

Spec. No. : VT-SA08121901-00

SPECIFICATIONS

Item : 16x/1x-SPEED DVD-R (DVD Recordable Disc)

Version : DVD-R for General Version2.1 16x-SPEED DVD-R Revision 6.0

Part name : DVD-R47WPT600SK16

We hereby received the specification

Received by _____

Date

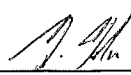
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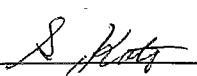
Date

Date: 19 / December / 2008

TAIYO YUDEN CO., LTD.

QUALITY ASSURANCE DEPT.
RECORDING MEDIA

Signature: 

Prepared by: 

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SPECIFICATIONS

1. General

1.1. Scope

This specification is applicable to DVD-R disc, 4.7GB type supplied by Taiyo Yuden Co., Ltd.

1.2. Product Name :

16x/1x-SPEED DVD-R (DVD Recordable Disc)

DVD-R for General Version2.1 16x-SPEED DVD-R Revision 6.0

1.3. Standard Atmospheric conditions for testing

Ambient temperature 23 ± 2 °C

Relative humidity 50 ± 5 %

Air pressure 86~106 KPa

The below is alternative conditions for the parameters which are not affected by atmospheric conditions.

Alternative conditions for testing.

Ambient temperature 23 ± 5 °C

Relative humidity 50 ± 20 %

Air pressure 86~106 KPa

1.4. Environment

Storage -20~50°C, 5~90% (0.5~30g/m³max, no dew)

Operating (play) -25~70°C, 3~95% (0.5~60g/m³max, no dew)

Operating (record) -5~55°C, 3~95% (0.5~30g/m³max, no dew)

Transport(2weeks) -40~60°C, 3~95% (0.5~30g/m³max, no dew)

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2. Structure

2.1. Materials

Substrate	Polycarbonate
Bonding layer	UV resin
Reflective layer	Metal
Dye layer	Organic dye
Substrate	Polycarbonate

2.2. Structure and Dimension of DVD-R disc.

Parameter	LPP address	Specification (unit: mm)
Outer diameter of disc	-	ϕ 120.00 $\pm$ 0.30
Diameter of the center hole	-	ϕ 15.00 +0.15/0.00
Clamping area	-	ϕ 22.0 — 33.0
Thickness of clamping area	-	1.20 +0.20/-0.10
Start diameter of lead-in are	FFDD05h	ϕ 45.2 max.
Start diameter of data area	FFD0DFh	ϕ 48.0 0.0/-0.2
Outer diameter of data area	FD9ED8h	ϕ 116.0 max.
Outer diameter of information area	-	ϕ 117.0 min.

※ A ring mark by stacking products may be left on the surface of the lower product.
The discs may stick to each other after having been stored in stacked condition.

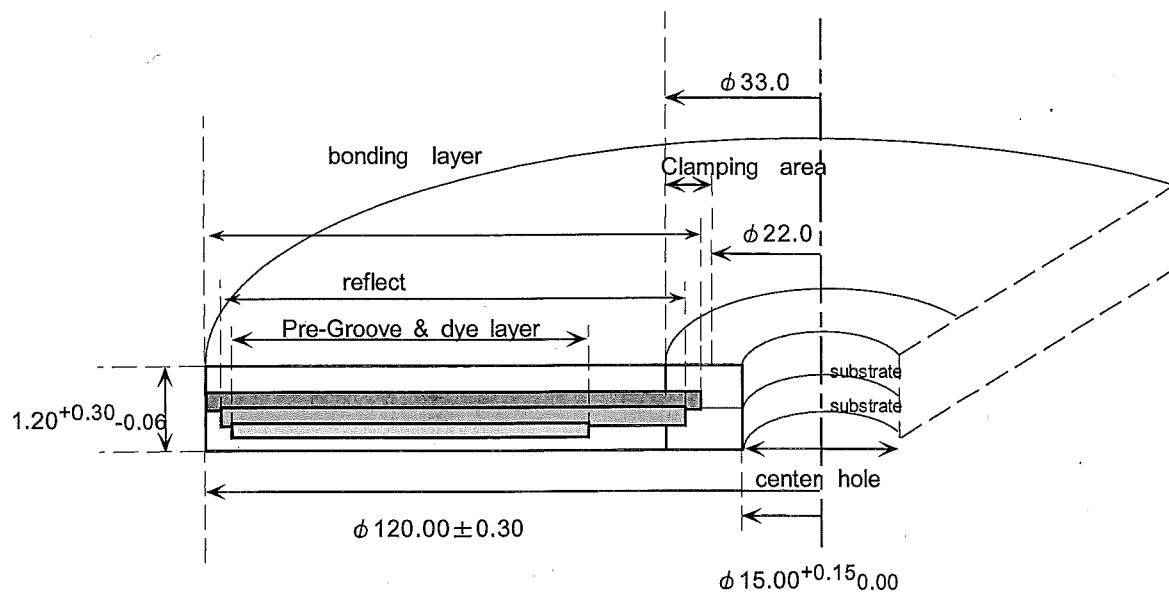


Fig-1 Structure and Dimension of DVD-R disc.

3. Indication of Lot Number

To be printed on inner part of disc.

Position : ϕ 15 ~ ϕ 22

Printing method : Laser Marking

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4. Characteristics

Following are the characteristics of the disc. All other characteristics not specified here shall be in accordance with the specifications in DVD-R Book (DVD-R for General Version 2.1, Revision 0.0, 1.0, 3.0, 6.0.)

4.1 Format

Parameters	Specification
Scanning velocity 1x/16x	3.49/55.84 m/s
Recording capacity	4.7 GB
Manufacturer ID	TYG03

4.2. Mechanical Parameters

Parameters	Specification
Radial Skew (β)	$< \pm 0.40$ deg
Radial run-out (peak to peak)	≤ 40 μm pp
Deviation (Book 2.3.1)	$< \pm 150$ μm 0-p
Dynamic imbalance	< 0.0025 g·m
Birefringence of substrate (Double Pass)	< 100 nm

4.3. Pre-Groove Parameters

Parameters	Specification
Push pull : PPb	0.22 ~ 0.44
Pre Pit : LPPb	0.18 ~ 0.28
BLERb	< 3 %
Wobble CNR (unrecorded)	> 35 dB
Defects	≤ 300 μm

4.4. Recording Parameters

Parameters	Specification
1x Recording power (Vari. WS)	6 ~ 12 mW
4x Recording power (Non-Multi WS)	≤ 19 mW
8x Recording power (Non-Multi WS)	≤ 32 mW
16x Recording power (Non-Multi WS)	≤ 50 mW
Rtop (PUH with PBS)	45 ~ 60 %
Modulation amplitude I14/Itop	≥ 0.60
Data to Clock Jitter	≤ 8.0 %
PI Error	≤ 280

The Characteristic data in this specification obtained with TAIYO YUDEN's standard measuring equipment (Pulstec DDU-1000/ODU-1000).

4.5. Reliability

Items	Standard
Storage test at high temperature	IEC 68-2-8 Ba Temp. 55°C, Rel. Hum. Max. 50% (at 35°C), 96h
Heat cycle test	IEC 68-2-30 Db Temp. 40°C max - 25°C min., 12+12hrs/cycle Rel. Hum. 95%, 6 cycles
Light fastness	ISO-105-B02 Black Panel Temp. < 40°C, Rel. Hum. 70-80% Wool Reference #5<

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5. Label Printing design and Packaging

It is specified in The Printing design Specification and The Packaging Specification.

6. Inspection

6.1. Characteristic inspection

We would apply a single random inspection type (measurement standard) JIS Z 9003 and inspect as the base on the following.

$$P0=0.1\% \quad \alpha=0.05$$

$$P1=2.5\% \quad \beta=0.10$$

6.2. Delivery inspection (appearance, identification)

We would apply a random inspection type (calculation adjustment) JIS Z 9015 and judge by follows.

Inspection level S-4

AQL Critical defect :AC=0, RE=1

 Major defect :AQL=0.65%

 Minor defect :AQL=4.0%

However, the slight defect on the appearance which does not affect the characteristic of a disc is considered as specification conformity.

7. Other

7.1. Caution on usage

- 1) Printing needs a dedicated printer. For setting of your printer, please contact the manufacturer of your printer.
- 2) We recommend that the disc be printed after it is recorded.
- 3) When storing the discs, please make sure that they are stored in a disc case so that the printed surface will not come in touch with a film, card, and so on.
- 4) This product does not support ink jet printers.
- 5) The product has the flat surface on the label side. In the case that the products have been in a pile for long time, it may stick together especially under a high temperature and humidity condition. Before using this product, please be sure the disc is in a good condition.
- 6) Handle with care to avoid any fingerprint, dirt, dust, water etc. on recording side(wine red). Gently wipe off dust or dirt adhered to the disc using soft dry cloth, with Disc cleaner, or ethyl alcohol. Never use benzine, thinner, or any kind of antistatic solvent.
- 7) When labeling a DVD-R for identification purposes, write only on the label side. However, do not write by such as ball-points which the label side is transformed by.
- 8) Do not expose disc to direct sunlight, high temperature, or high humidity.
- 9) Playing unrecorded DVD-R on DVD player, DVD-ROM drive, etc. may cause miss-action and result in damage of the disc.
- 10) Do not put any stickers on the disc.
- 11) Although this product complies with above-mentioned standard, it may not work with some of the recorders/software or DVD-ROM drive/DVD player.
Also, DVD-ROM drives/DVD players cannot record on this product. For the recording, please use recorder that supports the DVD Specifications for Recordable Disc for General.
- 12) The products may not work with some Recorders for DVD-R General at 2x speed writing.

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7.2. CAUTION (New Standard 16x Speed DVD-R)

THIS PRODUCT IS NOT SUITABLE FOR USE WITH DVD-R/RW DRIVES WHICH DO NOT COMPLY WITH THE NEW DVD-R SPECIFICATIONS FOR 4X WRITING SPEED. PLEASE CHECK YOUR DVD-R/RW DRIVE BEFORE USING THIS PRODUCT.

ANY USE WITH SUCH NON-COMPLYING DRIVES MAY RESULT IN LOSS OF DATA AND/OR MALFUNCTION AND DAMAGES TO THE DRIVES.

FOR FURTHER INFORMATION CONCERNING NECESSARY ACTIONS FOR SUCH NON-COMPLYING DRIVES, PLEASE REFER TO THE FOLLOWING WEB SITE: www.dvdhs.com

7.3. Other cautions

In case of any defect attributable to our manufacturing process, we will replace the defective discs with new discs of the same quantity. We shall not be responsible to compensation of recorded contents.

7.4. Approval of specifications

This specification is considered to be approved when the products, described in the specification, are ordered even if specifications are not returned from your company.

7.5. Revision of specification

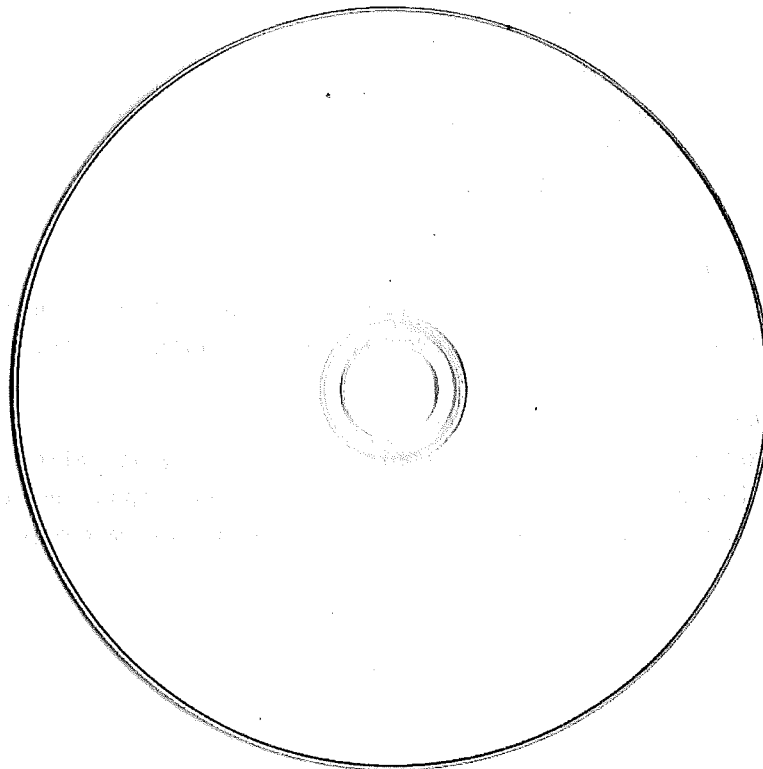
In case of any doubt in the contents of this specification, any needs of modification of all or part of this specification, or any addition or any deletion of provision, both party shall have prior discussion to have mutual agreement on the matter

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Printing design Specification

Type : DVD-R

Printing color : White (Printable for Thermal Printers)



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Packaging Specification (100pcs Roll wrap)

1. Scope

This specification specifies the packaging of 100pcs Roll wrap DVD-R.

2. Packaging form

The following specifies the packaging form and packaging procedures.

- ① One protection substrate and one Doughnut card are attached to top of 100pcs media.

Then one protection substrate is attached to bottom sides of 100pcs media.

Media : DVD-R
 Substrate Material : PC
 Doughnut card Material : Art paper
 Dimension : $\phi 119\text{mm}$

- ② The medias (①) wrapped in roll wrap film.

Wrap Film Material : PE
 Color : Semitransparence

- ③ Seal up the hole of substrate (top and bottom saides) using seal.

Seal Material : Paper
 Dimension : $\phi 23\text{mm}$, $t=0.1\text{mm}$

- ④ Place partition on the bottom of the Master carton, then place 6(six) rolls (③) on it
 The figure on the right shows the placement of each item.

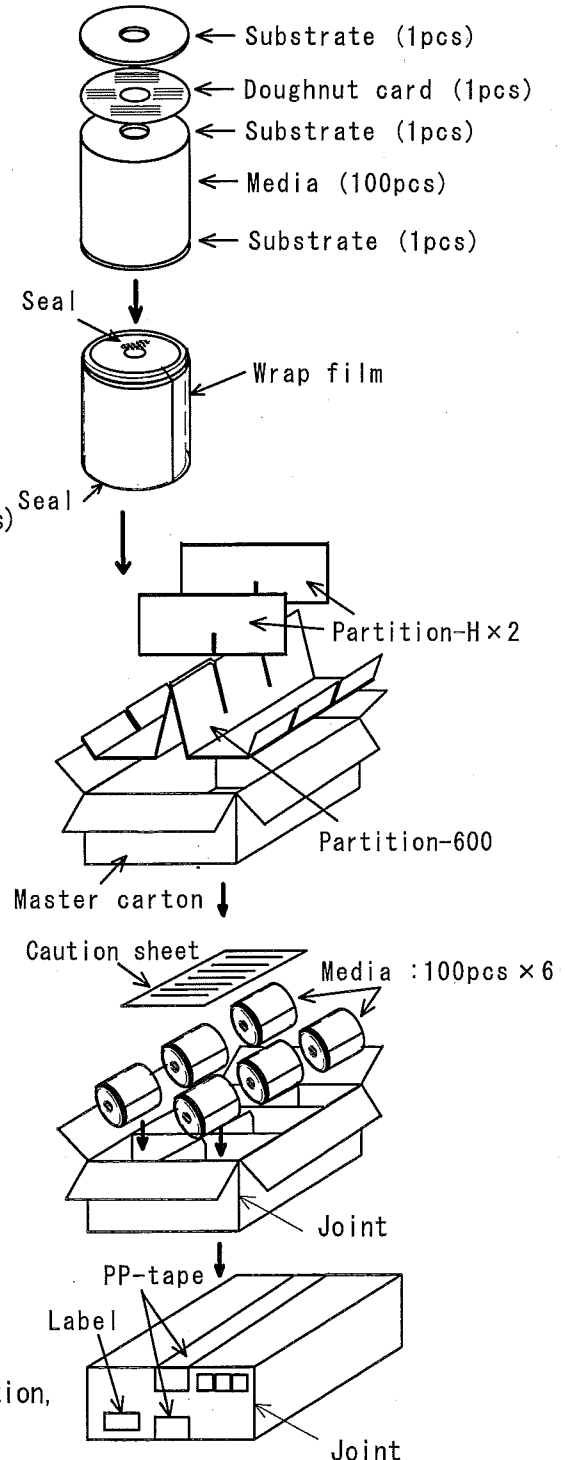
Partition-H & -600
 Material : Cardboard
 Dimension : (-H) $254 \times 131\text{mm}$
 (-600) $522 \times 475\text{mm}$

Master carton
 Material : Corrugated cardboard
 Dimension : $489 \times 260 \times 146\text{mm}$

- ⑤ The caution sheet put in the Master carton (④).

Caution sheet
 Material : paper
 Size : A4

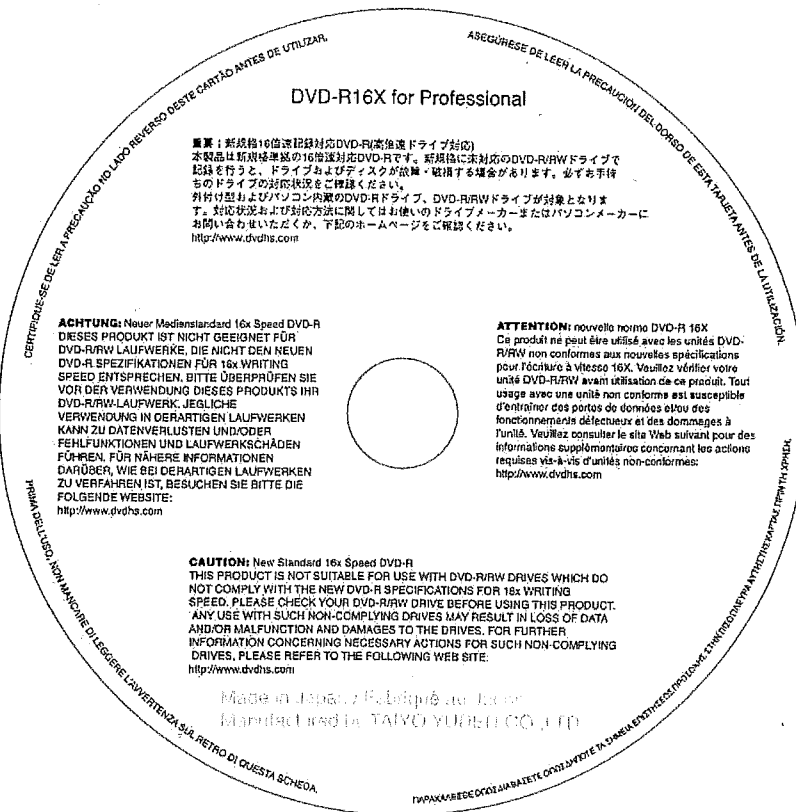
- ⑥ Seal up the Master carton (⑤) using PP tape.
 Affix a label indicating Part Number, Lot identification, and Quantity.



Master carton Gross weight = 11.0kg (600pcs)

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Doughnut-card design



Seal design

DVD-R16X

TAIYO YUDEN

MID TYG03

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Caution sheet design

Sheet size : A4

Cautions for use

The label side of this product has a wide and smooth printable area. A special feature of this product is that the printable area extends to the inside of the stack ring, and the stack ring and the printable area are in contact with each other. For this reason, the discs may stick to each other after having been stored in stacked condition, especially in case of storage for a long time in an environment with high temperature and high humidity. Before using this product with a duplicator with auto-loading system, make sure that they are separated or separate them by hand, if they are not.

使用上の注意

本製品は、レーベル面に幅広い平滑な印字可能エリアを有しており、スタックリングと印字可能エリアが接触する構造になっております。そのため、本製品を積み重ねた状態で保管した場合や、特に高温高湿の環境下で長時間保管した場合には、本製品どうしが貼り付いてしまうことがあります。デュスタック自動送紙機搭載複写機（コピーライター）をお使いになる場合は、貼り付きのないことをご確認の上、ご使用ください。本製品どうしが貼り付いている場合は、必ず手によってご使用ください。

Précautions d'emploi

Le côté étiquette de ce produit est doté d'une vaste et lisse surface d'impression. La particularité de ce produit réside dans le fait que la surface d'impression s'étend sur l'intérieur d'empilage. L'anneau et la surface d'impression sont en contact l'un avec l'autre. En ce fait, il se peut que les disques collent les uns aux autres après avoir été stockés dans des conditions inappropriées notamment en cas de stockage pendant une longue période dans un environnement subissant une température et une humidité élevées. Avant d'utiliser ce produit avec un duplicateur doté d'un système d'autochargement, assurez-vous que les disques sont séparés ou séparez les manuellement s'ils ne le sont pas.

Vorichtsmaßnahmen bei der Benutzung

Die Etikettenseite dieses Produkts besitzt eine großflächige, glatte Oberfläche zum Bedrucken. Es ist ein spezielles Merkmal dieses Produkts, daß die Druckfläche bis zum inneren Rand des Stapelrings reicht und der Stapelring mit der Druckfläche Kontakt aufweist. Aus diesem Grund können die Discs zusammenkleben, nachdem sie übereinander gestapelt wurden, speziell dann, wenn hohe Temperaturen und hohe Luftfeuchtigkeit vorherrschen. Vor der Benutzung dieses Produkts mit einem Kopiergerät mit automatischen Ladesystem sind die Discs bei Bedarf von Hand zu trennen.

Precauzioni per l'uso

Il lato etichettato di questo prodotto possiede una larga e liscia area stampabile. E' una caratteristica speciale di questo prodotto che l'area stampabile si estende all'interno dell'anello di impilamento e che l'anello e l'area sono in contatto. Per questo motivo i dischi potrebbero aderire l'uno all'altro dopo essere stati conservati impilati, specialmente dopo un lungo periodo di conservazione in un ambiente con temperatura ed umidità elevate. Prima di utilizzare questo prodotto con un duplicatore fornito di un sistema di autoalimentazione, accertarsi che i dischi siano separati o separarli manualmente in caso contrario.

Precauciones de uso

El lado de etiquetado de este producto está dotado de un área lisa en la que puede imprimirse. El área imprimible se extiende hasta interior del anillo de apilado, de modo que ambas áreas están en contacto. Por tal razón, podría ocurrir que los discos se adhieran entre sí después de haber sido apilados, especialmente en lugares con altas temperaturas y mucha humedad. Antes de utilizar estos discos con un duplicador provisto de sistema de carga automática, asegúrese de que están separados o sepárelos a mano en caso de estar adheridos.

Precações para o uso

O lado de etiqueta deste produto tem uma área ampla e lisa imprimível. Esta é uma função especial deste produto que a área imprimível se estende para o interior do anel de empilhamento, e o anel de empilhamento e a área imprimível estão em contato entre si. Por esta razão, os discos podem agarrar-se entre si após terem sido armazenados na condição empilhada, especialmente no caso de armazenamento prolongado em um ambiente com uma alta temperatura e alta umidade. Antes de utilizar este produto com um duplicador com um sistema de carga automática, certifique-se de que os discos estejam separados ou separe-os manualmente, se não estiverem.

Προσοχή για τη χρήση

Η ετικετική επιφάνεια αυτού του προϊόντος έχει μια μεγάλη και ομαλή εκτυπωτική επιφάνεια. Είναι ένα ειδικό χαρακτηριστικό αυτού του προϊόντος ότι η εκτυπωτική επιφάνεια επεκτείνεται στο εσωτερικό του συστήματος αλληλοεπικάλυψης, και ο δακτύλιος της αλληλοεπικάλυψης είναι σε επαφή με την επιφάνεια αυτή. Για αυτόν τον λόγο, οι δίσκοι μπορούν να κολληθούν ο ένας στον άλλο μετά από αποθήκευση σε κατάσταση αλληλοεπικάλυψης, ειδικά σε περιβάλλον υψηλής θερμοκρασίας και υψηλής υγρασίας. Πριν την χρησιμοποίηση αυτού του προϊόντος με ένα αυτόματο σύστημα φόρτωσης, βεβαιωθείτε ότι είναι αποκολλημένοι ή χωρίστε τους με το χέρι, σε caso contrário.