eGate® 2.0 Product Catalog
For Medium to Large Part Molding

Elevate your process
CAT-16-0039_EN-Rev03  09 / 2019
Product Description

eGate® Hot Runner System

Patented electronically actuated Valve Gate system that provides precise pin position and velocity control.

A) Electric Actuator*
B) eGate® Junction Box*
C) Power/Sensor Cable from Drive Box to eGate® Junction Box
D) Power Cable from Controller to Drive Box - 1 required per 8-zones
E) Digital Communication Cable from Controller to Drive Box
F) Controller
G) Removable Tablet with preloaded eShop Software (included with Controller)
H) Controller-Injection Molding Machine Interface Cable
I) IMM Interface
J) Drive Box

* Tool Equipment

Operation Principle

♦ Linear Electric Actuator with electronically controlled open/close and motion/position profile.
♦ Variable opening stroke length, intermediate closing position and opening/closing speed of each valve pin.
♦ High precision, individual pin position, repeatable to within 0.01 mm increments.

Areas of Application:

♦ Applications with hydraulic or electric Injection Molding Machines and/or clean room environments
♦ Optimizing balance in multi-cavity and family molding
♦ Optimizing surface quality of sequential or cascade injection molding
♦ Improved dimensional control on injection molded parts
♦ Reduce cavity pack pressures
♦ Pre-fill cold runners

NOTE
eGate® functionality requires an interface on the customers Injection Molding Machine according to Synventive specifications.
Electric Actuator Assembly

ELA761602M0#

Actively-cooled Electric Actuator Assembly that is bolted onto the manifold. The Electric Actuator Assembly has pre-terminated cable connections for easy installation to the eGate® Junction Box. Available cable length configurations:

# = 1, 3, 6
(1m, 3m, 6m long cable configurations)

The Electric Actuator Assembly includes 2 main sub-assemblies:

ELA7616-#000: Electric Linear Servo Motor
LCA-02: Linear Motion Converter
ELA7616-WJA-01: Cooling Jacket

The Electric Servo Motor includes an integrated Thermal Switch, which sends a signal to the Controller that automatically shuts down the Motor if overheated beyond 130°C.

Technical Data

<table>
<thead>
<tr>
<th>Valve Gating type</th>
<th>Cylindrical Gate and Tapered Gate</th>
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</thead>
<tbody>
<tr>
<td>Attachment</td>
<td>Quick Coupling, anti-rotation</td>
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<tr>
<td>Adjustment</td>
<td>+/−1.5 mm, 0.01 mm increments</td>
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<tr>
<td>Valve Pin Dia.</td>
<td>5, 6, &amp; 8 mm</td>
</tr>
<tr>
<td>Max. Speed</td>
<td>80 mm/sec</td>
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<tr>
<td>Max. Pressure</td>
<td>2070 bar (30,000 psi)</td>
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<tr>
<td>Max. Hot Runner Temperature</td>
<td>315°C (600°F)</td>
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<tr>
<td>Nominal Stroke</td>
<td>16 mm</td>
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<tr>
<td>Cooling Connection</td>
<td>M10x1</td>
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</table>

Cooling

The passive plate between the Actuator and the manifold provides indirect active cooling of the needle guide via the Cooling Jacket on the Actuator to thermally separate it from the hot manifold surface.

The Electric Actuator is actively cooled with a Cooling Jacket.

A maximum of three Actuators can be plumbed in series to create an independent cooling circuit to prevent overheating of the Actuators. Maximum temperature of each cooling circuit is 35°C / 95°F. 20 minute Post-Cooling required for applications processing at temperatures greater than 280°C / 535°F.
Cutout Dimensions
Cutout dimensions are provided for reference as a guide to determine basic requirements. Reference system drawings for actual dimensions.

Pitch Dimensions
Pitch dimensions are provided for reference as a guide to determine minimum basic requirements. Consult Synventive for applications requiring tighter pitches.
eGate® Junction Box

Since eGate® Hot Runner Systems are supplied pre-wired and pre-plumbed with a customized wireguard, the eGate® Junction Box is mounted to the Synventive wireguard. The connections on the Junction Box include the motor power, sensor and encoder signal lines.

The eGate® Junction Box is available in 8-zone and 16-zone configurations.

In order to ensure Actuator Connectors do not interfere with other mold components, please ensure a minimum installation space according to the illustrations.

ELA2-08LJB-01 (8-zone Junction Box)

ELA2-16LJB-01 (16-zone Junction Box)
eGate® Drive Box

The Drive Box provides Digital Control of eGate® Electric Actuators. The Drive Box acts as the interface between the Controller and eGate® Junction Box that feeds electricity into the motor in varying amounts and at varying frequencies, thereby indirectly controlling the motor’s speed and current (torque).

The Drive Box is designed to be ideally mounted on the Injection Molding Machine (ideally near Top Operator side) via four M10 Socket Head Cap Screws. Consult Synventive prior to finalizing mounting location.

Two Drive Boxes are required for any application requiring more than 8 Electric Actuators. In this configuration:

♦ The Communication Port from each Drive Box would be daisy-chained.
♦ Each Drive Box Power/Sensor Cable would be connected to the applicable eGate® Junction Box.
♦ Each Drive Box Main Power Cable would be connected to the applicable Power Connector on the eGate® Controller.
♦ One 8-zone Drive Box plus applicable 2, 4, 6, or 8-zone Drive Box would be provided under the following part numbers as needed:
  > ELA2-LDRVBOX10 (10-Zone)
  > ELA2-LDRVBOX12 (12-Zone)
  > ELA2-LDRVBOX14 (14-Zone)
  > ELA2-LDRVBOX16 (16-Zone)

NOTE

The Drive Boxes can be mounted either horizontal or vertical orientations.
eGate® Controller

The Controller is available in 8-zone and 16-zone configurations, which include a Tablet with pre-installed eShop Software. The Tablet can be removed from Controller Cabinet and mounted on the Injection Molding Machine via Magnets included on the back of the Tablet Enclosure.

Each Controller allows up to 2 additional analog inputs per zone in order to monitor and/or trigger valve pin movements based upon a sensed condition (such as pressure).

Optional Controller versions to trigger valve pin movements via Priamus Sensors by interfacing with Priamus FILLCONTROL is also available.

1) 8-Zone eGate® Controller

The eGate® Controller can be used to control up to 8 Electric Actuators.

ELA2-08ZC02
ELA2-08ZC02P (with Priamus Triggering)

Technical Data

| Current                  | 220-240 V AC  
|                         | 1 Phase / N / PE  
|                         | 50 / 60 Hz  
|                         | 20 A (10 A when running up to 4 zones)  
| Temperature             | 0 ... 43°C  
| Humidity                | <95%  
|                          | No condensation  

2) 16-Zone eGate® Controller

The eGate® Controller can be used to control up to 16 Electric Actuators.

ELA2-16ZC02
ELA2-16ZC02P (with Priamus Triggering)

Technical Data

| Current                  | 220-240 V AC  
|                         | 1 Phase / N / PE  
|                         | 50 / 60 Hz  
|                         | 40 A (30 A when running up to 12 zones)  
| Temperature             | 0 ... 43°C  
| Humidity                | <95%  
|                          | No condensation  

Optional pin triggering version available
eGate® Cables

1) Junction Box to Drive Box Cable
   - ELALJDC0204 (2 m long)
   - ELALJDC0504 (5 m long)
   - ELALJDC0804 (8 m long)
   - ELALJDC1504 (15 m long)

2) Controller to Drive Box Power Cable
   - ELALCDC0204 (2 m long)
   - ELALCDC0504 (5 m long)
   - ELALCDC0804 (8 m long)
   - ELALCDC1504 (15 m long)

3) Controller to Drive Box Digital Communication Cable
   - TRG502-T4T-1m (1 m long)
   - TRG502-T4T-5m (5 m long)
   - TRG502-T4T-10m (10 m long)

4) Controller to IMM Cable
   - ELAIMMC4572-03 (4.6 m long)
   - ELAIMMC7620-03 (7.6 m long)
   - ELAIMMC15000-03 (15 m long)

5) Controller to Tablet Cable
   - ELA-UIC01-01 (1 m long)
   - ELA-UIC08-01 (8 m long)
   - ELA-UIC15-01 (15 m long)

Controller Kits
- ELA2-08ZC02-K01 (8-zone)
- ELA2-16ZC02-K01 (16-zone)
- ELA2-08ZC02P-K01 (8-zone, with Priamus triggering)
- ELA2-16ZC02P-K01 (16-zone, with Priamus triggering)

The above Controller Kit part numbers include the following cable lengths:
- Junction Box-to-Drive Box Cable (5 m)
- Controller-to-Drive Box Power Cable (8 m)
- Controller-to-Drive Box Digital Communication Cable (10 m)
- Controller-to-IMM Cable (7.6 m)
- Controller-to-Tablet Cable (1 m, included with Controller)
eGate® IMM Interface Kit (ELAIMMCK04)

The eGate® IMM Kit is used to establish a connection between the Injection Molding Machine (IMM) and the eGate® Control Unit.

1. eGate® Face Plate Assembly
   The Face Plate assembly is installed on the operator side of the injection molding machine. It represents the interface between the IMM and eGate® Control Unit.
   a) Status LED Yellow indicate IMM mode
   b) Interface Mode Switch
   c) Status LED Green indicates eGate® mode
   d) Interface Connector
   The Face Plate assembly is supplied as part of the eGate IMM Interface Kit ELAIMMCK04.

   **NOTE**
   The Interface Kit ELAIMMCK04 MUST be installed PRIOR TO the mold trial with eGate®. Customer is responsible for coordinating this installation with the IMM manufacturer.

2. IMM Relay Box
   The IMM interface connector is a self-contained opto-isolated circuit that is interfaced to the IMM signals required to properly sequence the actuators and handle all of the safety related interlocks. All signals work on 24V.
   The IMM Relay Box is mounted inside the IMM cabinet. The signals from the IMM are wired directly to the provided terminal strip.

3. Face Plate to Relay Box Cable
   The provided 5ft DB26 male-to-male cable is used to connect the Face Plate to the Relay Box. Standard length: 1.5 m

4. “Controller Injection Machine Interface Wiring Instructions” SVC-16-0039_EN-Rev##
1. IMM Interface Tester (ELAIMMTK01)
   The eGate® IMM Interface Tester Kit is used to check the Injection Molding Machine Interface prior to the installation of the eGate® Systems. These signals must be tested prior to Mold Trials.

   **eGate® IMM Interface Tester**
   The eGate® IMM Interface Tester is used to confirm that the wiring of the implemented interface is correct and all signals are working. Contact Synventive Customer Service for information regarding the tester.

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<td>Screw Forward 2 for two shot and co-injection applications.</td>
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<td>Screw Forward 3 for three shot applications.</td>
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<td>Error Signal Output</td>
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<td>Injection Inhibit Output</td>
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<td>11</td>
<td>Set Mode Switch Up</td>
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<td>LED Test Switch DOWN</td>
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2. Connectors
   eGate® IMM Interface Tester
   eGate® IMM Connector Cable*
   eGate® IMM Face Plate Connector

**Face Plate Assembly**
Interface between IMM and eGate® Control Unit.