HUSKY®

Altanium™ Mold Controllers

Accurate and easy to use controllers for the injection molding industry

Husky is a leading global supplier of manufacturing solutions and services for plastics processors. We design, manufacture and integrate the industry's most comprehensive range of injection molding equipment, including machines, molds, hot runners, auxiliaries and integrated systems.

A highly integrated control platform for all of your mold control needs

Husky's Altanium™ mold controllers provide highly accurate temperature, servo and valve gate control and the best fault recovery solutions in the industry. They also feature easy-to-use navigation on large full color touch monitors and are available in a variety of configurations that can be implemented in any injection molding environment.

Features:
- 2 to 255 zones of temperature control
- Large high definition touch monitors for simple and intuitive operation
- Interchangeable cards and interfaces across the entire product line
- Industry leading Active Reasoning Technology (ART)
- Automated mold diagnostics and fault recovery
- Password and user name enabled security
- Multi-language support
- Expandable platform that supports mold servo and valve gate control

Most Comprehensive Warranty in the Industry
Husky offers an industry leading 5-year warranty. This is the only industry warranty that includes comprehensive coverage of the mainframe, cards and operator interface.

Altanium Neo5™ Operator Interface—cost effective, simple to use controller for two to 48 zones

- Optimized for 16 cavity molds or less
- 10.1" high definition color touch monitor

Altanium Delta5™ Operator Interface—Automated mold diagnostics and fault recovery

- Optimized for 96 cavity molds or less
- 15.6" high definition color touch monitor

Altanium Matrix5™ Operator Interface—High-end feature set with a large user interface for up to 255 zones, 6 mold servo axes, UltraSync-E control and VG Sequencing

- Optimized for molds greater than 96 cavities
- 22" high definition color touch monitor

ART Advantage
All Altanium™ controllers use Active Reasoning Technology (ART), providing optimized control for greater shot-to-shot and cavity-to-cavity consistency and repeatability. ART delivers tighter control and minimized variability through rapid but smooth power output delivery, fully isolated thermocouple inputs and industry-leading thermocouple sample rates that ensure the integrity of temperature readings.

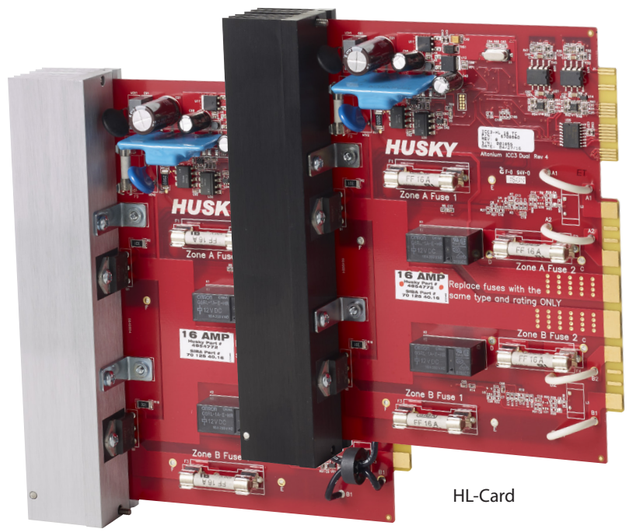
Benefits:
- Reduced cycle time and energy consumption
- Better part quality and improved balance
- Better melt stream management resulting in a more capable molding cell

H-Series Intelligent Control Cards

The H-Series Intelligent Control Card is standard equipment with all Altanium™ controllers. These cards are completely interchangeable across the entire product line and are available in the following configurations:

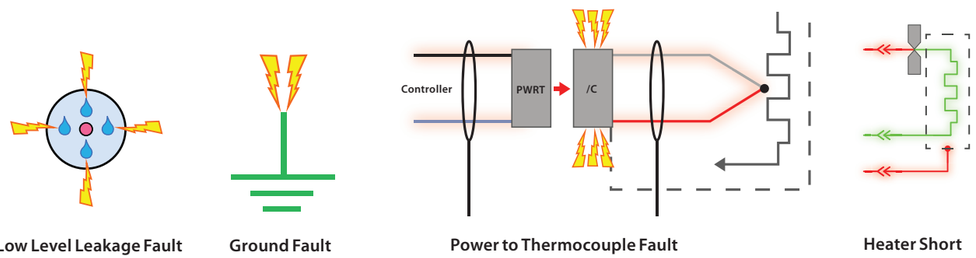
- 4 zones per card at 5amps per zone
  - Higher zone density reduces the overall foot print of the controller by as much as 25% saving valuable floor space
- 2 zones per card at 16amps per zone
  - Maximizes flexibility to run different molds regardless of the tip/manifold wiring scheme
- 1 zone per card at 30amps per zone
  - Ability to accommodate high current manifold zones commonly used in automotive and other large part applications

On start-up, H-Series cards perform a heater circuit test on each zone before full power is applied to reduce the risk of damage to the controller or hot runner system.



HL-Card

H-Card



Low Level Leakage Fault **Ground Fault** **Power to Thermocouple Fault** **Heater Short**

This test is critical for detecting common heater faults that can result in additional downtime.

Functions / Features	Card Type		Benefits
	HL	H	
Integrated design with external heat sink	✓	✓	Allows for a lower internal operating temperature which extends the working life of the cards
Active Reasoning Technology (ART)	✓	✓	Provides accurate and repeatable temperature control that minimizes the deviation from setpoint allowing the opportunity to reduce cycle times and energy consumption
Integrated all-in-one design	✓	✓	Minimizes discrete connections and components which increases reliability and reduces maintenance costs
Safety relay on non-switched leg	✓	✓	Allows both heater legs to be isolated when zone is turned off and system is in run mode preventing shock or shorts to ground when servicing the mold
Run with grounded or ungrounded thermocouples	✓	✓	Isolated thermocouple inputs provide the flexibility to run any mold without risk of electrical noise interfering with the temperature measurement
Thermocouple slaving (auto and manual)	✓	✓	Allows automatic on-the-fly recovery of failed thermocouples based on following the power output of a similar zone, eliminating any downtime
Zero-Cross or Phase Angle power output control	✓	✓	Smooth flow of power reducing time that no energy is being supplied to the heater and ability to limit applied voltage
Card interchangeability	✓	✓	Reduced number of components to stock and maintain contributes to lower maintenance costs
Automated mold diagnostics	✓	✓	Quickly and accurately diagnose issues in the mold without the need for additional tools, limiting down-time and costs
On screen board diagnostics (Delta5 and Matrix5 only)	✓	✓	Identifies the exact location of failed cards and components, such as a fuse or switching device, reducing down-time and maintenance costs
Power deviation alarm for plastic leak detection	✓	✓	Real-time power deviation monitoring provides early warning detection of resin leaks or heater failure in the mold
5 year warranty (standard ~ including interface)	✓	✓	Warranty covers the cards, mainframe and operator interface regardless of the configuration
Softstart even thermal expansion on heat up	✓	✓	Contributes to longer component life, reduced material degradation due to excessive residency time and improves energy efficiency
Multi-cycle wet heater bake-out	✓	✓	Provides optimal method for extending heater life by applying low voltage to evaporate moisture trapped in the heater's insulation material
Real-time voltage measurement	■	✓	Helps in diagnosing heating issues in the mold and problems associated with the mains supply to the controller
Real-time amperage measurement	■	✓	Helps in diagnosing problems in the mold, calculating power consumption and preemptive heater failure
Real-time wattage and ohm calculations	■	✓	Helps in diagnosing problems in the mold, determining heater size for replacement and calculating power consumption
Real-time ground fault measurement	■	✓	Helps to detect ground faults and other types of shorts in the mold that single leg current measurement is not capable of finding
Fast acting short circuit detection	■	✓	Detects shorts in the mold and opens the circuit before the fuse clears providing cost and time savings associated with replacing blown fuses

Technical Specifications

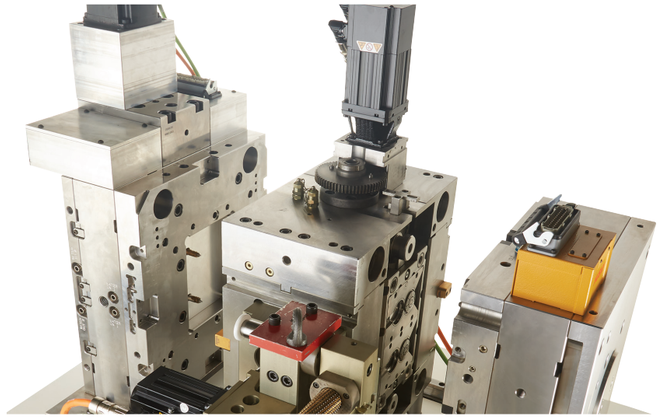
Operating Ambient Temperature	32° to 104°F (0° to 40°C)
Storage Temperature	-4° to 140°F (-20° to 60°C)
Humidity	0 to 95% RH, non-condensing
Input Power	1-Ph + E (3 wire) 200-240 VAC 3-Ph + E (4 wire) 200-240 VAC 3-Ph + N + E (5 wire) 380-415 VAC Other voltages require an input supply transformer (Supply requirements for functional integrity 190 to 240 VAC)
Frequency Range	50/60 Hz, +/- 5%
Measurement Accuracy	±1.0°F (0.5°C) for the range 32°F to 932°F (0°C to 500°C)
Calibration	Standard (using a NIST traceable thermocouple source)
Cold Junction Error	±1.0°F (0.5°C) @ 77°F (25°C) typically
Temperature Stability	±0.1°F (0.05°C) / °F (°C) from ambient
Control Stability	±1 digit - under steady state conditions
Tuning Method	Active Reasoning Technology (ART) or Manual PID control
Thermocouple	Grounded or Ungrounded Type J standard (Type K optional); Sensor break and reverse detection; Upscale failure mode; High impedance input with zone to zone isolation
Heater Outputs	All zones rated at 240 VAC (Other Voltages Optional); 16 Amps per zone standard. (20 or 30 Amps Optional); Short circuit protection for each zone (both legs fused)
Alarms	Open Circuit Heater; Open Circuit Fuse(s); High and Low Temperature; Open, Shorted or Reversed Thermocouple(s) Ground Fault

Altanium Servo Control

Easy to use servo actuation for all of your mold movements

As the industry continues to move away from hydraulics and pneumatics, servos are quickly becoming the new standard for actuating mold movements. Our Altanium™ Servo Control technology has been designed specifically for the molding industry. This dependable and flexible approach to controlling many different aspects of the mold provides a solution that supports up to 6 individual servo axes. Based on the Altanium Matrix5™ platform, Altanium™ Servo Control is a fully integrated servo, valve gate and temperature controller that is globally supported from start-up to production.

Altanium™ Servo Control is extremely reliable and delivers superior, high precision control that:



- Provides a globally supported, standardized solution that controls movement in the mold through the application of servo motors
- Eliminates the need for hydraulic or pneumatic solutions thereby reducing the risk of resin contamination
- Delivers a much finer level of control compared to hydraulic or pneumatic solutions, by enabling force, speed and torque to vary at different steps during the motion process
- Is more efficient than hydraulic or pneumatic solutions, resulting in lower energy costs
- Offers a central point of control for servos, valve gates and temperature through the incorporation of a simple, easy to use operator interface

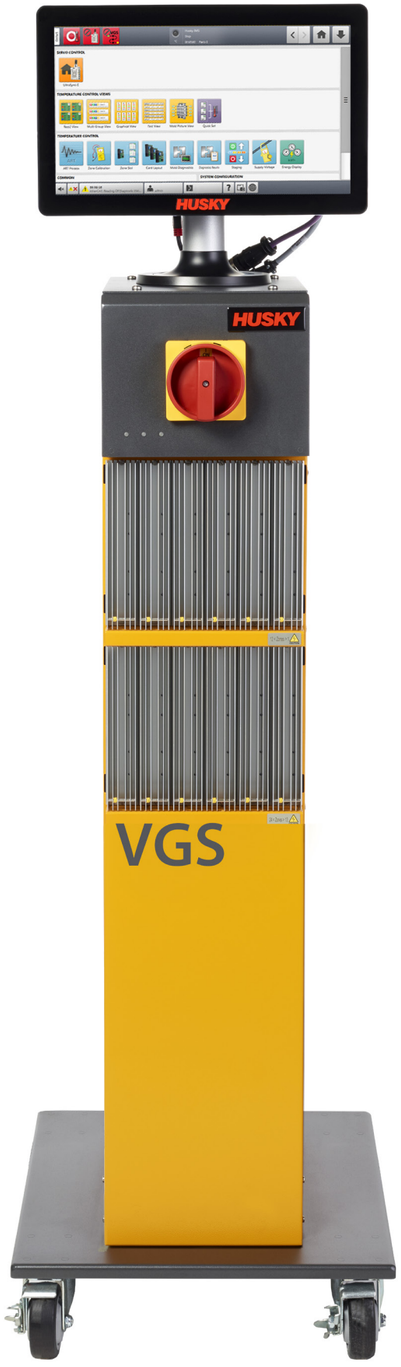
Altanium Valve Gate Sequencer

The new Altanium™ Valve Gate Sequencer is a technology that provides complete pneumatic and hydraulic sequencing for up to 16 valve gates. It operates based on screw position, time and other definable analog and digital inputs. The Altanium™ Valve Gate Sequencer is available with the Delta5™ or Matrix5™ operator interfaces configured as either a standalone sequencer or integrated with hot runner control.

The Altanium™ Valve Gate Sequencer is ideal for precise valve gate control during injection to dictate flow line position and balance part filling on large multi-gated or long thin parts where finish and strength are critical.

Valve gate sequencing allows:

- Controlled part filling
- Minimizes weld lines (cascade filling)
- Positioning of weld lines (sequential filling)
- Mechanical balancing of family molds



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