Stabilize your Process

hGate® Product Catalog
Hydraulic activeGate® Control
Product Description

hGate® Hot Runner System
Proportionally controlled Hydraulically Actuated Valve Gate system that provides precise pin position and velocity control.

1) IMM Interface
2) Position Sensor and HPCV Junction boxes
3) HPCV Assembly (4 zone unit shown)
4) hGate® Controller
5) Pendant
6) IMM Interface Tester
7) eShop® Software

Operation
♦ hGate® is a state of the art servo valve driven Hydraulic Valve Gate with controlled open/close and motion/position profile.
♦ Variable stroke length and speed of each Valve Pin.
♦ Precise individual pin position, repeatable to within +/- 0.2 mm.

Areas of Application:
♦ Optimizing balance in multi-cavity and family molding.
♦ Optimizing surface quality of sequential or cascade injection molding.

NOTE
hGate® functionality requires an interface on the customer’s Injection Molding Machine according to Synventive specifications.
Hydraulic Actuators

hGate® is available for use with the two Hydraulic Actuators displayed on this page. Each Actuator can be combined with a Position Sensor that sends a signal to the Controller providing closed loop position control.

1. HB4016

<table>
<thead>
<tr>
<th>Function</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin Size</td>
<td>5 mm, 6 mm, 8 mm</td>
</tr>
<tr>
<td>Max Pressure</td>
<td>60 Bar</td>
</tr>
<tr>
<td>Needle Stroke</td>
<td>16 mm</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>Contact Synventive*</td>
</tr>
</tbody>
</table>

2. HB2508

<table>
<thead>
<tr>
<th>Function</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin Size</td>
<td>3 mm, 3.8 mm</td>
</tr>
<tr>
<td>Pressure</td>
<td>60 bar</td>
</tr>
<tr>
<td>Needle Stroke</td>
<td>8 mm</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>Contact Synventive*</td>
</tr>
</tbody>
</table>

*Minimum Flow rate is application dependant.
hGate® Hot Runner System

1. Junction Boxes

(NU100-3000-JB-01) top box
(H100-2000-JB-01) bottom box

The hGate® system requires two Junction Boxes, mounted either as a pair, as shown (1), or as two single units (2). The hGate® Junction Boxes are mounted on the hot half of the tool with four mounting brackets. Each hGate® Controller uses one HPCV Junction Box and one Position Sensor Junction Box for every eight zones.

<table>
<thead>
<tr>
<th>Width</th>
<th>245 mm</th>
<th>245 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>85 mm</td>
<td>85 mm</td>
</tr>
</tbody>
</table>

3. Junction Box Shrouds

Shrouds are provided to protect the smaller cables connected to the back of the Junction Boxes. Shrouds are available in two lengths depending on the number of zones used. Long (335 mm, shown), and short (235 mm) shrouds are available for both single and paired boxes.

<table>
<thead>
<tr>
<th>Combo Box</th>
<th>Short Shroud</th>
<th>Long Shroud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length “L”</td>
<td>235 mm</td>
<td>335 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single Box</th>
<th>Short Shroud</th>
<th>Long Shroud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length “L”</td>
<td>235 mm</td>
<td>335 mm</td>
</tr>
</tbody>
</table>
IMM Interface Kit (ELAIMMCK04)
The IMM Interface Kit is used to establish a connection between the Injection Molding Machine (IMM) and the Control Unit.

1. 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 Control Unit.

   a) Status LED Yellow indicate IMM mode
   b) Interface Mode Switch
   c) Status LED Green indicates hGate® mode
   d) Interface Connector

The Face Plate assembly is supplied as part of the IMM Interface Kit ELAIMMCK04.

NOTE
The IMM Interface Kit ELAIMMCK04 MUST be installed on the IMM BEFORE the mold trial with hGate®. Customer is responsible for coordinating this installation with electrical and/or mechanical 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 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-16-0023_EN-Rev##
1 **hGate® Control Unit**

The hGate® Control Unit (H100-1000-HC-01) can be used with up to 8 control zones.

## Technical Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>100 / 240 VAC 1 Phase / N / PE (+/- 10 %) 50/60 Hz 3.0 - 1.2 A max</td>
</tr>
<tr>
<td>Temperature</td>
<td>0 – 50 °C</td>
</tr>
<tr>
<td>Humidity</td>
<td>&lt;95% No condensation</td>
</tr>
<tr>
<td>Form Factor</td>
<td>2u Open Rack Enclosure</td>
</tr>
<tr>
<td>Dimension</td>
<td>90 h x 462 d x 483 w</td>
</tr>
</tbody>
</table>

2 **hGate® Control Rear View**

Stationary screws are not intended to support the Controller.

3 **Controller Ventilation Front View**

In order to ensure sufficient ventilation of the Controller please ensure a minimum installation space according to the illustration in view three. Ensure that mold release spray and residue from plastic grinding do not come in proximity of Controller.

4 **Controller Connection Clearance Side View**

Additional room in the rear of the Controller is used for Controller cables.

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**NOTE**

Reference hGate® User Documentation for detailed information regarding the Controller status indicators, I/O ports and user interface signals.

**NOTE**

Customer supplied laptop required for initial setup and any process adjustments or changes with eShop® software.
1. Pendant ELACHP01

The Pendant enables users to start the system from a cold start, open the pins for purging, actuate pins manually and enabling or disabling any of the zones.

The Pendant cable is 4.0 m

2. Pendant with Control Unit

This graphic depicts the Pendant connected to an hGate® Control Unit
hGate® Controller Cable Set

The hGate® Controller Cable set is used as a connection between the hGate® Controller and other hGate® components. The cable connectors are coded with symbols that assist in the identification of cables thereby facilitating correct connectivity. The symbols are printed at each end of the cable. One cable set is required per Controller.

Cables Lengths

All cables are available in 4.5 m (standard) and 7.6 m lengths (optional).

Length 4.5 m
H100-1000-CBK-45
Length 7.6 m
H100-1000-CBK-76

1. HPCV Cable

This cable is used to provide power to the HPCV’s.

Connections
- HPCV Junction Box
- hGate® Controller

2. Position Sensor Cable

The Position Sensor cable is the conduit through which the Actutor position is communicated to the Controller.

Connections
- Position Sensor Junction Box
- hGate® Controller

3. IMM Connector Cable

The IMM cable establishes a connection with the Injection Molding Machine.

Note
Cables NOT sold individually
Additional Cables

1. USB Cable (Q364-ND)

The USB cable connects the customer supplied laptop to the hGate® Controller. One USB cable is required to support up to 24 zones.

Standard Cable Length: 4.5 m

2. Ethernet Cable (AE9969-ND)

10/100 Ethernet cable is used to establish a connection between a customer supplied laptop (with eShop® Software) and the network connection. One Ethernet cable is required for each Controller. Ethernet Hub supplied by customer as required.

Standard Length: 1.5 m

3. Daisy Chain Cable (CHD44MM-2.5)

Connection cable to establish a link for up to three hGate® Controllers.

Standard Length 0.7 m

A total of three hGate® Control Units can be linked together via this interface. The Pendant is plugged into the front panel of any Controller in the stack.
IMM Interface Tester (ELAIMMTK01)
The IMM Interface Tester Kit is used to check the Injection Molding Machine Interface prior to the installation of the hGate® System. These signals must be tested prior to Mold Trials.

IMM Interface Tester
The 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.

1) Emergency Stop
2) Restart
3) Safety Gates
4) Mold Closed
5) Temperature Set Point
6) Screw Forward 1
7) Screw Forward 2 for two shot and co-injection applications
8) Screw Forward 3 for three shot applications
9) Error Signal Output
10) Injection Inhibit Output
11) Set Mode Switch Up
12) LED Test Switch DOWN

Connections
hGate® IMM Interface Tester
hGate® IMM Connector Cable
hGate® IMM Face Plate Connector

Face Plate Assembly
Interface between IMM and hGate® Control Unit.
hGate® Controller Kit

A Controller Kit part number is used on Synventive Sales Orders. The part number for the 8-zone Controller is H100-1000-HCK-45-01, and includes:

1) Pendant (ELACHP01)
2) 8-zone Controller (H100-1000-HC-01)
3) 4.5m Cable Set (H100-1000-CBK-45)
4) USB Cable (Q364-ND)
5) Ethernet Cable (AE9969-ND)

The part number for an 8-zone Controller that includes an alternative 7.6 m Long Cable Set is (H100-1000-HCK-76-01).

Controllers are available in 8-zone increments. Any system having more than 8 zones will require multiple Controllers. A hub is required for more than one Controller. Standard kit part numbers have been set up accordingly. An example would be a 24-zone Controller Kit part number (H100-1000-HCK-45-03) that includes:

1) Qty 1 - Pendant (ELACHP01)
2) Qty 1 - 8 - 8-Zone hGate® Controllers (H100-1000-HC-03)
3) Qty 3 - 4.5 m Cable Sets (H100-1000-CBK-45)
4) Qty 1 - USB Cable (Q364-ND)
5) Qty 3 - Ethernet Cables (AE9969-ND)
6) Qty 2 - Daisy Chain Cables (CHD44MM - 2.5)