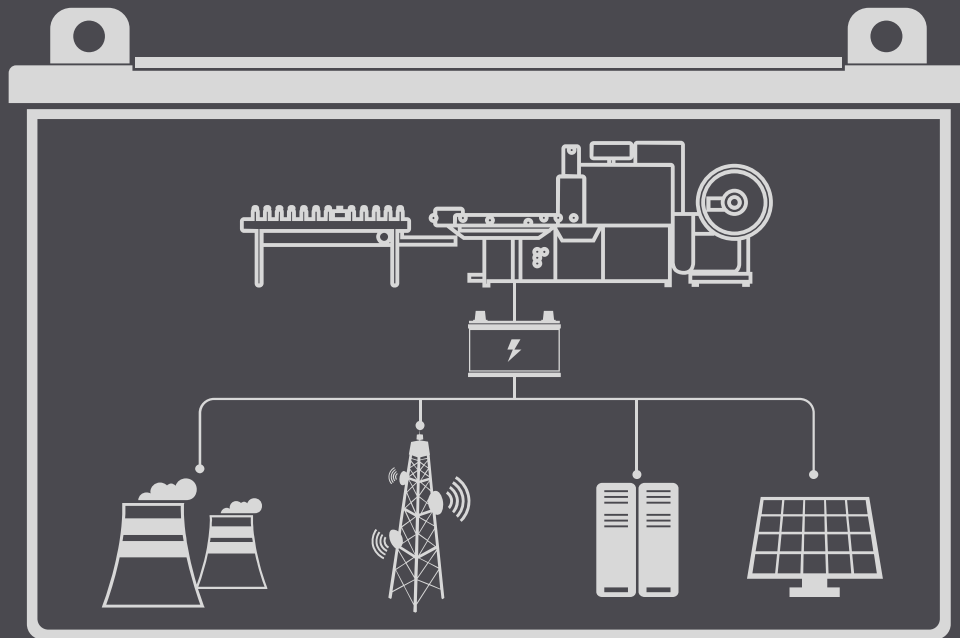


# Innovation Technology Total Solution Battery



**UKB** UKB co., Ltd.  
Unikor Battery co., Ltd.

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**ASSEMBLY**/Plate lug brushing & cutting machine/Stack rotary table/Cast On Strap M/C/Cell aligning M/C/Strap welder & high voltage test M/C/Heat Sealing M/C/Terminal post builder (Terminal welding M/C)/Air leak Testing M/C/Container Hole Puncher/**FORMATION**/1<sup>st</sup> Acid Filling M/C/Charge & Discharge M/C/Battery formation chamber & conveyor/**FINISHING**/Dumping M/C/2<sup>nd</sup> Acid Filling & suction M/C/ Acid Level Check Machine/2<sup>nd</sup> Cover Heat Sealing M/C/Washing & drying M/C/High Rate Discharge Tester/**LABORATORY**/Battery life cycle Tester/Battery CCA high current Tester



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# ENVELOPING & STACKING M/C (UN2000PE)

ASSEMBLY

## >> Machine Information

- Cutting the rolled separator in a certain length, enveloping the positive plate, grouping the negative plates, then loading the group to the next equipment.
- Highly durable structure, fully automatic speed control, automatic Double-plates detecting function with alarm, stopping the equipment, particle extraction for a cleaner working environment.



## >> Controls

- Mitsubishi, Omron or Korea LS of PLC
- Operation Panel -Touch Screen

## >> Inspection or sensors [optional]

- Unloaded (missed ) plate
- Pin hole marker
- Double plates detecting
- Twisted envelop

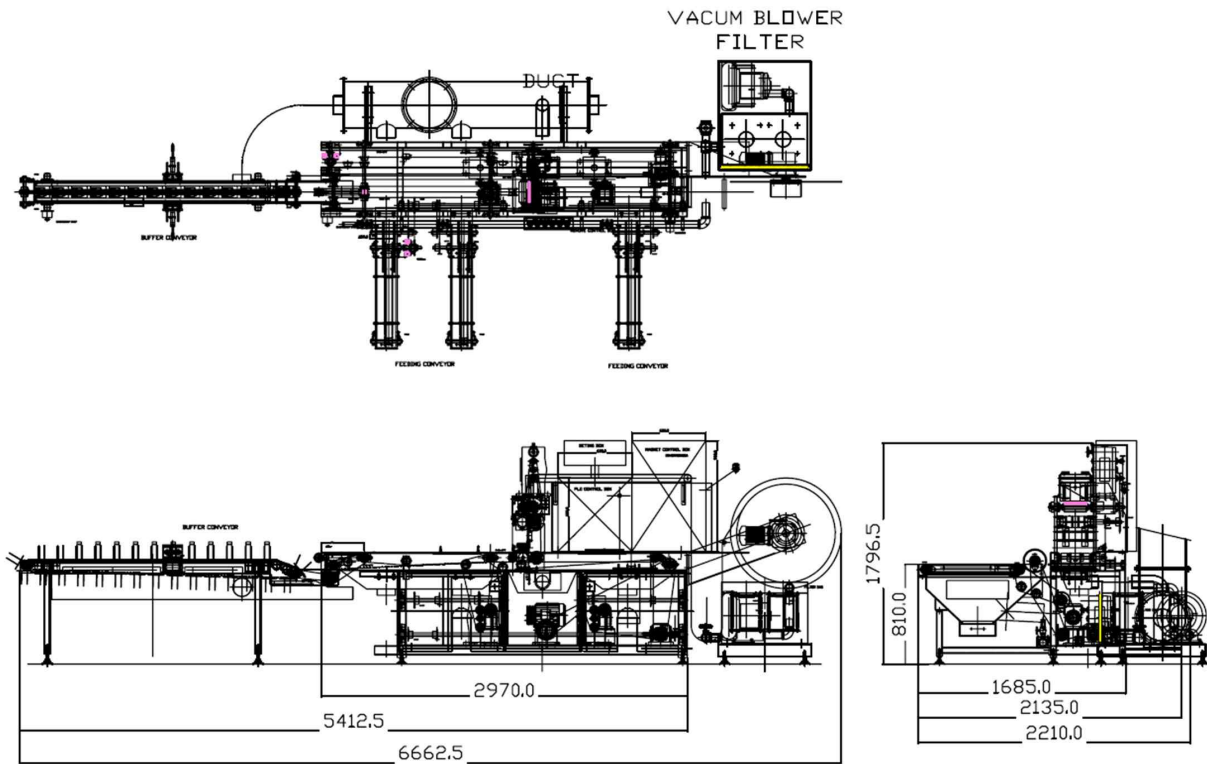
## >> Standard Features

- High quality envelope sealing.
- Simple adjusting enveloping speed and quantity at a touch screen.
- Convenient maintenance by simple design.
- Centrally controlled grease input system for driving parts.
- Concentration arrangement of dust collecting hood for eco-friendly equipment.
- [Option] Double wheel separator feeding system with glass mat roll.



PE with glass mat separator

Photos are changeable according to the requirement or new design.



## >> Specification

Plates Type Expanded Metal, Cast Grid	Plates Widths 100 to 150 mm
	Plate Heights 100 to 150 mm
	Plate Thickness 1 to 2 mm
Type of Seal	Press weld
Separator	255mm ID/1200mm OD
Standard of Electrical Power	Specified by Customer (Basic Electrical Consumption 16 Kw )
Included Ventilation sysytem	
Compressed Air	0.0028 m <sup>3</sup> /min
Machine	Length 622cm , Width 214cm, Height 200cm
Machine Weight	Approx. 1,600Kg

Drawings are changeable according to the required specification or new design.



# ENVELOPING & STACKING M/C (DUN-3000)

ASSEMBLY

## Machine Information

- Cutting the rolled separator in a certain length, enveloping the positive plate, grouping the negative plates, then loading the group to the next equipment.
- Highly durable structure, fully automatic speed control, automatic Double-plates detecting function with alarm, stopping the equipment, particle extraction for a cleaner working environment.



## Controls

- Mitsubishi Q-Type PLC
- Operation Panel -Touch Screen

## Inspection or sensors [optional]

- Unloaded (missed ) plate
- Double plates detecting
- Twisted envelop
- Pin hole marker



AGM separator

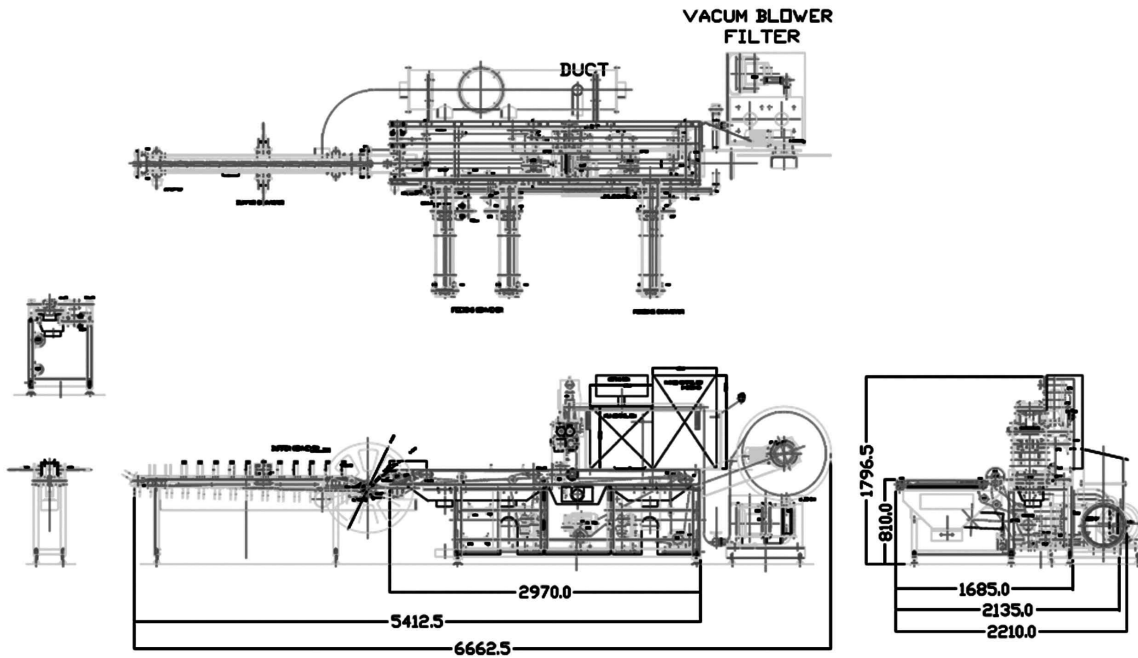
## Standard Features

- High quality envelope sealing.
- Simple adjusting enveloping speed and quantity at a touch screen.
- Convenient maintenance by simple design.
- Centrally controlled grease input system for driving parts.
- Concentration arrangement of dust collecting hood for eco-friendly equipment.
- Installed Alignment Device at Buffer Conveyor and improved aligning quality when COS inserting.
- Twisted envelop

## Remark

- Possible to equip cell group loading station for COS process. [optional]
- Lug brushing unit on the plate feeder. [optional]
- Reject station conveyor before interlock conveyor. [optional]

\* Photos are just reference, changeable according to the optional items



## >> Specification

ITEM		SPECIFICATION
Machine		Enveloping & stacking machine
Application Item		Small & Medium size battery [40Ah ~ 200 Ah]
Machine material		All steel
Plate		Expanded & casting grids, 100 ~ 150 W * 100 ~ 150 L * 1 ~ 2 T / mm
Cycle time		100 ~ 150 Plates ( depends on working condition (plate, separator & etc)
Progress work		Separator unwinding - Sealing - Stacking - Buffer conveyor – Loading
Description	Unwinder	Core size - 255mm I.D
		Electric motor
	Plate feeder	Raptor chain / Air cylinder feed
		Vacuum pad / 3 Station feed
	Enveloping tools	PIV Reducer
		Bending, cutting knife / SKD 11
Stacking conveyor	Electric motor	
	Attachment chain	
Buffer conveyor	AC Servo motor control	
	Attachment chain	
Control	MITSUBISHI or Simens PLC Control or	
	Touch screen	
Size		7,500 * 2,150 * 1,900H / mm [changeable without any notice]
Power		220 / 380v AC 3P 50 ~ 60Hz or required option
Air		5 ~ 7 kg /cm <sup>2</sup>

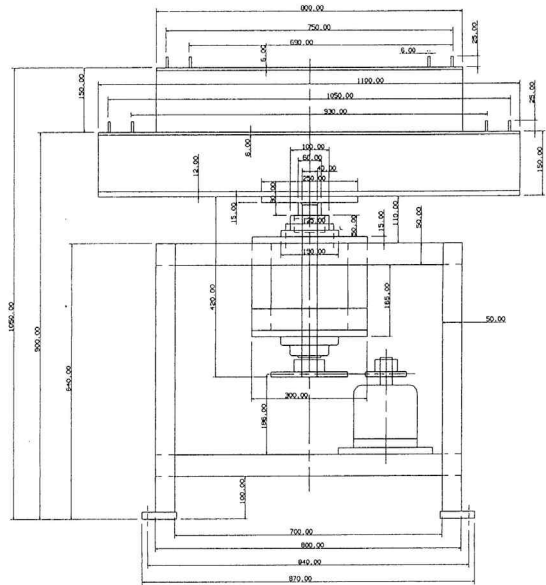
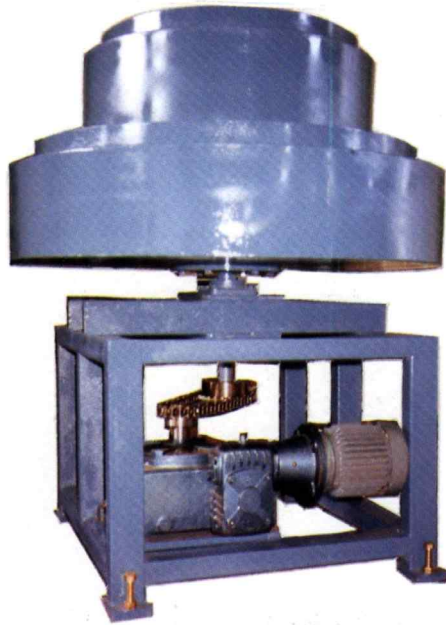
Drawings are just reference, changeable according to the required specification

# + CELL STACK ROTARY TABLE (UNRT-1100)

ASSEMBLY

## >> Machine Information

- This equipment is used to accumulate many number of cell plate for COS.
- For easy work, it's design type is same as turn table.



## >> Specification

ITEM	SPECIFICATION
Electricity	380V, 3phase, 50Hz, 1.5KW
Stock capacity	min.700 ~ max.800 cell
Motor power	1Hp , geared 1:400
Size	1200L X 1200W X 1150H
Weight	approx. 600Kg

Photos are changeable according to the requirement or new design.



# HOT MELT DISPENSER (UNHMD-100)

ASSEMBLY

## >> Machine Information

- The machine provides fully automatic to produce for starter batteries.
- Advantage of hot melt injected battery is as the flowing characteristics.
  - 1) Top of plate group injected special hot melt material.
  - 2) Improve vibration resistance.
  - 3) Prohibit growth plate.
- The discharge amount of hot melt per a set of product is about 100g.
- Spray data by the battery type are entered and modified with the switch panel in the main operation.
- Five hoses and spray guns are installed for works at the same time.

Nozzle System



Main Hot Melt Machine



Injected inside battery



## >> Specification

ITEM	SPECIFICATION	UKHES
Tank Capacity	Liter	20
Max. Melting Rate	Kg/HR	20
Max. Operation Temperature	°C	220
Max. Viscosity	CPS	22000
Sets of Hose and Gun	Set	1~4
Glue Flow Per Pump	g/Min	400
Dimensions	mm	760 × 500 × 895
Weight	Kg	175
Melting Tank Power	Watt	5800
Power Requirement		220V AC,46A,50/60Hz,1Φ

\* Photos are changeable according to the requirement or new design.

# CAST ON STRAP MACHINE (COS-5)

ASSEMBLY

## >> Machine Information

- There are 4 working positions all, and this machine can do the following four steps automatically control by PLC.
- First Work-station-plate group loading and alignment, If jig box is inserted, and automatic switch activated alignment is carried out automatically.
- Fluxing : Brush off the dust on the lugs of plate group, then brush down the lead oxide layer and lead sulfate layer with wire brush, then smear the lugs of plate groups with the brush infused with fluxes evenly.
- Cast molding station : Molten-lead bath quantitative die-casting, lead liquid transmitting, distributing. lead casting, cooling forming, demoulding in phase etc...For its various function, complex and many technological control point. So it is considered the main core of this machine. Running state of the procedure affects the quality of cast-welding plate groups directly. This procedure of the machine has been completed fully automatically.
- Unloading table : Groups of cells out, it will be taken out manually and set in the container.



## >> Controls

- Mitsubishi or Korea LS of PLC
- Operation panel - Touch Screen
- Melting Timer
- Temperature controller

## >> Standard Features

- High quality cell alignment
- Brush type flux Smearing unit.
- One touch on/off function of cooling water and heater power during mold change.
- Possible to adjust lead quantity of lead supply pump by Touch Screen.
- Common use jig box (No required change jig box at battery model change on production)

## >> Remark

- Auto Unloader and Loader [Optional]
- Automatic lead ingot feeder [Optional]

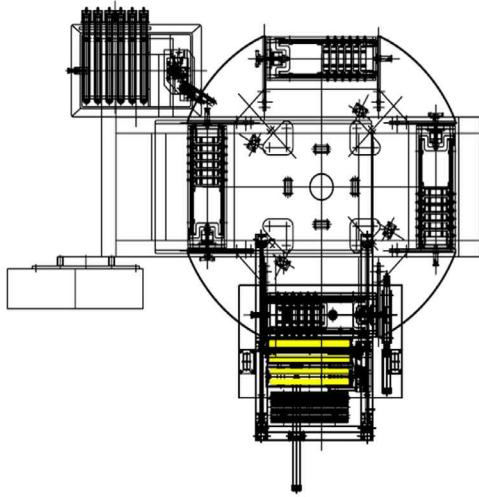


Common Use Jig System

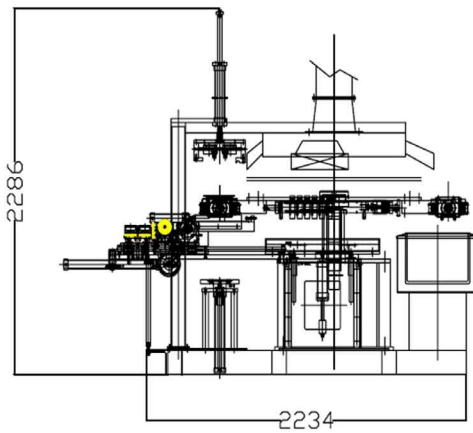
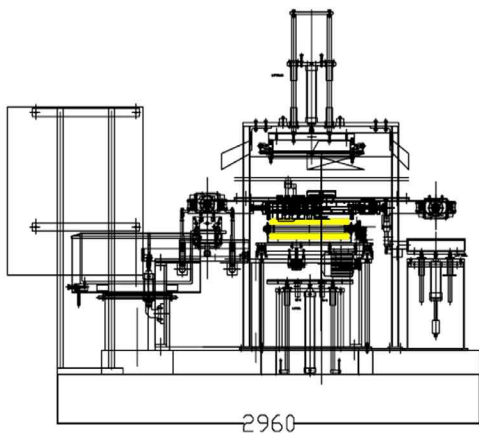


Strap Mold

Photos are changeable according to the requirement or new design.



C O S M / C



» Specification

ITEM	SPECIFICATION
Production capacity	1 cycle / 22 to 24 sec.
Maximum welding limit	up to 200Ah starter battery
Personnel required	2
Electrical requirements	3phase, 380 Volt, 50Hz or as required. Consumption; 30KW
LP or LNG	Required only with gas-heated lead pots(25,200Kcal)
Compressed air	5~6Kg/cm <sup>2</sup>
Water	Softened water 8.0liters/min, 25°C Water pressure >0.15MPa
Casting mold	All batteries are the of 6x1 or 3x1 cell lay out
Lead pot	1,000Kg, easy to load, gas heated lead pot
Pouring system	Utilizes well-proven special rotary type lead pump
Size	3,100Lx2,450Wx1,800H(mm)
Weight	2600kg

Drawings are changeable according to the required specification or new design.



# CAST ON STRAP MACHINE (COS-5-UNLD)

ASSEMBLY

## >> Machine Information

- There are 4 working positions all, and this machine can do the following four steps automatically control by PLC.
- First Work-station-plate group loading and alignment, If jig box is inserted, and automatic switch activated alignment is carried out automatically.
- Fluxing : Brush off the dust on the lugs of plate group, then brush down the lead oxide layer and lead sulfate layer with wire brush, then smear the lugs of plate groups with the brush infused with fluxes evenly.
- Cast molding station : Molten-lead bath quantitative die-casting, lead liquid transmitting, distributing. lead casting, cooling forming, demoulding in phase etc...For its various function, complex and many technological control point. So it is considered the main core of this machine. Running state of the procedure affects the quality of cast-welding plate groups directly. This procedure of the machine has been completed fully automatically.
- Unloading table : Groups of cells out, it will be taken out manually and set in the container.



## >> Controls

- Mitsubishi PLC
- Operation Touch Screen
- Melting Timer
- Temperature controller

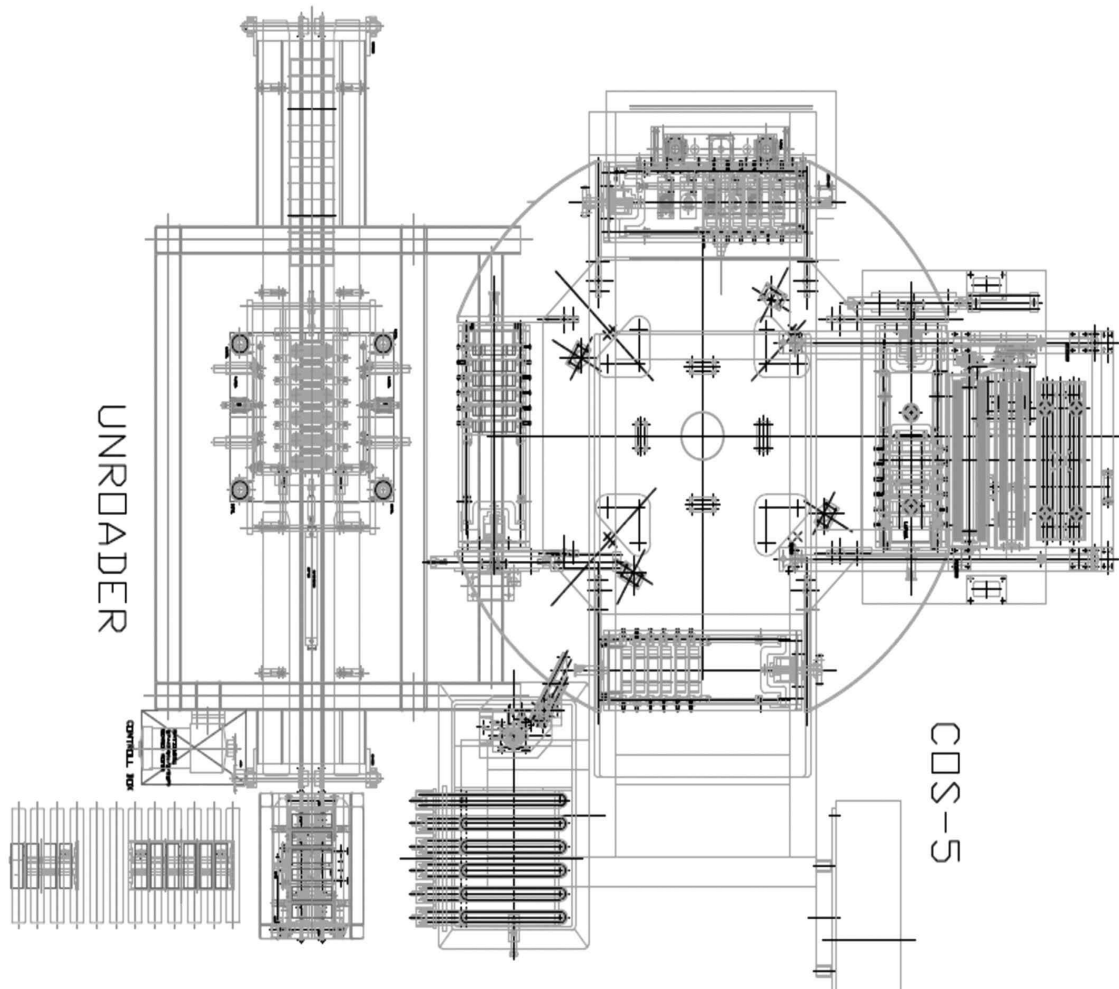
## >> Standard Features

- High quality cell alignment
- Brush type flux Smearing unit.
- One touch on/off function of cooling water and heater power during mold change.
- Possible to adjust lead quantity of lead supply pump by Touch Screen.

## >> Remark

- Auto Unloader [Optional]
- Automatic lead ingot feeder [Optional]

Photos are changeable according to the requirement or new design.



### >> Specification

ITEM	SPECIFICATION
Production capacity	1 cycle / 18 to 20 sec.
Maximum welding limit	up to 200Ah starter battery
Auto container supply conveyor	
Personnel required	1
Electrical requirements	3phase, 380 Volt, 50Hz or as required. Consumption; 30KW
LP or LNG	Required only with gas-heated lead pots(25,200Kcal)
Compressed air	5~6Kg/cm <sup>2</sup>
Water	Softened water 8.0liters/min, 25°C Water pressure >0.15MPa
Casting mold	All batteries are the of 6x1 or 3x1 cell lay out
Lead pot	1,000Kg, easy to load, gas heated lead pot
Pouring system	Utilizes well-proven special rotary type lead pump
Size	3,500Lx2,650Wx2,250H(mm)
Weight	2600kg

Drawings are changeable according to the required specification or new design.



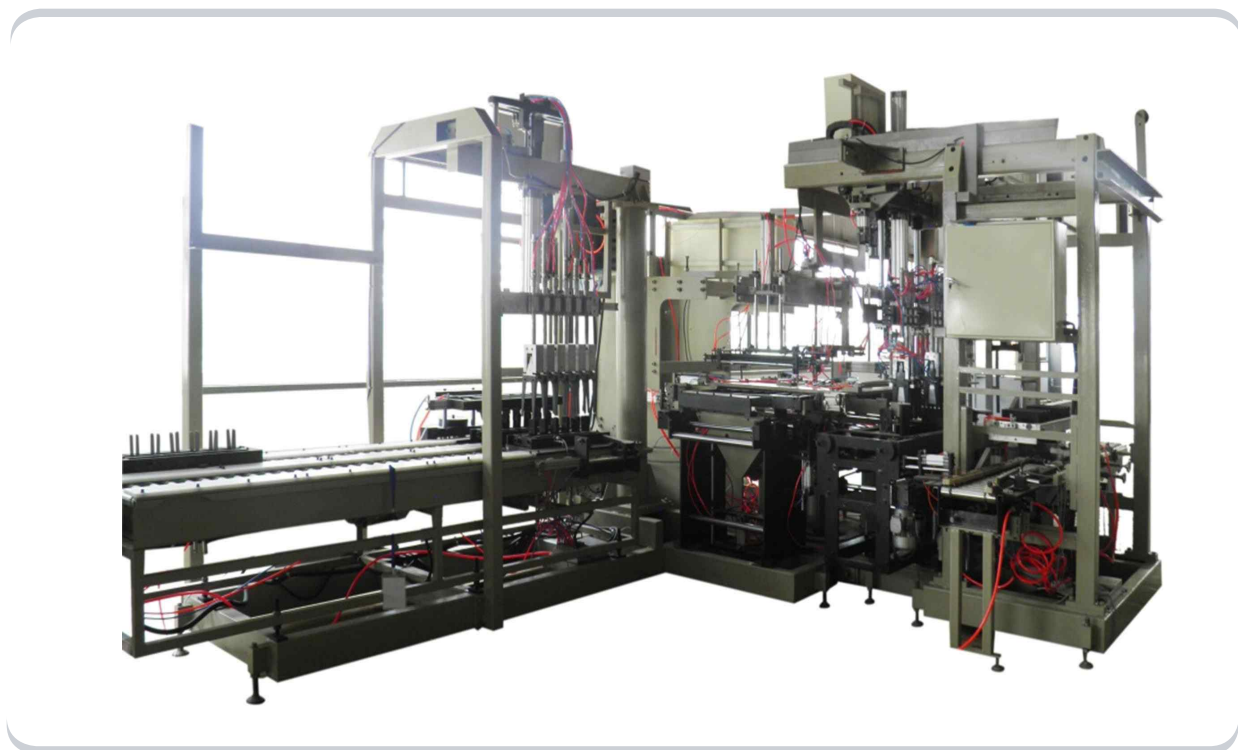


# COS(CAST ON STRAP) MACHINE (MODEL: UNCOS-8)

ASSEMBLY

## >> Machine Information

- Fully automatic group load, alignment, lug preparation, cast-on and unload. Rapid battery changeover-typically around 20minutes.
- Highly durable steel structure, easy maintenance, consistent high quality COS. Fully automatic control with user-friendly touch panel, featuring machine diagnostics, recipe recall and management reporting.



## >> Controls

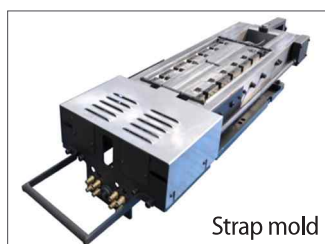
- Mitsubishi Q - Type or Simens PLC
- Operation panel - Touch Screen
- Melting Timer
- Temperature controller

## >> Standard Features

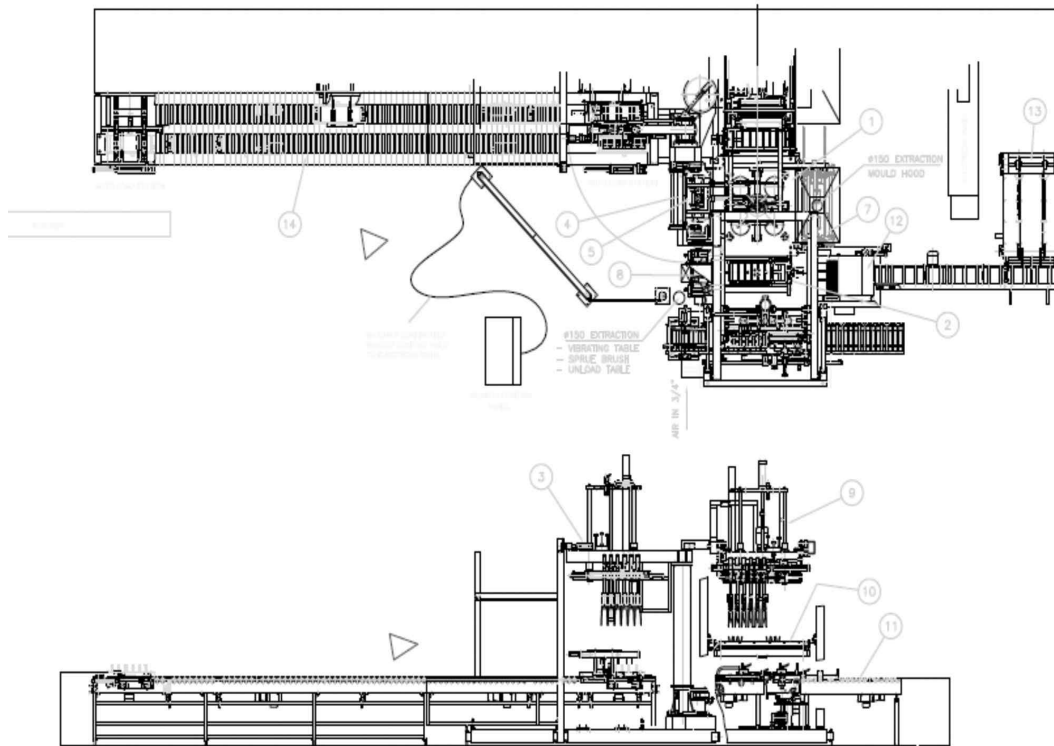
- High quality cell alignment
- Brush type flux Smearing unit.
- Casting parts - AC servo motor control
- One touch on/off function of cooling water and heater power during mold change.
- Possible to adjust lead quantity of lead supply pump by Touch Screen.

## >> Remark

- Auto Loader & Unloader [Optional], unloader is basic item in case of type no. 8
- Flux Dryer [Optional]      • Automatic lead ingot feeder [Optional]



\* Photos are just reference, changeable according to the optional items \*



## >> Specification

ITEM		SPECIFICATION
Machine		Cast On Strap [C.O.S] machine
Application Item		Small & Medium size battery [40Ah ~ 100 Ah]
Machine material		All steel
Plate		Expanded & casting grids, 100 ~ 150 W * 100 ~ 150 L * 1 ~ 2 T / mm
Cycle time		4.5 batteries/min. [basis 60Ah, 13 plate per cell, depends on various working condition]
Progress work		Cell loading - 1st Arraying - Brush & Flux - Casting - Container inserting
Description	Cell loading	AC Servo motor
		Air chuck clamp
	Arraying	Air chuck clamp arraying
		Pressure 7 kg / cm <sup>2</sup>
	Brush & Flux	Electric motor / Plastic Brush
		Flux / Air cylinder up down
	Casting	Electronic heater
		Water & Air cooling
Cell unloading	Electric motor	
	Air chuck clamp	
Container conveyor	Electric motor	
	06BW Chain type	
Control	MITSUBISHI PLC or Simens Control	
	Touch screen	
Size		6,500 * 4,300 * 3,200 H / mm [changeable without notice]
Power		220 / 380v AC 3P 50 ~ 60Hz or required option
Air		5 ~ 7 kg / cm <sup>2</sup>

\* Drawings are just reference, changeable according to the required specification \*





## COMBINATION MACHINE (SHORT CIRCUIT-SPOT WELDING-SH)

ASSEMBLY

### >> Machine Information (DUNW-COMB3)

- Welding the group in the battery case (container) and the strap together.
- Steps: short circuit testing, rejecting the unqualified, first welding station (3 points inter-cell welding), second welding station (2 points inter-cell welding), 2nd short circuit testing or welding quality check, rejecting the unqualified, the qualified will be sent to the next step.
- Highly durable steel structure, equipped with servo-motor adjusting weld head position automatically. Pneumatic or hydraulic weld heads are optional.



### >> Controls

- Mitsubishi Q-Type or Simens PLC
- Operation panel - Touch Screen
- Welding Timer

### >> Inspection

- Short Tester & Welding inspection

### >> Standard Features

- Welding Gun is operated at Air Cylinder 3kg/cm<sup>2</sup> > Stable against pressure variation.
- Composition service tank per each Gun in addition to Main Air Tank.
- Installed Flow Meter which can check cooling water flow.
- Installed Strap Alignment Device and Strap Gap Preventing Device.
- Welding unit & timer- Miyazaki - Japan
- Solid state thyristor S.C.R. control switched synchronously with first half cycle delayed firing for transient reduction.
- Robust and precision built to provide the accuracy so necessary for extrusion welding.

### >> Remark

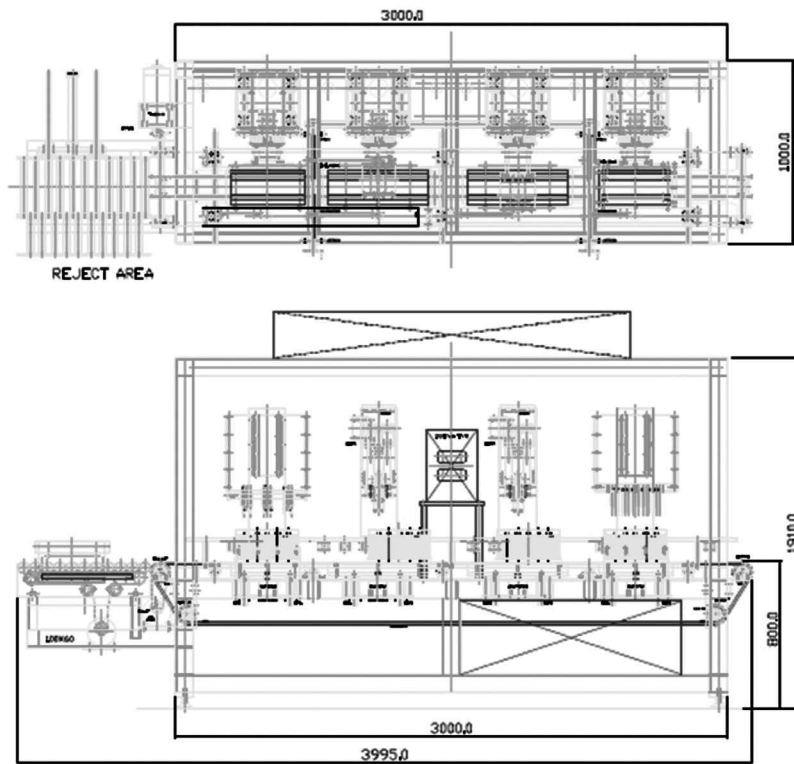
- Side Terminal Welding [optional]. • 3 head X-Y type [optional]

\* Photos are just reference, changeable according to the optional items \*



SHORT CIRCUIT OR WELDING TESTER)

ASSEMBLY



>> Specification

ITEM		SPECIFICATION	REMARK
Machine		COMBI Machine [1st short tester – spot welder – 2nd short tester or weld tester]	
Application Item		Small size & Medium size battery [40 Ah ~ 100 Ah]	
Machine material		All steel	
Plate		06BW Chain	
Cycle time		3 batteries/min. [basis 60Ah, 13 plate per cell, depends on various working condition]	
Progress work		1st short tester - Welding No.1 - Welding No. 2 – 2nd short tester – Next step	
Description	Short tester	Inspection tool / Cr-Cu	
		Model Setting / jig type	
	Welding process	X.Y.Z direction	
		Gun material / Cr-Cu	
		Welding unit / Miyazaki – Japan	User's option
		Timer & MFDC Inverter - / Miyazaki - Japan	
PC programming software			
Mid frequency transformer - Miyazaki – Japan			
Side welding	X.Y.Z control	Optional	
	Gun material = Cr-Cu		
Control	Mitsubishi PLC Control		
	Touch screen		
Size		5,100 * 1,790 * 2,985 H / mm [changeable without notice]	
Power		220 / 380v AC 3P 50 ~ 60Hz or required option	
Air		5 ~ 7 kg/cm <sup>2</sup>	

\* Drawings are just reference, changeable according to the required specification \*



# HEAT SEALING MACHINE (DUN-HT200)

ASSEMBLY

## >> Machine Information

- Fully automatic battery lid heat sealing machine.
- The moving battery is automatically transferred to the heat sealing position by pneumatic device.
- The lid will be automatically lifted up and held, the heating platen heats and melts up the battery case upper edge and the lower edge of the lid. The lid will be held onto the battery case, and fixed with uniform pressure till it cooled and hardened.
- Very precise computer control with easy programmable PLC touch panel operation.



## >> Controls

- Mitsubishi PLC.
- Operation panel - Touch Screen.
- Melting Timer.
- Temperature controller - Heating Mirror.

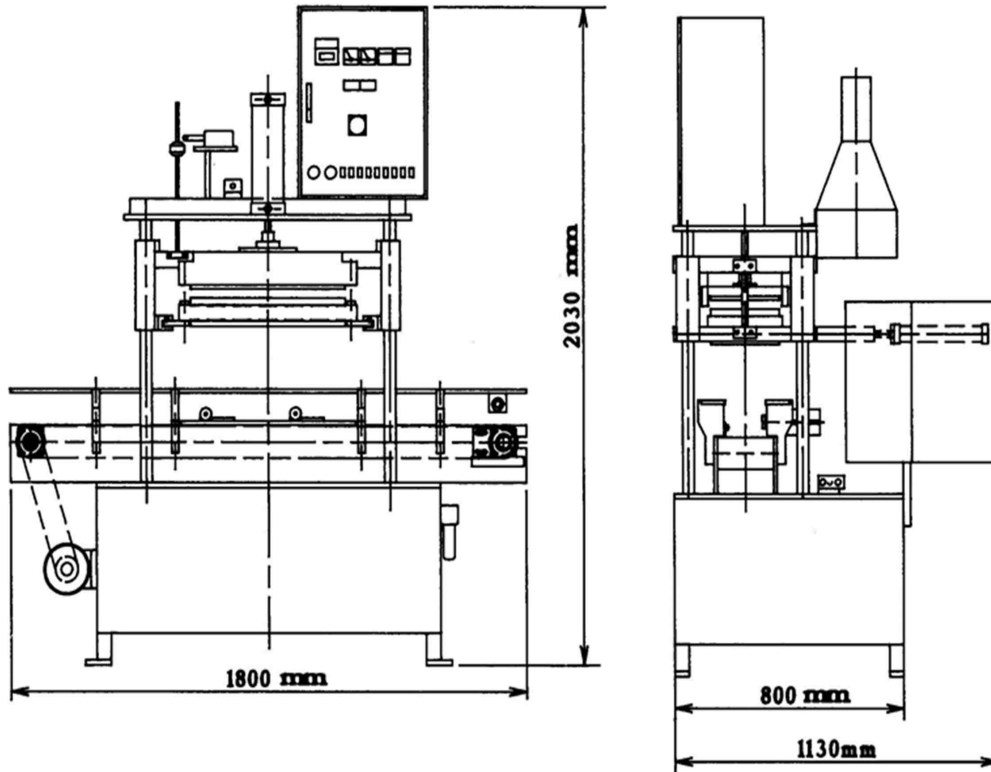
## >> Standard Features

- Minimizing shock of equipment by using Shock Absorber at all Air Cylinder parts.
- Air Process for relieving shock when Heater Block is Up/Down.
- Short sensor function at each Heater.
- Installed Air Service Tank.
- Possible Model Heating Time Setting.

## >> Remark

- 2 head type is option.

\* Photos are just reference, changeable according to the optional items \*



### >> Specification

ITEM		SPECIFICATION
Machine		Lid heat sealing machine
Application Item		Small size & Medium size battery [40 Ah ~ 200 Ah]
Machine material		All steel
Conveyor type		Chain
Cycle time		3 batteries/min. [basis 60Ah, 13 plate per cell, depends on various working condition]
Progress work		Battery in – Lift up and clamping of container – Cover clamping – Heating – Sealing – Next step
Description	Conveyor part	Chain
		Electric motor
	Heat sealing	Heater 700w * 18EA* 2Head =Total 25.2KW , total power : 26KW
		1 Head 2 Battery insert
		Heater head / Air cylinder regulator control
Side welding	Cover clamp / air cylinder	
	Mitsubishi PLC Control	
Control	Touch screen	
	1,800 * 1,130 * 2,200 H / mm [changeable without notice]	
Size	220 / 380 V AC 3P 50 ~ 60Hz or required option	
Power	5 ~ 7 kg / cm <sup>2</sup>	
Air	220 / 380v AC 3P 50 ~ 60Hz or required option	
	5 ~ 7 kg/cm <sup>2</sup>	

\* Drawings are just reference, changeable according to the required specification \*

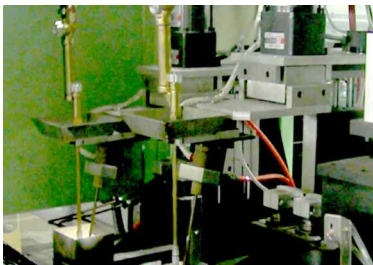


# TERMINAL WELDING MACHINE (UNPBD-100)

ASSEMBLY

## Machine Information

- After Heat Sealing, battery will be transported to Post Burning process using LPG (or LNG) along with oxygen burning and welding the post and terminal.
- Adjustable of welding condition by the flame spinning speed and spinning radius
- Automatic flame ignition, energy saving system.
- Highly durable steel structure, easy maintenance, user-friendly touch panel.



## Controls

- Mitsubishi PLC
- Operation panel - Touch Screen
- Adjustable of welding torch rotating speed & radius.

## Standard Features

- Installed stable Gas Line and Back Fire Protecting function.
- Welding die temperature controlled automatically by circulation cooling water.
- Adjustable for welding torch rotation speed and radius.
- Equipment Stop & Alarm function by Limit Detection when Terminal Mold is not in.

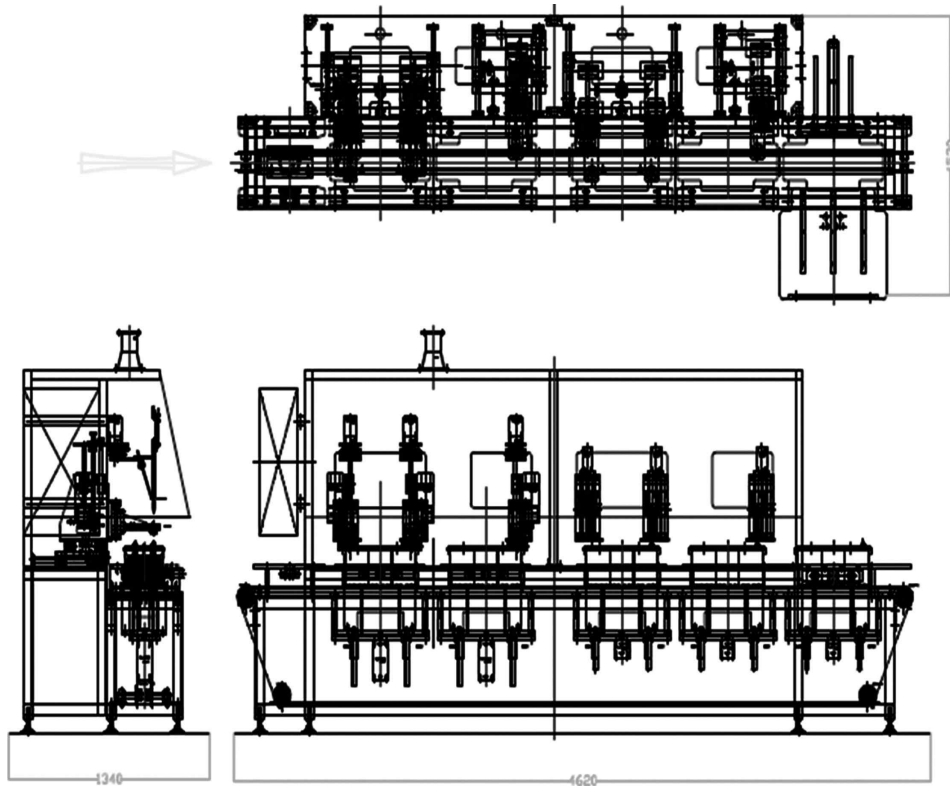
## Remark

- X and X-Y mode type [optional]
- Lead wire feeder for half bushing terminal [optional]
- Post height measurement unit. [optional]

## Inspection

- Terminal Height Measuring Device [Optional]

\* Photos are just reference, changeable according to the optional items \*



## >> Specification

ITEM		SPECIFICATION
Machine		Terminal welding machine
Application Item		Small & medium size battery [40 Ah ~ 200 Ah]
Machine material		Steel
Conveyor type		Chain conveyor
Cycle time		3 batteries/min. [basis 60Ah, 13 plate per cell, depends on various working condition]
Progress work		Battery in – Clamping & lift up battery – Welding (Down, turning, up of torch) - Cooling mold – Down & unclamping of battery – Next step
Description	Conveyor part	Chain conveyor
		Electric motor
	Welding part	Gas flame (LPG / oxygen) , water cooling mold
		1 or 2 heads, torch turning speed adjustable on the touch panel Mold material / SKD61 & SUS440C
	Control	Mitsubishi PLC control Touch screen
Size	2,800*w1,200*2,500 H / mm [changeable without notice]	
Description	Power	220 / 380 A AC 3P 50 ~ 60hz or required option
	Air	4 ~ 5 kg / cm <sup>2</sup>
	Water	1 ~ 1.5 kg / cm <sup>2</sup>
	LPG	0.5 ~ 0.8 kg / cm <sup>2</sup>
	Oxygen	5 kg / cm <sup>2</sup>

\* Drawings are just reference, changeable according to the required specification \*



# TERMINAL POST BUILDER (CUN-PBD-X-TH)

ASSEMBLY

## » Machine Information

- Comparison to conventional torch methods, the post forming system UN-PBD provides accurate control of temperature burning time, position and torches movement which ensures consistent result and high productivity.
- Features
  - Burning together the poles and the bushings assures superior bonding penetration.
  - Programmable microprocessor based design for high efficiency operation.
  - High capability handling a shift in 20 seconds.
  - Saving energy consumption by reducing the torches flame to pilot condition when they are idle.
  - Exact temperature control with the cooling system (water or oil circulation on customer's requirement)
  - Quick and easy changeover adjustment to meet various battery poles locations.
  - Preformed bushing insert type.



## » Inspection Functioning

- Terminal Height Measuring Device [Optional]

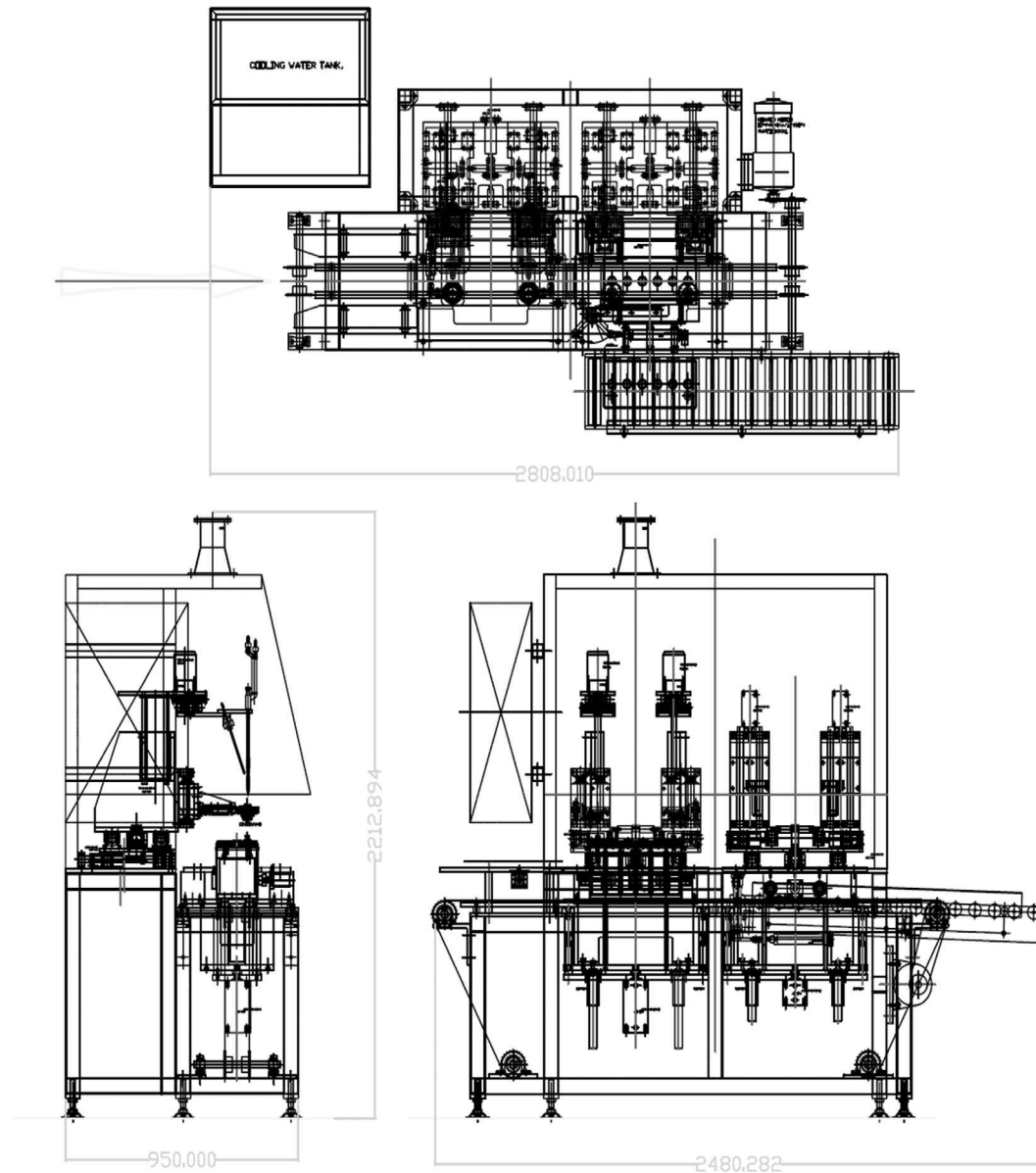
## » Standard Features

- Installed stable Gas Line and Back Fire Protecting function.
- Welding die temperature controlled automatically by circulation cooling water.
- Adjustable for welding torch rotation speed and radius.
- Equipment Stop & Alarm function by Limit Detection when Terminal Mold is not in.

## » Controls

- Mitsubishi, Omron or Korea LS of PLC
- Operation panel
- Welding Timer

Photos are changeable according to the requirement or new design.



## >> Specification

ITEM	SPECIFICATION
Production speed	3 batteries/min
Electrical requirement	220/380V, 3phase, 50Hz(or as required)
Electric motor	0.5HP Geared motor 50:1
Water cooling unit	Electrical heater 3KW
Compressed air pressure	5Kg/cm <sup>2</sup>
Machine weight(approx.)	1000Kg

Drawings are changeable according to the required specification or new design.



# TERMINAL POST BUILDER (UN-PBD-XY)

ASSEMBLY

## » Machine Information

- Comparison to conventional torch methods, the post forming system UN-PBD-XY provides accurate control of temperature burning time, position and torches movement which ensures consistent result and high productivity.
- Features
  - Burning together the poles and the bushings assures superior bonding penetration.
  - Programmable microprocessor based design for high efficiency operation.
  - High capability handling a shift in 20 seconds.
  - Saving energy consumption by reducing the torches flame to pilot condition when they are idle.
  - Exact temperature control with the cooling system (water or oil circulation on customer's requirement)
  - Quick and easy changeover adjustment to meet various battery poles locations.
  - Preformed bushing insert type.



## » Inspection Functioning

- Terminal Height Measuring Device [Optional]

## » Standard Features

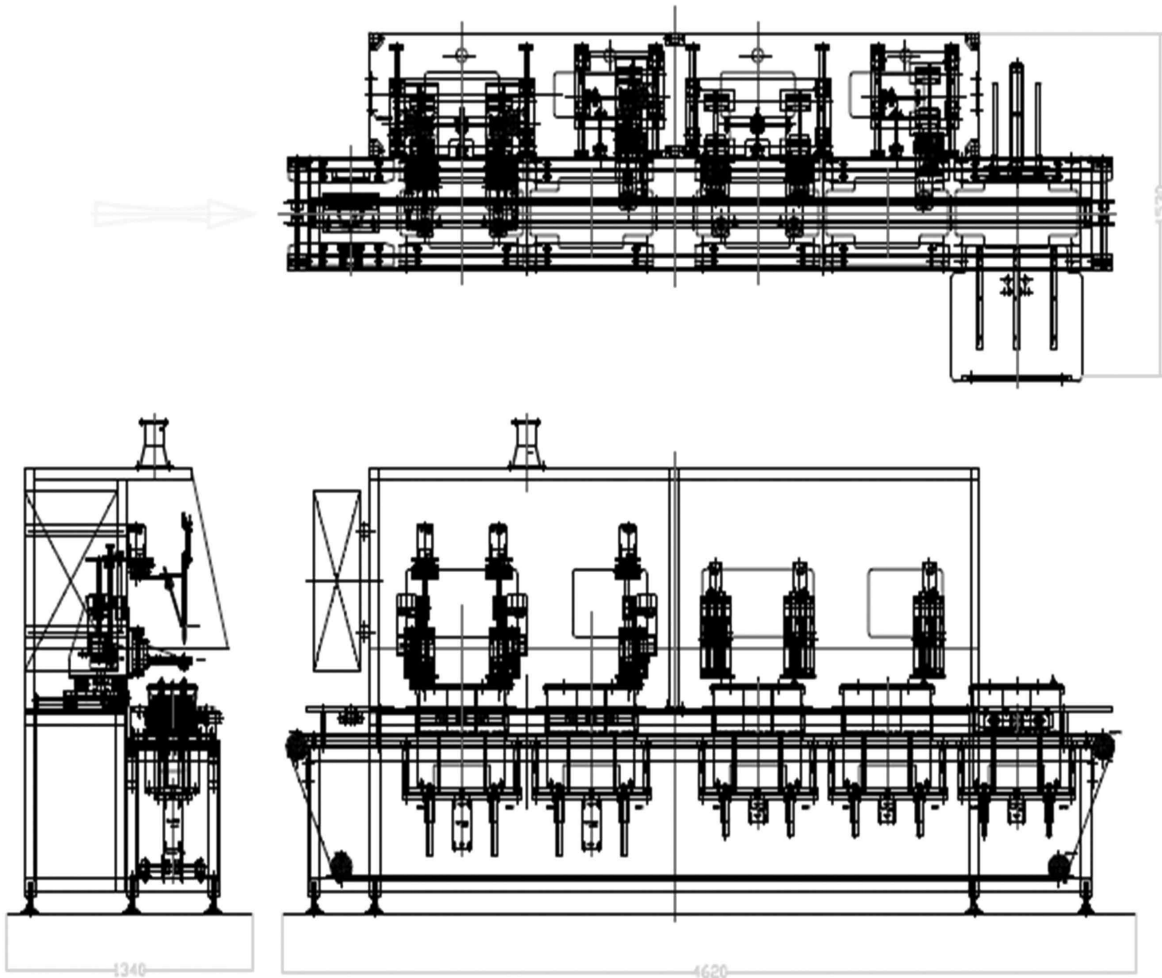
- Installed stable Gas Line and Back Fire Protecting function.
- Welding die temperature controlled automatically by circulation cooling water.
- Adjustable for welding torch rotation speed and radius.
- Equipment Stop & Alarm function by Limit Detection when Terminal Mold is not in.

## » Controls

- Mitsubishi, Omron or Korea LS of PLC
- Operation panel
- Welding Timer

Photos are changeable according to the requirement or new design.





## » Specification

ITEM	SPECIFICATION
Production speed	3 batteries/min
Work Jig head	1 <sup>st</sup> . & 2 <sup>nd</sup> . Head: "X" direction terminal weld
	3 <sup>rd</sup> . Head: "Y" direction terminal weld
Electrical requirement	220/380V, 3phase, 50Hz(or as required)
Electric motor	0.5HP Geared motor 50:1
Water cooling unit(CCS tank)	Electrical heater 3KW
Compressed air pressure	5Kg/cm <sup>2</sup>
Machine dimension	L4,620 x W1,530 x H2200(mm)
	[Without Terminal Height Measuring Device : L2,900 x W1,340 x H2200(mm)]
Machine weight(approx.)	2000Kg

Drawings are changeable according to the required specification or new design.



# LEAKAGE TESTING MACHINE (UNALT-200)

ASSEMBLY

## >> Machine Information

- After heat sealing, air is sent into the battery via acid inlet to test the leakage.
- Highly durable steel structure with Fukuda leak testing unit.



## >> Controls

- Mitsubishi PLC
- Air leak device: Hukuoka Japan
- Button switch operation panel
- Inspection Timer

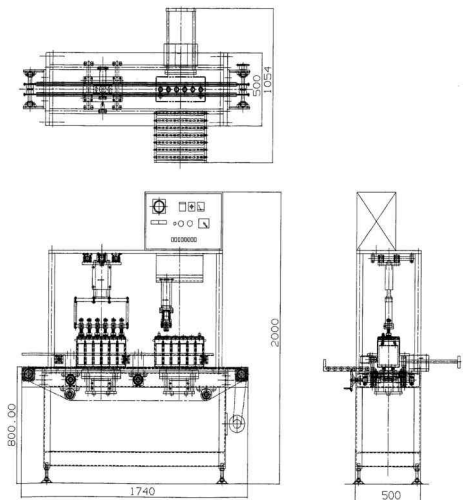
## >> Standard Features

- Increased Sealing Function by using Silicon Rubber at Inspection Tool.
- Prevent battery damage by using Regulator at Inspecting Head Up/Down Air Cylinder parts.

## >> Remark

- Numbering stamping unit of serial number. [optional]

\* Photos are just reference, changeable according to the optional items \*



## >> Specification

ITEM	SPECIFICATION
Production speed	3batteries/min(less than 80Ah)
Date/code punching time	1 sec
Electrical requirement	20/380V, 3phase, 60Hz(or as required)
Compressed air pressure	4Kgs/cm <sup>2</sup> 6Kgs/cm <sup>2</sup>
Testing pressure	1440mm/H <sub>2</sub> O(0.014Bar)
Electric motor	0.5HP Geared motor 30:1
Machine weight(approx.)	800Kg

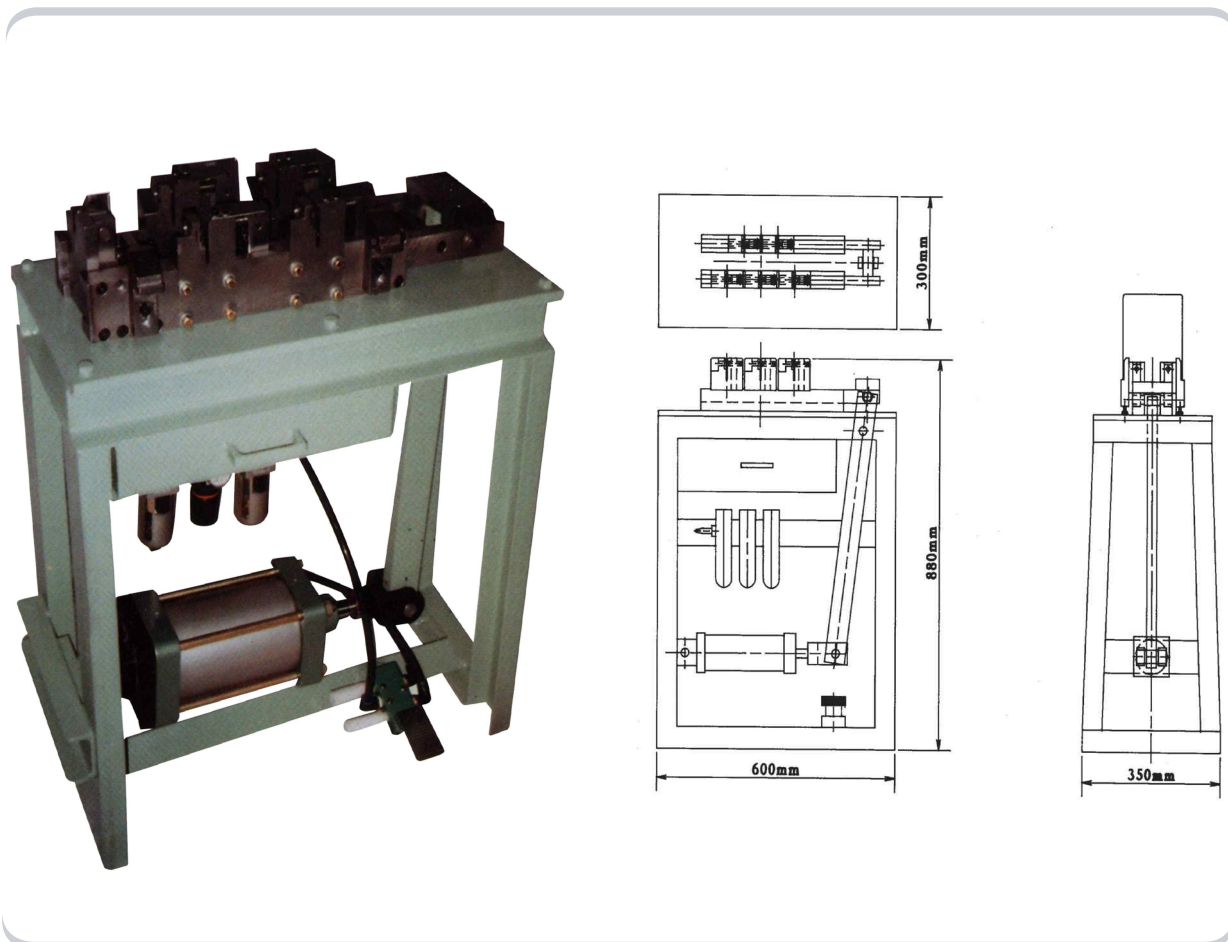
Drawings are changeable according to the required specification or new design.

# CONTAINER HOLE PUNCHER (UN-HP-1)

ASSEMBLY

## >> Machine Information

- Pneumatic type hole puncher UNHP-1 makes simultaneously 5 holes in the inter-cell partition on the polypropylene cell container. In order to punch different types of batteries, the punch head has been designed to be replaced easily.
- Extra heads are supplied on customer's request.



## >> Specification

ITEM	SPECIFICATION
Production speed	10 containers per min.
Compressed air pressure	6Kgs/cm <sup>2</sup>
Working method	5 holes per time
Machine weight (approx.)	100Kg

Photos are changeable according to the requirement or new design.





# ACID FILLING MACHINE (UNK500AF-1)

FORMATION

## >> Machine Information

- All of raw material was used SUS316L or PVC to stand acid.
- Acid filling method is a natural descent in the acid tank and it is ON/OFF system to cylinder nozzle.
- It was made more simply to use touch panel.
- It was manufactured to battery model change more simply.
- The main motor is 1HP and conveyor is pp plastic belt conveyor.
- To use shuttle stopper, it was prevent to insert 1EA of battery.
- It was made to control easy to install handle which it was assist easily to control of upper & below of nozzle.
- To use air cylinder for nozzle, it was easy to control for user.



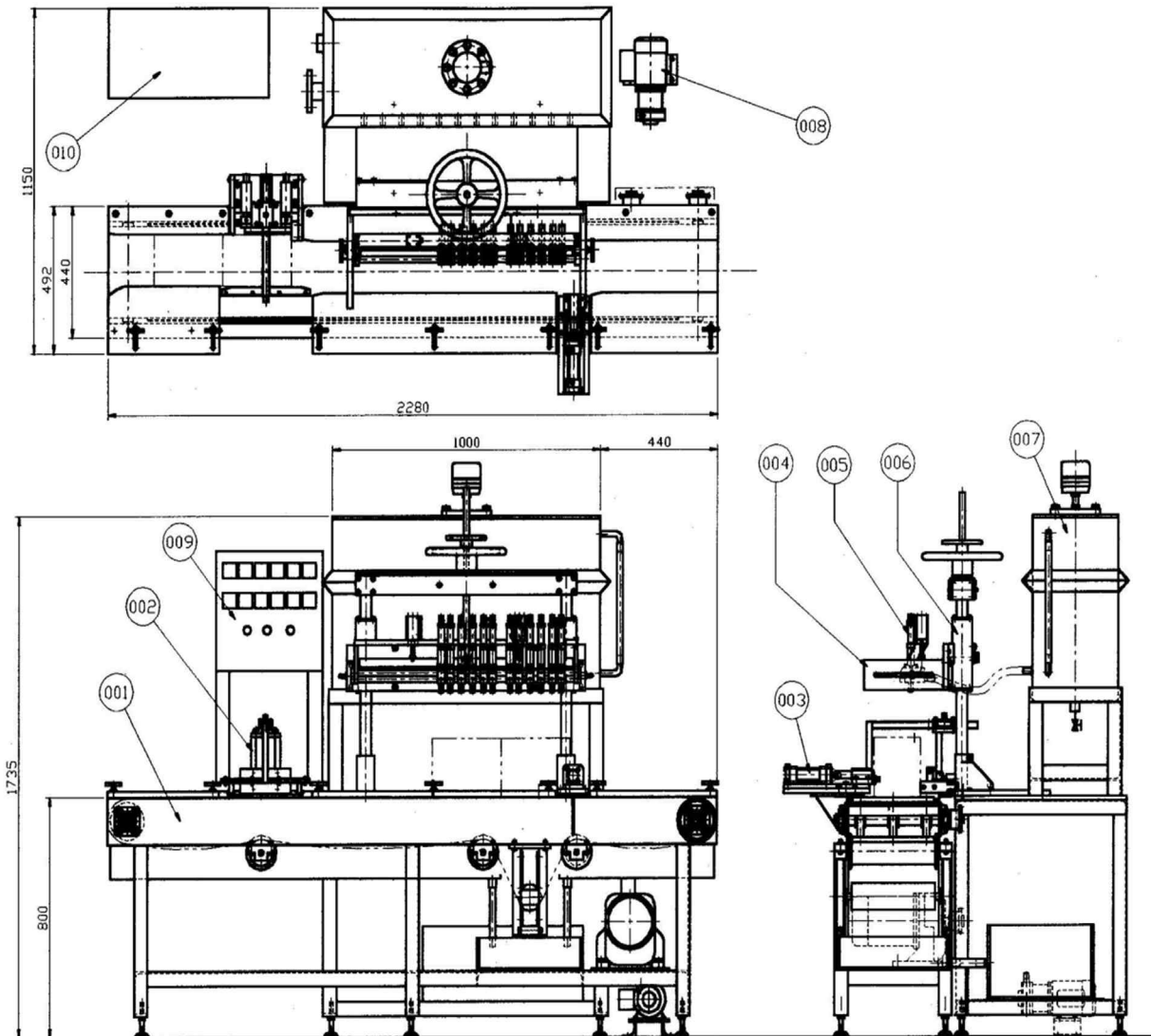
## >> Controls

- Mitsubishi, Omron PLC or Korea LS
- Operation Panel -Touch Screen

## >> Specification

ITEM	SPECIFICATION
Production speed	10 containers per min.
Compressed air pressure	6Kgs/cm <sup>2</sup>
Working method	5 holes per time
Machine weight (approx.)	100Kg

Photos are changeable according to the requirement or new design.



## » Specification

The performance is to work equipment one(1) battery.

Production	1) Up to 12V 120Ah: 12 sec per battery
	2) From 12V 120Ah to 200Ah: 24 sec per battery

The total electricity volume is 2.5kw.

The weight of equipment is approx. 500kgs

The main sources of electricity is in accordance with specification of buyer.

The size of equipment is 2200(L) X 1610(W) X 1970(H)

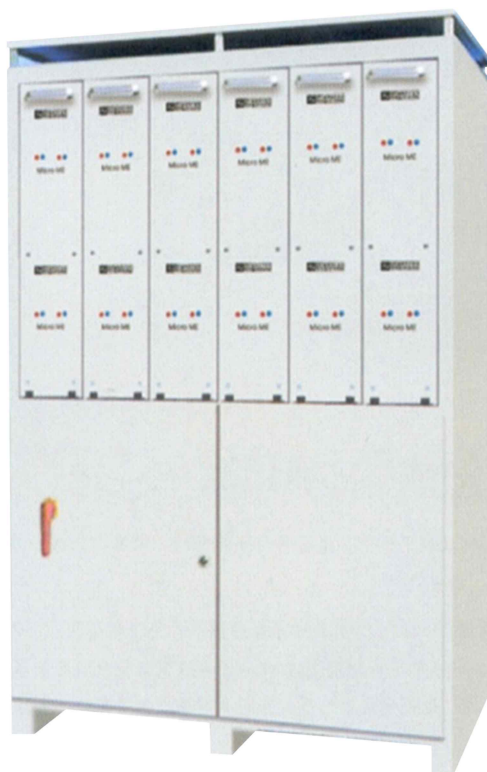
Drawings are changeable according to the required specification or new design.

# CHARGING & DISCHARGEIN MACHINE (UNCD)

FORMATION

## >> Machine Information

- **APPLICATION:** Formation charger/discharger for medium/large-capacity sealed and automotive battery .
- **FUNCTION:** Setting and storing many formation modes and parameters of different types of batteries. Providing the following operation modes: constant-current charging, constant-voltage charging, constant-voltage with current-limited charging, constant-current with temperature-controlled charging (optional purchase), constant-current with voltage-limited discharging, cycling, static. Step shift by time setting/voltage setting/Ah setting.
- Centre network control and data processing when connected with PC via interface.



## >> Specification

Models	Output Current(A)	Output Voltage(V)	Circuit / Cabinet	Dimension(Cm)			Weight (Kg)
				W	H	D	
UNCD-10A350	10	350	6, 8	100, 120	200	80	800-850
UNCD-25A350	25		6, 8	100, 120			780-850
UNCD-50A350	50		2, 4	100			820-800
UNCD-100A350	100		1, 2	100			590-800
UNCD-200A350	200		1	100			700
UNCD-300A350	300		1	100			780
UNCD-400A350	400		1	100			950
UNCD-500A350	500		1	100			1150

Photos and dimension are changeable according to the requirement or new design.

## BATTERY FORMATION CHAMBER WITH CONVEYOR SYSTEM (UNJAR-HG)

### » Machine Information

- The batteries added with acid are conveyed by auto-transport line to the appointed battery formation line, which is connected with the carts.
- The side door of battery formation line opens automatically. The batteries in turn go on the boards which separate the batteries. The intervals between the boards are adjustable. After the batteries are properly located, the side door of the battery formation line closes automatically.
- The cooling water is added automatically to certain height. The pneumatic cylinder automatically opens the observing door. After the battery wiring is connected manually, the observing door is automatically closed.
- The re-circulating cooling water begins to cool at certain temperature. The suction system begins to exhaust air with heat from the batteries and the air with heat is purified and discharged by outdoor purification system.
- After the battery formation is finished, the door is opened automatically. The battery wiring is disconnected manually and the cooling water is drained into storage water tank. The batteries are conveyed in the carts through the side door to the lower line and are conveyed to the finishing line.

FORMATION



### » Specification

- The battery formation system for batteries consist of upper line, lower line, carts and a list of battery formation lines. The PP boards and the PP or PVC water tank can resist heavy acid or heavy alkali and all stainless steel support are anti-corrosive.

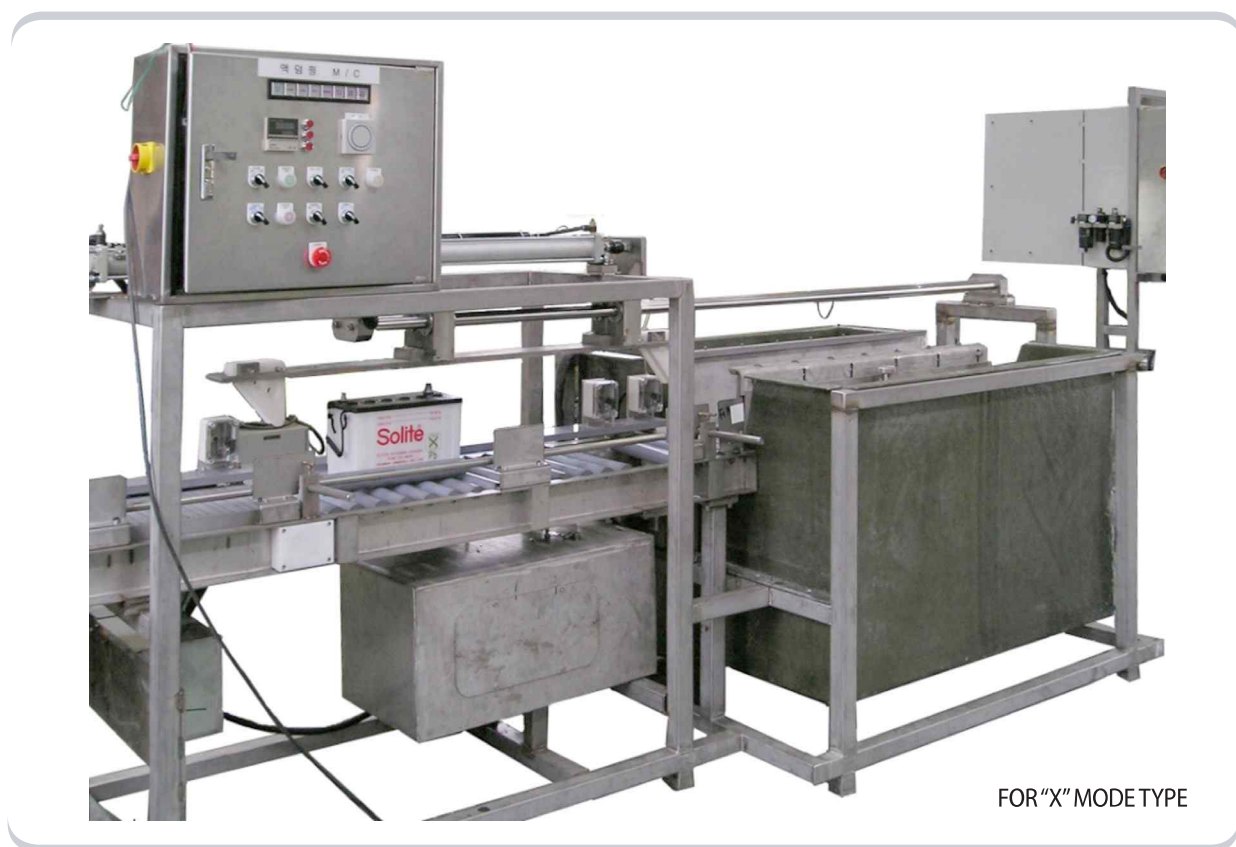
Photos are changeable according to the requirement or new design.

# ACID DUMPING MACHINE (UNDP-480X / XY)

## >> Machine Information

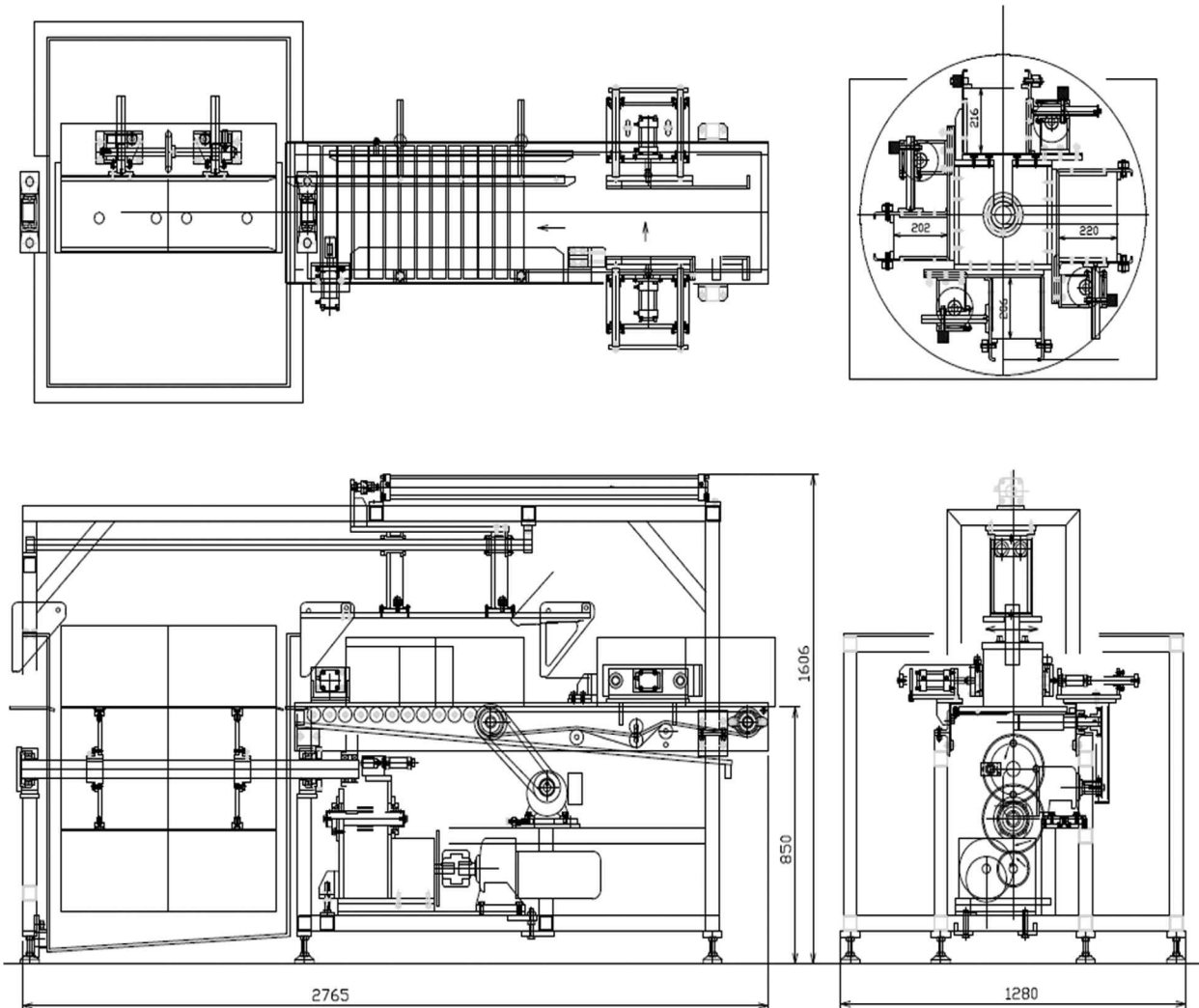
- **APPLICATION:** It's used for automatic acid dumping of started wet charged lead-acid battery.
- **Composition of equipment:** The equipment is composed of rotary unit, reducer, support, pedestal, lead screw hold down fitting, bearing, bearing block, base plate control box (Relay control).
- **Feature:** a. Dumper rotates by using screw holding down fittings, ensuring stable operation, durable in use and low motor power consumption.  
b. All parts in working station are of 316L, acid dump tank is of PVC.

FINISHING



Photos are changeable according to the requirement or new design.





## » Specification

Cycle time	60Ah: 480 batteries/hour
	80Ah to 150Ah: 240 batteries/hour
	160Ah to 200Ah: 120 batteries/hour
Electric power	4Kw
Air pressure	0.55Mpa, 0.05m <sup>3</sup> /min.
Overall dimension	3200(L)×1900(D)×2200(H)
Weight	1700Kg

Drawings are changeable according to the required specification or new design.

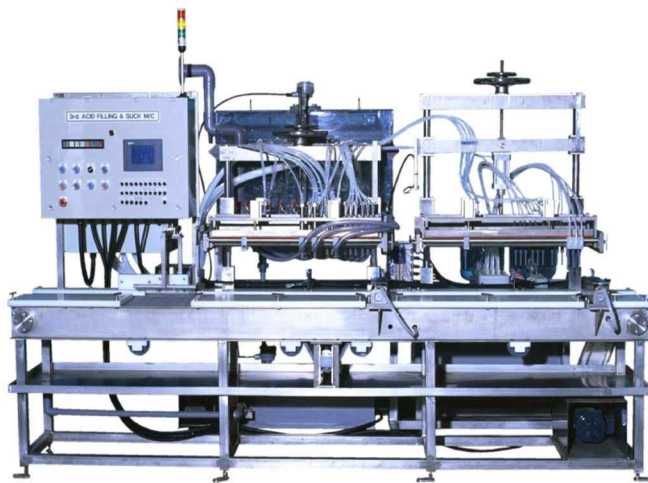


# ACID FILLING & SUCTION MC (UNK500WT)

## Machine Information

- All of raw material was used SUS316L or PVC to stand acid.
- Acid filling method is a natural descent in the acid tank and it is ON/OFF system to cylinder nozzle.
- It was made more simply to use touch panel.
- It was manufactured to battery model change more simply.
- The main motor is 1HP and conveyor is pp plastic belt conveyor.
- To use shuttle stopper, it was prevent to insert 1EA of battery.
- It was made to control easy to install handle which it was assist easily to control of upper & below of nozzle.
- To use air cylinder for nozzle, it was easy to control for user.

FINISHING



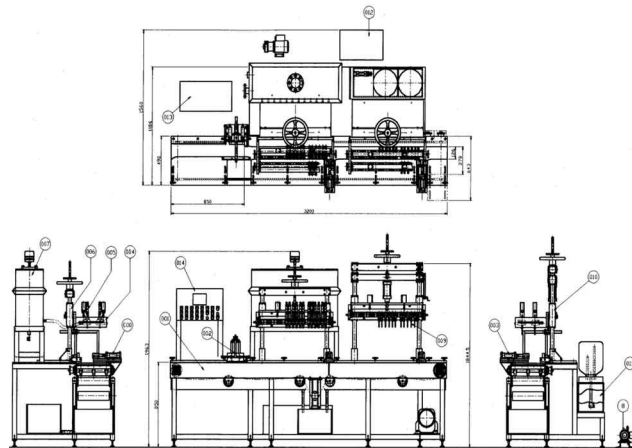
## Controls

- Mitsubishi, Omron or Korea LS of PLC
- Operation Panel -Touch Screen

## Features

- The acid volume to overflow to pump is few to install 2 step of suction tank.
- Recycle tank was used to Anti-Acid pump.

Photos are changeable according to the requirement or new design.



## Specification

The performance is to work equipment one(1) battery (Up to 200Ah). It is 22sec per battery.

The size of equipment is 2200(L) X 1610(W) X 1970(H)

The weight of equipment is approx. 500kg.

The main sources of electricity is in accordance with specification of buyer.

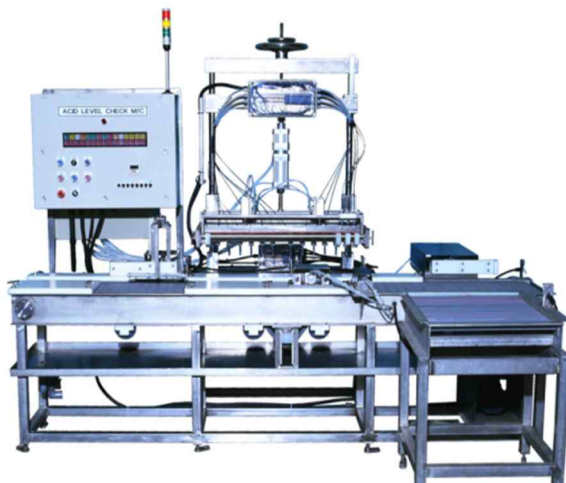
The total electricity volume is 2.5kw.

Drawings are changeable according to the required specification or new design.

# ACID LEVEL CHECK TESTER (UNK-LVC)

## » Machine Information

- The machine provides leveling of acid for 24~200Ah sealed maintenance free starter batteries.
  - Taking microprocessor as controlling center. Applying home & abroad famous brands for main components and high-class anti-acid/anti abrasion material.
- Whole engineering-plastic body.
- Acid leveling quantity and other parameters set with figures on the panel. Possessing the following advantages; compact structure, precise quantity setting, fast speed filling, easy operation and maintenance.



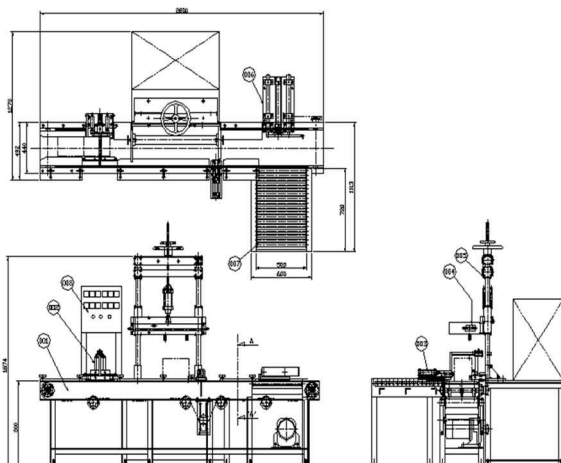
## » Controls

- Mitsubishi, Omron or Korea LS of PLC
- Operation Panel -Touch Screen

## » Features

- Acid-proof stainless steel and PVC construction provides durability and long operation life.
- The performance is to work equipment one(1) battery.

Photos are changeable according to the requirement or new design.



## » Specification

Production	1) Up to 12V 120Ah: 12 sec per battery
	2) From 12V 120Ah to 200Ah: 24 sec per battery
Conveyor speed	14M/min
Electric power	0.75KW , 380/220V
Compressed air	4 Bar
Machine size	1200W × 2230L × 2000H mm
Machine weight	600kg

Drawings are changeable according to the required specification or new design.

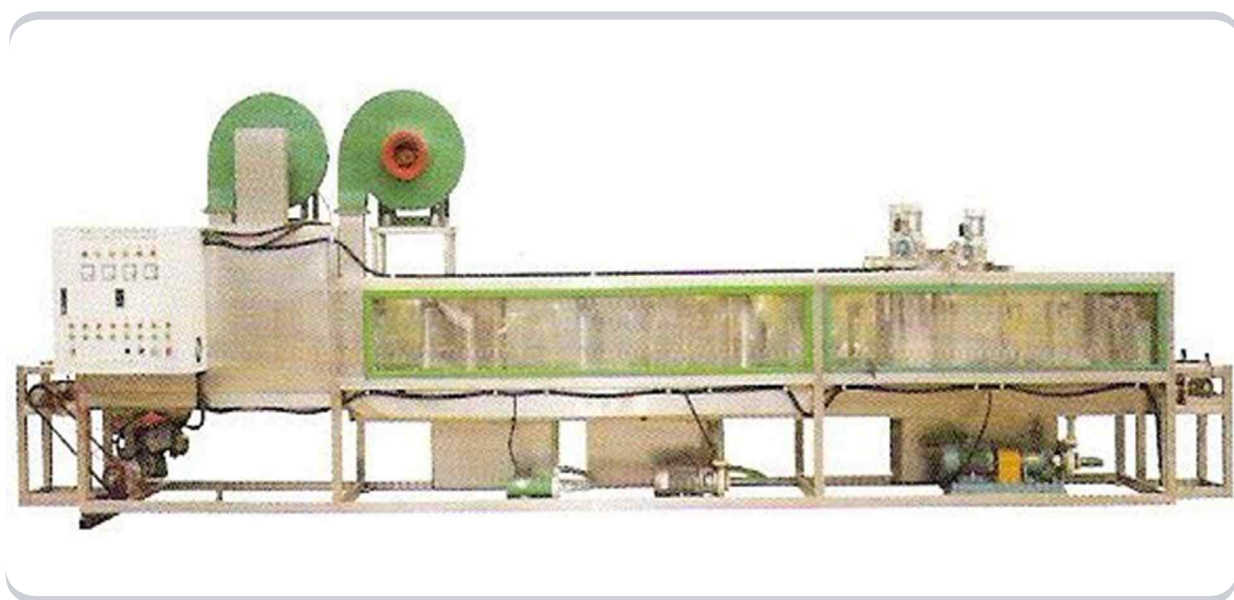


# WASHING & DRYING MACHINE (UNDWM-750)

FINISHING

## >> Machine Information

- **APPLICATION:** It is can be battery washing for the battery 12V 24Ah to 200Ah after formation.
- Put the water drying battery in the automatically rolling entry, then all the water cleaning drying will be completed and to the next work station.
- The machine has five work position: flush work position, wash No. 1 work position; wash No. 2 work position; air blower work position; drying work position; water tank and high pressure antiseptis water pump in the three water cleaning working position, the high pressure water can be jet from high pressure spray mouth and clean the battery;
- Clean work position: the brusher will clean the battery side and top.
- Air blower work position: compressed air spray mouth, the angel of spray mouth can be adjusted.
- Curing parts heated by electric, the temperature can be adjusted from 0-90.



## >> Features

- All the cleaning and drying procedure is finished in the closed environment, keep the production site clean.
- Assure the acid of battery surface clean
- The material is SS304The battery conduct on the entrance of the roller, in case the battery is blocked and incline, the damaged proof structure and the material on the parts of connect with the battery.

## >> Specification

Dimension	L7500 × W800 × H2,500
Materials	Stainless steel & PVC
Electric power	AC380V, 50Hz, 12Kw
Capability	120~180 batteries per hour
Drying temperature	0~100°C
Machine weight	2900Kg

Photos are changeable according to the requirement or new design.

# HIGH RATE DISCHARGE TESTER (UHRD1500AT)

## » Machine Information

- This tester is designed simple, economical to test batteries under high rate condition.
- The duration of the test is automatically controlled by a 1~10 second timer which may be readily preset to the desired test time by the operator.
- The digital voltmeter continuously displays the battery voltage and discharge current.
- If the voltage decreased to less than the minimum preset by operator at anytime during the test, both the final indicator and low voltage indicator are illuminated and/or alarms.

FINISHING



## » Specification

Input power	3 phase 380V 50Hz (as required)
Output	DC 18V 1500A
Discharge Method	Constant current method
Display	Touch screen panel
Discharge power is regenerated back to input AC power source	
Battery testing range	12V series
Operation panel	Touch screen

Photos are changeable according to the requirement or new design.



# BATTERY HIGH CURRENT TESTER (UNDT)

## >> Machine Information

- COLD CRANKING DISCHARGE TESTS OF THE BCI, SAE, DIN, CEI, AND ELECTROCHEMICAL SOCIETY
- A fully programmable micro processor based charging and discharging system.
- Suitable for testing all items of electrical performance of different lead-acid batteries.
- Detecting automatically the service life time of batteries by simulating charging & discharging process in battery real operation.
- Presetting detection mode and parameters.
- Storing various detecting process. Providing the following working mode: Constant current & constant voltage charge(option), cycling, pause, stage-shift in time fixing, voltage fixing, ampere-hour fixing mode. Automatic working data record. Protecting against over-current, over-voltage and open circuit. Power down data storage. Automatic power on recovering. Displaying on LCD working data and cause of troubles. Checking working process and all the data. Interfacing to PC, the device and perform central network control over multiple detection, with the data, current, voltage and Ah curve to be stored and printed.

LABORATORY

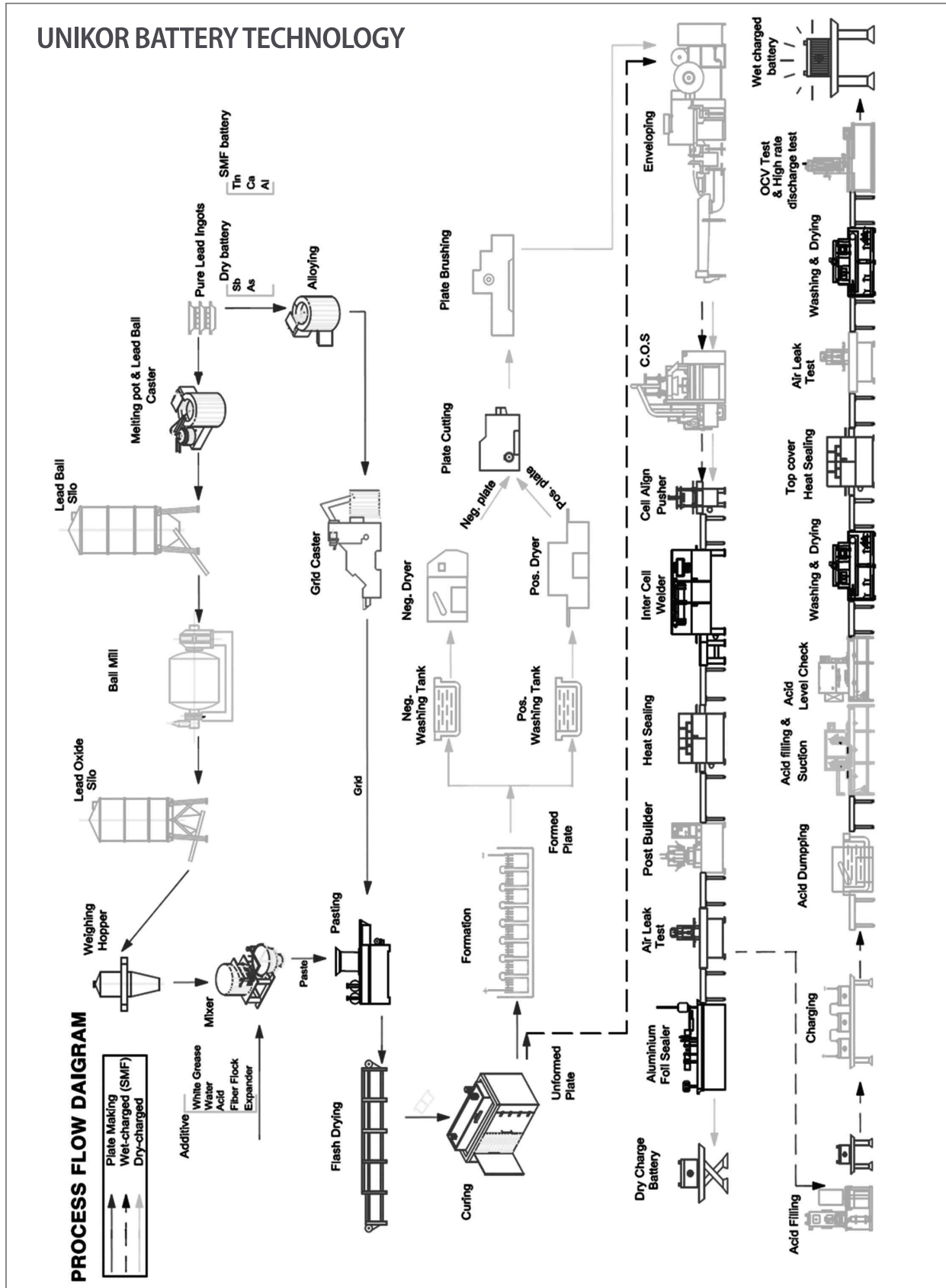


## >> Specification

Model	Output Current (A)	Out Voltage (V)	Overall Dimension(mm)			Weight (Kg)
			Width	Depth	Height	
UBDT-18V/1000A	10	4.5 ~ 18	680	850	2000	520 / Module
UBDT-18V/1500A	20					550 / Module
UBDT-18V/2000A	30					580 / Module
UBDT-18V/3000A	50					600 / Module

Photos are changeable according to the requirement or new design.

# STARTER AUTOMOTIVE BATTERY MFG. PROCESS



LABORATORY