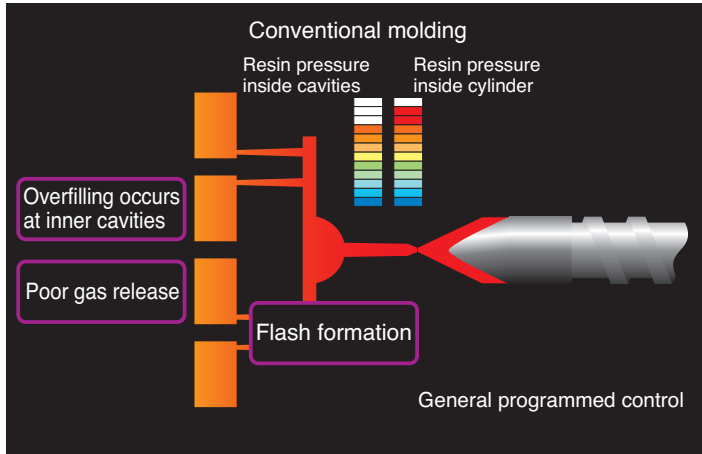


SE-DU^Z
SERIES

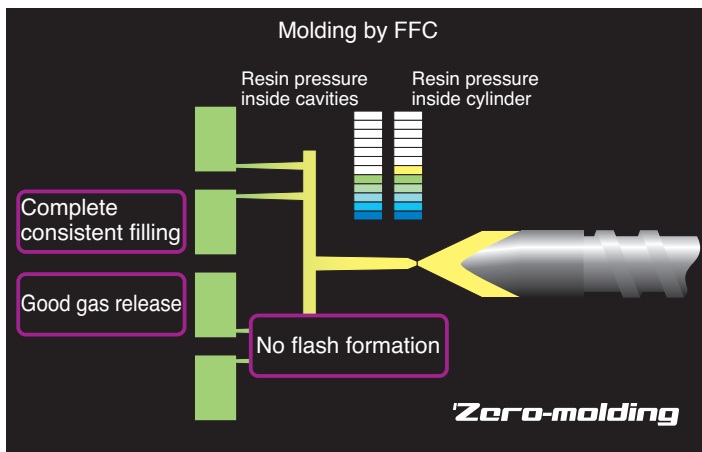
'Zero-molding

SUMITOMO ALL ELECTRIC INJECTION MOLDING MACHINE

Stable molding conditions via smooth filling



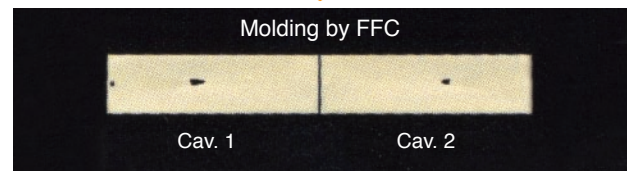
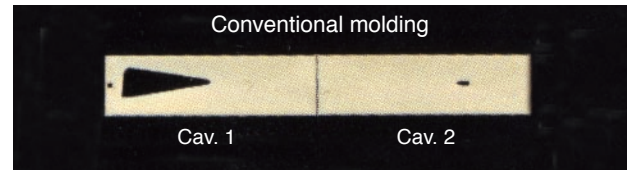
In conventional molding systems, resin is fully charged into mold cavities and consequently is apt to suffer excessive compression.



FFC is a viscoelasticity-assisted injection molding scheme where resin is not exposed to high pressures.

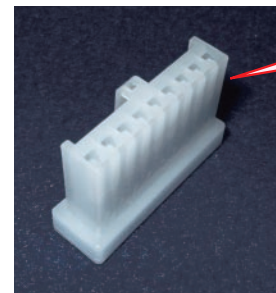
In FFC (Flow Front Control), screw movement is restricted by Flash Control to optimize the flow front. This enables molding at low internal pressures inside cavities, which, besides preventing flash, eliminates short shots by effectively releasing gases when filling.

Example improvement in cavity balance



Molding by FFC improves cavity balance. All cavities face the same conditions that would lead to short shots and flash.

Example clamping force reduction by FFC



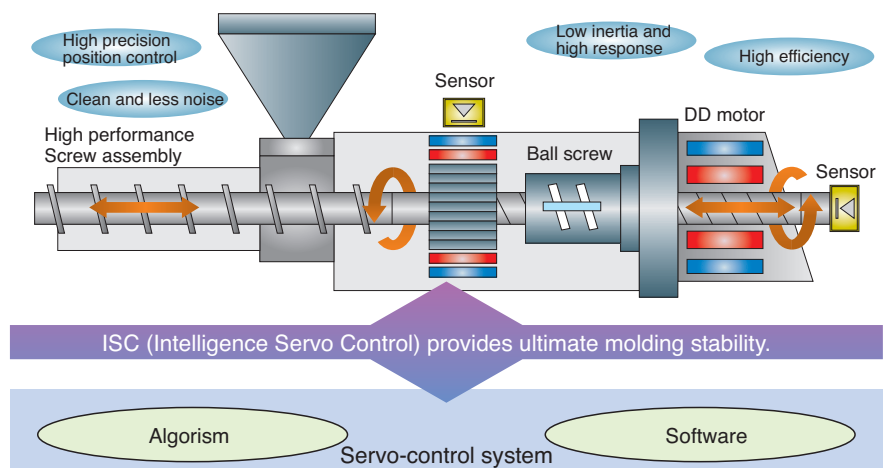
Clamp force reduced by 90% !

In internal tests using an automotive connector mold, pressure inside cavities was reduced by about 50%.

As a result, the previously required clamping force of 300 kN was reduced to 30 kN.

A more evolved ISC system to support FFC

The already proven ISC (Intelligent Servo Control) system has been given a new algorithm that brings new filling control to all-electric machines. Furthermore, direct drive motors of low inertia incorporate a newly developed servo control card. By improving both the hardware mechanisms and control system, molding results more stable.



makes innovative molding possible

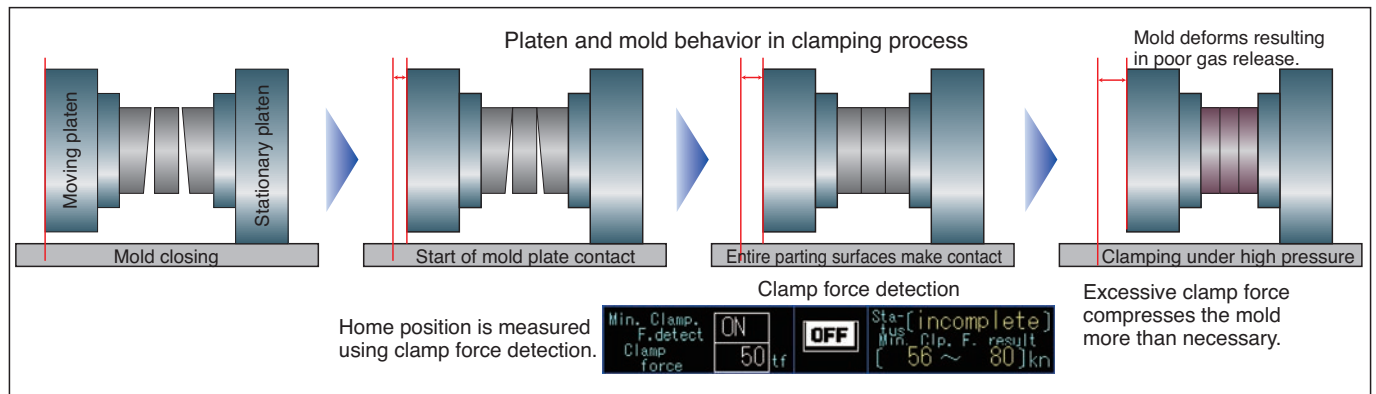
'Zero-molding by MCM (Mold clamping system)

Patent pending

New functions

Low pressure clamping without unnecessary force

The SE-DUZ builds in detection capabilities for sensing the minimum force (home position) required to clamp the mold. Even with molds for the complicated profiles of heat shields, springs, sliding cores or angular pins, the clamp force required for actual molding can be set by measuring the home position, so molding is performed effectively without applying unnecessary force. Moreover, the difference in mold sitting before and after maintenance can be easily identified.



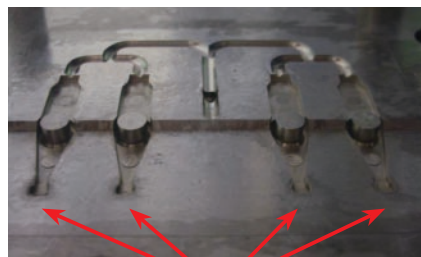
Mold comparison after 1000 shots

MCM enables molding with the detected minimum required clamp force. Gas is greatly reduced to the following benefits.

- Burning and shot shots are eliminated
- Mold maintenance is required less frequently

By reducing the mold clamp force, users can expect reductions in power consumption and shorter cycles, besides avoiding damage such as broken pins.

Conventional molding 98kN (10tf)
(Moving side)



Gas burning occurs in flow end.

Molding at low clamp force 0kN
(Moving side)

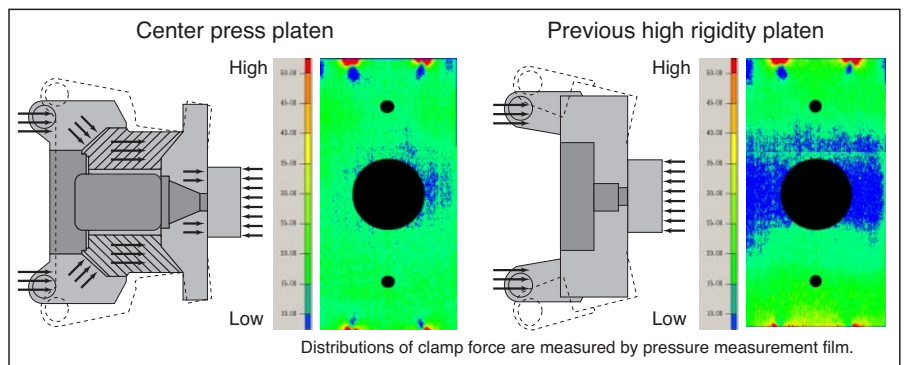


Gas burning is avoided because gas is released from entire parting surfaces.

Evolved clamping system to support MCM

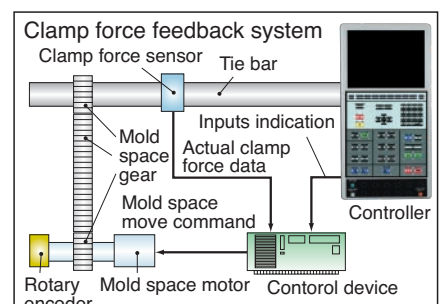
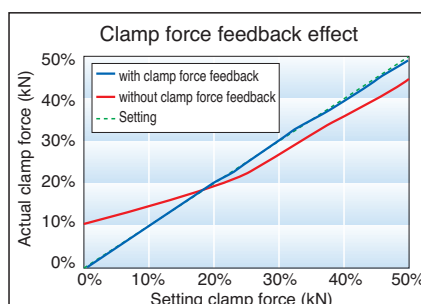
CPP (Center Press Platen) for balanced clamp force around molds

Sumitomo's CPP is proven technology that evenly applies clamp force to balance the surface pressure acting on molds.



Clamp force feedback control optimizes clamp force

Force detecting sensors are employed to appropriately control clamp force to that needed for molding from 0 kN to the maximum applied load. Key to 'Zero-molding', this feature delivers sound accuracy even at low force settings.



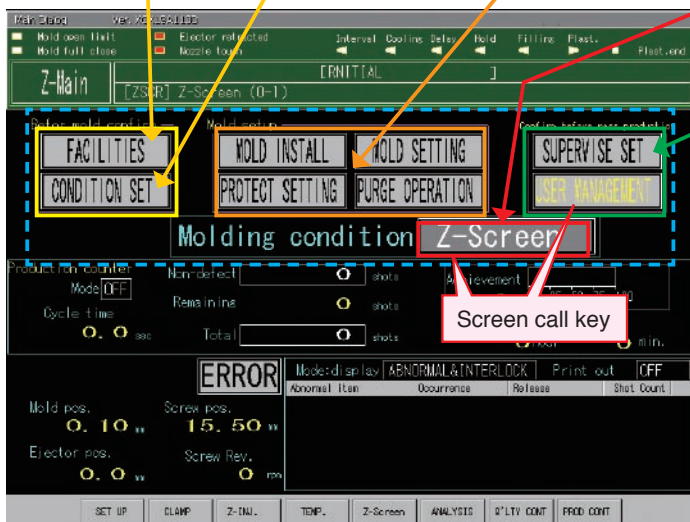
'Zero-molding by SPS (Setting system)

Patent pending

New functions

SPS simplifies operation while eliminating mistakes and oversights

Process up to mass-production start



SPS (Simple Process Setting) arranges settings by process from the operator's position.

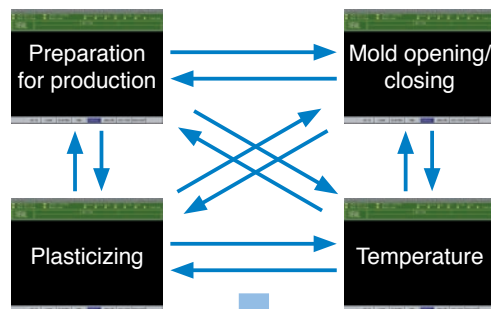
Setting screens have been created according to process operations rather than the conventional setup of functions. A series of setting operations can be completed on a single screen.

1 process 1 screen
ONE ONE

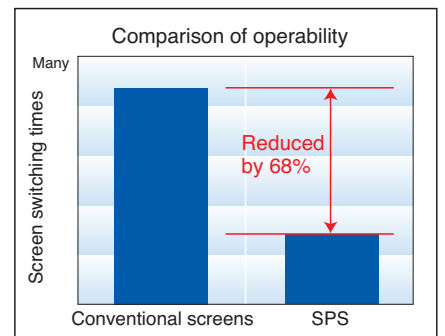
Comparison of screen operation 1 (Mold preparations and purging)

Example of improved operability
SPS reduces screen switching for mold preparations and purging by 68%.

Conventional operation (Screens arranged by function)



Whereas the conventional screens that were arranged by function required frequent switching between screens, SPS reduces operations to a minimum by arranging setting parameters according to process.

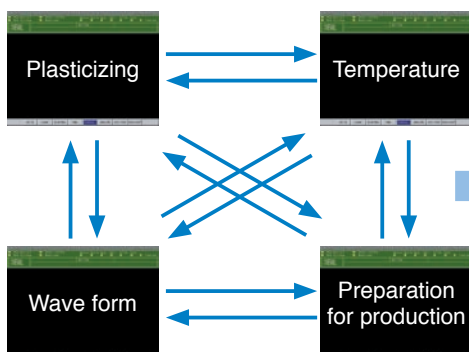


SPS (Screens arranged by process)

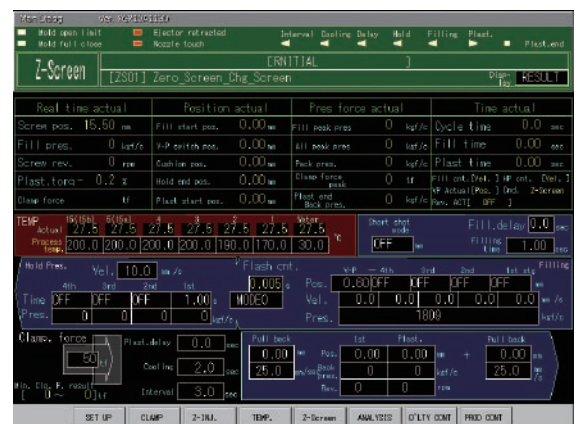


Comparison of screen operation 2 (Mass-production setup)

Conventional screens



Z-Screen
Even the fine-adjustments used in mold changeover and parameter setting for production launches with new molds can be handled with this one Z-Screen.



makes innovative molding possible

'Zero-molding backed by new functions

Zero-molding system list of new functions

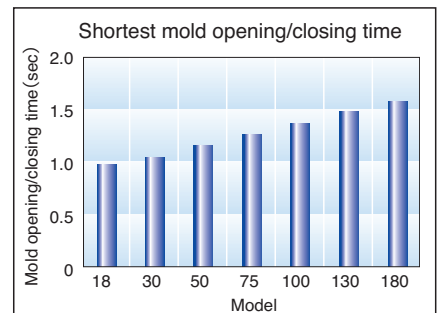
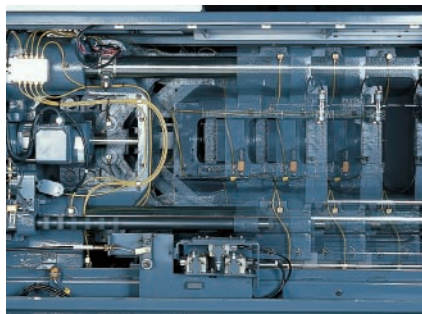
1	Main	Zero-molding Main Screen : Simple Process Setting
2		Zero-molding Main Screen : Product Molding monitor (Product count, Process, Abnormal, Detect)
3	Check before molding	Mold condition change (Screw dia., Unit, Add IL display)
4		Screen for confirm Spec.Function (STD, Option, Abnormal transaction, Peripheral device signal)
5	Molding preparation	Minimum Clamp force detect
6		SET-UP guidance : Mold install Screen
7		SET-UP guidance : Mold condition setting
8		SET-UP guidance : Mold protection setting screen
9		SET-UP guidance : Mold protection setting screen
10		SET-UP guidance : Reference & Call TEMP condition
11		SET-UP guidance : Supervise & warning remain resin
12		SET-UP guidance : Nozzle/Heating cylinder heated up mode (STEP/Nozzle delay)
13	SET-UP guidance : Nozzle/heating cylinder/water cooling jacket TEMP profile graphic display	
14	Mold setups	Zero-molding : Molding condition setting screen Z-Screen (Fill., HP, Plast. Time, TEMP, Clamp force)
15		Zero-molding : Flash mode control
16		Zero-molding : Short shot mode by Flash control
17		Decomp. by Revers after plasticizing
18		Zero-molding : Clamp force feed back
19		MULTI clamping force control (X_head pos. control)
20		Zero-molding: Molding condition guidance monitor (Peak clamping force, Pack Press., Situation monitor)
21		Detect monitor change (Detect, detail, Detect+real time, wave, TEMP graph)
22	Check before mass production	Protection for molding condition
23		Initial molding by auto change (condition)
24	Aid to mass production	Protection : Screw protection
25		Wave : Display by process (IJ, HP, Plast., Mold open, Mold close, E.J)
26		Wave : Wave preservation message
27		Quality Control : Wave distinction
28		Quality Control I: Molding process monitor logging
29		Production control : Production count control I (Cavity count setting)
30		Production control : Operation status control (Operation time, Motor over load monitor, Electricity consumption monitor)

Accuracy stability to improve productivity

High speed, low vibrations

The highest standard of molding clamping mechanism is incorporated for precision high cycling.

Using a toggle mechanism that has been continually improved over these past 40 years and a newly developed high response servo drive system, the SE-DUZ delivers the industry's top precision high cycle molding.



High response performance

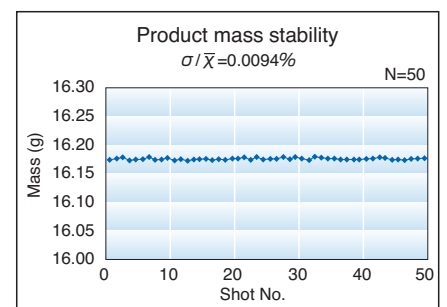
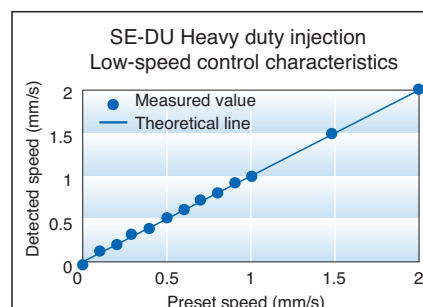
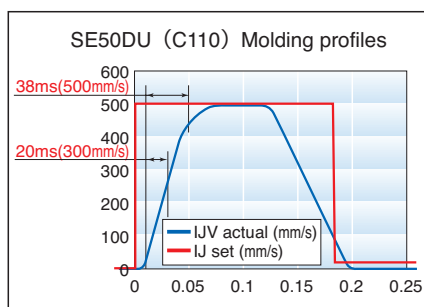
DD has the same injection power as a hydraulic machine with accumulator. DD is suitable for thin wall parts, high viscosity resin and long flow length parts.

Low speed injection control performance

The injection unit of the SE-DUZ has a linear speed control profile. This enables a stable molding even for thick walled products.

Product mass stability

ISC and the DD system provide an excellent accuracy to molding steps including mold opening/closing steps, implementing highly stable and accurate molding solutions.



Main specification

Items	Unit	SE18DUZ	SE30DUZ	SE50DUZ	SE75DUZ
●Clamp unit					
Clamp system		Double toggle (5 point)	Double toggle (5 point)	Double toggle (5 point)	Double toggle (5 point)
Clamp force	kN {tf}	170 {18}	290 {30}	490 {50}	730 {75}
Clearance between tie-bars (L×H)	mm	260×235	310×290	360×310	410×360
Clamp platens max. (L×H)	mm	355×355	440×420	500×450	580×530
Daylight	mm	410	530	600	710
Mold opening stroke	mm	160	230	250	300
Platen speed max.	mm/s	MAX.1200	MAX.1200	MAX.1200	MAX.1200
Mold installation height (min.~max.)	mm	130~250	150~300	160~350	160~410
Locating ring diameter	mm	φ26 {φ60}	φ60	φ100	φ100
Ejector type		Electric (1 point)	Electric (1 point)	Electric (5 point)	Electric (5 point)
Ejector force	kN {tf}	7.8 {0.8}	7.8 {0.8}	21 {2.2}	26 {2.7}
Ejector speed max.	mm/s	MAX.333	MAX.333	MAX.333	MAX.333
Ejector stroke	mm	50	50	70	80

●Injection unit																													
Plasticizing capacity		C30				C50				C75				C110				C160											
Screw diameter	mm	14	16	18	20	18	20	22	25	18	20	22	25	22	25	28	32	22	25	28	32	22	25	28	32				
Injection pressure max. 【Note1, Note2】	MPa	223	266	210	170	262	212	175	270	223	172	262	212	175	270	223	172	274	212	174	274	218	167	274	212				
	{kgf/cm ² }	(2280)	(2713)	(2144)	(1736)	(2680)	(2170)	(1790)	(2760)	(2280)	(1760)	(2680)	(2170)	(1790)	(2760)	(2280)	(1760)	(2800)	(2170)	(1780)	(2800)	(2230)	(1710)	(2800)	(2170)				
Hold pressure max. 【Note1, Note2】	MPa	223	212	168	136	210	170	140	216	178	138	210	170	140	216	178	138	219	170	139	219	175	134	219	170				
	{kgf/cm ² }	(2280)	(2170)	(1715)	(1388)	(2144)	(1736)	(1432)	(2208)	(1824)	(1408)	(2144)	(1736)	(1432)	(2208)	(1824)	(1408)	(2240)	(1736)	(1424)	(2240)	(1784)	(1368)	(2240)	(1736)				
Theoretical injection capacity	cm ³	6.2	11	14	17	19	23	28	27	33	43	19	23	28	27	33	43	40	51	64	51	64	84	40	51				
Max. injected mass (GPPS)	g	5.9	11	13	17	18	22	27	26	32	41	18	22	27	26	32	41	38	49	61	49	61	80	38	49				
	OZ	0.2	0.4	0.5	0.6	0.6	0.8	0.9	0.9	1.1	1.5	0.6	0.8	0.9	0.9	1.1	1.5	1.3	1.7	2.2	1.7	2.2	2.8	1.3	1.7				
Plasticizing rate max. (GPPS) 【Note3】	kg/h	5.1	9.5	13	16	10	13	18	13	18	26	10	13	18	13	18	26	18	26	37	26	37	53	18	26				
	(rpm)	(460)	(430)	(430)	(430)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)				
Injection rate max.	cm ³ /s	77	101	127	157	127	157	190	157	190	245	127	157	190	157	190	245	190	245	308	196	246	322	190	245				
Screw stroke	mm	40	55			73				87				73				87				104				104			
Injection speed max.	mm/s	500				500				500				400				500				400							
Screw driving system		Electric				Electric				Electric				Electric				Electric											
Screw speed max.	rpm	460	430			400				400				400				400											
Number of temperature control zone		4				4	5	4	5	4	5	4	5				5												
Heater capacity	kW	2.3	2.7	2.7	3.1	3.2	3.5	3.9	3.5	3.9	4.3	3.2	3.5	3.9	3.5	3.9	4.3	3.9	4.3	4.8	4.3	4.8	5.5	3.9	4.3				
Nozzle contact force	kN {tf}	A	2.9 {0.3}				5.8 {0.6}				5.8 {0.6}				7.8 {0.8}				11 {1.2}										
B		7.8 {0.8}					7.8 {0.8}				9.8 {1.0}				14 {1.5}														
{OP}		[11 {1.2}]					[11 {1.2}]				[11 {1.2}]				[45]														
Moving stroke (protrusion)	mm	175 (65)				210 (30)				250 (30) 【Note9】				285 (30)															
Hopper capacity	ℓ	6				15				15				15															

●Machine dimension & mass										
Machine dimension (L×W×H) 【Note4】	mm	2431×758×1531	3194×892×1679	3194×892×1679	3631×984×1689	3631×984×1689	3631×984×1689	3631×984×1689	4247×1059×1719	4247×1059×1719
Machine mass	t	1.2	1.8	1.8	2.1	2.2	2.3	2.4	3.1	3.2

	SE100DUZ	SE130DUZ	SE180DUZ
point)	Double toggle (5 point)	Double toggle (5 point)	Double toggle (5 point)
	980 {100}	1270 {130}	1270 {130}
	460×410	510×460	560×510
	650×600	720×670	800×750
	760	825	950
	350	375	450
	MAX.1200	MAX.1200	MAX.1200
	180~410	180~450	200~500
	φ 100	φ 100	φ 120 [φ 100 Locating ring : Option]
	Electric (5 point)	Electric (5 point)	Electric (5 point)
	32 {3.3}	32 {3.3}	45 {4.6}
	MAX.333	MAX.333	MAX.333
	100	100	120

C250			C110			C160			C250			C360			C160			C250			C360			C450			C160			C250			C360			C450			C510		
M	S	S	M	S	S	M	S	S	M	S	S	M	S	S	M	S	S	M	S	S	M	S	S	M	S	S	M	S	S	M	S	S	M	S	S	M	S	S	M	S	S
28	32	36	22	25	28	25	28	32	28	32	36	32	36	40	25	28	32	28	32	36	32	36	40	36	40	45	25	28	32	28	32	36	32	36	40	36	40	45	40	45	50
284	217	171	274	212	174	274	218	167	284	217	171	273	215	167	274	218	167	284	217	171	273	215	167	259	209	165	274	218	167	284	217	171	273	215	167	259	209	165	245	193	156
(2900)	(2220)	(1750)	(2800)	(2170)	(1780)	(2800)	(2230)	(1710)	(2900)	(2220)	(1750)	(2790)	(2200)	(1710)	(2800)	(2230)	(1710)	(2900)	(2220)	(1750)	(2790)	(2200)	(1710)	(2650)	(2140)	(1690)	(2800)	(2230)	(1710)	(2900)	(2220)	(1750)	(2790)	(2200)	(1710)	(2650)	(2140)	(1690)	(2500)	(1970)	(1600)
227	174	137	219	170	139	219	175	134	227	174	137	218	172	134	219	175	134	227	174	137	218	172	134	207	167	132	219	175	134	227	174	137	218	172	134	207	167	132	196	154	125
(2320)	(1776)	(1400)	(2240)	(1736)	(1424)	(2240)	(1784)	(1368)	(2320)	(1776)	(1400)	(2232)	(1760)	(1368)	(2240)	(1784)	(1368)	(2320)	(1776)	(1400)	(2232)	(1760)	(1368)	(2120)	(1712)	(1352)	(2240)	(1784)	(1368)	(2320)	(1776)	(1400)	(2232)	(1760)	(1368)	(2120)	(1712)	(1352)	(2000)	(1576)	(1280)
86	113	143	40	51	64	51	64	84	86	113	143	129	163	201	51	64	84	86	113	143	129	163	201	163	201	254	51	64	84	86	113	143	129	163	201	163	201	254	201	254	314
83	108	137	38	49	61	49	61	80	83	108	137	124	156	193	49	61	80	83	108	137	124	156	193	156	193	244	49	61	80	83	108	137	124	156	193	156	193	244	193	244	302
2.9	3.8	4.8	1.3	1.7	2.2	1.7	2.2	2.8	2.9	3.8	4.8	4.4	5.5	6.8	1.7	2.2	2.8	2.9	3.8	4.8	4.4	5.5	6.8	5.5	6.8	8.7	1.7	2.2	2.8	2.9	3.8	4.8	4.4	5.5	6.8	5.5	6.8	8.7	6.8	8.7	10.7
37	53	76	18	26	37	26	37	53	37	53	76	53	76	101	26	37	53	37	53	76	53	76	101	76	101	136	26	37	53	37	53	76	53	76	101	76	101	136	101	136	193
(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)			
185	241	305	190	245	308	196	246	322	185	241	305	241	305	377	196	246	322	185	241	305	241	305	377	305	377	477	196	246	322	185	241	305	241	305	377	305	377	477	377	477	589
140	104			140			160			104			140			160			104			140			160																
300	500			400			300			400			300			400			400			300			300																
Electric									Electric									Electric																							
400									400									400																							
5									5									5																							
6.6	7.6	8.5	3.9	4.3	4.8	4.3	4.8	5.5	6.6	7.6	8.5	7.6	8.5	10.4	4.3	4.8	5.5	6.6	7.6	8.5	10.4	8.5	10.4	11.0	4.3	4.8	5.5	6.6	7.6	8.5	7.6	8.5	10.4	8.5	10.4	11.0	10.4	11.1	11.3		
11 {1.2}									11 {1.2}									11 {1.2}																							
14 {1.5}									14 {1.5}									14 {1.5}																							
{4.6}	{11 {1.2}}			{45 {4.6}}			{45 {4.6}}									{45 {4.6}}																									
300 (45)	305 (30)			320 (45)			320 (30)			335 (45)			360 (30) [Note9]			380 (65) [Note9]																									
30	15			30			15			30			50			15			30			50																			

4247×1059×1800	4630×1169×1791	4630×1169×1791	4630×1169×1872	4630×1169×1872	4989×1234×1848	4989×1234×1929	4989×1234×1929	4989×1234×2024	5364×1284×1884	5364×1284×1965	5364×1284×1965	5364×1284×2060	5364×1284×2060
3.3	3.9	3.9	4.0	4.1	5.3	5.3	5.4	5.5	6.3	6.4	6.4	6.5	6.5

Note1. The maximum injection pressure and hold pressure are calculated values, which are the outputs of the machine, but not the resin pressures.
 Note2. The maximum injection pressure and hold pressure are no pressures that can be generated continuously.
 Note3. The injection capacity is a value with the SD screw installed.
 Note4. The total length of the machine is the value measured up to the advance position of the injection unit with a smallest screw installed.
 Note5. The value in { } is given for reference.
 Note6. Specifications subject to change without notice for performance improvement

Note7. Figure in [] is option.
 Note8. Selectable between A and B
 Note9. SE50DUZ-C50 with the option (high precision and high power nozzle touch device) provides the stroke of plasticizing unit of 210 mm (ejector stroke is 30 mm).
 SE180DUZ-C160, C250 with the option (high precision and high power nozzle touch device) provides the stroke of plasticizing unit of C160 : 320 mm (ejector stroke is 30 mm), C250 : 350mm (ejector stroke is 30 mm).

Heavy duty Injection

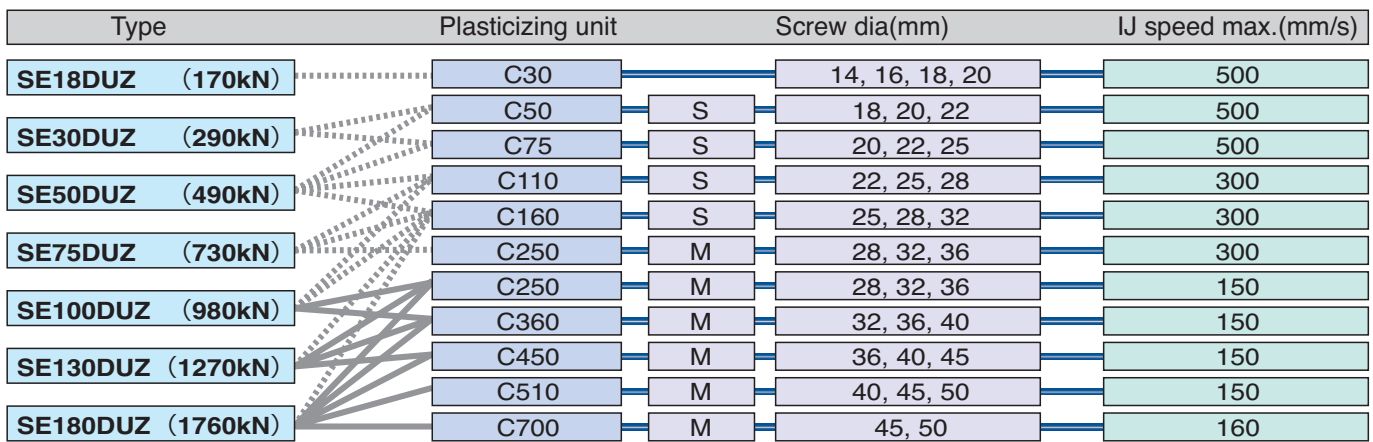
High hold pressures improve dimensional accuracy in support of

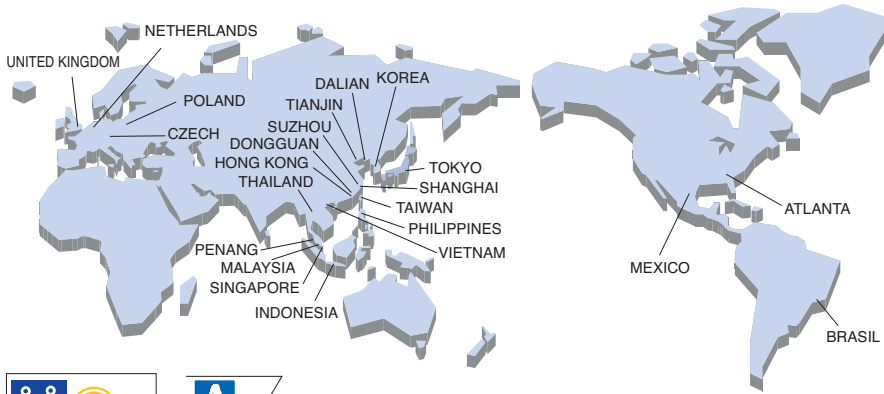
Items	Unit	SE18DUZ	SE30DUZ	SE50DUZ	SE75DUZ
●Clamp unit					
Clamp system		Double toggle (5 point)	Double toggle (5 point)	Double toggle (5 point)	Double toggle (5 point)
Clamp force	kN {tf}	170 {18}	290 {30}	490 {50}	730 {75}
Clearance between tie-bars (L×H)	mm	260×235	310×290	360×310	410×360
Clamp platens max. (L×H)	mm	355×355	440×420	500×450	580×530
Daylight	mm	410	530	600	710
Mold opening stroke	mm	160	230	250	300
Mold installation height (min.~max.)	mm	130~250	150~300	160~350	160~410
Locating ring diameter	mm	φ26 [φ60]	φ60	φ100	φ100
Ejector type		Electric (1 point)	Electric (1 point)	Electric (5 point)	Electric (5 point)
Ejector force	kN {tf}	7.8 {0.8}	7.8 {0.8}	21 {2.2}	26 {2.7}
Ejector stroke	mm	50	50	70	80

		C30				C50				C75				C110				C160				C250										
		S				S				S				S				M														
Plasticizing capacity																																
Screw diameter	mm	14	16	18	20	18	20	22	20	22	25	18	20	22	20	22	25	22	25	28	25	28	32	22	25	28	25	28	32	28	32	36
Injection pressure max.	MPa	223	266	210	170	262	212	175	270	223	172	262	212	175	270	223	172	274	212	174	274	218	167	274	212	174	274	218	167	284	217	171
	{kgf/cm ² }	(2280)	(2713)	(2144)	(1736)	(2680)	(2170)	(1790)	(2760)	(2280)	(1760)	(2680)	(2170)	(1790)	(2760)	(2280)	(1760)	(2800)	(2230)	(1710)	(2800)	(2230)	(1710)	(2800)	(2170)	(1780)	(2800)	(2230)	(1710)	(2900)	(2220)	(1750)
Hold pressure max.	MPa	223	266	210	170	262	212	175	270	223	172	262	212	175	270	223	172	274	212	174	274	218	167	274	212	174	274	218	167	284	217	171
	{kgf/cm ² }	(2280)	(2713)	(2144)	(1736)	(2680)	(2170)	(1790)	(2760)	(2280)	(1760)	(2680)	(2170)	(1790)	(2760)	(2280)	(1760)	(2800)	(2230)	(1710)	(2800)	(2230)	(1710)	(2800)	(2170)	(1780)	(2800)	(2230)	(1710)	(2900)	(2220)	(1750)
Theoretical injection capacity	cm ³	6.2	11	14	17	19	23	28	27	33	43	19	23	28	27	33	43	40	51	64	51	64	84	40	51	64	51	64	84	86	113	143
Max. injected mass (GPPS)	g	5.9	11	13	17	18	22	27	26	32	41	18	22	27	26	32	41	38	49	61	49	61	80	38	49	61	49	61	80	83	108	137
	OZ	0.2	0.4	0.5	0.6	0.6	0.8	0.9	0.9	1.1	1.5	0.6	0.8	0.9	0.9	1.1	1.5	1.3	1.7	2.2	1.7	2.2	2.8	1.3	1.7	2.2	1.7	2.2	2.8	2.9	3.8	4.8
Plasticizing rate max. (GPPS)	kg/h	5.1	9.5	13	16	10	13	18	13	18	26	10	13	18	13	18	26	18	26	37	26	37	53	18	26	37	26	37	53	37	53	76
	(rpm)	(460)	(430)	(430)	(430)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)
Injection rate max.	cm ³ /s	77	101	127	157	127	157	190	157	190	245	127	157	190	157	190	245	114	147	185	147	185	241	114	147	185	147	185	241	185	241	305
Screw stroke	mm	40	55			73			87			73			87			104				104				140						
Injection speed max.	mm/s	500				500				500				300				300														
Screw speed max.	rpm	460	430			400			400				400				400															
Number of temperature control zone		4				4	5	4	5	4	5	4	5				5															
Heater capacity	kW	2.3	2.7	2.7	3.1	3.2	3.5	3.9	3.5	3.9	4.3	3.2	3.5	3.9	3.5	3.9	4.3	3.9	4.3	4.8	4.3	4.8	5.5	3.9	4.3	4.8	4.3	4.8	5.5	6.6	7.6	8.5
Nozzle contact force	A					5.8 {0.6}				5.8 {0.6}				7.8 {0.8}				11 {1.2}														
	B	2.9 {0.3}				7.8 {0.8}				7.8 {0.8}				9.8 {1.0}				14 {1.5}														
Moving stroke (protrusion)	mm	175 (65)				210 (30)				250 (30)				285 (30)				300 (45)														
Hopper capacity	ℓ	6				15				15				15				30														

●Machine dimension & mass											
Machine dimension (L×W×H) 【Note4】	mm	2431×758×1531	3194×892×1679	3194×892×1679	3631×984×1689	3631×984×1689	3631×984×1689	3644×984×1689	4247×1059×1719	4247×1059×1719	4247×1059×1800
Machine mass	t	1.2	1.8	1.8	2.1	2.2	2.3	2.4	3.1	3.2	3.3

Heavy duty injection Selection of Module





(We have achieved ISO 14001 at Chiba Works)

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