Meera Laser Solutions

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Electric conservation
Up to 50% reduction in power consumption using the power conservation mode (energy conservation timer function and external servo OFF function).

Minimal maintenance
Addition of axes is simple and fast. 30% fewer parts.

Space conservation
20% less volume than previous model. Additional clearance above the controller.

Smart Welding

Improved operability
Correcting teaching to improve welding quality is made possible in a shorter amount of time.

Improved movement performance
By increasing the robot response speed to weld start signals, arc start failures are reduced and high quality bead appearance is achieved.

By greatly reducing residual vibrations, high speed approaches are possible.

Increased reliability
When a welding error occurs, troubleshooting can be done easily, leading to reduced downtime.

Easy troubleshooting (optional) when a welding error occurs, data is backed up automatically. This helps find the cause of the trouble, leading to reduced downtime.

Traceability can be done easily (optional) by connecting a computer.

Downsized

Improved space utilization
Height of the controller has been reduced.

Depth reduced by 4.33" (110 mm)
Height reduced by 7.72" (196 mm)
Weight reduced by 21%
<table>
<thead>
<tr>
<th>Model</th>
<th>FD-B4</th>
<th>FD-B4L</th>
<th>FD-V6</th>
<th>FD-V6L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of axes</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum capacity</td>
<td>8.82 lbs (4 kg)</td>
<td>8.82 lbs (4 kg)</td>
<td>13.23 lbs (6 kg)</td>
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</tr>
<tr>
<td>Positional repeatability</td>
<td>±0.003&quot; (±0.08 mm)</td>
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</tr>
<tr>
<td>Horizontal Reach</td>
<td>55.55&quot; (1411 mm)</td>
<td>79.06&quot; (2008 mm)</td>
<td>55.29&quot; (1402 mm)</td>
<td>78.96&quot; (2006 mm)</td>
</tr>
<tr>
<td>Vertical Reach</td>
<td>96.34&quot; (2447 mm)</td>
<td>138.75&quot; (3575 mm)</td>
<td>90.67&quot; (2430 mm)</td>
<td>140.55&quot; (3570 mm)</td>
</tr>
<tr>
<td>Driving capacity</td>
<td>2550 W</td>
<td>4650 W</td>
<td>2600 W</td>
<td>5000 W</td>
</tr>
</tbody>
</table>

### Working Range

<table>
<thead>
<tr>
<th>Arm</th>
<th>J1 (Rotation)</th>
<th>J2 (Lower arm)</th>
<th>J3 (Upper arm)</th>
<th>J4 (Swing)</th>
<th>J5 (Bending)</th>
<th>J6 (Twist)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle</td>
<td>±170° (±50°)</td>
<td>±155° to +90°</td>
<td>±170° to +180°</td>
<td>±155°</td>
<td>±45° to +225°</td>
<td>±205°</td>
</tr>
<tr>
<td>Angle</td>
<td>±170° (±50°)</td>
<td>±155° to +100° (1)</td>
<td>±170° to +190°</td>
<td>±180°</td>
<td>±50° to +230°</td>
<td>±360°</td>
</tr>
<tr>
<td>Angle</td>
<td>±170° (±50°)</td>
<td>±155° to +100° (2)</td>
<td>±170° to +190°</td>
<td>±180°</td>
<td>±50° to +230°</td>
<td>±360°</td>
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### Motion speed

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<th>J1 (Rotation)</th>
<th>J2 (Lower arm)</th>
<th>J3 (Upper arm)</th>
<th>J4 (Swing)</th>
<th>J5 (Bending)</th>
<th>J6 (Twist)</th>
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<tr>
<td>Speed</td>
<td>3.66 rad/s (210°/s)</td>
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<td>7.33 rad/s (420°/s)</td>
<td>7.33 rad/s (420°/s)</td>
<td>10.5 rad/s (600°/s)</td>
</tr>
<tr>
<td>Speed</td>
<td>3.32 rad/s (190°/s)</td>
<td>3.49 rad/s (200°/s)</td>
<td>3.49 rad/s (200°/s)</td>
<td>7.33 rad/s (420°/s)</td>
<td>7.33 rad/s (420°/s)</td>
<td>10.5 rad/s (600°/s)</td>
</tr>
<tr>
<td>Speed</td>
<td>3.05 rad/s (175°/s)</td>
<td>3.66 rad/s (210°/s)</td>
<td>3.66 rad/s (210°/s)</td>
<td>7.33 rad/s (420°/s)</td>
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### Allowable load

| J4 (Swing) | 10.1 N•m | 10.1 N•m | 11.8 N•m | 11.8 N•m |
| J5 (Bending) | 10.1 N•m | 10.1 N•m | 9.8 N•m | 9.8 N•m |
| J6 (Twist) | 2.94 N•m | 2.94 N•m | 5.9 N•m | 5.9 N•m |
| J4 (Swing) | 0.38 kg•m² | 0.38 kg•m² | 0.30 kg•m² | 0.30 kg•m² |
| J5 (Bending) | 0.38 kg•m² | 0.38 kg•m² | 0.25 kg•m² | 0.25 kg•m² |
| J6 (Twist) | 0.03 kg•m² | 0.03 kg•m² | 0.06 kg•m² | 0.06 kg•m² |
| Arm cross-sectional area | 2.94 m² x 340° | 6.37 m² x 340° | 3.14 m² x 340° | 7.48 m² x 340° |

### Environmental conditions

32 to 113°F (0 to 45°C), 20 to 80% RH (no condensation)

### Mass / weight

| 340 lbs (154 kg) | 611 lbs (277 kg) | 317 lbs (144 kg) | 602 lbs (273 kg) |
| 22.05 lbs (10 kg) | 44.09 lbs (20 kg) | 22.05 lbs (10 kg) | 44.09 lbs (20 kg) |

### Installation method

Floor/Ceiling/Wall

### Paint color

White (Munsell notation 10GY 9/1)

NOTES:

1. The value of the positional repeatability is at the tool center point (TCP) in compliance with ISO 9283.
2. The value in parentheses indicates wall mounted.
3. Working range of J2 axis may be restricted when wall mounted.
4. The operation range of the J3 axis is restricted to ±170° to ±205° when floor based welding is applied.
5. Working range of the J6 axis may be restricted by the position of the J6 axis.
6. When loading, the maximum payload as the end effector.
7. This value changes according to placement and load conditions of the wrist.
### BASIC CONFIGURATION

**Number and Part Name** | **Model** | **Specification**
--- | --- | ---
1. Manipulator | NB4 (Model Type: NB42-**NEFU**) | **N**: Standard  
**C**: Chinese  
**F**: Floor Type  
**N**: Standard  
**L**: UL  
**E**: English  
**C**: Ceiling Mounted  
**W**: Wall Mounted

2. Controller | FD11 (Model Type: FD11-**LOVO***) | **J**: Standard  
**V**: NV6, NB4  
**O**: No External Axis  
**P**: External 1 Axis  
2: External 2 Axes  
4: External 1 Axis = 2  
A: Large Capacity External 1 Axis  
(Standard Case External Axis Spec.)  
*** Additional Case Spec.

3. Teach Pendant | FDTPDDJU -**2L**** | ****: 08 8 m Spec. (Standard)  
**: 15 15 m Spec.

4. Operation Box | FDOP-**10**** | ****: 05 5 m Spec. (Standard)  
**: 10 10 m Spec.  
**: 15 15 m Spec.

5. Control Cable 1, 3 (Wire Harness) | FDRB-**10**** | ****: 05 5 m Spec. (Standard)  
**: 10 10 m Spec.  
**: 15 15 m Spec.

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For more information on DAIHEN Inc. products, visit the website at [www.daihen-usa.com](http://www.daihen-usa.com) or send email to sales@daihen-usa.com.

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