CHEN HSONG

Chen Hsong

Unit 2001, 20th Floor, Citicorp Centre, 18 Whitfield Road, Hong Kong

marketing@chenhsong.com

+ 852-2665-3222

www.chenhsong.com

202307

CHEN HSONG

SPARK AE

100-360 Ton

www.chenhsong.com

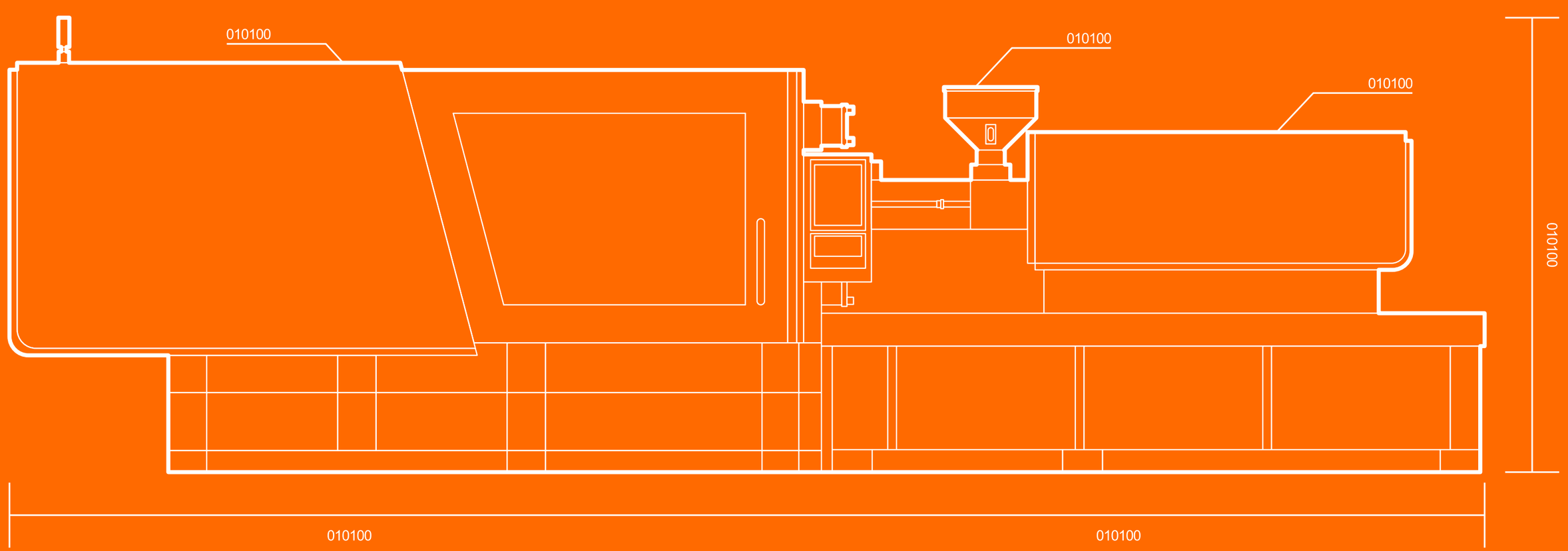
SPARK AE
Redefining The General-purpose All-electric

The SPARK AE series is an all-electric product line ideal for the production of mass-volume, fast-cycle, high precision and demanding parts with the lowest power consumption level in the industry and superior long-term stability.

Four Core Innovations

Six Performance Components

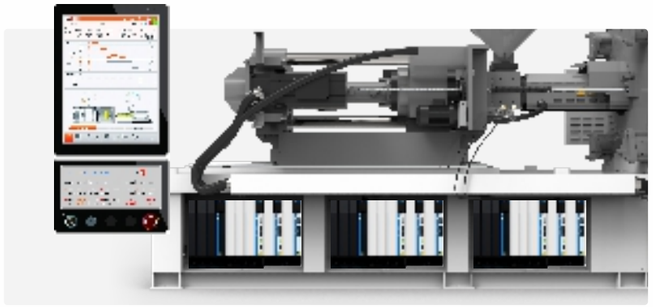
Six Leading Advantages



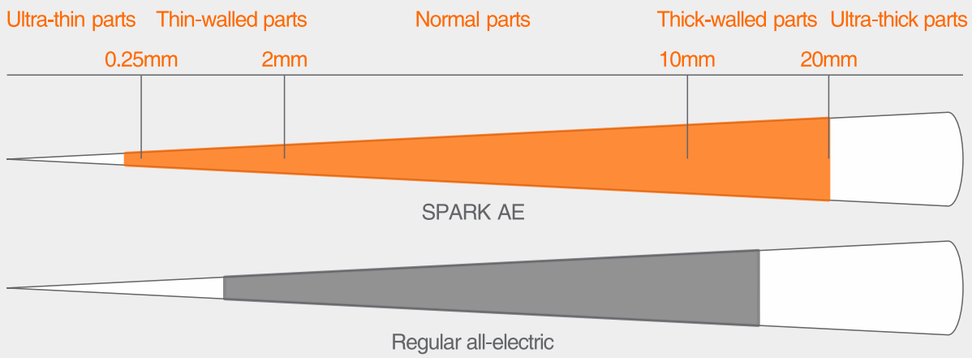
Four Core Innovations

Agile Boost Control (ABC)

Marriage of a proprietary ultra-high-response servo system with very-high-speed advanced computer control, yielding no-compromise levels of responsiveness – from zero to 2000rpm in less than 30ms! That is ten times faster than traditional all-electric machines (300ms) in the China market!

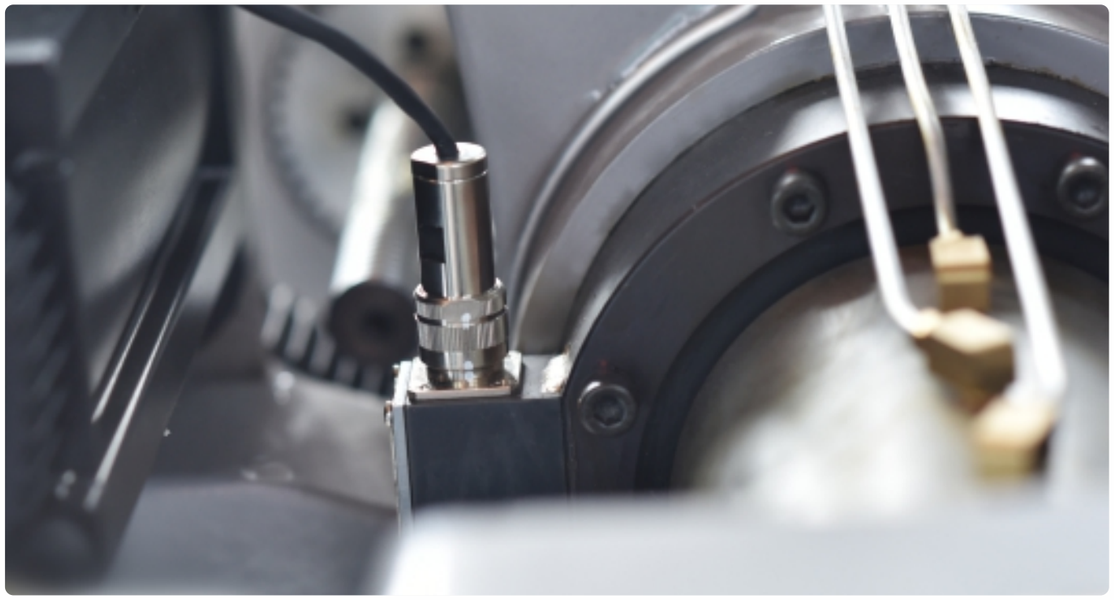


All Adapt (AA)



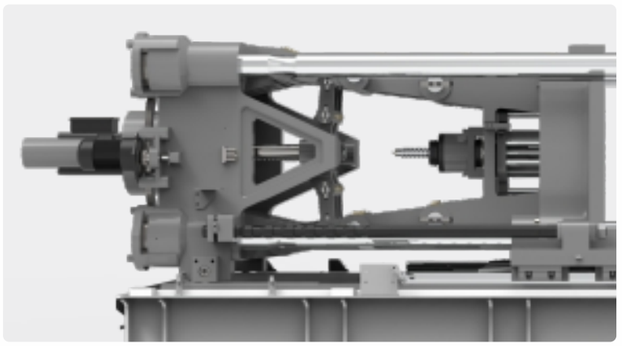
All-Adapt is a package of technologies that enables an all-electric injection moulding machine to gain a wide application window, from ultra-thin-walled moulding (such as high-speed packaging) to thick-walled, high-pressure parts (such as optics).

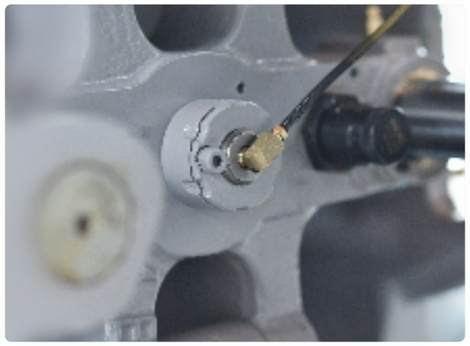
Auto Stress Release System (ASRS)



Auto Stress Release System (ASRS) is a revolutionary technology that, again, employs high-speed computer algorithms that dynamically monitors via high-speed digital pressure transducers, the actual motion of the injection screw (<1ms scan time). Then computer controller makes real-time adjustments to the motion of the screw when detecting motions that may lead to accumulation of internal stresses on the part – typically the No.1 enemy of high yields and the No.1 reason for rejects.

AxP With Floating Point Toggle





Algorithmic Cross-Protection (AxP) is based on high-end electronics, fine-tuned mechanical design and high-speed computer algorithms, it provides total protection to the mould during high-speed clamp closing by monitoring and adjusting, in real-time, the dynamical motions of the clamping ball-screw.

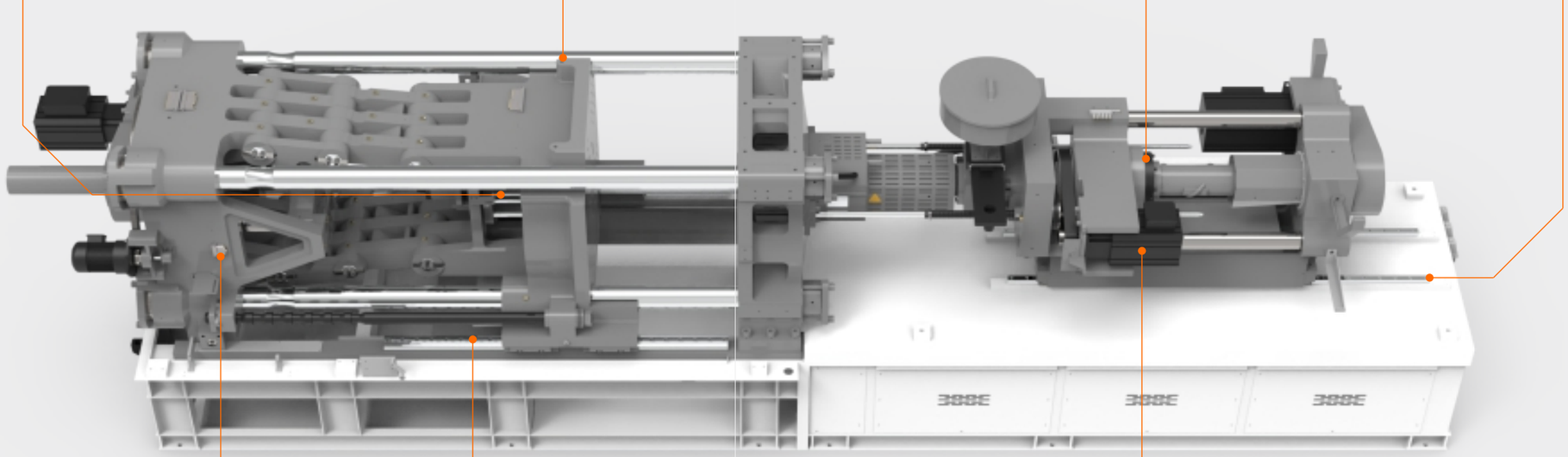
Six Performance Components

Euromap-style ejector support, wide applicability for different moulds

Tie-bars are detached from the moving platen, eliminating friction and noise

Named-brand high-precision pressure transducers ensure the finest performance and protection levels

High-precision linear guide rails for injection units



Centralised automatic lubrication system. No manual control needed. No mistakes. No wastage. Fit for clean-room environments

High-precision linear guide rails for clamping units

Specialty-developed IPM servomotor with fast response, large torque, low noise and mild temperature profile

Six Leading Advantages

Intelligence | Precision | Speed | Applicability | Stable | Power Efficiency

Intelligent Control

15” touch-screen, easy-to-use HMI with user-friendly UI – power at your fingertips.

01 Auto Stress Release System (ASRS)

Ensures high-yielding parts by dynamically releasing internal stresses.

02 High Speed CPU for Real-time Calculations

Software dynamically adjusts and compensates all hardware motion during injection, holding, recovery, ejection and clamping.

03 Ultra-fast Responses

High-end CPU enables lightning speed closed-loop calculations for ultra-fast dynamic responses, superior precision and perfect repeatability.

Efficiency and Speed

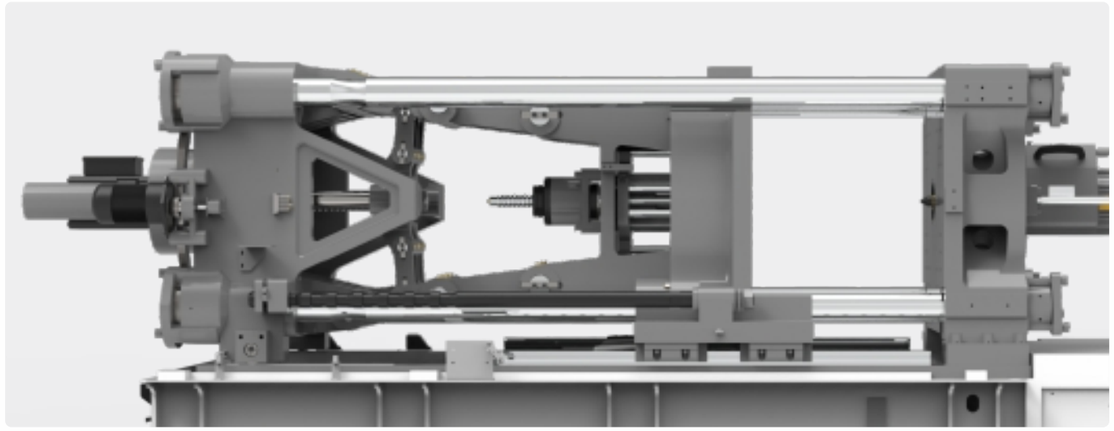
Faster cycles for higher returns

Model	Clamp Open (s)	Clamp Close (s)	Total Clamping (s)	Opening Stroke (mm)	Distance	Effciency
SPARK AE300	1.1	1.2	2.3	511	+1.4%	+13%
Regular 300T all-electric	1.28	1.35	2.63	504	100%	100%

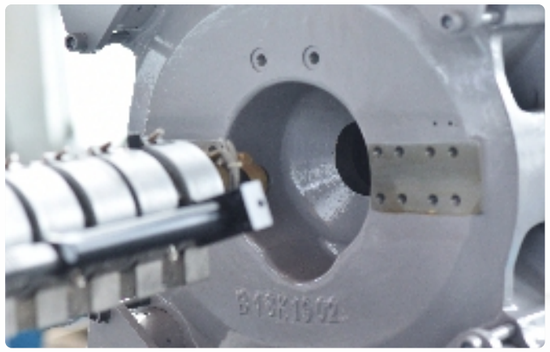
13% faster dry cycle time than competition offerings due to SPARK AE's highly responsive advanced servosystem.

Reliability and Precision

Patented Circular Platen design ensures even stress distribution and low deformations for higher quality parts and superior dimensional stability，comparison between major brands on platen deformation under similar clamping conditions.



Unique Patented Circular Platen Design



High-strength Machine Base Designed in Japan

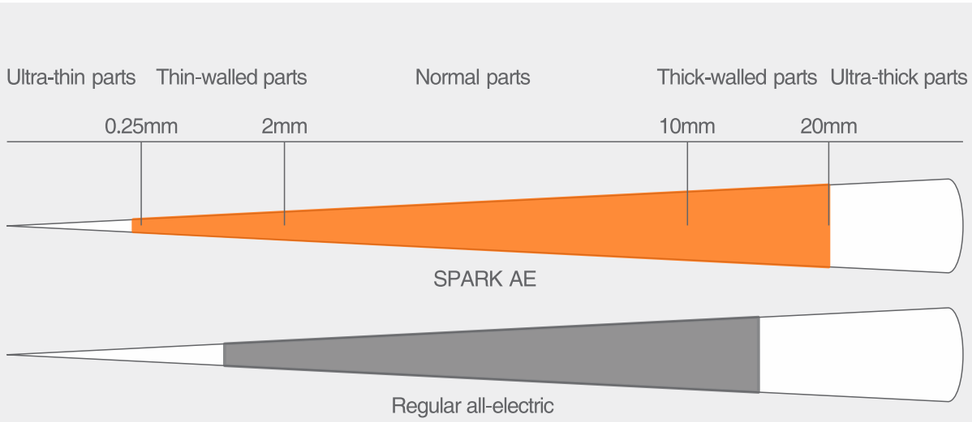
Stability and Quality

model	Inj. pressure (specs)	Inj. pressure (actual)	Holding Pressure	Holding Time
SPARK AE300	2350	2350	192 (+4%)	80 (+35%)
Regular 300T all-electric	2350	1840(-21%)	184	52

35% longer sustainable holding time than competition offerings under real-life production conditions.

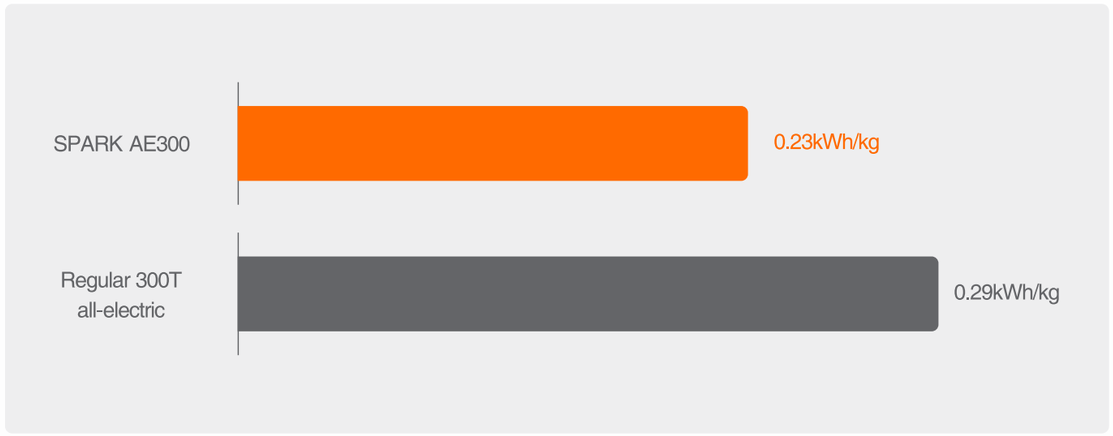
Applicability

One machine to make them all – from ultra-thin parts requiring ultra-fast speed and responses, to ultra-thick parts demanding rock-solid stability under low-speed and prolonged high-pressure conditions.



Power Efficiency

Redefining the benchmark for low energy consumption



Actual comparison:

20.7% lower power consumption than competition offerings

Typical Production Scenario

11M	21H	$0.10	10Y
11 mouths of production per year	21 hours of production per day	$0.1/kWh	10 years of primary usage

Higher efficiency for more profits

20s cycle time x 260g shot weight = 982.8kg of parts

226kWh/day for the SPARK AE300, compared to 285kWh/day for competition

Total savings with 10 years

(285-226)x30x11x10x0.1047=

$20,385

Standard Features

Clamping Unit

❶ Ejector-on-fly	❷ Plasticising-on-fly	❸ Magnetic safeties for guard doors	❹ Centralised automatic lubrication system
❺ In-mould ejection	❻ Two-stage ejection	❼ Euromap-style ejector support	❽ 2 sets of air blows control
❾ Linear guide rails for clamping units			

Injection Unit

❶ Two-stage injection	❷ Low-pressure injection	❸ Compressive moulding	❹ High-efficiency ceramic heater bands
❺ Sprayed hopper	❻ Chrome plated screw	❼ Close loop temperature control at barrel inlet	
❽ Linear guide rails for injection units			

Controller

❶ Tri-color status indicator	❷ 15" touch-screen panel	❸ "One-touch" servo dynamic profile setting	
❹ SSR for barrel heating	❺ Robot interface (non-Euromap)	❻ Metric/imperial units	
❼ STO-compliant fast-dynamic-response servosystem			

Optional Features

Clamping Unit

❶ Air blows	❷ Customised platen layout		

Injection Unit

❶ Screws and nozzles for specialised applications	❷ Shut-off nozzle		
❸ Power-efficient barrel heating alternatives			

Hydraulics

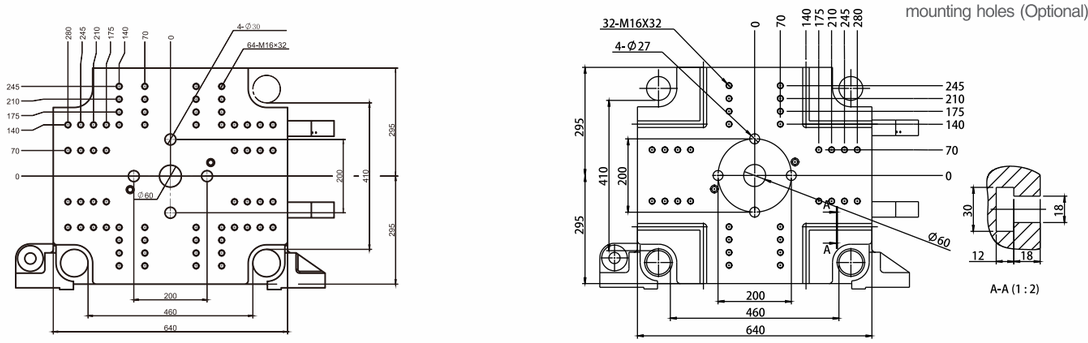
❶ Connection for magnetic/hydraulic tool fastening system	❷ Core pulls (hydraulic, pneumatic and/or electric)		

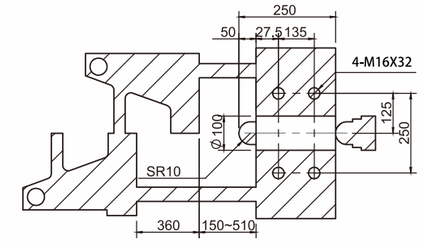
Controller

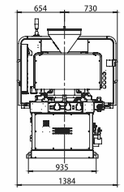
❶ Connection for gas-assist	❷ Euromap 18 robot interface	❸ Euromap 12 robot interface	❹ Euromap 67 robot interface
❺ Broken heater cable detection		❻ Connection for microfoaming	❼ Closed-loop clamping force control

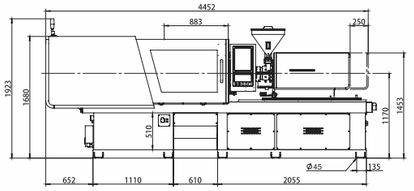
SPARK AE100

T-slots with
mounting holes (Optional)







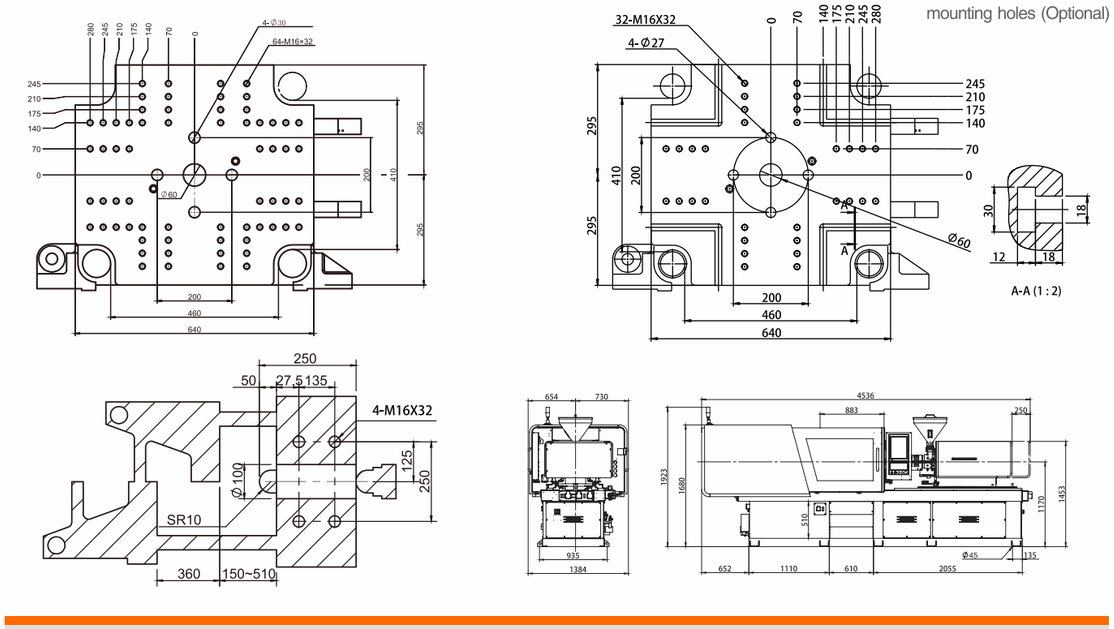


INJECTION UNIT		A	B	C	CLAMPING UNIT		
Screw Diameter	mm	25	28	32	Clamping Force	kN	1000
Screw Stroke	mm	100	112	112	Opening Force	mm	360
Swept Volume	cm^3	49	69	90	Min. Mold Thickness	mm	150
Shot Weight (PS)	g	45	63	82	Max. Mold Thickness	mm	510
Shot Weight (PS)	oz	1.6	2.2	2.9	Space Between Tie Bars (HxV)	mm	460x410
Injection Rate	cm^3/s	172	216	281	Max.daylight	mm	870
Injection Speed	mm/s		350		Ejector Force	kN	24.5
Injection Pressure	MPa	260	220	175	Ejector Stroke	mm	100
Holding Pressure	MPa	208	176	140			
Plasticizing Capacity	g/s	7.8	11	15	POWER PACK		
Screw Rotation Speed (max.)	rpm		350		Input Power		380V 50Hz
Barrel Heating Power	kW	6.3	7.2	8.2	Max. Power Draw	kVA	18KW/37A
Barrel Temperature Zones			3+1				
Nozzle Contact Force	kN		38		OTHERS		
					Machine Dimension (LxWxH)	mm	4558x1424x1964
					Machine Weight	t	3.9

The company keeps upgrading the products and reserves the right to change the product specifications and parameters without prior notice.
The final interpretation to the above specifications and parameters belongs to the company.

SPARK AE120

T-slots with
mounting holes (Optional)



INJECTION UNIT		A	B	C	CLAMPING UNIT		
Screw Diameter	mm	28	32	36	Clamping Force	kN	1200
Screw Stroke	mm	112	112	112	Opening Force	mm	360
Swept Volume	cm^3	69	90	114	Min. Mold Thickness	mm	150
Shot Weight (PS)	g	63	82	103	Max. Mold Thickness	mm	510
Shot Weight (PS)	oz	2.2	2.9	3.6	Space Between Tie Bars (HxV)	mm	460x410
Injection Rate	cm^3/s	216	281	333	Max.daylight	mm	870
Injection Speed	mm/s		350		Ejector Force	kN	24.5
Injection Pressure	MPa	220	175	138	Ejector Stroke	mm	100
Holding Pressure	MPa	176	140	110			
Plasticizing Capacity	g/s	11	15	21	POWER PACK		
Screw Rotation Speed (max.)	rpm		350		Input Power		380V 50Hz
Barrel Heating Power	kW	7.2	8.2	8.9	Max. Power Draw	kVA	20KW/49A
Barrel Temperature Zones			3+1				
Nozzle Contact Force	kN		38		OTHERS		
					Machine Dimension (LxWxH)	mm	4640x1424x1964
					Machine Weight	t	4.1

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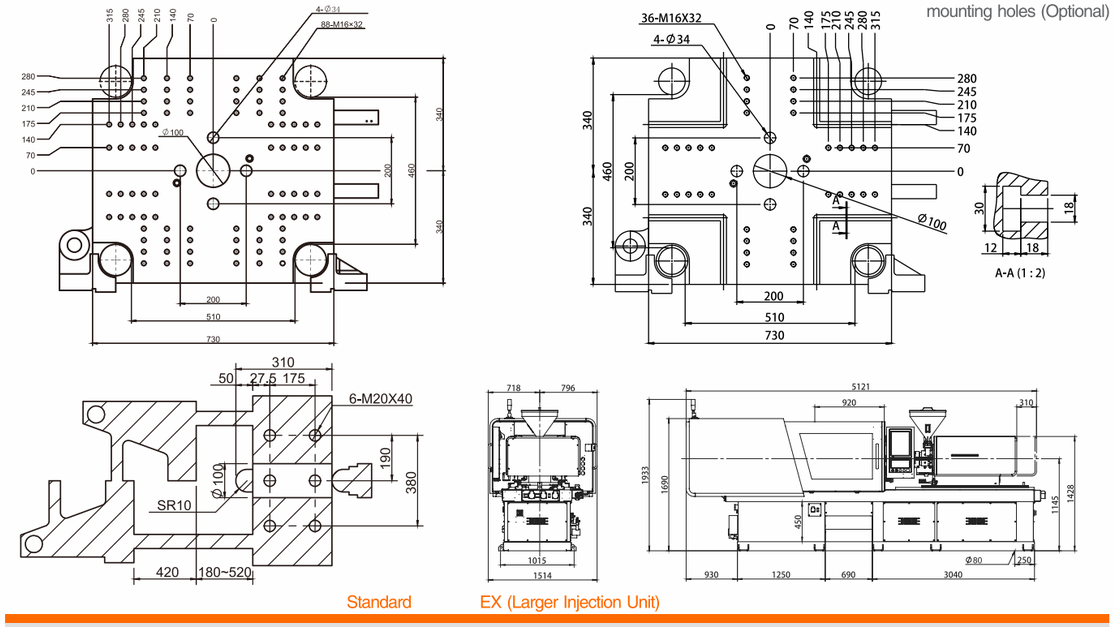
SPARK AE150

T-slots with
mounting holes (Optional)



INJECTION UNIT		A	B	C	A	B	C	D	CLAMPING UNIT		
		Standard			EX (Larger Injection Unit)						
Screw Diameter	mm	28	32	36	32	36	41	46	Clamping Force	kN	1500
Screw Stroke	mm	112	112	112	160	180	205	230	Opening Force	mm	420
Swept Volume	cm^3	69	90	114	128	183	271	382	Min. Mold Thickness	mm	180
Shot Weight (PS)	g	63	82	103	117	167	246	348	Max. Mold Thickness	mm	520
Shot Weight (PS)	oz	2.2	2.9	3.6	4.1	5.9	8.7	12.3	Space Between Tie Bars (HxV)	mm	510x460
Injection Rate	cm^3/s	216	281	333	281	356	462	581	Max.daylight	mm	940
Injection Speed	mm/s		350			350			Ejector Force	kN	34.3
Injection Pressure	MPa	220	175	138	300	235	183	145	Ejector Stroke	mm	120
Holding Pressure	MPa	176	140	110	240	188	146.4	116			
Plasticizing Capacity	g/s	11	15	21	15	21	26	35	POWER PACK		
Screw Rotation Speed (max.)	rpm		350			350			Input Power		380V 50Hz
Barrel Heating Power	kW	7.2	8.2	8.9	10.5	12.4	14.3	16.2	Max. Power Draw	kVA	20KW/49A 27KW/65A
Barrel Temperature Zones			3+1			3+1					
Nozzle Contact Force	kN		38			38			OTHERS		
									Machine Dimension (LxWxH)	mm	5920x1519x1928
									Machine Weight	t	5.6 6.3

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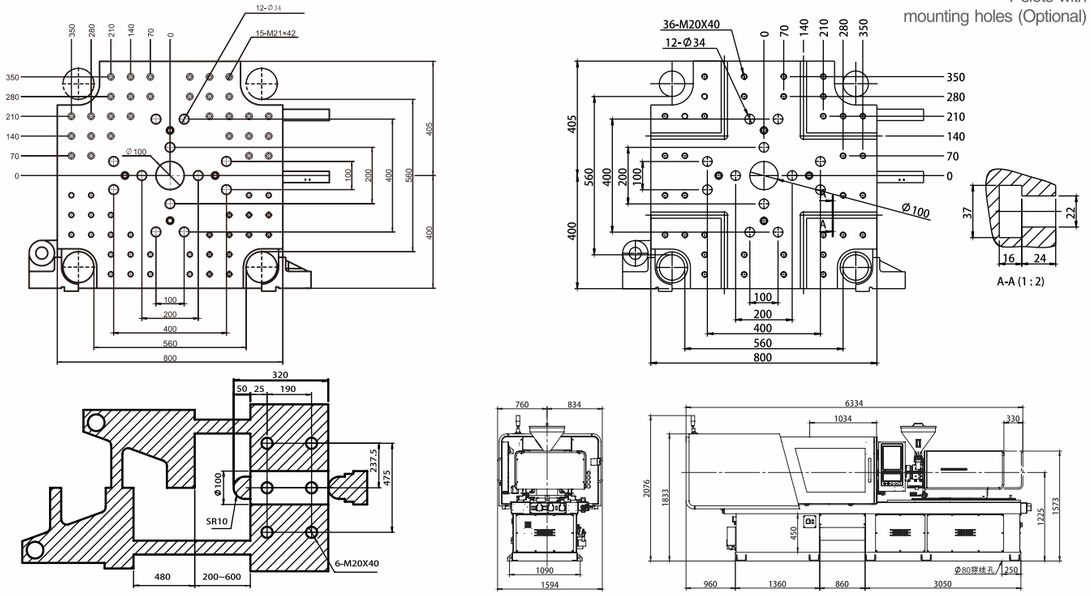
SPARK AE180

T-slots with
mounting holes (Optional)



INJECTION UNIT		A	B	C	CLAMPING UNIT		
Screw Diameter	mm	36	41	46	Clamping Force	kN	1800
Screw Stroke	mm	180	205	230	Opening Force	mm	480
Swept Volume	cm^3	183	271	382	Min. Mold Thickness	mm	200
Shot Weight (PS)	g	167	246	348	Max. Mold Thickness	mm	600
Shot Weight (PS)	oz	5.9	8.7	12.3	Space Between Tie Bars (HxV)	mm	560x560
Injection Rate	cm^3/s	356	463	581	Max.daylight	mm	1080
Injection Speed	mm/s		350		Ejector Force	kN	34.3
Injection Pressure	MPa	250	235	177	Ejector Stroke	mm	120
Holding Pressure	MPa	200	188	142			
Plasticizing Capacity	g/s	21	26	35	POWER PACK		
Screw Rotation Speed (max.)	rpm		350		Input Power		380V 50Hz
Barrel Heating Power	kW	12.4	14.3	16.2	Max. Power Draw	kVA	37KW/84A
Barrel Temperature Zones			3+1				
Nozzle Contact Force	kN		38		OTHERS		
					Machine Dimension (LxWxH)	mm	6311x1564x2074
					Machine Weight	t	7.7

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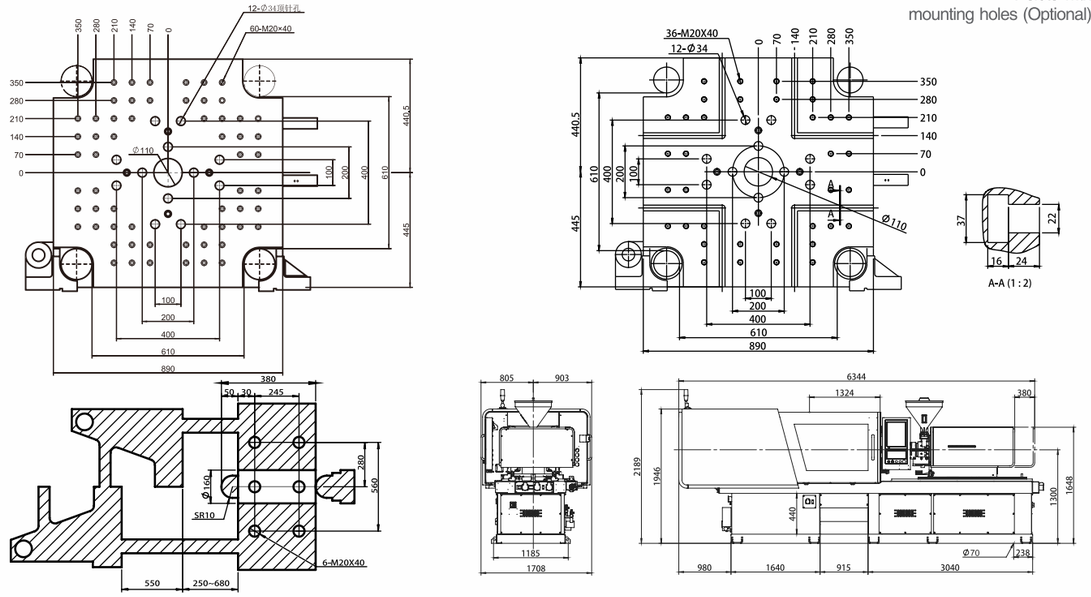
SPARK AE230

T-slots with
mounting holes (Optional)



INJECTION UNIT		A	B	C	CLAMPING UNIT		
Screw Diameter	mm	36	41	46	Clamping Force	kN	2300
Screw Stroke	mm	180	205	230	Opening Force	mm	550
Swept Volume	cm^3	183	271	382	Min. Mold Thickness	mm	250
Shot Weight (PS)	g	167	246	348	Max. Mold Thickness	mm	680
Shot Weight (PS)	oz	5.9	8.7	12.3	Space Between Tie Bars (HxV)	mm	610x610
Injection Rate	cm^3/s	356	462	581	Max.daylight	mm	1230
Injection Speed	mm/s		350		Ejector Force	kN	51.9
Injection Pressure	MPa	250	235	176	Ejector Stroke	mm	150
Holding Pressure	MPa	200	188	142			
Plasticizing Capacity	g/s	21	26	35	POWER PACK		
Screw Rotation Speed (max.)	rpm		350		Input Power		380V 50Hz
Barrel Heating Power	kW	12.4	14.3	16.2	Max. Power Draw	kVA	37KW/84A
Barrel Temperature Zones			3+1				
Nozzle Contact Force	kN		38		OTHERS		
					Machine Dimension (LxWxH)	mm	6785x1676x2185
					Machine Weight	t	10.2

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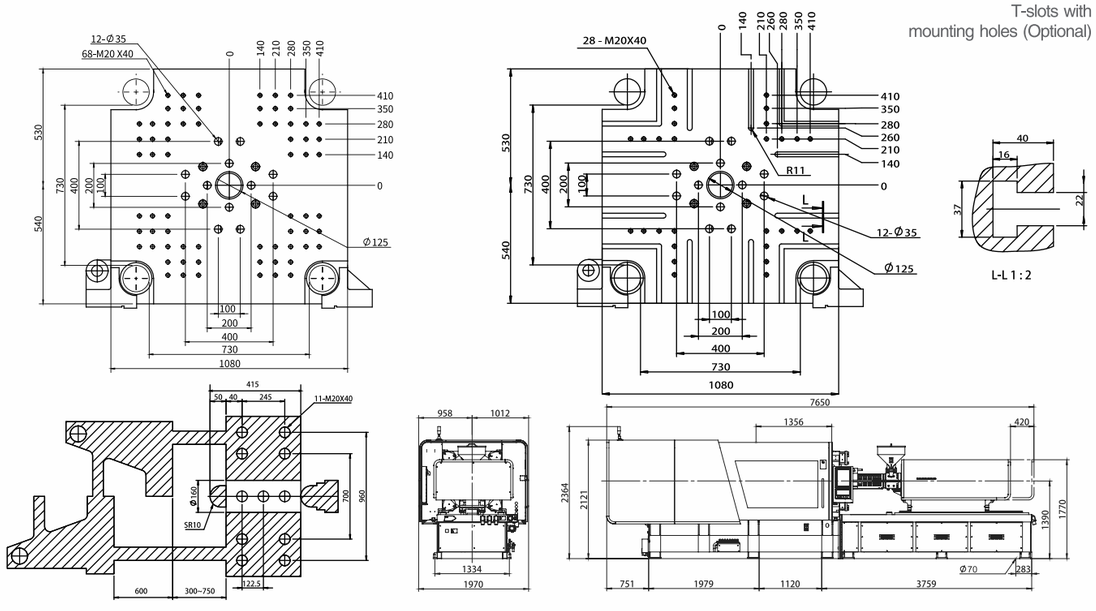
SPARK AE300

T-slots with
mounting holes (Optional)



Standard EX (Larger Injection Unit)

INJECTION UNIT		A	B	C	A	B	C
Screw Diameter	mm	46	52	60	60	67	75
Screw Stroke	mm	230	260	285	300	330	360
Swept Volume	cm^3	382	552	805	848	1163	1590
Shot Weight (PS)	g	351	507	740	780	1070	1462
Shot Weight (PS)	oz	12.4	17.9	26	27.6	37.8	51.6
Injection Rate	cm^3/s	581	743	989	565	705	883
Injection Speed	mm/s		350			200	
Injection Pressure	MPa	306	240	180	234	188	150
Holding Pressure	MPa	244	192	144	187	150	120
Plasticizing Capacity	g/s	30	48	64	50	80.7	95.5
Screw Rotation Speed (max.)	rpm		300			235	
Barrel Heating Power	kW	16.2	22.8	29.4	29.4	36	42.6
Barrel Temperature Zones				3+1			
Nozzle Contact Force	kN			57			

CLAMPING UNIT		
Clamping Force	kN	3000
Opening Force	mm	600
Min. Mold Thickness	mm	300
Max. Mold Thickness	mm	750
Space Between Tie Bars (HxV)	mm	730x730
Max.daylight	mm	1350
Ejector Force	kN	62
Ejector Stroke	mm	160
POWER PACK		
Input Power		380V 50Hz
Max. Power Draw	kVA	50KW/117A 69KW/157A
OTHERS		
Machine Dimension (LxWxH)	mm	7909x1946x2639 8050x1946x2639
Machine Weight	t	14.9

The company keeps upgrading the products and reserves the right to change the product specifications and parameters without prior notice.
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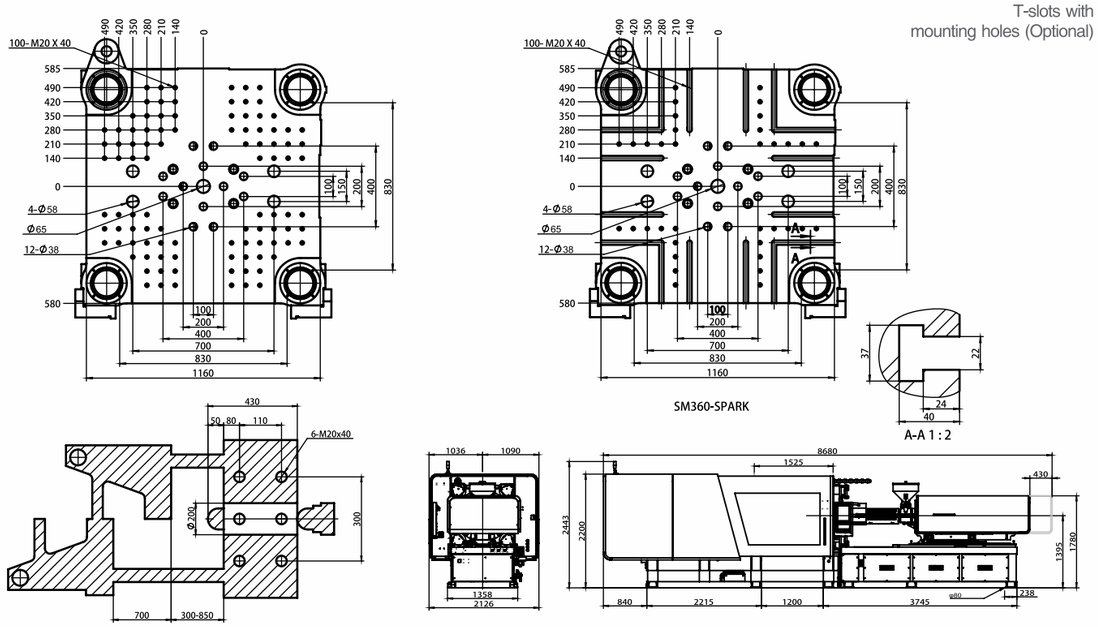
SPARK AE360

T-slots with
mounting holes (Optional)



INJECTION UNIT		A	B	C
Screw Diameter	mm	60	67	75
Screw Stroke	mm	300	330	360
Swept Volume	cm^3	848	1163	1590
Shot Weight (PS)	g	780	1070	1462
Shot Weight (PS)	oz	27.6	37.8	51.6
Injection Rate	cm^3/s	565	705	883
Injection Speed	mm/s		200	
Injection Pressure	MPa	234	188	150
Holding Pressure	MPa	187	150	120
Plasticizing Capacity	g/s	50	80.7	95.5
Screw Rotation Speed (max.)	rpm		235	
Barrel Heating Power	kW	29.4	36	42.6
Barrel Temperature Zones			3+1	
Nozzle Contact Force	kN		57	

CLAMPING UNIT		
Clamping Force	kN	3600
Opening Force	mm	700
Min. Mold Thickness	mm	300
Max. Mold Thickness	mm	850
Space Between Tie Bars (HxV)	mm	830x830
Max.daylight	mm	1550
Ejector Force	kN	62
Ejector Stroke	mm	160
POWER PACK		
Input Power		380V 50Hz
Max. Power Draw	kVA	69KW/157A
OTHERS		
Machine Dimension (LxWxH)	mm	8100X2000X2600
Machine Weight	t	18.5

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