2	0		
	[redacted]	[redacted]84	[redacted]69	9.577	Stage (Mill Ready)	7	[redacted]	[redacted]	4	Work F3	[redacted]/12/2	1	0	0
	[redacted]	[redacted]02	[redacted]01	9.541	Stage (Mill Ready)	2	[redacted]	[redacted]	5	Work F3	[redacted]/12/2	1	176	4,829
	[redacted]	[redacted]64	[redacted]65	9.558	Out Mill	5	[redacted]	[redacted]	3	Work F3	[redacted]/15/2	1	127	3,452
F4	[redacted]	[redacted]54	[redacted]57	7.191	Out Mill	3	[redacted]	[redacted]	11	Work F4-F6	[redacted]/27/2	1	85	1,473
	[redacted]	[redacted]94	[redacted]92	7.330	Stage (Mill Ready)	3	[redacted]	[redacted]	9	Work F4-F6	[redacted]/11/2	7	503	10,003
	[redacted]	[redacted]44	[redacted]31	7.160	In Mill	2	[redacted]	[redacted]	6	Work F4-F6	[redacted]/27/2	0		
	[redacted]	[redacted]30	[redacted]34	6.490	Stage (Mill Ready)	3	[redacted]	[redacted]	1	Work F4-F6	[redacted]/16/2	2	164	3,508
F5	[redacted]	[redacted]02	[redacted]01	6.804	In Mill	7	[redacted]	[redacted]	5	Work F4-F6	[redacted]/26/2	1	121	2,155
	[redacted]	[redacted]04	[redacted]03	6.628	Stage (Mill Ready)	2	[redacted]	[redacted]	7	Work F4-F6	[redacted]/13/2	6	930	10,547
	[redacted]	[redacted]03	[redacted]04	7.070	Grind	5	[redacted]	[redacted]	9	Work F4-F6	[redacted]/16/2	1	116	1,473
	[redacted]	[redacted]24	[redacted]23	7.444	Stage (Mill Ready)	09	[redacted]	[redacted]	7	Work F4-F6	[redacted]/13/2	2	219	3,516
F6	[redacted]	[redacted]39	[redacted]47	8.794	Build	6	[redacted]	[redacted]	7	Work Floor		0		
	[redacted]	[redacted]06	[redacted]92	8.491	Out Mill	0	[redacted]	[redacted]	10	Work F4-F6	[redacted]/27/2	1	147	1,473
	[redacted]	[redacted]01	[redacted]02	9.077	Stage (Mill Ready)	9	[redacted]	[redacted]	5	Work F4-F6		0		
	[redacted]	[redacted]21	[redacted]22	7.540	In Mill	4	[redacted]	[redacted]	7	Work F4-F6	[redacted]/27/2	0		

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REPORT EXAMPLE: MACHINE UTILIZATION & SHIFT REPORTS

Roll Grinder Shift and Utilization Report

By Date Range

Print Date: [redacted] 1:12 PM

Report Parameters

Start Date [redacted]

End Date [redacted]

Grinder Totals

Grinder	Date	Hours Running	Utilization	Operator	Total Reduc	Avg Reduc	# Grinds
⊞ [redacted]	Start to End	22	91.5 %		0.337	0.028	12
⊞ [redacted]	Start to End	17	71 %		0.151	0.038	4
⊞ [redacted]	Start to End	11.1	46.1 %		0.158	0.023	7

Shift & Grind Details

Date: 8/[redacted]							**0.646**					**23**	
	Operator	**Roll**	**Cycle Time**	**Start Time**	**End Time**	**Start Diam**	**End Diam**	**Reduc**	**Cost**	**Crown**	**Hard.**	**Roll Type**	**# Grinds**	**Comments**
Shift: 6A								**0.369**					**12**	
[redacted]								**0.205**					**6**	
		[redacted]51	00:43	7:14	7:57	24.137	24.118	0.019	$160.69			Work		Size to mate
		[redacted]68	03:27	8:06	11:33	21.249	21.181	0.068	$521.54			Work		Bruise
		[redacted]65	03:07	11:48	14:55	21.248	21.179	0.069	$528.75			Work		Size to mate
		[redacted]43	00:52	15:48	16:40	23.895	23.878	0.017	$119.72			Work		
		[redacted]70	02:39	16:52	19:31	23.897	23.885	0.012	$84.50			Work		Size to mate
		[redacted]43	00:01	16:53	16:54	23.898	23.878	0.020	$140.85			Work		Regular

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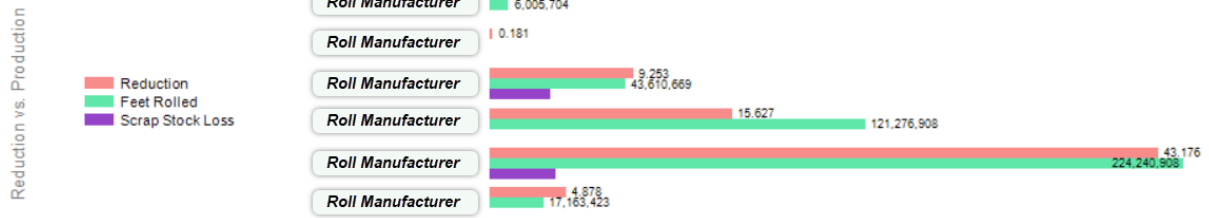
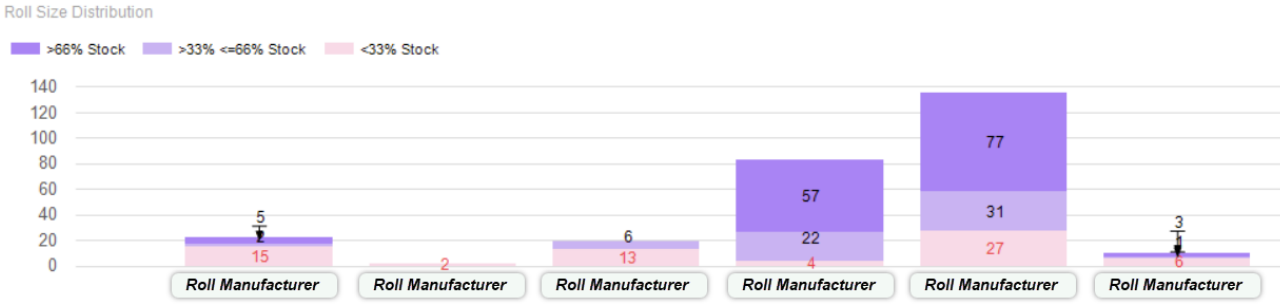
REPORT EXAMPLE: ROLL SUPPLIER PERFORMANCE REPORT

***Roll Performance Report** from **4/1** to **6/**:*

Vendor Performance for Roll Type (Ranked by Avg Reduction)

Rank	P&P	Roll Type	#Rolls		New YTD	#Grinds	Avg Reduc	Avg Reduc Cost	Avg Grind/Life	Avg Cost/Thou	Avg Ft/Thou	Avg Tons/Thou	Avg Cost/Ft	Avg Cost/Ton	Reduction	Reduction Cost	Scrap Loss	Total Loss	Ft Rolled	Tons Produced	Remaining Value	Inventory In.	
		Work	280		66	1,559	0.055	$424.81	66	$8.20	8,920	32	$0.0014	$0.38	75.56	$584,919.41	8.181	83.744	412,297,612	1,536,181	$ 4,848.54	596.31	
1	1	Roll Manufacturer	84	(30%)	30	421	0.045	$351.97	78	$8.30	11,661	44	$0.0010	$0.27	15.63	$123,919.87	0	15.627	121,276,908	456,739	$ 7,986.85	230.81	(39%)
2	5	Roll Manufacturer	22	(8%)	4	54	0.05	$430.05	70	$8.50	4,332	16	$0.0035	$0.94	2.45	$20,883.54		2.449	6,005,704	22,302	$ 514.70	24.07	(4%)
3	2	Roll Manufacturer	141	(50%)	32	848	0.058	$439.68	61	$8.20	8,597	30	$0.0015	$0.40	43.18	$328,352.40	4.25	47.426	224,240,908	829,939	$ 7,643.12	309.93	(52%)
4	3	Roll Manufacturer	20	(7%)	0	156	0.067	$552.78	53	$7.80	5,667	21	$0.0018	$0.48	9.25	$76,615.71	3.931	13.184	43,610,669	161,261	$ 849.23	17.35	(3%)
5	4	Roll Manufacturer	11	(4%)	0	78	0.072	$493.98	49	$6.90	4,505	18	$0.0020	$0.51	4.88	$33,705.66	0	4.878	17,163,423	65,940	$ 96.55	13.72	(2%)
6		Roll Manufacturer	2	(1%)	0	2	0.09	$717.30	39	$7.90	0	0	$0.0000	$0.00	0.18	$1,442.23		0.181			$ 3.09	0.44	(0%)





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REPORT EXAMPLE: CHOCK MAINTENANCE SCHEDULE

Chock Maintenance Schedule

Mill:
Type: Backup
Order By: Oldest PM
Date: 11/5/2020 4:01:34 PM

Mill	Type	Chock	VertPos	HorPos	Status	Last Put In Service	Last PM	Entered On	Next PM
	Backup	1	Bottom	Operator	Active	5/13/20	5/13/2	5/13/	5/13/20
	Backup	8	Top	Drive	Active	7/22/20	7/22/2	7/22/	7/22/20
	Backup	7	Top	Operator	Active	7/28/20	7/28/2	7/28/	7/28/20
	Backup	6	Bottom	Drive	Active	8/4/20	8/4/2	8/4/	8/4/20
	Backup	29	Bottom	Operator	Active	12/26/20	12/5/2	12/5/	12/26/20
	Backup	32	Bottom	Drive	Active	12/26/20	12/23/2	12/23/	12/26/20
	Backup	27	Top	Operator	Active	2/4/20	1/28/2	1/28/	2/4/20
	Backup	110	Top	Drive	Active	2/6/20	1/29/2	1/29/	2/6/20
	Backup	10	Bottom	Drive	Active	2/4/20	1/31/2	1/31/	2/4/20
	Backup	13	Bottom	Operator	Active	2/4/20	1/31/2	1/31/	2/4/20
	Backup	5	Bottom	Operator	Active	6/10/20	5/29/2	5/29/	6/10/20
	Backup	2	Bottom	Drive	Active	6/10/20	6/3/2	6/3/	6/10/20
	Backup	3	Top	Drive	Active	6/10/20	6/5/2	6/5/	6/10/20
	Backup	4	Top	Operator	Active	6/10/20	6/9/2	6/9/	6/10/20
	Backup	31	Top	Operator	Active	7/19/20	7/8/2	7/8/	7/19/20
	Backup	30	Top	Drive	Active	7/19/20	7/9/2	7/9/	7/19/20
	Backup	37	Top	Operator	Active	9/22/20	9/15/2	9/15/	9/22/20
	Backup	48	Top	Drive	Active	9/22/20	9/15/2	9/15/	9/22/20
	Backup	28	Bottom	Drive	Active	10/1/20	9/24/2	9/24/	10/1/20
	Backup	33	Bottom	Operator	Active	10/1/20	10/1/2	10/1/	10/1/20

Track Any Workflow

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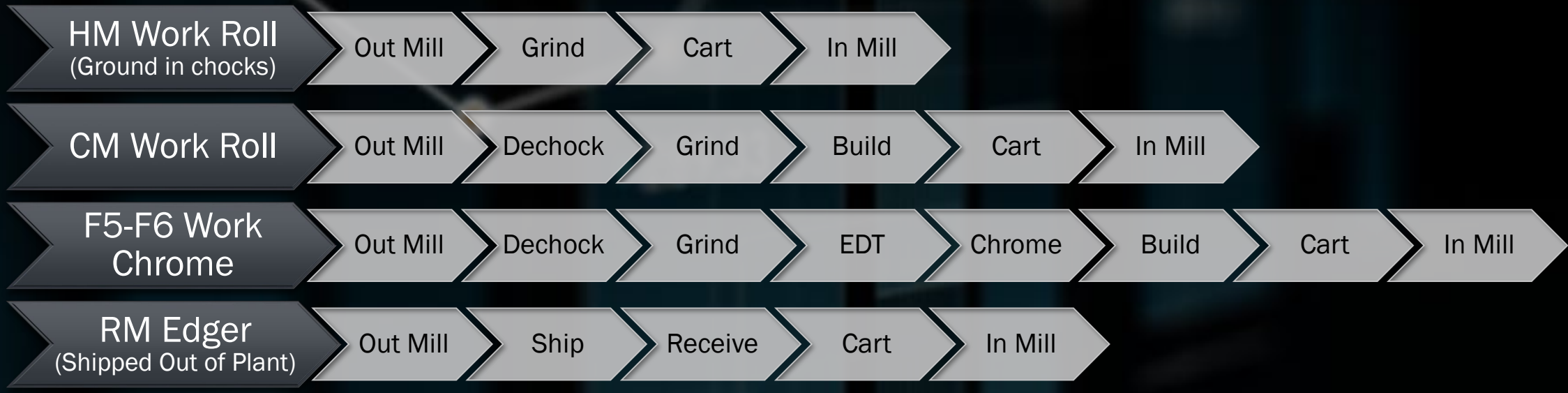
Configurable operation steps by roll type allow the system to know which is the next step to be completed for any roll.

Examples:



Tracking: Capture Data At Any Step

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Roll Out of Mill Stand

AUTO

- Auto completed step [interface with Mill systems] sets rolls and chocks as out of the mill.
- Records weight and length produced.

Transport to Shop & Dechock

RFID

- User or antenna scans RFID tag and completes the step to free up chocks in the inventory.

Roll Temp Reading

RFID

- Auto calculates when roll will be cool enough to Grind.
- Warns user roll is still to grind accurately.

Grind

RFID

- System captures measurement and chart data interfacing with equipment like Herkules, Pomini, Promic. Data is sent to Mill Systems.

Shipping, EDT, Chrome

RFID

- System tracks Shipping to outside processor.
- Auto generates shipping record.

Build Roll and Chocks Set

RFID

- User sets rolls and chocks as Built.
- Can use RFID scanner to select/verify components.

Transport to Mill

RFID

- User scans built set and sets it as staged or in front of a stand.
- System transmits roll and chock data to Mill Systems.

In Mill Stand

AUTO

- Auto completed step [interface with Mill systems] sets rolls and chocks as in the mill.

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Tracking Using RFID Technologies

- Consistent identification
  - Avoid costly mistakes in misidentifying assets when entering data for the asset.
- Can be used for rolls, chocks, other assets that needs campaign tracking.
- Fast data retrieval and entry on a mobile device. Examples:
  - Scan roll tag and device screen shows status/history for asset scanned.
  - Scan roll tag to mark as shipped or received.
  - Scan user tags to log in to application or indicate who was using equipment.
  - Scan storage rack tag then roll tag to indicate a roll was moved to a specific location (when no fixed antenna usage is possible).
- With proper studied placement, fixed antenna installations can help update data automatically in real-time without user intervention.

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RFID Technologies – Fixed Readers

- Fixed antennas in specific locations (Grinder, Doorways, etc)
  - Advantages:
    - Can update asset location and status (e.g. “roll X has been moved to cart, mill, storage rack, etc.)
    - Can validate data for assets (e.g. “roll X is being ground, assign grind data to correct roll”)
    - Does not require user input
  - Challenges:
    - Antenna placement is critical and needs to be evaluated per location or per machine it is being installed on. Needs to avoid damage, provide consistent reading, and minimize reading un-intended assets.
    - Antenna type and size needed varies as scanning distance and power. Some antennas are designed to read large areas (circular polarization), while other antennas are designed to read a specific repeatable location (linear polarization) with a known tag orientation.

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RFID Technologies – Handheld Readers

- Handheld Readers attached to a tablet, phone, pc or integrated scan gun + screen.
  - Advantages:
    - Can scan individual assets from a short distance (up to 8 inches).
    - Allows user to avoid mistakes in identifying roll/chock or other asset numbers.
    - Can be inexpensive: Tablet + Bluetooth UHF reader (< $1000)
  - Challenges:
    - Devices are battery powered, users have to have a base-station area to make sure they are always charged.
    - Users tend to prefer to not carry extra devices, so they end up leaving the device behind and enter data into a desktop device later.
    - Requires wireless network connectivity through work areas.

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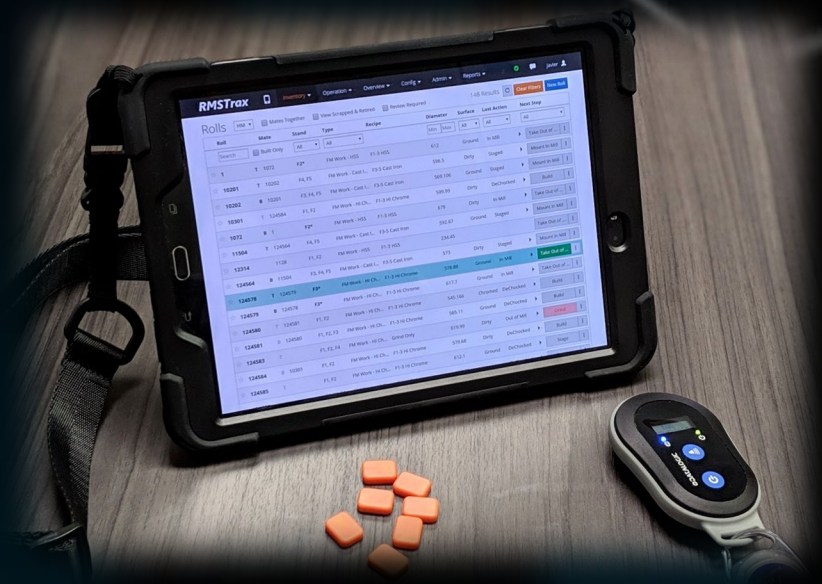
Application Design and Hardware

- Future-proof application targeting any modern mobile, tablet or desktop device
- Configured To Customer's Operational Processes & Terminology
- Integration With shop equipment, hardware, and Level 2 systems (Grinders, Measuring Devices, Process Control Computers) Business & OSP Systems



DEVICE SIZE FLEXIBILITY – LARGER SCREEN VIEW (DESKTOP & TABLETS)

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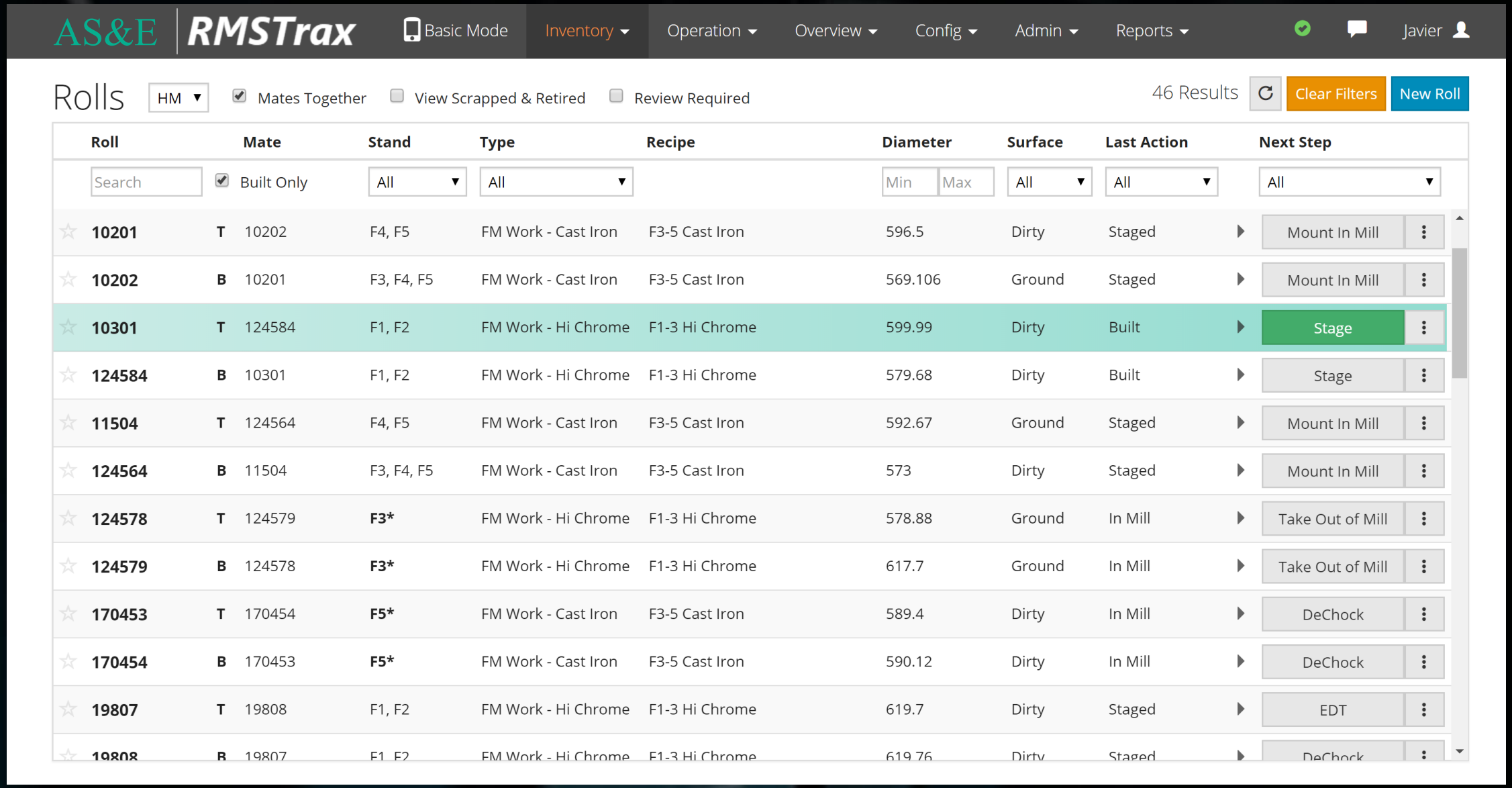

DEVICE SIZE FLEXIBILITY – SMALLEST VIEW SIZE (BASIC MODE)

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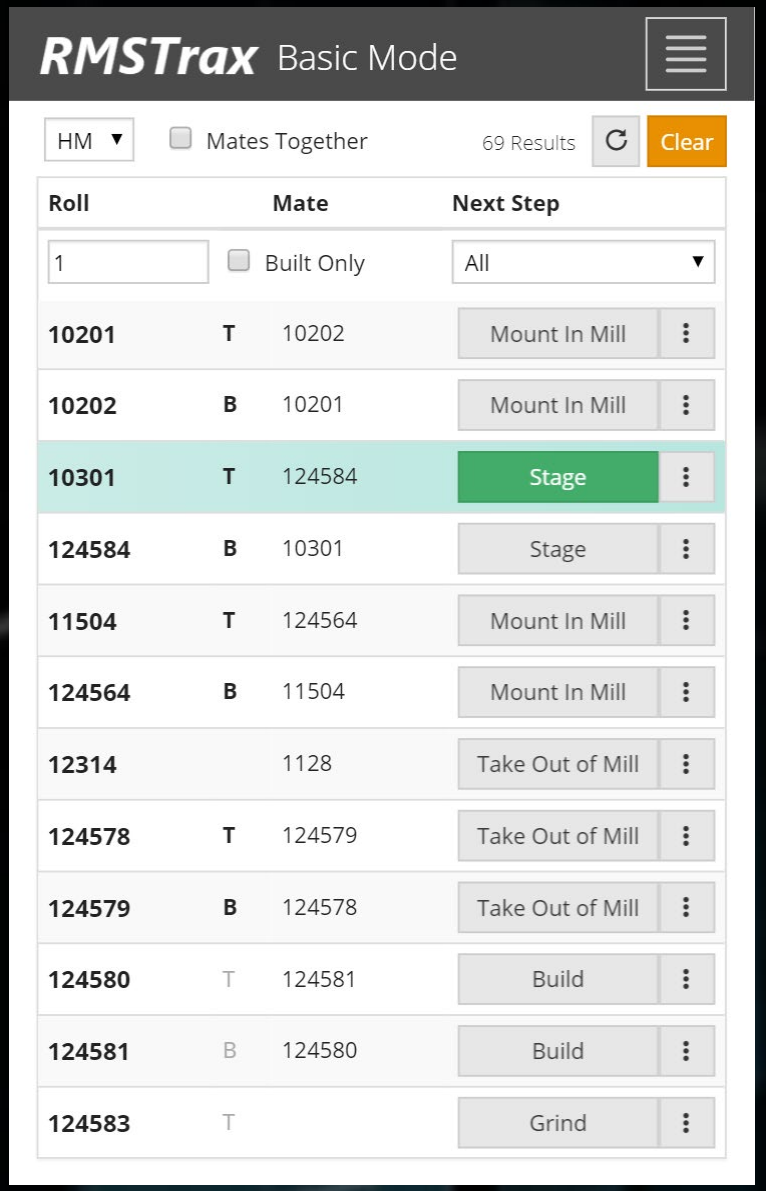
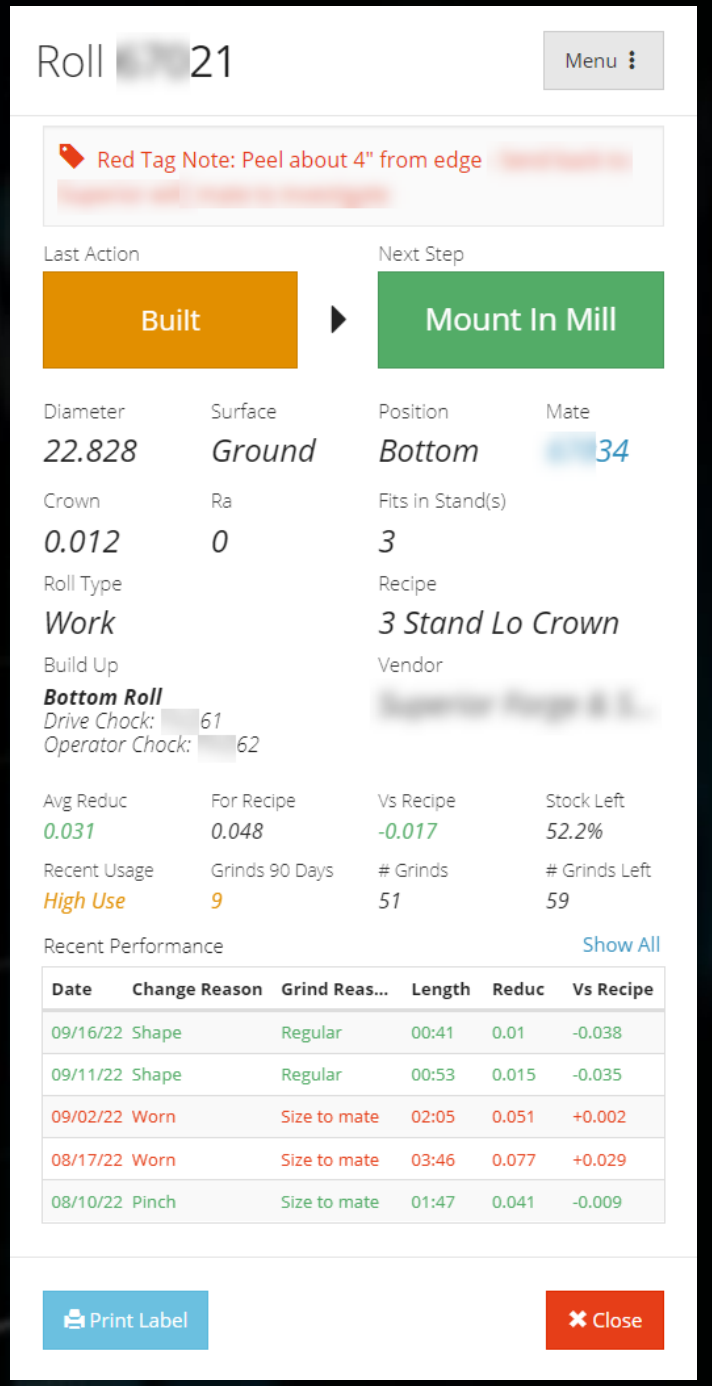


Quick Identification Data Retrieval w/RFID Capability

- Scanning the RFID tag on a roll (or chock it is built with) shows a menu providing quick access to its next step and current information about the roll.



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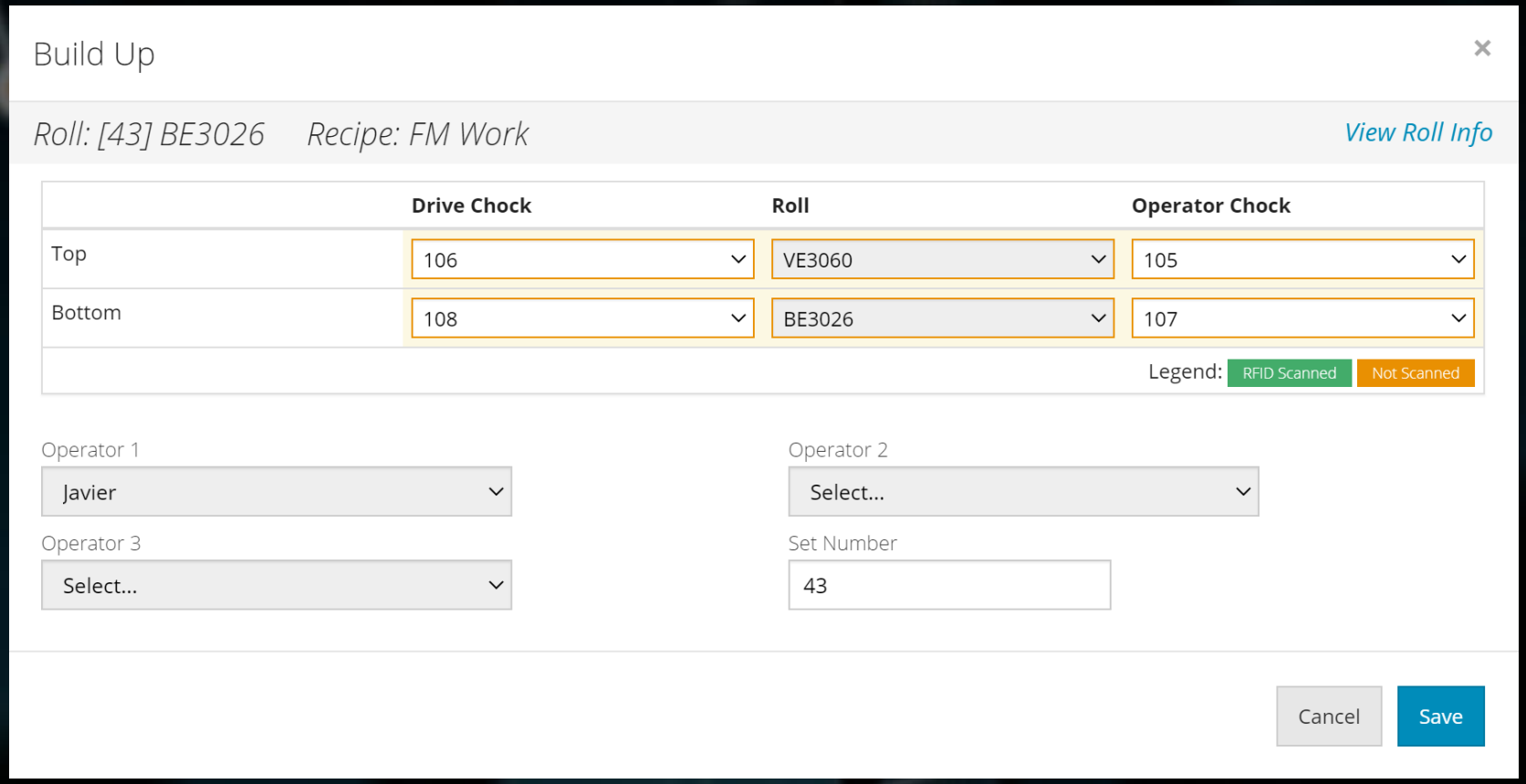
Quick Data Entry w/RFID Capability

- Scanning rolls and chocks in a build up operation can speed up selection and immediately provide positive identification feedback



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RFID Capability

- RFID Tag Mounted in Roll

ADD NEW ROLL/EDIT ROLL INFO SCREEN (CAN BE MODIFIED WITH CUSTOM FIELDS)

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View/Edit Roll 766

Mill: CM

Roll Type: CM Work

Roll: 766

Mate: 767

Stand Position: Top

Recipe: LLB

Received Date: 01/18/2004

Received Diameter: 538

Vendor: Union Ackers

Cost:

Attachments

Select File To Add | Browse...

Barrel Hardness

Journal Hardness

Inner Bearing Race Number

Roll Material: Forged 3CRMO

Scrapped Retired

(Re)assign RFID Tag

Cancel Update

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Customizable Operation screens

- Operation entry screens are configured with custom fields and custom validation routines.
- Examples of operation screens are Grind, Build Up, Dechock, EDT, Chrome, Put On Cart, Stage, Ship to OSP, etc.
- New operation screens can be added to track all processes that a roll goes through.

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EXAMPLE GRIND ENTRY SCREEN

View/Edit Operation - Grind

Roll: 767 *Recipe: LLB* *View Roll Info*

Start Diameter: 498.25
End Diameter: 497.85
Grind Reason: Scheduled
Grind Start Time: 09-24-2019 15:13
Grind End Time: 09-25-2019 16:44

Measured Crown: 0.03
Hardness:
Measured Taper:
Grinder: Grinder 6
Wheel: SAP 9000000(

RA 1: 25
RA 2: 23
RA 3: 25
RA 4: 22
RA 5: 21

Dirty PRO-MIC Skate: Promic 1 Capture
Ground PRO-MIC Skate: Promic 1 Capture

Operator: Javier (Dev)
Reason Skate Not Done:
Grind Delay Reason:

Comments:

Cancel Save Progress Finish Step

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BUILD UP SCREEN (CHOCKS AND ROLLS CAN BE SCANNED USING RFID OR SELECTED FROM LIST)

Build Up

Roll: [43] BE3026 *Recipe: FM Work* *View Roll Info*

	Drive Chock	Roll	Operator Chock
Top	106	VE3060	105
Bottom	108	BE3026	107

Legend: RFID Scanned | Not Scanned

Operator 1: Javier

Operator 2: Select...

Operator 3: Select...

Set Number: 43

Cancel | Save

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DECHOCK SCREEN

View/Edit Operation - DeChock

Roll: B042 *Recipe: Backup* *View Roll Info*

Operation Affected Rolls

Roll	Mate	Mill	Type	Diameter	Surface Status	Drive Chock	Operator Chock
B042	B043	CM	CM Backup	1360.27	Ground	B1B	B1A
B043	B042	CM	CM Backup	1359.2	Ground	B2D	B2C

Operator 1

Javier (Dev)

Operator 2

Select...

Cancel

Finish Step

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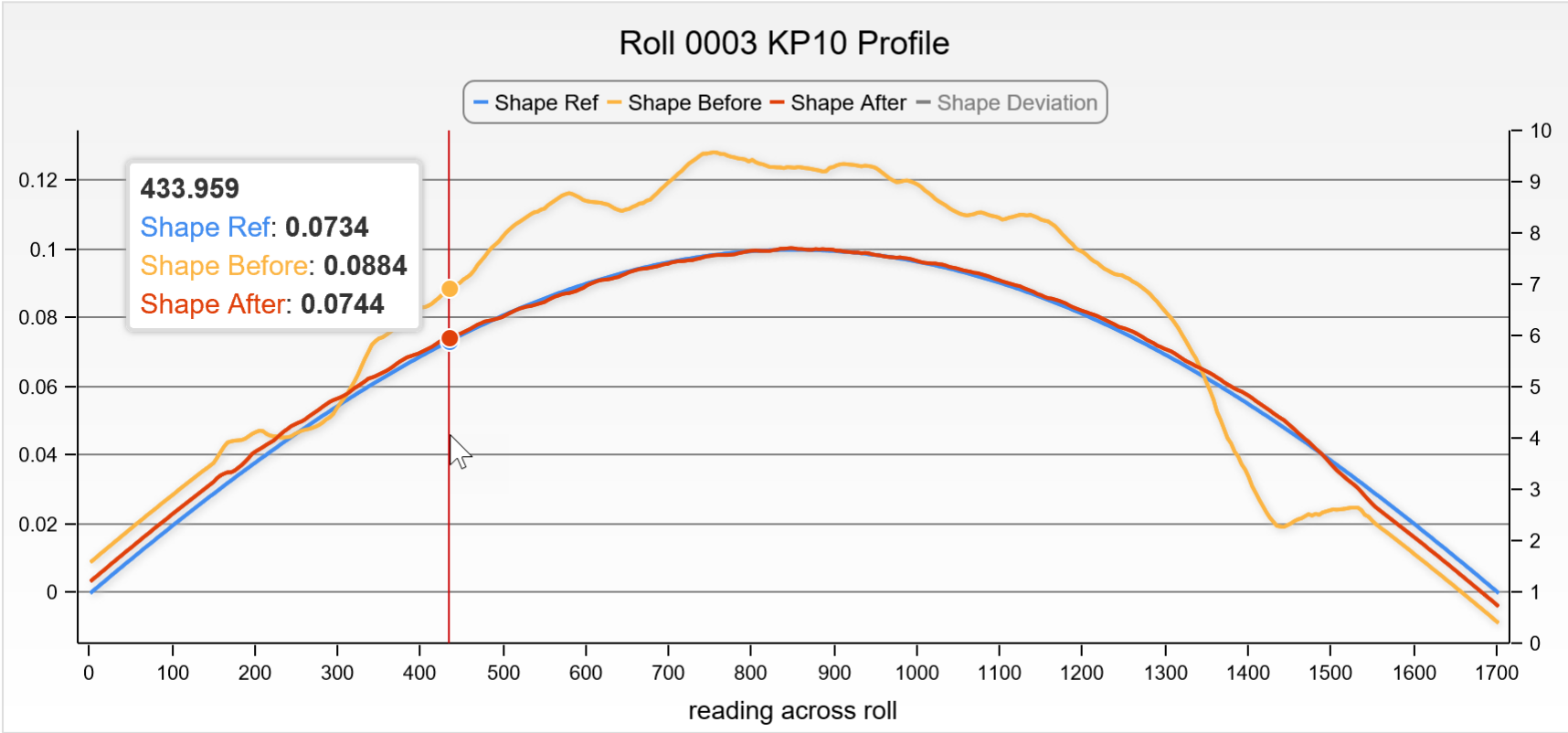
PRODUCTION CHART- VIEW CHARTS SCREEN – ROLL PROFILE

Charts - Roll 0003

Type: KP10 Profile

Date: 03/26/2018 10:07

Compare



PRODUCTION CHART- ROLL DEFECT MAP

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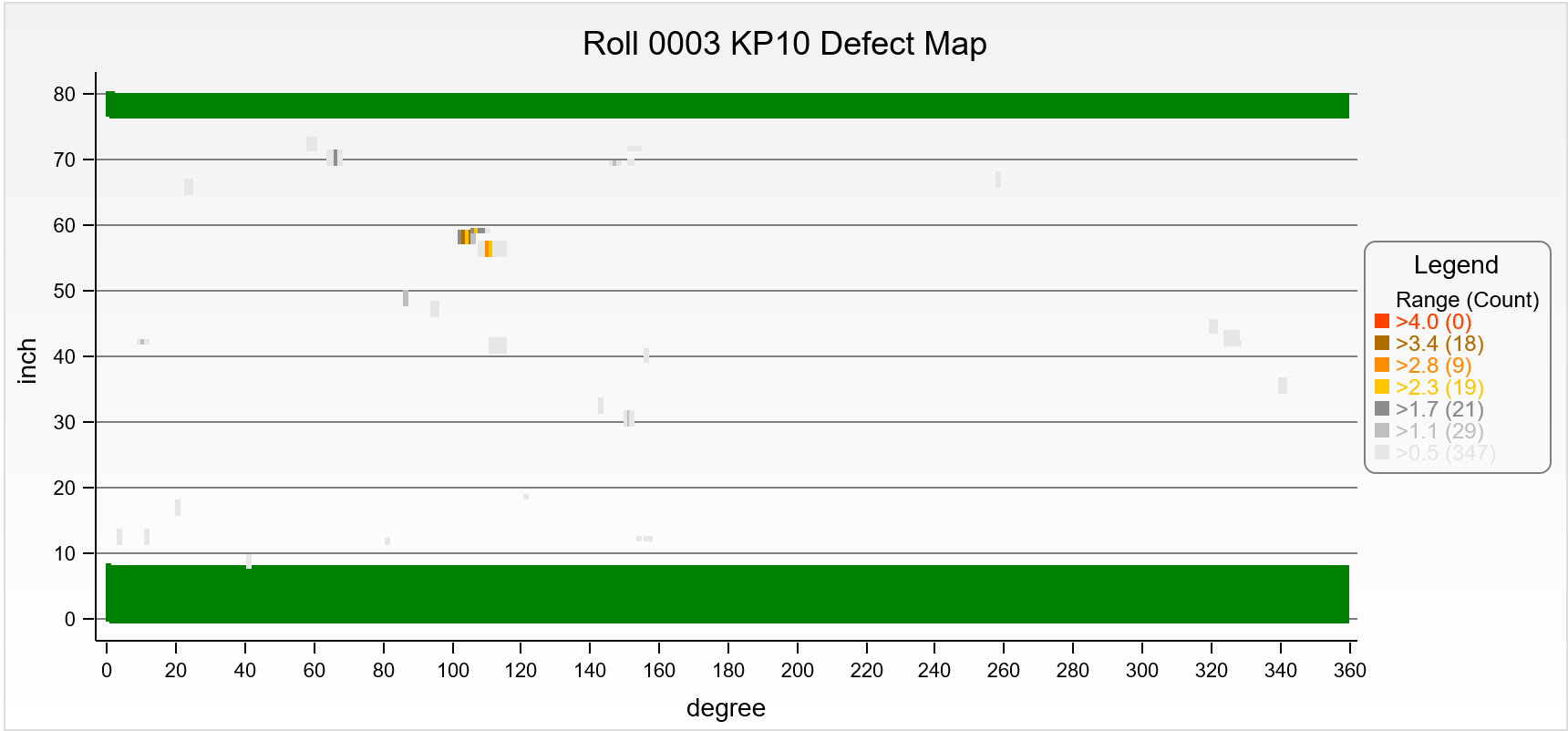
Charts - Roll 0003

Type: KP10 Defect Map

Date: 03/23/2018 22:56

Compare



PRODUCTION CHART- ROLL CRACK & BRUISE

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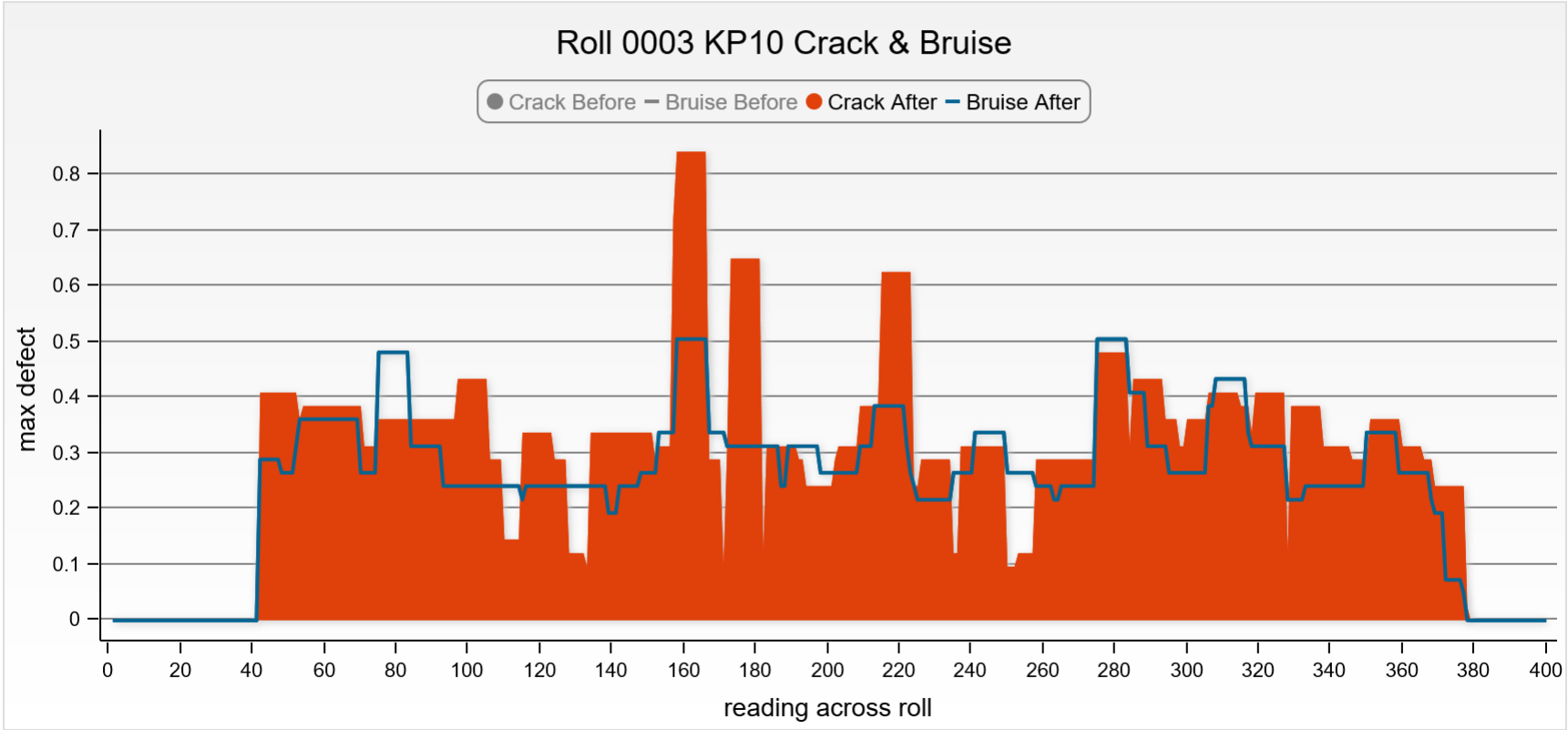
Charts - Roll 0003

Type: KP10 Crack & Bruise

Date: 03/26/2018 10:07

Compare



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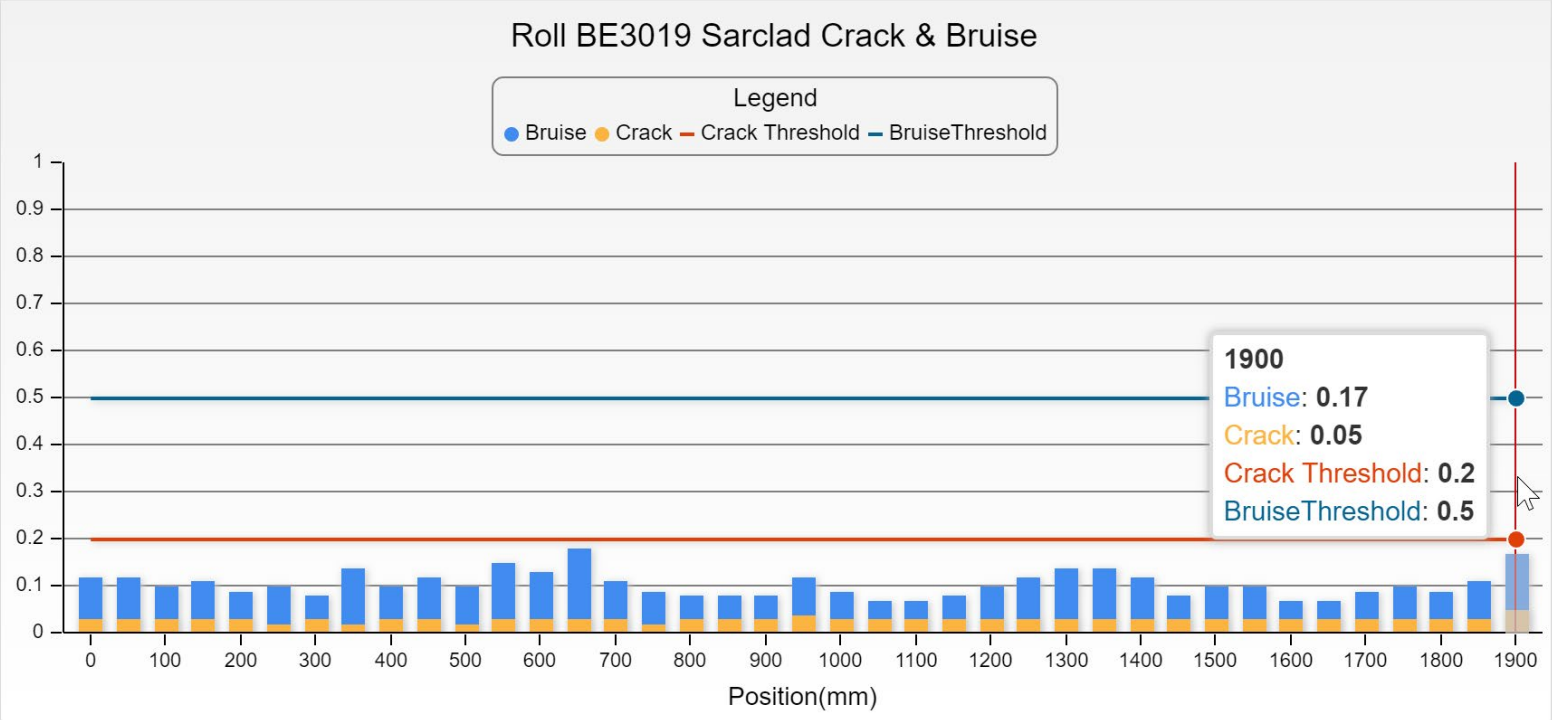
PRODUCTION CHART- SARCLAD CRACK & BRUISE

Charts - Roll BE3019

Type: Sarclad Crack & Bruise

Date: 09/10/2019 16:14

Compare



Print

Close

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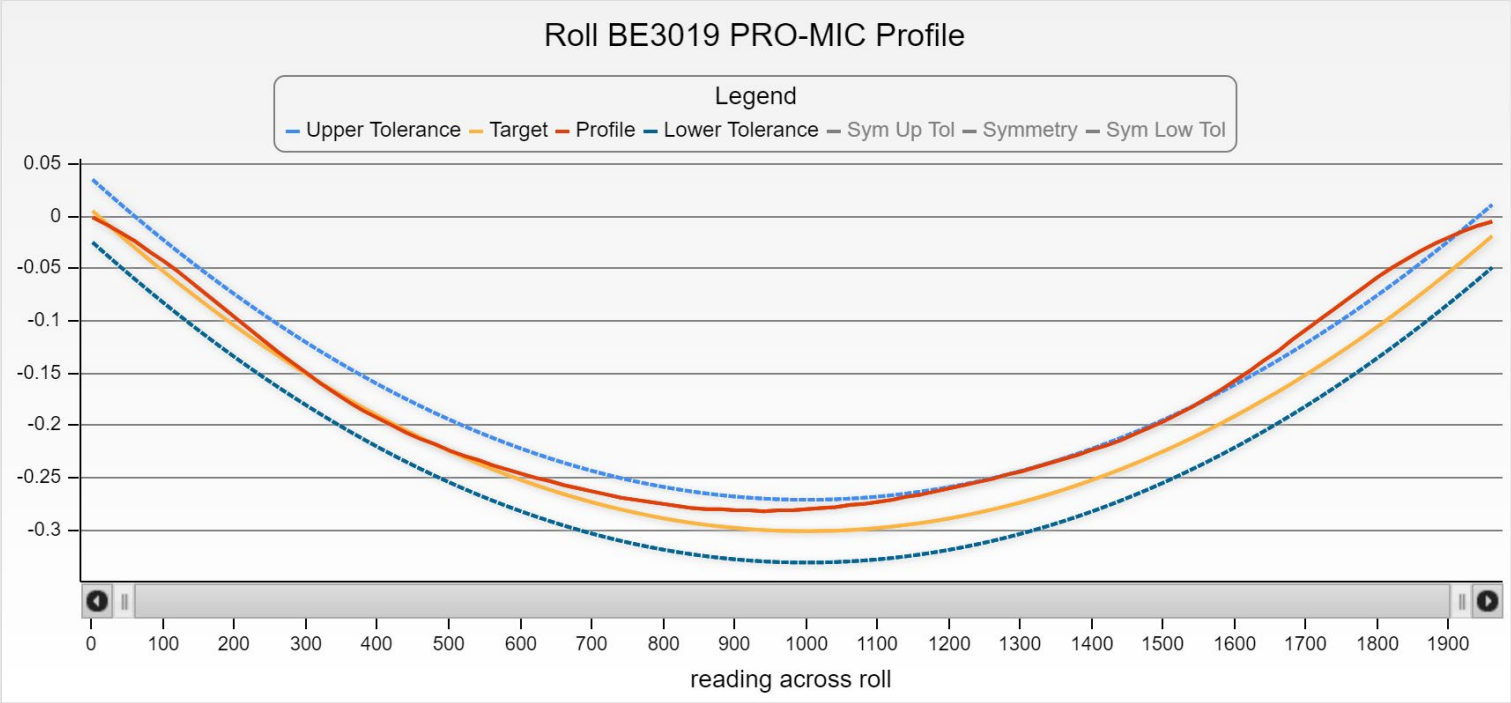
PRODUCTION CHART- PRO-MIC PROFILE WITH TOLERANCE CHECKS

Charts - Roll BE3019 Type PRO-MIC Profile Date 09/20/2019 10:19 Compare

OUT OF TOLERANCE: [Shape] **Crown: -0.279 @ 920** **Taper: -0.004 @ 1960** **Minimum: -0.281 @ 940** **Maximum: 0.000 @ 0**



Print Close

PRODUCTION CHART COMPARE- ABILITY TO COMPARE TWO CHARTS

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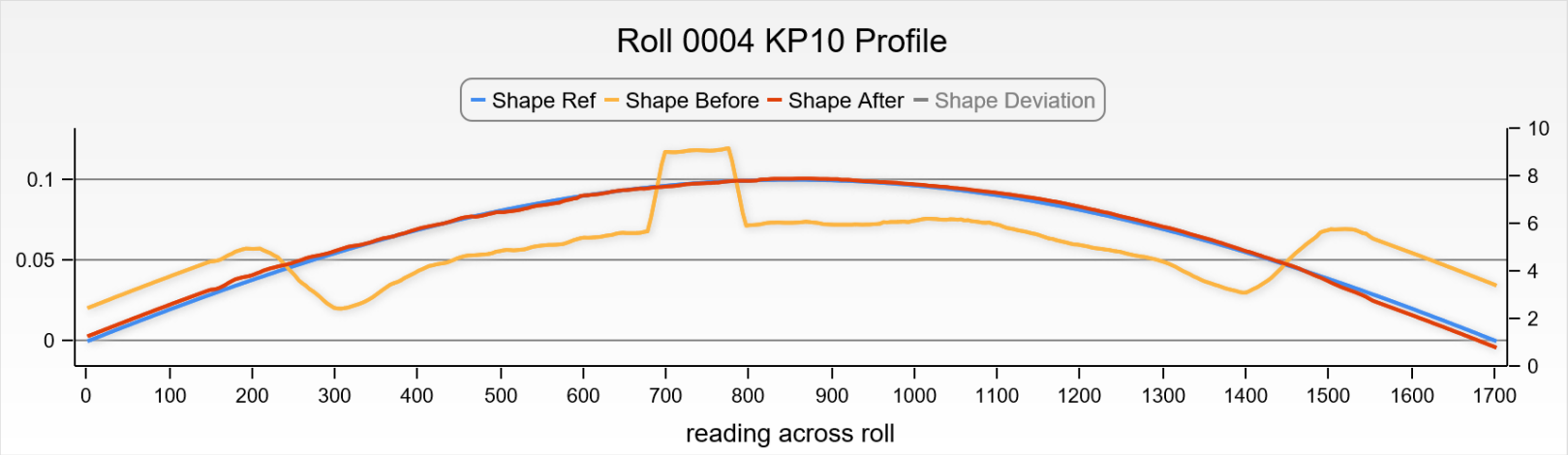
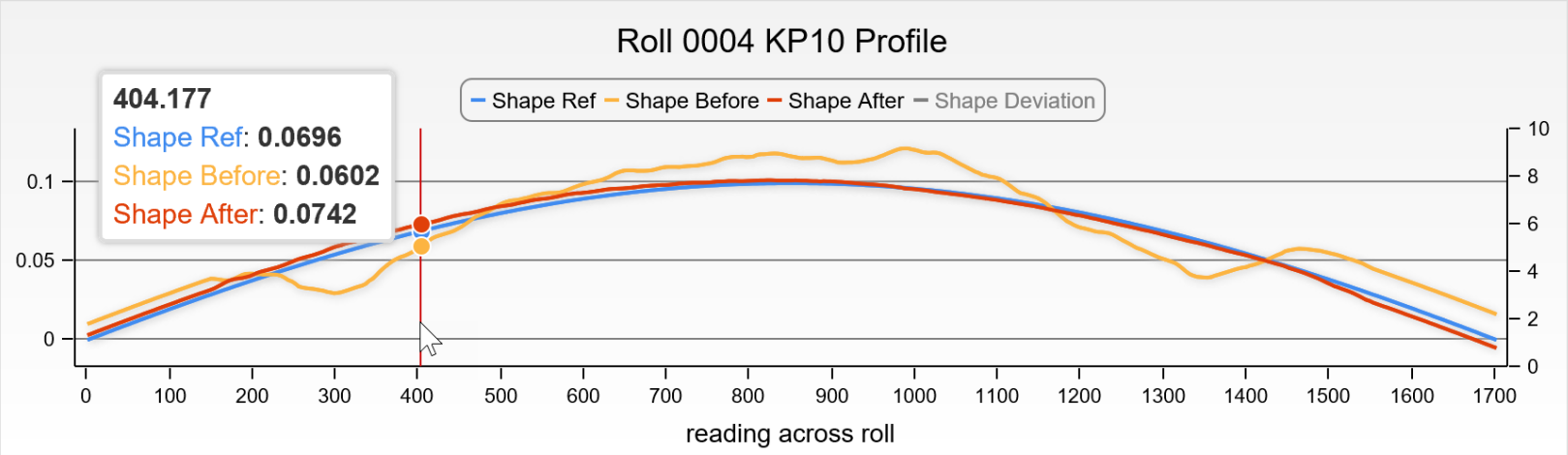
Charts - Roll 0004

Type KP10 Profile Date 03/26/2018 10:36 Compare

Type KP10 Profile Date 03/16/2018 21:04





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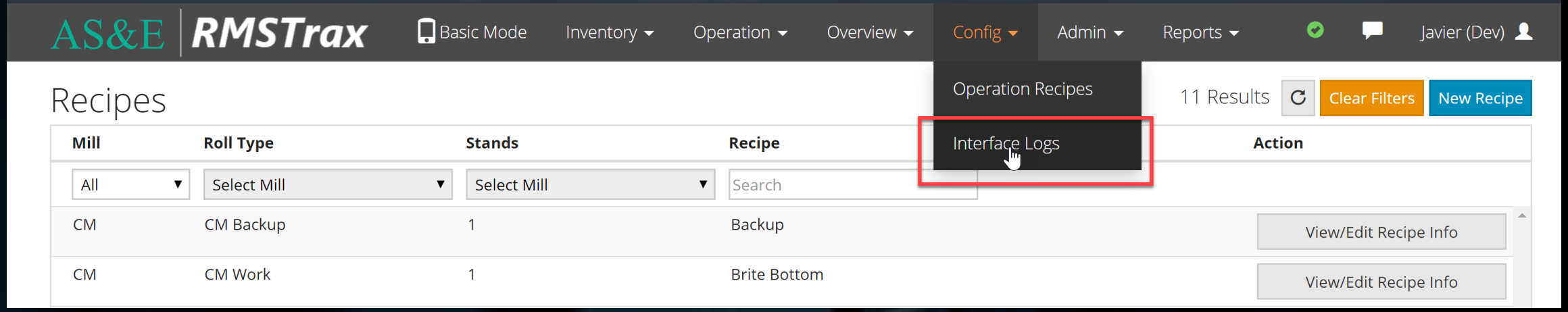
Interface logs

- Data captured from external interfaces (grinders, Mill Level 2 communications, etc.) can be monitored from logs.
- Any potential data entry problems can be corrected through the interface logs screen.



INTERFACE LOGS

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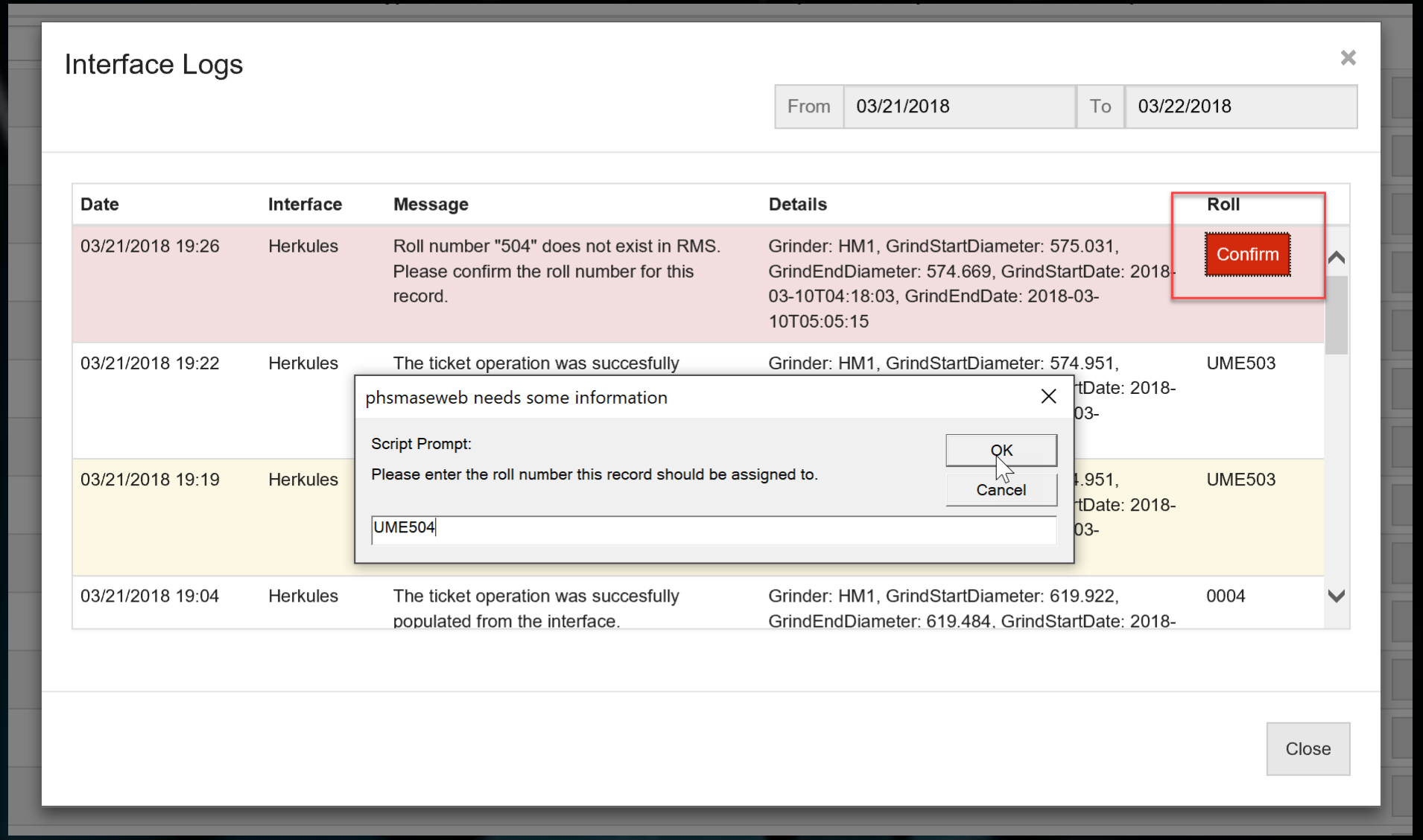

OVERVIEW- ROLLS BY STAND (CAN BE SET TO AUTO REFRESH TO BE DISPLAYED ON A LARGE TV)

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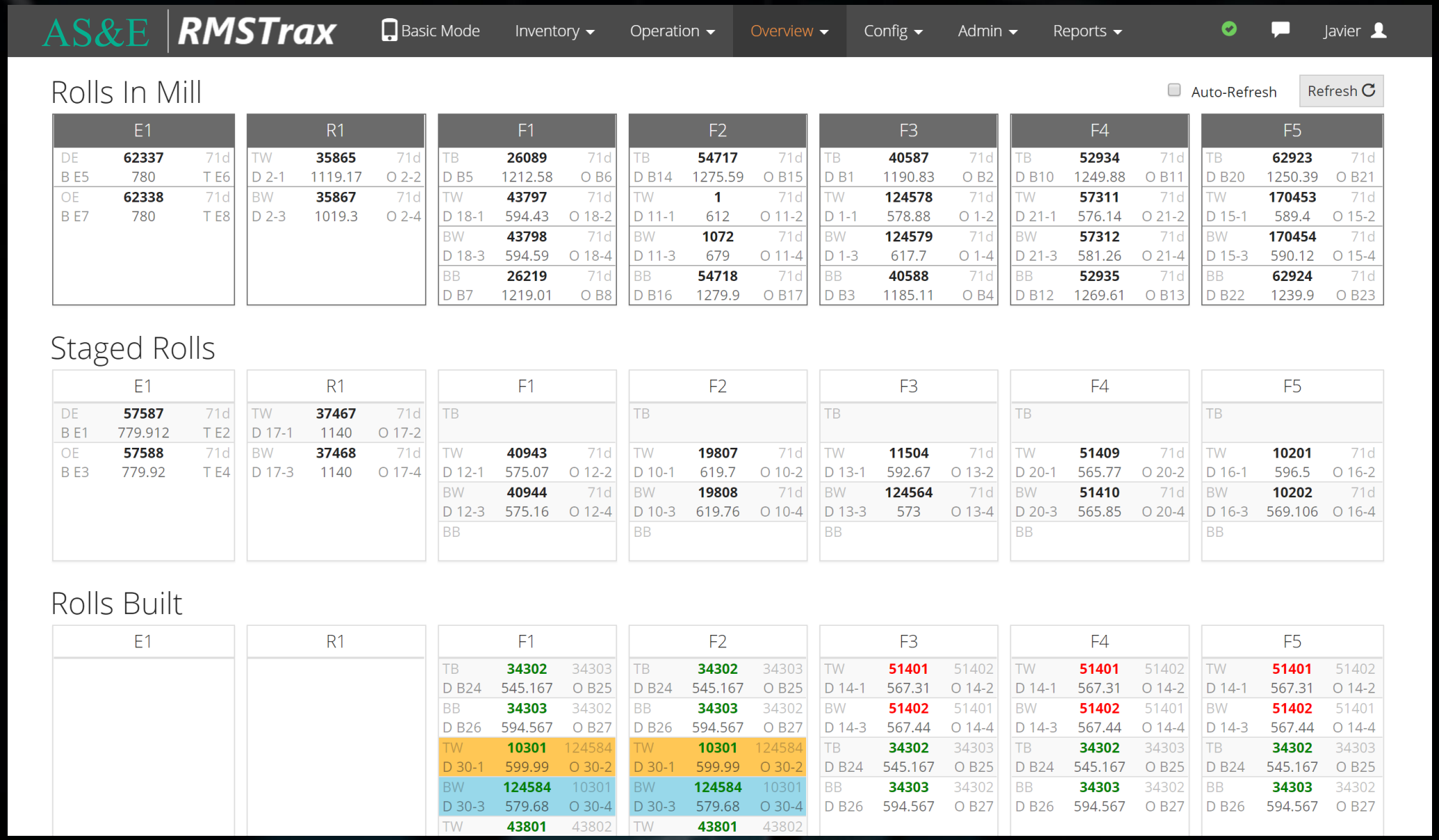

Rolls In Mill

E1			R1			F1			F2			F3			F4			F5		
DE	**62337**	71d	TW	**35865**	71d	TB	**26089**	71d	TB	**54717**	71d	TB	**40587**	71d	TB	**52934**	71d	TB	**62923**	71d
B E5	780	T E6	D 2-1	1119.17	O 2-2	D B5	1212.58	O B6	D B14	1275.59	O B15	D B1	1190.83	O B2	D B10	1249.88	O B11	D B20	1250.39	O B21
OE	**62338**	71d	BW	**35867**	71d	TW	**43797**	71d	TW	**1**	71d	TW	**124578**	71d	TW	**57311**	71d	TW	**170453**	71d
B E7	780	T E8	D 2-3	1019.3	O 2-4	D 18-1	594.43	O 18-2	D 11-1	612	O 11-2	D 1-1	578.88	O 1-2	D 21-1	576.14	O 21-2	D 15-1	589.4	O 15-2
						BW	**43798**	71d	BW	**1072**	71d	BW	**124579**	71d	BW	**57312**	71d	BW	**170454**	71d
						D 18-3	594.59	O 18-4	D 11-3	679	O 11-4	D 1-3	617.7	O 1-4	D 21-3	581.26	O 21-4	D 15-3	590.12	O 15-4
						BB	**26219**	71d	BB	**54718**	71d	BB	**40588**	71d	BB	**52935**	71d	BB	**62924**	71d
						D B7	1219.01	O B8	D B16	1279.9	O B17	D B3	1185.11	O B4	D B12	1269.61	O B13	D B22	1239.9	O B23

Staged Rolls

E1			R1			F1			F2			F3			F4			F5		
DE	**57587**	71d	TW	**37467**	71d	TB			TB			TB			TB			TB		
B E1	779.912	T E2	D 17-1	1140	O 17-2	TW	**40943**	71d	TW	**19807**	71d	TW	**11504**	71d	TW	**51409**	71d	TW	**10201**	71d
OE	**57588**	71d	BW	**37468**	71d	D 12-1	575.07	O 12-2	D 10-1	619.7	O 10-2	D 13-1	592.67	O 13-2	D 20-1	565.77	O 20-2	D 16-1	596.5	O 16-2
B E3	779.92	T E4	D 17-3	1140	O 17-4	BW	**40944**	71d	BW	**19808**	71d	BW	**124564**	71d	BW	**51410**	71d	BW	**10202**	71d
						D 12-3	575.16	O 12-4	D 10-3	619.76	O 10-4	D 13-3	573	O 13-4	D 20-3	565.85	O 20-4	D 16-3	569.106	O 16-4
						BB			BB			BB			BB			BB		

Rolls Built

E1	R1	F1			F2			F3			F4			F5		
		TB	**34302**	34303	TB	**34302**	34303	TW	**51401**	51402	TW	**51401**	51402	TW	**51401**	51402
		D B24	545.167	O B25	D B24	545.167	O B25	D 14-1	567.31	O 14-2	D 14-1	567.31	O 14-2	D 14-1	567.31	O 14-2
		BB	**34303**	34302	BB	**34303**	34302	BW	**51402**	51401	BW	**51402**	51401	BW	**51402**	51401
		D B26	594.567	O B27	D B26	594.567	O B27	D 14-3	567.44	O 14-4	D 14-3	567.44	O 14-4	D 14-3	567.44	O 14-4
		TW	**10301**	124584	TW	**10301**	124584	TB	**34302**	34303	TB	**34302**	34303	TB	**34302**	34303
		D 30-1	599.99	O 30-2	D 30-1	599.99	O 30-2	D B24	545.167	O B25	D B24	545.167	O B25	D B24	545.167	O B25
		BW	**124584**	10301	BW	**124584**	10301	BB	**34303**	34302	BB	**34303**	34302	BB	**34303**	34302
		D 30-3	579.68	O 30-4	D 30-3	579.68	O 30-4	D B26	594.567	O B27	D B26	594.567	O B27	D B26	594.567	O B27
		TW	**43801**	43802	TW	**43801**	43802									

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Wheel Inventory Tracking

- Wheel Inventory Screen:
  - Data can be filtered or sorted.
  - Create and Edit Wheel Info
  - Update Scrap Diameter for wheel to calculate total roll stock ground over life of wheel

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WHEEL INVENTORY SCREEN

AS&E | RMSTrax Basic Mode Inventory Operation Overview Config Admin Reports Javier (Dev)

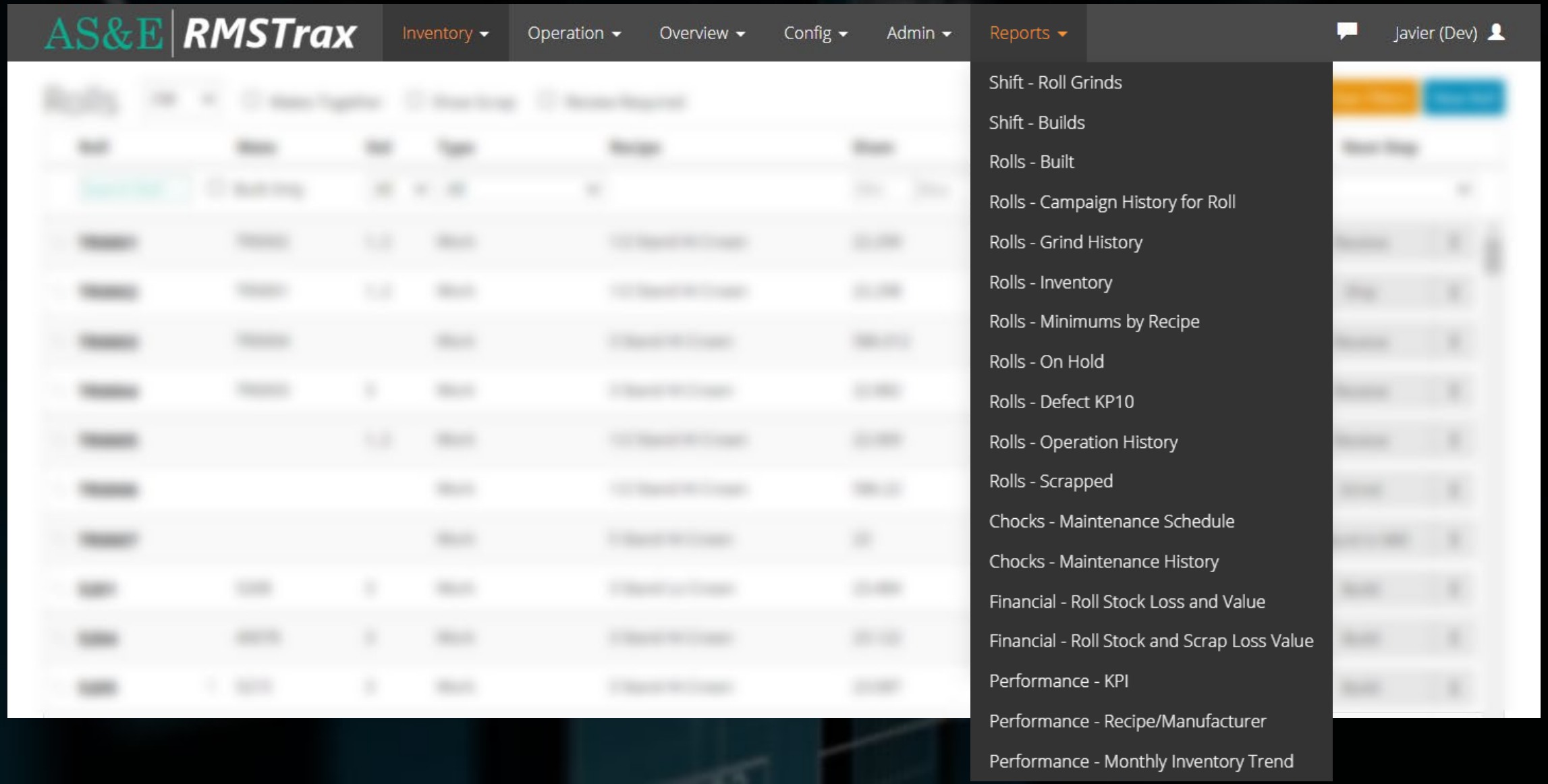
Wheels

View Scrapped & Retired

7 Results Clear Filters New Wheel

Wheel	Mill	Diameter	Type	Scrapped	Retired	Action
Search	CM		All	No	No	
SA[redacted]	CM		Gardiner 320 Grit 30”x3”x12”	No	No	Edit
SA[redacted]	CM		Gardiner 180 Grit 30”x3”x12”	No	No	Edit
SA[redacted]	CM		Norton 80 Grit 36”x3”x20”	No	No	Edit
SA[redacted]	CM		Gardiner 500 Grit 30”x3”x12”	No	No	Edit
SA[redacted]	CM		Norton 76 Grit 26”x3”12”	No	No	Edit
SA[redacted]	CM		Norton Sol Gel 120 Grit 30”x3”x12”	No	No	Edit
Test Wheel	CM		Gardiner 180 Grit 30”x3”x12”	No	No	Edit

REPORTS LIST EXAMPLE



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Customizable Reports

- Financial analysis:
  - Cost of roll usage per ton rolled
  - Total reduction
  - Cost per millimeter of reduction
  - Scrapped roll report
- Roll and chock campaign details:
  - Start and end date and time of campaign
  - Total tonnage
  - Kilometers rolled
- Grind analysis reports:
  - Productivity per shift
  - Grinds by grinder and operator
  - OSP performance
  - Reduction analysis by grinder, operator, roll vendor, OSP

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Custom Reports

- Inventory Analysis and Availability reports:
  - Current status of all rolls and chocks
  - Desired minimum quantities by status, stand, roll type
  - Available inventory by diameter range groups for each stand
  - Roll Consumption and Inventory Trends over time
- Supplier performance:
  - Compare performance by
    - Roll type
    - Average reduction
    - Cost per grind
    - Tons/Length rolled per reduction unit
    - Defects
    - Grinding wheels
- Easy way to export to many formats (Excel, PDF, XML, CSV, etc.)

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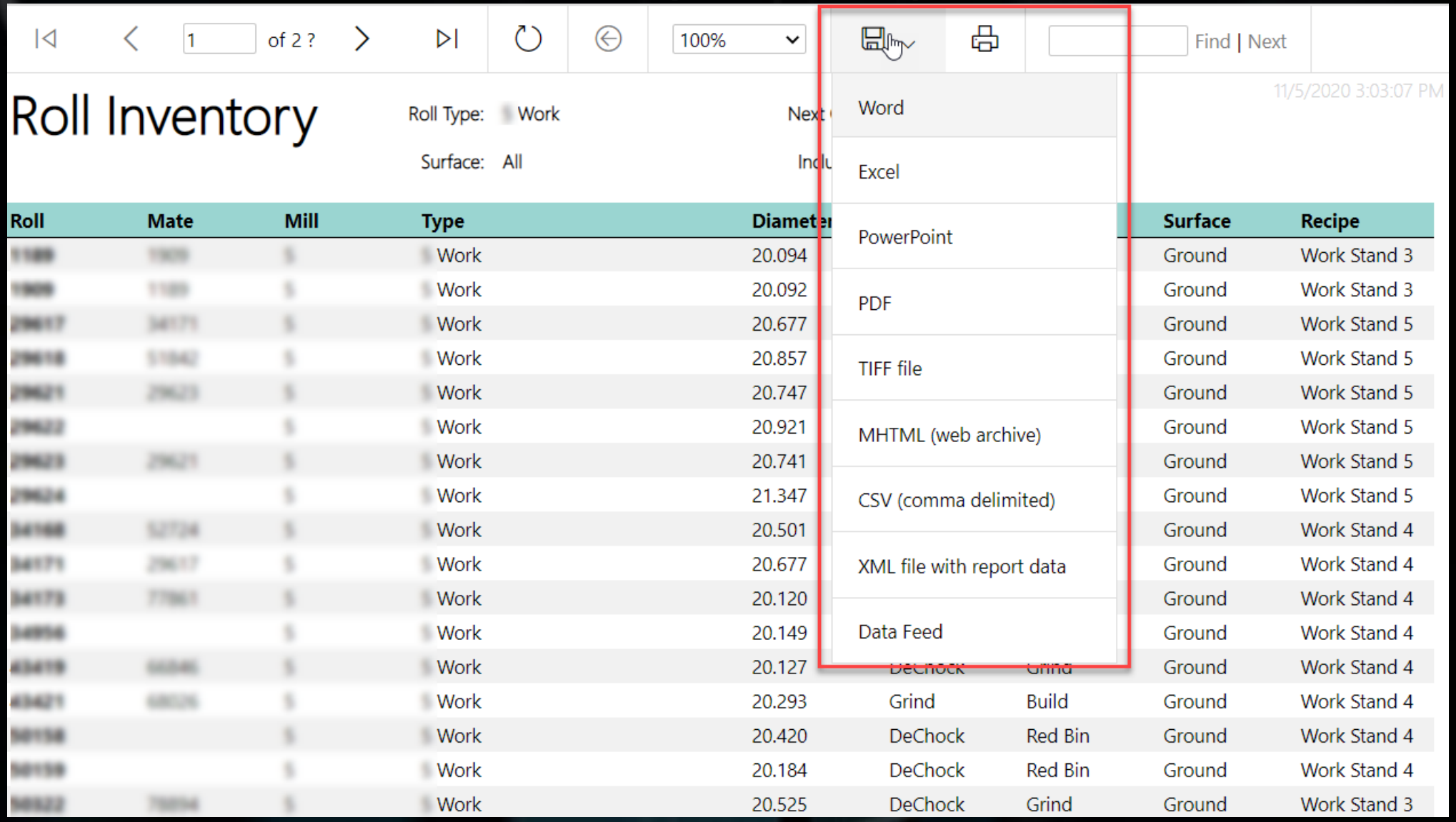
REPORTS: EXPORTABLE TO MANY FORMATS (EXCEL, PDF, ETC.)



Roll Inventory

Roll Type: Work

Surface: All

11/5/2020 3:03:07 PM

Roll	Mate	Mill	Type	Diameter			Surface	Recipe
[illegible]	[illegible]	[illegible]	Work	20.094			Ground	Work Stand 3
[illegible]	[illegible]	[illegible]	Work	20.092			Ground	Work Stand 3
[illegible]	[illegible]	[illegible]	Work	20.677			Ground	Work Stand 5
[illegible]	[illegible]	[illegible]	Work	20.857			Ground	Work Stand 5
[illegible]	[illegible]	[illegible]	Work	20.747			Ground	Work Stand 5
[illegible]		[illegible]	Work	20.921			Ground	Work Stand 5
[illegible]	[illegible]	[illegible]	Work	20.741			Ground	Work Stand 5
[illegible]		[illegible]	Work	21.347			Ground	Work Stand 5
[illegible]	[illegible]	[illegible]	Work	20.501			Ground	Work Stand 4
[illegible]	[illegible]	[illegible]	Work	20.677			Ground	Work Stand 4
[illegible]	[illegible]	[illegible]	Work	20.120			Ground	Work Stand 4
[illegible]		[illegible]	Work	20.149			Ground	Work Stand 4
[illegible]	[illegible]	[illegible]	Work	20.127	DeChock	Grind	Ground	Work Stand 4
[illegible]	[illegible]	[illegible]	Work	20.293	Grind	Build	Ground	Work Stand 4
[illegible]		[illegible]	Work	20.420	DeChock	Red Bin	Ground	Work Stand 4
[illegible]		[illegible]	Work	20.184	DeChock	Red Bin	Ground	Work Stand 4
[illegible]	[illegible]	[illegible]	Work	20.525	DeChock	Grind	Ground	Work Stand 3

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REPORT EXAMPLE: ROLL CONSUMPTION AND ROLL BUY CALCULATION AIDS

Start Date 1/1/2020 End Date 8/31/2020
Mill HM Roll Type Category All
Roll Type FM Work Trailing Period 3 Months

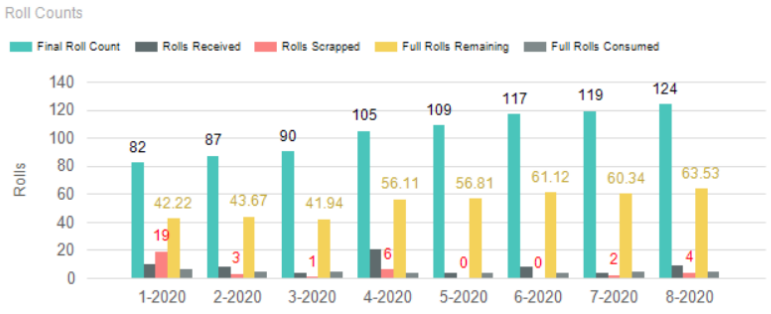
1 of 1 100% Find | Next

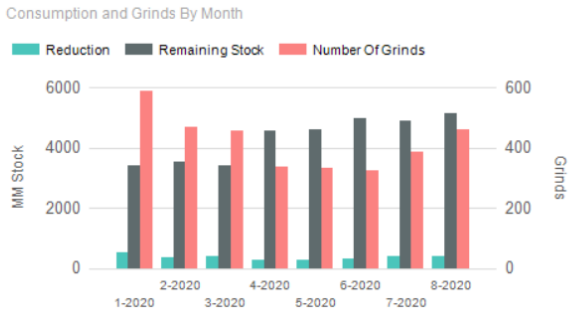
Month to Month Inventory Trends Report** from **1/1/2020** to **8/31/2020:

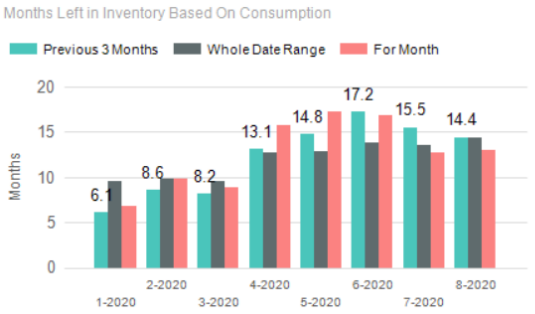
Printed on: 9/4/2020 8:55:42 PM

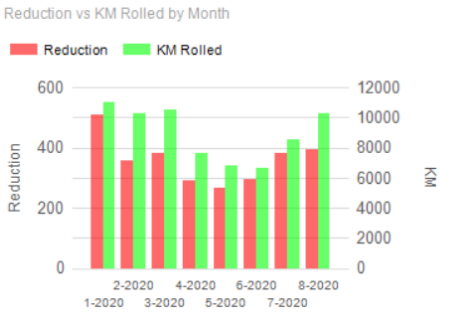
Type and Recipe	#Grinds	Avg Reduc	Reduction	Roll Life Size	Consumed	Grinds/Roll Life	Months Left Based On Consumption:			Scrap Loss	KM Rolled	Tons Produced
							Previous 3 Months	Whole Date Range	For Month			
FM Work	3348	0.858	2872.08	81	35.5	94				348.42	71,684	1,129,604

Month	Final Roll Count	#Received	#Scrapped	#Grinds	Avg Reduc	Inventory MM	Reduction	Inv as #Full Rolls	Consumed	% Remain	Avg Roll % Left	Grinds/Roll Life				Scrap Loss	KM Rolled	Tons Produced	Remaining Value
1-2020	82	10	19	588	0.860	3,419.52	507.38	42.22	6.3	51.5%	41.8%	94	6.1	9.5	6.8	0	11,012	169,529	$2,360,639
2-2020	87	8	3	470	0.760	3,537.05	355.46	43.67	4.4	50.2%	50.9%	107	8.6	9.9	9.9	171.85	10,292	161,072	$2,595,002
3-2020	90	4	1	456	0.840	3,397.39	380.86	41.94	4.7	46.6%	47.1%	96	8.2	9.5	8.9	78.09	10,494	161,998	$2,445,983
4-2020	105	20	6	336	0.860	4,545.16	289.95	56.11	3.6	53.4%	50.8%	94	13.1	12.7	15.7	26	7,598	121,289	$3,203,342
5-2020	109	4	0	333	0.800	4,601.30	266.77	56.81	3.3	52.1%	52.1%	101	14.8	12.8	17.3		6,832	113,260	$3,270,718
6-2020	117	8	0	322	0.910	4,950.55	294	61.12	3.6	52.2%	52.3%	89	17.2	13.8	16.9		6,676	111,523	$3,559,397
7-2020	119	4	2	384	1.000	4,887.72	383.29	60.34	4.7	50.7%	49.9%	81	15.5	13.6	12.7	1.17	8,498	135,226	$3,573,551
8-2020	124	9	4	459	0.860	5,145.79	394.37	63.53	4.9	51.2%	50.3%	94	14.4	14.3	13	71.31	10,282	155,707	$3,835,318









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REPORT EXAMPLE: ROLL SUPPLIER PERFORMANCE REPORT

Home > Financial RMS Reports > Roll_Performance

Start Date 1/1/2020 End Date 6/30/2020
Mill HM Roll Type Category All
Roll Type FM Work Group By Vendor

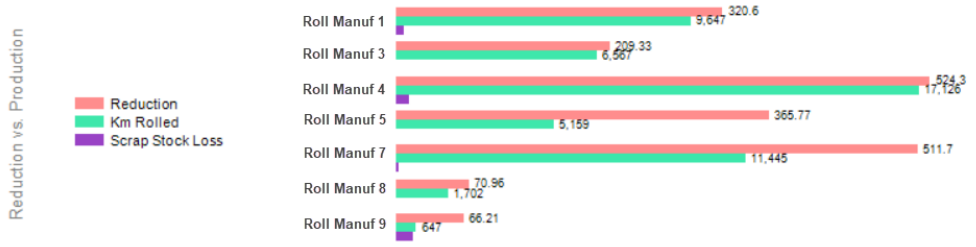
1 of 1 100% Find | Next

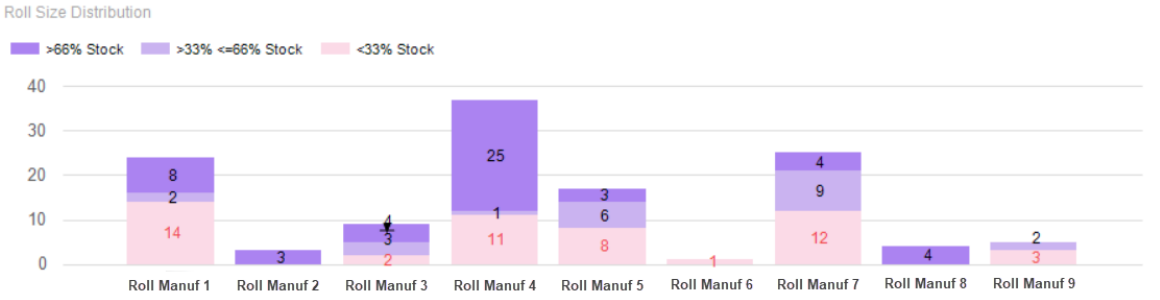
***Roll Performance Report** from **1/1/2020** to **6/30/2020**:*

Printed on: 9/4/2020 9:11:57 PM

Vendor Performance for Roll Type Recipe (Ranked by Avg Reduction)

Rank	Roll Type and Recipe	#Rolls	#Grinds	Avg Reduc	Avg Reduc Cost	Avg Cost/MM	Avg KM/MM	Avg Tons/MM	Avg Cost/KM	Avg Cost/Ton	Reduction	Reduction Cost	Scrap Loss	Km Rolled	Tons Produced	Remaining Value	Inventory MM
	FM Work	145	2,483	0.903	$627.35	$694.90	27.0	435	$32.29	$2.07	2,068.87	$1,510,568.40	275.94	52,293	828,761	$3,707,254.22	5,219.71
1	Roll Manufacturer 4	40 (28%)	759	0.66	$494.48	$731.50	32.7	542	$24.20	$1.50	524.30	$397,633.12	11.97	17,126	272,703	$1,425,453.04	2,043.93 (39%)
2	Roll Manufacturer 3	15 (10%)	289	0.732	$543.53	$764.40	28.3	441	$29.73	$1.88	209.33	$187,516.16	0	6,567	102,757	$381,304.65	413.24 (8%)
3	Roll Manufacturer 1	26 (18%)	410	0.778	$570.51	$714.60	30.0	469	$27.90	$1.83	320.60	$254,203.82	7.75	9,647	149,732	$611,005.00	823.08 (16%)
4	Roll Manufacturer 7	28 (19%)	587	0.96	$575.03	$622.00	24.0	389	$34.17	$2.22	511.70	$319,518.14	1.92	11,445	185,951	$485,367.77	779.27 (15%)
5	Roll Manufacturer 9	4 (3%)	74	1.005	$763.38	$762.30	24.7	378	$34.85	$2.27	70.96	$54,047.02		1,702	26,090	$191,161.16	250.73 (5%)
6	Roll Manufacturer 5	21 (14%)	314	1.319	$955.72	$716.40	17.0	267	$50.96	$3.26	365.77	$261,040.83	0	5,159	82,103	$421,902.00	549.78 (11%)
7	Roll Manufacturer 8	7 (5%)	50	2.14	$1,168.42	$544.60	10.6	153	$52.88	$3.64	66.21	$36,609.31	16.33	647	9,425	$60,955.07	111.34 (2%)
	Roll Manufacturer 2	3 (2%)	0	0	$0.00	$521.90	0.0	0	$0.00	$0.00	0.00	$0.00	237.97			$124,224.64	237.97 (5%)
	Roll Manufacturer 6	1 (1%)	0	0	$0.00	$567.10	0.0	0	$0.00	$0.00	0.00	$0.00				$5,880.89	10.37 (0%)





REPORT EXAMPLE: MONTHLY ACCOUNTING - INVENTORY VALUE AND STOCK LOSS

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Start Date 10/1/ End Date 10/31/

Mill Roll Type Work

1 of 1 100% Find | Next

Roll Inventory Stock Loss and Value

By Date Range

Date: 11/5/2020 3:08 PM

Report Parameters

Start Date 10/1/

End Date 10/31/

Received Date	Roll Number	Initial Diam	Final Diam	Loss	Price	Reduction Cost	Inventory Inches	Remaining Value
Work - Stand 1				**0.163**		**$4,698.66**	**9.24**	**$266,658.48**
5/23/		29.832	29.832	0		$0.00	0.132	$3
3/6/2		29.749	29.749	0		$0.00	0.049	$1
1/1/1		29.734	29.734	0		$0.00	0.034	
12/31		29.952	29.952	0		$0.00	0.252	$7
11/22		29.822	29.822	0		$0.00	0.122	$3
12/31		29.959	29.959	0		$0.00	0.259	$7
12/31		29.785	29.785	0		$0.00	0.085	$2
12/31		29.773	29.773	0		$0.00	0.073	$2
11/22		29.815	29.815	0		$0.00	0.115	$3
7/28/		29.82	29.82	0		$0.00	0.12	$3
4/24/		31.755	31.707	0.048		$1,383.61	2.007	$57
4/23/		31.766	31.715	0.051		$1,470.15	2.015	$58
4/25/		31.716	31.685	0.031		$893.61	1.985	$57
4/24/		31.725	31.692	0.033		$951.29	1.992	$57

Received Date	Roll Number	Initial Diam	Final Diam	Loss	Price	Reduction Cost	Inventory Inches	Remaining Value
Work - Stand 2				**0.406**		**$11,556.78**	**21.982**	**$624,864.37**
1/1/		31.396	31.365	0.031		$837.88	1.665	$45,
5/3/		31.381	31.351	0.03		$810.53	1.651	$44,
11/2		30.135	30.104	0.031		$890.13	0.404	$11

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Roll Shop Management System