ProCon

Real-time Production Monitoring System

Reader and i-Tag based system

ProCon Reader

ProCon Reader

- A ProCon reader is attached to every workstation in the sewing line.
- All readers in the line are networked and connected to a Data Capturing PC which capture the punches from all readers.
- An i-Tag is programmed and tied to every bundle at cutting section and issued to sewing line for production.
- This i-Tag travels along with the bundle in the sewing line from start operation to final operation.
- Operators prior to start the operation for the bundle, will punch in the bundle's i-Tag in the reader to record the operation Start time.
- Operators on completion of all the pieces in the bundle, will punch the same bundle's i-Tag in the reader to record the operation End time and the bundle is moved along with i-Tag to the next operator.
- All the subsequent operators will tag in and tag out the bundle's i-Tag for their respective operation to record the production

ProCon Readers in Sewing Line

ProCon Readers in Sewing Line

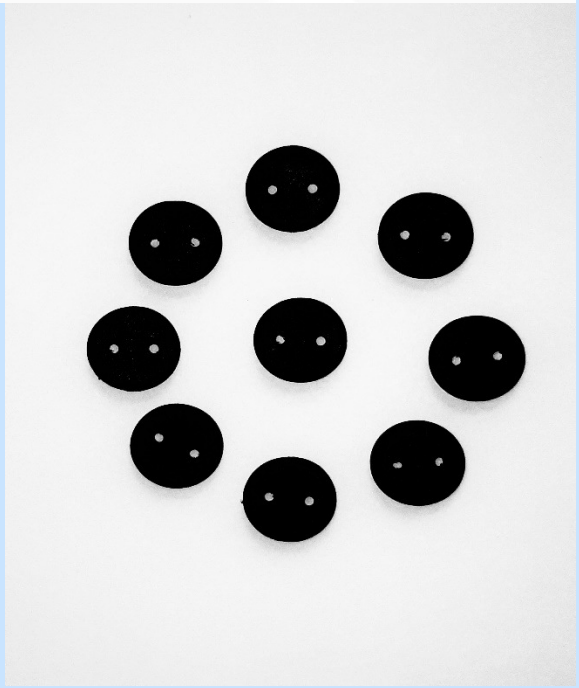
ProCon readers capture the punches made by the operators for Log-In, Log-Out, Bundle Start and Bundle End and updates the information in the central database server instantaneously.

The reader displays the Operator's name, Target, Actual production, Efficiency, Idle Time and Excess Time.

The reader has four functional keys for the following :

- **Info** - Toggle between Operators' production and Operation time details.
- **Mech -** During machine breakdown, Operator can request for a maintenance attention by pressing this key. Reader sends an alert as SMS to the concerned maintenance person.
- **Supr -** Operator can request for a Supervisor attention by pressing this key. Reader sends an alert as SMS to the concerned supervisor.
- **Sngl -** For Piece-by-piece accounting, this key is pressed on completion of every piece(s).

Identification Technologies Supported



- i-Tag
- RFID – Low Frequency
- RFID – High Frequency
- RFID – Washable Laundry Tag
- Input via Reader Keypad

i-Tags

The i-Tag is a computer chip enclosed in a stainless steel can that proves its identity by a globally unique serial number. This i-Tag is used to identify Operators, Supervisors , Mechanics, QA s and Bundles with unique color holders. This i-Tag will have a polythene pouch attached to it. This pouch will carry the printed information of the bundle/employee details.

Red Tag : Operators are identified with this color tag

Black Tag : Bundles are identified with this color tag

Yellow Tag : Supervisors are identified with this color tag

Blue Tag : Maintenance personnel are identified with this Color tag

ProCon Reader (QC)

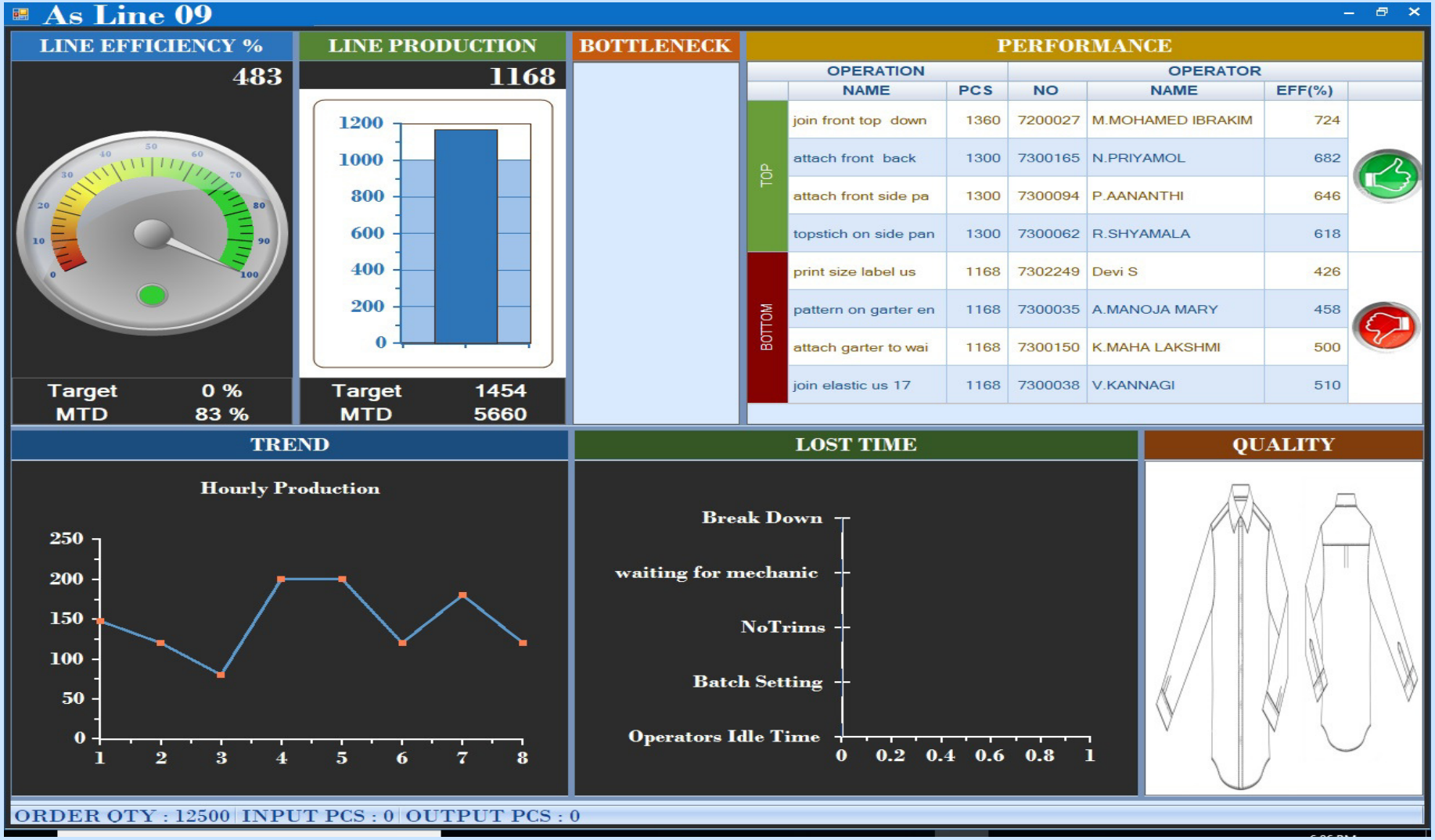
ProCon Reader (QC)

A ProCon Reader is attached to every checker table in the sewing line. This reader can be configured as **Loading / Inline checking / End line checking.**
The Reader displays the operators' name, checked pieces, passed pieces, rework pieces and rejection pieces.
The checker inspects the bundle and records the status of the bundle viz, Passed / Rework / Rejection pieces with appropriate defect codes .

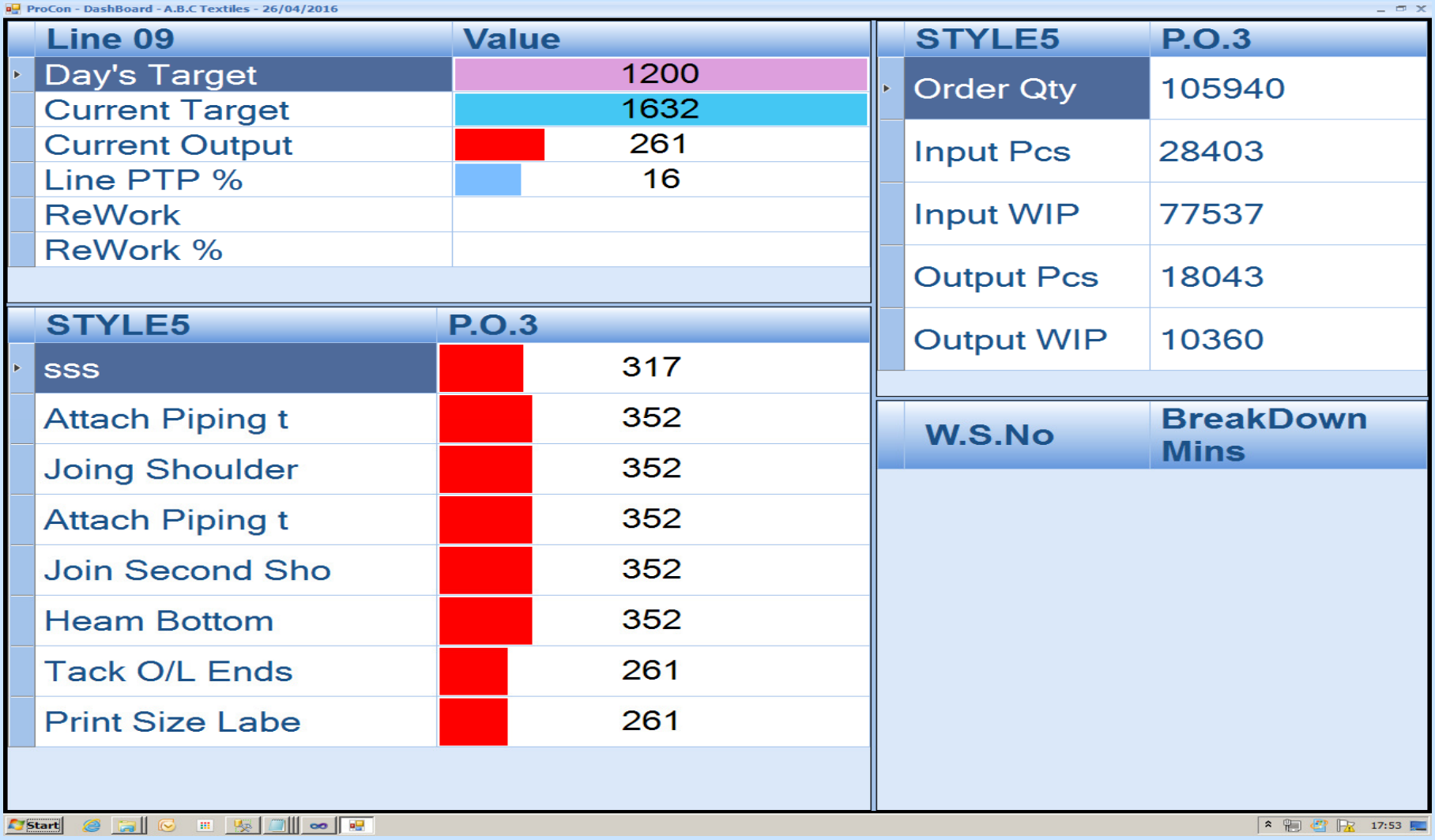
The reader has twenty functional keys for the following :

- 0-9 - Enter defect code and pieces.
- AL - Sends an alert as SMS to the concerned Supervisor.
- Esc - Clears the current state.
- Entr - Accepts the input.
- RW - Enter Rework pieces.
- RJ - Enter Rejection pieces.
- PS - Enter Passed pieces.

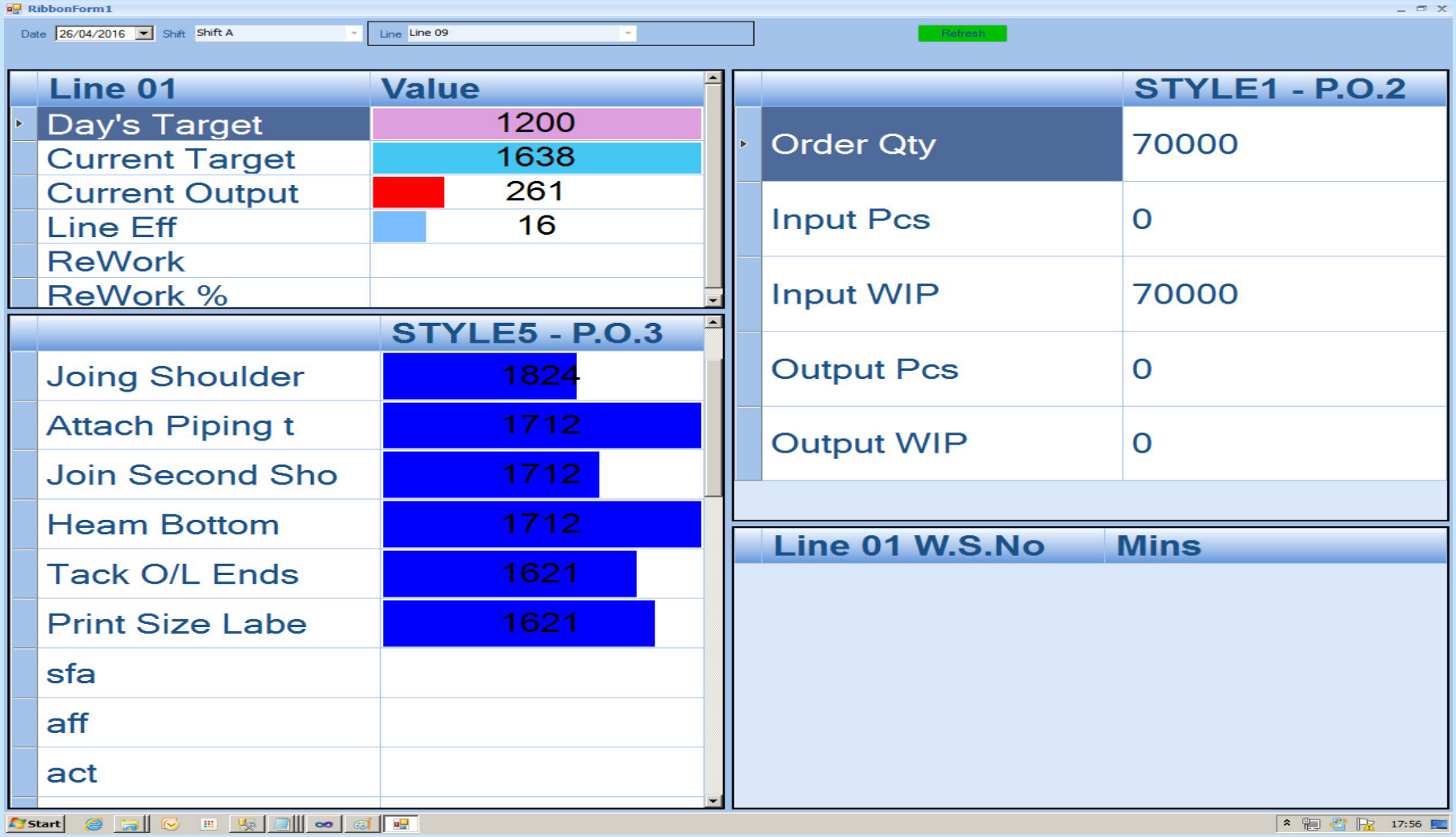
ProCon Line Display (LED TV)



ProCon Line Display (LED TV)



ProCon Line Display (LED TV)



ProCon Line Display Board

ProCon Line Display Board

A ProCon Line Display Board for every sewing line / section will display the production and bottleneck details of the respective sewing line / section.

- The Line Display Board Displays :
  - Daily Target, Sewing Output , Check Passed and Efficiency of the sewing line or section.
  - Bottlenecks viz. Machine Breakdown, Operator Idle Time, Rework Time, Work-In-Progress, Efficiency and Batch Setting with the workstation numbers by a different color LED. Cycles through all workstation's bottlenecks and displays four workstations at a time for specified intervals
- Line Display Board has 5 different color LED lights each of which can glow or blink. A maximum of 10 variables can be configured.
- Bottleneck conditions can be prioritized and customized.

ProCon Workstation Status Indicator

ProCon Workstation Status Indicator

- A ProCon Workstation Status Indicator is attached to every workstation to indicate the current status of the workstation / operator.

- The Status indicator has 3 different color LED lights, each of which can glow or blink. A maximum of 6 status variables can be configured.

- The Status Indicator can be configured to indicate the Machine Breakdown, Idle Time, Rework Time, Work-In-Progress, Efficiencies, Batch Setting, Non Productive Time, Excess Time etc.

ProCon Tag Assigning Reader

ProCon Tag Assigning Reader

This reader is used to assign tags for operators and bundles

HR Department : This reader will be connected to the PC in the HR Department. The operator name and token no details are printed for the operators.
The operator cards are inserted in the i-Tag's pouch and assigned to this reader for every operator / supervisor.

Cutting Department : This reader will be connected to the PC in the cutting department. The bundles are generated in the application software and bundle cards are printed For the bundles.
The bundle cards are inserted in the i-tag's pouch and assigned in this reader for every bundle prior to issue to the Production floor.

ProCon Software

Data Capturing Software :

This software is installed in the Data Capturing PC in the production floor which captures the punches from all the readers and updates the central database instantaneously.

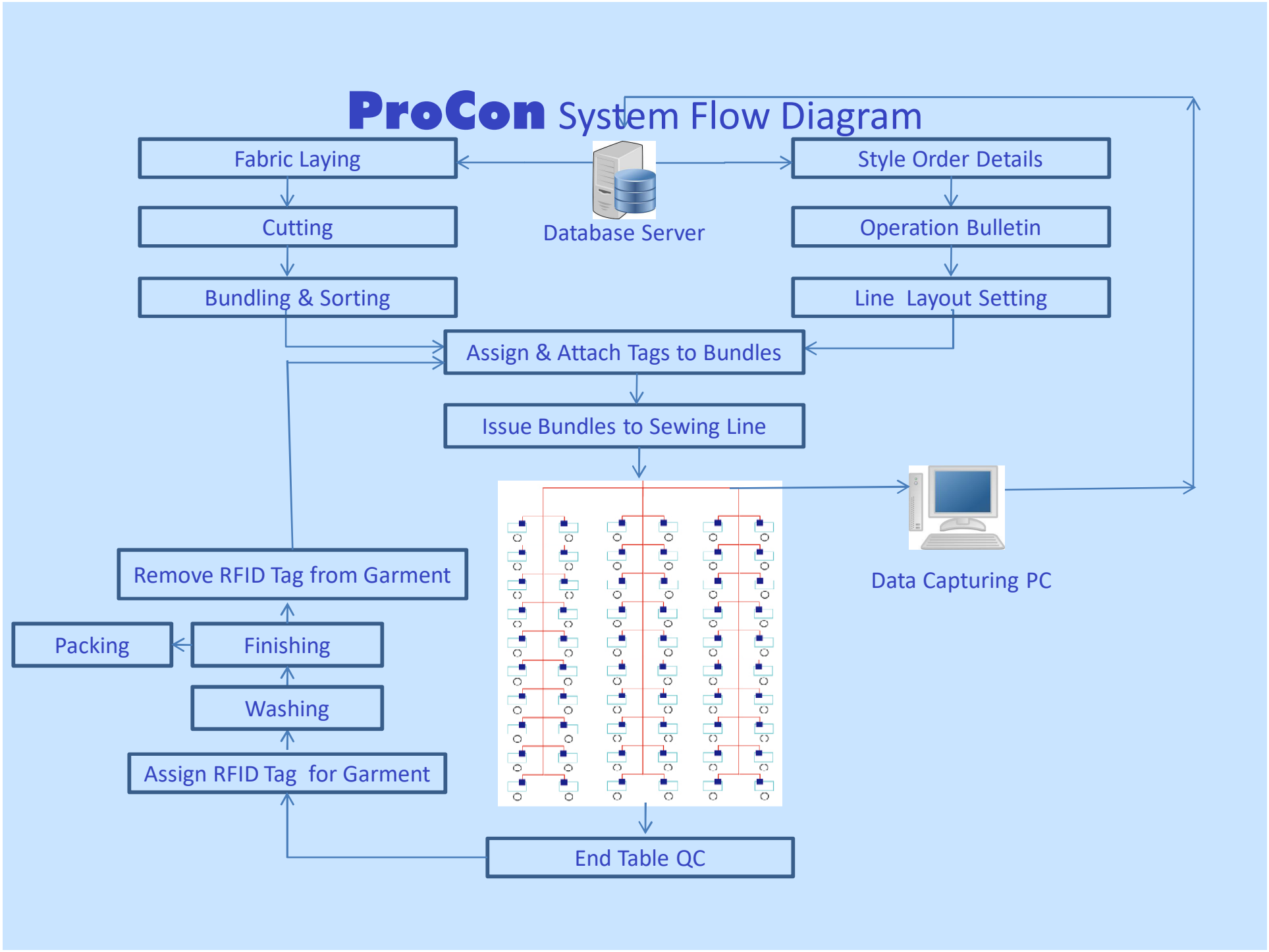
Production Management System :

This application software is installed in all the client machines. All Masters and Transaction details are entered in this application. Style Order details, Laying, Cutting, Bundle Generation, Tag Assigning to Bundles, Operation Bulletin, Line layout etc., are entered in this application

Dashboard :

ProCon Dashboard is an application software that displays the real time status of all the sewing lines graphically. This application is installed in all the client machines. This application refreshes the data automatically at the set intervals of time.

ProCon System Flow Diagram



Production Methods

Progressive Bundle Movement : In this method cut parts are moved in the line as bundles. A bundle can have any no of pieces.

- Operator has to start the bundle by logging in the bundle tag in the reader.
- After sewing all the pieces in the bundles operator need to close the bundle by logging out the bundle tag in the reader.
- So for every bundle operator need to login and logout the bundle tag to account production.

Piece Movement : Cut parts issued to lines will be as bundles only.

- Operator has to start the bundle by logging in the bundle tag in the reader.
- After sewing the first piece operator need to press the push button in the reader and send the first piece with the tag to next operator. For the balance pieces operator need to press the push button for every piece as and when they complete.
- Operator on pressing the button for the last piece the bundle get closed automatically in the reader. Operator can start another bundle.

Production Methods (continued)

Hanger Movement : Cut parts are loaded in hanger chains. Every chain will have one garment's all parts. Every chain will have an i-tag physically attached to it. In loading reader operator after loading the pieces to the hanger, will assign the tag associated with the chain in the reader.

- Operator has to start the piece by logging in the chain's tag in the reader.
- On completion of the piece he again log out the chain's tag in the reader.

Bundle Sharing : This method is used when the bundle is shared with 2 or more operators doing the same operation.

- All the operators sharing the bundle should start the same bundle tag by logging in the tag in their respective readers.
- On Completion of every piece operators should press the push button in their readers to account production.
- Once the total pieces for the bundle is accounted from all the readers, bundle get closed automatically in all readers.

ProCon Accountability

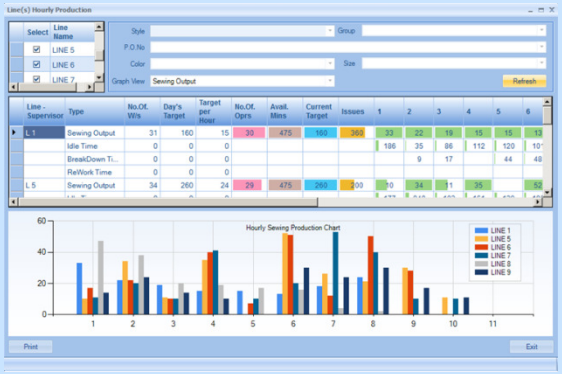
On Std. Time	Off Std. Time	Production
Operator worked minutes	Operator Idle time	Operators' production
Produced minutes (Pieces X SAM)	Operator NPT	Operations' production
Cycle Time	Machine Down time	Style / Order Production
	Alteration time	Color / Size wise Production
	No Feeding	Line / Section Production
	Operator Training	Work In Progress
	Line Setting	Utilization of Minutes
	Line NPT	QC Pass/Rework / Rejection
		AQL
		Finishing
		Packing

Incentive Methods

- Piece Rate Incentive
- Individual Performance based Incentive
- Group Performance based Incentive

ProCon DashBoard

ProCon DashBoard



ProCon DashBoard is an application software that displays the real time status of all the sewing lines graphically. This application displays the macro level information of all the sewing lines. Micro level information can be viewed by drilling down the respective cells.

Key columns displayed are Man Hours, No .Of Operators, Available Minutes, Days Target, Feeding, Sewing Output, Check Passed, Rejection, WIP, Idle Time, Rework Time, Breakdown Time, Non Productive Time, Production Time, Excess Time, Line Efficiency, Estimated Output.

Provides various types of graphs at all levels for analysis and comparison.

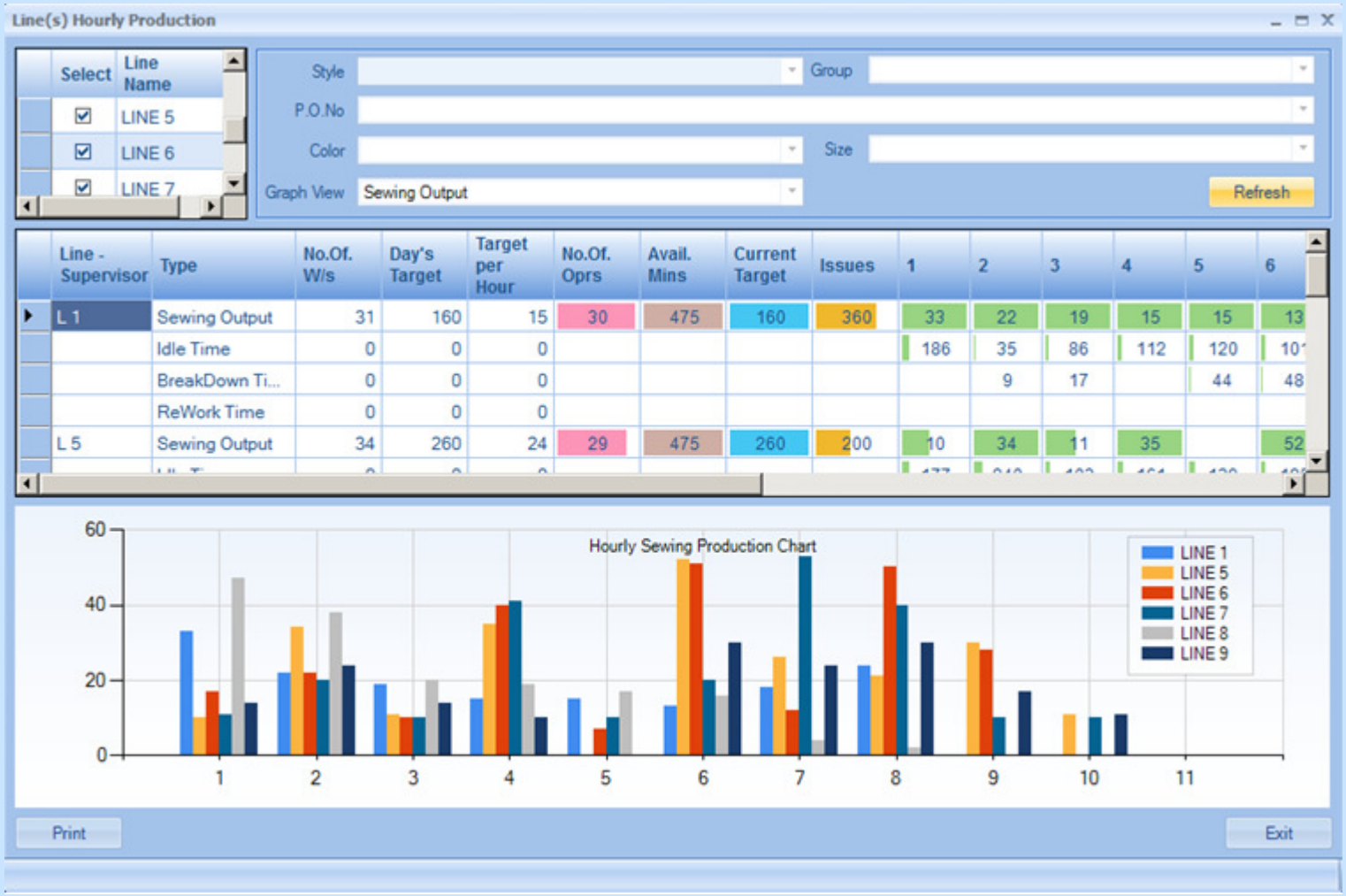
ProCon Dashboard Main Screen

Cut.Date	Style No	P.O.No	Destination	Color	Pcs
27/06/2014	STYLE 29	PO 64	GERMA	CL 49	1208
27/06/2014	STYLE 30	PO 65	GERMA	CL 51	388
27/06/2014	STYLE 31	PO 67	GERMA	CL 52	268
26/06/2014	STYLE 23	PO 66	GERMA	CL 40	360
26/06/2014	STYLE 29	PO 64	GERMA	CL 49	588
26/06/2014	STYLE 31	PO 67	GERMA	CL 52	220
26/06/2014	STYLE 32	PO 71	CANAD	CL 53	145

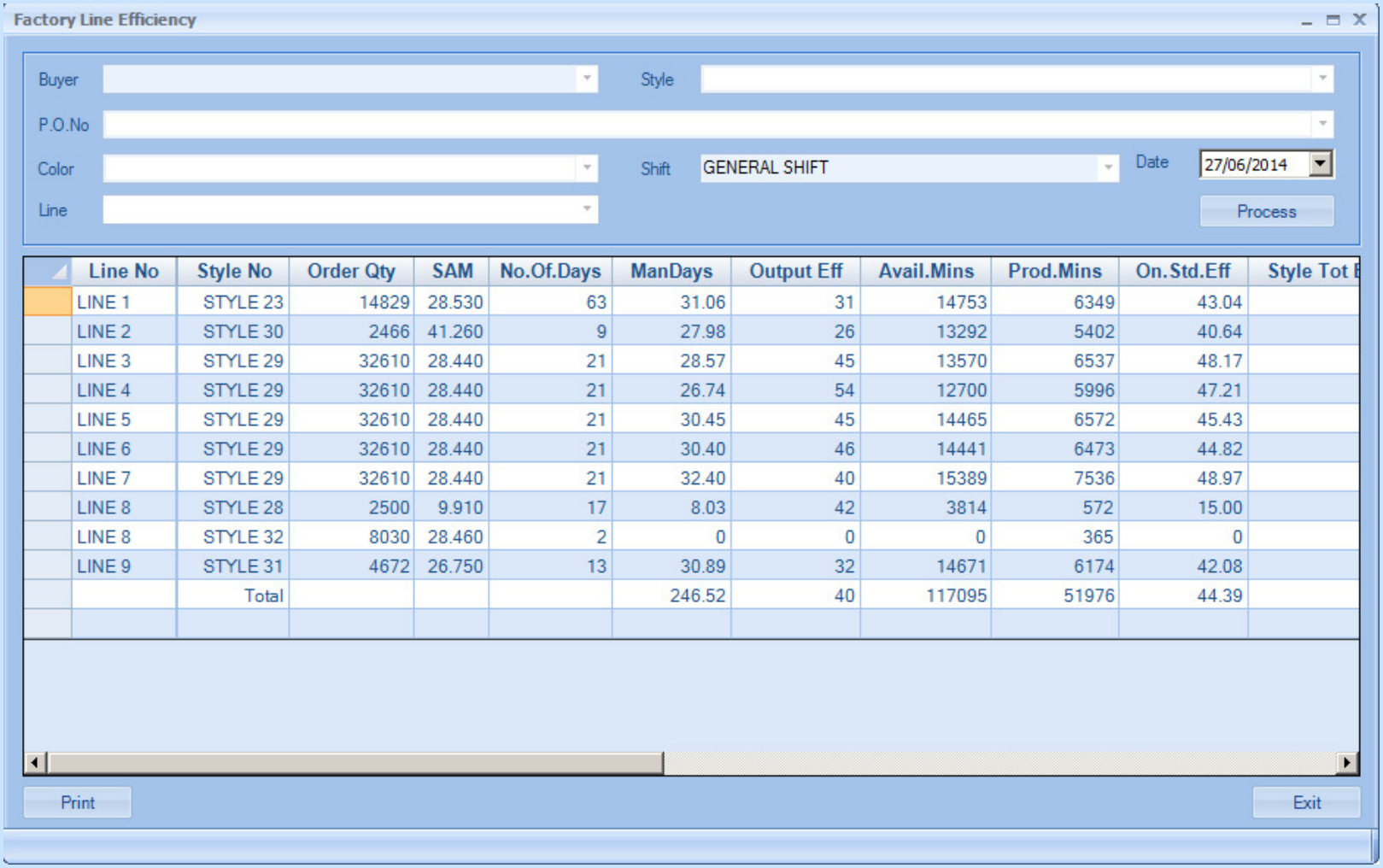
No.Of. Lines	StyleNo	No.Of. W/s	Logged In-Oprs (Nos)	Man Days (Nos)	Availab Mins (Mins)	Day's Target (Pcs)	Current Target	Feeding (Pcs)	Sewing Output (Pcs)	Check Passed (Pcs)	ReWorl (Pcs)	Reject (Pcs)	WIP (Pcs)	Idle Time (Mins	BD Time (Mins	RW Time (Mins	NP Time (Mins	Target Time (Mins)	Prod Time (Mins)	Excess Time (Mins)	Factory Eff (%)	Factory On.Std Eff (%)
10		321	247	246.6	475	2140	2140	1834	1735	1897	188		8183	10448	282	6	10640	46588	89449	42861	40	44

Line	StyleNo	No.Of. W/s	Logged In-Oprs (Nos)	Man Days (Nos)	Availab Mins (Mins)	Day's Target (Pcs)	Current Target	Feeding (Pcs)	Sewing Output (Pcs)	Check Passed (Pcs)	ReWorl (Pcs)	Reject (Pcs)	WIP (Pcs)	Idle Time (Mins	BD Time (Mins	RW Time (Mins	NP Time (Mins	Target Time (Mins)	Prod Time (Mins)	Excess Time (Mins)	Line Eff (%)	Line On.St Eff (%
L 1	STYLE 23	31	30	31.1	475	160	160	360	159	158	17		973	777	173		1214	4536	11817	7281	31	43
L 2	STYLE 30	34	28	28	475	100	100	164	86	86	16		1041	1453			1167	3473	8830	5357	26	41
L 3	STYLE 29	33	27	28.5	475	260	260	268	219	176	14		1079	1053	8		1267	6060	10693	4633	45	48
L 4	STYLE 29	33	29	26.8	475	260	260	134	242	256	23		879	810	28		780	6841	12256	5415	54	47
L 5	STYLE 29	34	29	30.5	475	260	260	200	230	230	16		821	1145			864	6541	11565	5024	45	45
L 6	STYLE 29	33	28	30.4	475	260	260	294	237	307	36		1235	1374			1067	6647	11388	4741	46	45
L 7	STYLE 29	36	31	32.4	475	260	260	147	225	319	30		1061	1243	29		1309	6213	10188	3975	40	49
L 8	STYLE 2...	28	14	8	475	320	320	72	163	179	17		213	1770	14		1640	1615	3248	1633	43	25
L 9	STYLE 31	38	31	30.9	475	260	260	195	174	186	19		872	823	30	6	1332	4662	9464	4802	32	42
L 10		21			475								9									

ProCon Line Output

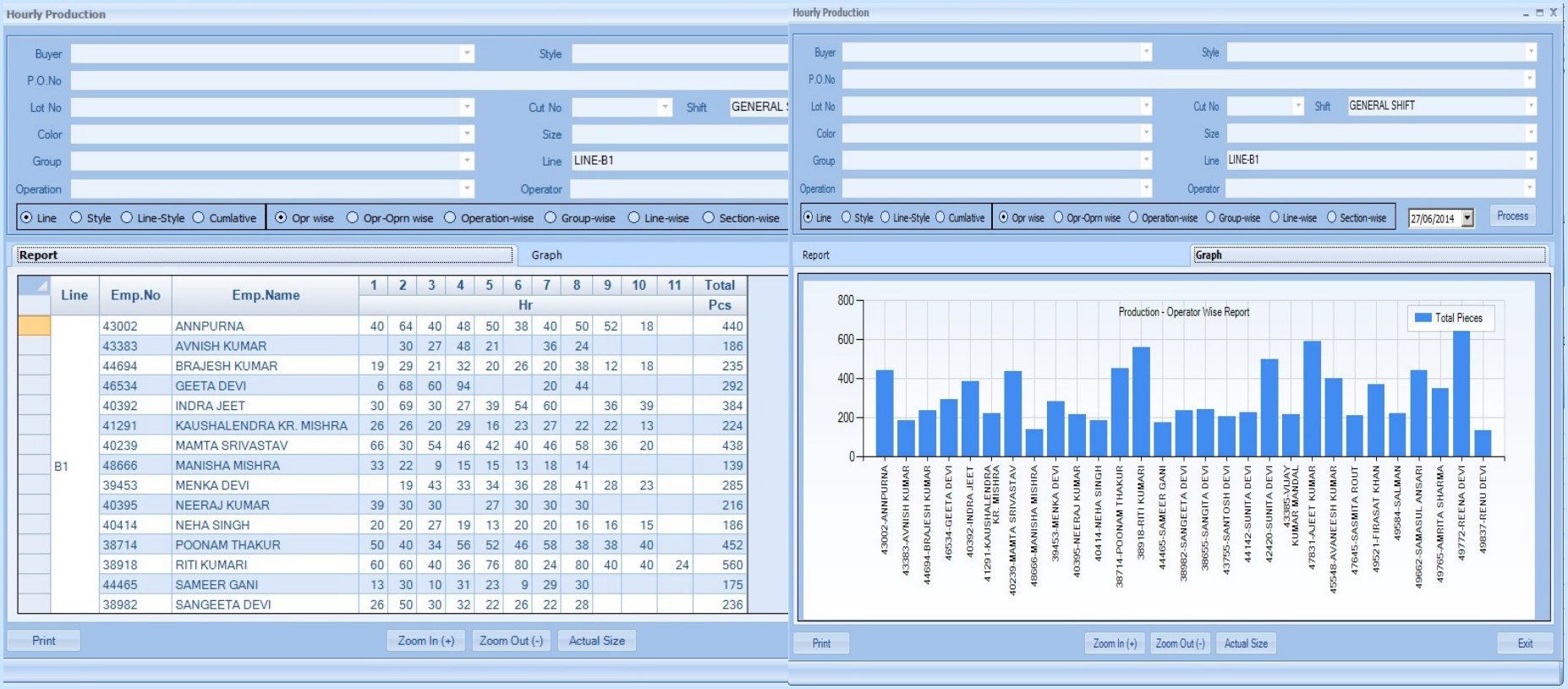


ProCon Line Efficiency

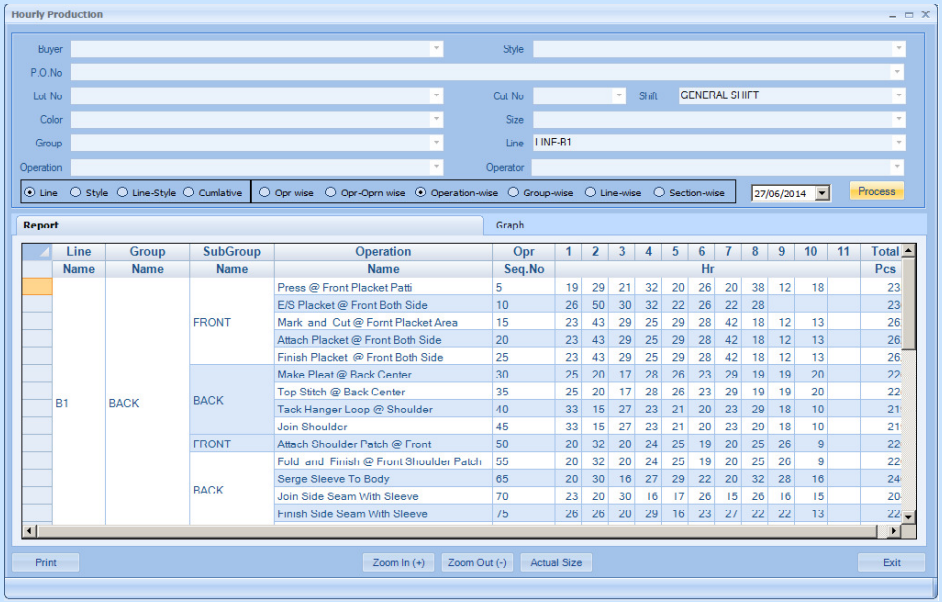


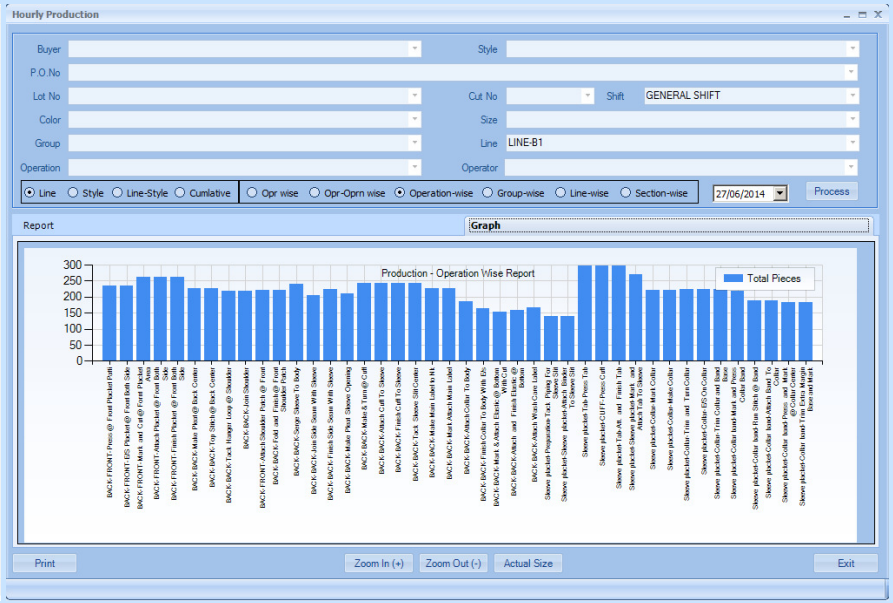
Line No	Style No	Order Qty	SAM	No.Of.Days	ManDays	Output Eff	Avail.Mins	Prod.Mins	On.Std.Eff	Style Tot E
LINE 1	STYLE 23	14829	28.530	63	31.06	31	14753	6349	43.04	
LINE 2	STYLE 30	2466	41.260	9	27.98	26	13292	5402	40.64	
LINE 3	STYLE 29	32610	28.440	21	28.57	45	13570	6537	48.17	
LINE 4	STYLE 29	32610	28.440	21	26.74	54	12700	5996	47.21	
LINE 5	STYLE 29	32610	28.440	21	30.45	45	14465	6572	45.43	
LINE 6	STYLE 29	32610	28.440	21	30.40	46	14441	6473	44.82	
LINE 7	STYLE 29	32610	28.440	21	32.40	40	15389	7536	48.97	
LINE 8	STYLE 28	2500	9.910	17	8.03	42	3814	572	15.00	
LINE 8	STYLE 32	8030	28.460	2	0	0	0	365	0	
LINE 9	STYLE 31	4672	26.750	13	30.89	32	14671	6174	42.08	
	Total				246.52	40	117095	51976	44.39	

ProCon Hourly Production (operator wise)

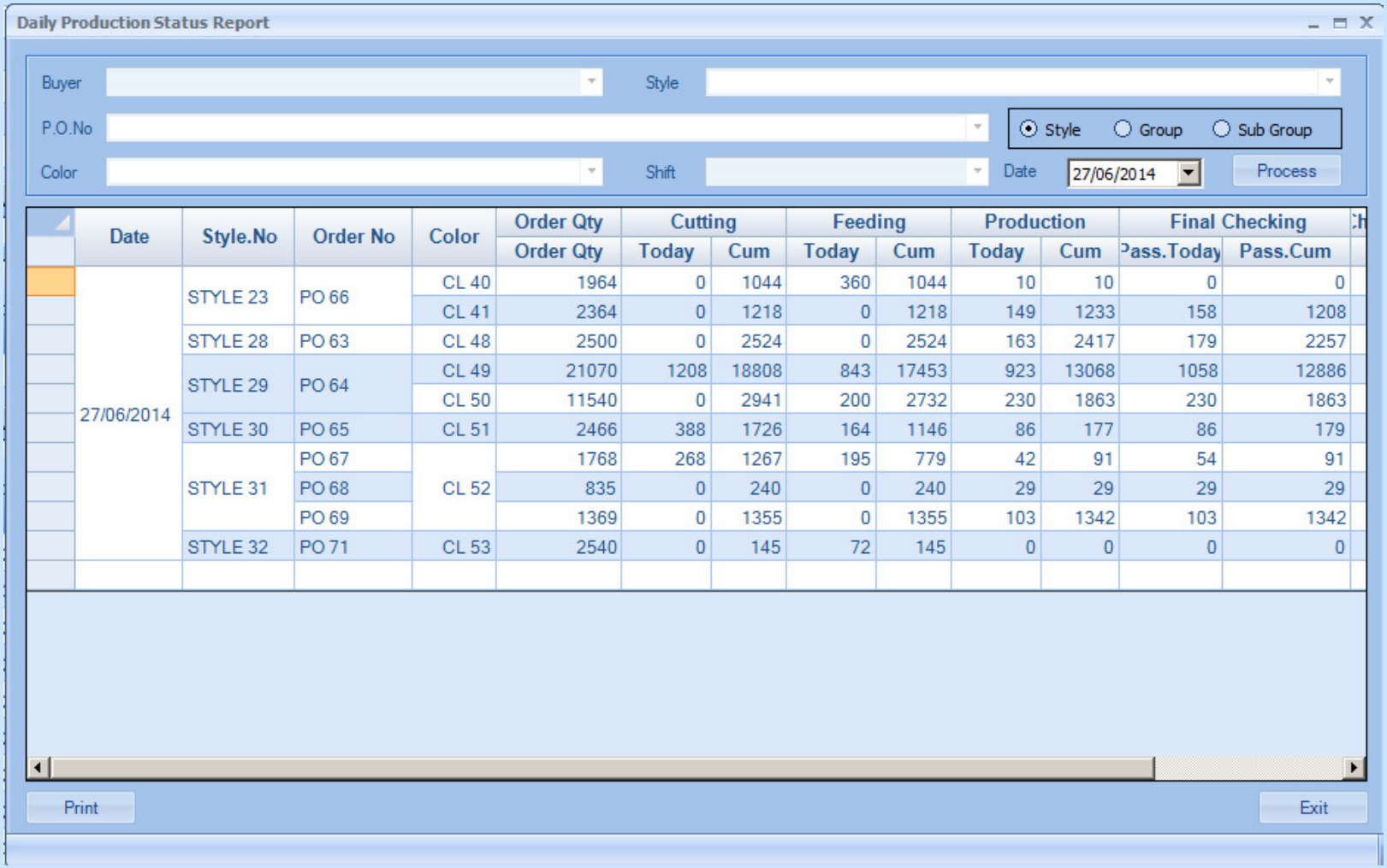


ProCon Hourly Production (operation wise)



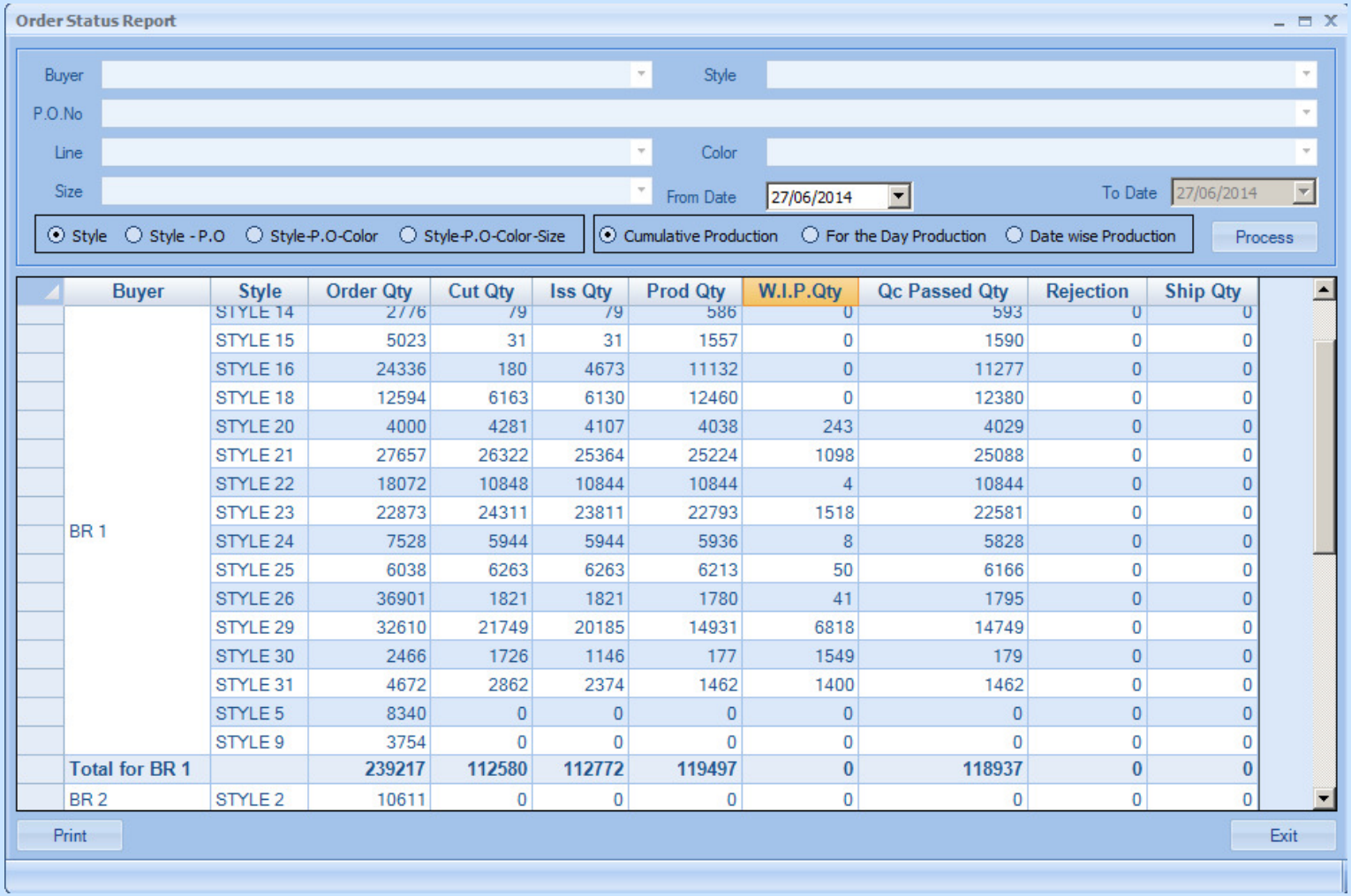


ProCon Daily Production Status



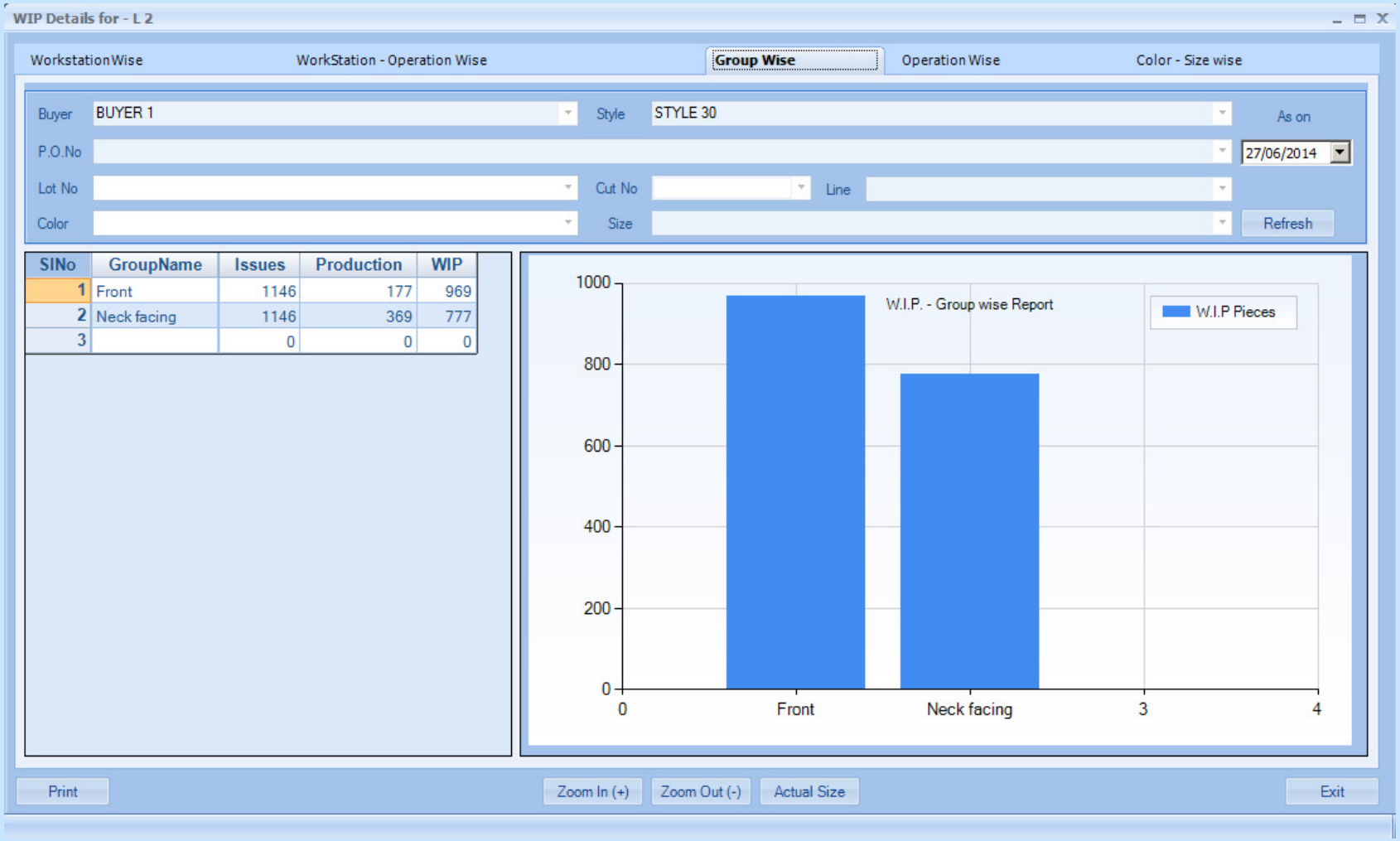
Date	Style.No	Order No	Color	Order Qty	Cutting		Feeding		Production		Final Checking	
				Order Qty	Today	Cum	Today	Cum	Today	Cum	Pass.Today	Pass.Cum
27/06/2014	STYLE 23	PO 66	CL 40	1964	0	1044	360	1044	10	10	0	0
			CL 41	2364	0	1218	0	1218	149	1233	158	1208
	STYLE 28	PO 63	CL 48	2500	0	2524	0	2524	163	2417	179	2257
	STYLE 29	PO 64	CL 49	21070	1208	18808	843	17453	923	13068	1058	12886
			CL 50	11540	0	2941	200	2732	230	1863	230	1863
	STYLE 30	PO 65	CL 51	2466	388	1726	164	1146	86	177	86	179
	STYLE 31	PO 67	CL 52	1768	268	1267	195	779	42	91	54	91
		PO 68		835	0	240	0	240	29	29	29	29
		PO 69		1369	0	1355	0	1355	103	1342	103	1342
	STYLE 32	PO 71	CL 53	2540	0	145	72	145	0	0	0	0

ProCon Order Status

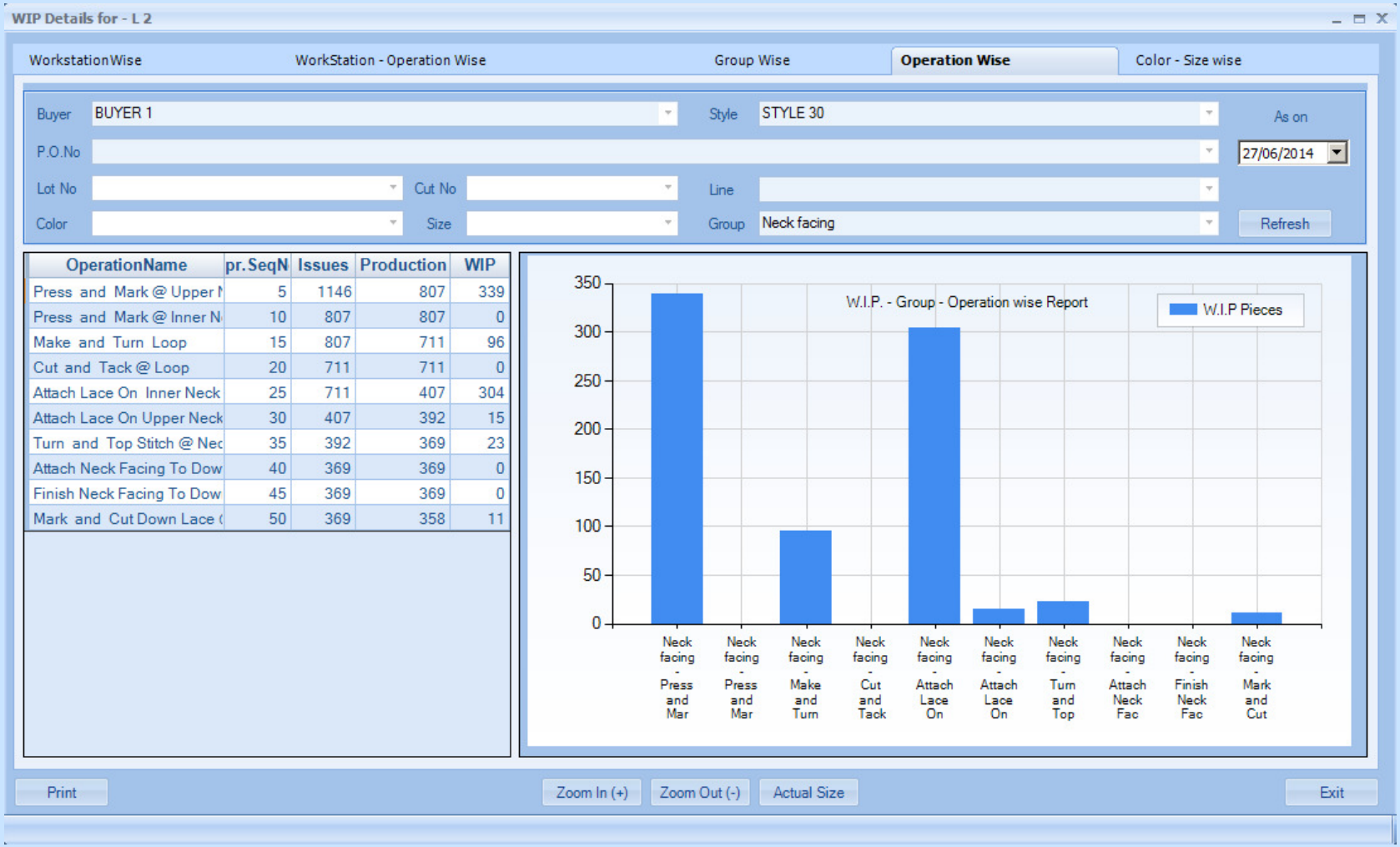


Buyer	Style	Order Qty	Cut Qty	Iss Qty	Prod Qty	W.I.P.Qty	Qc Passed Qty	Rejection	Ship Qty
	STYLE 14	2776	79	79	586	0	593	0	0
	STYLE 15	5023	31	31	1557	0	1590	0	0
	STYLE 16	24336	180	4673	11132	0	11277	0	0
	STYLE 18	12594	6163	6130	12460	0	12380	0	0
	STYLE 20	4000	4281	4107	4038	243	4029	0	0
	STYLE 21	27657	26322	25364	25224	1098	25088	0	0
	STYLE 22	18072	10848	10844	10844	4	10844	0	0
	STYLE 23	22873	24311	23811	22793	1518	22581	0	0
BR 1	STYLE 24	7528	5944	5944	5936	8	5828	0	0
	STYLE 25	6038	6263	6263	6213	50	6166	0	0
	STYLE 26	36901	1821	1821	1780	41	1795	0	0
	STYLE 29	32610	21749	20185	14931	6818	14749	0	0
	STYLE 30	2466	1726	1146	177	1549	179	0	0
	STYLE 31	4672	2862	2374	1462	1400	1462	0	0
	STYLE 5	8340	0	0	0	0	0	0	0
	STYLE 9	3754	0	0	0	0	0	0	0
Total for BR 1		**239217**	**112580**	**112772**	**119497**	**0**	**118937**	**0**	**0**
BR 2	STYLE 2	10611	0	0	0	0	0	0	0

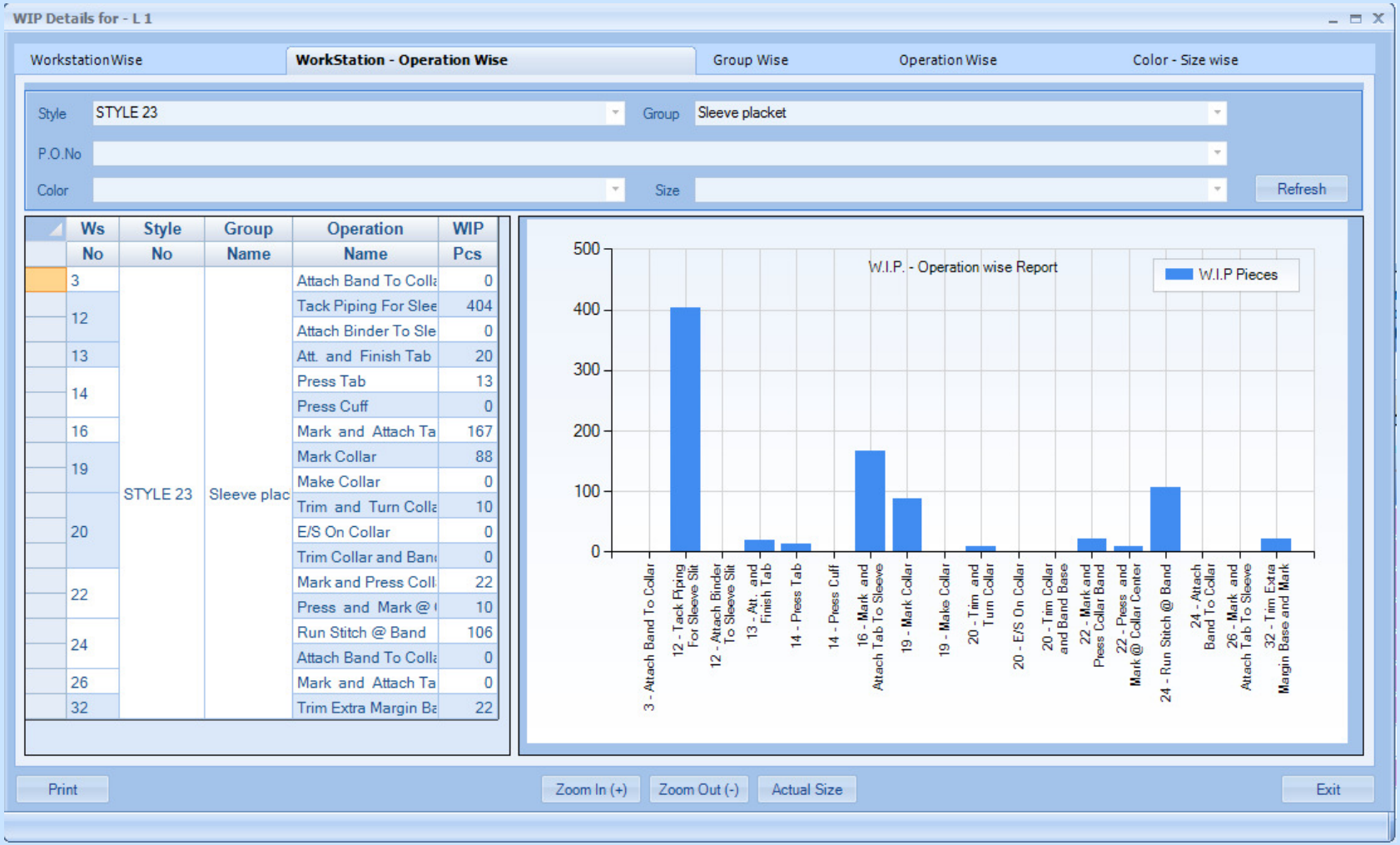
ProCon WIP Report (Group wise)



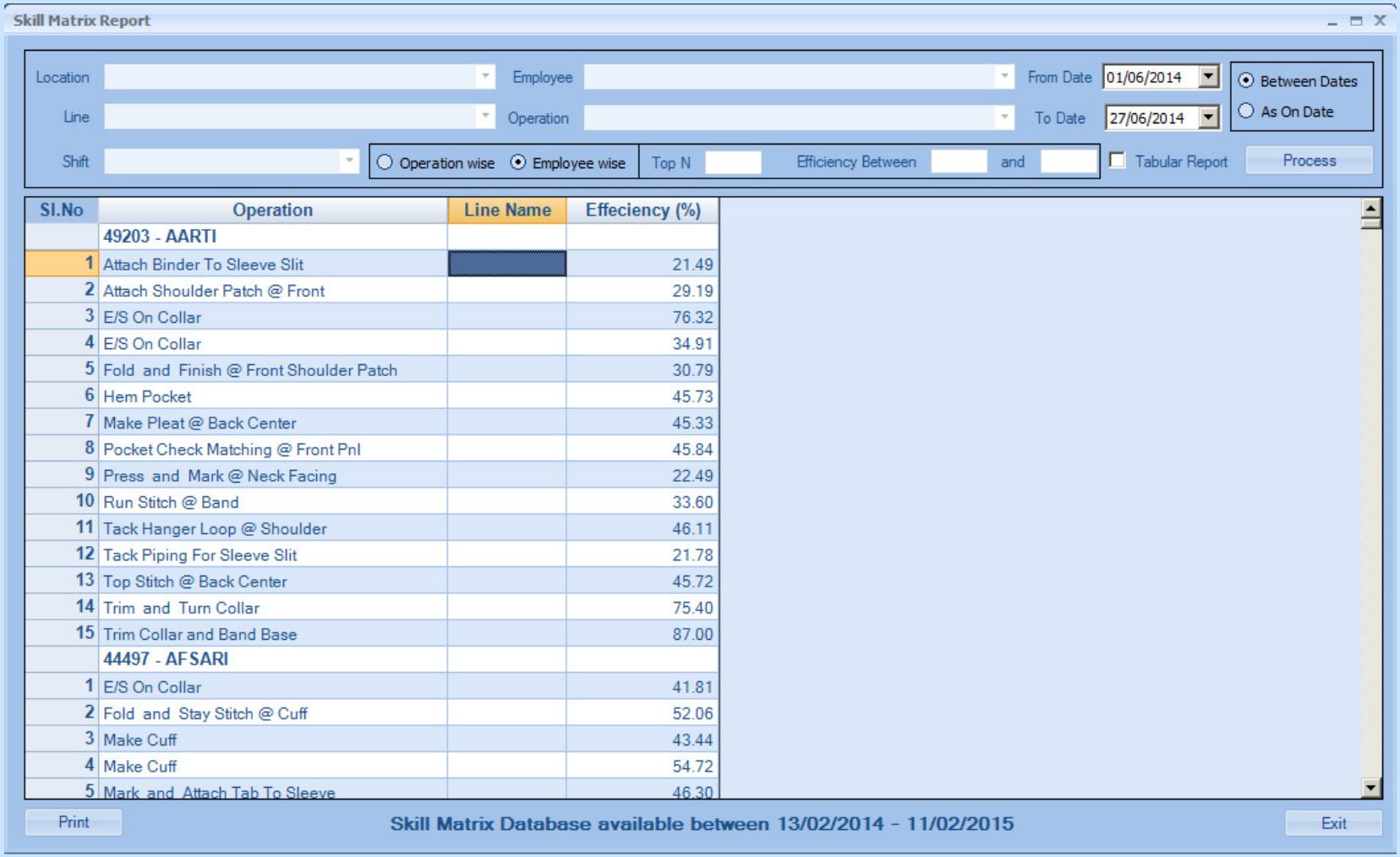
ProCon WIP Report (Operation wise)



ProCon WIP Report (Workstation - Operation wise)



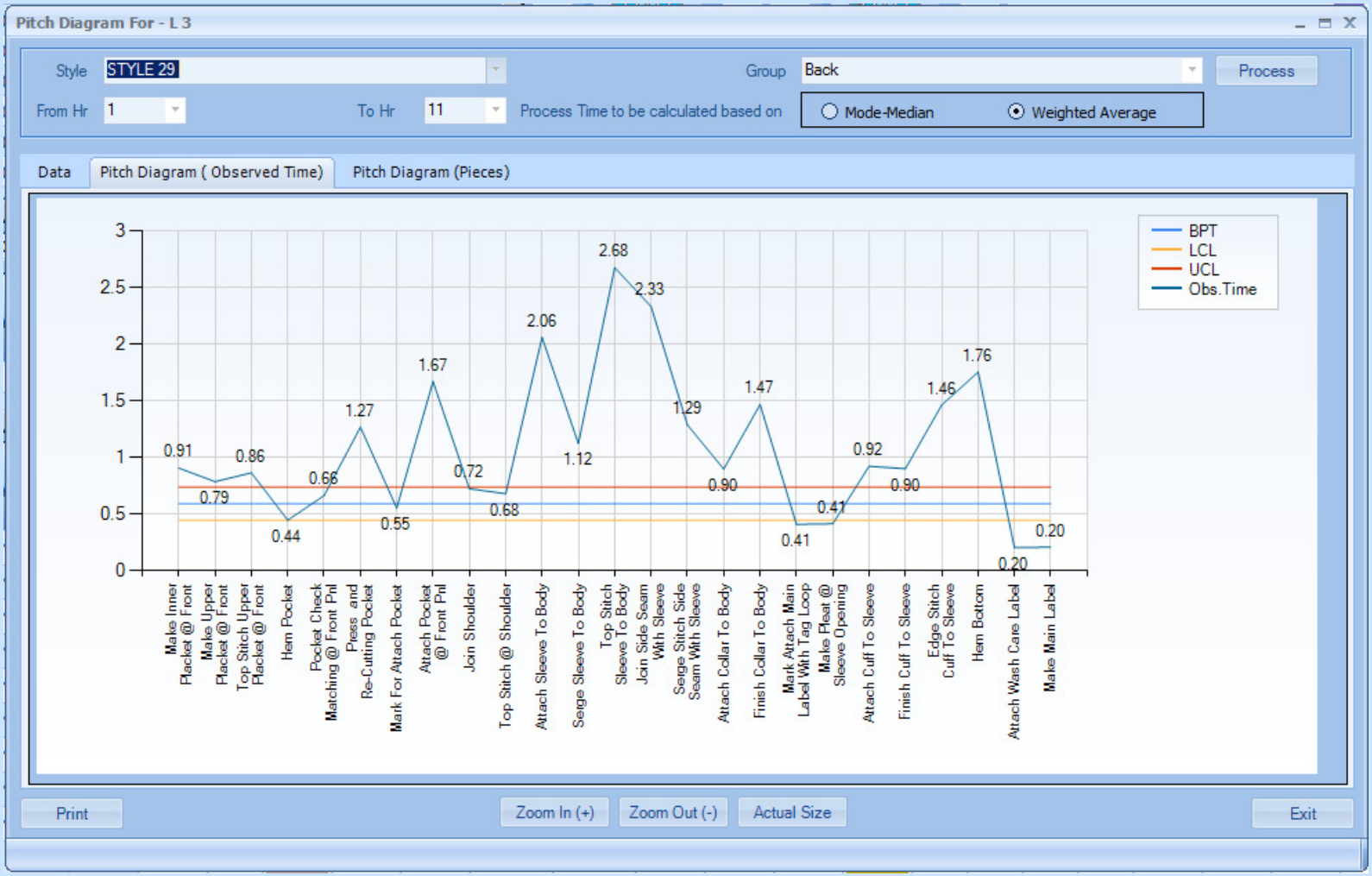
ProCon Skill Matrix Report (Operator wise)



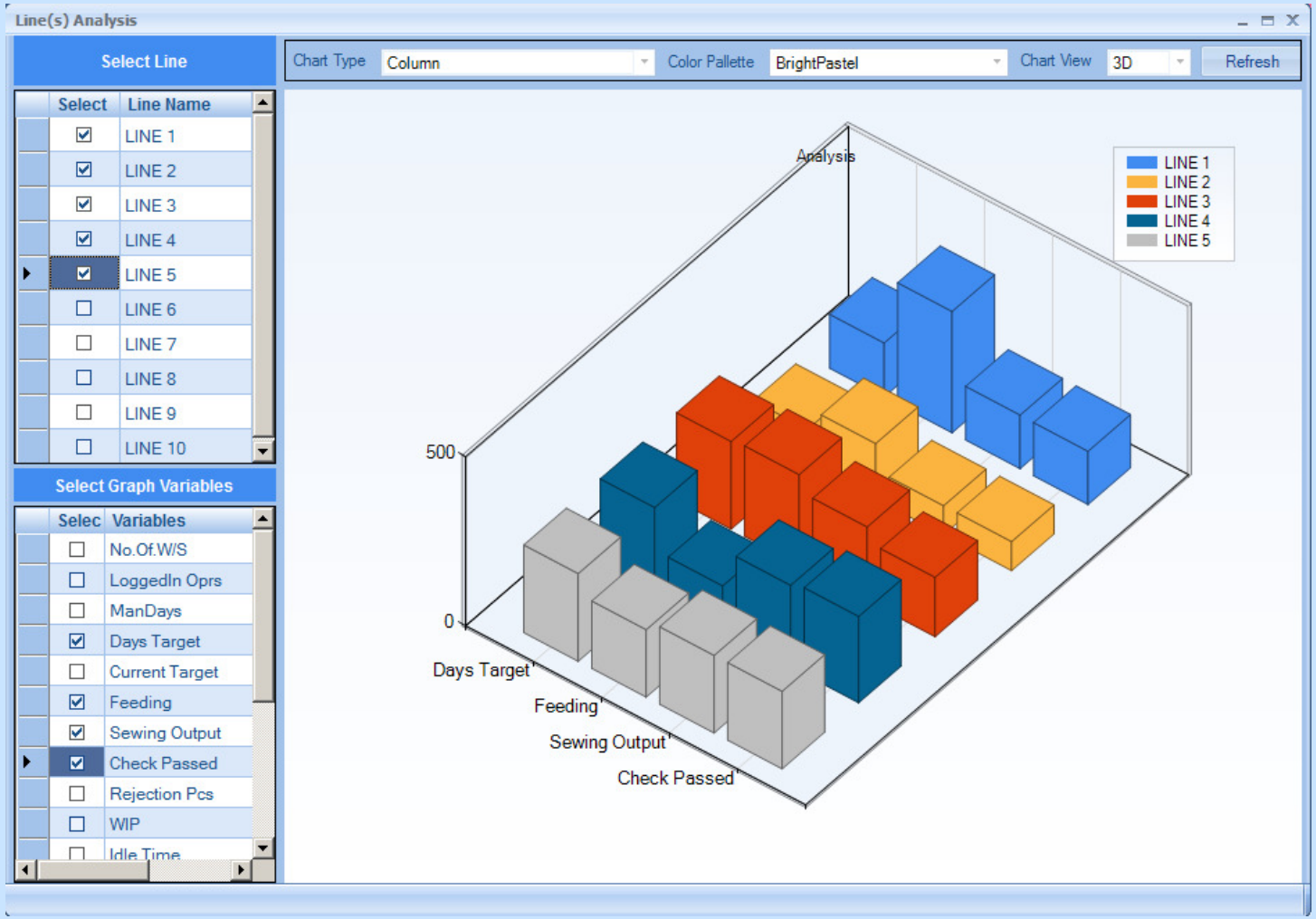
ProCon Skill Matrix Report (Operation wise)

Sl.No	EmployeeNo	EmployeeName	Line Name	Effeciency (%)
		Att. and Finish Tab		
1	48286	AMIT		38.22
2	46534	GEETA DEVI		14.31
3	39453	MENKA DEVI		49.44
4	38597	NAZIA BEGUM		36.11
5	47214	NEERAJ KUMAR		48.56
6	45567	PAVAN KUMAR		44.30
7	46339	POOJA		77.00
8	43493	RADHA		45.88
9	44517	SEEMA SHARMA		84.78
10	43291	SUDHA DEVI		68.42
		Attach and Finish Elastic @ Sleeve Op		
1	45926	MOHD FIROJ		24.53
2	44131	SUDHIR PRASAD		41.20
		Attach and Finish Flap @ Front		
1	47442	OM PRAKASH		27.89
2	49396	RAMA KANT		25.40
		Attach and Finish @ Back Placket		
1	43383	AVNISH KUMAR		44.73
2	46534	GEETA DEVI		26.40
3	49117	KAPIL KUMAR		34.60
4	40239	MAMTA SRIVASTAV		23.95

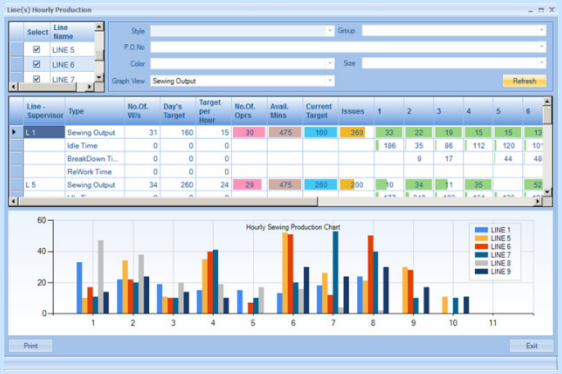
ProCon Line Balancing Diagram



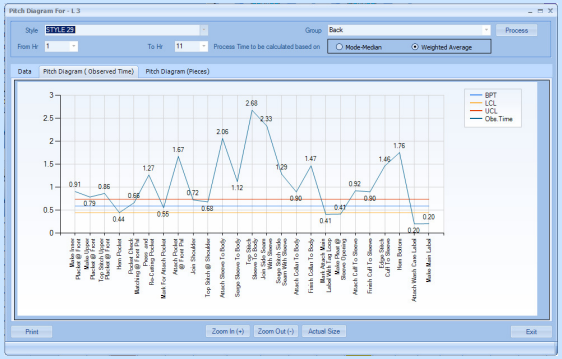
ProCon Line Analysis



ProCon Key Features

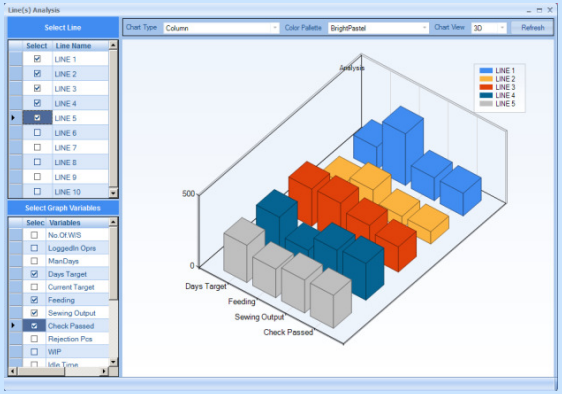


ProCon DashBoard

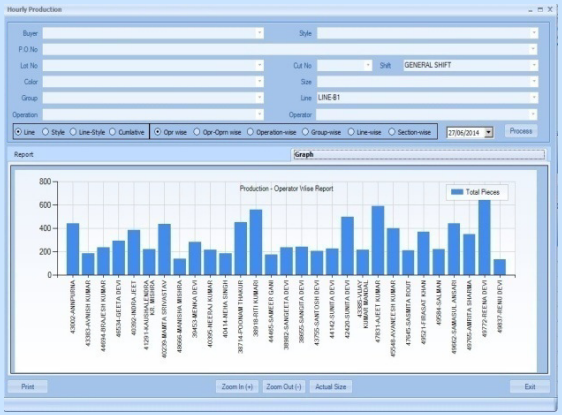


- Operation time (SAM) validation
- Sequential integrity of the operations
- Avoids double accounting of production
- Accountability of Off-standard time viz, Idle time,
- Breakdown time, Rework time and Non Productive time
- Supports Progressive Bundle movement, Piece movement, Hanger movement and Bundle Sharing
- Supports Piece Rate / Group / Individual Incentive methods
- Seamless integration to other application systems
- Features and validations of this system are user configurable
- Multiple styles can be loaded in a line at a same time

ProCon Key Benefits



ProCon DashBoard



- Centralised on-line production status
- Accurate operator performance
- Alerts for exceptional situations
- Efficient line balancing
- Decreased downtime
- Decreased Work In Progress
- Improved in-line quality control
- Reports in multiple formats
- User friendly application interface

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