NCT performance improved by use of a hydraulic ram positioning system.

The VIPROS series NCT, a multifunction intelligent NCT punch press, is now available to provide upgraded manufacturing capabilities with a newly designed hydraulic ram positioning system. The VIPROS series NCT hydraulic system components were originally designed for high speed and heavy load operation under the severe working environments found in aircraft, construction machinery, and space vehicles. After comprehensive testing, this hydraulic system has been incorporated into the VIPROS series NCT servo system. Controlled by the POWER HYDRAULIC NUMERICAL CONTROL (PHNC), it is the core of the VIPROS multifunction intelligent system.
Bridge frame construction for long reliability.

The permanent concept of NCT

Rigidity is an important factor in processing precision, durability, and tooling service life. The AMADA bridge frame (patented in Japan and U.S.A.) is designed to provide high rigidity and to eliminate deflection and torsion, during processing guaranteeing high precision and stable processing. The VIPROS series NCT is designed around an AMADA bridge frame. The hydraulic ram is symmetrically located within the bridge frame to contain the ram and striker's vertical movement within the frame center. The advantages provided by the bridge frame, the location of the hydraulic cylinder, and the elimination of the flywheel, clutch, and brake, found on standard punch press's, minimizes machine noise and vibration and allows for the use of tighter die clearances.
High quality forming by power hydraulic numerical control (PHNC)

Programmable forming time
The VIPROS series NCT achieves high quality forming with less distortion on pattern forming, beading, burring, and embossing operations by controlling the forming pressure and holding time required for complete plastic deformation of the material.

Ram stroke length controlled by the Power Hydraulic Numerical Control (PHNC)
In marking and forming operations, the specified processing depth and tool retract height is automatically controlled by the PHNC, eliminating the need to shim the punch for proper material penetration regardless of work thickness. PHNC control of the hydraulic ram stroke significantly improves productivity.
Low noise operation and intelligent control by Power Hydraulic Numerical Control (PHNC)

Minimized noise and vibration

VIPROS punching noise and vibration is greatly reduced by the precise control of ram speed, position, and hydraulic pressure by the PHNC.
Learning mode

VIPROS learns the optimum punching speed and hydraulic pressure for each ram stroke through trial punching of the first part of a production run. This information is then used for the remaining production.

Programmable timers

Programmable timers divide the work day into three distinctive time periods each with its own allowable noise limits, thus allowing for quiet punching operation during noise sensitive periods.
Available accessories and options for VIPROS

**Automatic tooling lubricating with air-blow system**

The air-blow system allows true operator free automatic operation by simultaneously lubricating the punch, guide, turret, and punch cutting edge. The air-blow system significantly increases tool life by preventing trash deposits on the piece part and tooling.

**Auto-Index**

The Auto-Index System features two tool stations controlled by simple NC commands which can be rotated through 360° in 0.01° increments. The system enables the processing of complex shaped products with a minimum number of tools. The AMADA Auto-Index System provides dramatically reduced processing time, reduced tooling costs and improved finishing precision.

**Hydraulic clamps**

The powerful hydraulic material clamps prevent work misalignment even with thick or large work pieces.

**Safety mats**

Safety mats stop the machine immediately when they are stepped on, protecting the operator.

**Tool balancer**

A built-in pneumatic tool balancing device enables safe and quick replacement of 3½” and 4½” station tooling.

**punch assembly jig**

Punch assembly jig enables easy, fast tooling assembly and disassembly.

**Auto re-positioning**

The work clamps can be moved to a new clamping position automatically using simple NC commands, to extend the maximum processing area. The work holders hold the work while repositioning to ensure processing accuracy.

**Manipulator**

The manipulator executes automatic work feed and removal during the punching process for enhanced labor savings and significantly improved production.
High precision processing
The punching accuracy described in this catalog is guaranteed regardless of method of measurement or datum point. This allows precision production of large parts.

The following features assure production.

- **Clamp**
  Powerful work holding clamp with built in vertical stroke bearing follows the work movement to minimize sheet distortion.

- **Carriage**
  The carriage frame is manufactured of lightweight rigid square pipe allowing high speed movement and precision positioning.

- **Ball screw and LM guide**
  The specially designed AMADA ball screw bearing system (Pat.) eliminates deflection.
  Special LM guide for heavy load resistance provides high speed performance.
  The ball screw is installed in a position where scale from work surface is rarely deposited.
Eliminates tool overlap points

Immediate response to quality production
Immediate response to the need for quality production is a major feature of the VIPROS series NCT. Punching which leaves no tool overlap points is now available by means of PHNC ram stroke control and special slot tooling. The removal of tool overlap points traditionally requires a secondary manual filing operation. Using the slot tooling, material is removed as a continuous length, eliminating tool overlap points. The resulting high quality edge responds to manufacturing requirements for cash dispensers, facsimile and copy machines.

Linear interpolation commands used in conjunction with Auto Index allow no tool overlap punching at any angle.
### SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>VIPROS-345</th>
<th>VIPROS-357</th>
</tr>
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<tbody>
<tr>
<td>Press capacity</td>
<td>ton (U. S. ton)</td>
<td>30 (33)</td>
<td></td>
</tr>
<tr>
<td>Max. traverse</td>
<td>mm (in.)</td>
<td>1000×1270 (39.37×50)</td>
<td>1270×1830 (50×72)</td>
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<tr>
<td>Max. sheet size</td>
<td>mm (in.)</td>
<td>1000×2540 (39.37×100)</td>
<td>1270×3660 (50×144)</td>
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<tr>
<td>Stroke per minute</td>
<td>8 mm pitch</td>
<td>s.p.m.</td>
<td>240</td>
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<td></td>
<td>25.4 mm pitch</td>
<td>s.p.m.</td>
<td>215</td>
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<tr>
<td>Stroke length</td>
<td>mm (in.)</td>
<td>40 (1.57)</td>
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<tr>
<td>Max. sheet thickness</td>
<td>mm (in.)</td>
<td>6.4 (0.25)</td>
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<tr>
<td>Punching accuracy</td>
<td>mm (in.)</td>
<td>±1 (0.004)</td>
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<tr>
<td>Max. sheet weight</td>
<td>kg (lb)</td>
<td>50 (110)</td>
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<tr>
<td>Turret speed</td>
<td>r.p.m.</td>
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<tr>
<td>Air supply</td>
<td>kg/cm² (PSI), [m/min.]/[ft/min.])</td>
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<tr>
<td>Electric power</td>
<td>kVA</td>
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<tr>
<td>Weight</td>
<td>kg (lb)</td>
<td>11000 (24300)</td>
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### Numerical control
- **Model**: AMADAN 04P-C+ PHNC
- **Control axis**: 3-Axes simultaneous
- **Program code**: ISO/EIA
- **Program format**: Variable block word, address format
- **Min. program dimension**: 0.01 mm (0.001 in.), 0.01 deg.
- **Memory capacity**: 160 k
- **Environmental conditions**: Ambient temperature 0~40°C, Humidity max. 75%

### Options
- Hydraulic clamp system
- Pneumatic X-gauge block
- Scrap separator
- Sub table
- Large tool alignment jig
- Safety mat interface
- Memory capacity 320 k
- Tool end grinder
- Designated color

### Options

- **58**
  - Auto-index station
  - Normal punch size: 1/2", 1-1/4", 2", 3-1/2", 4-1/2", Auto index
  - Standard punch size: 12.8-31.7 mm dia. (0.501-1.256 in.)
  - No. of stations: 36

- **66**
  - Auto-index station
  - Normal punch size: 1/2", 1-1/4", 2", 3-1/2", 4-1/2", Auto index
  - Standard punch size: 12.8-31.7 mm dia. (0.501-1.256 in.)
  - No. of stations: 44

- **44**
  - Auto-index station
  - Normal punch size: 1/2", 1-1/4", 2", 3-1/2", 4-1/2", Auto index
  - Standard punch size: 12.8-31.7 mm dia. (0.501-1.256 in.)
  - No. of stations: 44