



# SUPER PRECISION FLUID DISPENSERS

VOL  
20

General Catalog

Filling  
Sealing  
Coating  
Dotting  
Lining

Bonding  
Potting

DISPENSING  
TECHNOLOGY

MUSASHI ENGINEERING, INC.



# CREATIVE

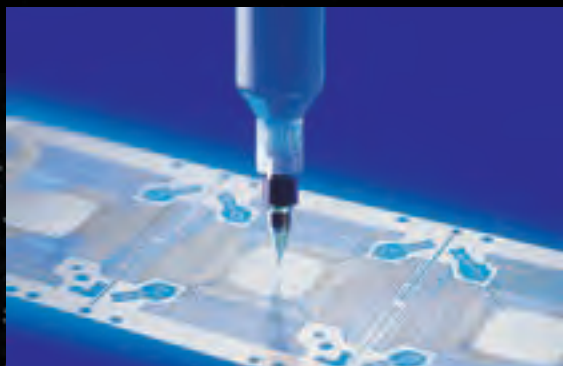
Open up an unlimited fluid  
micro universe with macro view

Humanity is now sending the power of science out into the infinite field in search of the great possibilities that lie hidden in outer space. On the other hand, along with the globalization of society and the spread of the Internet, the miniaturization and personalization of electronic products is progressing, and at the same time, efforts to realize a sustainable society are pressing forward in our daily lives.

With these major changes of the times, a myriad of dispensing applications have emerged in every industry, and there is a strong demand for dispensing technology that can handle them. Since its founding, MUSASHI has consistently worked on "precision control technology that gives shape to fluid," and has always pioneered new field in the profoundly unknown world of fluid precision control.

Based on our persistent pursuit of creative technology and our many years of experience in dispensing technology, we are always ready to respond to high-level dispensing applications with the utmost care and attention to detail.

MUSASHI will continue to take on challenges as a pioneer in dispensing high technology, with the theme of "Creating Value and Producing Original Seeds".



MULTIMEDIA



INFORMATION-ORIENTED

DISPENSING  
TECHNOLOGY

# MOBILE COMPUTING

Bonding  
Potting

Non-contact JET dispenser P.16 to 21



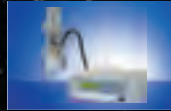
Volume measuring type dispenser



Plunger dispenser P.22 to 23



High-performance MOHNO dispenser P.24 to 25



Ultra-small dosage dispenser P.26 to 27

Screw dispenser P.28 to 31



Tubing dispenser P.32 to 33



Two-component dispensing solutions P.34 to 35



Air-pulse dispenser P.36 to 43



Peripheral equipments for dispensers P.44 to 51



Desktop/cartesian robot P.52 to 63



Biotechnology/food-related system P.64 to 65



FA dispensing machines P.66 to 67



Parts accessories P.68 to 69

INDEX P.70 to 73

# Product list

| Type                             | Model   | Page              |
|----------------------------------|---|-------------------|
| <b>Non-contact JET dispenser</b> | <b>Non-contact JET dispenser</b>                          | 16 to 17          |
|                                  | High speed Non-contact JET dispenser<br>SUPERJET2         | MJET-S-2<br>18    |
|                                  | High viscosity Non-contact JET dispenser<br>SUPER HI JET  | MJET-S-HI-L<br>19 |
|                                  | Mid & High viscosity Non-contact JET dispenser<br>AEROJET | MJET-A-2<br>20    |
|                                  | Low-viscosity non-contact JET dispenser<br>CYBERJET2      | MJET-C-2<br>21    |
|                                  | Grease JET dispense system<br>GREASE JET                  | —<br>20           |
|                                  | Solder paste JET Dispenser<br>SOLDER JET                  | —<br>21           |
|                                  | HOTMELT JET Dispenser<br>HOTMELT SUPERJET                 | —<br>21           |
|                                  | Stirring system for CYBERJET2<br>MIX MASTER               | —<br>21           |

| Type   | Model   | Page              |
|--|---|-------------------|
| <b>Volume measuring type dispenser</b>             | <b>Plunger Pump Dispenser</b>   |                   |
|  | Volume measuring type digital dispenser<br>MEASURING MASTER                       | MPP-1<br>22 to 23 |
|  | Volume measuring type digital dispenser<br>for large capacity<br>MEASURING MASTER | MPP-3<br>22 to 23 |
|  | <b>High-performance MOHNO dispenser</b>   |                   |
| High-performance MOHNO dispenser<br>MOHNOMASTER V2 | VSD-1-001700<br>24 to 25  |                   |

| Type                             | Model                                       | Page                      |
|----------------------------------|---|---------------------------|
| <b>Non-contact JET dispenser</b> | Ultra-small dosage dispenser<br>NANO MASTER |                           |
|                                  | SMP-III                                     | SMP-3-[30/50]<br>26 to 27 |
|                                  | SMP-II                                      | SMP-2<br>26 to 27         |

| Type                   | Model   | Page             |
|------------------------|---|------------------|
| <b>Screw dispenser</b> | <b>Screw dispenser</b>                                    | 28 to 29         |
|                        | High-performance screw dispenser<br>SCREW MASTER3-HF      | MSD3-HD-HF<br>30 |
|                        | High-performance screw dispenser<br>SCREW MASTER3         |                  |
|                        | For Syringes  | MSD-3-SET1<br>30 |
|                        | Temperature Control Syringes                              | MSD-3-SET2<br>30 |
|                        | For Barrel/Cartridge Use                                  | MSD-3-SET3<br>30 |
|                        | High-performance screw dispenser<br>HOTMELT SCREW MASTER  |                  |
|                        | For Syringe/Cartridge Use                                 | HM-MSD<br>31     |
|                        | High-performance screw dispenser<br>SCREW MASTER          |                  |
|                        | Applicable to high-viscosity<br>thermal grease Dispensing | M34-2373<br>31   |

| Type                               | Model                   | Page               |
|------------------------------------|-------------------------|--------------------|
| <b>Tubing dispenser</b>            | <b>Tubing dispenser</b> |                    |
|                                    | Rotary tubing dispenser | MT-410<br>32 to 33 |
|                                    | Dispenser pen           | LS-NH3-1604P<br>33 |
|                                    | PTFE tube               | TT-□<br>33         |
| PTFE tube, black (for UV adhesive) | TT-□B<br>33             |                    |

| Type                                      | Model   | Page            |
|---|---|-----------------|
| <b>Two-component dispensing solutions</b> | Volume measuring type digital control dispenser<br>DUAL MPP-1 | —<br>35         |
|   | DUAL MPP-1 Applicable to Dual Cartridge                       | —<br>35         |
|   | DUAL MPP-3  | —<br>35         |
|   | MPP-3-GF-MINI   | M42-21300<br>35 |
|   | High-performance MOHNO dispenser<br>DUAL MOHONOMASTER         | —<br>35         |
|   | Volume Measuring type Dispenser<br>DYNAMIC DUAL MASTER        | —<br>35         |
|   | Non-contact JET dispenser<br>DUAL AEROJET                     | —<br>35         |
|   | DUAL SUPERJET   | —<br>35         |

| Type                       | Model  | Page                              |
|----------------------------|--|-----------------------------------|
| <b>Air-pulse dispenser</b> | <b>Air-pulse dispenser</b>   | 36 to 37                          |
|                            | Digital Control Dispenser with Correction Function<br>SuperΣCMIII V5   | S-SIGMA-CM3-V5<br>38 to 39        |
|                            | SuperΣCMIII V2   | S-SIGMA-CM3-V2<br>38 to 39        |
|                            | Industry 4.0 "complete" support Fully Digital Dispenser<br>ML-8000X V7 | ML-8000X-V7<br>40 to 41           |
|                            | ML-8000X V2  | ML-8000X-V2<br>40 to 41           |
|                            | High-precision digital dispenser<br>ML-6000X                           | ML-6000X-[GP/VHR]<br>42 to 43     |
|                            | ML-6000X Pro V5  | ML-6000XP-V5-[GP/VHR]<br>42 to 43 |
|                            | ML-6000X Pro V2  | ML-6000XP-V2-[GP/VHR]<br>42 to 43 |
|                            | Highly functional ECO dispenser<br>MS-1                                | MS-1-CTR<br>43                    |
|                            | MS-1D  | MS-1D-CTR<br>43                   |

| Type  | Model  | Page                   |
|---|--|------------------------|
| <b>Peripheral equipments for dispensers</b> | <b>Temperature control unit</b>                | 44                     |
|   | Resistance bulb type temperature control block | TB-□E-K<br>45          |
|   | Resistance bulb temperature controller         | TCU-02-MU<br>45        |
|   | Fan type Peltier temperature control block     | TBP-SY□M-F<br>45       |
|   | Fan type Peltier temperature controller        | TCU-05F-3-MU<br>45     |
|   | Air type Peltier temperature control block     | TBP-SY□M-A-[L/R]<br>45 |
|   | Air type Peltier temperature controller        | TCU-05A-3-MU<br>45     |

| Type  | Model   | Page                    |
|---|---|-------------------------|
| <b>Peripheral equipments for dispensers</b> | <b>Peripheral equipments for dispensers</b>                           |                         |
|   | Mixing block for Syringe  | MB-□E-02<br>46          |
|   | Mixing block for Barrel   | MB-□C-01<br>46          |
|   | MIXING BLOCK for CYBERJET2  | MB-MJETC2-3070<br>46    |
|   | Stirring controller   | RMU-02<br>46            |
|   | Simplified Syringe Filling System                                     | —<br>47                 |
|   | Automatic weighing type syringe filling system<br>AUTO FILLING MASTER | —<br>47                 |
|   | Syringe centrifugal bubble remover                                    | AW-[20/50]-3<br>47      |
|   |   | AW-[20/50]-3-220V<br>47 |
|   | Transformer   | TR-□<br>47              |

| Type                        | Model                          | Page               |
|-----------------------------|--------------------------------|--------------------|
| <b>Cartridge for barrel</b> | <b>Cartridge for barrel</b>    |                    |
|                             | Barrel cartridge               | CS-□[C/C-HK]<br>49 |
|                             | Cartridge cap                  | CC-P-001-□<br>49   |
|                             | Cartridge holder               | CH-□C<br>49        |
|                             | Barrel                         | PB-□[B/C]<br>49    |
|                             | Barrel plunger                 | PP-□<br>49         |
|                             | Barrel head cap                | BC-4<br>49         |
|                             | Barrel tip cap                 | BP-4<br>49         |
|                             | Needle adapter                 | P-NADP-□<br>49     |
|                             | UV-block barrel                | PB-□CU-OR<br>49    |
|                             | UV-block barrel head cap       | BC-4U-B<br>49      |
|                             | UV-block barrel tip cap        | BP-4U-B<br>49      |
|                             | Consumables for cartridge caps | —<br>49            |

| Type                         | Model            | Page |
|------------------------------|------------------|------|
| <b>Cartridge for sealant</b> |                  |      |
| Sealant cartridge            | SCS-330-[□/□-HK] | 50   |
| Cartridge cap                | SCS-P-001-□      | 50   |
| Cartridge holder             | SCS-P-002-1      | 50   |
| O-ring (for tip adapter)     | ORG-□-V-B-1      | 50   |
| Tip adapter                  | SCS-P-004-□      | 50   |
| Needle adapter               | P-NADP-□         | 50   |
| Consumable parts/options     | —                | 50   |

| Type                           | Model       | Page |
|--------------------------------|-------------|------|
| <b>Cartridge for tube</b>      |             |      |
| Tube cartridge                 | CS-□CT□     | 51   |
| Cartridge cap                  | CC-P-001-□  | 51   |
| Cartridge holder               | CH-□[CT/C]  | 51   |
| Tube cartridge barrel          | PB-□BT      | 51   |
| O-ring (for tube adapter)      | ORG-□-V-B-1 | 51   |
| Tube adapter                   | P-TADP-□    | 51   |
| O-ring (for luer lock adapter) | ORG-8-V-B-1 | 51   |
| Luer lock adapter              | P-LADP-1    | 51   |

| Type   | Model              | Page     |
|--|--------------------|----------|
| <b>Desktop robot</b>                                 |                    |          |
| SHOTmini [100/200]SX                                 | SM□SX-□-[SS/SS-01] | 54       |
| SHOTMASTER [300/400/500]SX                           | SM□SX-□-SS         | 54       |
| <b>Desktop robot</b>                                 |                    |          |
| SHOTmini 200ΩX                                       | SM200OMEGAX-□-SS   | 55       |
| SHOTMASTER [300/400/500]ΩX                           | SM□OMEGAX-□-SS     | 55       |
| <b>Cartesian robot</b>                               |                    |          |
| CROSSMASTER [220/230/240/320/330/340/420/430/440]JRX | XM□RX-3A-L-□       | 56 to 57 |
| <b>Cartesian robot</b>                               |                    |          |
| CROSSMASTER [230/340/460/680]SX                      | XM□SX-3A-□-SS      | 58       |
| <b>Cartesian robot</b>                               |                    |          |
| CROSSMASTER [330/440/560/780]ΩX                      | XM□OMEGAX-□-□-SS   | 59       |
| <b>With PC control image recognition</b>             |                    |          |
| Desktop robot 350PC Smart SMΩX                       | —                  | 60 to 61 |
| Cartesian robot 350PC Smart XMΩX                     | —                  | 60 to 61 |
| Cartesian robot 350PC Smart XMRX                     | —                  | 60 to 61 |
| MuCADV Dispensing pattern editing software           | MUCADV             | 62       |
| Laser welding + Solder dispensing robot              | —                  | 63       |
| Screw tightening + Threadlocker dispensing robot     | —                  | 63       |
| Pick & Place + Adhesive dispensing robot             | —                  | 63       |
| UV irradiation + UV adhesive dispensing robot        | —                  | 63       |
| Dispensing failure inspection + Dispensing robot     | —                  | 63       |
| Deburring robot                                      | —                  | 63       |
| Evaluation robot                                     | —                  | 63       |
| Code printing robot                                  | —                  | 63       |
| Rotary Dispensing System CIRCLE MASTER               | —                  | 63       |

| Type   | Model | Page |
|--|-------|------|
| <b>Fully PC controlled multi-channel dispensing system</b> |       |      |
| PIPET MASTER   | —     | 64   |
| <b>Ultra-micro-volume reagent spotting system</b>          |       |      |
| SPOT MASTER  | —     | 64   |
| <b>Chemical solution filling and capping system</b>        |       |      |
| Automatic filling capper system                            | —     | 64   |
| <b>Ultra-high-speed reagent spotting system</b>            |       |      |
| JET SPOTTER  | —     | 65   |
| <b>Immunochromatographic line dispensing system</b>        |       |      |
| FOOD GRADE JET DECORATION SYSTEM                           | —     | 65   |
| CHOCO JET  | —     | 65   |
| <b>3D Food Printer</b>                                     |       |      |
| 3D FOOD DISPENSER  | —     | 65   |

| Type   | Model | Page |
|--|-------|------|
| <b>Fully automated high-end dispensing machine</b>         |       |      |
| DISPENS MASTER FAD5100S                                    | —     | 66   |
| <b>Fully automated multi-purpose dispensing machine</b>    |       |      |
| DISPENS MASTER FAD2500                                     | —     | 66   |
| <b>Dispensing inspection machine for inline production</b> |       |      |
| SMART ROBO TAI1000   | —     | 66   |
| <b>Fully automated substrate coating machine</b>           |       |      |
| COATING MASTER FCD1000                                     | —     | 66   |
| <b>Fully automated compact dispensing machine</b>          |       |      |
| SMART ROBO TAD1000M  | —     | 66   |
| <b>Fully automated seal dispensing machine</b>             |       |      |
| MLC-6500   | —     | 67   |
| <b>Fully automated ODF machine</b>                         |       |      |
| MLC-7500   | —     | 67   |
| <b>Fully automated wafer coating machine</b>               |       |      |
| FCD2000  | —     | 67   |
| <b>Fully automated lamination machine</b>                  |       |      |
| FDB-3000   | —     | 67   |

| Type   | Model             | Page |
|--|-------------------|------|
| <b>Syringes and accessories</b>                            |                   |      |
| High-precision syringes, specially designed for dispensing | PSY-□/SSY-□       | 68   |
| Adapter tube (with stopper)                                | AT-□E-□           | 68   |
| High-precision plunger                                     | TPP-□/MLP-□/FLP-□ | 68   |
| Syringe head cap   | HC-□              | 68   |
| Syringe tip cap  | NC-□              | 68   |
| Protective cap for syringe tip                             | GC-1              | 68   |
| O-ring (for adapter tube)                                  | ORG-□             | 68   |

| Type                                       | Model           | Page |
|--|-----------------|------|
| <b>Needles &amp; nozzles</b>               |                 |      |
| Metal needle                               | SNA-□G-[B/C]    | 69   |
| Thin metal needle                          | SNA-□N-[4/6]L-F | 69   |
| Plastic needle                             | PN-□G-[A/B]     | 69   |
| Double thread screwed plastic needle       | DPN-□G-□        | 69   |
| PTFE nozzle                                | TN-□G           | 69   |
| UV-block PTFE nozzle                       | TN-□G-U         | 69   |
| PTFE nozzle with SUS guide                 | TN-□G-□L-□G-□L  | 69   |
| Precision solid nozzle                     | SHN-□N          | 69   |
| Double thread screw precision solid nozzle | DSHN-M2-□F      | 69   |
| Super fine nozzle                          | FN-□[N/ND]      | 69   |
| Super fine nozzle tip thick 15 micrometer  | FN-□[N/ND]-F    | 69   |
| Sharp needle                               | SPN-□□L         | 69   |
| Double thread screw tapered nozzle         | TPND-□G-U       | 69   |
| Curve needle                               | CPN-□G-□        | 69   |
| Soft needle                                | PPN-□G          | 69   |
| Brush nozzle                               | BN-S□           | 69   |
| Multi nozzles                              | MN□             | 69   |

# KEY TECHNOLOGIES

## KEY TECHNOLOGIES that fill the new needs of the age

Dispensers (dispensing systems) embodying dispensing technology are utilized in manufacturing processes in all industries, from automobiles, aircraft, and satellites to medicine, pharmaceuticals, biotechnology, and food, as well as in the electronics field, including semiconductors, mounting, electronic components, smartphones, home appliances, and communications.

In particular, the application of the dispensing process is expanding in mobile devices such as smartphones, VR and AR goggles, and smart watches; digital devices such as PCs, tablets, and game consoles; and automobiles, which are undergoing remarkable technological innovation, including automated driving and EVs.

Dispensing technology is now an essential technology for craftsmanship. It is developing into a key technology that supports all industries.

### Applications list

|   |  |
|---|--|
| <b>Semiconductors, LEDs, MEMS devices (modules)</b>         | CSP, BGA, 3D -WLP, LED/miniLED/ $\mu$ LED, Power modules, Pressure sensors, etc.   |
| <b>Digital information terminals and Telecommunications</b> | Smartphones, VR/AR goggles, Smartwatches, Earphones, PCs, Tablets, Game consoles, Security cameras, E-books, Telecommunication base stations, Servers, etc.  |
| <b>Home appliances and office equipment</b>                 | TV, Video camera, Digital camera, HDD, DVD player, Washing machine, Refrigerator, Air conditioner, Vacuum cleaner, Microwave oven, Humidifier, Air cleaner, Copy machine, Scanner, Projector, etc.                   |
| <b>Automotive, Automotive Components &amp; Mobility</b>     | EVs, HVs, Engine cars, Drones, Electric bicycles, Electric motorcycles, Trains, Aircraft, Satellites, etc.   |
| <b>Electronic Components (Modules)</b>                      | Capacitors (capacitors), Inductors (coils), Resistors, Crystal devices, Relays, Switches, Power modules, Motors, Camera modules, Speakers, Connectors, Lithium-ion batteries, Solar cells, Fuel cells, Sensors, etc. |
| <b>Housing, Plant &amp; Energy</b>                          | Lighting fixtures, Toiletries, Building materials, Power tools, Industrial plants, Generators, Electric energy storage (ESS), etc.   |
| <b>Equipment and Machinery</b>                              | Semiconductor manufacturing equipment, Industrial robots, Microscopes, Telescopes, etc.  |
| <b>Medical, Biotechnology Products and Cosmetics</b>        | Medical needles, Medical syringes, Catheters, Endoscopes, Thermometers, Sphygmomanometers, Examination kits, Foundations, Lipsticks, Anti-aging cosmetics, etc.  |
| <b>Food</b>   | High-grade Japanese and Western confectionery, Chocolate, Fish paste, Sauces, Baste, etc.  |
| <b>General consumer goods, Musical instruments, Hobbies</b> | Stationery, Eyeglasses, Clothing, Shoes, Dishes, Furniture, Musical Instruments, Toys, Sporting Goods, Fishing Equipment, etc.   |

### Business fields

#### Automobile

Active in the bonding, sealing and coating processes of automotive parts such as engines, EV motors, ECUs, and batteries.

#### Smartphone/Tablet

Succeed in bonding, reinforcement, conduction and insulation of various devices including semiconductors.

#### Electronics

Succeed in bonding, reinforcement, conduction and insulation of various devices including semiconductors.



#### Next generation display

Our technology is taking part in critical process for the development and manufacturing of next-generation products such as curved displays.

#### Medical/Biotechnology

It contributes to cost and labor reduction and accuracy improvement for research institutes and pharmaceutical manufacturers.

#### Food

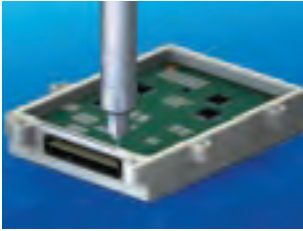
Please ask for the decoration and 3D ornament formation using chocolate and candy.

#### Aerospace/Ship

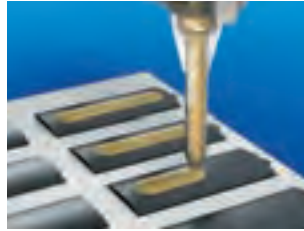
It is also used in the manufacture of satellites, spacecraft, airplanes, ship bodies and on-board equipment.

**Automobile**

CIPG drawing to ECU P24



Two-component adhesive applied to Motor Magnet P34



Two-component thermal pastes dispensing on the battery case P34



Grease dispensing on gear parts P20



**Automobile**

Applying thermal grease to the ECU casing P31

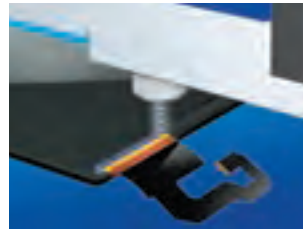


FIPG dispensing on engine parts P24



**Next generation display**

Tab reinforcement for OLED/LCD modules P18



ODF on LCD substrate for Mobile Products P67



**Smartphone/Tablet**

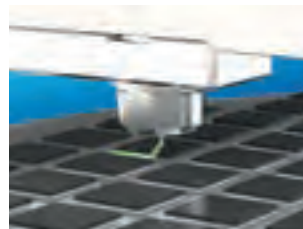
Sealant dispensing on cover cases P21



UV dispensing on camera modules P19



Underfilling 3D-WLP P66



Speaker Vibration Membrane Attachment P40

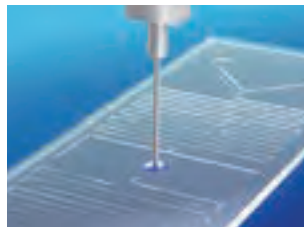


**Medical/Biotechnology**

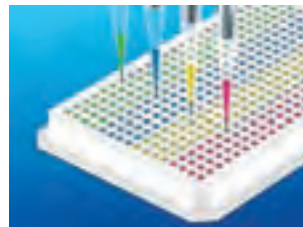
Antibody line dispensing for immunochromatography P65



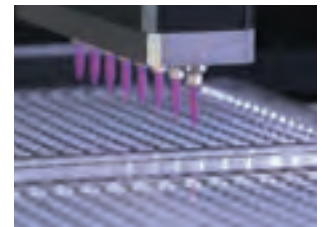
Development and manufacturing of biochips P64



Pipetting reagents into micro plate P64



Reagent spotting system P65

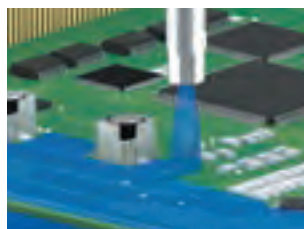


**Electronics**

Ag paste dispensing in die bonding P39



High-precision coating on substrates P66



Two-component resin encapsulation for IGBT modules P34



**Food**

Chocolate decoration on cookies P65



# INNOVATION

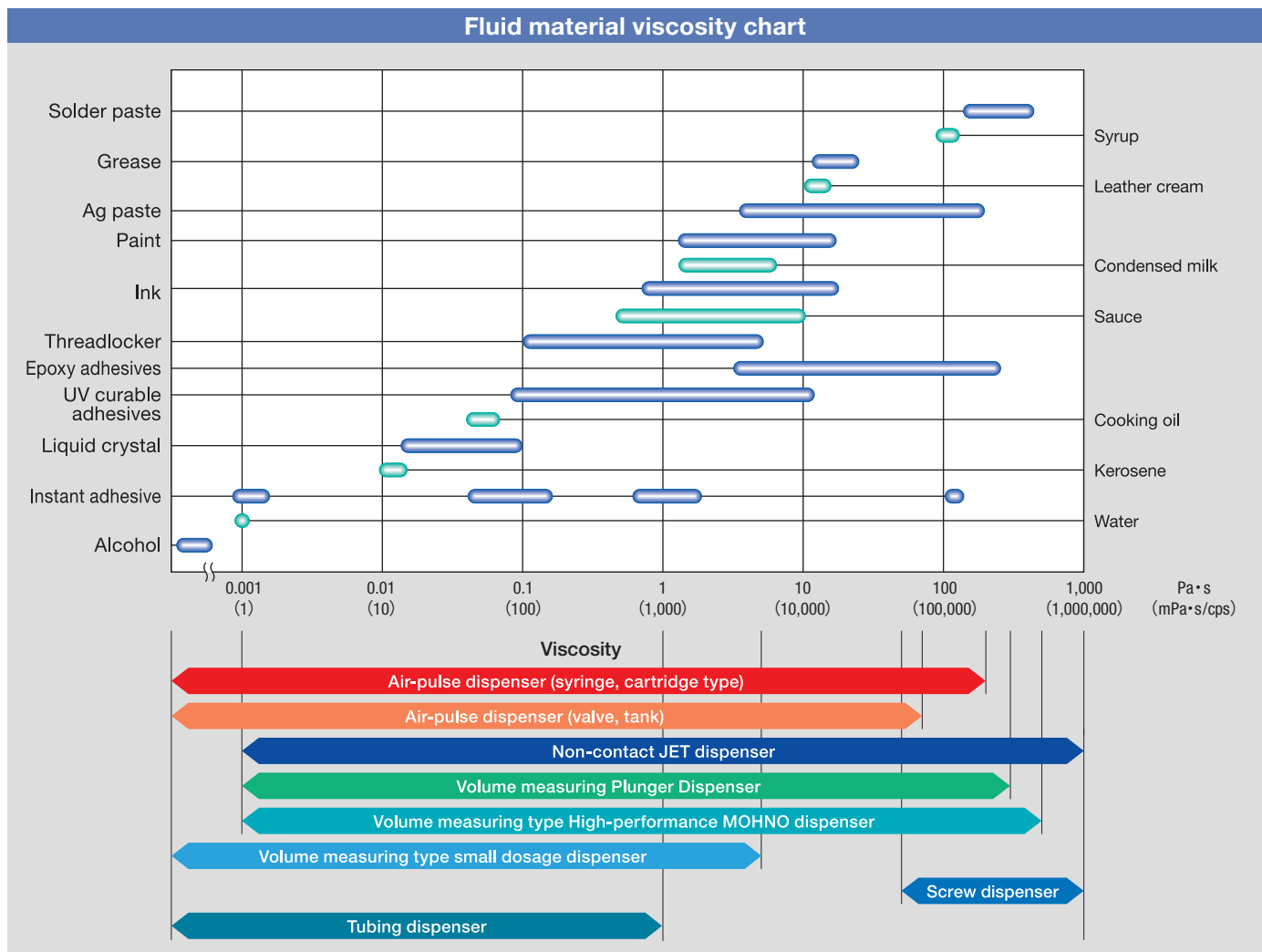
## Unending advancement of precision fluid control technologies

Demand for Digital Transformation (DX) and Green Transformation (GX), those related products and devices are also required for smaller, higher performance and more functions.

Variation and usage of fluid materials are also become more advanced as same as evolution of dispensing technology. Fluid materials for various purposes such as adhesion,

reinforcement, protection, sealing, conduction, heat dissipation, sealing, and lubrication have a wide variety of properties, including material, viscosity, curing characteristics, and thixotropy.

The extensive MUSASHI product lineup is developed and commercialized to suit the dispensing application and maximize the capabilities of each fluid material.



Note: The above chart shows reference values. The values may differ depending on the dispensing condition and fluid material to be used. Contact MUSASHI Sales for more information.

### Fluid material list (Application)

#### Assembly and Fixation (Adhesives)

UV curable adhesives, Thermosetting epoxy adhesives, Cyanoacrylate adhesives (instant adhesives), Anaerobic adhesives, Silicone RTV, Rubber adhesives, Two-component adhesives (epoxy/acrylic/urethane, etc.), Hot melts, Pressure sensitive adhesives, Temporary fixing agents, Screw lock agents, etc.

#### Reinforcement, Protection, Sealing

Underfill material, Junction coating resin (JCR), Polyimide, Moisture-proof coating agent, Fluorine coating agent, LED encapsulation resin, Gel material, etc.

#### Conduction

Solder paste, Ag paste, Cu paste, Sintering paste (Ag and others), Ag ink, etc.

#### Radiation

Silicone compound, Gap filler (1/2 component), etc.

#### Sealing

FIPG, CIPG, Reactive Hot melt (PUR), etc.

#### Lubrication

Oil, Silicone (oil, grease), Dry lubricant, etc.

#### Food/Cosmetic Materials

Chocolate, Fish paste, Tempura oil, Various edible pastes, Lotion, etc.

#### Other

Fluxes, rust inhibitors, Brazing materials (gold, silver, copper), Liquid crystals, Electrolytes, Inks, Dyes, Paints (solvent-based/water-based), Solvents (alcohol), Fluorescent paints, Waxes, Chemicals, etc.

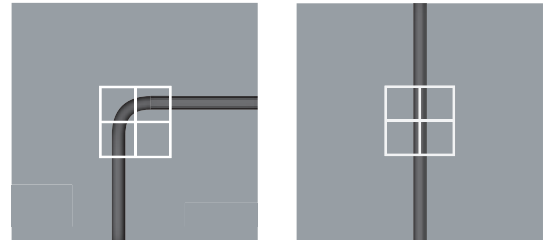




## Precision control technology that gives shape to fluids

Of the three states of matter (solid, liquid, and gas), there are no textbooks on dispensing technology (fluid precision control technology) for the 1.5 states of matter: fluids and fluidity solids.

MUSASHI has been pursuing and solving problems with "precision control technology that gives shape to fluids" demanded by the market and customers since its establishment, making full use of not only mechanical, electrical, control, software, and other engineering technologies, but also composite technologies that extend to optics, chemistry, and physics.



High-definition line drawing dispensing using the MLC-6500 fully automated liquid crystal seal dispensing system

### Ag paste dispensing sample



Note: This photograph is actual size.

This development approach has resulted in technologies for ultra-fine fluid controlling at the pico/nano level and stable dispensing on automated lines at mass production sites. MUSASHI contributes to the evolution of manufacturing processes for semiconductors and electronic devices, which are becoming smaller and finer, and to R&D activities in the pharmaceutical and biotechnology fields with its Ultra-precision and small fluid control technology.

## Dispensing diameter vs. Weight Table

$$\begin{matrix} \text{Aspect ratio} \\ \text{Dispensing diameter } (\phi) : \text{Height} \end{matrix} = \begin{matrix} \textcircled{1} 4:1 \\ \textcircled{2} 10:1 \end{matrix}$$

[Unit:mg]

| Dispensing diameter ( $\phi$ ) [mm]                                | 0.1 | 0.15    | 0.2     | 0.25    | 0.3     | 0.4    | 0.5    | 0.6    | 0.7    | 0.8   | 0.9   | 1.0   | 1.5  | 2.0  | 2.5 | 3.0 |      |
|--|-----|---------|---------|---------|---------|--------|--------|--------|--------|-------|-------|-------|------|------|-----|-----|------|
| <b>Water</b><br>Specific Gravity: 1.0                              | ①   | 0.00011 | 0.00036 | 0.00085 | 0.0017  | 0.0029 | 0.0068 | 0.0133 | 0.023  | 0.036 | 0.054 | 0.078 | 0.11 | 0.36 | 0.9 | 1.7 | 2.9  |
|  | ②   | 0.00004 | 0.00013 | 0.00032 | 0.00062 | 0.0011 | 0.0025 | 0.0050 | 0.0086 | 0.014 | 0.020 | 0.029 | 0.04 | 0.13 | 0.3 | 0.6 | 1.1  |
| <b>UV curable adhesives</b><br>Specific Gravity: 1.1               | ①   | 0.00012 | 0.00039 | 0.00094 | 0.0018  | 0.0032 | 0.0075 | 0.0146 | 0.025  | 0.040 | 0.060 | 0.085 | 0.12 | 0.39 | 0.9 | 1.8 | 3.2  |
|  | ②   | 0.00004 | 0.00015 | 0.00035 | 0.00068 | 0.0012 | 0.0028 | 0.0055 | 0.0095 | 0.015 | 0.022 | 0.032 | 0.04 | 0.15 | 0.4 | 0.7 | 1.2  |
| <b>Heat dissipation paste(gap filler)</b><br>Specific Gravity: 3.0 | ①   | 0.00032 | 0.00108 | 0.00255 | 0.0050  | 0.0086 | 0.0204 | 0.0399 | 0.069  | 0.109 | 0.163 | 0.233 | 0.32 | 1.08 | 2.6 | 5.0 | 8.6  |
|  | ②   | 0.00012 | 0.00040 | 0.00096 | 0.0019  | 0.0032 | 0.008  | 0.015  | 0.026  | 0.041 | 0.061 | 0.09  | 0.12 | 0.40 | 1.0 | 1.9 | 3.2  |
| <b>Ag paste</b><br><b>Solder paste</b><br>Specific Gravity: 4.0    | ①   | 0.00043 | 0.00144 | 0.00340 | 0.0066  | 0.0115 | 0.0272 | 0.0532 | 0.092  | 0.146 | 0.218 | 0.310 | 0.43 | 1.44 | 3.4 | 6.6 | 11.5 |
|  | ②   | 0.00016 | 0.00054 | 0.00127 | 0.0025  | 0.0043 | 0.010  | 0.020  | 0.034  | 0.055 | 0.081 | 0.12  | 0.16 | 0.54 | 1.3 | 2.5 | 4.3  |

Note: The above specific gravity is a guide only. The values may differ depending on fluid material to be used.

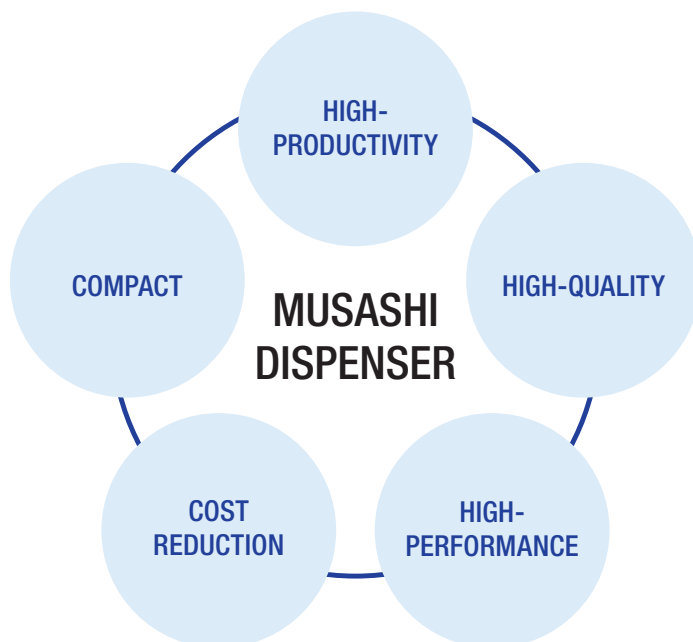
Note: Specific gravity is calculated as density [g/cm<sup>3</sup>].

# DISPENSE SOLUTION

The best solution from MUSASHI.

Professionals in charge of fluid precision control consultation will propose a dispensing system using fluid precision control technology necessary for labor saving and automation of production lines, tailored to the customer's application, needs, and budget. In order to accurately respond to your consultation, of course, we offer face-to-face or web meeting, but we also have a presentation room in our office to provide an excellent in-house environment for the best consultation. In addition, laboratory space at each location for application trials, technical discussions and on-site technical support are available to provide a tailored total solution to customers. To ensure that customers are fully convinced and satisfied with services, we practice technology exchange that is heart-to-heart in every aspect.

Five major advantages by installation of MUSASHI dispensers



## Product lineup

Dispenser



Desktop/cartesian robot



Parts & Accessories



Fully automated dispensing machine



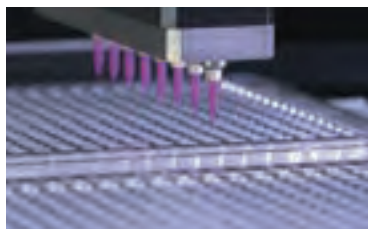
Fully automated substrate coating machine



Dispensing inspection machine



Reagent spotting system

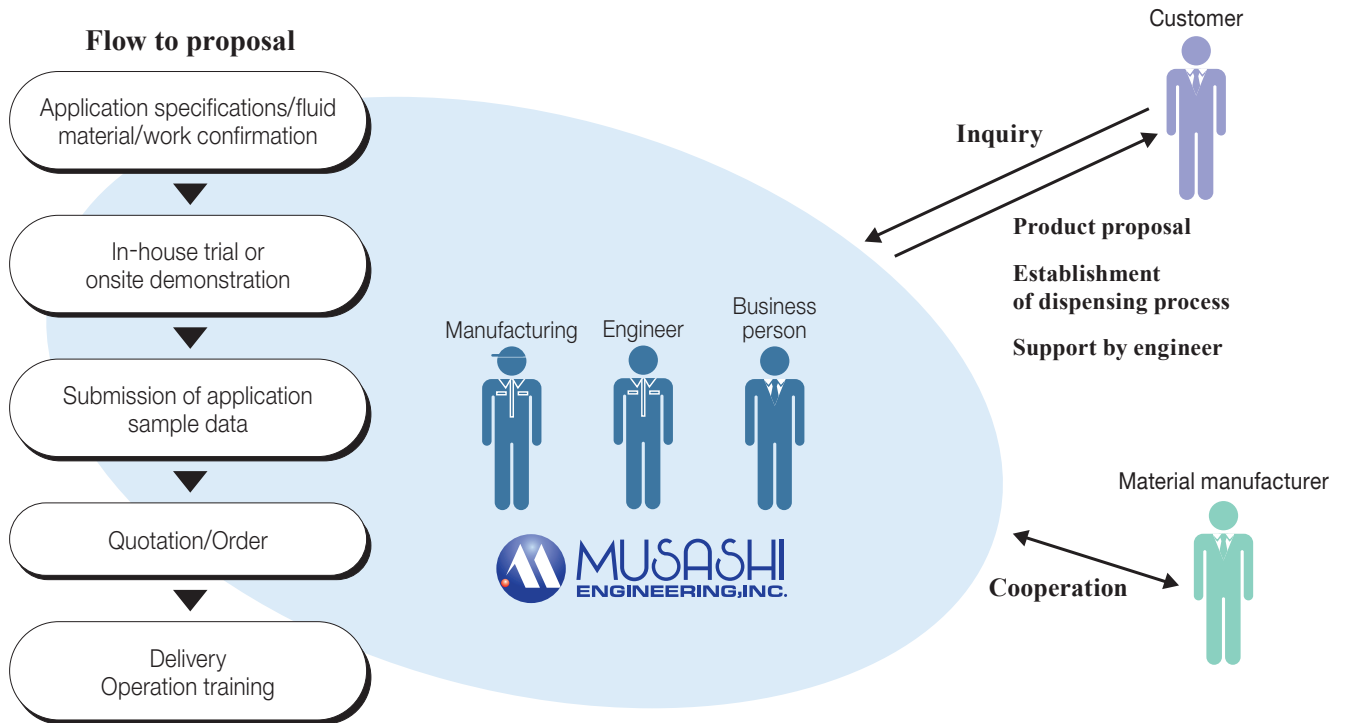


Dispensing/dilution system

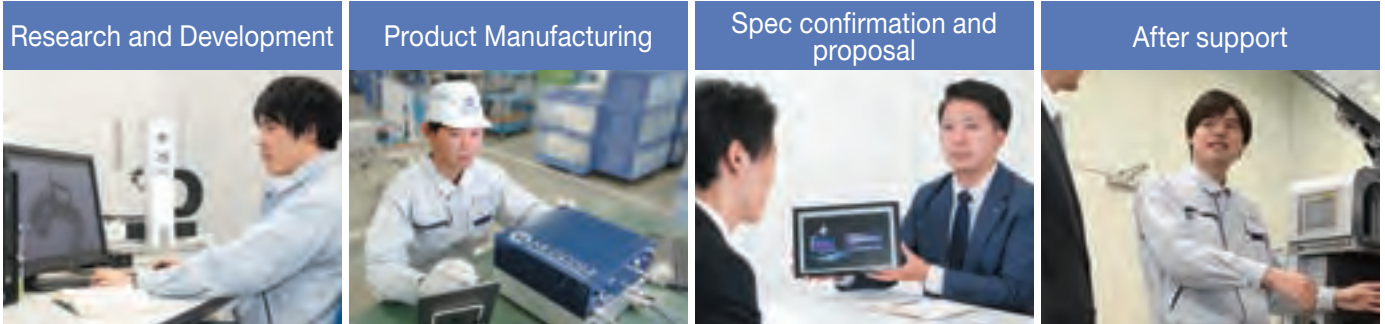


3D Food Printer





## MUSASHI Solutions



Fully equipped with a showroom and extensive evaluation facilities.

# DISPENSE WORLD

A full lineup of dispense heads, valves, and dispense controllers that are at the core of dispensing technology and responsible for metering fluid materials. Optimal solutions will be proposed for a wide variety of application scenarios.

## Jet dispensers

NEW



Ultra-high-speed/small volume/  
JET type jetted droplet, the supreme

**Super Jet 2**

General purpose No.1 seller /  
JET type

**Aero Jet**



For high-viscosity materials/JET type

**Super Hi Jet**

For low-viscosity fluid and  
non scattering/JET type

**Cyber Jet 2**



## Air pulse dispensers

NEW



High precision digital  
dispenser with upper-level  
communication support

**ML-8000X**



Micro volume, high-speed and  
high-precision/ pneumatic type with  
fully-automatic correction function

**Super ΣCMIII**

Mechanical dispensers

NEW

High-speed and high-grade gasket dispensing system/MOHNO type

**MOHNO MASTER**

Tubing type for instant adhesive  
**MT-410**

For high-viscosity materials in paste form/screw type

**SCREW MASTER 3**

Large volume/volume measuring type

**MEASURING MASTER MPP-3**

For 1nL/ultra-small volume, volume measuring type

**NANO MASTER SMP-III**

Syringes

High-precision, high-quality syringe

High-precision, high-quality nozzle

NEW

**DSHN nozzle FN nozzle**

Eco-friendly/compact pneumatic type  
**SMART SHOT MS-1/MS-1D**

Nozzles

Multi nozzle for multiple points per 1 shot

Curtain coating valve  
**CV-12**

High-precision fluid temperature control unit  
**PELTIER MASTER**

For Industry 4.0  
New generation digital dispenser

**ML-6000X Pro**

NEW

Precise volume measuring valve

**PPV-5**

High-precision needle control valve

MiniVal **NCV-17**

Constant-volume dispensing valve with suck back mechanism

MiniVal **PCV-12**

Valve dispensers

Other dispensers

Pails available, 2-component TIM dispensing system  
**MEASURING MASTER MPP-3-GF-MINI**

NEW

Grease JET dispensing system  
**GREASE JET**

# DISPENSE FA WORLD

A wide range of products are available, including desktop type robot as represented by the Shot Master series, fully automated seal dispensing systems and liquid crystal drip systems for the LCD field, and fully automated dispensing systems for the semiconductor and mounting fields.

## Cartesian robots

3-D alignment  
compensation cartesian robot  
**IMAGE MASTER  
350PC<sup>Smart</sup>**  
XCROSS MASTER series



**XCROSS MASTER  
XM780ΩX**



**XCROSS MASTER  
XM340SX**



## Fully automated dispensing machines

Fastest and  
highly elaborate  
high-end machine  
**FAD 5100S**



Highly elaborate machine,  
supporting bare wafers  
**FAD 5100S-WH**



Arm robots



Multi-joint dispensing robot  
**Arm JET**



World's smallest, compact, fully automated machine  
**SMART ROBO TAD 1000**



SHOT mini **200 Sx-SS**



SHOTMASTER **300 Sx-SS**



Wafer supported ultrathin film coating machine  
**COATING MASTER FCD 2000**

Desk-top robots



World's first 3D compensation desktop robot  
**IMAGE MASTER 350 PC Smart**  
SHOTMASTER series



High-precision coating machine supporting high density implementation  
**COATING MASTER FCD 1000**



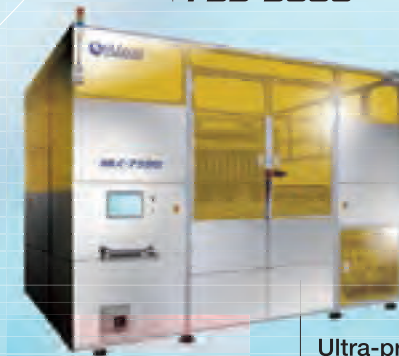
Dispensing inspection machine for inline production  
**SMART ROBO TAI 1000**



OCR fully automated lamination machine  
**FDB-3000**



Versatile best seller machine  
**FAD 2500**



Ultra-precise, ultra-high speed, fully automated liquid crystal drop machine  
**MLC 7500**

FPD fully automated dispensing machines



Submicron accuracy achieved with 20t rank machine



FPD fully automated, high-speed seal drawing machine  
**MLC 6500**

# High-precision fluid jetting for significant productivity improvement



## **Non-contact and ultra-high-speed dispensing takt time implemented**

Flies droplets with high precision from a position away from a workpiece and achieves all-directional dispensing from bottom, horizontal, or slanted directions. Significantly effective for dispensing on substrates having uneven surfaces or areas too narrow and small to insert a nozzle. Consistent dispensing, regardless of warped workpieces or individual tolerances. No Z-axis movement and gap control required. Dispensing microdots at high-speed with high-precision and reliable consistency. These JET dispensers will contribute to great improvement of productivity what contact dispensing have never achieved.

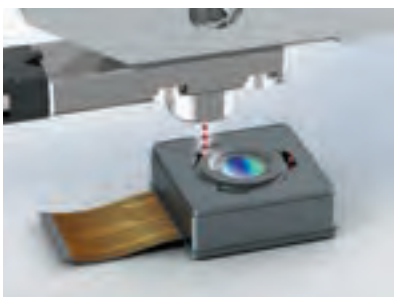
**Ideal for micro-point and micro-amount application.**

**A wide range of lineup for liquid materials and applications.**

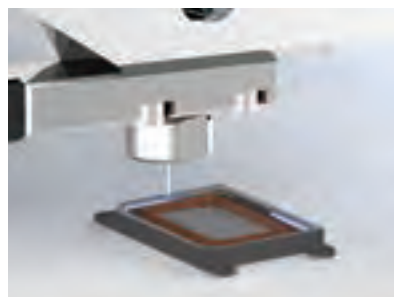
### **Applicable fluid materials**

UF agent, Ag paste, Encapsulant, Coating material, UV curable adhesive, Epoxy resin, Grease, Flux, etc.

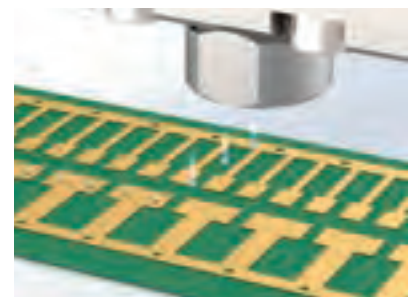
### **Applications**



UV dispensing on camera modules







Speaker Cover Adhesion



Ag paste dispensing on semiconductor lead frames

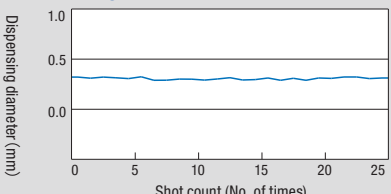


| JET Dispensers Lineup & Quick Reference               |  |  |  |  |              |
|---|--|--|--|--|--------------|
| Item name   | <i>SuperJet 2</i><br><b>NEW</b><br> | <i>SuperHiJet</i><br> | <i>AeroJet</i><br> | <i>CyberJet 2</i><br> |              |
| Maximum operating frequency                           | Max:1,200 Hz*  | Max:300 Hz   | Max:333 Hz   | Max:133 Hz   |              |
| Minimum dispensing volume                             | 0.5 nL/shot~   | 0.6 nL/shot~   | 4 nL/shot~   | 150 mL/shot~   |              |
| Applicable fluid material viscosity (Reference value) | 50 to 300,000 mPa·s  | 50 to 1,000,000 mPa·s  | 50 to 300,000 mPa·s  | 1 to 2,000 mPa·s   |              |
| Corresponding fluid                                   | Coating material   | ○  | ○  | ○  |              |
|   | Solder paste   |  | ○  | ○  |              |
|   | UV curable adhesives   | ○  | ○  | ○  |              |
|   | Silicon  |  | ○  |  |              |
|   | Grease   |  |  | ○  | ○ (dry type) |
|   | Underfill  | ○  |  | ○  |              |
|   | Chemical   | ○  |  |  | ○            |
|   | Solvent  | ○  |  |  | ○            |

\*Complete continuous dispensing:500 Hz


### JET Dispenser Features

**Capable of micro dispensing with high precision**




Dispenser: SuperJet2      Fluid materials: Ag paste  
Work: Copper plate    AVE:  $\phi$ 0.3 mm    Dispensing accuracy:  $\pm$ 5.7%


**No need to descend the Z-axis during dispensing, shortening the tact time.**




**Unaffected by workpiece distortion or warping**



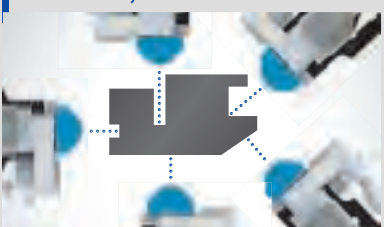
**Capable of dispensing to narrow pitches where nozzles cannot fit**



**No damage to the workpiece (e.g., wire) due to contact with the nozzle**



**Can be applied from the bottom, horizontal, and slanted directions**

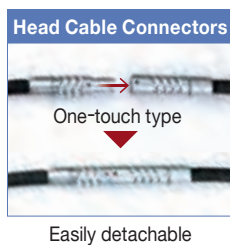


## High speed • Non-contact JET Dispenser

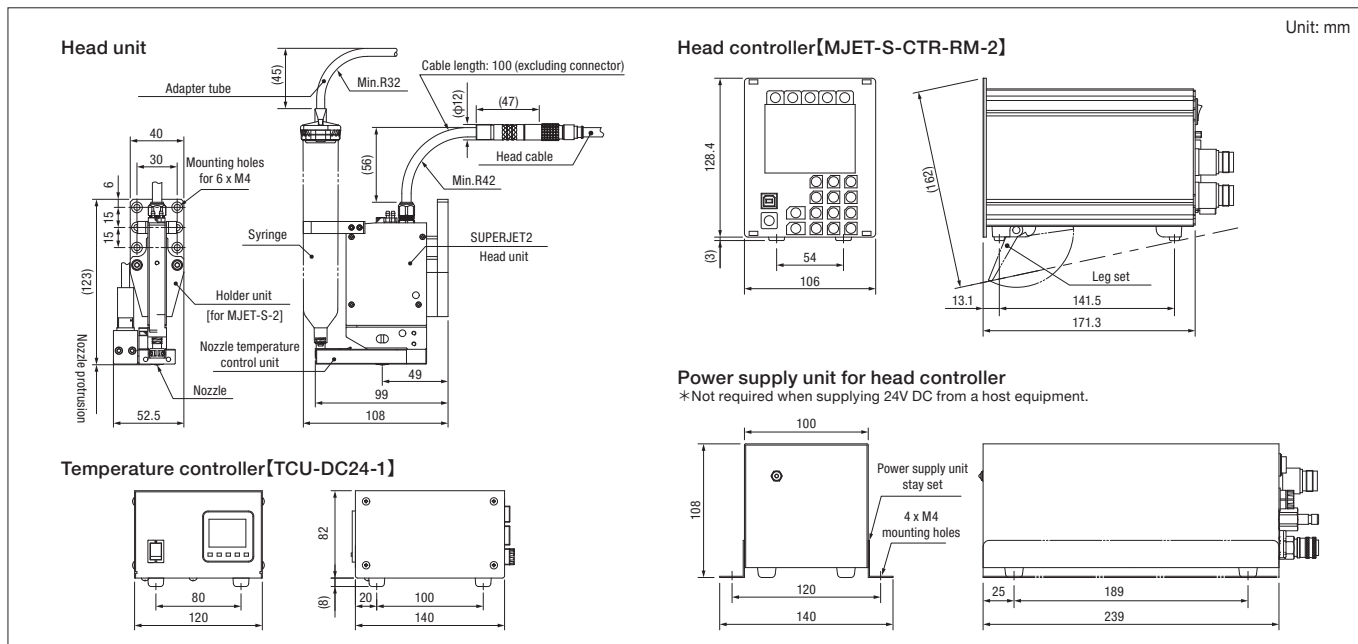


### Pursuit of high reliability • high quality Next Jet.

- Rod operation mode is selected according to the fluid.
- The fluid check window allows the operator to know when to replace seal parts.
- Rod replacement possible.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.
- Synchro Speed function support. [\[For details, see →P53\]](#)



### External dimensions



### Head unit Specification

|   |  |
|---|--|
| Item name                                   | Non-contact JET dispenser SUPERJET2  |
| Model                                       | MJET-S-2   |
| Dispensing system                           | Jet system   |
| Fluid material supply method                | Syringe (5 to 70 mL Use)   |
| Allowable fluid feed part temperature       | Max. 60°C  |
| External dimensions (excluding protrusions) | W29×D83×H107 mm  |
| Weight                                      | 0.4 kg (Including cable and connector Excluding fluid material and material container) |

### Head controller Specification

|   |  |
|---|--|
| Model                                       | MJET-S-CTR-RM-2  |
| Power supply unit                           | MJET-S-CTR-RM-PW-A   |
| Fluid feed pressure setting range           | 0.010 to 0.500 MPa<br>Please set pressure following the capacity of host equipment or fluid container. |
| Source pressure                             | Max. 0.700 MPa<br>Recommended supply pressure:<br>Fluid feeding pressure + 0.100 MPa or more           |
| Rated voltage and frequency                 | AC100-240 V 50/60 Hz   |
| Power consumption                           | 75 W (When operating at 500 Hz)  |
| External dimensions (excluding protrusions) | Controller section: W106×D1713×H1284 mm<br>Power supply section: W140×D239×H108 mm                     |
| Weight                                      | Head controller section: 1.6 kg<br>Power supply section: 20 kg   |

### Temperature control unit specification

|   |                  |
|---|------------------|
| Model                                       | MJET-S-2-NZTB    |
| Temperature control function                | Max. 80°C        |
| External dimensions (excluding protrusions) | W46×D82.5×H35 mm |
| Weight                                      | 0.1 kg           |

### Temperature controller specification

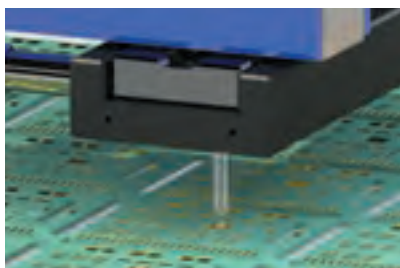
|   |                         |
|---|-------------------------|
| Model                                       | TCU-DC24-1              |
| Heating method                              | Cartridge heater method |
| Rated voltage and frequency                 | AC100-240 V 50/60 Hz    |
| Power consumption                           | Max. 68 W               |
| External dimensions (excluding protrusions) | W120×D140×H90 mm        |
| Weight                                      | 1.0 kg                  |

## High viscosity • Non-contact JET dispenser



### Advanced JET. High viscosity supported.

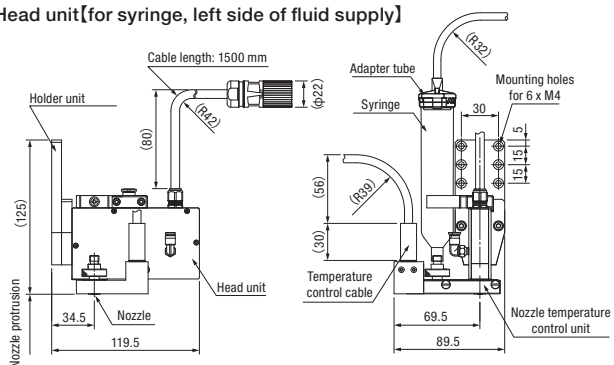
- For viscosity ranges up to 1,000,000 mPa · s.
- Excellent landing position accuracy.
- Rod replacement possible.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.
- Synchro Speed function support. [\[For details, see →P53\]](#)



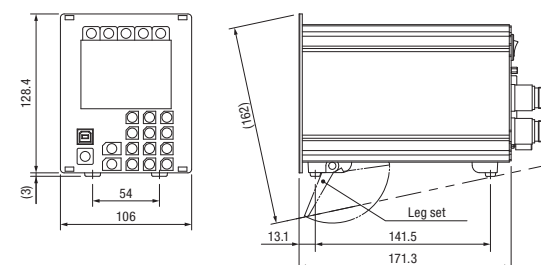
Dispensing of solder paste to PCBs

### External dimensions

#### Head unit [for syringe, left side of fluid supply]

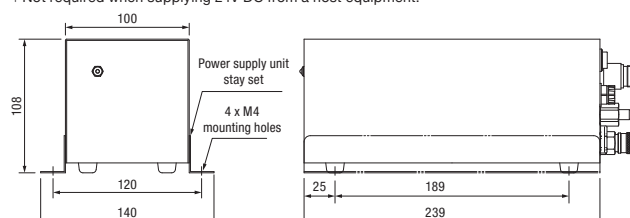


#### Head controller [MJET-S-CTR-RM-2]

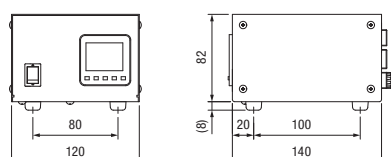


#### Power supply unit for head controller

\* Not required when supplying 24V DC from a host equipment.



#### Temperature controller [TCU-DC24-1]



### Head unit Specification

|   |  |
|---|--|
| Item name                                   | Non-contact JET dispenser SUPER HI JET   |
| Model                                       | MJET-S-HI-L  |
| Dispensing system                           | Jet system   |
| Fluid material supply method                | Syringe (5 to 70 mL Use)   |
| Allowable fluid feed part temperature       | Max. 80°C (Nozzle temperature control unit with heated temperature control)            |
| External dimensions (excluding protrusions) | W59.5×D103×H85.5 mm  |
| Weight                                      | 0.7 kg (Including cable and connector Excluding fluid material and material container) |

### Head controller Specification

|   |  |
|---|--|
| Model                                       | MJET-S-CTR-RM-2  |
| Power supply unit                           | MJET-S-CTR-RM-PW-A   |
| Fluid feed pressure setting range           | 0.010 to 0.500 MPa<br>Please set pressure following the capacity of host equipment or fluid container. |
| Source pressure                             | Max. 0.700 MPa<br>Recommended supply pressure:<br>Fluid feeding pressure + 0.100 MPa or more           |
| Rated voltage and frequency                 | AC100-240 V 50/60 Hz   |
| Power consumption                           | 75 W (When operating at 500 Hz)  |
| External dimensions (excluding protrusions) | Controller section: W106×D1713×H1284 mm<br>Power supply section: W140×D239×H108 mm                     |
| Weight                                      | Head controller section: 1.6 kg<br>Power supply section: 20 kg   |

### Temperature control unit specification

|   |                  |
|---|------------------|
| Model                                       | MJET-S-HI-L-NZTB |
| Temperature control function                | Max. 80°C        |
| External dimensions (excluding protrusions) | W86×D58×H34.5 mm |
| Weight                                      | 0.1 kg           |

### Temperature controller specification

|   |                         |
|---|-------------------------|
| Model                                       | TCU-DC24-1              |
| Heating method                              | Cartridge heater method |
| Rated voltage and frequency                 | AC100-240 V 50/60 Hz    |
| Power consumption                           | Max. 68 W               |
| External dimensions (excluding protrusions) | W120×D140×H90 mm        |
| Weight                                      | 1.0 kg                  |

## Mid & High viscosity • Non-contact JET dispenser



Synchro Speed  
PAT.

### Specifications

|                                       |  |
|---------------------------------------|--|
| Item name                             | Non-contact JET dispenser AEROJET  |
| Head unit Model                       | MJET-A-2   |
| Dispensing system                     | Jet system   |
| Fluid material supply method          | Syringe (5 to 70 mL Use), Tank   |
| Fluid feed pressure setting range     | 0.005 to 0.700 MPa<br>Please set pressure following the capacity of host equipment or fluid container. |
| Source pressure                       | Max. 0.800 MPa<br>Recommended supply pressure:<br>Fluid feeding pressure + 0.100 MPa or more           |
| Allowable fluid feed part temperature | Max. 80°C<br>(Holder unit with thermal temperature adjustment)   |
| Rated voltage and frequency           | AC100-240 V 50/60 Hz   |
| Power consumption                     | 110 W  |
| Head unit dimensions                  | W91×D91×H180.5 mm*   |
| Head unit weight                      | 0.46 kg (fluid and fluid container excluded)   |
| Controller dimensions                 | W300×D250×H107 mm  |
| Weight of dispense controller         | 4.0 kg   |

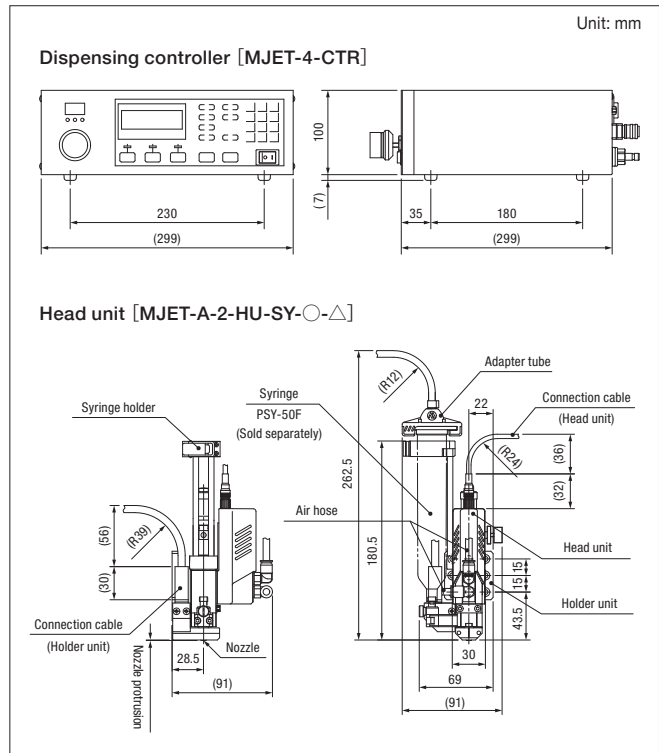
\* When PSY-50F is installed.

## High-speed and high-precision JET. Major reduction in production takt time.

- “Pinpoint shooting” with non-contact JET.
- Better production takt time with high-speed dispensing.
- Cut costs by reducing wasted Fluids.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.
- Synchro Speed function support. [For details, see →P53](#)

Note: Holder unit is non-CE marked.

### External dimensions



## JET Derived Applications

### Grease JET dispense system

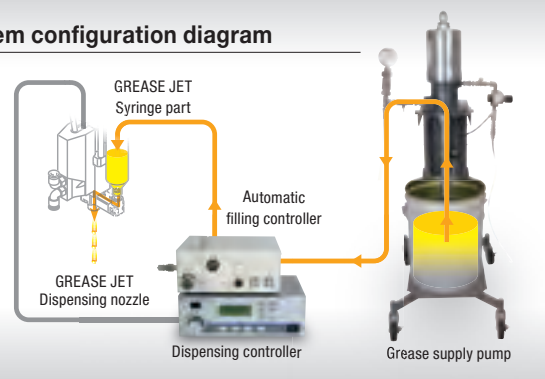
## GREASE JET



### Grease JET dispense system configuration diagram

#### Applying grease from many angles at high speed with pinpoint shooting!

A pail can be set and connected directly to the system for continuous dispensing of one pail's worth of grease. Contributes to squeeze cost reduction.



**Low-viscosity • Non-contact JET dispenser**



**Specifications**

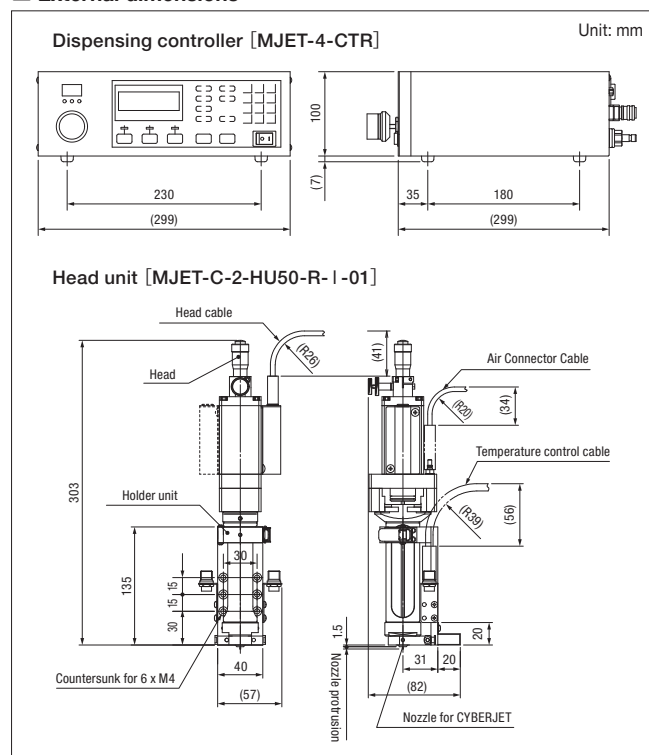
|                                       |  |
|---------------------------------------|--|
| Item name                             | Non-contact JET dispenser CYBERJET2  |
| Model                                 | MJET-C-2   |
| Dispensing system                     | Jet system   |
| Fluid material supply method          | Syringe(5 to 70 mL Use)  |
| Fluid feed pressure setting range     | 0.005 to 0.500 MPa   |
| Source pressure                       | Max. 0.800 MPa<br>Recommended supply pressure:<br>Fluid feeding pressure + 0.100 MPa or more |
| Allowable fluid feed part temperature | Max. 50°C<br>(Holder unit with thermal temperature adjustment)                               |
| Rated voltage and frequency           | AC90-240 V 47-63 Hz  |
| Power consumption                     | 62 W   |
| Head unit dimensions                  | W54.5 mm×D61 mm×H303 mm*   |
| Head unit weight                      | Approx. 760 g<br>(Head : 590 g Holder unit : 170 g)*   |
| Controller dimensions                 | W235×D324×H106.8 mm  |
| Weight of dispense controller         | 4.0 kg   |

\* When PSY-50F is installed.

**JET Dispensing Low-viscosity micro-droplets without scattering!**

- Dead volume “zero”
- Ideal for non-contact dispensing of low viscosity fluids.
- Dry lubricant is applied without clogging when used with Stirring system.
- Applicable for immunochromatography line dispensing.  
For details, see →P65
- Compatible Standards: EU RoHS2
- Synchro Speed function support. For details, see →P53

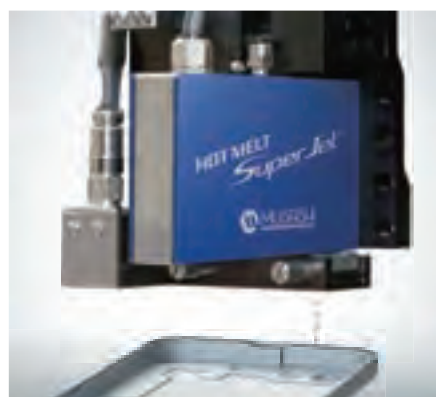
**External dimensions**



**Solder paste JET Dispenser**



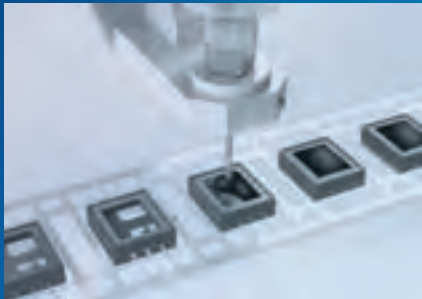
**HOT MELT JET Dispenser**



**Stirring system for CYBERJET2**



## Ultra-precision constant volume dispensing of fluid material with viscosity fluctuation.



Potting on sensor components

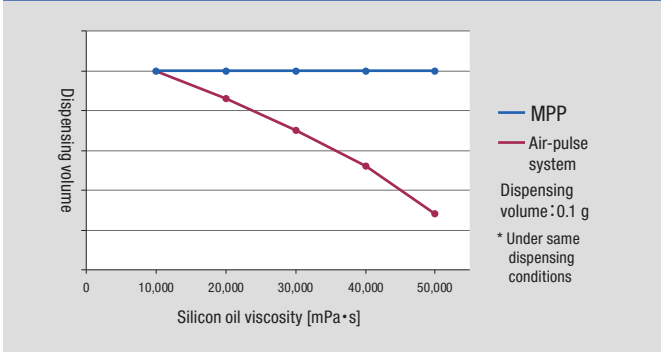


### **Ultra-precise dispensing implemented by the volume measuring type digital control plunger.**

#### **MEASURING MASTER MPP,**

a volumetric digitally controlled dispenser series for precise metered dispensing of fluids with viscosity fluctuation. Applications include potting various electronic components, dispensing reagents into vials, gasket dispensing, and OCR dam/fill.

Constant-volume dispensing without dependence on viscosity



#### Applications



Dispensing reagents into vial bottles



CIPG (gasket)



OCR (DAM)

Volume measuring type digital dispenser

**MEASURING MASTER MPP-1**



PAT.

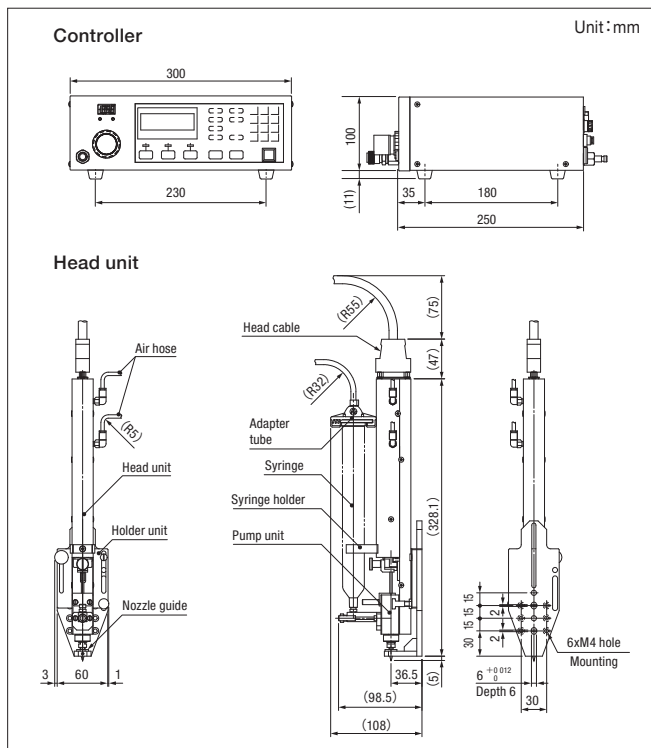
**Ultra-precision constant volume dispensing of fluid materials with viscosity fluctuation.**

- Set dispensing volume to suit capacity and density.
- High resolution & high linearity.
- Easy maintenance without tools.
- Dedicated two-component systems are also included in the lineup. [For details, see →P34]

■ Specifications

|   |  |         |                        |
|---|--|---------|------------------------|
| Item name                                   | Volume measuring type digital dispenser<br>MEASURING MASTER        |         |                        |
| Model                                       | MPP-1  |         |                        |
| Dispensing system                           | Volume measuring type  |         |                        |
| Pump capacities                             | Standard type  | 0.15 mL | Select any one of them |
|   |  | 0.15 mL |                        |
|   | B1 type  | 0.30 mL |                        |
|   |  | 0.65 mL |                        |
| Fluid feed pressure setting range           | 0.001 to 0.500 MPa   |         |                        |
| Source pressure                             | 0.400 to 0.800 MPa   |         |                        |
| Fluid material supply method                | Syringe (10 to 70 mL Use)  |         |                        |
| Rated voltage and frequency                 | AC100-240 V 50/60 Hz   |         |                        |
| Power consumption                           | 25 W   |         |                        |
| External dimensions (excluding protrusions) | Controller section: W300×D250×H111 mm                              |         |                        |
|   | Head section: W25×D86.5×H320 mm                                    |         |                        |
| Weight                                      | Controller section: approx. 4.5 kg                                 |         |                        |
|   | Head section: 0.85 kg (not including fluid material and container) |         |                        |

■ External dimensions



Volume measuring type digital dispenser for large capacity

**MEASURING MASTER MPP-3**



PAT.

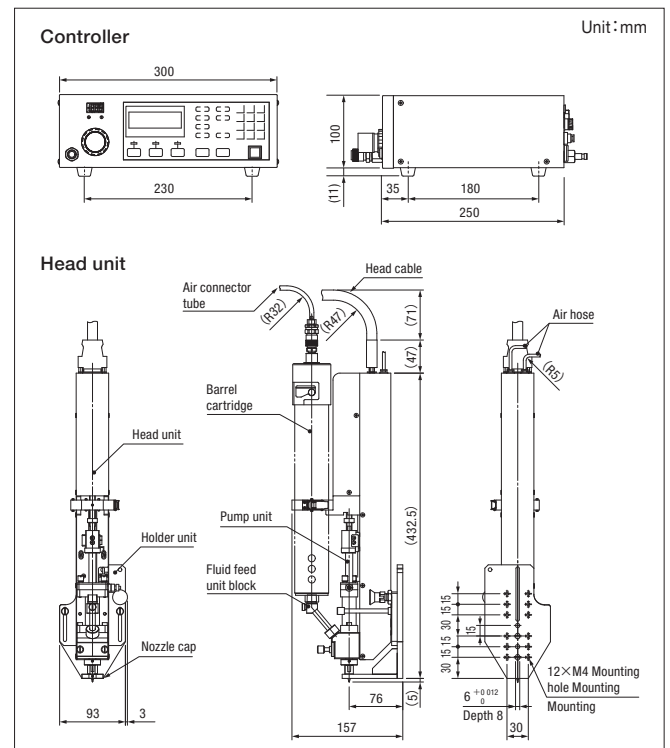
**Volumetric. Outstanding “Dispensing Accuracy”**

- Excellent constant flow for stunning line formation.
- Suck back mechanism for superior fluid cut-off.
- Dedicated two-component systems are also included in the lineup. [For details, see →P34]

■ Specifications

|   |  |      |                        |
|---|--|------|------------------------|
| Item name                                   | Volume measuring type digital dispenser<br>MEASURING MASTER              |      |                        |
| Model                                       | MPP-3  |      |                        |
| Dispensing system                           | Volume measuring type  |      |                        |
| Pump capacities                             | Standard type  | 5 mL | Select any one of them |
|   |  | 7 mL |                        |
|   | B1 type  | 5 mL |                        |
|   |  | 7 mL |                        |
| Fluid feed pressure setting range           | 0.001 to 0.500 MPa   |      |                        |
| Source pressure                             | 0.400 to 0.800 MPa   |      |                        |
| Fluid material supply method                | BARREL CARTRIDGE (170/340 ML) tank, pail can                             |      |                        |
| Rated voltage and frequency                 | AC100-240 V 50/60 Hz   |      |                        |
| Power consumption                           | 53 W   |      |                        |
| External dimensions (excluding protrusions) | Controller section: W300×D250×H111 mm                                    |      |                        |
|   | Head section: W46×D83×H414 mm  |      |                        |
| Weight                                      | Controller section: approx. 5.2 kg                                       |      |                        |
|   | Head section approx. 2.8 kg (not including fluid material and container) |      |                        |

■ External dimensions



# Volumetric measuring × Continuous dispensing × No air bubbles Optimal Solution for Gasket Sealing

## No Microbubble

Zero bubble contamination for dispensing.



## High Responsiveness

Eliminates variation in dispensing precision and dispensing geometry.



## Sealant dispensing of FIPG and CIPG at high speed and high quality.

The fluid chamber transfer system, which contributes high flow rate dispensing, forces the fluid material to be squeezed out for high speed dispensing.

In addition, continuous dispensing is implemented, facilitating smooth dispensing to full-scale mass production lines.

**MOHNO MASTER** is a MOHNO-type dispenser that is effective for high-precision seal dispensing of high-viscosity fluids, such as FIPG/CIPG and other fluid gasket materials for automotive applications, as well as optical bonding and waterproof seals for display-related applications.

Ideal for high flow rate dispensing.

Fewer consumable parts and squeezed running costs.

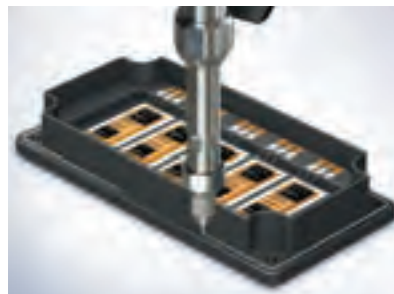
### Applicable fluid materials

Fluid gasket materials FIPG/CIPG, UV curable adhesives, moisture curable materials, two-component curable materials, etc.

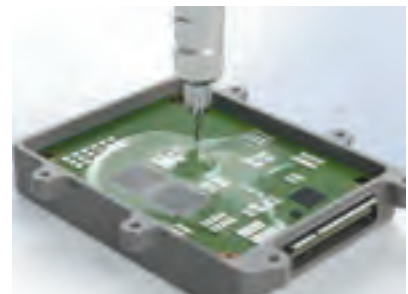
### Applications



FIPG dispensing on engine parts



CIPG seal dispensing on IGBT modules

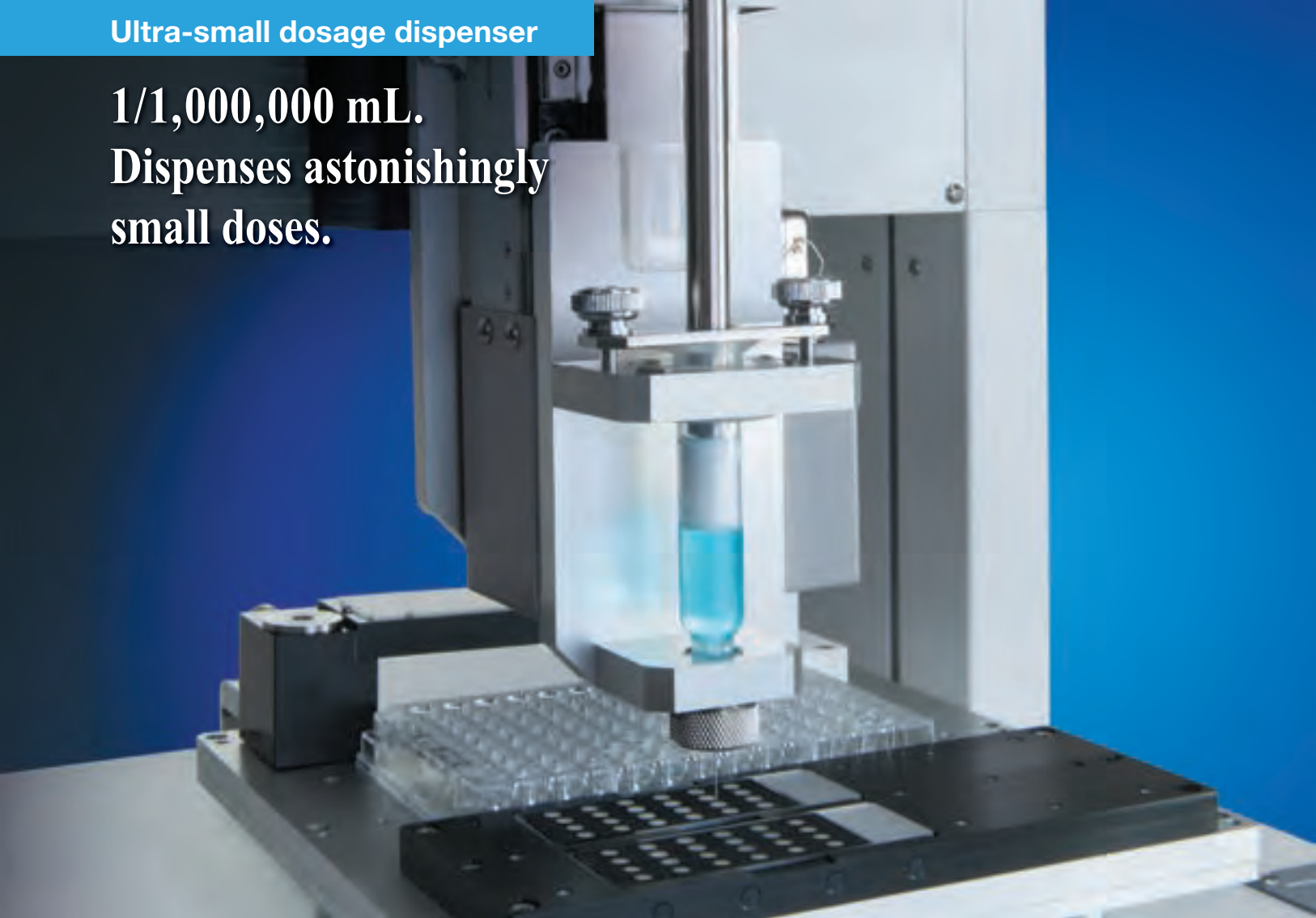


ECU Potting



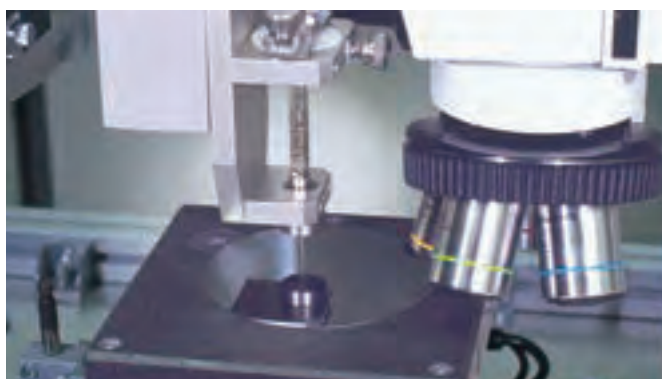


**1/1,000,000 mL.  
Dispenses astonishingly  
small doses.**



***Demonstrates power for ultra-small volume dispensing/high precision dispensing/  
multi-channel dispensing/filling of fluid medicine, solvents and volatile materials.***

Newly developed by MUSASHI, **NANO MASTER** series are digitally controlled plunger-type ultra-low volume dispense system exclusively designed for ultra-low volume. The minimum dispensing volume of 1/1,000,000 mL enables ultra-low volume dispensing, and the fully digital control system provides excellent repeatability. It demonstrates outstanding performance in ultra-low volume dispensing of low-viscosity fluid materials such as solvents and volatile fluids, precision dispensing, metered volume filling, etc. From R&D to mass production of electronic components, optical devices, pharmaceuticals, etc., we can handle a wide range of applications in various fields.



Example of FA dispense machine with micro syringe specifications

### Suitable products

Semiconductors, Liquid Crystal Substrates, and Electronic Components. Precision Machinery such as Watches, Cameras, Optical Instruments, etc., Medical Supplies, Foodstuffs, etc.

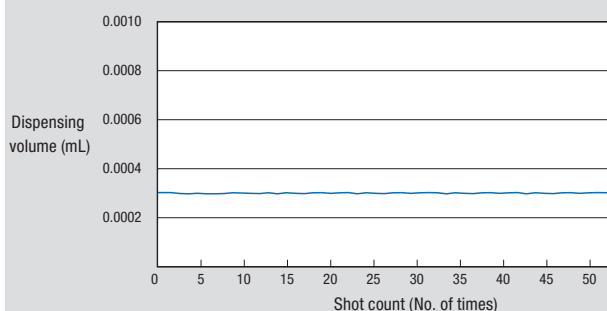
### Applicable dispensing materials

Best suited for low viscosity fluid materials. Alcohol, volatile fluids, UV curable adhesives, etc.

### Applications

Micro filling, Micro dispensing, Point dispensing, Line dispensing, Gluing, Potting, etc.

### Dispensing volume precision by NANO MASTER SMP-III



Syringe: PSY-50F Speed: 100 Fluid material: Water Dispensing volume: 0.0003 mL

## Ultra-small dosage dispenser

### NANO MASTER SMP-III



#### nL level volume, ultra-high-precision dispensing.

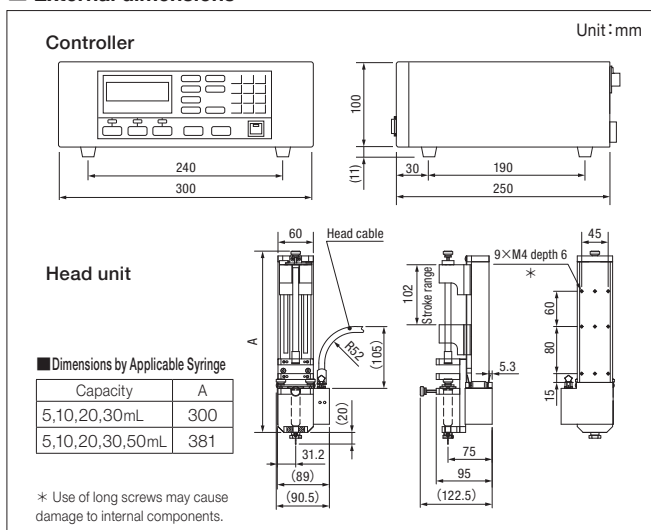
- High stability dispensing by digital control and measurement system.
- Unique plunger mechanism and suck back function eliminate fluid drips.
- Compatible with micro-syringes, for high-precision dispensing of nano-volume fluid.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.
- Synchro Speed function support. [\[For details, see →P53\]](#)

#### ■ Specifications

| Item name                         | Ultra-small dosage dispenser NANO MASTER                          |                              |
|-----------------------------------|---|------------------------------|
|                                   | SMP-III type 30 mL  | SMP-III type 50 mL           |
| Model                             | SMP-3-30  | SMP-3-50                     |
| Dispensing system                 | Volume measurement system   |                              |
| Fluid material supply method      | 0.005, 0.5, 1, 5, 10 mL micro syringe<br>5, 10, 20, 30 mL syringe | 5, 10, 20, 30, 50 mL syringe |
| Dispensing volume setting range * | 0.009 to 50000.000 µL   |                              |
| Rated voltage and frequency       | AC100-240 V 50/60 Hz  |                              |
| Power consumption                 | 45 W  |                              |
| Dispense head unit dimensions     | W89×D123×H300 mm  | W89×D123×H381 mm             |
| Dispense head unit weight         | 2.3 kg  | 2.5 kg                       |
| Controller dimensions             | W300×D250×H111 mm   |                              |
| Weight of dispense controller     | 4.5 kg  |                              |

\* With 50 mL syringe installed

#### ■ External dimensions



## Ultra-small dosage dispenser

### NANO MASTER SMP-II



#### Economical, super micro-volume dispenser.

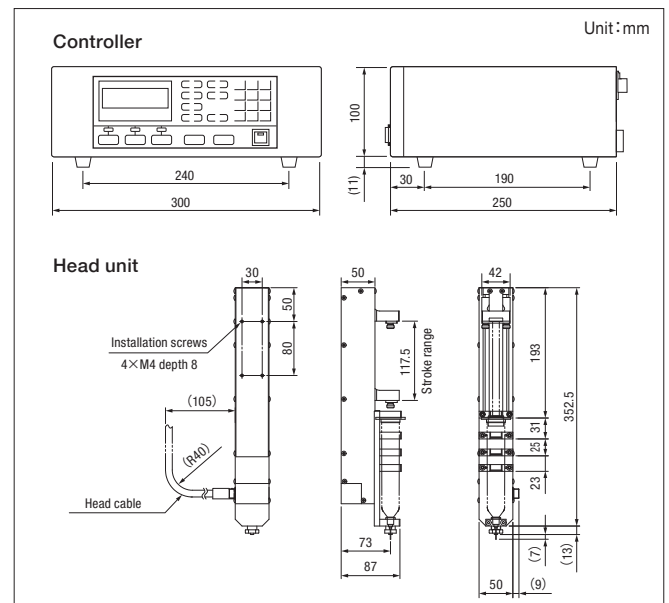
- The SMP-II can dispense super small volumes, as tiny as 1/10,000 mL, of low viscosity fluid.
- High stability dispensing is enabled by digital control and measurement system.
- Unique plunger mechanism and suck back function eliminate fluid drips.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.
- Synchro Speed function support. [\[For details, see →P53\]](#)

#### ■ Specifications

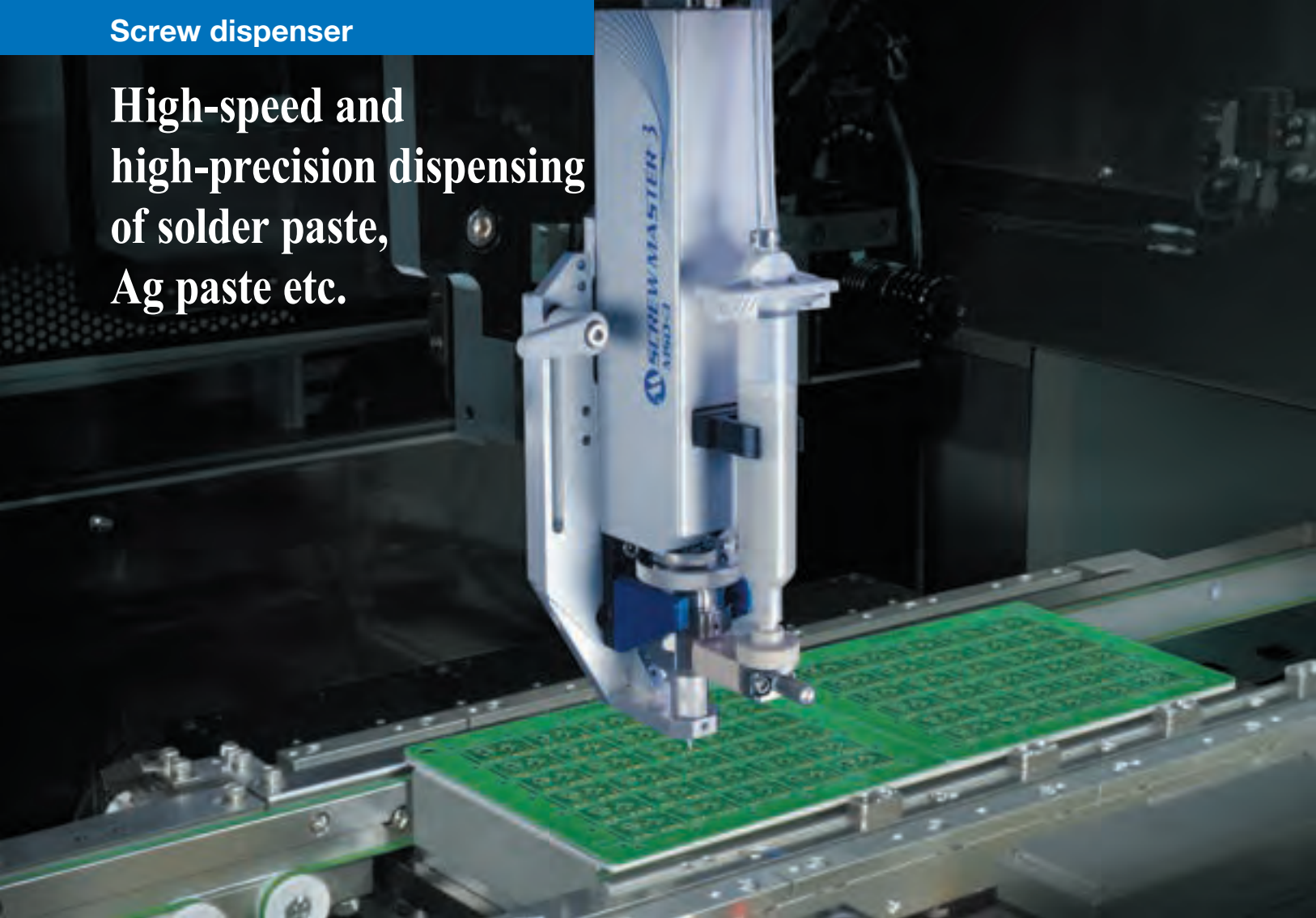
| Item name                         | Ultra-small dosage dispenser NANO MASTE |
|-----------------------------------|---|
| Model                             | SMP-2                                   |
| Dispensing system                 | Volume measurement system               |
| Fluid material supply method      | 5, 10, 20, 30, 50 mL syringe            |
| Dispensing volume setting range * | 0.1 to 50000.0 µL                       |
| Rated voltage and frequency       | AC100-240 V 50/60 Hz                    |
| Power consumption                 | 55 W                                    |
| Dispense head unit dimensions     | W50×D87×H352.5 mm                       |
| Dispense head unit weight         | 1.8 kg                                  |
| Controller dimensions             | W300×D250×H111 mm                       |
| Weight of dispense controller     | 4.5 kg                                  |

\* With 50 mL syringe installed

#### ■ External dimensions



High-speed and high-precision dispensing of solder paste, Ag paste etc.



**High-speed stable dispensing of high viscosity fluid containing filler without clogging.**

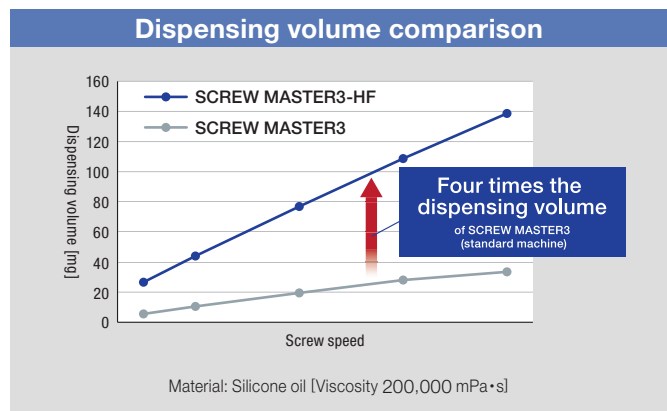
High performance screw dispenser

**SCREW MASTER 3** for solder paste, Ag

paste, epoxy resin, grease, etc., where stable, high-speed, high-precision dispensing is required.

The unique screw mechanism eliminates dispensing volume variation and fluid accumulation, enabling highly stable and precise micro-dot dispensing and line drawing.

In addition, the syringe can be easily replaced, promising high work efficiency. It satisfies the severe requirements for the application of particle-containing materials and high-viscosity materials at a high level.



**Stable dispensing precision**

4 times faster. dispensing speed

Fluid with filler enables high-stability, high-precision, high-speed micro dispensing.

\* Comparison of Air-pulse

**Applications**







Solder paste dispensing



Ag paste dispensing

## SCREW MASTER series Lineup & quick reference table

| Item name           |              | <b>SCREW MASTER 3-HF</b><br><span style="color: red; font-weight: bold;">NEW</span> |                 | <b>SCREW MASTER 3</b>   |                 | <b>HOT MELT SCREW MASTER</b>  | <b>SCREW MASTER</b><br>Applicable to high-viscosity radiation grease Dispensing     |  |
|---------------------|--------------|---|-----------------|---|-----------------|---|---|--|
|                     |              |    |                 |  |                 |  |  |  |
| Flow rate           |              | High flow   |                 | Standard  |                 | Standard  | High flow   |  |
| Rod type            |              | Standard  | High durability | Standard  | High durability | Standard  | Standard  |  |
| Corresponding fluid | Radiation    | Thermal grease  | ◎               |   | ○               |   | ◎<br>(to 1,000,000 mPa·s)   |  |
|                     | Fixation     | RTV   | ◎               |   | ○               |   |   |  |
|                     |              | Hot melt  |                 |   |                 |   | ○ (-160°C)  |  |
|                     | Sealing      | CIPG/FIPG   | ○               | ◎   | ○               | ○   |   |  |
|                     |              | PUR   |                 |   |                 |   | ◎   |  |
| Conduction          | Solder paste | ○   |                 | ◎   |                 |   |   |  |

### Common controller

## SCREW MASTER series

A common controller that can drive each head of the SCREW MASTER series.

Equipped with various functions for various High RPM specification also lined up (option)\*

\* Pre-evaluation is required.

#### Recommended Functions

- **“Suckback function”** to prevent liquid dripping
- **“Auto increment function”** to automatically switch registered dispensing conditions
- **“Synchro Speed function”** for automatic control of dispensing line width in conjunction with our dispensing robot. For details, see →P53
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.



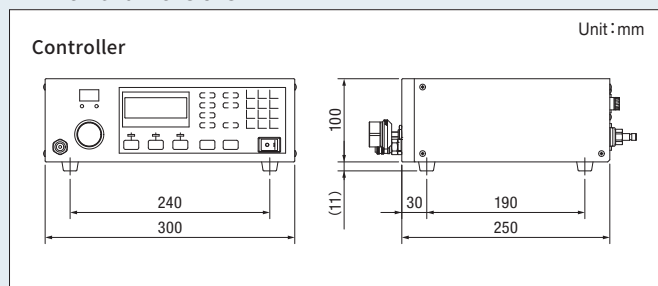
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#### Dispensing controller specifications

|                                   |  |
|-----------------------------------|--|
| Item name                         | High-performance screw dispenser SCREW MASTER3   |
| Model                             | MSD3-CTR   |
| Fluid feed pressure setting range | 0.010 to 0.700 MPa<br>Set to the allowable pressure of the equipment or fluid material container to which it is connected. |
| Source pressure                   | Max. 0.800 MPa<br>Recommended supply pressure:<br>Fluid feeding pressure + 0.100 MPa or more                               |
| Rated current and frequency       | AC 100-240 V 50/60 Hz  |
| External dimensions               | W300×D250×H111 mm (excluding protrusions)  |
| Weight                            | 5.2 kg   |
| Power consumption                 | 45 W   |

Note: High RPM specifications require prior evaluation.

#### External dimensions



## High-performance screw dispenser

### SCREW MASTER 3-HF



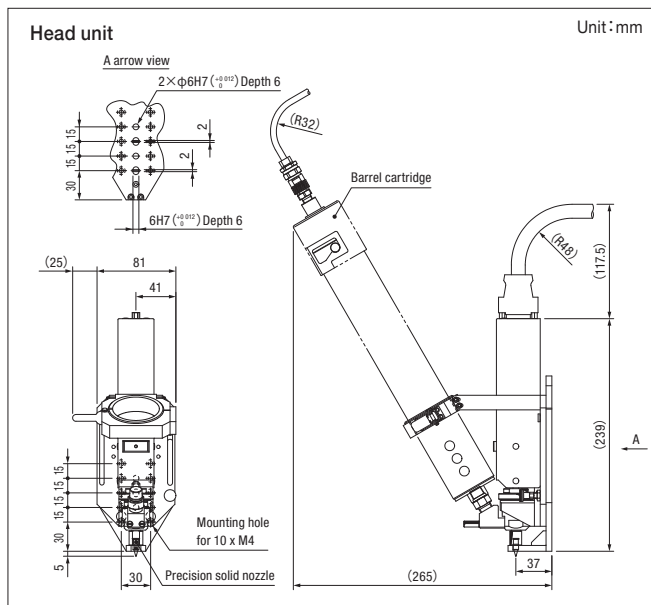
#### High Flow & High Speed

- Dispensing speed “4 times” as fast as conventional methods.
- High durability rods are also available.
- Compatible with thermal interface material containing filler.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.
- Synchro Speed function support. [\[For details, see →P53\]](#)

#### Specifications

|   |  |
|---|--|
| Item name                                   | SCREW MASTER3-HF   |
| Model                                       | MSD3-HD-HF   |
| Dispensing system                           | Screw type   |
| External dimensions (excluding protrusions) | W37×D79×H233.5 mm  |
| Weight                                      | 1 kg (Excluding screw rods, fluid materials and containers)  |
| Applicable temperature control unit         | —  |
| Fluid material supply method                | Syringe, barrel cartridge, sealant cartridge, tube cartridge |

#### External dimensions



## High-performance screw dispenser

### SCREW MASTER 3



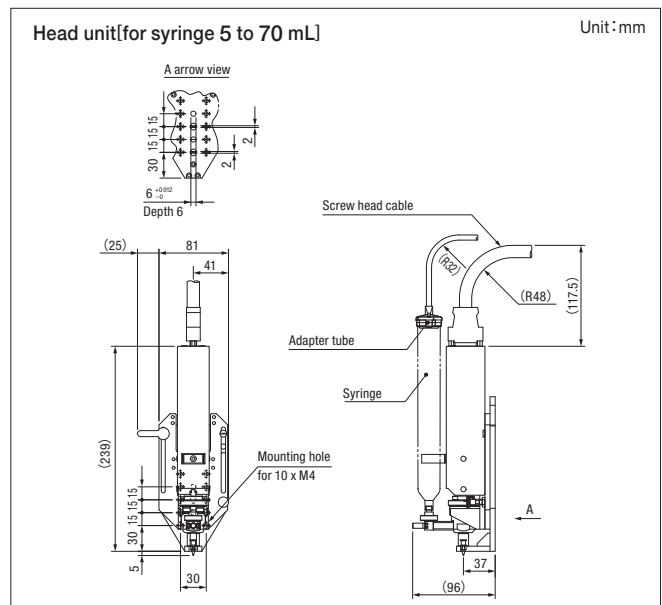
#### Minimum dispensing volume $\phi$ 0.15mm realizes overwhelmingly high precision dispensing.

- The unique screw mechanism eliminates volume inconsistency and fluid pools.
- Achieves micro dotting and superfine drawing of solder paste or fluid with filler.
- Syringes and wetted parts can be easily replaced.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.
- Synchro Speed function support. [\[For details, see →P53\]](#)

#### Specifications

|   |   |  |   |
|---|---|--|---|
| Item name                                   | SCREW MASTER3   |  |   |
| Model                                       | MSD-3-SET1<br>[For Syringes]                                | MSD-3-SET2<br>[Temperature Control Syringes] | MSD-3-SET3<br>[Cartridge Configuration]             |
| Dispensing system                           | Screw type  |  |   |
| External dimensions (excluding protrusions) | W37×D85×<br>H230.5 mm                                       | W37×D100×<br>H230.5 mm                       |   |
| Weight                                      | 1 kg (Excluding screw rods, fluid materials and containers) |  |   |
| Applicable temperature control unit         | —   | PELTIEMASTER THERMOMASTER                    | —   |
| Fluid material supply method                | Syringes, Tank*   | Syringe                                      | Barrel cartridge, sealant cartridge, tube cartridge |

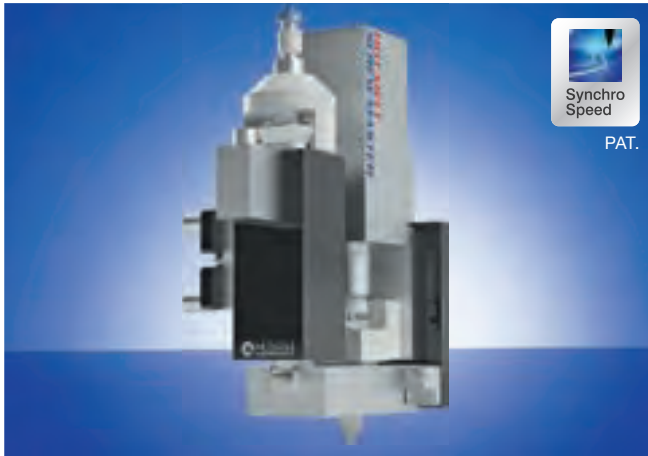
#### External dimensions



\* Needs to be connected through some valves. Please contact Musashi Sales Department.

## High-performance screw dispenser

### HOT MELT SCREW MASTER



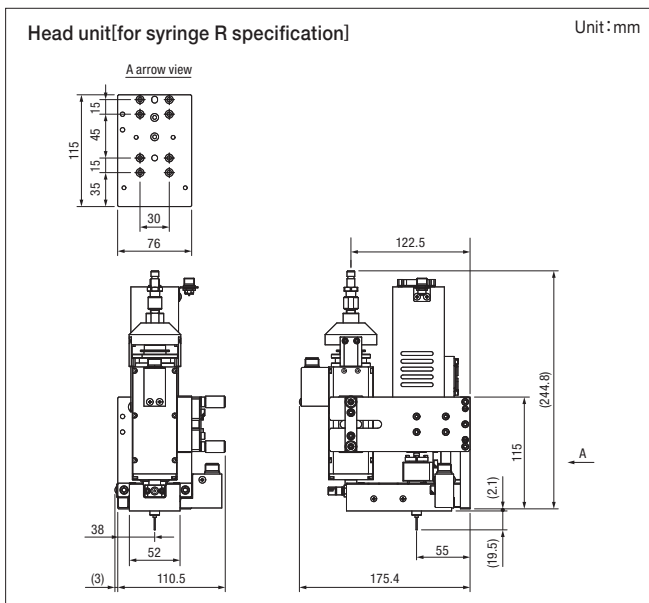
#### Fine line and high-speed PUR hot melt dispensing!

- Line width 0.1mm ~
- Achieves 100 mm/s or faster dispensing speed
- Set temperature up to 160° C
- A dedicated suck back program solves liquid dripping during waiting time.
- Synchro Speed function support. [For details, see →P53]

#### ■ Specifications

| Item name                                      | HOTMELT SCREW MASTER  |                                     |
|--|---|-------------------------------------|
| Model  | HM-MSD<br>[For Syringes]                                    | HM-MSD<br>[Cartridge Configuration] |
| Dispensing system                              | Screw type  |                                     |
| External dimensions<br>(excluding protrusions) | W70.5×D133.2×<br>H238.7 mm                                  | W70.5×D133.2×<br>H238.7 mm          |
| Weight   | 1 kg (Excluding screw rods, fluid materials and containers) |                                     |
| Applicable temperature<br>control unit         | —   |                                     |
| Fluid material supply<br>method                | Heat-resistant syringe                                      | 300 mL Aluminium Cartridge          |

#### ■ External dimensions



## High-performance screw dispenser

### SCREW MASTER

Applicable to high-viscosity radiation grease Dispensing



Dedicated nozzles enable point, line, and surface dispensing

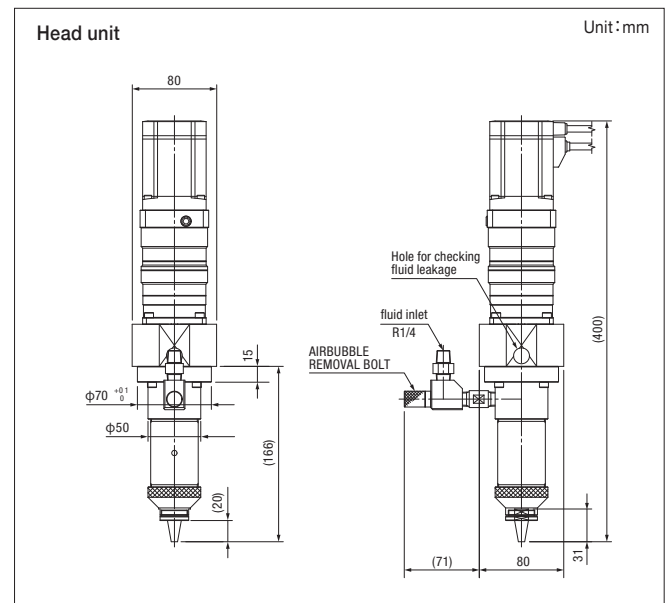
#### High-speed, high-precision dispensing of high-viscosity radiation grease of 1,000,000 mPa-s

- High-speed tact is achieved with overwhelming power that does not succumb to high viscosity.
- Flat dispensing with a dedicated nozzle dramatically improves the uniformity of the formed thin film.
- Synchro Speed function support. [For details, see →P53]

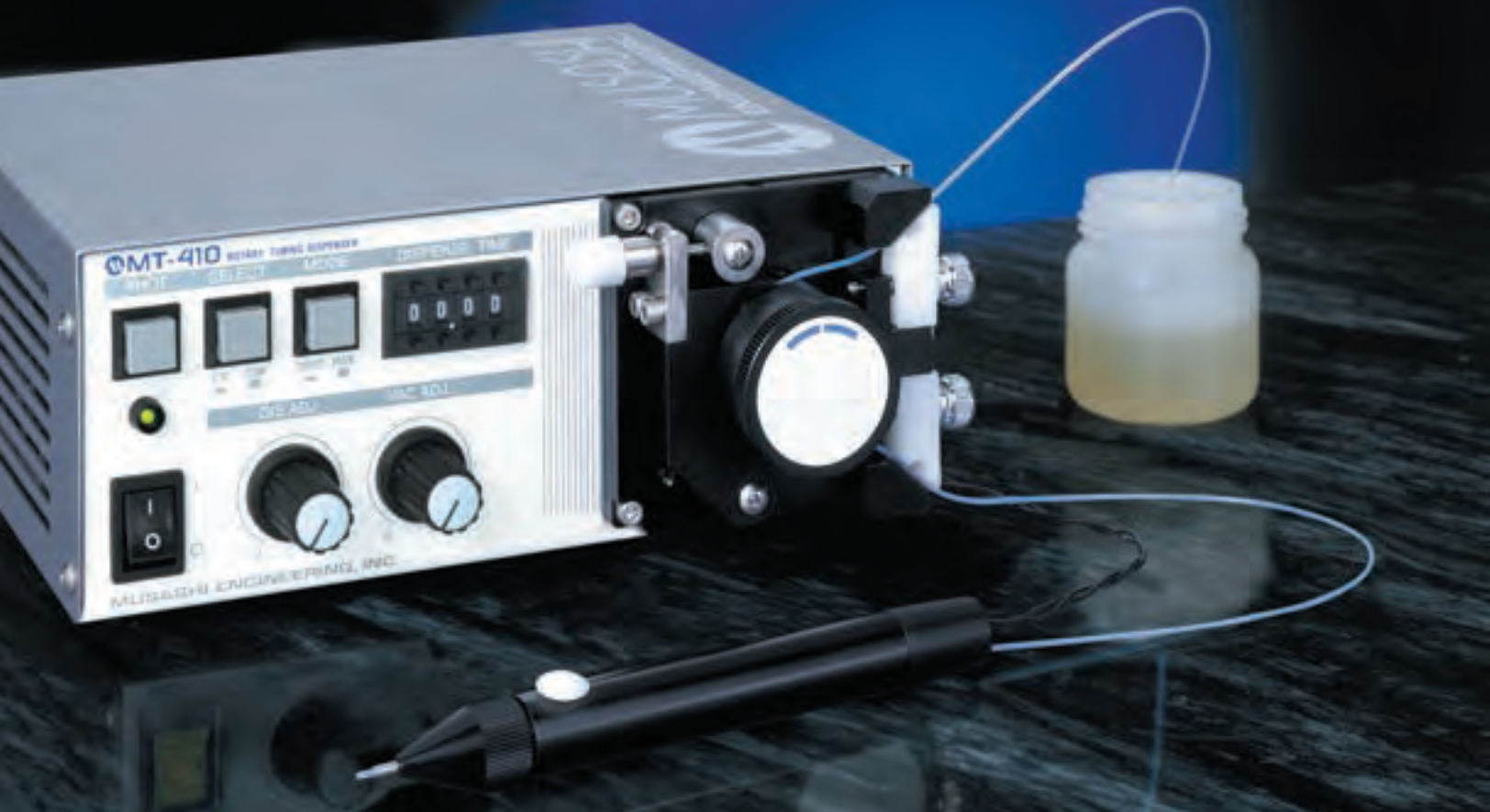
#### ■ Specifications

| Item name                                      | SCREWMASTER<br>Applicable to high-viscosity radiation grease Dispensing |
|--|---|
| Model  | M34-2373  |
| Dispensing system                              | Screw type  |
| External dimensions<br>(excluding protrusions) | W160×D90×H400 mm  |
| Weight   | 6 kg  |
| Applicable temperature<br>control unit         | —   |
| Fluid material supply<br>method                | Barrel cartridge, sealant cartridge, tube cartridge                     |

#### ■ External dimensions



**Best suited for small-volume dispensing of low-viscosity anaerobic adhesive and for continuous dispensing of small volume at high precision.**



## **Best suited for small volume dispensing of low viscosity materials such as instant adhesive agent at high precision**

The **MT** series tubing dispensers are effective for a wide range of dispensing needs, from minute intermittent dispensing to continuous dispensing of low-viscosity anaerobic fluids such as instant adhesives.

Unique rotary tubing mechanism eliminates dispensing volume variation and contributes to longer tube life. Fluid material is suctioned directly from the container without using air pressure and is dispensed through the fluid feed tube only, promoting a significant improvement in the work environment and safety and hygiene. Moreover, the tube can be attached with a single touch. Allows anyone to easily achieve high-precision dispensing without troublesome adjustments. It can also be mounted on manual to automated machines, making it suitable for a wide range of applications.



Simple and secure tube attachment

### Suitable products

Printed circuit boards, and coils. Precision equipment such as watches and cameras.

### Applicable dispensing materials

Instant adhesives, Anaerobic adhesives, UV curable adhesives, Silicone oils, Threadlockers, Solvents, Fluxes, Inks, Paints, etc.

### Applications

Bonding, potting, coating, point dispensing, line dispensing, injecting, filling, etc.

### Dispensing volume precision by tubing method

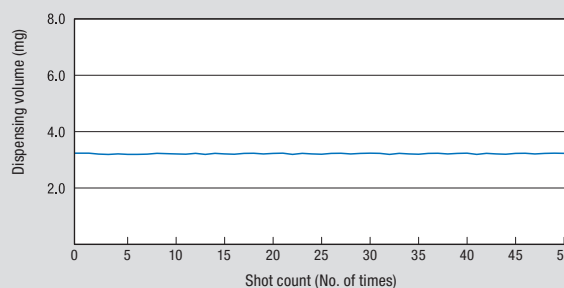


Table: TT-16      Material : Silicone oil (0.1Pa·s)      Dispensing time: 0.015 s  
 AVE: 3.20 mg      Dispensing Accuracy:  $\pm 4.4\%$



## Rotary tubing dispenser

### MT-410



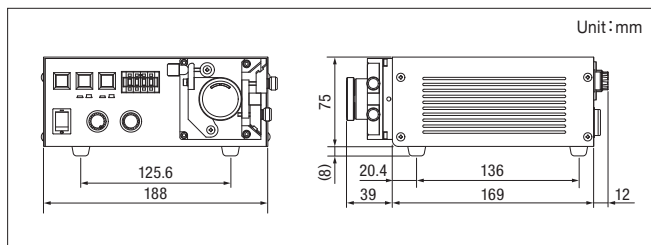
#### Provide simple and secure quick joint of tube.

- Easy high-precision dispensing without troublesome adjustment.
- Dripping eliminated and bubble generation reduced even for low-viscosity liquid materials.
- Only tube used at wetted part, making maintenance easier.
- Long life of fluid feeding tube thanks to unique installation mechanism.
- “Digital timer” for dispensing time setting with one-touch operation..
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.

#### ■ Specifications

|                                   |                         |
|-----------------------------------|-------------------------|
| Item name                         | Rotary tubing dispenser |
| Model                             | MT-410                  |
| Dispensing system                 | Rotary tubing system    |
| Dispensing modes                  | TIMED/MANUAL mode       |
| Dispensing time setting range     | 0.01 to 99.99 s         |
| Range of rotational speed setting | 0 to 120 rpm            |
| Rated voltage and frequency       | AC100-240 V 50/60 Hz    |
| Power consumption                 | 25 W                    |
| External dimensions               | W188×D208×H83 mm        |
| Weight                            | 3.0 kg                  |

#### ■ External dimensions



#### PTFE tube for tubing dispenser List

These fluid feed tubes are made of PTFE for dispensing fluid materials from a tubing dispenser. A variety of tube accessories are available according to fluid's viscosity and dispensing amount.

Note: For UV adhesive, use PTFE tube, black, TT-□B (black tube).

#### ■ PTFE tube

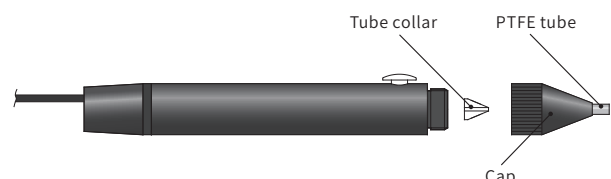
| Model     |                                    | Tube OD (φ) mm | Tube ID (φ) mm | Tube length |
|-----------|------------------------------------|----------------|----------------|-------------|
| PTFE tube | PTFE tube, black (for UV adhesive) |                |                |             |
| TT-32     | —                                  | 0.75           | 0.25           | 10 m        |
| TT-30     | TT-30B                             | 0.76           | 0.3            | 10 m        |
| TT-28     | TT-28B                             | 0.84           | 0.38           | 10 m        |
| TT-26     | TT-26B                             | 0.92           | 0.46           | 10 m        |
| TT-24     | TT-24B                             | 1.06           | 0.56           | 10 m        |
| TT-22     | TT-22B                             | 1.18           | 0.68           | 10 m        |
| TT-21     | TT-21B                             | 1.31           | 0.81           | 10 m        |
| TT-20     | TT-20B                             | 1.46           | 0.86           | 10 m        |
| TT-19     | TT-19B                             | 1.56           | 0.96           | 10 m        |
| TT-18     | TT-18B                             | 1.67           | 1.07           | 10 m        |
| TT-17     | TT-17B                             | 1.79           | 1.19           | 10 m        |
| TT-16     | TT-16B                             | 1.95           | 1.35           | 10 m        |
| TT-15     | TT-15B                             | 2.10           | 1.50           | 10 m        |
| TT-14     | —                                  | 2.28           | 1.68           | 10 m        |
| TT-13     | TT-13B                             | 2.53           | 1.93           | 10 m        |
| TT-12     | TT-12B                             | 2.76           | 2.16           | 10 m        |
| TT-11     | TT-11B                             | 3.01           | 2.41           | 10 m        |
| TT-10     | TT-10B                             | 3.29           | 2.69           | 10 m        |

#### Dispenser pen for tubing dispenser

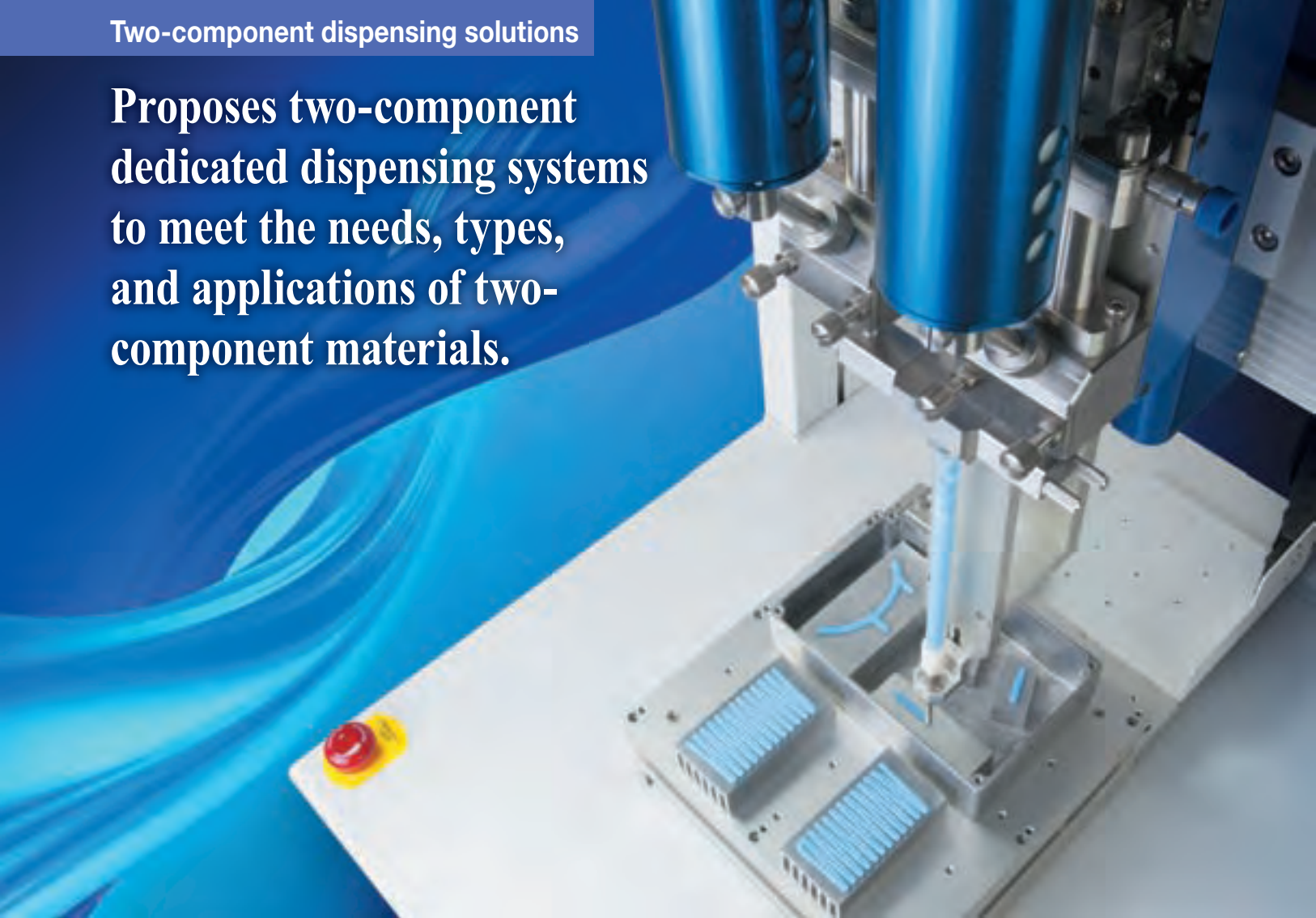


External input switch for tubing dispenser (MT-410).









|               |              |             |
|---------------|--------------|-------------|
| Item name     | Model        | Cord length |
| Dispenser pen | LS-NH3-1604P | 1 m         |



Proposes two-component dedicated dispensing systems to meet the needs, types, and applications of two-component materials.



Dedicated two-component systems Lineup & quick reference table

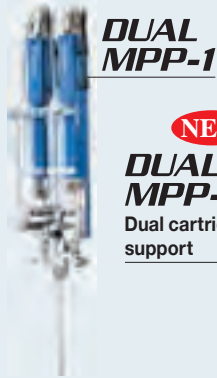
| Item name           |           | <i>DUAL MPP-1</i>   | <i>DUAL MPP-1</i><br>Dual cartridge support<br><b>NEW</b>                           | <i>MPP-3-GF-MINI</i><br><b>NEW</b>  | <i>DUAL MPP-3</i>   | <i>DUAL MOHNO MASTER</i>   | <i>DYNAMIC DUAL MASTER</i>  | <i>DUAL AeroJet</i>   | <i>DUAL SuperJet</i>  |  |
|---------------------|-----------|---|---|---|---|--|---|---|---|--|
|                     |           |  |  |  |  |  |  |  |  |  |
|                     |           | Ultra-precision weighing  | Supports four types of cartridges   | Suitable for large capacity such as pails   | Barrel, tank and pail connections available   |  | Compatible with fluids with large specific gravity/viscosity differences              | Extensive parts lineup  | Ultra high speed Max:1,200 Hz   |  |
| Flow rate           |           | Minute amount   | Low flow  | Medium flow   | Medium flow   | V1:Medium flow<br>V2:High flow   | Low flow  | Low flow  | Minute amount   |  |
| Mixed type          |           | Static Mixed type   |   |   |   |  | Dynamic Mixed type  |   | Honeymoon Mixed type  |  |
| Corresponding fluid | Filling   | Epoxy, Urethane, Silicone, etc.   | ○   | ○   | ○   | ◎  | ◎   |   |   |  |
|                     | Adhesives | Acrylic, Epoxy, Urethane, Silicone, etc.  | ○   | ◎   | ○   | ○  |   | ○   | ○   |  |
|                     | Radiation | Two-component gap filler  |   |   | ◎   | ◎  |   |   |   |  |

## Volume measuring type digital control dispenser

### DUAL MPP

Ideal for precision dispensing of two-component mixed materials and micro filling.

- Simple maintenance
- Proprietary high-durability design
- Arbitrary mixing ratios are possible by individual setting of 2 heads.
- Applicable to two-component materials with large viscosity differences.



**DUAL MPP-1**

**NEW**

**DUAL MPP-1**  
Dual cartridge support



**DUAL MPP-3**



**NEW**

**MPP-3-GF-MINI**



Two-component radiant adhesives



Potting on sensor components



Waterproof sealing of connectors

Dedicated controller



## High-performance MOHNO dispenser

### DUAL MOHNO MASTER

High-speed, quantitative, continuous potting

- High-speed dispensing of large volumes and arbitrary mixing ratios are also possible.
- Wide lineup of wetted parts.



ADAS holder bonded to windshield



Potting to IGBT

## Volume Measuring type Dispenser

### DYNAMIC DUAL MASTER

Ultra-high precision mixing and dispensing

- Precise dispensing of two-component materials with large mixing ratio/viscosity differences is possible.
- Set dispensing volume by volume and weight



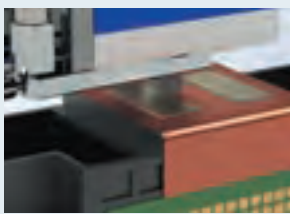
Potting onto small components.

## Non-contact JET Dispenser

### DUAL JET

Honeymoon mixing by two-headed JET dispensers

- Maintenance-free, Mixing-free.
- Chemical reaction 2 component adhesive compatible.
- Two types of fluid can be freely patterned (overlaid).
- Required quantity where needed, zero material loss.



Inkjet printer head assembly



Magnet bonding on small-sized motor

**DUAL AeroJet**



AeroJet V-shape

**DUAL SuperJet**



SuperJet V-shape



SuperJet Straight type

From manual operation to automated machine mounting, a wide range of production site needs can be handled.

# Air-pulse dispenser

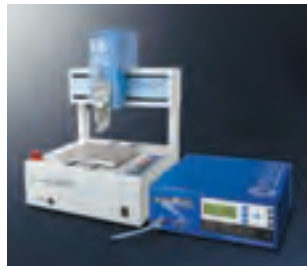
Air-pulse type is the most popular dispenser thanks to its high versatility, economy, and maintainability. From models for manual operation with excellent cost performance to models for automated machines with high accuracy and high speed cycles that are equipped with various automatic compensation and communication functions, models are available to meet a wide range of production site needs. In each segment, MUSASHI Air-pulse dispensers continue to be No. 1.






## Syringe system

### Standard system for small volume dispensing

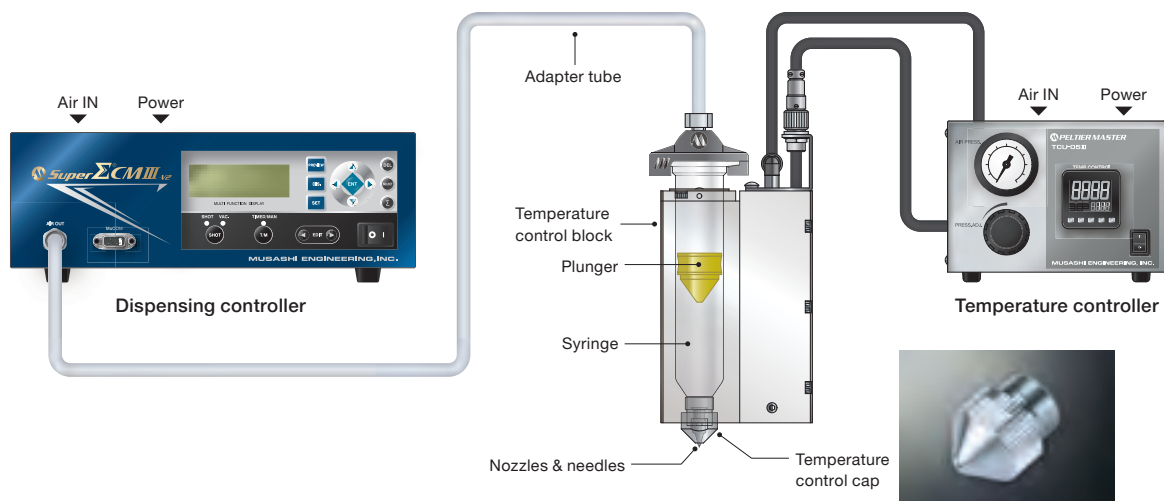
This is the most common dispenser system that can be used for various dispensing operations from manual operation to installation in an automated machine. By combining this system with disposable type syringes and needles, maintenance is much easier. There are nine syringe sizes, from 1 mL to



## Quick Reference Table by Specifications and Applications

|             |      |  |  |
|-------------|------|--|--|
| Performance | High |               |  |
|             | Low  | <br>MS-1 MS-1D | <br>ML-6000X Pro ML-8000X |
|             |      | manual labor   | FA dispense machine  |

## Air-pulse system Connection system configuration diagram



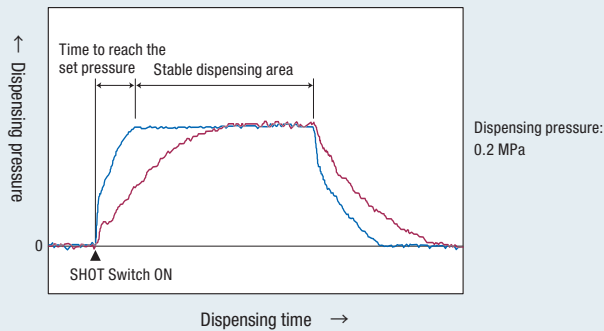


## Air-pulse stabilization circuit PAT.

MUSASHI's unique, air-pulse stabilizing circuit raises the pressure faster, providing good response. Accordingly, the stable dispensing area becomes wider to eliminate fluctuations in dispensing volume.

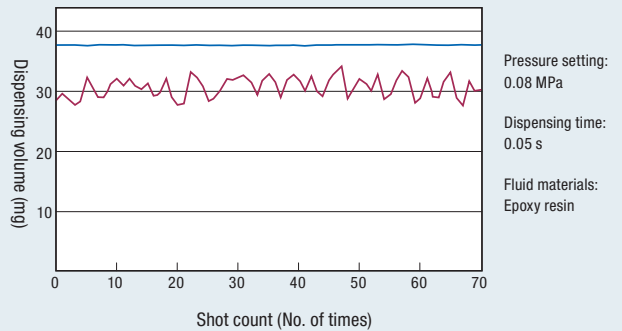
### Effect of the air-pulse stabilizing circuit

— *Super Σ CM III-V5* — Air-pulse without stabilization circuit



### Dispensing precision comparison table

— *Super Σ CM III-V5* — Other brand (with digital timer)



### Example of system mounting



manual labor



Desktop robot



Cartesian robot



FA dispense machine

# Into the core of automated production lines The $\Sigma$ series dominates the field of ultra-precision, super-fine point dispensing.



## Enhanced dispensing stability, demonstration of global standards.

Our  $\Sigma$  series have been highly valued for their high-precision micro volume dispensing capability and automatized unmanned production lines accompanied with building up overwhelming accomplishments. "Three Major  $\Sigma$  Functions" have solved difficult problems all together such as fluid dripping, volume reduction, and remaining volume alert. These functions provide excellent performance in various production processes including semiconductor manufacturing and electronic component manufacturing, for example, ultra-precision dispensing of as little as 0.01 mg and high-speed dispensing at minimum cycle time of 0.1 s or less.

Higher-precision and higher-stability dispensing has been successfully achieved thanks to further improvement in dispensing stability and remaining volume detection accuracy. Storage capacity of as many as 100 types of operation patterns allows users to manage product variety completely without any difficulty.

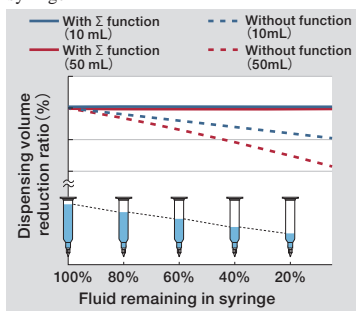
In addition, the dedicated software, "MuCOM for Super  $\Sigma$  CM series", provides editability of dispensing conditions on a PC, dramatically improving accuracy and efficiency of operations.

### " $\Sigma$ 3 major functions" help to improve yield and contribute to a smarter production line

#### Function 1

##### Automatic correction of volume reduction

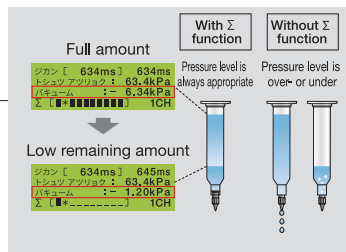
Compensates for the decrease in dispensing volume due to the effect of the difference in hydraulic head. Stable, high-precision dispensing is achieved through a single syringe.



#### Function 2

##### Automatic dripping prevention function

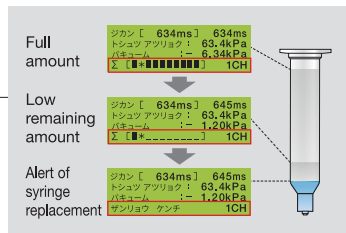
Improved stability of dispensing accuracy by automatically adjusting the vacuum volume to the optimum level at all times according to the amount of remaining fluid.



#### Function 3

##### Automatic low fluid alarm

Highly precise detection and constant monitoring of the amount of fluid remaining in the syringe. Outputs a warning sound (signal) when the remaining fluid level reaches the set value.



Fully automated dispensing machine with Super  $\Sigma$  CM III



## Digital Control Dispenser with Correction Function

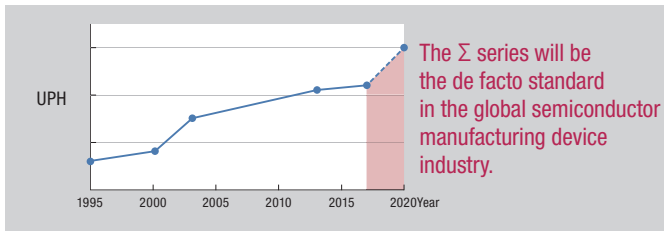
**SuperΣ CM III-V5/V2**



### Ultra-stable dispensing with faster cycle time and smaller volume.

- Greater performance with the  $\Sigma$  3 major functions
- Better durability and easier maintenance.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.
- Air-pulse stabilization circuit (PAT) mounted [\[For details, see P37\]](#)

### Delivering higher throughput for the global semiconductor manufacturing device industry.



### Enable even smaller micro-dispensing.

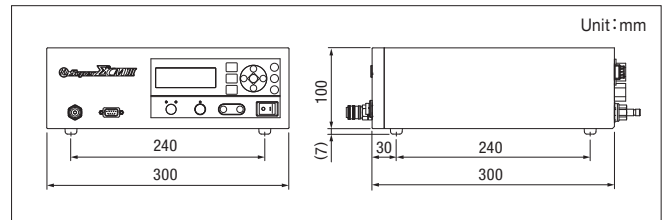


### Specifications

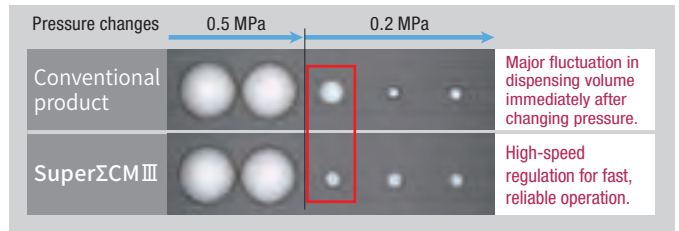
|                                   |   |   |
|-----------------------------------|---|---|
| Item name                         | Fully digital controlled dispenser          |   |
| Model                             | S-SIGMA-CM3-V5                              | S-SIGMA-CM3-V2                              |
| Dispensing system                 | Air-pulse system                            |   |
| Air-pulse stabilization circuit   | Mounted                                     |   |
| Dispensing pressure setting range | 0.030 to 0.500 MPa                          | 0.005 to 0.200 MPa                          |
| Dispensing time setting range     | 0.001 to 9,999.999 s                        |   |
| Vacuum pressure setting range     | 0.00 to -0.020 MPa                          |   |
| Source pressure range             | 0.200 to 0.700 MPa<br>(600 MPa recommended) | 0.200 to 0.400 MPa<br>(300 MPa recommended) |
| Rated voltage and frequency       | AC100-240 V 50/60 Hz                        |   |
| Power consumption                 | 30 W  |   |
| External dimensions               | W300×D300×H107 mm                           |   |
| Weight                            | 5.8 kg                                      |   |

Note: When using syringes or cartridges larger than 70mL, please contact us.

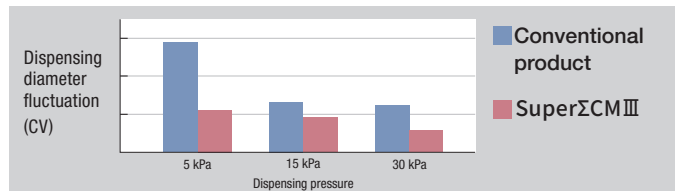
### External dimensions



### Better coverage of pressure changes.



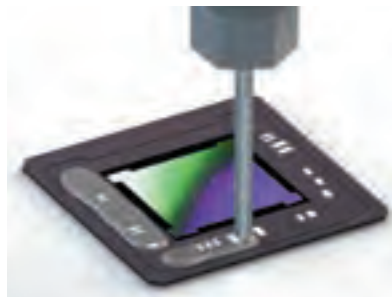
### Better reliability for low-viscosity liquid.



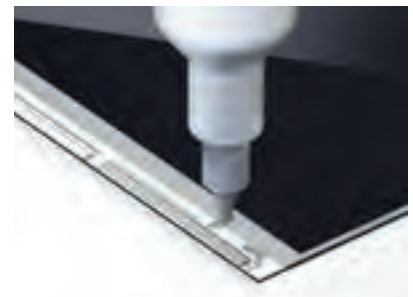
## Applications



Ag paste dispensing in die bonding



Dust trapping agent dispensing on camera modules



Conductive Ag paste dispensing on touch panels

Automatic control of the vacuum is adopted to achieve full-function digital control. Enhanced logging and self-diagnostic functions for FA mounting.



**Industry 4.0 “complete support”, dispensing platformer is born.**

In recent years, there has been a growing need for digital management of production sites in order to achieve "Smart Factories". The newly developed full-function digital control dispenser **ML-8000X** is complete support with Industry 4.0. Enhanced production management functions with logging and self-diagnostic functions. In addition, 4.3 inch color touch panel enables smartphone-like operation. As a platform for dispensing condition management, it contributes to improving the performance of automated production lines.

**Applications**



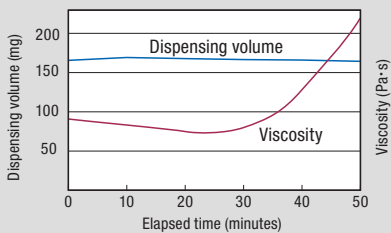
Speaker Vibration Membrane Attachment



Dispensing Ag Paste on optical communication module

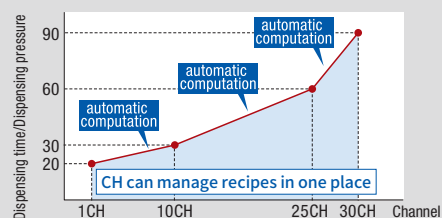
**Automatic pressure switching to adapt to viscosity changes**

**Auto increment function to correct dispensing volume** (Automatic channel switching)



Fluid: two-component epoxy adhesive

**Automatic calculation of dispensing conditions by auto-slope function**



Automatically calculates and sets the dispensing pressure and dispensing time for an arbitrarily specified channel section.

**Variable dispensing volume at a constant dispensing rate by express shot function**



Line dispensing

Dot dispensing



**Industry 4.0 complete support**  
**Fully digital controlled dispenser**

**ML-8000X**



**Next-generation dispenser suitable for installation in automated machines**

- **Industry 4.0 “complete” support**  
 Instantly displays errors, logs, and the number of productions.  
 Minimize defects by working with higher levels.
- **Recipes and channels can be imported/exported via USB port.**  
 Easy backup to PCs and other devices.
- **Compatible Standards: CE marking**  
 (Low Voltage Directive, EMC Directive), EU RoHS2.
- **Standard lineup includes PNP specifications for I/O input/output signals.**
- **Air-pulse stabilization circuit (PAT) mounted** [For details, see →P37]



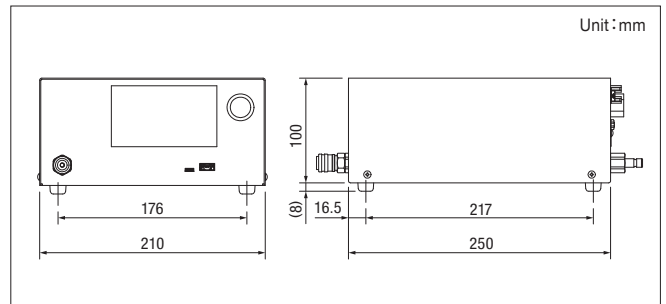
Example on equipments

**Specifications**

|                                   |  |   |                   |                   |
|-----------------------------------|--|---|-------------------|-------------------|
| Item name                         | Supports upper-level communication<br>Fully digital controlled dispenser |   |                   |                   |
| Model                             | ML-8000X-CTR-V7-N  | ML-8000X-CTR-V7-P                                   | ML-8000X-CTR-V2-N | ML-8000X-CTR-V2-P |
| Dispensing system                 | Air-pulse system   |   |                   |                   |
| Air-pulse stabilization circuit   | Mounted  |   |                   |                   |
| Dispensing pressure setting range | 20.0 to 700.0 kPa  |   | 5.0 to 200.0 kPa  |                   |
| Dispensing time setting range     | 0.010 to 9,999.999 s   |   |                   |                   |
| Vacuum pressure setting range     | 0.00 to -5.00 kPa  |   |                   |                   |
| Source pressure range             | 200 to 800 kPa   |   | 200 to 400 kPa    |                   |
| Signal Specifications             | NPN  | PNP   | NPN               | PNP               |
| Supply power *1                   | Connector  | ACAT-3 dedicated connector, e-CON (3-pin socket) *2 |                   |                   |
|                                   | Rated voltage  | DC 24V ±10%   |                   |                   |
|                                   | Power consumption  | 26 W  |                   |                   |
| External dimensions               | W210×D250×H108 mm (excluding protrusions)                                |   |                   |                   |
| Weight                            | 3.4 kg   |   |                   |                   |

\*1 Please use a USB cable and power cable of 3 m or less.  
 (In excess of 3 m, the product is outside the scope of the CE declaration of conformity for this product.)  
 \*2 The AC adapter is not included in the product. Power should be supplied by one of the following methods.  
 ■ Use our ACAT-3 (input rating AC100 to 240 V 50 / 60 Hz).  
 ■ Use a SELV power supply that meets the CE marking LVD matching standard. (Compatible plug: e-CON 3-pin)

**External dimensions**



**Features of ML-8000X**

**Improved functions**

Vacuum pressure setting

**Production control**

Equipped with log, self-diagnosis, emergency stop

**Refined operability**

Equipped with a 4.3 inch touch panel

**PC communication**

Equipped with USB ports



Two types of main screens are available: “Parameter Operation” and “Visual Operation”.



Easy operation and setting by “screen touch” even with a pen or gloves.

The long-selling ML-5000II has been redesigned with a simplified logging function. High-grade models also realize automatic control of dispensing pressure.



**Industry 4.0 entry model, new!**

The ML-5000XII high-precision digital dispenser is a long-seller with an overwhelming share of the global market.

「**ML-6000X / ML-6000X Pro**」 is an entry-level model compatible with Industry 4.0, developed and commercialized as its successor. The dispensing performance that surpasses the ML-5000XII, a new simple logging function, and a 2.4 inch color LCD display with greatly improved visibility contribute to the realization of a “Smart Factory”.

**Applications**



UV dispensing on camera modules

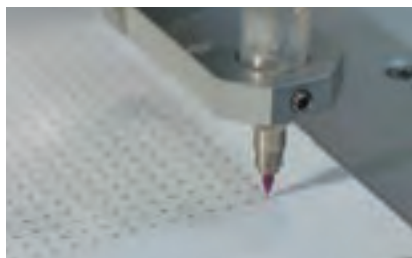


Pressure Sensor Potting

**Features of next-generation dispenser**

**Excellent dispensing**

Air-pulse stabilization circuit (PAT) mounted as standard. Eliminates dispensing volume variation and achieves excellent dispensing accuracy. [For details, see →P37](#)



**Next-generation Functions**

Simple logging function (recording parameters: various pressures, dispensing time, channels, dispensing mode)

**Other Enhanced Features**

Simple residual volume detection / Interval function channel registration / Channel switching error output / Alarm output



**User-friendly**

The 2.4 inch color graphic LCD display is easy to set up and operate. Multilingual (Japanese, English, Chinese) support.



## High-precision digital dispenser

### ML-6000X / ML-6000X Pro

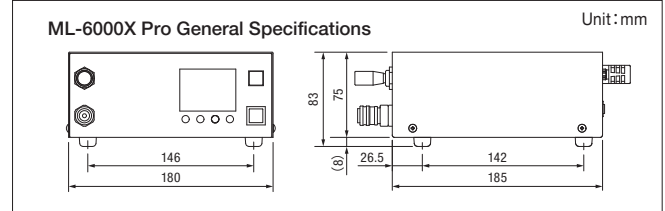
**NEW**



## New generation digital dispenser

- Compatible with Industry 4.0 and outputs various kinds of abnormal errors.
- Channel registration is possible for a variety of products.
- General-purpose and vacuum high-resolution specifications lined up.
- **ML-6000X Pro**
  - Enables pressure setting from the device side.
  - Two types of dispensing pressure are selectable.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.
- Air-pulse stabilization circuit (PAT) mounted [\[For details, see P37\]](#)

### External dimensions



### Specifications

| Item name                            | High-precision digital dispenser  |  |   |   |   |   |
|--------------------------------------|---|--|---|---|---|---|
| Model                                | ML-6000X  |  | ML-6000X Pro  |   |   |   |
|                                      | ML-6000X-CTR-N-VHR  | ML-6000X-CTR-N-GP                                    | ML-6000XP-CTR-V5-N-VHR                                  | ML-6000XP-CTR-V2-N-VHR                                  | ML-6000XP-CTR-V5-N-GP                                   | ML-6000XP-CTR-V2-N-GP                                   |
| Dispensing system                    | Air-pulse system  |  |   |   |   |   |
| Air-pulse stabilization circuit      | Mounted   |  |   |   |   |   |
| Dispensing pressure regulating range | 5.0 to 700.0 kPa  |  | 30.0 to 500.0 kPa                                       | 5.0 to 200.0 kPa  | 30.0 to 500.0 kPa                                       | 5.0 to 200.0 kPa  |
| Dispensing time setting range        | 0.001 to 99.999 sec, 0.01 to 999.99 sec, 0.1 to 9,999.9 sec (digits can be switched by icon switch) |  |   |   |   |   |
| Vacuum pressure setting range        | 0 to -20.0 kPa<br>(with air supply of 600 kPa)  |  | 0 to -20.0 kPa<br>(with air supply of 600 kPa)          | 0 to -10.0 kPa<br>(with air supply of 400 kPa)          | 0 to -20.0 kPa<br>(with air supply of 600 kPa)          | 0 to -10.0 kPa<br>(with air supply of 400 kPa)          |
| Vacuum pressure setting range        | Precision needle valve<br>(Approx. -1 kPa per a turn)   | Standard needle valve<br>(Approx. -4 kPa per a turn) | Precision needle valve<br>(Approx. -1 kPa per a turn)   |   | Standard needle valve<br>(Approx. -4 kPa per a turn)    |   |
| Source pressure range                | Max. 800 kPa<br>(Dispensing pressure + 100 kPa or more)   |  | Max. 800 kPa<br>(Dispensing pressure + 100 kPa or more) | Max. 400 kPa<br>(Dispensing pressure + 100 kPa or more) | Max. 800 kPa<br>(Dispensing pressure + 100 kPa or more) | Max. 400 kPa<br>(Dispensing pressure + 100 kPa or more) |
| Rated voltage and frequency          | When supplying from DC24 V DSUB 25 pin, When supplying from a DC12 V DC jack *1 *2                  |  |   |   |   |   |
| Power consumption                    | 12 W  |  |   |   |   |   |
| External dimensions                  | W180×D185×H83 mm (excluding protrusions)  |  |   |   |   |   |
| Weight                               | 2.2 kg  | 2.1 kg   | 2.2 kg  |   | 2.0 kg  |   |

\*1 The AC adapter is not included in the product.

\*2 When supplying from a DC plug, Use one of the following methods to supply power.

- Use our ACAT-2 (input rating AC100-240V 50 / 60Hz).
- Use an AC adapter that conforms to EN-62368-1: 2014. (Compatible plug  $\phi 5.5 \times 2.1$  L = 9.5, Center Plus)
- Use a SELV power supply that meets the CE marking LVD matching standard.

## Highly functional ECO Dispenser

### SMART SHOT MS-1 / MS-1D



PAT.

### Outstanding cost-effective performance.

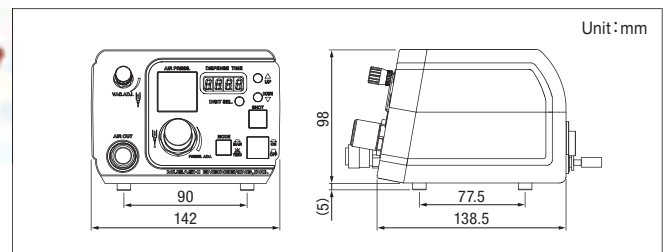
- Power consumption 1/2 — Cut power consumption by 50%
- Significant accuracy improvement — Dispense accuracy is improved to 130% compared to conventional model.
- Multifunctional machine — Equipped with set up function for dispense condition.
- Ultra-light weight and compact design.
- Compatible Standards: CE marking (Low Voltage Directive, EMC Directive), EU RoHS2.



### Specifications

| Item name                         | Highly functional ECO Dispenser SMART SHOT                 |           |
|-----------------------------------|--|-----------|
| Model                             | MS-1-CTR   | MS-1D-CTR |
| Air-pulse stabilization circuit   | None   |           |
| Dispensing pressure setting range | 0.02 to 0.70 MPa   |           |
| Dispensing time setting range     | 0.010 to 9,999 s   |           |
| Vacuum pressure setting range     | 0 to -20 kPa (Source pressure 600 kPa)                     |           |
| Source pressure range             | Max. 800 kPa (Dispensing pressure + 100 kPa or more)       |           |
| Rated voltage and frequency       | AC100 to 240 V 50/60 Hz<br>(dedicated AC adapter included) |           |
| Power consumption                 | 12 W   |           |
| External dimensions               | W142×D138.5×H103 mm (excluding protrusions)                |           |
| Weight                            | 790 g  |           |

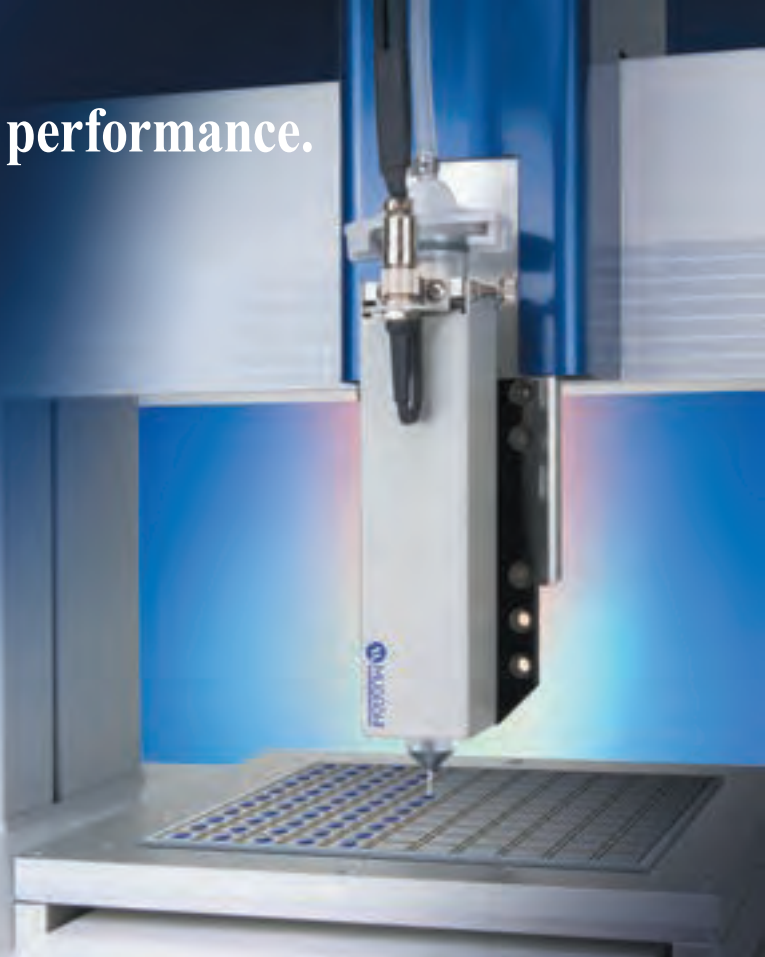
### External dimensions



# Key unit to improve dispensing performance.

# Temperature control unit

Dispensing performance (accuracy, tact, etc.) of Air-pulse dispensers is affected by the viscosity change and viscosity of fluid. Optimal fluid temperature control is achieved by using a temperature control unit that is suited to the purpose, operating environment, and fluid packaging. It is possible to improve the dispensing performance.



## High-precision, Peltier, temperature control

Heating and cooling the fluid keeps the fluid viscosity constant to perform high-precision, stable dispensing.

This system keeps the temperatures of fluid materials constant to ensure stable dispensing of high-viscosity fluid materials of which the viscosity is changed due to ambient temperature.



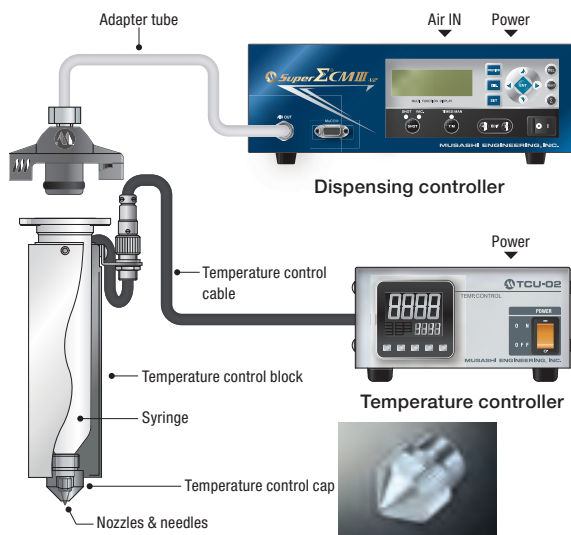
## Resistance thermometer bulb temperature control

Stable dispensing at relatively higher temperatures

This is a syringe heating temperature control system suitable for dispensing materials at relatively high temperatures. It is suitable for dispensing materials such as solder and epoxy.



## Air-pulse system Connection system configuration diagram



### Temperature control system

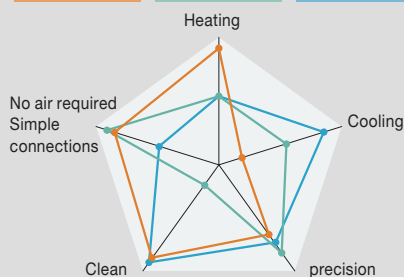
#### Sophisticated temperature control

Set and control temperature in 0.1°C units. Accurate temperature control is essential for high-precision dispensing.



### Comparison of temperature control ability

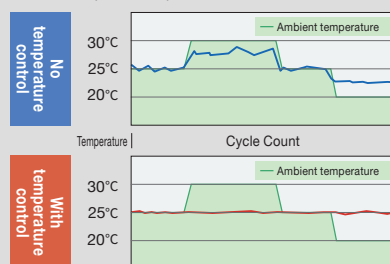
TCU-02 TCU-05FIII TCU-05III



\* At an ambient temperature of 25 °C

### Effectiveness of temperature control system

Dispensing conditions | Fluid materials : solder paste Target dispensing volume: 5 mg  
 Dispenser: SuperΣCMIII Nozzle: SHN-0.3 N



\* TCU-05 III/TBP-SY10M-A-L use Temperature setting temperature: 25 °C

Resistance temperature detector control system  
**THERMO MASTER**



TCU-02 / TB

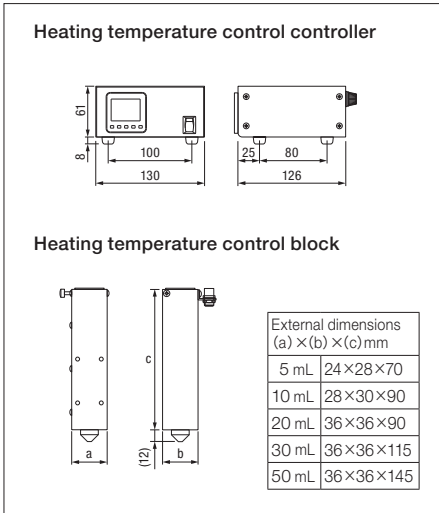
Improved temperature precision and stability, lightweight and compact heating and temperature control system.

■ Specifications

|                           | Model          | Weight  |
|---------------------------|----------------|---------|
| Temperature control block | 5 mL TB-5E-K   | 135 g   |
|                           | 10 mL TB-10E-K | 190 g   |
|                           | 20 mL TB-20E-K | 240 g   |
|                           | 30 mL TB-30E-K | 280 g   |
|                           | 50 mL TB-50E-K | 340 g   |
| Temperature controller    | TCU-02-MU      | 1.04 kg |

■ External dimensions

Unit : mm



Resistance temperature detector control system  
**PELTIER MASTER**



TCU-05FⅢ / TBP

Heating and cooling to control temperature and viscosity of fluid agents and eliminate fluctuations in dispensing volume.

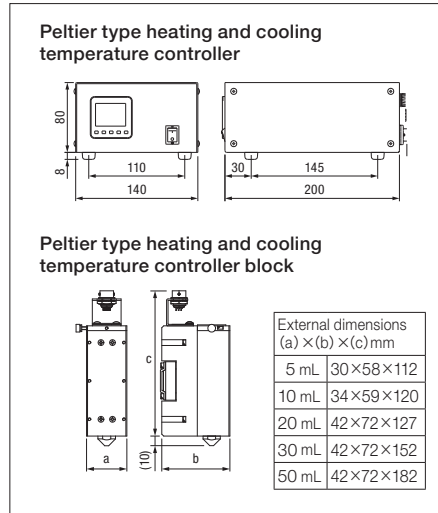
- Simple connections, no air required.
- CE-marking certified, EU RoHS2 compliant.

■ Specifications

|                           | Model             | Weight |
|---------------------------|-------------------|--------|
| Temperature control block | 5 mL TBP-SY05M-F  | 230 g  |
|                           | 10 mL TBP-SY10M-F | 280 g  |
|                           | 20 mL TBP-SY20M-F | 400 g  |
|                           | 30 mL TBP-SY30M-F | 500 g  |
|                           | 50 mL TBP-SY50M-F | 600 g  |
| Temperature controller    | TCU-05F-3-MU      | 1.8 kg |

■ External dimensions

Unit : mm



TCU-05Ⅲ / TBP

- Ideal for clean rooms.
- CE-marking certified, EU RoHS2 compliant.

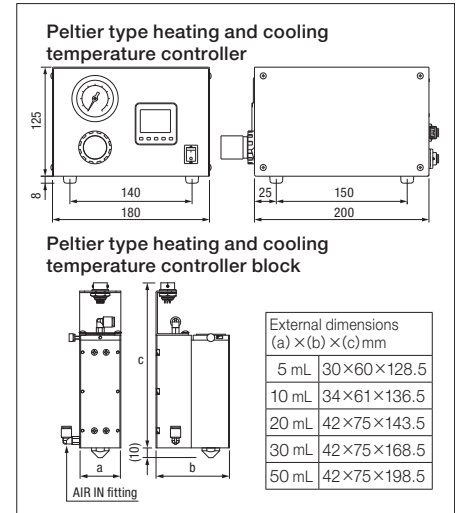
■ Specifications

|                           | Model                    | Weight |
|---------------------------|--------------------------|--------|
| Temperature control block | 5 mL TBP-SY05M-A- [L/R]  | 310 g  |
|                           | 10 mL TBP-SY10M-A- [L/R] | 370 g  |
|                           | 20 mL TBP-SY20M-A- [L/R] | 530 g  |
|                           | 30 mL TBP-SY30M-A- [L/R] | 650 g  |
|                           | 50 mL TBP-SY50M-A- [L/R] | 770 g  |
| Temperature controller    | TCU-05A-3-MU             | 2.7 kg |

Note: For [L/R], specify either L (left specification) or R (right specification).

■ External dimensions

Unit : mm



■ Head controller Specification

| Item name                        | TCU-02 / TB   | TCU-05FⅢ / TBP                                   | TCU-05Ⅲ / TBP  |
|----------------------------------|---|--|--|
| The setting range of temperature | 25°C to 100°C (At an ambient temperature of 25°C) * | 20°C to 50°C (At an ambient temperature of 25°C) | 15°C to 50°C (At an ambient temperature of 20 to 25°C) |
| Temperature precision            | ±0.5°C  | ±0.3°C   | ±0.4°C   |
| Heat dissipating system          | —   | Fan air  | Air blow   |
| Air supply pressure              | —   | —  | Max.0.2 MPa  |
| Supported syringe                | Our 5, 10, 20, 30, and 50 mL syringes               |  |  |
| Rated voltage and frequency      | AC100 V 50/60 Hz                                    | AC100 V-240 V 50/60 Hz                           |  |
| Power consumption (Controller)   | 9 W   | 55 W   | 60 W   |

\* The upper limit of operating temperature for clear syringes is 60 °C.

Note: 1. Caps for Peltier temperature control block must be ordered separately according to the nozzle size.

2. Caps for resistance temperature measurement type temperature control blocks should be ordered separately according to the nozzle size.

A reliable dispensing supporter  
that assists at various dispensing sites.

# Peripheral equipments for dispensers

To ensure that the dispensing process is always carried out under ideal conditions, MUSASHI offers a diverse lineup of peripheral equipment to suit various production sites, fluids used, and dispensing specifications. The system provides detailed support for syringe filling, defoaming, and agitator of fluids, thereby improving the efficiency and quality of the dispensing process.

Degassing  
syringes

MUSASHI  
AWATRON 3  
AW-20-3

MUSASHI  
ENGINEERING INC.

## Stirring system

### MIX MASTER



Note: The CyberJet2 is not included in this product.

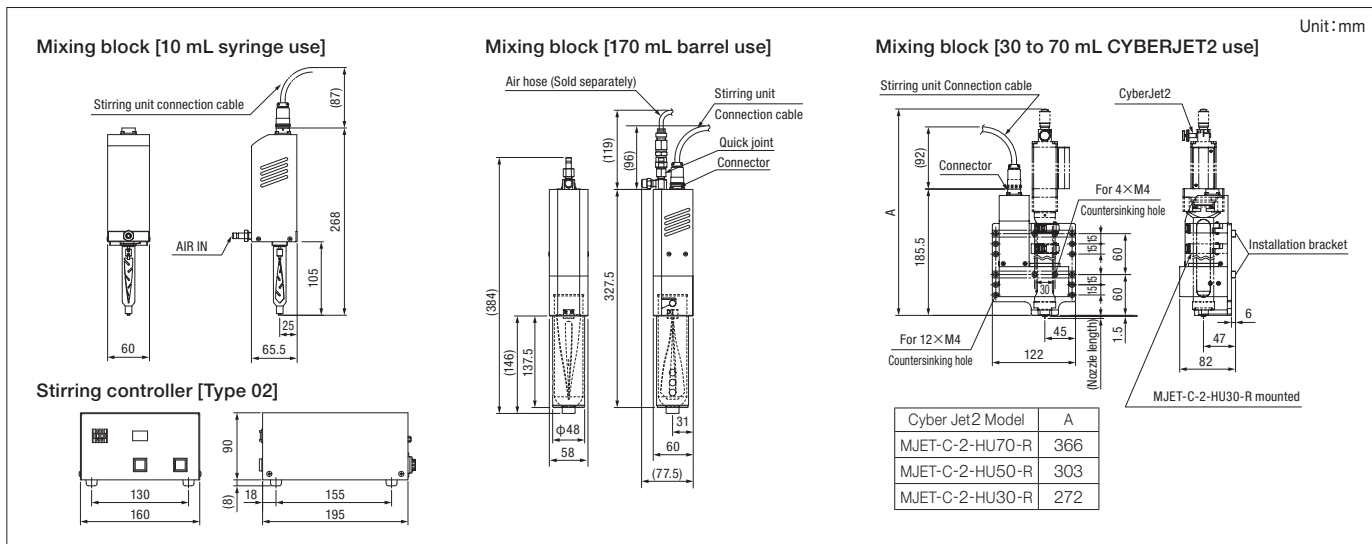
Stirs fluid materials containing fillers to prevent filler sedimentation.

- Best suited for dispensing fluid that contains filler using a syringe/cartridge system.

|                                | Item name                | Model          | Weight |
|--------------------------------|--------------------------|----------------|--------|
| Stirring block<br>MIX MASTER   | [ 5 mL syringe use]      | MB-5E-02       | 880 g  |
|                                | [ 10 mL syringe use]     | MB-10E-02      | 880 g  |
|                                | [ 20 mL syringe use]     | MB-20E-02      | 850 g  |
|                                | [ 30 mL syringe use]     | MB-30E-02      | 860 g  |
|                                | [ 50 mL syringe use]     | MB-50E-02      | 860 g  |
|                                | [ 70 mL syringe use]     | MB-70E-02      | 870 g  |
|                                | [100 mL barrel use]      | MB-100C-01     | 1.2 kg |
|                                | [170 mL barrel use]      | MB-170C-01     | 1.3 kg |
|                                | [340 mL barrel use]      | MB-340C-01     | 1.4 kg |
| Stirring controller MIX MASTER | [30~70 mL CYBERJET2 use] | MB-MJETC2-3070 | 1.4 kg |
|                                |                          | RMU-02         | 1.8 kg |

Note: The weight excludes cables, syringe, and fluid material.

## External dimensions



## Simplified Syringe Filler **FILLING MATE**



Quickly and easily fills syringes with small volumes from fluid material containers, without any bubbles.

### Filling options

- Quantitative filling with automatic stop function. (Syringe full detection unit + Dedicated controller)
- Special pistons can be custom ordered.
- Fluid material scatter-proof safety lid
- Remaining level detection unit

## Automatic weighing type syringe filling system **AUTO FILLING MASTER**



Fill syringes automatically with highly viscous fluid at high-precision

- Fill syringes quickly and precisely with high viscosity fluid, including paste
- You can fill syringes to the required volume precisely, just by pressing the start switch since this system weighs the fluid.
- Supports different sizes of syringes.

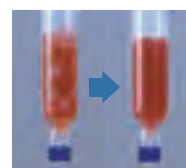
Note: Please contact our sales department in advance.  
This system needs to be customized for each kind of fluid.

## Syringe centrifugal degasser **AWATRON 3**



Further user friendly, reliable, and speedy bubble elimination!

- Bubbles are eliminated just by placing a syringe and pressing the switch.
- Adoption of a syringe detachable mechanism with stationary holder allows for simple operation and elimination of installation failure.
- Adoption of a digital timer allows for detailed setting and control of bubble elimination time.
- Safety circuits mounted.



Before bubble elimination    After bubble elimination

| Model                | AW-20-3                                 | AW-20-3-220V                           | AW-50-3                                | AW-50-3-220V                      |
|----------------------|---|--|--|-----------------------------------|
| Timer range          | 1 to 600 s                              |  |  |                                   |
| Supported syringe mL | 01 mL syringe: equipped with 4 syringes |  |  |                                   |
|                      | 03 mL syringe: equipped with 4 syringes |  |  |                                   |
|                      | 05 mL syringe: equipped with 4 syringes |  |  |                                   |
|                      | 10 mL syringe: equipped with 4 syringes |  |  |                                   |
|                      | 20 mL syringe: equipped with 4 syringes |  |  |                                   |
|                      | —                                       |  | 30mL syringe: equipped with 4 syringes |                                   |
| —                    |   | 50mL syringe: equipped with 4 syringes |  |                                   |
| Power                | AC100 V<br>50/60 Hz                     | AC220 V or<br>AC230 V<br>50/60 Hz      | AC100 V<br>50/60 Hz                    | AC220 V or<br>AC230 V<br>50/60 Hz |
| Power consumption    | 165 W                                   |  | 400 W                                  |                                   |
| External dimensions  | W320 × D394 × H210 mm                   |  | W431 × D509 × H250 mm                  |                                   |
| Weight               | 15 kg                                   |  | 24 kg                                  |                                   |

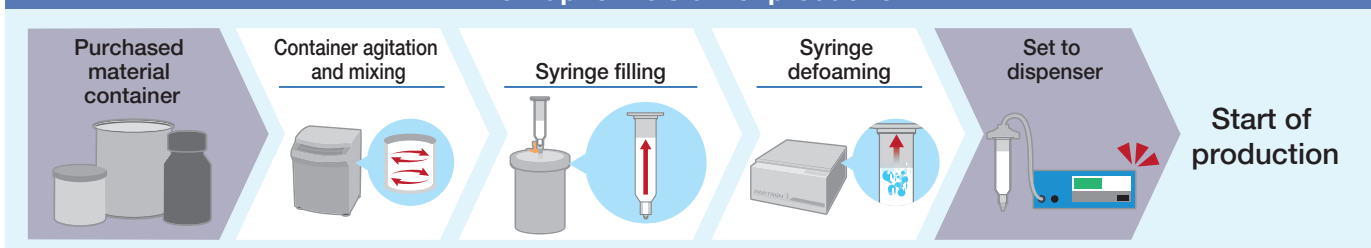
### ■Transformer (option)

- If AW-20-3 or AW-50-3 is used with the voltage of other than AC100V, use one of the following transformers.

| Item name       | Model  |
|-----------------|--------|
| [AC110V ⇒ 100V] | TR-110 |
| [AC117V ⇒ 100V] | TR-117 |
| [AC200V ⇒ 100V] | TR-200 |
| [AC220V ⇒ 100V] | TR-220 |
| [AC240V ⇒ 100V] | TR-240 |

Note: 600 W, 2 pole outlet + grounding / 1 outlet  
Use TR-220 when the power supply is AC210 V.  
Use TR-240 when the power supply is AC230 V.

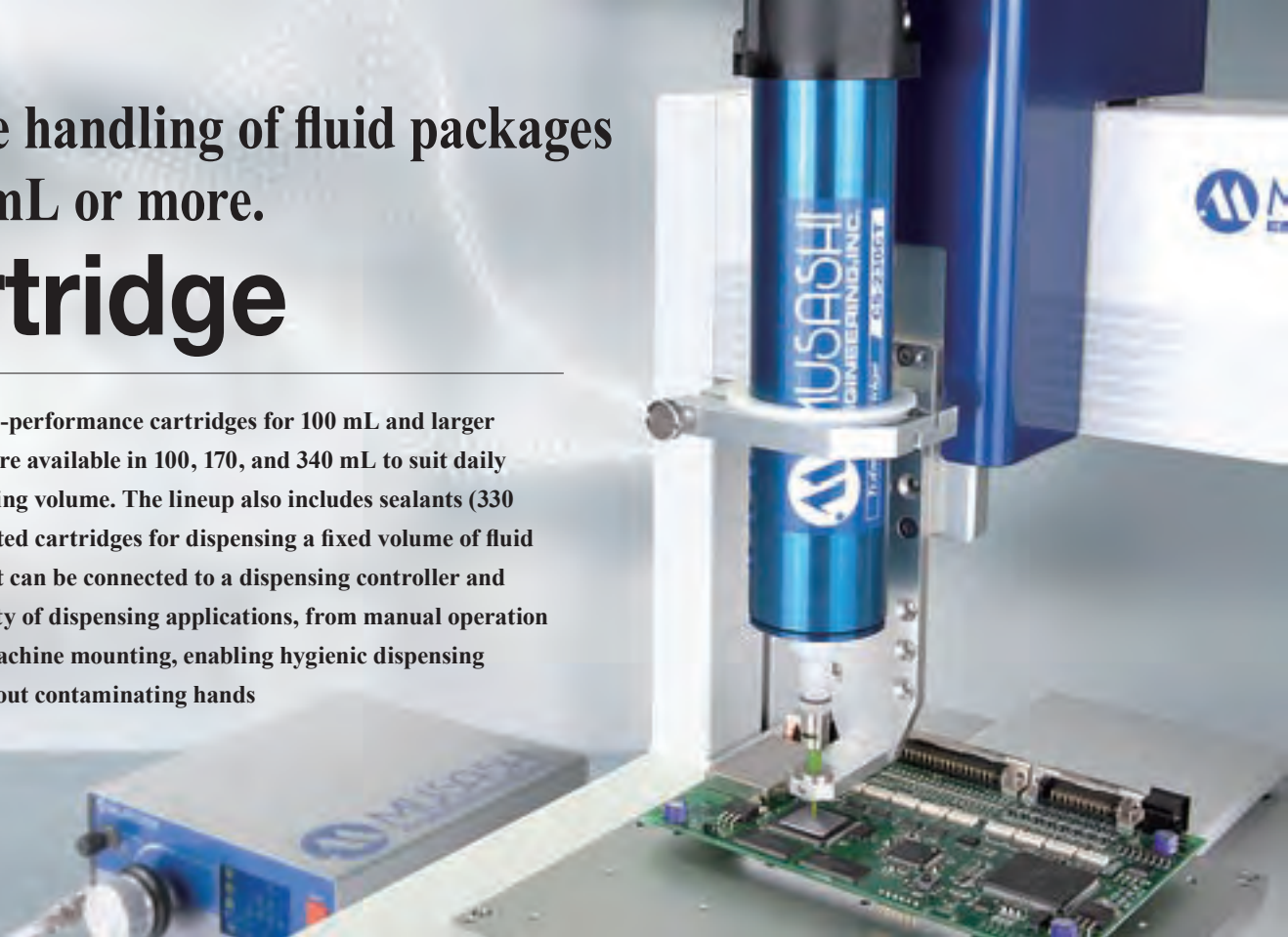
## Flow up to the start of production



# Flexible handling of fluid packages of 100 mL or more.

# Cartridge

MUSASHI high-performance cartridges for 100 mL and larger fluid packages are available in 100, 170, and 340 mL to suit daily use and dispensing volume. The lineup also includes sealants (330 mL) and dedicated cartridges for dispensing a fixed volume of fluid filled in tubes. It can be connected to a dispensing controller and used for a variety of dispensing applications, from manual operation to automated machine mounting, enabling hygienic dispensing operations without contaminating hands or work area.



## Air-pulse/cartridge system

### Best suited system for dispensing large fluid volumes continuous operation

Fill a polyethylene barrel with fluid for dispensing operation. There are three barrel sizes: 100 mL, 170 mL, and 340 mL. Cartridges can be used in a wide range of dispensing operations to match the daily consumption.



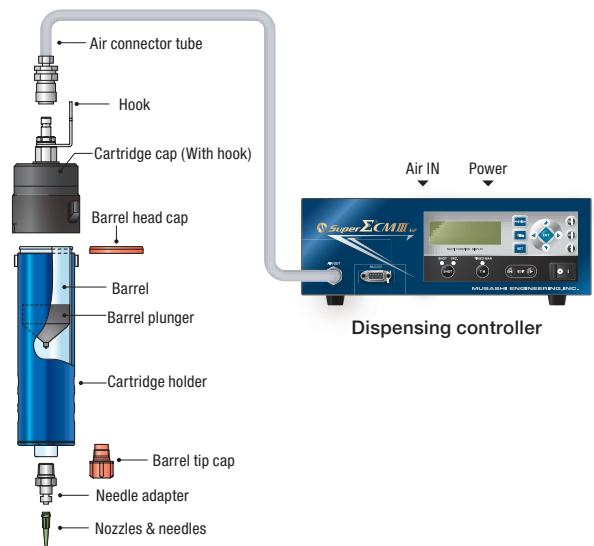
## Valve/cartridge system

### The smallest valve dispensing system

This dispensing system combines a quantitative fluid dispensing valve with a cartridge system dispenser. While it is compact, you can select a barrel size up to 340 mL, for continuous dispensing of low to high viscosity materials. (This system uses the ME-5000VT dispenser specialized for valve control.)



## ■ Air-pulse Connection system configuration diagram



## One-touch type

Locking mechanism enables quick and secure cartridge mounting



Insert barrel or tube into cartridge holder



Set the cartridge cap in the cartridge holder



Rotate cartridge caps to lock securely in place

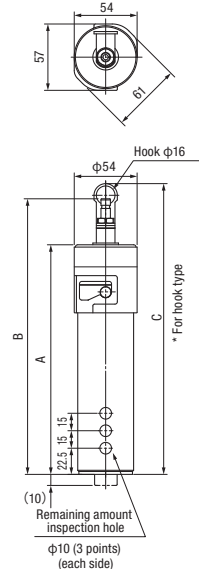
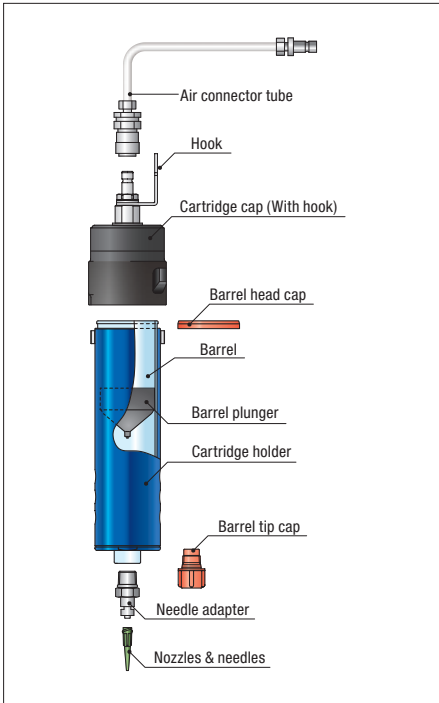


## Barrel cartridge



### Speedy attachment/detachment just in a few seconds!

Workability in barrel replacement is dramatically improved. This is suitable for large volumes of fluid. You can select the best size from among 100 mL, 170 mL, and 340 mL according to your daily requirements and dispensing volumes.



### Barrel cartridge

| Item name          | Model      | Weight | Minimum Order Quantity |
|--------------------|------------|--------|------------------------|
| [100 mL]           | CS-100C    | 265 g  | 1 set                  |
| [170 mL]           | CS-170C    | 335 g  | 1 set                  |
| [340 mL]           | CS-340C    | 455 g  | 1 set                  |
| [100 mL with hook] | CS-100C-HK | 275 g  | 1 set                  |
| [170 mL with hook] | CS-170C-HK | 345 g  | 1 set                  |
| [340 mL with hook] | CS-340C-HK | 465 g  | 1 set                  |

Note: 1. Always applied pressure: 0.5 MPa or less.

2. The barrel cartridge set consists of a cartridge holder and a cartridge cap.

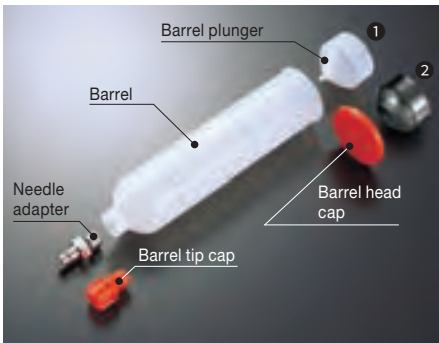
### Barrel cartridge components

| Capacity | Item name                            | Model      | Material        | Minimum Order Quantity |
|----------|--------------------------------------|------------|-----------------|------------------------|
| 100 mL   | Cartridge cap [without hook]         | CC-P-001-1 | —               | Select either one      |
|          | Cartridge cap [with hook]            | CC-P-001-2 | —               |                        |
|          | Cartridge holder [100 mL barrel use] | CH-100C    | Aluminium alloy | 1                      |
| 170 mL   | Cartridge cap [without hook]         | CC-P-001-1 | —               | Select either one      |
|          | Cartridge cap [with hook]            | CC-P-001-2 | —               |                        |
|          | Cartridge holder [170 mL barrel use] | CH-170C    | Aluminium alloy | 1                      |
| 340 mL   | Cartridge cap [without hook]         | CC-P-001-1 | —               | Select either one      |
|          | Cartridge cap [with hook]            | CC-P-001-2 | —               |                        |
|          | Cartridge holder [340 mL barrel use] | CH-340C    | Aluminium alloy | 1                      |

Measurement unit (mm)

| Model      | A   | B     | C     |
|------------|-----|-------|-------|
| CS-100C    | 119 | 160.5 | —     |
| CS-100C-HK | 119 | 160.5 | 171.5 |
| CS-170C    | 197 | 238.5 | —     |
| CS-170C-HK | 197 | 238.5 | 249.5 |
| CS-340C    | 328 | 369.5 | —     |
| CS-340C-HK | 328 | 369.5 | 380.5 |

## Barrel parts

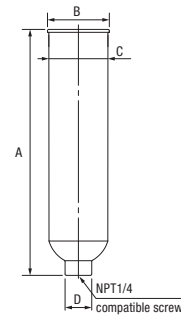


### Fluid container for cartridge type

A container or cap to fill the cartridge with fluid material.

### Barrel parts

| Item name       | Model            | Material  | Minimum Order Quantity | Remarks |             |
|-----------------|------------------|-----------|------------------------|---------|-------------|
| Barrel          | [100 mL, Type B] | PB-100B   | Polyethylene           | 10      | —           |
|                 | [170 mL, Type C] | PB-170C   | Polyethylene           | 10      |             |
|                 | [340 mL, Type C] | PB-340C   | Polyethylene           | 10      |             |
| Barrel plunger  | ① [Type W1]      | PP-W1     | Polyethylene           | 10      | White/Loose |
|                 | ② [Type B1]      | PP-B1     | Polyethylene           | 10      | Black/Tight |
| Barrel head cap | [Type 4]         | BC-4      | Polyethylene           | 10      | —           |
| Barrel head cap | [Type 4]         | BP-4      | Polypropylene          | 10      | —           |
| Needle adapter  | [No.12]          | P-NADP-12 | Brass (Nickel plated)  | 1       | —           |
|                 | [No.13]          | P-NADP-13 | Fluorine coated        | 1       |             |



Measurement unit (mm)

| Model       | A     | B     | C     | D     |
|-------------|-------|-------|-------|-------|
| PB-100B     | 99.2  | φ45.3 | φ43   | φ19.3 |
| PB-170C     | 178   | φ45   | φ43   | φ19.4 |
| PB-170CU-OR | 179   | φ45   | φ43   | φ19.4 |
| PB-340C     | 311.5 | φ45   | φ42.8 | φ19.4 |
| PB-340CU-OR | 311.5 | φ45   | φ43   | φ19.4 |

### UV-block Barrel parts

| Item name                           | Model       | Material      | Minimum Order Quantity | Remarks |
|-------------------------------------|-------------|---------------|------------------------|---------|
| UV-block barrel [170 mL type C]     | PB-170CU-OR | Polypropylene | 10                     | —       |
| UV-block barrel [340 mL type C]     | PB-340CU-OR | Polypropylene | 10                     |         |
| ③ UV-block barrel head cap [Type 4] | BC-4U-B     | Polyethylene  | 10                     |         |
| ④ UV-block barrel tip cap [Type 4]  | BP-4U-B     | Polypropylene | 10                     |         |

## Consumables for cartridge caps

| Item name                           | Model        | Minimum Order Quantity |
|-------------------------------------|--------------|------------------------|
| Seal spring [for cartridge cap]     | P-SSP-1      | 1                      |
| O-ring receiver [for cartridge cap] | CS-P-001-1A  | 1                      |
| O-ring (for cap sealing)            | ORG-42-V-B-1 | 1                      |
| O-ring (for barrel sealing)         | ORG-34-V-B-1 | 1                      |

| Item name                         | Model        | Minimum Order Quantity |
|-----------------------------------|--------------|------------------------|
| Seal retainer [for cartridge cap] | SCS-P-001-1C | 1                      |
| Screw [No.2]                      | P-SCW-2      | 1                      |
| Cartridge cap hook                | SCS-P-005-1  | 1                      |
| Pneumatic quick joint [plug R1/8] | QP-1B        | 1                      |

## Sealant cartridge



### Direct constant volume dispensing with commercially available sealant

This cartridge is used for dispensing with a commercially available 330 mL sealant.

#### Sealant cartridge

| Item name                        | Model      | Weight | Minimum Order Quantity |
|----------------------------------|------------|--------|------------------------|
| Sealant cartridge [without hook] | SCS-330    | 570 g  | 1 set                  |
| Sealant cartridge [with hook]    | SCS-330-HK | 580 g  | 1 set                  |

Note: 1. Always applied pressure: 0.5MPa or less.

2. The sealant cartridge consists of a cartridge cap, cartridge holder, O-ring, tip adapter, and needle adapter.

#### Sealant cartridge components

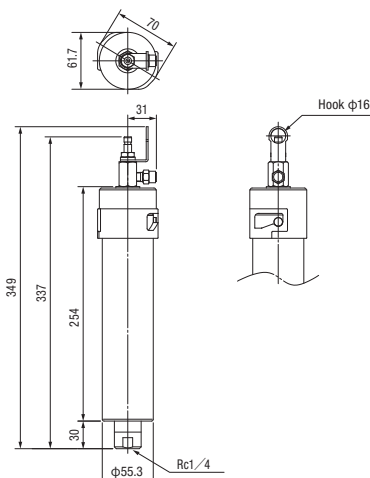
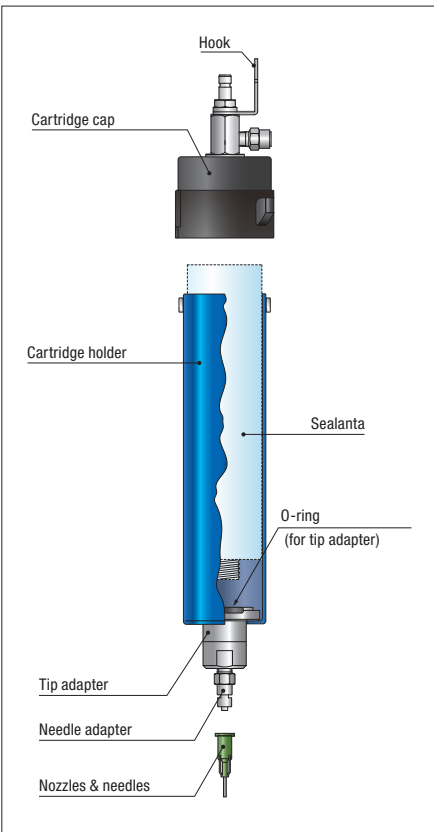
| Item name                      | Model          | Material                                       | Minimum Order Quantity |
|--------------------------------|----------------|--|------------------------|
| Cartridge cap                  | [without hook] | PBT, Polyacetal, Stainless steel, Brass,       | 1                      |
|                                | [with hook]    | NBR, Fluororubber                              | 1                      |
| Cartridge holder [sealant use] | SCS-P-002-1    | Aluminium alloy (anodized),<br>Stainless steel | 1                      |
| O-ring                         | ORG-20-V-B-1   | Fluororubber                                   | 1                      |
| Needle adapter [No.11]         | P-NADP-11      | Brass (Nickel plated)                          | 1                      |

#### Consumables/options

| Item name                         | Model                                   | Material                                    | Minimum Order Quantity |              |
|-----------------------------------|---|---|------------------------|--------------|
| Tip adapter*1                     | [Type TB]                               | Aluminium alloy (anodized),<br>Fluororubber | 1                      |              |
|                                   | [Type S]                                |   | 1                      |              |
|                                   | [Type TR]                               |   | 1                      |              |
|                                   | [Type TS]                               |   | 1                      |              |
|                                   | [Type MI]                               |   | 1                      |              |
|                                   | [Type MO]                               |   | 1                      |              |
|                                   | [Type C]                                |   | 1                      |              |
| Packing                           | [No.23]                                 | Fluororubber                                | 1                      |              |
|                                   | [No.15]                                 | Fluororubber                                |                        |              |
| Seal spring [for cartridge cap]   | P-SSP-1                                 | Stainless steel                             |                        |              |
| Seal retainer [for cartridge cap] | SCS-P-001-1C                            | Polyacetal                                  |                        |              |
| Screw [No.17]                     | P-SCW-17                                | Stainless steel                             |                        |              |
| O-ring                            | [φ20 Material V Color B #1]             | ORG-20-V-B-1                                |                        | Fluororubber |
|                                   | [φ16 Material V Color B #1] only for TS | ORG-16-V-B-1                                |                        | Fluororubber |
|                                   | [φ14 Material V Color B #1] only for TS | ORG-14-V-B-1                                |                        | Fluororubber |
| Cartridge cap hook*2              | SCS-P-005-1                             | —   |                        |              |

\*1 The tip adapter is available in seven types (TB, TR, S, TS, MI, MO, C) according to the sealant used by the fluid manufacturer. Please contact our sales department.

\*2 Component parts are two parts.



### Applicable to the sealants of all manufacturers



Note: This item needs to be selected in accordance with the material manufacturer's sealant to be used. Contact our sales department.



## Tube cartridge

### Direct dispensing from commercially available tubes

This cartridge set enables direct loading of commercially available fluid materials in tubes and direct dispensing with tubes for fixed volume.

#### ■ Tube cartridge (former: tube cartridge set)

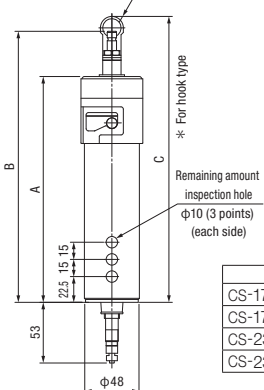
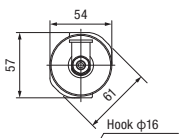
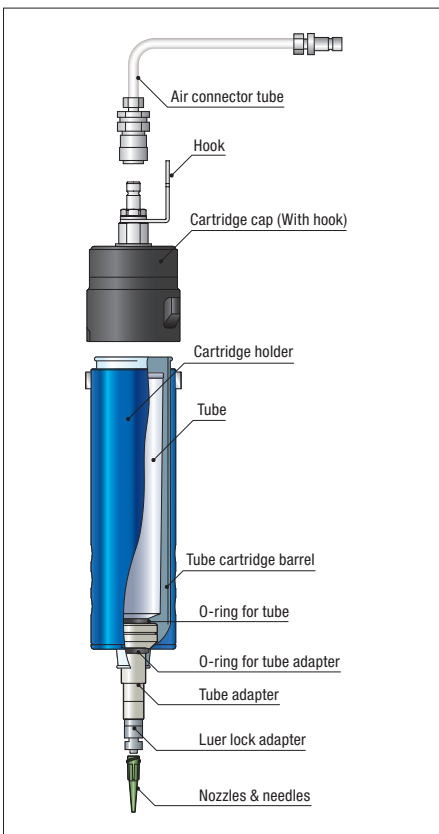
|                | Item name                   | Model          | Weight | Minimum Order Quantity |
|----------------|-----------------------------|----------------|--------|------------------------|
| Tube cartridge | [100 g]                     | CS-170CT       | 378 g  | 1 set                  |
|                | [100 g, Type TD]            | CS-170CT-TD    | 378 g  | 1 set                  |
|                | [100 g with hook]           | CS-170CT-HK    | 388 g  | 1 set                  |
|                | [100 g, Type TD, with hook] | CS-170CT-TD-HK | 388 g  | 1 set                  |
| Tube cartridge | [200 g]                     | CS-230CT       | 430 g  | 1 set                  |
|                | [200 g type TD]             | CS-230CT-TD    | 430 g  | 1 set                  |
|                | [200 g with hook]           | CS-230CT-HK    | 440 g  | 1 set                  |
|                | [200 g type TD with hook]   | CS-230CT-TD-HK | 440 g  | 1 set                  |

Note: 1. Select one of two types of tube cartridges according to the capacity and liquid material to be used. Contact our sales department after confirming the manufacturer, material type, and capacity of the liquid tube.  
 2. Always applied pressure: 0.5 MPa or less.  
 3. The tube cartridge consists of a cartridge holder, cartridge cap, tube cartridge barrel, O-ring for tube (for tube adapter), tube adapter, O-ring (for luer lock adapter), and luer lock adapter.

#### ■ Tube cartridge components

| capacity  | Item name   | Model                             | Material                       | Minimum Order Quantity |                   |
|---|---|-----------------------------------|--------------------------------|------------------------|-------------------|
| For NET 100 g   | Cartridge cap   | [without hook]                    | CC-P-001-1                     | —                      | Select either one |
|   |   | [with hook]                       | CC-P-001-2                     | —                      |                   |
|   | Cartridge holder [170 mL tube use]                    | CH-170CT                          | Aluminium alloy                | 1                      |                   |
|   | Tube cartridge barrel [170 mL] *3 *5                  | PB-170BT                          | Polyethylene                   | 1                      |                   |
|   | O-ring for tube *1                                    | —                                 | Fluororubber                   | 1                      |                   |
|   | O-ring (for tube adapter) [φ12 Material V Color B #1] | —                                 | ORG-12-V-B-1                   | Fluororubber           | 1                 |
|   |   | Tube adapter                      | [For No.3 CS-170/230 CT] *2 *3 | P-TADP-3               | Polypropylene     |
|   |   | [For No.2 CS-170/230 CT-TD] *2 *3 | P-TADP-2                       | Polypropylene          |                   |
| O-ring (for luer lock adapter) [φ8 Material V Color B #1] | —   | ORG-8-V-B-1                       | Fluororubber                   | 1                      |                   |
| Luer lock adapter [No.1]                                  | —   | P-LADP-1                          | Polypropylene *4               | 1                      |                   |
| For NET 200 g   | Cartridge cap   | [without hook]                    | CC-P-001-1                     | —                      | Select either one |
|   |   | [with hook]                       | CC-P-001-2                     | —                      |                   |
|   | Cartridge holder [230 mL tube use]                    | CH-230C                           | Aluminium alloy                | 1                      |                   |
|   | Tube cartridge barrel [230 mL] *3 *5                  | PB-230BT                          | Polyethylene                   | 1                      |                   |
|   | O-ring for tube *1                                    | —                                 | Fluororubber                   | 1                      |                   |
|   | O-ring (for tube adapter) [φ12 Material V Color B #1] | —                                 | ORG-12-V-B-1                   | Fluororubber           | 1                 |
|   |   | Tube adapter                      | [For No.3 CS-170/230 CT] *2 *3 | P-TADP-3               | Polypropylene     |
|   |   | [For No.2 CS-170/230 CT-TD] *2 *3 | P-TADP-2                       | Polypropylene          |                   |
| O-ring (for luer lock adapter) [φ8 Material V Color B #1] | —   | ORG-8-V-B-1                       | Fluororubber                   | 1                      |                   |
| Luer lock adapter [No.1]                                  | —   | P-LADP-1                          | Polypropylene *4               | 1                      |                   |

\*1 The screw shapes of the end of the tubes and O-rings for tubes vary, depending on the liquid material. Confirm the manufacturer, material type and capacity and then contact our sales office.  
 \*2 Select one of two types of tube adapters according to the liquid material to be used. Contact our sales department after confirming the manufacturer, material type, and capacity.  
 \*3 Tube cartridge barrels and tube adapters are consumables. Periodical replacement is recommended.  
 \*4 Wetted part is made of fluorocarbon resin, and luer lock part is metallic.  
 \*5 Use Musashi's 170 mL type barrel for NET100 g and 230 mL type barrel for NET200 g.



| Model            | A   | B     | C     |
|------------------|-----|-------|-------|
| CS-170CT(-TD)    | 197 | 238.5 | —     |
| CS-170CT(-TD)-HK | 197 | 238.5 | 249.5 |
| CS-230CT(-TD)    | 243 | 284.5 | —     |
| CS-230CT(-TD)-HK | 243 | 284.5 | 295.5 |

Measurement unit (mm)

### All manufacturers' tubes are supported and 230 mL type barrel for NET200 g.

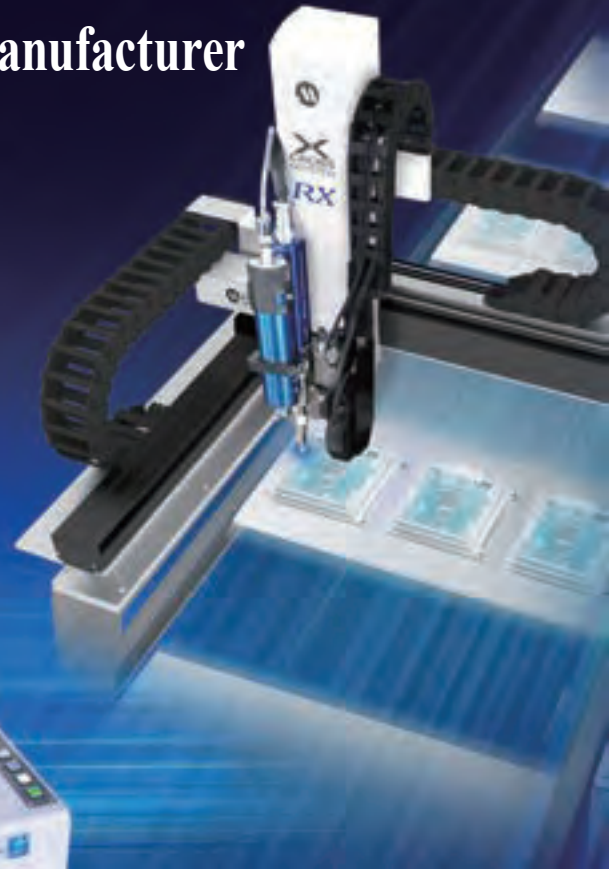


Note: This item needs to be selected in accordance with the material manufacturer's tube to be used. Contact our sales department.

Born from the know-how of a dispenser manufacturer

# Desktop/ cartesian robot

A motion unit that “dispenses” the fluid from the dispenser into the required shape. MUSASHI desktop robot and cartesian robot are unrivalled in their unique evolution as dedicated dispensing robots for precision dispensing.



## Desktop robot

### SHOT mini SHOTMASTER



A desktop type robot that can perform dispensing operations from the day it is delivered. As well as introduction to semi-automatic cell production systems, we can respond to all markets and needs, from R&D to prototype mass production.

## Cartesian robot

### X CROSS MASTER



Incorporated type cartesian robots that enable the smooth transfer of dispensing processes established with desktop type robots to fully automated equipment and production lines. It implements labor saving, productivity improvement, and quality improvement in the dispensing process.

## Choice of two types according to application and use environment



### High-speed

800 mm/s top level operation speed in desktop class

### High Precision

Repetitive positioning accuracy  $\pm 0.01$  mm



### High Rigidity

Fast and stable operation even for heavy tools and workpieces.

### High Precision

Class-leading  $\pm 0.005$  mm repetitive positioning accuracy



### Options for Safety safety cover

Two varieties of safety light curtain type and door type are available. It can be selected according to the application, such as safety and work environment.

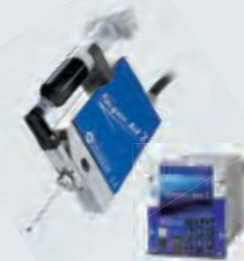
## All MUSASHI dispensers can be mounted.

Air-pulse dispenser



*Super CMIII*

JET dispenser



*Super Jet 2*

Volume measuring  
Plunger Dispenser



*MEASURING MASTER  
MPP-3*

Screw dispenser



*SCREW MASTER 3*

Volume measuring  
MOHNO Dispenser



*MOHNO MASTER*

## Fully enhanced operability

### Teaching pendant

Robot motion is programmed by inputting the coordinate values of each axis and motion commands. The large backlight screen makes the display easy to view, and the two screen display facilitates programming. Many useful functions such as interactive navigation and a stopwatch function are included. Japanese, English, and Chinese are supported.



### Dispensing pattern editing software

## MuCAD V

Intuitive editing of dispensing patterns is possible. Easy-to-understand program command icons for beginners to operate, creating free dispensing programming with a CAD like feel. Automatic generation of dispensing programs from DXF data, etc. is also possible.



For details, see →P62

### Coordinated with dispenser



### Synchro Speed function PAT.

Maintains a fixed line width, regardless of robot speed. Achieves high-quality dispensing automatically, without the need for any complex adjustments.



Right-angle dispensing

Synchro Speed  
function ON

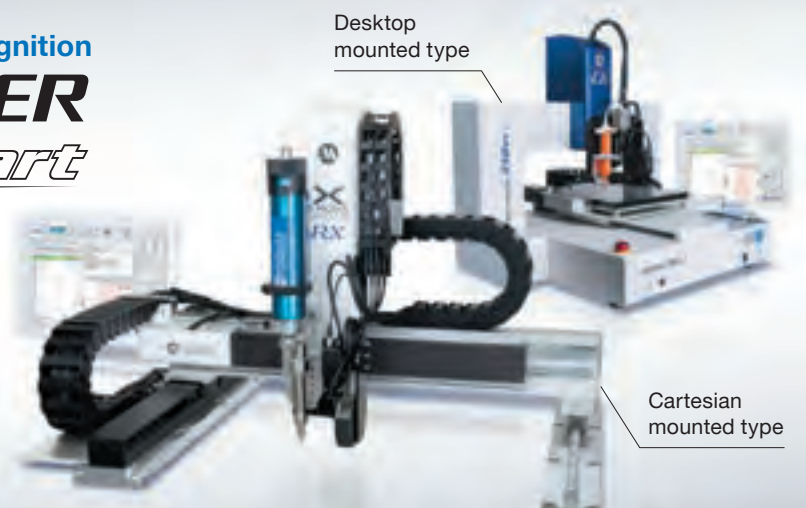


### Robot with PC control image recognition

## IMAGE MASTER 350PC Smart

There is no problem even if individual workpieces have different distortions or warping, or if workpieces are misaligned in the pallet. The dispense machine automatically senses and performs optimal dispensing. In addition, a full production log function monitors the production cycle from workpiece loading to unloading to ensure stable production. A wide variety of other options are available.

For details, see →P60-61



Desktop  
mounted type

Cartesian  
mounted type

# SHOTmini / SHOTMASTER SX series

MUSASHI's general-purpose desktop robot, the global de facto standard.



## SHOTmini/SHOTMASTER SX series Line up



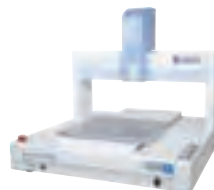
SHOTmini 100SX



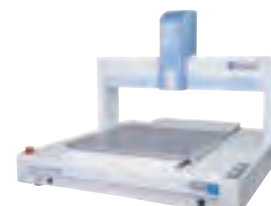
SHOTmini 200SX



SHOTMASTER 300SX



SHOTMASTER 400SX



SHOTMASTER 500SX

### Specifications

| Item name  | SHOTmini 100SX       |                 | SHOTmini 200SX    |                 | SHOTMASTER 300SX |                 | SHOTMASTER 400SX |                | SHOTMASTER 500SX |                |        |
|--|----------------------|-----------------|-------------------|-----------------|------------------|-----------------|------------------|----------------|------------------|----------------|--------|
| Model  | SM100SX -3A-SS       |                 | SM200SX -3A-SS-01 | SM200SX -4A-SS  | SM300SX -3A-SS   | SM300SX -4A-SS  | SM400SX -3A-SS   | SM400SX -4A-SS | SM500SX -3A-SS   | SM500SX -4A-SS |        |
| No. of controlled axes                           | 3-axis               |                 |                   | 4-axis          | 3-axis           | 4-axis          | 3-axis           | 4-axis         | 3-axis           | 4-axis         |        |
| Travel ranges                                    | X-axis, Y-axis       | 100 mm          | 200 mm            |                 | 300 mm           |                 | 400 mm           |                | 500 mm           |                |        |
|  | Z-axis               | 50mm            |                   |                 |                  | 80mm            |                  |                |                  |                |        |
|  | W-axis               | —               |                   | ±360°           | —                |                 | ±360°            | —              |                  | ±360°          |        |
| Setting range of PTP operation speed*1           | X-axis, Y-axis       | 1 to 800 mm/s   |                   |                 |                  |                 |                  |                |                  |                |        |
|  | Z-axis               | 1 to 350 mm/s   |                   | 1 to 250 mm/s   |                  | 1 to 400 mm/s   |                  |                |                  |                |        |
|  | W-axis               | —               |                   | 1 to 900°/s     |                  | —               |                  | 1 to 900°/s    |                  | —              |        |
| Setting range of interpolation operation speed*1 | X-axis, Y-axis       | 0.1 to 800 mm/s |                   |                 |                  |                 |                  |                |                  |                |        |
|  | Z-axis               | 0.1 to 350 mm/s |                   | 0.1 to 250 mm/s |                  | 0.1 to 400 mm/s |                  |                |                  |                |        |
|  | W-axis               | —               |                   | 0.1 to 900°/s   |                  | —               |                  | 0.1 to 900°/s  |                  | —              |        |
| Repetitive positioning accuracy*2                | X-axis, Y-axis       | ±0.01 mm        |                   |                 |                  |                 |                  |                |                  |                |        |
|  | Z-axis               | ±0.01 mm        |                   |                 |                  |                 |                  |                |                  |                |        |
|  | W-axis               | —               |                   | ±0.01°          |                  | —               |                  | ±0.01°         |                  | —              |        |
| Loading capacity*3                               | Y-axis               | 8 kg            |                   |                 |                  | 15 kg           |                  |                |                  |                |        |
|  | Z-axis               | 2 kg            | 3.5 kg            | 2.5 kg          | 7 kg             | 6 kg            | 7 kg             | 6 kg           | 7 kg             | 6 kg           |        |
| Rated voltage and frequency                      | AC100-240 V 50/60 Hz |                 |                   |                 |                  |                 |                  |                |                  |                |        |
| Power consumption                                | 100 W                |                 |                   | 120 W           |                  | 200 W           | 220 W            | 200 W          | 220 W            | 200 W          | 220 W  |
| External dimensions*4 (excluding protrusions)    | W                    | 202 mm          | 302 mm            |                 | 510 mm           |                 | 610 mm           |                | 710 mm           |                |        |
|  | D                    | 290 mm          | 301 mm            |                 | 570 mm           |                 | 670 mm           |                | 770 mm           |                |        |
|  | H                    | 440 mm          |                   | 555 mm          |                  | 590 mm          | 690 mm           | 590 mm         | 690 mm           | 590 mm         | 690 mm |
| Weight   | 11 kg                | 13.3 kg         | 15.5 kg           | 37 kg           | 40 kg            | 55 kg           | 58 kg            | 66 kg          | 69 kg            |                |        |

### Common specifications

|                                      |  |   |
|--------------------------------------|--|---|
| Control system*5                     | PTP control and interpolation control                            |   |
| Interpolation function               | 3D line, 3D circular arc/circle, 3D elliptic arc/ellipse, spline |   |
| Number of input/output signal points | General-purpose input  | 26 points   |
|                                      | General-purpose output   | 26 points   |
| Program entry method                 | Teaching pendant, PC   |   |
| Program display language             | Japanese, English, Chinese                                       |   |
| Program capacity*6                   | 40000 steps (999 channels)                                       |   |
| Program storage system               | Internal   | Internal memory                                       |
|                                      | External   | Backup on PC with dispensing pattern editing software |
| Program editing software             | MuCAD V (option)   |   |

\*1 These values vary depending on the operation, loaded object weight, load center position and other factors.

\*2 This value is measured by the Musashi standards measurement methods (compliant with JIS).

\*3 When options are not installed. The value varies with setting speed, setting acceleration/deceleration time, and operations.

\*4 W and D are the dimensions of the lower section of the case.

\*5 PTP control: Control to move each specified axis to the end-point coordinates at each speed.

Interpolation control: Control to move each specified axis to the end coordinates at the total interpolated speed.

\*6 Main routine: 1 to 99 CH, sub routine: 100 to 999 CH

\* QX series has no (motor) step-out specifications.

### No need for fine adjustment after nozzle replacement

#### Nozzle adjuster

- Automated nozzle position offset adjustment after syringe replacement
- Significant reduction in downtime
- Nozzle position can be adjusted while dispensing program is running



### Expanding Work Approach nozzle replacement

#### 4-axis specification robot

- Rotating specifications enable dispensing to every corner, including crevices, outer circumference, and cylindrical sidewalls.
- Select from two types of rotating specifications to suit your application.



Work rotation specification (custom)



Dispensing head rotating type

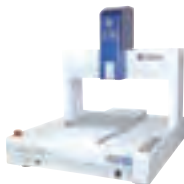
MUSASHI's general-purpose desktop robot, the global de facto standard.



## SHOTmini/SHOTMASTER $\Omega$ X series Line up



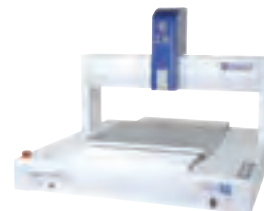
SHOTmini 200 $\Omega$ X



SHOTMASTER 300 $\Omega$ X



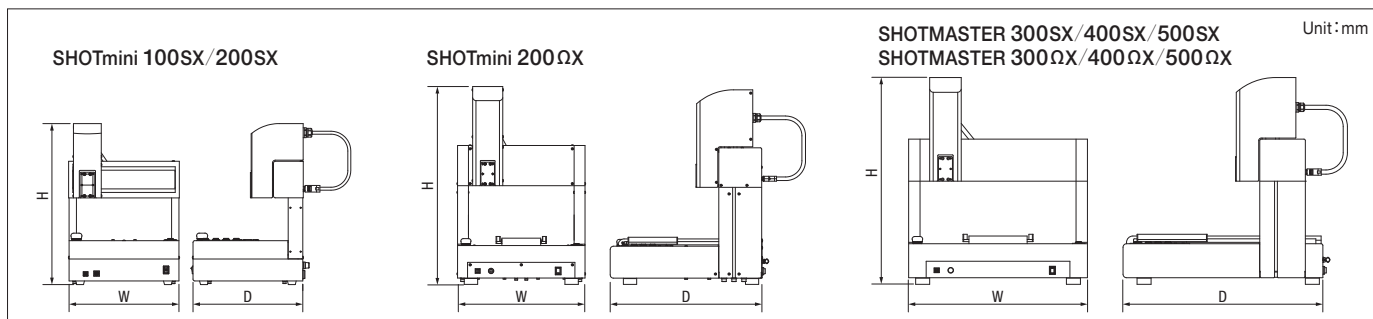
SHOTMASTER 400 $\Omega$ X



SHOTMASTER 500 $\Omega$ X

### Specifications

| Item name   |                | SHOTmini 200 $\Omega$ X |                       | SHOTMASTER 300 $\Omega$ X |                       | SHOTMASTER 400 $\Omega$ X |                       | SHOTMASTER 500 $\Omega$ X |                       |
|---|----------------|-------------------------|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|
| Model   |                | SM200OMEGAX<br>-3A-SS   | SM200OMEGAX<br>-4A-SS | SM300OMEGAX<br>-3A-SS     | SM300OMEGAX<br>-4A-SS | SM400OMEGAX<br>-3A-SS     | SM400OMEGAX<br>-4A-SS | SM500OMEGAX<br>-3A-SS     | SM500OMEGAX<br>-4A-SS |
| No. of controlled axes                            |                | 3-axis                  | 4-axis                | 3-axis                    | 4-axis                | 3-axis                    | 4-axis                | 3-axis                    | 4-axis                |
| Travel ranges                                     | X-axis, Y-axis | 200 mm                  |                       | 300 mm                    |                       | 400 mm                    |                       | 500 mm                    |                       |
|   | Z-axis         | 80mm                    |                       |                           |                       |                           |                       |                           |                       |
|   | W-axis         | —                       | $\pm 360^\circ$       | —                         | $\pm 360^\circ$       | —                         | $\pm 360^\circ$       | —                         | $\pm 360^\circ$       |
| Setting range of PTP operation speed *1           | X-axis, Y-axis | 1 to 500 mm/s           |                       |                           |                       |                           |                       |                           |                       |
|   | Z-axis         | 1 to 400 mm/s           |                       |                           |                       |                           |                       |                           |                       |
|   | W-axis         | —                       | 1 to 900°/s           | —                         | 1 to 900°/s           | —                         | 1 to 900°/s           | —                         | 1 to 900°/s           |
| Setting range of interpolation operation speed *1 | X-axis, Y-axis | 0.1 to 500 mm/s         |                       |                           |                       |                           |                       |                           |                       |
|   | Z-axis         | 0.1 to 400 mm/s         |                       |                           |                       |                           |                       |                           |                       |
|   | W-axis         | —                       | 0.1 to 900°/s         | —                         | 0.1 to 900°/s         | —                         | 0.1 to 900°/s         | —                         | 0.1 to 900°/s         |
| Repetitive positioning accuracy *2                | X-axis, Y-axis | $\pm 0.005$ mm          |                       |                           |                       |                           |                       |                           |                       |
|   | Z-axis         | $\pm 0.005$ mm          |                       |                           |                       |                           |                       |                           |                       |
|   | W-axis         | —                       | $\pm 0.01^\circ$      | —                         | $\pm 0.01^\circ$      | —                         | $\pm 0.01^\circ$      | —                         | $\pm 0.01^\circ$      |
| Loading capacity *3                               | Y-axis         | 20 kg                   |                       |                           |                       |                           |                       |                           |                       |
|   | Z-axis         | 15 kg                   | 12 kg                 | 15 kg                     | 12 kg                 | 15 kg                     | 12 kg                 | 15 kg                     | 12 kg                 |
| Rated voltage and frequency                       |                | AC100-240V 50/60Hz      |                       |                           |                       |                           |                       |                           |                       |
| Power consumption                                 |                | 130 W                   | 150 W                 | 130 W                     | 150 W                 | 180 W                     | 200 W                 | 180 W                     | 200 W                 |
| External dimensions *4<br>(excluding protrusions) | W              | 380 mm                  |                       | 510 mm                    |                       | 610 mm                    |                       | 710 mm                    |                       |
|   | D              | 460 mm                  |                       | 570 mm                    |                       | 670 mm                    |                       | 770 mm                    |                       |
|   | H              | 590 mm                  | 690 mm                | 590 mm                    | 690 mm                | 590 mm                    | 690 mm                | 590 mm                    | 690 mm                |
| Weight  |                | 30 kg                   | 33 kg                 | 40 kg                     | 43 kg                 | 55 kg                     | 58 kg                 | 66 kg                     | 69 kg                 |



Desktop robot

| SHOTmini/<br>SHOTMASTER<br>SX& $\Omega$ X<br>Model Identification | Type | Type X, Y stroke | Series   | No. of Axes         | Extension   | SS function  |
|---|------|------------------|--|---------------------|---|--|
|   |      | <b>SM 200</b>    | 100:100×100 mm<br>200:200×200 mm<br>300:300×300 mm<br>400:400×400 mm<br>500:500×500 mm | <b>SX</b><br>OMEGAX | <b>3A</b><br>3A:3-axis<br>3A-Z:3-axis Z-axis reinforcement<br>4A:4-axis | <b>EXT100</b><br>None: Standard height<br>EXT50: +50 mm<br>EXT100: +100 mm |

\*SS: Synchro Speed function  
\*100×100mm is only for SX \*3A-Z is only for 200SX \*100SX is 4A, not for bulk

# Inline Motion Unit



## MUSASHI's cartesian robot for inline production

### **X** CROSS MASTER SERIES

# RX SERIES

220RX / 230RX / 240RX / 320RX / 330RX / 340RX / 420RX / 430RX / 440RX

### Features of the CROSS MASTER RX

#### Selectable stroke

Select optimum stroke from 9 available combinations.

#### X-axis stroke

200/300/400

#### Y-axis stroke

200/300/400



#### Select from finished product or assembly set

Choose an option to suit your needs.



Finished products with bases



3-axis assembly set

# SX SERIES

230SX / 340SX / 460SX / 680SX



# OX SERIES

330OX / 440OX / 560OX / 780OX







### CROSSMASTER RX series Line up



CROSSMASTER 220RX



CROSSMASTER 330RX



CROSSMASTER 440RX



Controller



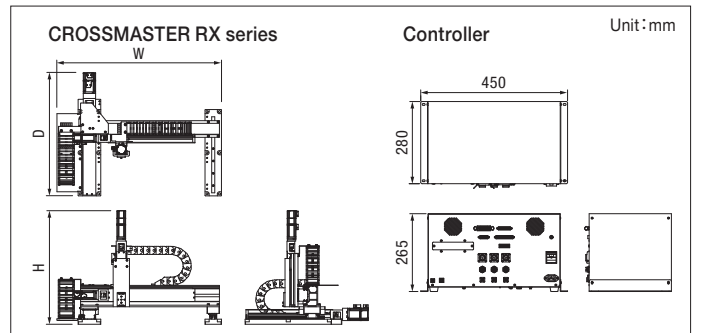
External operation BOX

### Specifications

| Item name  | CROSSMASTER 220RX                    | CROSSMASTER 230RX                    | CROSSMASTER 240RX                    | CROSSMASTER 320RX                    | CROSSMASTER 330RX                    | CROSSMASTER 340RX                    | CROSSMASTER 420RX                    | CROSSMASTER 430RX                    | CROSSMASTER 440RX                    |        |        |
|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------|--------|
| Model  | XM220RX-3A-L-SBA<br>XM220RX-3A-L-AAS | XM230RX-3A-L-SBA<br>XM230RX-3A-L-AAS | XM240RX-3A-L-SBA<br>XM240RX-3A-L-AAS | XM320RX-3A-L-SBA<br>XM320RX-3A-L-AAS | XM330RX-3A-L-SBA<br>XM330RX-3A-L-AAS | XM340RX-3A-L-SBA<br>XM340RX-3A-L-AAS | XM420RX-3A-L-SBA<br>XM420RX-3A-L-AAS | XM430RX-3A-L-SBA<br>XM430RX-3A-L-AAS | XM440RX-3A-L-SBA<br>XM440RX-3A-L-AAS |        |        |
| No. of controlled axes                           | 3-axis                               |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
| Travel ranges                                    | X-axis                               | 200 mm                               | 200 mm                               | 200 mm                               | 300 mm                               | 300 mm                               | 300 mm                               | 400 mm                               | 400 mm                               | 400 mm |        |
|  | Y-axis                               | 200 mm                               | 300 mm                               | 400 mm                               | 200 mm                               | 300 mm                               | 400 mm                               | 200 mm                               | 300 mm                               | 400 mm |        |
|  | Z-axis                               | 150 mm                               |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
| Setting range of PTP operation speed*1           | X-axis, Y-axis                       | 1 to 500 mm/s                        |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
|  | Z-axis                               | 1 to 300 mm/s                        |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
| Setting range of interpolation operation speed*1 | X-axis, Y-axis                       | 0.1 to 500 mm/s                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
|  | Z-axis                               | 0.1 to 300 mm/s                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
| Repetitive positioning accuracy*2                | X-axis, Y-axis, Z-axis               | ±0.005 mm                            |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
| Loading capacity*3                               | 7.5 kg                               |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
| Rated voltage and frequency                      | Single phase, AC200-240 V 50/60 Hz   |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
| Power consumption                                | 300 W                                |                                      |                                      |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
| External dimensions (excluding protrusions)      | W                                    | SBA                                  | 700 mm                               | 700 mm                               | 700 mm                               | 800 mm                               | 800 mm                               | 800 mm                               | 900 mm                               | 900 mm | 900 mm |
|  |                                      | AAS                                  | 684 mm                               | 684 mm                               | 684 mm                               | 784 mm                               | 784 mm                               | 784 mm                               | 884 mm                               | 884 mm | 884 mm |
|  | D                                    | SBA                                  | 600 mm                               | 700 mm                               | 800 mm                               | 600 mm                               | 700 mm                               | 800 mm                               | 600 mm                               | 700 mm | 800 mm |
|  |                                      | AAS                                  | 595 mm                               | 695 mm                               | 795 mm                               | 595 mm                               | 695 mm                               | 795 mm                               | 595 mm                               | 695 mm | 795 mm |
|  | H                                    | SBA                                  | 553 mm                               |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
|  |                                      | AAS                                  | 528 mm                               |                                      |                                      |                                      |                                      |                                      |                                      |        |        |
| Weight   | SBA                                  | 38 kg                                | 43 kg                                | 48 kg                                | 39 kg                                | 44 kg                                | 49 kg                                | 40 kg                                | 45 kg                                | 50 kg  |        |
|  | AAS                                  | 21 kg                                | 22 kg                                | 23 kg                                | 22 kg                                | 23 kg                                | 24 kg                                | 23 kg                                | 24 kg                                | 25 kg  |        |

### Common specifications

|                                      |   |   |
|--------------------------------------|---|---|
| Control system*4                     | PTP control and interpolation control                       |   |
| 3D interpolation function            | Line, circular arc, circle, elliptical arc, ellipse, spline |   |
| Number of input/output signal points | General-purpose input                                       | 20 points   |
|                                      | General-purpose output                                      | 23 points   |
| Program entry method                 | Teaching pendant, PC  |   |
| Program display language             | Japanese, English, Chinese                                  |   |
| Program capacity*5                   | 40000 steps (999 channels)                                  |   |
| Program storage system               | Internal  | Internal memory                                       |
|                                      | External  | Backup on PC with dispensing pattern editing software |
| Program editing software             | MuCAD V (option)  |   |
| Controller dimensions                | W450×D280×H265 mm (excluding protrusions)                   |   |
| Weight of dispense controller        | 15 kg   |   |



Note1: The CROSSMASTER RX series corresponds to industrial robots. Note2: A1 models have no (motor) step-out specifications.

- \*1 These values vary depending on the operation, loaded object weight, load center position and other factors. \*2 This value is measured by the Musashi standards measurement methods (compliant with JIS).  
 \*3 The value varies with setting speed, setting acceleration/deceleration time, and operations.  
 \*4 PTP control: Control to move each specified axis to the end coordinates at each speed. Interpolation control: Control to move each specified axis to the end coordinates at the total interpolated speed.  
 \*5 Main routine: 1 to 99 CH, Sub routine: 100 to 999 CH.

### CROSSMASTER RX

#### Model Identification

| Type          | Type X, Y stroke                                   | Series   | No. of Axes  | X-axis origin position  | Shipping type   |
|---------------|--|--|--|-------------------------|---|
| <b>XM 220</b> |  | <b>RX - 3A - L - SBA</b>                           |  |                         |   |
|               | 220:200×200 mm<br>320:300×200 mm<br>420:400×200 mm | 230:200×300 mm<br>330:300×300 mm<br>430:400×300 mm | 240:200×400 mm<br>340:300×400 mm<br>440:400×400 mm | L : Left<br>3A : 3-axis | SBA<br>(Finished products with bases)<br>AAS<br>(3-axis assembly set) |



MUSASHI's dispensing motion unit mountable on automated units.



## CROSSMASTER SX series Line up



### Specifications

| Item name  | CROSSMASTER 230SX                  |                 | CROSSMASTER 340SX                  |                   | CROSSMASTER 460SX                  |                 | CROSSMASTER 680SX                  |                 |  |
|--|------------------------------------|-----------------|------------------------------------|-------------------|------------------------------------|-----------------|------------------------------------|-----------------|--|
| Model  | XM230SX-3A-L-SS<br>XM230SX-3A-R-SS |                 | XM340SX-3A-L-SS<br>XM340SX-3A-R-SS |                   | XM460SX-3A-L-SS<br>XM460SX-3A-R-SS |                 | XM680SX-3A-L-SS<br>XM680SX-3A-R-SS |                 |  |
| No. of controlled axes                           | 3-axis                             |                 |                                    |                   |                                    |                 |                                    |                 |  |
| Travel ranges                                    | X-axis                             | 200 mm          | 300 mm                             | 400 mm            | 600 mm                             |                 |                                    |                 |  |
|  | Y-axis                             | 300 mm          | 400 mm                             | 600 mm            | 800 mm                             |                 |                                    |                 |  |
|  | Z-axis                             | 150 mm          |                                    |                   |                                    |                 |                                    |                 |  |
| Setting range of PTP operation speed*1           | X-axis                             | 1 to 500 mm/s   |                                    |                   |                                    |                 |                                    | 1 to 470 mm/s   |  |
|  | Y-axis                             | 1 to 500 mm/s   |                                    | 1 to 1000 mm/s    |                                    | 1 to 830 mm/s   |                                    |                 |  |
|  | Z-axis                             | 1 to 300 mm/s   |                                    |                   |                                    |                 |                                    |                 |  |
| Setting range of interpolation operation speed*1 | X-axis                             | 0.1 to 500 mm/s |                                    |                   |                                    |                 |                                    | 0.1 to 470 mm/s |  |
|  | Y-axis                             | 0.1 to 500 mm/s |                                    | 0.1 to 999.9 mm/s |                                    | 0.1 to 830 mm/s |                                    |                 |  |
|  | Z-axis                             | 0.1 to 300 mm/s |                                    |                   |                                    |                 |                                    |                 |  |
| Repetitive positioning accuracy*2                | X-axis                             | ±0.01 mm        |                                    |                   |                                    |                 |                                    |                 |  |
|  | Y-axis                             | ±0.01 mm        |                                    |                   |                                    |                 |                                    |                 |  |
|  | Z-axis                             | ±0.01 mm        |                                    |                   |                                    |                 |                                    |                 |  |
| Loading capacity*3                               | 2.5 kg                             |                 |                                    |                   |                                    |                 |                                    |                 |  |
| Rated voltage and frequency                      | Single phase, AC200-240 V 50/60 Hz |                 |                                    |                   |                                    |                 |                                    |                 |  |
| Power consumption                                | 200 W                              |                 |                                    |                   | 300 W                              |                 |                                    |                 |  |
| External dimensions (excluding protrusions)      | W                                  | 565 mm          | 635.5 mm                           | 760 mm            | 1052.5 mm                          |                 |                                    |                 |  |
|  | D                                  | 565 mm          | 651 mm                             | 923 mm            | 1123 mm                            |                 |                                    |                 |  |
|  | H                                  | 470 mm          |                                    |                   | 490 mm                             |                 |                                    |                 |  |
| Weight   | 25.5 kg                            |                 | 28.5 kg                            |                   | 44.5 kg                            |                 | 67.5 kg                            |                 |  |

### Common specifications

|                                      |   |   |
|--------------------------------------|---|---|
| Control system*4                     | PTP control and interpolation control                       |   |
| 3D interpolation function            | Line, circular arc, circle, elliptical arc, ellipse, spline |   |
| Number of input/output signal points | General-purpose input                                       | 20 points   |
|                                      | General-purpose output                                      | 23 points   |
| Program entry method                 | Teaching pendant, PC  |   |
| Program display language             | Japanese, English, Chinese                                  |   |
| Program capacity*5                   | 40000 steps (999 channels)                                  |   |
| Program storage system               | Internal  | Internal memory                                       |
|                                      | External  | Backup on PC with dispensing pattern editing software |
| Program editing software             | MuCADV (option)   |   |
| Controller dimensions                | W450×D340×H265mm (excluding protrusions)                    |   |
| Weight of dispense controller        | 18 kg   |   |

\*1 These values vary depending on the operations, weight and center of gravity of the loaded object, and other factors.

\*2 This value is measured by the method specified by Musashi (measurement method complies with JIS).

\*3 When options are not installed. The value varies with setting speed, setting acceleration/deceleration time, and operations.

\*4 PTP control: Control to move each specified axis to the end coordinates at each speed. Interpolation control: Control to move each specified axis to the end coordinates at the total interpolated speed.

\*5 Main routine: 1 to 99 CH, Sub routine: 100 to 999 CH.

\*The XM460SX series, XM680SX series and XM0X series correspond to industrial robots.

\*All models have no (motor) step-out specifications.

### Convenient features of desktop/cartesian robot

Capable of applying a variety of dispensing to workpieces of complex shapes  
Three-dimensional circular interpolation and spline operations are also freely available.

Changeable dispensing condition settings according to the dispensing location  
Remote control of dispenser dispensing conditions CH during automatic operation.

No mislocation by no (motor) step-out.

Prevents the robot head from falling during emergency stops  
Braking function is provided.

Field network is available.

Note: Optional support

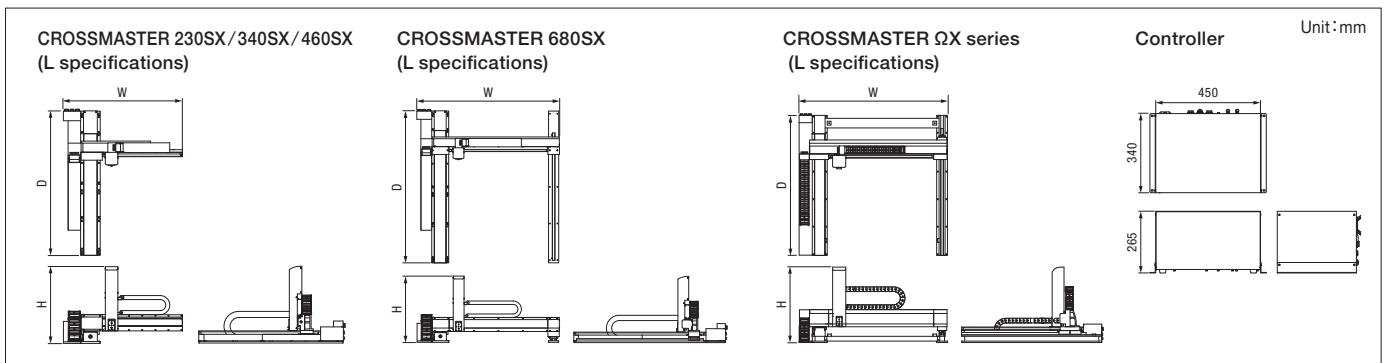


### CROSSMASTER ΩX series Line up



### Specifications

| Item name  | CROSSMASTER 330ΩX                          |  | CROSSMASTER 440ΩX                          |  | CROSSMASTER 560ΩX                          |  | CROSSMASTER 780ΩX                          |  |               |
|--|--|--|--|--|--|--|--|--|---------------|
| Model  | XM330OMEGAX-3A-L-SS<br>XM330OMEGAX-3A-R-SS | XM330OMEGAX-4A-L-SS<br>XM330OMEGAX-4A-R-SS | XM440OMEGAX-3A-L-SS<br>XM440OMEGAX-3A-R-SS | XM440OMEGAX-4A-L-SS<br>XM440OMEGAX-4A-R-SS | XM560OMEGAX-3A-L-SS<br>XM560OMEGAX-3A-R-SS | XM560OMEGAX-4A-L-SS<br>XM560OMEGAX-4A-R-SS | XM780OMEGAX-3A-L-SS<br>XM780OMEGAX-3A-R-SS | XM780OMEGAX-4A-L-SS<br>XM780OMEGAX-4A-R-SS |               |
| No. of controlled axes                           | 3-axis / 4-axis                            |  | 3-axis / 4-axis                            |  | 3-axis / 4-axis                            |  | 3-axis / 4-axis                            |  |               |
| Travel ranges                                    | X-axis, Y-axis                             | 300×300 mm                                 |  | 400×400 mm                                 |  | 500×600 mm                                 |  | 700×800 mm                                 |               |
|  | Z-axis                                     | 150 mm                                     |  |  |  |  |  |  |               |
|  | W-axis                                     | —  | ±360°                                      | —  | ±360°                                      | —  | ±360°                                      | —  | ±360°         |
| Setting range of PTP operation speed*1           | X-axis, Y-axis                             | 1 to 500 mm/s                              |  |  |  |  |  |  |               |
|  | Z-axis                                     | 1 to 400 mm/s                              |  |  |  |  |  |  |               |
|  | W-axis                                     | —  | 1 to 900°/s                                | —  | 1 to 900°/s                                | —  | 1 to 900°/s                                | —  | 1 to 900°/s   |
| Setting range of interpolation operation speed*1 | X-axis, Y-axis                             | 0.1 to 500 mm/s                            |  |  |  |  |  |  |               |
|  | Z-axis                                     | 0.1 to 400 mm/s                            |  |  |  |  |  |  |               |
|  | W-axis                                     | —  | 0.1 to 900°/s                              | —  | 0.1 to 900°/s                              | —  | 0.1 to 900°/s                              | —  | 0.1 to 900°/s |
| Repetitive positioning accuracy*2                | X-axis, Y-axis                             | ±0.005 mm                                  |  |  |  |  |  |  |               |
|  | Z-axis                                     | ±0.005 mm                                  |  |  |  |  |  |  |               |
|  | W-axis                                     | —  | ±0.01°                                     | —  | ±0.01°                                     | —  | ±0.01°                                     | —  | ±0.01°        |
| Loading capacity*3                               | 10 kg                                      | 7 kg                                       | 10 kg                                      | 7 kg                                       | 10 kg                                      | 7 kg                                       | 10 kg                                      | 7 kg                                       |               |
| Rated voltage and frequency                      | Single phase, AC200-240 V 50/60 Hz         |  |  |  |  |  |  |  |               |
| Power consumption                                | 300 W                                      | 320 W                                      | 300 W                                      | 320 W                                      | 300 W                                      | 320 W                                      | 300 W                                      | 320 W                                      |               |
| External dimensions (excluding protrusions)      | W  | 831 mm                                     |  | 931 mm                                     |  | 1031 mm                                    |  | 1239 mm                                    |               |
|  | D  | 671 mm                                     |  | 771 mm                                     |  | 971 mm                                     |  | 1171 mm                                    |               |
|  | H  | 630 mm                                     |  |  |  |  |  |  |               |
| Weight   | 80 kg                                      | 83 kg                                      | 91 kg                                      | 94 kg                                      | 120 kg                                     | 123 kg                                     | 143 kg                                     | 146 kg                                     |               |



| Type   | Type X, Y stroke | Series                      | No. of Axes | X-axis origin position   | SS function   |
|--|------------------|-----------------------------|-------------|--------------------------|---|
| <b>CROSSMASTER SX&amp;ΩX</b><br>Model Identification | <b>XM 330</b>    | <b>OMEGAX - 3A - L - SS</b> |             |                          |   |
|  | 230:200×300 mm   | 460:400×600 mm              | SX          | L: Left<br>R: Right      | 3A: 3-axis<br>4A: 4-axis  |
|  | 340:300×400 mm   | 680:600×800 mm              |             |                          |   |
|  | 330:300×300 mm   | 560:500×600 mm              | OMEGAX      | 3A: 3-axis<br>4A: 4-axis | Note 1: SS—Synchro Speed function<br>Note 2: 4 A is for ΩX only |
|  | 440:400×400 mm   | 780:700×800 mm              |             |                          |   |

Dispensing platform from research and prototyping to mass production

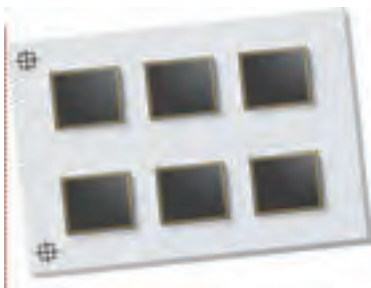
# IMAGE MASTER 350PC<sup>Smart</sup> PAT.



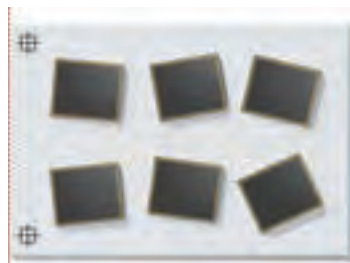
## Highly precise positioning

### XY Alignment

By image recognition, displacement and inclinations are corrected.



The inclination of the palette



Displacement and inclinations of each workpiece

### 3-D alignment (Profiling)

Correction of distortion and warpage of workpieces



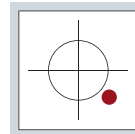
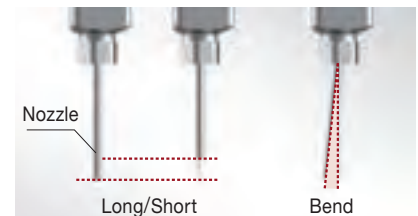
### Height correction

Correction of height differences of workpieces

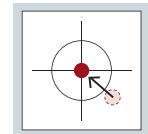


### Positioning of the nozzle

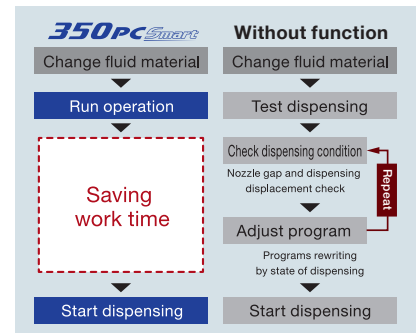
When syringes exchanged, differences of the length and the bend of the nozzle are corrected.



Displacement by the bend of the palette



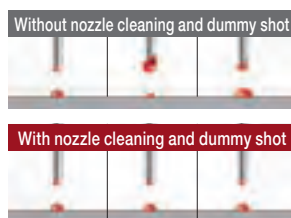
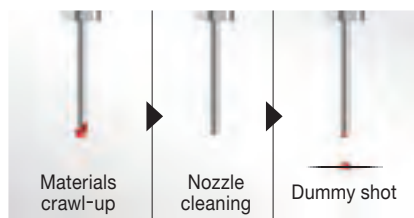
After correction



## High-quality dispensing

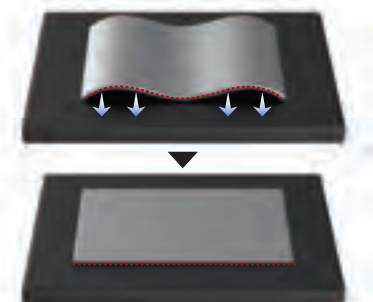
### Nozzle cleaning and dummy shot

By removing crawled up materials, materials shape of the nozzle end is kept fixed.



### Workbase with workpiece suction Option

Workpiece suction correct \* warpage and prevent workpiece disposition throughout dispensing operation.



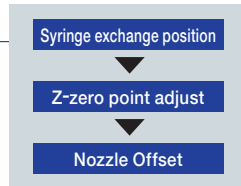
Workpieces are fixed by sucking through stage suction holes.

\*The effect depends on the workpiece material.

## Usability

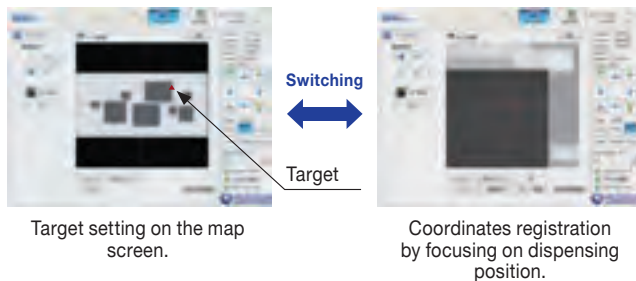
### Easy setup

Syringe exchange: Easy setup by just following Wizards.



### Camera teaching

Dispensing start position, points, lines are set by click with the vision of live image of workpieces.



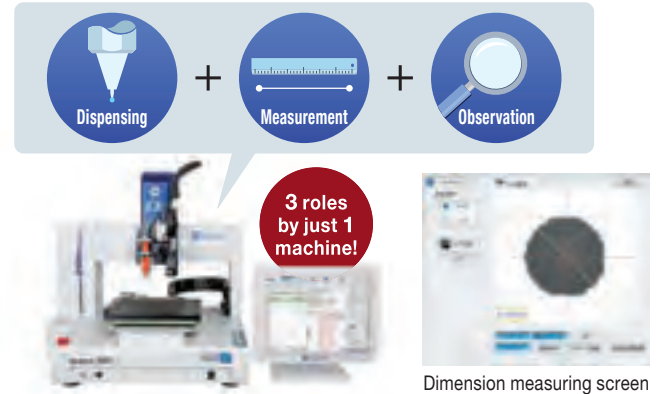
### Communication function with Dispensers Option

350PC Smart enables full control of dispenser settings. Pressure, dispensing time, etc. can be set.

\*It depends on types of dispensers.

### Length measurement/dispensing pattern trace function

It's possible to measure and observe after dispensing.



## Reduced cycle time

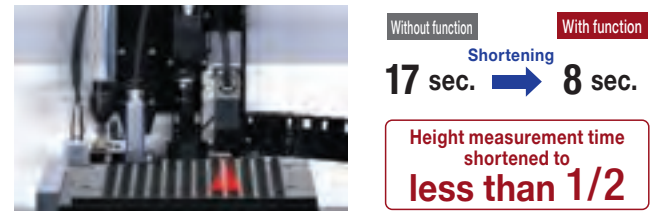
### *Mu SKY Capture* Option

Nonstop image recognition archives remarkable shortening of alignment time.



### *Mu SKY Sensing* Option

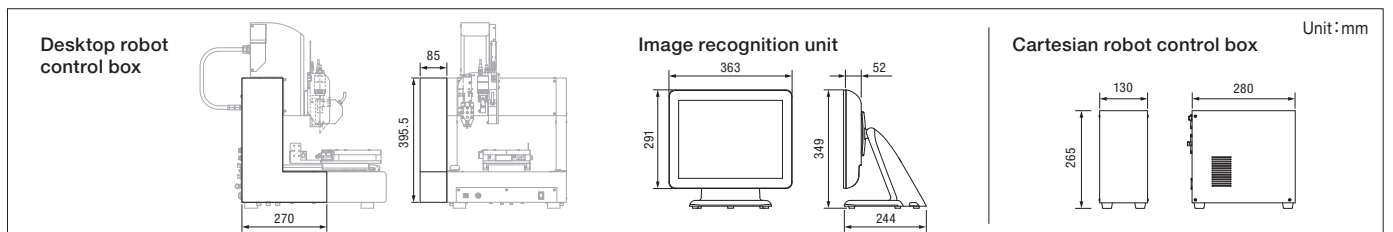
Significantly shortens the height measurement time.



## Useful options

- Code reading function**  
 Automatically switch recipes by a barcode or a QR code.
- Automatic dummy shots function**  
 Automatic dummy shots during standby period.
- Shape search function**  
 Corrects rotational disposition of circular parts.
- Rotating table**  
 The work piece can be rotated and dispensed at a certain angle.
- Stage temperature control**  
 Workpieces can be heated.
- 2 individual heads function**  
 2 different dispensers can be applied.

### External dimensions



Note: Options may be available for a fee. Please contact our sales department.

Complex dispensing operations can be programmed quickly and intuitively.

# MuCAD V PAT.



## Intuitive editing of dispensing patterns

### Concentration of No.1 dispensing know-how

- Program command icons that are easy to understand even for beginners.
- Freely apply programming as if it were CAD.
- An application program is automatically generated from DXF data, etc.



#### Drawing input

Programming by "drawing" with mouse dragging

Line

Dotting

Spline

Fill

Coating and more

---

**Useful functions** Generates multiple zigzag array program

Works straight away with various work layouts. Includes "copy/rotate/flip" function for dispensing programs.

Rotate / duplicate

Linked

---

#### Command input

Create accurate programs by entering values

### Automatically generates programs.

An application program is automatically generated from Gerber data.



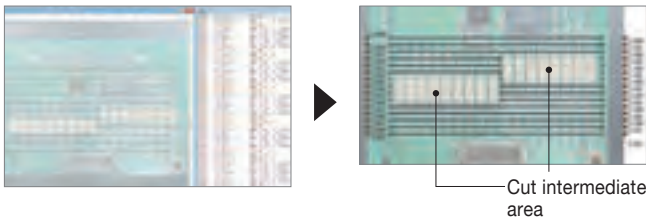
Automatic program creation also available with other data types

- Program creation from DXF data
- Program creation from coordinate data

## Useful functions to reduce editing time

### Cut out dispensing prohibited areas

Includes cut intermediate dispense area function to separate dispensing into dispense areas and prohibited areas.



Cut intermediate area

### Load sketch function

JPEG / BMP



If you import a work photo, you can enter a coating pattern using the image as a base.

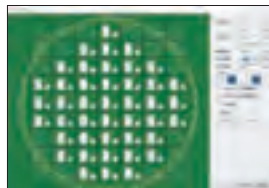
DXF / Gerber data



An application program is automatically generated from DXF / Gerber data.

### Pattern generator function

Configure any device layout on wafers. Helps to reduce programming time significantly.



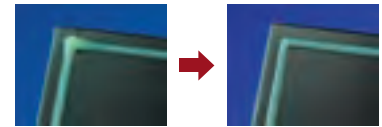
### Drawing by hand function

Programs can be created intuitively by hand (free line drawings).



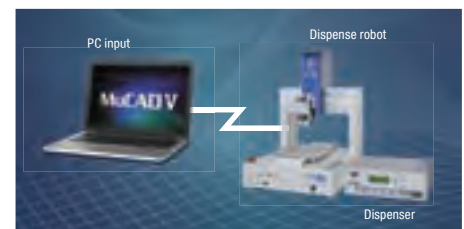
### Synchro Speed function PAT.

The line width can be maintained at constant even when moving through a corner.



### System requirements

|                   |   |
|-------------------|---|
| OS                | Windows 11, Windows 10, Windows 8.1   |
| CPU               | 32-bit (x86) or 64-bit (x64) processor, 2 GHz or faster   |
| Memory            | 1 GB or more  |
| Display           | Resolution of XGA (1024 × 768) or higher  |
| Hard disk         | Free space of 100 MB or more  |
| USB port          | USB port ×1 (CROSSMASTER ΩX/RX/SX series, SHOTMASTER ΩX/SX series)  |
| Serial port       | Serial port ×1 (SHOTMASTER Ω/DS/DSS series, SHOTMINI 100S-3A-01)<br>• When connecting a dispenser, another serial port ×1/unit is required.<br>• USB serial converter is available. |
| Applicable robots | CROSSMASTER ΩX/RX/SX series, SHOTMASTER ΩX/SX series, SHOTMASTER Ω/DS/DSS series, SHOTMINI 100S-3A-01   |



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# Various applications in accordance with your requirements



**Laser welding + Solder dispensing**

**DISPENSE LASER MASTER**



PAT.

New innovation of soldering responding to the needs of various component mountings.

**Screw tightening + Threadlocker dispensing**




Fast takt time and yield improvement for locking PCB and case.

**Pick & Place + Adhesive dispensing**



All-in-one system for parts fixing and assembly processes.

**UV irradiation + UV adhesive dispensing**



High-precision control of UV curing quality.

**Dispensing failure inspection + Dispensing**



Minimizes production line including inspection function.

**Deburring robot**



Solves unstable manual process and promote manpower saving.

**Evaluation robot**



For automation of long-term running tests such as sensitivity and durability evaluation.

**Code printing robot**



Achieves high-speed and high quality code printing.

**Rotary dispensing system CIRCLE MASTER**



One-touch execution of circumferential dispensing. Two types are available: head tilting type and workpiece rotating part tilting type.

# MUSASHI dispensing system is active in various markets from biotechnology to food.

## Fully PC controlled multi-channel dispensing system

### **PIPET MASTER**



#### Multi-channel head for greater processing capacity.

- Suitable for dispensing work in the drug development and biotechnology fields
- Suitable for consolidating samples
- Fully automated, from tip mounting to multichannel dispensing



## Ultra-micro-volume reagent spotting system

### **SPOT MASTER**



#### Automated dispensing of a wide range of reagents!

- Nozzle auto-cleaning function suitable for spotting a wide range of reagents
- Dedicated software allows pattern editing freely
- Low running costs as tips not required



## Chemical solution filling and capping system

### **Chemical solution filling and capping system**



#### Filling to a tube and capping are automated!

- Automated chemical dispensing system with capper system
- All "cap opening ⇒ filling ⇒ cap closing" procedures consolidated within a single robot
- Torque control prevents overtightening of caps
- Available with various dispensers to suit any application



## Automatic filling capper system

### **Automated filling capper system**



#### Limits vaporization of drug solutions during filling.

- All "cap opening ⇒ filling ⇒ cap closing" procedures consolidated within a single robot
- Torque control prevents overtightening of caps
- Available with various dispensers to suit any application



Cap opening



Filling



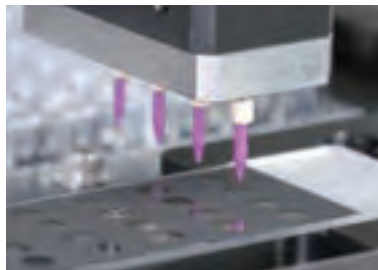
**Ultra-high-speed reagent spotting system**

**JET SPOTTER**



**Multi-channel heads for suction and “high-speed” spotting!**

- Image recognition function allows dispensing with precise positioning
- Non-contact dispensing prevents cross-contamination
- Perfect nozzle auto cleaning system method for spot dispensing a wide variety of reagent solution



**Immuno-chromatographic line dispensing system**

**Immuno-chromatographic line application system**



**Ultra-high-speed and stable line dispensing to membrane.**

- Reducing dead volume of reagents
- Non-contact and high-speed reagents line dispensing to membrane
- Easy maintenance
- Easy programming by dedicated software



**FOOD GRADE JET DECORATION SYSTEM**

**CHOCO JET**



**Direct JET decoration of chocolate.**

- Draw directly on uneven foods and plates
- Make unique designs with images or texts
- 3D decorations with a height also possible



**3D Food Printer**

**3D FOOD DISPENSER**



**Ornament making in the store!**

- Capable of creating three-dimensional ornaments
- Beautifully renders even complex designs
- Once a pattern is drawn, it is managed in data



# Convincing automatism with high performance and reliability.

Fully automated high-end dispensing machine

## **DISPENS MASTER *FAD 5100S***



**Achieves high throughput and high quality dispensing.**

- High-speed dispensing with uninterrupted, continuous operation.
- High-speed alignment with uninterrupted, continuous operation.
- Automatically controls dispensing volume.
- Forms “leaf line” dispensing patterns ideal for avoiding voids.
- Prevents large numbers of defects from occurring.

Fully automated multi-purpose dispensing machine

## **DISPENS MASTER *FAD 2500***



**Fully automated dispensing mainframe to meet the requirements of an extensive range of applications.**

- Major improvement in performance and functionality.
- Multi-head compatibility. Highly versatile to suit various applications.
- Equipped with equivalent functions to higher models as standard.
- Wide range of standardized optional accessories.

Dispensing inspection machine for inline production

## **SMART ROBO *TAI 1000***



**Inspect dispensing shapes and line widths in a flexible manner!**

- Inspection of various dispensing conditions
- Reject discharge unit can be installed (option)
- Space-efficient design

Fully automated 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.
- Drastic reduction in wasted resin materials.
- Equipped with spot/wide coating head. (AeroJet/CV-12)
- Eliminates scattering with special, exclusively designed valves.

Fully automated compact dispensing machine

## **SMART ROBO *TAD 1000M***



**High-space performance that brings innovation to the production floor.**

- Ultra-compact size contributing to labor-saving and lower space costs
- Wide range of options available for reliable, high-quality dispensing. Significant reduction of defective products.
- Easy-to-use operations for any user

Fully automated 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 world-level original
- Automatic non-contact gap control mechanism.
- World's fastest dispensing shape measuring function.



Fully automated ODF machine

**MLC-7500**



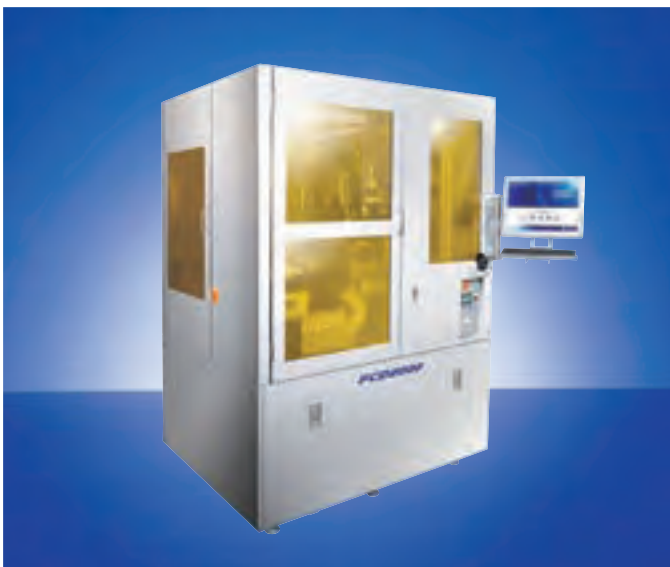
Applicable to eighth generation ultra-precision high-speed ODF system with high stability.

- World's best LC drop dispensing head mounted.
- Drastically improved productivity by multi-head compatibility.
- 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)



Fully automated wafer coating machine

**FCD 2000**



Achieves ultra-thin coating.

- Major reduction in material waste by unique film formation method.
- Can be used with inline layouts.
- Available for use with wafers up to 12" in size, and under 100 μm thickness.

Fully automated lamination machine

**FDB-3000**



Surface coating + touch panel lamination device.

- Adapted for middle size panel laminating (CG + LCM).
- Reducing resin leak by low laminating pressure.
- Stable surface coating succeeded by high-performance dispenser with flat-nozzle.
- Preventing LCM distortion by low vacuum pressure.

# High-precision, high-quality parts that incorporate MUSASHI's dispensing know-how

## Syringes and accessories

PAT.



### ① High-precision syringes, specially designed for dispensing

High-precision dispensing is realized by constant internal syringe diameter, excellent fluid characteristic and high pressure resistant construction.

- Clear syringe  
High precision dispensing: PSY-[E/F] series
- UV block syringe  
Complete UV protection: PSY-[EU/FU]-OR series
- Color syringe  
Color type: PSY-[E/F]-PG series
- Heat-resistant syringe  
Heatproof: PSY-[FH/FH2]-P series
- Antistatic syringe  
Anti-static: PSY-E-SEP series
- Stainless syringe  
High temperature and pressure protection: SSY-E series

### ② Adapter tube (with stopper)

Tubes to supply air pressure by connecting a dispenser and a syringe.

- Adapter tube  
Standard type: AT-E-H series
- Side connection adapter tube  
Side connection type: AT-E-H-S series
- Antistatic adapter tube  
Anti-static: AT-E-H-SEP series
- Stainless adapter tube  
High temperature and pressure protection: AT-E-SUS series

### ③ High-precision plunger (PAT.)

High-precision dispensing is achieved with excellent wiping performance. 4-type lineup in accordance with fluid characteristics and applications.

- Float Wiper Plunger  
High precision dispensers: FLP-E series
- Shuttle-type plunger  
Ag paste, solder paste : TPP-E series
- Miracle wiper plunger (blue)(red)  
Emphasizes scraping of fluid : MLP-B/R-E series
- Miracle wiper plunger (white)  
Focus on sealing : MLP-E series

### ④ Syringe head cap/⑤ Syringe tip cap

Caps to seal the top and bottom of syringes. Three types are available: For general material, UV material and heat-resistant material.

### ⑥ Protective cap for syringe tip

Protects syringe tips while wearing needle caps.

### ⑦ O-ring (for tube adapter)

A replacement ring for adapter tubes. Select a suitable O-ring from among four kinds of materials according to the characteristics of fluid for dispensing.

- Fluororubber
- Silicone rubber
- NBR
- Perfluoroelastomer

Safety information →P73



### Metal needle SNA series metal needle

An excellent durability SUS needle is used

- Needle length: 13 mm (Type B)
- Needle length: 15 mm (Type C)
- Thin metal needles are also available



### Super-fine nozzle FN series

Capability of ultra-small volume dispensing and ultra-fine drawing as tiny as some micrometers in diameter



### Plastic needle PN series plastic needles

Economical, disposable plastic needles

- Needle length: 8 mm (Type A)
- Needle length: 13 mm (Type B)



### Sharp needle SPN series

High-precision tapered shape of needle tip enables micro-dispensing  
Double thread screw design allows the needle to be installed securely on the syringe



### Double thread screwed plastic needle DPN series

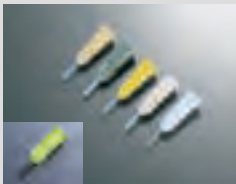
Safe and secure attachment into a syringe with double thread screwed needle design

- Needle length: 6.4mm
- Needle length: 12.7mm
- Needle length: 25.4mm
- Needle length: 38.1mm



### Double thread screw tapered nozzle TPND series

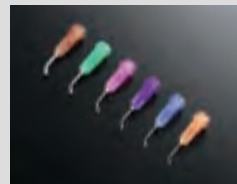
Compatible with UV materials  
Best suited for high viscosity materials



### PTFE nozzle TN series PTFE nozzles

Excellent in corrosion resistance and suitable for dispensing anaerobic materials

- Needle length: 8 mm
- UV material-compatible nozzles are also available



### Curve needle CPN series

Best suited for dispensing to the inner surface of a workpiece  
Bending processing with excellent flowability implements stable dispensing



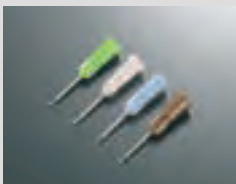
### UV-block PTFE nozzle TN-U series

Compatible with UV materials  
Ideal for dispensing anaerobic fluid materials  
Needle length can be specified



### Soft needle PPN series

Soft and flexible needle prevents damage to workpieces and reduces a fraction defective



### PTFE nozzles with SUS guide

Used for precision dispensing of anaerobic materials  
The SUS guide prevents vibration in the needle tip  
Ultrafine type is also available



### Brush nozzle BN series

Surface dispensing efficiency remarkably improved



### Precision solid nozzle SHN series

Stable microscopic dispensing with integrated precision nozzle



### Multi nozzle MN series

Suitable for multi-point dispensing with one shot



### Double thread screw precision solid nozzle DSHN series

Double thread screw design allows the needle to be installed securely on the syringe More, not clogging, micro dispensing is possible

Note: We can design and supply specialty items, such as bending nozzles and forked nozzles that match your dispensing conditions and materials.

Safety information →P73

# Model index (Alphabetical order)

## A

|     | Model             | Page | Item name   |
|-----|-------------------|------|---|
| AT- | AT-□E             | 68   | ADAPTER TUBE [1/100ML]  |
|     | AT-□E-H-1.0M      | 68   | ADAPTER TUBE [WITH STOPPER 03/05/10/20-70ML 1.0M]                       |
|     | AT-□E-H-S-1.0M    | 68   | SIDE CONNECTION ADAPTER TUBE [WITH STOPPER 05/10/20-70ML 1.0M]          |
|     | AT-□E-H-SEP-1.0M  | 68   | ANTISTATIC ADAPTER TUBE [WITH STOPPER 10/20-70ML 1.0M]                  |
|     | AT-□E-SUS-1.0M    | 68   | STAINLESS ADAPTER TUBE [WITH STOPPER 03/05/30-50ML 1.0M]                |
| AW- | AW-[20/50]-3      | 47   | SYRINGE CENTRIFUGAL BUBBLE ELIMINATOR AWATRON3 [1-20/1-50ML]            |
|     | AW-[20/50]-3-220V | 47   | SYRINGE CENTRIFUGAL BUBBLE ELIMINATOR AWATRON3 [1-20/1-50ML AC220/230V] |

## B

|     | Model   | Page | Item name                                  |
|-----|---------|------|--|
| BC- | BC-4    | 49   | BARREL HEAD CAP [TYPE 4]                   |
|     | BC-4U-B | 49   | UV BLOCK BARREL HEAD CAP [TYPE 4]          |
| BC- | BN-S□   | 69   | BRUSH NOZZLE [STANDARD/SOFT TYPE 2/4.5PHI] |
| BC- | BP-4    | 49   | BARREL TIP CAP [TYPE 4]                    |
|     | BP-4U-B | 49   | UV BLOCK BARREL TIP CAP [TYPE 4]           |

## C

|      | Model                 | Page  | Item name   |
|------|-----------------------|-------|---|
| CC-  | CC-P-001-[1/2]        | 49,51 | CARTRIDGE CAP [WITHOUT HOOK/WITH HOOK]  |
| CCM- | CCM-[3H/3T]           | 63    | ROTATING DISPENSER CIRCLE MASTER [HEAD TILTING TYPE/WORK TILTING TYPE]  |
| CH-  | CH-[100/170/230/340]C | 49,51 | CARTRIDGE HOLDER [100/170/340ML BARREL USE/230ML TUBE]  |
|      | CH-170CT              | 51    | CARTRIDGE HOLDER [170ML TUBE USE]   |
| CPN- | CPN-□G-[A45/A90/B45]  | 69    | CURVE NEEDLE [14/15/18/20/21/22/23/25/27/30G NEEDLE LENGTH 12.7MM ANGLE45/12.7MM ANGLE90/38.1MM ANGLE45]BODY: PLASTIC |
| CS-  | CS-□C                 | 49    | BARREL CARTRIDGE [100/170/340ML]  |
|      | CS-□C-HK              | 49    | BARREL CARTRIDGE [100/170/340ML WITH HOOK]  |
|      | CS-[170/230]CT        | 51    | TUBE CARTRIDGE [100/200G]   |
|      | CS-[170/230]CT-HK     | 51    | TUBE CARTRIDGE [100/200G WITH HOOK]   |
|      | CS-[170/230]CT-TD     | 51    | TUBE CARTRIDGE [100/200G TYPE TD]   |
|      | CS-[170/230]CT-TD-HK  | 51    | TUBE CARTRIDGE [100/200G TYPE TD WITH HOOK]   |
|      | CS-P-001-1A           | 49    | ORING RECEIVER [CARTRIDGE CAP USE]  |

## D

|       | Model          | Page | Item name  |
|-------|----------------|------|--|
| BC-   | DPN-□G-[1/2/3] | 69   | DOUBLE THREAD SCREWED PLASTIC NEEDLE [14/15/18/20/21/22/23/25/27/30/32G NEEDLE LENGTH12.7/25.4/38.1MM] |
|       | DPN-32G-0      | 69   | DOUBLE THREAD SCREWED PLASTIC NEEDLE [32G NEEDLE LENGTH6.4MM]  |
| DSHN- | DSHN-M2-□F     | 69   | DOUBLE THREAD SCREW PRECISION SOLID NOZZLE [FINE TYPE ID 0.10/0.15/0.20/0.25/0.30MM]                   |

## F

|      | Model        | Page | Item name  |
|------|--------------|------|--|
| FAD  | FAD2500      | 66   | FULLY AUTOMATED MULTI-PURPOSE DISPENSING MACHINE DISPENS MASTER  |
|      | FAD5100S     | 66   | FULLY AUTOMATED HIGH-END DISPENSING MACHINE DISPENS MASTER   |
| FCD  | FCD1000      | 66   | FULLY AUTOMATED COATING MACHINE COATING MASTER   |
|      | FCD2000      | 67   | FULLY AUTOMATED WAFER COATING MACHINE  |
| FDB- | FDB-3000     | 67   | FULLY AUTOMATED LAMINATION MACHINE   |
| FLP- | FLP-□E       | 68   | FLOAT WIPER PLUNGER [1/3/5/10/20/30/50/70/100ML YELLOW]  |
| FN-  | FN-□[N/ND]   | 69   | SUPER FINE NOZZLE [ID0.02/0.03/0.04/0.05/0.10/0.15/0.20/0.25/0.30/0.40/0.50/0.60MM LUER LOCK/DOUBLE THREAD SCREWED]*               |
|      | FN-□[N/ND]-F | 69   | SUPER FINE NOZZLE TIP THICK 15MICROMETER [ID0.02/0.03/0.04/0.05/0.10/0.15/0.20/0.25/0.30/0.40/0.50/0.60MM LUER LOCK/2THREADSCREW]* |

## G

|     | Model | Page | Item name                               |
|-----|-------|------|---|
| GC- | GC-1  | 68   | PROTECTIVE CAP FOR SYRINGE TIP [E TYPE] |

## H

|     | Model           | Page | Item name   |
|-----|-----------------|------|---|
| HC- | HC-[□EU/□U]-B   | 68   | SYRINGE HEAD CAP [3/5/10/20/30/50ML UV TYPE BLACK]    |
|     | HC-[1E-H/□E/□C] | 68   | SYRINGE HEAD CAP [1ML HTYPE/3/5/10/20/30/50/70/100ML] |
| HM- | HM-MSD          | 31   | HOTMELT MSD [SYRINGE/CARTRIDGE TYPE]                  |

## L

|     | Model        | Page | Item name                           |
|-----|--------------|------|-------------------------------------|
| LS- | LS-NH3-1604P | 33   | DISPENSER PEN [LS-NH3 TYPE 16 4PIN] |

## M

|   | Model     | Page | Item name   |
|---|-----------|------|---|
| M | M34-2373  | 31   | HIGH-PERFORMANCE SCREW DISPENSER SCREWMASER [FOR HIGH-VISCOSITY THERMAL GREASE] |
|   | M42-21300 | 35   | VOLUME MEASURING TYPE DIGITAL CONTROL DISPENSER MPP-3-GF-MINI                   |

|       | Model                     | Page  | Item name   |
|-------|---------------------------|-------|---|
| MB-   | MB-[100/170/340]C-01      | 46    | MIXING BLOCK [100/170/340ML BARREL USE]   |
|       | MB-[5/10/20/30/50/70]E-02 | 46    | MIXING BLOCK [5/10/20/30/50/70ML SYRINGE USE]   |
|       | MB-MJETC2-3070            | 21,46 | MIXING BLOCK [30/50/70ML CYBERJET 2 ]   |
| MJET- | MJET-A-2                  | 20    | NON-CONTACT JET DISPENSER AEROJET   |
|       | MJET-C-2                  | 21    | NON-CONTACT JET DISPENSER CYBERJET2   |
|       | MJET-S-2                  | 18    | NON-CONTACT JET DISPENSER SUPERJET2   |
|       | MJET-S-2-NZTB             | 18    | NOZZLE TEMPERATURE CONTROL UNIT [FOR MJET-S-2]  |
|       | MJET-S-CTR-RM-2           | 18,19 | HEAD CONTROLLER [TYPE 2 RACK MOUNT TYPE]  |
|       | MJET-S-HI-L               | 19    | NON-CONTACT JET DISPENSER SUPER HI JET  |
|       | MJET-S-HI-L-NZTB          | 19    | NOZZLE TEMPERATURE CONTROL UNIT [FOR MJET-S-HI-HU LIQUID FEED ON LEFT]                          |
| ML-   | MJET-S-HM                 | 21    | NON-CONTACT JET DISPENSER HOTMELT SUPERJET  |
|       | ML-6000X-[GP/VHR]         | 42,43 | HIGH PRECISION DIGITAL DISPENSER ML-6000X [GENERAL PURPOSE / VACUUM HIGH RESOLUTION]            |
|       | ML-6000XP-V5-[GP/VHR]     | 42,43 | HIGH PRECISION DIGITAL DISPENSER ML-6000X PRO [V5 GENERAL PURPOSE / VACUUM HIGH RESOLUTION]     |
|       | ML-6000XP-V2-[GP/VHR]     | 42,43 | HIGH PRECISION DIGITAL DISPENSER ML-6000X PRO [V2 GENERAL PURPOSE / VACUUM HIGH RESOLUTION]     |
|       | ML-8000X-V2               | 40,41 | HIGH PRECISION DIGITAL DISPENSER WITH UPPER-LEVEL COMMUNICATION SUPPORT ML-8000X [V2]           |
| MLC-  | ML-8000X-V7               | 40,41 | HIGH PRECISION DIGITAL DISPENSER WITH UPPER-LEVEL COMMUNICATION SUPPORT ML-8000X [V7]           |
|       | MLC-6500                  | 67    | FULLY AUTOMATED SEAL DISPENSING MACHINE   |
| MLP-  | MLC-7500                  | 67    | FULLY AUTOMATED ODF MACHINE   |
|       | MLP-□E                    | 68    | MIRACLE WIPER PLUNGER [5/10/20/30/50/70ML WHITE]  |
|       | MLP-B-□E                  | 68    | MIRACLE WIPER PLUNGER [5/10/20/30/50ML BLUE]  |
| MN    | MLP-R-□E                  | 68    | MIRACLE WIPER PLUNGER [5/10/20/30/50ML RED]   |
|       | MN□                       | 69    | Multi nozzle  |
| MPP-  | MPP-1                     | 23    | VOLUME MEASURING TYPE DIGITAL CONTROL DISPENSER MEASURING MASTER                                |
|       | MPP-3                     | 23    | VOLUME MEASURING TYPE DIGITAL CONTROL DISPENSER MEASURING MASTER                                |
| MS-   | MS-1-CTR                  | 43    | DISPENSING INSPECTION MACHINE FOR INLINE PRODUCTION SMART ROBO MS-1 [PRESSURE ANALOG DISPLAY]   |
|       | MS-1D-CTR                 | 43    | DISPENSING INSPECTION MACHINE FOR INLINE PRODUCTION SMART ROBO MS-1D [PRESSURE DIGITAL DISPLAY] |
| MSD-  | MSD-CTR                   | 29    | SCREW HEAD DISPENSE CONTROLLER [MSD-3]  |
|       | MSD3-HD-HF                | 30    | HIGH-PERFORMANCE SCREW DISPENSER SCREWMASER3 [MSD3 TYPE HIGH FLOW]                              |
|       | MSD-3-SET1                | 30    | HIGH-PERFORMANCE SCREW DISPENSER SCREWMASER3 [for 5 to 70ml syringes]                           |
|       | MSD-3-SET2                | 30    | HIGH-PERFORMANCE SCREW DISPENSER SCREWMASER3 [for 5 to 50ml temperature control syringes]       |
| MT-   | MSD-3-SET3                | 30    | HIGH-PERFORMANCE SCREW DISPENSER SCREWMASER3 [for Barrel/Cartridge Use]                         |
|       | MT-410                    | 33    | ROTARY TUBING DISPENSER   |
| MU    | MUCADV                    | 62    | MUCADV DISPENSE EDITING SOFTWARE  |
|       | MUCOM-SIGMACM             | 38    | MUCOM FOR SUPER SIGMA [VER.1.0] DISPENSE PATTERN EDITING SOFTWARE                               |

## N

|     | Model    | Page | Item name   |
|-----|----------|------|---|
| NC- | NC-3E    | 68   | SYRINGE TIP CAP [DOUBLE THREAD SCREWED LONG TRANSPARENT]      |
|     | NC-3EU-B | 68   | SYRINGE TIP CAP [DOUBLE THREAD SCREWED UV TYPE]               |
|     | NC-3FH   | 68   | HEAT-RESISTANT SYRINGE TIP CAP                                |
|     | NC-5E    | 68   | SYRINGE TIP CAP [LUER LOCK KNURLED HARD WHITE]                |
|     | NC-7E    | 68   | SYRINGE TIP CAP [DOUBLE THREAD SCREWED KNURLED BLUE]          |
|     | NC-7EU-B | 68   | SYRINGE TIP CAP [DOUBLE THREAD SCREWED KNURLED UV TYPE BLACK] |

## O

|      | Model           | Page        | Item name  |
|------|-----------------|-------------|--|
| ORG- | ORG-□-N-B-[1/2] | 68          | ORING [PHI 1.5/6/9/11/18/24 MATERIAL N COLOR B #1/2]                   |
|      | ORG-□-P-B-1     | 68          | ORING [PHI 1.5/6/9/11/18/24 MATERIAL P COLOR B #1]                     |
|      | ORG-□-S-R-1     | 68          | ORING [PHI 1.5/6/9/11/18/24 MATERIAL S COLOR R #1]                     |
|      | ORG-□-V-B-1     | 49,50,51,68 | ORING [PHI 1.5/6/8/9/11/12/14/16/18/20/24/34/42 MATERIAL V COLOR B #1] |

## P

|      | Model               | Page  | Item name  |
|------|---------------------|-------|--|
| P-   | P-NADP-[11/12/13]   | 49,50 | NEEDLE ADAPTER [No.11/12/13]                                       |
|      | P-LADP-1            | 51    | LUER LOCK ADAPTER [NO.1]   |
|      | P-PKG-[15/23]       | 50    | PACKING [NO.15/23]   |
|      | P-SCW-[2/17]        | 49,50 | SCREW [NO.2/17]  |
|      | P-SSP-1             | 49,50 | SEAL SPRING [CARTRIDGE CAP USE]                                    |
|      | P-TADP-[2/3]        | 51    | TUBE ADAPTER [NO.2/3]  |
| PB-  | PB-[100B/170C/340C] | 49    | BARREL [100ML B TYPE/170ML TYPE C/340ML TYPE C]                    |
|      | PB-[170/230]BT      | 51    | TUBE CARTRIDGE BARREL [170/230ML]                                  |
|      | PB-[170/340]CU-OR   | 49    | UV BLOCK BARREL [170/340ML TYPE C]                                 |
| PN-  | PN-□G-[A/B]         | 69    | PLASTIC NEEDLE [15 to 27G NEEDLE LENGTH 8/13MM]                    |
| PP-  | PP-[W1/B1]          | 49    | BARREL PLUNGER [TYPE B1/W1]  |
| PPN- | PPN-□G              | 69    | SOFT NEEDLE [15/16/18/20/22/25G NEEDLE LENGTH 35.9MM] RESIN NOZZLE |
| PSY- | PSY-[1E2/□E/□F]-M   | 68    | CLEAR SYRINGE [1/3/5/10/20/30/50/70ML WITH GRADUATIONS]            |
|      | PSY-□[E/F]          | 68    | CLEAR SYRINGE [3/5/10/20/30/50/70/100ML]                           |

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X  
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Other

# Model index

(Alphabetical order)

## P

|      | Model             | Page | Item name  |
|------|-------------------|------|--|
| PSY- | PSY-□[E/F]-PG     | 68   | COLOR SYRINGE [5/10/20/30/50ML PEPPERMINT GREEN]         |
|      | PSY-□[EU/FU]-OR   | 68   | UV BLOCK SYRINGE [3/5/10/20/30/50/70/100ML]              |
|      | PSY-□[EU/FU]-OR-M | 68   | UV BLOCK SYRINGE [3/5/10/20/30/50/70ML WITH GRADUATIONS] |
|      | PSY-□E-SEP        | 68   | ANTI STATIC SYRINGE [10/30/50ML]                         |
|      | PSY-30[FH/FH2]-P  | 68   | HEAT-RESISTANT SYRINGE [30ML F/F2 TYPE GRADE P]          |

## Q

|     | Model | Page | Item name                         |
|-----|-------|------|-----------------------------------|
| QP- | QP-1B | 49   | PNEUMATIC QUICK JOINT [PLUG R1/8] |

## R

|      | Model  | Page  | Item name                    |
|------|--------|-------|------------------------------|
| RMU- | RMU-02 | 21,46 | MIXING CONTROLLER MIX MASTER |

## S

|                    | Model                     | Page                           | Item name  |
|--------------------|---------------------------|--------------------------------|--|
| SCS-               | SCS-330                   | 50                             | SEALANT CARTRIDGE [WITHOUT HOOK]   |
|                    | SCS-330-HK                | 50                             | SEALANT CARTRIDGE [WITH HOOK]  |
|                    | SCS-P-001-[1/2]           | 50                             | CARTRIDGE CAP [WITHOUT HOOK/WITH HOOK]   |
|                    | SCS-P-001-1C              | 49,50                          | SEAL RETAINER [CARTRIDGE CAP USE]  |
|                    | SCS-P-002-1               | 50                             | CARTRIDGE HOLDER [FOR SEALANT]   |
|                    | SCS-P-004-[1/3/4/5/6/7/8] | 50                             | TIP ADAPTER [TB/S/TS/TR/MI/MO/C TYPE]  |
|                    | SCS-P-005-1               | 49,50                          | CARTRIDGE CAP HOOK   |
| SHN-               | SHN-□N                    | 69                             | PRECISION SOLID NOZZLE [ID0.1/0.15/0.2/0.25/0.3/0.35/0.4/0.45/0.5/0.6MM]   |
| SM                 | SM100SX-3A-SS             | 54                             | DESKTOP ROBOT SHOTMINI 100SX   |
|                    | SM200OMEGAX-[3A/4A]-SS    | 55                             | DESKTOP ROBOT SHOTMINI 200 OMEGAX  |
|                    | SM200SX-[3A-SS-01/4A-SS]  | 54                             | DESKTOP ROBOT SHOTMINI 200SX   |
|                    | SM300OMEGAX-[3A/4A]-SS    | 55                             | DESKTOP ROBOT SHOTMASTER 300 OMEGAX  |
|                    | SM300SX-[3A/4A]-SS        | 54                             | DESKTOP ROBOT SHOTMASTER 300SX   |
|                    | SM400OMEGAX-[3A/4A]-SS    | 55                             | DESKTOP ROBOT SHOTMASTER 400 OMEGAX  |
|                    | SM400SX-[3A/4A]-SS        | 54                             | DESKTOP ROBOT SHOTMASTER 400SX   |
|                    | SM500OMEGAX-[3A/4A]-SS    | 55                             | DESKTOP ROBOT SHOTMASTER 500 OMEGAX  |
| SM500SX-[3A/4A]-SS | 54                        | DESKTOP ROBOT SHOTMASTER 500SX |  |
| SMP-               | SMP-2                     | 27                             | ULTRA-SMALL DOSAGE DISPENSER NANO MASTER SMP-II  |
|                    | SMP-3-[30/50]             | 27                             | ULTRA-SMALL DOSAGE DISPENSER NANO MASTER SMP-III [30ML TYPE/50ML TYPE]   |
| SNA-               | SNA-□G-[B/C]              | 69                             | METAL NEEDLE [SNA 12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/30/31/32G NEEDLE LENGTH13/15MM]   |
|                    | SNA-□N-[4/6]L-F           | 69                             | THIN-WALLED METAL NEEDLE [SNA ID0.10/0.20/0.30MM NEEDLE LENGTH4/6MM]   |
| SPN-               | SPN-□-□L                  | 69                             | SHARP NEEDLE [ID0.12MM NEEDLE LENGTH 6.5MM/ID0.17MM NEEDLE LENGTH 9.5MM/ID0.25MM NEEDLE LENGTH 12.7MM/ID0.33MM NEEDLE LENGTH 12.7MM/ID0.41MM NEEDLE LENGTH 38.1MM/ID0.58MM NEEDLE LENGTH 38.1MM/ID0.84MM NEEDLE LENGTH 12.7MM] BODY: PLASTIC |
| S-                 | S-SIGMA-CM3-V2            | 38,39                          | FULLY DIGITAL CONTROLLED DISPENSER SuperSIGMACMIII   |
|                    | S-SIGMA-CM3-V5            | 38,39                          | FULLY DIGITAL CONTROLLED DISPENSER SuperSIGMACMIII   |
| SSY-               | SSY-□[B/E]                | 68                             | STAINLESS SYRINGE [1/3/5/10/30/50ML]   |

## T

|       | Model                           | Page  | Item name   |
|-------|---------------------------------|-------|---|
| TAD   | TAD1000M                        | 66    | FULLY AUTOMATED COMPACT DISPENSING MACHINE SMART ROBO   |
| TAI   | TAI1000                         | 66    | DISPENSING INSPECTION MACHINE FOR INLINE PRODUCTION SMART ROBO  |
| TB-   | TB-[5/10/20/30/50]E-K           | 45    | TEMPERATURE CONTROL BLOCK [RESISTANCE THERMOMETER BULB TYPE 5/10/20/30/50ML SYRINGE USE]              |
| TBP-  | TBP-SY[05/10/20/30/50]M-A-[L/R] | 45    | TEMPERATURE CONTROL BLOCK [AIR TYPE PELTIER LEFT/RIGHT 5/10/20/30/50ML SYRINGE TYPE M]                |
|       | TBP-SY[05/10/20/30/50]M-F       | 45    | TEMPERATURE CONTROL BLOCK [FAN TYPE PELTIER 5/10/20/30/50ML SYRINGE TYPE M]                           |
| TCU-  | TCU-02-MU                       | 45    | RESISTANCE BULB TEMPERATURE CONTROLLER THERMO MASTER  |
|       | TCU-05A-3-MU                    | 45    | AIR TYPE PELTIER TEMPERATURE CONTROLLER PELTIER MASTER  |
|       | TCU-05F-3-MU                    | 45    | FAN TYPE PELTIER TEMPERATURE CONTROLLER PELTIER MASTER  |
|       | TCU-DC24-1                      | 18,19 | TEMPERATURE CONTROLLER [DC24 TYPE]  |
| TN-   | TN-□-□-SUSG                     | 69    | PTFE NEEDLE WITH SUS GUIDE[ID0.1MM ODO.3MM/ID0.2MM ODO.4MM/ID0.3MM ODO.5MM NEEDLE LENGTH 13.7/26.4MM] |
|       | TN-□G                           | 69    | PTFE NOZZLE [13~22G NEEDLE LENGTH 8MM] RESIN NOZZLE   |
|       | TN-□G-□L-□G-□L                  | 69    | PTFE NOZZLE WITH SUS GUIDE [□G, needle length □mm, guide □G □mm] *                                    |
|       | TN-□G-U                         | 69    | UV BLOCK PTFE NOZZLE [13~22G NEEDLE LENGTH 8MM] RESIN NOZZLE  |
| TPND- | TPND-□G-U                       | 69    | DOUBLE THREAD SCREWED TAPERED NOZZLE [12/14/16/18/20/22/25/27/30G]                                    |
| TPP-  | TPP-□E                          | 68    | SHUTTLE TYPE PLUNGER [5/10/20~70ML CLEAR]   |
| TR-   | TR-□                            | 47    | TRANSFORMER [AC110/117/200/220/240V-100V]   |
| TT-   | TT-□                            | 33    | PTFE TUBE [10/11/12/13/14/15/16/17/18/19/20/21/22/24/26/28/30/32]                                     |
|       | TT-□B                           | 33    | PTFE TUBE [10/11/12/13/15/16/17/18/19/20/21/22/24/26/28/30 BLACK]                                     |



# V

| Model        | Page | Item name  |
|--------------|------|--|
| VSD-1-001700 | 25   | HIGH-PERFORMANCE MOHNO DISPENSER MOHNO MASTER V2 |

# X

| Model                        | Page | Item name                             |
|------------------------------|------|---------------------------------------|
| XM220RX-3A-L-[SBA/AAS]       | 57   | CARTESIAN ROBOT CROSSMASTER 220RX     |
| XM230RX-3A-L-[SBA/AAS]       | 57   | CARTESIAN ROBOT CROSSMASTER 230RX     |
| XM230SX-3A-[L/R]-SS          | 58   | CARTESIAN ROBOT CROSSMASTER 230SX     |
| XM240RX-3A-L-[SBA/AAS]       | 57   | CARTESIAN ROBOT CROSSMASTER 240RX     |
| XM320RX-3A-L-[SBA/AAS]       | 57   | CARTESIAN ROBOT CROSSMASTER 320RX     |
| XM3300MEGAX-[3A/4A]-[L/R]-SS | 59   | CARTESIAN ROBOT CROSSMASTER 3300MEGAX |
| XM330RX-3A-L-[SBA/AAS]       | 57   | CARTESIAN ROBOT CROSSMASTER 330RX     |
| XM340RX-3A-L-[SBA/AAS]       | 57   | CARTESIAN ROBOT CROSSMASTER 340RX     |
| XM340SX-3A-[L/R]-SS          | 58   | CARTESIAN ROBOT CROSSMASTER 340SX     |
| XM420RX-3A-L-[SBA/AAS]       | 57   | CARTESIAN ROBOT CROSSMASTER 420RX     |
| XM430RX-3A-L-[SBA/AAS]       | 57   | CARTESIAN ROBOT CROSSMASTER 430RX     |
| XM4400MEGAX-[3A/4A]-[L/R]-SS | 59   | CARTESIAN ROBOT CROSSMASTER 4400MEGAX |
| XM440RX-3A-L-[SBA/AAS]       | 57   | CARTESIAN ROBOT CROSSMASTER 440RX     |
| XM460SX-3A-[L/R]-SS          | 58   | CARTESIAN ROBOT CROSSMASTER 460SX     |
| XM5600MEGAX-[3A/4A]-[L/R]-SS | 59   | CARTESIAN ROBOT CROSSMASTER 5600MEGAX |
| XM680SX-3A-[L/R]-SS          | 58   | CARTESIAN ROBOT CROSSMASTER 680SX     |
| XM7800MEGAX-[3A/4A]-[L/R]-SS | 59   | CARTESIAN ROBOT CROSSMASTER 7800MEGAX |

# Other

| Model | Page  | Item name  |
|-------|-------|--|
|       | 35    | Two-component mixing dispenser DYNAMIC DUAL MASTER                                   |
|       | 65    | 3D food printer 3D FOOD DISPENSER  |
|       | 60,61 | Image recognition dispensing system 350PC Smart XMΩX                                 |
|       | 60,61 | Image recognition dispensing system 350PC Smart XMRX                                 |
|       | 60,61 | Image recognition dispensing system 350PC Smart SMΩX                                 |
|       | 63    | UV IRRADIATION/UV ADHESIVE DISPENSING ROBOT  |
|       | 65    | Immunochromatographic line drawing   |
|       | 63    | CODE PRINTING ROBOT  |
|       | 21    | Solder paste JET dispenser SOLDER JET  |
|       | 51    | O-ring for a tube  |
|       | 63    | SCREW TIGHTENING/THREADLOCKER DISPENSING ROBOT                                       |
|       | 63    | DEBURRING ROBOT  |
|       | 63    | PICK & PLACE/ADHESIVE DISPENSING ROBOT   |
|       | 63    | LASER WELDING/SOLDER DISPENSING ROBOT  |
|       | 64    | FULLY PC CONTROLLED MULTI-CHANNEL DISPENSING SYSTEM PIPET MASTER                     |
|       | 47    | SIMPLIFIED SYRINGE FILLER FILLING MATE   |
|       | 35    | HIGH-PERFORMANCE MOHNO DISPENSER DUAL MOHNO MASTER                                   |
|       | 64    | AUTOMATED FILLING CAPPER SYSTEM  |
|       | 47    | AUTOMATED WEIGHING TYPE SYRINGE FILLING SYSTEM AUTO FILLING MASTER                   |
|       | 65    | FOOD GRADE JET DECORATION SYSTEM CHOCO JET   |
|       | 65    | ULTRA-HIGH-SPEED REAGENT SPOTTING SYSTEM JET SPOTTER                                 |
|       | 64    | MICRO-VOLUME REAGENT SPOTTING SYSTEM SPOT MASTER                                     |
|       | 63    | DISPENSING FAILURE INSPECTION/DISPENSING ROBOT                                       |
|       | 35    | NON-CONTACT JET DISPENSER DUAL JET [DUAL AEROJET/DUAL SUPERJET]                      |
|       | 20    | NON-CONTACT JET DISPENSER GREASE JET   |
|       | 63    | EVALUATION ROBOT   |
|       | 64    | Chemical solution filling and capping system   |
|       | 35    | VOLUME MEASURING TYPE DIGITAL CONTROL DISPENSER DUAL MPP-1                           |
|       | 35    | VOLUME MEASURING TYPE DIGITAL CONTROL DISPENSER DUAL MPP-1 DUAL CARTRIDGE COMPATIBLE |
|       | 35    | VOLUME MEASURING TYPE DIGITAL CONTROL DISPENSER DUAL MPP-3                           |

Please select the specification meeting with your requirements. Please contact our sales department for further information.

Note: 1. For the volumes, shapes, and others shown with [ ], select one of them in accordance with your specifications. The value of selected specifications shall be entered into the □ of a model name.  
2. The products marked with \* have other lineup.  
3. For detailed specifications of parts accessories and valve/tank products, refer to the separate parts catalog or contact our sales department.

## Safety Information Precautions and request for your handling

About plastic products such as syringe, barrel, plunger, tip cap, head cap and nozzle, please follow the following instructions for your safety operation and good performance.

1. These products are disposable. Reuse after cleaning may have a risk of explosion and nozzle off to cause damage or injury of operator. Please dispose and change after using to maintain dispensing quality as well.
2. Please be careful not to give any shock. Particularly, a risk of damage with an impact when it is frozen.
3. Please do not wash with solvents such as toluene, MEK, acetone.
4. Please pressurize and heat product within those specification range.
5. Please keep away from fire.
6. Please wear protector such as protective goggles and clothing during operation.
7. Please dispose according to local regulation.

# PROFILE

**We create high-grade products backed by remarkable achievements and reliability.**

The world's first pioneer of Dispense Hi-Tech, challenging the “Unexplored Territory”

MUSASHI is a comprehensive dispenser manufacturer that focuses on the development, manufacture, and sale of “Dispensing system” that precisely control fluid materials.

Head Office



Production base: Tokyo Technical Center



# WORLDWIDE

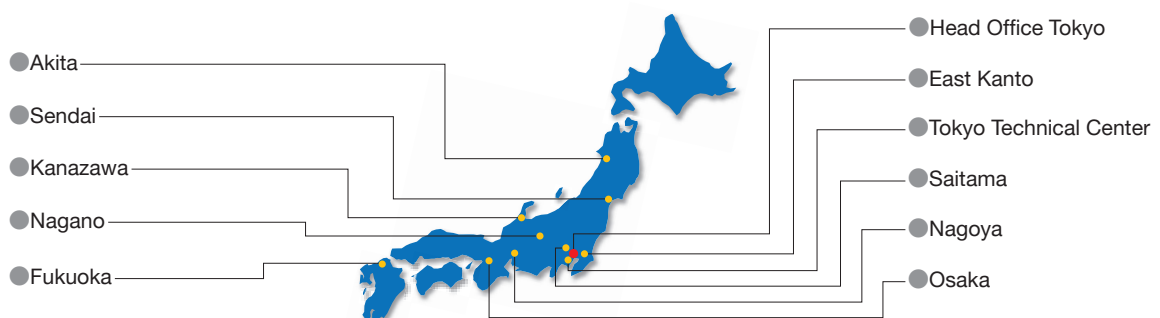
A global company, MUSASHI's business stages and reliability.

Domestic bases: 11 locations  
Foreign bases: 11 locations

## WORLD



## JAPAN




**A reliable top performer with excellent achievements,  
MUSASHI will constantly seek new possibilities as  
a comprehensive manufacturer of dispensers.**



Head Office



Tokyo Technical Center

 **Safety precautions**  
Please read the instruction manual carefully before use to ensure correct and safe usage.

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