KEYPOINT INTELLIGENCE · 2026 · BLI PICK AWARDS · TESTED

KEYPOINT INTELLIGENCE · 2026 · WASH FASTNESS · ★★★★★ · TESTED
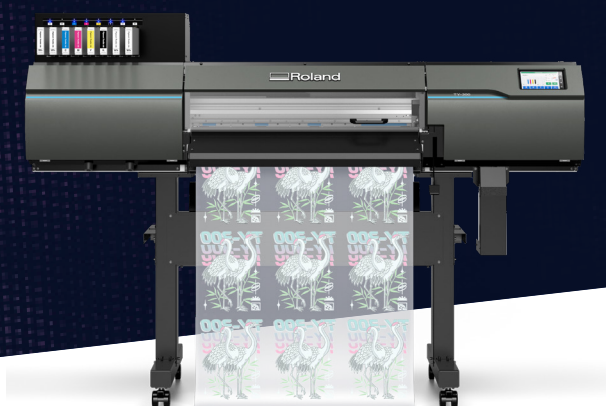
Direct-to-Film Report

A Comprehensive Keypoint Intelligence Evaluation

Roland DG TY-300

With Roland DG's S-PG2 DTF ink, S-F328-30 cold-peel film, S-powder, Driven by VersaWorks 7 RIP

Background Specifications	
Printhead	On demand Piezo head
Print Resolution	Up to 1200 dpi
Print Speed	Up to 12.33m2/hr in 4 pass mode"
Maximum Print Width	736 mm/28.9 in.
Maximum Media Width	762 mm/30 in.
Ink Type	Roland DG S-PG2 (5 pigments: C,M,Y,K,W)

OUR TAKE

The Roland DG TY-300 is the company's first roll-to-roll model in the highly competitive 60-80cm market. It features two printheads and uses Roland DG-developed film, ink, and powder, all driven through the company's VersaWorks 7 RIP.

The device delivered 10.01m2/hr speed in its 6-pass mode in our tests, which Roland DG recommends for regular work. When quality is less critical, the device can achieve speeds up to 12.33m2/hr using its 4-pass print mode.

One of the most impressive attributes of the TY-300 is its washability, which was outstanding. After 20 wash-and-tumble-dry cycles, we observed no visible breakup of fine detail or halftone fills. Gamut shrinkage was limited to no more than 6%, and there was no reduction in stretch resistance, a rare feat among the devices we have tested to date.

Despite being a CMYK-only device, the TY-300 delivered the largest colour gamut in production mode on white T-shirts we have measured to date, while its gamut on black T-shirts also ranked amongst the largest.

Colour matching results were consistent with the strong performance we observed on Roland DG's desktop BY-20 model. The TY-300 produced the lowest average DeltaE variance across our challenging spot colours, with just one spot exceeding a DeltaE of 6 on white T-shirts.

Matching on black T-shirts was similarly very good. In high quality mode (where the profile uses more white ink), the colour gamut is by far the largest we have seen so far and, in turn, delivered substantial improvements in colour matching. This was especially evident on light colours, with MacDonalds yellow (PANTONE 123) dropping from Delta E 10.49 down to just 6.84.

Halftone and vector graphics were reproduced to a very high standard overall, with none the graininess sometimes seen in lighter-colour areas on other DTF devices. Memory colours were realistic, greyscales were neutral, and vector solids appeared crisp and vibrant. Skin tones were occasionally a little cool, and some contrast was lost in the darkest areas of greyscale images. On black T-shirts, the high-quality mode delivered significant improvement in lighter contrast areas, with the increased white ink usage delivering a higher opacity background.

In closing, the Roland DG TY-300 represents formidable competition in the tightly contested 10–20 m²/hr market segment, backed up by the Roland DG brand across the other supplies for greater piece of mind.

NOV 2025

TECHNOLOGY HIGHLIGHTS

HOT SWAP WHITE INK

The device includes four white ink cartridges, allowing for hot swapping during print runs. Roland DG promotes this as delivering longer uninterrupted printing lengths and reducing the risk of streaking when a cartridge runs close to end of its yield.


NOZZLE BLOCKAGE COMPENSATION TECHNOLOGY

In the event of a nozzle blockage that cannot be cleared through standard head cleaning, the operator can 'switch off' a portion of the printhead where the affected nozzle resides (the head comprises two zones). While this sacrifices 50% productivity, it allows for continued operation, pending a service engineer visit.

ROLAND DG CONNECT
FLEET / DEVICE MANAGEMENT

This free web-based utility allows operators to view all devices in the company, check the health status of each unit, and update firmware. It also includes a business dashboard. The job accounting feature enables media/film and ink cartridge costs to be stored, allowing for individual job pricing to be generated. In addition, the utility offers a breakdown for total revenue, expense, and profit (job pricing covers supplies costs only) over any customized period.
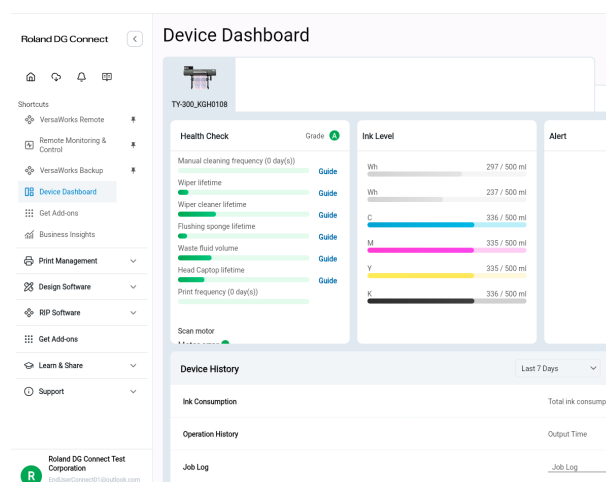
ADVANCED COLOUR MANAGEMENT AND MATCHING

When spot colour replacement is required to get the best possible match, VersaWorks 7 provides a class-leading solution through its Nearest Color Finder. Most RIPs allow for the printing of a selection of patches with slight modifications to the colour makeup. The operator is then required to manually determine which patch is the best fit, whether through visual comparison to a PANTONE swatch book or through use of a spectrophotometer. VersaWorks goes one step further and automates much of this process. It allows the use of a spectrophotometer, table or handheld, with the optimal colour balance selected and stored automatically, which is a real time saver.

Another valuable time-saving feature of the VersaWorks 7 RIP is the Variation Job Function. This enables tiling of printed samples using a selection of different profiles and/or different colour management settings. The operator can review the printed output quickly and select the best sample to be implemented.

PRINT SPEED

Print speed was assessed using a target measuring 540 mm (W) x 450 mm (L). The image was submitted to the device in both production speed mode and highest quality speed mode.

Timings were taken from the moment the printhead started printing the film to the point when the printhead completes printing and has commenced returning to the docking station.

Where multiple film widths are provided for testing, speed analysis shall be conducted on each film with the print speed expressed in m2/hr, based on the film width provided.

Note: Film widths tested below the maximum supported width of the device will show slightly reduced maximum print speeds due to the higher impact of each carriage step versus the carriage width covered.

	Tested Print Speed
Production 6 Pass – 600 x 1200 dpi	10.01 m2/hr
Highest Quality 8 Pass – 1200 x 1200 dpi	4.72 m2/hr

INK CONSUMPTION

Ink consumption was assessed using the graphic shown to the right with 320 mm x 350 mm dimensions. The image was submitted to the device in production and high-quality modes.

If the vendor recommends different quality settings for transfer onto white versus black T-shirts then testing shall be conducted accordingly

Profile for White T-shirt	Production Mode	High Quality
Total CMYK Ink Consumption	1.75 ml	1.80 ml
Total White Ink Consumption	2.57 ml	2.97 ml

Profile for Black T-shirt	Production Mode	High Quality
Total CMYK Ink Consumption	1.83 ml	1.67 ml
Total White Ink Consumption	5.50 ml	8.41 ml

INK CONSUMPTION DURING A CLEANING CYCLE

	Normal	Medium	Powerful
Ink consumed on a full head clean cycle	12.08 ml	22.67 ml	34.08 ml

Vendor Ink Cleaning Cycles: The TY-300 conducts auto cleaning at intervals throughout the day (although the specific frequency is not disclosed). There is no overnight auto-cleaning. Manual cleaning is recommended both before use and at end of each day.

IMAGE QUALITY

All image quality analysis conducted by Keypoint Intelligence is carried out using white and black Next Level 3600 premium 100% combed ring-spun cotton T-shirts, manufactured in a single batch shipment. Jobs are submitted using the vendors recommended settings. Information on settings provided in the Supporting Test Data section at the back of the report.

COLOUR ACCURACY

The Keypoint Intelligence test target containing nine PANTONE spot colours was released to the device, with the RIP set to Spot Colour Matching ON. The printed patches were compared to the PANTONE reference library, with the Delta E00 variance measured using a calibrated XRite Exact spectrophotometer.

Note: a DeltaE00 value of less than 4.0 is typically regarded as a near-perfect visual match.

White T-shirt Colour Matching Measured in **ΔE⁰⁰**

PANTONE Colour	Home Depot 165C	Cadbury 2685C	Walmart 285C	McDonalds 123C	Coca Cola 485C	IKEA 109C	Fedex 363C	UPS 476C	Ford 294C
Production Mode	4.39	10.63	2.09	2.22	3.23	2.09	2.8	4.18	5.75
High Quality Mode	4.26	10.7	2.77	2.37	3.12	1.29	3.4	3.69	5.51

Black T-shirt Colour Matching Measured in **ΔE⁰⁰**

PANTONE Colour	Home Depot 165C	Cadbury 2685C	Walmart 285C	McDonalds 123C	Coca Cola 485C	IKEA 109C	Fedex 363C	UPS 476C	Ford 294C
Production Mode	11.58	11.08	4.43	10.49	7.41	9.47	5.98	3.37	6.14
High Quality Mode	8.22	10.77	3.41	6.84	5.12	5.78	4.17	3.54	5.57

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COLOUR GAMUT

Colour Gamut Analysis

A 400-colour patch profiling target was printed with colour matching disabled. The patches were read using an Xrite i1iO table/ES 2000 spectrophotometer with XRite's Color Profiler software to create an icc profile. The icc profile was assessed using Chromix ColorThink software to determine the CIE colour gamut volume measurements. The graphical representations of colour gamut presented below were created using Chromix ColorThink Pro software.

	White T-shirt		Black T-shirt	
	Production	High Quality	Production	High Quality
Colour Gamut (CIE)	341,524	351,868	229,321	284,979

TEXT AND FINE LINES

	White T-shirt		Black T-shirt	
	Production	High Quality	Production	High Quality
Text (Minimum Legible Size)	4	4	6	6
Fine Lines	Very Good	Very Good	Very Good	Very Good

Text and Fine Line Analysis

Visual assessment of the output was conducted with and without magnification. Fonts are assessed using the sans serif Arial font, recording the smallest font size with clear definition. Fine lines and circles are evaluated using a selection of standard laundry symbols with a rating scale from Excellent to Poor.

HALFTONE AND VECTOR GRAPHICS REPRODUCTION

Image quality files were submitted using vendor-recommended settings. Output was visually appraised in a professional D50 light viewing booth by two technicians, who assess the output independently across a range of quality attributes. Scores are assigned using a five-scale rating (Excellent, Very Good, Good, Fair, and Poor).

Halftone Image Targets

White T-shirt		
Halftone Reproduction		
	Production	High Quality
Skin Tones	Good	Good
Memory Colours	Very Good	Very Good
Greyscales	Very Good	Very Good
General Comments	Very good memory colours, with crisp fine detailing and realistic colours. Greyscales were neutral but dark contrast detail were lost. Some skin tones were a little cold. Very smooth light contrast areas, with no graininess.	
Vector Reproduction		
	Production	High Quality
Solids	Very Good	Very Good
Fine Details	Very Good	Very Good
General Comments	Very good solids with vibrant colours, crisp borders between solids, and no graininess in graduations.	

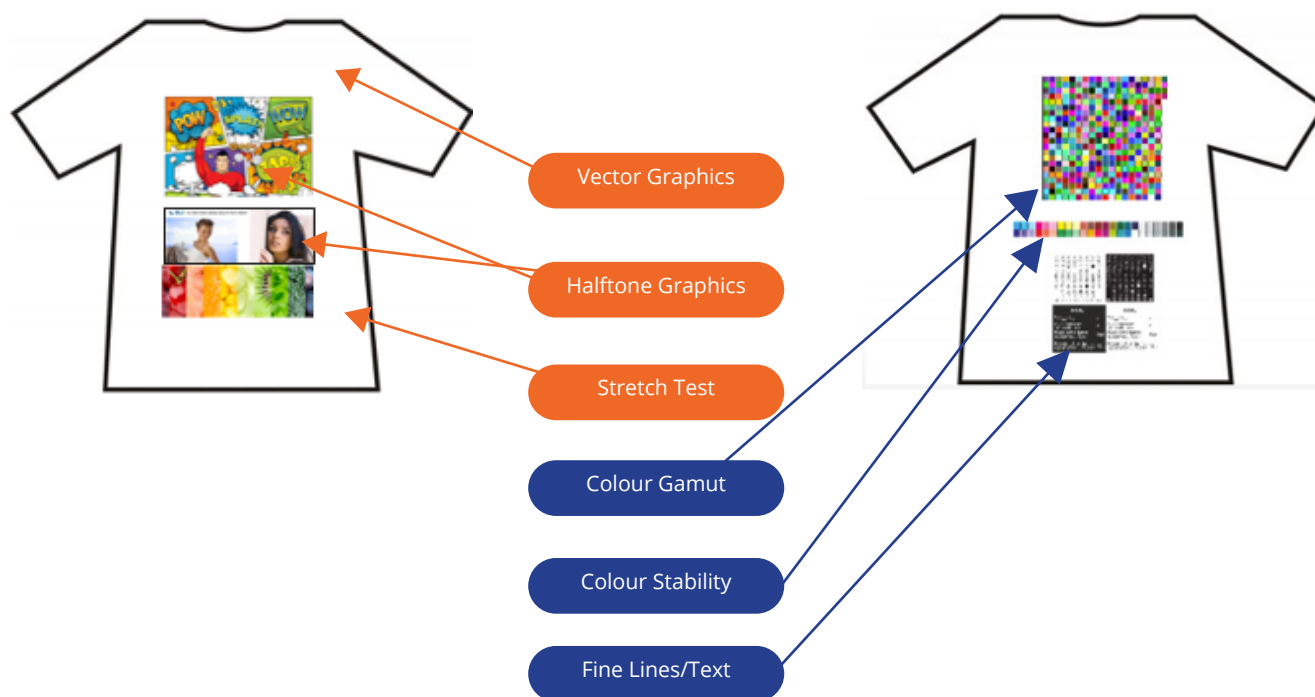| Black T-shirts		
Halftone Reproduction		
	Production	High Quality
Skin Tones	Good	Good
Memory Colours	Very Good	Very Good
Greyscales	Very Good	Very Good
General Comments	Similar observations apply for dark T-shirts as per white T-shirts. One noticeable comment is that lighter colours are more vibrant in high quality mode, where the higher white laydown provides a better background.	
Vector Reproduction		
	Production	High Quality
Solids	Very Good	Very Good
Fine Details	Very Good	Very Good
General Comments	Same observations for dark T-shirts as per white T-shirts, with higher impact seen with lighter colours in high quality mode.	

Vector Image Targets

WASHABILITY PERFORMANCE

Washability testing was conducted using two apparel types: Next Level 3600 100% cotton white and black T-shirts. Tests were conducted with the device printing in production mode with two presses. Garments were washed inside out using a Hoover H-Wash 300 H3W 410TAE 10Kg washing machine, at 30ºC using Proctor & Gamble's Fairy non bio detergent. They are then dried between each wash in two formats, 1) using a Candy CSE H8A2LE 8Kg heat pump tumble dryer set to 'hang dry' setting, and 2) air dried on hangers. The impact of washing on garment quality over five, 10, 15, and 20 wash/dry cycles was assessed across a range of quality attributes, comparing back to the garment prior to the first wash/dry cycle.

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Vector Graphics

Halftone Graphics

Stretch Test

Colour Gamut

Colour Stability

Fine Lines/Text

Note:

Keypoint Intelligence's washability test performance should NOT be compared against results quoted by vendors based on AATCC or other standards. Such standards may be limited to assessing one parameter (colour fastness alone) or use different test parameters for washing and drying and can greatly influence results. Comparisons should ONLY be conducted within the same test protocol.

COLOUR STABILITY

# of Washes	Colour Stability Results			
	White T-shirt		Black T-shirt	
	Air Dry	Tumble Dry	Air Dry	Tumble Dry
5	0.47	0.06	0.33	0.06
10	0.56	0.70	0.40	0.62
15	0.59	0.73	0.41	0.66
20	0.61	0.74	0.44	0.66

Colour stability was assessed using a 84 patch IDEAlliance ISO12647-7 media wedge. The media wedge was measured using an X-Rite spectrophotometer and colour stability versus the original pre-washed output using EFI Verifier software, recording the mean and max colour shift in DeltaEOO. Note: DeltaE00 is a measure of colour difference. A DeltaE00 of 4 is commonly regarded as being undetectable by the human eye.

TEXT DEGRADATION

Font legibility is assessed throughout the washability test routine. Black fonts are reviewed on white T-shirts, while white fonts are reviewed on black T-shirts.

Assessments are judged by two analysts from a 1-m viewing distance, based on a three-star system (see table to the right).

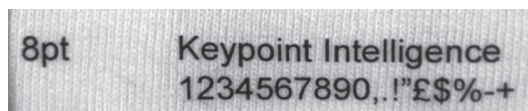Assessments are carried out before washing, and after five,10, 15, and 20 washes .

Text Degradation Scoring System	
8-pt. or less	***
9-11-pt.	**
12-pt. or more	*

# of Washes	Text Degradation Results			
	White T-shirt		Black T-shirt	
	Air Dry	Tumble Dry	Air Dry	Tumble Dry
5	***	***	***	***
10	***	***	***	***
15	***	***	***	***
20	***	***	***	***

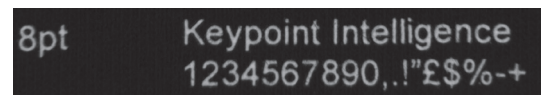8 Point Font in HQ mode with T-seal 2nd Press (Images Enlarged)
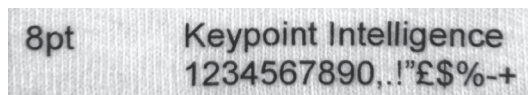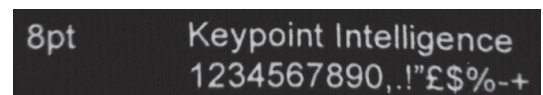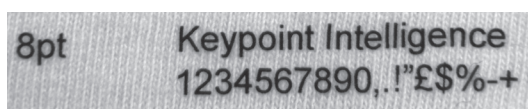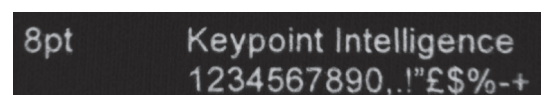
White T-shirt		Black T-shirt
	Pre-Wash	
	20 Washes Air Dry	
	20 Washes Tumble Dry	

HALFTONE AND VECTOR IMAGE DEGRADATION

Halftone and vector graphic quality retention is assessed throughout the washability test routine.

Assessments are judged by two analysts from a 1-m viewing distance, based on a three-star system (see table to the right).

Assessments are carried out before washing, and after five,10, 15, and 20 washes.

| Graphics Degradation Scoring System	
No Degradation	***
Minor Degradation (still suitable for wearing in public)	**
Major Degradation (unsuitable for wearing in public)	*

# of washes	Graphic Degradation Results			
	White T-shirt		Black T-shirt	
	Air Dry	Tumble Dry	Air Dry	Tumble Dry
5	***	***	***	***
10	***	***	***	***
15	***	***	***	***
20	***	***	***	***

Images in Production Mode with 2nd Press (Images Enlarged)

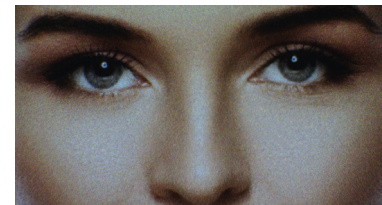| White T-shirt		Black T-shirt
	Pre-Wash	
	20 Washes Air Dry	
	20 Washes Tumble Dry	

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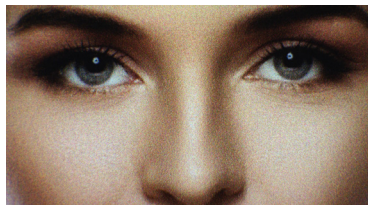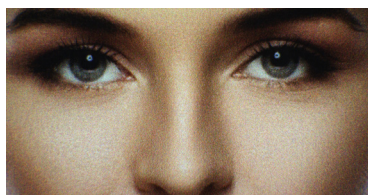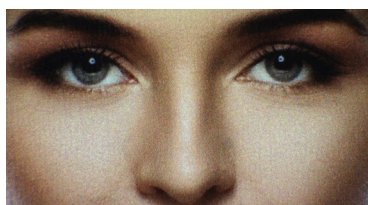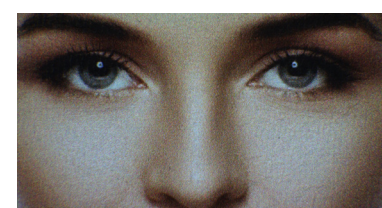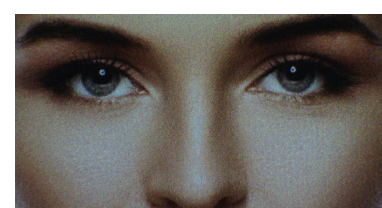
STRETCH RESISTANCE

Ink elasticity is assessed throughout the washability test routine using both halftone and solid graphics. Stretch testing was conducted on black T-shirts, with a 150% stretch applied using clamps and a set weight over 10 seconds in a horizontal orientation (parallel to shoulders). Images are taken with a 115% stretch applied, simulating modest stretch during wearing. Stretch tests are conducted after 10 and 20 washes.
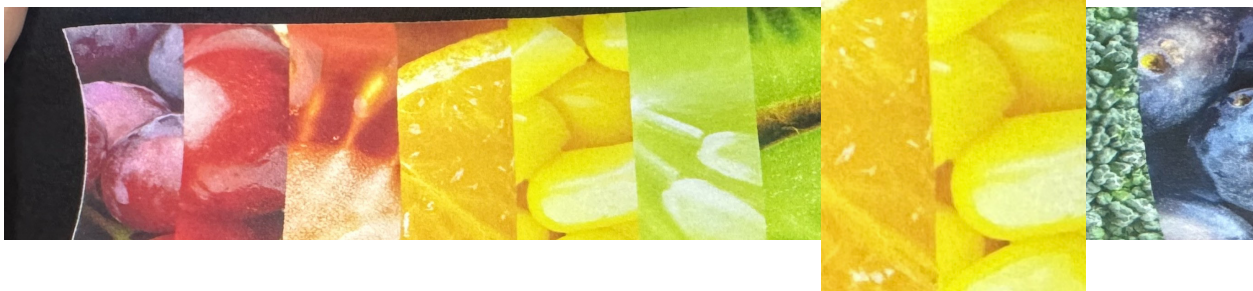
Stretch Degradation Scoring System	
No Degradation	***
Minor Degradation (reduced fluorescence)	**
Major Degradation (No fluorescence)	*

Stretch Degradation Results		
# of washes	Air Dry	Tumble Dry
10	***	***
20	***	***

Images in Production mode (images enlarged)

20 Washes Air Dry

20 Washes Tumble Dry

COLOUR GAMUT SHRINKAGE

# of Washes	Colour Gamut Shrinkage Results			
	White T-shirt		Black T-shirt	
	Air Dry	Tumble Dry	Air Dry	Tumble Dry
10	4%	4%	4%	2%
20	6%	6%	5%	5%

Colour gamut shrinkage was assessed using a 400 colour patch IT8 profile target. The target was measured with an X-Rite spectrophotometer using XRite Profilemaker to create an icc profile. The resulting icc profile was then assessed using Chromix ColorThink Pro software to determine the colour gamut size expressed as a CIE volume. The CIE volume after each set number of wash cycles was compared versus the original pre-washed output to determine gamut shrinkage.

SUPPORTING TEST DATA

Device Speed Modes Used For Test	
Production Mode – White	600 x 1200 6pass
High Quality Mode – White	1200 x 1200 8pass
Production Mode – Black	600 x 1200 6pass
High Quality Mode – Black	1200 x 1200 8pass

Recommended Cleaning Procedure	
Cleaning Frequency	The TY-300 conducts auto cleaning at intervals throughout the day (although the specific frequency is not disclosed). There is no overnight auto-cleaning. Manual cleaning is recommended before and at end of each day
Clean Cycle Used	Medium

Powder / Cure and Image Transfer Settings	
Feed Speed	3-5 mins in oven
Pre-Heat Temp	INA
Heat Temp	135ºC
First Film Transfer Setting	150ºC press on med pressure/300Kg for 20 seconds
Second Press Setting	150ºC press on med pressure/300Kg for 10 seconds

About Keypoint Intelligence

For over 60 years, clients in the digital imaging industry have relied on Keypoint Intelligence for independent hands-on testing, lab data, and extensive market research to drive their product and sales success. Keypoint Intelligence has been recognized as the industry's most trusted resource for unbiased information, analysis, and awards due to decades of analyst experience. Customers have harnessed this mission-critical knowledge for strategic decision-making, daily sales enablement, and operational excellence to improve business goals and increase bottom lines. With a central focus on clients, Keypoint Intelligence continues to evolve as the industry changes by expanding offerings and updating methods, while intimately understanding and serving manufacturers', channels', and their customers' transformation in the digital printing and imaging sector.