AirFree® Technology & Automation

AirFree® technology acts as an additional axis when mounted on a benchtop automation system. The precise control engineered into the X, Y and Z axis is now applied to the fluid delivery axis. All axes are motor driven lead screws with known speeds and can be coordinated providing the highest precision and repeatability available on a benchtop robot.

Total Cost of Ownership

AirFree® Technology Adds Profits When Replacing Air Driven Systems

Cost of ownership, Air vs. AirFree®, one fluid dispenser
LDAV-HT-BA Large Dot Any Viscosity

<table>
<thead>
<tr>
<th>BARREL SIZE</th>
<th>3CC</th>
<th>5CC</th>
<th>10CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN. VOL. (CC)</td>
<td>.00086</td>
<td>.00151</td>
<td>.00251</td>
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<tr>
<td>MAX. VOL. (CC)</td>
<td>3.0</td>
<td>5.0</td>
<td>10.0</td>
</tr>
<tr>
<td>MIN. RATE (CC/SEC)</td>
<td>.022</td>
<td>.038</td>
<td>.063</td>
</tr>
<tr>
<td>MAX. RATE (CC/SEC)</td>
<td>.518</td>
<td>.908</td>
<td>1.504</td>
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<tr>
<td>MAX. BACKOFF (STEPS)</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

The SmartDispenser® LDAV-HT-BA (3-10cc) comes with 3-10cc Dispense Gun and 3, 5, 10cc Retaining Rings.

<table>
<thead>
<tr>
<th>BARREL SIZE</th>
<th>30CC</th>
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</thead>
<tbody>
<tr>
<td>MIN. VOL. (CC)</td>
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<tr>
<td>MAX. VOL. (CC)</td>
<td>30.0</td>
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<tr>
<td>MIN. RATE (CC/SEC)</td>
<td>.123</td>
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<tr>
<td>MAX. RATE (CC/SEC)</td>
<td>2.963</td>
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<tr>
<td>MAX. BACKOFF (STEPS)</td>
<td>500</td>
</tr>
<tr>
<td>MAX. DELAY (SEC)</td>
<td>9.99</td>
</tr>
</tbody>
</table>

The SmartDispenser® LDAV-HT-BA (30cc) comes with 30cc Dispense Gun and 30cc Retaining Rings.

Genius® Dispensing Components deliver advanced dispensing performance

Fishman’s dispensing system components are designed specifically for industrial use, achieving optimized performance from AirFree® dispensing systems.

Barrel Reservoirs (available in 4 sizes)
- Thickwall design eliminates flexing
- Precision molded zero degree taper assures smooth flow
- Disposable design eliminates need for cleaning PosiLok™ Pistons
- Enclosed chambers protect workforce from contacting assembly fluid.

PosiLok™ Pistons
- AirFree® design featuring patented positive lock piston attachment for positive displacement dispensing
- Precision molded for smooth flow and uniform advance
- Engineered to allow trapped air to escape while sealing in vapors and fluid Dispensing tips (available in 3 styles)

Dispensing Tips (available in 5 styles)
- Ergonomic Surlock™ design locks securely to the barrel with a simple twist
- Multiple sizes and lengths available to satisfy any dispensing application

Fishman Corporation manufactures in a Certified Silicone-Free environment, achieving close tolerance precision in an industrial grade system. Contact our Fluid Dispensing specialists to take advantage of our experience with thousands of successful applications and to pick the right components for your specific application needs. For free samples, go to www.fishmancorp.com/samples.
What makes the SmartDispenser® so smart?
The combination of 3 powerful platforms.

AIR-FREE MANUFACTURING
- One program – worldwide
- Closed-loop feedback
- 6-10X more repeatable than pneumatics
- Volume base numeric dispensing
- Positive displacement via stepper motor
- Firmware proven for over a decade
- Eliminates expensive air compressor
- Designed to integrate into automation systems using PLCs

WINDOWS 7 NETWORKING
- SD Device to MES System Networking
- Remote programming and lock out
- Real time production data
- Live video feed
- Auto e-mail of unauthorized program changes
- On screen work instruction (audio option)
- Connectivity between SmartDispensers® Desktop, Laptop and Smartphone.
- Video/Audio training and tutorials

SMARTPHONE FUNCTIONALITY
- Touch screen
- Finger gesturing controls
- MES Networking Apps
- Custom Manufacturing Apps

SPECIFICATIONS
Usage: Indoor use
Altitude: Up to 2000m
Temperature: 0˚ to 40˚ C
Maximum Relative: 80% for temperatures up to 31˚ C decreasing linearly to
Humidity: 50% relative humidity at 40˚ C
Mains Supply Voltage Fluctuations: Not to exceed ±10%
Installation Overvoltage: Category II
Pollution: Degree 2, Class 1
Input Voltage: 100-240 VAC 47-63Hz
Max Inrush Current: 3.2A-1.8A
Output Voltage: 5.0VDC
Output Power: 4.6W
Fuse Rating: 1.0A/250 VAC
Initiate Circuit: Dry contact
Drive Motor: LDAV-HT-BA 1.8 Degree 200 Steps/Rev
Axial Movement: LDAV-HT-BA .096 Axial Pitch .00048”/Step
Control Circuitry: CMOS microprocessor
Interface: Touch Screen or Keyboard/Mouse
Minimum Dispense Volume: 0.00086ml

CONTROL UNIT
Size: 5.6 x 9.9 x 6.3in (14.23 x 25.15 x 16cm)
Weight: 4.7lbs (2.13 kg)

GUN
Length: 7in (17.8cm)
Weight: 10.6oz (301 gr)
Cable Length: 3 feet (91.5cm)
HIGH PRECISION

High Rigid Structure
A solid aluminum alloy is employed on the base and an aluminum alloy extension with a high rigid section is employed on the column.

Labyrinth Mechanism
A social labyrinth mechanism underneath the work table keeps foreign objects (e.g. screws, liquid or dust) out.

SMOOTH MOVEMENT

Smooth movement is attained with the micro-step control system.

FLEXIBLE INTERFACE
- RS-232C port for PC connection
- RS-422 port for teaching pendant
- I/O (Output 16, Input 16)

USER FRIENDLY

Clear Wide Screen
Wide and easy viewable teaching pendant screen
Language: English/German/Japanese etc..
Measurement: mm/inch

Simple Teaching
Using the JN C-Points software users can teach dates easily. It also has commands to operate particular jobs. Users can also create their own original software.

Enhanced Memory Capacity
Up to 255 programs (2.5 times that of the existing model) and 30,000 points (increased 5-fold) can be stored as teaching data.

Simple Sequencer
The robot has a built-in simple sequencer which functions independently (it is not necessary to add more hardware in the case of simple PLC connection).
## JANOME SPECIFICATIONS

*(CL) Indicates Clean Room Compatible*

<table>
<thead>
<tr>
<th>Model[^1]</th>
<th>JR2203N (CL)</th>
<th>JR2303N</th>
<th>JR2403N</th>
<th>JR2503N</th>
<th>JR2603N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Range</td>
<td>X · Y Axes (mm)</td>
<td>200×200</td>
<td>300×320</td>
<td>400×400</td>
<td>510×510</td>
</tr>
<tr>
<td></td>
<td>Z Axis (mm)</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Maximum Portable Load</td>
<td>Workpiece(kg)</td>
<td>7</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tool(kg)</td>
<td>3.5</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Speed[^2]&lt;PTP Movement&gt;</td>
<td>X · Y Axes (mm/sec)</td>
<td>700</td>
<td>800</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Z Axis (mm/sec)</td>
<td>250</td>
<td>320</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Speed[^2]&lt;CP Movement&gt;</td>
<td>X · Y · Z Axes Combined Speed(mm/sec)</td>
<td>500</td>
<td>800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability[^3]</td>
<td>X Axis · Y Axis (mm)</td>
<td>±0.006</td>
<td>±0.007</td>
<td>±0.008</td>
<td>±0.008 (X Axis)</td>
</tr>
<tr>
<td></td>
<td>Z Axis (mm)</td>
<td>±0.006</td>
<td>±0.007</td>
<td>±0.008</td>
<td>±0.008</td>
</tr>
<tr>
<td>External Dimensions</td>
<td>WxDxH(mm)</td>
<td>320×387×655</td>
<td>560×529×840</td>
<td>584×629×890</td>
<td>676×731×890</td>
</tr>
<tr>
<td>Main Unit Weight(kg)</td>
<td>18</td>
<td>35</td>
<td>42</td>
<td>46</td>
<td>48</td>
</tr>
</tbody>
</table>

[^1]: 2-axes models are also available. *(Please contact us for further information.)*

[^2]: Maximum speed cannot be achieved when the robot is bearing its maximum portable load.

[^3]: Repeatability does not guarantee absolute precision.
### JANOME SPECIFICATIONS CONTINUED...

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Method</td>
<td>Pulse Motor</td>
</tr>
<tr>
<td>Control Method</td>
<td>PTP (Point to Point) control, CP (Continuous Path) control</td>
</tr>
<tr>
<td>Interpolation</td>
<td>3-dimensional linear and arc interpolation</td>
</tr>
<tr>
<td>Teaching Method</td>
<td>Remote teaching (JOG)/Manual Data Input (MDI)</td>
</tr>
</tbody>
</table>
| Teaching System          | • Direct teaching using the optional teaching pendant  
                           • Off-line teaching with JR C-Points software from a PC |
| Program Capacity         | 255 Programs |
| Data Capacity *4         | Up to 30,000 Points |
| External Interface       | RS422 1ch (for teaching pendant)  
                           RS232C 1ch (for PC interface: COM1)  
                           RS232C 2ch (for external devices: COM2, COM3) (optional) |
| External Input/Output    | I/O-SYS 16 Inputs, 16 Outputs  
                           I/O-1 (optional) 8 Inputs, 8 Outputs (including 4 relay outputs) |
| Simple PLC Function      | 100 programs (1,000 steps/program) |
| Power Source             | AC90~1323V/AC180~250V (single phase) |
| Power Consumption        | 200W |

*4 Point data capacity reduces as the total function data setting/point job data/sequencer data increases, due to the shared data storage area.

• CE compliant models are also available.
• Specifications may be modified without prior notice to improve product quality.