

UBE

UB-iS3-s/-i Series

Die Casting Machine

UB530iS3-s/-i
UB670iS3-s/-i
UB850iS3-s/-i
UB1100iS3-s/-i
UB1300iS3-s
UB1300iS3W-s

UBE MACHINERY CORPORATION, LTD.

High Performance Machine with Servo Pump

Premium Model UB-iS3-s/-i



iS3-s: Servo pump "I-Stop Servo"
iS3-i: Induction motor pump

New
Technologies



Control & Monitoring

New HMI
Cast Navi
15 inch touch screen



Clamp Unit

Highly Rigid
Die Clamping Unit
New Center Press Platen



Energy Savings

Servo Motor for the main
pump with idling stop &
Rotation Speed Control



Shot Control

High Performance
Shot Control
(S-DDV II)



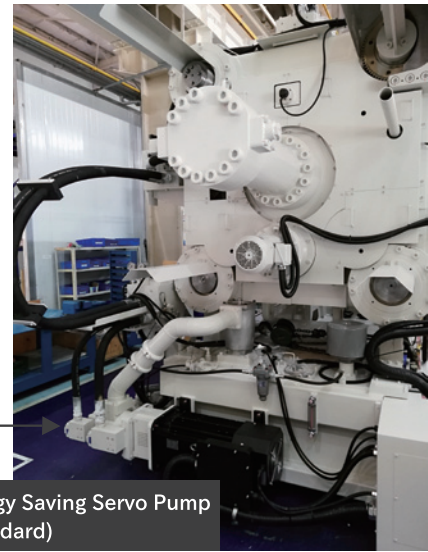
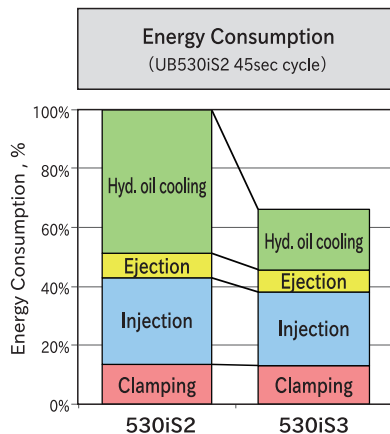
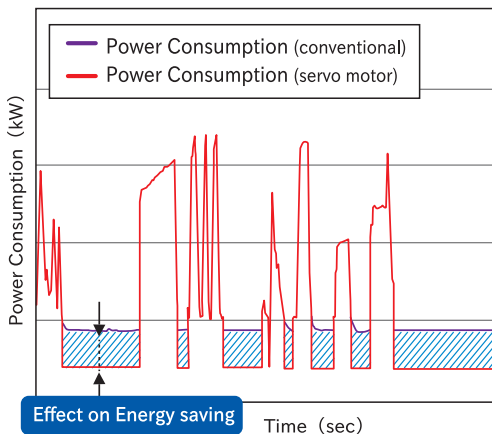
CAE Support

Linkage function with CAE
CastTrend → ADSTEFAN

"UB-iS3-s" achieve tremendous Energy Saving

High Performance Machine with Servo Pump as standard feature

- Servo motor for the main pump with " Idling Stop" & " Rotational Speed Control" is equipped as standard and it achieves tremendous energy saving.
- Contribute to production cost reduction by stopping motor during machine idling.

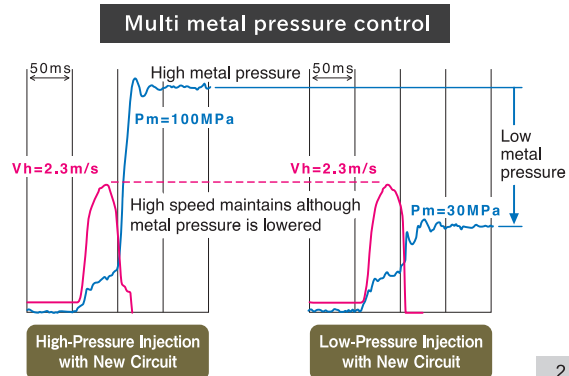
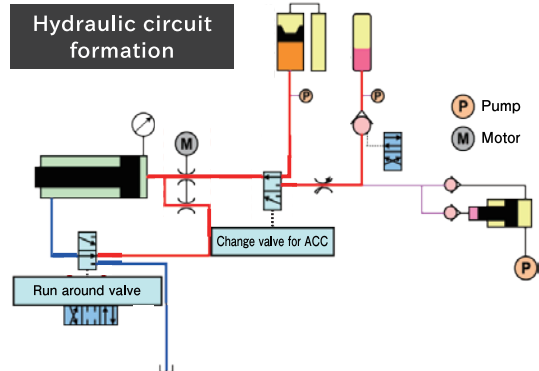
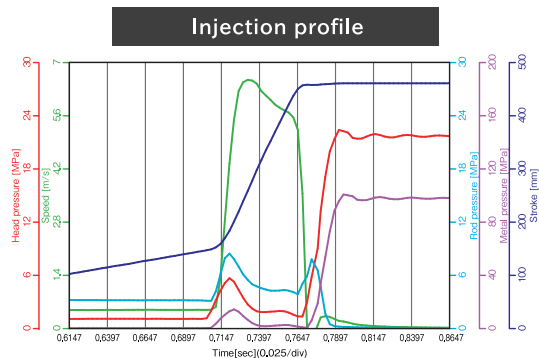


Energy Saving Servo Pump (Standard)

Machine color "Ivory" is available as option.

High Performance Injection Unit

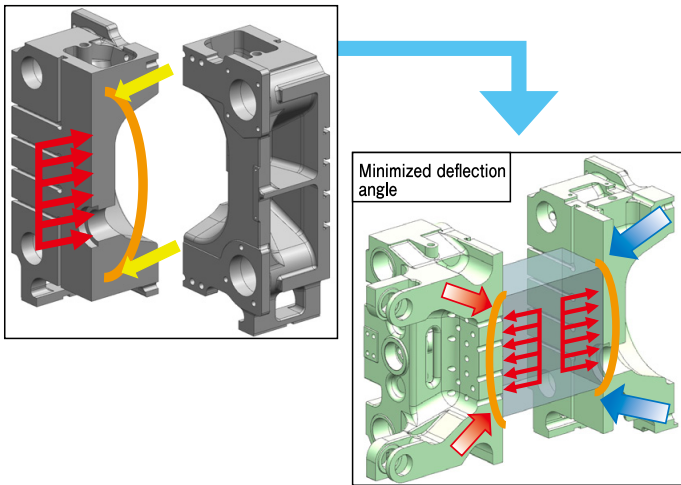
- UBE's specialized shot circuit realizes fast shot speed of 8m/sec as standard. (Dry shot 0.02m/s ~ 8m/s)
- Improvement of tracking, acceleration & braking capabilities for shot speed.
- Intensification time: 10msec.
- Setting for the change position for intensification is at any point, or it enables to set automatic by monitoring pressure.
- Metre in, which provides pressure equipment to the load, and meter-out, which is effective at stabilizing speed, are both incorporated in a meter-in/meter-out circuit for using the advantages of each mechanism to obtain stable speed.
- Shockless start is also realized to prevent air intake of the molten metal.
- UBE developed its own exclusive runaround circuit and double accumulator system(built-in delicate pressurizing accumulator) for maintaining stable and high-speed injection performance while achieving casting pressure control over the wide range from 30% to full gas discharge or re-charge.
- Low metal pressure injection enables casting in larger sizes. The reduced metal pressure promotes longer die life.
- Equipped with an electric servo valve S-DDV II with a reviewed "flow gain" & "pipeline size".
- Real time feed back control enables to obtain accurate shot-speed repeatability and shot stability.



Highly Rigid Clamping Unit

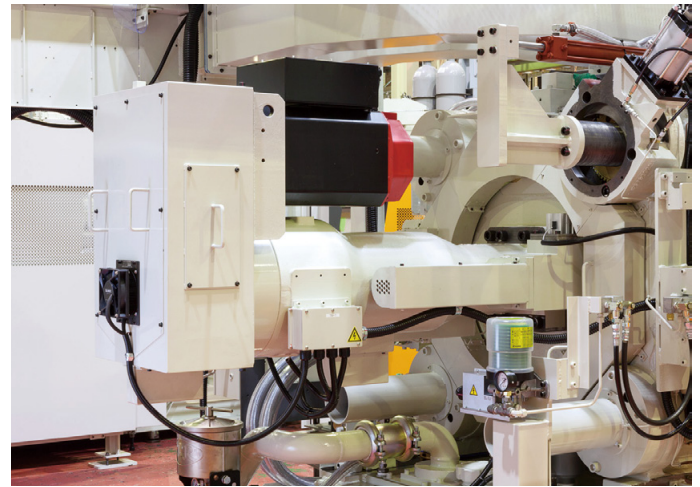
- High level CAE analysis and optimum shape design reduce the unnecessary body and achieve high rigidity.
- With new center press technology, an equal clamping force is distributed through out the die, and it reduces flash, exert an effect on low pressure casting & reducing clamping force.

NEO MUSCLE Design Platen Structure



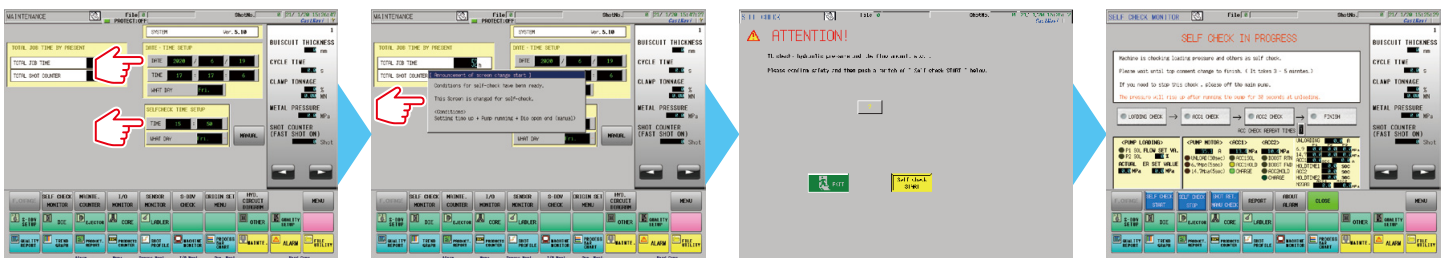
Electric Die Clamp Cylinder (Option)

- Electric die clamp cylinder achieves shorten cycle time.
- Improvement of accuracy for die open- close.
- Enable to set die open limit position and open- close speed at any point.
- Contribution to reduce spray time and spray liquid consumption.
- Possible to simultaneous operate of die open-close and other movement.

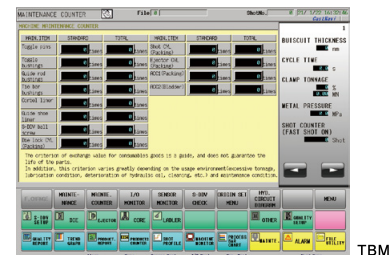


Machine color "Ivory" is available as option.

Self Check Function

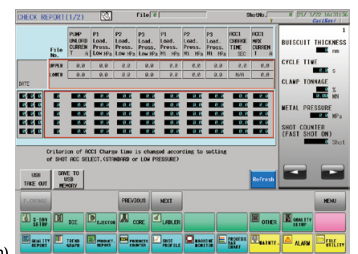


- Possible to shortening downtime by regularly checking condition of the machine.
- Deliberate machine maintenance is available.
- Possible to reduce the cost and manpower for machine maintenance.
- TBM function (time-based maintenance)
Operating time of machine and each actuator are accumulated, and the timing of parts replacement informed. (Die clamping unit, Ejector, Injection, ACC).
- Since the operation status can be downloaded as a CSV file, it can also be used for machine operation management.
- CBM function (condition-based maintenance)
Machine carries out self-diagnosis at the set time and day of the week to judge the validity of the pressure, hydraulic flow rate, and motor current values.



TBM

CBM(Optional)



HMI "CastNavi"

Shot parameter setting screen



- Enables multi speed control with 10-points parameter setting function.
- Enables to indicate actual value displaying setting value.

Machine monitor display



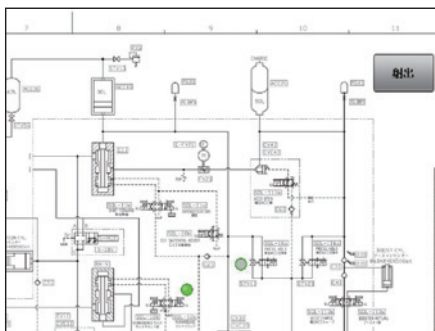
- Displays machine status with graphics and enables to recognize the condition at a glance.

Large casting data storage



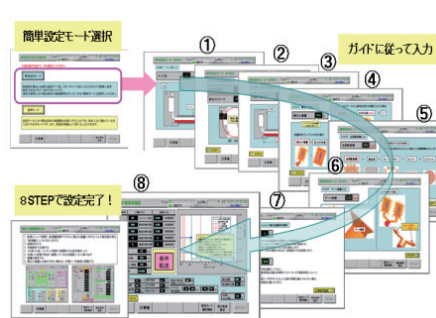
- Increased casting data memory capacity from 100 shots to 15,000 shots. Saving on USB memory and keeping on PC.

Built in hydraulic circuit drawing & instruction manual



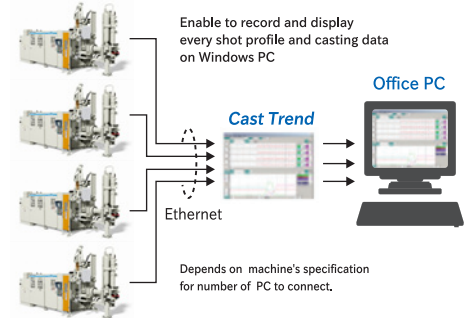
- Hydraulic drawings for injection & clamping and instruction manual are built in the touch monitor.

Support function for casting condition



- Equipped with 2 selective modes for standard and easy setting for casting, designed for beginner to set with interactive screen.

Centralized Monitoring System (Option)



- Monitoring operation on one PC, networking to multiple Die casting machines.
- Enable to manage from any location through customers internal LAN, server.

Casting Solution Service

Casting Support / School

UBE performs operation training and instructs optimal shot parameter setting towards production. Also, operation of die casting machine and casting technology are deeply learned through the school.



Casting Support

Die Casting School

Study of Casting Design and Shot Parameter

UBE propose optimal gating system, shot parameter utilizing CAE.

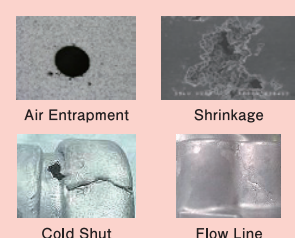


simulation

Casting Design

Investigation of Casting defects

Casting solution service specifies the casting defects by various analysis and offers best solution.



Air Entrapment

Shrinkage

Cold Shut

Flow Line

- appearance ● X-ray ● Density
- Gas content ● Composition ● Micro-Structure
- SEM ● Hardness ● Mechanical

UB—iS3 Series Main Specifications

Items		Units	UB530iS3	UB670iS3	UB850iS3	UB1100iS3	UB1300iS3	UB1300iS3-W
Clamping	Clamping force	kN	5,300	6,700	8,500	11,000	13,000	13,000
	Dimension of die plate (LxW)	mm	1,070×1,172	1,200×1,302	1,400×1,452	1,660×1,700	1,930×1,800	2,030×2,335
	Read between tie bars (LxW)	mm	751×751	850×850	931×931	1,100×1,100	1,250×1,120	1,250×1,525
	Die stroke	mm	560	660	760	830	900	900
	Die thickness (min. to max.)	mm	350~850	350~900	400~950	600~1,200	750~1,500	750~1,500
Injection	Nominal maximum injection force	kN	511	605	707	895	1,061	1,061
	Nominal minimum injection force	kN	162	186	225	282	330	330
	Nominal filling force	kN	216	247	299	376	440	440
	Plunger stroke	mm	580	670	750	820	950	950
	Tip projection stroke	mm	230	300	355	355	375	375
	Shot position	mm	-175	-175	-250	-300	-300	-300
	Injection speed	m/sec	0.02~8	0.02~8	0.02~8	0.02~8	0.02~8	0.02~8
	Applicable Plunger tip diameter	mm	70, 80, 90	75, 85, 95	80, 90, 100	90, 110, 120	90, 110, 130	90, 110, 130
	Plunger tip diameter (Standard)	mm	80	85	90	110	110	110
	Nominal Metal pressure (Standard Tip diameter)	MPa	32~99	32~104	35~108	30~92	34~109	34~109
	Deceleration adjustment	mm	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable
Ejection	Ejector force	kN	235	286	343	539	588	588
	Ejector stroke	mm	0~110	0~125	0~125	0~150	0~150	0~150
	Distance from moving platen to ejection plate	mm	540	590	646	845	865	865
General	Motor for hydraulic pump	—	iS3-s : Servo motor iS3-i : Induction motor				Servo Motor	
	Oil tank capacity	L	1,000	1,030	1,300	1,420	1,760	1,940
	Cooling water flow rate for oil cooler	L/min	100 (water temp at 30°C or below)	100 (water temp at 30°C or below)	100 (water temp at 30°C or below)	100 (water temp at 30°C or below)	100 (water temp at 30°C or below)	100 (water temp at 30°C or below)
	Oil pressure	MPa	16.2	16.2	16.2	16.2	16.2	16.2

Note: Appearance, Specifications, Numerical Data of die casting machine may change for improvement without notice

UB—iS3 Series Specification (Standard and Optional Items)

Specification item		Std.	Opt.	Specification item		Std.	Opt.	Specification item		Std.	Opt.				
Die clamping	1	Die plate (Fixed, Moving) with Horizontal T-Slot machining	●		Control	1	Programmable controller (Mitsubishi Q series)	●		Hydraulic cooling	13	Hydraulic oil preheating circuit		○	
	2	Die plate (Fixed, Moving) with Vertical T-Slot machining		○		2	Pump Drive Source iS3-s (Servo motor) iS3-i (Induction motor)	●				14	Hydraulic oil level alarm (two junction)	●	
	3	Toggle unit automatic lubrication device	●			3	Rotating red light on top of control panel	●			○	15	Hydraulic oil temperature alarm (two junction)	●	
	4	Electrical die height adjustment	●			4	LS error display	●				16	Oil cooler cooling water ON-OFF circuit		○
	5	Die height automatic setting	●			5	Symbolic operation nameplate	●				17	Die cooling water, main stop valve (manual)	●	
	6	Platen Ni welding (Die mounting surface)		○		6	Interface for automatic devices of other manufacturers		○			18	Line filter clogging detection		○
	7	Moving platen shoe adjustment mechanism (UB850iS3:Standard)		○		7	Outlet (100V) on control panel		○			19	Suction filter clogging detection (Digital switch)		○
	8	Digital load meter(lower tie bar on helper side)	●			8	Electric cable protection		○		Safety	1	Manual safety door on operator side	●	
	9	Die clamping force automatic adjustment	●			9	Earthing interrupter		○			2	Toggle cover (operator side, helper side)	●	
	10	Die clamping force automatic compensation control	●			10	Die temperature monitor		○			3	Injection unit cover on helper side	●	
	11	Automatic tie bar pull-out device		○		11	Control Panel Cooler iS3-s iS3-i	●				4	Safety fence on helper side		○
	12	Tie bar and guide rod chrome plating	●			12	Lighting in control panel		○			5	Die open limit safety hook (stopper type)	●	
	13	Die support		○		13	Added a touch panel on control panel (15 inch)	●				6	Emergency stop button (3 locations)	●	
	14	Ejection plate clamp (C plate clamp)		○		14	PLC programming software		○			7	Control panel door with interlock	●	
	15	Hydraulic die clamping device		○		15	CastNavi / Japanese, English, Chinese, Korean-languages selectable	●				8	Control panel handle enable securing of padlock	●	
	16	Mold projection cylinder		○		16	Casting quality report (15,000shots memory)	●				9	Automatic safety door on operator side		○
	17	*Provisional pouring start signal (for UBE ladler)		○		17	Memory utility function/USB port on operation panel for datas out-put/CSV output of screen, quality / production report, and mold data	●				10	Manual safety door on helper side		○
	18	Drain port beneath die clamp at machine base	●			18	On-screen maintenance guide	●				11	Automatic safety door on helper side		○
	19	Slide mechanism oil pan for tie bar		○		19	Oil flow chart on the screen	●				12	Photoelectric tube safety device		○
Ejection	1	Ejector speed digital setting	●		20	Origin return function	●		13	Latchet-type safety hook			○		
	2	Ejector forward limit digital setting	●		21	Voltage adapt (Standard:200V,220V)		○	Foundation, Color	1	H-shape steel embedded in the foundation	●			
	3	Ejection pressure-reducing circuit		○	22	Voltmeter installed		○		2	*Special foundation method (Type Base frame or Tapered liner)*		○		
Injection	1	Injection speed multi speed setting (S-DDV) Real time feed back	●		23	Ammeter installed		○		3	*Paint color (Munsell N5 Approximate color / Gray)*	●			
	2	Injection force up	●		24	Integrating wattmeter		○		4	Customer specified machine color		○		
	3	Intensification time control valve		○	Timer / Counter	1	Lot counter	●		Others	1	Tip lubricator/Dripping type		○	
	4	Adaptation to short sleeve (ladler with slide mechanism)		○		2	Product (shot) counter	●			2	Tip lubricator/Mixing type		○	
	5	Casting parameter load for 100 dies conditions	●			3	Tip lubrication timer	●			3	Adjustable tip lubricating volume		○	
	6	Injection digital setting	●			4	Cumulative shot counter	●			4	Automatic ladler/Molten metal surface level drop signal output (hot charge)		○	
	7	Piston type accumulator (for injection forward)	●			5	Total maintenance counter	●			5	Automatic ladle / (3 detection)		○	
	8	Bladder type accumulator (for intensification)	●			6	Maintenance counter by dies	●			6	*Automatic sprayer (backward movement between Dies-Mold)*		○	
	9	Interface for vacuum device		○	Hydraulic cooling	1	*Nonflammable hydraulic fluid specification (Water Glycol Fluid applicable)*		○		7	*Automatic parts extractor (Photoelectric product detector (2 PCs))*		○	
	10	Pressure guages on Injection unit		○		2	Mineral type of hydraulic oil applicable	●			8	GF (Gass Free) device		○	
	11	Accumulator automatic pressure-release circuit	●			3	*Die Mold cooling water flow control ball valves (fixed side)*	●			9	Tank for Spray Liquid (Volume:200L)		○	
	12	Cover of wiring duct under Injection CYL	●			4	*Die Mold cooling water flow control ball valves(moving side)*	●			10	Automatic Trimming Machine		○	
	13	Dust recovery shooter under Injection CYL		○		5	Die cooling water drain box	●		Tools	1	Tools (with tool box)		○	
Die core	1	Core sequence-selection circuit	●			6	Glycerin filled pressure gauges	●			2	Nitrogen gas filling hose		○	
	2	Core spray circuit (for UBE sprayer)		○		7	Hydraulic hose with wire-blade		○		Diagnosis function	1	CastTrend (LAN cable)	●	
	3	Core on moving platen (#1~#3)		○		8	Hydraulic hose with plastic cover		○			2	Self-diagnosis function:SPEC1	●	
	4	Core on fixed platen (#1,#2)		○		9	Line filter(SMC)	●		3		Self-diagnosis function:SPEC2 (SPEC1+Sensor)		○	
	5	Additional core port on moving platen		○		10	In-line oil cleaner (Maker/RRR)		○	4		*IoT applicable (data out-put, net work devices connection, etc.)*		○	
	6	Additional core port on fixed platen		○		Overseas standards	1	*Compliance of North America standards and requirement (ANSI ASME)*		○	1	*Compliance of North America standards and requirement (ANSI ASME)*		○	
	7	Core pressure release circuit		○			2	*Compliance of European standards and requirement (CE)*		○	2	*Compliance of European standards and requirement (CE)*		○	
	8	Local squeeze circuit(Fixed-Moving side)		○	3		*Compliance of Chinese standards and requirement (GB)*		○	3	*Compliance of Chinese standards and requirement (GB)*		○		
	9	*Pressure reducing valve for Core Pressure reducing circuit for Core*		○	4		*Compliance of Korea standards and requirement*	●		4	*Compliance of Korea standards and requirement*		○		
	10	*Double pilot check valve for Core (Self-weight fall prevention)*		○	12	Size up of oil-cooler		○							

※This specification item for improvement, may be changed without notice

Peripheral Equipment

UBE's proud Peripheral equipment with long-time performance at field.
High Reliability supports stable production and high cycle.



Automatic Ladler

Automatic Ladler

Adopting inverter control with arm and ladle drive enables smooth movement.
Improves accuracy of ladling by refined control method.

No.	Items	USL-03	USL-04	USL-05	USL-05L	USL-06
1	Applicable die casting machine	UB530iS3	UB670iS3	UB850iS3	UB1100iS3	UB1300iS3
2	Maximum pouring weight	4.0kg	5.6kg	8.0kg (Option 10kg-12kg)	15kg	20kg
3	Accuracy ladling	±1.5% (with the Max. ladling weight)				
4	Power drive	<ul style="list-style-type: none"> ·Arm driving motor : 0.75kw AC motor (Inverter control) ·Ladle driving motor : 0.2kw AC motor (Inverter control) 		<ul style="list-style-type: none"> ·Arm driving motor : 1.5kw AC motor (Inverter control) ·Ladle driving motor : 0.4kw AC motor (Inverter control) 		<ul style="list-style-type: none"> ·Arm driving motor:3.7kw AC motor (Inverter control) ·Ladle driving motor:0.4kw AC motor (Inverter control)

Automatic Sprayer

Spraying device that can be sprayed individually to fixed and moving side.



Automatic Sprayer

No.	Items	SD2-65M5	SD2-80M5	WTP-XL5#
1	Applicable die casting machine	UB530iS3 / UB670iS3	UB850iS3	UB1100iS3
2	Number of air blow nozzle (Standard)	20pcs (Copper tube)		26pcs (Copper tube)
3	Number of spray nozzle (Standard)	Fixed platen side : 37pcs (Copper tube)		Fixed platen side : 25pcs (Atomaizer)
		Moving platen side : 37pcs (Copper tube)		Moving platen side : 25pcs (Atomaizer)
4	Air pressure	0.5~0.8Mpa		0.6Mpa
5	Air supply port diameter	Rc : 1·1/4B		Rc : 2B
6	Liquid pressure	0.3~0.5Mpa		0.3Mpa
7	Liquid supply port diameter	Rc : 1/2B		Rc : 3/4B
8	Power drive	Y-axis up and down / X-axis slide : Air cylinder		Y-axis up and down / X-axis slide : Servomotor

※UB1300iS3: to be adapted robotic sprayer.

※USP type sprayer is available too.

Automatic Extractor

Adopting inverter control with arm drive enables smooth movement.

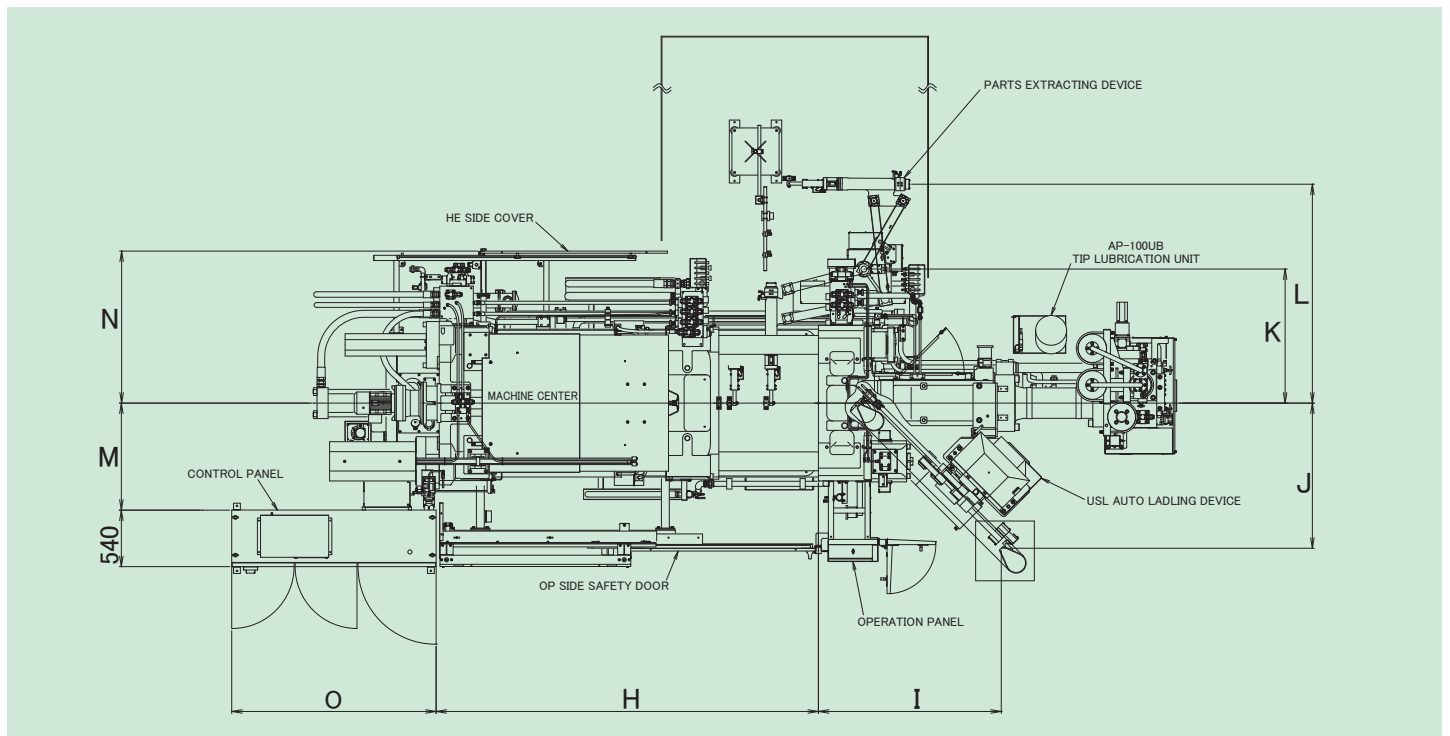
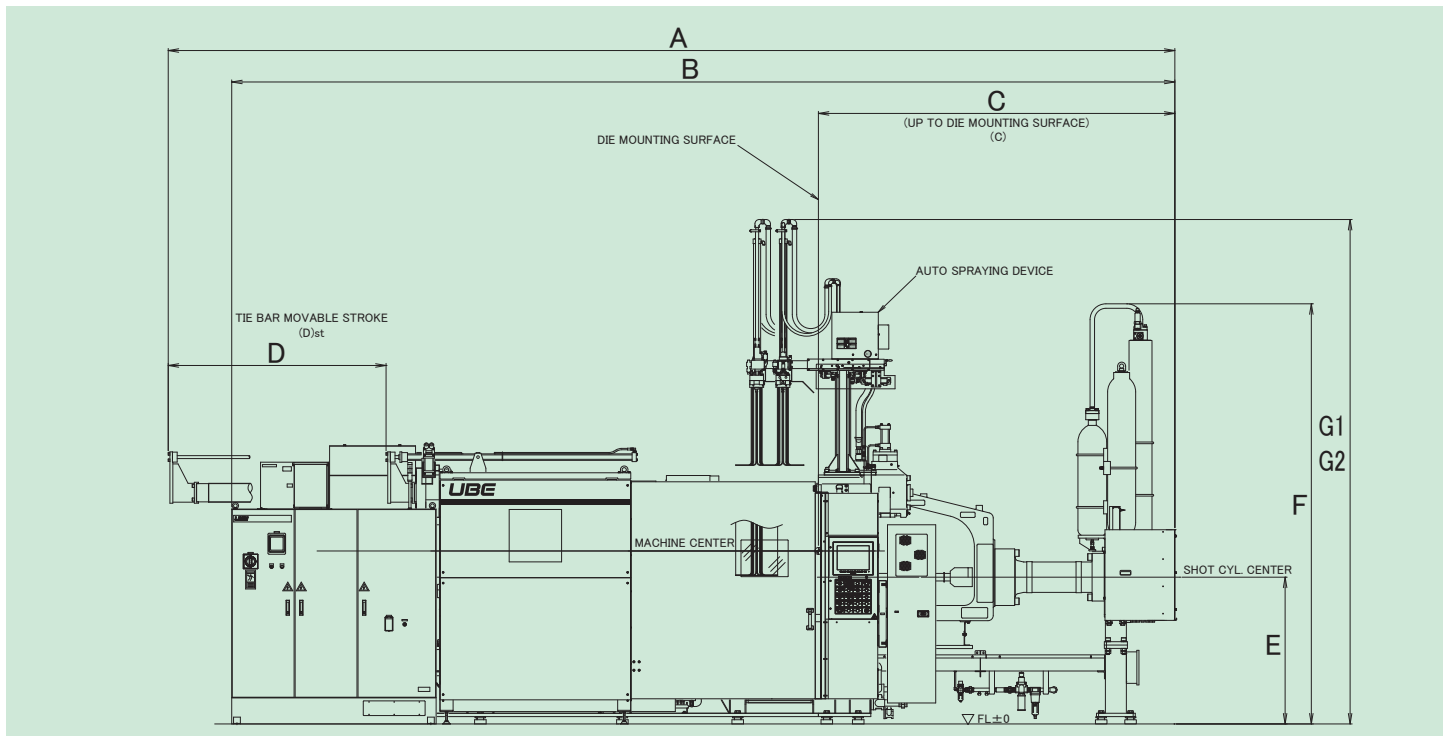


Automatic Extractor

No.	Items	TD5L-80M5	ULE-05L
1	Applicable die casting machine	UB530iS3 / UB670iS3 / UB850iS3	UB1100iS3
2	Location of installation	Standing on floor at machine helper side	
3	Chuck type	Biscuit chuck type	
4	Number of product sensors	2pcs (Limit switch)	2pcs (Photoelectric sensor)
5	Travelling stroke	2,095mm	2,525mm
6	Die thickness adjustment stroke	200mm	220mm
7	Removal stroke	350mm	250mm
8	Chuck rotating angle	90°	
9	Air supply port diameter	Rc : 1/2B	
10	Power drive	Taking out : AC motor, Others : Air actuator	

※UB1300iS3: to be adapted robotic extractor.

Dimensional Diagram



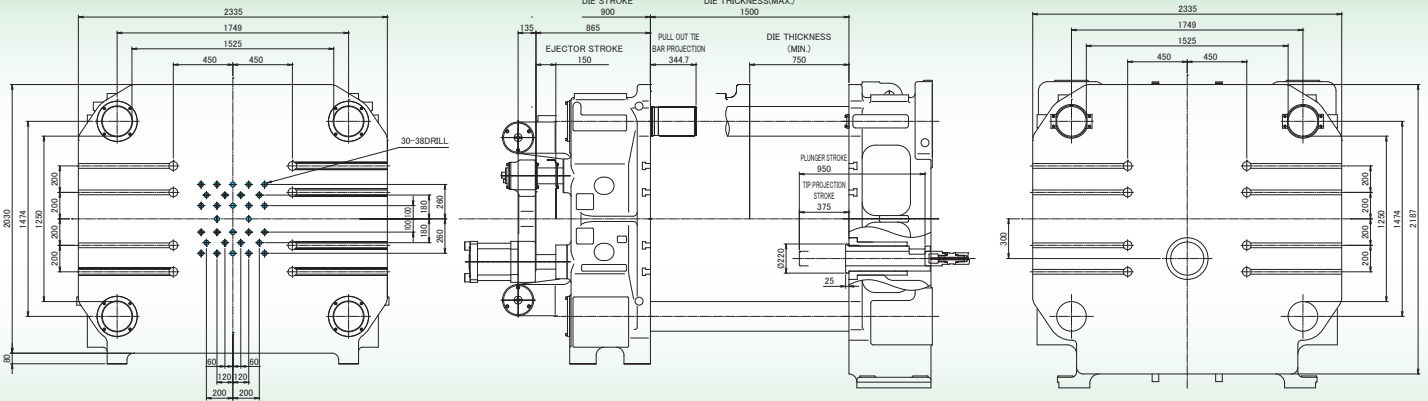
Dimension Table (mm)


	A	B	C	D	E	F	G1	G2	H	I	J	K	L	M	N	O
							Type:SD2	Type:USP								
UB530iS3-s	8,018	8,195	2,895	1,657	1,275	3,493	4,276	4,509	2,950	1,555	1,235	1,279	2,095	846	1,340	2,350
UB670iS3-s	8,916	8,827	3,193	1,869	1,365	3,638	4,431	4,664	3,284	1,609	1,274	1,279	2,095	910	1,400	2,350
UB850iS3-s	9,604	9,398	3,401	2,078	1,400	4,008	4,812	5,119	3,647	1,745	1,385	1,279	2,095	1,020	1,450	2,350
UB1100iS3-s	11,382	10,476	4,006	2,490	1,540	3,950	—	5,678 Type:WTP	4,120	2,060	1,655	1,800	2,553	1,190	1,714	2,350
UB1300iS3-s	13,135	11,401	4,451	2,950	1,737	4,270	—	—	4,600	2,824	2,075	—	—	1,197	1,745	2,350
UB1300iS3W-s	13,160	11,426	4,476	2,950	1,737	4,270	—	—	4,600	2,824	2,075	—	—	1,467	2,015	2,350

Die Mounting Dimensional Diagram

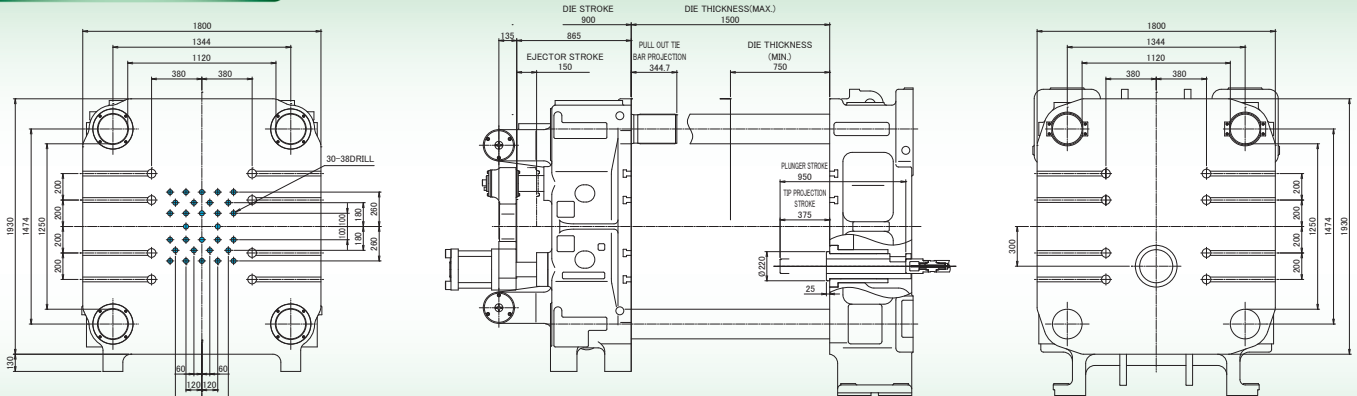
1,300 t - 1,100 t


UB1300iS3W-s



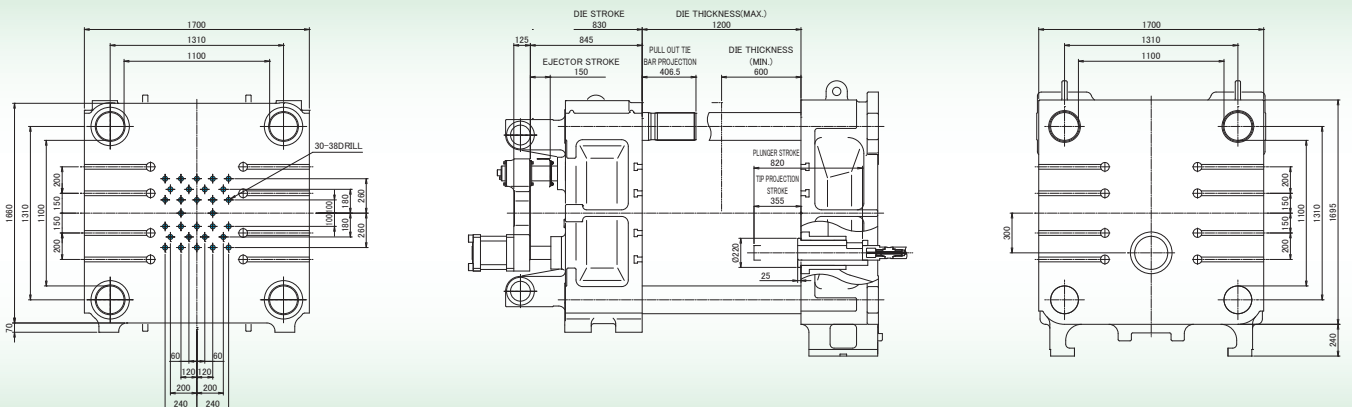
1. About 30 holes marked , ejector rod can be connected to ejector plate with nut.
2. Suitable minimum die size is 840mm × 1,020mm.


UB1300iS3-s



1. About 30 holes marked , ejector rod can be connected to ejector plate with nut.
2. Suitable minimum die size is 840mm × 750mm.

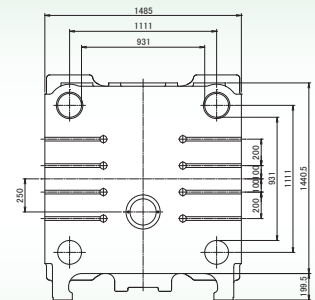
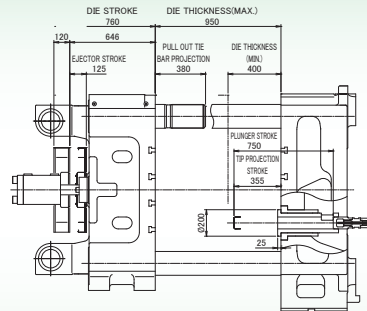
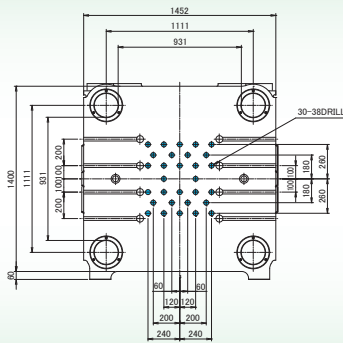
UB1100iS3-s/-i



1. About 30 holes marked , ejector rod can be connected to ejector plate with nut.
2. Suitable minimum die size is 733mm × 733mm.

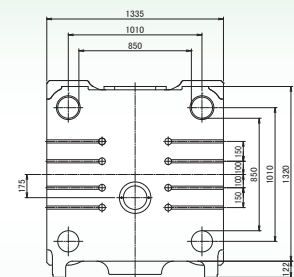
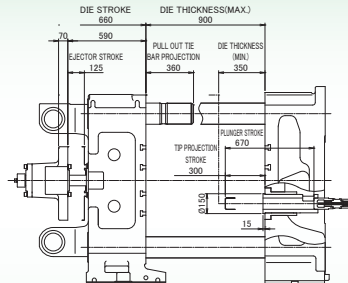
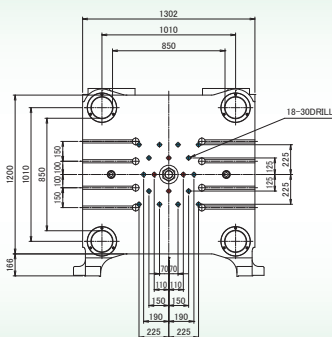
850 t · 670 t · 530 t

UB850iS3-s/-i



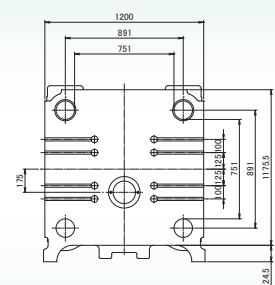
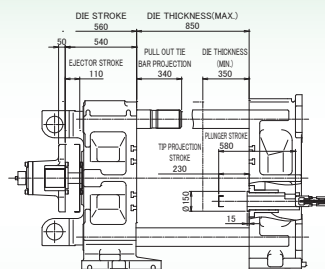
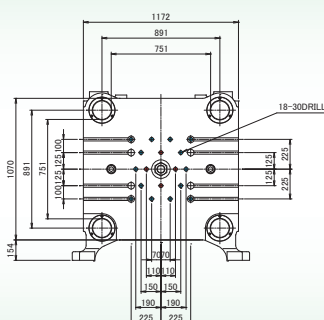
1. About 30 holes marked ●, ejector rod can be connected to ejector plate with nut.
2. Suitable minimum die size is 620mm × 620mm.

UB670iS3-s/-i



1. About 14 holes marked ●, ejector rod can be connected to ejector plate with nut.
2. About 4 holes marked ●, ejector rod can not be connected to ejector plate.
3. Suitable minimum die size is 567mm × 567mm.

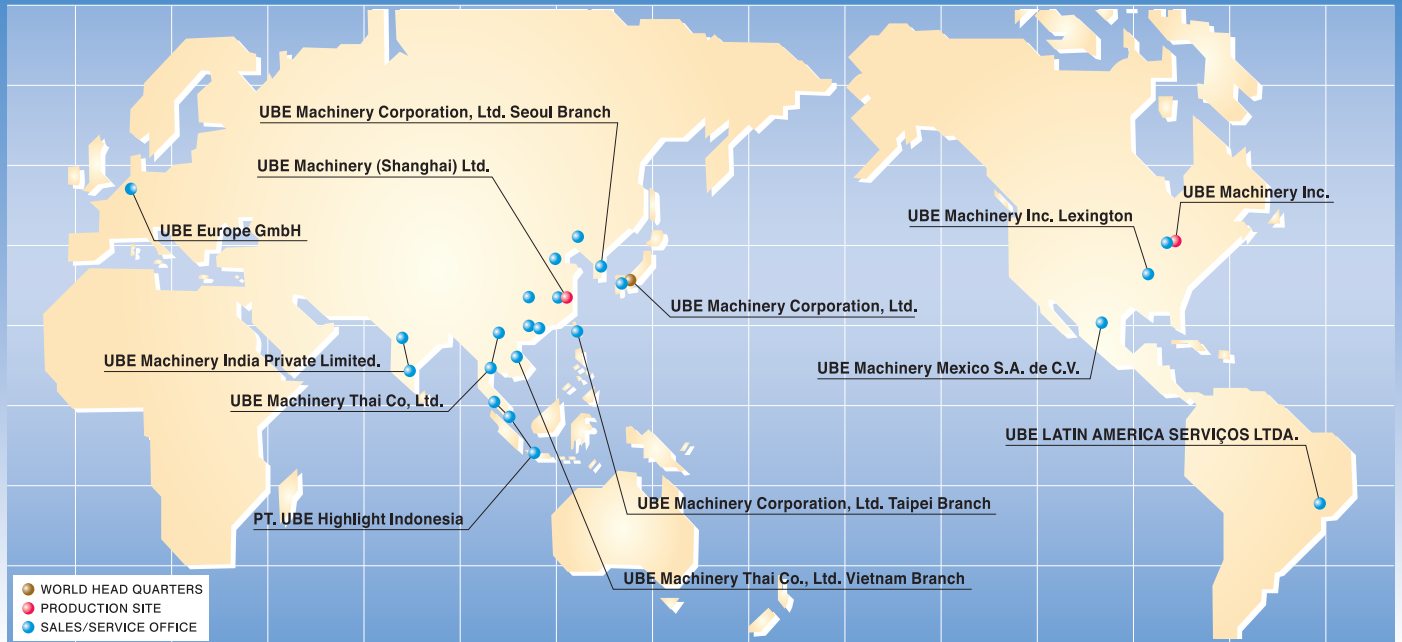
UB530iS3-s/-i



1. About 14 holes marked ●, ejector rod can be connected to ejector plate with nut.
2. About 4 holes marked ●, ejector rod can not be connected to ejector plate.
3. Suitable minimum die size is 500mm × 500mm.

UBE GLOBAL NETWORK

With Japan as our headquarters, we contribute to our customers' globalization with a four-forked system covering Asia, North America and Europe.



Large Size die casting machine Lineup



Hydraulic die casting machine : UB-iV Series
(1250, 1650, 2250, 2500, 2800, 3050, 3550, 4000, 4500)



Two platen hybrid die casting machine : UH Series
(1250, 1650, 2250, 2500)