

Global Network

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Industrial Machinery Segment, Plastics Machinery Div.

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- INDIA

SE-EV-S-SHR
Ultra High Speed and Ultra High Response
Injection Molding Machine



SE-EV-S-SHR

Ultra High Speed and Ultra High Response
Injection Molding Machine



Lineup

- SE50EV-S-SHR (500kN)
- SE100EV-S-SHR (1000kN)
- SE130EV-S-SHR (1300kN)
- SE180EV-S-SHR (1800kN)
- SE220EV-S-SHR (2200kN)
- SE280EV-S-SHR (2800kN)
- SE350EV-S-SHR (3500kN)
- SE450EV-S-SHR (4500kN)

The machines in this series have acquired
JIS B 6711:2021 (equivalent to ISO 20430:2020)
certification.

We support the enhancement of our customers'
corporate value through providing high performance,
high quality, and safe injection molding machines.

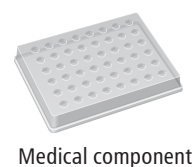
www.shi.co.jp/plastics/





Towards products that require large projected areas, thin-walls, high precision, and multiple cavities

Examples of products

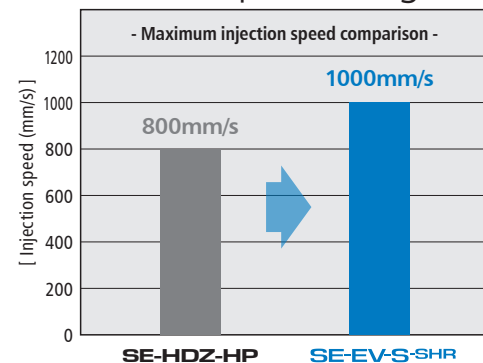


Can be achieved by improving filling speed and through high response acceleration and deceleration

SHR solution

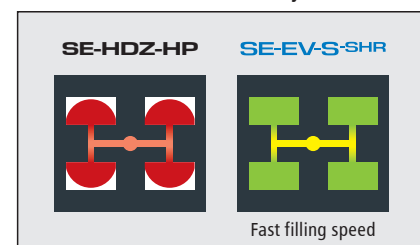
By shortening the screw stroke required to reach the setting speed, the followability relative to the set conditions is improved. Since the deceleration capabilities are also similarly improved, it is possible to maintain high fill speeds until right before the target position. This helps minimize molding defects seen in thin-walled molding.

Fast speed filling

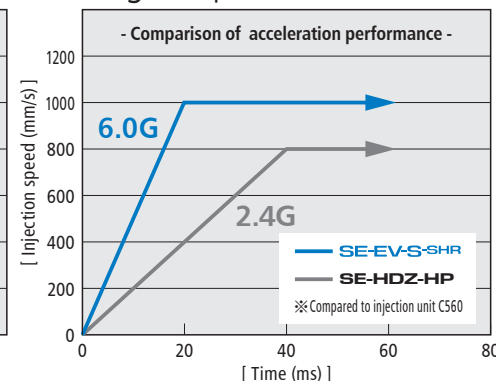


Effects Multiple cavities

With enhanced injection speed, before the melt flow solidifies, the narrow cavity can be filled.

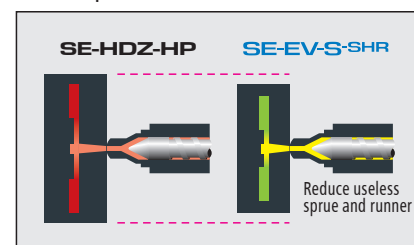


High response acceleration

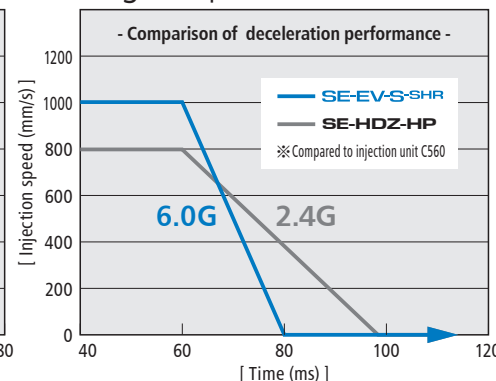


Effects Shorten the sprue and the runner

Because the target speed range is reached in a shorter time, the sprue and runner sizes can be reduced.

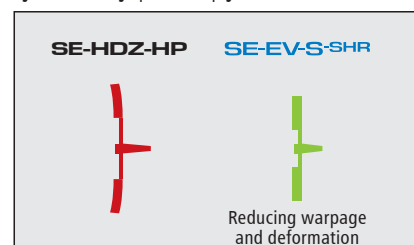


High response deceleration



Effects Reducing warpage and deformation

With improved deceleration capability, it can maintain high speed until right before the target position. Warpage and deformation can be reduced.

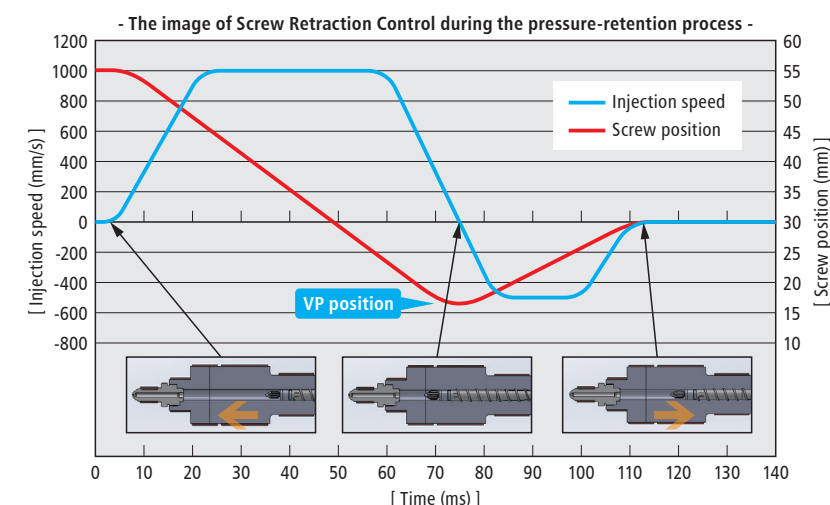


Reducing molding defects

Screw Retraction Control during the pressure-retention process

Pulling the screw after the VP position to control the flow front (flow tip). As the pressure is reduced, it is possible to optimize thickness and reduce Flash near the gate.

PAT. pend. in Japan

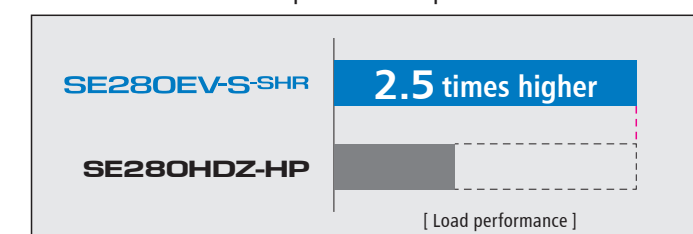


Increase load performance by 2.5 times

Clamp motor

It can withstand higher loads and supports a wider range of molding products.

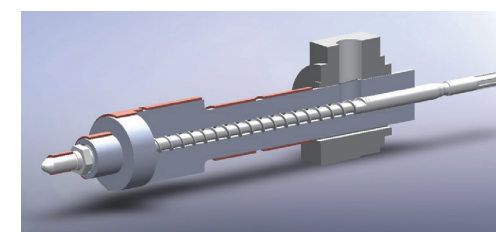
- Load performance comparison -



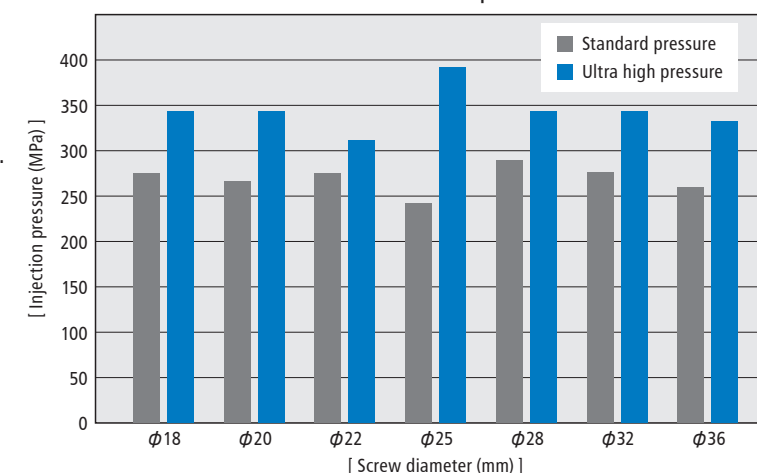
Broad line-up

Ultra high pressure screw unit

The extra high pressure screw has a 30% increase in maximum injection pressure compared to the standard specification. Line-up from $\phi 18$ to $\phi 36$.



- Screw line-up -



Refined multiple stages control

Compression molding

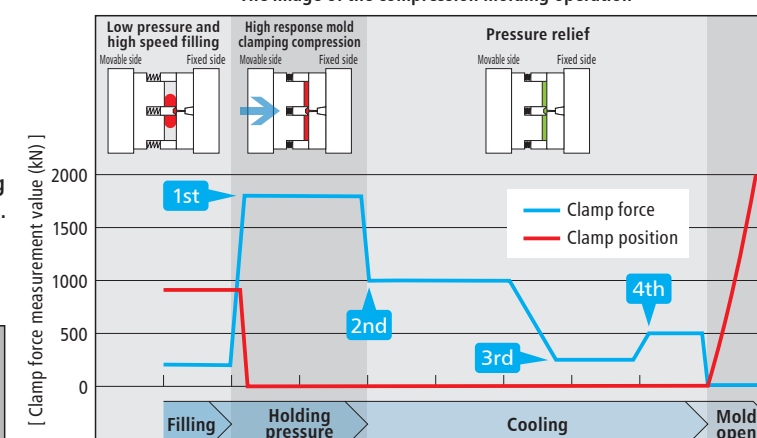
It's capable of utilizing multi stage settings for both position and clamp force to best match the thin-walled or thick-walled products. Adjusting for warpage or proper product release as well as reducing birefringence to increase product quality and productivity is possible.

Recommended option

Clamping response time (10-90%) 90ms

Compression start	Start injection	Mode	Initial Pos.	1st				2nd				3rd				4th			
				C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.	C.F.
			0.500	1800	1000	250	500	1800	1000	250	500	1800	1000	250	500	1800	1000	250	500
Platen pos	0.000	mm	Keep time	0.005	0.250	0.500	2.000	0.250	0.500	2.000	0.250	0.500	2.000	0.250	0.500	2.000	0.250	0.500	2.000
X head pos	0.000	mm	Move vel.		Max	Max	50.0	25.0	Max	Max	50.0	25.0	Max	Max	50.0	25.0	Max	Max	50.0

- The image of the compression molding operation -



Main Specifications

Item	Unit	SE50EV-S-SHR	SE100EV-S-SHR
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Clamping unit

Clamping system		Double toggle (5 points)		Double toggle (5 points)	
Clamping force (max.)	kN	500		1000	
Clearance between tie-bars (H x V)	mm	360 x 360		460 x 460	
Platen size (H x V)	mm	500 x 500		650 x 650	
Daylight	mm	600		800	
(Mold height extension 50 mm)		(650)		(850)	
(Mold height extension 100 mm)		—		(900)	
Mold opening stroke	mm	250		350	
Platen speed max.	mm/s	1200		1200	
(When high response high load compression device is selected)		—		—	
Mold height (min. - max.)	mm	160~350		180~450	
(Mold height extension 50 mm)		(160~400)		(180~500)	
(Mold height extension 100 mm)		—		(180~550)	
Locating hole diameter	mm	φ60		φ100	
(When φ60 locating ring is selected)		—		—	
Ejector system (ejecting points)		Motor driven type (5 points)		Motor driven type (5 points)	
Ejector ejection force	kN	21		32	
(When ejector compression device is selected)		(49)		(49)	
(When ejector force power up is selected)		—		(59)	
Ejector speed (max.)	mm/s	333		333	
(When ejector compression device is selected)		(250)		(333)	
(When ejector force power up is selected)		—		(333)	
Ejector stroke	mm	70		100	
(When ejector stroke extension is selected)		(100)		(150)	
(When ejector compression device is selected)		(60)		(80)	
(When ejector force power up is selected)		—		(80)	

Injection unit

		C65				C110						C360				
		S				S						M				
Screw spec		Ultra high pressure spec	Standard pressure spec			Ultra high pressure spec			Standard pressure spec			Ultra high pressure spec		Standard pressure spec		
Screw diameter	mm	18	18	20	22	18	20	22	22	25	28	25	28	28	32	36
Injection pressure (max.) *1,*2	MPa	343	274	265	220	343	343	311	274	241	192	392	343	289	275	218
Holding pressure (max.) *1,*2	MPa	274	219	212	176	274	274	248	219	192	153	313	274	231	220	174
Theoretical injection capacity	cm³	18	18	22	27	25	31	38	38	49	61	49	61	61	80	101
Injection weight (GPPS)	g	17	17	21	26	24	30	36	36	47	59	47	59	59	77	97
Plasticizing rate *3,*4	kg/h	7	10	13	18	7	10	13	18	26	37	18	26	37	53	76
Injection rate	cm³/s	254	254	314	380	254	314	380	380	490	615	490	615	615	804	1017
Screw stroke	mm	70				100						100				
Injection speed (max.)	mm/s	1000				1000						1000				
Screw speed (max.)	min ⁻¹	400				400						400				
Number of temperature control zone		4	4		5	4	4	5	5	5	5	5	5	5	5	5
Heater capacity	kW	3.7	3.2	3.6	3.9	3.7	4.0	4.2	3.8	4.2	4.8	6.2	7.0	6.5	7.5	8.4
Nozzle contact force	kN	14				14						43				
Injection unit moving stroke	mm	250				230~320						320				
Nozzle protrusion	mm	30				30						30	45			
Hopper capacity (When the standard hopper is selected)	L	(15)				(15)						(30)				

Machine dimensions and weight

Machine dimensions (L x W x H) *5	mm	3682 x 1113 x 1575		4568 x 1226 x 1691		4718 x 1226 x 1691	
(Mold height extension 50 mm)		(3732 x 1113 x 1575)		(4668 x 1226 x 1691)		(4818 x 1226 x 1691)	
(Mold height extension 100 mm)		—		(4668 x 1226 x 1691)		(4818 x 1226 x 1691)	
(When high response compression molding for LGP is selected)		—		—		—	
Machine weight	t	2.9		4.4		4.6	

*1 The max. injection pressure and max. hold pressure are calculated values and represent machine output, not resin pressure.
*2 The max. injection pressure and max. hold pressure are not sustained pressure levels.
*3 The plasticizing rate is shown for a machine equipped with SD Screw.
*4 50% of the value in the table is the threshold value when the SL Screw is selected.
*5 The total length of the machine is to the front end of the injection unit when mounting the screw of the smallest diameter.

● Specifications are subject to change without notice for performance improvement.
● The mass of the machine may vary depending on what options are installed.

Item	Unit	SE130EV-S-SHR	SE180EV-S-SHR
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Clamping unit

Clamping system		Double toggle (5 points)		Double toggle (5 points)	
Clamping force (max.)	kN	1300		1800	
Clearance between tie-bars (H x V)	mm	510 x 510		560 x 560	
Platen size (H x V)	mm	720 x 720		800 x 795	
Daylight	mm	850		950	
(Mold height extension 50 mm)		(900)		(1000)	
(Mold height extension 100 mm)		(950)		(1050)	
Mold opening stroke	mm	400		450	
Platen speed max.	mm/s	1200		1200	
(When high response high load compression device is selected)		—		(1200)	
Mold height (min. - max.)	mm	180~450		200~500	
(Mold height extension 50 mm)		(180~500)		(200~550)	
(Mold height extension 100 mm)		(180~550)		(200~600)	
Locating hole diameter	mm	φ100		φ100	
(When φ60 locating ring is selected)		—		(φ60)	
Ejector system (ejecting points)		Motor driven type (5 points)		Motor driven type (5 points)	
Ejector ejection force	kN	32		45	
(When ejector compression device is selected)		(49)		(49)	
(When ejector force power up is selected)		(59)		(59)	
Ejector speed (max.)	mm/s	333		333	
(When ejector compression device is selected)		(333)		(333)	
(When ejector force power up is selected)		(333)		(333)	
Ejector stroke	mm	100		120	
(When ejector stroke extension is selected)		(150)		(150)	
(When ejector compression device is selected)		(80)		(100)	
(When ejector force power up is selected)		(80)		(100)	

Injection unit

		C360					C360					C560				
		M					M					M				
Screw spec		Ultra high pressure spec		Standard pressure spec			Ultra high pressure spec		Standard pressure spec			Ultra high pressure spec		Standard pressure spec		
Screw diameter	mm	25	28	28	32	36	25	28	28	32	36	32	36	36	40	45
Injection pressure (max.) *1,*2	MPa	392	343	289	275	218	392	343	289	275	218	343	332	259	269	223
Holding pressure (max.) *1,*2	MPa	313	274	231	220	174	313	274	231	220	174	274	265	207	215	178
Theoretical injection capacity	cm³	49	61	61	80	101	49	61	61	80	101	128	162	162	201	254
Injection weight (GPPS)	g	47	59	59	77	97	47	59	59	77	97	123	156	156	193	244
Plasticizing rate *3,*4	kg/h	18	26	37	53	76	18	26	37	53	76	37	53	76	101	136
Injection rate	cm³/s	490	615	615	804	1017	490	615	615	804	1017	804	1017	1017	1256	1590
Screw stroke	mm	100					100					160				
Injection speed (max.)	mm/s	1000					1000					1000				
Screw speed (max.)	min ⁻¹	400					400					400				
Number of temperature control zone		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Heater capacity	kW	6.2	7.0	6.5	7.5	8.4	6.2	7.0	6.6	7.6	8.5	7.9	8.4	8.5	10.3	11.5
Nozzle contact force	kN	43					43					43				
Injection unit moving stroke	mm	240~335					350~380					380				
Nozzle protrusion	mm	30		45			30		45			30		65		
Hopper capacity (When the standard hopper is selected)	L	(30)					(30)					(50)				

Machine dimensions and weight

Machine dimensions (L x W x H) *5	mm	4836 x 1326 x 1750		5198 x 1396 x 1831		5555 x 1396 x 1831	
(Mold height extension 50 mm)		(4936 x 1326 x 1750)		(5298 x 1396 x 1831)		(5655 x 1396 x 1831)	
(Mold height extension 100 mm)		(4936 x 1326 x 1750)		(5298 x 1396 x 1831)		(5655 x 1396 x 1831)	
(When high response compression molding for LGP is selected)		—		(5658 x 1396 x 1831)		—	
Machine weight	t	5.5		7.1		7.5	

Main Specifications

Item	Unit	SE220EV-S-SHR	SE280EV-S-SHR
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■Clamping unit

Clamping system		Double toggle (5 points)		Double toggle (5 points)	
Clamping force (max.)	kN	2200		2800	
Clearance between tie-bars (H x V)	mm	660 x 660		730 x 730	
Platen size (H x V)	mm	930 x 930		1020 x 1020	
Daylight	mm	1175		1275	
(Mold height extension 100 mm)		(1275)		(1375)	
(Mold height extension 200 mm)		(1375)		(1475)	
Mold opening stroke	mm	575		625	
Platen speed max.	mm/s	1349		1298	
(When high response high load compression device is selected)		(1079)		(1032)	
Mold height (min. - max.)	mm	200~600		300~650	
(Mold height extension 100 mm)		(200~700)		(300~750)	
(Mold height extension 200 mm)		(200~800)		(300~850)	
Locating hole diameter	mm	φ100		φ100	
Ejector system (ejecting points)		13 points		13 points	
Ejector ejection force	kN	60		60	
(When ejector force power up is selected)		(100)		(100)	
Ejector speed (max.)	mm/s	267		267	
Ejector stroke	mm	220		220	
Mold weight (max.)	kg	2800		3800	
(Moving side (max.))		(1850)		(2500)	

■Injection unit

		C560					C560				
		M					M				
Screw spec		Ultra high pressure spec		Standard pressure spec			Ultra high pressure spec		Standard pressure spec		
Screw diameter	mm	32	36	36	40	45	32	36	36	40	45
Injection pressure (max.) *1,*2	MPa	343	332	259	269	223	343	332	259	269	223
Holding pressure (max.) *1,*2	MPa	274	266	207	215	178	274	266	207	215	178
Theoretical injection capacity	cm ³	128	162	162	201	254	128	162	162	201	254
Injection weight (GPPS)	g	123	156	156	193	244	123	156	156	193	244
Plasticizing rate *3	kg/h	37	53	76	101	136	37	53	76	101	136
Injection rate	cm ³ /s	804	1017	1017	1256	1590	804	1017	1017	1256	1590
Screw stroke	mm	160					160				
Injection speed (max.)	mm/s	1000					1000				
Screw speed (max.)	min ⁻¹	400					400				
Number of temperature control zone		5	6	5			5	6	5		
Heater capacity	kW	7.9	8.4	8.5	10.3	11.5	7.9	8.4	8.5	10.3	11.5
Nozzle contact force	kN	43					43				
Injection unit moving stroke	mm	395					420				
Nozzle protrusion	mm	30		65			30		65		
Hopper capacity (When the standard hopper is selected)	L	(50)					(50)				

■Machine dimensions and weight

Machine dimensions (L x W x H) *4	mm	6466 x 1832 x 2025					7236 x 1972 x 2059				
(Mold height extension 100 mm)		(6566 x 1832 x 2025)					(7336 x 1972 x 2059)				
(Mold height extension 200 mm)		(6666 x 1832 x 2025)					(7436 x 1972 x 2059)				
(Dust prevention cover above toggle (Fixed type))		(6466 x 1832 x 2100)					(7236 x 1972 x 2145)				
(Dust prevention cover above toggle (Slide type))		(6466 x 1832 x 2245)					(7236 x 1972 x 2285)				
(Safety door wide expansion)		(6466 x 1932 x 2025)					(7236 x 2072 x 2059)				
(High response and Heavy duty Compression Molding selected)		(6566 x 1832 x 2025)					(7336 x 1972 x 2059)				
Machine weight	t	11.8					14.5				

*1 The max. injection pressure and max. hold pressure are calculated values and represent machine output, not resin pressure.
*2 The max. injection pressure and max. hold pressure are not sustained pressure levels.
*3 The plasticizing rate is shown for a machine equipped with SD Screw.
*4 The total length of the machine is to the front end of the injection unit when mounting the screw of the smallest diameter.

● Specifications are subject to change without notice for performance improvement.
● The mass of the machine may vary depending on what options are installed.

Item	Unit	SE350EV-S-SHR	SE450EV-S-SHR
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■Clamping unit

Clamping system		Double toggle (5 points)		Double toggle (5 points)	
Clamping force (max.)	kN	3500		4500	
Clearance between tie-bars (H x V)	mm	830 x 830		920 x 920	
Platen size (H x V)	mm	1140 x 1140		1300 x 1300	
Daylight	mm	1425		1625	
(Mold height extension 100 mm)		(1525)		(1725)	
(Mold height extension 200 mm)		(1625)		(1825)	
Mold opening stroke	mm	725		825	
Platen speed max.	mm/s	1346		1109	
(When high response high load compression device is selected)		(1032)		(1109)	
Mold height (min. - max.)	mm	350~700		350~800	
(Mold height extension 100 mm)		(350~800)		(350~900)	
(Mold height extension 200 mm)		(350~900)		(350~1000)	
Locating hole diameter	mm	φ100		φ100	
Ejector system (ejecting points)		13 points		21 points	
Ejector ejection force	kN	60		100	
(When ejector force power up is selected)		(100)		(150)	
Ejector speed (max.)	mm/s	267		267	
Ejector stroke	mm	220		220	
Mold weight (max.)	kg	5200		7500	
(Moving side (max.))		(3450)		(5000)	

■Injection unit

		C560					C560				
		M					M				
Screw spec		Ultra high pressure spec		Standard pressure spec			Ultra high pressure spec		Standard pressure spec		
Screw diameter	mm	32	36	36	40	45	32	36	36	40	45
Injection pressure (max.) *1,*2	MPa	343	332	259	269	223	343	332	259	269	223
Holding pressure (max.) *1,*2	MPa	274	266	207	215	178	274	266	207	215	178
Theoretical injection capacity	cm ³	128	162	162	201	254	128	162	162	201	254
Injection weight (GPPS)	g	123	156	156	193	244	123	156	156	193	244
Plasticizing rate *3	kg/h	37	53	76	101	136	37	53	76	101	136
Injection rate	cm ³ /s	804	1017	1017	1256	1590	804	1017	1017	1256	1590
Screw stroke	mm	160					160				
Injection speed (max.)	mm/s	1000					1000				
Screw speed (max.)	min ⁻¹	400					400				
Number of temperature control zone		5	6	5			5	6	5		
Heater capacity	kW	7.9	8.4	8.5	10.3	11.5	7.9	8.4	8.5	10.3	11.5
Nozzle contact force	kN	43					43				
Injection unit moving stroke	mm	450					495				
Nozzle protrusion	mm	30		65			30		65		
Hopper capacity (When the standard hopper is selected)	L	(50)					(50)				

■Machine dimensions and weight

Machine dimensions (L x W x H) *4	mm	7446 x 2072 x 2192					8361 x 2252 x 2292				
(Mold height extension 100 mm)		(7546 x 2072 x 2192)					(8461 x 2252 x 2292)				
(Mold height extension 200 mm)		(7646 x 2072 x 2192)					(8561 x 2252 x 2292)				
(Dust prevention cover above toggle (Fixed type))		(7446 x 2072 x 2225)					(8361 x 2252 x 2330)				
(Dust prevention cover above toggle (Slide type))		(7446 x 2072 x 2375)					(8361 x 2252 x 2465)				
(Safety door wide expansion)		(7446 x 2172 x 2192)					(8361 x 2352 x 2292)				
(High response and Heavy duty Compression Molding selected)		(7686 x 2072 x 2192)					(8571 x 2252 x 2292)				
Machine weight	t	16.5					23.7				