

**Accelonix**  
keeping you ahead.

Dispense Technology

**DISPENS MASTER™**

**FAD™ 5100S**

**FAD™ 5100S-WH**

**FAD™ 2500**

**TAD™ 1000**

**FCD™ 1000**

**FCD™ 2000**

**FA**  
**SOLUTION**

Motion Technology



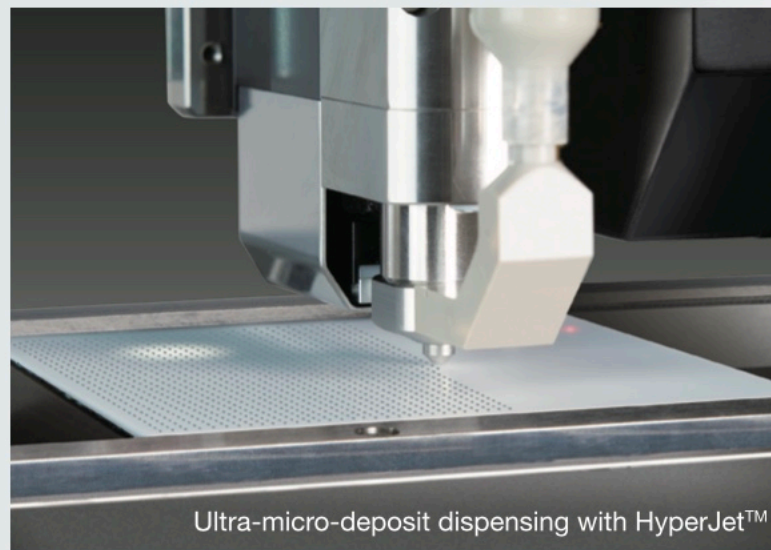
# The ultimate key technology

**Fusion of MUSASHI's ever-evolving, proprietary and advanced fluid control technology and FA technology.**

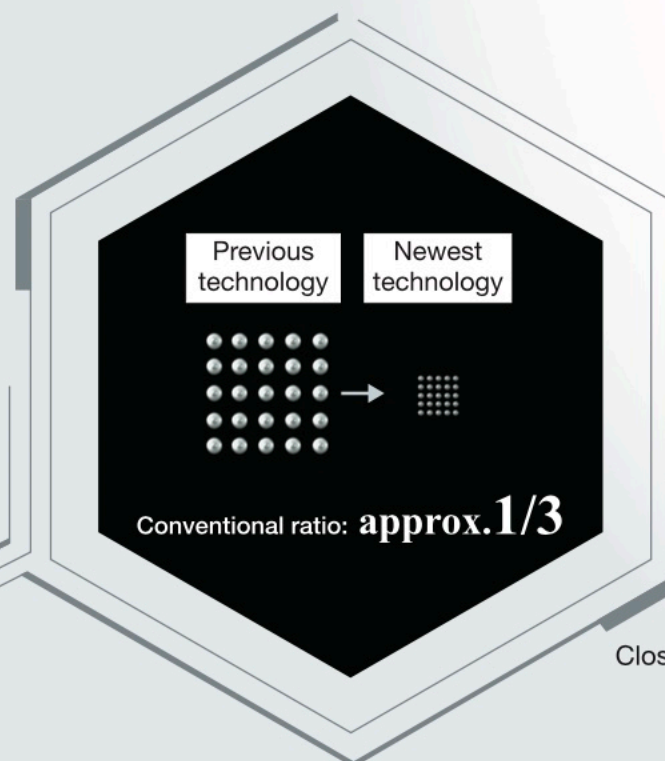
Today's electronics sector is moving toward more compact, thinner and integrated designs, with smartphones. Naturally, these electronic devices require sophisticated technology capable of dispensing "high-precision, high-speed" micro-deposits of liquid materials over tiny areas.

MUSASHI is addressing the high-level dispensing requirements of this ever-evolving sector with the development of FA systems that feature a blend of sophisticated motion technologies using its own dispensing knowhow as the key technology.

MUSASHI's FA dispensing technology continues to advance to an unsurpassed level of excellence.



**Ultra-micro-deposit JET dispense technology**

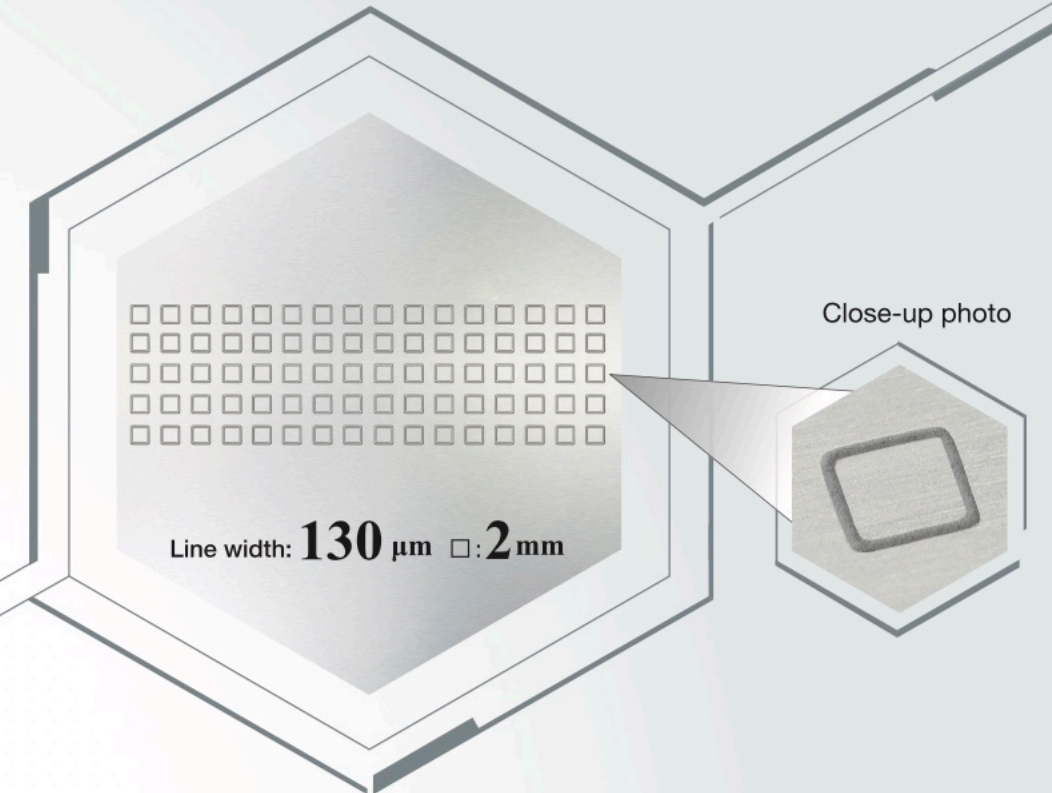


Close-up photo

**The world's smallest diameter by non-contact dispensing!**

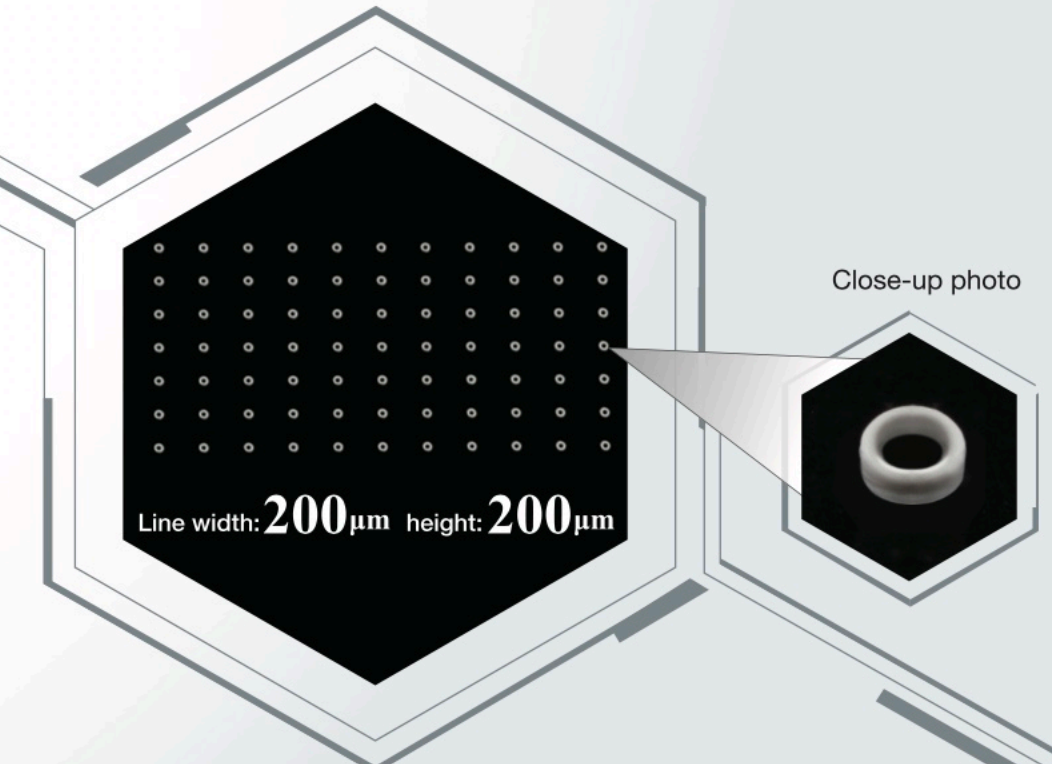


**Fine drawing technology for solder paste**



**High-definition dispensing of solder paste without "pooling at start/end points" or "distortion at corners!"**

**3D shape formation technology**



**Achieves both "narrow footprint" and "dam height"!**

MUSASHI's exceptional technology, meeting the needs of high-level applications.

MUSASHI has also included a multitude of knowhow based on its core dispensing technology, in FA systems used for manufacturing state-of-the-art products. Delivering exceptional FA technology to meet high-speed, high-precision dispensing requirements as a comprehensive manufacturer of dispensers.

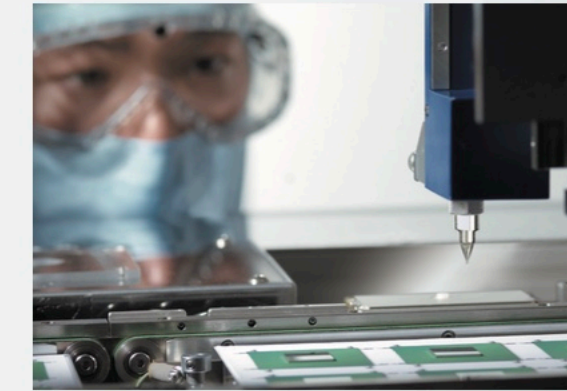
[Dispense Technology]	[Motion Technology]	[Application]	
 <p>Air pulse dispenser <b>Super ΣCM III</b></p>	<p><b>New Function Synchro Speed™ function PAT.P</b></p> <p>Maintains a fixed line width, regardless of robot speed. Achieves a high-quality dispensing automatically, without any complex adjustments.</p>  <p>Previous technology  <b>Newest technology Synchro Speed™ function ON</b> </p>	 <p>Underfilling CoW</p>  <p>TAB reinforcement</p>	<p>Fully automatic <b>high-end</b> dispensing machine <b>DISPENS MASTER™ FAD 5100S</b></p>  <p>P.08</p>
 <p>Multi-purpose JET dispenser <b>Aero Jet™</b></p>		 <p>Ag paste dispensing on HDD</p>  <p>Solder paste dispensing on substrate</p>	<p>Fully automatic <b>wafer level</b> dispensing machine <b>DISPENS MASTER™ FAD 5100S-WH</b></p>  <p>P.09</p>
 <p>Ultra-high-speed JET dispenser <b>Super Jet™</b></p>	<p><b>Full 3D alignment</b></p> <p>Automatic correction for individual differences in works and pallet array errors. The 3D alignment and tracing functions enable "Tracing (Z correction)" that provides XYθ correction to suit tilted or deformed pallets or workpieces, and maintains a constant clearance with warping or distortion. This ensures more reliable dispensing.</p> 	 <p>UV dispensing on image sensor</p>  <p>Potting of LED modules (TOP VIEW)</p>	<p>Fully automatic <b>multi-purpose</b> dispensing machine <b>DISPENS MASTER™ FAD 2500</b></p>  <p>P.10</p>
 <p>High-performance screw dispenser <b>SCREW MASTER 3</b></p>		 <p>Camera module adhesion</p>  <p>Narrow area dispensing on substrate</p>	<p>Fully automatic <b>compact</b> dispensing machine <b>SMART ROBO™ TAD 1000</b></p>  <p>P.11</p>
 <p>Volume measuring type digital dispenser <b>MEASURING MASTER™ MPP-1</b></p>		<p>Fully automatic <b>substrate coating</b> machine <b>COATING MASTER™ FCD 1000</b></p>  <p>P.12</p>	
 <p>High-precision dispensing nozzle <b>Fine nozzle series</b></p>	<p>Fully automatic <b>wafer coating</b> machine <b>COATING MASTER™ FCD 2000</b></p>  <p>P.13</p>		



# MUSASHI's FA solutions for fully automatic production lines!

Comprehensive support, for all lines with dispensing processes, and even inspections.

Introducing the most complete, fully automatic production lines designed for dispensing, as well as a broad range of pre- and post-processes, featuring a combination of dispensing technology fine-tuned over the years, and an exceptional level of FA technology.



[Inline fully automatic dispensing system]

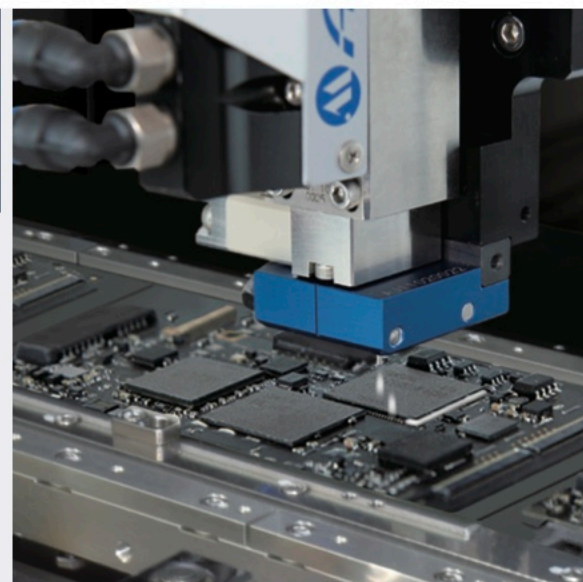


[Inline fully automatic coating system]

Fully automatic high-end dispensing machine

**DISPENS MASTER™ FAD™ 5100S**

**MUSASHI's flagship FA model, engineered with sophisticated specifications for the fastest performance**



Fully automatic wafer level dispensing machine

**DISPENS MASTER™ FAD™ 5100S-WH**

**The latest in the FAD5100 series, delivering state-of-the-art back-end processes**



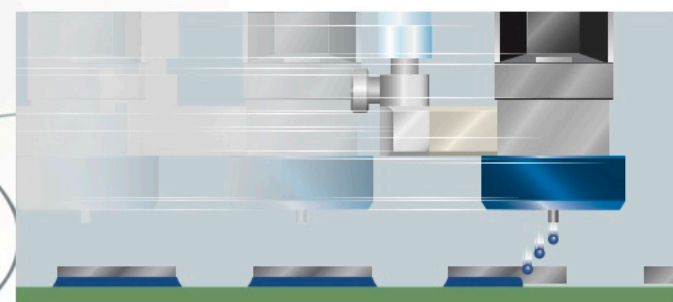
LD/ULD specification

PAT.P

**“5 Major Functions” for high throughput and high-quality dispensing**

**POINT 01 High-speed dispensing with uninterrupted, continuous operation**

Express dispensing function



**POINT 02 High-speed alignment with uninterrupted, continuous operation**

Express alignment function

**POINT 03 Automatically controls dispensing quantity**

DVM function

**POINT 04 Forms “leaf line” dispensing patterns that are ideal for avoiding voids**

MCD function [PAT.P]

**POINT 05 Prevents large numbers of defects from occurring**

AFC function



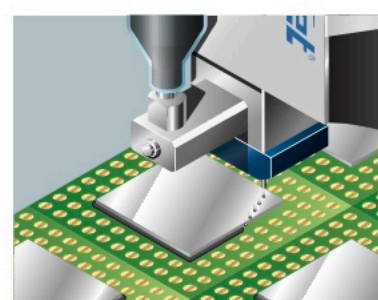
PAT.P

■ Specifications

Product name	DISPENS MASTER
Model	FAD5100S
Control system	PC/PLC control (SMEMA-compliant)
Applicable work	PCBs, ceramic substrates, lead frames, carriers, etc.
Operating speed X/Y	MAX:1,000 mm/s
Operating speed Z	MAX:1,000 mm/s
X/Y repetitive positioning accuracy	±0.002 mm
Z repetitive positioning accuracy	±0.010 mm
Number of dispensing units	1
Applicable work dimensions L	80 to 315 mm
Applicable work dimensions W	50 to 160 mm
Applicable work dimensions t	0.1 to 2.0 mm
Number of lanes	MAX:2
Number of stages	MAX:3
Rated voltage and frequency	AC200V 3φ 50/60 Hz
Power consumption	3 kW
Dimensions W*D*H	W1,070×D1,270×H1,680 mm (*1)
Weight	700 kg (*1)

\*1 Does not include loader/unloader.

■ Applications



Underfilling PoP



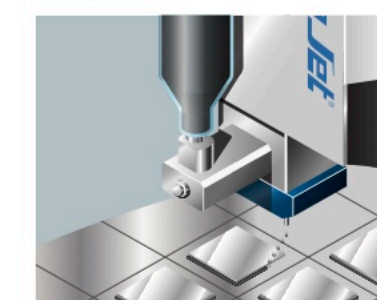
Inline specifications

■ Specifications

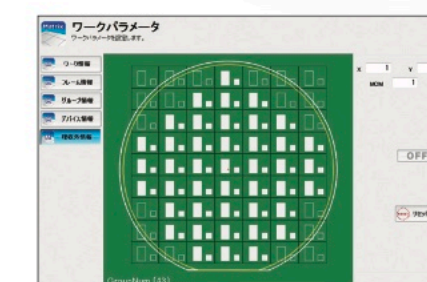
Product name	DISPENS MASTER
Model	FAD5100S-WH
Control system	PC/PLC control (SMEMA-compliant)
Applicable work	12" wafers, 8" wafers
Operating speed X/Y	MAX:1,000 mm/s
Operating speed Z	MAX:1,000 mm/s
X/Y repetitive positioning accuracy	±0.002 mm
Z repetitive positioning accuracy	±0.010 mm
Number of dispensing units	1
Applicable work dimensions L	12", 8"
Applicable work dimensions W	MIN:0.5 mm
Number of stages	1
Rated voltage and frequency	AC200 V 3φ 50/60 Hz
Power consumption	4kW
Dimensions W*D*H	W1,070×D1,270×H1,680 mm (*2)
Weight	840 kg (*2)

\*2 Does not include wafer handler.

■ Applications



Underfilling CoW

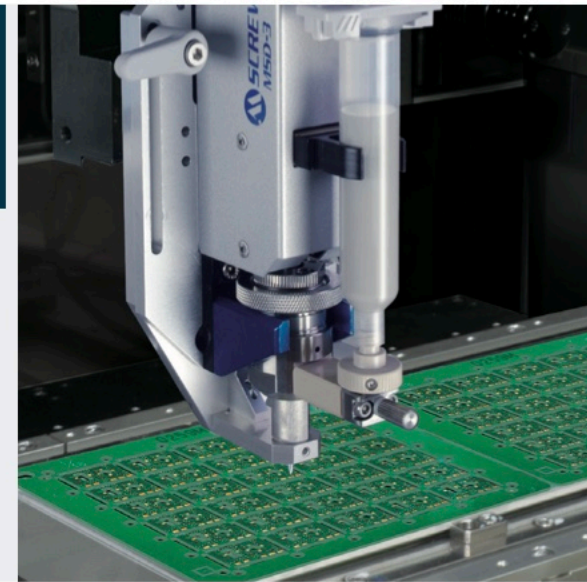


**Equipped with wafer mapping function!**

Configures any type of device pattern on wafers. Helps to cut back time required for programming.

Fully automatic multi-purpose dispensing machine

**DISPENS MASTER™ FAD™ 2500**



Fully automatic dispensing mainframe to meet the requirements of an extensive range of applications

**Major improvement in performance and functionality!**

**POINT 01** Multi-head compatibility  
Highly versatile to suit various applications

**[Features]**

- High-speed dispensing with uninterrupted, continuous operation: Express JET function
- Automatically controls dispensing volume: DVM function
- Forms "leaf line" dispensing patterns that are ideal for avoiding voids: MCD function (PAT.P)
- Wide range of standardized optional accessories.



LD/ULD specification

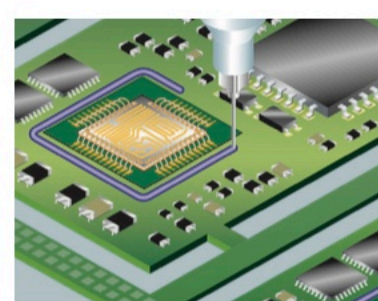
PAT.P

**Specifications**

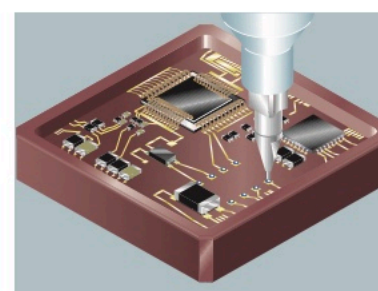
Product name	DISPENS MASTER
Model	FAD2500
Control system	PC/PLC control (SMEMA-compliant)
Applicable work	PCBs, ceramic substrates, lead frames, carriers, etc.
Operating speed X/Y	MAX:1,000 mm/s
Operating speed Z	MAX:1,000 mm/s
X/Y repetitive positioning accuracy	±0.01 mm
Z repetitive positioning accuracy	±0.01 mm
Number of dispensing units	MAX:2
Applicable work dimensions L	50 to 330 mm
Applicable work dimensions W	30 to 250 mm
Applicable work dimensions t	0.5 to 3.0 mm
Number of lanes	1
Number of stages	MAX:3
Rated voltage and frequency	AC200V 1φ 50/60 Hz
Power consumption	3 kW
Dimensions W*D*H	W900×D1,250×H1,655 mm (*1)
Weight	600 kg (*1)

\*1 Does not include loader/unloader.

**Applications**



Dispensing dam agent



Micro-deposit spot dispensing



Inline specifications

Fully automatic compact dispensing machine

**SMART ROBO™ TAD™ 1000M**



Excellent space-efficient performance, bringing innovation to production sites

**World's first, fully automatic desktop dispensing!**

**POINT 01** With special volume measuring plunger pump for LED sealants

**POINT 02** High-quality, stable dispensing for reliable chromaticity

**POINT 03** Highly versatile to suit various applications

**[Features]**

- High-quality, stable dispensing to drastically reduce defects.
- Ultra-compact size contributing to labor-saving and lower space costs
- The ultimate collection of dispensing technologies.



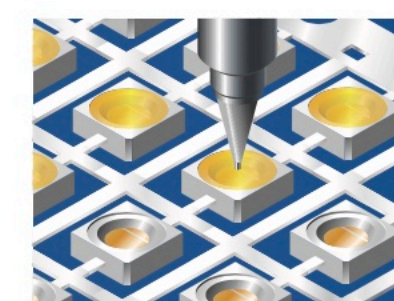
Desktop LD/ULD specification

PAT.P

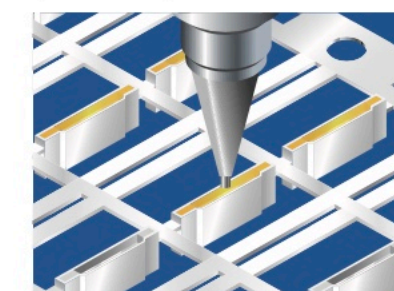
**Specifications**

Product name	SMART ROBO
Model	TAD1000M
Control system	PC/PLC control (SMEMA-compliant)
Applicable work	PCBs, ceramic substrates, lead frames, carriers, etc.
Operating speed X/Y	MAX:500 mm/s
Operating speed Z	MAX:500 mm/s
X/Y repetitive positioning accuracy	±0.01 mm
Z repetitive positioning accuracy	±0.01 mm
Number of dispensing units	MAX:2
Applicable work dimensions L	140 to 230 mm
Applicable work dimensions W	30 to 75 mm
Applicable work dimensions t	0.1 to 2.0 mm
Number of lanes	1
Number of stages	1
Rated voltage and frequency	AC200V 1φ 50/60 Hz
Power consumption	1.5 kW
Dimensions W*D*H	W1,315×D645×H1,470 mm
Weight	325 kg

**Applications**



Potting of LED modules (TOP VIEW)

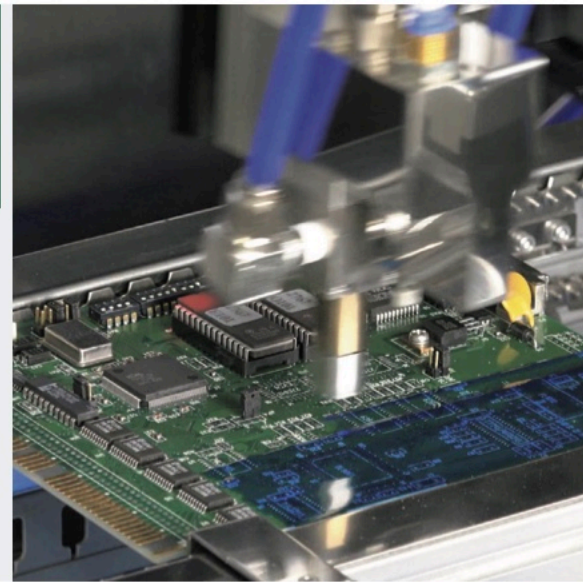


Potting of LED modules (SIDE VIEW)



Inline specifications

Fully automatic substrate coating machine  
**COATING MASTER™ FCD™1000**



A faster, thinner, higher precision,  
through fine coating with dual heads

**Precision sealing over only the  
required area**

- POINT 01 Drastic reduction in wasted resin materials
- POINT 02 Equipped with spot/wide coating head
- POINT 03 Eliminates scattering with special, exclusively designed valves

[Features]

**Comes with dispensing pattern editor MuCOAT™**

- Register patterns with values, or using actual images.
- Simple setup. Easily configures dispensing areas/not dispensing areas to help reduce line downtime.

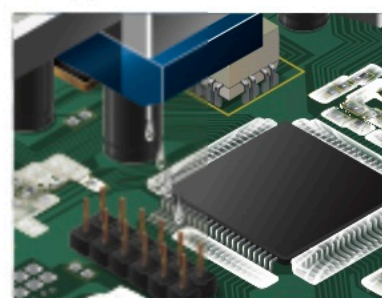


■ Specifications

Product name	COATING MASTER
Model	FCD1000
Control system	PC/PLC control (SMEMA-compliant)
Applicable work	PCBs, carriers, etc.
Operating speed X/Y	MAX:1,000 mm/s
Operating speed Z	MAX:1,000 mm/s
X/Y repetitive positioning accuracy	±0.02 mm
Z repetitive positioning accuracy	±0.02 mm
Number of dispensing units	MAX:2
Applicable work dimensions L	50 to 330 mm
Applicable work dimensions W	30 to 250 mm
Applicable work dimensions t	0.5 to 3.0 mm
Number of lanes	1
Number of stages	1
Rated voltage and frequency	AC200V 1φ 50/60 Hz
Power consumption	3 kW
Dimensions W*D*H	W860×D1,100×H1,550 mm (*3)
Weight	350 kg (*3)

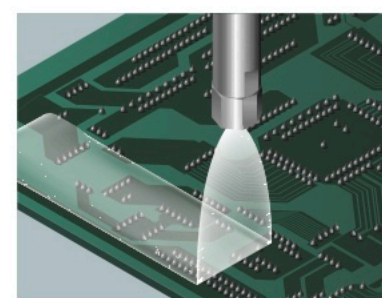
\*3 Does not include tank carrier.

■ Applications



Non-contact, high-speed dispenser for spot coating

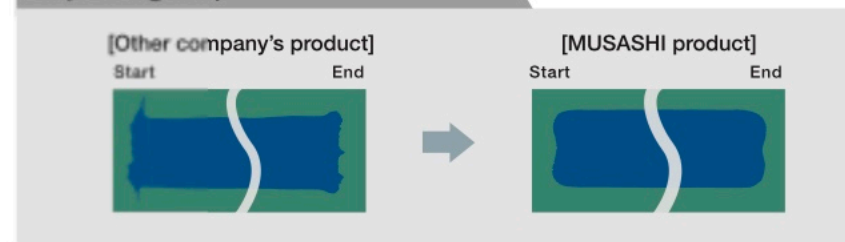
**AeroJet™**



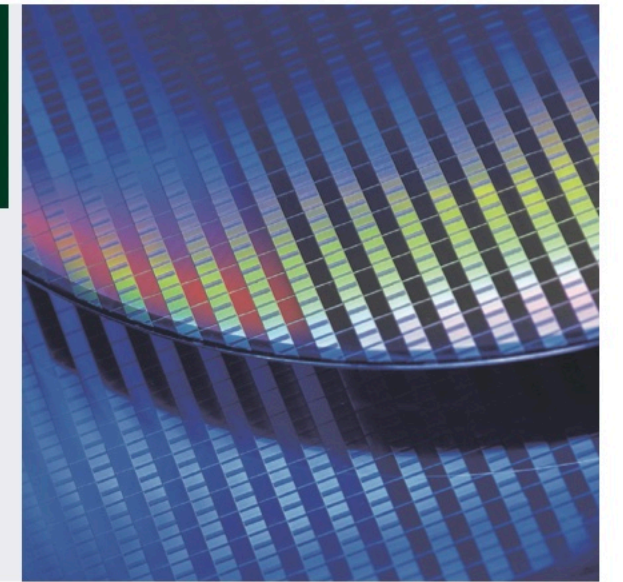
Valve dispenser for wide-area coating

**CV-12**

Dispensing shape of curtain coat valve



Fully automatic wafer coating machine  
**COATING MASTER™ FCD™2000**



Epoch maker of back-end processes  
provides a new way to form ultra-thin films

**Achieves ultra-thin coating**

- POINT 01 Major reduction in material waste by proprietary film formation method
- POINT 02 Can be used with inline layouts
- POINT 03 Available for use with wafers up to 12" in size, and under 100µm thick

■ Specifications

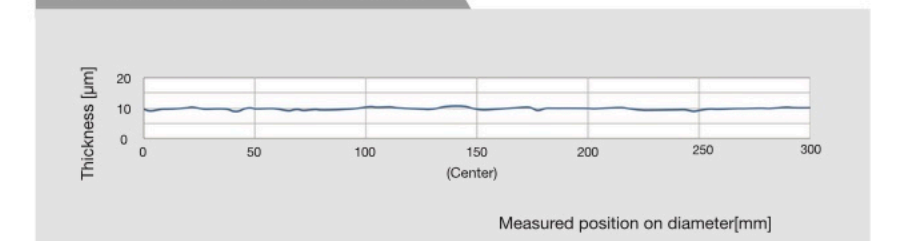
Product name	COATING MASTER
Model	FCD2000
Control system	PC/PLC control (SMEMA-compliant)
Applicable work	12" wafers, 8" wafers
Operating speed X/Y	MAX:500 mm/s
Operating speed Z	MAX:500 mm/s
X/Y repetitive positioning accuracy	±0.10 mm
Z repetitive positioning accuracy	±0.05 mm
Number of dispensing units	1
Applicable work dimensions L	12", 8"
Applicable work dimensions W	
Applicable work dimensions t	MIN:0.1 mm
Number of stages	1
Rated voltage and frequency	AC200V 1φ 50/60 Hz
Power consumption	4 kW
Dimensions W*D*H	W1,250×D1,050×H1,800 mm
Weight	860 kg

■ Applications



Wafer coating

Profile of film on 12" wafer



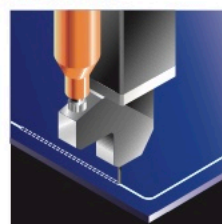
## Fully automatic seal dispensing machine

### MLC™-6500



Large-format, 20 t class machine bringing the world's fastest sealant dispensing with sub-micron precision.

- High-speed and high-precision sealant dispensing on large-sized substrates.
- Remarkable improvement of productivity achieved by world's fastest, high-stability, and high-definition drawing capability.
- MUSASHI's original functions of world top level equipped as standard.
- Automatic non-contact gap control mechanism.
- World's fastest dispensing shape measuring function.



Line dispensing of sealant material

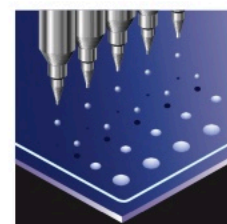
## Fully automatic ODF machine

### MLC™-7500



Applicable to eighth generation ultra-precision high-speed ODF system with high stability.

- World's best LC drop dispensing head equipped.
- Multihead applicable, resulting in drastically improved productivity.
- Simple operations for setting drop pattern and volume.
- High-speed and high-precision LC drop dispensing with high stability thanks to high-performance dispensing head.
- Improved dispensing speed more than 3-fold. (compared to industry standard)



LC dropping in the ODF process

## Gate type desktop robot with 3D alignment function

### IMAGE MASTER™ 350PC Smart

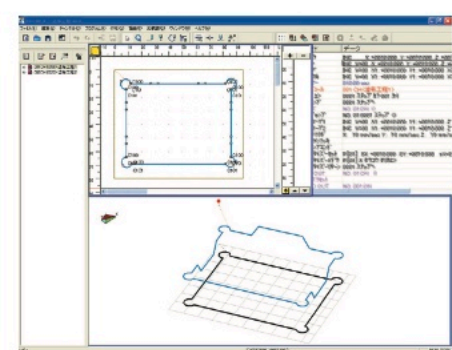


"Full 3D alignment" that automatically corrects individual work piece discrepancies or pallet alignment errors

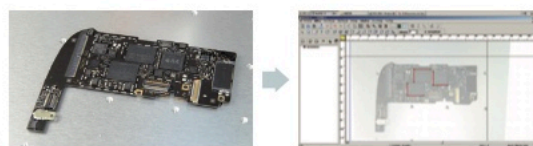
- Approx. 30% reduction in operation efficiency, greatly reducing labor time.
- Yield improvement thanks to high-quality dispensing.
- Operability improvement/reduction in programming labor.

Dispensing pattern editing software for motion units

### MuCAD™ V



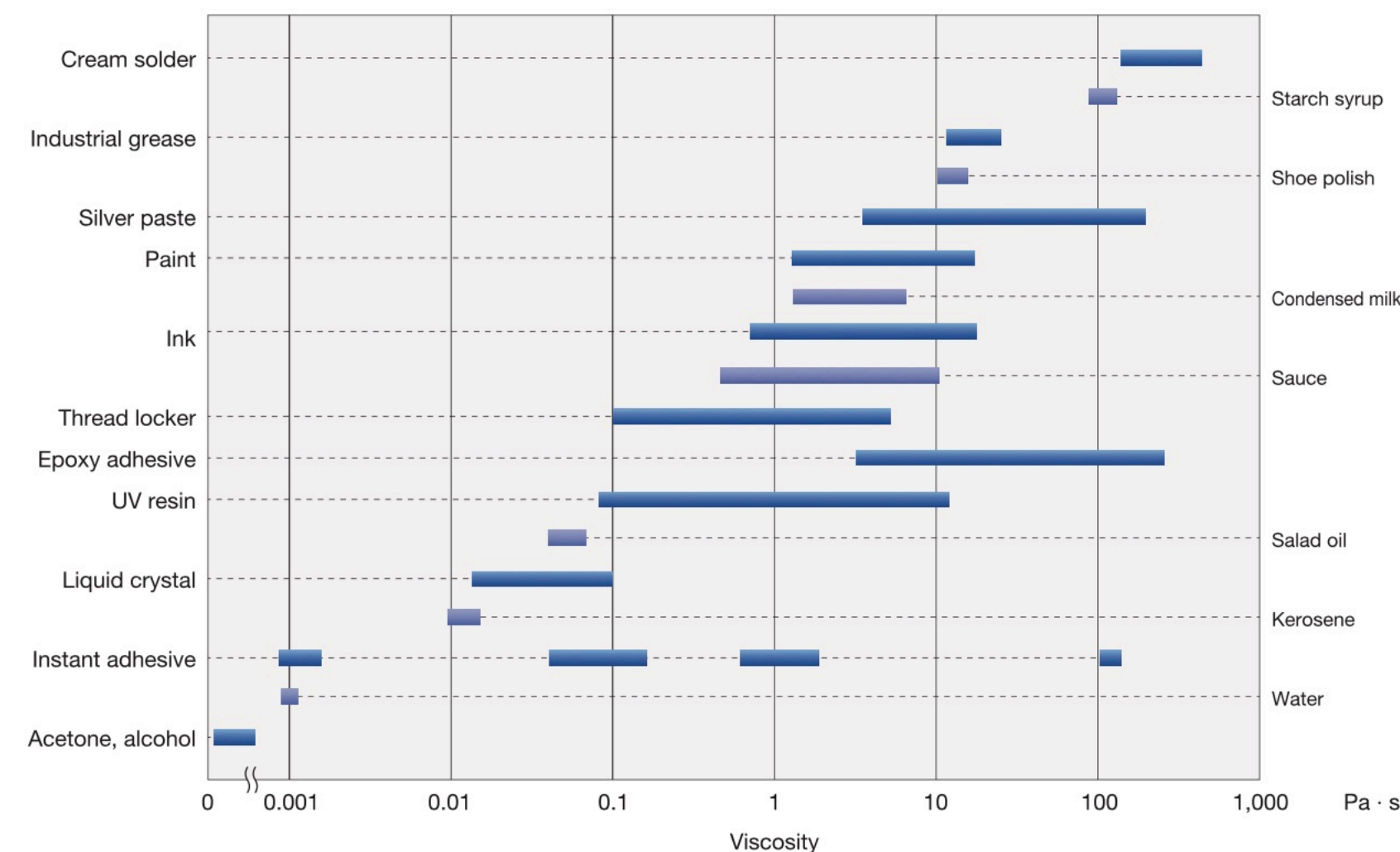
Snapshots on site are loadable, equipped with automatic correction function



Create dispensing programs easily on a PC

- Switch product types instantly.
- Load DXF/Gerber data, JPEG and other data.
- Automatically generate staggered arrangements and multiple works programs
- Automatically generate chip patterns on wafers.
- Easily configures dispensing areas/not dispensing areas.

## Liquid material viscosity chart



Note: The chart above shows reference values, and may differ due to dispensing conditions and the type of liquid material. For details, contact our sales department.

## Dispensing volume guidelines

φ (mm)	0.1	0.25	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
(mg)															
Water	0.00026	0.00409	0.033	0.110	0.262	0.884	2.094	7.069	16.76	32.72	56.55	89.80	134.0	190.9	261.8
UV adhesive	0.00031	0.00491	0.039	0.133	0.314	1.060	2.513	8.482	20.11	39.27	67.86	107.76	160.8	229.0	314.2
Silver paste	0.00084	0.01309	0.105	0.353	0.838	2.827	6.702	22.619	53.62	104.72	180.96	287.35	428.9	610.7	837.8
Cream solder	0.00223	0.03477	0.278	0.939	2.225	7.510	17.802	60.083	142.42	278.16	480.66	763.28	1,139.4	1,622.2	2,225.3





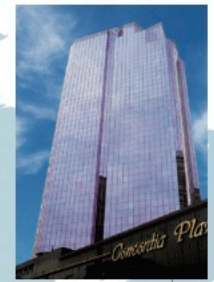
Germany



Shenzhen



Shanghai



Hong Kong

# MUSASHI's global support system available around the world

Beijing

Tokyo  
(Head Office)



Tokyo Head Office



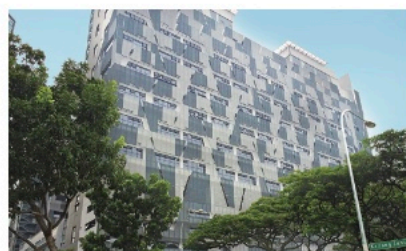
Thailand



Korea




Taiwan



Singapore



Indonesia

 Safety precaution  
Make sure to read the instruction manual before you use the unit, for your safety.

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World Leading Dispenser  
**MUSASHI ENGINEERING, INC.**

<http://www.musashi-engineering.co.jp/english/>

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