Direct-drive, high-speed, lockstitch sewing system with automatic thread trimmer

DDL-9000C Series

JUKI Smart Solutions
Creation of "sewing"

Commitment to "seam quality" is poised to enter a new era with JUKI's next-generation sewing system. The change is driven by digitalization. Until recently, sewing machines have been adjusted by human operators based on personal hunches and experience. Now, with JUKI's digital sewing system DDL-9000C, sewing machine adjustments are fully digitalized. The settings can be reproduced with total accuracy to perfectly suit the materials being sewn.

Vertically- and horizontally-driven digital feed mechanism

Thanks to the world’s first vertically-driven digital feed mechanism, the feed dog height can be adjusted with ease according to the material fabric of product to be sewn, thereby improving seam quality. Thanks to this digital feed mechanism, thread trimming is carried out with the feed dog lowered in the case the shorter-thread remaining thread trimming function is enabled. As a result, the clearance provided between the throat plate and the material is eliminated, thereby stabilizing the length of thread remaining after thread trimming. The feed dog does not protrude the top surface of thread plate when the sewing machine stops with its needle bar up, thereby facilitating placement/removal of the material on/from the top surface of throat plate and preventing the material from being damaged by the feed dog.

Various kinds of feed locus can be selected.

Digitalized vertically- and horizontally-driven feed mechanism allows easy adjustment of settings such as the feed locus only on the operation panel according to the material to be sewn.

Digital functions which accentuate excellent “seam” quality

I. Adoption of the needle-thread active tension

Needle tension is digitally controlled

Needle thread tension which matches sewing conditions given can be set on the operation panel and stored in memory. The needle thread tension adjustment needs experience. However, for this sewing machine, thread tension data stored in memory is reproducible, thereby reducing the setup time when the product to be sewn is changed. Example: Needle thread active tension demonstrates its effectiveness in the topstitching process.

For sewing shoulders of a difficult-to-sew material, uniform stitches can be produced continuously by appropriately changing the sewing conditions even if the right and left material fabric differ in texture grain.

II. Active presser foot pressure mechanism

The presser foot pressure is digitally controlled

Digital control system controls the presser foot pressure. Under the automatic mode, the multi-layered section detection function detects changes in material thickness to increase/decrease the presser foot pressure accordingly. Under the manual mode, the presser foot pressure control function is assigned to the hand switch to enable operation with the hand switch.

III. Needle thread clamp

The device clamps the needle thread and draws it under the material at the beginning of sewing. The needle thread clamp device works to reduce the size of thread tangling in on the wrong side of the material. This expands the area around the needle entry, thereby allowing the use of various gauge components.

Remaining thread at the end of sewing reduced to 3 mm

Double-edge driven rotary knife system is adopted. The double edges of the knife intersect with each other directly under the needle entry point to trim the thread. Achievement of thread length remaining on the material after thread trimming as short as 3 mm. The groove cam system is adopted to enable forcible release of the thread trimmer even if the thread trimmer locks.

The picker device is also adopted. The picker device secures a sufficient length of needle thread, as well as it stabilizes the length of thread remaining on the material.
Commitment to “seam quality” is poised to enter a new era with JUKI’s next-generation sewing system.

Management of sewing performance and sewing machine by the utilization of IoT (Internet of Things)

Management, browsing and editing of data can be carried out on the application software.

Data on sewing machine adjustments made according to the product to be sewn can be transferred to a commercially-available Android tablet in contactless mode. This enables quick check for uniform settings as well as confirmation of conditions of sewing machines in a sewing line, thereby facilitating setup changes.

The operation panel is also provided as standard with a USB port. Data management and software update can be carried out with ease using a USB thumb drive.

Data items of sewing can be numerically managed to ensure “stable quality” and “reduction in time required for setup changes.”

Quantified sewing data can be externally taken from the sewing machine using an Android tablet or USB thumb drive.

Digitalized control panel

Two different modes: i.e., the operator mode which prioritize ease of operation and the service personnel mode, are prepared to respectively display indications according to the user.

In addition, installation of NFC enables data transfer to an Android tablet. Data transferred from the sewing machine to an Android tablet can be edited on the tablet.

Full Digital Type

Adoption of a 4.3 inch large liquid crystal touch panel ensures easy operation. The touch panel is provided with JUKI’s unique intelligent sewing system features.

Digital Type

Adoption of a black-and-white liquid crystal switch panel ensures easy operation. Since, unlike the OP panel, the black-and-white liquid crystal panel provides verbal explanation of its operation, it is easier for the operator to understand how to operate it.

Main functions of the full-digital model and digital model

<table>
<thead>
<tr>
<th>Function</th>
<th>Full-digital model</th>
<th>Digital model</th>
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</thead>
<tbody>
<tr>
<td>Digital feed (horizontal direction)</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Digital feed (vertical direction)</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Active presser foot</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Active tension</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Support to an Android tablet</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Network</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Water proofing</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Color touch panel</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Data items of sewing can be numerically managed to ensure “stable quality” and “reduction in time required for setup changes.”

Quantified sewing data can be externally taken from the sewing machine using an Android tablet or USB thumb drive.

Functions necessary for sewing machine operation can be used with the hand switch

Functions of two hand switches can be set through the operation panel. Since the reverse-feed stitching lever is provided as standard, added functions can be customized. 20 different functions (needle-up/down correction sewing, reverse-feed correction sewing, 1-time reverse-feed stitching cancellation function, etc.) are available. Highly convenient operation is enabled by setting the functions which match the sewing process in combination.

The hand switches have been factory-assigned respectively with [A] Touch-back switch and [B] Custom switch (to be set by the customer) at the time of shipment. The customer may assign other functions to these two hand switches.

Hand switch (in the case it is assigned with the multi-layered section changeover function)

Full-digital type

Detect Multi-layered section of material and automatically carry out the changeover of multi-layered section <Automatic mode>

Manually carry out the changeover of multi-layered section at an arbitrary timing with the hand switch <Manual mode>

Set thread tension, presser foot pressure, pitch, feed locus and feed dog height separately for the normal section and multi-layered section of material

Digitally control presser foot pressure

Digital type

Manually carry out the changeover of multi-layered section at an arbitrary timing with the hand switch

Set thread tension, presser foot pressure, pitch, feed locus and feed dog height separately for the normal section and multi-layered section of material

Auto-lifter AK-154 Full-digital type

Newly-developed auto-lifter device comes with a stepping motor. This not only increases the amount of lift of the presser foot from 3.5 mm to 13.5 mm at the maximum but also reduces the operating noise.

Thanks to the feature of the world’s first top and bottom di-electronic feed mechanism to prevent the feed dog from protruding the top of the presser plate, the material can be placed under presser foot and removed from there with ease and is not easily damaged.

To lift the presser foot to its maximum amount of lift, it is necessary to set the amount of lift in two stages.

For the full digital type model, the auto-lifter function is provided as standard.

Commitment to seam quality “Reverse-feed stitching function by means of the reverse feed lever” is provided as standard.

The operator carries out fine adjustment of correction sewing (within the stitch length of 1 pitch) using the reverse feed lever, thereby achieving “further improved seam quality.”

LED light

The LED light illuminates the needle entry area in the just-under direction from the right and left sides of the needle bar. In comparison with the single direction illumination, this LED light helps the operator carry out sewing more easily. Illumination of the LED light is adjustable in five levels. It can also be used as an auxiliary lamp for working.
A whole host of optional parts are available with the optional parts, the sewing machine produces seams that are best-suited to the material for a long time.

**OPTIONS**

Non-lubricated hook

22890206

Non-lubricated hook with needle guard

22890404

Non-lubricated hook

The hook is used with the lubrication stopped, thereby preventing oil stains. The non-lubricated hook has a lace made of special plastic, a lace made of special plastic.

- The following two parts must be added to enable use of the non-lubricated hook in semi-dry head type machines or minute quantity lubrication type machines.

  - Hook driving shaft stop plug screw: 11079506
  - O ring: RO36080200

Auto-lifter AK-154 (foot-pedal type)

40174617

Newly-developed auto-lifter device comes with a stepping motor. This not only increases the amount of lift of the presser foot from 8.5 mm to 13.5 mm at the maximum but also reduces the operating noise.

- To lift the presser foot to its maximum amount of lift, it is necessary to set the amount of lift in two stages.
- For the full digital type model, the auto lifter function is provided as standard.

Electric-fan hook cooling device

40065571

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Model</th>
<th>DDL-9000C-FMS</th>
<th>DDL-9000C-FSH</th>
<th>DDL-9000C-SMS</th>
<th>DDL-9000C-SFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Full Digital Type</td>
<td>Digital Type</td>
<td>Digital Type</td>
<td>Digital Type</td>
</tr>
<tr>
<td>Application</td>
<td>Medium weight</td>
<td>Heavy weight</td>
<td>Medium weight</td>
<td>Heavy weight</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Semi-dry</td>
<td>Minute-quantity lubrication</td>
<td>Semi-dry</td>
<td>Minute-quantity lubrication</td>
</tr>
<tr>
<td>Max. sewing speed</td>
<td>5,000 rpm*1</td>
<td>4,500 rpm*2</td>
<td>5,000 rpm*1</td>
<td>4,500 rpm*2</td>
</tr>
<tr>
<td>Max. stitch length</td>
<td>5mm</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Needle thread tension</td>
<td>Active tension</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Presser foot pressure</td>
<td>Electronic control</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lift of the presser foot</td>
<td>By hand 5.5mm, by lever 15mm Automatic 1st stage 5.0 mm (0.1<del>18.9mm), 2nd stage 8.5 mm (8.6mm</del>13.9mm) Adjusted on the operation panel</td>
<td></td>
<td></td>
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<tr>
<td>Needle thread size</td>
<td>#5 ~ #15 (19mm<del>0.6mm) #9 ~ #18 (19mm</del>0.6mm)</td>
<td></td>
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<tr>
<td>Bobbin thread width</td>
<td>Built in the top of machine head (provided with the bobbin thread retaining plate)</td>
<td></td>
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<tr>
<td>Lubricating oil</td>
<td>Juki New Deflex Oil or Juki CORPORATION GENUINE OIL7 equivalent to ISO VG7</td>
<td></td>
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<tr>
<td>Size of bed</td>
<td>517 x 178mm (distance from needle to machine arm: 330mm)</td>
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<tr>
<td>Machine head drive</td>
<td>Compact AC servomotor (400W) that is directly connected to the main shaft (direct drive system)</td>
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<td>Power consumption</td>
<td>520VA</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Net weight</td>
<td>Machine head: 40.5kg (with AK-154)</td>
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</tbody>
</table>

**WHEN YOU PLACE ORDERS**

Please note when placing orders, that the model name should be written as follows:

- **DDL-9000C**

**Digital Specifications**

- Full digital type
- Semi-dry head
- Minute-quantity lubrication

**Wiper Code**

- Full digital type: FMS
- Semi-dry head: FSB
- Minute-quantity lubrication: SMS

**Automatic foot lifter Code**

- Not provided: N
- Provided driven by pedal: AK154

**Control box Code**

- SC95: A

To order, please contact your nearest Juki distributor.