

FRANCIS·M

Micro · Precision



HDMI direct gate

YUDO

HRS Temperature Control

HRS Controller for micro precision

_ Offer exclusive high speed control modes for low-voltage
such as Manual sync, Manual async, Manual time, Step mode, and so on

High-speed & Precise control

_ Optimized for ultra-precision high speed injection
_ PID control method by 0.02 sec. unit
_ Ultra-precision resolution within ± 0.01

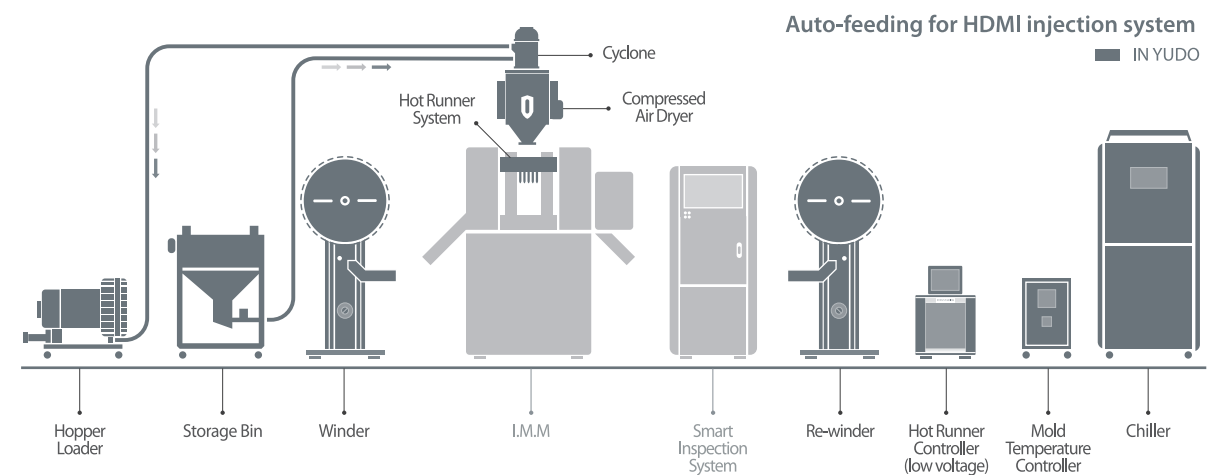
Product weight repeatability

_ Obtain weight repeatability through temperature control by ultra-precision Controller
_ Possible to control parts weight up to 0.01~0.02g by 1°C temperature change
considering feature of micro nozzle that is rapid temperature change by fine output



Micro & Precision FA System

YUDO provides all the equipment required for Micro & Precision production
by Turn-key system based on over 30 years of accumulated technology and know-how.



Application

1



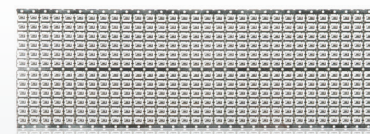
HDMI Connector

2



Camera Barrel

3



LED Lead Frame

4



LCP Connector

YUDO
Consilience Technology

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▷ We reserve the right to change any specifications without notice.
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More precise

Precise molding

Precise injection for complex shaped ultra-slim & ultra-precision parts

Thermal balance

Prevent thermal conduction to mold by applying special material called Insulin

Precise nozzle temperature control within $\pm 3^{\circ}\text{C}$

High quality production by keeping optimal gate temperature

More economical

No sprue

Commercialize 100% of raw material without loss

Improve IMM efficiency by decreasing injection capacity, pressure, and mold opening stroke based on amount of Sprue & Runner

Micro gate pitch

16.5mm of minimum gate pitch

Achieve high productivity by using micro nozzle to fine pitch parts injection

More durable

Low pressure

Prevent deformation caused by internal stress and shrinkage by low pressure

Extend life span of nozzle & mold by decreasing internal pressure and metal fatigue

Special coated pin

Enhance durability of Pin by applying nano-coating

with excellent corrosion resistance than existing coating methods



Gate pitch 16.5mm

for HDMI Connector

Direct gating

_ Tip design & Insulation technology for direct gating

Micro gate pitch

_ Minimize gate pitch up to 16.5mm through embedded heater

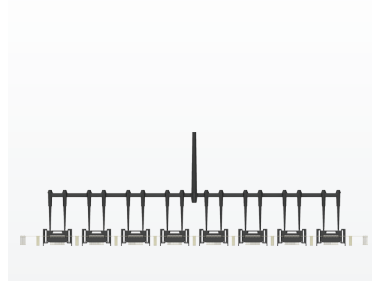
3rd generation

_ Develop perfect system through evolution of 3rd generation

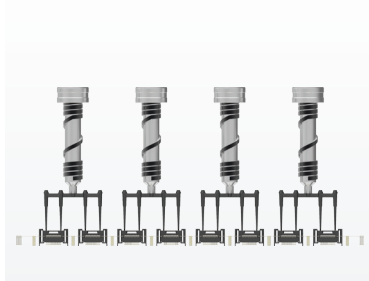
_ Reduce cycle time and increase productivity

	Cold runner	Semi runner	Direct gate
Cycle time	18 s	12 s	9 s
Monthly output	800,000 ea	1,200,000 ea	1,600,000 ea
Sprue loss	5.41 g	3.96 g	0 g
Productivity	100%	150%	200% ↑

1st Generation / Cold runner



2nd Generation / Semi runner



3rd Generation / Direct gate



for Camera Barrel

Optimized for barrel type

- _ Install three hot runner nozzles to $\varnothing 22$ circle
- _ Separate temperature control of each nozzle
- _ Assemble three valve pins to one cylinder and operate simultaneously
- _ Realize optimal liquidity for precise circular parts

Thermal balance

- _ Control parts weight per cavity and discharge rate of each nozzle by 0.01g unit
- _ Sufficient heat transfer to end of tip by using special material
- _ Keep temperature deviation within $\pm 0.1^{\circ}\text{C}$ (Control technology)
- _ Maintain temperature deviation between Nozzle and Manifold within $\pm 3^{\circ}\text{C}$

More productive

_ 350% increase in productivity

	Before	After	Effect
Injection molding pressure	1,700	1,200	30% ↓
Cycle time	21 s	12 s	43% ↓
Daily output	4,100 ea	14,400 ea	350% ↑



Small size valve gate $\varnothing 0.6 \sim \varnothing 0.8$

for LED Lead Frame

More compact

- _ Various ultra-slim & micro nozzle
(Open type: $\varnothing 6 \sim \varnothing 8$ / Valve type: $\varnothing 9 \sim \varnothing 12$)
- _ Require minimal space for HRS in Valve gate
- _ Installable valve gate system within 110mm plate thickness
- _ Suitable for min.18ton injection molding machine and small mold

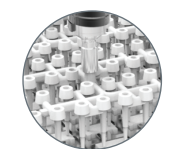
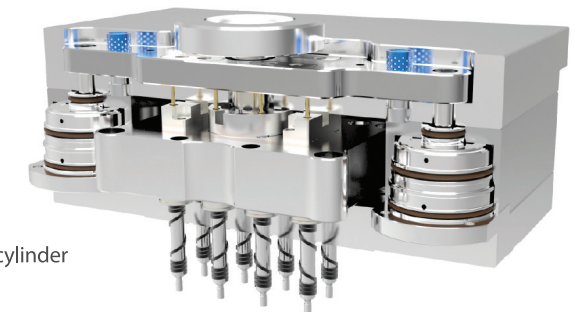
Outstanding repeatability

- _ Operate valve pin simultaneously by applying specialized dual cylinder
- _ Guarantee equal balance

More productive

_ 385% increase in productivity

	Cold runner	Hot runner	Effect
Cavity	64 / 96 / 128	192 / 256 / 384	-
Cycle time	17~18 s	12~14 s	-
Daily output	614,400 ea (18 sec. / 128 cav.)	2,369,828 ea (12 sec. / 384 cav.)	385% ↑



Resin : PCT+G/F 30%
PPA+G/F 30%

for LCP Connector

First development

- _ First Hot Runner application to LCP Resin

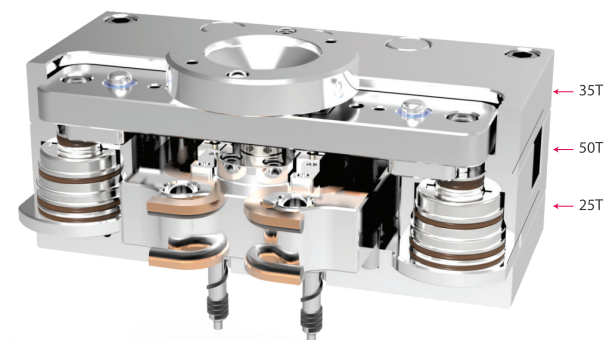
More durable

- _ Warranty of system durability
- _ System warranty : 1,000,000 Shot
- _ Consumable parts warranty : 300,000 Shot

More productive

_ 244% increase in productivity

	Cold runner	Hot runner	Effect
Cavity	4	8	200% ↑
Cycle time	11 s	9 s	22% ↓
Daily output	31,418 ea	76,800 ea	244% ↑
Runner loss (g/shot)	1.5 g	1.2 g	20% ↓



Total 110T
Mold size : 270 × 220