BARNES
MOLDING SOLUTIONS

Barnes Molding Solutions is the expert cluster for molds, hot runners and controls for industrial plastic injection molding. Our brands Foboha, Männer, Synventive, Thermoplay, Priamus and Gammaflux are leaders in their field. We have a comprehensive and in-depth understanding of the automotive, medical, packaging and electronics industries. We support our customers with sophisticated and powerful technologies through to customized turnkey solutions.

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männer Synventive FOBOHA
PRIAMUS THERMOPLAY Gammaflux

Gammaflux

Hot Runner Controller
G25

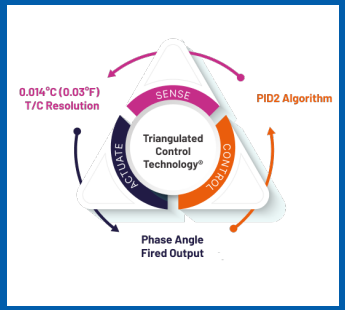
BARNES MOLDING SOLUTIONS

Incredibly Precise

Triangulated Control Technology®

Why is the unique Gammaflux PIDD algorithm so essential? It ensures constant and highly precise temperature control – leading to improved part quality, tighter tolerances, reduced material usage, and shorter cycle times.

The G25 monitors temperature **20 times per second** and reacts to **deviations as small as 0.03 °F / 0.017 °C** from the setpoint. At the same time, phase angle firing protects the heating elements and extends their service life by up to 80% compared to time proportional control.



Key Benefits:

- More consistent temperature control
- Improved part quality
- Reduced scrap rates
- Stable part weights
- Material savings
- Higher profit margins

G25
Hot Runner Controller

Exceptional part quality and minimal scrap: precise temperature control is essential.

Gammaflux develops intelligent and user-friendly control technologies for precise hot runner performance.

Building on the proven G24, the new G25 now offers a modern Linux-based operating system, enhanced user experience, and expanded functionality — setting a new standard in temperature control.

G25

Proven Features

Quietly Doing Their Magic

Mold Wizard

Intuitive Setup with Mold Wizard. A step-by-step Mold Wizard simplifies controller configuration by guiding users through zone setup, setpoints, monitoring, and alarms, ensuring fast, error-free commissioning, consistent best-practice operation.

Mold Doctor

Automate your mold troubleshooting with Mold Doctor. Elusive problems that appear suddenly and without changes to the process can be diagnosed with a quantitative thermo-dynamic zone analysis.

Early Leak Detection

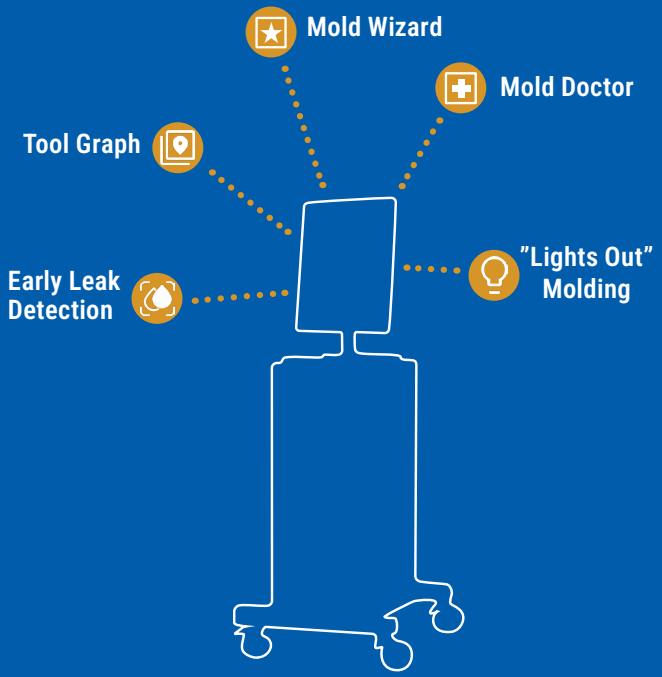
Material leaks alter the mold's thermal balance and can quickly lead to hidden production issues. **Intelligent power monitoring automatically detects deviations from the validated baseline and triggers early alarms**, helping prevent unexpected downtime and costly production losses.

Tool Graph (available 26-03)

Create a **visual connection between control zones and the mold**. Upload mold or cavity images and assign zones, heater bands, and tips to their physical locations. This provides instant clarity on where each zone is positioned in the mold.

„Lights Out" Molding

Advanced Interlocks for Process Safety. Intelligent interlocks prevent bad parts and equipment damage, simplifying setup through on-screen logic and reducing the need for time-consuming manual testing.



Improved Usability & Traceability

A responsive Panel PC with a fast, intuitive interface provides one-click access to key tools. **Flexible recipe management supports multiple processes per mold**, while enhanced traceability of user actions and process data ensures stable production and full transparency of alarms and changes.

Industry-First Materials Database

that quickly guides the user to predefined setpoints and limits **for thousands of materials while allowing the user to create custom material** entries that can be saved and exported to other controllers.

Upgrade from G24 to G25 Possible

The G25 Panel PC is Backward Compatible to the G24 since the G25 utilizes the same internal control components used on the G24 controller. This makes it possible to **upgrade a G24 to use the G25 Panel PC Software** without replacing the entire controller.

Secure, Connected – Future-Ready Control

The Linux-based, browser-enabled solution delivers seamless IMM integration via OPC UA without the need for a controller panel PC. Integrated cybersecurity supports FDA compliance and provides long-term protection with over ten years of security updates in line with the European Cybersecurity Act. A virtualized architecture safeguards controller and user data, while open connectivity enables effortless integration of setpoints and process data into external systems via APIs.

What‘s new?

- Improved Usability & Traceability
- Industry-First Materials Database
- Secure, Connected – Future-Ready Control
- Upgrade from G24 to G25 Possible

Mold Wizard

5 Minutes Set Up

Mold Wizard guides even inexperienced users through all the key steps up to production start — from configuring hot runner zones to heating up the mold and enabling automatic operation.

1

Launch Mold Wizard

Log in and create a new mold profile.

2

Guided Configuration

The system automatically detects up to 192 zones, allows you to create groups, enter setpoints with help from the new material database, and monitor the configuration in real time.

Smart heat-up features guide the user step-by-step through the complete hot runner system setup.

3

Start Auto-Tuning

The ideal process values – such as material-specific temperature, heating mode, and cooling temperature – are automatically added, including their tolerances.

4

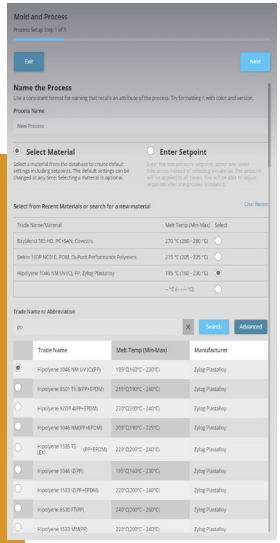
Ready to Heat Up!

With just a few clicks, the hot runner system is ready to go. Mold Wizard® ensures all zones are correctly configured for a smooth and reliable startup.

Industry-First: The Materials Database

The enhanced setup assistant now includes a built-in database with thousands of materials and predefined setpoints – ready to use instantly.

Custom materials? Easily create, save, and transfer them to other controllers. Get molds up and running in no time!



Mold Doctor

An Error appears!

Mold Doctor performs a thorough root cause analysis – from wiring checks to evaluating production data. It systematically uncovers issues, ensuring no detail is overlooked.

1

Error Analysis

It detects even elusive issues that can appear suddenly — without any changes to the process. Examples include swapped or pinched thermocouples, blown fuses, or open, shorted, or moisture-contaminated heaters.

2

Wiring Analysis

Are all connections properly assigned?
The software identifies miswired zones at a glance and supports the user with clear correction instructions – ensuring a quick and accurate setup.

3

Thermodynamic Analysis

Mold Doctor heats selected zones to 204 °C and cools them down while capturing critical data points. It detects anomalies in resistance, power, or thermal response – and allows you to save the results as a benchmark for future diagnostics.

4

Production History Analysis

Track, compare, and resolve.
The G25 enables smart diagnostics by letting users compare historical thermodynamic data with current anomalies. Differences in heating performance, energy usage, or system responsiveness can be quickly identified — helping to prevent downtime before it happens.

Mold History at a Glance

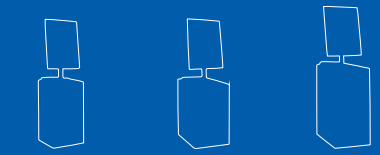
Track performance over time with confidence. The G25 stores all production data in a centralized database — enabling full traceability, comparison across machines, and seamless integration with MES or central servers. From nozzle performance to power usage, everything is documented for smarter decisions.

NEW

Early Leak Detection

A material leak inside the hot runner system causes unexpected heat loss. While most controllers respond by automatically increasing power, the G25 goes further: It compares the actual power output with the original baseline and activates an alert when inconsistencies are detected — helping users spot leaks early and avoid costly downtime.

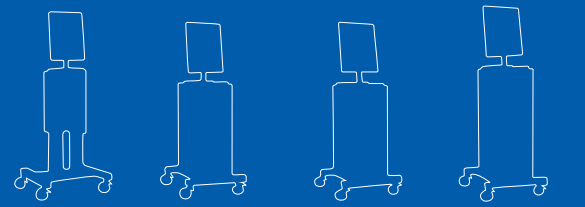
SPECIAL



M: 12 zones
Delta: 50 amp
Wye: 30 amp

T1: 24 zones
Delta: 100 amp
Wye: 60 amp

T1: 24 zones
Delta: 150 amp
Wye: 80 amp

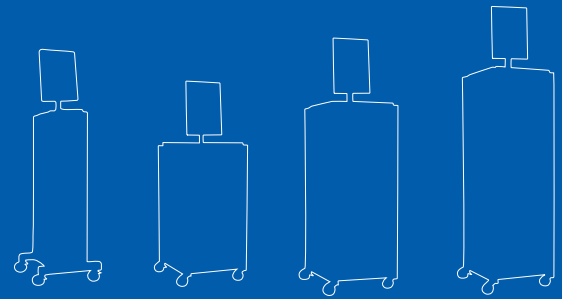


MS: 12 zones
Delta: 50 amp
Wye: 30 amp

S1: 24 zones
Delta: 100 amp
Wye: 60 amp

S2: 48 zones
Delta: 100 amp
Wye: 60 amp

S2: 48 zones
Delta: 200 amp
Wye: 100 amp



S3: 72 zones
Delta: 200 amp
Wye: 100 amp

D2: 96 zones
Delta: 300 amp
Wye: 200 amp

D3: 144 zones
Delta: 300 amp
Wye: 200 amp

D4: 192 zones
Delta: 300 amp
Wye: 200 amp

Configuration
Overview

Control Blocks

Half size control block
12 zones
(15 amp per zone)
Maximum zones and circuit breaker shown for each enclosure

Full size control block
24 zones
(15 amp per zone) or
6 zones (30 amp per zone)
Maximum zones and circuit breaker shown for each enclosure

Options
Remote Mount Touch Screen
21 feet, 6.4 meters or 42 feet, 12.8 meters

Daisy Chain
Link multiple enclosures shown for each enclosure

Cable Hanger and Transformers

Cable Hanger
The optional cable hanger can be added to any G24 controller. Constructed of steel this durable double sided cable holder eases controller storage and transport.

Transformers
Optional 480 VAC to 240 VAC Delta/Delta three phase 2:1 step down transformers are available. The smaller transformer pod can contain a 15, 30 or 45 kva transformer. The larger transformer pod can contain a 75 or 112 kva transformer. Each transformer pod is detachable, has forced air cooling and an independent circuit breaker.

Technical Specifications

Performance

Thermocouple Calibration Accuracy	0.2°F (0.1°C)
Control Accuracy (steady state)	± 0.1°F (± 0.05°C)
Heater Short Detection Time	8.3 msec. or 120 times per second at 60 Hz
PID2 Alogrithm Execution Time	50 msec. or 20 times per second
Tuning	Automatic, self optimizing, manual override
Manual Mode	Power compensation for incoming voltage variation
Degrees F or C	Field Selectable
Operating Range	0-932°F (0-500°C)
Output Range	0-240 VAC, Phase angle fired,1000 steps
Standby Temperature	User Selectable (0-932°F, 0-500°C)
Remote Input	24 VDC

Input

Thermocouple	Type J standard; Type K selectable
Cold Junction Compensation	Internal to enclosure
External Resistance	10 Meg. Ohms
Temp. Variation due to T/C Length	None

Electrical

Input Voltage	180-265 VAC Delta/Wye (phase voltage)
Frequency	47-53 Hz, 57-63 Hz
Ambient Temperature Range	32-122°F (0-50°C)
Humidity Range	10-95% non-condensing
Output Module Rating	240 VAC; 2 zone - 15 amps/zone 3600 watts/zone 240 VAC; 1 zone - 30 amps/zone 7200 watts/zone
Communications Electrical Standard	Industrial USB 2.0

Performance Standards

U.S., Canadian and International	CE Mark; EMC: IEC 61000 - (6-2, 6-4, 4-2, 4-3, 4-4, 4-5, 4-6, 4-11)
*Designed to meet	Safety* IEC 61010, UL-508, UL-873 and CSA

Languages

	English, Deutsch, Italiano, Español, 中文, 日本語 Several other languages available soon

Dimensions

	*Height (inches/ millimeters)	Width (inches/ millimeters)	Depth (inches/ millimeters)	*Weight (pounds/ kilograms)
M enclosure	20.00/508	10.00/254	12.50/318	50.0/22.7
MS enclosure	36.50/927	23.00/584	20.00/508	75.1/34.1
T1 enclosure - short top	21.25/540	10.00/254	23.00/584	75.1/34.1
T1 enclosure - tall top	25.75/654	10.00/254	23.00/584	80.1/36.3
S1/S2 enclosure - short top	35.00/889	20.00/508	23.00/584	139.4/63.2
S1/S2 enclosure - tall top	39.50/1003	20.00/508	23.00/584	144.4/65.5
S3 enclosure - tall top	50.25/1276	20.00/508	23.00/584	199.7/90.6
D2 enclosure - tall top	39.50/1003	20.00/508	23.00/584	243.6/110.5
D3 enclosure - tall top	50.25/1276	20.00/508	23.00/584	343.2/155.7
D4 enclosure - tall top	61.00/1549	20.00/508	23.00/584	442.8/200.9

*Height and weight excludes screen. Specifications subject to change without notice.