



成都顺千和科技有限公司

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## **Introduction:**

SQH is the market leader in terms of quality and latest technology for Injection Stretch Blow Molding (ISBM). In recent times SQH is the pioneer of launching Preforms with Hanger and SBM machine with 50% ENERGY SAVING models.

**SIV Series** Blow molding machine is great equipment for producing BOPP IV bottle. The main production flow of this equipment is as below:

1. Sending preform onto carriers by conveying system.
2. Heating preforms with heater.
3. Sending preform into molding cavity by servo mechanical clamp.
4. Stretching and blow molding preform inside mold.
5. Taking out finished bottle.
6. Automatic connection device to filling machine.

Adopted smart high-accurate auto voltage control system the equipment can accurately control preform temperature and greatly save manpower, raw material and energy. Preform molding uses servo preform loading system, servo mold clamp system, unique rotary convey system, preform loading system and two-step servo stretches molding system which can accurately control stroke and guarantee even bottle thickness. Besides, the equipment uses user friendly interface and has Tele-diagnosis system to ensure safer and more reliable running.

We always try to introduce the industries with latest technologies and consumables. Our Mission is to provide Automation to the Industries. Our products and services are widely used in Pharmaceutical and Food Industries. We are also providing project consultancy to our clients. We have a brilliant team consisting of Engineers, Designers and Managers who work diligently and providing 360 Degree services to our valuable clients including Sourcing Comparison, ROI and after Sales Service in the least possible lead time.



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## 1 Project Scope:

### PROJECTS SCOPE

#### ➤ IV Production Line:

- Injection Mold
- Injection Machine
- SBM
  
- Blowing Mold
- Filling & Cap Welding

## **2 Technical Proposal:**

### **2.1 Bottle Forming and Filling:**

#### **2.1.1 Preform & Cap Injection System- Preforms with Hangers:**

We are the 1<sup>st</sup> company in China to introduce the **Preform with Hangers**.

**Having Built- In Hangers save a lot as under:**

- NO requirement of Additional Injection Molding machine for Hangers production.
- Since Hangers will be produced within preforms therefore no assembling required for Preforms and hangers.
- For assembly of Hangers and preforms need extra time, heating and causes wastage also.

Production of preforms is the first and very important process in infusion plastic bottle package line. By our professional and rich experiences, we can offer you an efficient and reliable preform production machine and molds with integrated solutions. The system consists of injection machine and preform mold.

#### **2.1.2 ISBM Blow Molding Machine:**

ISBM blow molding machine: As a core equipment of infusion package line, blow-molding machine plays a decisive role to the output of whole line. We can offer you a customized solution with your required material and parts, flexible design and a professional solution for blow molding machine with a size of 100ml to 1000ml, capacity range from 2000 bottles/hour to 20000 bottles/hour.

#### **2.1.3 Filler:**

Adopts bottle-chain chain-in method which can be directly connected with bottle-blowing machine. It can be connected with both linear and rotary blow-molding machines. It is suitable for bag-type PP bottle which cannot be transported by conveyor belt.

Accurate load capacity; accurate exhaust volume, can control the degree of deformation of the bottle after sterilization. Equipment installation is simple, the electricity, gas and some filtration system unit itself has been equipped. Replacement of different specifications of plastic bottle replacement easy to adapt to the bottle height adjustment using conveyor belt form, the host remained stationary, and both linear and rotary blow molding machine can line.

Addition to the bottle outside the static function, to prevent electrostatic induction bottle outside the bottle, to ensure the quality of cleaning. servo motor stepless speed regulation; PLC program control; touch screen operation; with a high degree of automation; with the blower to achieve a smooth synchronous speed. Bottle clip chain shaft with encoder output speed signal for bottle blowing machine bottle collection device to achieve a smooth bottle blowing machine and bottle filling machine sealing. With automatic management cover, automatic cover, no bottle without cap function. Equipped with remote programming device.

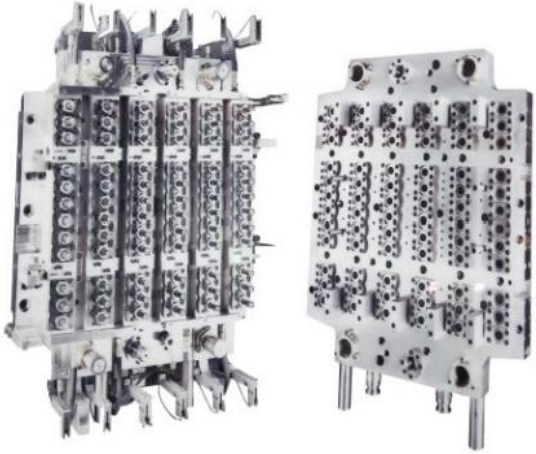
Perfect GMP-compliant online cleaning and sterilization function, sterilization temperature  $\approx 125\text{ }^{\circ}\text{C}$  , time  $\approx 30\text{min}$ , sterilization process temperature and time stored in removable storage media, and with a micro printer, can be automatically printed to form including F0 value of the monitoring records used to record the record.

**Preform Injection Machine:**



Preform Injection machine		
Description	Unit	330SEII
<b>Injection Unit</b>		
Screw diameter	mm	75
Shot volume	cm <sup>3</sup>	1449
Shot weight(PP)	g	1412
Plasticizing capacity(PP)	g/s	52.4
Injection pressure	Mpa	140
Screw L:D ratio		24:1
Screw stroke	mm	328
Screw speed (step less)	r/min	150
<b>Clamping Unit</b>		
Clamping force	KN	3300
Opening stroke	mm	710
Platen size	mm	990X990
Space between bars	mm	660X660
Max. Daylight	mm	1450
Mold thickness(Min/max)	mm	710
Hydraulic ejection storke	mm	200
Ejector number		13
Hydraulic ejection force	KN	102
<b>Power Unit</b>		
Hydraulic system pressure	Mpa	16
Pump motor	KW	37
Heating capacity	KW	21.59
Number of temp control/zones		6
<b>General Unit</b>		
Oil tank capacity	L	600
Cooling Water	L/min	80
Dry cycle time	S	5
Machine dimensions (LxWxH)	mxmxxm	6.45X1.78X2.2
Machine weight	T	12

2.1.4 Preform Mold:



Mold for Preform with Hanger  
(From 8-128 Cavities)



Mold for 2L Preform with Hanger  
(16 cavities)



Preform with Hanger



Dual port-Pull off Euro-caps



Mold for Euro-caps (From 8-96cavities)

Preform Mold Technical Parameters		
Description	Unit	
Cavity	Number	500ml 48 1000ml 32
Output (500ml)	Pcs/h	6000
Output (1000ml)	Pcs/h	3500
Model Sprue	-	Needle valve
Temperature Control	-	Temperature/Voltage
Size(max)	mmxmmxmm	1080x660x540
Power	Kw	500ml 42/100ml 35

Mold part Material			
Description	GERMAN DIN GRADE	CHINA GRADE	Remark
BACK PLATE	X30Cr13	3Cr13	30-35 HRC
CAVITY BACK PLATE	X30Cr13	3Cr13	30-35 HRC
STRIPPER PLATE	X30Cr13	3Cr13	30-35 HRC
STRIPPER BACK PLATE	X30Cr13	3Cr13	30-35 HRC
CORE PLATE	X30Cr13	3Cr13	30-35 HRC
CLAMPING PLATE	X30Cr13	3Cr13	30-35 HRC
CAVITIES INSERTS	X40Cr13	4Cr13	45-50 HRC
STRIPPER INSERTS	X40Cr13	4Cr13	45-50 HRC
CORE INSERTS	X40Cr13	4Cr13	45-50 HRC
EJECTOR PLATE	X30Cr13	3Cr13	30-35 HRC
RETAINER PLATE	X30Cr13	3Cr13	30-35 HRC
EJECTOR PINS	X30Cr13	3Cr13	30-35 HRC
GUIDE PILLAR	1.2162	P2	30-35 HRC
GUIDE BUSH	1.2162	P2	30-35 HRC
LOCATING RING	MS	MS	
KNOCK OUT ROD	MS	MS	
SLEEVE EJECTORS	X30Cr13	3Cr13	30-35 HRC

## ***2.1.5 Conveyor from Injection to SBM:***

Preform cooling conveying system:Preform is conveyed by preform cooling system to blow machine,which can improve production line efficiency,reduce repeated pollution and insure preform in a good condition in conveying process.





## 2.1.6 ISBM Blow Molding Machine:



*ISBM line installed by SQH for Mediflow Pakistan.*



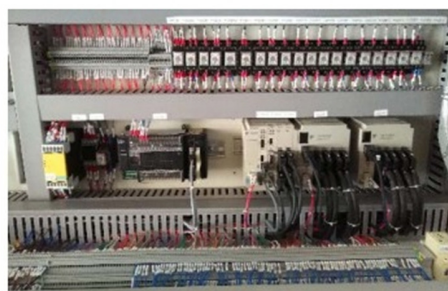
*ISBM line installed by SQH for China customer.*



*Reference image of Blowing machine*



*Blow Mold*



*PLC System*



*Servo System*



*ISBM line for Customer (Picture for reference only)*



*PP IV Bottles (Picture for reference only)*



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Description		Unit	Model: SIV6	
Number of cavity		N°	6	
Capacity for cylindrical 500 ml Bottles		BPH	6000	
Max capacity		ml	1000	
Max neck diameter		mm	32	
Max preform height (neck included)		mm	300	
Total installed power		kW	96	
8 bar standard service air requirement		m <sup>3</sup> /min	3	
25 bar standard service air requirement		m <sup>3</sup> /min	4	
15°C cooling water for blow mold requirement (delta T: 2°C)		m <sup>3</sup> /h	6	
Water inlet pressure requirement		bar	5-6	
Layout (Include preform conveyor)		mmxmmxmm	6500x4300x3400	
Net weight		T	8.5	
Description		Material	Country	Brand
Conveyor	Belt	PU	American	AiAi
	Main Structure	SUS304	China	SQH
	Motor		Germany	SEW
Unscrambler	Motor		China Taiwan	LM
	Reducer		China Taiwan	PHT
	Main Structure	SUS304	China	SQH
Carrier Revolution	Motor/Reducer		Germany	SEW
	Carrier	SUS304	China	SQH
Carrier Rotary Device	Main Structure	Rst37-2/Q235A	China	SQH
	Chain		China Taiwan	TYC
Heating Device	Heater		China	SQH
	Main Structure	SUS304	China	SQH
Preform	Pneumatic components		Germany	FESTO
Taking Device	Servo motor		Japan	YASKAWA
	Gripper	SUS304	China	SQH
Relay Station	Main Structure	Rst37-2/Q235A	China	SQH
	Guide rail		Germany	REXROTH
	Pneumatic components		Germany	FESTO
	Carrier	SUS304	China	SQH
Neck Seal Stretch Device	Servo motor		Japan	YASKAWA
	Supporting seat	304	China	SQH
	Main Structure	Rst37-2/Q235A	China	SQH
Electrical components	Air switch		Japan	mitsubishi
	Breaker		Germany	SIEMENS
	PLC		Japan	Omron
	Inverter		Japan	YASKAWA
Blow mold	Main Structure	7075	American	ALCOAL

## 2.1.7 Filling Machine:



*SQHF32/18/18 Filling Machine reference image*



*Air Washing*



*Bottle Filling*



*Tilter Mechanism*



*Cap Welding*



*Cap Sending*



*Vibration Bowl*

**Remarks:**The above technical parameters are for reference only.



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Filling Machine SQHF18/18/24 Production: 6000pcs/h (500ml)		
Description	Unit	SQHF18/18/24
Washing/filling/welding	N°	18/18/24
Capacity for 500 ml Bottles	BPH	6000
Max capacity	ml	1000
Total power	Kw	35
Air consumption 0.5-0.7Mpa	M <sup>3</sup> /min	4
Size	L*W*H	3400*1700*2200
Weight	T	6
Quality Index	Measurement error	≤1%
	Welding error	≤0.5mm
Description	Specifications	Brand
Main Motor	YE2-132S-4 P=5.5Kw 1440r/min	DAJIANG
Main drive worm gear reducer	WPWKO135-30-A	DJ
Vortex pump	HG1100SB	FULI
Cylinder	MI16*40-S-CA	Airtac
Cylinder	TN32*70S	Airtac
Conductive slip ring	FST120-40S-1F(Filling)	Shanghai
Conductive slip ring	FSH50120-10P11S (Washing)	Shanghai
Transformer	DGB-15KVA AC380V/24V	Shanghai
Current Transformer	CE-IJ03-54E9-0.5	China
Plastic bearing	JFM、GSM、XSM	Igus
Frequency converter	3G3MX2-A4055	Omron
IO	CP1W-16ER	Omron
PLC	CP1H-XA40DR-A	Omron
HMI	PT2104	Panelmaster
Sensor	E2E-X3D1-N-Z(NPN)	Omron
Switch	RME8108	GNBER
Filling diaphragm valve	62520D88C35211/N	Gemu
Washing electromagnetic valve	2S03006B	Airtac
Automatic level controller	TF-K11B2003HK2	KEWILL
Electrostatic ion	JH005X	China
High voltage transformer	JH1101B	China

**2.2 Water Chillers:**

Seq.	Specifications
<p>Model: NS-40WC (PREFORM INJECTION)</p>	Water cooling
	Power : 380V/3Phase/50Hz
	Cooling Capacity: 189000Kcal/h
	Compressor Power: 40HP
	Built in Bump: 7.5HP
	Hub pipe type
	Water take type
	Water Flowing : 60.95M3/H
	Refrigerant : R407C
	Standard nipple : DN50
	Computer temperature controller
	Size : 2350*980*1380mm
	Temperature : 5-35°C
	Net weight : 1350KG
<p>Model: NS-15WC (BLOW MOLD)</p>	Water cooling
	Power: 380V/3Phase/50Hz
	Cooling Capacity: 32800Kcal/h
	Compressor Power: 15HP
	Built in Bump: 3HP
	Hub pipe type
	Water take type
	Water Flowing: 14.81M3/H
	Refrigerant: R407C
	Standard nipple: DN40
	Computer temperature controller
	Size: 1500*700*1200mm
	Temperature : 5-35°C
	Net weight : 850KG



*Water Chiller (Image for reference)*

**2.3 Oil Free High-Pressure Air Compressor:**

No	Description	Model	Quantity	Remark
1	Oil less	GV3-240	1	Gas Displacement 4m <sup>3</sup> /min Pressure:3MPa
2	Cooling	0003.063	1	3.0MPa、Capacity 5M <sup>3</sup> /min
3	Tank	C-1/40	1	Volume1 M <sup>3</sup> , Pressure4.0MPa
4	Precision filter	T-005	1	Capacity 5Nm <sup>3</sup> /min , Pressure 4.0MPa ;Solidparticles≤1U , residual oil amount≤0.5ppm。
5	Freeze dryer	EX-05NW	1	Capacity 5Nm <sup>3</sup> /min, Pressure 4.0MPa、Water cooling
6	Activated Carbon precision filter	H-005	1	Capacity 5Nm <sup>3</sup> /min , Pressure 4.0MPa;Solid particles≤0.01U, residual oil amount≤0.003ppm



**2.4 Oil Free-Low Pressure Air Compressor:**

No.	Description	Model	Quantity	Remarks
1	Screw	ZLS30A	1	Gas Displacement 3M <sup>3</sup> /min Pressure:3.0MPa
2	Cooling	EAD-30	1	1.0Mpa、Capacity 5M <sup>3</sup>
3	Tank	C-1/1.0	1	Volume M <sup>3</sup> , Pressure1.0MPa
4	Precision filter	35	1	Capacity 5Nm <sup>3</sup> /min , Pressure 1.0MPa;Solid particles ≤1U, residual oil amount≤0.5ppm.



*Oil Free Low-Pressure Air Compressor*



*Oil free low-pressure air tank*