Nitto
Innovation for Customers

# On-Site Label Printing System
# DURA SYSTEM

Nitto
Innovation for Customers




## Nitto Denko Corporation

26th Fl., Shinagawa Season Terrace, 1-2-70, Konan, Minato-ku, Tokyo 108-0075, Japan
TEL: +81-3-6632-2101 FAX: +81-3-6632-2025 https://www.nitto.com/jp/en/
Inquiry about Products: +81-3-6631-1637

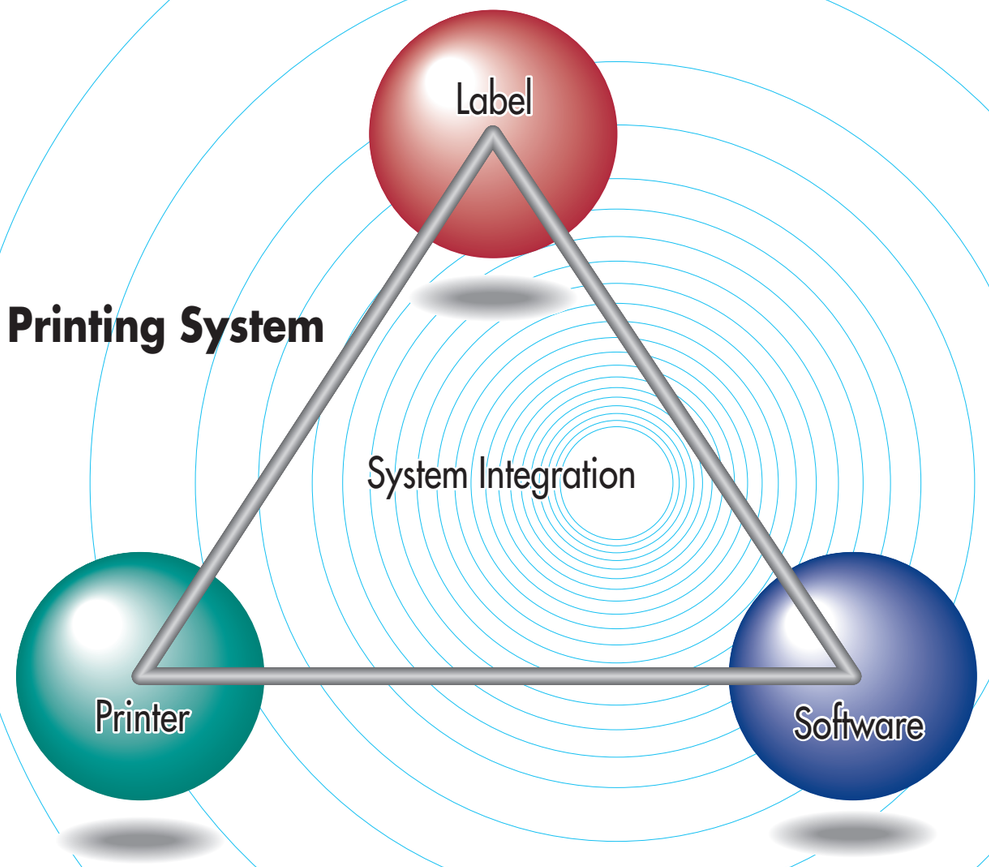


CATALOG CODE: 10551 Issued in July 2019

VOC Free
FSC www.fsc.org MIX Paper from responsible sources FSC® C015138

0502F10 Ⓕ Ⓗ
1711R10
1907R10

# DURA SYSTEM




**Label Printing System**

## “The right products, in the right quantities, at the right time”

# Nitto On-Site Label Printing System

Nitto is working on systems that utilize on-site label printing system technologies from supply products such as barcode labels to printers and application software. DURA SYSTEM is an easy-to-use multifunctional label printing system that enables you to print labels right on the spot where they are needed. DURA SYSTEM realizes a wide variety of labeling from product nameplate labels to barcode management under harsh conditions such as mounting components on printed circuit boards.

## CONTENTS

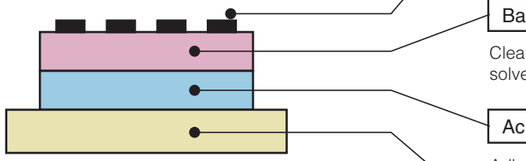
# DURA SYSTEM

Nitto's on-site printed labels (DURATACK) are highly functional labels that enable thermal transfer in dot units, which was nearly impossible before, and clear printing in a limited space, by using our original thermal transfer technology. The system offers a choice of heat resistance, weather resistance or clean room specifications according to its application. The code printed on all labels can be reliably read.

## ■Features of Nitto Thermal Transfer Labels

- Labels can be easily produced right on the spot.
- High-resolution labels offering no aged deterioration of printing.
- Can be used in manufacturing processes with solvents.
- Does not include silicone, impurity ions, etc., which adversely affect precision machines (clean labels).
- Offers superior heat resistance; does not deteriorate at high temperatures (heat-resistant labels).
- Due to its weather resistance it hardly deteriorates, even when used outdoors (UV-resistant labels).

## ■Basic Label Structure



**Thermal transfer ink layer**
Resin ink ribbon maximizes base material function.

**Base material** (silicone, polyester, special polyolefin, etc.)
Clearly displays contents to be printed on base material that offers solvent resistance, heat resistance and weather resistance.

**Acrylic adhesive**
Adhesive displays high bonding performance.

**Release liner**

●Other structure Antistatic layer: Prevents attraction of dust to label surface and difficulty in handling due to static charge when peeling.

## ■Thermal Transfer Label Applications

### Nameplate Labels

- HDDs
- Smart phone, Tablet PC, Mobile phone
- DVD-ROMs
- Digital cameras
- Batteries
- LCDs
- CCDs
- Car navigation systems
- Contact lens
- Indications on switchboards
- Industrial motors

### UV-Resistant Labels

- Telephone poles
- Gas meters
- Water meters
- Automatic vending machines
- Optical cables
- Solar panels
- Other outdoor plate labels

### Heat-Resistant Labels

- Printed circuit boards
- Electronic components (air bags, quartz crystals, semiconductors)
- Plasma display panels (PDP)
- Glass tubes
- Aluminum
- Stainless steel

### Tire Labels

- Tires
- Rubber tubes

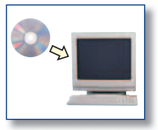
Nitto thermal transfer labels are used for a wide range of applications as indicated above.

# DURA SYSTEM

## ■System Package

**DURATACK Series**
Realizes solvent-resistant, heat-resistant labels.

**DURAPRINTER Series**
Realizes high-resolution printing.



**Label Studio**
Software that facilitates label design.

**●Label and Printer Compatibility Chart**

| DURAINK | DURATACK | | | | | | Compatible printer |
|---|---|---|---|---|---|---|---|
| | DURATACK PF100 | PM40AT1 DURATACK 10PN/PONK | DURATACK PT | PI25A01 PI50A01 | DURATACK PTNS | DURATACK PG | |
| DURAINK PF | ○ | | | | | | DURAPRINTER SI600 |
| DURAINK DLH | | | ○ | ○ | ○ | ○ | |
| DURAINK H20 | | | ○ | ○ | ○ | | DURAPRINTER SI600 DURAPRINTER SL |
| DURAINK 10PN | | ○ | | | | | |

The on-site label printing system was exclusively developed by Nitto using high-precision thermal transfer technology. A combination of labels, printer and software provides a system package with greater functionality.



# Label

The DURATACK Series is manufactured through a combination of Nitto's own original film synthesis technology and adhesive technology, and is used for applications demanding resistance to heat, weather and solvents. The DURATACK Series is the ideal choice for high-performance thermal transfer labels.

Nitto continues to use its expertise in film synthesis, adhesives and systems to develop labels that meet user needs.

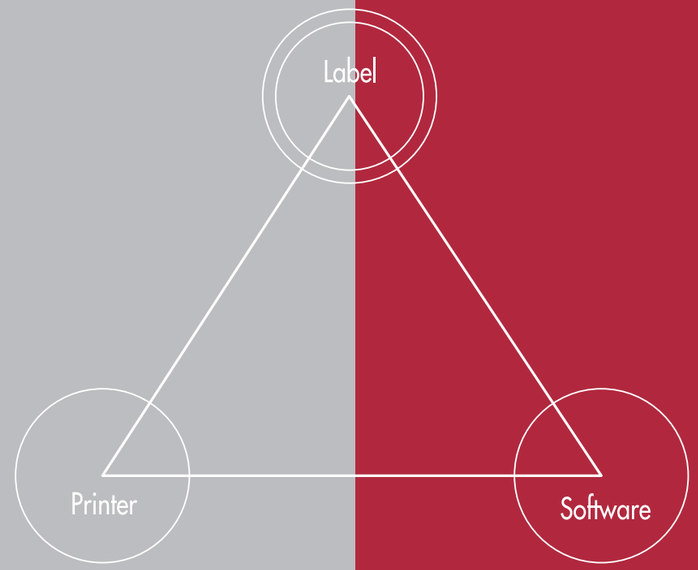
■ UV-Resistant Labels (weather-resistant labels)
DURATACK PF100

■ Nameplate Labels
PM40AT1
DURATACK 10PN/PONK
DURATACK PT

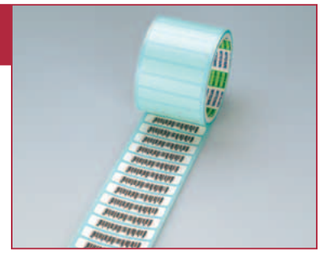
■ Heat-Resistant Labels
PI25A01/PI50A01

■ Clean Labels
DURATACK PTNS

■ Tire Labels
DURATACK PG



# DURATACK PF100



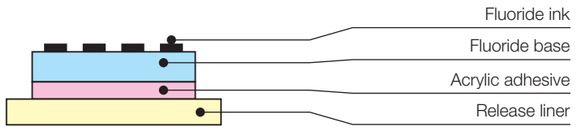
## Weather-Resistant Labels and Seals Suitable for Outdoor Use for 10 Years

Nitto's expertise in adhesives and modifying fluoride bases has realized weather-resistance performance.

### Features

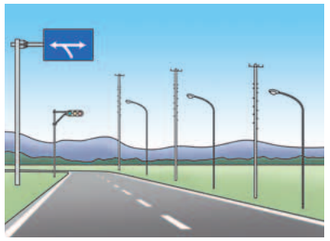
- Uses fluoride film as base.
- Able to withstand UV rays of the sun for 10 years. Durable labels are ideal for outdoor use.
  * This figure was determined by testing that simulates weathering of a 10-year period, but is not guaranteed.
- Enables on-site printing with a thermal transfer printer such as DURAPRINTER.

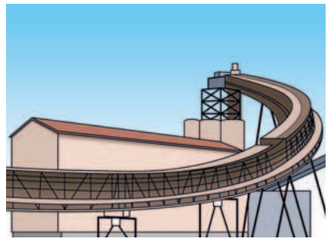
### Structure

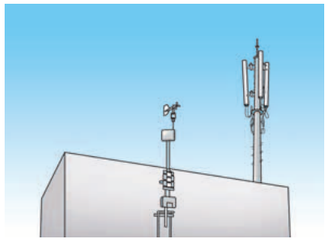


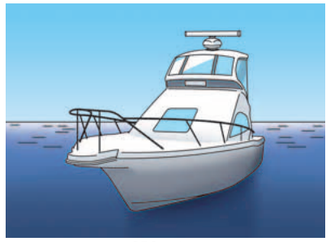

### Applications

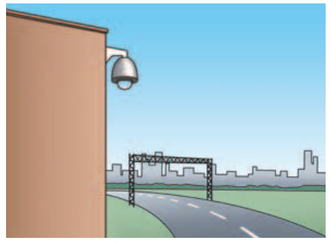
- Labels for management of meters used outdoors
- Labels for management of containers used outdoors
- Display/plate labels and weather-resistant seals for equipment used outdoors

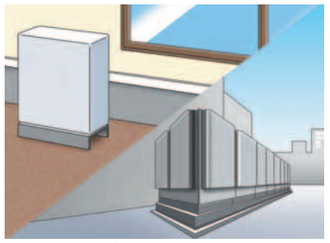

Road electrical facilities


Parts and components of outdoor conveyors


Outdoor measuring instruments and base stations


GPS radars


Security cameras


Outdoor batteries

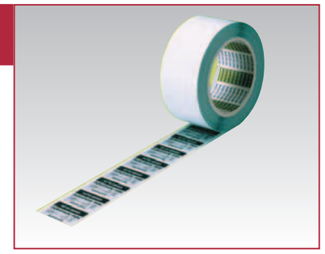
### Specifications

| No. | Base material | Base material thickness (µm) | Color | Ink ribbon |
|---|---|---|---|---|
| PF100 | Fluoride material | 110 | White | DURAINK PF |





# PM40AT1/DURATACK 10PN/PONK



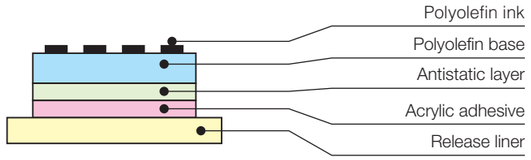
## High-Resolution Label

High-resolution labels take full advantage of the performance of 400 and 600 dpi printers. Printing will not wear away, even with organic solvents.

### Features

- DURATACK 10PN/PONK labels enable high resolution never before possible.
- Employing the same material (olefin resin) for label material and ink enables the firm heat-sealing of label materials and ink. Small characters and QR code (2D code) with a cell size of 0.125 mm can be printed clearly.
- Offers superior resistance to solvent. Printing is not erased even if wiped with organic solvents such as alcohol, toluene or acetone.
- Can be printed right on the spot with a thermal transfer printer such as DURAPRINTER.
- DURATACK 10PN is provided with treatment to prevent electrostatic charge when peeling. Almost no electrostatic charge is produced when peeled from the release liner.

### Structure




* PM40AT1, DURATACK PONK are not equipped with an antistatic layer.

### Chemical Resistance

| Solvent | Test results | Solvent | Test results |
|---|---|---|---|
| Ethyl alcohol | ○ | Artificial perspiration (acid) | ○ |
| Isopropyl alcohol | ○ | Artificial perspiration (alkali) | ○ |
| Hexane | ○ | 10% HCl | ○ |
| Toluene | ○ | 10% NaOH | ○ |
| Acetone | ○ | Water | ○ |
| Methyethyl ketone | ○ | Gasoline | ○ |
| 10% ammonia | ○ | | |

○: No change to appearance
× : Printing fades or disappears

(Test method)
The specimen is rubbed back and forth 20 times with a cloth dampened with each type of solvent under 200 grams of pressure to see if any change in appearance can be observed.

### Applications

- For product which touches strong chemicals and solvents
- Nameplate/display labels for electronic and communications equipment and components
- Process management labels for electronic and communications equipment


Kitchen


Toilet


Bathtub


Range hood


Ventilating fan


Washbowl

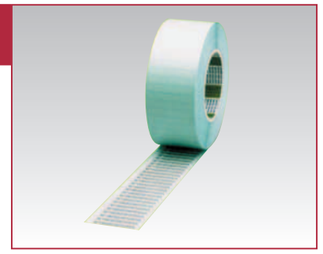

### Specifications

| No. | Base material | Base material thickness (µm) | Color | Ink ribbon |
|---|---|---|---|---|
| PM40AT1 | Special polyolefin | 40 | Transparent | DURAINK 10PN |
| 10PN | | 100 | White | |
| PONK | | 70 | Silver | |

# DURATACK PT

## General Nameplate and Process Management Labels

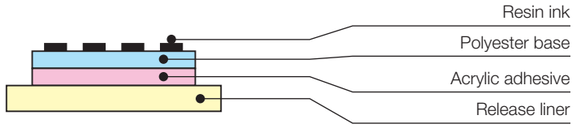
With a polyester base, DURATACK PT labels offer superior heat-resistant (150°C) and smear-resistant properties. DURATACK PT also realizes reliable performance through a combination of Nitto's expertise in adhesives and printing surface improvement for polyester base film.



### Features

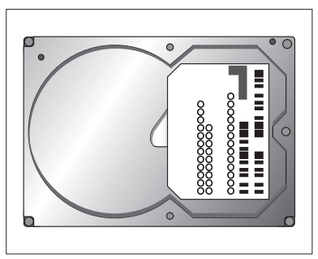
- DURATACK PT labels employ polyester film as a base and offer superior heat-resistant (150°C) and smear-resistant properties.
- DURATACK PT labels enable on-site printing with a thermal transfer printer such as DURAPRINTER.
- Combination of DURAINK H20 ink ribbon enables solvent-resistant printing.
- Combination of DURAINK DLH ink ribbon enables smear-resistant printing.
- PT50R is used removable adhesive (adhesive that leaves less glue when detached)

### Structure

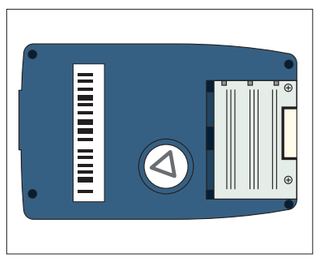



### Applications

- Nameplate/display labels for electronic and communications equipment and components
- Process management labels for electronic and communications equipment



Nameplate label for electronic equipment



Process management label for communications equipment (PDA, etc.)


### Specifications

| No. | Base material | Base material thickness (µm) | Color | Ink ribbon |
|---|---|---|---|---|
| PT38K | Polyester | 38 | White | DURAINK H20<br>DURAINK DLH |
| PT501K | | 50 | | |
| PT75K | | 75 | | |
| PT50AG | | 50 | Silver | |
| PT50R | | | White | |
| PT50AB1 | | | Black | — |

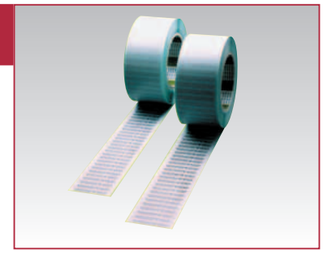




# PI25A01/PI50A01

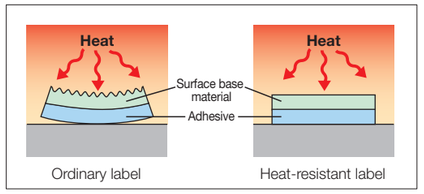
## Labels Used for Lead-Free Soldering Process of Printed Circuit Boards

Nitto's expertise in adhesives and heat-resistant white coating of polyimide film base material realizes heat resistance and facilitates barcode reading (whiteness).

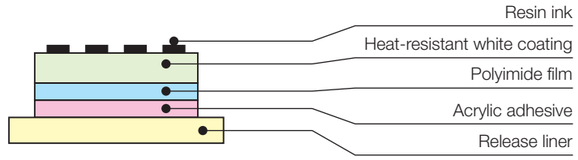


### Features

- Label employs polyimide film as a base. DURATACK P offers superior heat-resistance (300°C) and resistance to solvents, and is used primarily for soldering process of printed circuit boards.
- Enables on-site printing with a thermal transfer printer such as DURAPRINTER.
- Combination of DURAINK H20 ink ribbon enables solvent-resistant printing.

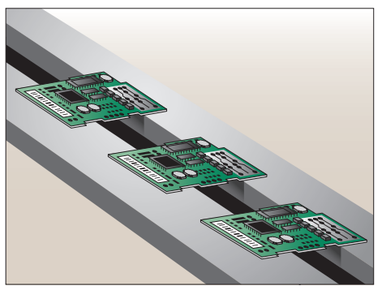



### Structure




### Applications

- Labels for printed circuit board process management
- Labels for electronic equipment and components (deplexers, air bags, quartz crystals, semiconductors, etc.)




High-resolution barcode


Two-dimensional code

Micro label

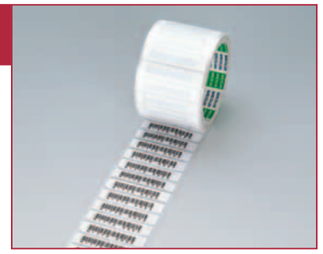
### Specifications

| No. | Base material | Base material thickness (µm) | Color | Ink ribbon |
|---|---|---|---|---|
| PI25A01 | Polyimide | 25 | White | DURAINK H20<br>DURAINK DLH |
| PI50A01 | | 50 | | |

# DURATACK PTNS

## Clean Labels and Seals Contain No Silicone

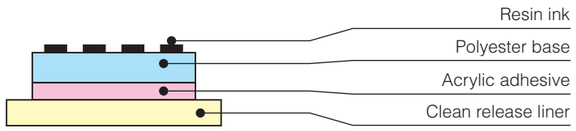
DURATACK PTNS are clean labels that contain little or no silicone, outgas and ion impurities, and generate minimal dust and outgas from the liner.



### Features

- Clean labels contain little or no silicone, outgas and ion impurities that can cause hard disks to crash.
- Labels can be printed on site with thermal transfer printers including DURAPRINTER.
- A platen roller that contains no silicone is optionally available for DURAPRINTER SI600.
- PT50NR is used removable adhesive (adhesive that leaves less glue when detached).

### Structure

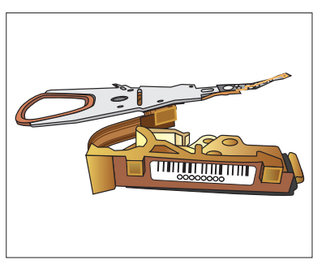



### Applications

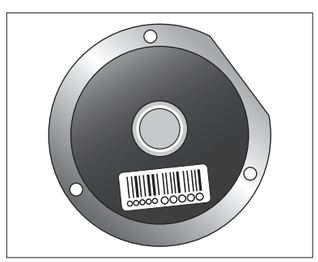
- Nameplate/display labels for electronic and communications equipment and components
- Process management labels for electronic and communications equipment
- Seals and labels for blocking holes in electronic equipment.
- Labels for tray management


Micro labels also applicable

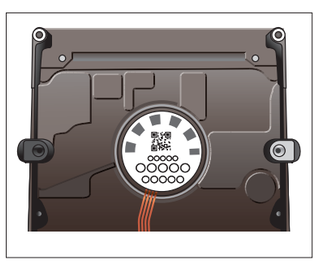
Seals for blocking holes



HSA



Fluid dynamic bearing motor



Base plate

### Specifications

| No. | Base material | Base material thickness (µm) | Color | Ink ribbon |
|---|---|---|---|---|
| PT50NS | Polyester | 50 | White | DURAINK H20<br>DURAINK DLH |
| PT50NR | | | | |

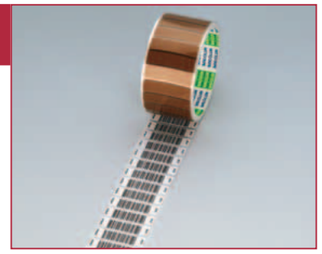




# DURATACK PG

## Labels for Tire Manufacturing Process

Because DURATACK PG labels adhere well to rubber through the vulcanization process after being applied, the labels facilitate tire inspection and distribution management from sorting to shipment.



### Features

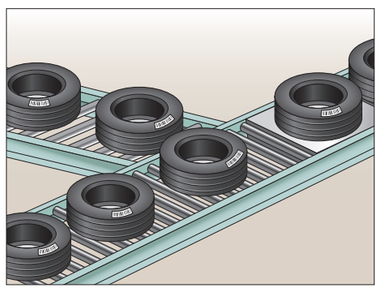
- Adheres well to rubber (fuses with rubber during the vulcanizing process).
- No mold contamination during vulcanizing (overcoat type).
- Barcode labels with variable information can be prepared by thermal transfer.

### Structure


Consult us about the most suitable overcoat type to meet your needs.

### Applications

- Labels for manufacturing process for automobile tires
- Labels for arrangement and management of rubber belts



Process management labels for automobile tires

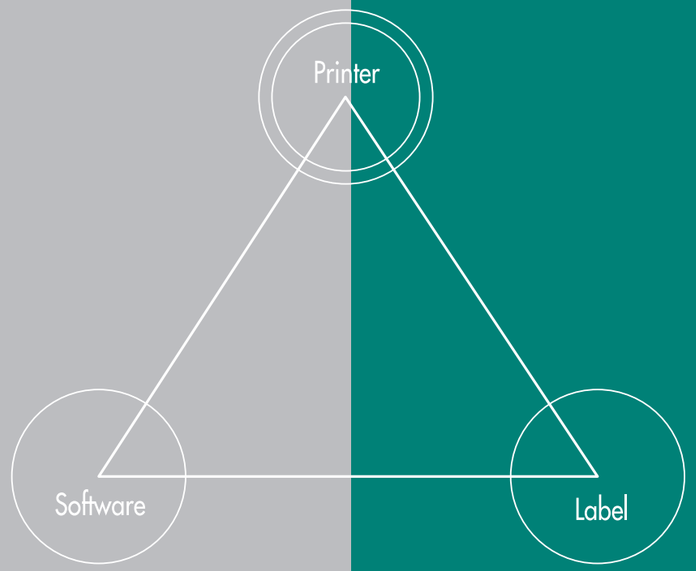
### Specifications

| No. | Base material | Base material thickness (µm) | Color | Ink ribbon |
|---|---|---|---|---|
| PG | Polyester | 130 | White | DURAINK DLH |

# Printer

The DURAPRINTER Series, developed as high-performance thermal transfer printers for FA applications, is used under harsh conditions of the FA manufacturing process.






# DURAPRINTER SI600

## Industrial Thermal Transfer Printer with 610 dpi High Density Head, and Label Applicator Compatibility.

Industrial thermal transfer printer with 610 dpi high density head, label applicator compatibility, and Windows driver compatibility.

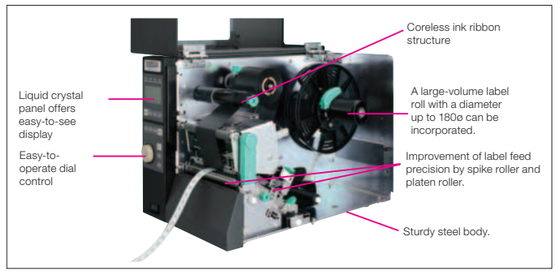
## Features

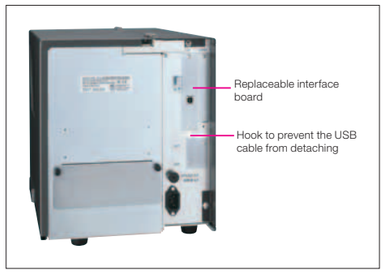
- High quality, high precision printing
  Features a high density 610 dpi thermal head for a high definition label printing with superior printing accuracy.
- Supports automated machines
  Automated labeler installable.
- Command compatibility
  Operable by dedicated commands. Compatible with a wide variety of transmitting devices (e.g. sequencers) and computer operating systems.
- Windows driver software compatible
  General-purpose Windows applications such as Microsoft Word and Excel can be used for printing. In case you have a “Label Studio” (sold separately) as a label printing software for Factory Automation, you’re enable to print from the purchase date. Label Studio enables bidirectional communication printing and batch cut printing (cut printing in designated quantity).
- High performance label printing
  By using Nitto’s high performance labels “DURATACK series,” heat/chemical resistant high-grade labels can be printed continuously.

## Specifications

| | |
|---|---|
| Printing Method | Thermal transfer |
| Resolution | 610 dpi (24dot/mm) |
| Max. Printing Width | 112 mm |
| Max. Printing Length | 400 mm |
| Printing Speed | 25-150 mm/sec |
| Acceptable Paper Width | 25-120 mm |
| Acceptable Paper Length | 3*1-400 mm (Min width 11 mm when using a cutter)*2 Min. gap between labels: 25-120 mm |
| Characters, Barcode | Characters and barcodes that can be printed using Windows applications (Some limitations when operated with dedicated commands.) |
| Printer Driver | Windows XP, 7, 8, 10 (32/64 bit version) (No limitation to OS when opetede with dedicated commands.) |
| Host Interface | Standard: USB2.0 (High Speed , 480Mbps) Option: LAN board (10BASE-T/100BASE-TX), RS232C board (Max 115.2kbps) |
| Built-in Roll | Roll core diameter: suits both 2 inch and 3 inch, Max. diameter of built-in roll: ø180 |
| External Dimensions | (W)275 mm x (D)435 mm x (H)315 mm / 19Kg |
| Power | AC 100-240V |
| Options | Peeler unit, Cutter unit, Memory card (Compact Flash), External roll holder (max outer diameter ø250), Cleaning roller unit, Label rewinder and attachment for ink ribbon of 1 inch paper core*3. |
| Supplied Materials | Operational manual, Windows printer driver (CD-ROM), USB 2.0 cable*4 |
| Applicable Standards | CCC, FCC, CE and RoHS Directive compatible |

*1 If label height is less than 5 mm, certain restrictions are applied to the label pitch.
*2 Depending on conditions, the peeler may be unable to peel labels.
*3 When using this attachment, the winding core can be used on rewinder.
*4 If you select USB interface, come with a cable of USB2.0. If you select RS232C, LAN interface, doesn’t come with a cable.



# DURAPRINTER SL

## Compact and Light Label Printer Compatible with Cell Production System

Thermal transfer label printer mounted with a 400 dpi high-density thermal head can be set on cell production working benches or equipment.

### Features

- Compact and light
  The width of the product is 210 mm, and the cover can be fully opened upward. Accordingly, other equipment can stand beside the product. Ideal for places where printer space is limited and the cell production system where printing and peeling is performed page by page. It weighs only 4 kg, and can be carried easily from line to line.
- Plastic core employed
  A specialized plastic core has been employed for the roll core of the ink ribbon. This is ideal for printing in clean environments.
- Windows driver compatibility
  Can print from general-purpose Windows applications such as Microsoft Word, Code Soft, etc. Furthermore, in case you have a “Label Studio” (sold separately) as a label printing software for Factory Automation, you’re enable to print from the purchase date.
- Command compatibility
  In addition to compatibility with Windows drivers, this product can be operated with dedicated commands. A wide range of sending side devices (such as sequencers) and PC operating systems are supported.

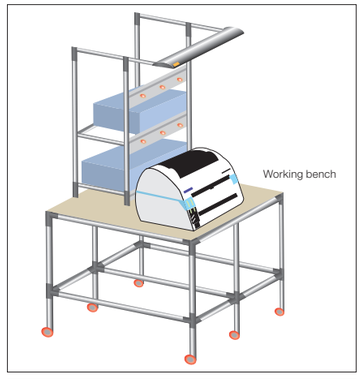
### Specifications

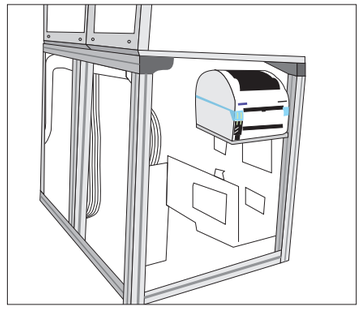
| | |
|---|---|
| Printing Method | Thermal transfer |
| Dot Density | 406 dpi (16 dots/mm) |
| Max. Printing Width | 112 mm |
| Max. Printing Length | 300 mm |
| Printing Speed | 25-150 mm/sec |
| Applicable Paper Width | 25-118 mm |
| Applicable Paper Length*1 | 8-300 mm (20-3000 mm, when using a cutter; 27-100 mm, when torn off; 27-100 mm, when using a peeler; 8-100 mm, when using a micro peeler [paper width is limited to 63 mm or less]) |
| Characters, Barcode | Characters, barcode and two-dimensional code that can be printed using Windows applications (Some limitations when operated with dedicated commands) |
| Printer Driver | Windows XP, 7, 8, 10 (32/64 bit version) (No limitation to OS when opetede with dedicated commands.) |
| Host Interface | USB2.0 (High Speed, 480 Mbps), LAN or RS232C (Optional external print server) |
| Built-in Roll | Roll core diameter: 38 mm (1.5 inches), Max. diameter of built-in roll: ø110 mm |
| Ink Ribbon | Specialized plastic core (inner diameter: 13.4 mm), 100 m (reference) |
| External Dimensions | 210 mm (W)×290 mm (D)×190 mm (H)/4 kg (including AC adapter) |
| Power | AC100-240V |
| Options | Peeler unit, cutter unit, micro peeler unit, external roll holder (Roll core diameter: 76 mm [3 inches], Max. diameter of built-in roll: ø214 mm) |
| Supplied Materials | Operational manual, printer driver (CD-ROM), USB2.0 cable |
| Applicable Standards | Compliant with CCC and RoHs directives |

*1 In cases where the label pitch has a value obtained by the following equation, label errors or skips may occur.
P= (56±1)/N mm (N=1 to7)
Please select a label pitch outside of this range.
(Example: when N=2, 27.5 – 28.5 mm)

### Example of Setting on Cell Production Working Benches or Equippment

- Examples of setting DURAPRINTER SL on cell production working benches or equipment are shown below.





# Options

## Optional Equipment for DURAPRINTER Series

### Optional Equipment for Printers

#### Peeler (for Automatic Models)

Label peeler to be mounted on automatic sticking equipment (for DURAPRINTER SI600)

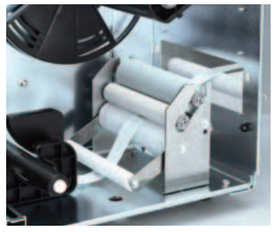
#### Cutter (Automatic Cutting Machine)

The labels are automatically cut in single units or in batches after being printed (batch processing type).

#### External Roll Holder

A large label roll can be mounted on equipment (max. ø250 mm). Dedicated cover is also available (for DURAPRINTER SI600).

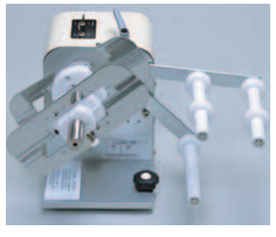
#### Dust Collector Roller Unit



Removes dust from label surface to improve print quality. External roll is required separately (for DURAPRINTER SI600).

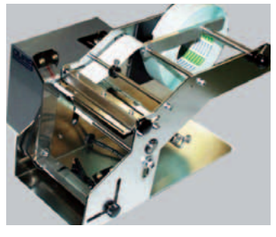
### Stand-Alone Equipment

#### Rewinder (Label Take-Up Unit)



It automatically rewinds the label roll in continuous printing operation (batch processing type).

#### Dispenser (Automatic Label Remover)

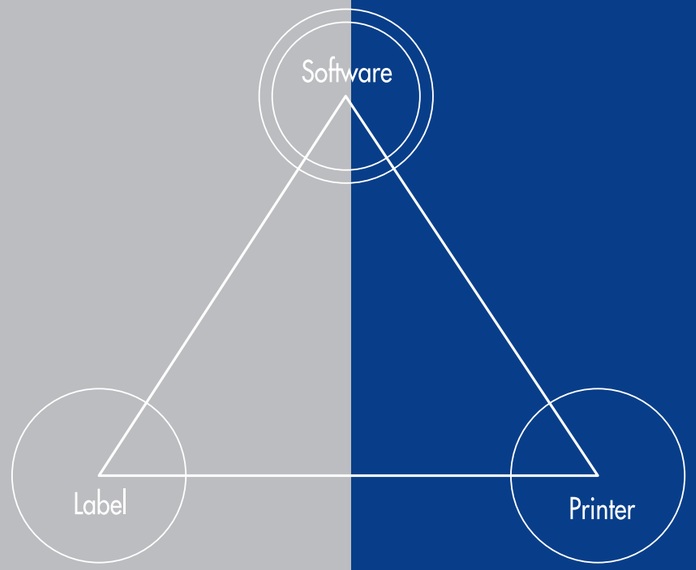


Label roll from rewinder is mounted on the dispenser that dispenses labels one at a time to facilitate pick up (batch processing type).

# Software

Nitto provides Label Studio as design and printing software to ensure smoother on-site label printing.

■ Label Studio




# Label Studio

## Software for Designing and Printing Label Formats Using a Printer Compatible with Windows driver

Label Studio is used to design label formats using a printer compatible with Windows driver and facilitates printing of characters, barcode and images.

### Features

- Facilitates label design
  Able to create characters, barcode, two-dimensional code and images as parts, and create label designs using a combination of parts. Printing contents are input when creating separate components or when printing. Variable conditions and contents such as serial numbers can be automatically calculated when printing if parameters are designed beforehand.
- Capable of Unicode entry
  Able to input/print Chinese or Hangul as Unicode
- Capable of complicated number sequence
  Capable of using complicated running number/sequence at factory automation process; resetting code sets (year, month, week, day) or running number; and checking input data (English capital letters, etc.)
- Capable of bi-directional communication
  Capable of bi-directional communication for DURAPRINTER SL and SI600
  Able to confirm printer status such as information error, etc.
- Printing from Microsoft Office and Windows applications
  Label formatting is created with Label Studio.NET. The format can be easily applied to labels via OLE communication by means of programming language (Excel, Access, etc.) that supports Visual Basic C#, VB.NET, or Visual Basic for Application (VBA).
  *Excel, Access, VB and VBScript are registered trademarks of Microsoft Corporation.
- On site printing using Label Studio Runtime
  Label Studio Runtime is equipped only with the printing function of Label Studio to print formats designed by Label Studio. OLE communication can be used when Label Studio Runtime is installed.

### System Requirements

| | |
|---|---|
| Applicable OS | Windows 2000 (SP4 or later) XP Home Edition/Professional (SP2 or later), Vista, server 2003, 7 (32 bit version only).<br>*Applicable to Windows 7, 8, 10 (32/64 bits), but depends on version. If you use old version, when you get update file, and can uptate your version. |
| CPU | Pentium 600 MHz or greater |
| Hard Disk | At least 200 MB of unused space |
| Required Memory Space | At least 256 MB (512MB or more is recommended) |
| Additional System Requirements | It is necessary to install Microsoft .NET framework ver3.5.1 before installing this software on your computer. .NET framework ver3.5.1 is available on the Label Studio installer CD or via the Internet. |
| Screen Resolution | At least 800 × 600 (Colors: 256 or more) |
| Supplied Medium | CD-ROM |
| Applicable Printers | DURA PRINTER Series<br>• DURAPRINTER SL • DURAPRINTER SI600 • Other printers with a Windows compatible driver*1 |

### Supported Barcodes

- JAN/EAN/UPC
- ITF (Interleaved 2 of 5)
- ITF (Industrial 2 of 5)
- Code39
- Code93
- Code128
- GS1 Data Bar (Previous product name: RSS)
- GS1-128 (Previous product name: EAN-128)
- QR code (Model 1 and Model 2)
- Micro QR code
- DataMatrix (ECC200)
- PDF417
- Micro PDF417

### Licenses

One Label Studio license is required for each computer.
A Label Studio Runtime license is not required when used with DURAPRINTER.
*1 When using a printer other than DURAPRINTER series, required separate license.