LINTEC Corporation *Linking your dreams*

Adwill

will give you the Advantage

Tape x Equipment

Adwill

= Adhesion level at will

Adwill is LINTEC's product series for semiconductor-related adhesive tapes and equipment.

The unique advantage of using Adwill products is the power to create comprehensive solutions by combining expertise in "**Tape x Equipment**".

The Adwill portfolio includes UV-curable dicing tapes, high performance back-grinding tapes, dicing die-bonding tapes, backside coating tapes and corresponding equiment.

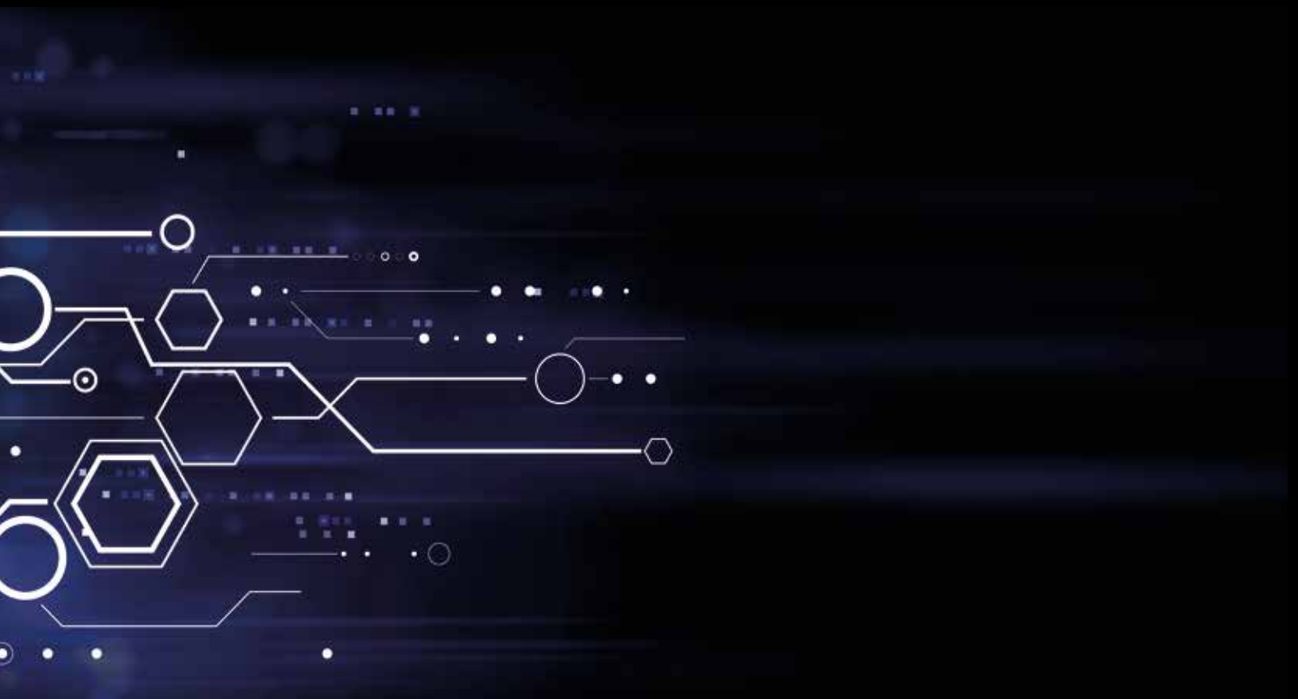


Table of Content

01 LINTEC SUSTAINABILITY

Reducing CO_2 emissions 04
Developing environmentally friendly products 05

02 LINTEC PARTNERSHIPS

Information about partnerships 06
Growing together with you 07

03 YOUR TOTAL SOLUTION PROVIDER

Japanese quality for the European market 08
Tape x Equipment 09
8 good reasons for working with us 11

04 TAPES (Adwill series)

D series 14
G series & E series 15
P series & LE series 16
LD series & LC series 17

05 EQUIPMENT (RAD series)

RAD-3500m/12 & RAD-3000m/12 18
RAD-2500m/series & RAD-2010m/12 19
RAD-3520F/12 & RAD-3010F/12 20
RAD-3020F/12 & RAD-2510F/8 21
RAD-2510F/12Sa & RAD-2512F/12 22
RAD-2010F/12 & RAD-2020F/12 23
RAD-2600F/12 & RAD-3600F/12 24

06 SHOWROOM

LINTEC showroom in Munich 25

07 LINTEC NETWORK

Your nearest LINTEC office 26

LINTEC
Sustainability

LINTEC Group has formulated its LINTEC Sustainability Vision 2030 (LSV 2030), envisioning its desired state by 2030, and is accelerating efforts to fulfill its roles and responsibilities as a corporate group in addressing societal issues, including combating global warming.



LINTEC’s commitment to a sustainable future

We‘re excited to share that **LINTEC has submitted a commitment letter to the Science Based Targets initiative (SBTi)**, taking a crucial step towards reducing greenhouse gas (GHG) emissions throughout the supply chain and supporting a carbon-free world.

Aligned with the Paris Agreement‘s goal of limiting global warming to 1.5°C, this commitment underscores our dedication to achieving SBT certification within two years for near-term GHG reduction targets.

Through initiatives like solar power systems, green energy procurement, and innovative technologies like hydrogen and AI-driven energy storage, LINTEC is actively advancing its Sustainability Vision 2030 to tackle global challenges like climate change.

MAIN TARGETS

- Decrease CO_2 emmision by 67 % until 2026 (currently: 51.4 %)
- Decrease landfill waste disposal rate to less than 1 % (currently: 0.47 %)
  (Scope: Japan)

LINTEC Group uses large amounts of raw materials, energy, water, and other materials to manufacture various products. We are working to reduce our environmental impact by installing environmentally friendly equipment, and we develop environmentally friendly products.

We are actively working to decrease CO_2 emissions and energy usage at our production sites by employing various environmentally friendly technologies, including combined heat and power plants, waste heat boilers, and solar power systems. LINTEC Group is dedicated to ongoing efforts in product design, manufacturing formulations, and equipment upgrades to further minimize our environmental footprint.

LINTEC Group is advancing the development of environmentally friendly products in response to the growing environmental awareness and demand due to global warming and pollution of the oceans caused by plastic. The initiatives include the creation of plastic-free products, reusing labeled items, recycling, and energy conservation.

Examples of products that meet various environmental needs

Solvent-less



Solvent-less release paper that does not use environmentally hazardous organic solvents when coating the release agent.

Reduction of plastic



Thick water- and oil-resistent paper can be used as an alternative material to plastic containers for boxed lunches.

Recycling



Label materials that are the same mono-material as PET containers.

Energy conservation



Window film that contributes to energy conservation by improving air-conditioning efficiency in rooms and vehicles.

Curious to delve into how LINTEC approaches sustainability?
Just scan the QR code and let us invite you to our website to uncover the exciting strides we‘re making towards a greener future!

LINTEC
Partnerships

Welcome to our partnership page!
We greatly value collaboration and exchange of knowledge with various organizations, universities and research-institutes and are proud to announce our membership to the following organizations:

GaN Valley™ is an initiative from BelGaN, a leading automotive-certified open GaN foundry, located in Belgium. It encompasses research and innovation, IDMs, fabless companies, GaN foundries, and multi-market customers. GaN Valley™ acurrently counts about 60 members that are active along the GaN value chain, and are located in Europe. With GaN technologies requiring fewer components and leading to more compact devices, GaN Valley™ is setting new standards in the semiconductor industry.

It is an exciting and forward-looking field that could revolutionize the way we use electronics.

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The Bavarian Chips Alliance is a competence network for the semiconductor industry in Bavaria, founded in June 2022. It aims to promote exchange and collaboration among partners in the semiconductor value chain, as well as with science and users. The Alliance supports the international positioning of Bavaria as a location for the semiconductor industry.

It organizes various events and activities to promote the economic location of Bavaria in the semiconductor sector.

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GROWING TOGETHER WITH YOU



Our commitment to quality and innovation knows no bounds! We are always open to discuss progressive ideas, new materials or pioneering processes to further elevate our level of performance.

If you would like to exchange knowledge with us or ask for our support in evaluating new concepts or samples, please do not hesitate to contact us.

We are excited about the opportunity of achieving great things and growing together with you!

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Moving on to a new chapter in technology together!

LINTEC

Your total solution provider for the semiconductor back-end production

JAPANESE QUALITY TAILORED TO EUROPEAN DEMANDS

LINTEC Advanced Technologies (Europe) GmbH was officially incorporated on October 1, 2003, as a wholly owned subsidiary of LINTEC Japan. Due to the rapidly growing local market, the then existing office decided it could better serve its customers with customized high quality products and best possible service by operating as a local entity with its own sales and technical service teams.
Since then, as a total solution provider to the European market, LINTEC offers adhesive tapes and equipment as a complete package – Japanese quality, tailored to European demands.
At LINTEC, everything happens under one roof – from R&D to design, technical consulting and finally to production in our own facilities.

Located in the heart of Europe, the equipment and tape engineering teams of LINTEC Advanced Technologies (Europe) GmbH stand-by for extremely short response times.
In case of machine downs, trouble shooting, maintenance or repairs, our Field Support Engineers can be in your fab as early as tomorrow, ready to assist you in solving your problems.
Our tape specialists are ready to support you with tape trials or analysis on site and will help to fine-tune your process.

LINTEC's Advanced Materials Group for semiconductor-related products has various production sites in Asia, providing high quality products:

Japan:
- Materials R&D: LINTEC R&D Center – Saitama, Japan
- Equipment R&D and production: Ina Technology Center – Saitama, Japan
- Adwill tape production: Agatsuma Factory – Gunma, Japan

Korea:
- Adwill tape production: LINTEC Korea – Cheongju, Korea

Taiwan:
- Adwill tape slitting: LINTEC Taiwan – Kaohsiung, Taiwan



LINTEC R&D, Saitama, Japan



Agatsuma Factory, Gunma, Japan

The Synergy of Adwill
Our solution is Tape x Equipment

Tape x Equipment: By integrating high-performance tapes with advanced equipment, we maximize quality and efficiency across various aspects of semiconductor production. This synergy ensures consistent quality and enhanced productivity, keeping pace with the ever-evolving manufacturing landscape.

Adwill is LINTEC's product series for semiconductor-related adhesive tapes and equipment. The unique advantage of using Adwill products is the power to create comprehensive solutions.

The Adwill portfolio includes UV-curable dicing tapes, high performance back-grinding tapes, dicing die-bonding tapes, backside coating tapes and corresponding equipment.

Adwill
will give you the Advantage

Our machine line-up is also part of the Adwill product line. Each machine model runs under the series designation RAD-XXXX. "RAD" originates from the term "Irradiation". LINTEC's very first semiconductor equipment ever developed was a UV irradiation system. The name "RAD" was derived from irRADiation. Subsequent machines were therefore simply also named using "RAD".

RAD

Semiconductor-related equipment (Lamination, Peeling, Mounting, UV-Irradiation)





8 GOOD REASONS FOR WORKING WITH US

1 We are a total solution provider for the semiconductor back-end production
We have Tape x Equipment in our product portfolio.

2 Very short response times
Located in the heart of Europe, with offices in Munich and Dresden, we are always right by your side to support you with high quality products, premium customer service and very short response times.

3 Everything under one roof
From R&D to design to consulting to production - all under LINTEC responsibility.

4 Our machines are state-of-the art and customizeable to an extreme extent
Despite 99% of our machines are one-of-a-kind, we also offer off-the-shelf solutions.

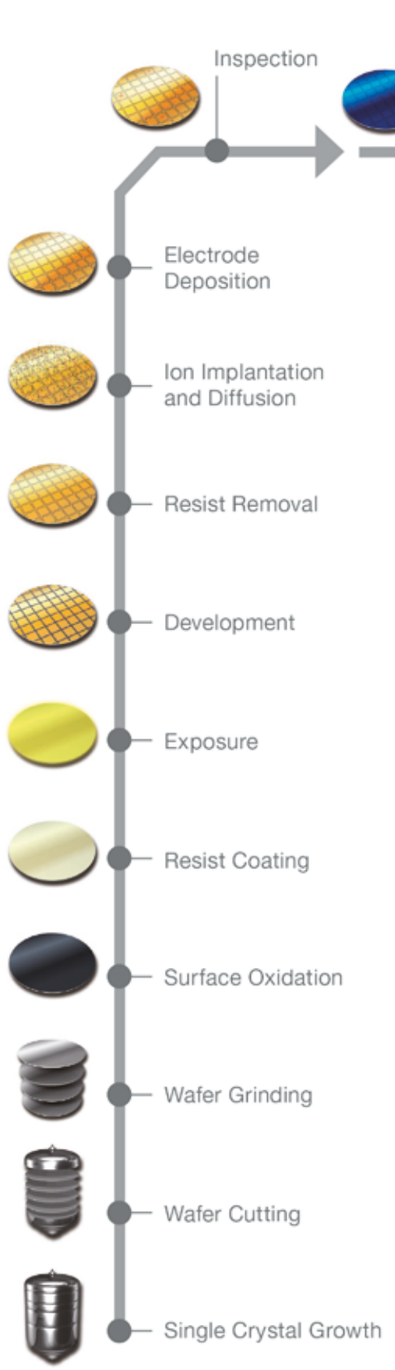
5 We offer a broad portfolio of tapes
Solutions for dicing, grinding and packaging, covering all areas, from mass production to niche requirements.

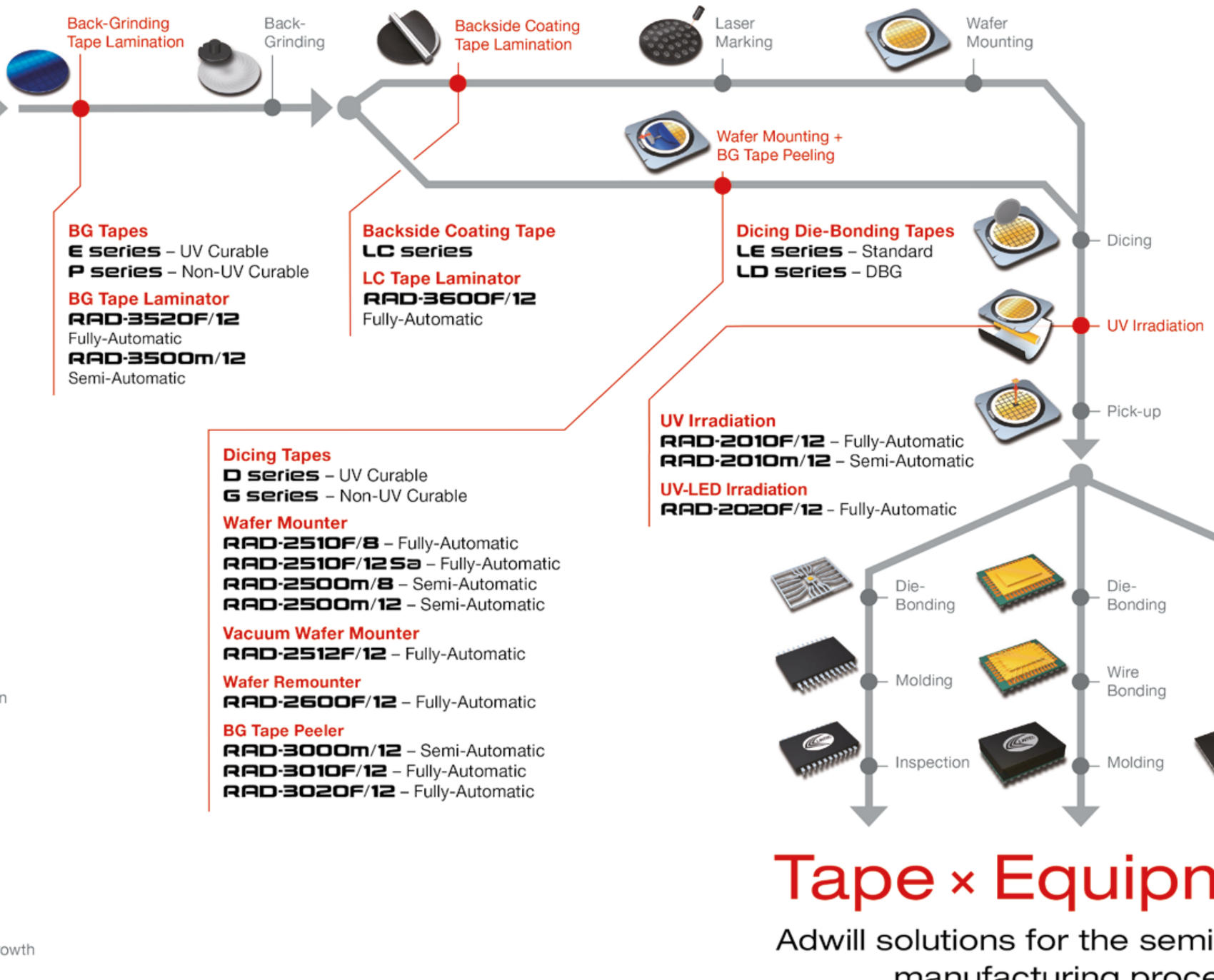
6 We are a technology-driven company with extensive expertise and years of experience
Our Tape x Equipment is installed and running in every modern fab in Europe.

7 Environmental activities
We pledge to set and submit targets in line with "SBTi" – standards for corporate greenhouse gas emission reduction.

8 See for yourself on site - in our demo room
Get the look and feel of our machines on site before you make important decisions.
The equipment in our demo-room can also be used for training and process development.

Adwill Tape x Equipment





BG Tapes
E series – UV Curable
P series – Non-UV Curable

BG Tape Laminator
RAD-3520F/12
Fully-Automatic
RAD-3500m/12
Semi-Automatic

Backside Coating Tape
LC series

LC Tape Laminator
RAD-3600F/12
Fully-Automatic

Dicing Die-Bonding Tapes
LE series – Standard
LD series – DBG

Dicing Tapes
D series – UV Curable
G series – Non-UV Curable

Wafer Mounter
RAD-2510F/8 – Fully-Automatic
RAD-2510F/12Sa – Fully-Automatic
RAD-2500m/8 – Semi-Automatic
RAD-2500m/12 – Semi-Automatic

Vacuum Wafer Mounter
RAD-2512F/12 – Fully-Automatic

Wafer Remounter
RAD-2600F/12 – Fully-Automatic

BG Tape Peeler
RAD-3000m/12 – Semi-Automatic
RAD-3010F/12 – Fully-Automatic
RAD-3020F/12 – Fully-Automatic

UV Irradiation
RAD-2010F/12 – Fully-Automatic
RAD-2010m/12 – Semi-Automatic

UV-LED Irradiation
RAD-2020F/12 – Fully-Automatic

Tape × Equipment

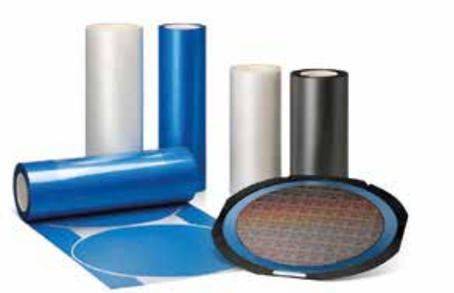
Adwill solutions for the semiconductor manufacturing process

Tapes Adwill series

D series — UV Curable Dicing Tape

Adwill D-Series is an epoch-making line of UV curable dicing tapes whose features can be changed in accordance with operational processes. The tape's strong adhesion secures wafers during dicing and is then reduced by UV irradiation to facilitate pick-up. D-Series tape is essential for high quality full-cut wafer dicing and is fully applicable to dies of multiple sizes.

- Secures wafers with strong initial adhesion to ensure dicing without any slipping or peeling – even for small dies
- Supports instant control of adhesion by UV irradition, allowing even large dies to be picked up easily
- Causes no contamination by metal ions or adhesive residues on the wafer backside surface, as well as no adverse UV irradiation effects on IC chips



Application	Feature	Base Material	Tape Name
Si Wafer	Standard	PVC	D-175D* / D-176D
Compound Semiconductor (SiC, GaN, etc.)		PO	D-489H / D-675C / D-686H / D-670C
	Heat Resistant	PO	D-435T / D-436
	Antistatic	PVC	D-820
		PO	D-850T(S) / D-830J / D-879H
	High Adhesion	PVC	D-171D / D-171WD
		PO	D-611 / D-611H
	RoHS 2 Compliant PVC Basefilm	PVC	D-171D / D-175D* / D-176D / D-171WD
Glass / Ceramics	Standard	PET	D-210NC / D-241 / D-218 / D-203(S)
		PO	D-841
Package Substrate	Standard	PO	D-510TC
	Antistatic	PO	D-825W / D-841 / D-847W / D-896W
Stealth Dicing	Singulation by Expansion	PVC	D-176D
		PO	D-678
	Singulation by Expansion / Through Tape Laser	PVC	D-821HSD
		PO	D-455H / D-458J
Laser Dicing	Full-Cut Laser	Special Elastomer	D-765
Wafer with LC Tape	Standard	PO	D-676C / D-676HC / D-686H
TAIKO® Wafer	Standard	PVC	D-176D / D-171D
		PO	D-485H / D-485W
Plasma Dicing	Standard	PO	D-485H / D-611 / D-611H / D-686H

G series — Non-UV Curable Dicing Tape

The Adwill G-Series includes non-UV curable but easily removable dicing tapes. With this type of tape, adhesive strength remains stable after wafer mounting. Using a film with superb flexibility and expansion characteristics, the tape also has outstanding expandability. It can be used with dies of multiple sizes and is most reasonable in terms of cost-performance.

Application	Feature	Base Material	Tape Name
Si Wafer	Standard	PVC	G-260H / G-36B
Compound Semiconductor (SiC, GaN, etc.)		PO	G-64 / G-64H
	Full-Cut Laser	Special Elastomer	G-967 / G-965 / G-765
	RoHS 2 Compliant PVC Basefilm	PVC	G-11D / G-19D / G-370HD
	Antistatic	PO	G-89 / G-83H

E series — UV Curable Back-Grinding Tape

The Adwill E-Series of UV curable back-grinding tapes prevents damage on the wafer surface during back-grinding and contamination caused by grinding fluid and/or debris. Adhesion of E-Series back-grinding tapes is substantially decreased by UV irradiation after grinding, allowing easy peeling without stress on the wafer. This feature makes the series suitable for the processing of thin wafers.

Process	Application	Base Material	Tape Name
Back-Grinding	Standard Grinding (wafer thickness after grinding >75 µm)	PO	E-6142S(S) / E-6142A(S)
	Standard Grinding (wafer thickness after grinding >40 µm)	Special Elastomer	E-8180HR
	Micro Bump (including ink dot)	PO	E-6142A(S) / E-6152B
	Medium Bump (height <100 µm)	PO	E-4230BS
		Special Elastomer	E-8310LS342F / E-8280
	High Bump (height <200 µm)	Special Elastomer	E-9481G-A / E-9486 / E-9487
	Antistatic	PO	E-6130AS
	Compound Semiconductor (SiC, GaN, etc.)	PET Composite	E-3190U
		PO	E-4230BS
		Special Elastomer	E-9486 / E-9487 / E-8280
DBG (Dicing Before Grinding)	Standard		E-3000 series
	Flat structure	PET Composite	E-3100UN / E-3090V / E-3090VAS / E-3100V
SDBG (Stealth Dicing Before Grinding)	Medium Bump (height <20 µm)	PET Composite	E-3165KL
	High Bump (height <60 µm)	PET Composite	E-3190U / E-3281B

Tapes Adwill series

P series — Non-UV Curable Back-Grinding Tape

Adwill P-Series of non-UV curable back-grinding tapes fully protects the wafer surface during grinding and prevents wafer surface contamination from infiltration of grinding fluid and/or debris.

P-Series tapes perform with virtually no residual adhesive after the tape is peeled off, while its highly precise tape thickness accuracy ensures uniform wafer thickness after back–grinding.

Process	Application	Base Material	Tape Name
Back-Grinding	Standard Si Grinding (wafer thick-ness after grinding >75 µm)	PO	P-4140A / P-4205B
		PET	P-2100B
	Thin Si Grinding (wafer thick-ness after grinding >40 µm)	Special Elastomer	P-7125*
	Compound Semiconductor (SiC, GaN, etc.)	PO	P-4140A
		Special Elastomer	P-7181
		PET	P-2100B

LE series — Dicing Die-Bonding Tape

Adwill LE Tape is a high value-adding tape, combining the functions of dicing tape and die-bonding material. Other than die attach paste, it prevents adhesive bleed-out or uneven distribution by transferring the adhesive uniformly onto the backside of the die at pick-up. Adwill LE Tape is particularly suited for die-bonding of thick stacked CSPs.

Processing is also simplified since the same tape can be used in the process from dicing to bonding. Three different types of LE Tape are available for the following applications:

- Die-to-die
- Die-to substrate
- Die-to-die FOW (Film On Wire)



Application	Dicing Method	LE-Layer Thickness	Type	Tape Name
Die-to-die	Plasma, Blade	10 µm	Heat curing	LE04-10
	Plasma, Blade	20 µm	Heat curing	LE5000S
	Blade	20 µm	No Heat curing	LE4424
Die-to-substrate	Plasma	20 µm	Heat curing	LE5000S
FOW (Film On Wire)	Blade	75 µm	Heat curing	LE4777H

LD series — Dicing Die-Bonding Tape

LD series is Adwill's dicing die-bonding tape which is best suited for DBG (Dicing Before Grinding) processes. Highly precise separation of the die-attach layer is achieved by full-cut laser dicing and subsequent grinding.

- Easy pick-up for ultra-thin dies
- Suitable for high density and multi-stacked packages



Application	Dicing Method	LD-Layer Thickness	Type	Tape Name
DBG (Dicing Before Grinding)	Laser	7 µm	Heat curing	LD01D-7

LC series — Backside Coating Tape

Adwill LC Tape was developed as an alternative to liquid mold material. Its function is to protect and reinforce the die backside in applications like Flip Chip, in which the die is mounted onto a substrate from the circuit surface. While protecting and reinforcing the die backside, it also blocks light to minimize damage to the circuit surface. Unlike when coating with liquid mold material, this product is available as a tape, ensuring outstanding uniformity in thickness and allowing the simplification of conventional processes.

Featuring both high quality and stability, the tape has passed reliability tests in environments of high temperature and humidity.

LC Tape is suitable for back-side laser-marking and back-side chipping inspection through tape by using IR.

Marking LINTEC's newest development, latest LC Tape versions are also available in pre-cut format.



Application	Dicing Method	LC-Layer Thickness	Type	Tape Name
IR-Shielding, high reliability	Blade	25 µm, 40 µm	Roll	LC88 Series
	Blade		Pre-Cut	LC88R Series
IR-Transmissive, high reliability	Blade	25 µm, 40 µm	Roll	LC28x6 Series
	Blade		Pre-Cut	LC86R Series



RAD-3500m/12

Semi-Automatic BG Tape Laminator

Compactly designed high-performance BG Tape laminator
Our laminator is suitable for small-lot production in the assembly process, as well as for usage in R&D environments. While capable of handling various wafer sizes up to 300 mm, the equipment‘s compact design also allows effective use of workspace.

Suitable for thin wafers
LINTEC‘s patented TTC* system enables back-grinding tape to be laminated on the wafer without applying stress. Hence, the laminator is able to process also thin wafers down to 300 µm for 200 mm wafers and 400 µm for 300 mm wafers.

Easy to operate semi-automatic process
Once the wafer is placed on the lamination table, back-grinding tape is automatically laminated and cut with simple control inputs.

*TTC (Tape Tension Control) System: The TTC is a cutting-edge system, in which a microcomputer controls tape tension. It enables the tape to be laminated according to the tape type and back-end processing conditions. On the fully-automatic type, tape application torque and torque curve can be set and registered with the equipment‘s touch screen.

Wafer Size	**300 mm, 200 mm, 150 mm**
Equipment Size	**830 mm** (W) x **1,042 mm** (D) x **1,350 mm** (H)



RAD-3000m/12

Semi-Automatic BG Tape Peeler

Compactly designed high-performance BG Tape peeler
Our BG Tape peeler is suitable for small-lot production in the assembly process, as well as for usage in R&D environments. While capable of handling various wafer sizes up to 300 mm, the equipment‘s compact design also allows effective use of workspace.The equipment is able to process both bare wafers and wafers mounted to a ring-frame.

Stable removing of BG Tape
Similar to our fully-automatic peeling equipment, the peeling tape is thermocompressions-bonded to the back-grinding tape within 3 mm of the wafer‘s periphery and then peeled from the wafer in an ideal 180-degree angle. This approach minimizes stress to the wafer and also allows processing of thin wafers down to 300 µm for 200 mm wafers and 400 µm for 300 mm wafers.

Easy to operate semi-automatic process
Once the wafer is set on the peeling table, peeling tape is applied and the back-grinding tape is removed automatically with simple control inputs.

Wafer Size	**300 mm, 200 mm, 150 mm**
Equipment Size	**915 mm** (W) x **1,080 mm** (D) x **1,350 mm** (H)



RAD-2500m/series

Semi-Automatic Wafer Mounter

Semi-automatic mounting system for pre-cut tape
LINTEC’s semi-automatic dicing tape mounter enables easy operation by the use of pre-cut tapes. By simply placing a wafer and frame on the equipment’s table, dicing tape mounting is automatically performed.

Safety-ensured and easy to operate semi-automatic handling
Since our equipment uses no cutting blade, its handling is extremely safe.

Accurate and reliable tape mounting
The equipment’s TTC system enables reliable tape mounting through prevention of air voids and application of controlled and individually adjustable tension for downstream back-end processes.

Reduced footprint and high performance
Achieving highest quality mounting results, LINTEC’s semi-automatic mounter series accommodates the demand for equipment with reliable performance and reduced footprint.

RAD-2500m/series can also be used to mount special package-substrates (*special specifications needed).

RAD-2500m/12	Wafer Size	**300 mm, 200 mm, 150 mm**
	Equipment Size	**671 mm** (W) x **950 mm** (D) x **527 mm** (H)
RAD-2500m/8	Wafer Size	**200 mm, 150 mm, 125 mm, 100 mm**
	Equipment Size	**568 mm** (W) x **850 mm** (D) x **527 mm** (H)



RAD-2010m/12

Semi-Automatic UV Irradiation System

High precision irradiation with constant illuminance
LINTEC’s semi-automatic UV irradiation system offers highly precise and reliable UV-irradiation through optimized illuminance and UV-light intensity control.

Automatic feedback illuminance-control
A built-in sensor enables feedback-control to achieve and maintain constant and uniform UV-lighting output throughout the lamp‘s service life. The system therefore is highly suitable to match requirements for small to medium scale production.

Easy operation with just one button
Our equipment’s central-loading approach greatly facilitates handling and process-stability, while significantly stepping up operational efficiency.

Quick and uniform irradiation of entire surface
Uniform irradiation of the entire surface is assured through utilization of a nitrogen-filled / oxygen-absent chamber. UV irradiation speed can be set individually and in accordance with requirements of the applied UV-sensitive tape.

Wafer Size	**300 mm, 200 mm, 150 mm**
Equipment Size	**870 mm** (W) x **1,080 mm** (D) x **1,185 mm** (H)



RAD-3520F/12

Fully-Automatic BG Tape Laminator

Unique tape lamination capabilities
LINTEC's latest generation BG Tape laminator is equipped with our patented TTC* system to prevent wafer bow or breakage. Capable of using high-precision tensioncontrol during tape-lamination, the equipment substantially reduces stress to thin wafers after back-grinding. Wafer-alignment is performed without contact to the wafer edges, thus reducing the risk of edge cracks.

*TTC (Tape Tension Control) System: The TTC is a cutting-edge system, in which a microcomputer controls tape tension. It enables the tape to be laminated according to the tape type and back-end processing conditions. On the fully-automatic type, tape application torque and torque curve can be set and registered with the equipment's touch screen.

Use of a multi-joint robotic arm
Featuring a multi-joint robotic arm for wafer-handling and tape cutting along 3 axes within the laminator. High-precision cutting profiles can be adjusted to customer processes with accurate control of the cutting angle and can automatically be saved as recipe.

A wide variety of optional functions
RAD-3520F/12 can be equipped with a wide range of optional functions to match specific customer requirements:

- ESD countermeasures
- Various cleaning functions
- Automatic tape-cutter exchange to reduce machine downtime
- High-speed specification for increased throughput

Wafer Size	**300 mm, 200 mm,** 150 mm optional upon request
Equipment Size	**1,245 mm** (W)* x **1,850 mm** (D) x **1,920 mm** (H) *Excluding piping protrusions



RAD-3010F/12

Fully-Automatic BG Tape Peeler

Advanced tape peeling and elimination of damage to wafer circuit surface
The peeling tape is thermocompression-bonded to the back grinding tape within 3 mm of the wafer's periphery and then peeled from the wafer in an ideal 180-degree angle. This greatly reduces the occurrence of residual adhesive, as well as damage to the wafer surface which is usually caused duriwwng application of standard peeling-tape. LINTEC's approach also minimizes stress to the wafer and allows processing of thin wafers down to 200µm for 200 mm wafers and 300µm for 300 mm wafers.

Improved cost and peeling-tape usability
Economical use of peeling-tape consumption is guaranteed, as the same amount of peeling tape is used regardless of wafer size. Contrary to the conventional approach to use pressure-sensitive peeling-tape, LINTEC's idea to use thermal-compression for peeling-tape attachment ensures secure bonding with the back-grinding tape regardless of presence of Silicon dust on the back grinding tape surface after grinding.

Automatic feedback illuminance-control
A built-in sensor enables feedback-control to achieve and maintain constant and uniform UV-lighting output throughout the lamp's service life. UV irradiation speed and intensity can be set individually, ensuring stable tape peeling in accordance with specific requirements of the applied UV-sensitive tape.

Wafer Size	**300 mm, 200 mm,** 150 mm optional upon request
Equipment Size	**1,380 mm** (W) **x 1,790 mm** (D) **x 1,788** (H)



RAD-3020F/12

Fully-Automatic Non-Contact BG Tape Peeler

Minimized wafer stress through unique peeling method
A heat-seal peeling-tape is thermocompression-bonded to the back grinding tape within 3 mm of the wafer's periphery then peeled from the wafer in an ideal 180-degree angle. LINTEC's approach minimizes stress to the wafer and allows processing of thin wafers down to 200 µm for 200 mm wafers and 300 µm for 300 mm wafers, as well as handling of TAIKO wafers with ultra-thin membranes of down to 70 µm for 300 mm wafers.

Non-contact back-grinding tape peeling
By using LINTEC's unique non-contact vacuum wafer table, TAIKO wafers are securely held in place during the peeling process on the wafers edge-exclusion area only. Back-grinding tape peeling is therefore performed without any contact to the highly sensitive TAIKO wafer backside.

Non-contact wafer handling
LINTEC's non-contact wafer handling method eliminates contamination or damage on the wafer front and backside, usually caused during alignment, UV irradiation or back-grinding tape peeling. This approach makes the RAD-3020F/12 highly suitable for any manufacturing process involving TAIKO-wafers, MEMS, wafers with sensitive front and backsides, power devices and TSVs.

Warpage-correction unit
Available as additional option, a warpage-correction unit supports handling of thin and warped wafers

Wafer Size	**300 mm, 200 mm,** 150 mm optional upon request
Equipment Size	**1,440 mm** (W) x **2,105 mm** (D) x **1800 mm** (H)



RAD-2510F/8

Fully-Automatic Wafer Mounter

High-speed operation
RAD-2510F/8 is a fully-automatic wafer mounter with a high processing capacity of 120 wafers/hour, 20% higher than that of its previous model. It is also equipped with an improved heating function that prevents decrease in productivity when the wafer on the attachment table is heated.

Advanced inline pre-cut system
A new and improved inline pre-cut system allows for a shortened tape pitch compared to the conventional method. The tape pitch is reduced from 10 mm to 2 mm, minimizing waste of material and ultimately leading to a decrease in production cost.

Supports warped wafer handling
The non-contact alignment system and transfer arm allows for the handling of warped wafers with up to 5 mm of warpage in 200 mm wafers.

Built-in vision system
The machine can optionally include a built-in vision system, which does not increase the footprint of the equipment.

Wafer Size	**200 mm, 150 mm, 125 mm, 100 mm**
Equipment Size	**1,360 mm** (W) x **1,830 mm** (D) x **1,800 mm** (H)



RAD-2510F/12Sa

Fully-Automatic Multifunction Wafer Mounter

Designed for ultra-thin wafer processing
RAD-2510F/12Sa is a multi-functional all in one tool, ideally suited for ultra-thin wafer manufacturing. All steps starting from UV irradiation after the back grinding process, followed by alignment, mounting on dicing tape, and peeling of back-grinding tape are combined into one system.

Minimized wafer-handling contact and increased throughput
With only four consecutive wafer-handling steps inside the equipment, the risk of wafer damage is reduced to the utmost minimum. While unnecessary handling-contact with the wafer is avoided where possible, optimized transfer components enable higher throughput rates of up to 60% compared to other equipment concepts.

Heat-seal/adhesion peeling tape lamination
Depending on the physical properties of the back-grinding tape, the equipment is capable to use both heat-seal or pressure-sensitive tape (optional) for peeling of the back-grinding tape.

Supports DBG process
In addition to regular ring frame mounting with 300 mm / 200 mm wafers and removal of back-grinding tape, RAD-2510F/12Sa is also capable of supporting DBG processes, ideally suited for thin die fabrication.

Wafer Size	**300 mm, 200 mm**
Equipment Size	**2,165 mm** (W) x **3,090 mm** (D) x **1,800 mm** (H)



RAD-2512F/12

Fully-Automatic Vacuum Mounter

Patented non-contact vacuum wafer mounting
By using LINTEC's unique vacuum chamber and wafer holding table, the RAD-2512F/12 series enables wafer mounting to be performed without any contact to sensitive wafer backsides. Our patented vacuum tape mounting process provides for perfect embedding of critical wafer structures, where other standard mounting approaches using pressure-rollers fail.

Non-contact edge-clamp handling concept
By adopting a non-contact edge-clamp handling concept, contamination or wafer damage is eliminated and enables the customer to handle products with highly sensitive structure, e.g. MEMS, TAIKO-wafers and wafers with TSVs.

Wide variety of options for any process requirement
To provide a customized solution for any process requirement, RAD-2512F/12 is available with a wide variety of options:
- Table heating function to guarantee optimized mounting results
- Capability to handle both plastic and steel ring-frames
- In-line pre-cut unit for roll-type dicing tape
- Vision system with wafer-ID reader and barcode-label printing equipment
- Double FOUP-loader and double-unloader for reduced loading-time
- Bernoulli-handling for thin warped wafers

Wafer Size	**200 mm,** 300 mm & 150 mm optional upon request
Equipment Size	**2,203 mm** (W) x **3,092 mm** (D) x **1,800 mm** (H)



RAD-2010F/12

Fully-Automatic UV Irradiation System

High precision irradiation with constant illuminance
LINTEC's fully-automatic UV irradiation system offers highly precise and reliable UV-irradiation through optimized illuminance and UV-light intensity. Despite its compact design, high volume throughput is enabled by use of two handling lines inside the equipment.

Uniform irradiation of entire surface and automatic illuminance-control
Uniform irradiation of the entire surface is assured through utilization of a nitrogen-filled / oxygen-absent chamber. UV irradiation speed can be set individually and in accordance with requirements of the applied UV-sensitive tape. A built-in sensor enables feedback-control to achieve and maintain constant and uniform UV-lighting output throughout the lamp's service life.

Smooth and safe operation
Our equipment's central-loading approach greatly facilitates handling and processstability, while significantly stepping up operational efficiency. A large touch panel improves operability and ensures safety during operations and maintenance. RAD-2010F/12 is capable to realize full factory automation by integrating host communication and inline system functions.

Wafer Size	**300 mm, 200 mm**
Equipment Size	**1,650 mm** (W) x **1,200 mm** (D) x **1,735 mm** (H)

NEW MODEL



RAD-2020F/12

Fully-Automatic UV-LED Irradiation System

UV-LED compatible
In contrast to our conventional model, this newly developed UV irradiation system is compatible with both, UV-LED lamps, as well as high-pressure mercury lamps. By using UV-LED, the lifetime of the lamp can be greatly increased to approximately 10,000 hours, as opposed to approximately 1,000 hours for high-pressure mercury lamps. Another notable benefit of using UV-LED lamps is the drastic decrease of power consumption by up to 70%. The occurrence of higher temperatures during UV-irradiation as side-effect of mercury lamps is also minimized, as light of only one wavelength is emitted by UV-LED lamps.

High through-put
Our equipment has a high UPH of up to 100 wafers per hour - higher than that of LINTEC's conventional model, as well as higher than any comparable competitor UV-irradiation system.

Automation
RAD-2020F/12 is capable to realize full factory automation by integrating host communication and inline system functions, such as OHT compatibility, double frame cassette installation, and FOUP cassette compatibility.

Wafer Size	**300mm, 200mm, 150mm** (Only 2 sizes selectable per equipment)
Equipment Size	**1,590 mm** (W) x **1,200 mm** (D) x **1,800 mm** (H)

Equipment RAD series



RAD-2600F/12

Fully-Automatic Wafer Remounter

Fully-automatic wafer remounter
RAD-2600F/12 is a revolutionary new concept developed by LINTEC Corporation. The fully-automatic wafer remounter was developed to safely remount wafers on a ring-frame.

Remounting process
The workpiece (wafer on tape and ring-frame) is loaded to RAD-2600F/12. In the first step, the workpiece is UV irradiated and aligned by use of a high-tech camera system. Afterwards, the workpiece is transferred to the attachment table where the cutting process is performed. Once the cutting of the initially mounted tape is completed, the ring-frame is removed and a new tape is mounted on the wafer. In the last step, the initially mounted tape is peeled off. After wafer-ID reading and barcode labeling, the remounted workpiece is unloaded to the frame-cassette.

Using this method, even the most fragile material can be safely handled without contact to or damage of critical wafer-structures. In particular, several specific features of RAD-2600F/12 contribute to achieving the most secure wafer processing:
- Tape cutting with a high precision 6-axis robot
- Wafer-remounting on only one table - no transfer between tape cutting and mounting unit
- Camera alignment function available in several modes (frame only, wafer centering only, wafer centering with V-notch orientation, pattern alignment)
- Mounting accuracy measurement system
- 300 mm and 200 mm frame handling, double-robot without end-effector change
- Supporting wafer thicknesses down to 40 µm before or after die singulation (suitable for standard dicing, DBG, SDBG and PDBG)

Wafer Size	**300 mm, 200 mm**
Equipment Size	**3,323 mm** (W) x **3,828 mm** (D) x **2,227 mm** (H)



RAD-3600F/12

Fully-Automatic LC Tape Laminator

Special laminator for Adwill LC Tape (Backside Coating Tape)
Adwill LC Tape was developed to protect and reinforce the die backside in applications such as Flip Chip, where dies are mounted onto a substrate from the circuit surface. Unlike uneven liquid mold-material, LC Tape ensures outstanding thickness uniformity. Furthermore, LC Tape helps to prevent wafer chipping during dicing, blocks light to minimize damage to circuit surfaces and is suitable for laser marking on the tape backside.

In order to tap into the full potential of Adwill LC Tape, the unique LC Tape laminator RAD-3600F/12 was developed.

High performance lamination
RAD-3600F/12 is a unique system with specialized features to ideally meet the requirements needed for LC Tape lamination. After non-contact wafer alignment, LINTEC's high-precision handling-process ensures void-free LC Tape lamination. If required, a wafer heating function is available to enhance embedding of critical backside structures.

Wafer Size	**300 mm, 200 mm**
Equipment Size	**1,550 mm** (W) x **1,950 mm** (D) x **1,800 mm** (H)

Adwill

LINTEC
Showroom in Munich

Let our product speak for itself.
A visit to LINTEC's Munich showroom is the best way to get hands-on with our products and to experience, understand and feel the quality of LINTEC tape and equipment.

Visits can be scheduled anytime by phone or e-mail:

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Equipment and tape application experts are at your service to support customer trials. A wide range of fully and semi-automatic equipment is available for evaluation and testing:
- Back-Grinding tape lamination
- Back-Grinding tape peeling
- Wafer-mounting on dicing-tape
- UV Irradiation
- Extensive variety of Adwill tape-samples in stock for testing

LINTEC Network – always close to you



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