

Guangdong Bloomachine Co. Ltd.

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Focus on customer Grow together with user

We always estimate our product at the user's position
Your approval is the best return to us!

BM Series

Internal Circulation Two Platen Direct Clamping Injection Molding Machine

The precise molding solution provided by the Chinese for global customers



Precision · Clean · Saving · Benefit



Company profile

Guangdong Bloomachine Co. Ltd. headquarters in Shansha industrial park, Hengli town, Dongguan city, Guangdong province, China where it occupies area over 18,000 m². The global leading "Internal Circulation Two Platen Direct Clamping Injection Molding Machine" has been researched, developed, manufactured and marketed here. A new generation of fully hydraulic injection molding machine now is coming since the new concept named as "internal two platen direct clamping structure" is developed successfully by Bloomachine itself. The company also was the first successful user in China applying the "single cylinder linear injection structure". The new concept machine aforementioned obtained great breakthrough in terms of "precision, clean, saving, benefit" performance, people say that the dream made by several generations of Chinese injection molding machine makers now comes true.

Bloomachine devotes himself to research and develop the front science and core technology for application and its sustainable operation. Technical innovation becomes their core of development. They have a professional research and development team to carry on production-study-research project combined with Beijing Institute of Technology, South China University of Technology, Dongguan Technology University. More than 20% of master degree or doctorate team members are working on this project.

The Bloomachine Co. Ltd. focuses on their customers all the time. High-class machine and perfect service provided by the company has won more and more users from various countries and regions involving sectors in terms of medical products and packages, building materials, household electrical appliances, auto spare parts, electronic digital products, beverage and food packing, and daily chemicals. The company performance is continuing in rising.

Our key value concept: Exceed customer' s expectations, realize their dream!

Our core competence: A perfect innovation platform, remain leading technology and provide high quality products!

A "turnkey project" capability for a full complete production line as well as the total injection molding technology solution provided means the Bloomachine is going on by their steady pace synchronously with their peers from Europe and America. Bloomachine is making the best high end precise injection molding machine in China. This company is making great effort to become the first brand comprehensive and most competitive manufacturer specializing in precise injection molding machine. They consolidate and develop their core competitive advantage to give their customers more competition ability (reliable quality, high production capacity and lower cost) as well as obvious benefit. Bloomachine helps customers to add their value through "precise, clean, saving, benefit" concept machine and satisfy customers by creating significant benefit to them. We always do our best to serve our customers.

Bloomachine recommends you the Internal Circulation Two Platen Direct Clamping Injection Molding Machine series that has won several national patents.

- | | |
|--|--|
| ◆BM-E series standard injection molding machine | ◆BM-F series clean injection molding machine |
| ◆BM-P series PET injection molding machine | ◆BM-H1H2H3 series high speed injection molding machine |
| ◆BM-L series optical element precise injection molding machine | ◆LM series frame product injection molding machine |



According to customer' s requirement, we offer you the scientific combination of clamping and injection system that is widely used in the following business:

Medical products



Package



Optical lens



Electrical appliances



Electronic digital products



Daily necessities



LED parts



Building materials



Auto spare parts



The innovative internal circulation two platen direct clamping injection molding machine

The unique internal circulation two platen direct clamping unit

- 1.composite platen gives the mold a homogenous loading distribution.
- 2.compact two platen direct clamping structure
- 3.the platen is supported by the precise linear guide rail
- 4.high efficiency internal oil circuit

Precise control system

- precise control
- easy operation
- integrated management
- quality management

The precise single cylinder linear injection unit

- complete modular design
- two carriage cylinders are configured central symmetrically

The energy-saving servo driving system

- precise, energy-saving
- quick response, high precision
- reliable control valve and integrated control valve plate
- low noise, environmental protection



A

The unique internal circulation two platen direct clamping unit

The two platen direct clamping structure is the core patented technology belonging to Bloomachine. Opening and closing action controlled by the digital controller will ensure the optimal motion property and accurate position. A sensitive low pressure mold protection is available.

B

The precise single cylinder linear injection unit

As a precise injection molding basis, single cylinder linear injection structure guarantees the reliability of hi-speed even super speed injection process. Completely modular design cuts down the purchase cost. That will realize variety products combination with fewer parts. Divers requirements can be met at anytime.

C

Precise control system

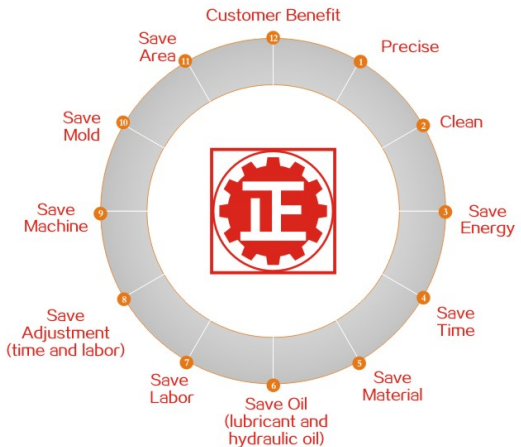
The statistics function is available from the operation interface for statistical process control chart. This system will monitor effectively product quality and enhance productivity. Reliable quality and stable performance ensure the production stability.

D

The energy-saving servo driving system

Energy-saving control system is a standard configuration of the BM series machine which is a forward-looking consideration for customers' long term benefits. Higher precision, lower waste of the material, less power consumption will help customer to return the cost of their investment earlier.

BPCS—Customer Benefit



Bloomachine Innovative technology

We go together for a common goal—to build the China best injection molding machine.

We advocate innovation in order to bring you more excellent equipment allowing your product more competitiveness.

We are rigorous and practical, down-to-earth work, to strive for zero defect equipment to speed and smooth your production.

We will do our best to exceed your expectation. We hope to offer you the best service, bring you better cost-effective product, and create greater value to you. Your approval is the best return to us.

High efficiency internal circulation two platen direct clamping injection molding machine

Bloomachine's patent product—BM series internal circulation two platen direct clamping injection molding machine, is developed successfully by summarizing more than twenty years' experience in designing and manufacturing fully hydraulic injection molding machine and based on absorbing foreign advanced technology. This type of machine both remains the significant advantages featured on the fully hydraulic and toggle type machines, and overcomes their obvious shortcomings. The complete performance of the machine reached or even exceeded the international advanced technical levels. BM series fill up the blank in making internal circulation two platen direct clamping injection molding machine in China. They open up a new generation to develop top grade, high speed, clean, energy-saving and precise two platen direct clamping injection molding machine in China.

Precision

The BM machine has an excellent clamping feature. Clamping force is intelligently controlled according to the change of injection pressure. The clamping force will be increased synchronously with the injection pressure and maintain constant during the pressure holding process; then it is reduced gradually during cooling stage till zero value before the mold is opened. This clamping unit has a high precision performance. A short loading time and uniform load distribution on the mold plate, zero shock at the time of mold open, self-adaption property and uniform stress of the four tie bars (tolerance less than 0.1%) will give the molded parts a perfect weight uniformity, in such way the weight repeatability error is less than 0.15%.

Clean

The clean condition created by the clamping unit of the BM machine ensures the molding space to be an independent clean unit. There is no any contamination occurred from the internal lubricating system that it runs within the clamping cylinder, ejecting cylinder, guide rod and linear guide rail assembly. Take the BM-F series machine model as an example, in order to reduce the contamination possibility from the spray-finishing surface, the outer frame and the safety gate of the molding space are made by aluminum alloy or stainless steel to keep the equipment under a nearly zero contamination condition. Clean requirement for making precise electronic product, medical instrument and package can be met and the cleanliness is conformity with GMP qualification standard.

Benefit

The concept of complete modularity and universalization as well as comprehensive saving made by the Bloomachine will provide customers customized product within a short time. This concept will realize effective combination for each individual requirement and give the users a cost-benefit method to mold the high quality product for high end market.

Saving

- S1 save energy: about 40%-80%.
- S2 save material: 2 -10%, weight uniformity error less than 0.15%.
- S3 save time: pressure rising time and the time of opening /closing are very short, mold moving speed can be reached to 800mm/s, saving about 10%-35% time than the ordinary injection machine.
- S4 save oil: internal lubrication design for clamping unit saves lubricant 100%.
- S5 save labor: need not lubricating process and labors.
- S6 save adjustment: need not mold adjustment.
- S7 save machine: Minimum wear and tear will increase the machine service life over double.
- S8 save mold: uniform loading and reliable sensitive low pressure protection will increase the mold longevity 1-2 times.
- S9 save area: machine length shortened by 20%, area saved by 20%.

Example: s2 save material 10.81%

XX-250



Serious flash need after treatment.
Weight 222 gram

BM-250E



Flash-free need not after treatment.
Weight 198 gram

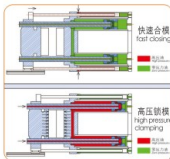
Save material 24 gram, savings rate 10.81%

Core technology-clamping unit

A

Efficient internal circulation oil circuit

This zero leakage circuit can boost pressure extremely quick and will sustain clamping force stable for a long time. The four cylinders are connected each other through the internal circuit built in stationary platen. Uniform clamping force, low resistance motion, high accuracy, fast speed and low power cost are available. Shock-free opening, best low and high pressure mold protection feature will give the mold longevity. Injection-compression molding process can be adopted as an option.



B

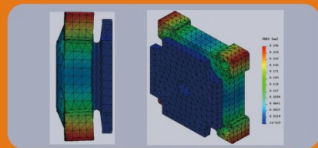
Compact two platen direct clamping structure

Only two platens are required without rear platen and mold adjust device. Fewer and light weight motion parts with small inertia create quick action with high precision. Super long traveling length of the mold can molding deep cavity product. The clamping cylinders are fixed on the stationary platen so the machine dimension can be shorted for making a better benefit within a smaller occupation area in the workshop.

C

Composite platen stressed uniformly

Finite element method is adopted to optimize the composite platen design. The clamping force at the four corners of the platen is concentrated to the central area of the platen, and then is distributed homogeneously on the mold mounting surface. The mounting surface deformation is reduced to minimum, so the load on the mold will be more uniform, abrasion on the motion parts decreased to the lowest. Flash can be eliminated and the perfect uniform for the multi-cavities production can be performed.



D

Precise linear guide rail supports the movable platen

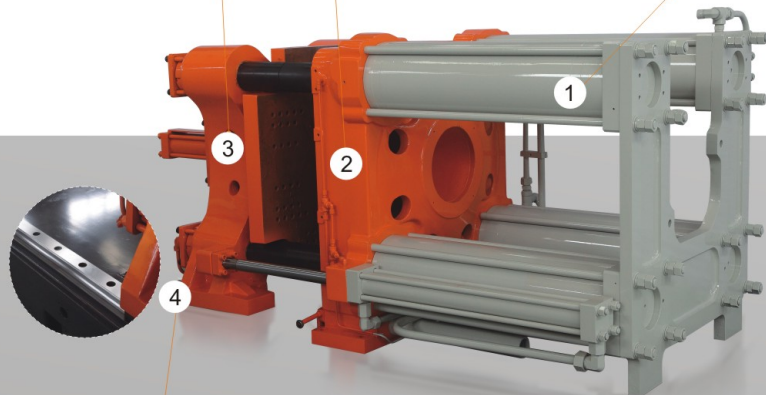
This ideal supporting way has a high precision with low resistance. Lubricant leakage free, no contamination occurred.



Composite platen stressed uniformly

Compact two platen direct clamping structure

Efficient internal circulation oil circuit



Precise linear guide rail supports the movable platen

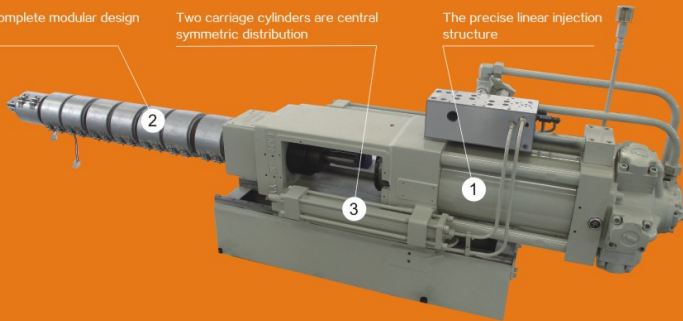
Core technology-injection unit

> Single cylinder linear injection structure, Bloomachine is the first successful user in China

Complete modular design

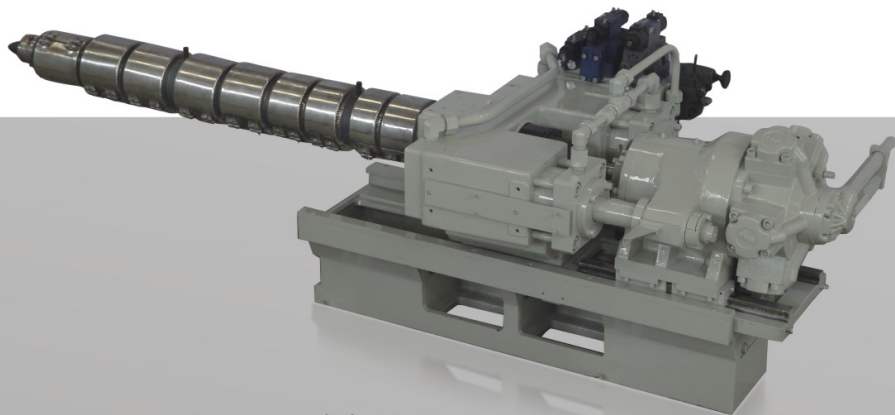
Two carriage cylinders are central symmetric distribution

The precise linear injection structure



- Suitable for high speed and super speed precise injection molding
- Swiveling injection stand is easy to demount and purge the screw
- Thin wall product with better repeatability can be molded

The injection components can move co-axially under a balance state;
The injection components has small mass and low inertance;
High control precision, low resistance and power cost.



> Precise twin cylinder injection structure

Compact structure, injection action guided by linear guide rail, high precision and complete modular design. Single cylinder injection units can be interchanged each other as well as the screw.

Core technology— injection unit

Energy-saving control system is a standard configuration equipped at the BM series machine which is under a forward-looking consideration for customers' long term benefits. Higher precision, lower material waste, less power consumption will help customers to return their investment earlier.

Precise Energy-saving

The actual oil flux required to generate the necessary pressure can be provided accurately by the driving system on each of the action stage, idle work and energy consumption are reduced to the minimum. The practical test result shows that the machine has reached the level 1 of the national energy-saving standard.

Quick response High precision

Speed response time: 36ms
 Average pressure error: $\pm 0.5\text{bar}$

Pressure response time: 76 ms
 Rotational speed control error: $\pm 0.1\%$

Reliable control valve and integrated control valve plate

Famous brand driving system and control valve combination are adopted in the hydraulic system. Efficient integrated valve plate gives full play to advantages of the valves. Close loop control realizes the stable production cycle and repeatability precision cycle.

Low noise and environment protection

Low noise operation and quiet running at low speed are available. Low oil temperature of the system and water saving.



Precise control

High speed CPU combined with scientific multi-task planning system and smooth interface switch will control the machine action efficiently and precisely. Precise analog input and output, excellent anti-interference shielding property will ensure the measurement and control function under precise and stable condition. Multi-control during stages of opening, closing, injection, pressure holding and ejecting keeps a stable movement. Powerful temperature control function remains the temperature error within $\pm 0.5^{\circ}\text{C}$.

Easy operation

Humanization and intellectualization of the operation interface give the users an easy manner to adjust process parameters and shorten the machine commissioning time.

Integrated management

Different peripheral equipment can be easily integrated into the complete process management control system for increasing management efficiency.

Quality management

High capacity CF card allows customers to store enough mold data and production data. Powerful production data function for recording, analysis, correcting deviation will easily export the data into USB. Perfect on-line monitoring and quality management system ensure the molded parts to be up to standard 100%.

Precise control system



- Precise control

- Integrated management

- Easy operation

- Quality management

Application example-high precision

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People always take the weight uniformity of the molded parts as the standard in evaluating if an injection molding machine reaches a precision standard, but there are several influential factors should be considered such as machine structure design itself, processing and assembly accuracy and control precision. Thanks to the internal circulation two platen direct clamping design, single cylinder linear injection structure, strict quality control at the machine parts production process and machine assembly, as well as the precise control, the BM series machine achieves superior performance in precise injection molding.



Test date		2012.03.26		2012.03.25		2012.03.29		2012.03.02		2012.03.02	
Molded parts		Ballast winding frame		Thermometer rear cover		18V puncture outfit		Needle cover		Needle cover/1-92	
Material		PA66+33%Glass fiber		ABS		ABS+White powder		PP		PP	
Cavities		4cavities		2cavities		16cavities		48cavities		92cavities	
Power (KW/hr.)		3.4	4.3	3.7	5.25	4.3	15.3	7.5			
Cycle (second)		17.53	19.4	35.6	40.5	32.5	16.2	16			
	Standard precision	BM120E	XX120	BM160E	XX160	BM200E	XX250	BM200E	BM120E		
Max. value		28.96	28.95	89.06	89.42	81.96	97.263	92.67	33.44		
Min. value		28.85	28.65	88.80	89.04	81.65	96.403	92.29	33.29		
D-value		0.11	0.30	0.26	0.38	0.31	0.860	0.38	0.15		
Average value		28.92	28.69	88.97	89.29	81.83	96.816	92.486	33.359		
Standard deviation		0.027	0.048	0.070	0.096	0.062	0.276	0.123	0.040		
Weight uniformity %		0.200	0.093	0.166	0.079	0.108	0.076	0.285	0.133		

Note: Weight uniformity is tested according to DB44/T461-2007, BM series is the machine made by Bloomachine while XX means other brand injection molding machine.

Application example—small size machine can mold big parts



Traditionally, clamping force generated by the direct clamping machine is always lower than the toggled type. In medical appliance production, take the 5ml syringe with 48 cavities for example, the production clamping force should be 250 metric ton for a toggle injection machine basically, while for the conventional direct clamping machine, the clamping force must be over 280 metric ton. Low speed and high energy consumption are disadvantages at the conventional direct clamping unit and this problem always affect its application to the low value parts production. Now this box has been broken completely by the practice of the BlooMachine. The users who favor direct clamping machine now can get a considerable economic benefit by using the new machine made by BlooMachine.



Comparison between BlooMachine and another machine made in a production of 5ml syringe by a 48 cavities cold runner mold

Serial number	Item	Unit	Domestic brand machine XX-250	BlooMachine BM-200F	Extra benefit created by BlooMachine					Remarks
					Save resources and improve efficiency					
					Unit	Per hour	24 hr./day	26 day/month	11 months/year	
1	cycle	sec/mold	16.21	15.2	sec	15	360	9360	102960	Cycle: annual saving 28.6 hr
	Efficiency	piece/hr	10660	11368	piece	708	16992	441792	4859712	efficiency: annual extra yield 485,900 pieces
2	power	kwh/hr	15.6	7.8	kwh	7.8	187.2	4867.2	53539.2	Power: annual power saving 53,500 kwh
3	1k piece/power	kwh/1k pieces/hr	1.46	0.659	kwh	0.801	19.224	499.824	5498.064	
4	Unit weigh	g/piece	2.017	1.927	g	1023.12	24554.88	638426.88	7022695.68	Material saving: annual saving 7.02 ton
5	Floor area	m2	8.32	6.87	m2		8.32-6.87=1.45			Floor area: save 1.46 m2
6	Weight uniformity	%	0.285	0.091	%					Precision: over twice
7	Clean		Timing quantitative Lubrication results contamination	No any lubricating point, Neither lubrication necessity nor contamination problem			Save lubricant			Lubricant saving: annual saving USD32.26
	Overall benefit						USD27,376/year saving			Power charge: 0.16USD/kwh Unit price: 0.0061USD/piece Material price: 2209.68USD/ton

Note: In this example, the same mold can also be used at BM-200F instead of xx-250 machine. Due to the different unit price of power, material and part in other places, the overall benefit in this table is calculated based on remark prices.

Application example—performance better than another same size machine



Here is a comparison test made between BM-160 and another brand XX machine at a factory in Shantou city, Guangdong province, which relates to mold rear cover of the hygrometer with a mold of 2 cavities under the identical mold and material, and much same process condition.

Conclusion: BM machine gives the producer an annual relative net benefit amounting to USD8, 711.00.



Machine comparison during the production for 1×2 cavities rear cover of the hygrometer

			Domestic brand machine	Bloomachine	Extra benefit created by Bloomachine					
Serial number	Item	Unit	XX-160	BM-160E	Save resources and improve efficiency					Remarks
					Unit	Per hour	24 hr./day	26 day/month	11months/year	
1	Cycle	Sec/mold	40.5	35.6	sec	12	288	7488	82368	Cycle: annual saving 22.9 hr
	Efficiency	piece/hr	178	202	piece	24	576	14976	164736	Efficiency: annual extra yield 164700 pieces
2	power	kwh/hr	5.25	3.7	kwh	1.55	37.2	967.2	10639.2	Power: annual power saving 10.600 kwh
3	1k piece/power	kwh/1k pieces/hr	29.5	18.3	kwh	11.2	268.8	6988.8	76976.8	
4	Unit weigh	g/piece	89.29	88.97	g	32.32	775.68	20167.68	221844.48	Material saving: annual saving 0.02 ton
5	Floor area	m2	6.79	5.805	m2	6.79-5.805=0.985				Floor area: save 1 m2
6	Weight uniformity	%	0.208	0.079	%					Precision: over twice
7	Clean		Timing quantitative Lubrication results contamination	No any lubricating point, Neither lubrication necessity nor contamination problem		Save lubricant				Lubricant saving: annual saving USD32.26
Overall benefit						USD9711.42/annual saving				Power charge: 0.16USD/kwh Unit price: 0.04USD/piece Material price: 2,500USD/ton

Note: Due to the different unit price of power, material and part in other places, the overall benefit in this table is calculated based on remark prices.

E series standard injection molding machine



Package



Mass production parts



Metallurgy molding

Specification and parameters of the E series machine

Machine model		BM-60E	BM-90E	BM-120E	BM-160E	BM-200E	BM-250E	BM-300E	BM-360E	BM-420E	BM-500E	
Injection system	Screw diameter	mm	25 28 30 35 40	35 40 45 40 45 50	40 45 50 45 50 55	50 55 60 60 65 70	70 75 80 75 80 85	80 85 90 85 90 90	100 110 120 130 140 150	160 170 180 190 200 210	220 230 240 250 260 270	
	Shot volume	cm ³	58 73 106 144 188 168 220 278 251 318 393 358 442 534 490 594 707 791 929 1077 1231 1413 1608 1590 1810 2042 2010 2270 2543									
	Shot weight	g	52 65 95 130 170 151 198 250 226 286 353 322 397 481 441 535 636 712 836 969 1108 1272 1447 1431 1629 1838 1810 2043 2289									
	Injection pressure	MPa	316 252 276 203 155 265 203 160 240 190 154 211 171 141 209 173 145 174 148 128 172 150 132 173 152 135 175 155 138									
	Injection rate	g/s	37 47 55 75 98 73 95 120 100 125 155 143 176 213 176 213 254 216 253 294 276 318 360 345 393 444 542 612 686									
	Max. injection speed	mm/s	85 87 85 88 100 100 85 80 87 120									
	Screw speed	rpm	250 210 200 220 210 250 200 200 180 175 200									
Clamping system	Clamping force	kN	600 900 1200 1600 2000 2500 3000 3600 4200 5000									
	Distance between tie rods	mm	310×310 360×360 410×410 460×460 510×510 580×580 615×615 715×715 760×760 820×820									
	Clamping stroke	mm	450 500 500 600 650 700 750 850 1050 1250									
	Max. daylight	mm	600 680 700 800 900 950 1050 1200 1430 1650									
	Close daylight	mm	150 180 200 200 250 250 300 350 380 400									
	Ejecting force	kN	34 34 45 45 61 80 80 80 125 125									
	Ejector stroke	mm	100 100 120 120 150 200 200 250 250									
General	System pressure	MPa	16									
	Oil tank capacity	L	130 150 200 240 250 320 340 430 500 780									
	Oil pump power	kW	11 11 15 18 25 27 35 35 45 35×2									
	Heating capacity	kW	5.4 6.3 7 9.5 10.2 9.5 10.2 14 10.2 14 15.8 14 15.8 17.4 15.8 17.4 19.5 19.5 21.5 23.5 23.5 25.5 27.5 25.5 27.5 30 27.5 30 32									
	Machine weight	kg	2500 3000 3500 5000 6500 9000 11000 13000 16000 18000									
	Machine dimension	m	3.5×1.05×1.7 3.6×1.2×1.76 3.8×1.35×1.8 4.3×1.45×2.0 4.7×1.53×2.1 5.2×1.67×2.2 5.8×1.7×2.3 6.3×1.89×2.32 6.5×2×2.35 7×2×2.4									

Due to continuous technical development, specification and parameters would be changed accordingly without prior notice

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E series machine serve for global general-purpose plastic market requirement. Internal circulation two platen direct clamping apparatus, single cylinder linear injection unit and electro-hydraulic servo energy saving control system are equipped to offer the customer a high cost-effective machine that has a stable performance.



Thin wall product by high precise molding



Electronic parts

F series clean condition injection molding machine



BM-250F



BM-200F

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How to prevent contamination occurred within the injection molding environment is a big challenge. The measures served for reducing contamination need not only the technologies must reach up to the standard required, cost effectiveness of the technical equipment must be considered to cut down the clean cost. F series clean machine is the right choice for the production of medical appliance and other clean parts.



Plastic bottle



Disposable syringe



Vacuum blood collection tube



Infusion valve



Medical instrument

Specification and parameters of the F series machine

Machine model		BM-60F	BM-90F	BM-120F	BM-160F	BM-200F	BM-250F	BM-300F	BM-360F	
Injection system	Screw diameter	mm	25 28 30 35 40	35 40 45	40 45 50	45 50 55	50 55 60	60 65 70	70 75 80	
	Shot volume	cm ³	58 73 106 144 188	168 220 278	251 318 393	358 442 534	490 594 707	791 929 1077	1231 1413 1608	
	Shot weight	g	52 65 95 130 170	151 198 250	226 286 353	322 397 481	441 535 636	712 836 969	1108 1272 1447	
	Injection pressure	MPa	316 252 276 203 155	265 203 160	240 190 154	211 171 141	209 173 145	174 148 128	172 150 132	
	Injection rate	g/s	37 47 55 75 98	73 95 120	100 125 155	143 176 213	176 213 254	216 253 294	276 318 360	
	Max. injection speed	mm/s	85	87	85	88	100	100	85	80
Screw speed	rpm	250	210	200	220	210	250	200	180	
Clamping system	Clamping force	kN	600	900	1200	1600	2000	2500	3000	3600
	Distance between tie rods	mm	310×310	360×360	410×410	460×460	510×510	580×580	615×615	715×715
	Clamping stroke	mm	450	500	500	600	650	700	750	850
	Max. daylight	mm	600	680	700	800	900	950	1050	1200
	Close daylight	mm	150	180	200	200	250	250	300	350
	Ejecting force	kN	34	34	45	45	61	80	80	80
Ejector stroke	mm	100	100	120	120	150	200	200	200	
General	System pressure	MPa	16							
	Oil tank capacity	L	130	150	200	240	250	320	340	430
	Oil pump power	kW	11	11	15	18	25	27	35	35
	Heating capacity	kW	5.4 6.3 7 9.5 10.2 9.5 10.2 14 10.2 14 15.8 14 15.8 17.4 15.8 17.4 19.5 19.5 21.5 23.5 23.5 25.5 27.5							
	Machine weight	kg	2500	3000	3500	5000	6500	9000	11000	13000
Machine dimension	m	3.5×1.05×1.7	3.6×1.2×1.76	3.8×1.35×1.8	4.3×1.45×2.0	4.7×1.53×2.1	5.2×1.67×2.2	5.8×1.7×2.3	6.3×1.89×2.32	

Due to continuous technical development, specification and parameters would be changed accordingly without prior notice

H series high speed precise injection molding machine



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Perfectly combine the typical characteristics of the standard series with the high speed nitrogen assistant injection module, the H series high speed precise injection molding machine becomes a special purpose model to make thin wall and high precise product efficiently.

The technologies of internal circulation two platen direct clamping and single cylinder linear injection are given full play to their precision advantage.

Nitrogen assistant injection module, full close-loop control acting on injection speed and pressure can make a fast injection speed reaching up to 800mm/s.



LED product



Electronic connector



Optical lens



Ultrathin battery cover



Precision gear

Specification and parameters of the H series machine

	Machine model	BM-60H		BM-90H		BM-120H		BM-160H		BM-200H		BM-250H		BM-300H		
Injection system	Screw diameter	mm	25	28	30	35	35	40	40	45	45	50	50	60	60	70
	Shot volume	cm ³	58	73	106	144	168	220	251	318	358	442	490	707	791	1077
	Shot weight	g	52	65	95	130	151	198	226	286	322	397	441	636	712	969
	Injection pressure	MPa	316	252	276	203	265	203	240	190	211	171	209	145	174	128
	Injection rate	g/s	85/210/340	105/262/420	125/312/500	170/425/680	170/425/680	226/565/905	226/565/905	286/715/1140	286/715/1140	350/875/1400	350/875/1400	505/755/1260	505/755/1260	690/1035/1725
	Max. injection speed	mm/s	200/500/800		200/500/800		200/500/800		200/500/800		200/500/800		200/300/500		200/300/500	
Clamping system	Screw speed	rpm	300		300		300		300		300		250		250	
	Clamping force	kN	600		900		1200		1600		2000		2500		3000	
	Distance between tie rods	mm	310×310		360×360		410×410		460×460		510×510		580×580		615×615	
	Clamping stroke	mm	450		500		500		600		650		700		750	
	Max. daylight	mm	600		680		700		800		900		950		1050	
	Close daylight	mm	150		180		200		200		250		250		300	
General	Ejector force	kN	34		34		45		45		61		80		80	
	Ejector stroke	mm	100		100		120		120		150		200		200	
	System pressure	MPa	16													
	Oil tank capacity	L	190		250		310		350		425		540		600	
	Oil pump power	kW	11+11/11+7.5/11+7.5		11+18/11+7.5/11+7.5		15+25/15+11/15+11		18+25/18+11/18+11		25+25/25+11/25+11		27+27/27+15/27+15		35+35/35+18/35+18	
	Heating capacity	kW	5.4	6.3	7	9.5	9.5	10.2	10.2	14	14	15.8	17.4	19.5	21.5	23.5
Machine weight	kg	2600		3200		3700		5050		6550		9080		11100		
Machine dimension	m	3.6×1.05×1.7		3.75×1.2×1.76		4.0×1.35×1.8		4.6×1.5×2.0		4.85×1.6×2.1		5.4×1.67×2.2		6.0×1.7×2.3		

*: The power configuration can be selected according to the different maximum injection speed required, for instance: increase the power system, add nitrogen cylinder injection assistance. Due to continuous technical development, specification and parameters would be changed accordingly without prior notice.

P series PET injection molding machine



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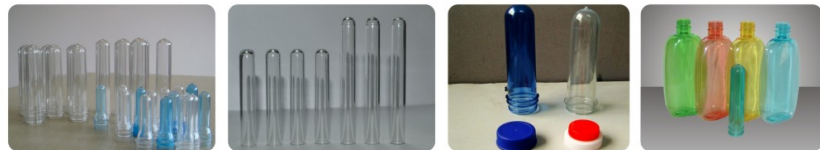
P series PET injection molding machine gives full play to its excellent performance in molding deep and multi-cavities product. We designed high performance PET special screws based on our experience of years and expertise. The plasticization capacity and the quality of the machine have been optimized and improved.

Lower AA (acetaldehyde) value

The PET material is melted and plasticized by a special screw under the condition of low rotation speed and shear stress. The temperature overall plasticizing process must be controlled dynamically by setting up multi-stage control points. AA value therefore can be reduced to the minimum even be eliminated during plasticizing process. Therefore the bottle will have not any odor emission. The "Mineral water bottle quality standard" can be reached even there are more cavities being molded.

Protecting mold to keep the first-ranking apparent quality

The mold and the operator can be protected by sensitive low pressure mold protection system. The mold is tightly clamped only in the injection and pressure holding stage. After the pressure holding stage, the clamping force should be reduced gradually from the maximum value and then lowers to zero before opening. You can enjoy such remarkable advantages of this feature as zero open impact, short stress time, less damage to the mold, long service time, and the nice apparent quality of the bottle pre form.



Specification and parameters of the P series machine

Machine model		BM-120P	BM-160P	BM-200P	BM-250P	BM-300P	BM-360P	BM-420P	BM-500P	
Injection system	Screw diameter	mm	50	55	60	65	70	80	85	90
	Shot volume	cm ³	343	475	635	830	1077	1608	2042	2543
	Shot weight	g	400	555	740	970	1260	1880	2390	2975
	Injection rate	g/s	195	245	330	388	390	470	575	890
	Injection pressure	MPa	129	127	118	124	128	132	135	135
Clamping system	Max. injection speed	mm/s	85	88	100	100	85	80	87	120
	Screw speed	rpm	200	200	200	200	200	180	160	180
	Clamping force	kN	1200	1600	2000	2500	3000	3600	4200	5000
	Distance between tie rods	mm	410×410	460×460	510×510	580×580	615×615	715×715	760×760	820×820
	Clamping stroke	mm	500	600	650	700	750	850	1050	1250
	Max. daylight	mm	700	800	900	950	1050	1200	1430	1650
	Close daylight	mm	200	200	250	250	300	350	380	400
	Ejecting force	kN	61	61	80	80	80	125	180	180
	Ejector stroke	mm	120	120	150	200	200	200	250	250
	General	System pressure	MPa	16						
Oil tank capacity		L	200	240	250	320	340	430	500	780
Oil pump power		kW	15	18	25	27	35	35	45	35×2
Heating capacity		kW	16.5	17.8	20	22	26	30	33	35
Machine weight		kg	3550	5060	6570	9080	11100	13100	16150	18200
Machine dimension		m	3.8×1.35×1.8	4.3×1.45×1.88	4.8×1.5×1.95	5.3×1.67×2.2	5.8×1.7×2.3	6.3×1.89×2.32	6.5×2×2.35	7×2.2×2.4

Due to continuous technical development, specification and parameters would be changed accordingly without prior notice

LM series frame product injection molding machine

The customized machine for the particularity of frame product: LM-500T and LM-800T two platen direct clamping injection molding machine.

A

At present, some disadvantages have been found in ordinary injection molding machine model 650T-1800T when the said machine molds the TV face frame sizing 32" ~55" :

- ▲ Unstable quality and low production capacity;
- ▲ Large L/D ratio with small injection volume causes a trouble that the injection precision is hard to be controlled;
- ▲ Small parts consume high energy;
- ▲ Huge equipment investment with high running cost.

B

The mold for molding frame or shell parts in some sectors like household electric appliance, PC, automobile, or art ware will have some particularities such as small mass product, big outline dimension and narrow projected area, etc. That would cause a high cost due to the expensive equipment investment and extra energy consumption, like the saying "big horse pulls a small carriage". Now the successful development and launch of the LM customized injection molding machine with oversized mold base, medium clamping force and small injection volume can solve the said problem. Customers can be satisfied by its special performance for the structure characteristics and properties of the plastic parts and the machine running result.



LM customized injection molding machine LM - 800

C

Technical features of the LM-800T customized machine

- Special design: the size of the clamping unit is designed according to the standard of the ordinary injection molding machine ranging from 1250-1300 tones; suitable for large frame production;
- Clamping force can reach to 800 tones;
- 360 tones injection pressure guarantee a stable injection mass;
- Platen strength is designed according to the standard of 1,000 tones clamping force to assure clamping precision;
- Twin servo power system and twin pump confluence injection configuration will reduce energy consumption;
- The shortest production cycle can be reached to 40-60 seconds;
- Weight uniformity $\leq 0.15\%$ shows the good machine stability ;
- The machine has reached the level 1 of the national energy-saving standard.
- Clamping force repeatability accuracy $\leq 1.0\%$;
- Unbalance loading rate of the four tie bars $\leq 0.8\%$;
- Temperature control accuracy of the barrel and screw $\leq \pm 1.0^{\circ}\text{C}$ (static state) .

D

Design idea of the LM-800T customized machine:

- ★ Considering the applicability and practicability:
According to the mounting dimension and process condition of the mold and the parts, optimize the machine function and performance. Large clamping size together with small injection unit will meet the particular requirement of the TV front frame production.
- ★ Considering stability and energy conservation throughout the complete machine:
The stability and energy-saving of the complete machine are ensured by such configuration as high rigidity machine body, four cylinders and two platen for direct clamping, linear accurate injection unit with bimetal barrel and screw, high response KEBAi2580 extended controller and twin pump confluence system.
- ★ Considering the key components selection and manufacturing cost:
In order to guarantee the machine performance, the principles to select components are the performance satisfaction, international famous brand, and easy availability. We reduce the manufacture cost starting from the initial design. In the premise of assuring usability and longevity, we do our best to lower the manufacture cost as far as possible.

E

This design idea focus on the TV front frame (shell) production, but the machine can also be used to mold other thermoplastic or thermoset plastic products if the injection unit is changed. The machine can be suitable for a wide usability range.

Specification and parameters of the LM special injection molding machine

		LM-500	LM-800
Screw diameter	mm	Φ60	Φ65
Shot volume	cm ³	904	1061
Shot weight	g	813	955
Injection pressure	MPa	234	221
Injection rate	g/s	365	486
Max.injection speed	mm/s	144	163
Plasticizing capacity	g/s	57	65
Screw speed	rpm	225	205
Clamping force	kN	5000	8000
Platen size	mm	1490 × 1490	1870 × 1870
Distance between tie bars	mm	950 × 950	1250 × 1250
Clamping stroke	mm	1000	1070
Max. daylight	mm	1570	1750
Close daylight	mm	570	680
System pressure	MPa	16	16
Oil tank capacity	L	880	1100
Oil pump power	kW	35 × 2(Servo motor)	45X2(Servo motor)
Heating capacity	kW	20	22
Machine weight	kg	21000	27000
Machine dimension	m	7.4 × 2.2 × 2.4	7.8 × 2.6 × 2.6

Clean production solution of the BM machine

Precise linear guide rail supports the injection stand and guides the motion of the movable platen. The platform of the machine is clean and free of oil contamination. The molded parts then will also can prevent contamination from oil.



The linear guide rail supports the movable platen and guides its motion—smooth, stable and clean



The linear guide rail supports the injection stand and guides its motion



BM-250F



> The complete machine is installed within the clean room

It is suitable for the workshop where there are more than one equipment inside. The top safety gate of the machine is opened to allow clean air entering into the isolated hydraulic valve plate.

> The molding area of the machine is located inside of the clean room

The molding area of the machine juts into the clean room as an independent clean unit.

Most part of the machine body, dryer, feeding conveying machine and other peripheral devices are isolated outside of the clean room. Unnecessary human being movement in the clean room can be reduced. The machine can be moved out of the clean room when you want to replace mold or maintain the machine.

> Conveyor belt arrangement

There is no molding machine and other peripheral devices installed in the clean room.

The molding area and product conveying passage are encapsulated and an ionizing dust elimination device is installed on top of the molding area.

Machine overhaul and mold replacement are carried on outside of the clean room.

> Robot arrangement

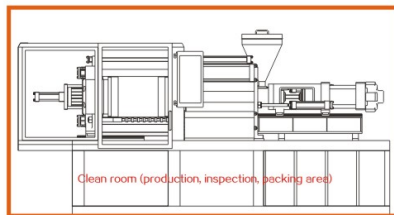
The robot is positioned inside the clean room while the molding machine and other peripheral devices are set up outside. The encapsulated molding area fits into the clean room tightly. The ionizing dust elimination device is installed on top of the molding area.

BM solutions for clean production

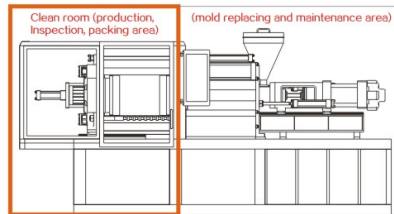


A proper clean room solution can be provided according to the requirement of the users and the GMP standard. By finding out the contamination source and then eliminating or isolating it, our clean solution is very helpful to benefit the clean level to reach to the standard of 5 grade of ISO14544-1.

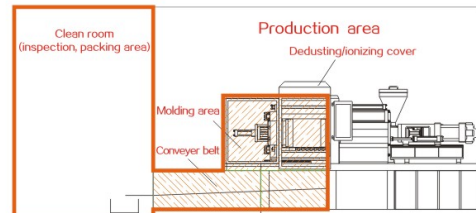
1 The complete machine is installed within the clean room.



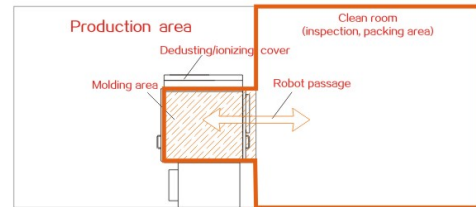
2 The molding area of the machine is located inside the clean room.



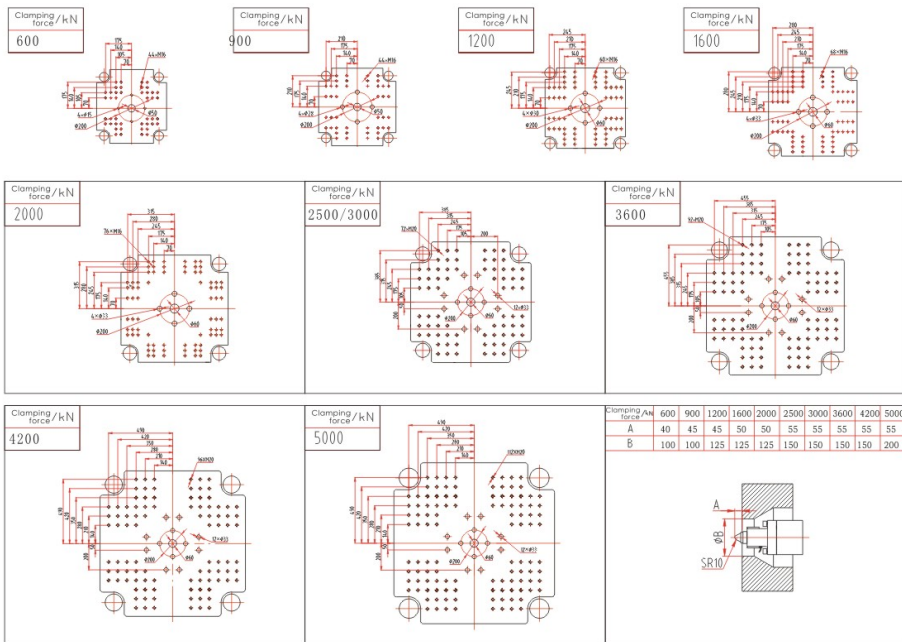
3 Conveyor belt arrangement



4 Robot arrangement



Mold platen/nozzle size



Standard/optional item table

Injection	
General screw and barrel ¹	●
Wear resistant and anti-corrosion barrel and screw	○
Screw hydraulic motor	●
Linear guide rail for injection unit	●
Extended nozzle	●
4 stages control for injection speed and pressure	●
Manual injection function	●
Injection, pressure holding switch (position, time, pressure)	●
Screw cold start preventing function	●
Thermal insulation heating band	●
Movable hopper base	○

Clamping	
4 stages controls speed, pressure and position of open/close	●
4 stages controls ejector speed, pressure and position	●
Low pressure mold protection	●
Screw hole platen	●
T slot platen	○
Linear guide rail supporting	●
Mold heat insulator	○
Robot mounting screw hole	○

Hydraulic	
Servo energy-saving control system	●
Constant pump system	○
Imported hydraulic parts	●
Pressure, flux proportion control	●
Adjustable back pressure control	●
2 groups hydraulic core pulling	○
Swiveling demold device	○
Electronic back pressure (proportion control on plasticizing back pressure)	○
Hydraulic oil temperature monitor device	●
Oil return filter	●
Oil inlet filter	●
High pressure filter	○

Electric appliance	
Abnormal alarm	●
Abnormal indicator	●
Malfunction alarm light	●
Emergency stop switch	●
Barrel auto heater	●
PID temperature control	●
Techmation computer	●
Keba computer	○

Safety	
Mechanical safety protector	●
Electrical parts safety protector	●
Hydraulic safety protector	○
Close daylight protector	●
External safety gate	●
Internal safety gate	○

General	
Aluminum alloy outer frame	○
Stainless outer frame	○
Cold-rolled sheet outer frame	●
Standard color ²	●
Special mechanical color	○
Shockproof foot	●
Cooling water distributor	●

- Standard configuration
 - Optional configuration
1. Screws for other particular plastics, please contact technical department of the company
 2. Yellow, green, blue, white

Research and development management—authorized certification



* Test result made by authority shows that 34 items index of our company are fully up to standard, the key performance index far more exceeds other same products of our peers.

Technical performance index comparison

Items	Brands	BM series	Foreign country	Japanese fully electric type	Domestic toggle type	Conventional fully hydraulic type
		Two platen type				
Energy consumption ≤		75%	75%	80%	60%	0
Weight uniformity error ≤		0.15%	0.1%	0.15%	1%	0.3%
Open/close max. Speed ≥		300mm/s	300mm/s	700mm/s	650mm/s	600mm/s
Unbalance clamping force ≤		0.8%	0.8%	1.5%	5%~10%	1.5%
Unbalance loading On 4 tic bars ≤		1%	1%	2%	5%~10%	1.5%

Overall performance comparison

Machine length/m	3.9	4	4.5	4.5	4.6
Weight/t	3.2	3.2	3.6	3.8	4
Longevity/year	15	15	8	5	12
reliability	Good	Good	Good	Ordinary	Good
Environment protection	Good	Good	worse	Worst	Ordinary



- Standard part/1000 grams requirement of the I level energy consumption
Mass power consumption: $\leq 0.40\text{kW} \cdot \text{h/kg}$;
Test result: $0.31\text{kW} \cdot \text{h/kg}$
- Weight uniformity error: $\leq 0.10\%$
Test result: 0.02%



Assembly shop of the Bloomachine

— Bloomachine —

Keep pace with Europe and America;
Make the best machine of china.