PROCESS AUTOMATION INTERNATIONAL LIMITED

JOB NO	REV
Y11046	1
DOC NO: M/SPS/ Y11046/ R1	

5 pipes ↓ 2 pipes Hebell / Hebell ?

SPECIFICATION SHEET			CUSTOMER :			GGP / GERMANY					PLANT :		PATTERN PLATE					EQ P7-3661/R7			Rev 0		Date : Oct 24, 2011
Rev	STAGE #	PROCESS	TIME (mins)	TANK (CM) L	X	W	X	D	VOL (L)	MAT.	BOT. DR	IN	HEAT MAT	HEAT KW	COOL MAT.	TEMP (°C)	AGIT.	EX. (M3/HR)	AN/CA	F. (L/H)	RECTIFIER (V)	RECTIFIER (A)	REMARKS
	1	SPRING TYPE SEMI AUTO LOAD / UNLOAD	-	100	x	-	x	-	-	-	-	-	-			-	-	-	-	-		-	-
	2-5	BUFFER	-	80	x	-	x	-	-		R1		-			-		-	-	-		-	
	6	BUFFER	-	20	x	-	x	-	-		R1		-			-		-	-	-		-	
1	7	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R1	MW	-			-	A	-	-	*4000		-	FLOWMETER * PUMP FROM STAGE 7 TO 8 TOP SPRAY
	8	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R1	MW	-			-	A	-	-			-	
0	9	RACK STRIP	-	31	x	307	x	106	864	SS	C1	DI	-			-	A	2600	-	*3000		-	*RECIRCULATION WITH RACK OPENING
	10	DRY (RACK)	-	31	x	307	x	106	-	SS	R1	-		12KW		80	-	-	-	-		-	-
	11-12	DRY (PANEL)	-	41	x	307	x	106	-	SS	R1	-		18KW		80	-	-	-	-		-	-
1	13	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R1	MW	-			-	M/A	-	-	*4000		-	FLOWMETER * PUMP FROM STAGE 13 TO 14 TOP SPRAY
	14	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R1	MW	-			-	M/A	-	-	-		-	-
0	15-16	TIN PLATE	-	138	x	307	x	106	3845	PP	C	DI	TE	8KW X 2	TE	25	M/V	5000	4A/2C	15500 (1um)	2 SET DUAL OUTPUT FLEX KRAFT 2 x 300A		AUTO DOSING x 1 FOR ADDITIVE, CONTROL FOR 2nd ADDITIVE,
	17	TIN PLATE (EMPTY TANK)	-	69	x	307	x	106		PP							M	2500					EMPTY TANK ONLY
	18	TIN PREDIP	-	31	x	307	x	106	864	PP	C2	DI	-			-	M/V/A	E	-	-		-	-
0	19	ACID CLEAN	-	38	x	307	x	106	1059	PP	C2	MW	TE	6KW X 2		50	M/V/B/A	N	-	3500 (5um)		-	AUTODOSING x 1 FOR H2SO4
	20	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R2	MW	-			-	M/A	C	-	-		-	-
1	21	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R2	MW	-			-	M/A	L	-	*4000		-	FLOWMETER, * PUMP FROM STAGE 21 TO 20 TOP SPRAY
	22	MICROETCH	-	38	x	307	x	106	1059	PP	C2	DI	TE	6KW	TE	30	M/A/V	O	-	3500 (5um)		-	AUTODOSING x 1 FOR H2SO4, AUTODOSING x 1 FOR NAPS
	23	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R2	MW	-			-	M/A	S	-	-		-	-
1	24	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R2	MW	-			-	M/A	U	-	*4000		-	FLOWMETER, * PUMP FROM STAGE 24 TO 23 TOP SPRAY
1	25	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R2	MW	-			-	M/A	R	-	*4000		-	FLOWMETER, * PUMP FROM STAGE 25 TO 26 TOP SPRAY
	26	RINSE + TOP SPRAY	-	31	x	307	x	106	-	PP	R2	MW	-			-	M/A	E	-	-		-	-
	27	COPPER PREDIP	-	31	x	307	x	106	864	PP	C2	DI	-			-	M/V	-	-	-		-	AUTODOSING x 1 FOR H2SO4

PROCESS AUTOMATION INTERNATIONAL LIMITED

JOB NO	REV
Y11046	1
DOC NO: M/SPS/ Y11046/ R1	

SPECIFICATION SHEET			CUSTOMER :		GGP / GERMANY				PLANT :		PATTERN PLATE					EQ P7-3661/R7			Rev 0		Date : Oct 24, 2011
Rev	STAGE #	PROCESS	TIME (mins.)	TANK (CM) L	X	W	X	D	VOL (L)	MAT.	BOT. DR	IN	HEAT MAT	KW	COOL MAT.	TEMP (°C)	AGIT.	EX. (M3/HR)	AN/CA	F. (L/H)	RECTIFIER (V)	(A)	REMARKS
0	28-29	COPPER PLATE	-	172	x	307	x	106	4792	PP	C2/CT	DI				25	M/V/E		4A/2C	15500 (1um) *15000	2SET DUAL OUTPUT FLEX KRAFT 2 x 300A		AUTODOSING X 1 FOR ADDITIVE, CONTROL FOR 2nd ADDITIVE, AUTODOSING x 1 FOR H2SO4
0	30-31	COPPER PLATE	-	172	x	307	x	106	4792	PP	C2/CT	DI	15KW X 4 TI & TI COOLING IN SUMP A, AIR AGITATION IN SUMP ONLY			25	M/V/E		4A/2C	15500 (1um) *15000	2SET DUAL OUTPUT FLEX KRAFT 2 x 300A		
0	32-33	COPPER PLATE	-	172	x	307	x	106	4792	PP	C2/CT	DI				25	M/V/E		4A/2C	15500 (1um) *15000	2SET DUAL OUTPUT FLEX KRAFT 2 x 300A		
0	34-35	COPPER PLATE	-	172	x	307	x	106	4792	PP	C2/CT	DI	15KW X 2 TI & TI COOLING IN SUMP B, AIR AGITATION IN SUMP ONLY (SEPARATE THE SUMP TANK INTO TWO SECTIONS)			25	M/V/E		4A/2C	15500 (1um) *15000	2SET DUAL OUTPUT FLEX KRAFT 2 x 300A		AUTODOSING X 1 FOR ADDITIVE, CONTROL FOR 2nd ADDITIVE, AUTODOSING x 1 FOR H2SO4
	36-37	COPPER PLATE (EMPTY TANK)	-	172	x	307	x	106		PP							M						
	38-39	COPPER PLATE (EMPTY TANK)	-	172	x	307	x	106		PP							M						
	40-41	COPPER PLATE (PULSE) (EMPTY TANK)	-	172	x	307	x	106		PP							M						
	42-43	COPPER PLATE (VIA FILL DC)	-	172	x	307	x	106	-	PP	-												EMPTY TANK ONLY
	44	CU ANODE HOLDING TANK	-	31	x	307	x	106	864	PP	C2	DI											
	45	ANODE MAINTENANCE	-	31	x	307	x	106			R2						V						

OFF LINE TANK

0	SUMP A	COPPER PLATING SUMP TANK	-	TBA		NPP	-	-	TI	15 KW X 4	TI	25	A	-	-	-	-	-	-	
0	SUMP B	COPPER PLATING SUMP TANK	-	TBA		NPP	-	-	TI	15KW X 2	TI	25	A	-	-	-	-	-	-	
	DOSING A	DOSING TANK	-	TBA	50	NPP	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DOSING B	DOSING TANK	-	TBA	100	NPP	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DOSING C	DOSING TANK	-	TBA	200	NPP	-	-	-	-	-	-	-	-	-	-	-	-	-	FOR SCRUBBER

PP = POLYPROPYLENE
SS = 304 STAINLESS STEEL
TE = TEFLON
TI = TITANIUM
DI = DE-IONISED

DR = DRAIN VALVE
C = CONCENTRATE
R = RINSE DRAIN
AN/CA = ANODE/CATHODE
IN = WATER LIST

M W = MAIN WATER SUPPLY
M = MECHANICAL AGITATION
A = AIR AGITATION
V = RACK AGITATION
EX = EXHAUST

F = FILTER
P = CIRCULATION PUMP
FM = FLOWMETER
PS = PROCESS SEQUENCE
DP = DOSING PUMP

TP = TRANSFER PUMP

PREPARED BY	JEFF AU (S1122)
APPROVED BY	

SIDE EQUIPMENT LIST

JOB NO	REV.
Y11046	2
DOC NO : M / EQL/Y11046/R2	

TO PAL-	S.Y. TO	BAL-	C Y MING, Y W Ma, S K So, REBECCA FU, YW Leung, YQ Xiao
CUSTOMER :	GGP/Germany	EQ NO :	P7-3661-R7
PLANT :	Germany	DATE :	10-18-2011

REV	SIDE EQUIPMENT	BRAND/ MODEL NO.	INPUT				DESCRIPTION			QTY	STAGE	SUPL	CTRL	INST 1	INST 2	REMARKS
	HEATER	**PROTEC**	**KW**	**V**	**Ø**	**A**	**MAT'L**	**SHAPE**								
	07-701-2421	HX6540-P8-X144	6	415	1	14.5	TE	STRAIGHT		3	19 x 2, 22	PAL	YES	PAL	PAL	
	07-701-2423	2HXL8537-R40-P8-X144	8	415	1	19.3	TE	L-SHAPE		2	15-16	PAL	YES	PAL	PAL	
		3LVT15731-R40-P1-X144	15	400	3	21.7	TI	L-SHAPE		6	SUMP A X 4, SUMP B X 2	PAL	YES	PAL	PAL	
	COOLING	**PAL/SZX**	**KW**	**V**	**Ø**	**A**	**MAT'L**	**L/Hr**	**IN/OUT**							
			-	-	-	-	TE	-	-	2	15-16, 22	PAL	NO	PAL	PAL	
			-	-	-	-	TI	-	-	2	SUMP A, B	PAL	NO	PAL	PAL	
	FILTER CARTRIDGE	**SERFILCO**	**KW**	**V**	**Ø**	**A**	**MAT'L**	**L/Hr (Head)**	**IN/ OUT**							
		PPG36ST7DM2.0	1.5	400	3	2.9	PP	15500 (10M)	63MM/50MM	5	15-16, 28-29, 30-31, 32-33, 34-35	PAL	YES	PAL	PAL	1umPP
	07-151-6631	PPSH9ST6HDM1.5	1.1	400	3	2.15	PP	3500(10M)	63MM/40MM	2	19, 22	PAL	YES	PAL	PAL	5umPP
	CIRCULATION PUMP	**SERFILCO**	**KW**	**V**	**Ø**	**A**	**MAT'L**	**L/Hr**	**IN/ OUT**							
		01-4421-03	0.75	400	3	1.32	SS316	3000(10M)	1 1/2" FBSP / 1" MBSP	1	9	PAL	YES	PAL	PAL	
	TOP SPRAY PUMP	**SERFILCO**	**KW**	**V**	**Ø**	**A**	**MAT'L**	**L/Hr**	**IN/OUT**							
		01-7206-03-H	1.1	400	3	2.15	PP	4000(13M)	2" BSP / 1 1/4"BSP	5	7, 13, 21, 24, 25	PAL	YES	PAL	PAL	
	EDUCTOR PUMP	**SERFILCO**	**KW**	**V**	**Ø**	**A**	**MAT'L**	**L/Hr**	**IN/OUT**							
		01-7209-03	4	400	3	7.9	PP	15000(23M)	2 1/2" FLANGE / 2"FLANGE	4	28-29, 30-31, 32-33, 34-35	PAL	YES	PAL	PAL	
	AIR TRANSFER PUMP	**SERFILCO**	**KW**	**V**	**Ø**	**A**	**MAT'L**	**FLOWRATE**	**IN/OUT**							
		55-7600 (SSBTF-1/2)	-	-	-	-	SS316	30LPM	1/2" FNPT	1	DRAIN C1	PAL	YES	PAL	PAL	
		55-7603 (PPBTF-1)	-	-	-	-	PP	100LPM	1" FLANGE	2	DRAIN R1 / R2	PAL	YES	PAL	PAL	
		55-7616 (PPBTF-1 1/2)	-	-	-	-	PP	190LPM	1 1/2" FLANGE	3	MW, DI, DRAIN C	PAL	YES	PAL	PAL	
		55-7627 (PPBTF-2)	-	-	-	-	PP	480LPM	2" FLANGE	1	DRAIN C2	PAL	YES	PAL	PAL	
	VIBRATOR	**NETTER**	**W**	**V**	**Ø**	**A**	**FORCE (N)**									
		NEG 50120	180	400	3	0.35	1190			28	15-16X4, 18X2, 19X2, 22X2, 27X2, 28-29X4, 30-31X4, 32-33X4, 34-35X4,	PAL	YES	PAL	PAL	
		NEG 50200	180	400	3	0.35	2000			1	45	PAL	YES	PAL	PAL	
	RECTIFIER	**KRAFT**	**kVA**	**V**	**Ø**	**A**	**OUTPUT**	**CASING**	**CONTROL**							
	07-001-1426	FLEX 6V 300 A DUAL OUTPUT	4.4	400	3	7	6V300A DUAL	YES	YES	10	15-16X2, 28-29X2, 30-31X2, 32-33X2, 34-35X2	PAL	YES	PAL	PAL	
	FLOWMETER	**ASV**	**KW**	**V**	**Ø**	**A**	**RANGE**	**MAT'L**	**IN/OUT**							
	WATER	# 47577 (MAGNET)	-	-	-	-	100-1000LPH	PC+PVC	DN25	5	7, 13, 21, 24, 25	PAL	NO	PAL	PAL	
		ASV	**KW**	**V**	**Ø**	**A**	**RANGE**	**MAT'L**	**IN/OUT**							

SIDE EQUIPMENT LIST

JOB NO	REV.
Y11046	2
DOC NO : M / EQL/Y11046/R2	

TO PAL-	S.Y. TO	BAL-	C Y MING, Y W Ma, S K So, REBECCA FU, YW Leung, YQ Xiao
CUSTOMER :	GGP/Germany	EQ NO :	P7-3661-R7
PLANT :	Germany	DATE :	10-18-2011

REV	SIDE EQUIPMENT	BRAND/ MODEL NO.	INPUT				DESCRIPTION			QTY	STAGE	SUPL	CTRL	INST 1	INST 2	REMARKS
2	AIR		-	-	-	-	133NLPM	PC+PVC		14	7, 8, 9, 13, 14, 18, 19, 20, 21, 22, 23, 24, 25, 26,	PAL	NO	PAL	PAL	
			-	-	-	-	300NLPM	PC+PVC		2	SUMP A, B	PAL	NO	PAL	PAL	
	RACK	PAL/SZX	KW	V	Ø	A										
		AUTO TYPE (PP COATED)	-	-	-	-				540	WHOLE LINE	PAL	NO	PAL	PAL	
	AUTODOSING PUMP	PROMINENT	W	V	Ø	A	FLOWRATE	MAT'L	IN/OUT							
	07-021-2113	CONC0313PP2000A002	24	220	1	1	150MLPM	PP	8X5MM	3	SUMP TANK A, SUMP TANK B, TIN PLATE	PAL	YES	PAL	PAL	
		VAMD07063PVT070A000	120	220	1	0.95	0-50 LPH	PVDF	DN10	2	NAPS DOSING, SULPHURIC DOSING	PAL	YES	PAL	PAL	
	DOSING TANK	PAL/SZX	W	V	Ø	A		MAT'L								
		50L	-	-	-	-		PPN		1	NAPS DOSING	PAL	NO	PAL	PAL	
		100L	-	-	-	-		PPN		1	SULPHURIC DOSING	PAL	NO	PAL	PAL	
	AIR BLOWER	RIETSCHLE	KW	V	Ø	A	CAPACITY	PRESSURE	IN/OUT							
		2BH1530-7AH26	1.6	400	3	4.3	156M3/HR	132MBAR	55MM	2	WHOLE LINE	PAL	YES	PAL	PAL	
		PRESSURE RELIEF VALVE								2						
		SUCTION FILTER								2						
	TI BASKET	競達	kW	V	Ø	A	DIMENSION									
		With PP Bag	-	-	-	-	610MM X 63.5MM			255	28-29, 30-31, 32-33, 34-35	PAL	NO	PAL	PAL	
	AIR CONDITIONER	RITTAL	KW	V	Ø	A	COOLING CAPACITY / AIR FLOW	DIMENSION (W X H X D)								
2		3304.140	0.7	400	3	2.8	1KW / 340M3/HR	400 X 950 X 260		1	RECTIFIER	PAL	YES	PAL	PAL	
2		3332.140	1.85	400	3	4.2	4KW / 1360M3/HR	500 X 1580 X 340		1	RECTIFIER	PAL	YES	PAL	PAL	
	THIN PANEL FRAME	PAL/SZX	kW	V	Ø	A										
		FOR 460X610	-	-	-	-				15	WHOLE LINE	PAL	NO	PAL	PAL	
		FOR 305X460	-	-	-	-				16	WHOLE LINE	PAL	NO	PAL	PAL	
	ANTI-DROP HOOK	PAL/SZX	kVA	V	Ø	A	OUTPUT	CASING	CONTROL							
			-	-	-	-	-	-	-	40	WHOLE LINE	PAL	NO	PAL	PAL	
	SS CLAD CU ANODE BAR	PAL/SZX	kVA	V	Ø	A	OUTPUT	CASING	CONTROL							
			-	-	-	-	-	-	-	21	WHOLE LINE	PAL	NO	PAL	PAL	
	COMPUTER CABINET	RITTAL	kVA	V	Ø	A	OUTPUT	CASING	CONTROL							
		Ordered by PAL/SZX	-	-	-	-	-	-	-	1	WHOLE LINE	PAL	NO	PAL	PAL	

SIDE EQUIPMENT LIST

JOB NO	REV.
Y11046	2
DOC NO : M / EQL/Y11046/R2	

TO PAL-	S.Y. TO	BAL-	C Y MING, Y W Ma, S K So, REBECCA FU, YW Leung, YQ Xiao
CUSTOMER :	GGP/Germany	EQ NO :	P7-3661-R7
PLANT :	Germany	DATE :	10-18-2011

REV	SIDE EQUIPMENT	BRAND/ MODEL NO.	INPUT				DESCRIPTION			QTY	STAGE	SUPL	CTRL	INST 1	INST 2	REMARKS
	COMPUTER	**HP**	**kW**	**V**	**Ø**	**A**										
	WITH UPS		-	220	1	-				2	WHOLE LINE	PAL	YES	PAL	PAL	
	EXHAUSTION FAN	**WIN FAN**	**kW**	**V**	**Ø**	**A**	**CAPACITY**									
		(Y-D START)	15	400	3	28	12000 CFM			1	SCRUBBER	PAL	YES	PAL	PAL	(Y-D START)
	AUTODOSING PUMP	**PROMINENT**	**W**	**V**	**Ø**	**A**	**FLOWRATE**	**MAT'L**	**IN/OUT**							
	07-021-2113	CONC0313PP2000A002	24	220	1	1	150MLPM	PP	8X5MM	1	SCRUBBER	PAL	YES	PAL	PAL	
	PH METER	**HANNA**	**kW**	**V**	**Ø**	**MA**										
	05-103-9317	BL931700-1		220	1	20				1	SCRUBBER	PAL	YES	PAL	PAL	
	PH SENSOR	**SENSOREX**	**kW**	**V**	**Ø**	**A**										
		S267C w/10 ft cable	-	-	-	-				1	SCRUBBER	PAL	YES	PAL	PAL	
	DOSING TANK	**PAL/SZX**	**kW**	**V**	**Ø**	**A**	**MAT'L**									
		200L	-	-	-	-	PPN			1	SCRUBBER	PAL	NO	PAL	PAL	
	CENTRIFUGAL PUMP	**GRUNDFOS**	**kW**	**V**	**Ø**	**A**	**MAT'L**	**L/Hr (Head)**	**IN/ OUT**							
1	07-151-7501	CRN45-2-2 (Y-START)	5.5	400	3	11.2	SS316	40000	3"	1	SCRUBBER	PAL	YES	PAL	PAL	On Stock

NOTE **

CERTIFICATE: ALL ELEC. DRIVEN SIDE EQUIPMENT SHOULD HAVE "CE" MARKING

CTRL : CENTRAL CONTROL BY CONTROL UNIT

INST 1 : HANDLING OF WIRING & PIPEWORK BETWEEN CONTROL UNIT AND EQUIPMENT

INST 2 : HANDLING OF WIRING & PIPEWORK BETWEEN EQUIPMENT AND TANK

MAIN ELECT. SUPPLY : 400V 3Ø 50Hz +N +G

PREPARED BY	JEFF AU (S1122)
APPROVED BY	

PROCESS AUTOMATION INTERNATIONAL LIMITED

FACILITIES REQUIREMENTS LIST

JOB NO : Y11046
DATE : 5 Dec, 2011
CUSTOMER : GGP / Germany
REV. : 0
MACHINE : Pattern plate

1. Electricity

Rev.		Power(KW)	Voltage	Frequency(Hz)	Phase(∅)	Remarks
	Main power source box	275kW	400V +N+G	50	3	Only for present usage
	Spare power for transporter	41kW	400V +N+G	50	3	Only for present usage
	Rectifiers	44kW	400V +N+G	50	3	Only for present cu tanks

Dimension: 6 x 800(W) x 500(D) x 2000 (H) mm, 5 for Main Power and spare power for Transporter, 1 for rectifiers.

2. Electricity for Scrubber

Rev.		Power(KW)	Voltage	Frequency(Hz)	Phase(∅)	Remarks
	Main power	21kW	400V +N+G	50	3	

Dimension: 1 x 760 (W) x 760 (H) x 300 (D) mm。

3. Cooling air

Rev.		Heat generated(W)	Flow(CFM)	Remarks
	Main power source box	4693W	-	Cooling air provided by customer
	Rectifiers	389W	-	***** Calculation based on 45°C***, only for present usage)**

4. Water consumption

Rev.		Flow rate	Diameter	Pressure (kg/cm^2)	Material	Temperature (°C)	Remarks
	DI		DN40	2.5	PP	-	
	MW	4765LPH	DN40	2.5	PP		168LPM on peak (Only for present requirement)
	Compress air	-	DN20	8-10	SS	-	
	Cooling water		DN80	2	PP	10	Chiller is provided by customer
	MW	-	DN20	2.5	PP	-	For Scrubber

5. Exhaustion

Rev.		Flow rate (M3 / H)	Dimension (mm)	Pressure (Pa)	Material	Remarks
	Enclosure	6600		-	-	
	Lip exhaust	10100	-	-	PP	
	Total	16700		1250	PP	

6. Drainage

Rev.		Diameter(inch)	Material	Remarks
	R1	DN40	PP	
	R2	DN40	PP	
	C	DN65	PP	
	C1	DN25	PP	
	C2	DN80	PP	
	R	DN25	PP	For Scrubber

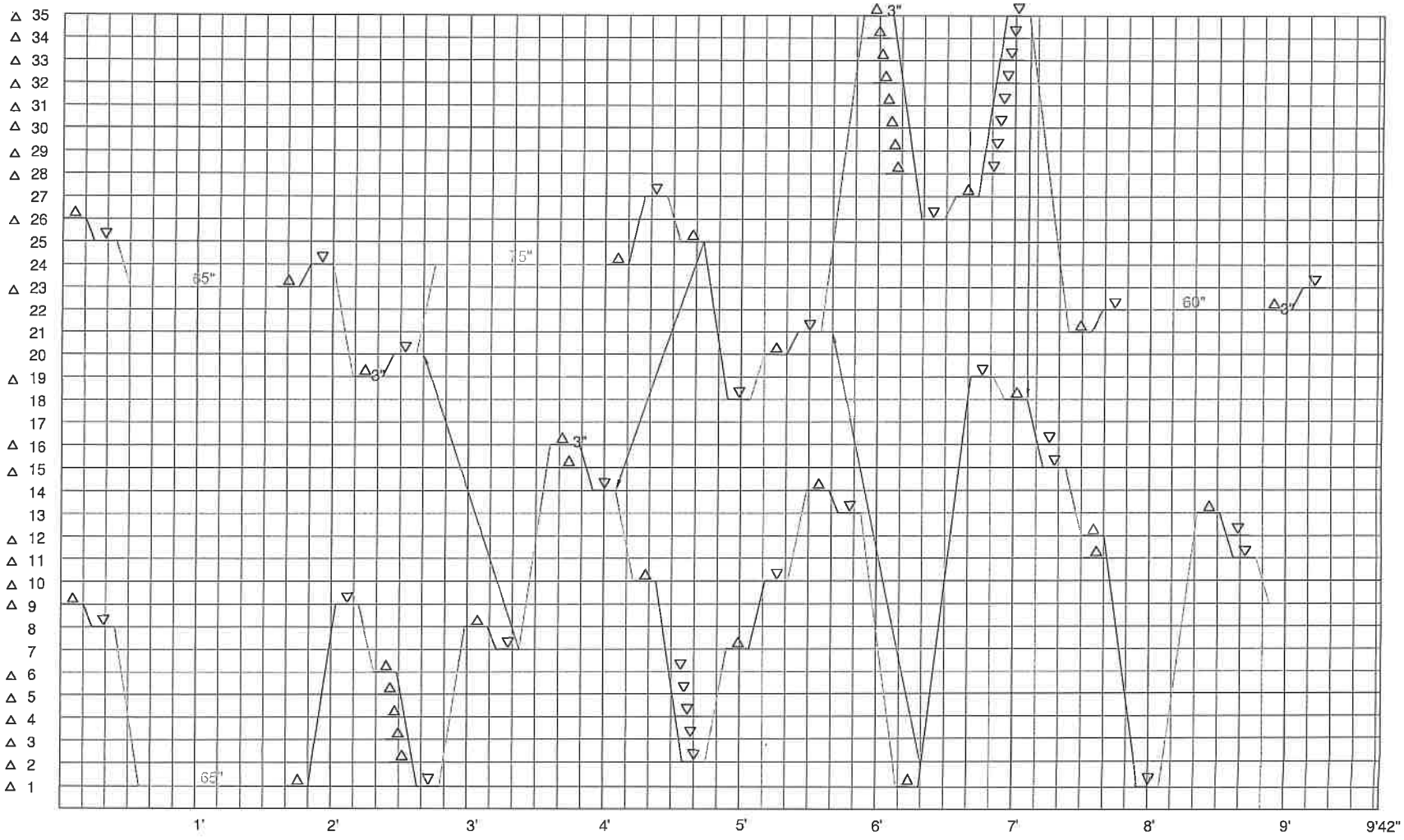
PROCESS SEQUENCE

PATTERN PLATE

Transfer	Stage	Process	Approx. Immersion Time (Mins.)	Approx. Drip Time (Second)
0.	1	Load	-	-
1.	19	Acid Clean	5	3
2.	20	C W Rinse + Top Spray	1-2	-
3.	21	C W Rinse + Top Spray	1-2	-
4.	22	Micro Etch	1	3
5.	23	C W Rinse + Top Spray	1-2	-
6.	24	C W Rinse + Top Spray	1-2	-
7.	27	Copper Pre Dip	2	-
8.	28-35	Copper Plate	75	3
9.	26	C W Rinse + Top Spray	1-2	-
10.	25	C W Rinse + Top Spray	1-2	-
11.	18	Tin Pre Dip	2	-
12.	15-16	Tin Plate	15	3
13.	14	C W Rinse + Top Spray	2	-
14.	13	C W Rinse + Top Spray	2	-
15.	11-12	Dry	MAX	
16.	1	Unload	-	
17.	9	Rack strip	7	
18.	8	Rinse	1-2	
19.	7	Rinse	1-2	
20.	10	Dry	MAX	
21.	2-6	Buffer for panel cool	5	
22.	1	Load		

GGP/Germany Y11046 Process 10 (Timeway 10) Y11046-1.dwg
Pattern Plate
Date: 2011-11-09 FB Quantities: 23 x 1
Drawn by: LTQ Cycle Time: 9'42"
TA Station 9 TB Station 26
FB Stations 1-6 9-12 15 16 19 23 26 28-35
TA 1-19 TB 18-35

Legend
- Interlock
- Up (10 secs)
- Down (10 secs)
- Move with flightbar (5+1 secs)
- Move with no flightbar
- Flightbar starting position
- Only one stations have flightbars



Copper Plate	76'33"(0'3")	75
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Copper Plate	76'33"(0'3")	75
Copper Plate	76'33"(0'3")	75
Copper Plate	76'33"(0'3")	75
Copper Pre Dip	2'7"	2'
CWRinse+TopSpray	3'13"	1'-2'
CWRinse+TopSpray	4'9"	1'-2'
CWRinse+TopSpray	2'	1'-2'
CWRinse+TopSpray	2'	1'-2'
Micro Etch	1'(0'3")	1'
CWRinse+TopSpray	1'49"	1'-2'
CWRinse+TopSpray	2'38	1'-2'
Acid Clean	5'(0'3")	5'
Tin Pre Dip	1'52"	2'
Tin Plate	15'40"(0'3")	15'
Tin Plate	15'40"(0'3")	15'
CWRinse+TopSpray	1'24"	2'
CWRinse+TopSpray	2'28"	2'
Dry	18'08"	Max
Dry	18'08"	Max
Dry	8'34"	Max
Rack Strip	7'30"	7'
Rinse	2'35"	1'-2'
Rinse	1'31"	1'-2'
Buffer for panel cool	7'23"	5"
Buffer for panel cool	7'23"	5"
Buffer for panel cool	7'23"	5"
Buffer for panel cool	7'23"	5"
Buffer for panel cool	7'23"	5"
Load/Unload	3'21"/3'17"	-

INSTALLATION RESPONSIBILITY SHEET

CUSTOMER	:	GGP
COUNTRY	:	GERMANY
JOB NO.	:	Y11046
EQ NO.	:	P7-3661/R7
MACHINE TYPE	:	Pattern plating
REVISION NO.	:	0
PREPARED BY	:	Jeff Au
DATE	:	25 Nov 2011
APPROVED BY ASELSAN	:	
DATE	:	

安 裝 責 任 表
INSTALLATION RESPONSIBILITY SHEET

客方名稱	:	報價編號	:	日期	:
CUSTOMER	: GGP / Germany	EQ NO	: P7-3661/R7	DATE	: 11/25/2011
所屬機種	:	工程編號	:	修訂版	:
PLANT	: Gate Type	JOB NO	: Y11046	REV NO	: 0

亞洲電鍍器材有限公司
PAL = PROCESS AUTOMATION INT'L LTD
亞洲代理人
AGT = AGENT
客方
CTM = ASELSAN
注意事項
RMKS = REMARKS

A/ 配管類及連接
PIPEWORK AND CONNECTION

	責任 RESPONSIBLE			
	PAL	AGT	CTM	RMKS
1/ 線內入水總配管. In-line water supply pipework.	✓			
2/ 線內排水總配管. In-line drainage pipework.	✓			
3/ 線外排水配管.（任何形式） Off-line drainage pipework (Not specified)			✓	
4/ 線內冷水總配管. In-line cooling pipework.	✓			
5/ 線內壓縮氣總配管. In-line compressed-air pipework.	✓			
6/ 線內蒸氣總配管. In-line steam pipework.				NiL
7/ 線內空氣攪拌總配管. In-line low pressure air pipework.	✓			
8/ 供應源頭與以上各總配管之間的連接. Connection of pipework between water supply source and plating line.			✓	
9/ 電鍍線與廢水處理間之連接. Connection of pipework between drains/water treatment system to plating line.			✓	
10/ 電鍍線內冷水總配管與冷水源之連接. Connection of cooling pipework to chilled water source.			✓	
11/ 各總配管之開關閥門. Air main shut off valves.			✓	
12/ 藥水添加管路連接 Connection of chemical pipework				Nil
13/ 現場管導移位. Relocate existing ducting/ piping of necessary			✓	

B/ 排氣/抽風總管導

EXHAUST DUCTING

責任 RESPONSIBLE			
PAL	AGT	CTM	RMKS
✓			
✓			
✓			
		✓	
		✓	
		✓	

1/ 線內總管導連接.
In-line exhausts ducting and manifold.

2/ 槽邊抽風罩與總管導連接.
Lip exhausts hood and connection to ducting.

3/ 總管導與抽風機/ 氣体淨化塔之連接.
Connection of ducting from plating line to exhaust fan/fume scrubber.

4/ 上一項 (B3) 之支架安裝 (例如：吊架).
Exhaust duct support (off-line).

5/ 排氣管導天花頂挖洞
Open slot for main exhaust duct

6/ 氣体淨化塔及抽風機的地台.
Fume scrubber & fan platform.

C/ 電力與電線連接

ELECTRICAL AND WIRING

PAL	AGT	CTM	RMKS
✓			
✓			
		✓	
✓			
✓			
✓			
		✓	

1/ 線內電線連接.
In-line wiring.

2/ 電鍍線與總電控箱之連接.
Connection between plating line and main control cabinet.

3/ 電控箱與總電源供應之連接.
Connection between main control cabinet and power supply.

4/ 吊車與電控箱之連接.
Platform cable and wiring from the control cabinet to the transporters.

5/ 電控箱與監控系統之連接.
Connection between OSST and control cabinet.

6/ 線內電線槽與支架.
In-line cable ducting and support.

7/ 線外電線槽與支架.
Off-line cable ducting and support

Remarks: PAL只提供最長25呎之電線長度或設定電控到電鍍線爲12尺之距離.
The position of the control box is not specified at the max. cable way of 25ft. or assume the control box is 12 ft from one end of the line.

D/ 週邊器材

SIDE EQUIPMENT

責任 RESPONSIBLE			
PAL	AGT	CTM	RMKS
✓			
✓			

a) 整流器
Rectifiers

1/ 器材供應.
Equipment supply.

2/ 電源箱與電源連接.
Power supply connection from power source to power box.

3/ 電源箱與整流器電源連接.
Connection from power box to rectifiers.

4/ 電控箱與整流器之的控制配線.
Connection of control wirings from control cabinet to rectifiers.

5/ 電纜供應.
DC cable supply.

6/ 整流器與電鍍槽之間的電纜 /連接.
DC cable /bus bar connection from rectifier to plating tanks.

7/ 電纜支架.(線內)
D C cable/bus bar support. (In –line)

✓			
✓			
✓			
✓			
✓			

b) 過濾器與循環泵
Filter and Pumps

1/ 器材供應.
Equipment supply.

2/ 管導連接.
Connection of pipework.

3/ 器材電線與電控箱連接.
Connection of wiring to the control box.

PAL	AGT	CTM	RMKS
✓			
✓			
✓			

c) 排氣/抽風機
Exhaust Fan

1/ 器材供應.
Equipment supply.

2/ 抽風機之電源連接.
Power supply to the exhaust fan.

3/ 器材控制配線與電控箱連接
Connection of control wiring to control cabinet.

4/ 電控箱與電源連接
Connection of power supply to control cabinet

PAL	AGT	CTM	RMKS
✓			
✓			
✓			
✓			

d) 氣體淨化器
Fume scrubber

1/ 器材供應.
Equipment supply.

2/ 氣體過濾塔之電源供應.
Power supply to fume scrubber.

3/ 器材控制配線與電箱連接.
Connection of control wiring to control cabinet.

4/ 與抽風機管導連接.
Connection of ducting to exhaust fan.

PAL	AGT	CTM	RMKS
✓			
✓			
✓			
✓			

e) 自動添加
Autodosing

PAL	AGT	CTM	RMKS

1/ 器材供應.
Equipment supply.
2/ 與水槽之間的管導連接.
Connection of pipework to tanks.
3/ 器材配線與電箱連接.
Connection of wiring to control cabinet.

✓			
✓			
✓			

f) 鼓風機
Air Blower

1/ 器材供應.
Equipment supply.
2/ 電源供應.
Power supply to equipment.
3/ 與水槽之管導連接.
Connection of pipework to line.
4/ 器材配線與電控箱連接.
Connection of wiring to control cabinet.
5/ 鮮風槽連接
Connection of fresh air duct

PAL	AGT	CTM	RMKS
✓			
✓			
✓			
✓			
		✓	

g) 冷卻機
Chiller

1/ 器材供應.
Equipment supply.
2/ 電源供應.
Power supply to equipment.
3/ 冰水源頭與線內冰水管導連接.
Connection of chiller water supply to in-line cooling main pipe
4/ 器材配線與電控箱連接.
Connection of wiring to control cabinet.

PAL	AGT	CTM	RMKS
		✓	
		✓	
		✓	
		✓	

責任 RESPONSIBLE			
PAL	AGT	CTM	RMKS

h) 碳處理系統
Carbon treatment

1/ 器材供應.
Equipment supply.
2/ 電源供應.
Power supply to equipment.
3/ 與水槽之管導連接. (只負責由線內至外的5米範圍內)
Connection of pipework to line. Within 5 meter away from the line

		✓	
		✓	
		✓	

E/ 場地基本准備工作
FOUNDATION AND BUILDER'S WORK

PAL	AGT	CTM	RMKS

1/ 電鍍線之地台支架. Laying of I-Beam/box section on the foundation.				Nil
2/ 混凝土地台. Concrete flooring.				Nil
3/ 地台上保護層. Protective flooring coating.			✓	
4/ 走導. Walkway			✓	
5/ 有關天花之線槽及配管所需之吊臂支撐. Overhead structure supports for piping and ducting.			✓	

F/ 現場電鍍線器材位置

POSITIONING OF EQUIPMENT ON SITE

	PAL	AGT	CTM	RMKS
1/ 卸貨時所需之人力及運輸工具. Manual labour and equipment for off loading of all equipment at site.			✓	
2/ 在廠房內或至貨倉所需之連輸工具及人力. Manual labour and equipment for transportation within CTM factory to final position or stores			✓	
3/ 叉車 Forklift			✓	

G/ 雜項

MISCELLANEOUS

	PAL	AGT	CTM	RMKS
1/ 廢水處理設備. Effluent control equipment.			✓	
2/ 化學品. Chemical.			✓	
3/ 叉車 Forklift			✓	
4/ Air Conditioning for Control Cabinet			✓	

PREPARED BY : Jeff Au

DATE : 25 Nov 2011