

YASKAWA



YASKAWA AC DRIVES
Application Solution

Machine Punch Press



Power Regeneration Unit
R1000



YASKAWA AC Drive
GA700



YASKAWA Matrix Converter
U1000

YASKAWA provides the answers to your press machine needs.

YASKAWA ELECTRIC always stands in the shoes of our customers and delivers the AC drive with the most uncompromising quality and performance ahead of others in the industry. Decades of certain application experiences allow us to provide AC drive features that is prompt and flexible solutions to your desire. Our loyal commitment to quality and ease of use make Yaskawa AC drive the best choice for all of your drive applications.



Application Benefit

- Saving installation space without braking resistors
- Shortening the "tact time" by achieving fast deceleration
- Realizing the operation of press machines at low speeds
- Achieve remote status monitoring/adjusting with a smartphone and wireless connection
- Continuous and smooth operation over a momentary power loss event
- Applicable in all environments
- Shorten the tact time with a power regeneration product



Product Lineup



YASKAWA AC Drive High Performance Type **GA700**

We have allowed for control of high efficiency motors, while keeping costs down to provide added value for all of your industrial applications.

[Applicable Motor Capacities]

200 V Class 0.4 to 110 kW
400 V Class 0.4 to 630 kW



Power Regeneration Unit **R1000**

This unit demonstrates an outstanding energy saving effect in applications with regenerative or overhauling loads in combination with AC drives.

[Applicable Motor Capacities]

200V Class 3.5 to 105 kW
400V Class 3.5 to 300 kW



YASKAWA
Matrix Converter
U1000

The U1000 is a compact and total all-in-one solution with ultra-low harmonics and full regenerations. The ultimate choice for power quality and energy savings.

[Applicable Motor Capacities]

200 V Class 5.5 to 55 kW
400 V Class 2.2 to 500 kW

Note: The kW capacity range serves as a guide.

Recommended AC drives

■ Compact Presses

GA700

■ Mid-sized and Large Presses

GA700

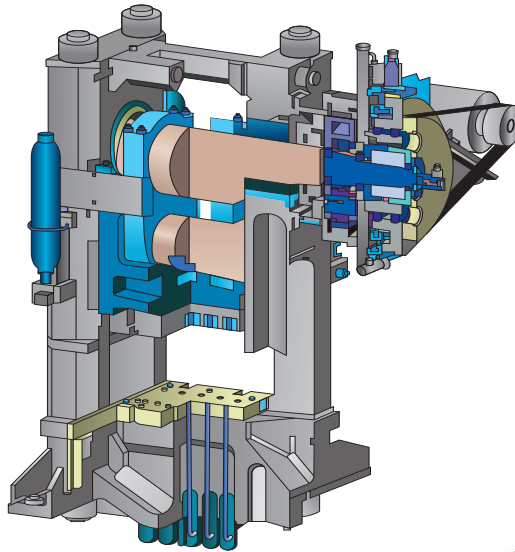
U1000

GA700+R1000

Mechanical

• Compact Presses

Output range: Approx. 350 kN to 2,500 kN

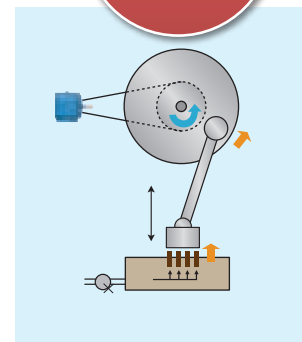
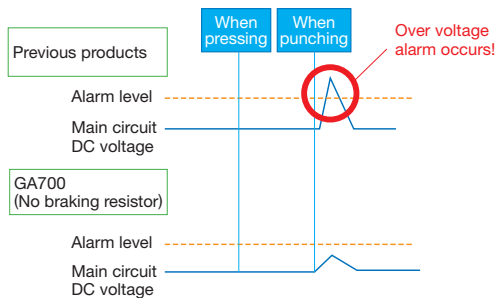


Answer 1 Saving installation space without braking resistors



You will no longer need a braking resistor by avoiding the regenerative energy generated when sliding up/down, during die cushioning and at low-speeds with an overvoltage suppression function. This achieves space saving in the press machine and improves safety.

■ Press load characteristics and overvoltage suppression function effect



Mechanism of a Mechanical Press

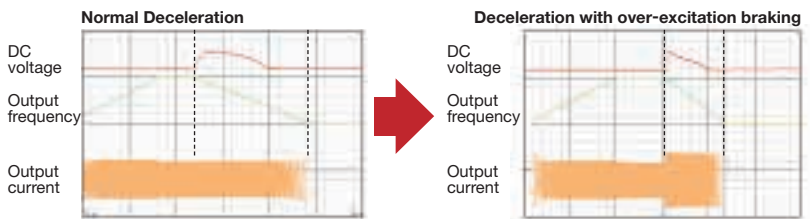
Answer 2 Shortening the “tact time” by achieving fast deceleration



The over-excitation braking function allows fast deceleration even without braking resistors. You will increase the productivity with shorter stop times and also save space by eliminating braking resistors.

■ Deceleration by the over-excitation braking function

* This is an example with no braking resistor at 400 V and 3.7 kW. The effects may differ depending on the motor characteristics and load conditions.



Answer 3 Realizing the operation of press machines at low speeds



With high-performance vector control without PG, it's possible to recover the motor speed quickly after the pressing operation. As a result, low-speed pressing that was difficult previously is now achievable.

Answer 4 Achieve remote status monitoring/adjusting with a smartphone and wireless connection Recommended Product GA700

Equipping an AC drive with a keypad inbuilt with Bluetooth (optional) makes it possible to connect it wirelessly to your smartphone. This allows you to check the operating status, operate the device and adjust the parameters. As a result, you can monitor and adjust without having to get close to dangerous high places or places where the AC drive has been equipped inside a machine. Moreover, you can quickly access troubleshooting information when an alarm goes off. This reduces the downtime.



Answer 5 Continuous and smooth operation over a momentary power loss event Recommended Product GA700

The power loss ride through function allows the system to recover quickly without stopping when the momentary power loss time is less than 2 seconds. Furthermore, with the speed search function, you can catch a free-running motor to continue the operation without stopping the motor.

■ **High-speed search function**
 You can easily restart the machine by searching for the rotational speed in the free run state.



Answer 6 Applicable in all environments Recommended Product GA700

All the PCBs have varnish coating as standard. In addition, there are options for harsh environments such as: high humidity, dust and vibration. Resolver option provides higher environmental durability than an encoder.

■ **Varnish-coated PCBs**
 All the PCBs have varnish coating as standard. This increases the reliability in your system.



Dust resistance

Humidity resistance

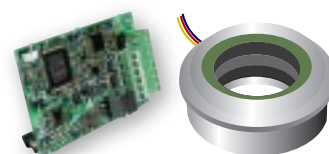


Gas resistance

Vibration resistance

■ **Supporting resolvers**
 Resolvers with higher environmental resistance than encoders are supported.

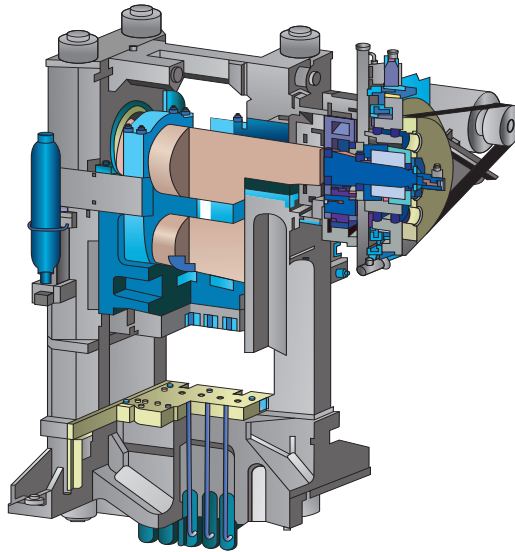
Note: An additional option card is necessary.



Mechanical

• Mid-sized and Large Presses

Output range: Approx. 2,000 kN to 6,000 kN



Answer 1

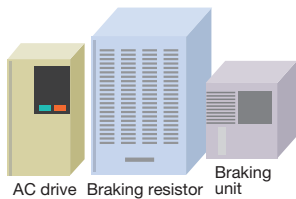
Shorten the tact time with a power regeneration product



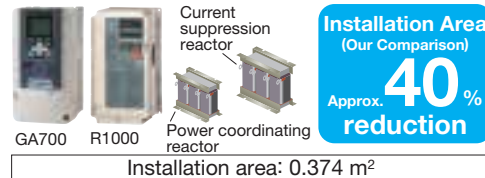
Rapid decelerations is possible by connecting the power regeneration unit R1000 to the AC drive and return the regenerative energy that is generated when sliding up and down during die cushioning to the power source. As a result, the tact time is shortened and productivity increases. It is possible to return the regenerative energy to the power source with a standalone matrix converter U1000, which contributes to space savings for machines.

■ Installation area comparison: 400 V and 45 kW Example

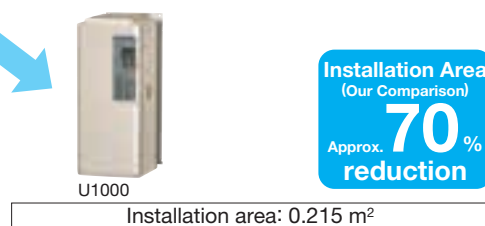
[AC drive+Braking Resistor]



[GA700 AC drive+R1000 Regeneration Unit]



[Matrix Converter U1000]



Note: The installation surface of the GA700 is tentative. Subject to change.

Answer 2

Realizing the operation of press machines at low speeds



With high-performance vector control without PG, it's possible to recover the motor speed quickly after the pressing operation. As a result, low-speed pressing that was difficult previously is now achievable.

Answer 3

Achieve remote status monitoring/adjusting with a smartphone and wireless connection



Equipping an AC drive with a keypad inbuilt with Bluetooth (optional) makes it possible to connect it wirelessly to your smartphone. This allows you to check the operating status, operate the device and adjust the parameters. As a result, you can monitor and adjust without having to get close to dangerous high places or places where the AC drive has been equipped inside a machine. Moreover, you can quickly access troubleshooting information when an alarm goes off. This reduces the downtime.



Answer 4

Continuous and smooth operation over a momentary power loss event



The power loss ride through function allows the system to recover quickly without stopping when the momentary power loss time is less than 2 seconds. Furthermore, with the speed search function, you can catch a free-running motor to continue the operation without stopping the motor.

■ **High-speed search function**
You can easily restart the machine by searching for the rotational speed in the free run state.



Answer 5

Applicable in all environments



All the PCBs have varnish coating as standard. In addition, there are options for harsh environments such as: high humidity, dust and vibration. Resolver option provides higher environmental durability than an encoder.

■ **Varnish-coated PCBs**
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Dust resistance

Humidity resistance

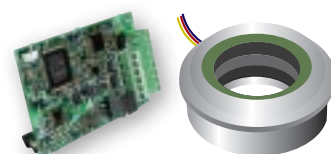


Gas resistance

Vibration resistance

■ **Supporting resolvers**
Resolvers with higher environmental resistance than encoders are supported.

Note: An additional option card is necessary.



Machine Punch Press

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In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply. Specifications are subject to change without notice for ongoing product modifications and improvements.

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