

To maximize the quality of TORELIEF

Exposure process

< Check the following before the plate-making shift >

- Warm up the exposure unit (especially on cold mornings)

→ For consistent UV output and image reproduction

* Warm-up the exposure unit before use, for about 10 minutes, making sure the operating temperature in the exposure unit is between 25-30 degrees C / 77 -86 degrees F.

- Check the optical density of the negative film.

→ For sharp relief shoulder and ease-of-washout

* Use negative film with O.D over 40 (ideally 5.0)

- Check for various light-leaking and assure correct UV filtering for room lighting in place

→ To avoid unexpected left-over relief

* Be careful not to be exposed by leaking light.

< Check the following just before the exposure process >

- Completely remove any dust

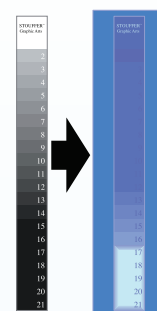
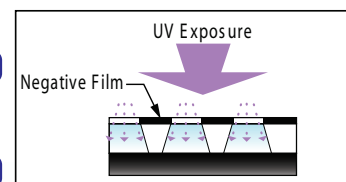
→ To prevent "pin-holes" on plates

* Make sure there is no dust or liquid on the plate, negative film or diffusion sheet

- Maximize vacuum

→ To ensure sufficient and uniform relief shoulder

* Squeeze out air using a Toraystick and bleeder strips (recommended)



Washout process

< Check the following before the plate-making shift >

- Sufficient amount of water in the unit

→ To avoid uneven washout

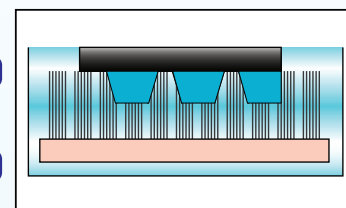
- Confirmation of correct water temperature in unit

* Fill water over the top of the brushes (if you are using a stacker-type processor)

- Quick wiping off

→ To avoid left-over residue on plate and bent relief

* Rinse and blot excess water off the plate as soon as the washout is completed.



Drying process

< Check the following before the plate-making shift >

- Confirmation of the temperature in the unit

→ To avoid bent relief and bad registration

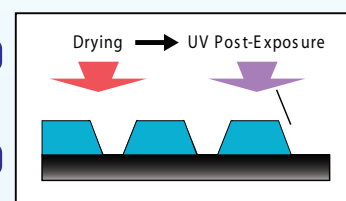
* Check that the temperature is 50 - 60 degrees C / 120 - 140 degrees F and that the air blows properly

< Check the following just before the drying process >

- Separation of post exposure process

→ To avoid shallow reverse image and plate-cracking

* Do not post expose during drying process, which will produce a shallower reverse image



Others

- Storage condition of unexposed plate (raw material)

→ To avoid insufficient washout and cover-film peeling

* Keep a low storage temperature (below 25 degrees C / 77 degrees F) and humidity (below 50% RH)

- Assurance of the right temperature of the unexposed plate

→ To avoid less photosensitivity and less reproducibility

* Ensure unexposed plate is at room temperature before exposure

- Check plate photosensitivity

→ To avoid over - (or under) exposure

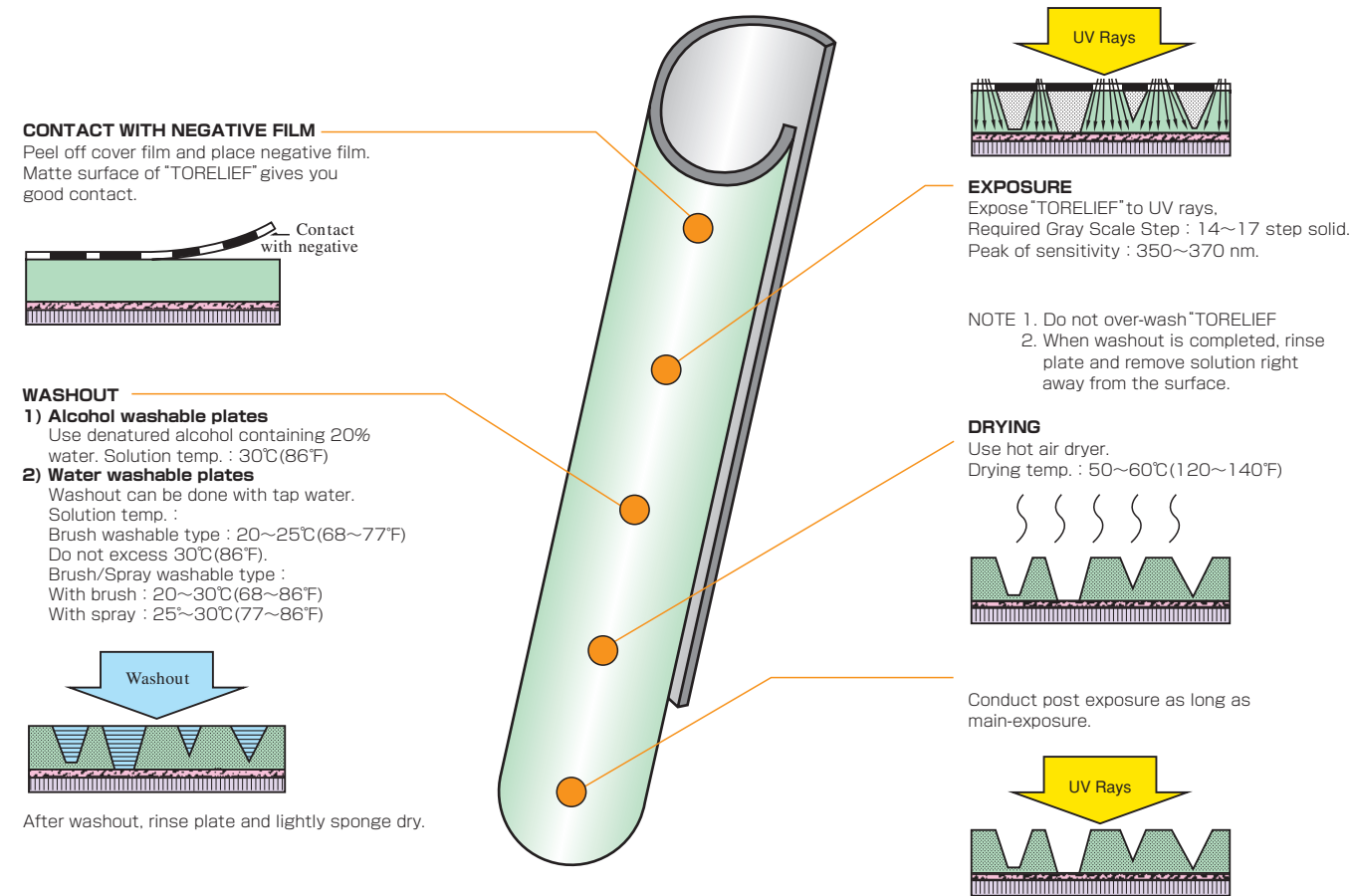
* With a step-guide, for each new lot number received

- Check the washout time

→ To avoid over - (or under) washing

* For each new lot number received

■ Plate Making



■ Typical Plate Making Parameters

Fast and easy plate-making is one of the advantages of TORELIEF plates. The following date help you to have an idea for TORELIEF plate-making. *1

TYPE	Exposure Time(min.)	GS Steps *2	Washout Time(min.) *3	Drying Time(min.) *4	Post-eex. Time(min.)
WF95DY3	3~5	15~17	2.0~3.0	10	2~4
WF95DII	4~6	15~17	2.5~3.5	10	4~6
WS73HY3	3~5	15~17	1.5~2.5	10	2~4
WS73HII	4~6	15~17	2.0~3.0	10	4~6

*1 Using Toray Stacker Type Plate ProcessorTTW-L II

*2 Gray Scale : Stouffer 21 step sensitivity guide

*3 Water temperature at 20~25°C(68~77°F)

*4 Drying temperature at 50~60°C(120~140°F)

TORAY

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This brochure is printed with Toray Waterless Plate.
Printed in Japan

TORAY

※Before use, read M.S.D.S. and the operation manuals.

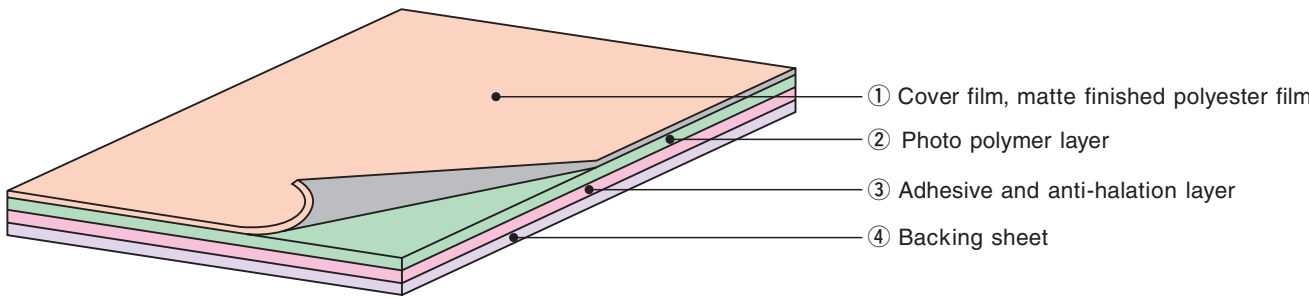


Incomparable Quality
Wide Variety

TORELIEF®

High Performance
Environmentally Friendly

Structure of TORELIEF



Features of TORELIEF

- 1 **Incomparable image reproduction**
Its excellent image reproduction assures constant higher quality printing.
- 2 **Good contact with negative film**
Matte finished surface of TORELIEF ensures a good contact between the plate surface and a negative film.
- 3 **Easy and fast plate-making process**
TORELIEF is an easy and fast plate to make with its quick exposure and quick washout properties.
- 4 **Color change for easier inspection**
TORELIEF W type plates feature color change by exposure, for easier plate inspection and mounting.
- 5 **Environmentally friendly**
All TORELIEF plates are made of environmentally friendly ingredients and require no chemicals in processing.
- 6 **Superior ink receptivity**
TORELIEF plates, especially soft and flexible BS, SS & U plates have superior ink receptivity which stands out among the competition and makes them ideal for business form and varnishing applications.
- 7 **Higher durability**
Due to tough & abrasion resistant polymer being used as one of its main components,TORELIEF features an extra long printing life.

Wide Variety of Plate Types

TORELIEF has a variety of plate types which enables you to choose a plate type best suited for your application. TORELIEF has four major types classified by different polymer characteristics.

- **N Type(Alcohol Washable Plates)**
Its tough & abrasion resistant polymer assures an extra long printing life.
- **Y3 Type(Water Washable Plates, both spray & brush washable)**
Its high resolution capability achieves very fine screen jobs and extra long life in printing.
- **W TYPE(Water Washable Plates-brush washable)**
Its unique polymer, water softened and brush washed, offers extremely wide plate making latitude for optimum reproduction.
Its light reactive color change during exposure, provides easy inspection of relief content before processing.

TORELIEF Plate Line-up

TYPE	Base material	Thickness				Hardness Shore D	Relief Reproduction			Typical Application	
		Total mm	in	Relief mm	in		Half Tone	Minimum isolated dot	Narrowest Line		
N	CS43NT	Steel	0.43	.017	0.21	.008	65°	150L(3~95%)	200μm	40μm	Dry offset
	CS73NKX		0.73	.029	0.46	.018					
	CS83NKX		0.83	.033	0.56	.022					
	CS95NKX		0.95	.037	0.68	.027					
W	WF95CHII	Polyester film	0.95	.037	0.55	.022	70°	175L(1~95%)	150μm	40μm	Crush Printing
	WF80DHII		0.80	.031	0.50	.020	65°	175L(1~95%)	150μm	40μm	Label Printing
	WF95DHII		0.95	.037	0.65	.026					
	WF50II		0.50	.020	0.35	.014	55°	175L(3~95%)	200μm	40μm	Label Printing
	WF70II		0.70	.028	0.45	.018					
	WF80II		0.80	.031	0.55	.022					
	WF95DII		0.95	.037	0.65	.026					
	WF95II		0.95	.037	0.70	.028					
	WF95BII	Polyester film	0.95	.037	0.73	.029					
	WF70BSIIN	Polyester film	0.70	.028	0.55	.022	30°	150L(5~95%)	200μm	50μm	Business Forms
	WF95BSIIN		0.95	.037	0.73	.029					
	WF95SS3	Polyester film	0.95	.037	0.73	.029	22°	150L(5~95%)	200μm	50μm	Business Forms & Varnishing
	WF95ESS3		0.95	.037	0.80	.031					
	WF152U	Polyester film	1.52	.060	1.30	.051	20°	150L(5~95%)	200μm	50μm	Spot carbon, Varnishing & Packaging
WF170U	1.70		.067	1.48	.058						
WF200U	2.00		.079	1.78	.070						
WS30HII	Steel	0.30	.012	0.20	.008	65°	175L(1~95%)	150μm	40μm	Dry offset	
WS43HII		0.43	.017	0.21	.008						
WS58HII		0.58	.023	0.31	.012						
WS73HII		0.73	.029	0.46	.018						
WS83HII		0.83	.033	0.56	.022						
WS95HII		0.95	.037	0.68	.027						
WS100SS3		1.00	.039	0.80	.031	22°	150L(5~95%)	200μm	50μm	BusinessForms& Varnishing	

TYPE		Base material	Thickness				Hardness Shore D	Relief Reproduction			Typical Application
			Total		Relief			Half Tone	Minimum isolated dot	narrowest Line	
			mm	in	mm	in					
Y 3	WF80Y3	Polyester film	0.80	.031	0.55	.022	55°	200L(1~95%)	120μm	40μm	Label Printing
	WF80DY3		0.80	.031	0.50	.020					
	WF95DY3		0.95	.037	0.65	.026					
	WF175MY3		1.75	.070	1.25	.049					
	WS73HY3	Steel	0.73	.029	0.46	.018	65°	200L(1~95%)	120μm	40μm	Dry offset
	WS83HY3		0.83	.033	0.56	.022					
	WS95HY3		0.95	.037	0.68	.027					
	WS73FHY3		0.73	.029	0.56	.022					
	WS43HY3		0.43	.017	0.21	.008					
	WS58HY3		0.58	.023	0.31	.012					
WS152HY3	1.52		.060	1.25	.049						

Remarks:
1)Please consult with your local TORELIEF distributor or with us for the best suitable plate type(s) for your application.
2)Other special types are available upon demand.
3)The above mentioned data of relief reproduction were measured in our laboratory. They may differ from your measurements. Your local TORELIEF distributor will assist you in order to realize the best plate-makings at your facilities.

Plate Storage

- Unopened boxes of TORELIEF should be stored in cool & dark place.
- Inked plates should be cleaned with hydrocarbon solvent such as kerosene.
- Processed plates of polyester film based TORELIEF should be stored in a cool, dark place, rolled, with the relief surface “outside” wrapped with clean protective cover film. (Recommended humidity 50~70%).

TORELIEF Plate Making Units

●**Stacker Type Plate Processor TTW-LIIseries are available from us.**

Model	The max. plate size for the unit
TTW 350LII	350×480mm
TTW 500LII	500×700mm

●**Filtrstion units for waste water are also available.**

●**Please contact us for more details.**

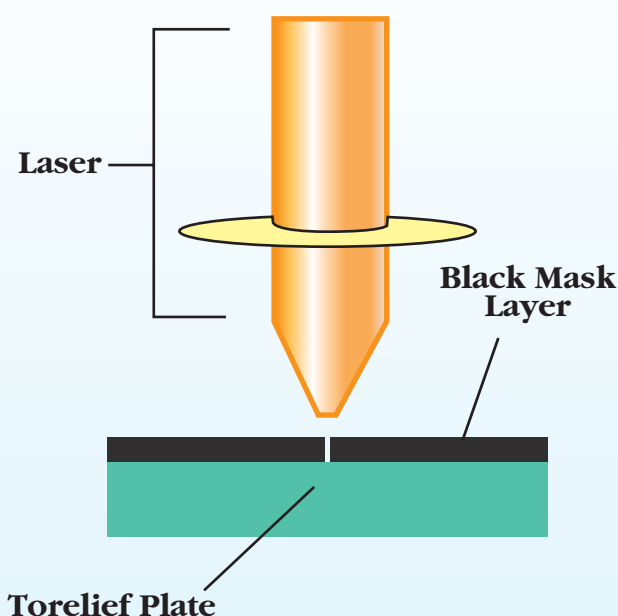
High Quality
Quick Plate Making

TORELIEF® CTP LETTERPRESS PLATE

Cost Effectiveness
Environmentally Friendly

Laser Ablation Mask System CTP

The next generation of TORELIEF Photopolymer plate technology has been incorporated into the Toray family of digital letterpress plates. The perfect combination of "CTP Technology" and "TORAY Highpolymer Technology" enables TORELIEF CTP to achieve the highest quality print.



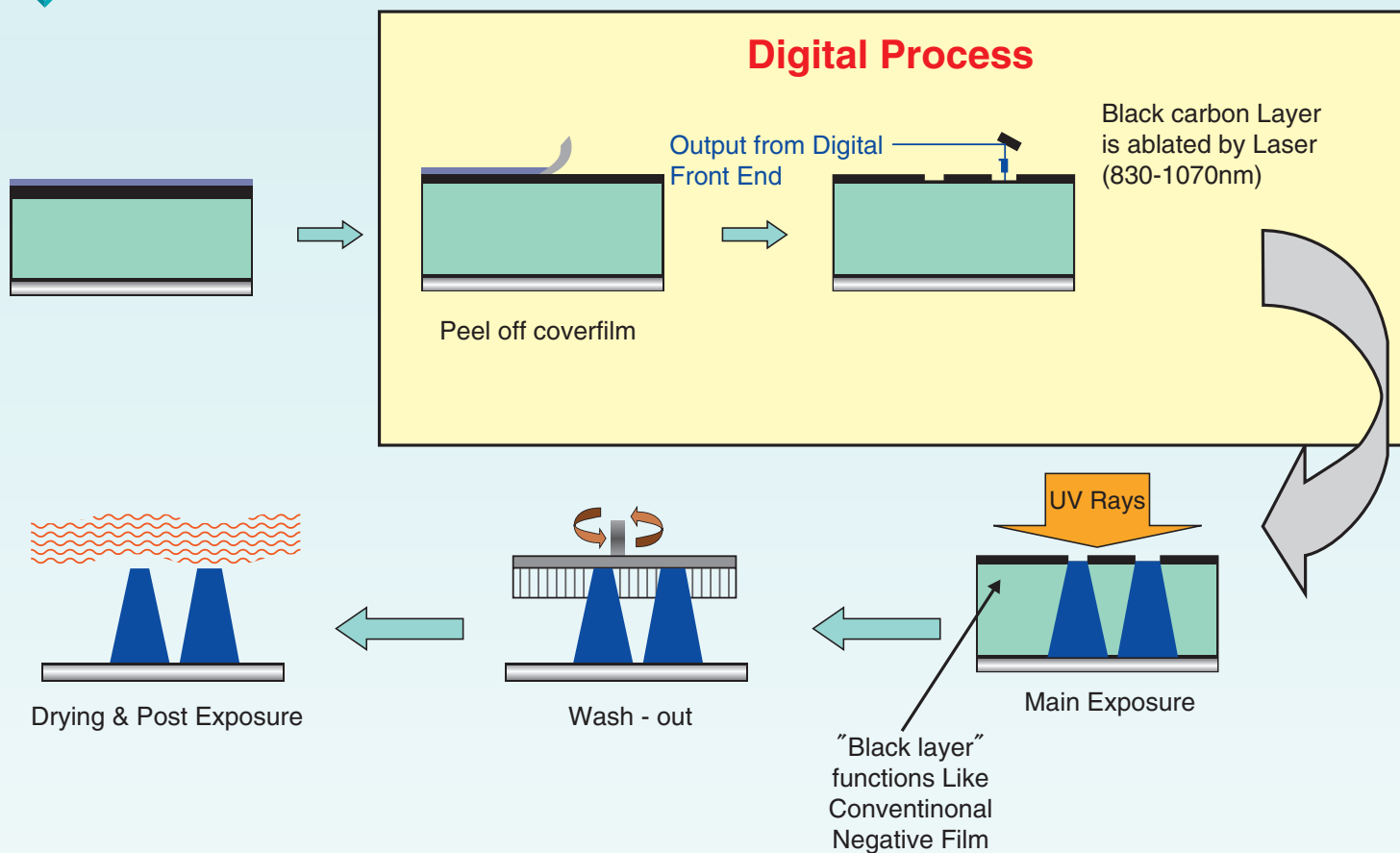
Major Characteristics :

- 1) Very fast imaging speed
-Highly Sensitive Laser Ablative Mask-
- 2) Sharper Relief Reproduction
-Highly Transparent Polymer-
- 3) Excellent Reproduction in Highlight Dot
-Self-Reactive Polymer-
- 4) Deeper Reverse Image
-Wider Exposure Latitude-

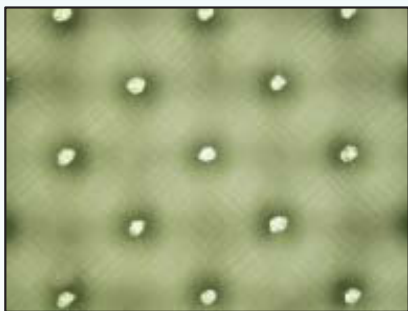
Specifications:

	DWF 80	DWF 95	DWS 73	DWS 83	DWS 95	DWS 73F
Total thickness	0.80(0.031)	0.95(0.037)	0.73(0.029)	0.83(0.033)	0.95(0.037)	0.73(0.029)
Relief depth	0.50(0.020)	0.65(0.026)	0.46(0.018)	0.56(0.022)	0.68(0.027)	0.56(0.022)
Base	Polyester film		Steel (0.25mm/0.01inch)			(0.15mm / 0.007inch)
Hardness	Shore D 55°		Shore D 65°			
Wash- out	Water/by Brush					
Usable Laser	Fiber Lasers,IR Laser/Wavelength=830-1070nm					
[Image Reproduction]						
Screen Range	1%～98% at 200L/inch					
Minimum Dot Size	φ 100 μ m(0.004)					
Minimum Fine Line	20 μ (0.008)width					
Reverse image in 300μmwidth	100 μ m(0.040)					
Reverse image in 100μm width	40 μ m(0.016)					

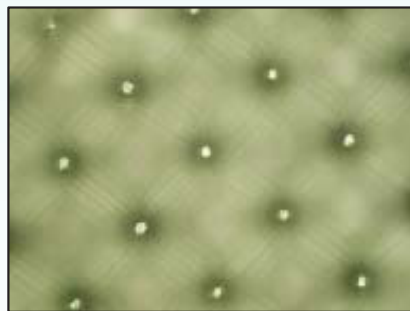
◆ TORELIEF Digital Plate Making Process



Picture of 3% dot at 175 lpi:

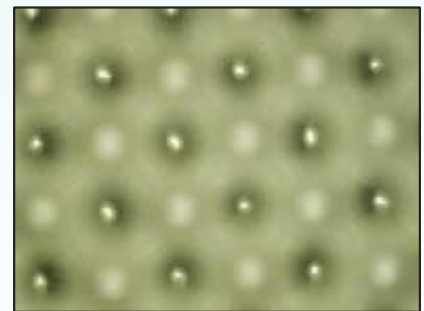


Analogue 3% 175 lpi
WF80DY3:26 μ m



Analogue 1% 175 lpi
WF80DY3:14 μ m

CTP
⇒



Digital 3% 175 lpi
DWF80:12 μ m

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Innovation by Chemistry

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