



Full Electrical Terminator EVOLution Hybrid Power IMM

100-470EKW-EVOLution

50-1000EKS-EVOLution

Center-clamping Strcture, European quality, made by BOLE
(Patent No.: ZL2011 10250342.5)



Traditional Hydraulic Machine



More

The same mold and the same raw materials other brand make 100 in the same cycle time, and Bole can does 120~130 products



Fast

The injection speed is more than 50% faster, and the molding cycle is 20~30% faster



Good

Easy to adjust, Precision 30% higher, less flash, higher pass rate



Save

30% savings on electricity, higher efficiency and greater returns





Electric IMM



More

The same mold and the same raw materials other brand make 100 in the same cycle time, and Bole can does 101~103 products



Fast

Fire rate 200mm/s,
Dry cycle is fast



Good

Injection weight
repetition accuracy
 $\pm 1\%$, high
qualified rate



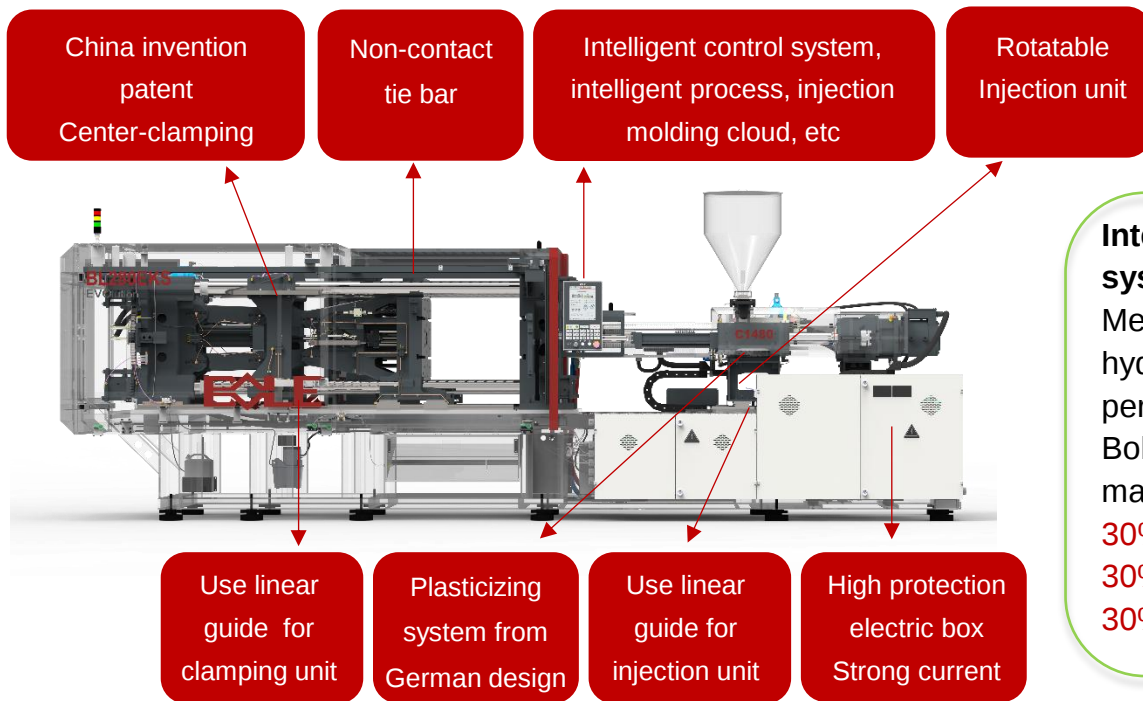
Save

Energy consumption is
simila as full electric
IMM,
Lower maintenance
costs,
1/3 of the investment
savings





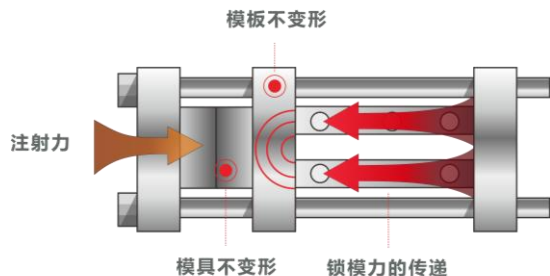
EVOLution Hybrid Power IMM



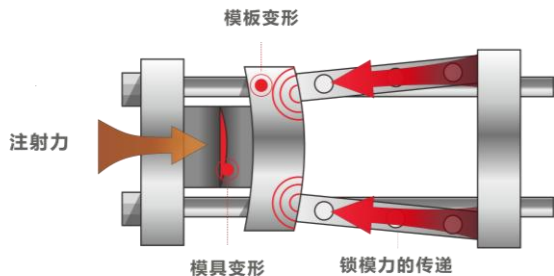
Intelligent motion control system

Mechanical, electrical, hydraulic, control system perfect combination, with Bole patent core algorithm, make the whole machine
30% Higher precision ,
30% faster,
30% power saving

Central clamping toggle, invention patent in China



- The clamping force reaches 100%, 10-20% higher than the traditional structure;
- The same mold and the same raw materials other brand make 100 in the same cycle time, and Bole can do 101~103 products
- Reduce trimming process by controlling flash edge, save labor cost and improve circulation efficiency;
- The center of the mold is stressed and uniform, and it is not easy to produce deformation, which can better protect the mold, template and tie bar to extend the life of the machine



- The traditional structure will lose the clamping force, and the utilization rate is only 80-90%. The moving template will be deformed, causing flash edges and wasting manpower and raw materials





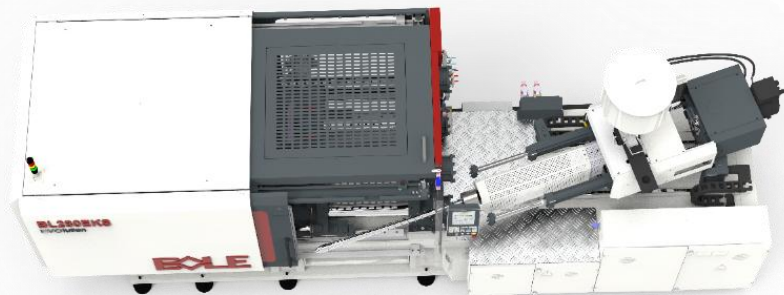
- Non-contact tie bar, no need lubrication, to ensure that the mold area clean No need copper sleeve, no wear, constant accuracy



- Standard linear guide to reduce friction and energy consumption
- Ensures high parallelism and repeated positioning accuracy of the template
- The injection unit moves quickly, flexibly and precisely



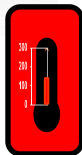
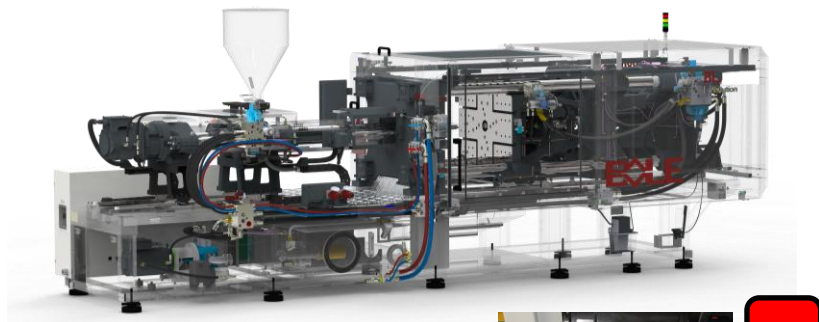
- The high efficiency plasticizing unit designed in Germany, with high efficiency bimetal screw as standard, the plasticizing efficiency exceeds 20% in China, and the durability is further improved
- The base of the shooting table adopts the rotating shooting table structure, the replacement of different types of screw and maintenance is extremely convenient, the operation is simple and quick and saves time;
- High protection electric box, strong electric separate layout anti-interference ability;





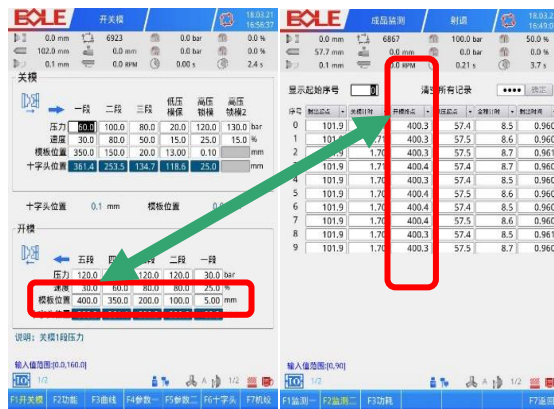
Intelligent motion control system

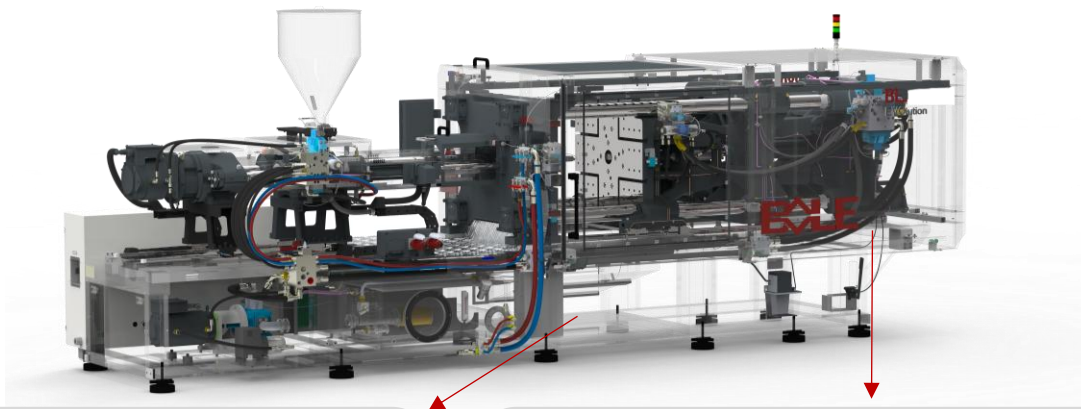
- The position repetition accuracy of the opening and closing mold is $\pm 0.5\text{mm}$



- Servo energy-saving oil temperature intelligent control unit, according to the motor, oil tank temperature real-time intelligent adjustment of cooling oil volume accurate temperature control.
- Oil temperature control accuracy $\pm 1^\circ\text{C}$

- Patented software algorithm
- Unique clamping oil circuit design
- Adaptive adjustment of intelligent opening and closing mold





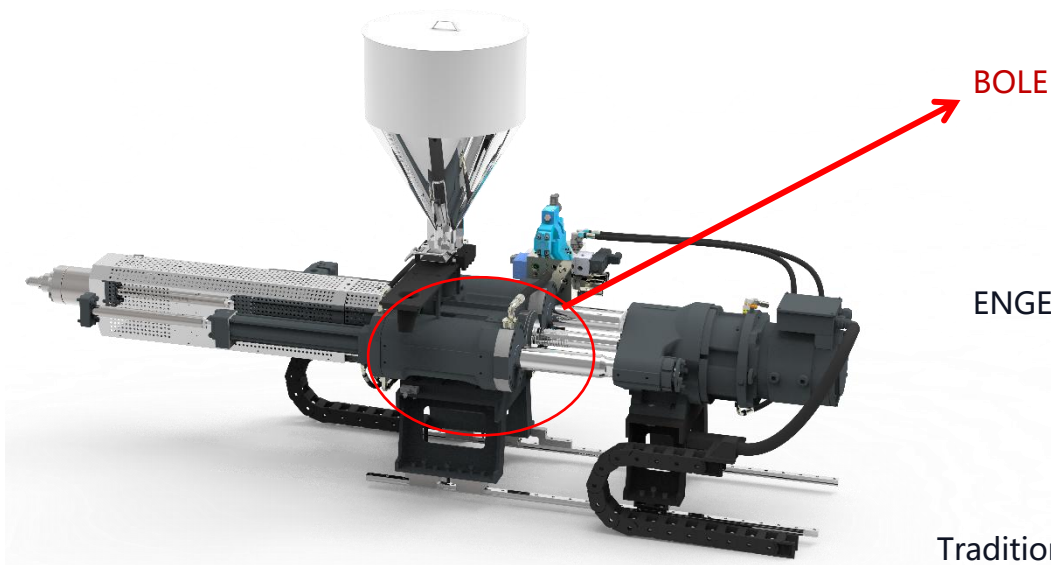
The layout of hydraulic pipes and wires takes full account of the convenience of installation and maintenance and the stability of the machine, which is more beautiful and reasonable.

The scientific and beautiful lubrication pipeline, with intelligent lubrication control software, automatically adjusts according to the movement cycle to ensure that each lubrication point is fully lubricated, improve the stability and service life of the moving parts, and reduce the waste of lubricating oil.



Intelligent motion control system

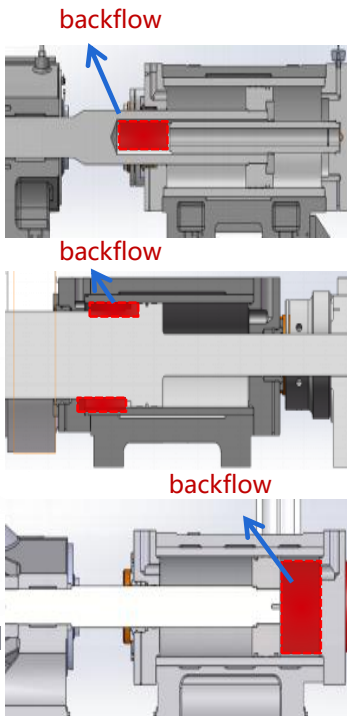
Unique injection cylinder design, injection oil return resistance is small, low inertia, at the same time with the shooting table part of the line rail structure, reduce friction, effectively ensure the injection control accuracy.



BOLE

ENGEL

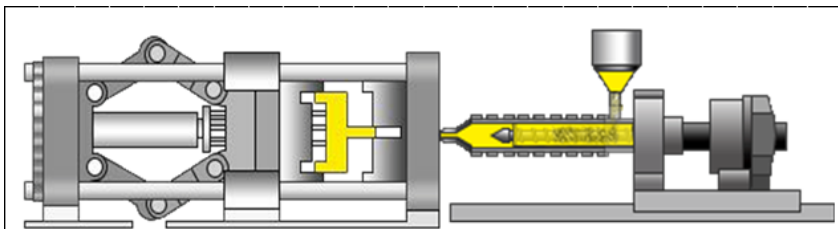
Traditional



Less backflow
and low inertia

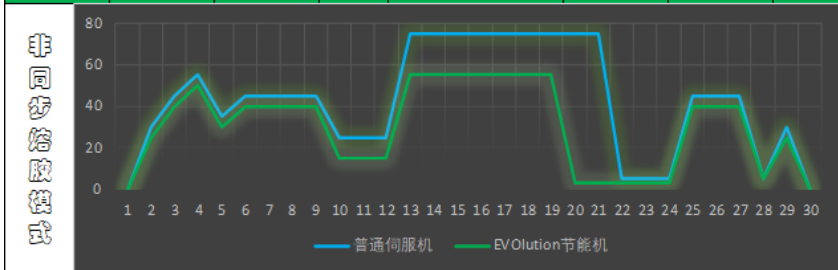
Less backflow
and high inertia

More backflow
and low inertia



能耗类型	开关模等其他动作	加热	熔胶
总能耗占比	约35%-45%	约15%	约40%-50%

普通伺服机	合模	注射	保压	冷却		开模	顶针
				熔胶			
ECO节能机	合模	注射	保压	冷却		开模	顶针
				熔胶			

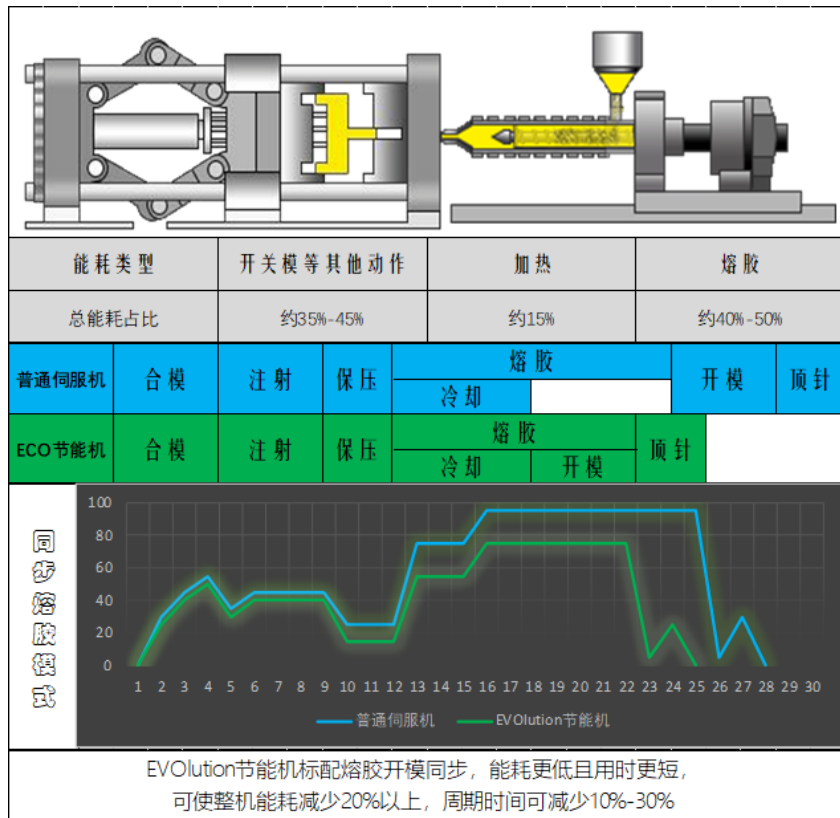


EVOLution节能机熔胶时能耗更低，可使整机能耗减少20%以上。

Hydraulic servo injection molding machine action consumption flowchart:

high consumption action include: mould close, inject, melt, mold open, ejector, ejector back (especially melt consumption is higher, it is occupy 40% to 50%)

lower consumption: holding pressure
lower consumption: cooling
reduce the injection molding machine consumption, firstly how to reduce the melting consumption; secondly, reduce the hydraulic system consumption; thirdly, reduce the screw and barrel consumption
after deeply research about higher consumption of plastic machine, BOLE launch the newly series machine EVOLution machine



three steps for consumption:

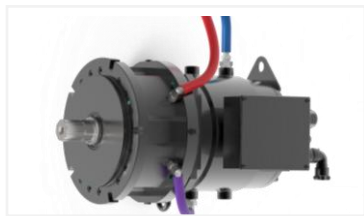
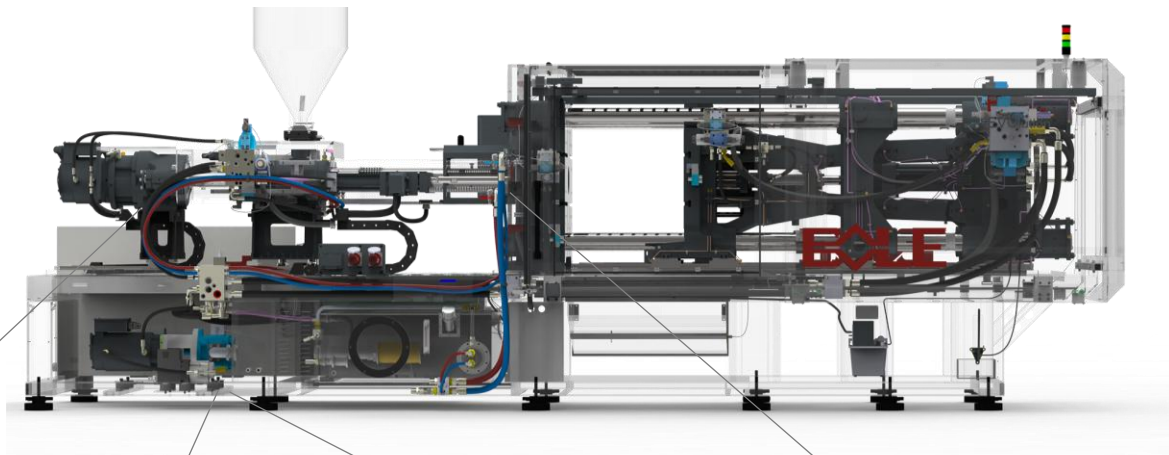
- equipped with the electric charging--if the melting time is more than 30% .the energy consumption of whole machine saves more than 20%
- equipped with new oil servo driver system-the same displacement of the servo pump,under the same working conditions ,compare with the previous servo driver saving 7%
- equipped with energy saving ceramic ,good insulation and long life ,under the same condition,more than 15% of the ordinary heater

EVO servo driver machine melting consumption is lower ,can reduce the the energy consumption of the whole machine by more than 30%



Energy saving

under the same conditions, it has 20%~40% more energy saving than the traditional servo driver, and the energy consumption is close to the same tonnage electric injection molding machine



Electric charging energy saving



Next generationservo energy saving

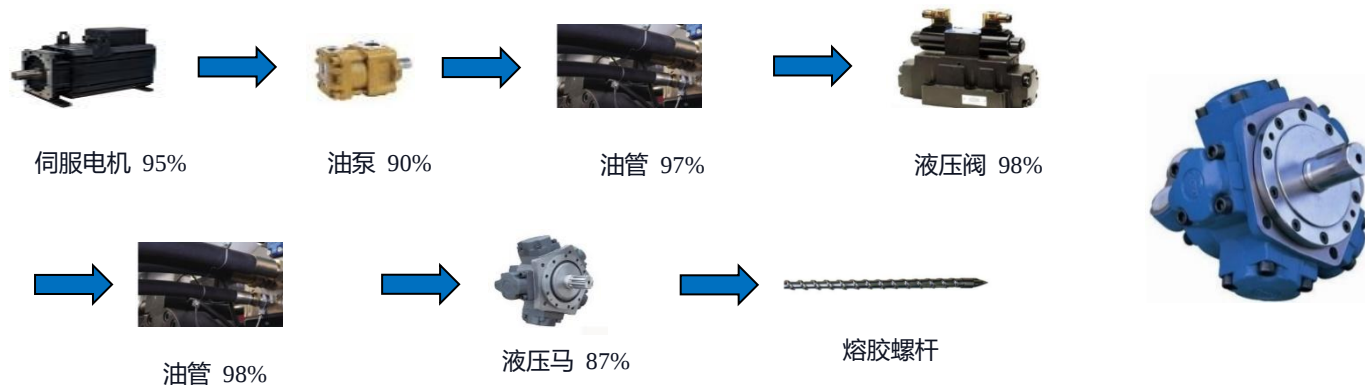


Servo energy-saving oil temperature control unit



Energy saving ceramic heating

Oil motor melt power transmission



Total efficiency of oil motor: $n=95\%*90\%*97\%*98\%*98\%*87\%=69.2\%$



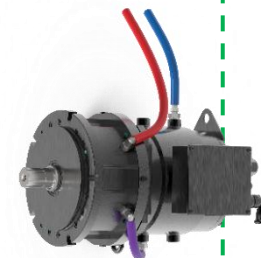
伺服电机 95%



一体式减速机 98%



熔胶螺杆



Total efficiency of the integrated mode: $n=95\%*98\%=93\%$

Efficiency comparison :the total efficiency of planetary gear is increased by **23.8%**
compared with melting motor



Energy saving

New series servo energy saving
under the same condition test.7.9%
energy saving than the original servo
system

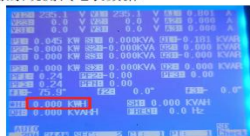
伯乐新一代伺服电机能耗测试报告

测试时间: 2023.7.4--2023.7.6 测试人: 丁方柱 测试条件: 相同工艺参数条件下连续正常生产1小时
测试地点: 技术部实验室 测试仪器: 电力分析仪
测试机型: BL550EKS 液压动力160泵62KW电机 (原电机) 液压动力160泵61KW电机 (伯乐新一代伺服)
测试产品参数:

- 1、产品名称: 工具箱底盒
- 2、产品克重: 1371.1g
- 3、产品原料: PP
- 4、生产时间: 1 小时
- 5、生产模数: 40 模



一、新一代伺服系统测试电表数据:



二、原伺服系统测试电表数据:



三、测试数据说明: 只测电机驱动能耗

测试内容		新一代伺服电机驱动	原伺服电机驱动
制品生产	测试起始时间	9:11 (2023.7.4)	13:46(2023.7.6)
	测试结束时间	10:11 (2023.7.4)	14:46(2023.7.6)
	测试起始读表数	0KWH	0KWH
	测试结束读表数	16.92KWH	18.38KWH
	耗电数	16.92KWH	18.38KWH

四、测试结论: 在相同条件下, 伯乐新一代伺服电机驱动在 1 小时生产 40 模产品比原伺服电机驱动省电 7.9%, 实际测试数据符合理论计算值。

Energy saving ceramic heating

改型陶瓷加热圈与普通陶瓷加热圈对比实验

一、产品参数:

1. 名称: 插座箱箱体
2. 重量: 946g
3. 材质: PC+ABS



二、测试机器参数

1. 机器型号: BL550EKS/C3700
2. 锁模力: 550Ton
3. 系统压力: 17.5MPa
4. 电热功率: 32.95KW

三、测试数据

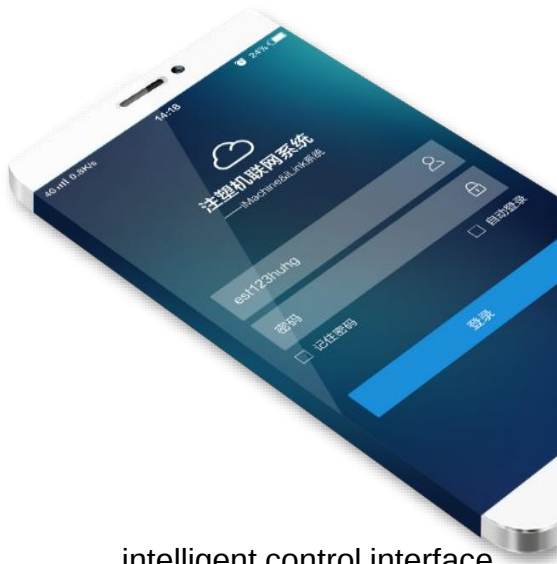
测试说明: 电流取加热总接触器进线侧

测试内容		原电热圈（普通陶瓷）	改型加热圈（节能型）
电热启动	起始温度（° C） 常温	31 /31 /31/31 /31	42 /44 /45 /45 /44
	设定温度（° C）	220/220/220/210/200	220/220/220/210/200
	开始时间	14:02	13:10
	结束时间	14:35	13:37
	用时	33 MIN	27 MIN
	用时差（min）	6	
	表读数（起始值）	0.0	0.0
	表读数（结束值）	9.42	8.47
	加热启动能耗(KWH)	9.42	8.47
	耗电量差(KWH)	0.95	
制品生产	电热圈表面温度（° C）	87	66
	开始时间	14:49	14:00
	结束时间	16:20	15:30
	用时	1小时31分	1小时30分
	产品数量	75	75
	表读数（起始值）	9.78	8.85
	表读数（结束值）	10.72	9.61
对比	电热消耗电量	0.94	0.76
	耗电量差(KWH)	0.18	
	1、改型加热圈比原加热圈升温更快，节省时间约18%；		
	1、改型加热圈比原加热圈加热能耗更低，冷态加热节能约10%；		
	2、改型加热圈比原加热圈在生产过程中能耗降低约19%。		



Intelligent motion control system

screen intelligent control system,a new UI design,with variery of intelligent adjustment function,so that the control molding process is no longer complex



intelligent control interface

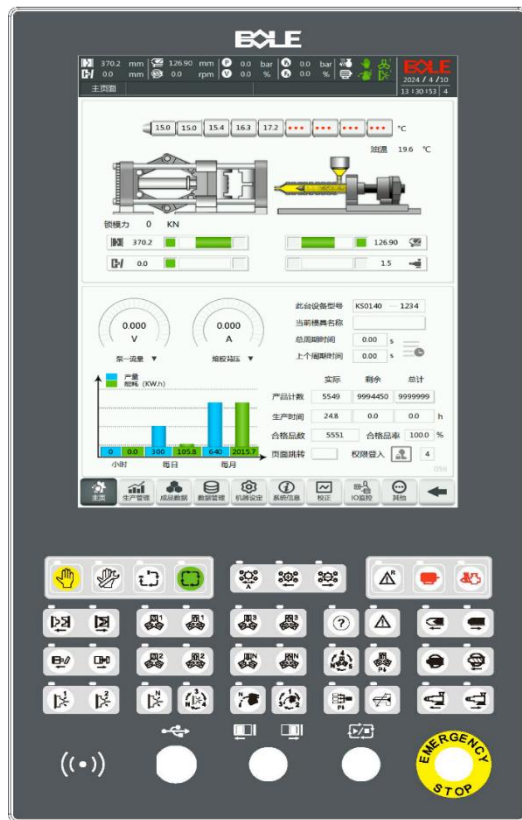


12 inch PLC



MES network function display

管理层	工厂驾驶舱	现场看板	短信推送	月报推送	知识库管理
业务层	数据追溯	追溯分析	设备时序图	OEE分析	易损件寿命分析
	模具RFID	自动识别	产品扫码	数据采集	采购进度
	柔性切换	程序切换	数据绑定	产品溯源	设备监控
	易损件切换	辅料叫料	产品追溯	防错遏制	异常监控
基础数据维护					
采集层	采集配置	设备接入	数据采集	数据安全	
设备层	注塑机	机器人	质检设备	传感器	模具



with variety
of intelligent
control
applications ,
make
injection
molding
simple





0.0 mm

0.0 mm

0.0 bar

0.0 bar

0.0 %

0.0 %

0.0 mm

0.0 rpm

0.0 %

0.0 %

BOLE

2024 / 4 / 16

15 : 9 : 19 | 4

智能锁模力自适应

使用模板锁模力监控

☐

实际高压值 / 目标高压值

0.1 bar

bar

设定锁模力上偏差 / 下偏差

0.1 / 0.1 bar

超偏差后自动并切回手动模式

☐

使用智能锁模力自适应

☐

自适应调整压力 / 流量

0.1 bar

0.1 %

自适应微调时间

0.1 s

智能锁模力

智能开合模

智能注射

智能工艺

智能温控

异常诊断

能耗分析

009

0.0 mm

0.0 mm

0.0 bar

0.0 bar

0.0 %

0.0 %

0.0 mm

0.0 rpm

0.0 %

0.0 %

BOLE

2024 / 4 / 16

15 : 9 : 38 | 4

智能成型工艺控制 (带*为必填必填项)

* 请选择产品原料

POM

此机台锁模力为

0.01

此机台射出速率为

0.01

* 请输入产品壁厚D

0.01

* 请输入产品克重M

0.01

成型热膨胀系数K1

1.15

射出速率系数K2

0.75

原料密度系数p

1.38

保压系数K3

0.73

热扩散系数K4

0.090

材料冷却系数K5

1.28

热变形温度Tx

120.00

* 请选择填充物

GF

K5调节系数A

1.15

Tx调节系数B

1.15

智能锁模力

智能开合模

智能注射

智能工艺

智能温控

异常诊断

能耗分析

159

0.0 mm

0.0 mm

0.0 bar

0.0 bar

0.0 %

0.0 %

0.0 mm

0.0 rpm

0.0 %

0.0 %

BOLE

2024 / 4 / 16

15 : 9 : 54 | 4

智能能耗监测

合模功耗

0.0 %

开模功耗

0.0 %

注射功耗

0.0 %

熔胶功耗

0.0 %

座台功耗

0.0 %

顶针功耗

0.0 %

其他功耗

0.0 %

清空所有记录

序号	周期总功耗	合模	开模	注射	熔胶	座台	顶针	其它
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

单位: (KW.h)

智能锁模力

智能开合模

智能注射

智能工艺

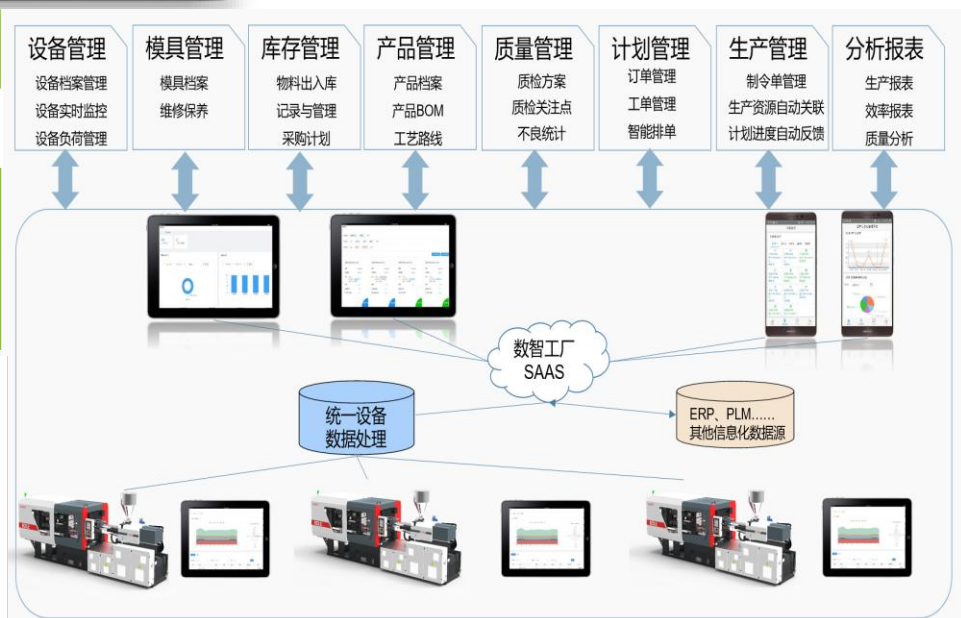
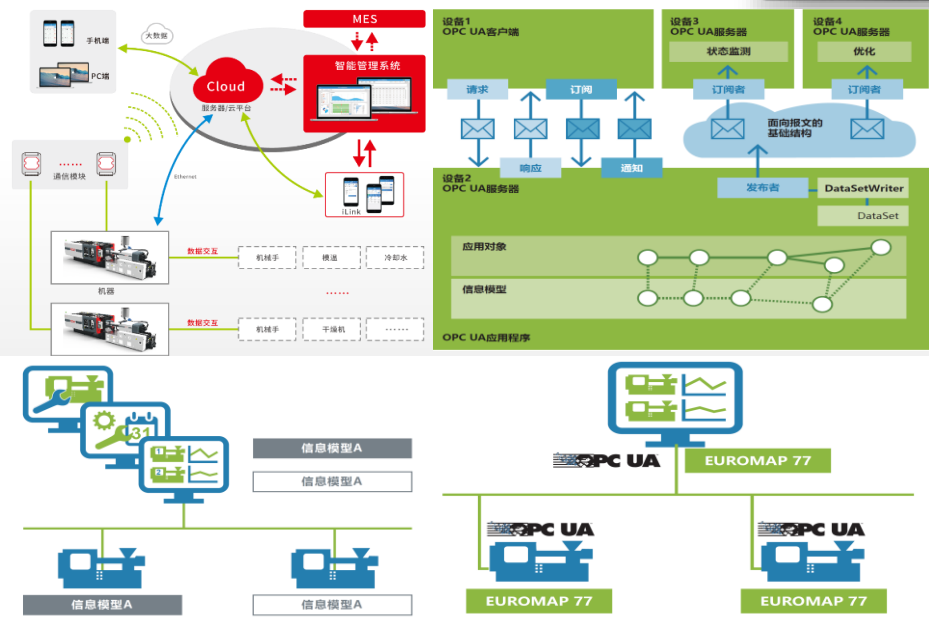
智能温控

异常诊断

能耗分析

138

standard OPU/U, it can be communication with MES system





long-distancene network /data transmission function

Intelligent motion control system

SOLE 伯乐塑机

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搜索 重置

- | 安徽有度智能

72938062 | 安徽有度智能

CS0000-0000 | 伯乐智能...

KS0140-0 | 安徽有度智能

KS0140-0 | 安徽有度智能

KS0140-1235 | 安徽有度...

KS0140-1236 | 安徽有度...

KS0140-1237 | 安徽有度...

KS0170-0 | 安徽有度智能

KS0170-1333 | 安徽有度...

KS0170-1334 | 安徽有度...

KS0170-1335 | 安徽有度...

停机

关机

关机

停机

停机

生产

停机

停机

停机

停机

停机

停机





EKS-EVOlution case share



BOLE EVOLution comparition testing case



XX160S

45mm



BL160EKW -EVO / C630 40mm

test method:the customer company produces the mould ,send people to produce field test,site seal 500 sets of sampls

test process:customer track the record during whole process;date comparison:the same mold installation,the same precess and same product cooling time debugging,reach normal stable the production state ,then begin to test the time ,record the total data after the same set number or the same time



BOLE 510 试模产品检验数据记录表				
机型:	客户:	日期:		
		2009/06/13	1050	
序号	重量 (g)	重量 (g)	尺寸A	尺寸B
	Kse10-1347	A-60	PA6	
1	13.517	13.517		
2	13.517	13.517		
3	13.514	13.517		
4	13.513	13.517		
5	13.513	13.517		
6	13.515	13.517		
7	13.512	13.517		
8	13.517	13.516		
9	13.512	13.517		
10	13.512	13.517		
11	A-60	13.517		
12	13.517	13.515		
13	13.517	13.512		
14	13.517	13.512		
15	13.515	13.517		
16	13.515	13.517		
17	13.515	13.517		
18	13.515	13.517		
19	13.515	13.517		
20	13.517	13.517		
21	13.517	13.517		
22	13.517	13.517		
23	13.515	13.517		
24	13.517	13.517		
25	13.517	13.517		
26	13.517	13.517		
27	13.517	13.517		
28	13.517	13.517		
29	13.517	13.517		
30	13.517	13.517		
31	13.517	13.517		
32	13.517	13.517		
33	13.517	13.517		
34	13.517	13.517		
35	13.517	13.517		
36	13.517	13.517		
37	13.517	13.517		
38	13.517	13.517		
39	13.517	13.517		
40	13.517	13.517		
41	13.517	13.517		
42	13.517	13.517		
43	13.517	13.517		
44	13.517	13.517		
45	13.517	13.517		
46	13.517	13.517		
47	13.517	13.517		
48	13.517	13.517		
49	13.517	13.517		
50	13.517	13.517		
平均值				
最大				
最小				
重复精度	0.02g/100%			
结论:	(粗的工取料头)			
备注:	10:55 开始, 11:23 结束, 测100模数据, 2.9g/100模, 产品周期: 12.7秒.			
	编制: 彭峰			

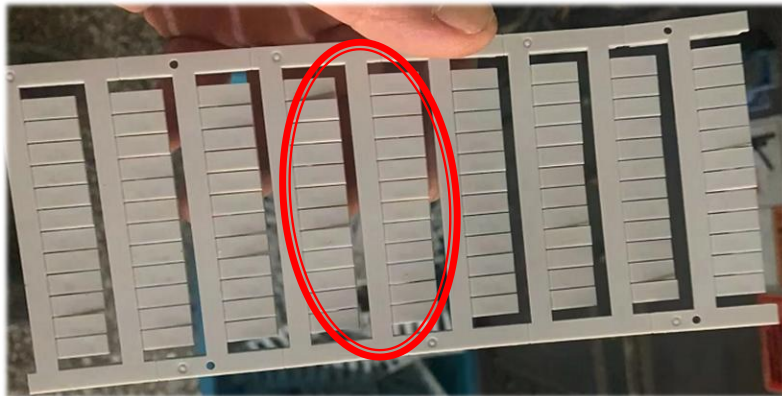
试模产品检验数据记录表					16:55开始
机型:	客户:		日期:		2014.5.19
	A-40	PAGE			
序号	重量 (g)	重量 (g)	尺寸A	尺寸B	
1	16.078				
2	16.078				
3	16.078				
4	16.078				
5	16.078				
6	16.078				
7	16.078				
8	16.078				
9	16.078				
10	16.078				
11	16.078				
12	16.078				
13	16.078				
14	16.078				
15	16.078				
16	16.078				
17	16.078				
18	16.078				
19	16.078				
20	16.078				
21	16.078				
22	16.078				
23	16.078				
24	16.078				
25	16.078				
26	16.078				
27	16.078				
28	16.078				
29	16.078				
30	16.078				
31	16.078				
32	16.078				
33	16.078				
34	16.078				
35	16.078				
36	16.078				
37	16.078				
38	16.078				
39	16.078				
40	16.078				
41	16.078				
42	16.078				
43	16.078				
44	16.078				
45	16.078				
46	16.078				
47	16.078				
48	16.078				
49	16.078				
50	16.078				
平均值					
最大值					
最小值					
重复精度					
结论:	16:55开始, 17:12结束, 测100模数据.				
编制: 彭峰					

BOLE 510 试模产品检验数据记录表				
机型:	客户:	日期:		
		5月12日		
			A-80	TA66
序号	重量 (g)	重量 (g)	尺寸A	尺寸B
1	5.339			
2	5.339			
3	5.339			
4	5.339			
5	5.339			
6	5.339			
7	5.339			
8	5.339			
9	5.339			
10	5.339			
11	5.339			
12	5.339			
13	5.339			
14	5.339			
15	5.339			
16	5.339			
17	5.339			
18	5.339			
19	5.339			
20	5.339			
21	5.339			
22	5.339			
23	5.339			
24	5.339			
25	5.339			
26	5.339			
27	5.339			
28	5.339			
29	5.339			
30	5.339			
31	5.339			
32	5.339			
33	5.339			
34	5.339			
35	5.339			
36	5.339			
37	5.339			
38	5.339			
39	5.339			
40	5.339			
41	5.339			
42	5.339			
43	5.339			
44	5.339			
45	5.339			
46	5.339			
47	5.339			
48	5.339			
49	5.339			
50	5.339			
平均值				
最大值				
最小值				
重复精度				
每模模耗	(17:15开始, 17:20结束, 测100模.)			
结论:	合格: 5.339g/100模 公差: 0.05g 公差: 0.05g			
	备注: 1. 4.5/100 公差: 1.766/100 公差: 1.766/100			
	(备注: 原模模耗: 5.339g, 公差: 0.05g.			
	公差: 0.05g/100 公差: 0.05g/100 公差: 0.05g/100)			

Problem: Previous production has flash and bond

Production cycle: 20.35s

Previous product weight: 13.84g



Test result: Solve Shrink, flash, burr and other original problems

Production cycle: 12.7s

Product weight: 13.57g

41

mm

0.03

mm

0.0

rpm

0.0

bar

0.4

bar

0.0

mm

0.0

rpm

0.0

%

0.0

%

SPC

12 : 38 : 9

4

2024 / 5 / 13

EOLE

▼ SPC

采样间隔

1

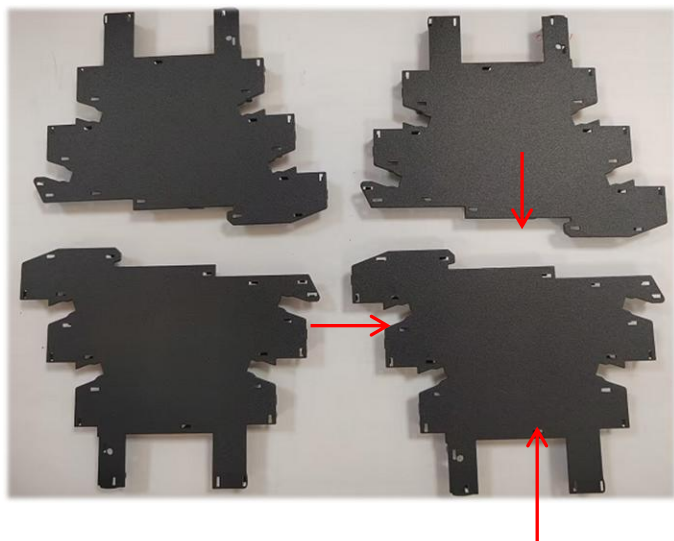
▲

▼

	模数	产品周期 [s]	开模 终点 [mm]	注射 终点 [mm]	注射 起点 [mm]	射->保 位置 [mm]	注射 时间 [s]	熔胶 时间 [s]
1	100	12.7	362.0	22.50	55.50	22.49	0.99	2.75
2	99	12.7	362.1	22.48	55.38	22.48	0.99	2.80
3	98	12.7	362.0	22.58	55.51	22.59	0.99	2.78
4	97	12.7	361.9	22.49	55.37	22.49	0.99	2.81
5	96	12.7	362.1	22.50	55.37	22.50	0.99	2.77
6	95	12.7	361.9	22.43	55.36	22.43	0.99	2.75
7	94	12.7	362.0	22.46	55.37	22.46	0.99	2.81
8	93	12.7	361.9	22.54	55.37	22.54	0.99	2.77
9	92	12.7	361.9	22.49	55.37	22.49	0.99	2.78
10	91	12.7	362.0	22.51	55.37	22.51	0.99	2.78
11	90	12.7	361.9	22.52	55.38	22.52	0.99	2.78
12	89	12.7	362.0	22.56	55.40	22.57	0.99	2.78
13	88	12.7	362.1	22.44	55.37	22.44	0.99	2.81
14	87	12.7	361.9	22.48	55.38	22.48	0.99	2.77
15	86	12.7	362.1	22.47	55.37	22.47	0.99	2.78

Problem: Previous product size went to thick, the product plane size deviation is large

Production cycle 17s, Previous product weight 17.06g



1.9

mm

0.0

mm

46.39

mm

0.0

rpm

P

0.0

bar

V

0.0

%

P

0.4

bar

F

0.0

%

2024 / 5 / 13

17:16:23

4

SPC

前安全门未关

1

▼ SPC

采样间隔

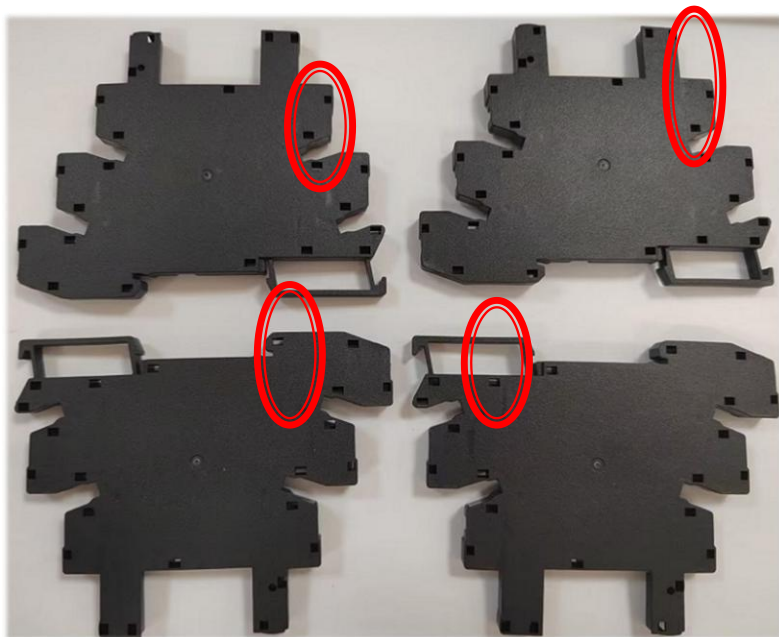
1

	模数	产品 周期 [s]	开模 终点 [mm]	注射 终点 [mm]	注射 起点 [mm]	射->保 位置 [mm]	注射 时间 [s]	熔胶 时间 [s]	
▲	16	88	10.4	310.8	33.49	55.33	33.51	0.99	1.56
	17	87	10.4	311.8	33.67	55.37	33.68	0.99	1.52
	18	86	10.4	310.8	33.74	55.39	33.75	0.99	1.52
	19	85	10.4	311.3	33.64	55.37	33.67	0.99	1.55
	20	84	10.4	311.2	33.61	55.38	33.61	0.99	1.55
	21	83	10.4	312.5	33.54	55.35	33.54	0.99	1.55
	22	82	10.4	311.8	33.49	55.37	33.50	0.99	1.56
	23	81	10.4	312.2	33.49	55.36	33.51	0.99	1.56
	24	80	10.4	311.6	33.60	55.36	33.61	0.99	1.54
	25	79	10.4	310.5	33.51	55.36	33.51	0.99	1.57
	26	78	10.4	311.0	33.60	55.38	33.61	0.99	1.55
	27	77	10.4	310.8	33.63	55.39	33.64	0.99	1.52
	28	76	10.4	311.3	33.61	55.39	33.61	0.99	1.52
	29	75	10.4	311.6	33.54	55.38	33.52	0.99	1.55
▼	30	74	10.4	311.9	33.61	55.39	33.61	0.99	1.54

Test results: the wall thickness is uniform, the surface size is consistent, stable

Production cycle 10.4s, product weight 16.03g

Problem: Previous production surface appearance reduction,
flash.Previous production cycle 20s; Previous product
weight 38.32g



Test results: the surface appearance reduction is significantly
improved, no flash.Production cycle 11.4s, product weight 37.36g

2.7

mm

0.0

mm

2488

mm

0.0

rpm

P

0.0

bar

V

0.0

%

F

0.0

%

ELE

2024 / 5 / 13

19 : 25 : 35

4

SPC

▼ SPC

采样间隔

1

▲

▼

	模数	产品周期 [s]	开模 终点 [mm]	注射 终点 [mm]	注射 起点 [mm]	射->保 位置 [mm]	注射 时间 [s]	熔胶 时间 [s]
16	86	11.2	328.3	19.16	56.41	19.27	1.19	2.81
17	85	11.2	328.2	19.07	56.50	19.21	1.19	2.86
18	84	11.3	328.2	19.11	56.61	19.23	1.19	2.86
19	83	11.4	328.2	19.27	56.52	19.39	1.19	3.04
20	82	11.4	328.2	19.29	56.49	19.41	1.19	3.03
21	81	11.4	328.2	19.19	56.39	19.29	1.19	2.99
22	80	11.4	328.2	19.18	56.61	19.29	1.19	2.99
23	79	11.4	328.2	19.23	56.43	19.30	1.19	2.97
24	78	11.4	328.2	19.29	56.33	19.37	1.19	3.02
25	77	11.4	328.2	19.32	56.42	19.39	1.19	2.97
26	76	11.4	328.3	19.20	56.43	19.29	1.19	2.93
27	75	11.4	328.2	19.28	56.67	19.39	1.19	3.00
28	74	11.4	328.1	19.23	56.64	19.35	1.19	3.00
29	73	11.4	328.3	19.22	56.69	19.34	1.19	2.96
30	72	11.4	328.2	19.22	56.49	19.30	1.19	2.97

产品	 SNC05-E基座		 SNC05-E盖板		 520标记牌	
原有问题	原生产表面外观缩印、飞边		原生产尺寸偏厚, 产品平面尺寸偏差大		原生产飞边粘结	
	GT*	BOLE	GT*	BOLE	GT*	BOLE
能耗	设备能耗 2.466KW 每模能耗 0.02466KW	设备能耗 1.726KW 每模能耗 0.01726KW	设备能耗 1.921KW 每模能耗 0.01921KW	设备能耗 1.345KW 每模能耗 0.01345KW	设备能耗 3.43KW 每模能耗 0.0343KW	设备能耗 2.401KW 每模能耗 0.02401KW
周期	20s	11.4s 周期提升 43.000%	17s	10.4s 周期提升 38.824%	20.35s	12.7s 提升周期 37.592%
克重	38.32g	37.36g 克重减少 2.485%	17.06g	16.03g 克重减少 6.006%	13.84g	13.57g 克重减少 1.947%
测试结果	表面外观缩印明显改善, 无飞边		壁厚均匀, 表面尺寸一致、稳定		解决缩水、飞边、毛刺等原有问题	

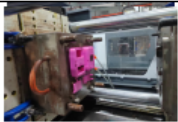
结论:

外观与尺寸符合要求下, 克重减轻**1.7-6%**;
制品周期快**30-43%**, 良品率高, 大幅提高生产效率;
生产能耗大幅降低, 制品克重重复精度高;
与普通液压机相比, **精度高30%、速度快30%、省电30%**。



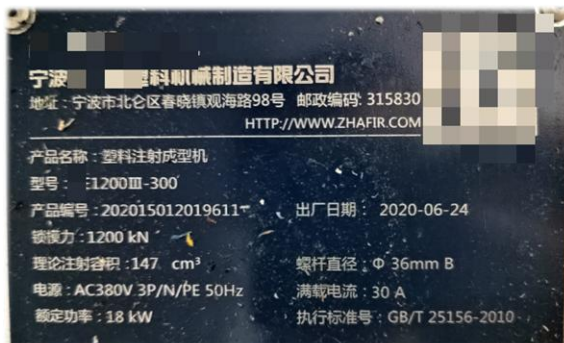


序号	模具名称	产品图片	原生产机型	伯乐机型	原周期	现周期	提升效率	备注
1	多米诺车头 (ABS)		XXX 168 吨	160EKW-EVO	24.6s	19.37s	21%	
2	鞋子配件 (ABS)		XXX 电动机	160EKW-EVO	20s	18s	10%	增加了机械手
3	农夫车 (ABS)		XXX 128 吨	140EKW-EVO	18s	12.46s	31%	

序号	试模图片	产品图片	原生产机型	伯乐机型	样品单重 (g)	伯乐单重 (g)	样品周期 (s)	伯乐周期 (s)	周期提升	产品/模具 情况	备注
1			某128T	BL140EKS/ C460 A-36	73.8	72.08	20	12.5	37.5%	一出四 一穴困气	试模材料与样品ABS材料颜色牌号不一致，比重有区别
2			某120T	BL140EKS/ C460 A-36	41.61	39.96	22.08	13.2	40.2%	一出二 充填不平衡、 一穴困气	全自动 材料颜色不同
					42.15	41.26					
3			某168T	BL140EKS /C460 A-36	11.24	10.11	35.6	22.6	36.5%	120pes 困气严重	全自动
4			某168T	BL140EKS /C460 A-36	5.7	5.21	24	18.5	22.9%	一出六 一穴困气严重	全自动 材料颜色不同
5					17.52	16.26					
6					12.81	11.96					



Case- Guangdong Qizhi precision technology

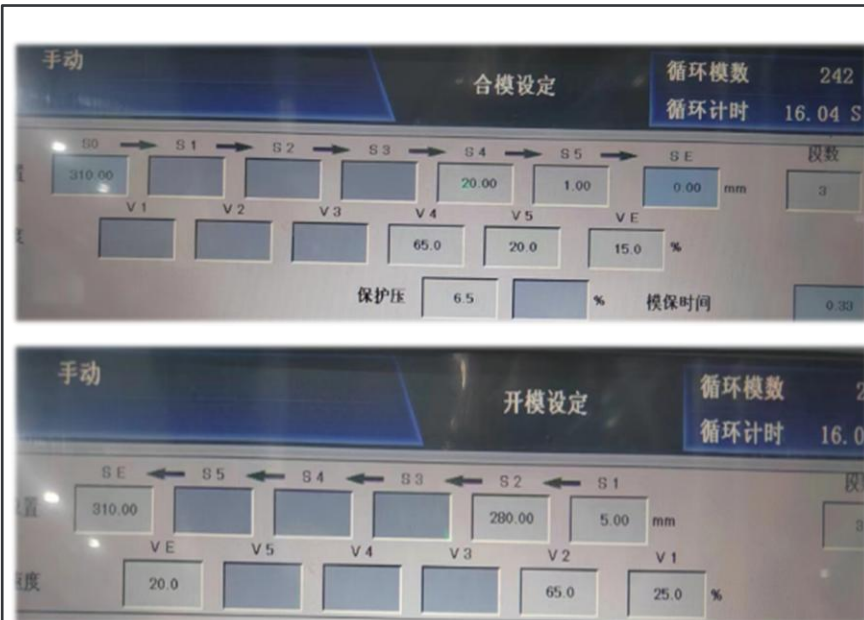


XXX1200Ⅲ /300



BL140EKS+/C460

Process parameters – Mold opening and closing setting



VE1200III /300



BL140EKS+/C460

Process parameters - Ejection setting

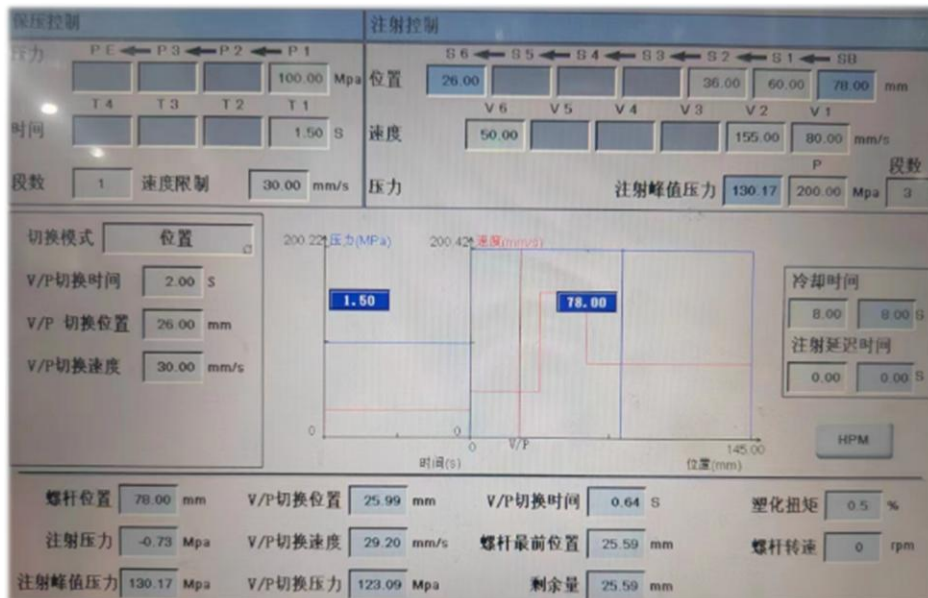


VE1200III /300



BL140EKS+/C460

Process parameters - Injection setting



VE1200 III /300



BL140EKS+/C460

Process parameters - Plasticizing setting

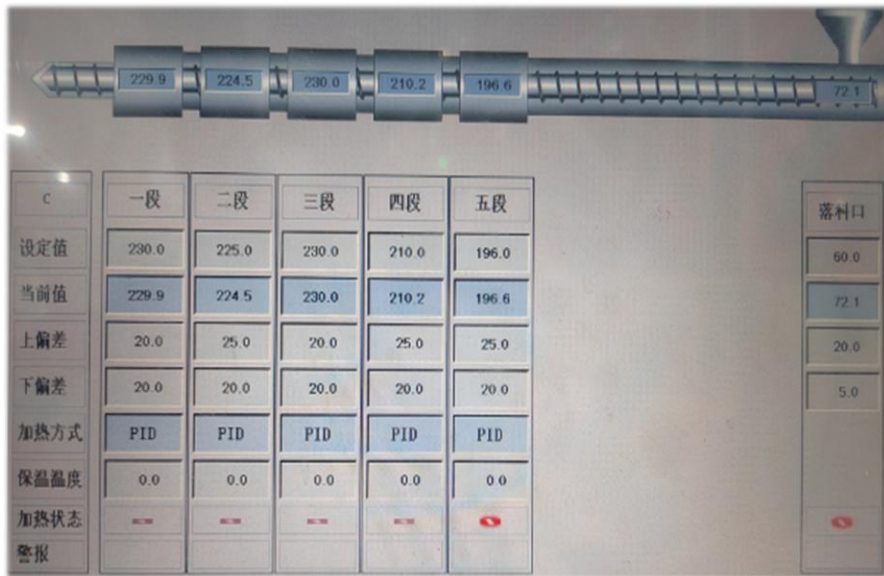


VE1200 III /300

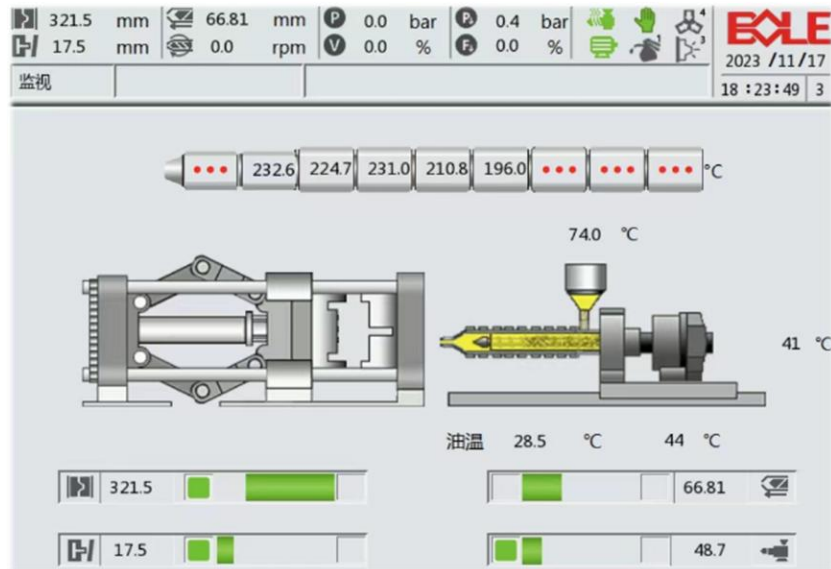


BL140EKS+/C460

Process parameters - Temperature setting



VE1200III /300



BL140EKS+/C460

Comparison of each action time in the cycle



VE1200III /300

SPC

采样间隔1

采样间隔1

1

		模数	开模 时间 [s]	顶针 时间 [s]	关模 时间 [s]	射出 时间 [s]	加料 时间 [s]	
▲	16	233	1.41	1.87	1.37	0.60	4.28	0
	17	232	1.41	1.87	1.37	0.60	3.31	0
	18	231	1.41	1.86	1.37	0.61	3.03	0
	19	230	1.41	1.86	1.35	0.61	2.83	0
	20	229	1.41	1.87	1.36	0.62	2.74	0
	21	228	1.41	1.86	1.36	0.62	2.73	0
	22	227	1.41	1.86	1.36	0.62	2.72	0
	23	226	1.41	1.85	1.36	0.62	2.72	0
	24	225	1.41	1.85	1.36	0.62	2.68	0
	25	224	1.41	1.85	1.35	0.62	2.69	0
	26	223	1.41	1.86	1.36	0.62	2.67	0
	27	222	1.41	1.85	1.35	0.62	2.73	0
	28	221	1.41	1.85	1.35	0.62	2.74	0
	29	220	1.41	1.85	1.34	0.62	2.70	0
▼	30	219	1.41	1.85	1.35	0.62	2.71	0

BL140EKS+/C460

Cycle and energy consumption test BL140EKS+/C460



Energy consumption

Sample machine:

BL140EKS+/C460

Sample time: 17 Nov

17:16-18:16 (1 hour)

Start-End energy
consumption: 0.000kw-
4.417kw

Actual energy
consumption :

4.417kw/h

Production pcs:227pcs

Energy consumption of
single product

0.0195kw/h

Cycle and energy consumption test VE1200III-300

	循环次数	注射保压时间(s)	储料时间(s)	循环周期时间(s)
1	228	2.14	3.43	16.03
2	228	2.14	3.43	16.03
3	226	2.14	3.46	16.03
4	225	2.14	3.42	16.03
5	224	2.14	3.41	16.03
6	223	2.14		



Energy consumption

Sample machine:

VE1200III-300

Sample time: November 17, 21:05-22:15 (1 hour 10 minutes)

Start-End energy consumption: 0.000kw-4.373kw

Actual energy consumption:

4.373kw/h

Production pcs:227pcs

Energy consumption of single product :

0.0193kw/h

Cycle and energy consumption test

Cycle

	斜料时间(s)	循环周期时间(s)	V/P 切换位置(mm)	V/P 切换压力(MPa)
37	3.43	16.03	25.99	117.17
38	3.45	16.03	25.99	116.99
39	3.44	16.02	25.99	116.75
40	3.39	16.03	25.99	117.31
41	3.44	16.03	25.99	117.34
42	3.39	16.02	25.99	117.02
43	3.43	16.03	25.99	117.78
44	3.67	16.09	25.99	126.28
45	3.66	16.03	25.99	124.54
46	3.66	16.03	25.99	124.34
47	3.67	16.03	25.99	124.59
48	3.67	16.03	25.99	124.32
49	3.67	16.03	25.99	124.46
50	3.63	16.03	25.99	124.76
51	3.69	16.03	25.99	124.56
52	3.65	16.02	25.99	124.61
53	3.65	16.01	25.99	124.44
54	3.67	16.03	25.99	124.27
55	3.68	16.02	25.99	124.73
56	3.64	16.02	25.99	124.91

VE1200Ⅲ /300 Cycle time 16.03S

SPC

采样间隔

1

	模数	总周期 [s]	开模 终点 [mm]	射出 终点 [mm]	射出 起点 [mm]	射->保 位置 [mm]	射出 时间 [s]	加料 时间 [s]	
▲	1	248	15.0	321.7	26.35	79.38	35.99	0.60	4.28
	2	247	15.0	321.6	26.65	78.76	35.99	0.60	3.31
	3	246	15.0	321.6	27.02	78.20	35.99	0.61	3.03
	4	245	15.0	321.8	27.27	78.15	35.99	0.61	2.83
	5	244	15.0	321.7	27.56	78.11	35.99	0.62	2.74
	6	243	15.0	321.5	27.67	78.05	35.99	0.62	2.73
	7	242	15.0	321.8	27.60	78.09	35.99	0.62	2.72
	8	241	15.1	321.6	27.47	78.03	35.99	0.62	2.72
	9	240	15.0	321.8	27.65	78.05	35.99	0.62	2.68
	10	239	15.0	321.6	27.59	78.05	35.99	0.62	2.69
	11	238	15.0	321.6	28.29	78.08	35.99	0.62	2.67
	12	237	15.0	321.7	27.55	78.09	35.99	0.62	2.73
	13	236	15.0	321.8	27.52	78.05	35.99	0.62	2.74
	14	235	15.0	321.6	27.54	78.00	35.99	0.62	2.70
▼	15	234	15.0	321.8	27.57	78.05	35.99	0.62	2.71

BL140EKS+/C460 Cycle time 15.1S

Product weight measurement and repeatability accuracy

In continuous production, take 21 cycle to measure the weight of the product

	BOLE	HAITIAN
Max	15.96	16.25
Min	15.94	16.22
Average	15.964	16.229
Weight	Light	Heavy
Repeatability	0.13%	0.18%

Conclusion: the repetition accuracy of Bole is better than that of FE machine. Meet the requirements of precision molding, can replace FE machines for making precision parts.

Date		BL140 EKS	VE1200III
①	15.95	16.23	
②	15.94	16.23	
③	15.95	16.23	
④	15.95	16.22	
⑤	15.95	16.22	
⑥	15.95	16.22	
⑦	15.95	16.23	
⑧	15.95	16.23	
⑨	15.95	16.23	
⑩	15.96	16.22	
⑪	15.96	16.22	
⑫	15.96	16.22	
⑬	15.95	16.23	
⑭	15.96	16.22	
⑮	15.96	16.22	
⑯	15.95	16.23	
⑰	15.96	16.24	
⑱	15.96	16.25	
⑳	15.96	16.25	

Model parameters and test comparison conclusions

Machine model	XXX1200 III/ 300	BL140EKS +/- C460
Clamping force Ton	120	140
Screw diameter mm	36	36
Injection capacity cm ³	147	203
Tie Bar Space	470×470	460×410
Motor	18KW	37 KW
Mark	FE	Hybrid
Energy consumption for 227 pcs	4.373 KWH	4.417 KWH
Energy consumption for each pcs	0.0193 KWH	0.0195 KWH

Conclusion: The energy consumption and product repetition accuracy of EVO hybrid energy-saving injection molding machine are close to the level of FE machine!

Through data comparison, customers sign orders for **600 sets** at one time

260 sets have been delivered so far





Bole is determined to become a world's great plastic equipment enterprise!