BERNSTEIN
TOOLS FOR ELECTRONIC

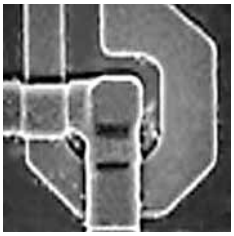
ESD Tools for Electronic



Why ESD Tools

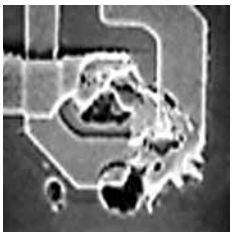
High potential differences lead to electrostatic discharge - ESD.

Electrostatical discharges are causing heavy damages while working at resp. with electronical components.
Consequently components as well as electronical units etc. have to be protected against electrostatical discharges (ESD). As injuries resulting from these discharges are not always visible immediately they can finally produce "latent failures" in transistors and circuit boards.



Semiconductor
before
ESD-Crash

Components with "latent failures" or "walking wounded" are not directly damaged. They are only wounded.
Breakdowns resp. reduced performances first occur later with the consequence of guarantee cases in much bigger dimensions.



Semiconductor
after
ESD-Crash

In order to avoid uncontrolled discharges professional dissipative equipment around the operation area is absolutely necessary.
Due to the importance of the so called EPA area (electrostatical protected area) the entrance is only allowed for persons dissipative equipped and dressed. Only so the controlled discharging to ground is ensured.

In the majority of cases the hand tools are the connection between human and assembly. For this reason there is a high standard demand to the hand tools in order to protect human and assembly.

Conclusion:
Using high quality ESD hand tools is always a basic requirement and always a right economical decision.



Symbol for an ESD protection device – EPA



Symbol for an Electrostatical Protected Area



Warning symbol denoting a device's susceptibility to electrostatic discharge



Symbol of an ESD grounding point for all components

Bernstein ESD Hand Tools

As a tool manufacturer with a long tradition Bernstein provides for those operations an almost complete range of high quality ESD hand tools.
ESD pliers and ESD screwdrivers are equipped with dissipative handles. ESD tweezers and ESD vices are coated with a high grade dissipative powder burnt in by 200° Celsius.



All ESD tools are manufactured according to ESD standard IEC 61340-5-1. Accordingly the surface resistance range of all Bernstein ESD tools correspond to the optimum targets between 106 and 109 Ohm. This resistance area guarantees a "soft discharge" in a defined time space for human and assembly and prevents damages on sensitive components.

Those tools may not be used in cases of existing tension!
For those applications BERNSTEIN offers a range of isolated tools according VDE-rules.

conductive	static dissipative	antistatic	insulating
10^3	10^5	10^{12}	10^{20}

The common values for surface resistance in EPA´s are:

conductive
Surface resistance between < 1 x 10^3 Ohm and > 1 x 10^5 Ohm

dissipative
Surface resistance between < 1 x 10^5 Ohm and 1 x 10^{12} Ohm

The bigger the electrical resistance the stronger the discharge is reduced. The lower the resistance the faster the discharge takes place.

EPA 6900 ELECTRONIC SERVICE CASE

the service case for maintenance and installation tasks in ESD protected areas



EPA ELECTRONIC SERVICE CASE

the service case made from conductive material for maintenance and installation tasks in ESD protected areas with a full assortment of special ESD-tools. For use at electrostatically endangered components and plants.

6900 BERNSTEIN **EPA with tool set**

6915 BERNSTEIN **EPA without tool set**

The body of the case, the tool trays as well as the bottom tray with adjustable partitions are made from conductive material according to DIN EN IEC Norm 10 00 15 part 5. The tools of this set have been tested with good results by several testing laboratories adequate to DIN EN 61340-5-1, 61340-2-1, 61340-2-3 for work in ESD protected areas. The sturdy shells are pressed with the stable double aluminium frame.

32 tools are clearly arranged on two tool trays, one of it on both sides. The lid of the case has a pocket for documentations etc.
The bottom tray allows with its partitions a clear arrangement of additional tools and instruments. The case has two locks.

Outside dimensions: 460 x 310 x 165 mm | Weight without tools: 5.400 kg | Weight with tools: 6.280 kg

No.	Description of individual tools
2-101	**Tin knife** with ceramic blade, 115 mm
2-265	**2 Test prods**, red and black, extremely slim, pointed and flexible, blade made from 1 mm steel wire
2-620	**PLCC extractor**
3-654-15	**Side cutters** EUROline-Conductive, 125 mm, for soft wire up to 1.5 mm Ø, for hard wire up to 0.4 mm Ø, slim rounded head, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard
3-671-15	**End cutters EUROline-Conductive**, 130 mm, for soft wire up to 0.8 mm Ø, extremely slim, straight, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard
3-682-15	**Flat nose pliers EUROline-Conductive**, 130 mm, extremely slim, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard
3-133-13	**Side cutters**, 145 mm, for soft wire up to 2.5 mm Ø, for hard wire up to 1.25 mm Ø, chrome-plated, conductive black hand guard
3-245-13	**Telephone pliers**, 200 mm, snipe nose, with cutting edge for hard wire, chrome-plated, dissipative black hand guard
3-732-13	**Combination pliers**, 165 mm, chrome-plated, dissipative black hand guard
4-603	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 50 x 1.5 mm
4-605	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 60 x 2.0 mm
4-606	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 60 x 2.5 mm
4-621	**Cross-recess screwdriver** size 000, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip
4-622	**Cross-recess screwdriver** size 00, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip
4-623	**Cross-recess screwdriver** size 0, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip
4-632	**Slotted screwdriver** with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, 100 x 4.0 mm
4-633	**Slotted screwdriver** with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, 125 x 5.5 mm
4-662	**Cross-recess screwdriver** Pozidriv size 1, with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, blade length 80 mm
4-663	**Cross-recess screwdriver** Pozidriv size 2, with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, blade length 100 mm
5-191	**Tweezers**, made from conductive and acid-resistant black plastic material, reinforced with glass fibre, 120 mm, with straight, rounded tips
5-192	**Tweezers**, made from conductive and acid-resistant black plastic material, reinforced with glass fibre, 120 mm, with straight, 3 mm flat-hand tips
5-194	**Tweezers**, made from conductive and acid-resistant black plastic material, reinforced with glass fibre, 120 mm, with bent, pointed tips
6-612	**Socket wrench** with dissipative handle, blade from chrome vanadium, nickel-plated, A/F 2.0 mm
6-617	**Socket wrench** with dissipative handle, blade from chrome vanadium, nickel-plated, A/F 4.0 mm
6-621	**Socket wrench** with dissipative handle, blade from chrome vanadium, nickel-plated, A/F 5.5 mm
6-659	**TORX-screwdriver** T 4, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip
6-661	**TORX-screwdriver** T 5, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip
6-662	**TORX-screwdriver** T 6, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip
6-663 L	**TORX-screwdriver** T 7 with hole, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip
6-665 L	**TORX-screwdriver** T 9 with hole, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip
7-422	**ESD brush**, bristles width 20 mm

To complete the set we recommend:

9-316/5	**5 Chip-Container**, conductive box with lid, black, internal dimensions: 118 x 32 x 14 mm
9-356	**ESD-Handling-Set**, foldable, with contact bracelet and earth wire
4-643	**Extra long slotted screwdriver** with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, 300 x 5.5 mm
4-656	**Extra long cross-recess screwdriver PH** size 1, with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, blade length 300 mm
4-657	**Extra long cross-recess screwdriver PH** size 2, with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, blade length 300 mm
6-675 L	**Extra long TORX-screwdriver** T 10 with hole, with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, blade length 300 mm
6-676 L	**Extra long TORX-screwdriver** T 15 with hole, with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, blade length 300 mm
6-677 L	**Extra long TORX-screwdriver** T 20 with hole, with dissipative special-square pattern handle, blade from chrome vanadium, chrome-plated, with black tip, blade length 300 mm

ESD PROFI-SET TRENDY 2280 AND 2285

the professionel kit for ESD-Specialists for local and mobile use



2280 BERNSTEIN **ESD Profi-Set TRENDY with 20 tools and ESD handling set**

2285 BERNSTEIN **ESD Profi-Set TRENDY with 20 tools**



selected ESD-tools in handy plastic case made from conductive material. The tools are clearly arranged in accurate-sized cutouts in conductive hardfoam.
For individual accessories are one resp. two empty cutouts available.

Outside dimensions: 350 x 310 x 65 mm (when closed)

No.	Description of individual tools	Weight : 1.650 / 1.500 kg
2-620	**PLCC extractor**	
3-133-13	**Side cutters**, 145 mm, for soft wire up to 2.5 mm Ø, for hard wire up to 1.25 mm Ø, chrome-plated, conductive black hand guard	
3-651-15	**Mini side cutters EUROline-Conductive**, 120 mm, without sideface, for soft wire up to 1.5 mm Ø, medium hard wire up to 0.8 mm Ø, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard	
3-682-15	**Flat nose pliers EUROline-Conductive**, 130 mm, finish as above	
3-683-15	**Snipe nose pliers EUROline-Conductive**, 130 mm, short jaws, finish as above	
4-601	**Slotted screwdriver** 50 x 0.8 mm, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
4-603	**Slotted screwdriver** 50 x 1.5 mm, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
4-605	**Slotted screwdriver** 60 x 2.0 mm, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
4-621	**Cross-recess screwdriver** size 000, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
4-622	**Cross-recess screwdriver** size 00, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
4-623	**Cross-recess screwdriver** size 0, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
5-049-13	**SMD-tweezers**, 110 mm, straight, very sharply pointed, ESD-coating	
5-055-13	**SMD-tweezers**, 120 mm, sickle-shaped, very sharply pointed, ESD-coating	
5-059-13	**SMD-tweezers**, 120 mm, flat, rounded tips, 2.0 mm width, as above	
6-661	**TORX screwdriver** T 5, with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip	
6-662	**TORX screwdriver** T 6, with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip	
6-663 L	**TORX screwdriver** T 7, with bore-hole in the tip, with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip	
7-422	**ESD brush**, bristles width 20 mm	
9-354	**ESD handling set** (only in set 2280), consisting of: foldable, green workbench pad (surface resistance according to DIN 53482: approx. 10^8 ohm), 500 x 400 x 0.35 mm, contact bracelet with spiral cord, earth wire 2500 mm long with 1 Mohm safety resistor including crocodile clip	

ESD TOOL SETS

ESD Tool Sets for various operations in ESD areas, in handy cases from conductive material.
The tools are clearly arranged in accurate-sized cutouts in conductive hardfoam.





2230 BERNSTEIN ESD Tool Set ELITE with 20 tools

Outside dimensions: 250 x 210 x 60 mm (when closed)

No.	Description of individual tools	Weight: 0.870 kg
3-651-15	**Mini side cutters EUROline-Conductive**, 120 mm, without sideface, for soft wire up to 1.5 mm Ø and medium hard wire up to 0.8 mm Ø, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard	
3-672-15	**End cutters EUROline-Conductive**, 130 mm, for soft wire up to 1.5 mm Ø and medium hard wire up to 0.8 mm Ø, cutting edge 20° angular, finish as above	
3-682-15	**Flat nose pliers EUROline-Conductive**, 130 mm, finish as above	
3-683-15	**Snipe nose pliers EUROline-Conductive**, 130 mm, short jaws, finish as above	
4-901	**ESD-handle** from dissipative material, with metal clamping sleeve for follow ing reversible blades:	
4-905	**Hex blade** slotted 1.5 / 3.0 mm, matt chrome-plated, black tip	
4-906	**Hex blade** slotted 2.0 / 3.5 mm, matt chrome-plated, black tip	
4-907	**Hex blade** slotted 2.5 / 4.0 mm, matt chrome-plated, black tip	
4-911	**Hex cross-recess blade** PH 000 / PH 00, matt chrome-plated, black tip	
4-912	**Hex cross-recess blade** PH 0 / PH 1, matt chrome-plated, black tip	
4-921	**Hex cross-recess blade** TORX T 5 / T 6, matt chrome-plated, black tip	
4-922 L	**Hex cross-recess blade** TORX T 7 / T 8, with bore hole, matt chrome-plated, black tip	
4-923 L	**Hex cross-recess blade** TORX T 9 / T 10, with bore hole, matt chrome-plated, black tip	
5-049-13	**SMD-tweezers**, 110 mm, straight, very shaply pointed, with ESD-coating	
5-055-13	**SMD-tweezers**, 120 mm, sickle-shaped, very sharply pointed, as above	
5-059-13	**SMD-tweezers**, 120 mm, flat, rounded tips, 2.0 mm width, as above	
5-067-13	**SMD-tweezers**, 120 mm, tip 45° angled, 2.0 mm width, with ESD-coating	
5-068-13	**SMD-tweezers**, 120 mm, tip angled, 1,6 mm width , with ESD-coating	
5-078-13	**SMD-tweezers**, 130 mm, tapering, chisel, 1.0 mm width, as above	
7-422	**ESD-brush**, bristles width 20 mm	

2210 BERNSTEIN 6-piece ESD tool set PRECISE

Outside dimensions: 178 x 160 x 42 mm (when closed)

No.	Description of individual tools	Weight: 0.390 kg
3-653-15	**Mini side cutters EUROline-Conductive** with very slim, pointed head and special flat cutting edge, 120 mm, without side face, for soft wire up to 1.5 mm and medium hard wire up to 0.8 mm Ø, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard	
5-055-13	**SMD-tweezers**, 120 mm, sickle-shaped, very sharply pointed with ESD-coating	
5-062-13	**SMD-tweezers**, 115 mm, 35° angled, 2.0 mm width, with gripping cavity Ø 0.8 mm, with ESD-coating	
5-065-13	**SMD-tweezers**, 120 mm, straight, 3 mm width, with gripping cavity Ø 0.8 mm, with ESD-coating	
5-066-13	**SMD-tweezers**, 120 mm, 30° angled, 2.5 mm width, with ESD-coating	
5-068-13	**SMD-tweezers**, 120 mm, tip angled, 1.6 mm width, with ESD-coating	



ELECTRONIC-SERVICE TOOL SETS

special service sets for the maintenance and repairing of mobile phones and other high sensitive IT–Instruments

The tools are clearly arranged in cases made from dissipative black imitation leather, with zip fastener.
2251 Case with zip fastener, without tools, Outside dimensions: 190 x 135 x 35 mm (when closed)

2250 BERNSTEIN CARAT

9-piece set dissipative tools from the series EUROline-Conductive to meet highest quality standards.



No.	Description of individual tools	Weight: 0.360 kg
3-672-15	**End cutters EUROline-Conductive**, 130 mm, for soft wire up to 0.8 mmØ, cutting edge 20° angular, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard	
3-683-15	**Snipe nose pliers EUROline-Conductive**, 130 mm, plain jaws, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard	
4-601	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 50 x 0.8 mm	
4-603	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 50 x 1.5 mm	
4-621	**Cross-recess screwdriver** size 000, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
4-623	**Cross-recess screwdriver** size 0, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
5-191	**Tweezers**, made from conductive and acid-resistant black plastic material, reinforced with glassfibre, 120 mm, with straight, rounded tips	
6-661	**TORX-screwdriver** T 5, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
6-663 L	**TORX-screwdriver** T 7, with bore-hole in the tip, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	

2270 BERNSTEIN ACCENT

9-piece set dissipative tools with bright steel polished pliers

No.	Description of individual tools	Weight: 0.360 kg
3-601-13	**Side cutters**, 120 mm, for soft wire up to 1.5 mm and hard wire up to 0.4 mm Ø, bright steel-polished, box joint, double leaf spring, with dissipative black hand guard	
3-633-13	**Snipe nose pliers**, 120 mm, plain jaws, bright steel-polished, box joint, double leaf spring, with dissipative black hand guard	
4-601	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 50 x 0.8 mm	
4-603	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 50 x 1.5 mm	
4-621	**Cross-recess screwdriver** size 000, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
4-623	**Cross-recess screwdriver** size 0, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
5-191	**Tweezers**, made from conductive and acid-resistant black plastic material, reinforced with glassfibre, 120 mm, with straight, rounded tips	
6-661	**TORX-screwdriver** T 5, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
6-663 L	**TORX-screwdriver** T 7, with bore-hole in the tip, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	





3-680 BERNSTEIN EUROline-Conductive set of pliers

4-piece set dissipative pliers from the series EUROline-Conductive to meet highest quality standards

No.	Description of individual tools	Weight: 0.390 kg
3-651-15	**Mini side cutters EUROline-Conductive**, 120 mm, without sideface, for soft wire up to 1.5 mm and medium hard wire up to 0.8 mm Ø, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard	
3-672-15	**End cutters EUROline-Conductive**, 130 mm, for soft wire up to 0.8 mm Ø, cutting edge 20° angular, box joint, double leaf spring, fine polished and bright burnished, dissipative bicoloured hand guard	
3-682-15	**Flat nose pliers EUROline-Conductive**, 130 mm, plain jaws, finish as before	
3-683-15	**Snipe nose pliers EUROline-Conductive**, 130 mm, plain jaws, finish as before	

ELECTRONIC-SERVICE TOOL SETS

the tool sets for mobile use at electrostatically endangered components

2220 BERNSTEIN SERVICE-SET ANTISTATIC



2221 Case with zip fastener, without tools

Elegant zipper case, made from dissipative black imitation leather and dissipative pockets for 12 ESD-tools and foldable ESD-workbench pad with accessories.

Outside dimensions: 320 x 250 x 50 mm (when closed)

No.	Description of individual tools	Weight with tools: 0.950 kg
2-620	**PLCC-extractor**	
3-601-13	**Side cutters**, 120 mm, for soft wire up to 1.5 mm Ø and hard wire up to 0.4 mm Ø, bright steel-polished, box joint, double leaf spring, with dissipative black hand guard	
3-632-13	**Flat nose pliers**,120 mm, plain jaws, bright steel-polished, box joint, double leaf spring, with dissipative black hand guard	
3-633-13	**Snipe nose pliers**, 120 mm, plain jaws, bright steel-polished, box joint, double leaf spring, with dissipative black hand guard	
4-601	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 50 x 0.8 mm	
4-605	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 60 x 2.0 mm	
4-606	**Slotted screwdriver** with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip, 60 x 2.5 mm	
4-621	**Cross-recess screwdriver** size 000, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
4-622	**Cross-recess screwdriver** size 00, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
4-623	**Cross-recess screwdriver** size 0, with dissipative handle, blade from chrome vanadium, chrome-plated, with black tip	
5-191	**Tweezers**, made from conductive plastic material, reinforced with glass fibre, 120 mm, with straight, rounded tips	
5-192	**Tweezers**, made from conductive plastic material, reinforced with glass fibre, 120 mm, with straight, 3 mm flat-hand tips	
9-354	**ESD-handling-set**, consisting of: foldable green workbench pad (surface resistance according to DIN 53482: approx.10^8 ohm), 500 x 400 x 0.35 mm, contact bracelet 9-342, earth wire 2500 mm long with 1 Mohm safety resistor	

2300 BERNSTEIN ESD Service-Set



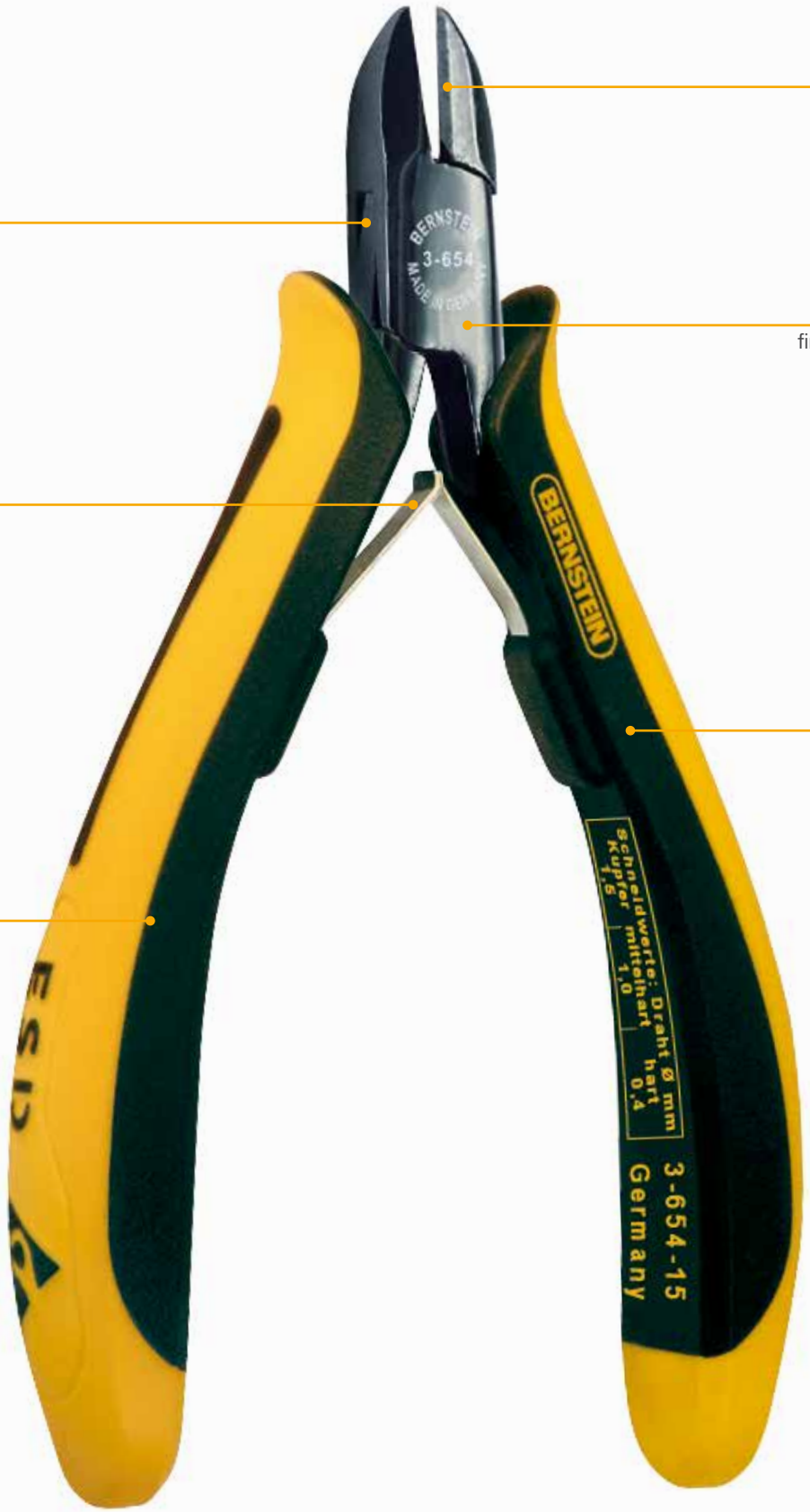
The green tool folder serves as an electrical dissipative workbench pad of 680 x 680 x 0.35 mm. The surface resistance according to DIN 53482 is approx. 10^8 ohm. The workbench pad has 3 press-stud receptacles for connecting the contact bracelet and the earth wire. With 2 additional press-buttons the pad may be closed as tool bag. The 2 patch pockets carry the contact bracelet and the earth wire. Furthermore 16 dissipative tools are placed in pockets, ready to hand.

Outside dimensions: 330 x 240 x 20 mm (when closed)

No.	Description of individual tools	Weight with tools: 0.850 kg
2-166	**Glass fibre contact cleaner**, with rotary mechanism, plastic casing	
2-620	**PLCC-extractor**	
3-601-13	**Side cutters**, 120 mm, for soft wire up to 1.5 mm Ø and hard wire up to 0.4 mm Ø, bright steel-polished, box joint, double leaf spring, with dissipative black hand guard	
3-633-13	**Snipe nose pliers**, 120 mm, plain jaws, bright steel-polished, box joint, double leaf spring, with dissipative black hand guard	
4-601	**Slotted screwdriver** with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip, 50 x 0.8 mm	
4-605	**Slotted screwdriver** with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip, 60 x 2.0 mm	
4-606	**Slotted screwdriver** with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip, 60 x 2.5 mm	
4-621	**Cross-recess screwdriver** size 000, with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip	
4-622	**Cross-recess screwdriver** size 00, with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip	
4-623	**Cross-recess screwdriver** size 0, with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip	
5-191	**Tweezers** made from conductive, black plastic material, reinforced with glass fibre, 120 mm, with rounded tips	
5-194	**Tweezers** made from conductive, black plastic material, reinforced with glass fibre, 120 mm with bent, pointed tips	
6-616	**Socket wrench** with dissipative handle, blade made from chrome vanadium, nickel-plated, A/F 3.5 mm	
6-661	**TORX screwdriver** T 5, with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip	
6-664 L	**TORX screwdriver** T 8 with bore-hole in the tip, with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip	
6-666 L	**TORX screwdriver** T10 with bore-hole in the tip, with dissipative handle, blade made from chrome vanadium, chrome-plated, with black tip	
9-342	**Contact bracelet** cloth armlet, allergy-free, edges and surface insulating, spiral cord, 1 Mohm safety resistor, combined press-stud and terminal connection, to DIN EN 100 015/1	
9-346	**Earth wire** with 1 Mohm safety resistor, 2500 mm long, with terminal connection resp. press-stud, for connecting workbench pad and floor cover and connection to an earth potential	

BERNSTEIN
TOOLS FOR ELECTRONIC

PLIERS



tip hardness
up to 65 HRC
for long life

box joint
for precise cutting

high grade surface
fine polished and bright burnished,
prevents abrasion and break-offs
which are dangerous for
circuits and components

double leaf spring
for smooth motion

dissipative
in each position

ergonomical
antislip

Pliers of today´s generation
were continuously optimized
together with the end-users.
A proof for our excellent brand.

Material

Depending on model and technical requirements we use high-alloyed tool steels or high grade ball bearing steel (chrome steel) from selected suppliers which fully comply with our needs.

Manufacturing Technology

Our high quality blank steels are either hot forged in forging dies or laser cutted. So we achieve structural conditions which ensure quality and long life time for our final products.
According to our strict internal rules we handle the production process on top modern machines.
Finally the pliers are oil hardened and the tips get an additional inductive hardening. Result is a hardness value of 63 - 65 HRC for highest efforts.

Constructions

We manufacture electronic pliers with 4 different joint constructions depending on application and execution of the pliers series.



The simplest joint is the **lay-on construction**. Both pliers parts are simply riveted together. This execution is only for bigger sized pliers.

In case of the **lap joint solution** both pliers joint planes are milled out, bedded together and subsequently riveted.



The most complex solution is the **box joint construction**. In a very special proccess the joint is made by sliding one pliers head through the under heat opened joint of the other pliers part. After that the joint is pressed together and tightened by a rivet.
This construction ensures best parallel guidance of pliers´ tips and an extremely long life time.

The high precise manufactured joint planes of the **screw joint construction** provides an accurate jaw adjustment without backlash and a smooth friction free open-close movement.
In combination with the basic hardness of the chrome vanadium ball bearing steel the screw system ensures a very high cutting capacity with a long life time.



Either a pressure or an interchangeable double leaf spring from stainless steel provides a smooth and equal open-close movement.

The life time of all pliers can be extended by a drop of acidfree oil on the polished planes and in the joint.







mit Wate



ohne Wate



völlig ohne Wate



Spezialwate

Cutting shape and cutting capacity

The life time of the cutting tips depend among others on the sharpness. The sharper the tip (Ultra Flush) the faster the wear. Out of this reason pliers in Semi Flush or Flush are preferable so far no ultra flush and shock reduced cut is necessary.

Semi Flush
applicable in case of hard and soft steel wires as well as for soft materials, e.g. copper wire; the cut leaves at the end of the wire a peak similar a pyramid.

Flush
nearly a flush cut with fine tips; applicable for soft steel wires and copper wire; cut slightly shock reduced; at the end of the wire only a small peak

Ultra Flush
cut absolutely flush; extremely sharp tips; exclusively for soft wires and copper wires; shock reduced cut; absolutely plane-parallel

Special face
for cutting of glass fibre, Kevlar etc.

Hard metal execution
with inserted hard metall tips, for continuous heavy work, also for tough nickel and electrode wires



Wire classes (N/mm2 = tensile strength)

soft wire: copper, plastic, aluminium, 220 - 250 N/mm^2

medium hard wire: nail, wire pin, 750 - 800 N/mm^2

hard wire: steel wire, steel pin, 1600 - 1800 N/mm^2

Piano wire: hardened spring wire, 2200 - 2300 N/mm^2

Surfaces

Since several centuries we have developed surface characteristics for different applications and standards.

Those characteristics are protection against corrosion, hardness, wear, break-offs, smoothness and surface roughness which are suitable for the specific applications and optimum operation results.



chrome-plated
bright polished



fine polished
bright burnished



bright steel-polished



non-reflective



black burnished



stainless, fine polished

Our manifold handle selection

-1 transparent (BERNSTEINIT isolation)
sturdy and durable

-2 coloured and transparent dip isolation
especially slim and slip resistant

-6 plastic coating

-VDE safety isolation, isolated according to VDE regulations
EN 60.900, piece checked, 1000 V AC resp. 1500 V DC

-VDE two-colour multilayered safety isolation, outside red - inside yellow for an easy and safe security check according to EN 60.900, piece checkedfor 1000 V AC reps. 1500 V DC

-7 dissipative black dip isolation,
especially slim and slip resistant

-13 dissipative black handguards,
sturdy and durable

-15 dissipative black-yellow handguards, ergonomically formed, two-component material, soft and slip resistant touch surface













Quality management

All manufacturing steps starting from the material choice until the final inspection of each pliers are managed by our quality control system. All quality features are under permanent control with modern measurement technology.

























SPECIAL ELECTRONIC PLIERS EUROline-Conductive

box joint
double leaf spring



high quality steel, fine polished and bright burnished, for dazzle free working
ergonomically formed bicoloured hand guard from dissipative anti-slide material

The pliers of this program have been tested with good results by several testing laboratories adequate to DIN EN 61340-5-1, 61340-2-1, 61340-2-3 for work in ESD protected areas.

CUTTING PLIERS

No.	Length mm	Length inches	Finish	Cutting capacity wire mm Ø soft	medium	hard	Weight g
Mini side cutters EUROline-Conductive with very slim, rounded head for finest operations							
3-651-15	120	4 3/4	without side face	1.5	0.8	-	65
3-651-15 DR	120	4 3/4	without side face, with retaining spring	1.5	0.8	-	65
Mini side cutters EUROline-Conductive with very slim, pointed head for finest operations							
3-652-15	120	4 3/4	without side face	1.5	0.8	-	60
3-653-15	120	4 3/4	without side face, with special flat cutting edge	1.5	0.8	-	60
Side cutters EUROline-Conductive with slim, rounded head							
3-654-15	125	5	with side face	1.5	1.0	0.4	70
3-655-15	125	5	without side face	1.5	1.0	-	70
Side cutters EUROline-Conductive with slim, pointed head							
3-656-15	125	5	with side face	1.5	1.0	0.3	70
3-657-15	125	5	without side face	1.5	1.0	-	70
End cutters EUROline-Conductive extremely slim, without side face, for precision work at points difficult to reach							
3-671-15	130	5 1/8	straight	0.8	0.6	-	65
3-672-15	130	5 1/8	cutting edge 20° angular	0.8	0.6	-	70
Top cutters EUROline-Conductive extremely slim, without side face, head 45° angular, for flush cutting directly in front of and behind the components							
3-673-15	130	5 1/8	cutting edge inside	0.8	0.6	-	60
3-674-15	130	5 1/8	cutting edge outside	0.8	0.6	-	60
Oblique top cutters EUROline-Conductive cutting plane 29° angular, flush cutting for horizontal and vertical use							
3-675-15	115	4 1/2	without side face	1.2	1.0	0.4	65

SPECIAL ELECTRONIC PLIERS EUROline-Conductive

CUTTING PLIERS

No.	Length mm	Length inches	Finish	Cutting capacity wire mm Ø soft	medium	hard	Weight g
Carbide mini side cutters EUROline-Conductive for continuous heavy work, with inserted **carbide cutting edges**, also for tough nickel and electrode wires							
3-661-15	120	4 3/4	with side face very slim rounded head	2.0	1.0	0.6	70
3-663-15	120	4 3/4	with side face very slim pointed head with special flat cutting edge	1.8	0.8	0.4	65
Carbide oblique top cutters EUROline-Conductive for continuous heavy work, with inserted **carbide cutting edges**, cutting plane 29° angular, for horizontal and vertical use, also for tough nickel and electrode wires							
3-667-15	115	4 1/2	without side face	2.0	1.0	0.6	65
Glas fibre mini side cutters EUROline-Conductive for continuous heavy work, with inserted carbide cutting edges, with special side face, for cutting glass fibre only, max. 2.0 mm Ø							
3-665-15	120	4 3/4	very slim rounded head				70

ROUND, FLAT, SNIPE NOSE PLIERS

No.	Length mm	Length inches	Finish	Weight g
Round nose pliers EUROline-Conductive extremely slim				
3-681-15	130	5 1/8	short plain jaws	60
Flat nose pliers EUROline-Conductive extremely slim				
3-682-15	130	5 1/8	short plain jaws	70
3-688-15	130	5 1/8	short, ultra slim plain jaws	60
Snipe nose pliers EUROline-Conductive extremely slim				
3-683-15	130	5 1/8	short plain jaws	70
3-685-15	140	5 1/2	long plain jaws	70
3-686-15	140	5 1/2	long serrated jaws	70
3-687-15	130	5 1/8	short plain jaws, ultra slim pointed **for precise handling of tiny components**	70



TECHNIC line
ELECTRONIC PLIERS

from high quality ball bearing steel (Chrome-steel)
for extreme high efforts
the inductive hardened cutting edges achieve a value of 63 - 65 HRC

Precision joint with screw system -
precise jaw adjustment without backlash
non-reflective surface

Double leaf spring in stainless steel
Ergonomically formed bicoloured hand guard from
dissipative anti-slide material



3-961-15


3-964-15


3-967-15


3-971-15


3-981-15


3-991-15


3-992-15


3-996-15

No.	Length mm	Box width mm	Finish	cutting capacity mm Ø soft wire	medium hard	hard wire	Weight g
Side cutters							
with slim, rounded head							
3-961-15	120	10	Semi Flush	1.3	0.8	0.5	75
3-963-15	120	10	Ultra Flush	1.3	0.7	-	75
Side cutters							
with slim, pointed head							
3-964-15	120	10	Semi Flush 1.2	1.0	0.5	75	
3-966-15	120	10	Ultra Flush	1.0	0.8	-	75
Side cutters							
with slim, pointed and relieved head							
3-967-15	120	10	Semi Flush 0.8	0.6	-	75	
3-969-15	120	10	Ultra Flush	0.8	-	-	75
Side cutters							
with rounded head							
3-971-15	125	12,5	Semi Flush 1.6	1.0	0.5	80	
3-973-15	125	12,5	Ultra Flush	1.6	0.8	-	80
End cutters							
with slim, pointed head, special flat cutting edge and adjustable stop srew							
3-981-15	135	10	Ultra Flush	0.8	0.6	-	80
Wire lead catcher							
3-999-1	3-961-15 until 3-969-15 (10 mm box width)						9
3-999-2	3-971-15 until 3-973-15 (12,5 mm box width)						9
Round nose pliers							
extremely slim							
3-991-15	130	10	short plain jaws				75
Flat nose pliers							
extremely slim							
3-992-15	130	10	short plain jaws				75
Snipe nose pliers							
extremely slim							
3-996-15	140	10	long plain jaws				80

3-970 BERNSTEIN TECHNICline-set of pliers

4-piece set **dissipative** pliers from the series TECHNICline
in cases made from dissipative black imitation leathe, with zip fastener

Tool set:

No.	Description of individual tools	Weight: 0,400 kg
3-963-15	**Mini side cutters TECHNICline**, 120 mm, ultra flush, for soft wire up to 1.3 mm Ø, medium hard wire up to 0.7 mm Ø, precision joint with screw system, double leaf spring, non-reflective surface, dissipative bicoloured hand guard	
3-971-15	**Side cutters TECHNICline**, 125 mm, semi flush, for soft wire up to 1.6 mm Ø, medium hard wire up to 1.0 mm Ø, hard wire up to 0.5 mm Ø, precision joint with screw system, double leaf spring, non-reflective surface, dissipative bicoloured hand guard	
3-992-15	**Flat nose pliers TECHNICline**, 130 mm, short plain jaws, finish as above	
3-683-15	**Spitzzange TECHNICline**, 140 mm, long plain jaws, finish as above	



3-970

SIDE CUTTERS, TELEPHONE AND COMBINATION PLIERS

lap joint, bright polished – chrome–plated
with dissipative black hand guard

No.	Length mm	Length inches	Finish	Cutting capacity mm Ø soft	Cutting capacity mm Ø hard	Weight g
Side cutters swedish design						
3-133-13	145	5 3/4	spezial-steel	2.5	1.25	155
Telephone pliers snipe nose, long straight jaws, with cutting edges for hard wire						
3-245-13	200	8	serrated jaws			180
Combination pliers with wire cutter, for hard wire						
3-732-13	165	6 1/2	serrated jaws			185



3-133-13



3-245-13



3-732-13



ESD ELECTRONIC PLIERS

lap joint, black burnished, double leaf spring
with dissipative black hand guard



CUTTING PLIERS

No.	Length mm	Length inches	Finish	Cutting capacity wire mm Ø soft	medium	hard	Weight g
Side cutters with slim, rounded head							
3-901-7	120	4 3/4	with side face	1.5	1.0	0.4	65
Side cutters with slim, pointed head, special flat cutting edge,							
3-902-7	120	4 3/4	without side face	1.5	0.8	-	65
Top cutters with 3 mm wide cutting edge, jaw length 20 mm, for flush cutting							
3-905-7	125	5	without side face	0.8	0.6	-	75
End cutters with angular tips and oblique cutting edge, for flush cutting							
3-906-7	125	5	without side face	0.8	0.6	-	75

ROUND-FLAT-SNIPE NOSE PLIERS

No.	Length mm	Length inches	Finish	Weight g
Round nose pliers with short jaws				
3-931-7	120	4 3/4	plain jaws	70
Flat nose pliers with short jaws				
3-932-7	120	4 3/4	plain jaws	60
Snipe nose pliers with short jaws				
3-933-7	125	5	plain jaws	60
Snipe nose pliers with long jaws angular, slim model				
3-945-7	145	5 3/4	serrated jaws	85



3-960

3-960 BERNSTEIN Set of ESD pliers

4-piece set black burnished pliers with dissipative hand guard, in a wallet of nylon

No.	Description of individual tools	Weight: 350 g
3-901-7	Side cutters, 120 mm, for soft wire up to 1.5 mm, for hard wire up to 0.4 mm Ø	
3-906-7	End cutters, 125 mm, with angular tips and oblique cutting edge, without side face, for flush cutting, for soft wire up to 0.8 mm Ø	
3-932-7	Flat nose pliers, 120 mm	
3-933-7	Snipe nose pliers, 125 mm	

ESD ELECTRONIC PLIERS

box joint
double leaf spring
bright steel-polished
with dissipative black hand guard



CUTTING PLIERS

No.	Length mm	Length inches	Finish	Cutting capacity mm Ø soft	medium	hard	Weight g
Side cutters with slim, rounded head							
3-601-13	120	4 3/4	with side face	1.5	1.0	0.4	70
3-602-13	120	4 3/4	without side face	1.5	1.0	-	70
Side cutters with slim, pointed head							
3-603-13	120	4 3/4	with side face	1.5	1.0	0.3	65
3-604-13	120	4 3/4	without side face	1.5	1.0	-	65
End cutters with angular tips and oblique cutting edge, for flush cutting							
3-606-13	120	4 3/4	without side face	1.0	0.8	-	55

ROUND, FLAT AND SNIPE NOSE PLIERS

No.	Article	Length mm	Length inches	Finish	Weight g
3-631-13	**Round nose pliers**	120	4 3/4	plain jaws	55
3-632-13	**Flat nose pliers**	120	4 3/4	plain jaws	60
3-633-13	**Snipe nose pliers**	120	4 3/4	plain jaws	60
3-634-13	**Snipe nose pliers, angular**	120	4 3/4	plain jaws	60

SET OF ELECTRONIC PLIERS

3-650 BERNSTEIN Set of conductive pliers

5-piece set bright steel-polished pliers with dissipative black handguard in a practical table support from conductive material

No.	Description of individual tools	Weight: 350 g
3-601-13	**Side cutters**, 120 mm, for soft wire up to 1.5 mm, for hard wire up to 0.4 mm	
3-631-13	**Round nose pliers**, 120 mm, plain jaws	
3-632-13	**Flat nose pliers**, 120 mm, plain jaws	
3-633-13	**Snipe nose pliers**, 120 mm, plain jaws	
3-634-13	**Snipe nose pliers, angular**, 120 mm, plain jaws	



3-601-13



3-603-13



3-606-13



3-631-13



3-632-13



3-633-13



3-634-13



3-650

INOX HIGH-GRADE STEEL PLIERS


33-115


33-215


33-135


33-235


33-255


33-275

for use in cleanrooms (autoclavable)
antiseptic or in ESD protected areas.



stainless steel, Swaged, Box joint construction

with screwed stainless double leaf spring
Extremely fine polished, abrasionproof, easy to clean

on request with inserted carbide cutting edges
on request with ESD hand guard

the perfect pliers for works in following industries:
aerospace - chemical - electronic - medical and dental technique - food production - shipbuilding - oil and gas production

No.	Length mm	Length inches	Finish	cutting capacity wire mm Ø soft	medium	hard	Weight g
Side cutters							
with very slim rounded head							
for finest operations							
33-115	110	4 3/8	without side face	1.1	0.4	-	36
Side cutters							
with very slim rounded head							
33-215	115	4 1/2	with side face	1.1	0.6	0.2	53
Oblique top cutters							
straight head, flush cutting							
33-135	110	4 3/8	without side face	0.8	0.6	0.2	40
Top end cutters							
bent, extremely slim, flush cutting							
33-235	120	4 3/4	without side face	0.4	0.2	-	43
Snipe nose pliers							
extremely slim, straight, short jaws							
33-255	120	4 3/4	with plain jaws				43
Flat nose pliers							
extremely slim, straight, short jaws							
33-275	120	4 3/4	with plain jaws				44

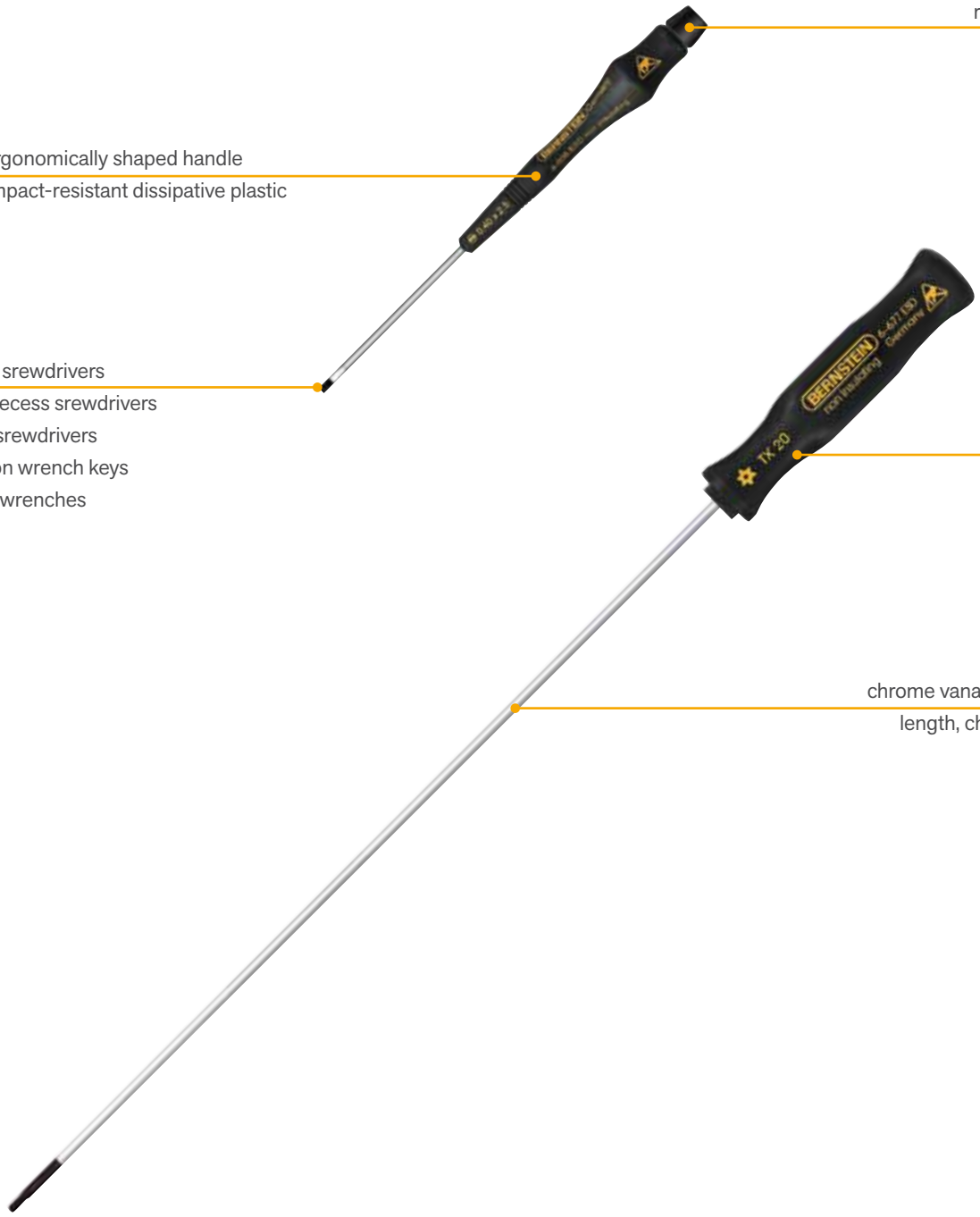
BERNSTEIN
TOOLS FOR ELECTRONIC

SCREWDRIVER

rotary swivel for precise and
fatigue-proof operation

slim, ergonomically shaped handle
from impact-resistant dissipative plastic

slotted srewdrivers
cross-recess srewdrivers
TORX srewdrivers
hexagon wrench keys
socket wrenches



electrically dissipative

chrome vanadium, hardened over its full
length, chrome-plated with black tip,
extra long blade, 300 mm

TORQUE-SCREWDRIVER EUROLINE-POWER ESD



with ergonomical formed dissipative two-components handle

Handle: impact-resistant, dissipative, two-coloured plastic, with slip off protection and practical hanging up hole, clear legible micrometer scale for a precise and perfect setting. Torque adjusting without setting gauge

Torque mechanism: wear-resistant mechanism from hardened special steel, audible and touchable release signal

Lock mechanism: secure locking device by lock mechanism (lock point = vernier line)

Actuating mechanism: system with changeable blades, left tightening with more or less unlimited removing, right tightening with adjusted torque

Torque screwdrivers can be recalibrated and are in accordance with EN ISO 6789:2003

Torque-screwdriver

No.	measure range Nm	scale Nm	Fine scale Nm	Drive inner hexagon mm	Length mm	Weight
4-561	0.5 - 1.5	0.25	0.05	4	153	137 g
4-562	1.5 - 4.0	0.50	0.10	4	153	137 g



TORQUE CHANGEABLE BLADES

Blade: chrome vanadium, hexagon material, A/F 4 mm, hardened over its full length, matt chrome-plated, black tip

Slotted blades

No.	Blade width mm	Blade thickness mm	Length mm	Weight
4-571	1.5	0.25	160	10 g
4-572	2.0	0.40	160	10 g
4-573	2.5	0.40	160	10 g
4-574	3.0	0.50	160	10 g

Cross-recess blades PH

No.	Size	Length mm	Weight
4-582	PH 00	160	10 g
4-583	PH 0	160	10 g
4-584	PH 1	160	10 g

Cross-recess Pozidriv blades PZ

4-588	PZ 0	160	10 g
4-589	PZ 1	160	10 g

Torx blades L = with bore-hole in the tip

No.	Size	for metric thread	Length mm	Weight
6-951	T 3	M 1.2 - 1.4	160	10 g
6-952	T 4	M 1.4 - 1.6	160	10 g
6-953	T 5	M 1.6 - 2.0	160	10 g
6-954	T 6	M 2.0	160	10 g
6-955 L	T 7	M 2.5	160	10 g
6-956 L	T 8	M 2.5	160	10 g

further shapes and sizes on request

ESD INTERCHANGEABLE SCREWDRIVER-SETS

practical tool rolls made from dissipative material are equipped with double-ended screw-driver-blades and ESD handle with metal clamping sleeve, suitable for hexagon blades of A / F 4 mm

Blade: chrome vanadium, hexagon material, A / F 4 x 120 mm, hardened over its full length, matt chrome-plated, black tip

4-920 BERNSTEIN interchangeable screwdriver set
9-pieces with ESD-handle

Contents: ESD-handle
3 slotted blades 1.5 / 3.0 mm, 2.0 / 3.5 mm, 2.5 / 4.0 mm
2 cross-recess blades PH 000 / PH 00, PH 0 / PH 1
3 TORX blades T 5 / T 6, T 7 L / T 8 L, T 9 L / T 10 L ("L" with bore hole)
Weight: 190 g

4-960 BERNSTEIN interchangeable screwdriver set
11-pieces with ESD-handle

Contents: ESD-handle
2 slotted blades 1.5 / 3.0 mm, 2.0 / 4.0 mm,
2 cross-recess blades PH 000 / PH 00, PH 0 / PH 1
4 TORX blades T 3 / T 4, T 5 / T 6, T 7 L / T 8 L, T 9 L / T 10 L ("L" with bore hole)
2 Tri Wing / Four Wing blades TW 1 / FW 1, TW 2 / FW 2
Weight: 210 g



4-960

ESD SCREWDRIVERS

with special-square pattern handle from impact-resistant, dissipative black plastic

Blade: chrome vanadium, hardened over its full length, matt chrome-plated, with black tip
Handle: impact-resistant, dissipative, black plastic, electrostatic discharge according to DIN EN 100015/1

Slotted screwdrivers



No.	Blade length mm	Blade width mm	Blade thickness mm	Handle size mm	Weight
4-632	100	4.0	0.8	92 x 21	40 g
4-633	125	5.5	1.0	100 x 23	65 g
4-643	300	6.0	1.2	100 x 23	100 g

Cross-recess screwdrivers PH



No.	Size	Blade length mm	Blade Ø mm	Handle size mm	Weight
4-652	1	80	4.5	92 x 21	40 g
4-653	2	100	6.0	100 x 23	75 g

extra long cross-recess screwdrivers



4-656	1	300	4.5	100 x 23	80 g
4-657	2	300	6.0	100 x 23	115 g

Cross-recess screwdrivers Pozidriv PZ

4-662	1	80	4.5	92 x 21	40 g
4-663	2	100	6.0	100 x 23	70 g

Tri Wing screwdrivers



				TW	
6-641	TW 0	70	4.5	92 x 21	42 g
6-642	TW 1	70	4.5	92 x 21	42 g
6-643	TW 2	70	4.5	92 x 21	42 g
6-644	TW 3	70	4.5	92 x 21	42 g
6-645	TW 4	70	6.0	92 x 21	53 g
6-646	TW 5	70	6.0	92 x 21	54 g

ESD ELECTRONIC SCREWDRIVERS





with slim, ergonomically formed handles from black dissipative plastic. The swivel top guarantees a precise working without exhaustion.

Blade: chrome vanadium, hardened over its full length, chrome-plated, with black tip
Handle: impact-resistant dissipative, black plastic

Slotted screwdrivers

No.	Blade length mm	Blade width mm	Blade thickness mm	Blade Ø mm	Handle length mm	Weight
4-601	50	0.8	0.20	2.5	100	12 g
4-602	50	1.2	0.25	2.5	100	12 g
4-603	50	1.5	0.25	2.5	100	12 g
4-604	50	1.8	0.30	2.5	100	12 g
4-605	60	2.0	0.40	2.5	100	12 g
4-606	60	2.5	0.40	2.5	100	12 g
4-607	60	3.0	0.50	3.0	100	14 g

Cross-recess screwdrivers PH

No.	Size	Blade length mm	Blade Ø mm	Handle length mm	Weight
4-621	000	50	2.5	100	12 g
4-622	00	50	2.5	100	12 g
4-623	0	50	3.0	100	14 g



4-610

4-610 6-piece slotted screwdriver set

in a practical table support from conductive material

Contents: 6 screwdrivers No. 4-601, 4-603, 4-604, 4-605, 4-606, 4-607
Weight: 145 g

4-620 6-piece slotted screwdriver and cross-recess screwdriver set

in a practical table support from conductive material

Contents: 3 screwdrivers No. 4-602, 4-605, 4-607,
3 cross-recess screwdrivers No. 4-621, 4-622, 4-623
Weight: 145 g



6-630

Wrench keys

No.	A/F mm	Blade length mm	Handle length mm	Weight
6-631	0.7	50	100	12 g
6-632	0.9	50	100	12 g
6-633	1.3	50	100	12 g
6-634	1.5	50	100	12 g
6-635	2.0	60	100	12 g
6-636	2.5	60	100	14 g

6-630 6-piece wrench key set

in a practical table support from conductive material

Contents: 6 wrench keys No. 6-631, 6-632, 6-633, 6-634, 6-635, 6-636
Weight: 145 g

ESD TORX SCREWDRIVERS AND SOCKET WRENCHES

with slim, ergonomically formed handles from black, dissipative plastic. The swivel top guarantees a precise working without exhaustion.



Blade: chrome vanadium, hardened over its full length, chrome-plated, black tip
Handle: impact-resistant, dissipative black plastic

TORX-screwdrivers

L = with bore-hole in the tip

No.	Size	Blade length mm	for metric thread	Handle length mm	Weight
6-656	T 1	50	M 0.9	100	12 g
6-657	T 2	50	M 1.0-1.2	100	12 g
6-658	T 3	50	M 1.2-1.4	100	12 g
6-659	T 4	50	M 1.4-1.6	100	12 g
6-661	T 5	50	M 1.6-2	100	12 g
6-662	T 6	50	M 2	100	16 g
6-663 L	T 7	50	M 2.5	100	16 g
6-664 L	T 8	60	M 2.5	100	16 g
6-665 L	T 9	60	M 3	100	19 g
6-666 L	T 10	60	M 3-3.5	100	21 g



6-660

6-660 6-piece TORX-screwdriver set

in a practical table support from **conductive** material

Contents: 6 TORX-screwdrivers No. 6-661, 6-662, 6-663 L, 6-664 L, 6-665 L, 6-666 L
Weight: 163 g



Extra long TORX-screwdrivers

with dissipative special-square pattern handle

6-675 L	T 10	300	M 3-3.5	92 x 21	60 g
6-676 L	T 15	300	M 3.5-4	92 x 21	65 g
6-677 L	T 20	300	M 4-5	100 x 21	75 g



Socket wrenches

No.	A/F mm	Blade length mm	Handle length mm	Weight
6-611	1.5	70	100	15 g
6-612	2.0	70	100	15 g
6-613	2.5	70	100	18 g
6-614	3.0	70	100	18 g
6-615	3.2	70	100	18 g
6-616	3.5	70	100	18 g
6-617	4.0	70	100	18 g
6-618	4.5	70	100	19 g
6-619	5.0	70	100	19 g
6-621	5.5	70	100	20 g



6-610

6-610 6-piece socket wrench set

in a practical table support from **conductive** material

Contents: 6 Socket wrenches No. 6-612, 6-614, 6-617, 6-618, 6-619, 6-621
Weight: 180 g

BERNSTEIN
TOOLS FOR ELECTRONIC

TWEEZERS



Chrome-nickel high-grade steel
stainless - antimagnetic
matt finish - acid-resisting

different tip shapes
for each application



ESD-coating,
for all SMD tweezers

optimum sharpness and
extremely strong by Carbon steel



interchangeable tips,
anti-magnetic, acid resistant

soft plastik or Delrin tips
for sensitive assemblies

Materials

Depending on the requirements the tweezers are manufactured from different material. The selection covers high quality special steel, stainless high grade steel and Titan alloys.

In the electronic industry the tweezers are preferable manufactured out of stainless high grade steel. The advantages of this material are the excellent corrosion immunity with a very high consistency. Out of this reason the tiny tips of the SMD/ESD tweezers are extremely hard and tough.
The advantage of Titan tweezers is their tremendous heat resistant. The melting point is about 1677o C. Above all these tweezers are super light.



Surfaces

We manufacture tweezers with different surface treatments.

Steel tweezers
All non-stainless steel tweezers are nickel-plated and so far protected against corrosion.
Additionally there are some special executions available:
-polished, with antiallergical coating for persons with nickel allergy
-nickel-plated strong PVC-insulated for works under voltage
-with VDE insulation for works under voltage up to 1000 V
-teflon-coated, no adherence of solder

High grade tweezers
All tweezers of this high grade execution are matt finished. The tweezers are stainless, anti-magnetic and acid-resistant.
For the special ESD protection these tweezers are available with a dissipative ESD surface coating.

Titan tweezers
All Titan tweezers are matt finished. Material-caused they are anti-magnetic, anti-bacterial, solder-repellent and immunity to corrosion and to aggressive acids.

Ceramic tweezers
We distinguish between full ceramic tweezers and plastic tweezers with ceramic tips. Ceramic tweezers are anti-magnetic, antistatic, solder-repellent, acid- and heat-resistant and very hard.

Plastic tweezers
consist of conductive black plastic material, reinforced with glass fibre.

Tweezers executions

Bernstein manufactures different executions of tweezers.
The selection includes finest SMD tweezers, engineer´s tweezers, wafer and cutting tweezers.

Component tweezers
The pick-up jaws of the component tweezers are dimensional shaped for exact positioning of round and cubical assemblies.

SMD tweezers
Because of the filigran assemblies the SMD technique requires finest precision tweezers. The variety of shapes and jaw executions enables an easy and precise handling of the assembly even in smallest space.

Wafer tweezers
are special tweezers for the careful handling of sensitive semiconductors.

Cutting tweezers
are destined for cutting of fine and soft wires and tiny assemblies. Hardened tips guarantee a long life time.

Engineer´s tweezers
are used for different handlings.



SPECIAL-TWEEZERS FOR SMD-TECHNIQUE



high precision tweezers from special steel
stainless – matt finish – anti–magnetic – acid–resisting
- alternative with ESD coating (-13) -

No.	Length mm	Length inches	Finish / Model	Weight
5-048	110	4 3/8"	straight, very sharply pointed, 5 SA	12 g
5-049	110	4 3/8"	straight, very sharply pointed, 4 SA	12 g
5-049-13	110	4 3/8"	as above, with ESD coating	12 g
5-051	115	4 1/2"	straight pointed, 2 SA	15 g
5-051-13	115	4 1/2"	as above, with ESD coating	15 g
5-052	110	4 3/8"	bent, very sharply pointed, 5b SA	13 g
5-052-13	110	4 3/8"	as above, with ESD coating	13 g
5-059	120	4 3/4"	flat, rounded tips, 2.0 mm width, 2a SA	15 g
5-059-13	120	4 3/4"	as above, with ESD coating	15 g
5-078	130	5 1/8"	tapering, chisel, 1.0 mm width, PSF SA	16 g
5-078-13	130	5 1/8"	as above, with ESD coating	16 g
5-053	110	4 3/8"	obliquely angled, very sharply pointed, 51 SA	13 g
5-053-13	110	4 3/8"	as above, with ESD coating	13 g
5-054	120	4 3/4"	sickle-shape-curved, very sharply pointed, 7abb SA	16 g
5-054-13	120	4 3/4"	as above, with ESD coating	16 g
5-055	120	4 3/4"	sickle-shaped, very sharply pointed, 7a SA	15 g
5-055-13	120	4 3/4"	as above, with ESD coating	15 g
5-056	120	4 3/4"	slightly bent, very sharply pointed, 7 SA	15 g
5-056-13	120	4 3/4"	as above, with ESD coating	15 g
5-057	120	4 3/4"	self-locking, straight-pointed, 31 SA	13 g
5-058	120	4 3/4"	self-locking, bent, pointed, 31b SA	13 g
5-061	115	4 1/2"	bent, flat rounded tips, 2ab SA	16 g
5-062	115	4 1/2"	35° angled, 2.0 mm width, with gripping cavity Ø 0.8 mm, 59 SA	16 g
5-062-13	115	4 1/2"	as above, with ESD coating	16 g
5-063	115	4 1/2"	35° angled, 3.5 mm width, with gripping cavity Ø 0.8 mm, 58 SA	16 g
5-063-13	115	4 1/2"	as above, with ESD coating	16 g

SPECIAL-TWEEZERS FOR SMD-TECHNIQUE

high precision tweezers from special steel
stainless – matt finish – anti–magnetic – acid–resisting
- alternative with ESD coating (-13) -

No.	Length mm	Length inches	Finish / Model	Weight
5-065	120	4 3/4"	straight, 3.0 mm width, with gripping cavity Ø 0.8 mm, 50 SA	16 g
5-065-13	120	4 3/4"	as above, with ESD coating	16 g
5-066	120	4 3/4"	30° angled, 2.5 mm width, 8b SA	15 g
5-066-13	120	4 3/4"	as above, with ESD coating	15 g
5-067	120	4 3/4"	tip 45° angled, 2.0 mm width, 12 SA	15 g
5-067-13	120	4 3/4"	as above, with ESD coating	15 g
5-068	120	4 3/4"	tip angled, 1.6 mm width, 13 SA	13 g
5-068-13	120	4 3/4"	as above, with ESD coating	13 g
5-071	85	3 3/8"	thin, straight-pointed, OC SA	8 g
5-072	110	4 3/8"	thin, straight-pointed, 3c SA	11 g
5-073	140	5 1/2"	long-thin, straight, very sharply pointed, SS SA	13 g
5-073-13	140	5 1/2"	as above, with ESD coating	13 g
5-074	120	4 3/4"	straight, pointed, 1 SA	14 g
5-075	140	5 1/2"	straight, very sharply pointed, grip surface offset, 60 SA	13 g
5-076	120	4 3/4"	rigid, straight, pointed, 00 SA	19 g
5-076-13	120	4 3/4"	as above, with ESD coating	19 g
5-077	130	5 1/8"	wide, tapering, pointed, AA SA	16 g
5-077-13	130	5 1/8"	as above, with ESD coating	16 g



CUTTING TWEEZERS

made from Carbon Steel, extremely hard, excellent sharpness at the cutting edges. For cutting of soft copper, gold and silver wires up to 0.25 mm Ø.

5-079	115	4 1/2"	Carbon Steel, matt finish 15 AGW	25 g
5-079-13	115	4 1/2"	as above, with ESD coating	25 g





5-190





ESD TWEEZERS

made from conductive, black plastic material, reinforced with glass fibre, conductive and acid-resistant

No.	Length mm	Length inches	Finish	Weight
5-191	120	4 3/4"	straight, rounded tips	5 g
5-192	120	4 3/4"	straight, 3 mm flat-hand tips, grip surface offset	4 g
5-193	120	4 3/4"	straight, flat, 6 mm wide tips	5 g
5-194	120	4 3/4"	bent, pointed tips	5 g
5-195	120	4 3/4"	straight, pointed tips, grip surface offset	4 g

5-190 6-piece set of ESD tweezers

in a practical table support from conductive material — 125 g

Contents: 5 tweezers made from conductive black plastic material, No. 5-191, 5-192, 5-193, 5-194, 5-195, 1 tweezers with ceramic tips No. 5-095

5-090 5-piece set of ESD tweezers

in a practical table support from conductive material — 94 g

Contents: 5 tweezers made from conductive black plastic material, No. 5-191, 5-192, 5-193, 5-194, 5-195

CERAMIC-TIPPED TWEEZERS

characteristics of the Ceramic tips: antimagnetic, solder-reppellent, acid- and heat-resistant. (each separately in a plastic case)

5-095	130	5 1/8"	especially slim and pointed	6 g
5-096	130	5 1/8"	slim, 2mm flat tips	6 g

TITAN TWEEZERS

tweezers made from Titan are for highest demands, have a light weight, immunity to corrosion, even to aggressive acids, they are antimagnetic, antibacterial, solder-repellent, and non-reflective. The melting point is 1677°C.

5-031	110	4 3/8"	matt-stainless, sharply pointed	9 g
5-035	120	4 3/8"	matt-stainless, sharply pointed	9 g
5-036	145	5 3/4"	matt-stainless, straight - round - wide tips with fine serration	15 g
5-037	150	6 "	matt-stainless, fine bent tips tips with fine serration	12 g

IC-Tweezers

for gripping, inserting and removing of IC´s

2-601-13	125	5"	with ESD-coating	22 g

SETS OF TWEEZERS IN A WALLET



5-030 3-piece set of electronic tweezers from titan

non-reflective, stainless, solder-repellent
in a wallet of recycable nylon

No.	Description of individual tools	Weight: 60 g
5-031	Titan-tweezers, sharply pointed, 110 mm	
5-036	Titan-tweezers, straight, round, wide, 145 mm, with serration	
5-037	Titan-tweezers, fine bent tips, 150 mm	



5-050 6-piece set of special tweezers

for the SMD-technique, matt finish, stainless, anti-magnetic
in a wallet of recycable nylon

No.	Description of individual tools	Weight: 135 g
5-051	SMD-tweezers, straight pointed, 115 mm	
5-052	SMD-tweezers, bent, very sharply pointed, 110 mm	
5-054	SMD-tweezers, sickle-shaped curved, very sharply pointed, 120 mm	
5-058	SMD-tweezers, crossed, bent, pointed, 120 mm	
5-061	SMD-tweezers, bent, flat tips 2 mm wide, 115 mm	
5-062	SMD-tweezers, bent, flat tips, with gripping cavity, 115 mm	



5-060 6-piece set ESD-Tweezers

for the SMD-Technique
in a wallet made from dissipative material

No.	Description of individual tools	Weight: 155 g
5-049-13	SMD-tweezers, straight, very sharply pointed, 110 mm	
5-055-13	SMD-tweezers, sickle-shaped, very sharply pointed, 120 mm	
5-059-13	SMD-tweezers, flat, rounded tips, 2 mm width, 120 mm	
5-067-13	SMD-tweezers, tip 45° angled, 2,0 mm width, 120 mm	
5-068-13	SMD-tweezers, tip angled, 1,6 mm, 120 mm	
5-078-13	SMD-tweezers, tapering, chisel, 1,0 mm width, 130 mm	



5-110 3-piece set of Engineer´s Tweezers

made from steel, nickel-plated
in a wallet of recycable nylon

No.	Description of individual tools	Weight: 95 g
5-107	Engineer´s tweezers, fine, bent tips, finely serrated, 150 mm	
5-121	Engineer´s tweezers, narrow pointed tips, finely serrated, 120 mm	
5-155	Crossed tweezers, (self-locking) jaws 5 mm wide, finely serrated, 160 mm	

Wafer-Tweezers

















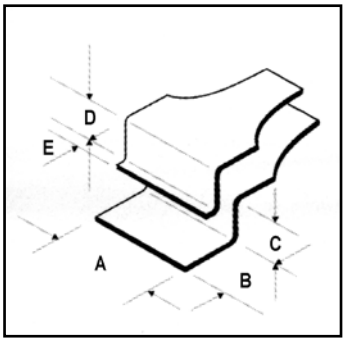


for positioning of flat and fine components, e.g. extremely sensitive and breakable wafer (glass-wafer etc.) fine PCB´s and LCD´s

very smooth and non-reflective surface

high grade steel SA, anti-magnetic

No.	Length mm	Length inch	Finish / Model	Weight g
5-411	130	5 1/8“	with graduated lower paddle and 3 teeth 3 DWF small	14
5-412	130	5 1/8“	with graduated lower paddle and 3 teeth 3 DWF	14
5-413	130	5 1/8“	with graduated lower paddle and 4 teeth 4 DWF	17
5-414	130	5 1/8“	with graduated lower paddle and 5 teeth 5 DWF	20
5-415	130	5 1/8“	with graduated lower paddle and 6 teeth 6 DWF	20
5-421	130	5 1/8“	with graduated lower paddle, no teeth 3 DW small	14
5-422	130	5 1/8“	with graduated lower paddle, no teeth 4 DW	17
5-423	130	5 1/8“	with graduated lower paddle, no teeth 5 DW	20
5-424	130	5 1/8“	with graduated lower paddle, no teeth 6 DW	20



	Dimension A mm	B mm	C mm	D mm	E mm	for Wafer size inch
5-411	6	6	4	4	3.2	2“
5-412	9	6	2.5	3	3.2	2“
5-413	12	8	4	5	3.2	3“
5-414	16	6	4	5	3.2	4“ - 5“
5-415	20	8	4	5	3.2	6“
5-421	6	6	4	5	3	2“
5-422	12	8	4	5	3	3“
5-423	16	8	4	4	3	4“ - 5“
5-424	20	8	4	5	3.5	6“

Tweezers with interchangeable plastic tips

special tweezers with soft and ESD safe tips

Tweezers: anti-magnetic, acidfree, ESD safe

Tips: soft, conductive plastic tips for very sensitive assemblies

No.	Length mm	Length inch	Finish / Model	Weight g
5-431	125	5“	rounded tips 1.5 mm wide, 70 CV	17
5-432	125	5“	flat tips 2 mm wide, 72 CV	17
5-433	125	5“	fine flat tips 1 mm wide, 74 CV	17
5-434	125	5“	very finr rounded tips, 76 CV	17
5-435	125	5“	fine rounded tips, 80 CV	17









Special tweezers with "Delrin" tips

Tweezers: anti-magnetic, acidfree

Tips from Delrin: highest consistency, stiffness and hardness, ductile, fatigue-steady

No.	Lenght mm	Lenght Zoll	Finish / Model	Weight g
5-441	125	5“	rounded tips 1.5 mm wide, 70 DV	17
5-443	125	5“	fine flat tips 1 mm wide, 74 DV	17







TOOLS FROM CERAMIC



















antistatic – antimagnetic - material: zirconium oxide

1-750 BERNSTEIN Ceramic adjusting screwdrivers set
13-pieces in a box with hinged lid

Contents: double-ended handle 1-735 and 12 ceramic bits, Weight: 90 g

No.	Blade length mm	Blade tip mm	Weight
1-751	32	0.90 x 0.30	1
1-752	32	1.30 x 0.30	1
1-753	32	1.50 x 0.30	1
1-754	32	1.80 x 0.30	1
1-755	32	1.95 x 0.35	1
1-756	32	2.50 x 0.70	1
1-757	32	3.00 x 0.30	1
1-761	32	1.95 AF	1
1-762	32	2.45 AF	1
1-765	32	size 00	1
1-766	32	size 0	1
1-767	32	2.40 x 0.80	1

Adjusting screwdrivers and bits blades from ceramic
Adjusting screwdrivers with conductive handle No.: 1-851 – 1-876
Bits No.: 1-751 – 1-776 to use with screwdriver handle No.:1-735

No.	Length mm	Bit No.	Length mm	Blade tip mm	Weight g
1-851	110	1-751	32	0.90 x 0.30	10 / 1
1-852	110	1-752	32	1.30 x 0.30	10 / 1
1-853	110	1-753	32	1.50 x 0.30	10 / 1
1-854	110	1-754	32	1.80 x 0.30	10 / 1
1-855	110	1-755	32	1.95 x 0.35	10 / 1
1-856	110	1-756	32	2.50 x 0.70	10 / 1
1-857	110	1-757	32	3.00 x 0.30	10 / 1
1-858	110	1-758	32	3.00 x 0.70	10 / 1
1-861	110	1-761	32	1.95 SW	10 / 1
1-862	110	1-762	32	2.45 SW	10 / 1
1-863	110	1-763	32	2.60 SW	10 / 1
1-864	110	1-764	32	KS Gr. 000	10 / 1
1-865	110	1-765	32	KS Gr. 00	10 / 1
1-866	110	1-766	32	KS Gr. 0	10 / 1
1-867	110	1-767	32	2.40 x 0.80	10 / 1
1-873	110	1-773	32	0.70 x 1.40	10 / 1
1-874	110	1-774	32	3.00 x 1.00	10 / 1
1-875	110	1-775	32	1.20 x 1.20	10 / 1
1-876	110	1-776	32	1.30 x 0.40	10 / 1

2-101 Tin knife with ceramic blade
for working at printed circuit boards, 105 mm long, handle from conductive black plastic, Weight: 9 g

5-353 Ceramic blade scissors
for cutting e.g. aramid yarns and fiber optic cables, antistatic and electrically insulating, black plastic handles reinforced with glass-fibre, 140 mm long, blade length 50 mm, Weight 26 g

7-421 ESD Brush
with conductive handle, natural bristles with conductive fibres, round, bristles 6 mm Ø, total length 150 mm, weight 9 g

7-422 ESD Brush
with conductive handle, natural bristles with conductive fibres, flat, bristles 20 mm wide, total length 150 mm, weight 26 g

ESD-COVERINGS AND ACCESSORIES

9-342 Contact bracelet with spiral cord
adjustable elastical bracelet with woven silvered synthetic fibres, allergy-free, with 3 mm press-stud; high elastical spiral cord, 2400 mm long, 2 x 1 Mohm safety resistor, press-studs 3 mm for bracelet and 10 mm for earth wire; additionally insulated crocodile clip No. 9-353.
(Weight: 60 g)

9-342-1 Contact bracelet
adjustable elastical bracelet with woven silvered synthetic fibres, allergy-free, with 3 mm press-stud
(Weight: 13 g)

9-342-2 Spiral cord
high elastical spiral cord, 2400 mm long, 2 x 1 Mohm safety resistor, press-studs 3 mm for bracelet and 10 mm for earth wire
(Weight: 25 g)

9-343 Earth wire
with 1 Mohm safety resistor, 1500 mm long, with 2 press-studs 10/10 mm, for connecting workbench pad and floor cover and connection to an earth potential; additionally insulated crocodile clip No. 9-353.
(Weight: 40 g)

9-353 Crocodile clip
insulated clip with banana plug connection socket and 10 mm press-stud.
(Weight: 18 g)

9-354 ESD-handling set foldable - especially for mobile use -
consisting of:
workbench pad, 500 x 400 x 0.35 mm, green, electrically dissipative, grained surface, (leakage resistance to DIN IEC 61340-4-1 R_S: ca. 10^8 ohm), with 2 press-studs 10/10 mm; contact bracelet No. 9-342-1, spiral cord 9-342-2 and earth wire No. 9-346 including crocodile clip No. 9-353.
(Weight: 170 g)

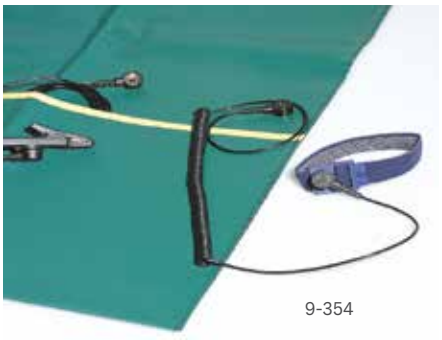
9-360 ESD-handling set
consisting of:
workbench pad, resistant to soldering tin, 800 x 600 x 1.5 mm, black, from homogeneous, electrically conductive synthetic caoutchouc, slightly grained surface, (leakage resistance to DIN IEC 61340-4-1 R_A: 10^3 - 10^6 ohm), with 2 press-studs 10/10 mm; contact bracelet No. 9-342-1, spiral cord 9-342-2 and earth wire No. 9-343 including crocodile clip No. 9-353.
(Weight: 1160 g)

9-361 ESD-handling set
consisting of:
workbench pad, resistant to soldering tin, 800 x 600 x 2.0 mm platinum grey, from dissipative synthetic caoutchouc, slightly grained, with homogeneous, electrically dissipative black rear, (leakage resistance to DIN IEC 61340-4-1 R_A: 10^5 - 10^7 ohm), with 2 press-studs 10/10 mm; contact bracelet No. 9-342-1, spiral cord No. 9-342-2 and earth wire No. 9-343 including crocodile clip No. 9-353.
(Weight: 1300 g)

9-334 Assembly grid mat
Sturdy supporting mat which prevents the damage of components by e.g. screws and the loss of small parts.
Dimensions: 610 x 370 x 20 mm
Cell dimensions: 50 x 45 mm
Resistance to ground: 103 - 104 Ohm
Colour: black
(Weight: 3,2 kg)



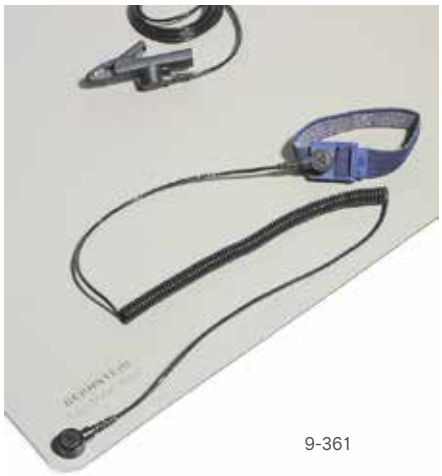
9-342 9-343



9-354



9-360



9-361



9-334

SPANNFIX VICES

with dissipative surface



9-205 ESD



9-251 ESD



9-252 ESD



9-253 ESD



9-255 ESD



9-256

9-257 ESD

BERNSTEIN clamping vices SPANNFIX constructed on ball-and-socket joints are rotatable easily in all directions and capable of being set securely with maximum working capacity by simple operation. A set screw below the ball socket allows an individual adjusting of the ball power. Long life is guaranteed by highest black powder-coated aluminium casting and surface-refined steel-parts.
With a surface resistance between 10^7 and 10^8 Ω the ESD types ensure a safe dissipation of static charges.

9-205 ESD BERNSTEIN SPANNFIX screw-on vice

with dissipative surface

for work benches or laboratory tables
with max. table thickness of 80 mm

Technical data:		
	Clamping pressure	150 kp
	Clamping capacity	70 mm
	Clamping depth	38 mm
	Jaw width	50 mm

interchangeable plastic jaws from dissipative material - Art.-No. 9-206-50 ESD

Weight: 1.450 kg

9-251 ESD Universal clamp base with dissipative surface
with ball joint and threaded stud M 12 x 1.5, for work benches or laboratory tables with max. table thickness of 80 mm
Weight: 0.950 kg

9-252 ESD Screw-on mounting vice with dissipative surface
Technical data see 9-205 ESD
Weight: 0.560 kg

9-253 ESD Circuit board holder
adjustable from 25 mm to 270 mm clamping capacity, correct setting by adjusting the centre position, firm clamping of the printed circuit by built-in resilience in the locating arms, height of locating arms 70 mm
Weight: 0.280 kg

9-255 ESD Angular adapter with dissipative surface
to permit a larger turning circle when using 9-253
Weight: 0.095 kg

9-256 Clamping lid for circuit boards with components
covered with 20 mm thick ESD foam
Components of different sizes are pressed in such a way that soldering can be carried out correctly after the circuit board holder has been turned.
Size of cover: 240 x 130 mm
Use: in conjunction with circuit board holder 9-253
Weight: 0.260 kg

9-257 ESD Rapid turning device with dissipative surface
with permanently connected angular adapter, permits swift rotation of the circuit board holder with the PCB and clamping lid through 180°.
Weight: 0.270 kg

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