

SURFACE TREATMENT PLANTS



REGD.ADDRESS : FLAT-6, PLOT-431, SECTOR-2, SWAPNAPURTI APARTMENT, SAMARTH COLONY,
INDRANINAGAR, BHOSARI, PUNE – 411026

WORKS ADDRESS : G-10, FIRST FLOOR, MANGALMURTI INDUSTRIAL COMPLEX, BEHIND HOCKEY
STADIUM, MIDC, BHOSARI, PUNE- 411026

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SURFACE TREATMENT PLANTS

Our Offerings to Surface Treatment Industry:

- We Design, manufacturer, Supply and install Automated tailor made Surface Treatment Plants for Processes Like Electroplating, Phosphate & CED Coating , for improving Physical & Technical Features, durability, Lifecycle of a product.
- Automation of Surface treatment Plants with Latest State of Art Technology, reliable, rigid and efficient control system for Surface Treatment Plant.
- Automation can help finishers minimize manual labor, improve their processes, meet quality standards and boost productivity and profitability.
- We have ready to use PLC based control system solution for surface treatment plants, that has features of Pre-programmed recipes, easy diagnostics, Plant Mimic, Daily Production Reports, Load wise Process Report and above all user friendly and trouble free operating systems.



SURFACE TREATMENT PLANTS

State of Art Features Of PLC Control System :

- Provision to Operate the Plant in Inch / Manual / Auto Mode.
- Sequential Handling of Flight Bars / Barrels / Baskets including Barrel Rotation.
- Time Optimization and required process time achieved with desired step Type Recipe Program.
- 30 Step Recipe program settings with storing of maximum of 25 Recipes per wagon.
- User Friendly HMI screens for Settings, Diagnostics, Maintenance.
- Program Recipes for On-Line Passivation type Functionality.
- HMI screen to monitor Process Parameters : like Temperature, pH, Rectifier Current if required.
- SCADA based mimic for Plant schematic with dynamic animation.
- Excel & PDF type daily / Load Wise Production Process report .

SURFACE TREATMENT PLANTS



CED COATING PLANT, KOLHAPUR



ELECTROPLATING PLANT, PUNE



CED COATING PLANT, PUNE



CED COATING PLANT, PUNE

SURFACE TREATMENT PLANTS



PHOSPHATING PLANT, NAGPUR



CED COATING PLANT, JAMSHEDPUR

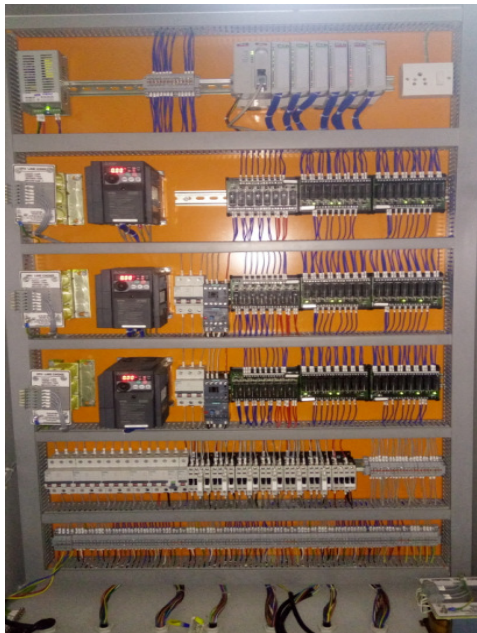
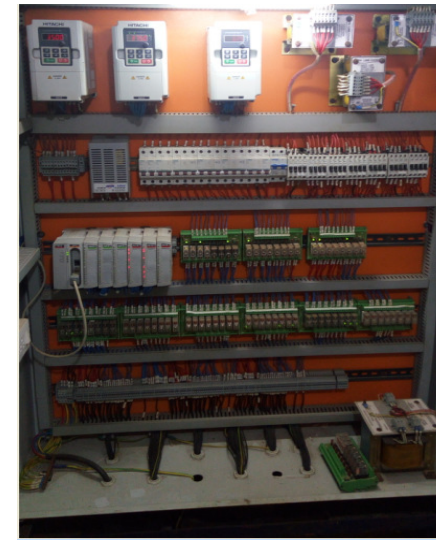


CED COATING PLANT, PUNE



ELECTROPLATING PLANT, PUNE

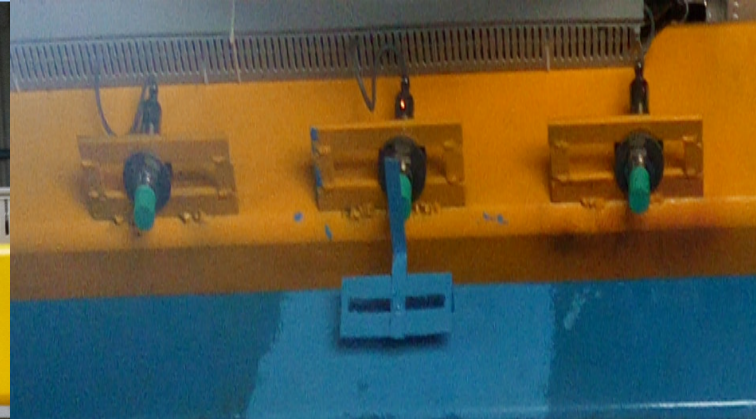
PLC CONTROL SYSTEM



PLC CONTROL SYSTEM – FIELD ELEMENTS



OPERATOR BOX & TOWER LAMP



SENSORS





PH-METER PANEL



OPERATOR HMI CONSOLE

LOADING RECIPE SELECTION SCREEN

LOADING PARAMETERS				 Bright Metals & Foods J - 345, MIDC., Bhosari, Pune - 411 026.	
ITEM NO. :	1				
CUSTOMER :	HELICAL			<div style="background-color: #00FF00; padding: 5px; text-align: center;">AUTO START</div> <div style="background-color: #FF0000; padding: 5px; text-align: center;">AUTO STOP</div> <div style="background-color: #800000; padding: 5px; text-align: center;">MENU</div> <div style="border: 2px solid yellow; padding: 5px; text-align: center;">  </div>	
PART NAME :	PIPE				
PART NO. :	SESN 50				
PLATING TYPE :	ACID-ZINC				
PASSIVATION TYPE :	TRI-BLUE				
CURRENT :	500	UNLOAD NO.	UNLOAD PASSV NO		
WEIGHT/QTY. :	60	10	2		
ITEM NO.	LOAD NO.	WGT/QTY	PASSV. NO.		
1	25	60	2		

RECIPE SETUP SCREEN

MASTER RECIPE EDIT					
	STN.NO.	ACTION	TIME	WAGON NO.	RECIPE NO.
STEP-1	6	0	1	1	1
STEP-2	5	2	3		
STEP-3	4	2	3		
STEP-4	3	1	1		
STEP-5	1	4	120		
STEP-6	3	0	1		
STEP-7	2	2	3		
STEP-8	1	2	3		
STEP-9	7	1	1		
STEP-10	1	4	120		

NO.OF STEPS

10

READ RECIPE

STEP OK

SAVE RECIPE

NEXT

RECIPE MENU

ACTION HELP
 0 - LIFT
 1 - RELEASE
 2 - RELEASE+TIME+LIFT
 4- WAIT AT STATION (TIME)



RUN RECIPE PROGRAM SETTING SCREEN

RECIPE SEQUENCE PROGRAM WAGON-1

RECIPE NO.	1	2	3	4	5	#	#	#	#	#
STEPS	20	20	20	20	20	0	0	0	0	0
RECIPE NO.	#	#	#	#	#					
STEPS	0	0	0	0	0					
START TANK NO.	1									
NO. OF RECIPE CONTINUATION		5								
CHECK STATION NO.			7							
CHECK TIME				5						

NEXT

RECIPE MENU

BARREL ROTATION / UP WAIT TIME SETTING SCREEN

BARREL ROTATION / DRIPPING TIME SETTING W1 & W2					
STN.NO.	TIME(SEC)	STN.NO.	TIME(SEC)	STN.NO.	TIME(SEC)
1	2	11	5	21	7
2	3	12	5	22	7
3	3	13	3	23	5
4	5	14	3	24	5
5	5	15	7	25	5
6	3	16	7	26	5
7	5	17	7		
8	3	18	7		
9	3	19	7		
10	5	20	7		

RECIPE MENU

BARREL INITIAL POSITION SETTING SCREEN

BARREL HOME SETTINGS - W1/W2					
STN.NO.	PROCESS	STN.NO.	PROCESS	STN.NO.	PROCESS
1	LOADING TROLLEY	11	WATER RINSE-2	21	ACID ZINC PL-7
2	DEGREASING	12	ACTIVATION	22	ACID ZINC PL-8
3	HOT DEGREASING	13	WATER RINSE-1	23	WATER RINSE-1
4	WATER RINSE - 1	14	WATER RINSE-2	24	NAOH
5	WATER RINSE - 2	15	ACID ZINC PL-1	25	WATER RINSE - 2
6	ACID	16	ACID ZINC PL-2		
7	WATER RINSE - 1	17	ACID ZINC PL-3		BARREL ABSENT
8	WATER RINSE - 2	18	ACID ZINC PL-4		BARREL PRESENT
9	ANODIC	19	ACID ZINC PL-5		
10	WATER RINSE - 1	20	ACID ZINC PL-6		RECIPE MENU

FAULT TIMER SETTINGS

FAULT TIMER SETTINGS		
TANK POSITION PROXY FAULT TIME WAGON-1	5	SEC.
UP / DOWN PROXY FAULT TIME WAGON-1	15	SEC.
TANK POSITION PROXY FAULT TIME WAGON-2	5	SEC.
UP / DOWN PROXY FAULT TIME WAGON-2	15	SEC.
TANK POSITION PROXY FAULT TIME WAGON-3	5	SEC.
UP / DOWN PROXY FAULT TIME WAGON-3	15	SEC.
TANK POSITION PROXY FAULT TIME WAGON-4	5	SEC.
UP / DOWN PROXY FAULT TIME WAGON-4	15	SEC.

NEXT

MENU

SENSOR FAULT TIMER SETTINGS



PROCESS PARAMETERS

PROCESS PARAMETERS

DEG. SET. TEMP.	55.0	DEG.	DEG. ACT. TEMP.	54.6	DEG.
ANODIC SET. TEMP.	55.0	DEG.	ANODIC ACT. TEMP.	53.8	DEG.
DRYER SET. TEMP.	60.0	DEG.	DRYER ACT. TEMP.	59.3	DEG.
RECTIFIER SET. VOLTAGE	10.00	V	RECTIFIER ACT.VOLT	10.00	V
RECTIFIER SET. CURRENT	500	A	RECTIFIER ACT.CURRENT	495	A
			TRI-BLUE TANK pH	1.26	
			TRI-YELLOW TANK pH	2.19	

MENU NEXT

LOADWISE PROCESS REPORT PDF

M/S. BRIGHT METALS							PROCESS REPORT						
J-345, MIDC, BHOSARI, PUNE-411026													
Load Number:	28			Plating Type:	ACID-ZINC								
Customer Name:	HELICAL			Passivation Type:	TRI-BLUE								
Part Name:	PIPE			Set Current:	280								
Part No:	SESN 50			Weight/Quantity	50								
Item Number:	10			Passivation Recipe No:	0								
Load In Date:	02-02-2018			Online Process	2:4:21								
Load In Time:	10:59:30			Total Process Duration:	2:10:21								
Load Out Time:	13:03:52			Process Status:	Completed								
Process Type	Dip In Time	Dip Out Time	Duration	Temp (Deg)	Current (A)	pH							
Cold Degreasing:	10:59:54	11:05:37	0:5:43										
Hot Degreasing:	11:06:10	11:10:22	0:4:13	43.5									
Acid Pickling:	11:12:28	11:14:47	0:2:19										
Anodic Cleaning:	11:16:52	11:22:11	0:5:19	43.2									
Activation:	11:24:14	11:28:17	0:4:5										
Neutralization	11:33:04	11:38:52	0:5:49										
Plating:	11:38:21	12:56:15	1:17:55	27.0	0								
Nitric Dip:	13:01:22	13:01:54	0:0:30										
Passivation	0	0	0			0.00							
Dryer :	13:04:53	13:09:50	0:4:59	28.7									
Date : 02-02-2018							Time : 13:10:13						
Processed By:							Validated By: QA-Team Leader:						



M/S. ABHIJIT IND. & ELECTROPLATERS							PROCESS REPORT						
J-519, MIDC, BHOSARI, PUNE-411026													
Load Number:	27			Item Number:	3								
Customer Name:	YASH			Plating Type:	ZINC NIK								
Part Name:	FLANGE			Passivation Type:	TRI-BLUE								
Part No:	10009246			Set Current:	490								
Process Date / Time:	23/01/2018 10:43:07			Weight / Quantity	60								
Load In Date:	23/01/2018			Online Process Duration:	1:24:39								
Load In Time:	17:12:11			Total Process Duration:	1:30:34								
Load Out Time:	18:36:40			Process Status:	Completed								
Process Type	Dip In Time	Dip Out Time	Duration	Temp (Deg)	Current (A)	pH							
Hot Degreasing:	17:13:11	17:19:18	0:6:7	48.4									
Acid Pickling:	17:21:14	17:32:06	0:10:52										
Anodic Cleaning:	17:34:11	17:40:15	0:6:3	51.8									
Neutralization:	17:42:08	17:45:20	0:3:13										
Activation:	17:46:31	17:47:52	0:1:21										
Plating:	17:48:24	18:24:07	0:35:44	25.1	500								
Pre-Passivation:	18:28:38	18:28:56	0:0:18										
Passivation:	18:30:31	18:31:12	0:0:41			1.96							
Pre-TopCoat:	18:33:24	18:35:05	0:1:41										
Top Coat :	18:35:26	18:36:17	0:0:51			2.35							
Dryer :	18:37:14	18:42:45	0:5:3	57.0									
Date : 02-02-2018							Time : 13:10:13						
Processed By:							Validated By: QA-Team Leader:						

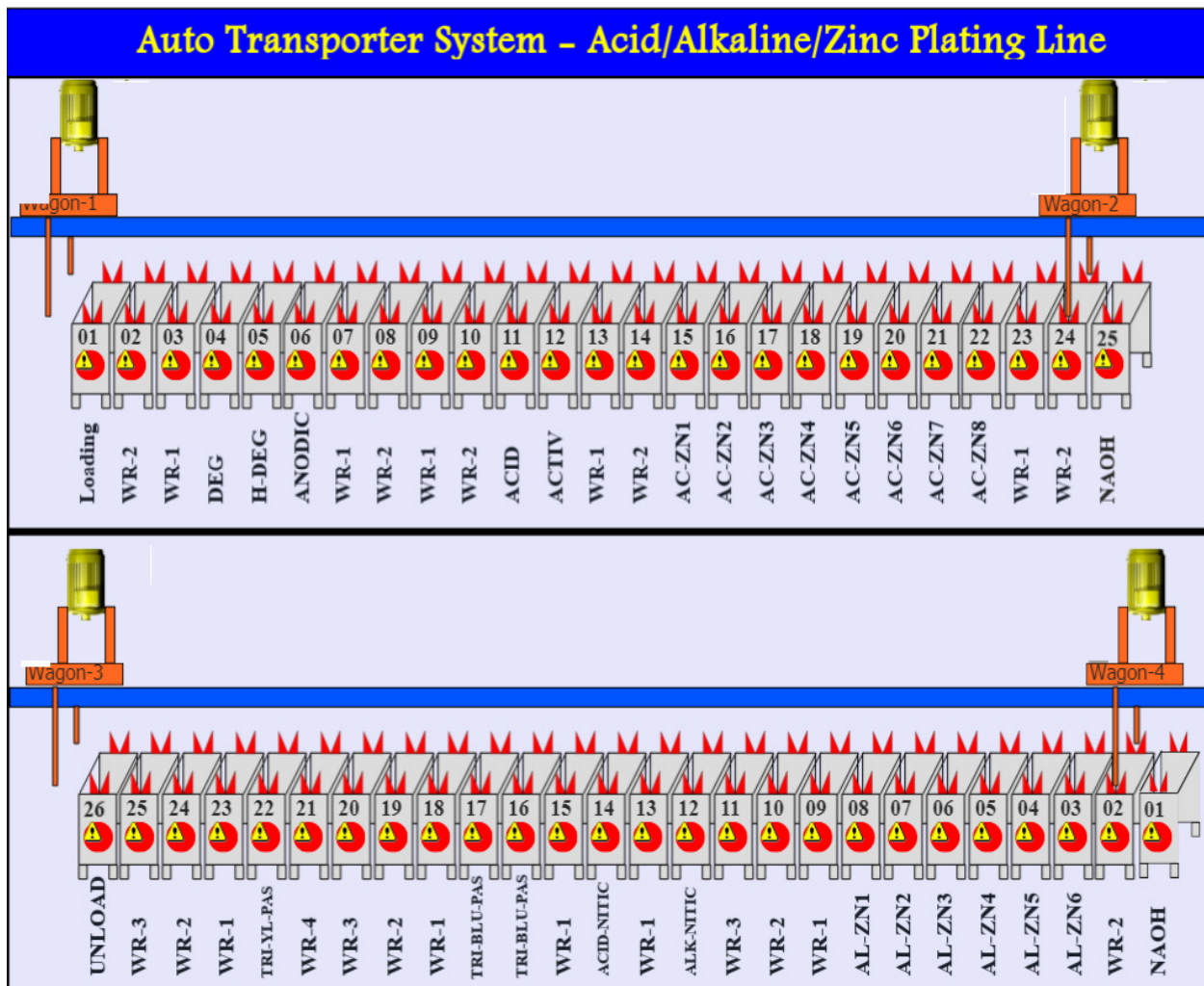


LOADWISE PROCESS REPORT VIEW

M/s. Bright Metals, Bhosari, Pune		Date : 24/01/2018 Time : 18:03:42		Process Report			
Load Number:	10	Plating Type:	ACID-ZINC	Load In Date:	24/01/2018		
Customer Name:	SIGMA	Passivation Type:	TRI-BLUE	Load In Time:	08:42:33		
Item Number:	1	Weight/Qty:	51	Load Out Time:	11:49:32		
Part Name:	PIPE	Set Current:	400	Online Process Duration:	3:6:58		
Part Number:	SESN 50	Passivation No.:	7	Total Process Duration:	3:12:56		
Process Type:	Dip In Time	Dip Out Time	Duration	Temp (Deg)	Current (A)	pH	
Cold Degreasing:	08:45:26	08:49:14	24:3:49				
Hot Degreasing:	08:49:47	08:55:22	0:5:35	45.9			
Acid Cleaning:	08:57:27	09:01:13	0:3:47				
Anodic Cleaning:	09:03:17	09:09:35	0:6:16	43.1			
Activation:	09:11:33	09:18:07	0:6:34				
Neutralization:	09:22:53	09:27:48	0:4:55				
Plating:	09:27:11	11:38:48	2:11:37	27.0	0		
Nitric Dip:	11:43:52	11:44:24	0:0:32				
Passivation:	11:46:14	11:46:50	0:0:37			2.05	
Dryer :	11:50:30	11:55:29	0:4:58	21.8			

M/s. Abhijit Industries & Electroplaters, Bhosari, Pune		Process Report					
Load Number:	23	Plating Type:	ZINC NIK	Load In Date:	23/01/2018		
Customer Name:	YASH	Passivation Type:	TRI BLUE	Load In Time:	15:57:18		
Item Number:	3	Weight/Qty:	60	Load Out Time:	17:22:15		
Part Name:	FLANGE	Set Current:	490	Online Process Duration:	1:24:57		
Part Number:	10083965	Date / Time:	23/01/2018 17:46:11	Total Process Duration:	1:31:0		
Process Type:	Dip In Time	Dip Out Time	Duration	Temp (Deg)	Current (A)	pH	
Hot Degreasing:	15:58:17	16:04:26	0:6:8	53.0			
Acid Pickling:	16:06:22	16:17:13	0:10:52				
Anodic Cleaning:	16:19:18	16:25:22	0:6:4	55.3			
Neutralization:	16:27:15	16:30:28	0:3:14				
Activation:	16:31:39	16:33:00	0:1:21				
Zinc Plating:	16:33:31	17:09:44	0:36:12	25.9	500		
Pre-Passivation:	17:14:12	17:14:30	0:0:18				
Passivation:	17:16:05	17:16:46	0:0:41			1.96	
Pre-TopCoat:	17:18:57	17:20:38	0:1:41				
Top Coat :	17:20:59	17:21:49	0:0:51			2.35	
Dryer :	17:23:17	17:28:18	0:5:0	57.0			

SCADA BASED PLANT MIMIC



Think big...



Bright Metals & Foods

J - 345, MIDC, Bhosari, Pune - 411 026.

Tel : +91-20-27130345. Email : info@bigbmf.com

Since 1987

	SET	ACTUAL
DEGRESING TEMP:	55.0°	54.5°
ANODIC TEMP:	55.0°	53.9°
DRYER TEMP:	60.0°	58.7°
VOLTAGE A:	10.0V	10.0V
CURRENT A:	500.0A	498.0A
VOLTAGE B:	10.0V	100.0V
CURRENT B:	500.0A	490.0A
TANK-16 pH:		1.27
TANK-17 pH:		1.91
TANK-22 pH:		2.35



G-10, First Floor

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DAILY PRODUCTION PROCESS REPORT

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	LOAD NO.	CUSTOMER	PART NAM	PART NO	PLATING T	PASSV.TYF	REQ.CURR	WEIGHT/C	LOAD IN D	LOAD IN TI	LOAD OUT	ONLINE PF	TOTAL PRG	COLD DEG	COLD DEG	COLD DEG	HOT DEG I	HOT DEG C	HOT DEG.	HOT DEG.	ACID IN TI	ACID OUT	ACID DUR.	ANODIC IN	ANODIC O	ANODIC D	ANODIC TE	ACTIV IN T	ACTIV.OU	ACTIV.DUF	NEAUT.IN	NEAUT.O
2	2	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	8:00:51	10:31:14	2:30:22	2:36:21	8:01:20	8:09:31	0:08:10	8:09:59	8:16:52	0:06:53	42.4	8:19:18	8:24:13	0:04:55	8:26:25	8:31:35	0:05:10	36.6	8:33:47	8:35:48	0:02:01	0	0
3	3	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	8:11:09	10:40:56	2:29:47	2:35:44	8:11:37	8:19:48	0:08:11	8:20:17	8:26:41	0:06:24	43.7	8:29:06	8:34:03	0:04:57	8:36:14	8:44:13	0:07:58	36.4	8:46:24	8:48:26	0:02:02	0	0
4	4	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	8:20:57	10:50:38	2:29:40	2:35:38	8:21:25	8:29:36	0:08:11	8:30:05	8:36:31	0:06:26	45.4	8:38:57	8:46:42	0:07:45	8:48:51	8:54:29	0:05:36	36.3	8:56:41	8:58:43	0:02:02	0	0
5	5	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	8:30:47	11:00:17	2:29:29	2:35:27	8:31:17	8:39:27	0:08:10	8:39:55	8:49:09	0:09:14	44.9	8:51:35	8:56:57	0:05:22	8:59:07	9:04:25	0:05:16	36.5	9:06:37	9:08:39	0:02:02	0	0
6	7	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	8:43:26	11:11:07	2:27:41	2:33:38	8:43:53	8:52:05	0:08:12	8:52:33	8:59:25	0:06:52	45.4	9:01:50	9:06:54	0:05:04	9:09:04	9:14:08	0:05:02	37.2	9:16:19	9:18:23	0:02:02	0	0
7	8	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	8:53:41	11:25:06	2:31:24	2:37:21	8:54:09	9:02:20	0:08:11	9:02:48	9:09:22	0:06:33	46.1	9:11:47	9:16:36	0:04:49	9:18:47	9:23:50	0:05:03	38	9:26:02	9:28:05	0:02:03	9:30:24	9:35:24
8	9	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	9:03:38	11:35:17	2:31:39	2:37:39	9:04:07	9:12:17	0:08:10	9:12:46	9:19:03	0:06:17	47	9:21:30	9:26:18	0:04:48	9:28:29	9:34:01	0:05:32	38.6	9:36:12	9:38:15	0:02:02	9:40:37	9:45:21
9	10	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	9:13:20	11:45:50	2:32:29	2:38:30	9:13:48	9:22:00	0:08:12	9:22:28	9:28:45	0:06:17	46.5	9:31:11	9:36:29	0:05:17	9:38:40	9:43:44	0:05:02	39.1	9:45:56	9:47:58	0:02:00	0	0
10	11	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	9:23:02	11:56:29	2:33:26	2:39:24	9:23:30	9:31:40	0:08:10	9:32:09	9:38:57	0:06:49	46.5	9:41:23	9:46:12	0:04:49	9:48:23	10:15:02	0:26:37	39.9	10:17:13	10:19:21	0:02:07	0	0
11	12	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	9:33:14	12:06:39	2:33:25	2:39:23	9:33:41	9:41:52	0:08:12	9:42:21	9:48:41	0:06:20	47.2	10:12:35	10:17:31	0:04:56	10:19:41	10:24:44	0:05:03	42.5	10:26:55	10:29:02	0:02:05	0	0
12	13	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	9:42:56	12:17:11	2:34:15	2:40:13	9:43:24	10:13:05	0:29:41	10:13:33	10:19:59	0:06:26	48.9	10:22:24	10:27:12	0:04:49	10:29:23	10:34:27	0:05:03	43	10:36:37	10:38:43	0:02:04	0	0
13	14	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	10:14:15	12:27:30	2:13:15	2:19:13	10:14:44	10:22:53	0:08:10	10:23:22	10:29:40	0:06:18	48.8	10:32:05	10:36:54	0:04:50	10:39:04	10:44:09	0:05:03	43.7	10:46:20	10:48:27	0:02:06	0	0
14	15	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	10:23:56	12:38:00	2:14:03	2:20:01	10:24:24	10:32:35	0:08:11	10:33:04	10:39:21	0:06:17	48.9	10:41:47	10:46:37	0:04:50	10:48:48	10:54:58	0:06:10	43.8	10:57:10	10:59:15	0:02:05	0	0
15	16	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	10:33:38	12:48:29	2:14:50	2:20:48	10:34:06	10:42:17	0:08:11	10:42:46	10:49:04	0:06:18	49.3	10:51:31	10:57:26	0:05:55	10:59:38	11:05:36	0:05:58	44.8	11:07:47	11:09:54	0:02:07	11:12:23	11:17:23
16	17	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	10:43:22	12:58:37	2:15:15	2:21:13	10:43:49	10:51:59	0:08:10	10:52:28	10:59:54	0:07:26	49.9	11:02:19	11:08:05	0:05:46	11:10:15	11:15:53	0:05:38	45.4	11:18:05	11:20:11	0:02:04	11:22:40	11:27:34
17	18	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	10:54:10	13:08:37	2:14:26	2:20:25	10:54:38	11:02:49	0:08:11	11:03:18	11:10:33	0:07:15	50.1	11:12:57	11:18:21	0:05:24	11:20:32	11:29:39	0:09:05	45.4	11:31:50	11:33:57	0:02:07	0	0
18	19	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	11:04:48	14:06:49	3:02:00	3:07:58	11:05:18	11:13:27	0:08:09	11:13:56	11:20:50	0:06:54	49.8	11:23:15	11:32:08	0:08:53	11:34:18	11:40:17	0:05:57	46.3	11:42:30	11:44:36	0:02:06	0	0
19	20	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	11:15:05	14:16:42	3:01:36	3:07:35	11:15:35	11:23:45	0:08:10	11:24:13	11:34:34	0:10:21	50.1	11:37:01	11:42:46	0:05:45	11:44:57	11:50:26	0:05:29	46.9	11:52:38	11:54:44	0:02:05	0	0
20	21	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	11:28:51	14:27:51	2:58:59	3:04:58	11:29:19	11:37:31	0:08:12	11:37:59	11:45:13	0:07:14	50.3	11:47:40	11:52:54	0:05:14	11:55:05	12:00:59	0:05:54	47.2	12:03:10	12:05:17	0:02:06	0	0
21	22	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	11:39:29	14:37:29	2:58:00	3:03:57	11:39:59	11:48:10	0:08:11	11:48:38	11:55:22	0:06:45	49.5	11:57:48	12:03:28	0:05:39	12:05:38	12:11:21	0:05:41	47.7	12:13:33	12:15:39	0:02:06	0	0
22	23	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	11:49:38	14:48:37	2:58:58	3:04:56	11:50:08	11:58:18	0:08:10	11:58:47	12:05:54	0:07:07	50	12:08:21	12:13:49	0:05:28	12:16:00	12:21:51	0:05:49	48.1	12:24:02	12:26:10	0:02:08	0	0
23	24	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	12:00:11	15:02:33	3:02:21	3:08:20	12:00:39	12:08:51	0:08:12	12:09:19	12:16:18	0:06:59	50	12:18:43	12:24:20	0:05:37	12:26:30	12:32:20	0:05:48	48.5	12:34:31	12:36:38	0:02:05	12:39:06	12:44:05
24	26	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	12:21:04	15:22:58	3:01:54	3:07:51	12:21:31	12:29:42	0:08:11	12:30:11	12:37:15	0:07:04	50	12:39:41	12:45:00	0:05:18	12:47:11	12:52:27	0:05:14	48.4	12:54:38	12:56:44	0:02:04	0	0
25	27	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	12:31:33	15:33:24	3:01:51	3:07:49	12:32:00	12:40:12	0:08:12	12:40:40	12:47:29	0:06:49	45.9	12:49:53	12:54:56	0:05:03	12:57:05	13:03:36	0:53:31	47.4	13:52:47	13:54:54	0:02:05	0	0
26	28	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	12:41:45	15:43:45	3:01:58	3:07:56	12:42:13	12:50:23	0:08:10	12:50:52	12:57:23	0:06:31	45.9	12:59:49	13:03:05	0:05:16	13:05:15	14:00:30	0:05:13	32.7	14:02:41	14:04:48	0:02:05	0	0
27	29	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	12:51:39	15:53:48	3:02:08	3:08:07	12:52:07	13:00:17	0:08:10	13:00:46	13:05:33	0:54:47	41.9	13:57:57	14:02:59	0:05:02	14:05:09	14:11:39	0:06:30	32.7	14:13:50	14:15:56	0:02:06	0	0
28	30	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	13:01:20	16:03:45	3:02:24	3:08:23	13:01:50	13:08:27	0:56:37	13:08:56	14:05:27	0:06:31	41.9	14:07:52	14:14:07	0:06:15	14:16:19	14:21:21	0:05:02	32.7	14:23:32	14:25:39	0:02:06	0	0
29	31	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	13:59:42	16:17:51	2:18:08	2:24:08	14:00:10	14:08:22	0:08:12	14:08:50	14:16:35	0:07:45	41.9	14:19:00	14:23:50	0:04:50	14:26:00	14:32:29	0:06:27	32.7	14:34:42	14:36:48	0:02:06	0	0
30	32	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	14:10:52	16:30:42	2:19:50	2:25:48	14:11:21	14:19:30	0:08:09	14:19:59	14:26:18	0:06:19	41.9	14:28:44	14:34:57	0:06:13	14:37:08	14:43:04	0:05:56	32.7	14:45:16	14:47:22	0:02:06	14:49:52	14:54:55
31	33	HELICAL	PIPE	SESN 50	ACID-ZINC TRI-BLUE		280	50	19/11/20	14:20:33	16:41:10	2:20:36	2:26:33	14:21:03	14:29:13	0:08:11	14:29:42	14:37:26	0:07:44	41.9	14:39:52	14:45:32	0:05:40	14:47:43	14:52:46	0:05:01	32.7	14:54:57	14:57:04	0:02:05	14:59:33	15:04:24
32	34	HELICAL	PIPE	SESN 50	ACID-ZINC																											

DAILY PRODUCTION PROCESS REPORT

V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
ACID OUT TIME	ACID DURATION	ANODIC IN TIME	ANODIC OUT TIME	ANODIC DURATION	ANODIC TEMP.	ACTIV IN TIME	ACTIV OUT TIME	ACTIV DURATION	NEAUT IN TIME	NEAUT OUT TIME	NEAUT DURATION	PLATING IN TIME	PLATING OUT TIME	PLATING DURATION	PLATING TEMP.	NITRIC IN TIME	NITRIC OUT TIME	NITRIC DURATION	PASSY IN TIME
8:24:13	0:04:55	8:26:25	8:31:05	0:05:10	36.60	8:33:47	8:35:40	0:02:01	0	0	0	8:40:43	9:02:00	1:41:17	27	9:02:03	9:06:35	0:04:32	9:07:07
8:34:03	0:04:57	8:36:14	8:44:13	0:07:58	36.40	8:46:24	8:48:26	0:02:02	0	0	0	8:53:29	9:03:47	1:30:18	27	9:03:49	9:08:17	0:04:28	9:08:45
8:46:42	0:07:45	8:49:51	8:54:29	0:05:36	36.30	8:56:41	8:58:43	0:02:02	0	0	0	9:03:47	9:40:30	1:36:42	27	9:40:32	9:45:58	0:05:26	9:46:25
8:56:57	0:05:22	8:59:04	9:04:25	0:05:16	36.50	9:06:37	9:08:33	0:02:02	0	0	0	9:13:42	10:50:17	1:36:35	27	10:50:19	10:55:37	0:05:18	10:56:15
9:06:54	0:05:04	9:09:04	9:14:08	0:05:02	37.20	9:16:19	9:18:23	0:02:02	0	0	0	9:23:28	11:01:08	1:37:41	27	11:01:10	11:06:27	0:05:17	11:07:03
9:16:36	0:04:49	9:18:47	9:23:50	0:05:03	38.00	9:26:02	9:28:05	0:02:03	9:30:24	9:35:20	0:04:56	9:34:44	11:14:10	1:39:26	27	11:14:12	11:19:40	0:05:28	11:21:22
9:26:18	0:04:48	9:28:29	9:34:01	0:05:32	38.60	9:36:12	9:38:15	0:02:02	9:40:37	9:45:25	0:04:48	9:44:53	11:24:33	1:33:33	27	11:24:35	11:30:00	0:05:25	11:31:34
9:36:29	0:05:17	9:38:40	9:43:44	0:05:02	39.10	9:45:56	9:47:58	0:02:00	0	0	0	10:14:30	11:05:36	1:21:05	27	11:05:38	11:10:59	0:05:21	11:12:08
9:46:12	0:04:43	9:48:23	10:05:02	0:26:37	39.30	10:17:13	10:19:15	0:02:02	0	0	0	10:24:40	11:46:17	1:21:36	27	11:46:19	11:51:43	0:05:24	11:52:17
10:17:31	0:04:56	10:19:41	10:24:44	0:05:03	42.50	10:26:55	10:29:02	0:02:05	0	0	0	10:34:24	11:56:29	1:22:05	27	12:01:52	12:07:18	0:05:26	12:08:25
10:27:12	0:04:49	10:29:23	10:34:27	0:05:03	43.00	10:36:37	10:38:43	0:02:04	0	0	0	10:44:09	12:07:05	1:22:54	27	12:07:07	12:12:32	0:05:25	12:13:50
10:36:54	0:04:50	10:39:04	10:44:09	0:05:03	43.70	10:46:20	10:48:27	0:02:06	0	0	0	10:53:50	12:17:28	1:23:38	27	12:17:30	12:22:50	0:05:20	12:24:16
10:46:37	0:04:50	10:48:48	10:54:58	0:06:10	43.80	10:57:10	10:59:15	0:02:05	0	0	0	11:04:42	12:28:02	1:23:20	27	12:28:04	12:33:19	0:05:15	12:34:45
10:57:26	0:05:55	10:59:30	11:05:36	0:05:50	44.00	11:07:47	11:09:54	0:02:07	11:12:23	11:17:22	0:04:57	11:16:46	12:41:02	1:24:17	27	12:41:04	12:46:31	0:05:20	12:47:51
11:08:05	0:05:46	11:10:15	11:15:53	0:05:38	45.40	11:18:05	11:20:11	0:02:04	11:22:40	11:27:34	0:04:53	11:26:54	12:51:12	1:24:13	27	12:51:14	12:56:40	0:05:26	12:58:06
11:18:21	0:05:24	11:20:32	11:26:39	0:06:05	45.40	11:31:50	11:33:57	0:02:07	0	0	0	11:33:15	12:58:24	1:25:09	27	13:03:32	13:08:58	0:05:26	13:10:25
11:32:08	0:06:53	11:34:16	11:40:17	0:05:57	46.30	11:42:30	11:44:36	0:02:06	0	0	0	11:43:56	13:56:37	1:20:41	27	14:01:41	14:07:09	0:05:28	14:08:35
11:42:46	0:05:45	11:44:57	11:50:26	0:05:29	46.90	11:52:38	11:54:44	0:02:05	0	0	0	12:00:07	14:06:33	1:20:24	27	14:06:35	14:12:02	0:05:27	14:13:28
11:52:54	0:05:14	11:55:05	12:00:53	0:05:54	47.20	12:03:10	12:05:17	0:02:06	0	0	0	12:10:43	14:17:43	1:27:01	27	14:17:45	14:23:12	0:05:27	14:24:37
12:03:28	0:05:39	12:05:38	12:11:21	0:05:41	47.70	12:13:33	12:15:39	0:02:06	0	0	0	12:21:02	14:27:28	1:26:26	27	14:27:30	14:32:57	0:05:27	14:34:15
12:13:49	0:05:28	12:16:00	12:21:51	0:05:49	48.10	12:24:02	12:26:10	0:02:08	0	0	0	12:31:33	14:38:40	1:27:07	27	14:38:42	14:43:57	0:05:15	14:45:24
12:24:20	0:05:37	12:26:30	12:32:20	0:05:48	48.50	12:34:31	12:36:38	0:02:05	12:39:06	12:44:05	0:04:57	12:43:30	14:51:46	1:20:15	27	14:51:48	14:57:16	0:05:28	14:58:51
12:45:00	0:05:18	12:47:11	12:52:27	0:05:14	48.40	12:54:38	12:56:44	0:02:04	0	0	0	13:02:02	15:12:43	1:20:40	27	15:12:45	15:18:18	0:05:26	15:19:45
12:54:56	0:05:03	12:57:05	13:03:36	0:05:31	47.40	13:05:47	13:07:54	0:02:05	0	0	0	14:00:14	15:23:12	1:22:56	27	15:23:14	15:28:44	0:05:26	15:30:10
13:03:05	0:05:16	13:05:15	14:00:30	0:05:13	36.50	14:02:41	14:04:48	0:02:05	0	0	0	14:10:10	15:33:34	1:23:23	27	15:33:36	15:39:04	0:05:26	15:40:30
14:02:59	0:05:02	14:05:03	14:11:33	0:06:30	37.20	14:13:50	14:15:56	0:02:06	0	0	0	14:21:21	15:43:42	1:22:19	27	15:43:44	15:49:09	0:05:25	15:50:36
14:14:07	0:06:15	14:16:19	14:21:21	0:05:02	38.00	14:23:32	14:25:39	0:02:06	0	0	0	14:31:02	15:53:45	1:22:42	27	15:53:47	15:59:06	0:05:19	16:00:32
14:23:50	0:04:50	14:26:00	14:32:29	0:06:27	38.60	14:34:42	14:36:48	0:02:06	0	0	0	14:42:14	16:07:53	1:25:40	27	16:07:55	16:13:22	0:05:24	16:14:39
14:34:57	0:06:10	14:37:00	14:43:04	0:05:56	39.10	14:45:16	14:47:22	0:02:06	14:49:52	14:54:51	0:04:59	14:54:15	16:20:09	1:25:54	27	16:20:11	16:25:36	0:05:20	16:27:06
14:45:32	0:05:40	14:47:43	14:52:46	0:05:01	39.90	14:54:57	14:57:04	0:02:05	14:59:33	15:04:26	0:04:51	15:03:54	16:30:39	1:26:44	27	16:30:41	16:36:07	0:05:20	16:37:54
14:55:15	0:04:49	14:57:25	15:06:45	0:09:18	42.50	15:08:56	15:11:04	0:02:06	0	0	0	15:16:21	16:41:07	1:24:47	27	16:41:09	16:46:42	0:05:33	16:48:08
15:09:14	0:09:07	15:11:24	15:17:11	0:05:47	43.00	15:19:23	15:21:30	0:02:06	0	0	0	15:26:49	16:52:07	1:25:19	27	16:52:09	16:57:33	0:05:25	16:59:05
15:19:40	0:05:34	15:21:50	15:27:31	0:05:41	43.70	15:29:43	15:31:49	0:02:06	0	0	0	15:37:11	17:01:52	1:24:40	27	17:01:54	17:07:22	0:05:26	17:08:48
15:29:59	0:05:25	15:32:10	15:37:37	0:05:27	43.80	15:39:49	15:41:54	0:02:05	0	0	0	15:47:20	17:12:50	1:25:29	27	17:12:52	17:18:16	0:05:25	17:19:44
15:40:05	0:05:12	15:42:15	15:47:38	0:05:21	44.80	15:49:49	15:51:57	0:02:08	0	0	0	15:57:20	17:22:33	1:25:12	27	17:22:35	17:27:55	0:05:20	17:29:22
15:50:07	0:05:08	15:52:17	16:01:44	0:09:25	45.40	16:03:56	16:06:03	0:02:07	0	0	0	16:11:29	17:33:17	1:21:49	27	17:33:19	17:38:36	0:05:17	17:40:13
16:04:12	0:09:11	16:06:23	16:11:26	0:05:01	45.40	16:13:37	16:15:45	0:02:06	16:18:14	16:23:13	0:04:59	16:22:37	17:45:31	1:22:55	27	17:45:33	17:50:50	0:05:17	17:52:40
16:24:28	0:05:40	16:26:39	16:35:10	0:08:31	45.10	16:37:21	16:39:29	0:02:06	0	0	0	16:44:45	18:05:48	1:21:02	27	18:05:50	18:11:23	0:05:26	18:13:00
16:37:39	0:06:10	16:39:43	16:46:07	0:06:16	44.90	16:48:18	16:50:24	0:02:06	0	0	0	16:55:45	18:16:22	1:20:36	27	18:16:24	18:21:55	0:05:26	18:23:31
16:58:18	0:04:50	17:00:28	17:06:46	0:06:16	45.10	17:08:56	17:11:03	0:02:05	0	0	0	17:16:27	18:35:49	1:19:21	27	18:35:51	18:41:17	0:05:26	18:42:54
17:09:15	0:06:04	17:11:24	17:16:27	0:05:01	45.80	17:18:39	17:20:45	0:02:06	0	0	0	17:26:08	18:45:34	1:19:25	27	18:45:36	18:50:55	0:05:19	18:52:32
17:19:55	0:04:43	17:21:05	17:27:06	0:06:01	46.30	17:29:16	17:31:22	0:02:05	0	0	0	17:36:52	19:06:36	1:19:45	27	19:06:38	19:11:55	0:05:17	19:13:32
17:29:36	0:05:49	17:31:46	17:36:49	0:05:01	47.20	17:39:00	17:41:07	0:02:08	17:43:36	17:48:35	0:04:58	17:47:59	19:08:49	1:20:49	27	19:08:51	19:14:18	0:05:26	19:16:05
17:39:18	0:04:50	17:41:28	17:47:59	0:06:29	47.60	17:50:10	17:52:18	0:02:06	17:54:46	17:59:39	0:04:53	17:59:03	19:18:26	1:19:19	27	19:18:28	19:23:54	0:05:21	19:25:41
17:50:28	0:06:17	17:52:38	17:59:50	0:07:10	47.70	18:02:03	18:04:08	0:02:03	0	0	0	18:09:26	19:28:06	1:18:41	27	19:28:08	19:33:42	0:05:34	19:35:18
18:02:20	0:07:00	18:04:29	18:10:22	0:05:51	48.70	18:12:34	18:14:41	0:02:07	0	0	0	18:20:00	19:37:51	1:17:51	27	19:37:53	19:43:23	0:05:26	19:45:00
18:12:51	0:05:33	18:15:01	18:20:04	0:05:01	49.30	18:22:17	18:24:22	0:02:05	0	0	0	18:29:45	19:47:33	1:17:47	27	19:47:35	19:53:04	0:05:26	19:54:41
18:22:32	0:04:49	18:24:43	18:29:45	0:05:00	49.70	18:31:57	18:34:04	0:02:05	0	0	0	18:39:27	19:57:17	1:17:49	27	19:57:19	20:02:46	0:05:27	20:04:22



DAILY PRODUCTION PROCESS REPORT

AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV
NEAUT. IN TIME	NEAUT. OUT TIME	NEAUT. DURATION	PLATING IN TIME	PLATING OUT TIME	PLATING DURATION	PLATING TEMP.	NITRIC IN TIME	NITRIC OUT TIME	NITRIC DURATION	PASSV. IN TIME	PASSV. OUT TIME	PASSV. DURATION	PASSV. PH	DRYER IN TIME	DRYER OUT TIME	DRYER DURATION	DRYER TEMP.
0	0	0	8:40:49	10:21:03	1:40:14	27	10:26:09	10:26:35	0:00:26	10:28:01	10:28:25	0:00:24	1.86	10:32:13	10:37:13	0:04:58	42.40
0	0	0	8:53:29	10:30:47	1:37:16	27	10:35:49	10:36:17	0:00:26	10:37:42	10:38:06	0:00:22	1.86	10:41:55	10:46:54	0:04:59	43.70
0	0	0	9:03:47	10:40:30	1:36:42	27	10:45:32	10:45:58	0:00:26	10:47:25	10:47:49	0:00:24	1.86	10:51:37	10:56:36	0:04:57	45.40
0	0	0	9:13:42	10:50:17	1:36:33	27	10:55:11	10:55:37	0:00:24	10:57:04	0	0	1.79	11:01:17	11:06:15	0:04:58	44.90
0	0	0	9:23:28	11:01:08	1:37:41	27	11:05:59	11:06:27	0:00:28	11:07:53	11:08:17	0:00:22	1.86	11:12:05	11:17:04	0:04:59	45.40
9:30:24	9:35:20	0:04:56	9:34:44	11:14:18	1:39:35	27	11:19:16	11:19:48	0:00:32	11:21:22	11:22:14	0:00:50	1.46	11:26:04	11:31:03	0:04:57	46.10
9:40:37	9:45:25	0:04:48	9:44:53	11:24:33	1:39:39	27	11:29:29	11:30:00	0:00:29	11:31:34	11:32:26	0:00:52	1.45	11:36:17	11:41:17	0:04:58	47.00
0	0	0	10:14:30	11:35:36	1:21:05	27	11:40:44	11:41:10	0:00:24	11:42:38	11:43:01	0:00:23	1.80	11:46:50	11:51:49	0:05:01	46.50
0	0	0	10:24:40	11:46:17	1:21:38	27	11:51:23	11:51:49	0:00:26	11:53:17	11:53:41	0:00:24	1.79	11:57:28	12:02:27	0:04:57	46.50
0	0	0	10:34:24	11:56:23	1:22:06	27	12:01:32	12:01:58	0:00:26	12:03:25	12:03:48	0:00:21	1.79	12:07:37	12:12:37	0:04:58	47.20
0	0	0	10:44:09	12:07:05	1:22:54	27	12:12:06	12:12:32	0:00:26	12:13:58	12:14:22	0:00:24	1.79	12:18:11	12:23:10	0:04:59	48.90
0	0	0	10:53:50	12:17:28	1:23:39	27	12:22:22	12:22:50	0:00:26	12:24:16	12:24:39	0:00:21	1.79	12:28:28	12:33:27	0:04:58	48.80
0	0	0	11:04:42	12:28:02	1:23:20	27	12:32:53	12:33:19	0:00:24	12:34:45	12:35:09	0:00:24	1.82	12:38:58	12:43:58	0:04:58	48.90
11:12:23	11:17:22	0:04:57	11:16:46	12:41:02	1:24:17	27	12:45:59	12:46:31	0:00:30	0	0	0	1.35	12:49:27	12:54:27	0:04:58	49.30
11:22:40	11:27:34	0:04:53	11:27:00	12:51:12	1:24:13	27	12:56:08	12:56:40	0:00:32	0	0	0	1.38	12:59:35	13:04:35	0:05:00	49.30
0	0	0	11:33:15	12:58:24	1:19:10	27	13:03:32	13:03:58	0:00:24	13:05:25	13:05:48	0:00:22	1.38	13:09:36	13:14:36	0:04:58	50.10
0	0	0	11:43:56	13:06:37	2:06:41	27	14:01:41	14:02:09	0:00:26	14:03:35	14:03:59	0:00:22	1.47	14:07:48	14:12:47	0:04:59	49.80
0	0	0	12:00:07	14:06:33	2:06:24	27	14:11:35	14:12:02	0:00:27	14:13:28	14:13:52	0:00:22	1.82	14:17:41	14:22:41	0:05:00	50.10
0	0	0	12:10:43	14:17:43	2:07:01	27	14:22:44	14:23:12	0:00:26	14:24:37	14:25:01	0:00:24	1.82	14:28:50	14:33:50	0:05:00	50.30
0	0	0	12:21:02	14:27:28	2:06:26	27	14:32:23	14:32:50	0:00:27	14:34:15	14:34:39	0:00:22	1.79	14:38:28	14:43:27	0:04:57	49.50
0	0	0	12:31:59	14:38:40	2:07:02	27	14:43:31	14:43:57	0:00:25	14:45:24	14:45:47	0:00:23	1.83	14:49:36	14:54:35	0:04:57	50.00
12:39:06	12:44:05	0:04:57	12:43:30	14:51:46	2:08:15	27	14:56:44	14:57:16	0:00:33	14:58:51	14:59:43	0:00:52	1.42	15:03:32	15:08:32	0:04:58	50.00
0	0	0	13:02:02	15:12:43	2:10:40	27	15:17:51	15:18:18	0:00:26	15:19:45	15:20:07	0:00:22	1.82	15:23:56	15:28:55	0:04:57	50.00
0	0	0	14:00:14	15:23:12	1:22:56	27	15:28:18	15:28:44	0:00:26	15:30:10	15:30:34	0:00:22	1.69	15:34:23	15:39:22	0:04:59	45.90
0	0	0	14:10:10	15:33:34	1:23:23	27	15:38:36	15:39:04	0:00:26	15:40:30	15:40:53	0:00:24	1.66	15:44:43	15:49:42	0:04:59	45.30
0	0	0	14:21:21	15:43:42	1:22:19	27	15:48:42	15:49:09	0:00:26	15:50:36	15:50:58	0:00:22	1.66	15:54:47	15:59:46	0:05:00	41.90
0	0	0	14:31:02	15:53:45	1:22:42	27	15:58:40	15:59:06	0:00:24	16:00:32	16:00:56	0:00:27	1.57	16:04:45	16:09:44	0:04:57	41.90
0	0	0	14:42:14	16:07:53	1:25:40	27	16:12:46	16:13:12	0:00:24	16:14:33	16:15:03	0:00:22	1.41	16:18:52	16:23:51	0:04:59	41.90
14:49:52	14:54:51	0:04:59	14:54:15	16:20:09	1:25:54	27	16:25:08	16:25:38	0:00:30	16:27:26	16:28:02	0:00:36	2.57	16:31:40	16:36:40	0:04:58	41.90
14:53:33	15:04:26	0:04:51	15:03:54	16:30:39	1:26:44	27	16:35:35	16:36:07	0:00:30	16:37:54	16:38:30	0:00:34	2.47	16:42:08	16:47:07	0:04:57	41.90
0	0	0	15:16:21	16:41:07	1:24:47	27	16:46:16	16:46:42	0:00:24	16:48:08	16:48:32	0:00:24	1.41	16:52:20	16:57:20	0:04:58	41.90
0	0	0	15:26:49	16:52:07	1:25:19	27	16:57:12	16:57:39	0:00:25	16:59:05	16:59:29	0:00:23	1.35	17:03:17	17:08:16	0:04:57	41.90
0	0	0	15:37:11	17:01:52	1:24:40	27	17:06:56	17:07:22	0:00:26	17:08:48	17:09:12	0:00:22	1.38	17:13:00	17:17:59	0:04:57	41.90
0	0	0	15:47:20	17:12:50	1:25:29	27	17:17:51	17:18:16	0:00:25	17:19:44	17:20:06	0:00:22	1.38	17:23:55	17:28:54	0:04:57	41.90
0	0	0	15:57:20	17:22:33	1:25:12	27	17:27:29	17:27:55	0:00:26	17:29:22	17:29:45	0:00:23	1.47	17:33:33	17:38:32	0:04:58	41.90
0	0	0	16:11:29	17:33:17	1:21:49	27	17:38:10	17:38:36	0:00:26	17:40:13	17:40:43	0:00:36	2.50	17:44:27	17:49:26	0:04:57	41.90
16:18:14	16:23:13	0:04:59	16:22:37	17:45:31	1:22:55	27	17:50:30	17:51:02	0:00:32	17:52:48	17:53:26	0:00:36	2.55	17:57:03	18:02:03	0:04:58	34.80
0	0	0	16:44:45	18:05:48	1:21:02	27	18:10:57	18:11:23	0:00:26	18:13:00	18:13:36	0:00:34	2.57	18:17:14	18:22:13	0:04:58	42.30
0	0	0	16:55:45	18:16:22	1:20:38	27	18:21:27	18:21:55	0:00:26	18:23:31	18:24:09	0:00:36	2.41	18:27:46	18:32:45	0:04:58	40.20
0	0	0	17:16:27	18:35:49	1:19:21	27	18:40:51	18:41:17	0:00:26	18:42:54	18:43:32	0:00:38	2.49	18:47:08	18:52:08	0:04:58	43.20
0	0	0	17:26:08	18:45:34	1:19:25	27	18:50:30	18:50:55	0:00:25	18:52:32	18:53:08	0:00:36	2.49	18:56:47	19:01:45	0:04:58	42.30
0	0	0	17:36:52	18:56:36	1:19:45	27	19:01:27	19:01:55	0:00:28	19:03:32	19:04:08	0:00:34	2.53	19:07:45	19:12:44	0:04:57	43.30
17:43:36	17:48:35	0:04:58	17:47:53	19:08:43	1:20:49	27	19:13:47	19:14:10	0:00:32	19:16:05	19:16:43	0:00:38	2.45	19:20:19	19:25:18	0:04:57	44.10
17:54:46	17:59:39	0:04:53	17:59:09	19:18:28	1:19:19	27	19:23:23	19:23:54	0:00:31	19:25:41	19:26:19	0:00:38	2.49	19:29:36	19:34:34	0:04:58	44.30
0	0	0	18:08:26	19:28:06	1:19:41	27	19:33:14	19:33:42	0:00:26	19:35:18	19:35:56	0:00:36	2.53	19:39:32	19:44:31	0:04:59	45.00
0	0	0	18:20:00	19:37:51	1:17:51	27	19:42:57	19:43:23	0:00:26	19:45:00	19:45:36	0:00:36	2.53	19:49:14	19:54:13	0:04:58	45.10
0	0	0	18:29:45	19:47:33	1:17:47	27	19:52:36	19:53:04	0:00:26	19:54:41	19:55:17	0:00:34	2.56	19:58:55	20:03:54	0:04:57	46.20
0	0	0	18:39:27	19:57:17	1:17:49	27	20:02:16	20:02:46	0:00:27	20:04:22	20:05:00	0:00:36	2.62	20:08:37	20:13:36	0:04:58	46.50



OUR ESTEEMED CUSTOMERS

Sr.No.	Customer Name	Location	No.of Wagon	Application	Sr.No.	Customer Name	Location	No.of Wagon	Application
1	Bright Metals	Bhosari, Pune	4	Plating / Barrel	39	Jamosh Auto Coatings	Wai, Satara	2	Phosphating
2	Bright Metals	Bhosari, Pune	2	Plating / VAT	40	Sagar Auto Parts P.L.	Sanaswadi, Pune	1	Phosphating
3	Abhijeet Industries	Bhosari, Pune	2	Plating / VAT					
4	Abhijeet Industries	Bhosari, Pune	1	Plating / Barrel					
5	Sai Surface Coating	Bhosari, Pune	2	Plating / Barrel					
6	Sai Surface Coating	Bhosari, Pune	1	CED					
7	SKS Fastners	Chakan, Pune	3	Plating / Barrel					
8	SKS Fastners	Chakan, Pune	2	Phosphating					
9	Pushpashree Surface Coating	Pirangut, Pune	2	Plating / VAT					
10	Pushpashree Surface Coating	Pirangut, Pune	2	Plating / Barrel					
11	Ameya Surface Solutions	Chakan, Pune	3	CED					
12	Ameya Surface Solutions	Chakan, Pune	5	CED					
13	Renuka Auto Components	Jamshedpur	3	CED					
14	Renuka Auto Components	Jamshedpur	3	CED					
15	Starways Precision	Chakan, Pune	2	Plating / Barrel					
16	Maharashtra Fastners	Markai, Pune	3	Plating / Barrel					
17	Accord Engineering	Hinjewadi, Pune	3	Plating / VAT					
18	S.P. Metalurgicals	Chakan, Pune	1	Plating / VAT					
19	Grow Star Electroplating	Chinchwad Pune	1	Plating / VAT					
20	Sai CED Coating	Bhosari, Pune	2	CED					
21	Gurukrupa Industries	Bhosari, Pune	1	Phosphating					
22	V.P. Industries	Chakan, Pune	1	CED					
23	Aradhya Coating	Moshi, Pune	1	Phosphating					
24	Amar Coating	Kolhapur	2	CED					
25	Kwality Powder Coating	Lucknow	3	CED					
26	Paul & Compnay	Jamshedpur	2	CED					
27	Sumit Enterprises	Jamshedpur	3	CED					
28	Royal Coatings	Chakan, Pune	1	Phosphating					
29	Abhijeet Enterprises	Narhe, Pune	1	Plating/VAT					
30	Sai CED Coating - Chakan	Chakan, Pune	1	Phosphating					
31	Ameya Corrosion Solutions	Chimbli, Pune	2	Phosphating					
32	O.P. Industries	Chakan, Pune	2	Plating / VAT					
33	Polybond India Pvt. Ltd.	Sanaswadi, Pune	1	Phosphating					
34	A1 Coatings	Chimbli, Pune	2	CED					
35	Gurukrupa Industries	Kudalwadi, Pune	2	CED					
36	Vaidya V&I Infrastructure	Nagpur	1	CED					
37	Yoshika Industries	Chakan, Pune	3	Plating / VAT					
38	Shree Automotive	Talawade, Pune	1	Phosphating					