



High Precision Tweezers

Handcrafted to perfect tip symmetry and balance, polished edges, superior no-scratch/antiglare satin finish.

The right tweezers and material for a successful application.

Many High Precision Tweezers are available in different materials (SA, S, NC, N, TA, BR) and also available with special coatings (EP, NE, TE). Please refer to technical data sheet on pages 35-37 for more information. Technical data sheets are available in PDF at www.ideal-tek.com



0.SA

4 3/4" 120mm
flat edges, fine tips



00.SA

4 3/4" 120mm
strong, flat edges, thick



000.SA

4 3/4" 120mm
strong, flat radiused edges, fine



00B.SA

4 3/4" 120mm
same as 00 with serrated grips



0C9.SA
0C9.S

3 1/2" 90mm
short, flat edges, fine



00D.SA

4 3/4" 120mm
same as 00, serrated tips and grips



1.SA
1.S
1.NC
1.TA

4 3/4" 120mm
strong, straight, fine



2.SA
2.S
2.NC
2.BR

4 3/4" 120mm
flat, sharp fine tips



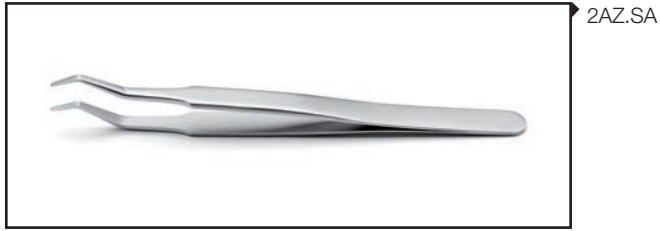
2A.SA
2A.S
2A.NC
2A.TA

4 3/4" 120mm
flat, accurate round tips



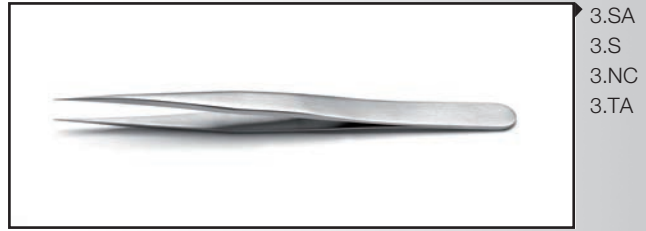
2AB.SA
2AB.TA

4 3/4" 120mm
as 2A, curved



2AZ.SA

4 3/4" 120mm
as 2A, double bent tips



3.SA
3.S
3.NC
3.TA

4 3/4" 120mm
very sharp, fine



3C.SA
3C.S
3C.NC
3C.TA

4 1/4" 110mm
as 3, short



3CB.SA

4 1/4" 110mm
as 3C, bent tips



4.SA
4.S
4.TA

4 1/4" 110mm
extra fine tips



4A.SA

4 1/4" 110mm
as 4, stronger



5.SA
5.S
5.NC
5.TA

4 1/4" 110mm
extra fine tips, superior finish



5A.SA
5A.S
5A.NC

4 1/2" 115mm
extra fine tips, superior finish



5B.SA

4 1/4" 110mm
as 5, bent tips for max visibility



5C.SA

4 1/2" 115mm
as 5A, extra fine, double bent tips



5TTH.SA

4 1/4" 110mm
anti capillary, extra fine, with lock-ring for handling electronic microscope grids



6.SA

4 1/2" 115mm
flat angled, fine



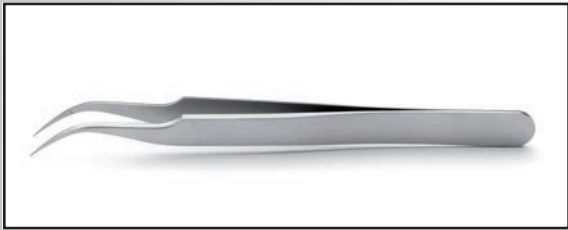
7.SA
7.S
7.NC
7.TA

4 1/2" 115mm
very fine, curved



7A.SA

4 1/2" 115mm
as 7, strong



7B.SA

4 1/2" 115mm
as 7, serrated tips



10G.SA

4 1/4" 110mm
fine, serrated tips and grips



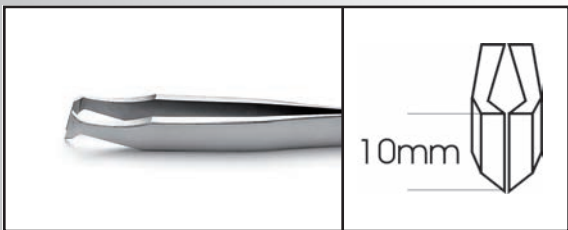
11.N

4 3/4" 120mm
straight, fine tips



15A.C

4 3/4" 120mm
cutting tweezers for soft copper, gold, silver, magnetic wires



15AGW.C

4 3/4" 120mm
cutting tweezers for soft copper, gold, silver, magnetic wires



15AP.C

4 3/4" 120mm
parallel cutting tweezers for soft copper, gold, silver, magnetic wires



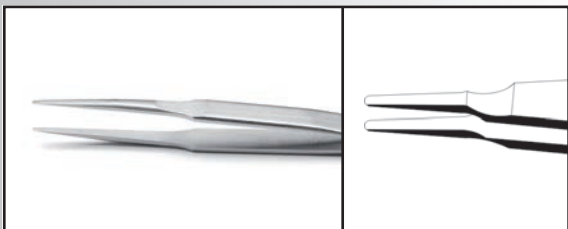
27C.BR
27CL.BR

5" 130mm
strong, sharp, fine tips; precision brass tweezers
L identifies mirror polished tips: ex. 27CL.BR



51S.SA

4 1/2" 115mm
as 5A, bent tips for max visibility



52A.SA

4 3/4" 120mm
as 2A, crush proof, smooth action



775.SA.NE

6 1/8" 155mm
fine, bent tips ESD epoxy coated handles



AC.SA

4 1/4" 110mm
strong tips, serrated grips



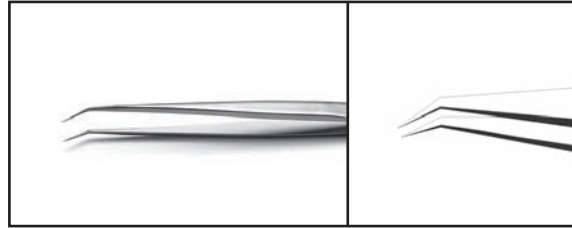
AM.BR
AML.BR

4 3/4" 125mm
precision brass tweezers anti-sparking
L identifies mirror polished tips: ex. AML.BR



F.SA

4 3/4" 120mm
as 2A, flat and squared tips



65A.SA

5 1/2" 140mm
very fine bent tips



SS.SA
SS.S
SS.NC
SS.TA

5 1/2" 140mm
extra fine tips



K5HP.SA
K5HP.S
K5HP.NC
K5HP.TA

high precision tweezers set 00, 2A, 3C, 5, 7
top quality hard/foam wallet

High Precision Reverse Action Tweezers

Specially intended for applications where a high precise self-closing action is required (e.g. microscopy).
Fine tips in anti-acid/anti-magnetic stainless steel (SA).



2AX.SA

4 3/4" 120mm
flat accurate round tips



3X.SA

4 3/4" 120mm
very sharp, fine



4X.SA

4 1/4" 110mm
extra fine tips



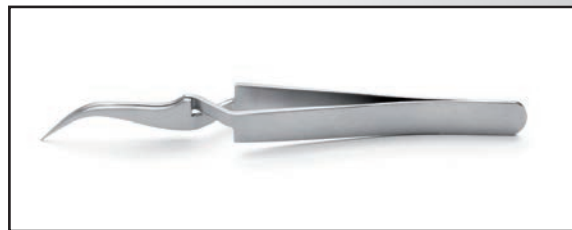
5X.SA

4 1/4" 110mm
extra fine tips, superior finish



5AX.SA

4 1/2" 115mm
extra fine tips, superior finish



7X.SA

4 1/2" 115mm
very fine, curved

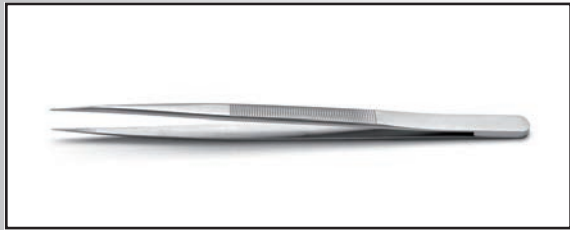


5TTHX.SA

4 1/4" 110mm
anti capillary, extra fine, with lock-ring for handling electronic
microscope grids

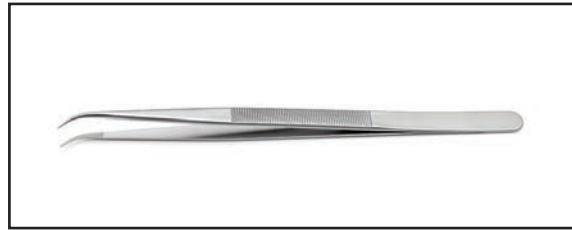
General Purpose Tweezers

Handcrafted to perfect tip symmetry and balance, polished edges, superior no-scratch/antiglare satin finish.
 The right tweezers and material for a successful application.
 Available in anti-magnetic stainless steel (SA)



119.SA

6" 150mm
 fine tips, serrated tips and grips



119B.SA

6" 150mm
 as 119, curved tips



120A.SA

4 1/4" 110mm
 fine, strong serrated tips and grips



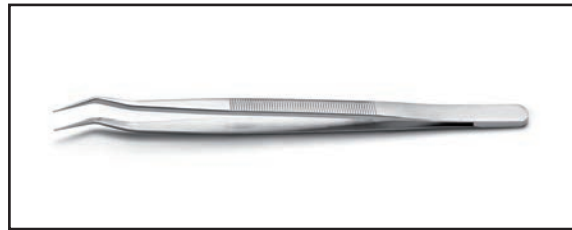
121.SA

6 1/4" 160mm
 very strong, blunt serrated tips and grips



122.SA

6" 150mm
 fine, bent serrated tips and grips



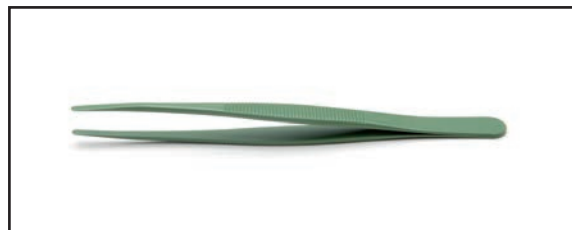
123.SA

6" 150mm
 Fine, double bent serrated tips and grips



124.SA

6" 150mm
 as 122, strong serrated tips and serrated grips



321.SA.T

4 3/4" 120mm
 flat rounded tips teflon coated



456.SA

5" 130mm
 fine serrated tips



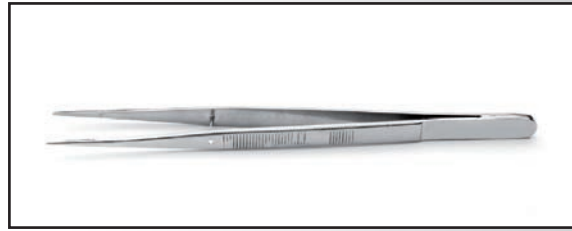
475.SA

5 1/2" 140mm
 strong blunt precision serrated tips and serrated grips



647.SA

4 3/4" 120mm
strong blunt precision tips serrated tips and grips



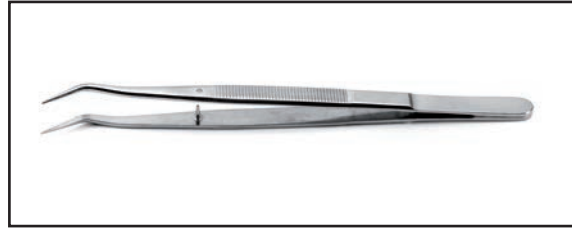
648.SA

6" 150mm
strong, fine, alignment pin, serrated tips and grips



649.SA

6" 150mm
strong, fine, bent, alignment pin, serrated tips and grips



650.SA

6" 150mm
fine double bent serrated tips and grips

Boley Tweezers

General purpose tweezers available in different materials for specific applications.



AA.SA
AA.S
AA.NP

5" 130mm
general purpose straight fine tips

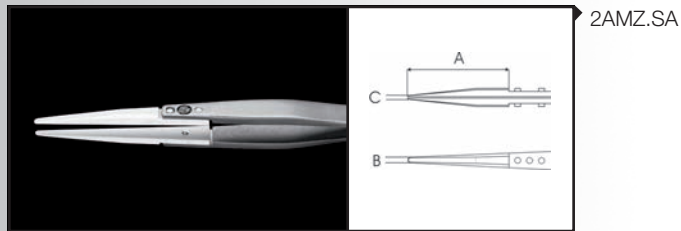


MM.SA

5" 130mm
general purpose strong fine tips

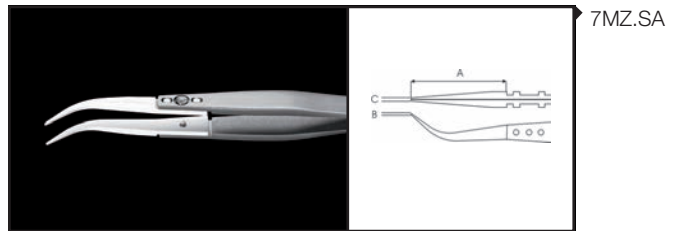
Ceramic Replaceable Tip Tweezers

Zirconia ceramic precision tips (MZ). Surface resistivity 10E12 Ohm. Contamination free, high temperature (1500°C) wear and solder resistant. Stainless steel (SA) handles. Alignable replaceable tips system: PATENT PENDING NO. 1750/97. Technical data are available on pages 35-36 or at www.ideal-tek.com



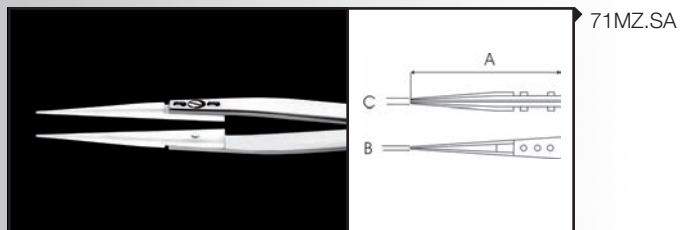
2AMZ.SA

A 1.4" 35mm - B 0.08" 2.0mm - C 0.02" 0.6mm
replaceable tips set code: **A2AMZ**



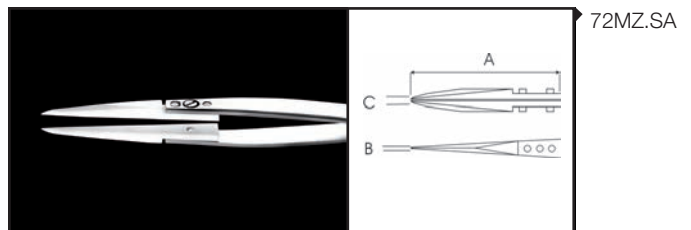
7MZ.SA

A 1.7" 43.5mm - B 0.02" 0.6mm - C 0.02" 0.6mm
replaceable tips set code: **A7MZ**



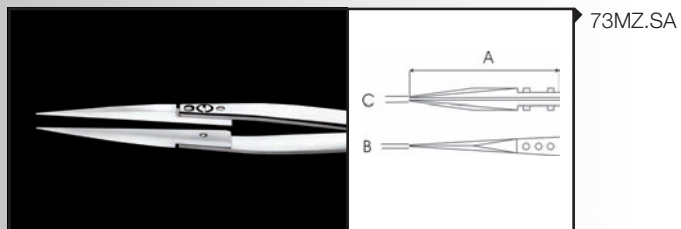
71MZ.SA

A 1.2" 30mm - B 0.011" 0.3mm - C 0.011" 0.3mm
replaceable tips set code: **A71MZ**



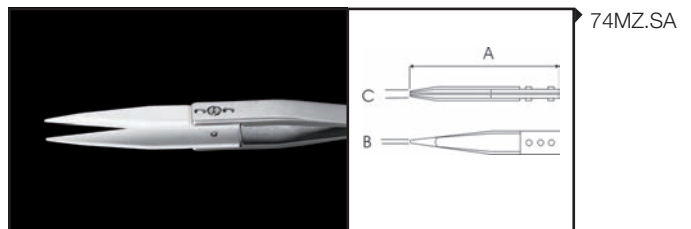
72MZ.SA

A 1.2" 30mm - B 0.007" 0.2mm - C 0.016" 0.4mm
replaceable tips set code: **A72MZ**



73MZ.SA

A 1.3" 33mm - B 0.011" 0.3mm - C 0.02" 0.6mm
replaceable tips set code: **A73MZ**

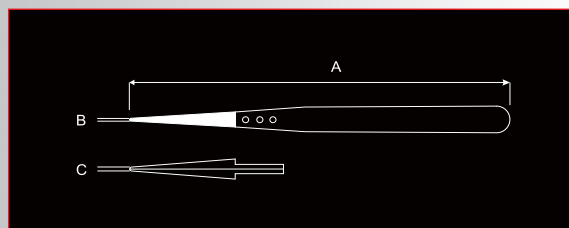


74MZ.SA

A 1.6" 40mm - B 0.019" 0.5mm - C 0.019" 0.5mm
replaceable tips set code: **A74MZ**

Plastic Tip Tweezers

The largest and the most precise plastic tweezers range all over the world. 30 years of experience in high engineering plastic materials. Choose the right tweezers in the right material for your success in your application. Technical data are available on pages 35-36 or at www.ideal-tek.com for more information and chemical data-charts.



00CF.SA

A 5" 130mm - B 0.04" 1.0mm - C 0.08" 2.0mm



2ACF.SA

A 5" 130mm - B 0.07" 1.8mm - C 0.04" 1.0mm



3CCF.SA

A 4 1/4" 110mm - B 0.03" 0.8mm - C 0.05" 1.3mm



3CF.SA

A 5" 130mm - B 0.03" 0.8mm - C 0.05" 1.3mm



5CF.SA

A 5" 130mm - B 0.02" 0.5mm - C 0.025" 0.6mm



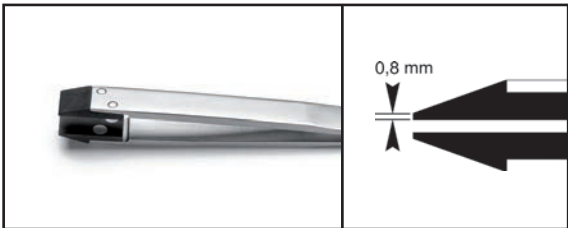
5XCF.SA

A 5" 130mm - B 0.02" 0.5mm - C 0.025" 0.6mm



7CF.SA

A 5" 130mm - B 0.025" 0.6mm - C 0.025" 0.6mm



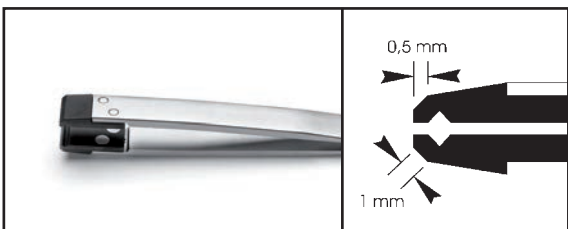
248CF.SA

A 5" 130mm - B 0.4" 10mm - C 0.07" 1.8mm



249CF.SA

A 5" 130mm - B 0.09" 2.2mm - C 0.09" 2.2mm



250CF.SA

A 5" 130mm - B 0.4" 10mm - C 0.07" 1.8mm



259CF.SA

A 5" 130mm - B 0.025" 0.6mm - C 0.04" 1.0mm



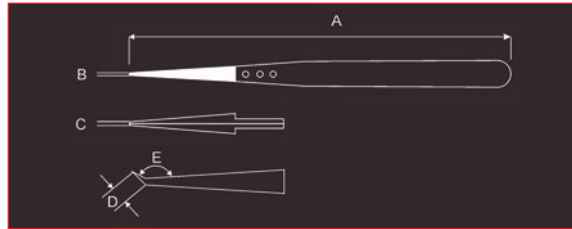
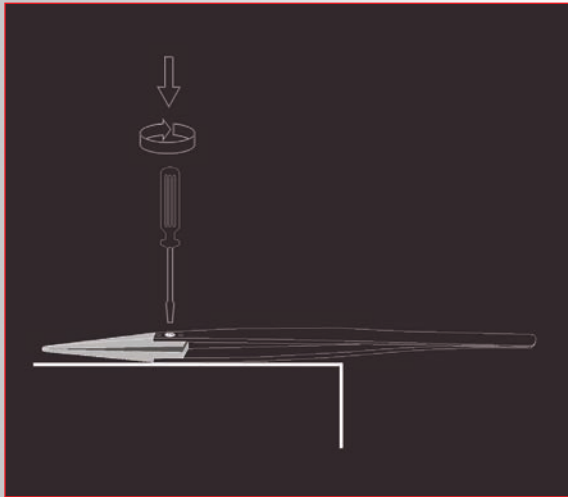
269CF.SA

A 5" 130mm - B 0.12" 3.0mm - C 0.07" 1.8mm

Plastic Replaceable Tip Tweezers

The largest and the most precise plastic tweezers range all over the world. 30 years of experience in high engineering plastic materials. Choose the right tweezers in the right material for your success in your application. Technical data are available on pages 35-36 or at www.ideal-tek.com for more information and chemical data charts.

Replaceable kits come with 2 tips and 3 screws. The easiest and most precise replacement system available into the tweezers market.



00CFR.SA
00CPR.SA
00SVR.SA

A 5" 130mm - B 0.04" 1.0mm - C 0.08" 2.0mm



2ACFR.SA
2ACPR.SA
2ASVR.SA

A 5" 130mm - B 0.07" 1.8mm - C 0.04" 1.0mm



2ABCFR.SA
2ABCPR.SA
2ABSVR.SA

A 5" 130mm - B 0.07" 1.8mm - C 0.04" 1.0mm



2AXCFR.SA
2AXCPR.SA
2AXSVR.SA

A 5" 130mm - B 0.07" 1.8mm - C 0.04" 1.0mm



2WFCPR.SA

A 0.25" 6.6mm - B 0.41" 10.5mm - C 0.08" 2.0mm
D 0.14" 3.5mm - E 0.18" 4.5mm



4WFCPR.SA

A 0.47" 12mm - B 0.41" 10.5mm - C 0.08" 2.0mm
D 0.14" 3.5mm - E 0.18" 4.5mm



5CFR.SA
5CPR.SA
5SVR.SA

A 5" 130mm - B 0.02" 0.5mm - C 0.025" 0.6mm



5XCFR.SA
5XCPR.SA
5XSVR.SA

A 5" 130mm - B 0.02" 0.5mm - C 0.025" 0.6mm



7CFR.SA
7CPR.SA
7SVR.SA

A 5" 130mm - B 0.025" 0.6mm - C 0.025" 0.6mm



242CFR.SA
242CPR.SA
242SVR.SA

A 5" 130mm - B 0.055" 1.4mm - C 0.045" 1.2mm



246CFR.SA

A 5" 130mm - B 0.025" 0.6mm - C 0.03" 0.8mm
D 0.35" 9.0mm - E 45°



249CFR.SA
249CPR.SA
249SVR.SA

A 5" 130mm - B 0.09" 2.2mm - C 0.09" 2.2mm



259CFR.SA
259CPR.SA
259SVR.SA

A 5" 130mm - B 0.025" 0.6mm - C 0.04" 1.0mm

Replaceable Tip Sets Part Numbers

| | 00 | 2A | 2AB | 2WF | 4WF | 5 | 7 | 242 | 246 | 249 | 259 |
|-----------|-------|-------|--------|--------|--------|------|------|--------|--------|--------|--------|
| CF | A00CF | A2ACF | A2ABCF | | | A5CF | A7CF | A242CF | A246CF | A249CF | A259CF |
| CP | A00CP | A2ACP | A2ABCP | A2WFCP | A4WFCP | A5CP | A7CP | A242CP | | A249CP | A259CP |
| SV | A00SV | A2ASV | A2ABSV | | | A5SV | A7SV | A242SV | | A249SV | A259SV |

Ergonomic ESD Cushion Grip Tweezers

Anti-magnetic precision tweezers with soft ESD ergonomic cushion grips (resistivity 10E8) for an enhanced operator comfort. For more information on our ESD Ergonomic Handle (DR) see page 37.



00.SA.DR

5" 125mm
flat edges, thick



2A.SA.DR

5" 125mm
strong, sharp, rounded tips



3.SA.DR

5" 125mm
very sharp and superior finish



3C.SA.DR

4 1/2" 115mm
very sharp and superior finish



5.SA.DR

4 1/2" 115mm
extra fine tips



7.SA.DR

4 3/4" 120mm
fine curved tips



AA.SA.DR

5" 130mm
precision tips

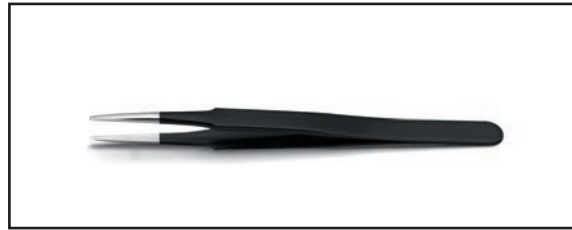
ESD Epoxy Precision Tweezers

Anti-magnetic precision tweezers with ESD Epoxy grips (resistivity 10E5-10E6) for an enhanced operator comfort. For more information on our ESD Epoxy coating (NE) see page 37 or at www.ideal-tek.com



00.SA.NE

4 3/4" 120mm
strong, flat edges, thick



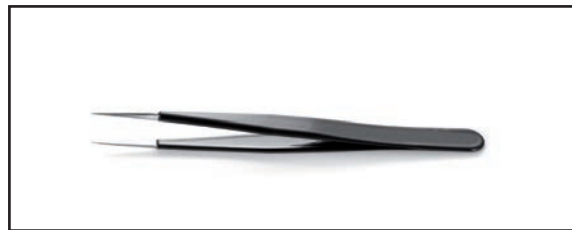
2A.SA.NE

4 3/4" 120mm
flat, accurate round tips



3.SA.NE

4 3/4" 120mm
very sharp, fine



3C.SA.NE

4 1/4" 110mm
as 3, short
very sharp and superior finish



5.SA.NE

4 1/4" 110mm
extra fine tips, superior finish



7.SA.NE

4 1/2" 115mm
very fine, curved



AA.SA.NE

5" 130mm
straight fine tips



SM103.SANE

4 1/2" 115mm
for handling and positioning 2 and 3 lead SOT
packages at 45° angle



SM108.SANE

4 3/4" 120mm
for positioning and soldering 1mm wide components
tips are grooved inside

Flat Tip Tweezers

Smooth scratch proof tips usefull tips for handling electronic sensitive parts.



33A.SA

4 1/2" 115 mm
flat round tips



34A.SA

4 3/4" 120 mm
smooth to hold delicate parts



35A.SA

4 3/4" 120mm
same use as 34A



125.SA

4 3/4" 120 mm
smooth tips, no scratch



125A.SA

4 3/4" 120 mm
Same as 125 but elongated tips



127.SA

4" 105mm
thin, square tips

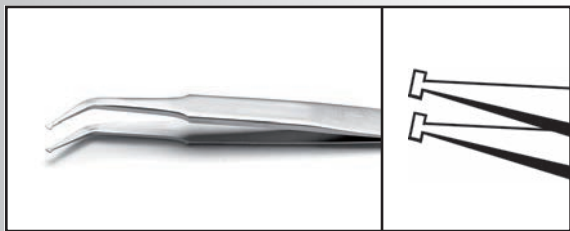


128.SA

4" 105mm
same as 127, bent tips

SMD Tweezers

Smooth handling and positioning of all SMD components. Different tips and angles for specific jobs. Satin antiglare finish and ergonomic design. Modifications or special models available on request. Available as reverse action model.



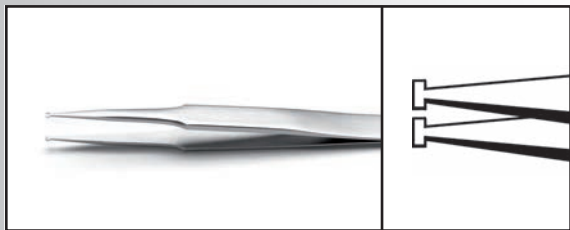
SM103.SA

4 1/2" 115mm
for handling and positioning 2 and 3 lead SOT packages at 45° angle



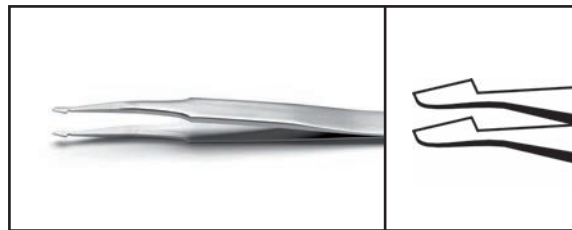
SM104.SA

4 3/4" 120mm
for handling and positioning 3 lead SOT packages, monolithic chip capacitors, etc.



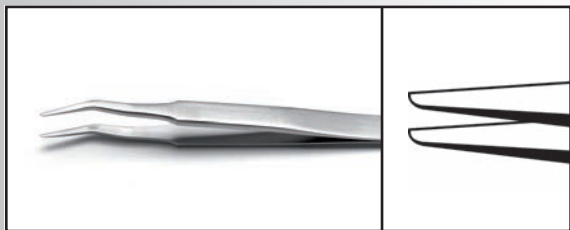
SM105.SA

4 3/4" 120mm
special design for positioning all SOT packages vertically



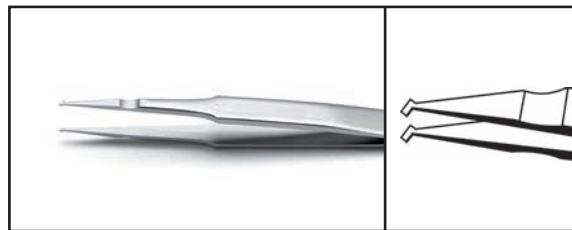
SM106.SA

4 3/4" 120mm
for positioning all SOT packages horizontally with flat base tips (4 mm long)



SM107.SA

4 3/4" 120mm
for positioning all flat devices at 60° angle



SM108.SA

4 3/4" 120mm
for positioning and soldering 1mm wide components
Tips are grooved inside



SM109.SA

4 3/4" 120mm
same as SM108 but with 45° tips without anti-crush feature



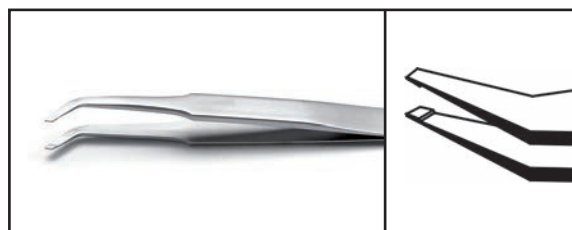
SM110.SA

4 3/4" 120mm
for positioning monolithic chips capacitors, grooved tips



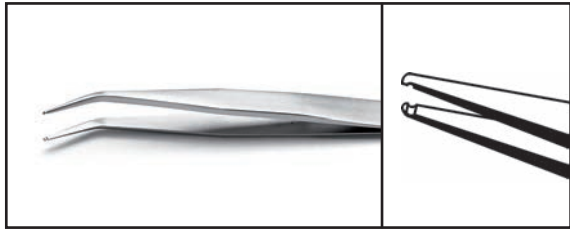
SM111.SA

4 3/4" 120mm
for positioning 5 mm monolithic chip capacitors with flat base
grooved tips (2 mm long)



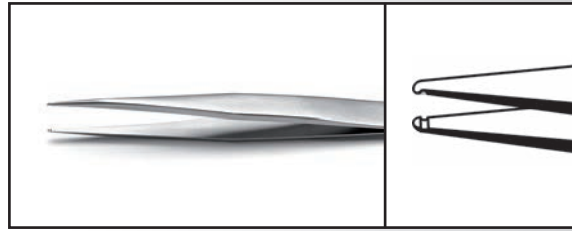
SM112.SA

4 3/4" 120mm
for positioning 5 mm monolithic chip capacitors at 60°
Grooved tips



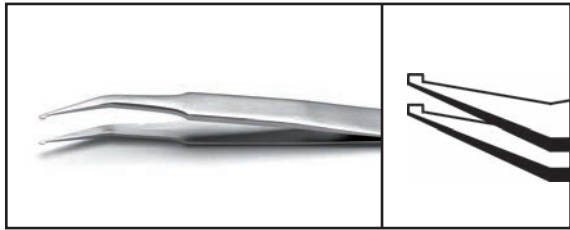
SM115.SA

4 3/4" 120mm
grooved tips at 30° angle for holding and positioning
cylindrical devices (up to 1 mm diam.)



SM116.SA

4 3/4" 120mm
grooved straight tips. For vertical positioning of cylindrical
devices (up to 1 mm diam. or more)



SM117.SA

4 3/4" 120mm
for positioning SOT packages at 30° angle

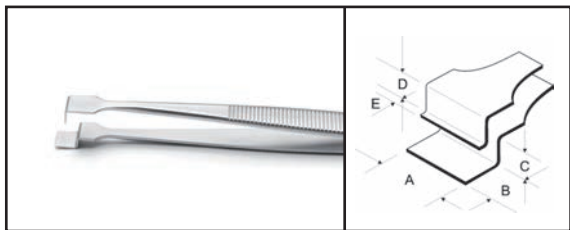


K5SMD.SA

SMD precision tweezers set
SM103, SM107, SM108, SM111, SM115
top quality hard/foam wallet

Wafer Tweezers

Especially designed for use with delicate (very fragile) wafer, glass wafer,....
Very firm yet anti-crush/anti-crack grip. Very smooth surface to satin finish (non glare).
Teflon coating, plastic tips as well as special design to user's specifications are available.



2W.SA

A 0.25" 6.5mm - B 0.2" 5.0mm - C 0.10" 2.5mm
D 0.15" 4.0mm



2WF.SA

A 0.25" 6.5mm - B 0.25" 9.0mm - C 0.10" 2.5mm
D 0.15" 4.0mm - E 0.10" 2.5mm



2WFCPR.SA

A 0.25" 6.6mm - B 0.41" 10.5mm - C 0.08" 2.0mm
D 0.14" 3.5mm - E 0.18" 4.5mm
Replaceable tips set code: A2WFCP



2WFG.SA

A 0.25" 6.5mm - B 0.35" 9.0mm - C 0.10" 2.5mm
D 0.15" 4.0mm - E 0.10" 2.5mm



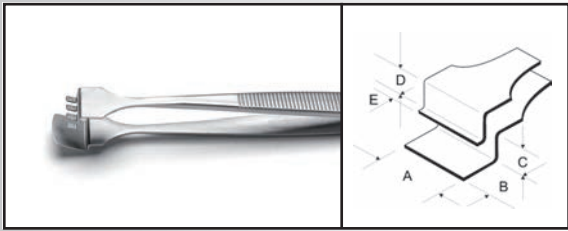
3WF.SA

A 0.37" 9.5mm - B 0.39" 10.0mm - C 0.10" 2.5mm
D 0.15" 4.0mm - E 0.10" 2.5mm



3WFG.SA

A 0.37" 9.5mm - B 0.39" 10.0mm - C 0.10" 2.5mm
D 0.15" 4.0mm - E 0.10" 2.5mm



4WF.SA

A 0.47" 12.0mm - B 0.33" 9.0mm - C 0.10" 2.5mm
D 0.15" 4.0mm - E 0.1" 2.5mm



4WFCPR.SA

A 0.47" 12mm - B 0.41" 10.5mm - C 0.08" 2.0mm
D 0.14" 3.5mm - E 0.18" 4.5mm
Replaceable tips set code: A4WFPCP



4WFG.SA

A 0.47" 12.0mm - B 0.35" 9.0mm - C 0.10" 2.5mm
D 0.15" 4.0mm - E 0.1" 2.5mm



4WL.SA

A 0.47" 12.0mm - B 0.29" 7.5mm - C 0.12" 3.0mm
D 0.15" 4.0mm - E 0.1" 2.5mm



5WF.SA

A 0.63" 16.0mm - B 0.33" 8.5mm - C 0.10" 2.5mm
D 0.15" 4.0mm - E 0.10" 2.5mm



6WF.SA

A 0.78" 20.0mm - B 0.33" 8.5mm - C 0.10" 2.5mm
D 0.15" 4.0mm - E 0.10" 2.5mm



8WF.SA

A 1.12" 28.5mm - B 0.47" 12.0mm - C 0.08" 2.2mm
D 0.14" 3.5mm - E 0.10" 2.5mm



8WNY.SA
8WT.SA

A 1.55" 65mm - B 0.75" 19mm - C 0.05" 1.3mm
D 0.08" 2mm
Nylon (NY) pads or teflon (T) pads



39FG.SA

A 0.47" 12.0mm - B 0.39" 10.5mm
D 0.15" 4.0mm - E 0.10" 2.5mm



39S2.SA

A 0.25" 6.5mm - B 0.33" 8.5mm
D 0.20" 5.5mm - E 0.09" 2.4mm



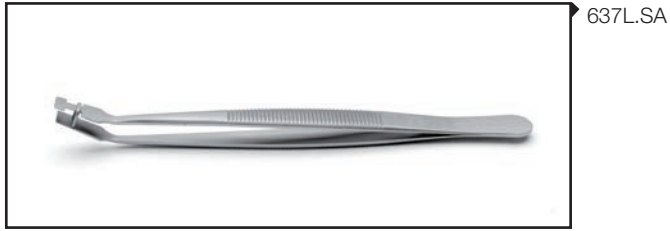
48WF.SA

A 1.1" 28.0mm - B 0.35" 9.0mm
D 0.15" 4.0mm - E 0.10" 2.5mm



85C.SA

A 0.27" 7.0mm - B 0.17" 4.5mm - C 0.12" 3.0mm
D 0.15" 4.0mm - E 0.08" 2.0mm



637L.SA

A 0.23" 6.0mm - B 0.15" 4.0mm - E 0.15" 4.0mm



637SB.SA

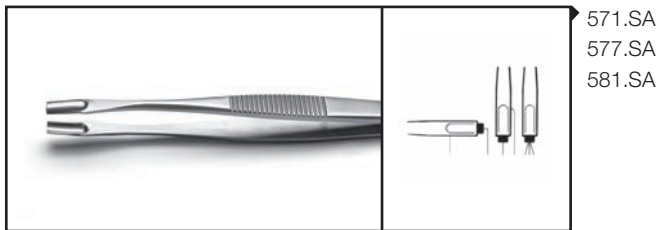
A 0.20" 5.0mm - B 0.05" 1.3mm - E 0.05" 1.3mm

The right tweezers for your wafers

| Wafer Size [inch] | Tip width [mm] | Model |
|-------------------|----------------|--|
| 2" | 5 - 9,5 | 2W, 2WF, 2WFCPR, 2WFG, 39S2, 3WF, 3WFG, 637L, 637SB, 85C |
| 3" | 12 | 39FG, 4WF, 4WFCPR, 4WFG, 4WL, |
| 4" - 5" | 16 | 5WF |
| 6" | 20 - 28,5 | 48WF, 6WF, 8WF |
| 8" | 65 | 8WNY, 8WT |

Components Positioning Tweezers

Specifically designed to hold delicate components firmly and safely.



571.SA
577.SA
581.SA

571 - 5 3/4" 145mm (ø 2.5-5mm)
577 - 5" 125mm (ø 2mm)
581 - 4 3/4" 120mm (ø 1mm)



572.SA
578.SA
582.SA

572 - 5 3/4" 145mm (ø 2.5-5mm)
578 - 5" 125mm (ø 2mm)
582 - 4 3/4" 120mm (ø 1mm)



573.SA
579.SA
583.SA

573 - 5 3/4" 145mm (ø 2.5-5mm)
579 - 5" 125mm (ø 2mm)
583 - 4 3/4" 120mm (ø 1mm)

Strong Tweezers

Comfortable and precision handling of electronic components for soldering operations. Available in straight or bent (Suffix B) version and various lengths. For very firm hold available in stainless steel (SA) or nickel plated (NP).



29.SA

6 1/2" 165mm
Desoldering tweezers Strong blunt serrated tips



29D.SA

6" 155mm
reverse action desoldering tweezers bent tips, to remove 14-16 pin DIP/IC



30.SA

6 1/2" 165mm
Desoldering tweezers Strong blunt, bent serrated tips



30D.SA

6" 155mm
reverse action desoldering tweezers straight tips, to remove 14-16 pin DIP/IC



7314.SA
7314.NP

5 1/2" 140mm
Very strong blunt serrated tips and grips



7314B.SA
7314B.NP

5 1/2" 140mm
Very strong blunt bent tips serrated tips and grips

| Part number | Dimensions |
|-------------|--------------|
| 7312, 7312B | 4 3/4" 120mm |
| 7313, 7313B | 5" 130mm |
| 7314, 7314B | 5 1/2" 140mm |
| 7316, 7316B | 6 1/4" 160mm |
| 7318, 7318B | 7 1/4" 180mm |
| 7320, 7320B | 7 3/4" 200mm |
| 7325, 7325B | 9 3/4" 250mm |
| 7330, 7330B | 12" 300mm |

All next models in the table are available in anti-magnetic stainless steel (SA) or nickel plated (NP)

Material Technical Data Sheet

METALS

Nonferrous alloy type BR

- **Brass** (CuZn37)
- copper-zinc alloy
- non-magnetizable
- good to excellent corrosion resistance; all copper alloys resist corrosion by fresh water and steam
- excellent cold workability (forming)
- generally it is utilized when high mechanical properties are not required
- typical applications include tweezers for handling scratch-sensitive mechanical parts, watch components, magnets

Carbon steel type C

- **Carbon steel** (Material number 1.1221, Ck60, AISI 1060)
- contains from 0,57 to 0,65 wt% carbon
- magnetizable
- will be hardened by heat treatment, max. hardness 57 HRC
- poor resistance to corrosion
- used where strength and/or hardness are of primary concern.
- typical applications include tweezers and cutting tools for the electronic industry, watch-makers, jewellers applications

Nonferrous alloy type N

- **Nickel silver 65-18** (CuNi18Zn20)
- copper-nickel-zinc alloy
- non-magnetizable
- soft and elastic
- all copper alloys resist corrosion by fresh water and steam. Copper nickels provide superior resistance to saltwater corrosion, have high resistance to alkalies and organic acids, but have poor resistance to inorganic acids
- typical applications include handling of scratch-sensitive parts in electronic, micro-mechanical and jewellery applications

Superalloy NC

- **Ni-Cr-Mo superalloy**
- excellent/resistance to room temperature up to 800°C
- six times harder than antimagnetic stainless steel
- resistant to fatigue, very high shape retention
- fully non-magnetic
- excellent corrosion resistance to most chemicals, salts and acids
- typical applications include non-magnetic tools for electronic and watch industry applications and for laboratory and medical applications in aggressive chemical environments

Stainless steel type S

- **Martensitic higher carbon steel** (Material number 1.4034, DIN X46Cr13, AISI number 420)
- contains from 12.5 to 14.5 wt% chromium
- magnetizable
- can be hardened by heat treatment, forming should be done in the annealed condition
- less resistant to corrosion than the austenitic or ferritic grades
- used where strength and/or hardness are of primary concern and where the environment is relatively mild from a corrosive standpoint.
- typical applications include tweezers and cutting tools for the electronic industry, watch-makers, jewellers and laboratory and medical applications in mild aggressive chemical environments

Stainless steel type SA

- **low carbon austenitic steel** (Material number 1.4435, DIN X2CrNiMo18-14-3, AISI number 316L)
- contains from 16.5 to 18.5 wt% chromium and has important quantities of nickel and molybdenum as additional alloying elements
- non-magnetizable
- good corrosion resistance to most chemicals, salts and acids
- generally used where corrosion resistance and toughness are primary requirements
- typical applications include tweezers for the electronic industry, watch-makers, jewellers and laboratory and medical applications in moderately aggressive chemical environments

Nonferrous alloy type TA

- **Titanium Grade 1** (unalloyed titanium)
- engineering materials with extraordinary combination of properties: relatively low density (4.5 g/cm³), good mechanical properties and a very high melting point that allows the use at high temperatures (1600°F, 870°C)
- good corrosion resistance at room temperature to air, marine and a variety of industrial environments
- good cold formability, high ductility
- fully non-magnetic
- generally it is used when in addition to the corrosion resistance, high strength-to-weight ratio is required
- bio-compatible (maintain cell integrity, no inflammatory response)
- typical applications include handling of components in cleaning/chemical processes also at high temperature, histology, biology, medicine, surgery

PLASTICS

Engineering plastic type CF

- **PA66/CF30** polyamide 66 reinforced with 30 wt% carbon fibre
- heat stabilized
- very high rigidity, excellent tensile and flexural strength, fatigue and creep resistance
- low friction, self lubricating properties, excellent wear and abrasion resistance
- good heat capability
- good chemical resistance (oils, grease, fuels, non polar solvents); not resistant to strong acids, alkalis and hot water or steam
- **ESD safe** material, (avoids dust attraction, sparks generation, ignition sources)
- very low coefficient of linear thermal expansion
- typical applications include handling of sensitive components and devices (electronic components, micro-mechanical parts, glass and ceramic substrates, capillary, etc.)

High-performance plastic type CP

- **PEEK/CF30** polyetheretherketone reinforced with 30 wt% carbon fibre
- very hard, rigid, high tensile and flexural strength, very high wear resistance
- high heat capability (260-300°C), good dimension stability, low thermal linear expansion coefficient
- excellent resistance to chemicals, aggressive agents and to thermal ageing
- **ESD safe** material, low surface resistivity (10^5 Ohm)
- typical applications include handling of components in cleaning/chemical/assembly processes also at high temperatures (soldering)

Engineering plastic type DG/DL

- **POM/GF30** acetal resin reinforced with 30 wt% glass fibre
- good tensile and flexural strength, fatigue and creep resistance
- low friction, good wear and abrasion resistance
- low moisture absorption
- good chemical resistance (oils, grease, fuels, organic solvents); not resistant to strong acids, alkalis and oxidizing agents; good hydrolytic resistance (hot water)
- insulating
- typical applications include handling of very scratch sensitive components

High performance plastic type SV

- **PVDF** polyvinylidene fluoride carbon fibre reinforced
- excellent mechanical strength and toughness
- smooth surface
- heat stabilized, high heat capability, continuous use temperature up to 150°C
- high purity (clean room and medical devices approved, low extraction value)
- excellent chemical resistance to most aggressive substances (mineral and organic acids) and solvents (hydrocarbons, alcohols, halogenated), resistant to halogens
- outstanding resistance to hydrofluoric acid (40% conc., 90°C), nitric acid (50% conc., 90°C), hydrochloric acid (36% conc., 90°C)
- high abrasion resistant
- resistant to UV and nuclear radiation (sterilisation)
- **ESD safe** (avoids dust attraction, sparks generation, ignition sources)
- typical applications include handling of very scratch- and contamination-sensitive components, cleaning and etching processes

CERAMIC

Advanced Ceramic type MZ

- **Zirconia Toughened Alumina (ZTA)**
- a superior combination of high strength (from zirconia) and high hardness (from alumina)
- relatively low density
- no open porosity
- very hard surface, good abrasion and wear resistance
- good flexural strength and fracture toughness
- excellent thermal properties and high temperature stability
- extreme corrosion resistance, nearly chemically inert
- electrically insulative
- typically applications includes soldering processes, handling of components during thermal and chemical processes. Generally used when very rigid tips are required

ESD GRIPS & COATINGS

Engineering grip type DR

- **NBR** vulcanized nitrile rubber
- very soft and elastic, good tear resistance
- outstanding abrasion/wear resistance (improved lifetime)
- good chemical resistance (oils, grease, fuels, acid, detergents and soaps); good hydrolytic resistance (hot water)
- electrically static dissipative, low surface resistivity (108 Ohm), ESD-safe material!
- typical applications include ESD-safe handles, floor and work surface mats

Engineering grip type DN

- **PVC FOAM**
- very soft and elastic, good tear resistance
- very good abrasion/wear resistance (improved lifetime)
- good chemical resistance (oils, grease, fuels, acids, detergents and soaps, alcohols)
- electrically static dissipative, ESD-safe material!
- typical applications include ESD-safe handles, floor and work surface mats

Engineering coating type EP

- **EP** polyester epoxy coating comprise essentially polyester and epoxy resins
- Impact resistant surface with excellent flow; good elasticity
- Can operate continuously at temperatures up to 120°C.
- This coating provides an insulating coating with surface resistance $> 10^{12}$ Ohm
- Good resistance to many diluted acids and alkalis. Contact with organic solvents is possible conditionally and for short term. Resistance should be investigated for the case in question
- Typical applications include tweezers handles (better grip, high comfort)

Engineering coating type NE

- **NE** polyester epoxy coating comprise essentially polyester and epoxy resins, plus the electrically conductive additives
- Impact resistant surface with excellent flow; good elasticity
- Can operate continuously at temperatures up to 120°C
- This coating provides a ESD Safe coating with surface resistance 10^5 - 10^6 Ohm
- Good resistance to many diluted acids and alkalis. Contact with organic solvents is possible conditionally and for short term. Resistance should be investigated for the case in question
- Typical applications include tweezers handles (better grip, high comfort)

Engineering coating type NP

- Pure nickel coating
- Generally used to improve the resistance of tools made of carbon steel. The coating is deposited by electroplating technique.
- Hard and elastic, very good resistance to mechanical stress.
- Improved resistance to wear and abrasion.
- Superior corrosion resistance to saltwater, alkalies and organic acids

Engineering coating type TE

- **TE** is a solvent-based liquid Teflon® coating formulated with special blends of fluoropolymers and other high-performance resins to improve toughness and abrasion resistance
- Substances will permanently adhere to a Teflon® finish. Although tacky materials may show some adhesion, almost all substances release easily
- The coefficient of friction of this Teflon® coating is generally in the range of 0.20 to 0.25, depending on the load, sliding speed, and particular Teflon® coating used.
- Since surfaces coated with Teflon® are both oleophobic and hydrophobic, they are not readily wetted. Cleanup is easier and more thorough - in many cases, surfaces are self-cleaning
- Can operate continuously at temperatures up to 150°C and can be used for intermittent service up to 200°C.
- Over a wide range of frequencies, Teflon® has high dielectric strength, low dissipation factor, and very high surface resistivity
- Many Teflon® industrial coatings withstand severe temperature extremes without loss of physical properties. Teflon® industrial coatings may be used at temperatures as low as -270°C/-454°F
- TE is normally unaffected by mild chemical environments. It has good resistance to diluted acids, diluted and concentrated alkalis and organic solvents
- Typical applications include tweezers for the handling of very scratch-sensitive components or wafers

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