

As the comprehensive manufacturer of molded parts removal robot and the related peripheral machines, HARMO has been building solid structure for product development through marketing. Our wide global network not only provide us the broad field of sales, but also bring us closer to our customers through our technical support and their feedbacks. We are determined to develop, manufacture and deliver our high quality products by understanding our customers' sophisticated yet diverse needs for automation and labor-saving system, which require high speed, preciseness, efficiency and safety.



PRODUCT CATALOG

HARMO

Vol. 1

HRXIII-i Series
EX4 Series
Quick-Gate
GRAN-CUTTER

We are looking for global partners!

Why don't you solve your customer's problems with Harmo equipment?

Give us a call at **TEL+81-265-73-8820**
Or send an email to **kaigai@harmo-net.co.jp**

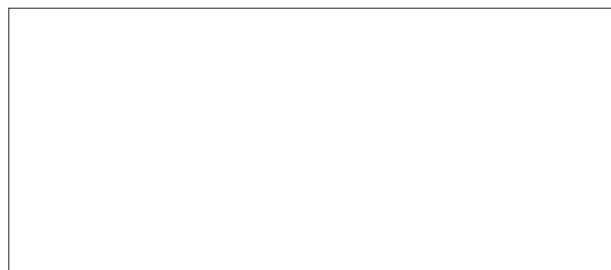


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ISO9001 CERTIFIED

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CE-SOG01_01E 22105DP



Redesigned Body with Improved Speed and Payload

The ideally designed HRXIII series contributes to improve the productivity in your factory with faster take-out time and wider range of the maximum payload.



Improve the Productivity

- Faster take-out time
- Increased payload capacity
 - for an insert type EOAT
 - for a multiple placement EOAT

Reduce the Defect Rate

- Datalink Integration System (IMM↔Robot↔Auxiliaries) for centralized setup/power control/monitoring (integration with HARMO auxiliaries)
- Monitoring the sensors and sending the error information (integration with HARMO auxiliaries)

Shorten the Mold Changing Time

- Datalink Integration System (IMM↔Robot↔Auxiliaries) for centralized setup/power control/monitoring (integration with HARMO auxiliaries)
- One-touch EOAT for quick changing
- Enhanced mold data memory capacity

Cut back the Programming Cost

- User friendly on-site programming (Smart Programming)

● Ideally Designed Structure for Faster Take-out Time (up to 20%)

- The durability has been improved for 69% by analyzing its frame structure and re-evaluating the balance of its center gravity. The range of vibration and the convergence time is reduced.
- The balance and driving specification of the arm has been re-evaluated to suppress its twisting and increased its moving speed.

● Improved maximum payload performance

- Model 150 5kg to 7kg (highest payload in industry)
- Model 350 10kg to 12kg
- A complex EOAT for insert/multiple placement is adaptable.

● Smart Programming

- On-site programming: directly editable with the controller pendant.
- Off-site (Offline) programming: editable by using a Windows PC
- Alphabets and numbers are usable in the names of the mold data, point coordinates or setting items.

● Screen Customization

Customizing the menu display layout

i (intelligent) controller

- 8.4 XGA (1024x768) high resolution LCD screen with 260,000 colors.
- Colorful LED screen for high visibility
- Three-position safety switch for simple and safe operations
- Scroll & Push. HARMO original jog dial for quick access
- Ergonomic design and lightweight
- Switching the menu displays and data processing speed are faster and more smooth.
- Easy-to-press membrane manual operation switches

● Quick Change EOAT

The newly designed EOAT adapter is equipped to drastically reduce the EOAT changing time (Model 100 to 250).



● Signal Light (adaptable up to 7 colors)

7-color LED shows the status of the robot: power-on/stop/error, and the error status of the HARMO auxiliaries (with HAL-NET).



● Longer Vertical Strokes

Model 150: up to 1000mm, Model 350: up to 1400mm

● Higher Payload Performance

Model 150 with higher payload: 12kg can adapt a heavier and more complex EOAT such as for insert molding with very little vibration

Brand New Pneumatic Swing Type Sprue Picker with Fully Updated Mechanism and Controller

Continuingly reliable sprue picker for its speed and durability

DUAL SHOCK ABSORBER SYSTEM
DUS SYSTEM

PAT. DUS system* equipped

What is the *DUS system ?

This system employs double cushioning on the main arm (shock absorber + pneumatic cushioning) to reduce the stress and increase the durability on the shock absorber by adjusting the timer of the pneumatic cushioning according to the length of the vertical stroke.

Thicker shaft on the kick unit: Enforcing the stability of the rotational shaft and reducing the vibration

Wider diameter: Changing the cylinder bore diameter from $\phi 25$ to $\phi 32$ reduces the take-out time up to 20% (comparison with our previous model)

Newly designed body: The controller unit (controller and air valves) are built into the solid main body and the components are well-laid out to be insulated from the influence of surroundings.

Easy to reach: The "single-action" feature with the easy-to-reach ratchet position, provides smooth and speedy mold change-over.

Ball bushing on the side pipe slide: Combining the sliding unit and the cylinder terminal increases the durability and reduces vibration.

Fixing with set screws: employing the set screws makes it easy to lock the wrist rotation unit when it is not in use.

The wirings are tucked into the wrist unit to avoid unnecessary contact or breakage of the wirings.

- Compact hand-held controller
- Easy-to-see display with icons
- EEPROM storage without the memory backup battery
- 50 mold memories
- Easy to identify the key switches function; setting or operational, to improve the operability

Controller
HRS-40



Catalog



Video

Quick Static Electricity Remover

Steal the energy from the static electricity



Catalog

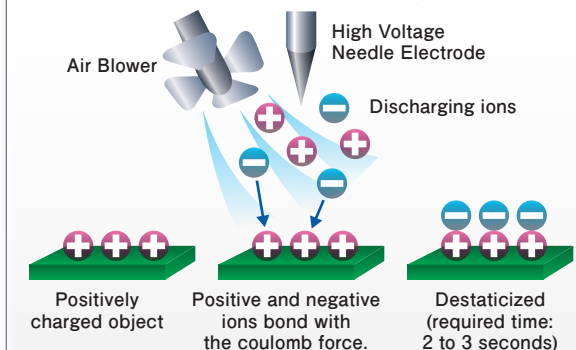


Instant destaticizing without blowing the air!

✗ Weakness of a conventional ionizer

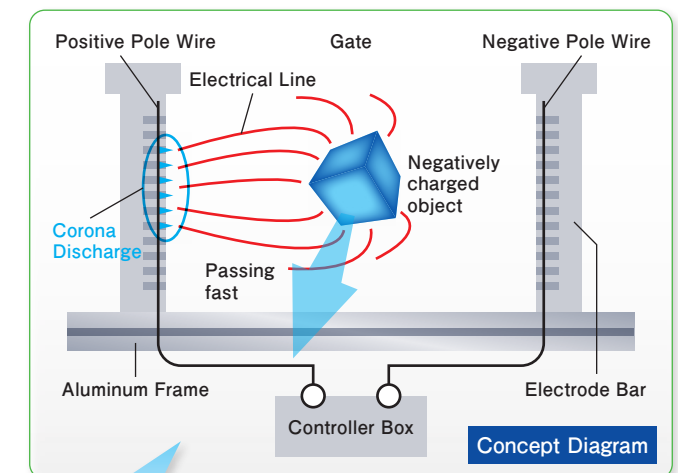
- It takes time to destaticize.
- The air blower is loud and creates dust.
- Ozone smell (hazardous)
- Even after destaticizing, the ion falls off and the object sometimes take charge again.

An ionizer discharges the ion from the electrode. The discharged ion adheres to the object to neutralize the static electricity. However, it takes time for ion to travel, an ionizer cannot remove the static electricity from fast-passing objects.



! Benefits of QUICK GATE

- Instantly removing the static electricity from a fast passing object
- Accomodating
- No air blower; energy-saving without the noise and the dust
- Less ozone (only occuring while the object is passing)
- In principle, the object does not take charge again.



Birth of QUICK GATE

We have discovered that we could remove the static electricity from an object if we generated the corona discharge by using the energy of the static electricity on the object. This newly developed **QUICK GATE** uses the

special wires for the electrode and applies high voltage on the electrode. Because the difference of electrical potential is large, QUICK GATE can efficiently concentrate the electrical line of force and steadily create the corona discharge.

GRAN-CUTTER



Revolutionary Gran-Cutter reduces your plastic material cost.



"Not a crusher, but a Gran-Cutter" HARMO's Gran-Cutter is a revolutionary re-pelleting machine to cut the fed runners and sprues into granules as small as virgin materials by using our unique swing press cutting system patented in nine countries. Gran-Cutter can revive the materials which used to be thrown away.



To customers who have never used a Gran-Cutter Comparing with a crusher

● Evenly-sized granules

The patented "Swing-Press Cutting System" can regrind runners and sprues into evenly-sized granules.

● Very little dust

Since the cut sprues and runners does not pass through the blades again, clean cut with a single swing action can minimize dust, static electricity, and heat generation.

● Very few miscuts

Gran-Cutter has the mechanism to cut the sprues and the runners into the certain size (as small as the virgin pellets) and is free from mis-cut (no screen).

● Very quiet

Gran-Cutter does not make unnecessary movements, the operation is very quite.

● Easy to clean

The regrind materials do not stick to the inner wall of the machine, because static electricity is kept minimum. The doors can open widely downward to provide easy access of the inside and reduce the cleaning time (5 to 7 minutes).

Not a Crusher, But a Gran-Cutter

No more wasting the materials! The thrown-away sprues reborn as reusable materials.

Examples of hard materials



PMMA (Poly (Methyl methacrylates))

POM (Polyester)



PA (Nylon 20% glass filler)

ABS (Acrylonitrile butadiene styrene)

Examples of soft materials



PP (Polypropylene)

PE (Polyethylene)



TPE (Thermoplastic elastomer)

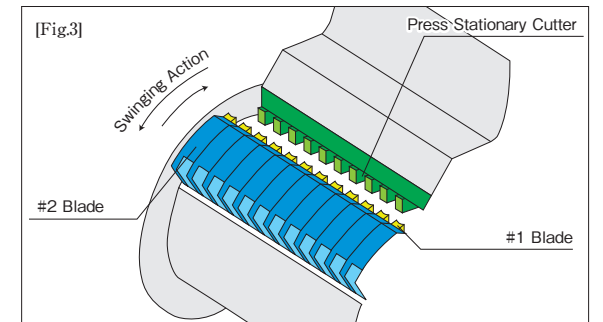
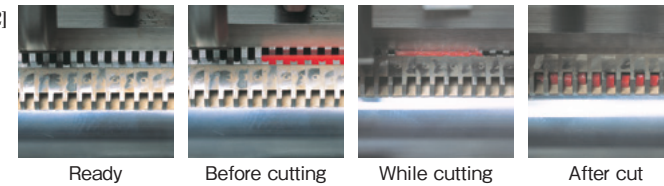
PUR (Polyurethane)

Never-Before-Seen Swing Press Cut System! The SPC series Gran-Cutter can cut soft-type resin sprues and runners, which used to be non-recyclable.

■ Gran-Cutter

Gran-Cutter has the press cutters on the cam-driven swinging shaft. The stationary cutters are mounted on the circumference of the swinging shaft so that the press cutters mesh with the rotating cutters (Fig.3). The male and female blades on the stationary and rotating cutters mesh together, these blades cut the fed sprues / runners. These blades push out the cut pieces and open again to cut the next fed materials (picture-2). This unique granulating mechanism eliminates the cause of producing powder during the cutting process and also minizes the generated heat and static electricity.

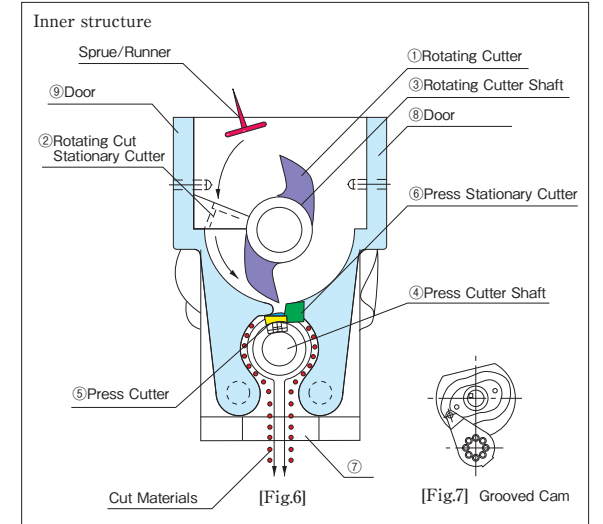
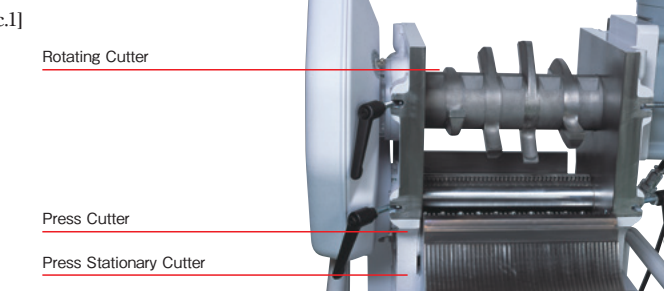
[Pic.2]



■ Design and Structure of Gran-Cutter

The rotating cutter ① and the rotating cut stationary cutter ② roughly cut the fed sprues and runners. Because the rotating shaft ③ and the grooved cam [Fig.7] are directly connected to the motor, the actions of the grooved cam make the press cutter shaft ④ and the press cutter ⑤ start to swing with the rotation of the motor. The roughly cut sprues and runners are cut by the press cut stationary cutters ⑥ press. The cut sprues and runners falls down through ⑦. The equipped doors ⑧ and ⑨ open widely as shown in the [Pic.1] to ease the periodical cleaning.

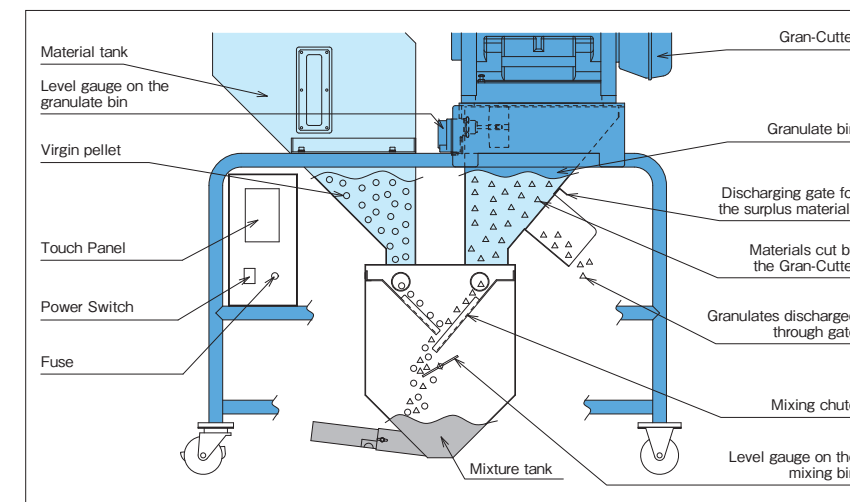
[Pic.1]



GRAN MIXER GMI-t Series (Mixer)

Instantly Mixing Virgin Materials with Granulated Materials!
with New Cartridged Teeth

GMI-t Series Layout



- The equipped touch panel and buzzer alert you when Gran-Mixer stops with an error.
- It is easy to change the materials.
- The inside of Gran Mixer is easy to disassemble and clean without any tools.
- The mixture tank stores both the virgin and the recycled materials. Any wings or blades are not necessary for further mixing.