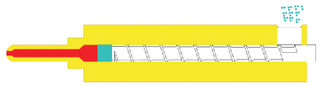
技术参数表 Machine specification

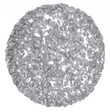
说明	Item	UN250MG	UN650MG
螺杆直径 (mm)	Screw diameter (mm)	51	84
注射压力 (MPa)	Shot pressure(Mpa)	102	95
理论注射容量 (cm^3)	Shot volume (cm^3)	306	1385
注射质量 (g)	Shot weight(g)	441	1995
理论最大注射率 ($cm^3 \cdot s^{-1}$)	Max. injection speed ($cm^3.s^{-1}$)	7759(3.8m/s)	21048(3.8m/s)
螺杆回料转速 ($r \cdot min^{-1}$)	Scew speed ($r.min^{-1}$)	10－210	10-210
喷嘴尺寸 (mm)	Nozzle dimension (mm)	Φ15×R25	Φ15×R35
注射行程(mm)	Injection stroke(mm)	150	250
注射位置	Injection position	上下2处（锁模中心以及从中心下方100mm的位置）Mold center mold center-100mm	上下2处（锁模中心以及从中心下方175mm的位置）Mold center mold center-175mm
锁模力 (kN)	Clamping force (kn)	2500	6500
开模力 (kN)	Open force (kn)	300	650
模板最大距离(mm)	Max. daylight (mm)	1160	1570
模板行程 (mm)	Opening stroke(mm)	460	670
模具厚度 (mm)	Mold thickness(mm)	230—700	350-900
导杆间距(H×V) (mm)	Space between tie bar(mm)	570×570	850X850
模板尺寸(H×V) (mm)	Platen size(mm)	870×870	1280X1280
定位环直径 (mm)	Locating ring diameter(mm)	Φ150	Φ185
模具安装方式	Mold installation pattern	T型槽方式 T-slot	T型槽方式 T-slot
推顶力×推顶行程(kN×mm)	Ejection force*ejection stroke(kN×mm)	150×110	300X150
泵驱动用电机输出功率 (kW)	Output power of pump motor(kW)	37	55+5.5
加热器输出功率 (kW)	Output power of heater(kW)	18.5	39.4
总电气容量 (kW)	Total electric capacity(kW)	72.5	99.9
设备重量（t）	Machine weight（t）	17.5	40
设备尺寸 (m)	Machine dimensions(m)	6.9X1.4X3.1	8.8X2.0X3.5
液压油箱体积 (L)	Oil tank capacity (L)	600	850
冷却水使用量	Cooling water flux	2.5(油冷却器、料斗冷却用) 2.5(For oil and hopper cooling)	2.5
(m^3/h)	(m^3/h)		4

镁合金注射成型原理及特点
Semi-solid magnesium alloy injection molding machine principle and specification

屑状镁合金通过螺杆的螺旋输送从料筒的人口向前输送，过程中受到料筒外加热器的加热和螺杆的剪切而逐渐熔融至成型状态。注射时，油缸推动螺杆向前高速运动，将前端的原料注射到模具中成型。和压铸机相比，整个成型过程中是没有熔炉的。

The screw causes screw transmission to transit fragmental magnesium alloy forward from barrel. During this period, the magnesium alloy is heated and cut and gradually become shaping phase. When injecting, cylinder push the screw forward at high speed and the materials is injected into mold and shaped. Comparing with die casting machine, there is no furnace required during the whole injection process.





原料：Material

止逆阀：Non-return valve

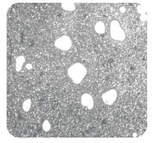
螺杆前端装有止逆阀，当镁合金原理熔融输送时，推动止逆环向前运动，熔融的镁合金可以穿过止逆环输送到前端；注射时，止逆环在摩擦力的作用下向后运动，起到密封作用，使前端的料只能在高速向前运动的螺杆的推动下向前运动而没有向后泄漏的可能。

There is a non-return valve at the front end of screw rod. When magnesium is transmitted in liquid state, it pushes the non-return valve to move in forward cycle, and the liquid magnesium alloy moves fluently to the front end. When injecting, non-return valve is forced to move in backward cycle by friction and cause sealing effect. At this time, materials in the front end can not return but moved forward.

半固态触变成型原理及优点 Principal and advantage of thixotropic semi-solid molding

镁合金注射机成型采用半固态触变成型原理。由于通过螺杆输送的原料的整个熔融过程是边加热边剪切搅拌的，所以输送到前端准备成型的实际上并非完全熔融的液态镁合金，而是含有一定固相成分的半固态镁合金浆料。

Magnesium alloy injection molding machine adopted semi-solid thixotropic molding principle. Since the materials transmitted by screw is heated and cut at the same time, the materials arrives at the front end for molding is not fully melted liquid alloy, but semi-solid magnesium alloy fluid containing solid.

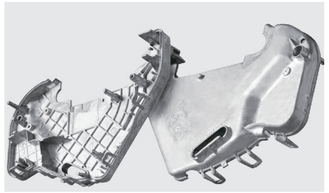


金相 Micrograph

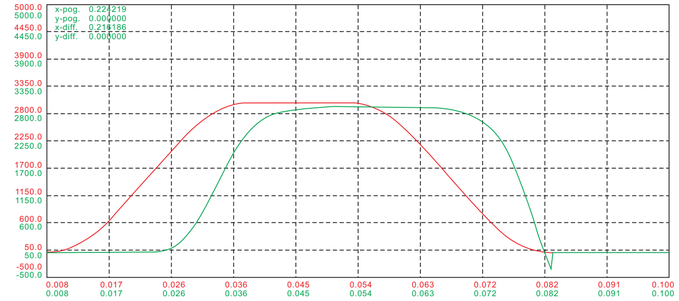
半固态成型的优势 Advantages of semi-solid molding

- 减少气孔 (减少50% 数量)—速度慢；
- 产品变形小(成型温度低)；
- 较好的尺寸重复精度—实时控制技术；
- 容易成型结构复杂零件；
- 容易成型薄壁产品；
- 没有合金熔化过程的损失；
- 铸造压力高，表面附近的结晶粒微细化，可以获得更高的耐蚀性和机械强度；
- 成型温度比压铸法低50－70℃，提高金属模的使用寿命；
- 不使用熔解炉及SF6防燃气体,不会发生爆炸和粉尘, 符合安 全和环保要求 。

- Fewer air holes (decreased by 50%)—slow speed;
- Small distortion (lower molding temperature);
- Good measure repeatability—real time control technology;
- Easy to molding products of complex structure;
- Easy to molding products with thin wall;
- No loss during alloy melting period;
- High casting pressure, produce small surface crystal grain and higher tarnish resistance and mechanical strength;
- Lower molding temperature comparing with die casting method 50~70 centigrade, longer extended-life of die;
- No use of furnace nor sf6 fire resisting gas, no exposure dusty, fit requirements for safety and environment protection;



伊之密半固态镁合金注射成型机的特点
Specifications of Yizumi semi-solid magnesium alloy injection molding machine

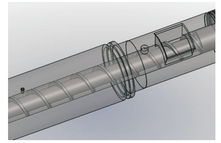


欧洲顶级控制器控制，注射速度达到4m/s时可以实现精确的实时闭环控制，速度曲线与设定曲线高度一致。

European highest class controller. Accurate real time close loop control at the injection speed of 4m/s. High conformity of speed curves with setting curve.

欧洲顶级液压密封元件，低摩擦，高响应，高度可靠。

European hydraulic sealing parts of highest degree, low friction, quick response and high stability.

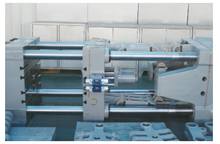


采用航天合金制作的螺杆料筒组件，耐高温，耐磨损，耐腐蚀，使用寿命长。

Adopt screw and barrel made of aerospace alloy. High performance in heat-resisting, abrasion resisting, corrosion resisting. Long service life.

高响应液压元件，专利设计的油路和控制方法，保证高速注射动作的执行，并能够保证注射动作结束后及时刹车，减少制品飞边机会。

Quick response hydraulic parts, patent designed oil circuit and controlling method, ensure high injection speed, timely stop after injection and fewer overlapping.



高刚性锁模机构。采用伊之密成熟的铝镁合金压铸机的高刚性锁模机构，运用数字化的设计和仿真验证方法设计，并经过多年大量客户实际使用验证，可靠性高。

High rigidity clamping mechanism. Adopted Yizumi developed high rigidity mechanism of aluminum and magnesium die casting machine. Designed by digital method and simulation method, tested by numerous customers. High stability.