



BERNSTEIN
TOOLS FOR ELECTRONICS



TWEEZERS – EVERYTHING IS UNDER CONTROL

Vers.01

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We update our product information on a regular basis and automatically using our Product Information System. This enables the quick and up-to-date compilation of customer-specific data feeds for your own digital sale activities. Take advantage of this service and always keep Bernstein product information up to date!

www.bernstein-tools.de

Product videos and blog posts round off our online offering. Furthermore, we also respect the traditional sales channel via specialist retailers and offer the option to present your webshop as an online sales platform for products by BERNSTEIN.

SYMBOL LEGEND**NEU**

New product



Number of tools in sets



Weight



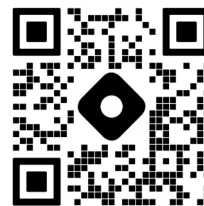
Dimensions



ESD protection (EPA suitable)



VDE tested





TWEEZERS – EVERYTHING IS UNDER CONTROL

The requirements for tweezers could not be more varied. For this reason, we are continuously expanding our range of tweezers with useful models, either through new designs or technically sophisticated materials.

Our tweezers are suitable for work on statically sensitive electronics in EPAs, clean rooms, the dental sector or laboratories, as well as for jewellers, watchmakers or in the craft trade.

BERNSTEIN tweezers meet the highest demands in quality, wherever they are used.

Get in touch with us if you can't find what you're looking for in the following pages.

Together we'll find the right tweezers for you.

sales@bernstein-werkzeuge.de

TWEEZERS - MATERIAL, SHAPE AND APPLICATION

TYPES AND APPLICATIONS

Our product selection ranges from microscope tweezers manufactured with exact tolerances (also recently available with ergonomically adapted, recessed grips) to interchangeable or cutting tips to all possible universal shapes and even locking tweezers.

Traditional tweezers are made from high-quality steel or stainless steel. We also manufacture tweezers made from titanium, ceramic, plastic and even bamboo.

The different surface finishes allow us to support a vast range of applications.

Delicate

SMD assembly requires the finest precision tweezers due to the increasingly smaller components. The variety of shapes and a parallel tip end enable reliable handling of components, even in confined spaces.

Ultra-fine

For precise gripping, holding and positioning work with a tip width of 0.2 mm at a tolerance of +/-0.05.

Geometric

For easy removal and insertion of round or cubic components, every imaginable design is possible

Universal

Partially cut (small cross grooves on the tips) for better and stable gripping. They have precise, parallel tips and are used in the medical sector to remove foreign objects.

Wafer

For positioning flat and thin components, such as highly sensitive and fragile wafers (glass wafers, etc.), thin PCBs and LCDs.

Cutting

Best suited for soft wires up to \varnothing 0.25 mm, for example, copper wire, gold wire and silver wire.

Self-holding

Self-holding tweezers in different shapes are suitable for simple holding and positioning.

Interchangeable tips

The tips are connected to the body by a screw joint, allowing them to be changed.



TWEEZERS TYPES AND
APPLICATIONS

MATERIALS, SURFACE AND PROPERTIES

Stainless steel (SA)

Anti-magnetic, corrosion-resistant, resistant to acids and chemicals, good conductivity, very hygienic, sterilisable, food-safe, recyclable

Titanium (Ti)

Anti-magnetic, corrosion-resistant, resistant to acids and chemicals, antibacterial, good conductivity, glare-free, solder-repellent, heat-resistant (melting point is 1677°C)

Quality steel (FE)

Protected from corrosion with nickel plating, not anti-magnetic, not resistance to acid.

ESD coating

Provides a bleeder resistance of $10^6 - 10^9$ ohm

VDE dip-insulation

For working with voltages up to 1000 V, in accordance with DIN IEC 60900 / EN 60900

Dip-insulated (red) or lacquered (red)

anti-allergic, non-slip, secure hold

PTFE coating

Heat resistant up to 280 °C (536 °F), anti-allergic

Bamboo (BA)

Tips are individually shapeable, non-conductive, partially chemical resistant, light in the hands

ESD ceramic zirconia (ZC)

Dissipative $10^6 - 10^9$ ohms, extremely wear resistant, heat resistant up to 800°, acid and chemical resistant, solder-repellent

Plastic ESD (PA)

Conductive between $10^3 - 10^5$ ohms, glass-fibre reinforced plastic material, resistant to acids, heat-resistant to 175 °C, free from silicone and armin

Carbofib (CF)

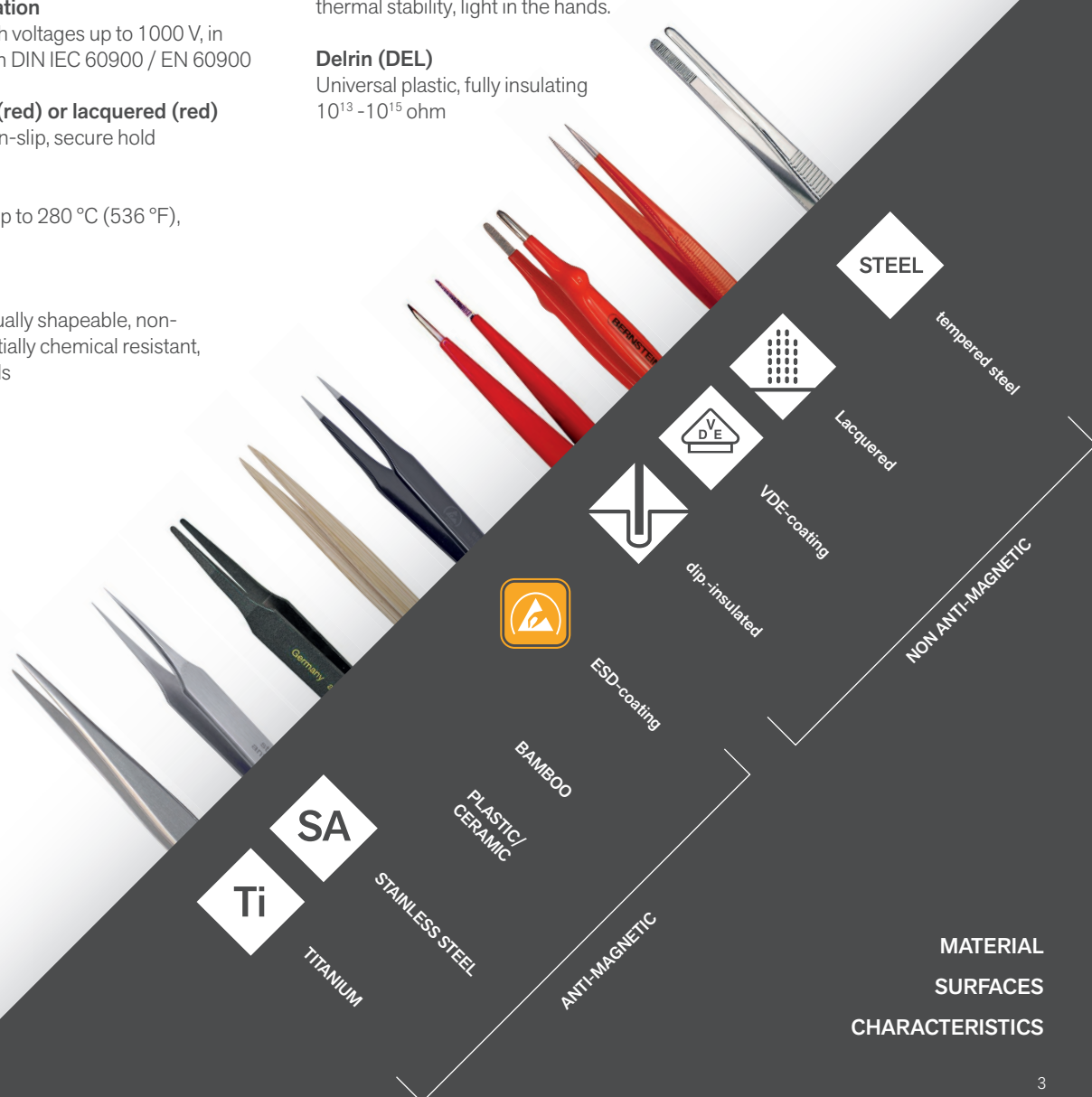
Carbon-fibre reinforced plastic, conductive $10^2 - 10^3$ ohm

Plastic (PP)

Low-priced alternative, insulating, good chemical resistance, high thermal stability, light in the hands.

Delrin (DEL)

Universal plastic, fully insulating $10^{13} - 10^{15}$ ohm



**MATERIAL
SURFACES
CHARACTERISTICS**

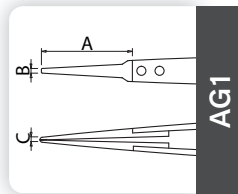
FIND YOUR PERFECT TWEEZERS

G Straight tweezers

round-cornered

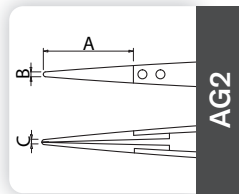
A

Interchangeable tips



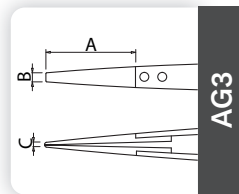
AG1

page: 20



AG2

20

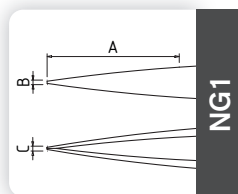


AG3

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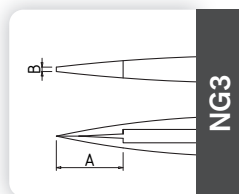
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Normal tips



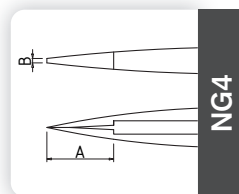
NG1

page: 7, 9, 12, 13, 16, 19



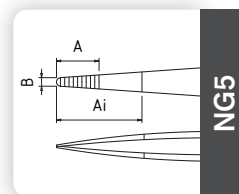
NG3

9, 21



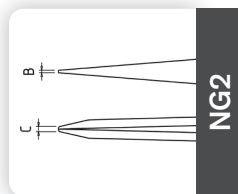
NG4

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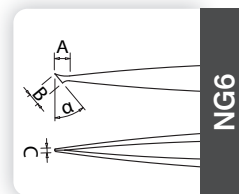
NG5

13, 16, 21



NG2

page: 16

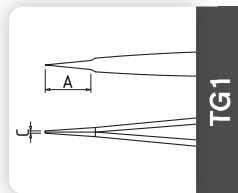


NG6

14

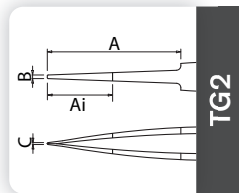
T

Offset tips



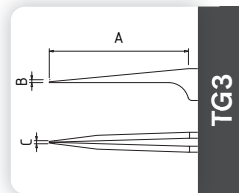
TG1

page: 19



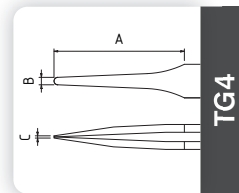
TG2

7, 11, 12, 13



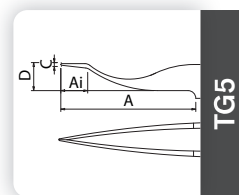
TG3

7



TG4

21

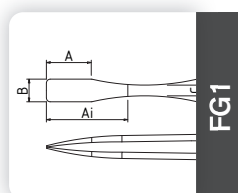


TG5

7

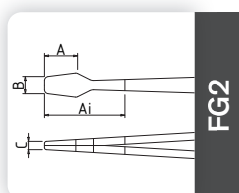
F

Flat tips



FG1

page: 11, 14, 21

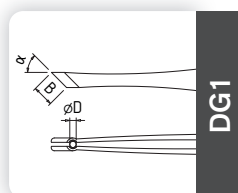


FG2

19

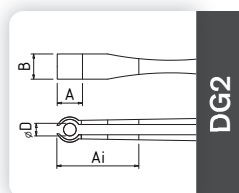
D

Diameter tips



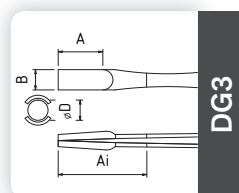
DG1

page: 14



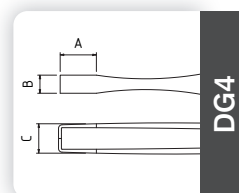
DG2

14



DG3

14



DG4

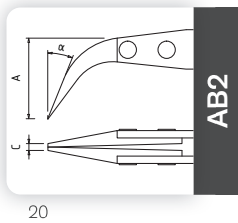
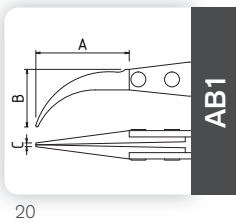
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B Bent tweezers

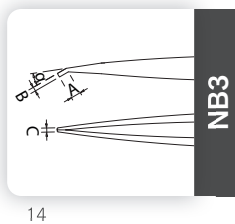
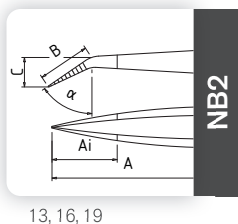
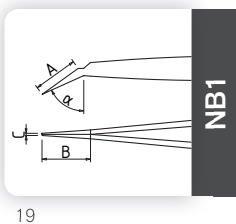
pointy-round

round-cornered

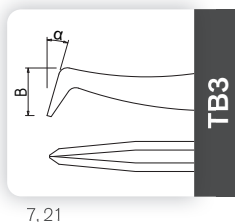
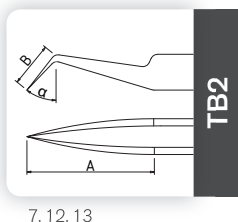
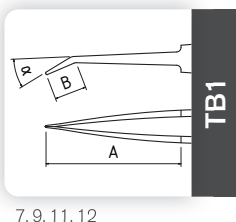
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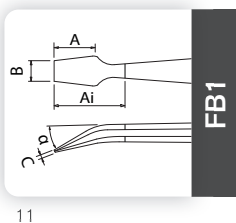
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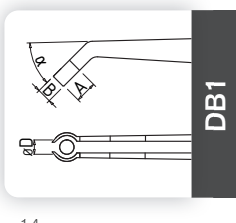
T



F

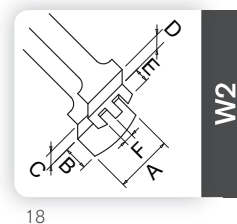
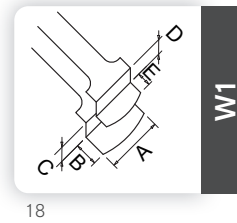


D



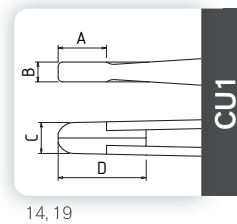
W

Wafer



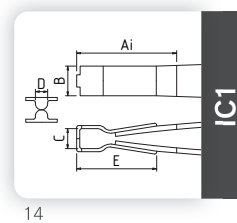
CU

Copper jaws



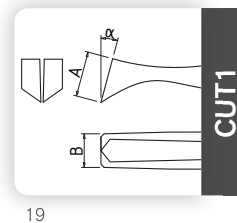
IC

Chip protection



CUT

cutting



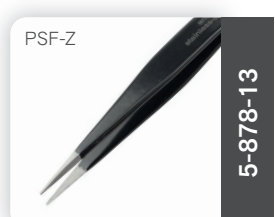
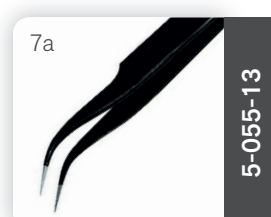
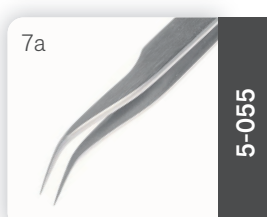
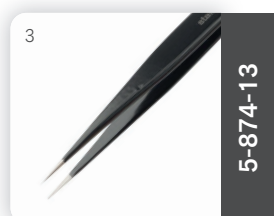
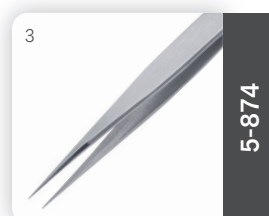
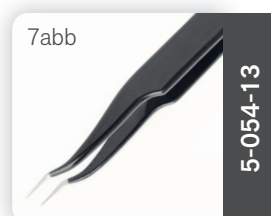
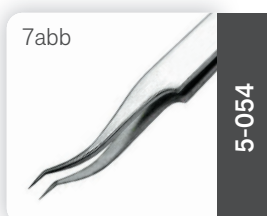
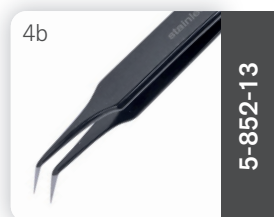
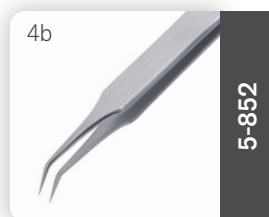
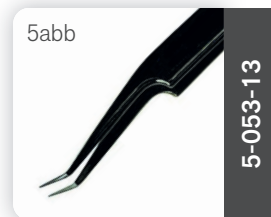
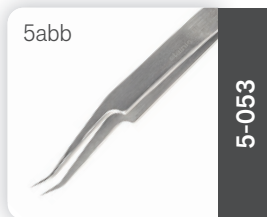
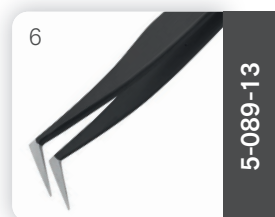
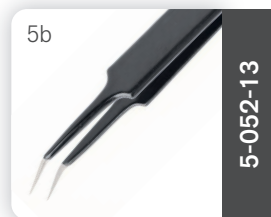
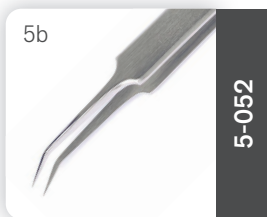
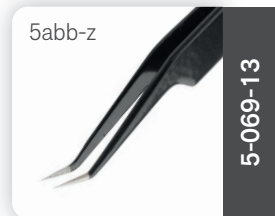
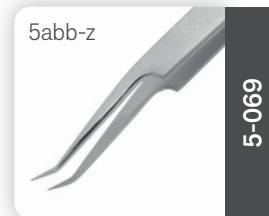
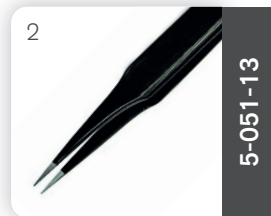
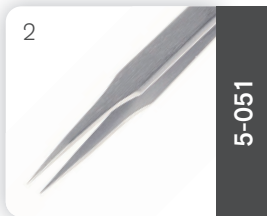
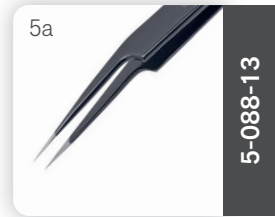
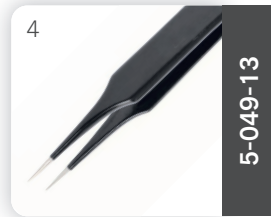
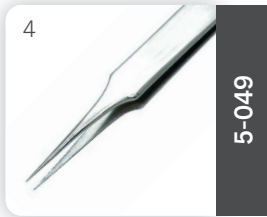
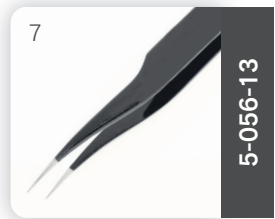
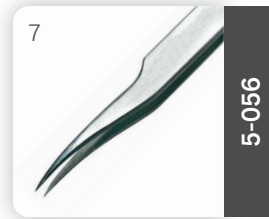
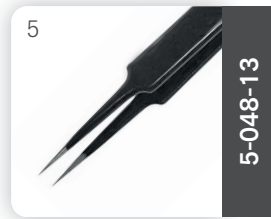
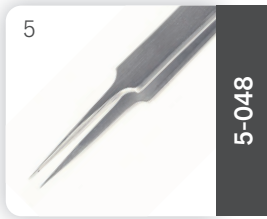
DELICATE TWEEZERS

STAINLESS STEEL

WITH ESD COATING

STAINLESS STEEL

WITH ESD COATING



DELICATE TWEEZERS

SMD assembly requires the finest precision tweezers due to the increasingly smaller components. The variety of shapes and a parallel tip end enable reliable handling of components, even in confined spaces. In the electronics manufacturing, antimagnetic, acid and corrosion-resistant stainless steel (SA) is preferred with a particularly high strength, making the fine tips incredibly hard and resistant. Titanium and plastic are also popular materials.

Made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished. The dissipative ESD coating provides a bleeder resistance of 10^6 – 10^9 ohm. Tweezers with ESD coating end with -13 in the article number.



The following types are available, specifications in mm:

| Art.-No. | Art.-No. | Icon | Shape | A | B | C | D | Angle | Tolerance (or acc. ISO2768) | Total length | Weight in g |
|----------|----------|------|--------|----|------|-----|---|-------|-----------------------------|--------------|-------------|
| 5-048 | 5-048-13 | PTG2 | 5 | 30 | 0.3 | 0.4 | | | | 110 | 12 |
| 5-049 | 5-049-13 | PTG2 | 4 | 30 | 0.3 | 0.4 | | | | 110 | 15 |
| 5-051 | 5-051-13 | PTG2 | 2 | 35 | 0.4 | 0.8 | | | | 120 | 15 |
| 5-052 | 5-052-13 | PTB1 | 5b | 30 | 7 | | | 30° | | 120 | 15 |
| 5-053 | 5-053-13 | PTB2 | 5abb | 35 | 7.4 | | | 30° | | 110 | 13 |
| 5-054 | 5-054-13 | PTG5 | 7abb | 38 | 0.4 | 7 | 9 | | | 120 | 15 |
| 5-055 | 5-055-13 | PTB2 | 7a | 35 | 10 | | | 50° | | 120 | 15 |
| 5-056 | 5-056-13 | PTB4 | 7 | 40 | 0.4 | 0.4 | | | | 120 | 15 |
| 5-088 | 5-088-13 | PTG3 | 5a | 35 | 0.2 | 0.4 | | | | 115 | 18 |
| 5-069 | 5-069-13 | PTB2 | 5abb-z | 35 | 7.5 | | | 30° | | 115 | 15 |
| 5-089 | 5-089-13 | PTB3 | 6 | | 14.2 | | | 10° | | 115 | 17 |
| 5-852 | 5-852-13 | PTB1 | 4b | 27 | 7 | | | 40° | | 110 | 14 |
| 5-874 | 5-874-13 | PNG1 | 3 | 45 | 0.2 | 0.2 | | | 0.1 | 120 | 14 |
| 5-878 | 5-878-13 | PNG1 | PSF-Z | 50 | 1 | 0.5 | | | 0.2 | 130 | 19 |

► SMD tweezers set 6 pcs

Content: 5-051, 5-052, 5-054, 5-058, 5-061, 5-062

| Art.-No. | Description | Weight in g |
|----------|-----------------------------------|-------------|
| 5-050 | in a pocket (synthetic leather) | 135 |
| 5-050-ES | wihtout a pocket (loosley packed) | 90 |
| 5-050-V | with VARIO tool holder (5-090-1) | 480 |



► ESD SMD tweezers set 6 pcs

Content: 5-049-13, 5-055-13, 5-059-13, 5-067-13, 5-068-13, 5-078-13

| Art.-No. | Description | Weight in g |
|----------|-----------------------------------|-------------|
| 5-060 | in a pocket (synthetic leather) | 135 |
| 5-060-ES | wihtout a pocket (loosley packed) | 90 |
| 5-060-ST | with plastic stand (5-180-0) | 110 |



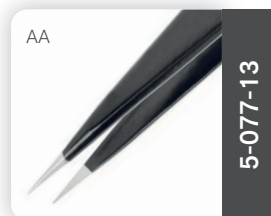
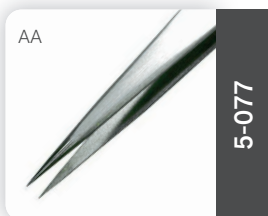
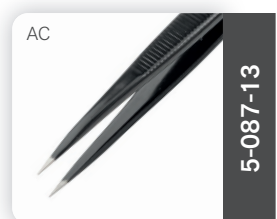
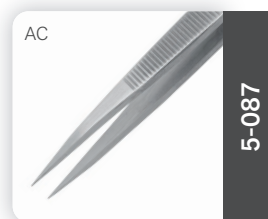
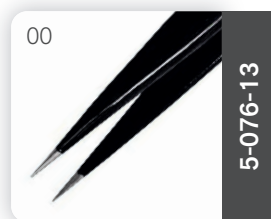
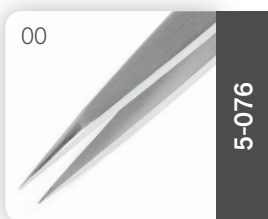
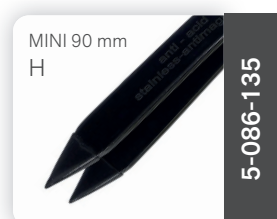
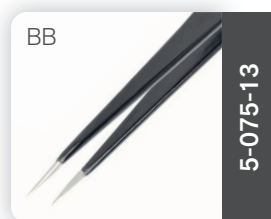
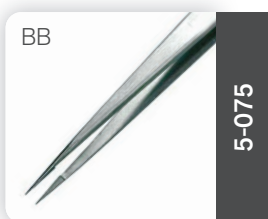
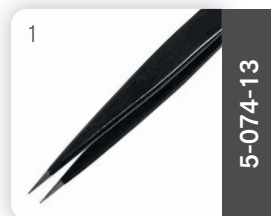
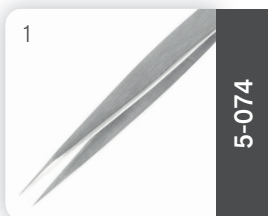
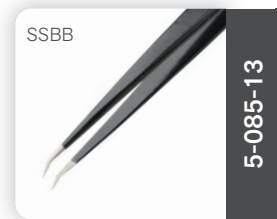
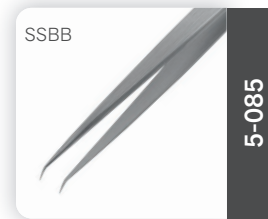
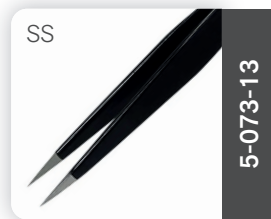
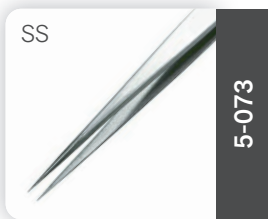
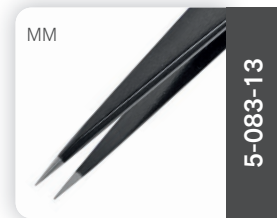
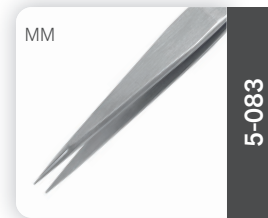
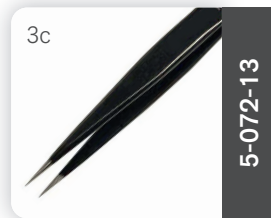
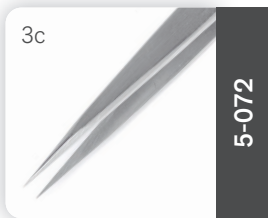
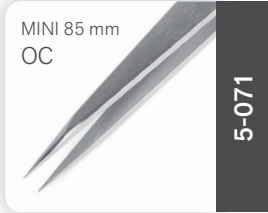
DELICATE TWEEZERS

STAINLESS STEEL

WITH ESD COATING

STAINLESS STEEL


WITH ESD COATING



DELICATE TWEEZERS

Made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished. The dissipative ESD coating provides a bleeder resistance of 10^6 – 10^9 ohm. Tweezers with ESD coating end with -13 in the article number.

The following types are available, specifications in mm:

| Art.-No. | Art.-No.  | Icon | Shape | A | B | C | D | Angle | Tolerance (or acc. ISO2768) | Total length | Weight in g |
|----------|--|------|-------|----|-----|-----|---|-------|-----------------------------|--------------|-------------|
| 5-071 | 5-071-13 | PNG1 | OC | 48 | 0.2 | 0.4 | | | 0.3 | 85 | 8 |
| 5-072 | 5-072-13 | PNG1 | 3c | 46 | 0.3 | 0.4 | | | 0.2 | 110 | 11 |
| 5-073 | 5-073-13 | PNG1 | SS | 53 | 0.2 | 0.4 | | | 0.3 | 140 | 13 |
| 5-074 | 5-074-13 | PNG1 | 1 | 42 | 0.3 | 0.4 | | | 0.2 | 120 | 14 |
| 5-075 | 5-075-13 | PNG3 | BB | 8 | 0.2 | | | | | 140 | 13 |
| 5-076 | 5-076-13 | PNG1 | 00 | 46 | 0.5 | 1 | | | 0.4 | 120 | 19 |
| 5-077 | 5-077-13 | PNG1 | AA | 50 | 0.3 | 0.6 | | | 0.3 | 130 | 16 |
| 5-078 | 5-078-13 | PNG1 | PSF | 50 | 1 | 0.5 | | | 0.3 | 130 | 20 |
| 5-083 | 5-083-13 | PNG1 | MM | 68 | 0.6 | 1 | | | 0.5 | 140 | 8 |
| 5-085 | 5-085-13 | PTB1 | SSBB | 20 | 4.5 | | | 30° | | 140 | 14 |
| 5-086 | 5-086-13 | PNG1 | H | 12 | 0.2 | 0.4 | | | 0.4 | 90 | 12 |
| | 5-086-135 | PNG1 | H | 12 | 0.5 | 1.9 | | | | 90 | 12 |
| 5-087 | 5-087-13 | PNG1 | AC | 60 | 0.2 | 0.4 | | | 0.2 | 110 | 18 |

DELICATE TWEEZERS SETS

► SMD tweezers set 6 pcs

Content: 5-049, 5-053, 5-055, 5-059, 5-078, 5-089

| Art.-No. | Description | Weight in g |
|-----------|-----------------------------------|-------------|
| 5-050-A | in a pocket (synthetic leather) | 135 |
| 5-050-ANY | in a pocket (nylon) | 110 |
| 5-050-AES | without a pocket (loosely packed) | 90 |
| 5-050-AV | with VARIO tool holder (5-090-1) | 480 |

► ESD SMD tweezers set 6 pcs

Content: 5-071-13, 5-077-13, 5-191, 5-052-13, 5-861-13, 5-863-13

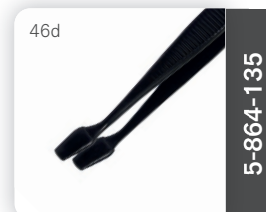
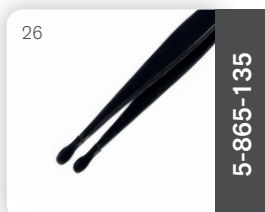
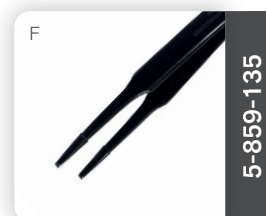
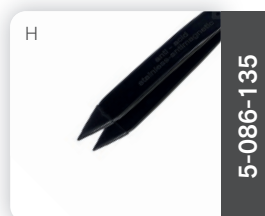
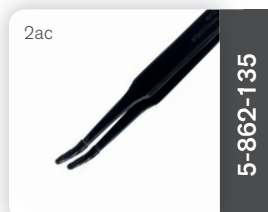
| Art.-No. | Description | Weight in g |
|-----------|-----------------------------------|-------------|
| 5-060-A | in a pocket (synthetic leather) | 135 |
| 5-060-ANY | in a pocket (nylon) | 110 |
| 5-060-AES | without a pocket (loosely packed) | 90 |
| 5-060-AV | with VARIO tool holder (5-090-0) | 480 |

ESD TWEEZERS WITH ESD DISSIPATIVE PVC DIP INSULATION (NON-SLIP)

ESD coating achieves a discharge resistance of 10^6 - 10^9 Ohm. PVC insulation enables optimal positioning due to slight adhesion to the tip.

A secure hold for small parts and components that slip away quickly, also suitable for securely holding glass lenses and optics.

Do you need a different shape with dissipative PVC insulation? Please do not hesitate to contact us.




| Shape | Specification | Tips length | Tips width | Tips thickness | Angle/ Inclined | Ø | Page |
|----------|---------------------|-------------|------------|----------------|-----------------|-----|---------------|
| straight | with Ø-holder | 2.3 | 1.5 - 3.0 | | | 0.8 | 14 |
| straight | normal | 2.5 | | | 40° | | 14 |
| straight | with Ø-holder | 5 | | | 45° | 1.5 | 14 |
| straight | with Ø-holder | 5 | 4 | | | 3.5 | 14 |
| straight | normal flat | 5 | 6.35 | | | | 21 |
| straight | normal flat | 6 | 4 - 5 | 2.6 - 3.8 | | | 9, 11 |
| straight | normal flat | 6 | 13 | 3 | | | 14 |
| straight | with Ø-holder | 6.5 | 6 | | | 5 | 14 |
| straight | with Ø-holder | 7 | 6 | | | 5 | 14 |
| straight | normal | 8 | 0.2 | | | | 9 |
| straight | normal flat | 9.5 | 5 | 2.8 | | | 19 |
| straight | with Ø-holder | 10 | 3.1 | | | 2 | 14 |
| straight | with Ø-holder | 10 | 5.5 - 5.6 | | | 5 | 14 |
| straight | with Ø-holder | 10.5 | 5.8 | 8 | | | 14 |
| straight | normal flat | 10.5 | 5.9 | 5.5 | | | 19 |
| straight | normal flat | 20 | 4 | 4.5 | | | 11 |
| straight | tapered | 10 | | 0.5 | | | 19 |
| straight | normal | 11 | 3.2 | | | | 21 |
| straight | normal | 12 | 0.2 | 0.4 | | | 9 |
| straight | copper jaws | 11 - 12 | 4.6 - 6 | 5.6 - 7.2 | | | 14, 19 |
| straight | normal | 13 | 0.65 - 1.0 | | | | 16, 21 |
| straight | normal | 14 | 3 | | | | 21 |
| straight | normal | 16 | 2 | | | | 16 |
| straight | normal | 17 | 1 | | | | 16 |
| straight | normal | 18 | 3 | | | | 13 |
| straight | normal | 18 Zahnung | 3 | | | | 16 |
| straight | normal | 18 | 4.5 | | | | 16 |
| straight | interchangeable tip | 25 | 1.8 | | | | 20 |
| straight | interchangeable tip | 26 | 0.6 - 1.5 | | | | 20 |
| straight | interchangeable tip | 26 | 1.1 - 2.0 | | | | 20 |
| straight | interchangeable tip | 30 | 0.7 | | | | 20 |
| straight | tapered | 30 | 0.1 - 0.5 | 0.2 - 1.0 | | | 7, 12 |
| straight | tapered | 35 | 0.2 - 2.25 | 0.2 - 1.0 | | | 7, 12, 13, 21 |
| straight | tapered | 36 | 2.3 | 0.4 | | | 9, 11 |
| straight | tapered | 38 | 0.4 | 7 | | | 7 |
| straight | normal | 42 | 0.3 | 0.4 | | | 9 |
| straight | normal | 45 | 0.2 | 0.2 | | | 7 |
| straight | normal | 46 | 0.1 - 0.5 | 0.2 - 1.0 | | | 9, 12 |
| straight | normal | 48 | 0.2 - 0.9 | 0.4 - 1.5 | | | 9, 13, 21 |
| straight | normal | 50 | 0.3 - 1.0 | 0.2 - 0.6 | | | 9, 12 |
| straight | normal | 50 | 0.5 - 1.0 | 0.5 - 0.6 | | | 7, 16 |
| straight | normal | 53 | 0.2 | 0.4 | | | 9 |
| straight | normal | 54 | 0.6 | 1 | | | 13 |
| straight | normal | 60 | 0.2 | 0.4 | | | 9 |
| straight | normal | 68 | 0.6 | 1 | | | 9 |
| straight | normal | 75 | 1.3 | | | | 19 |
| bent | with Ø-holder | 2.3 | 1.5 - 3.0 | | 35° | 0.8 | 14 |
| bent | normal | 2.5 | 1 | | 45° | | 14 |
| bent | normal | 6 | 6.5 | 0.7 | 30° | | 19 |
| bent | normal flat | 10 | 5 | | 20° | | 9, 11 |
| bent | normal | 10 | 8 | 0.5 | 30° | | 20 |
| bent | normal | 12 | 2.5 | | 30° | | 14 |
| bent | tapered | 12 | | | 16° | | 21 |
| bent | tapered | 14.2 | | | 10° | | 7 |
| bent | tapered | 20 | 4.5 | | 30° | | 9 |
| bent | interchangeable tip | 20 | | 1.6 | 45° | | 20 |
| bent | interchangeable tip | 25 | 15 | 1 | | | 20 |
| bent | tapered | 27 - 38 | 7 | | 40° | | 7, 13 |
| bent | tapered | 30 | 7 | | 30° | | 7, 11, 12 |
| bent | tapered | 34 - 35 | 14 | | 30° | | 11 |
| bent | tapered | 35 | 2.3 - 2.6 | | 30° | | 9, 11 |
| bent | tapered | 35 | 7.4 - 7.5 | | 30° | | 7 |
| bent | tapered | 35 | 10 | | 50° | | 7, 12 |
| bent | tapered | 40 | 0.4 | 0.4 | | | 7 |
| bent | normal | 45 | 16 | 12 | 60° | | 13, 16, 19 |

DELICATE TWEEZERS

Made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished.

The dissipative ESD coating provides a bleeder resistance of 10^6 – 10^9 ohm. Tweezers with ESD coating end with -13 in the article number.

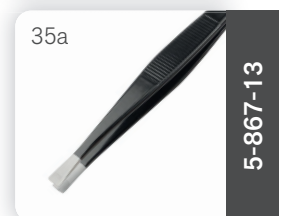
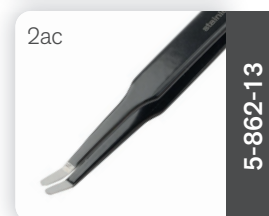
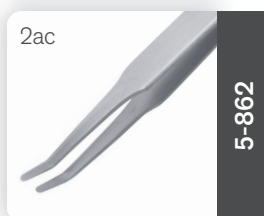
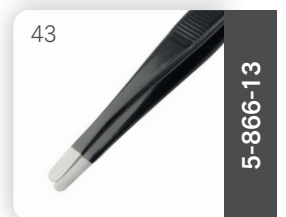
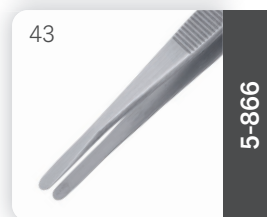
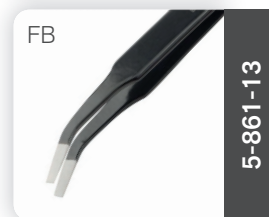
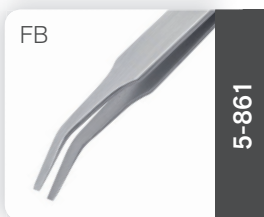
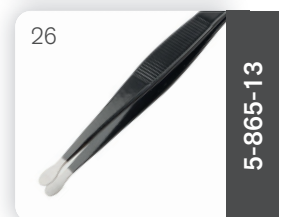
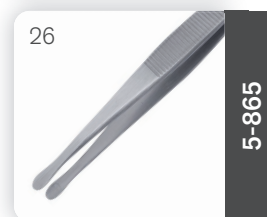
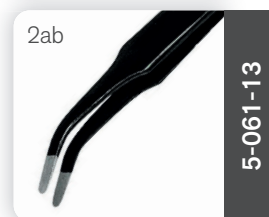
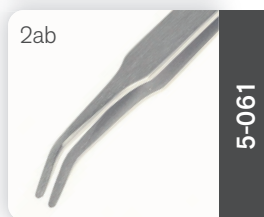
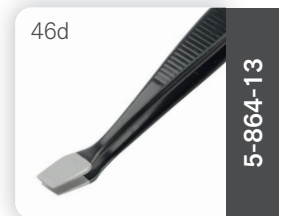
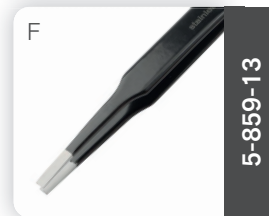
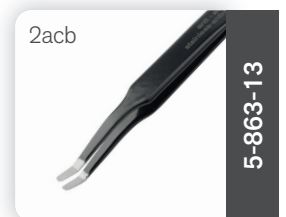
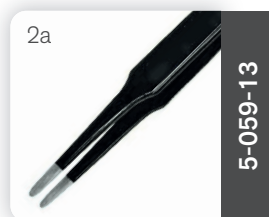
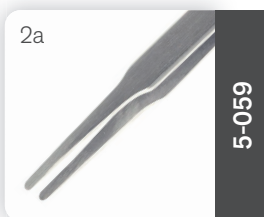
| Art.-No. | Art.-No.  | Icon | Shape | A | B | C | Ai | Angle | Total length | Weight in g |
|----------|--|------|-------|----|-----|-----|----|-------|--------------|-------------|
| 5-059 | 5-059-13 | PTG2 | 2a | 36 | 2.3 | 0.4 | | | 120 | 15 |
| 5-061 | 5-061-13 | PTB1 | 2ab | 35 | 14 | | | 30° | 115 | 16 |
| 5-859 | 5-859-13 | PTG2 | F | 36 | 2.3 | 0.4 | 12 | | 125 | 17 |
| | 5-859-135 | PTG2 | F | 36 | 2.6 | 1.9 | | | 125 | 16,5 |
| 5-861 | 5-861-13 | PTB1 | FB | 34 | 14 | | | 30° | 120 | 17 |
| 5-862 | 5-862-13 | PTB5 | 2ac | 35 | 2.3 | 0.5 | 12 | 30° | 125 | 17 |
| | 5-862-135 | PTB5 | 2ac | 35 | 2.6 | 2.0 | | 30° | 125 | 16,5 |
| 5-863 | 5-863-13 | PTB5 | 2acb | 36 | 2.6 | | | 30° | 125 | 17 |
| 5-864 | 5-864-13 | PFB1 | 46d | 10 | 5 | | 13 | 20° | 105 | 14 |
| | 5-864-135 | PFB1 | 46d | 10 | 5.4 | 2.1 | | 20° | 105 | 14 |
| 5-865 | 5-865-13 | PFG2 | 26 | 6 | 4 | 2.6 | 13 | | 120 | 17 |
| | 5-865-135 | PFG2 | 26 | 7 | 4.6 | 3.3 | | | 120 | 17,5 |
| 5-866 | 5-866-13 | PFG2 | 43 | 20 | 4 | 4.5 | | | 120 | 17 |
| 5-867 | 5-867-13 | PFG2 | 35a | 6 | 5 | 3.8 | | | 120 | 17 |

STAINLESS STEEL

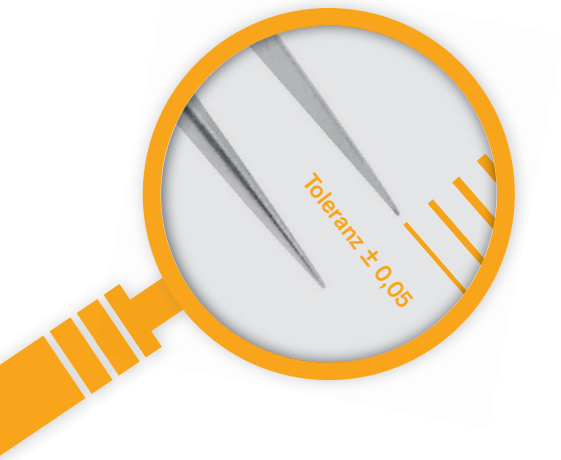
WITH ESD COATING

STAINLESS STEEL

WITH ESD COATING



ULTRA FINE TIPPING TWEEZERS



► ULTRA FINE tipping tweezers

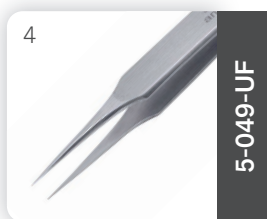
For precise gripping, holding and positioning work in laboratories, test facilities and, above all, under the microscope. Featuring a tip width of 0.2 mm at a tolerance of ± 0.05 , even robots can be equipped with them (pick-and-place), enabling a configuration with high repetition accuracy.

Made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished. The dissipative ESD coating provides a bleeder resistance of 10^6 – 10^9 ohm. Tweezers with ESD coating end with -13 in the article number.

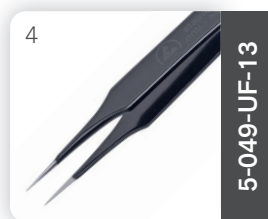
The following types are available, specifications in mm:

| Art.-No. | Art.-No. | Icon | Shape | A | B | C | Angle | Tolerance | Total length | Weight in g |
|----------|-------------|------|-------|----|-----|-----|-------|-----------|--------------|-------------|
| 5-049-UF | 5-049-UF-13 | PTG2 | 4 | 30 | 0.1 | 0.2 | | 0.05 | 110 | 15 |
| 5-051-UF | 5-051-UF-13 | PTG2 | 2 | 35 | 0.4 | 0.2 | | 0.05 | 120 | 15 |
| 5-052-UF | 5-052-UF-13 | PTB1 | 5b | 30 | 7 | | 30° | 0.05 | 110 | 15 |
| 5-055-UF | 5-055-UF-13 | PTB2 | 7a | 35 | 10 | | 50° | 0.05 | 120 | 15 |
| 5-072-UF | 5-072-UF-13 | PNG1 | 3c | 46 | 0.1 | 0.2 | | 0.05 | 110 | 11 |
| 5-078-UF | 5-078-UF-13 | PNG1 | PSF | 50 | 1 | 0.2 | | 0.05 | 130 | 20 |

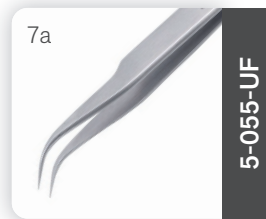
STAINLESS STEEL



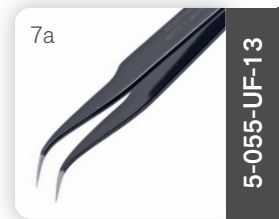
WITH ESD COATING



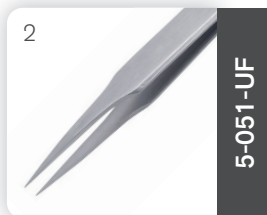
STAINLESS STEEL



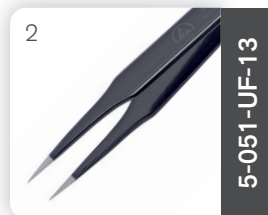
WITH ESD COATING



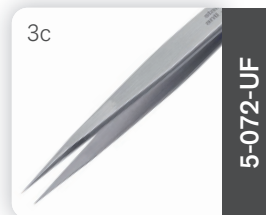
2



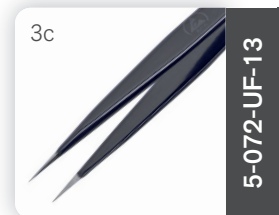
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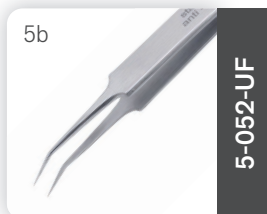
3c



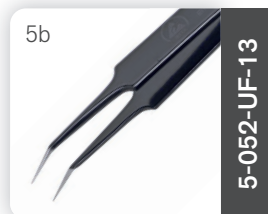
3c



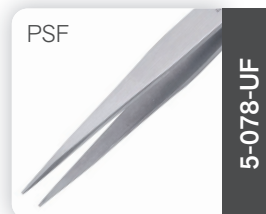
5b



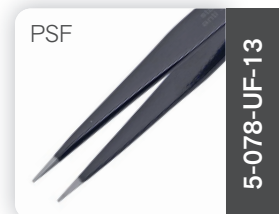
5b



PSF



PSF



ULTRA FINE TIPPING TWEEZERS SETS

► **5-070-UF**

SMD tweezers set ULTRA FINE 6 pcs

in a pocket (synthetic leather)
Content: 5-049-UF, 5-051-UF, 5-052-UF, 5-055-UF,
5-072-UF, 5-078-UF

Weight: 150 g

► **5-070-UF-13**

ESD SMD tweezers set ULTRA FINE 6 pcs

in a pocket (synthetic leather)
Content: 5-049-UF-13, 5-051-UF-13, 5-052-UF-13,
5-055-UF-13, 5-072-UF-13, 5-078-UF-13

Weight: 150 g



5-070-UF



5-070-UF-13

TITANIUM TWEEZERS



► **TITANIUM tweezers**

Tweezers made of titanium material are antimagnetic, corrosion-resistant, acid- and chemical resistant, antibacterial, highly conductive, glare-free, solder repellent, heat resistant (melting point at 1677° C), matt polished

The following types are available, specifications in mm:

| Art-No. | Icon | Shape | A | B | C | Angle | Tolerance (or acc. ISO2768) | Total length | Weight in g |
|----------|------|-------|----|------|-----|-------|-----------------------------|--------------|-------------|
| 5-031 | PTG2 | 5 | 35 | 0.5 | 1 | | | 110 | 9 |
| 5-035 | PNG1 | 3 | 48 | 0.9 | 1.5 | | 0.6 | 120 | 9 |
| 5-036 | PNG5 | 40 | 18 | 2.5 | | | | 145 | 15 |
| 5-037 | PNB2 | 22b | 45 | 18 | 12 | 60° | | 150 | 12 |
| 5-051-Ti | PTG2 | 2 | 35 | 0.2 | 0.6 | | | 125 | 10 |
| 5-055-Ti | PTB2 | 7a | 38 | 14 | | 40° | | 125 | 10 |
| 5-059-Ti | PTG2 | 2a | 35 | 2.25 | 1 | | | 125 | 10 |
| 5-078-Ti | PNG1 | PSF | 54 | 0.6 | 1 | | 0.5 | 130 | 10 |

► **5-030**

TITAN tweezers set 3 pcs

in a pocket (synthetic leather)
Content: 5-031, 5-036, 5-037
Weight: 70 g

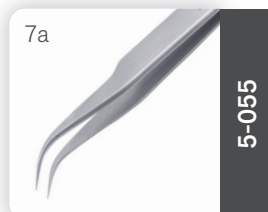


5-030

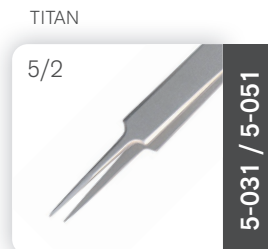
► **5-030-A**

TITAN tweezers set 3 pcs .

in a pocket (synthetic leather)
Content: 5-051-Ti, 5-055-Ti, 5-059-Ti
Weight: 55 g



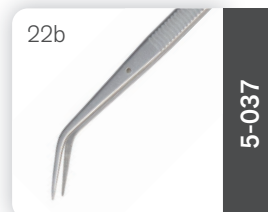
5-055



5-031 / 5-051



5-035 / 5-078



5-037



5-036 / 5-059

GEOMETRIC TWEEZERS

Every imaginable shape is possible. Bulbous or long, hollow tweezers with the appropriate diameter are suitable for the easy removal or insertion of round or cubic component parts. PVC dip-insulation on the tips protect sensitive parts made from plastic or glass such as laser optics or other opto-mechanical components.

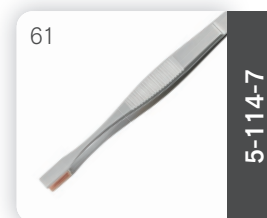
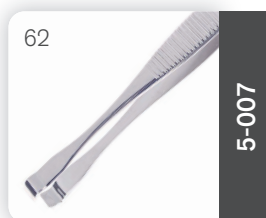
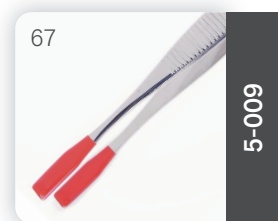
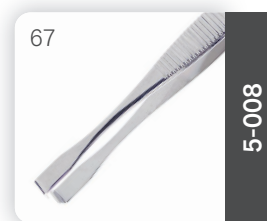
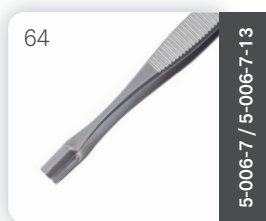
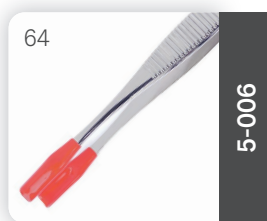
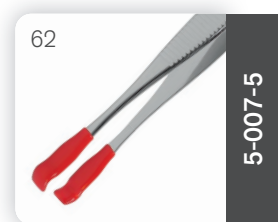
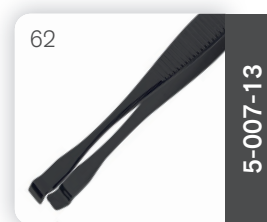
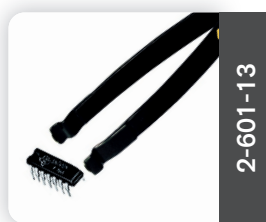
Made from quality steel (nickel-plated, not anti-magnetic) or made from Stainless steel (anti-magnetic, non-corrosive and acid-resistant, non-reflective and matt-polished). The dissipative ESD coating provides a bleeder resistance of 10^6 - 10^9 ohms. Tweezers with ESD coating end with -13 in the article number.

Additional models with dissipative ESD coating on request.



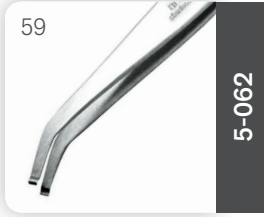
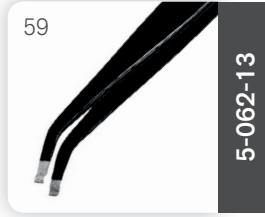



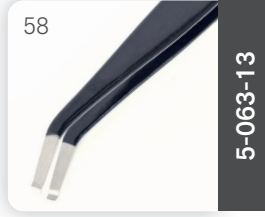

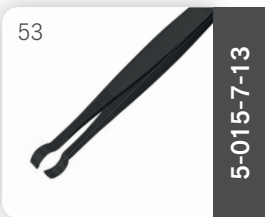
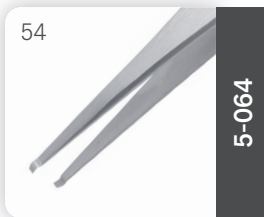
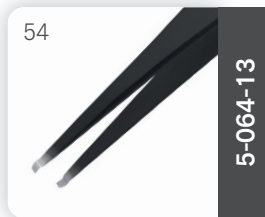




The following types are available, specifications in mm:

| Art.-No. | Art.-No. | Icon | Shape | A | B | C | D | E | Ai | Angle | Ø | Material | Total length | Weight in g |
|----------|------------|------|-------|------|-----|-----|-----|----|------|-------|-----|----------------------|--------------|-------------|
| 2-601 | 2-601-13 | PIC1 | - | | 8.2 | 6 | 3.2 | | 20 | | | steel nickel-plated | 125 | 21 |
| 2-601-5 | | PIC1 | | | 9 | 8.5 | 4.7 | | 26.5 | | | steel nickel-plated* | 125 | 21 |
| 2-601-7 | | PIC1 | - | | 8.2 | 7 | 3.2 | | 20 | | | stainless steel | 125 | 21 |
| 5-006 | | PDG3 | 64 | 14 | 5.6 | | | | 25 | | 5 | steel nickel-plated | 125 | 21 |
| 5-006-7 | 5-006-7-13 | PDG3 | 64 | 13.5 | 5.8 | | | | | | 5 | stainless steel | 125 | 23 |
| 5-007 | 5-007-13 | PDG2 | 62 | 6.5 | 6 | | | | 21 | | 5 | steel nickel-plated* | 145 | 23 |
| 5-007-5 | | PDG2 | 62 | 7 | 6.2 | | | | 21 | | 5 | steel nickel-plated | 145 | 22 |
| 5-008 | | PDG4 | 67 | 11.5 | 5.9 | 8 | | | | | | steel nickel-plated | 145 | 22 |
| 5-009 | | PFG2 | 68 | 13 | 6 | 3 | | | 25 | | | steel nickel-plated* | 145 | 25 |
| 5-013-7 | 5-013-7-13 | PDG1 | 63 | | 5 | | | 16 | | 45° | 1.5 | stainless steel | 125 | 15 |
| 5-014-7 | 5-014-7-13 | PDG2 | 52 | 5 | 4 | | | | 14 | | 3.5 | stainless steel | 120 | 15 |
| 5-015-7 | 5-015-7-13 | PDG2 | 53 | 8.8 | 3.5 | | | | 14 | | 6.5 | stainless steel | 120 | 15 |
| 5-016-7 | 5-016-7-13 | PDG3 | 55 | 10.5 | 3.1 | | | | | | 2 | stainless steel | 125 | 15 |
| 5-062 | 5-062-13 | PDB1 | 59 | 2.3 | 1.5 | | | | | 35° | 0.8 | stainless steel | 115 | 16 |
| 5-063 | 5-063-13 | PDB1 | 58 | 2.3 | 3 | | | | | 35° | 0.8 | stainless steel | 115 | 16 |
| 5-064 | 5-064-13 | PDG2 | 54 | 2.3 | 1.5 | | | | | | 0.8 | stainless steel | 120 | 16 |
| 5-065 | 5-065-13 | PDG2 | 50 | 2.3 | 3 | | | | | | 0.8 | stainless steel | 120 | 16 |
| 5-066 | 5-066-13 | PNB4 | 8b | 12 | 2.5 | | | | | 30° | | stainless steel | 120 | 15 |
| 5-067 | 5-067-13 | PNB3 | 12 | 2.5 | 1 | | | | | 45° | | stainless steel | 120 | 15 |
| 5-068 | 5-068-13 | PNG6 | 13 | | 2.5 | | | | | 40° | | stainless steel | 120 | 13 |
| 5-114-7 | 5-114-7-13 | PCU1 | 61 | 13 | 6 | 5.5 | | | | | 11 | stainless steel | 145 | 23 |

*tips PVC insulated



GEOMETRIC TWEEZERS

| STAINLESS STEEL | | WITH ESD COATING | | STAINLESS STEEL | | WITH ESD COATING | |
|-----------------|---|------------------|--|-----------------|--|------------------|--|
| 63 |  5-013-7 | 63 |  5-013-7-13 | 59 |  5-062 | 59 |  5-062-13 |
| 52 |  5-014-7 | 52 |  5-014-7-13 | 58 |  5-063 | 58 |  5-063-13 |
| 53 |  5-015-7 | 53 |  5-015-7-13 | 54 |  5-064 | 54 |  5-064-13 |
| 55 |  5-016-7 | 55 |  5-016-7-13 | 50 |  5-065 | 50 |  5-065-13 |

SETS

► **5-130**

Geometric tweezers set 3 pcs

in a pocket (synthetic leather)

Content: 5-066-13, 5-067-13, 5-068-13

Weight: 90 g

► **5-130-A**

Geometric tweezers set 3 pcs

in a pocket (synthetic leather)

Content: 5-013-7-13, 5-014-7-13, 5-062-13

Weight: 95 g

| | | | |
|----|--|----|--|
| 8b |  5-066 | 8b |  5-066-13 |
| 12 |  5-067 | 12 |  5-067-13 |
| 13 |  5-068 | 13 |  5-068-13 |

UNIVERSAL TWEEZERS

Anatomic tweezers are somewhat larger due to their main body and are partially cut (small cross grooves on the tips) for better and stable gripping. They have precise, parallel tips and are used in the medical sector to remove foreign objects. Bent, slightly angled models provide support for work in the laboratory with ergonomic positioning for high grip repetition.

Made from quality steel (nickel-plated, not anti-magnetic) or made from Stainless steel (anti-magnetic, non-corrosive and acid-resistant, non-reflective and matt-polished). The dissipative ESD coating provides a bleeder resistance of 10^6 – 10^9 ohms. Tweezers with ESD coating end with -13 in the article number.

Additional models with dissipative ESD coating on request.

The following types are available, specifications in mm:

| Art.-No. | Art.-No. | Icon | Shape | A | B | C | Ai | Angle | Material | Total length | Weight in g | |
|----------|------------|------|-------|------|----|-----|-----|-------|---------------------|---------------------|-------------|----|
| 5-106-7 | 5-106-7-13 | | PNG5 | 48 | 16 | 1 | | | stainless steel | 155 | 20 | |
| 5-107 | | | PNB2 | 22b | 45 | 18 | 10 | 16 | 60° | steel nickel-plated | 150 | 20 |
| 5-107-1 | | | PNB2 | 22b | 45 | 18 | 10 | 16 | 60° | steel lacquered | 150 | 23 |
| 5-107-6 | | | PNB2 | 22b | | 18 | 10 | 16 | 60° | steel PVC coated | 150 | 27 |
| 5-107-7 | 5-107-7-13 | | PNB2 | 22b | 45 | 18 | 10 | 16 | 60° | stainless steel | 155 | 28 |
| 5-107-9 | | | PNB2 | 22b | 45 | 18 | 10 | 16 | 60° | steel PTFE | 150 | 22 |
| 5-117 | | | PNG5 | 40 | 16 | 3 | | | steel nickel-plated | 145 | 25 | |
| 5-117-1 | | | PNG5 | 40 | 16 | 3 | | 19 | steel lacquered | 145 | 26 | |
| 5-117-5 | | | PNG5 | 40 | | 4.5 | | 22 | steel nickel-plated | 145 | 27 | |
| 5-117-6 | | | PNG5 | 40 | 16 | 3 | | 15 | steel PVC coated | 145 | 31 | |
| 5-117-7 | 5-117-7-13 | | PNG5 | 40 | 16 | 3 | | | stainless steel | 145 | 20 | |
| 5-117-9 | | | PNG5 | 40 | 16 | 3 | | | steel PTFE coated | 145 | 29 | |
| 5-119 | | | PNG5 | 40-z | 16 | 2 | | | steel nickel-plated | 140 | 19 | |
| 5-121 | | | PNG5 | 16 | 13 | 1 | | | steel nickel-plated | 120 | 14 | |
| 5-121-1 | | | PNG5 | 16 | 13 | 1 | | 14 | steel lacquered | 120 | 14 | |
| 5-121-6 | | | PNG5 | 16 | 13 | 1 | | 19 | steel PVC coated | 120 | 17 | |
| 5-121-7 | 5-121-7-13 | | PNG5 | 16 | 13 | 1 | | | stainless steel | 120 | 14 | |
| 5-121-9 | | | PNG5 | 16 | 13 | 1 | | | steel PTFE coated | 120 | 13 | |
| 5-125 | | | PNG1 | HH | 75 | 1.3 | 2.2 | | steel nickel-plated | 110 | 12 | |

| Art.-No. | Art.-No. | Icon | Shape | A | B | C | Ai | Angle | Type | Material | Total length | Weight in g | |
|-----------|-------------------|------|----------|----|-----|-----|----|-------|---|----------|-------------------------|-------------|----|
| 5-107 VDE | mechanic tweezers | | PNB2 22b | | 18 | 11 | 16 | 45° | VDE protective insulation according to VDE standard angled, fine tips, serrated | | steel PVC dip-insulated | 150 | 37 |
| 5-117 VDE | mechanic tweezers | | PNG5 40 | 16 | 3 | | 19 | | VDE protective insulation according to VDE standard straight, rounded tip, serrated | | steel PVC dip-insulated | 145 | 39 |
| 5-020 | bamboo tweezers | | PNG2 AA | | 0.6 | 1.5 | | | long slim shape, pointed, individually shapeable, non conductive, non magnetic, partly chemical resistant | | bamboo | 150 | 4 |

► 5-100

Universal tweezers set 12 pcs

in a pocket (synthetic leather)
Content: 2-126, 2-127, 2-601, 5-006, 5-107, 5-107-6, 5-117, 5-117-6, 5-121, 5-078, 5-156
Weight: 360 g



► 5-110

Universal tweezers set 3 pcs.

in a pocket (synthetic leather), anatomical and cross tweezers
Content: 5-107, 5-121, 5-155
Weight: 95 g



► 5-030-PTFE

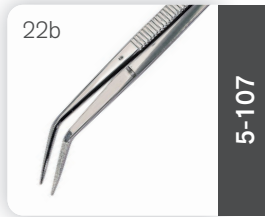
PTFE tweezers set 3 pcs

(without bag), Anatomical and cross Steel-tweezers
Content: 5-107-9, 5-117-9, 5-155-9
Weight: 80 g

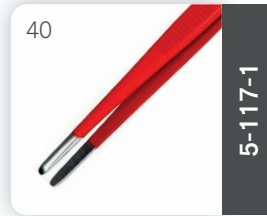
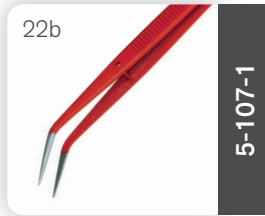




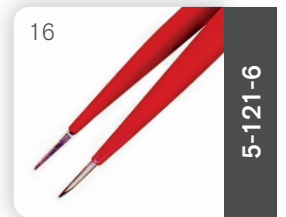
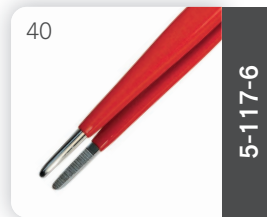
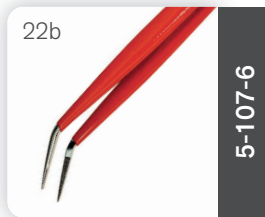
STEEL
NICKEL-
PLATED



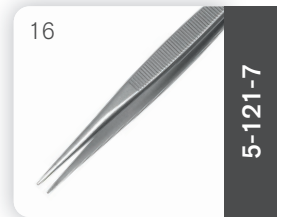
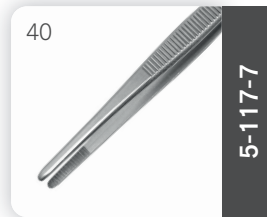
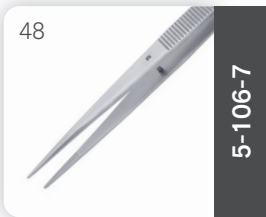
STEEL LACQUERED



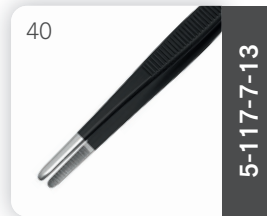
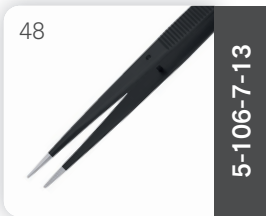
STEEL DIP INSULATED



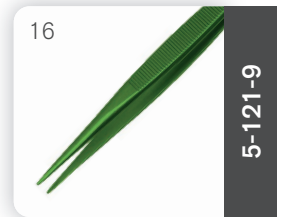
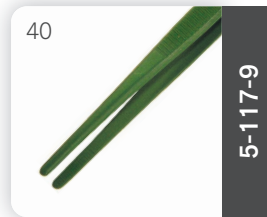
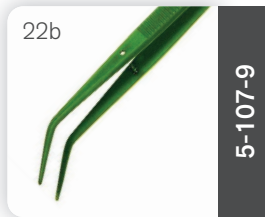
STAINLESS
STEEL



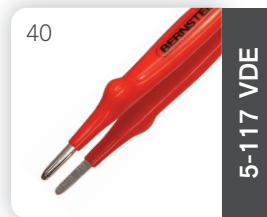
ESD COATED



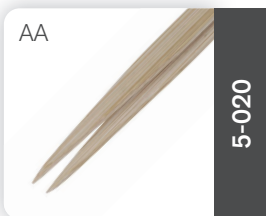
STEEL PTFE COATED



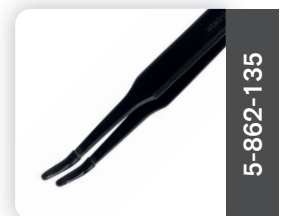
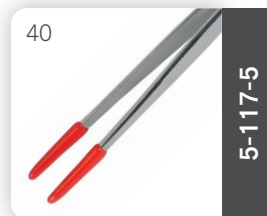
VDE DIP-INSULATED



BAMBOO



TIP ISOLATED



for more see page 9

WAFER TWEEZERS

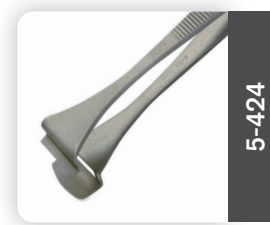
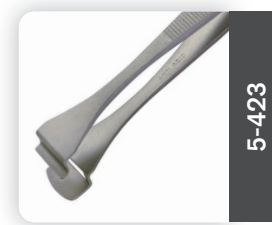
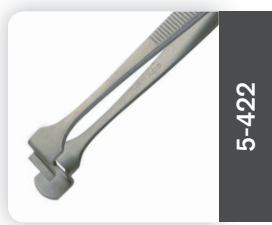
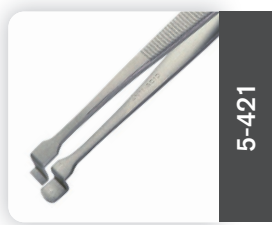
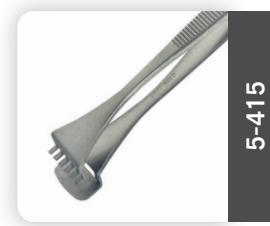
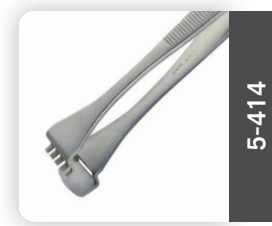
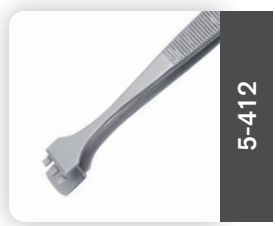
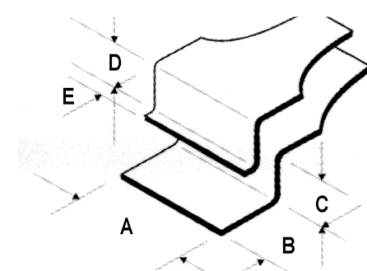
For positioning flat and thin components, such as highly sensitive and fragile wafers (glass wafers, etc.), thin PCBs and LCDs.

Made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished. The dissipative ESD coating provides a bleeder resistance of 10^6 – 10^9 ohms. Tweezers with ESD coating end with -13 in the article number.



The following types are available, specifications in mm:

| Art.-No. | Art.-No. | Icon | Type | A | B | C | D | E | F | for Wafer in inch | Total length | Weight in g |
|----------|----------|------|----------------------|------|-----|-----|-----|-----|-----|-------------------|--------------|-------------|
| 5-411 | 5-411-13 | | PW2 3 teeth, slim | 6.2 | 5.1 | 3.5 | 3.7 | 2.9 | 1 | 2 | 130 | 14 |
| 5-412 | 5-412-13 | | PW2 3 teeth | 9.8 | 8.2 | 4 | 4 | 4.2 | 1.8 | 2 | 130 | 14 |
| 5-413 | 5-413-13 | | PW2 4 teeth | 12.5 | 7.6 | 3.5 | 3.9 | 4.8 | | 3 | 130 | 17 |
| 5-414 | 5-414-13 | | PW2 5 teeth | 16.5 | 7.7 | 3 | 3.8 | 4 | 1.8 | 4-5 | 130 | 20 |
| 5-415 | 5-415-13 | | PW2 6 teeth | 20.2 | 7.9 | 3 | 3.9 | 3.8 | 1.8 | 6 | 130 | 20 |
| 5-421 | 5-421-13 | | PW1 without teeth | 6 | 6.5 | 3.6 | 4 | 3 | | 2 | 130 | 14 |
| 5-422 | 5-422-13 | | PW1 without teeth | 12.3 | 8.4 | 4 | 3.6 | 5.4 | | 3 | 130 | 17 |
| 5-423 | 5-423-13 | | PW1 without teeth | 16.4 | 7.4 | 2.8 | 3.4 | 4 | | 4-5 | 130 | 20 |
| 5-424 | 5-424-13 | | PW1 without teeth | 20.2 | 7.3 | 3.2 | 4.3 | 3.2 | | 6 | 130 | 20 |



CUTTING TWEEZERS



Made from high-quality carbon steel (INOX).

CARE INSTRUCTIONS: Carbon steel rusts in high humidity or if touched with fingers (sweat). For this reason, tweezers should always be kept dry or rubbed with oil if stored for longer periods.

If a film of rust still shapes on the tweezers or blades, it can be easily removed by lightly sanding the affected area.

The dissipative ESD coating provides a bleeder resistance of 10⁶-10⁹ ohms. Tweezers with ESD coating end with -13 in the article number.

The following types are available, specifications in mm:

| Art.-No. | Art.-No. | Icon | Shape | Type | A | B | Angle | Material | Total length | Weight in g |
|----------|----------|-------|--------|---------------------|----|-----|-------|--------------|--------------|-------------|
| 5-079 | 5-079-13 | PCUT1 | 15 AWG | for oblique cutting | 10 | 8 | 20° | Carbon steel | 115 | 25 |
| 5-879 | 5-879-13 | PCUT1 | 15 AP | for flush cutting | 10 | 8.5 | 20° | Carbon steel | 115 | 25 |

STEEL



STEEL ESD COATING

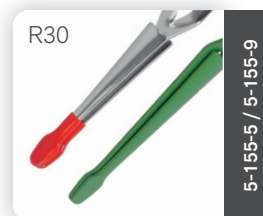
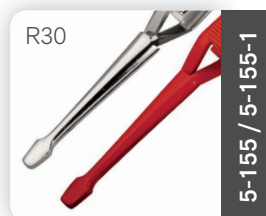
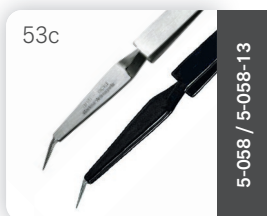
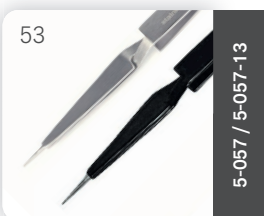
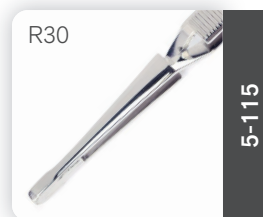
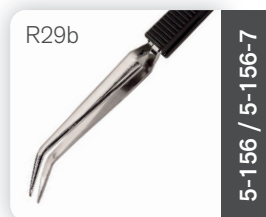
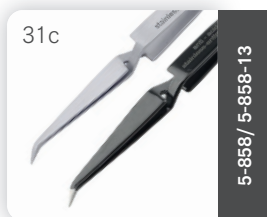


SELF-HOLDING TWEEZERS, CROSS TWEEZERS

Made from quality steel (nickel-plated, not anti-magnetic) or made from Stainless steel (anti-magnetic, non-corrosive and acid-resistant, non-reflective and matt-polished). Dissipative ESD coating available on request. Tweezers with ESD coating end with -13 in the article number.

The following types are available, specifications in mm:

| Art.-No. | Art.-No. | Icon | Shape | A | B | C | D | Ai | Angle | Material | Total length | Weight in g |
|----------|----------|------|-------|------|-----|-----|------|----|-------|---------------------|--------------|-------------|
| 5-057 | 5-057-13 | PTG1 | 53 | 10 | | 0.5 | | | | stainless-steel | 120 | 13 |
| 5-058 | 5-058-13 | PNB1 | 53c | 10 | 8 | 0.5 | | | 30° | stainless-steel | 120 | 13 |
| 5-857 | 5-857-13 | PNG1 | 31 | 48 | 0.4 | 0.8 | | | | stainless-steel | 125 | 15 |
| 5-858 | 5-858-13 | PNB1 | 31c | 6 | 6.5 | 0.7 | | | 30° | stainless-steel | 125 | 15 |
| 5-115 | | PCU1 | R30 | 12 | 4 | 7.2 | 19.5 | | | steel nickel-plated | 165 | 35 |
| 5-155 | | PFG3 | R30 | 9.5 | 5 | 3 | | | | steel nickel-plated | 160 | 35 |
| 5-155-1 | | PFG3 | R30 | 9.5 | 5 | 2.8 | | | | steel lacquered | 160 | 40 |
| 5-155-5 | | PFG3 | R30 | 10.5 | 5.9 | 5.5 | | 19 | | steel nickel-plated | 160 | 35 |
| 5-155-9 | | PFG3 | R30 | 9.5 | 5 | 2.8 | | | | steel PTFE | 160 | 40 |
| 5-156 | | PNB2 | R29b | 45 | | 10 | | 16 | 60° | steel nickel-plated | 160 | 29 |
| 5-156-7 | | PNB2 | R29b | 45 | | 10 | | 16 | 60° | stainless-steel | 160 | 29 |
| 5-157-7 | | PNG1 | R29b | | 1.3 | | | | | stainless-steel | 160 | 29 |



CHANGEABLE TIPS TWEEZERS

The body of the tweezers is made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished

Carbofib tips

Carbon-fibre reinforced plastic, electrically conductive 10^2 – 10^3 ohms, scratch-proof, fully elastic, fatigue-resistant, vibration-dampening, water-repellent, resistant to most acids, alkalis and solvents.

The following types are available, specifications in mm:

| Art.-No. | Short description | Icon | Shape | A | B | C | Angle | Material | Total length | Weight in g |
|-----------|---------------------------------------|------|-------|----|-----|-----|-------|----------------------------|--------------|-------------|
| 5-431 | ESD tweezers with changeabel tips | PAG1 | 70 CV | 26 | 1.5 | | | stainless steel / Carbofib | 125 | 17 |
| 5-431-0 | ESD replacement tips for 5-431 (pair) | PAG1 | 70 CV | | | | | Carbofib | 42 | 2 |
| 5-432 | ESD tweezers with changeabel tips | PAG3 | 72 CV | 26 | 2 | | | stainless steel / Carbofib | 125 | 17 |
| 5-432-0 | ESD replacement tips for 5-432 (pair) | PAG3 | 72 CV | | | | | Carbofib | 42 | 2 |
| 5-433 | ESD tweezers with changeabel tips | PAG3 | 74 CV | 26 | 1.2 | | | stainless steel / Carbofib | 125 | 17 |
| 5-433-0 | ESD replacement tips for 5-433 (pair) | PAG3 | 74 CV | | | | | Carbofib | 42 | 2 |
| 5-434 | ESD tweezers with changeabel tips | PAG1 | 76 CV | 26 | 0.6 | | | stainless steel / Carbofib | 125 | 17 |
| 5-434-0 | ESD replacement tips for 5-434 (pair) | PAG1 | - | | | | | Carbofib | 42 | 2 |
| NEW 5-436 | ESD tweezers with changeabel tips | PAB1 | 82 CV | 25 | 15 | 1 | | stainless steel / Carbofib | 125 | 18 |
| 5-436-0 | ESD replacement tips for 5-436 (pair) | PAB1 | - | | | | | Carbofib | 42 | 2 |
| NEW 5-437 | ESD tweezers with changeabel tips | PAB2 | 84 CV | 20 | | 1.6 | 45° | stainless steel / Carbofib | 125 | 18 |
| 5-437-0 | ESD replacement tips for 5-437 (pair) | PAB2 | - | | | | | Carbofib | 42 | 2 |



Delrin tips

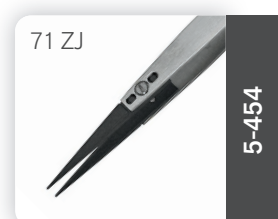
Universal plastic, fully insulating for 10^{13} and 10^{15} ohms, excellent technical properties, low frictional resistance, good abrasion resistance, excellent spring power, high fatigue strength, high dielectric strength, low dielectric dissipation factor, good chemical resistance, particularly to solvents, very resistant to stress crack shapeation.

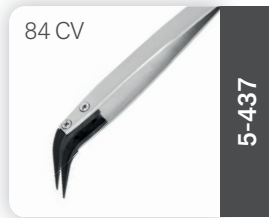
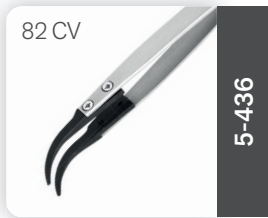
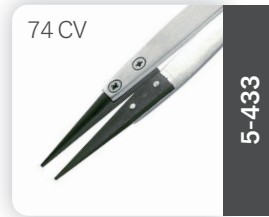
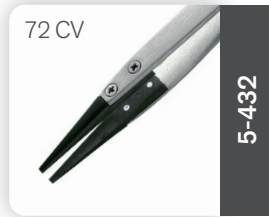
The following types are available, specifications in mm:

| Art.-No. | Short description | Icon | Shape | A | B | Material | Total length | Weight in g |
|----------|---|------|-------|----|-----|----------------------------|--------------|-------------|
| 5-441 | Delrin tweezers | PAG1 | 70 DV | 26 | 1.4 | stainless steel / Delrin | 125 | 17 |
| 5-441-0 | Delrin replacement tips for 5-441 (pair) | PAG1 | - | | | Delrin | 42 | 2 |
| 5-443 | Delrin tweezers | PAG3 | 74 DV | 26 | 1.1 | stainless steel / Delrin | 125 | 17 |
| 5-443-0 | Delrin replacement tips for 5-443 (pair) | PAG3 | - | | | Delrin | 42 | 2 |
| 5-452 | ESD ceramic tweezers | PAG3 | 2 AZJ | 25 | 1.8 | stainless steel / Zirconia | 125 | 17 |
| 5-452-0 | ESD ceramic replacement tips for 5-452 (pair) | PAG3 | - | | | Zirconia | 42 | 2 |
| 5-454 | ESD ceramic tweezers | PAG2 | 71 ZJ | 30 | 0.7 | stainless steel / Zirconia | 125 | 17 |
| 5-454-0 | ESD ceramic replacement tips for 5-454 (pair) | PAG2 | - | | | Zirconia | 42 | 2 |

Ceramic tips

Conductive between 10^6 and 10^9 ohms, highly wear-resistant ceramic (zirconium), excellent mechanical and thermal properties, heat-resistant up to 800 °C, solder-repellent, coefficient of thermal expansion 10×10^{-6} K⁻¹, thermal conductivity 2 W/mK, resistant to acids and solvents.





PLASTIC TWEEZERS

ESD tweezers made of conductive, black, glass fibre reinforced plastic material (Vestamid) which is antimagnetic, resistant to acids, usable at temperatures up to 175 °C and free of silicone and Armin.

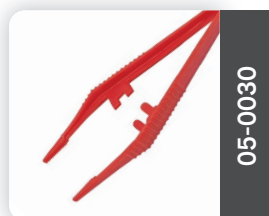
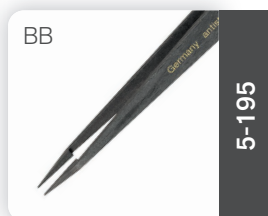
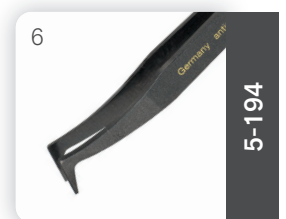
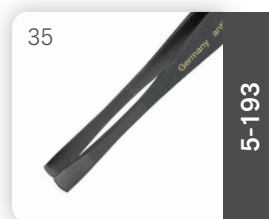
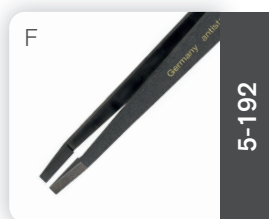
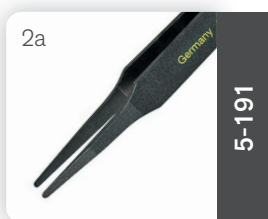
The precisely matched tip closure allows components to be held optimally at a constant pressure.

Conductive between 10^3 and 10^5 ohm.

The following types are available, specifications in mm:



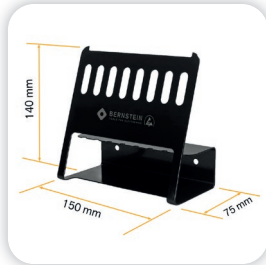
| Art.-No. | Short description | Icon | Shape | A | B | C | Angle | Material | Total length | Weight in g |
|----------|--------------------------------|------|-------|------|------|-----|-------|----------|--------------|-------------|
| 5-191 | ESD plastic precision tweezers | PTG4 | 2a | 35 | 2 | 0.6 | | PA | 120 | 5 |
| 5-192 | ESD plastic precision tweezers | PNG4 | F | 11.2 | 3.2 | | | PA | 120 | 5 |
| 5-193 | ESD plastic precision tweezers | PFG2 | 35 | 5 | 6.35 | 1 | | PA | 120 | 5 |
| 5-194 | ESD plastic precision tweezers | PTB3 | 6 | | 12 | | 16° | PA | 120 | 5 |
| 5-195 | ESD plastic precision tweezers | PNG3 | BB | 13 | 0.65 | | | PA | 120 | 5 |
| 05-0030 | plastic tweezers | PNG5 | - | 14 | 3 | | | PP | 130 | 6 |





ESD TWEEZERS SETS WITH HOLDER

► 5-090-V



ESD plastic precision tweezers set VARIO 5 pcs

Content: 5-090-0 ESD tool holder VARIO

- 5-191 ESD plastic tweezers 120 mm, shape 2a, tips 2 mm wide
 - 5-192 ESD plastic tweezers 120 mm, shape F, tips 3 mm wide
 - 5-193 ESD plastic tweezers 120 mm, shape 35, tips 6 mm wide
 - 5-194 ESD plastic tweezers 120 mm, shape 6, hook tip
 - 5-195 ESD plastic tweezers 120 mm, shape BB, very fine tips
- Conductive tweezers $10^3 - 10^5$ Ohm
 Tweezers material Vestamid PA12 L-Polyamid 12 (clean room usable)
 Holder steel, ESD powder coated RAL9005, dissipative $10^5 - 10^9$ Ohm
 Weight: 390 g



► 5-190-V



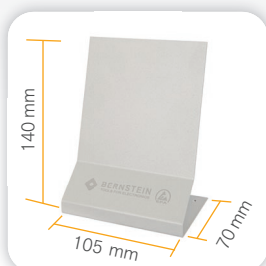
ESD plastic precision tweezers set VARIO 6 pcs

Content: 5-090-0 ESD tool holder VARIO

- 5-191 ESD plastic tweezers 120 mm, shape 2a, tips 2 mm wide
 - 5-192 ESD plastic tweezers 120 mm, shape F, tips 3 mm wide
 - 5-193 ESD plastic tweezers 120 mm, shape 35, tips 6 mm wide
 - 5-194 ESD plastic tweezers 120 mm, shape 6, hook tip
 - 5-195 ESD plastic tweezers 120 mm, shape BB, very fine tips
 - 5-454 ESD ESD changeable ceramic tweezers tips 0.7 width
- Conductive tweezers $10^3 - 10^5$ Ohm, 5-454 dissipative $10^5 - 10^9$
 Tweezers material Vestamid PA12 L-Polyamid 12 (clean room usable)
 Holder steel, ESD powder coated RAL9005, dissipative $10^5 - 10^9$ Ohm
 Weight: 390 g



► 5-180



ESD plastic precision tweezers set 5 pcs

Content: 5-180-0-ST ESD tool holder ZEE

- 5-191 ESD plastic tweezers 120 mm, shape 2a, tips 2 mm wide
 - 5-192 ESD plastic tweezers 120 mm, shape F, tips 3 mm wide
 - 5-193 ESD plastic tweezers 120 mm, shape 35, tips 6 mm wide
 - 5-194 ESD plastic tweezers 120 mm, shape 6, hook tip
 - 5-195 ESD plastic tweezers 120 mm, shape BB, very fine tips
- Conductive tweezers $10^3 - 10^5$ Ohm
 Tweezers material Vestamid PA12 L-Polyamid 12 (clean room usable)
 Holder steel, ESD powder coated RAL7035, conductive $10^4 - 10^6$ Ohm
 Weight: 216 g



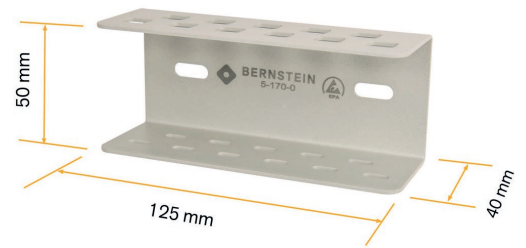
▶ 5-170-0

**ESD tweezers holder TWEEZ**

made of steel, ESD powder coated RAL7035
conductive $10^4 - 10^5$ Ohm
storage of up to 11 tweezers or other suitable tools
clearly arranged and ready to hand at any time
for standing or hanging
Weight: 170 g



approx. 125 x 40 x 50 mm
(dimensions for orientation)



NEW

▶ 5-170

**ESD SMD tweezers set 11 pcs**

Content: 5-170-0 ESD tweezers holder TWEEZ

5-048-13 ESD tweezers 110 mm, shape 5, very pointed
5-055-13 ESD tweezers 120 mm, shape 7a, angle 40°
5-059-13 ESD tweezers 120 mm, shape 2a
5-066-13 ESD tweezers 120 mm, shape 8b, angle 30°
5-067-13 ESD tweezers 120 mm, shape 12, angle 45°
5-068-13 ESD tweezers 120 mm, shape 13, angle 45°
5-069-13 ESD tweezers 115 mm, shape 5abb-Z, angle 30°, serrated
5-079-13 ESD Schneidpinzette (schräg) 115 mm, shape 15, AGW
5-191 ESD plastic tweezers 120 mm, shape 2a, tips 2 mm wide
5-192 ESD plastic tweezers 120 mm, shape F, tips 3 mm wide
5-194 ESD plastic tweezers 120 mm, shape 6, Hakenspitze
Conductive plastic tweezers $10^3 - 10^5$ Ohm
Tweezers material Vestamid PA12 L-Polyamid 12 (clean room usable)
Dissipative steel tweezers $10^6 - 10^9$ Ohm
Tweezers material stainless steel, ESD powder coated RAL9005
Holder steel, ESD powder coated RAL7035, conductive $10^4 - 10^5$ Ohm
Weight: 530 g



NEW

▶ 5-170-G

**ESD SMD tweezers set geometrisch 11 pcs**

Content: 5-170-0 ESD tweezers holder TWEEZ

5-048-13 ESD tweezers 110 mm, shape 5, very pointed
5-055-13 ESD tweezers 120 mm, shape 7a, angle 40°
5-059-13 ESD tweezers 120 mm, shape 2a
5-062-13 ESD tweezers, 115 mm, shape 59, angle 35°
5-063-13 ESD tweezers, 115 mm, shape 58, angle 35°
5-064-13 ESD tweezers, 120 mm, shape 54
5-065-13 ESD tweezers, 120 mm, shape 50
5-066-13 ESD tweezers 120 mm, shape 8b, angle 30°
5-067-13 ESD tweezers 120 mm, shape 12, angle 45°
5-068-13 ESD tweezers 120 mm, shape 13, angle 45°
5-069-13 ESD tweezers 115 mm, shape 5abb-Z, angle 30°, serrated
Dissipative tweezers $10^6 - 10^9$ Ohm
Tweezers material stainless steel, ESD powder coated RAL9005
Holder steel, ESD powder coated RAL7035, conductive $10^4 - 10^5$ Ohm
Weight: 530 g



NEW

TERMS OF SALE AND DELIVERY

GENERAL

The nature and scope of delivery are specified in the order confirmation. The following delivery terms shall apply to all deliveries to be carried out by us. Purchasing conditions of the customer do not oblige us, even if we do not expressly contradict this. Verbal or by intercom agreements made require our written confirmation. Obvious mistakes in offers, order confirmations, etc. are expressly reserved and can be considered at any time. We are entitled to process any data relating to the business relationship or in connection with the same concerning buyers, whether the buyer itself or third parties, within the framework of the Federal Data Protection Act.

OFFER

Our offers are permissive, an order is deemed to be granted if confirmed by us in writing. PRICES, DELIVERY BASIS AND PACKAGING Unless otherwise agreed, the prices in Euros, ex works, are exclusive packaging. In the case of special packaging regulations of the customer, the additional costs involved are invoiced. Packaging is not accepted.

DELIVERY

The delivery takes place at the expense and risk of the buyer without regard to who bears the freight costs. We reserve the right to place orders in partial deliveries. For custom-made products, excess or short deliveries of up to 10% are permitted.

DELIVERY TIME

The delivery time begins upon receipt of all information required for the execution of the order. We endeavor to comply with the delivery time specified in the order confirmation. No claims of any kind can be asserted from a delayed delivery.

COMPLAINTS

Complaints can only be accepted within 8 days after receiving of the goods.

The shape and colour of the tool may differ from the item shown in the catalogue.

GUARANTEE

For all BERNSTEIN tools, which are unusable due to proven material or manufacturing defects, we deliver within one year after deliver a replacement. This free replacement service is excluded if the tools have become unusable due to natural wear or improper handling.

DISCLAIMER

We do not assume any guarantee for the suitability of our products for the intended purpose of the customer. For damages caused by unsuitable or improper use, commissioning by the customer or third parties, and for the natural wear and tear we assume no guarantee. Any claims for damages, irrespective of the legal basis, as well as, in particular, the liability by tort (product liability) are excluded to the extent permitted by law.

PAYMENT

Our invoices are payable 30 days net, unless otherwise agreed in the order confirmation.

RESERVATION OF TITLE

We reserve the title to all goods delivered by us until the buyer has paid all claims arising from the business relationship. The buyer is entitled to resell the reserved goods in ordinary business transactions. In the case of resale, the buyer has to reserve the ownership of the sold goods on the same terms as his customer. The purchaser hereby assigns to us the purchase price claim against the buyer from the resale.

FULFILLMENT AND JURISDICTION

Place of performance and jurisdiction for delivery and payment is Remscheid. In any case, only German law shall apply, with the exclusion of any foreign law.

ONLINE DISPUTE RESOLUTION

The European Commission provides a platform for online dispute resolutions (ODR) which can be accessed at

<https://ec.europa.eu/consumers/odr/> .

In order to settle dispute arising from a contractual relationship with a consumer or from whether such a contractual relationship exists at all, we will participate in dispute settlement proceedings before a consumer dispute resolution body. Consumers can contact their national European Consumer Centre in this regard. The respective contact details of the individual ECCs can be found at

<https://www.evz.de/en/alternative-dispute-resolution/adr-in-eu-rope/>.



A little story about
the word amber (BERNSTEIN)

The greek word for amber is „elektron“: the root of today's term electronics. Even the greeks discovered the special feature of amber: by rubbing the natural amber can be electrostatically charged. The charged stone can attract dust particles.

Today you can use this property to check the authenticity of an amber. If it is real, it can be tested through charge rubbing on a cotton cloth.

You can also wear it as jewellery:
it should protect from evil magic and give joy of life.

Just like our high-quality BERNSTEIN
ESD Tools - them protect against
electrostatics and give joy with
the daily work.

(Autor Max Walter Hartmut Blombach)

BERNSTEIN

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