

# LUMINA Structural Plastics Injection Molding Machinery

## Specifications

US SPECIFICATIONS – UPDATED MAY 2009

| LUMINA   | 1600h                 | 2400h                  | 3200h                     | LP500                   | LP600 WP                  | LP1000 WP                      | LP1500 WP                      | LP2000 WP                      |
|--|-----------------------|------------------------|---------------------------|-------------------------|---------------------------|--------------------------------|--------------------------------|--------------------------------|
| <b>Clamp Force (US Tons)</b>   | 300                   | 400                    | 500                       | 500                     | 600                       | 1000                           | 1500                           | 2000                           |
| <b>Stripping Force (US Tons)</b>                                     | 25                    | 40                     | 50                        | 50                      | 60                        | 100                            | 150                            | 150                            |
| <b>Platen Size – Standard VxH (in)<br/>Optional</b>                  | 54 x 70               | 70 x 80                | 56 x 126                  | 96 x 90<br>108 x 90     | 96 x 131<br>108 x 131     | 96 x 186<br>108 x 186          | 96 x 186<br>108 x 186          | 110 x 200                      |
| <b>Tie Bar Clearance – VxH (in)<br/>Optional</b>                     | 38 x 54               | 52 x 62                | 38 x 108                  | 72 x 67<br>84 x 67      | 72 x 108<br>85 x 108      | 68 x 159<br>80 x 159           | 62 x 153<br>74 x 153           | 69 x 160                       |
| <b>Tie Bar Diameter (in)</b>   | 4                     | 5.5                    | 5.5                       | 9                       | 9                         | 11                             | 13                             | 17                             |
| <b>Stroke (in)<br/>Optional</b>                                      | 60                    | 72                     | 72                        | 72<br>108               | 108                       | 108                            | 108<br>120                     | 108<br>120                     |
| <b>Clamp Speed Max (in/min)</b>                                      | 800                   | 800                    | 800                       | 950                     | 950                       | 800                            | 800                            | 800                            |
| <b>Daylight – Max (in)<br/>Optional</b>                              | 72                    | 84                     | 84                        | 84<br>120               | 120                       | 120                            | 120<br>132                     | 120<br>132                     |
| <b>Daylight – Min (in)</b>   | 12                    | 12                     | 12                        | 12                      | 12                        | 12                             | 12                             | 12                             |
| <b>Platen Plate Thickness (in)</b>                                   | 12.5                  | 12.5                   | 8                         | 8                       | 8                         | 8                              | 8                              | 10                             |
| <b>Moving Platen Mold Carry Capacity (lbs)</b>                       | 6,000                 | 12,000                 | 12,000                    | 20,000                  | 35,000                    | 35,000                         | 35,000                         | 45,000                         |
| <b>Extruder Diameter @ 30:1 Ratio (in)<br/>Optional</b>              | 3.5                   | 4.5                    | 4.5                       | 6                       | 6<br>2 x 130              | 6<br>2 x 130, 2 x 6            | 2 x 130 mm<br>2 x 6            | 2 x 130 mm<br>2 x 6, 2 x 8     |
| <b>Extruder Drive (Hp)</b>   | 150                   | 200<br>250             | 250                       | 300<br>400/500          | 300<br>400/500            | 300<br>400/500                 | 2 x 250<br>2 x 300/400/500     | 2 x 250<br>2 x 300/400/500     |
| <b>Plasticating Capacity (lbs/hr) (HDPE)<br/>Optional</b>            | 800                   | 1200<br>1500           | 1500                      | 1800                    | 1800<br>2200 – 2600+      | 1800<br>2600 – 5000+           | 2600<br>3600 – 5000+           | 2600<br>3600 – 5000+           |
| <b>Shot Size (lb   in<sup>3</sup>) (HDPE)<br/>Optional</b>           | 25   800<br>Single 50 | 50   1600<br>Single 75 | Dual 25   1600<br>Dual 50 | Single 100   3200       | Dual 50   3200<br>Dual 75 | Dual 75   4800<br>Dual 100/150 | Dual 75   4800<br>Dual 100/150 | Dual 75   4800<br>Dual 100/150 |
| <b>Injection Pressure – Max (psi)</b>                                | 6000                  | 6000                   | 6000                      | 6000                    | 6000                      | 6000                           | 6000                           | 6000                           |
| <b>Nozzle Locations (Qty @ 6" x 6")<br/>Optional</b>                 | 64                    | 72                     | 118                       | 166<br>192              | 236<br>272                | 284<br>332                     | 276<br>324                     | 360                            |
| <b>Nozzle Provisions – hyd &amp; elec (Qty)<br/>Optional up to</b>   | 8                     | 12                     | 12<br>18                  | 18<br>48                | 24<br>48                  | 24<br>48                       | 24<br>48                       | 36<br>48                       |
| <b>Manifold Extension Provisions – Elec (Qty)<br/>Optional up to</b> | 4                     | 6<br>10                | 8<br>16                   | 20<br>40                | 20<br>40                  | 20<br>40                       | 24<br>40                       | 32<br>40                       |
| <b>Base Type<br/>Optional</b>  | Elevated              | Elevated               | Elevated                  | Low Profile<br>Elevated | Low Profile<br>Elevated   | Low Profile<br>Elevated        | Low Profile<br>Elevated        | Low Profile<br>Elevated        |
| <b>Estimated length (feet)</b>                                       | 36                    | 42.5                   | 48                        | 61                      | 63.75                     | 65                             | 68.25                          | 69.75                          |
| <b>Estimated width (feet)</b>  | 7.1                   | 7.5                    | 10.5                      | 9.7                     | 11                        | 18.0                           | 18.0                           | 18.5                           |
| <b>Estimated height (feet)</b>                                       | 9                     | 10                     | 10.5                      | 12                      | 11                        | 13                             | 14                             | 14.5                           |
| <b>Estimated weight (lbs x 1,000)</b>                                | 71                    | 120                    | 140                       | 150                     | 155                       | 325                            | 380                            | 430                            |
| <b>Est power consumption @ 100% (kW) Std.</b>                        | 156                   | 224                    | 287                       | 384                     | 400                       | 420                            | 420                            | 430                            |

# LUMINA

## Construction and Operating Features

### EXTRUDERS

Lumina Extruders are ruggedly constructed for demanding service. Gear reducers are typically a helical type with minimum 1.5 service factors. Thrust bearings are sized for a minimum 100,000 hour B-10 life. Drives are AC inverter type and are available for maximum screw speeds of 100, 125 and 150 RPM. Extruder barrels are wear grade bimetallic type with pressure and gas injection taps. Feed Screws are a two-stage type with Colmonoy flight tips and dual mixing sections for melt quality and gas dissolution. Heaters on most models are cast aluminum type with forced air cooling.

### ACCUMULATORS

Lumina Accumulators are constructed with bimetallic lined barrels and close fitting hardened steel pistons. Pistons are designed for complete discharge with each shot preventing degradation of sensitive plastic materials. Accumulators are heated with long-life tubular band heaters. Easily serviced check valves isolate the extruder from the accumulator during injection. Pressure transducers display both extrusion and injection pressures. Shot size is measured by a linear transducer built into the hydraulic ram cylinder. Accumulator discharge rate is precisely controlled by proportional type hydraulics.

### MANIFOLDS/NOZZLES

Lumina manifold/nozzle components are designed for interchangeability with other makes/sources. Manifolds are provided with block-off plug provision to eliminate stagnant melt buildup. Spacers are available in a variety of lengths to match the 6" x 6" grid pattern for nozzle placement. The Lumina Economy Nozzle features a forged body with generous flow characteristics and adjustable length nozzle extensions. Conveniently located electrical and hydraulic plug-in panels are provided for nozzles and spacers.

### VERSAFIL INJECTION CONTROL

Every nozzle on a Lumina machine is individually controlled for open/close timing and fill rate. Lumina's unique control system accomplishes this from a single screen on the operator's panel. The result is controlled filling of each of several molds mounted in a Lumina machine at a given time. The advantage is more precise and lower part weight, stronger parts and better appearing parts.

### LUMINA PRESSES

Lumina Presses are designed using the latest FEA technology to assure rugged and reliable, yet fast moving press components. The LP Series pioneered the low profile design friendly to plants with low ceiling height and top mounted robotics. They also provide for a 5-cylinder clamping method which greatly improves force distribution of the clamp and life of bearing and other components. The Lumina h Series of smaller machines provides an elevated type press with a linear bearing guidance/carrying system for the moving platen. Hydraulic componentry on Lumina presses is chosen for availability, efficiency and serviceability. Hydraulic knockout and core pull provisions are optional.

### LUMINA CONTROLS

Allen Bradley Contrologix or Micrologix are standard on Lumina machines. They are an open architecture type and are supplemented with individual componentry of other brands for the very best performance in temperature, pressure, motion and other forms of control. The operator interface is a generous size color touch screen monitor for all control and machine diagnostic functions. Setup recipe storage is available both on the machine and/or removable memory storage devices. Ethernet or modem connectivity to machines is available for off site service support. Data acquisition and printout provisions are available.

### LUMINA PROCESSING

Lumina machines provide a degree of control, robust construction, simplicity and accessibility that make setup, operation and service economical, dependable and understandable. Large extrusion and shot capacities provide for big applications and future flexibility. Make-sense manifold/nozzle components with precise control further provide for the most economical, strong and best appearance parts.

Lumina machines are designed to accept as few as one mold to as many as eight. With stack mold capability as many as sixteen cavities can be molded on the machine at the same time. Shot capacities and extrusion capacities are available to match the number of molds (cavities).

### LUMINA ACCESSORIES AND SERVICES

Lumina machines are available with carefully chosen accessories to optimize the performance of the molding machine and maximize the quality of the molded product. Common accessories include molds, gas generation equipment and plastic raw material handling/blending. Available accessories include robotic parts removal, core pull power units and chilled water systems for mold cooling.

Accessorized Lumina machines are always provided as "turnkey" systems with all components tested and demonstrated for acceptance. Comprehensive training in the operation, care and maintenance are provided prior to shipment. Startup assistance and additional training are offered at the customer's plant. Wilmington also offers a full service laboratory for product development, process development, plastic material testing and short production runs.



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## Specifications

METRIC SPECIFICATIONS – UPDATED MAY 2009

| LUMINA   | 1600h                      | 2400h                    | 3200h                           | LP500 WP                   | LP600 WP                   | LP1000 WP                    | LP1500 WP                    | LP2000 WP                    |
|--|----------------------------|--------------------------|---------------------------------|----------------------------|----------------------------|------------------------------|------------------------------|------------------------------|
| <b>Clamp Force (Metric Tons)</b>                                     | 270                        | 360                      | 450                             | 450                        | 540                        | 905                          | 1360                         | 1800                         |
| <b>Stripping Force (Metric Tons)</b>                                 | 20                         | 35                       | 45                              | 45                         | 50                         | 90                           | 135                          | 135                          |
| <b>Platen Size – Standard VxH (mm)<br/>Optional</b>                  | 1370 x 1778                | 1778 x 2030              | 1422 x 3200                     | 2438 x 2286<br>2743 x 2286 | 2438 x 3327<br>2743 x 3327 | 2438 x 4724<br>2743 x 4724   | 2438 x 4724<br>2743 x 4724   | 2794 x 5080                  |
| <b>Tie Bar Clearance – VxH (mm)<br/>Optional</b>                     | 965 x 1371                 | 1320 x 1575              | 965 x 2743                      | 1829 x 1702<br>2134 x 1702 | 1829 x 2743<br>2159 x 2743 | 1727 x 4039<br>2032 x 4039   | 1575 x 3886<br>1880 x 3886   | 1753 x 4064                  |
| <b>Tie Bar Diameter (mm)</b>   | 101.6                      | 139.7                    | 139.7                           | 228.6                      | 228.6                      | 279.4                        | 330.2                        | 432                          |
| <b>Stroke (mm)<br/>Optional</b>                                      | 1524                       | 1828.8                   | 1828.8                          | 1829<br>2743               | 2743                       | 2743                         | 2743.1<br>3048               | 2743.1<br>3048               |
| <b>Clamp Speed Max (mm/sec)</b>                                      | 340                        | 340                      | 340                             | 400                        | 400                        | 340                          | 340                          | 340                          |
| <b>Daylight – Max (mm)<br/>Optional</b>                              | 1829                       | 2134                     | 2134                            | 2134<br>3048               | 3048                       | 3048                         | 3048<br>3353                 | 3048<br>3353                 |
| <b>Daylight – Min (mm)</b>   | 305                        | 305                      | 305                             | 305                        | 305                        | 305                          | 305                          | 305                          |
| <b>Platen Plate Thickness (mm)</b>                                   | 318                        | 318                      | 203                             | 203                        | 203                        | 203                          | 203                          | 254                          |
| <b>Moving Platen Mold Carry Capacity (kg)</b>                        | 2,700                      | 5,500                    | 5,500                           | 10,000                     | 15,000                     | 15,000                       | 15,000                       | 20,000                       |
| <b>Extruder Diameter @ 30:1 Ratio (mm)<br/>Optional</b>              | 90                         | 115                      | 115                             | 152                        | 152<br>2 x 130             | 152<br>2 x 130, 2 x 152      | 2 x 130<br>2 x 152           | 2 x 130<br>2 x 152           |
| <b>Extruder Drive (kW)<br/>Optional</b>                              | 115                        | 150<br>190               | 190                             | 225<br>300/375             | 225<br>300/375             | 225<br>300/375               | 2 x 190<br>2 x 225/300/375   | 2 x 190<br>2 x 225/300/375   |
| <b>Plasticating Capacity (kgs/hr)<br/>Optional</b>                   | 360                        | 540<br>680               | 680                             | 815                        | 815<br>1000-1180           | 815<br>1180-2270+            | 1180<br>1635-2270+           | 1180<br>1635-2270+           |
| <b>Shot Size (kg   L) (HDPE)<br/>Optional</b>                        | 11.3   13.1<br>22.7 / 26.2 | 22.7   26.2<br>34 / 39.3 | Dual 11.3   26.2<br>22.7 / 26.2 | Single 45   52.4           | Dual 23   52.4<br>Dual 34  | Dual 34   78.7<br>Dual 45/68 | Dual 34   78.7<br>Dual 45/68 | Dual 34   78.7<br>Dual 45/68 |
| <b>Injection Pressure – Max (bar)</b>                                | 414                        | 414                      | 414                             | 414                        | 414                        | 414                          | 414                          | 414                          |
| <b>Nozzle Locations (Qty @ 152mm x 152mm)<br/>Optional</b>           | 64                         | 72                       | 118                             | 166<br>192                 | 236<br>272                 | 284<br>332                   | 276<br>324                   | 360                          |
| <b>Nozzle Provisions – hyd &amp; elec (Qty)<br/>Optional up to</b>   | 8                          | 12                       | 12                              | 18<br>48                   | 24<br>48                   | 24<br>48                     | 24<br>48                     | 36<br>48                     |
| <b>Manifold Extension Provisions – Elec (Qty)<br/>Optional up to</b> | 4                          | 6<br>10                  | 8<br>16                         | 20<br>40                   | 20<br>40                   | 20<br>40                     | 24<br>40                     | 32<br>40                     |
| <b>Base Type<br/>Optional</b>  | Elevated                   | Elevated                 | Elevated                        | Low Profile<br>Elevated    | Low Profile<br>Elevated    | Low Profile<br>Elevated      | Low Profile<br>Elevated      | Low Profile<br>Elevated      |
| <b>Estimated length (m)</b>  | 11.0                       | 13.0                     | 14.6                            | 19.0                       | 19.4                       | 19.8                         | 20.8                         | 21.3                         |
| <b>Estimated width (m)</b>   | 2.2                        | 2.3                      | 3.2                             | 3.0                        | 3.4                        | 5.5                          | 5.5                          | 5.6                          |
| <b>Estimated height (m)</b>  | 2.7                        | 3.0                      | 3.2                             | 3.7                        | 3.4                        | 4.0                          | 4.3                          | 4.5                          |
| <b>Estimated weight (kgs x 1,000)</b>                                | 32.3                       | 54.5                     | 63.6                            | 68.0                       | 70.3                       | 147.4                        | 172.4                        | 195.1                        |
| <b>Est power consumption @ 100% (kW) Std.</b>                        | 156                        | 224                      | 287                             | 384                        | 400                        | 420                          | 420                          | 430                          |

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