High-performance servo feeder for stamping presses

Variax **OPUS 1** Series

The Ultimate Servo Feeder
The Ultimate Servo Feeder

Variax opus 1 Series

The Variax OPUS1 series is a high-performance servo feeder that is optimal for use in motor core production lines for hybrid, PHEV, and EV car motors. By integrating a high capacity servo motor and roll into one body, it achieves world-class performance. The driving servomotor is operated according to a unique cam curve. Servomotor and cam curves are also used to control vertical roll motion and the release mechanism, allowing the OPUS series to feed thin and soft materials.

The controller in the OPUS series is equipped with a large monitor and diagnostic functions. It offers IoT preventive maintenance and diagnosis, as well as good operability.

Features

- Industry-leading world-class performance level
- Built in preventive maintenance and diagnostic functions for IoT compatibility
- Excellent operability with a security system
- A wide range of display functions
- Global support for many languages, standards, and services
- Can feed wide, thin, and soft materials

Major Features:

- Rapid stroke max. 1000 min⁻¹
- High-speed feed more than 150 m/min
- Material width max. 650 mm

Applicable Material Shapes:

- Thin plate
- Materials with different shapes
- Wire materials
High-performance servo feeder for stamping presses

**Variax **OPUS 1 Series

**OPUS 1-200**  **OPUS 1-300**  
**OPUS 1-450**  **OPUS 1-650**

Peripheral equipment

Indexing/skewing drive system for rotating motor core

**Servo-dex EVR Series**

**EVR230**

The Servo-dex EVR series is an indexing or skewing drive system for rotating the motor core for production lines making motor cores for hybrid, PHEV, and EV car motors. By connecting a high-performance servo motor directly to the motor core, it can index core stacks with high-speed and high-torque, while allowing you to set the rotation angle freely. Through the combination of a servo motor and cam curves, production of high-quality motor cores can be improved.

**Features**

- World-class performance using a high-performance motor
- Outstanding reliability due to our original vibration damping design
- It also supports arbitrary rotation angle settings, and skew processing of the motor core
- Built in preventive maintenance and diagnostic functions to support IoT compatibility
- The combination of a servo driven feeder and a servo-dex device results in maximum motor core line optimization
Features

Industry-leading world-class performance

● By adopting a high-performance servomotor and unique cam curve, high-precision material feeding (± 0.03 mm or less) is achieved at high speed (150 m / min or more)
● Contributes to productivity and improving yield

Built in preventive maintenance and diagnostic functions to support IoT compatibility

● Replacement periods for maintenance parts, motor temperature display and effective torque value
● Feed length repeat accuracy monitoring function (option)
● Roll release function when jamming occurs (option)

Safety system with excellent operability

● Comes with a 15 inch, large touch panel giving improved operability and visibility
● Management of 5 levels of user privileges, with passwords

Exceptional quality and reliability

● Guaranteed reliable and stable operation due to our 40 years of experience with feeder development and the use of our proprietary technology
● Actual feed accuracy ± 0.03 mm
● Patented design to protect against press vibration (PAT.)
● Patented damping construction to protect the feed device (PAT.)

Safety function

● When an emergency stop signal is input, this function instantly cuts off power to the motor and stops all operation
● Support to manual operations speed limit and hold-to run control switch
● Feed length repeat accuracy monitoring function (option)
● Roll release function when jamming occurs (option)
Various display functions

- Displays the motor temperature and effective torque value
- Displays the feed length, feed angle, release angle, and gripping force
- Displays the number of times the feeder has operated, total time operated, and the number of press operations

Can feed wide, thin, and soft materials

- Due to the use of dual roll drives, it can reliably feed materials with a lower gripping force
- Function for automatically measuring plate material thickness

Global support for many language, standards, and services

- Languages: Japanese, English, Chinese, Spanish, and Korean
- IEC standard, CE standard (option), UL standard (option)
- We have service people living in Japan, the USA, China, Korea, Taiwan, and Thailand

Easy to install in a press

- Standardized side mounting and bracket mounting on presses
- The main body can be used for either left or right side mounting

Greatly improved roll cleaning ability

- Easy access to the rolls through the large opening
# Model code for Feed

## Feed model code

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OPS20</strong></td>
<td>A</td>
<td>A</td>
<td>150</td>
</tr>
<tr>
<td><strong>OPS30</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OPS45</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OPS65</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 1. Model name
- **OPS20**: OPUS1-200
- **OPS30**: OPUS1-300
- **OPS45**: OPUS1-450
- **OPS65**: OPUS1-650

### 2. Mounting position
- **A**: Installed on the left side of the press
- **B**: Installed on the right side of the press

### 3. Feed rolls
- **A**: Standard (separate, blast)
- **B**: Option (separate, V-groove)
- **C**: Option (separate, flat)
- **D**: Option (one-piece blast)
- **E**: Option (one-piece V-groove)
- **F**: Option (one-piece flat)

### 4. Maximum roll width [mm]
- **66~159**: OPUS1-200
- **66~259**: OPUS1-300
- **146~420**: OPUS1-450
- **146~620**: OPUS1-650

### 5. Guide base
- **G1**: Standard (flat)
- **G2**: Option (groove)

### 6. Options
- **Blank**: None
- **U1**: For separate feed rolls (1 piece)
- **U2**: For separate feed rolls (3 pcs)
- **U3**: Full cover type
- **E1**: Roll type (1 row)
- **E2**: Roll type (2 rows)
- **EX**: Custom order

### 7. Material guide

### 8. Inlet guide

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*1: "Left or right of the mounting position" refers to the view of the press from the operator’s position in the front.

*2: If you want to request a specific roll width, enter the value (round to nearest millimeter) within the range limits. If not specified, the minimum value will be used.

If you select an optional, one-piece roll, you do not need to specify the roll width.
## Control code

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OPS20E</strong></td>
<td><strong>A</strong></td>
<td><strong>A</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model name</th>
<th>Panel specification</th>
<th>Control panel air conditioner specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPS20E OPPUS1-200</td>
<td>A Standard (control panel)</td>
<td>A Standard (no air conditioner)</td>
</tr>
<tr>
<td>OPS30E OPPUS1-300</td>
<td>B Option (stand)</td>
<td>B Option (with air conditioner)</td>
</tr>
<tr>
<td>OPS45E OPPUS1-450</td>
<td>C Option (mount to sound enclosure)</td>
<td></td>
</tr>
<tr>
<td>OPS65E OPPUS1-650</td>
<td>Z Option (no panel)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>A</td>
<td>A</td>
<td>/X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cable exit position</th>
<th>Wiring specification</th>
<th>Version</th>
<th>Standard / custom order</th>
</tr>
</thead>
<tbody>
<tr>
<td>B Standard (Back)</td>
<td>A Standard (IEC specification)</td>
<td>A Version 0</td>
<td>Blank /X Standard Custom order</td>
</tr>
<tr>
<td>R Option (Right)</td>
<td>C Option (CE specification)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L Option (Left)</td>
<td>U Option (UL specification)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U Option (Bottom)</td>
<td>X Custom order</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1: The cable exit positions refer to the view when looking at the control panel door.

*2: The control panel paint color is N9 (white).
## Control option code

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model name</strong></td>
<td><strong>Control option</strong></td>
<td><strong>Version</strong></td>
</tr>
<tr>
<td>OPS20E  OPUS1-200</td>
<td>A0F1</td>
<td>00 Version 00</td>
</tr>
<tr>
<td>OPS30E  OPUS1-300</td>
<td></td>
<td>00 Version 00</td>
</tr>
<tr>
<td>OPS45E  OPUS1-450</td>
<td></td>
<td>00 Version 00</td>
</tr>
<tr>
<td>OPS65E  OPUS1-650</td>
<td></td>
<td>00 Version 00</td>
</tr>
<tr>
<td><strong>OPS20E</strong></td>
<td><strong>A0F1</strong></td>
<td><strong>00</strong></td>
</tr>
</tbody>
</table>

**A0F1**
- Linking specification: Press front
- Linking specification: Press middle
- Linking specification: End of a press

**B001**
- Enter a speed limit in these three boxes (maximum 500 mm / s)
- Manual operation JOG speed limiting function

**B002**
- Enter a speed limit in these three boxes (maximum 500 mm / s)
- Manual operation single-feed, speed-limiting function

**B003**
- Manual operation restriction function
- Prohibit process feed actions outside the feed angle range

**B005**
- Hold-to-run functions
- It will only run while the process feed switch is turned ON

**B006**
- Ethernet communication

**B007**
- Roll release function when a jam occurs
- Open a roll when a jam signal is received

**B008**
- Feed length measurement function
- Measure fluctuations in the feed length
Feed components

Specification table

<table>
<thead>
<tr>
<th>Model name</th>
<th>Unit</th>
<th>OPUS1-200</th>
<th>OPUS1-300</th>
<th>OPUS1-450</th>
<th>OPUS1-650</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed length</td>
<td>mm</td>
<td>1~200(999)</td>
<td>1~300(999)</td>
<td>1~450(999)</td>
<td>1~650(999)</td>
</tr>
<tr>
<td>Material thickness</td>
<td>mm</td>
<td>max 2</td>
<td>max 2</td>
<td>max 2</td>
<td>max 2</td>
</tr>
<tr>
<td>Gripping force</td>
<td>N</td>
<td>max 3,000</td>
<td>max 5,000</td>
<td>max 5,000</td>
<td>max 5,000</td>
</tr>
<tr>
<td>Pilot release length</td>
<td>mm</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Roll opening dimension</td>
<td>mm</td>
<td>max 3</td>
<td>max 3</td>
<td>max 3</td>
<td>max 3</td>
</tr>
<tr>
<td>Material width</td>
<td>mm</td>
<td>max 200</td>
<td>max 300</td>
<td>max 450</td>
<td>max 650</td>
</tr>
<tr>
<td>Maximum number of strokes</td>
<td>min⁻¹</td>
<td>1,000</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Minimum pilot release angle</td>
<td>deg</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Maximum feed speed</td>
<td>m/min</td>
<td>120</td>
<td>155</td>
<td>155</td>
<td>155</td>
</tr>
<tr>
<td>Repeat accuracy</td>
<td>mm</td>
<td>±0.03</td>
<td>±0.03</td>
<td>±0.03</td>
<td>±0.03</td>
</tr>
<tr>
<td>Air consumption</td>
<td>l/min</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Operating air pressure</td>
<td>MPa</td>
<td>0.5~0.6</td>
<td>0.5~0.6</td>
<td>0.5~0.6</td>
<td>0.5~0.6</td>
</tr>
<tr>
<td>Product weight</td>
<td>kg</td>
<td>220</td>
<td>240</td>
<td>415</td>
<td>480</td>
</tr>
<tr>
<td>Paint color</td>
<td></td>
<td>N1.5(Black)</td>
<td>N1.5(Black)</td>
<td>N1.5(Black)</td>
<td>N1.5(Black)</td>
</tr>
</tbody>
</table>

*1 and *2 are optional
**OPUS1-200**

*1: These drawings show the mounting position for type A specifications. *2: OP1 and OP2 indicate when the option is installed. *3 Please watch installation due to the same height of the mounting surface and the motor cover of this body.

**OPUS1-300**

*1: These drawings show the mounting position for type A specifications. *2: OP1 and OP2 indicate when the option is installed. *3 Please watch installation due to the same height of the mounting surface and the motor cover of this body.
**OPUS1-450**

*1: These drawings show the mounting position for type A specifications. *2: OP1 and OP2 indicate when the option is installed.

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**OPUS1-650**

*1: These drawings show the mounting position for type A specifications. *2: OP1 and OP2 indicate when the option is installed.
Feed roll dimensional drawings

Separate rolls (standard)

OPUS1-200/300

OPUS1-450/650

One-piece roll (option)

Dimension table

<table>
<thead>
<tr>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPUS1-200</td>
<td>159</td>
<td>66</td>
<td>30</td>
<td>16</td>
<td></td>
<td></td>
<td>180</td>
</tr>
<tr>
<td>OPUS1-300</td>
<td>259</td>
<td>66</td>
<td>30</td>
<td>16</td>
<td></td>
<td></td>
<td>270</td>
</tr>
<tr>
<td>OPUS1-450</td>
<td></td>
<td></td>
<td>50</td>
<td>20</td>
<td>420</td>
<td>146</td>
<td>420</td>
</tr>
<tr>
<td>OPUS1-650</td>
<td></td>
<td></td>
<td>50</td>
<td>20</td>
<td>620</td>
<td>146</td>
<td>620</td>
</tr>
</tbody>
</table>
Dimensions, mounting components (optional)

OPUS1-200

OPUS1-300

OPUS1-450

OPUS1-650

*Please prepare your own jack parts*
Inlet guide dimensions: single row

![Inlet guide dimensions: single row diagram](image)

**Dimension table**

<table>
<thead>
<tr>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPUS1-200</td>
<td>255</td>
<td>224</td>
<td>86</td>
<td>151</td>
<td>31±2</td>
<td>198</td>
<td>125</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>OPUS1-300</td>
<td>355</td>
<td>302</td>
<td>86</td>
<td>151</td>
<td>31±2</td>
<td>198</td>
<td>125</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>OPUS1-450</td>
<td>500</td>
<td>396</td>
<td>115</td>
<td>182.5</td>
<td>45±2</td>
<td>250</td>
<td>130</td>
<td>44</td>
<td>42</td>
</tr>
<tr>
<td>OPUS1-650</td>
<td>700</td>
<td>636</td>
<td>115</td>
<td>182.5</td>
<td>45±2</td>
<td>250</td>
<td>130</td>
<td>44</td>
<td>42</td>
</tr>
</tbody>
</table>

Inlet guide dimensions: double row

![Inlet guide dimensions: double row diagram](image)

**Dimension table**

<table>
<thead>
<tr>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPUS1-200</td>
<td>255</td>
<td>224</td>
<td>86</td>
<td>151</td>
<td>31±2</td>
<td>198</td>
<td>219.5</td>
<td>124</td>
<td>95</td>
<td>28</td>
</tr>
<tr>
<td>OPUS1-300</td>
<td>355</td>
<td>302</td>
<td>86</td>
<td>151</td>
<td>31±2</td>
<td>198</td>
<td>219.5</td>
<td>124</td>
<td>95</td>
<td>28</td>
</tr>
<tr>
<td>OPUS1-450</td>
<td>500</td>
<td>396</td>
<td>115</td>
<td>182.5</td>
<td>45±2</td>
<td>250</td>
<td>239.5</td>
<td>153.5</td>
<td>110</td>
<td>42</td>
</tr>
<tr>
<td>OPUS1-650</td>
<td>700</td>
<td>636</td>
<td>115</td>
<td>182.5</td>
<td>45±2</td>
<td>250</td>
<td>239.5</td>
<td>153.5</td>
<td>110</td>
<td>42</td>
</tr>
</tbody>
</table>
Controller specifications

Control configuration diagram

Control specification table

<table>
<thead>
<tr>
<th>Power supply</th>
<th>3 phase, 380 to 480 VAC ±10%, 50/60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power capacity</td>
<td>16.7kW 30A</td>
</tr>
<tr>
<td>Servomotor capacity</td>
<td>14.5kW</td>
</tr>
</tbody>
</table>

*1: When the power supply is 200 VAC, an external transformer is required. An external transformer is available as an option. (3 phase, 200 VAC -> 3 phase, 400 VAC)

Control panel specifications

Size / Weight | H:1800mm W:700mm D:500mm / 150kg |
Paint color    | N9 (White)                        |
Standards     | IEC / CE / UL                     |

Main functions

User interface | Touch panel (15 inch), Remote pendant |
Touch panel language | Japanese / English / Chinese / Spanish / Korean |
Number of saved job | 200 |

Driving operation mode

| Automatic operation | You can start automatic operation by entering a job number. |
| Adjustment operation | Select job number, fine tune them and then save the job. |
| Manual operation    | You can JOG and process feed at set speeds, as well as open or close the rolls. |
| Parameters          | Various parameters can be set. |

Safety function

When an emergency stop signal is input, this function instantly cuts off power to the motor and stops all operation. The system provides safety integrity level 2 (SIL 2) safety category according to IEC 61508 and safety category 3 appropriate for sudden motor stops.

Security functions | 5 user levels (password management) |
Crankshaft encoder | 1:1 installation (with vibration isolation mounting kit) |
Linking specification | Up to 4 presses |
Control panel dimensional drawings

Compressed air equipment
Push / Pull line

Control configuration diagram (Push / Pull line)
Contact us
Mon–Fri AM8:30–12:00 PM13:00–17:30 UTC + 09:00 (JST) (Except public holidays and company holidays)

http://www.sankyo-seisakusho.co.jp
http://www.sankyo-seisakusho.co.jp

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