Sumitomo Global Network

Sumitomo Heavy Industries, Ltd.

Plastics Machinery Div.

Tokyo Sumitomo Heavy Industries, Ltd.
Plastics Machinery Div. Head Office (Overseas Dept.)
2-1-1, Osaki, Shinagawa-Ku, Tokyo 141-6025, Japan
Tel:+81-3-6737-2576 Fax:+81-3-6866-5176

Chiba Sumitomo Heavy Industries, Ltd. Chiba Works & Technology Center
731-1, Naganumahara-Cho, Inage-Ku, Chiba City 263-0001, Japan
Tel:+81-43-420-1471 Fax:+81-43-420-1591

U.S.A. Sumitomo (SHI) Demag Plastics Machinery North America, Inc. Atlanta Office
1266 Oakbrook Drive, Norcross, GA 30093 U.S.A.
Tel:+1-770-447-5430 Fax:+1-770-441-9168

Sumitomo (SHI) Demag Plastics Machinery North America, Inc. Cleveland Office
11792 Alameda Drive, Strongsville, OH 44149 U.S.A.
Tel:+1-440-876-8960 Fax:+1-440-876-4383

Mexico SHI Plastics Machinery de Mexico, S.A. de C.V.
Rio Missouri 400 Ote, Col. Del Valle, San Pedro Garza Garcia, Nuevo Leon, CP 66220, Mexico
Tel:+52-81-8356-1714, 1720, 1726 Fax:+52-81-8356-1710

Brazil Sumitomo (SHI) DEMAG do Brasil Comercio de Máquinas para Plásticos Ltda.
Rodovia do Açúcar (SP-075), km 26-Jd. Oliveira 13312-500-Itu/SP-Blazil
Tel:+55-11-4403-9286

Germany Sumitomo (SHI) Demag Plastics Machinery GmbH
Altdorfer Str. 15, 90571 Schwaig bei Nuremberg, Germany
Tel:+49-911-5061-0 Fax:+49-911-5061-265

Shanghai SHI Plastics machinery (Shanghai) Ltd. Shanghai Office
11F, SMEG Plaza, No.1386, Hongqiao Rd., Changning Dist., Shanghai 200336, China
Tel:+86-21-3462-7556 Fax:+86-21-3462-7655

Tianjin SHI Plastics machinery (Shanghai) Ltd. Tianjin Office
Rm.603, Henghua Bldg. 2., No.501 Dagu Nan Rd., Tianjin 300202, China
Tel:+86-22-5819-6378 Fax:+86-22-5819-6379

Dalian SHI Plastics machinery (Shanghai) Ltd. Dalian Office
Rm.12B-7, Fuyou Bldg., No.9, Huanghai Xi 6 Rd., Dalian ETDP 116600, China.
Tel:+86-411-8764-8052 Fax:+86-411-8764-8053

Suzhou SHI Plastics machinery (Shanghai) Ltd. Suzhou Office
Rm.308, Tower C, Innovation Center Bldg., No.117, Zhujiang Rd., New District,
Suzhou City, Jiangsu Prov. 215011, China
Tel:+86-512-6632-1760 Fax:+86-512-6632-1770

Dongguan Dongguan SHI Plastics Machinery Co.,Ltd. Dongguan Office & Technology Center
No.6, Yuanshanzai Rd., Henggangtou Village, Xinan District, Changan Town,
Dongguan City, Guangdong Prov. 523882, China
Tel:+86-769-8533-6071 Fax:+86-769-8554-9091

Hong Kong SHI Plastics Machinery (Hong Kong) Ltd.
Rm.601, Telford House, 12-16 Wang Hoi Rd., Kowloon Bay, Hong Kong
Tel:+852-2750-6630 Fax:+852-2759-0008

Taipei SHI Plastics Machinery (Taiwan) Inc.
6F., No.33, Dexing W. Rd., Shilin Dist., Taipei City 11158, Taiwan
Tel:+886-2-2831-4500 Fax:+886-2-2831-4483

Taichung SHI Plastics Machinery (Taiwan) Inc. Taichung Office
Rm.D, 6 Fl, No.190, Zhonggong 2nd Rd., Xitun Dist., Taichung City 40766, Taiwan
Tel:+886-4-2358-7334 Fax:+886-4-2358-9335

Korea SHI Plastics Machinery (Korea) Co., Ltd.
#203/203-2, Jeiplatz, 459-11, Gasan-dong, Geumcheon-gu, Seoul, 153-792, Korea
Tel:+82-2-757-8656 Fax:+82-2-757-8659

Philippines SHI Plastics Machinery (Phils.) Inc.
Mezzanine Fl., Dasman Bldg., 1680 Evangelista cor. Del Pilar St., Bangkal, Makati City 1223, Philippines
Tel:+63-2-844-0632,845-0877 Fax:+63-2-886-4670

Malaysia SHI Plastics Machinery (Malaysia) Sdn. Bhd.
Lot AG 16, 17 & 18, Pj Industrial Park, Jalan Kemajuan, Section 13, 46200 Petaling Jaya, Selangor, D.E. Malaysia
Tel:+60-3-7958-2079, 2081 Fax:+60-3-7958-2084

Singapore SHI Plastics Machinery (Singapore) Pte. Ltd.
67 Ayer Rajah Crescent #01-15 to 26, 139950 Singapore
Tel:+65-6779-7544 Fax:+65-6777-9211

Vietnam SHI Plastics Machinery (Vietnam) Ltd.
C1 Coco Flower Village, 14 Thuy Khue St., Hanoi, Vietnam
Tel:+84-4-3728-0105 Fax:+84-4-3728-0106

Indonesia PT. SHI Plastics Machinery (Indonesia)
Gedung Gajah, Blok Ao, JL. Prof. Dr. Saharjo No.111, Tebet, Jakarta 12810, Indonesia
Tel:+62-21-829-3872, 3873 Fax:+62-21-828-1645

Thailand SHI Plastics Machinery (Thailand) Ltd.
No.317 Unit D, Bangna-Trad Rd., Km.1, Kwaeng Bangna, Khet Bangna, Bangkok 10260, Thailand
Tel:+66-2-747-4053~4056 Fax:+66-2-747-4081

India SHI Plastics Machinery (India) Private Ltd.
Unit No.12A & 12B, Ground Floor, JMD Galleria, Sohna Road, Gurgaon, Haryana 122001, India
Tel:+91-0124-221-7056, 7064 Fax:+90-0124-221-8076

- Photographs of machines and details may differ from actual products.
- Specifications subject to change without notice for performance improvement.

2015-03

Sumitomo SHI DEMAG

SEEV-HD HIGH DUTY

SEEV-HD HIGH DUTY

Sumitomo All Electric Molding Machine

Sumitomo Heavy Industries, Ltd.

SEEV-HD
HIGH DUTY

*Sumitomo has added a High Duty model to its SE-EV series of the latest all electric molding machines for taking production to new heights. The **SEEV-HD** machine provides powerful support for precise and stable molding of thick-walled products.*

High Speed Injection and Fast Cycle Molding

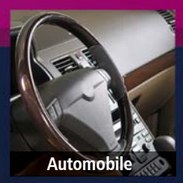
SE-EV
Injection Speed **350** mm/s / Duty **30** %

Original Servo Motor+ISC II Control
'Zero-molding

Precise and Stable Molding

SEEV-HD HIGH DUTY
Injection Speed **200** mm/s or less / Duty **40** % or more

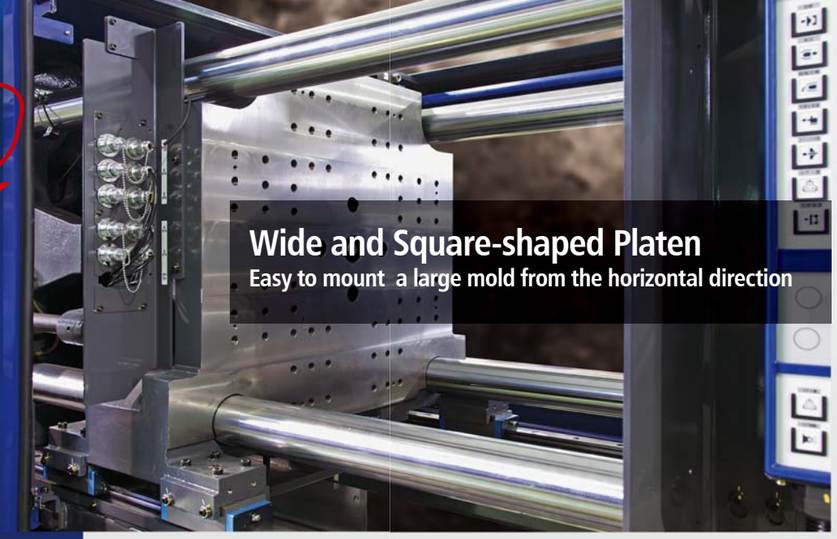
Low Speed and High Duty Injection


Automobile


Medical instruments


Business machines

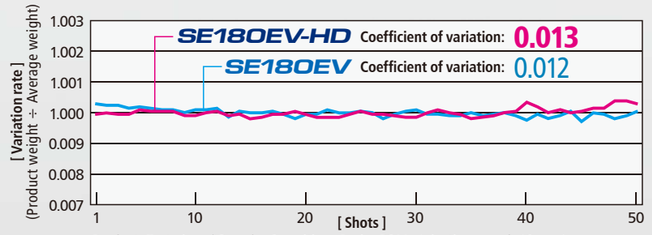

Cosmetics



Wide and Square-shaped Platen
Easy to mount a large mold from the horizontal direction

Delivers the same precision and stability of the SE-EV series despite the High Duty specifications.

■ Comparison of weight variation rate



Product: Test piece (t3 mm) 2 cavities Resin: POM Injection speed: 10 mm/s
Holding pressure: 70 MPa Holding time: 7.0 s


Original

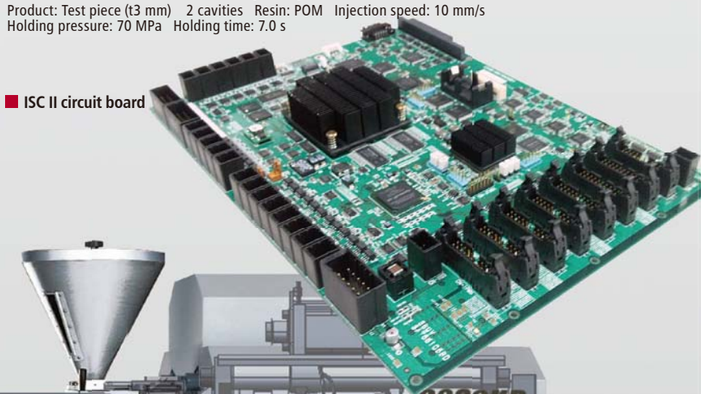

Using High Sensitive Mold Protection

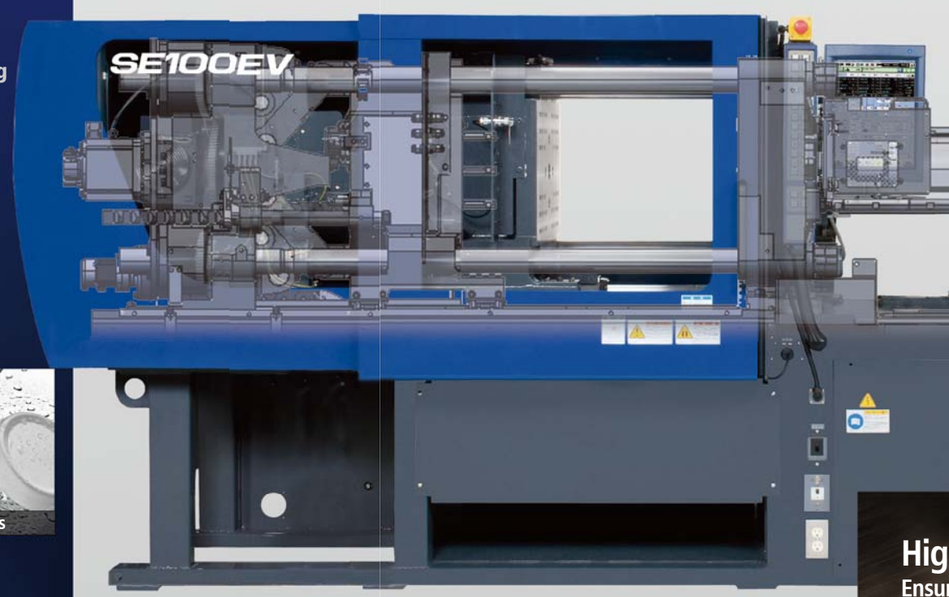

Without protection

High Sensitive Mold Protection
Protects slides and core pins against breakage to keep your molds safe and intact.

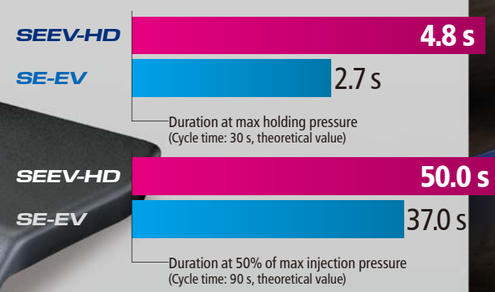
■ Verification of High Sensitive Mold Protection using paper cup

■ ISC II circuit board





■ Comparison of loading endurance



■ Automobile engine component (PP+Tarc 40%)

High Duty Injection Unit
Ensures stably holding pressure over long periods of time.

Incorporates Zero-molding's integrated application for eliminating defects, losses and faults. Greatly broadens the possibilities of the molding process.

Zero-molding is built on the three integrant technologies of MCM (Minimum Clamping Molding), FFC (Flow Front Control) and SPS (Simple Process Setting). There's no tedious setting work. With Zero-molding, anyone from the most experienced production engineer to a general operator can fully master the machine's high performance.

MCM FFC SPS

HD 'Zero-molding

MCM
Minimum Clamping Molding

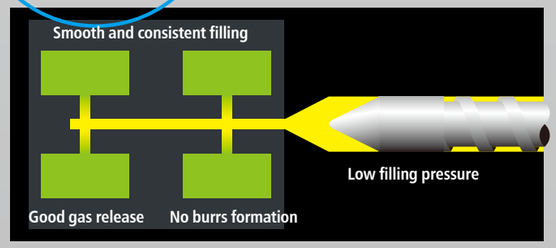
The MCM is provided by uniform clamp force distribution and high rigidity frame.

- ***Good gas release***
- ***Reduces mold maintenance***
- ***Prolongs molds life***

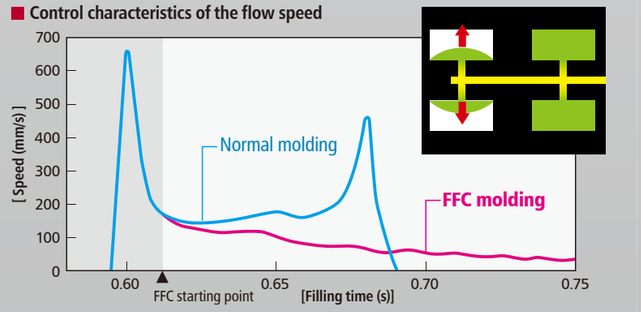
FFC
Flow Front Control

The FFC controls speed and pressure at a high response rate before and after V-P switch over, thus the cavity balance is greatly improved even at low pressure.

- ***Smooth filling at low pressure***
- ***Good cavity balance***
- ***No short-shots, no burrs***



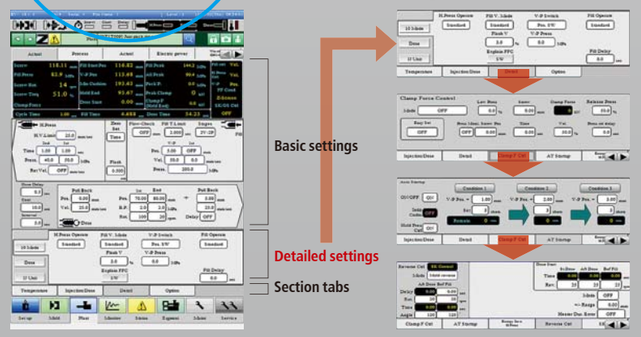
■ Control characteristics of the flow speed



SPS
Simple Process Setting

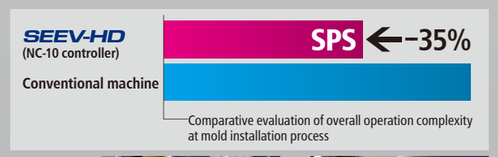
The SPS is designed with a series of controller windows that make it possible for anyone to operate machine without mistakes.

- ***Prevents confusion and mistakes***
- ***Easy to find setting points***
- ***Saves setting time***



■ Plasticizing process screen for example

■ Comparison of controller operability

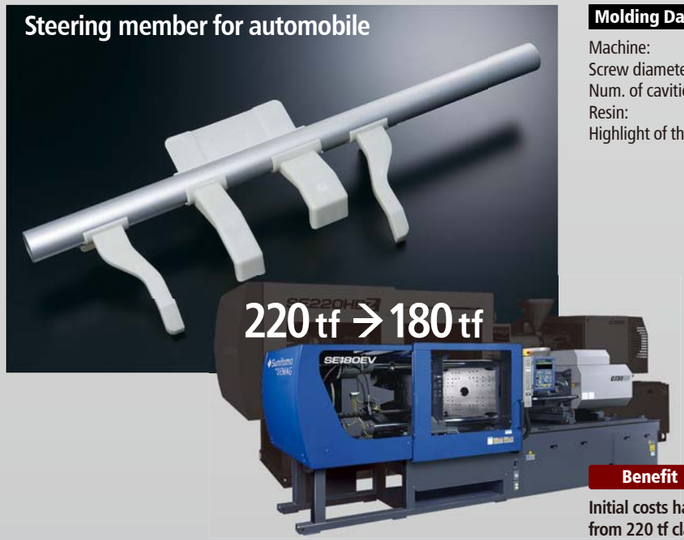



Conventional controller


NC-10 controller with SPS

HD Molding Examples

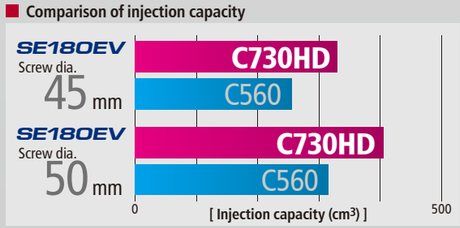
SEEV-HD HIGH DUTY



Molding Data

Machine:	SE180EV-C730HD
Screw diameter:	45 mm
Num. of cavities:	1
Resin:	PA6 (Composite molding of resin and metal)
Highlight of the molding:	Downsized equipment by building in higher injection capacity and filling pressure

■ Comparison of injection capacity



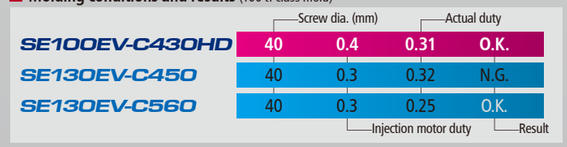
Benefit Lower initial costs

Initial costs have been reduced about 25% by downsizing the machine from 220 tf class to 180 tf class.

Molding Data

Machine:	SE100EV-C430HD
Screw diameter:	40 mm
Num. of cavities:	2
Max. wall thickness:	8 mm
Resin:	ABS
Cycle time:	73.0 s
Highlight of the molding:	High duty injection and extended holding at high pressures (160 MPa x 10.0 s)

■ Molding conditions and results (100 tf class mold)




Interior door handle for automobile

The photo is for reference purposes only. It does not include actual products.

Benefit Applicable for molding thick-walled products

Despite being a full class smaller in size, the machine is more than capable of molding thick-walled products.

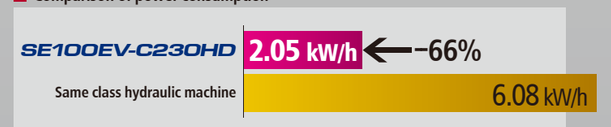

Thick walled gear for business machine

The photo is for reference purposes only. It does not include actual products.

Molding Data

Machine:	SE100EV-C230HD
Screw diameter:	32 mm
Num. of cavities:	4
Max. wall thickness:	4 mm
Resin:	POM
Highlight of the molding:	Greatly reduced power consumption compared to hydraulic machines

■ Comparison of power consumption



Benefit Lower running costs

Running costs have been greatly reduced compared to hydraulic machines. Up to 2,620 USD per machine in savings a year.

[Basis of calculation] Operation time: 6,500 h/year Electricity rate: 1 kW/h = 0.1 USD

HD Main Specifications

Item	Unit	SE100EV-HD	SE130EV-HD	SE180EV-HD
■Clamping unit				
Clamping system		Double toggle (5 points)	Double toggle (5 points)	Double toggle (5 points)
Clamp force	kN	1000	1300	1800
Clearance between tie-bars (L x W)	mm	460 x 460	510 x 510	560 x 560
Platen size (L x W)	mm	650 x 650	720 x 720	800 x 795
Daylight	mm	800	850	950
Mold opening stroke	mm	350	400	450
Platen speed	mm/s	MAX. 750	MAX. 750	MAX. 750
Mole thickness (min.--max.)	mm	180~450	180~450	200~500
Locating ring diameter	mm	ϕ100	ϕ100	ϕ120
Ejector type		Electric (5 points)	Electric (5 points)	Electric (5 points)
Ejector force	kN	32	32	45
Ejector speed	mm/s	MAX. 333	MAX. 333	MAX. 333
Ejector stroke	mm	100	100	120

■Injection unit

Plasticizing capacity		C230HD			C430HD			C230HD			C430HD			C430HD			C730HD	
		M			M			M			M			M			M	
Screw diameter	mm	28	32	36	36	40	45	28	32	36	36	40	45	36	40	45	45	50
Injection pressure max.*1,*2	MPa	284	217	171	270	218	173	284	217	171	270	218	173	270	218	173	215	174
Holding pressure max.*1,*2	MPa	284	217	171	270	218	173	284	217	171	270	218	173	270	218	173	215	174
Theoretical injection capacity	cm^3	86	112	142	162	201	254	86	112	142	162	201	254	162	201	254	337	416
Injection mass (GPPS)	g	82	107	136	155	192	243	82	107	136	155	192	243	155	192	243	324	400
Plasticizing rate *3	kg/h	37	53	76	76	101	136	37	53	76	76	101	136	76	101	136	98	134
Injection rate	cm^3/s	123	160	203	203	251	318	123	160	203	203	251	318	203	251	318	254	314
Screw stroke	mm	140			160			140			160			160			212	
Injection speed max.*4	mm/s	200			200			200			200			200			160	
Screw rotating speed max.	min^{-1}	400			400			400			400			400			250	
Number of temperature control zone		5			5			5			5			5			6	
Heater capacity	kW	6.5	7.5	8.4	8.4	10.3	11.5	6.5	7.5	8.4	8.4	10.3	11.5	8.5	10.3	11.5	11.5	12.6
Nozzle contact force	kN	43			43			43			43			43			43	
Injection moving stroke	mm	320			380			320			380			380			380	
Protrusion	mm	45			45			45			45			65			65	
Hopper capacity *5	L	30			50			30			50			50			50	

■Machine dimensions and mass

Machine dimensions (LxWxH)*6,*7	mm	4502 x 1192 x 1837	4502 x 1192 x 1932	4732 x 1292 x 1882	4732 x 1292 x 1977	5221 x 1362 x 2018	5221 x 1362 x 2018
Machine mass	t	4.0	4.3	4.5	4.8	6.2	7.1

*1 The maximum injection pressure and hold pressure are calculated values, which are the outputs of the machine, but not the resin pressures.
*2 The maximum injection pressure and hold pressure are no pressures that can be generated continuously.
*3 The plasticizing rate is given for a machine mounted with the SD Screw. Figures in the table decrease by about 50% when machines are equipped with the SL Screw.
*4 The maximum injection speed changes as follows for the high duty injection specification. C230HD,C430HD: 160 mm/s C730HD: 140mm/s
*5 The standard type hopper is option.
*6 The total length of the machine is the value measured up to the advance position of the injection unit with a smallest screw installed.
*7 The total length of the machine will increase by 100 mm when equipped with mold space 50 mm or 100 mm extension (SE180EV-HD is excluded).
● Specifications are subject to change without notice for performance improvement.

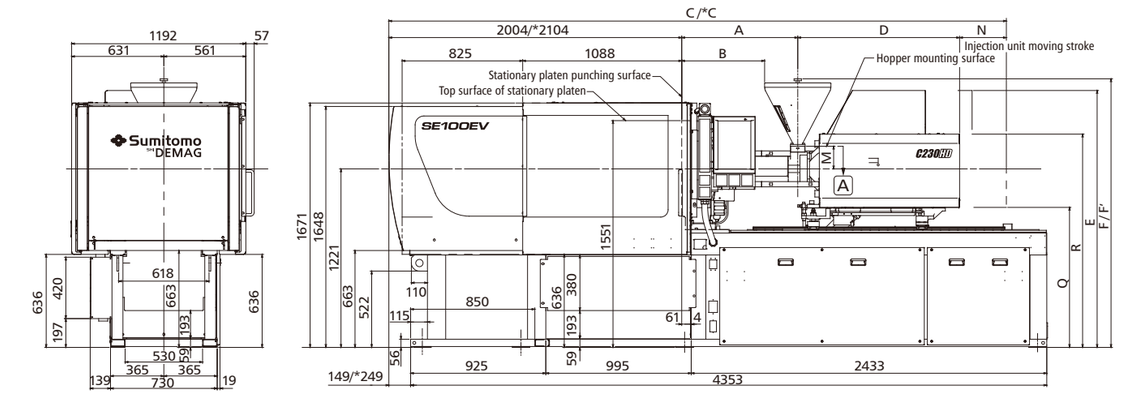
HD Screw Assembly

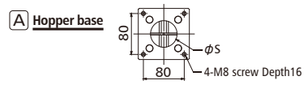
Specification		Ion-nitride	Plated	Wear/corrosion-resistant A	Wear/corrosion-resistant B	Wear/corrosion-resistant C	High temperature
Material	Screw	Ion-nitride	Plated	Wear/corrosion-resistant A	Wear/corrosion-resistant B	Wear/corrosion-resistant B	Wear/corrosion-resistant A
	Heating cylinder	Ion-nitride	Ion-nitride	Wear/corrosion-resistant A	Wear/corrosion-resistant B	Wear/corrosion-resistant C	Wear/corrosion-resistant A
	Screw tip	Rotating check ring	Rotating check ring	Wear/corrosion-resistant A Non-rotating check ring	Wear/corrosion-resistant B Non-rotating check ring	Wear/corrosion-resistant C Non-rotating check ring	Wear/corrosion-resistant A Non-rotating check ring
Type	SD Screw	○	○	○	○	○	○
	SM Screw	○	○	○	—	—	—
Anti-wearing ability		★	★	★★	★★★	★★★	★★
Anti-corrosion ability		★	★	★★	★★	★★★	★★
Applicable materials		No wearing and corrosion materials	Materials which evade burning and staying	Materials which contain less than 30% of GF, Fireproof materials	Materials which contain less than 30% of GF, Fireproof materials, Materials which contain more than 30% of filler GB, CF, MR	Materials which contain more than 40% of filler, High corrosion materials	High temperature materials

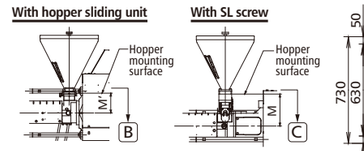
★★★ Optimum ★★ Excellent ★★★ Good

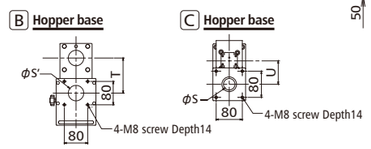
HD SE100EV-HD Dimensions and Foundation Plan

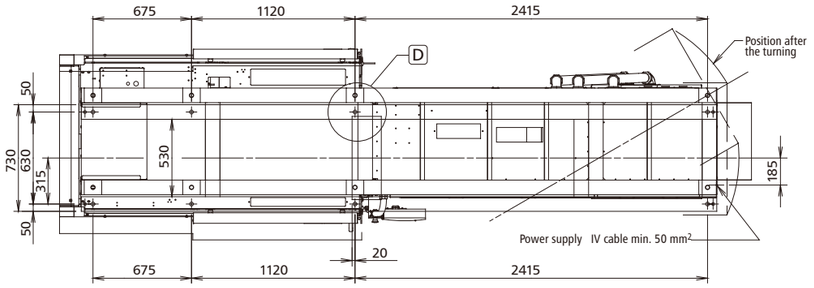
SEEV-HD HIGH DUTY

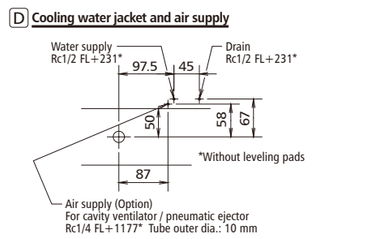








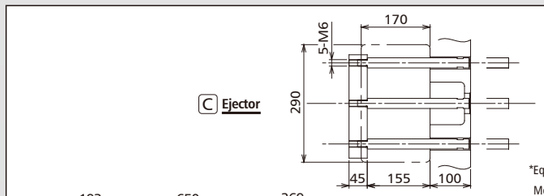




Injection unit	Screw type and dia. SL (Open)	Screw type and dia. Standard (Open)	A	B	C	*C	D	E	F	F'	M	M'	N	Q	R	S	S'	T	U
C230HD		ϕ28	489	262	3900	4000	1107	1757	2007	–	325	–	300	958	1459	56	–	–	74
		ϕ32	579	352	4010	4110													
		ϕ36	669	442	4100	4200			1954		272		320						105
	ϕ28		699	472	4130	4230										52	53	120	–
	ϕ32		789	562	4220	4320			1837	1867	155	185							
	ϕ36		879	652	4310	4410													
C430HD	ϕ36		669	402	4251	4351	1258	1802											
	ϕ40		749	482	4331	4431			1954	–	272	–	320	963	1519	56	–	–	105
	ϕ45		839	572	4421	4521													
		ϕ36	879	612	4461	4561													
		ϕ40	999	732	4581	4681			1932	1962	155	185				52	53	120	–
		ϕ45	1089	822	4671	4771													

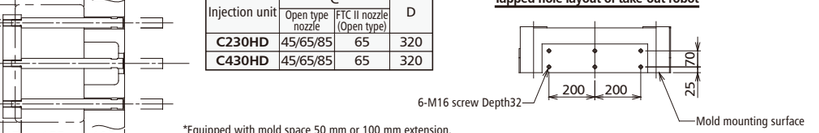
The figure marked with an asterisk (*) shows dimension equipped with mold space 50 mm or 100 mm extension.
The figure marked with a prime (') shows dimension equipped with the hopper sliding unit.

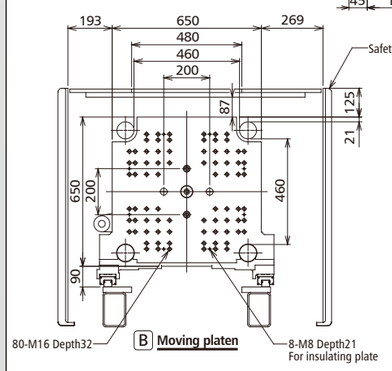
HD SE100EV-HD Dimensions of Platens

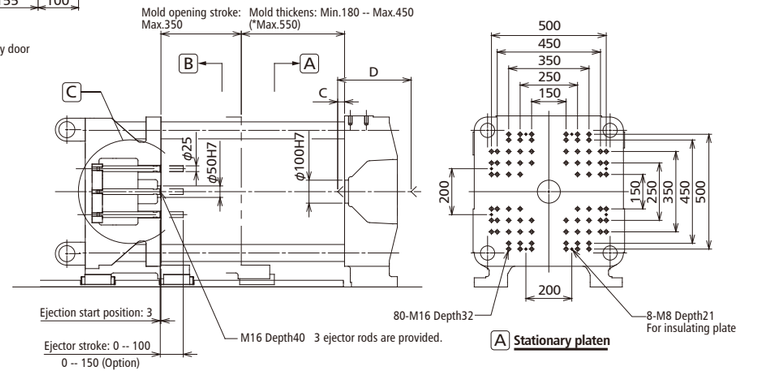


Injection unit	C Open type nozzle	C FTC II nozzle (Open type)	D
C230HD	45/65/85	65	320
C430HD	45/65/85	65	320

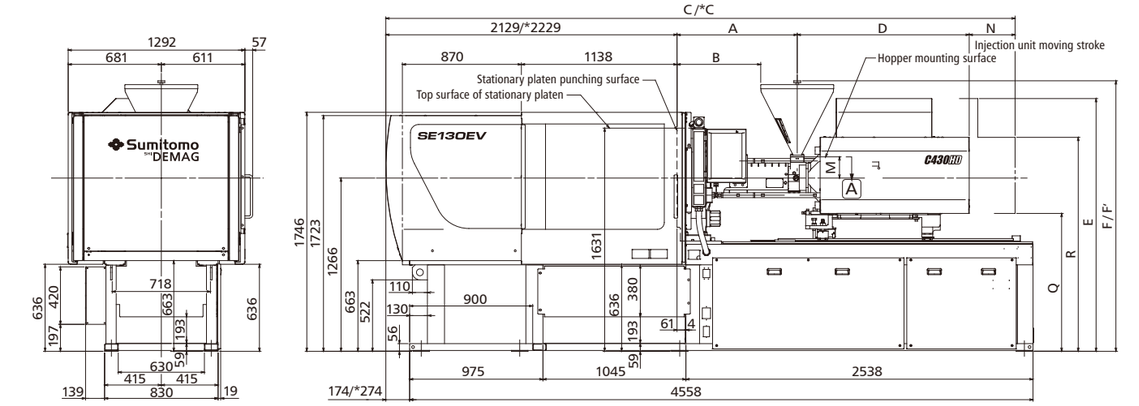
*Equipped with mold space 50 mm or 100 mm extension.

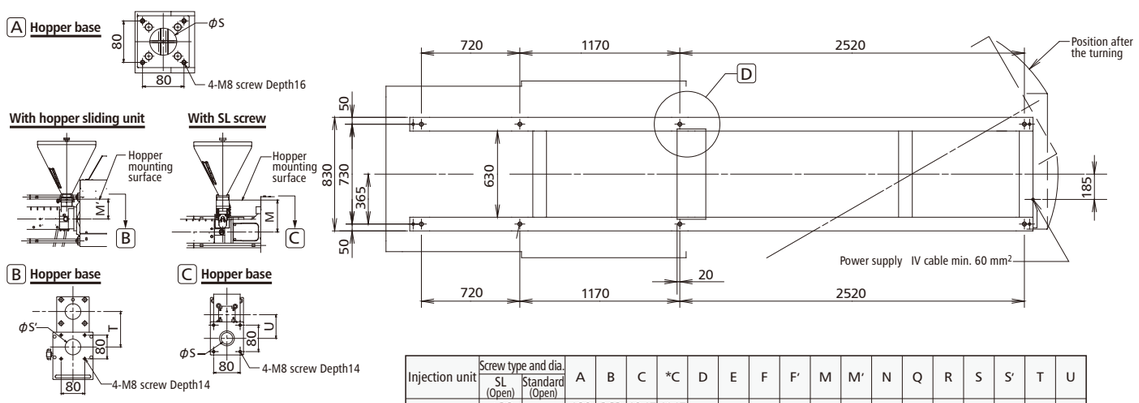




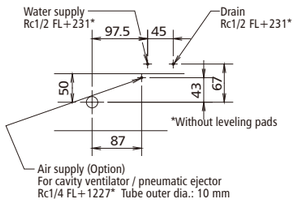


HD SE130EV-HD Dimensions and Foundation Plan





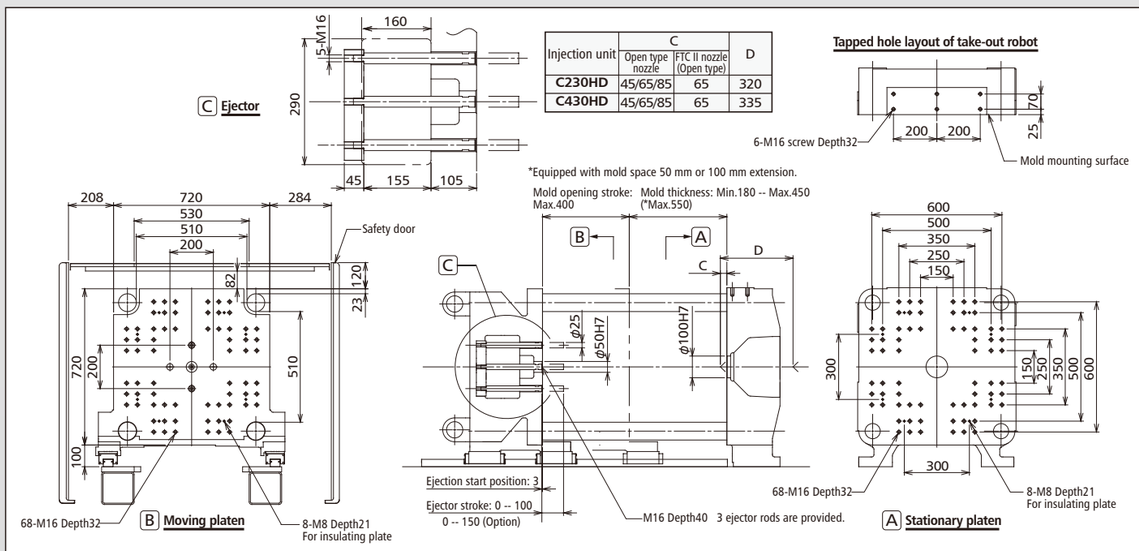
D Cooling water jacket and air supply



Injection unit	Screw type and dia. SL (Open)	Screw type and dia. Standard (Open)	A	B	C	*C	D	E	F	F'	M	M'	N	Q	R	S	S'	T	U
C230HD	φ28		489	262	4045	4145	1107	1802	2052	–	325	–	320	1003	1504	56	–	–	74
	φ32		579	352	4135	4235													
	φ36		669	442	4225	4325			1999		272								105
		φ28	699	472	4255	4355													
		φ32	789	562	4345	4445			1882	1912	155	185				52	53	120	–
		φ36	879	652	4435	4535													
C430HD	φ36		669	402	4391	4491	1258	1847	2094	–	272	–	335	1009	1564	56	–	–	105
	φ40		749	482	4471	4571													
	φ45		839	572	4561	4661													
		φ36	879	612	4601	4701													
		φ40	999	732	4721	4821			1977	2007	155	185				52	53	120	–
		φ45	1089	822	4811	4911													

The figure marked with an asterisk (*) shows dimension equipped with mold space 50 mm or 100 mm extension.
The figure marked with a prime (') shows dimension equipped with the hopper sliding unit.

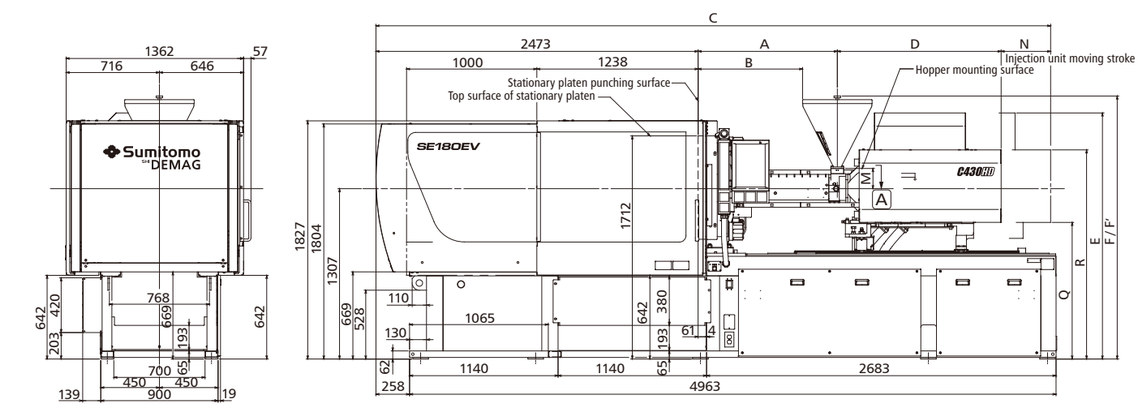
HD SE130EV-HD Dimensions of Platens

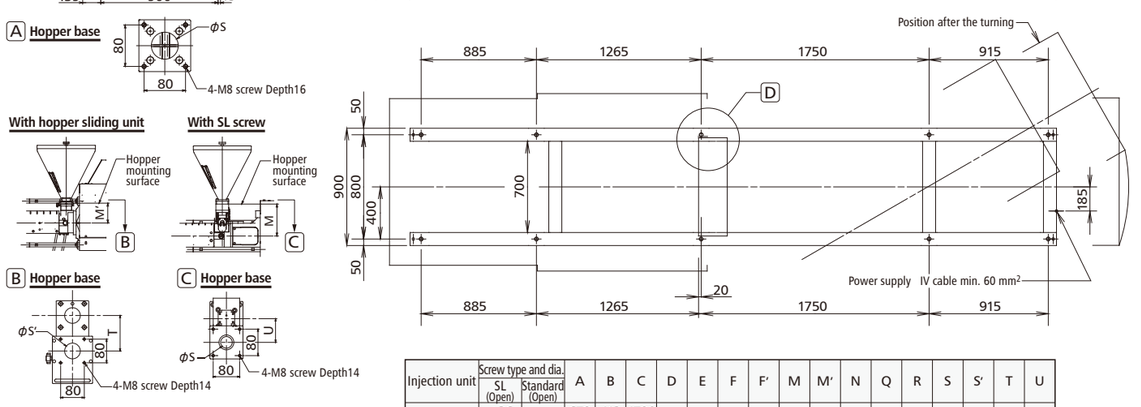


Injection unit	C Open type nozzle	C FTC II nozzle (Open type)	D
C230HD	45/65/85	65	320
C430HD	45/65/85	65	335

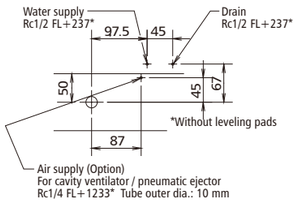
Tapped hole layout of take-out robot

HD SE180EV-HD Dimensions and Foundation Plan





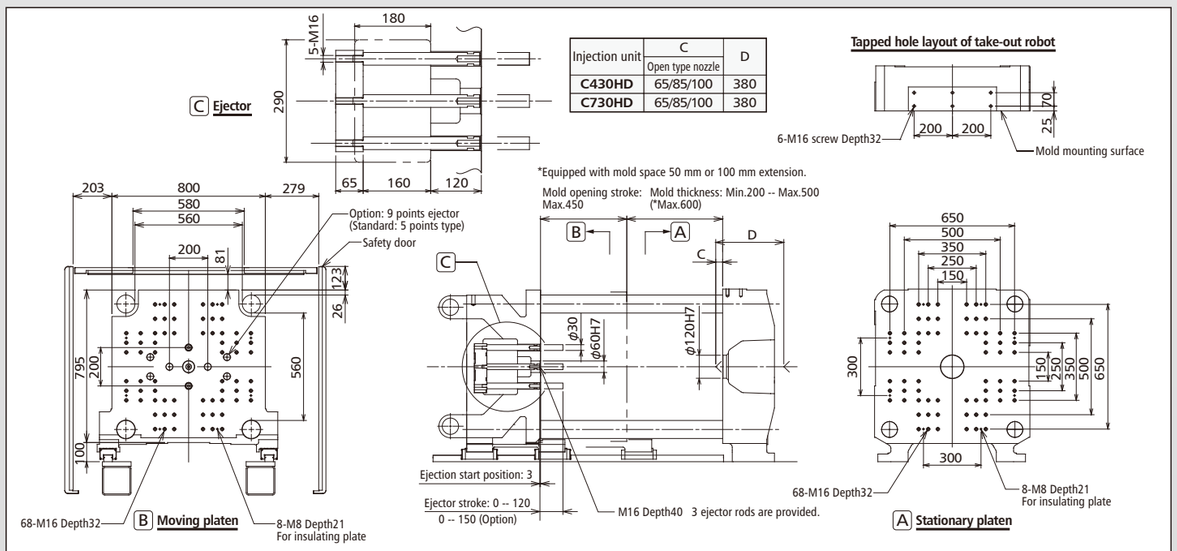
D Cooling water jacket and air supply



Injection unit	Screw type and dia. SL (Open)	Screw type and dia. Standard (Open)	A	B	C	D	E	F	F'	M	M'	N	Q	R	S	S'	T	U
C430HD	φ36		679	412	4790	1258	1888	2040	–	272	–	380	1049	1605	56	–	–	105
	φ40		729	462	4840													
	φ45		819	552	4930													
		φ36	889	662	5000			2018	2048	155	185				52	53	120	–
		φ40	979	712	5090													
		φ45	1069	802	5180													
C730HD	φ45		819	552	5240	1568	1882	2040	–	272	–	380	1008	1663	56	–	–	105
	φ50		909	642	5330													
		φ45	1069	802	5490			2018	2044	155	185				56	53	120	–
		φ50	1159	892	5580													

The figure marked with a prime (') shows dimension equipped with the hopper sliding unit.

HD SE180EV-HD Dimensions of Platens



Injection unit	C Open type nozzle	D
C430HD	65/85/100	380
C730HD	65/85/100	380

Tapped hole layout of take-out robot

HD Standard Equipment

Plasticizing and injection unit
1. SD Ion-nitride screw assembly (Open nozzle)
2. Heater 5 division control (4 division)
3. Water cooling jacket temperature control device
4. Standard heated cylinder cover
5. 2-modes temperature control (Production/Standby)
6. Cold screw startup protection (Interlock variable timer attaching)
7. Protective purge shield (With limit switch)
8. Programming control of injection
9. Programming control hold pressure
10. Plasticizing program -- Multi-stage control
11. Screw pull back (After screw rotating/After holding pressure)
12. V-P switchover controller (Pressure, Position)
13. Injection/Holding response 10-mode
14. Mold open operation during plasticizing (Needle nozzle drive control)
15. Sprue break stroke remote setting (Detection of nozzle touch, moving time)
16. High nozzle touch force and precision unit (Nozzle touch force: 3 stages changeable)

Clamping unit
1. Center Press Platen
2. Moving platens support device -- Linear guide
3. Programmed control of mold opening/closing speed (5-step/3-step)
4. Mold protection
5. Low pressure clamping unit
6. Standby mode for mold mounting (Low mold closing/opening speed)
7. Remote control of clamp force
8. Remote control of mold space
9. Ejector (With selective multi-functions, Protrusion delay timer, Speed, Stroke, Pressure and return check)
10. Ejector 2-speed control
11. Ejector protrusion during mold opening
12. Ejector protrusion during mold closing
13. Ejector unit with brake
14. Valve gate drive circuit (Control circuit only) *2
15. Ejector plate return signal (Input signal for molding machine) Connecting by metal connect *2
16. Take-out robot connection circuit *2
17. Ejected products sensor circuit *2

Control unit
1. Zero-molding system
2. 15 inch TFT color LCD screen
3. Molding profiles display functions (Mold profiles storage, Cursor, Display, etc.)
4. Statistics product quality control (Actual value control, Quality transition graph)
5. Production control
6. Internal memory of mold conditions
7. Automatic starting system (Heater warming, heater start, machine stop) *2
8. Operation guide for maintenance
9. USB connection circuit
10. Signal output for machine condition *2
11. Auxiliary facility monitor (3 ch)
12. Cylinder heater temperature monitor (All zones)
13. Heater band burnout monitor
14. Alarm monitor (7 items)
15. Abnormal history (Item and time)

HD Optional Equipment

Screw assembly
1. Hard chromium plating screw assembly
2. Wear and corrosion resistant A screw assembly
3. Wear and corrosion resistant B screw assembly
4. Wear and corrosion resistant C screw assembly
5. High-temperature screw assembly (Max. temp. 450°C)
6. SL screw assembly
7. SM screw assembly
8. Screw tip set -- Rotation type TiN coating
9. FTC II nozzle (Open nozzle) (Not applicable to SE180EV-HD)
10. High capacity heater
11. Zone 1 high capacity heater
12. High insulated cylinder cover -- 3 stratified covers

Plasticizing and injection unit
1. FTC nozzle electric control circuit
2. High temperature heater control circuit (Max. temp. 499°C)
3. Plating resin inlet of cooling water jacket
4. Standard type hopper
5. Hopper swivel mounting plate
6. High efficiency nozzle contact (Nozzle touch force release pressure)
7. V-P switchover by mold cavity pressure
8. Heavy duty injection

Control and monitor unit
1. Leak circuit breaker (AC200V/220V 3φ3W+E) (For Japan and Asia only)
2. Mold temperature monitor 2 zones (Without thermocouple and type K)
3. Mold temperature monitor 4 zones
4. Mold temperature controller (2 zones)
5. Mold temperature controller (4 zones)
6. Analog circuit output for molding profile
7. Automatic starting system (Heater, Water supply, External output signal)
8. Revolving alarm lamp
9. Multi function 3-color LED alarm lamp
10. Motion GB
11. 4-line closed circuit cooling water piping connection (With flow detector, Stop valve)
12. 2-line closed circuit cooling water piping connection (With flow detector, Stop valve)
13. Electric power supply socket
14. Electric power supply socket for tools (With transformer)
15. iii-System standard edition

Clamping unit
1. Double Center Press Platen *3
2. High precision heat insulating plate (5 mm/10 mm, Cross type)
3. Valve gate drive circuit (Control circuit and pneumatic circuit)
4. Pneumatic ejector
5. Cavity ventilator
6. Hydraulic core pull control circuit 1 line (Control circuit, Piping)
7. Hydraulic core pull control circuit (Remote, ie pump hydraulic driving unit)
8. Pneumatic core pull circuit 1 line
9. Core rotation control circuit (Motor drive: 1.5 kw or less)
10. SPI take-out robot connection circuit *2
11. Products chute
12. Increased ejector force
13. Extended ejector stroke (150 mm)
14. Ejector compression device (49 kN)
15. Valve gate drive circuit (ie pump hydraulic driving unit)
16. Die clamp control unit
17. Full metallic toggle cover
18. Mold space extension 50 mm *1
19. Mold space extension 100 mm (Not applicable to SE180EV-HD) *1, *3

Spare parts and accessories
1. Spare parts (Mechanical parts: Brake lining, Lub. parts)
2. Spare parts (Electrical parts: Thermocouple)
3. Spare parts for export. (Encoder, Limit switch, Inductive proximity sensors)
4. Leveling pads (For one machine)
5. Anchor bolts (For one machine)
6. Locating ring (Transition fit) (I.D.φ100 mm/O.D.φ120 mm) (For SE180EV-HD only)
7. Locating ring (Transition fit) (I.D.φ100 mm/O.D.φ120 mm) (For SE180EV-HD only)
8. Tools A
9. Ejector rods
10. Grease gun
11. Grease cartridge for automatic Lub (700 cc)
12. Grease cartridge for manual Lub (400 cc)
13. Easy Clamp

*1 Machine length increases by 100 mm (SE180EV-HD is excluded).
*2 Input/output signals are provided with dry contact (zero voltage). If the signal required voltage, please request for such option.
*3 Double Center Press Platen and mold space extension 100 mm can not be selected simultaneously.
● Specifications are subject to change without notice for performance improvement.

HD Zero-molding functions

1	Main	Zero-molding Main Screen : Simple Process Setting
2		Zero-molding Main Screen : Product molding monitor (Product count, Process, Abnormal, Detect)
3	Check before molding	Mold condition change (Screw diameter, Unit, Add IL display)
4		Screen for confirm specification function (Main, Standard, Option, Abnormal transaction, Peripheral device signal)
5	Molding preparation	Minimum clamp force detect
6		Setup guidance : Mold installation screen (Mold thickness, Mold contact, Clamp force, Mold open/close in preparations, Ejector)
7		Setup guidance : Teaching of mold opening limit and ejector protrusion point (Actual value input)
8		Setup guidance : Mold condition setting screen (Open/close, Ejector multi-step)
9		Setup guidance : Mold protection setting screen (Mold protection, Ejector protection)
10		Setup guidance : Multiple purge (Gate purge, Resin exchange, Moment stop, Low viscosity resin, Resin evaluation)
11		Setup guidance : Reference and calling for temperature conditions
12		Setup guidance : Supervise and warning for resin remaining
13		Setup guidance : Nozzle and heating cylinder heating-up mode (Step/Nozzle delay)
14		Setup guidance : Nozzle, Heating cylinder, Water cooling jacket temperature profile graphic display
15	Mold setups	Zero-molding : Molding condition setting screen Z-Screen (Filling, Holding pressure, Plasticizing time, Temperature, Clamp force)
16		Zero-molding : Flash Control <Mode setting: 10-mode>
17		Zero-molding : Flash Control <Mode setting: Thick-wall>
18		Zero-molding : Flash Control <Automatic setting: Filling time ratio>
19		Zero-molding : Flash Control <Automatic setting: Following to holding pressure>
20		Zero-molding : Flash Control <Time setting>
21		Zero-molding : Short shot mode (Confirmation of filling and short shot position by Flash Control)
22		Decompression by revers after plasticizing
23		Zero-molding : Clamp force feed back
24		Multiple clamp force control (Cross head position control)
25		Multi-toggle by objective (Gas release, Warping prevention)
26		Zero-molding : Molding condition guidance monitor (Peak clamp force, Clamp force at hold pressure end, Clamp force at cooling end, Pack Pressure, Status display)
27		Detection monitor change (Detect, Detail, Process, Detect and real time, Wave form, Temperature graph)
28	Check before mass production	Monitor setting : Automatic group setting
29		Protection for molding condition (Condition range, Production support, Screen display, Password)
30		Startup condition automatic change (By short shot mode)
31		Protection: Screw protection (Torque monitoring, Temperature output monitoring)
32		Process temperature control : Nozzle
33		Energy saving mode : Holding pressure
34	Aid to mass production	Wave form : Display by process (Injection, Holding pressure, Plasticizing, Mold open, Mold close, Ejector)
35		Wave form : Wave form preservation message
36		Quality Control : Wave form distinction
37		Quality Control : Molding process monitor logging (Temperature, Temperature control output, Peak clamp force, Pack pressure)
38		Production control : Product amount (Number of cavities setting)
39		Production control : Operation status control (Operation time, Motor over load, Power consumption)

HD List of Preparation Items (Summary)

Main Breaker Capacity

Machine	Main breaker capacity
SE100EV-HD	125 A
SE130EV-HD	150 A
SE180EV-HD	175 A

● Voltage and frequency of main power source is applicable to the areas of AC200V-50Hz/AC200V-60Hz/AC220V-60Hz.
● Connect to the mating of 3-phases/3-wires and grounding cable.

Power Cable Size

Machine	Primary side power cable size	Primary side power terminal screw size	Grounding cable size	Grounding cable terminal screw size
SE100EV-HD	38 mm²	M8	30 mm²	M8
SE130EV-HD	50 mm²	M8	30 mm²	M8
SE180EV-HD	60 mm²	M8	30 mm²	M8

● The size of electric cables listed above is based on the allowable current when the ambient temperature of piping of a single core polyvinyl cable is 40°C.
● The values listed above are calculated base on the sum of load current listed in the item of main breaker capacity.
When the power must be supplied in large quantities to auxiliary equipment from the molding machine, it is required to use a large size cable.
However, there may be enough room for the size of the cable currently used depending on the selection of the options.
● Voltage fluctuation of the power source must be within ±10% of the rated voltage at the power source contact point (main breaker) on the molding machine side.
● Protection network against service interruption is not provided for the control circuit of the molding machine.
When the instant interruption time exceeds one cycle, the molding machine may stop running in some cases.
In an area where instant service interruptions are frequent due to thunderbolts, be sure to install an uninterruptive power supply system at the plant site.

Cooling Water Quantity (Calculated values for reference)

■ For cooling jacket

Machine	Band heater capacity	Required cooling water quantity
SE100EV-C230HD	8.4 kW	2.0 L/min
SE130EV-C430HD	11.5 kW	2.7 L/min
SE180EV-C430HD	11.5 kW	2.7 L/min

■ For molds

Machine	Required cooling water quantity
SE100EV-HD	10 L/min (For 2 lines)
SE130EV-HD	10 L/min (For 2 lines)
SE180EV-HD	10 L/min (For 2 lines)

● Colling water of approx. 5 L/min is required for 1 line.