Overview of Automation

The System Development with the Systems Integrator

- We can provide the Swift Klamp operation unit, pump unit, work-stocker, robot finger and tool holder.
- Required specifications at 5-axis machining center, plumbing of 2 channels of hydraulic and 2 channels of pneumatic are required.
- Contact us for details.

Hydraulic Automatic Clamping Head (Automatic Exchange)

- We can provide the Swift Klamp operation unit, pump unit, work-stocker, robot finger and tool holder.
- Required specifications at 5-axis machining center, plumbing of 2 channels of hydraulic and 2 channels of pneumatic are required.
- Contact us for details.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HSK Type</th>
<th>L</th>
<th>ØD</th>
<th>ØD1</th>
<th>ØSperi</th>
<th>L1</th>
<th>G</th>
<th>PCD1</th>
<th>PCD2</th>
<th>Clamping Force (kN)</th>
<th>Max Loading Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHK-A40-64</td>
<td>HSK-A40</td>
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<td>120</td>
<td>88</td>
<td>55</td>
<td>640</td>
<td>9.7</td>
</tr>
</tbody>
</table>

Note: Hydraulic capacity: 3.5MPa

www.klamp.global
Hydraulic Automatic Clamping Head Specifications

Seating Confirmation

Surface

Head

Mounting Plate

Clamping (hydraulic)

Vegetable confirmation (pneumatic)

3.5MPa

Low-pressure hydraulic (3.5MPa) system for clamping/unclamping. Can be used with an air booster pump.

Seating Detection Air

Detecting poor work holder seating

Air Blow

Prevents the intake of cutting chips into the head

Mounting Plate

A mounting plate is required for the hydraulic clamping-type auto-head. The mounting plate is the adapter for installation on the machine table and for connecting the hydraulic and pneumatic lines.

Note

Please provide us with a detailed drawing of your machine table and the plumbing drawing of your hydraulic and pneumatic lines. We can design and produce an exclusive mounting plate, so please contact us for more information.
Using the charts below, please confirm the machining load limits for your work-piece size (length $L$ and dia $R$). When you start machining using the Smart Grip, reduce the machining load 60–80% based upon the chart. Please choose the optimum work holder for your machining conditions.

### Maximum Cutting Force

| Head | Work Holder | HSK-A63 |

(ex.) The value of maximum cutting force

Maximum cutting force?

Please confirm the machining load limit value (N) of the HSK-A63 with $L=175$mm from the chart. Max. 4,000N (please start at 2,400–3,200N)
This work-piece clamping system maximizes the performance of your 5-axis machining center.

The HSK interface (between the head and the work-holder) and the dovetail clamping (between the work-holder and the work-piece) create a compact design with less interference and high rigidity for metalworking applications.

- The rigid system developed for metalworking applications.
- No interference and superior accessibility.
- Handling the work-piece is easy using a general-purpose robot.

2-Face Clamping Work-Piece

Dovetail Clamping Work-Holder

HSK Interface Head

Supports Various Work-Piece Shapes
Dovetail Clamping System

Strong Clamping with Small Clamping Area

- By minimizing the clamping surface of the work-piece, optimum tool holder accessibility is possible.
- It allows stable and heavy machining from various directions without the work-piece rising.

<table>
<thead>
<tr>
<th>Dovetail Clamping</th>
<th>Conventional Clamping</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Dovetail Clamping Diagram" /></td>
<td><img src="image2" alt="Conventional Clamping Diagram" /></td>
</tr>
<tr>
<td><img src="image3" alt="Clamping Area" /></td>
<td></td>
</tr>
</tbody>
</table>

HSK Interface

Strong Clamping

- Uses the HSK-A type, time-proven tool holder shank to connect the head and the work-piece holder.

<table>
<thead>
<tr>
<th>HSK Type</th>
<th>Clamping Force kN</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSK-A40</td>
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<tr>
<td>HSK-A63</td>
<td>20</td>
</tr>
<tr>
<td>HSK-A100</td>
<td>30</td>
</tr>
</tbody>
</table>

Superior Bending Rigidity

- The dovetail clamping work-holder with the HSK head works with heavy-duty milling.

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Swift Klamp

5-axis Workholding

www.klamp.global
High Positioning Accuracy

Concentricity
2 μm/L

Z Axis Direction
1 μm/L

Rotating Direction
0.1~0.3 mm/D

L = 3xD

<table>
<thead>
<tr>
<th>D</th>
<th>HSK-A40</th>
<th>HSK-A63</th>
<th>HSK-A100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40</td>
<td>63</td>
<td>100</td>
</tr>
</tbody>
</table>

Offsetting the work-piece position in the rotating direction using a touch probe

- Measuring two locations along the work-piece side face using a touch probe enables you to offset the machine table angle easily.

BLUM high accuracy touch probe

Quick Work-piece Changing (Manual Clamping Head)

Off-line setup in advance allows quick work-piece changing, minimizing machine downtime.

For Automation (Hydraulic Automatic Clamping Head)

The hydraulic clamping design allows for automated work-piece changing, and makes it possible for you to combine your machining centers with robots to create a fully-automated system.
Work-piece Clamping & Mounting Options

The Swift Klamp System:

**Workpiece Options**
- Dovetail (max. □ 200mm)
- Large Diameters (max. 200mm)
- Rectangular (max. depth 30mm)
- Square (max. 40mm)
- Small diameters (max. 25mm)

**Workholder Options**
- Dovetail Clamping Page 9
- Dovetail Vise Pages 9-10
- Flange Clamping Pages 14-15
- Side Clamp A Page 16
- Side Clamp B Page 19
- Collet Holder

**Head Options**
- Manual Clamping
  - Manual Clamping Head Page 8
- Automatic Clamping
  - Hydraulic Automatic Clamping Head Pages 17-18

**Machine Table**