Global Marketing Network

70 Global Service Centers

FCS Group

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www.fcs.com.tw

NOTES

- The figures are subject to change without any legal obligation on the part of the manufacture.
- The specifications are expressed in SI units.(1Mpa=10.2kgf/cm² 1kN=0.102tonf)
- The applicable max. injection pressure and holding pressure will be restricted according to the material in the real molding operation.
- The applicable max. injection pressure and holding pressure will be restricted by molding conditions and cycle time.
- The figures for the max. injection rate and the max. injection speed are theoretical values.
- The actual injection rate and injection speed will be restricted by pressure.
- A large-sized screw may not be applicable to some kinds of material.
- Breaker capacity may be changed when optional devices are attached.

Precaution

For safe use of FA Series, please read the respective manual carefully, especially sections for operation and maintenance, and follow all the safety precaution instructions specified in the manual.

Photographs in the catalog include optional devices. If these products and technologies (including programs) are subject to Taiwan export control laws, including Taiwan Foreign Exchange and Foreign Trade Law, the products and technologies are required to obtain an export license of the Taiwan government, when exported from Taiwan.

FCS

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FALCON

Advanced Servo Hydraulic Toggle IMM

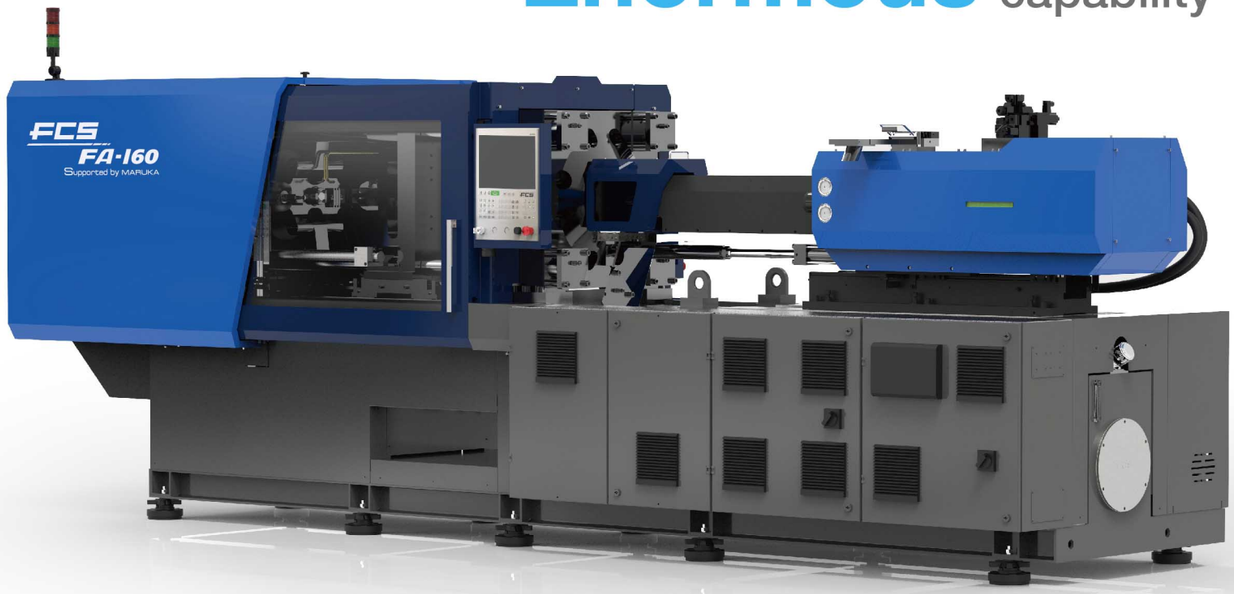
FA SERIES

FA Series

Highly Efficient - Increasing production efficiency 15~20%.
High Performance - Improving injection speed by 20% ↑.
Energy Saving - Complying with CE, GB, and ANSI standard.

With over 40 years of technological developments and innovations, FCS offers a new and optimized design with increased performance and reliability for a wide variety of industries.
The new **FA Series** delivers unmatched efficiency with its energy -saving servo hydraulic toggle system. The clamp and injection unit specifications have also been increased to allow our customers more flexibility in the range of molds they can run in the machine. The outside appearance of the machine was developed with friendly ergonomics to make working in and around the machine easy, comfortable and safe for the operator. The KEBA control now offers an enhanced capability to integrate the FCS iMF 4.0 system to assist in making your facility a Smart Injection Molding Machine Plant. Overall, these new enhancements to the FA Series will help our customers increase their competitiveness in the industry and propel them to the next stage in new machine technology.

Exceptional performance
Enormous capability



Electronic product casings

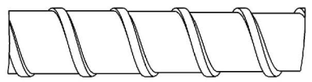
Housewares

PVC fittings

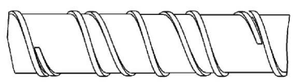
Automotive parts

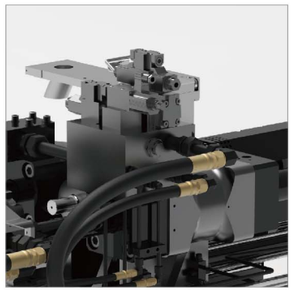
Injection Unit

Normal screw



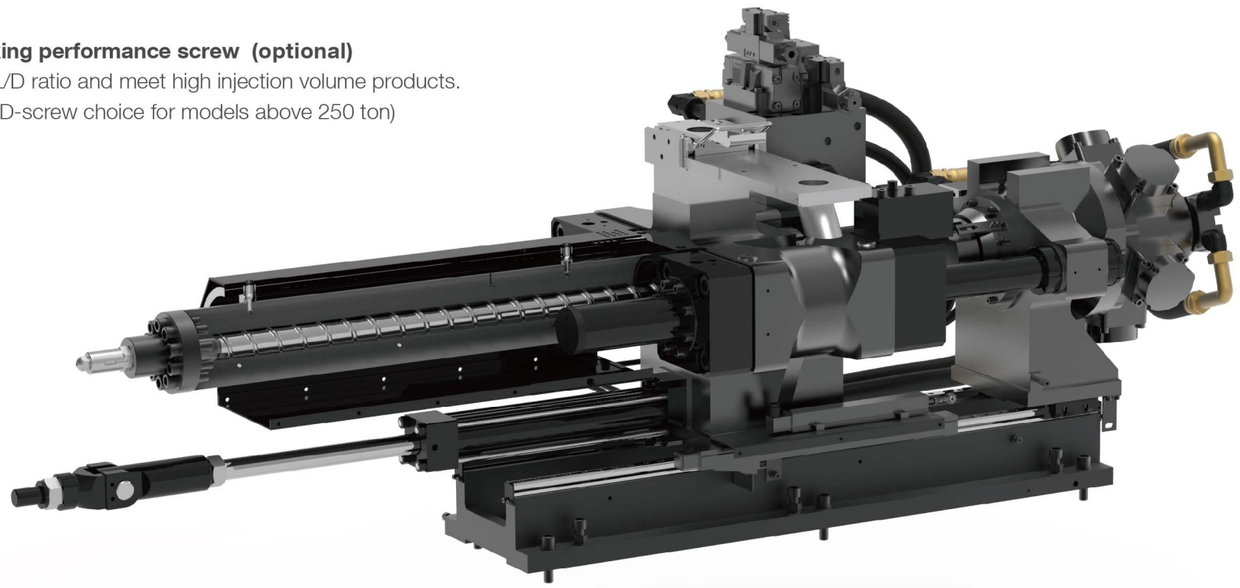
High mixing performance screw



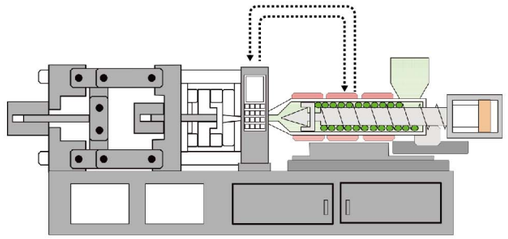


System pressure improvement
The integrated and optimized hydraulic manifold and cylinder, improve the injection response, and expand the product application range.

High mixing performance screw (optional)
Improve L/D ratio and meet high injection volume products.
(and add D-screw choice for models above 250 ton)



Closed-loop system



Screw position feedback to the controller.

Servo injection closed-loop system
Accurately controls the injection speed, injection time and shot weight.

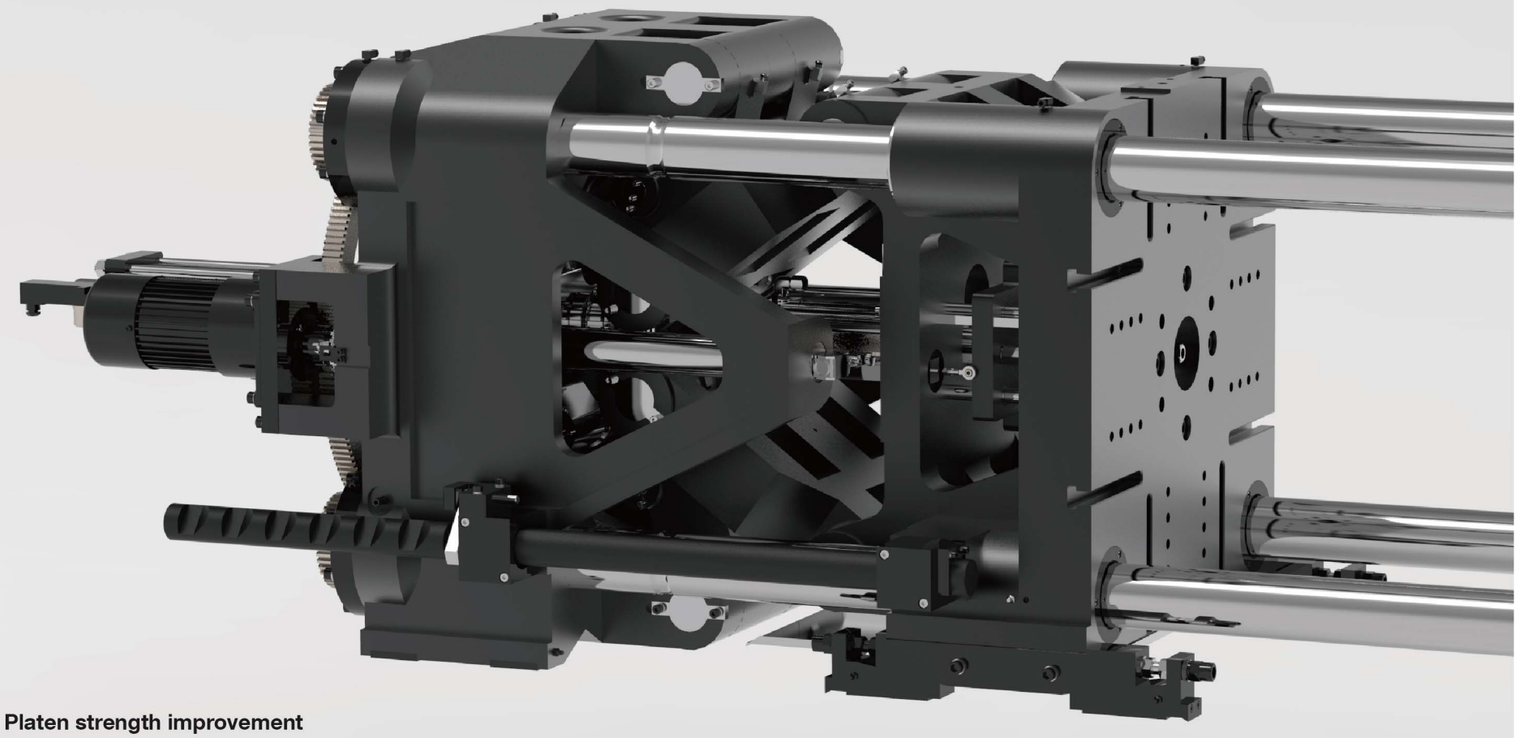
Linear guide for injection carriage
- Lower the wear and tear, and make the injection control precise and stable.
- Lower the storage back pressure resistance by 70%, and reduce the melt overflow.

Injection carriage forward pull design
Reduce the frame deflection, and maintain a stable injection force.

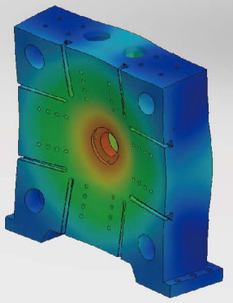
Optional modular specification
High-speed option is available for food packaging industry and thin-walled product molding requirements.

Clamping Unit

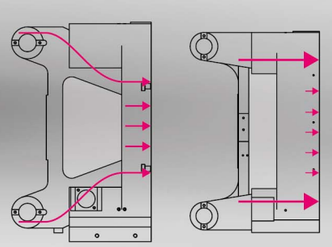
Mold adjusting via electric motor
New electric motor with brake for stable position control of Die Height.



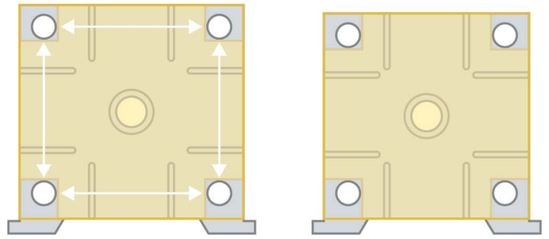
Platen strength improvement
Increase rigidity by 30%, lower deflection of mold plate, and improve the mold lifetime.



Moving platen optimization
- The clamping force flows through the center of the moving platen to help reduce mold wear.
- With mandatory ejector retracting design which meets the needs for special products.

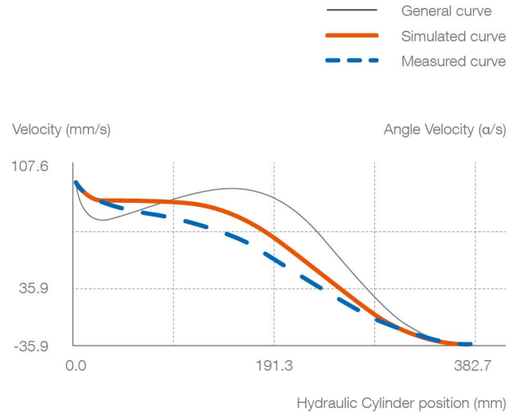


FA Series　　HA Series



FA Series　　HA Series

Tie bar spacing increase
More flexible choices for mold application.



Precise control on clamp opening and closing speeds
S curve speed control allows for smooth transition with clamp speeds and reduces machine vibration.

Control Unit

Application

- New control is designed for easy operator interface.
- The multi-level password protection function is used to record and limit the parameters modification from various levels of users.
- Provide statistical process control and injection waveforms to improve production quality and efficiency.
- Convenient access to USB data, mold parameters and display screens.
- Multiple communication interfaces.
  (USB, serial interface, Ethernet, EtherCAT, Sercos III)
- Control supports OPC protocol and has a modular design to easily maintain the software and hardware.
- Multiple languages are available for users.

Control Precision

- Barrel heat zones are accurate to 0.1 degree C to ensure stable material plasticizing.
- Screw position is controlled with in 0.1mm to precisely control shot size and cushion position.

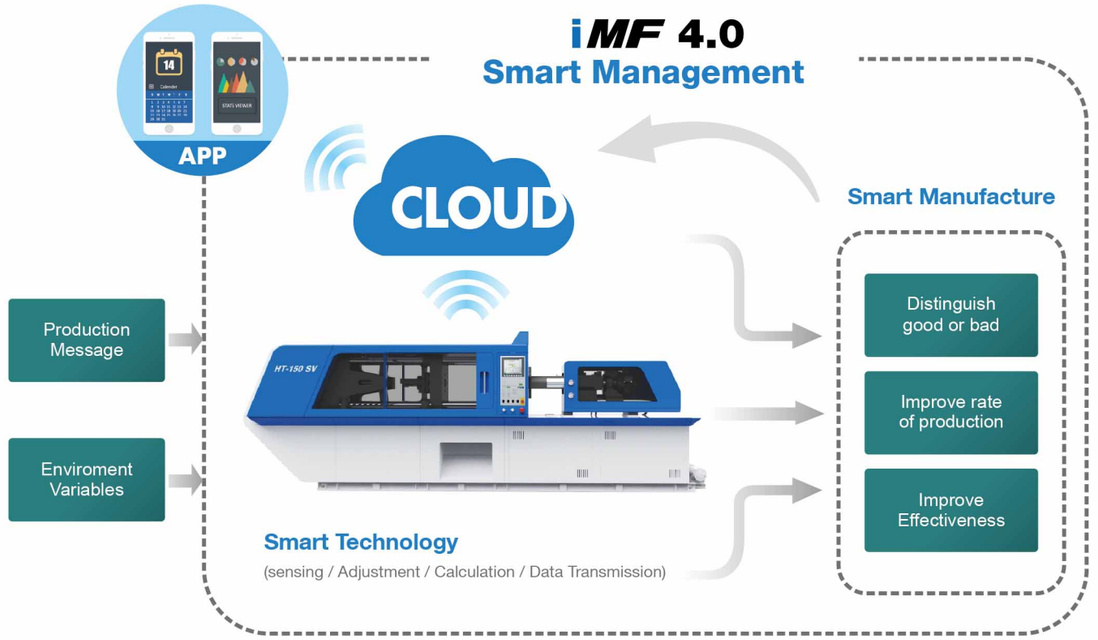
Remote Control

- Production quality recording.
- Mold information upload and download.
- Machine utilization rate and production capacity statistics.
- Machine downtime status display and recording.
- Information can be exported for visual management.

Control	FCS 6500
Screen Size	12"
Operation Method	Button & Touch
Reaction Time	1ms
Screen Display	800x600 px 16 million color palettes

Intelligent ManuFactory

- Stabilization -
  The injection machine has adaptive control to meet the slight fluctuations in production conditions.
- Optimization -
  Applying process quality sensor monitoring to improve production quality and reduce production waste.
- Automation -
  Communication between the machine and auxiliary equipment for seamless control of your molding parameters.
- Intelligent Machine -
  Extensive use of smart monitoring and remote maintenance tools to reduce unplanned downtime, and to plan effectively maintenance.



Specifications

ITEMS		UNIT	FA-60		FA-100			FA-125			FA-160			FA-200			FA-250			
Injection unit	Screw diameter	in (mm)	0.94 (24)	1.10 (28)	1.26 (32)	1.42 (36)	1.57 (40)	1.42 (36)	1.57 (40)	1.77 (45)	1.57 (40)	1.77 (45)	1.97 (50)	1.77 (45)	1.97 (50)	2.17 (55)	1.97 (50)	2.17 (55)	2.36 (60)	2.56 (65)
	Screw stroke	in	4.53		6.30			7.09			7.87			8.66			9.45			
	Theoretical shot volume	in^3	3.17	4.32	7.85	9.93	12.26	11.17	13.80	17.46	15.33	19.40	23.95	21.34	26.35	31.88	28.74	34.78	41.39	48.57
	Shot weight of injection (PS)	oz	1.67	2.27	4.13	5.23	6.45	5.88	7.26	9.18	8.06	10.21	12.60	11.23	13.86	16.77	15.12	18.29	21.77	25.55
	Injection pressure	psi	37929	27866	33336	26340	21335	31871	25815	20397	34207	27028	21893	34557	27992	23134	32042	26481	22252	18960
	Injection speed	in/sec	7.09		4.72			4.74			4.74			3.93			3.94			
	Injection rate	in^3/sec	4.97	6.76	5.88	7.45	9.19	7.47	9.23	11.68	9.23	11.69	14.43	9.68	11.95	14.46	11.98	14.49	17.24	20.24
Mold clamping unit	Mold clamping force	kN (U.S.tonf)	600 (66)		1000 (110)			1250 (137)			1600 (176)			2000 (220)			2500 (275)			
	Mold clamping stroke	in	10.63		12.60			14.17			16.93			19.29			21.26			
	Mold thickness	in	4.72-12.99		5.91-14.96			5.91-17.72			7.09-20.47			7.87-21.65			8.66-22.83			
	Suggested min. mold dim. (H×V)	in	8.27×8.27		9.45×9.45			10.83×10.83			12.20×12.20			13.58×13.58			14.96×14.96			
	Tie bar spacing (H×V)	in	12.60×12.60		14.57×14.57			16.54×16.54			18.50×18.50			20.87×20.87			22.83×22.83			
	Mold platen (H×V)	in	18.11×18.11		21.65×21.65			24.61×24.61			27.76×27.76			31.10×31.10			34.25×34.25			
	Ejector stroke	in	2.76		3.94			4.72			5.51			5.51			5.91			
	Ejector force	kN (U.S.tonf)	25 (2.75)		35 (3.85)			35 (3.85)			35 (3.85)			65 (7.15)			65 (7.15)			
Electrical equipment	Max. pump driving motor	kW (460V)	18.2		18.2			18.2			28.3			28.3			36.7			
	Temperature controller	set	5		5			5			5			5			5			
	Heater capacity	kW	5.5		7.77			9.74			13.19			15.7			19.47			
Others	Machine dimensions (L×W×H)	in	165.4×45.3×67.0		192.9×52.8×70.1			200.8×56.5×72.8			214.6×55.1×78.7			234.7×57.7×78.7			260.6×66.5×83.86			
	Oil tank capacity	liter	120		160			185			290			290			330			
	Machine weight	U.S.ton	2.75		3.85			4.785			6.215			7.81			9.24			
	Max. system pressure	psi	2276		2276			2276			2276			2276			2276			

ITEMS		UNIT	FA-300				FA-350				FA-400				FA-470				FA-530			
Injection unit	Screw diameter	in (mm)	2.17 (55)	2.36 (60)	2.56 (65)	2.76 (70)	2.36 (60)	2.56 (65)	2.76 (70)	2.95 (75)	2.56 (65)	2.76 (70)	2.95 (75)	3.15 (80)	2.76 (70)	3.15 (80)	3.35 (85)	3.54 (90)	3.15 (80)	3.35 (85)	3.54 (90)	3.94 (100)
	Screw stroke	in	10.24				11.02				12.99				14.96				17.72			
	Theoretical shot volume	in^3	37.68	44.84	52.62	61.03	48.29	56.67	65.72	75.45	66.79	77.46	88.92	101.17	89.20	116.50	131.52	147.45	137.96	155.75	174.61	215.57
	Shot weight of injection (PS)	oz	19.82	23.59	27.68	32.10	25.40	29.81	34.57	39.69	35.13	40.75	46.77	53.22	46.92	61.28	69.18	77.56	72.57	81.92	91.85	113.39
	Injection pressure	psi	32500	27309	23269	20064	30628	26097	22502	19602	31106	26821	23364	20535	34554	26455	23435	20903	30509	27025	24106	19526
	Injection speed	in/sec	4.33				4.33				3.94				4.33				3.94			
	Injection rate	in^3/sec	15.94	18.97	22.26	25.82	18.97	22.26	25.82	29.64	20.24	23.47	26.94	30.66	25.82	33.72	38.07	42.68	30.65	34.61	38.80	47.90
Mold clamping unit	Mold clamping force	kN (U.S.tonf)	3000 (330)				3500 (385)				4000 (440)				4700 (517)				5300 (583)			
	Mold clamping stroke	in	23.23				25.20				27.56				30.71				33.46			
	Mold thickness	in	9.06-24.80				9.84-26.77				11.02-28.74				12.60-30.71				13.78-33.46			
	Suggested min. mold dim. (H×V)	in	16.93×16.14				18.50×17.91				19.69×18.90				21.26×20.87				22.05×21.26			
	Tie bar spacing (H×V)	in	26.77×26.77				28.35×26.77				29.92×28.74				32.68×31.89				33.86×32.68			
	Mold platen (H×V)	in	38.39×37.20				41.93×40.35				43.90×42.72				47.83×47.05				50.00×48.82			
	Ejector stroke	in	5.91				6.30				7.09				7.87				8.66			
	Ejector force	kN (U.S.tonf)	65 (7.15)				65 (7.15)				110 (12.1)				110 (12.1)				160 (17.6)			
Electrical equipment	Max. pump driving motor	kW (460V)	36.7				71.9				71.9				73.4				73.4			
	Temperature controller	set	5				5				5				5				5			
	Heater capacity	kW	22.08				26.01				30				34				43			
Others	Machine dimensions (L×W×H)	in	279.1×67.3×88.19				301.2×70.1×90.95				313.0×72.4×92.9				368.1×78.3×93.7				433.1×82.7×94.1			
	Oil tank capacity	liter	580				690				690				830				940			
	Machine weight	U.S.ton	12.1				14.52				16.5				20.9				28.6			
	Max. system pressure	psi	2276				2276				2276				2276				2276			

• The features are for your reference only. Due to continuous improvements, we reserve the right to amend any of the above specifications without prior notice.
• FA-250~530, D screw will be only applicable to high MI value resin, for example PP, LDPE.