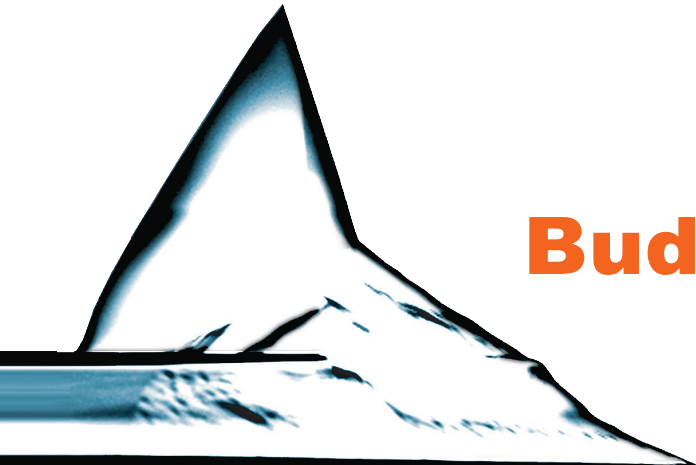


AFM Probes Catalogue



Budget *Sensors*

Quality meets Price

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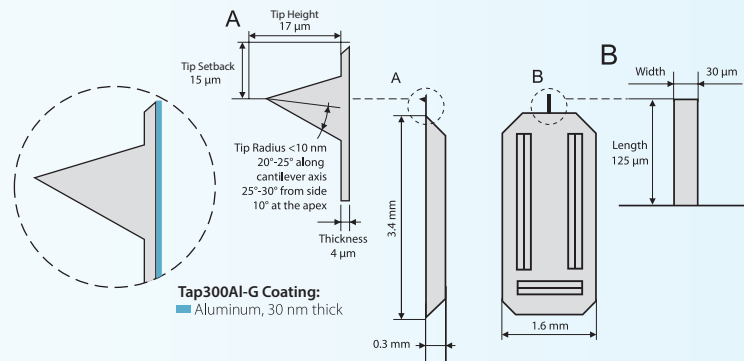
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Silicon AFM Probes



Tapping Mode

	Tap300-G	Tap300AI-G
10 probes	Tap300-G-10	Tap300AI-G-10
50 probes	Tap300-G-50	Tap300AI-G-50
380 probes	Tap300-G-380	Tap300AI-G-380



Technical Data:	VALUE	RANGE
Resonance Frequency	300 kHz	± 100 kHz
Force Constant	40 N/m	20 to 75 N/m
Length	125 µm	± 10 µm
Mean Width	30 µm	± 5 µm
Thickness	4 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	<10 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Application: Tapping Mode, Intermittent Contact Mode

Coating: None (Tap300-G) or 30nm thick Aluminum reflex coating (Tap300AI-G)

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm gives good resolution and reproducibility.

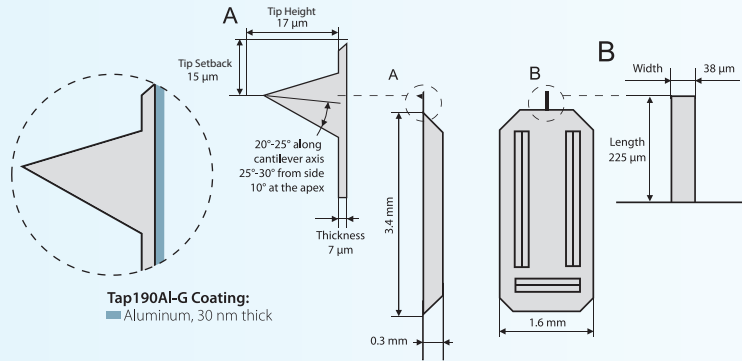
This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

[View image gallery for application images taken with this product!](#)

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

Tapping Mode



Application: Tapping Mode, Intermittent Contact Mode

Coating: None (Tap190-G) or 30nm thick Aluminum reflex coating (Tap190AI-G)

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm gives good resolution and reproducibility.

This probe uses an “on scan angle” symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

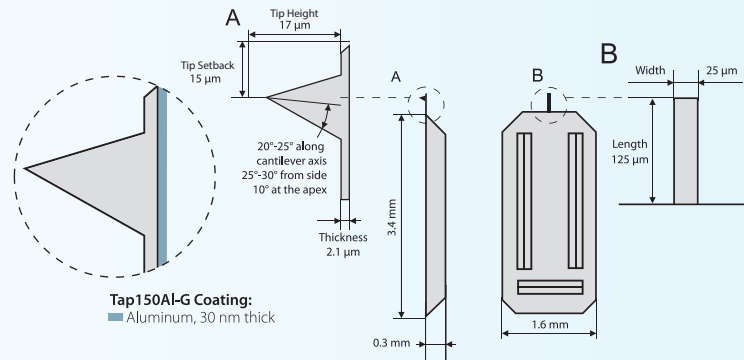
Chip size: 3.4 x 1.6 x 0.3 mm

	Tap190-G	Tap190AI-G
10 probes	Tap190-G-10	Tap190AI-G-10
50 probes	Tap190-G-50	Tap190AI-G-50
380 probes	Tap190-G-380	Tap190AI-G-380

Technical Data:	VALUE	RANGE
Resonance Frequency	190 kHz	± 30 kHz
Force Constant	48 N/m	28 to 75 N/m
Length	225 µm	± 10 µm
Mean Width	38 µm	± 5 µm
Thickness	7 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	<10 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Soft Tapping Mode

	Tap150-G	Tap150AI-G
10 probes	Tap150-G-10	Tap150AI-G-10
50 probes	Tap150-G-50	Tap150AI-G-50
380 probes	Tap150-G-380	Tap150AI-G-380



Technical Data:	VALUE	RANGE
Resonance Frequency	150 kHz	± 75 kHz
Force Constant	5 N/m	1.5 to 15 N/m
Length	125 µm	± 10 µm
Mean Width	25 µm	± 5 µm
Thickness	2.1 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	<10 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Application: Soft Tapping Mode, Intermittent Contact Mode

Coating: None (Tap150-G) or 30nm thick Aluminum reflex coating (Tap150AI-G)

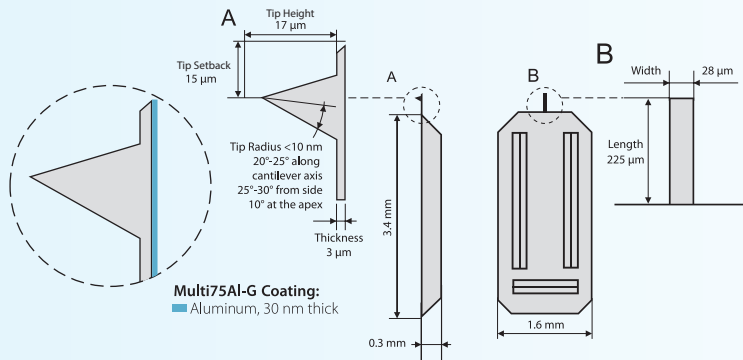
The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

Force Modulation



Application: Force Modulation Mode, Light Tapping Mode, Pulsed Force Mode (PFM)

Coating: None (Multi75-G) or 30nm thick Aluminum reflex coating (Multi75Al-G)

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm gives good resolution and reproducibility.

This probe uses an “on scan angle” symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

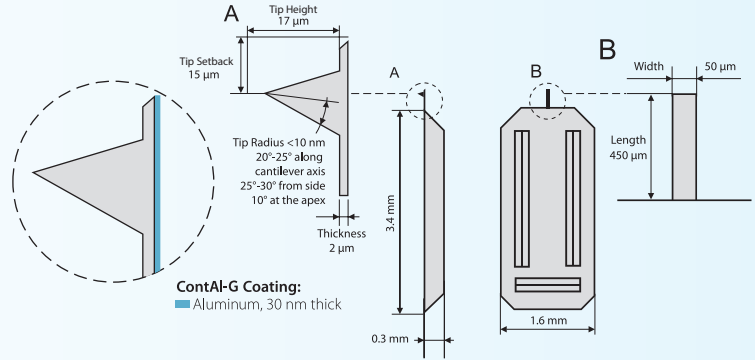
Chip size: 3.4 x 1.6 x 0.3 mm

	Multi75-G	Multi75Al-G
10 probes	Multi75-G-10	Multi75Al-G-10
50 probes	Multi75-G-50	Multi75Al-G-50
380 probes	Multi75-G-380	Multi75Al-G-380

Technical Data:	VALUE	RANGE
Resonance Frequency	75 kHz	± 15 kHz
Force Constant	3 N/m	1 to 7 N/m
Length	225 µm	± 10 µm
Mean Width	28 µm	± 5 µm
Thickness	3 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	<10 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Contact Mode

	Contact-G	ContAl-G
10 probes	Contact-G-10	ContAl-G-10
50 probes	Contact-G-50	ContAl-G-50
380 probes	Contact-G-380	ContAl-G-380



Technical Data:	VALUE	RANGE
Resonance Frequency	13 kHz	± 4 kHz
Force Constant	0.2 N/m	0.07 to 0.4 N/m
Length	450 µm	± 10 µm
Mean Width	50 µm	± 5 µm
Thickness	2 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	< 10 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Application: Contact Mode

Coating: None (Cont-G) or 30nm thick Aluminum reflex coating (ContAl-G)

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm gives good resolution and reproducibility.

This probe uses an **“on scan angle”** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

Conductive AFM Probes



Conductive AFM Probes

ElectriTap300-G

10 probes Tap300E-G-10

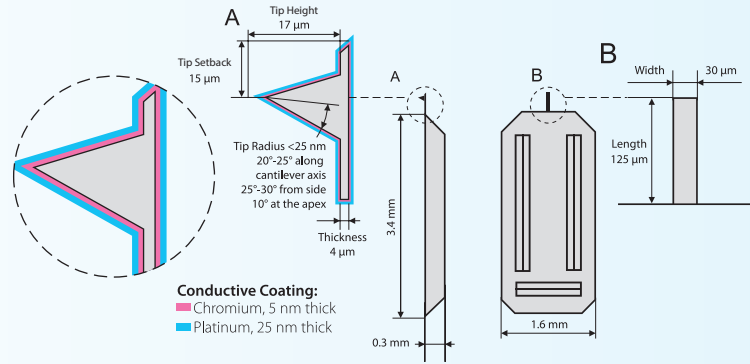
50 probes Tap300E-G-50

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 25 nm gives good resolution and reproducibility.

This probe uses an “on scan angle” symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm



Technical Data:	VALUE	RANGE
Resonance Frequency	300 kHz	± 100 kHz
Force Constant	40 N/m	20 to 75 N/m
Length	125 µm	± 10 µm
Mean Width	30 µm	± 5 µm
Thickness	4 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	<25 nm	
Half Cone Angles	20°-25° along cantilever axis	
	25°-30° from side	
	10° at the apex	
Contact Resistance	300 Ohm on Platinum thin film surface	

Application: Tapping, Intermittent Contact and electric modes such as:

- Scanning Capacitance Microscopy (SCM)
- Electrostatic Force Microscopy (EFM)
- Kelvin Probe Force Microscopy (KPFM)

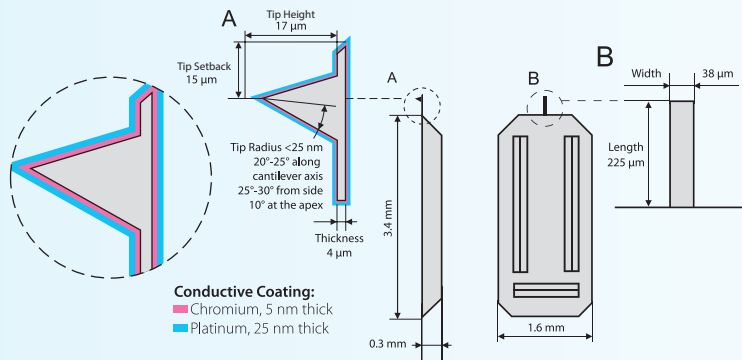
Coating: Electrically conductive coating of 5 nm Chromium and 25 nm Platinum on both sides of the cantilever. This coating also enhances the laser reflectivity of the cantilever.

Conductive AFM Probes

ElectriTap190-G

10 probes **Tap190E-G-10**

50 probes **Tap190E-G-50**



The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 25 nm gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

Application: Tapping, Intermittent Contact and electric modes such as:

- Scanning Capacitance Microscopy (SCM)
- Electrostatic Force Microscopy (EFM)
- Kelvin Probe Force Microscopy (KPFM)

Coating: Electrically conductive coating of 5 nm Chromium and 25 nm Platinum on both sides of the cantilever. This coating also enhances the laser reflectivity of the cantilever.

Technical Data:	VALUE	RANGE
Resonance Frequency	190 kHz	± 30 kHz
Force Constant	48 N/m	28 to 75 N/m
Length	225 μm	± 10 μm
Mean Width	38 μm	± 5 μm
Thickness	7 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	<25 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Conductive AFM Probes

ElectriTap150-G

10 probes

Tap150E-G-10

50 probes

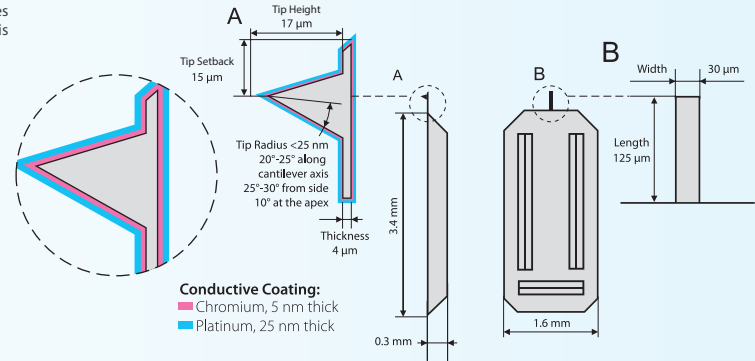
Tap150E-G-50

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 25 nm gives good resolution and reproducibility.

This probe uses an “**on scan angle**” symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm



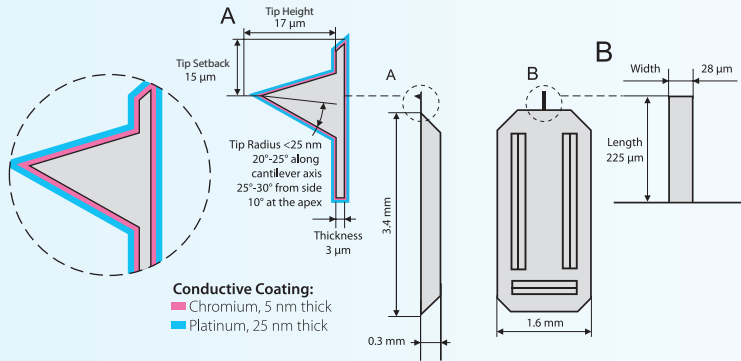
Technical Data:	VALUE	RANGE
Resonance Frequency	150 kHz	± 75 kHz
Force Constant	5 N/m	1.5 to 15 N/m
Length	125 µm	± 10 µm
Mean Width	25 µm	± 5 µm
Thickness	2.1 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	<25 nm	
Half Cone Angles	20°-25° along cantilever axis	
	25°-30° from side	
	10° at the apex	

Application: Soft Tapping, Intermittent Contact and electric modes such as:

- Scanning Capacitance Microscopy (SCM)
- Electrostatic Force Microscopy (EFM)
- Kelvin Probe Force Microscopy (KPFM)

Coating: Electrically conductive coating of 5 nm Chromium and 25 nm Platinum on both sides of the cantilever. This coating also enhances the laser reflectivity of the cantilever.

Conductive AFM Probes



The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 25 nm gives good resolution and reproducibility.

This probe uses an "on scan angle" symmetric tip to provide a more symmetric representation of features over 200 nm.

ElectriMulti75-G

10 probes Multi75E-G-10

50 probes Multi75E-G-50

AFM Probe Holder Chip

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

- Application:** Force Modulation Mode, Light Tapping Mode, Pulsed Force Mode and electric modes such as:
- Scanning Capacitance Microscopy (SCM)
 - Electrostatic Force Microscopy (EFM)
 - Kelvin Probe Force Microscopy (KPFM)

Coating: Electrically conductive coating of 5 nm Chromium and 25 nm Platinum on both sides of the cantilever. This coating also enhances the laser reflectivity of the cantilever.

Technical Data:	VALUE	RANGE
Resonance Frequency	75 kHz	± 15 kHz
Force Constant	3 N/m	1 to 7 N/m
Length	225 μm	± 10 μm
Mean Width	28 μm	± 5 μm
Thickness	3 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	< 25 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	
Contact Resistance	300 Ohm on Platinum thin film surface	

Conductive AFM Probes

ElectriCont-G

10 probes ContE-G-10

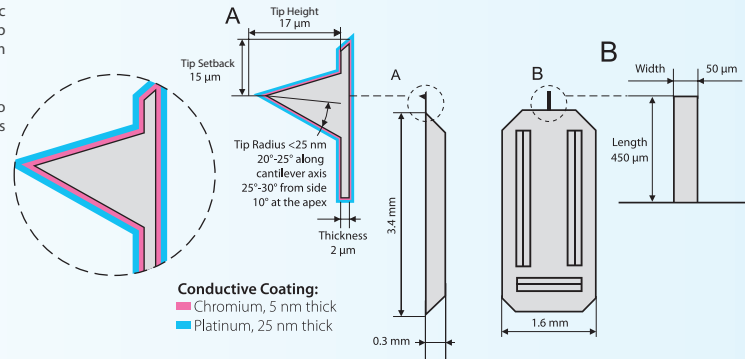
50 probes ContE-G-50

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 25 nm gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.



Application: Contact Mode and electric modes such as:

- Scanning Capacitance Microscopy (SCM)
- Electrostatic Force Microscopy (EFM)
- Kelvin Probe Force Microscopy (KPFM)

Coating: Electrically conductive coating of 5 nm Chromium and 25 nm Platinum on both sides of the cantilever. This coating also enhances the laser reflectivity of the cantilever.

Technical Data:

	VALUE	RANGE
Resonance Frequency	13 kHz	± 4 kHz
Force Constant	0.2 N/m	0.07 to 0.4 N/m
Length	450 μm	± 10 μm
Mean Width	50 μm	± 5 μm
Thickness	2 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	<25 nm	
Half Cone Angles	20°-25° along cantilever axis	
	25°-30° from side	
	10° at the apex	
Contact Resistance	300 Ohm on Platinum thin film surface	

Gold Series

Gold Coated Silicon AFM Probes



Gold Series

Tap300GD-G

Tap300GB-G

10
probes

Tap300GD-G-10

Tap300GB-G-10

50
probes

Tap300GD-G-50

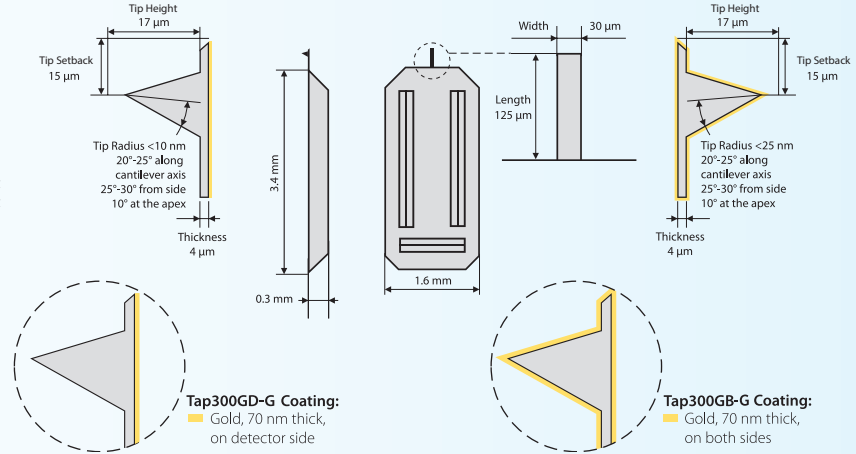
Tap300GB-G-50

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm for Tap300GD-G and less than 25 nm for Tap300GB-G gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm



Tap300GD-G

Application: Tapping Mode, Intermittent Contact Mode

Coating: 70 nm Gold coating on detector side of the cantilever

Tap300GB-G

Application: Tapping Mode, Intermittent Contact Mode and special applications

Coating: 70 nm Gold coating on both sides of the cantilever

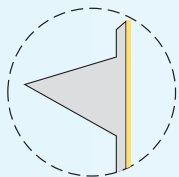
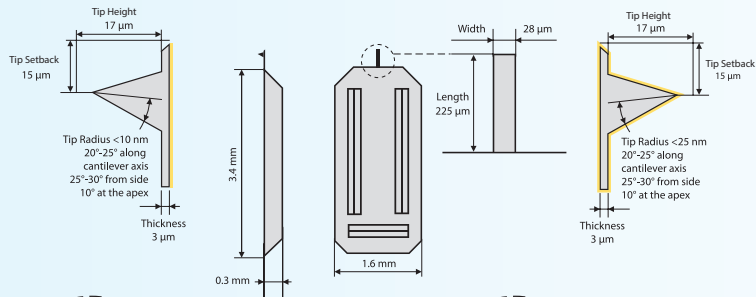
Technical Data:

VALUE

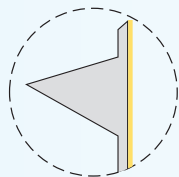
RANGE

Technical Data:	VALUE	RANGE
Resonance Frequency	300 kHz	± 100 kHz
Force Constant	40 N/m	20 to 75 N/m
Length	125 μm	± 10 μm
Mean Width	30 μm	± 5 μm
Thickness	4 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	<10 nm (Tap300GD-G) / <25 nm (Tap300GB-G)	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Gold Series



Tap190GD-G Coating:
 Gold, 70 nm thick, on detector side



Tap190GB-G Coating:
 Gold, 70 nm thick, on detector side

Tap190GD-G

Application: Tapping Mode, Intermittent Contact Mode, Long Cantilever

Coating: 70 nm Gold on detector side of the cantilever

Tap190GB-G

Application: Tapping Mode, Intermittent Contact Mode, Long Cantilever and special applications

Coating: 70 nm Gold coating on both sides of the cantilever

Tap190GD-G

Tap190GB-G

10 probes

Tap190GD-G-10

Tap190GB-G-10

50 probes

Tap190GD-G-50

Tap190GB-G-50

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm gives good resolution and reproducibility.

This probe uses an "on scan angle" symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

Technical Data:	VALUE	RANGE
Resonance Frequency	190 kHz	± 30 kHz
Force Constant	48 N/m	28 to 75 N/m
Length	225 μm	± 10 μm
Mean Width	38 μm	± 5 μm
Thickness	7 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	<10 nm (Tap190GD-G) / <25 nm (Tap190GB-G)	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Gold Series

Tap150GD-G

Tap150GB-G

10 probes

Tap150GD-G-10

Tap150GB-G-10

50 probes

Tap150GD-G-50

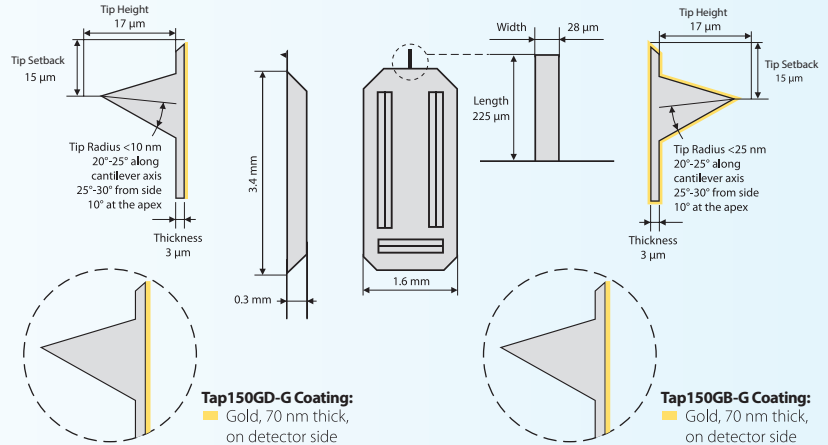
Tap150GB-G-50

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm for Tap150GD-G and less than 25 nm for Tap150GB-G gives good resolution and reproducibility.

This probe uses an “on scan angle” symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm



Tap150GD-G

Application: Soft Tapping Mode, Intermittent Contact Mode

Coating: 70 nm Gold on detector side of the cantilever

Tap150GB-G

Application: Soft Tapping Mode, Intermittent Contact Mode and special applications

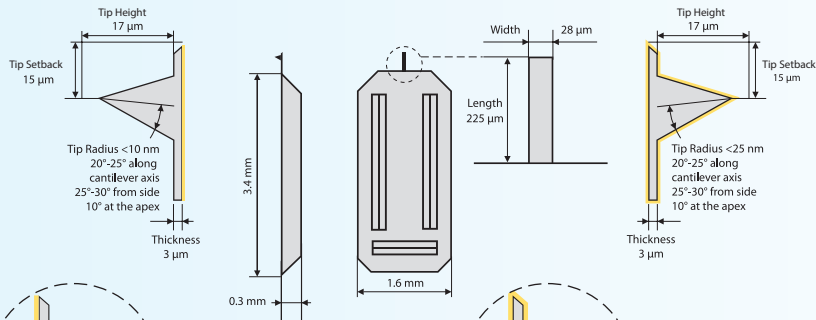
Coating: 70 nm Gold coating on both sides of the cantilever

Technical Data:

VALUE

RANGE

	VALUE	RANGE
Resonance Frequency	150 kHz	± 75 kHz
Force Constant	5 N/m	1.5 to 15 N/m
Length	125 µm	± 10 µm
Mean Width	25 µm	± 5 µm
Thickness	2.1 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	<10 nm (Tap150GD-G) / <25 nm (Tap150GB-G)	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	



Multi75GD-G Coating:

■ Gold, 70 nm thick, on detector side

Multi75GB-G Coating:

■ Gold, 70 nm thick, on both sides

Multi75GD-G

Application: Force Modulation Mode, Light Tapping Mode, Pulsed Force Mode(PFM)

Coating: 70 nm Gold on detector side of the cantilever

Multi75GB-G

Application: Force Modulation Mode, Light Tapping Mode, Pulsed Force Mode(PFM) and special applications

Coating: 70 nm Gold coating on both sides of the cantilever

Multi75GD-G

Multi75GB-G

10 probes

Multi75GD-G-10

Multi75GB-G-10

50 probes

Multi75GD-G-50

Multi75GB-G-50

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm for Multi75GD and less than 25 nm for Multi75GB-G gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

Technical Data:	VALUE	RANGE
Resonance Frequency	75 kHz	± 15 kHz
Force Constant	3 N/m	1 to 7 N/m
Length	225 μm	± 10 μm
Mean Width	28 μm	± 5 μm
Thickness	3 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	<10 nm (Multi75GD-G) / <25 nm (Multi75GB-G)	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

ContGD-G		ContGB-G	
10 probes	ContGD-G-10	ContGB-G-10	
50 probes	ContGD-G-50	ContGB-G-50	

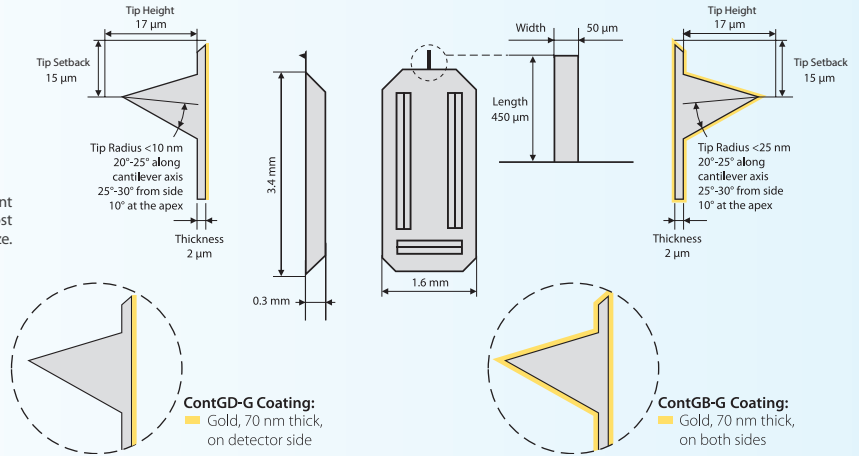
The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm for ContGD and less than 25 nm for ContGB-G gives good resolution and reproducibility.

The **AFM Probe Holder Chip** has alignment grooves on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

Technical Data:	VALUE	RANGE
Resonance Frequency	13 kHz	± 4 kHz
Force Constant	0.2 N/m	0.07 to 0.4 N/m
Length	450 µm	± 10 µm
Mean Width	50 µm	± 5 µm
Thickness	2 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	<10 nm (ContGD-G) / <25 nm (ContGB-G)	
Half Cone Angles	20°-25° along cantilever axis	
	25°-30° from side	
	10° at the apex	



ContGD-G

Application: Contact Mode

Coating: 70 nm Gold on detector side of the cantilever

ContGB-G

Application: Contact Mode and special applications

Coating: 70 nm Gold coating on both sides of the cantilever

Magnetic AFM Probes

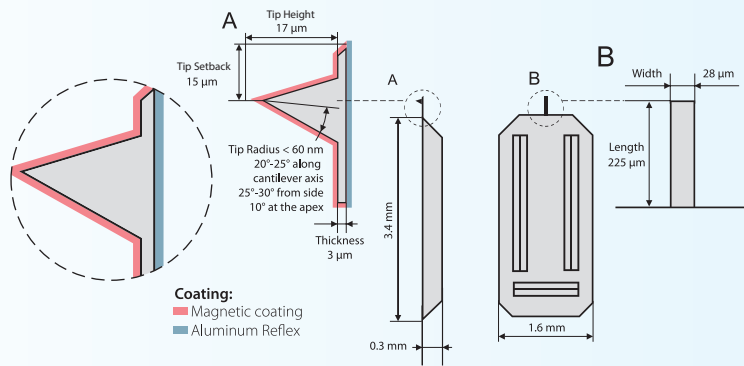


Magnetic AFM Probes

Magnetic Multi75-G

10 probes Multi75M-G-10

50 probes Multi75M-G-50



Technical Data:	VALUE	RANGE
Resonance Frequency	75 kHz	± 15 kHz
Force Constant	3 N/m	1 to 7 N/m
Length	225 μm	± 10 μm
Mean Width	28 μm	± 5 μm
Thickness	3 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	<60 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Application: Magnetic Force Microscopy (MFM)

Coating: Magnetic coating on the tip side
and aluminum reflex coating on detector side

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 60 nm gives good resolution and reproducibility.

This probe uses an "on scan angle" symmetric tip to provide a more symmetric representation of features over 200 nm.

[View image gallery for application images taken with this product!](#)

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

Diamond-Like-Carbon AFM Probes

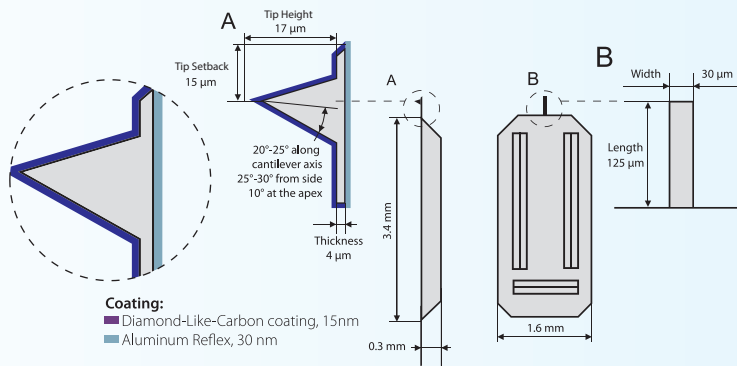


DLC AFM Probes

Tap300DLC

10 probes Tap300DLC-10

50 probes Tap300DLC-50



Technical Data:	VALUE	RANGE
Resonance Frequency	300 kHz	± 100 kHz
Force Constant	40 N/m	20 to 75 N/m
Length	125 μm	± 10 μm
Mean Width	30 μm	± 5 μm
Thickness	4 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	< 15 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Application: Tapping Mode, Intermittent Contact Mode

Coating: Diamond-Like-Carbon coating on the tip side of the cantilever, 15 nm thick;
 Aluminum reflex coating on detector side of the cantilever, 30 nm thick

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 15 nm gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

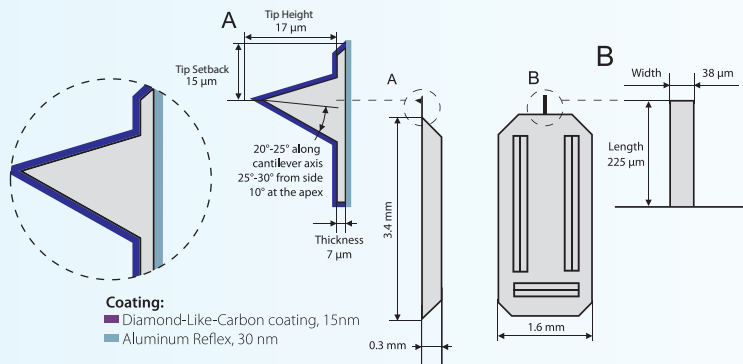
Chip size: 3.4 x 1.6 x 0.3 mm

DLC AFM Probes

Tap190DLC

10 probes Tap190DLC-10

50 probes Tap190DLC-50



Application: Tapping Mode, Intermittent Contact Mode, Long Cantilever

Coating: Diamond-Like-Carbon coating on the tip side of the cantilever, 15 nm thick;
Aluminum reflex coating on detector side of the cantilever, 30 nm thick

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 15 nm gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

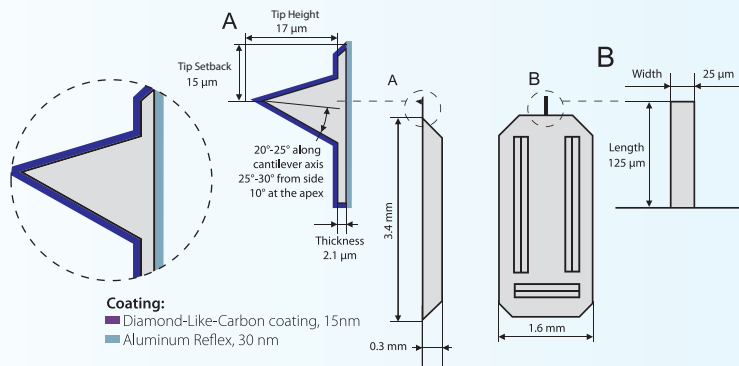
Technical Data:	VALUE	RANGE
Resonance Frequency	190 kHz	± 30 kHz
Force Constant	48 N/m	28 to 75 N/m
Length	225 µm	± 10 µm
Mean Width	38 µm	± 5 µm
Thickness	7 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	<15 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

DLC AFM Probes

Tap150DLC

10 probes Tap150DLC-10

50 probes Tap150DLC-50



Technical Data:	VALUE	RANGE
Resonance Frequency	150 kHz	± 75 kHz
Force Constant	5 N/m	1.5 to 15 N/m
Length	125 μm	± 10 μm
Mean Width	25 μm	± 5 μm
Thickness	2.1 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	< 15 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Application: Soft Tapping Mode, Intermittent Contact Mode

Coating: Diamond-Like-Carbon coating on the tip side of the cantilever, 15 nm thick;
 Aluminum reflex coating on detector side of the cantilever, 30 nm thick

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 15 nm gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

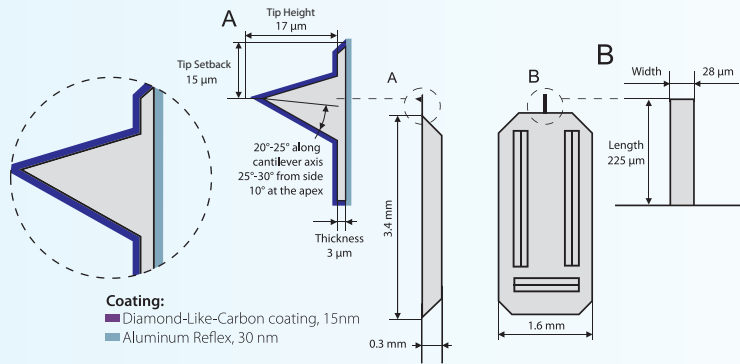
Chip size: 3.4 x 1.6 x 0.3 mm

DLC AFM Probes

Multi75DLC

10 probes Multi75DLC-10

50 probes Multi75DLC-50



Application: Force Modulation Mode, Pulsed Force Mode (PFM)

Coating: Diamond-Like-Carbon coating on the tip side of the cantilever, 15 nm thick;
Aluminum reflex coating on detector side of the cantilever, 30 nm thick

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 15 nm gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

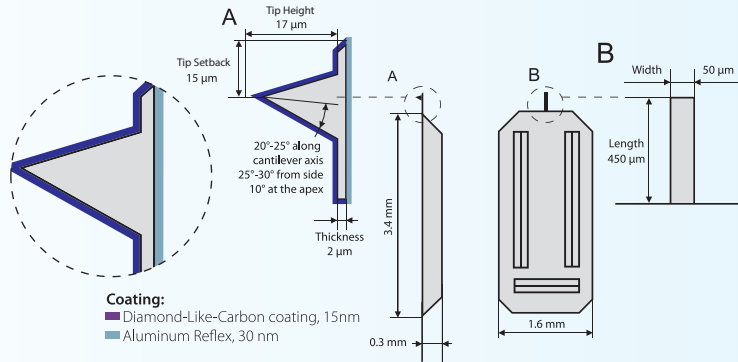
Technical Data:	VALUE	RANGE
Resonance Frequency	75 kHz	± 15 kHz
Force Constant	3 N/m	1 to 7 N/m
Length	225 μm	± 10 μm
Mean Width	28 μm	± 5 μm
Thickness	3 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Tip Radius	< 15 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

DLC AFM Probes

ContDLC

10 probes ContDLC-10

50 probes ContDLC-50



Technical Data:	VALUE	RANGE
Resonance Frequency	13 kHz	± 4 kHz
Force Constant	0.2 N/m	0.07 to 0.4 N/m
Length	450 µm	± 10 µm
Mean Width	50 µm	± 5 µm
Thickness	2 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Tip Radius	< 15 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Application: Contact Mode

Coating: Diamond-Like-Carbon coating on the tip side of the cantilever, 15 nm thick;
 Aluminum reflex coating on detector side of the cantilever, 30 nm thick

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 15 nm gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

Silicon Nitride

AFM Probes



Silicon Nitride AFM Probes

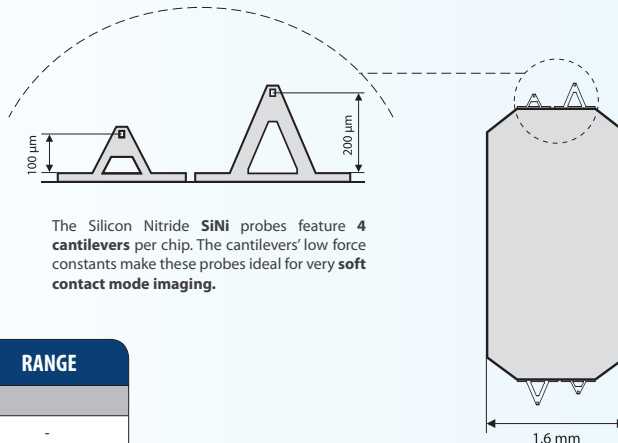
SiNi

10 probes SiNi-10

30 probes SiNi-30

100 probes SiNi-100

300 probes SiNi-300



The Silicon Nitride SiNi probes feature 4 cantilevers per chip. The cantilevers' low force constants make these probes ideal for very soft contact mode imaging.

The AFM Probe Holder Chip fits most commercial AFMs as it is industry standard size.

The SiNi has triangular Silicon Nitride cantilevers with 2 different lengths.

Chip size: 3.4 x 1.6 x 0.45 mm

Technical Data:

TYPICAL VALUES

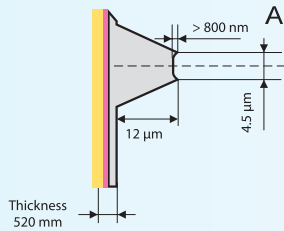
RANGE

	short cantilever	long cantilever	
Resonance Frequency	30 kHz	10 kHz	-
Force Constant	0.27 N/m	0.06 N/m	-
Length	100 μm	200 μm	± 10 nm
Width	16 μm	30 μm	± 5 nm
Thickness	520 nm (45 nm SiNi + 70 nm coating)		± 50 nm
Tip Height (Wedge Tip)	12 μm (overall) > 800 nm (effective)		± 2 μm -
Double Tip Spacing	4.5 μm		± 0.5 μm
Tip Radius	< 15 nm		
Half Cone Angles	35° (macroscopic)		
Cantilever Bending	< 3°		

Application: Soft Contact Mode

General: 4 Silicon Nitride triangular cantilevers, 2 different lengths

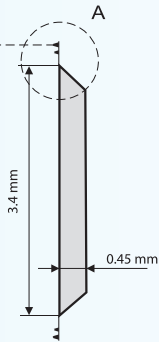
Coating: 70 nm thick, Chromium-Gold on detector side of the cantilever



Wedge tip with 12μm overall tip height and > 800nm effective tip height
 Double tip spacing 4.5μm
 Tip radius of curvature <15 nm
 Tip setback (first tip) >12μm

Half cone angles:
 70° from top and from side
 <15° at the apex (last 200nm)

Cantilever Backside Coating:
 Chromium, 10 nm thick
 Gold, 60 nm thick





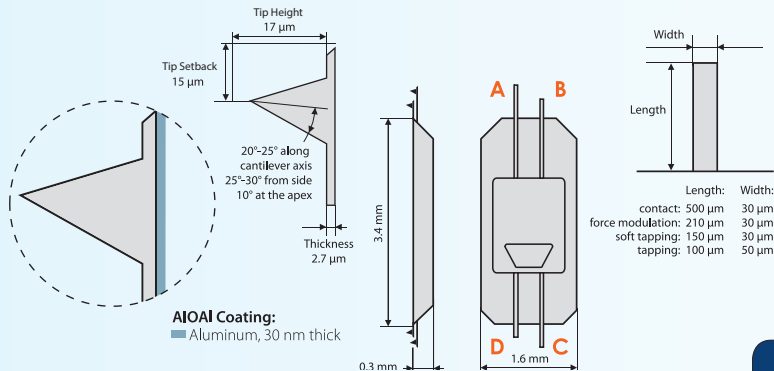
All In One

Silicon AFM Probes

Budget *Sensors*



All In One



AIOAI Coating:
■ Aluminum, 30 nm thick

The **All-in-One** probes offer four cantilevers with different geometry for all topography measurement modes: **Contact**, **Force Modulation**, **Soft Tapping** and **Tapping Mode**.

The resonance frequencies and force constants are similar to the ones of the well-established models **Contact-G**, **Multi75-G**, **Tap150-G** and **Tap300-G**.

The long cantilevers **A** for contact mode and **B** for force modulation mode are located at one end of the chip while the short cantilevers **C** for soft tapping mode and **D** for tapping mode are located at the opposite end.

The short cantilever end is marked by a trapezoidal pattern visible with bare eyes.

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm gives good resolution and reproducibility.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

All-In-One

All-In-OneAI

10 probes

AIO-10

AIOAI-10

50 probes

AIO-50

AIOAI-50

Application: Several measurement modes

Coating: None (AIO) or 30 nm thick Aluminum reflex coating (AIOAI)

Technical Data:	TYPICAL VALUE	RANGE	TYPICAL VALUE	RANGE
Cantilever/Similar to:	A / Contact-G		B / Multi75-G	
Resonance Frequency	15 kHz	± 5 kHz	80 kHz	± 30 kHz
Force Constant	0.2 N/m	0.04 - 0.7 N/m	2.7 N/m	0.04 - 10 N/m
Length	500 µm	± 10 µm	210 µm	± 10 µm
Mean Width	30 µm	± 5 µm	30 µm	± 5 µm
Thickness	2.7 µm	± 1 µm	2.7 µm	± 1 µm
Cantilever/Similar to:	C / Tap150-G		D / Tap300-G	
Resonance Frequency	150 kHz	80 ± kHz	350 kHz	150 ± kHz
Force Constant	7.4 N/m	1 - 29N/m	40 N/m	7 - 160 N/m
Length	150 µm	± 10 µm	100 µm	± 10 µm
Mean Width	30 µm	± 5 µm	50 µm	± 5 µm
Thickness	2.7 µm	± 1 µm	2.7 µm	± 1 µm
Tip Specs:	height: 17 µm (±2);		radius: <10nm;	tip setback: 15 µm (±5);

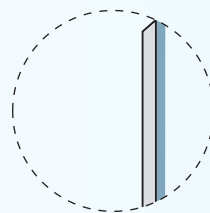
All-In-One-Tipless / All-In-OneAI-Tipless

10 probes **AIO-TL-10** **AIOAI-TL-10**

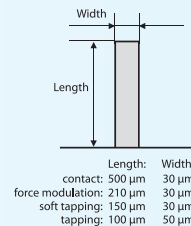
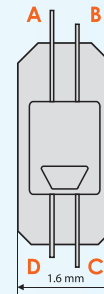
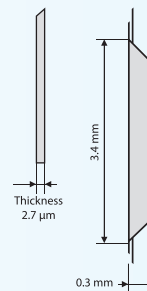
50 probes **AIO-TL-50** **AIOAI-TL-50**

Application: Several measurement modes

Coating: None (AIO-TL) or 30 nm thick Aluminum reflex coating (AIOAI-TL)



AIO-TL AI Coating:
■ Aluminum, 30 nm thick



Technical Data: TYPICAL VALUE RANGE TYPICAL VALUE RANGE

Cantilever/Similar to:	A / Contact-G		B / Multi75-G	
Resonance Frequency	15 kHz	± 5 kHz	80 kHz	± 30 kHz
Force Constant	0.2 N/m	0.04 - 0.7 N/m	2.7 N/m	0.04 - 10 N/m
Length	500 μm	± 10 μm	210 μm	± 10 μm
Mean Width	30 μm	± 5 μm	30 μm	± 5 μm
Thickness	2.7 μm	± 1 μm	2.7 μm	± 1 μm
Cantilever/Similar to:	C / Tap150-G		D / Tap300-G	
Resonance Frequency	150 kHz	80 ± kHz	350 kHz	150 ± kHz
Force Constant	7.4 N/m	1 - 29 N/m	40 N/m	7 - 160 N/m
Length	150 μm	± 10 μm	100 μm	± 10 μm
Mean Width	30 μm	± 5 μm	50 μm	± 5 μm
Thickness	2.7 μm	± 1 μm	2.7 μm	± 1 μm

The **All-in-One** probes offer four cantilevers with different geometry for all topography measurement modes: **Contact**, **Force Modulation**, **Soft Tapping** and **Tapping Mode**.

The resonance frequencies and force constants are similar to the ones of the well-established models **Contact-G**, **Multi75-G**, **Tap150-G** and **Tap300-G**.

The long cantilevers **A** for contact mode and **B** for force modulation mode are located at one end of the chip while the short cantilevers **C** for soft tapping mode and **D** for tapping mode are located at the opposite end.

The short cantilever end is marked by a trapezoidal pattern visible with bare eyes.

The AFM Probe is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 10 nm gives good resolution and reproducibility.

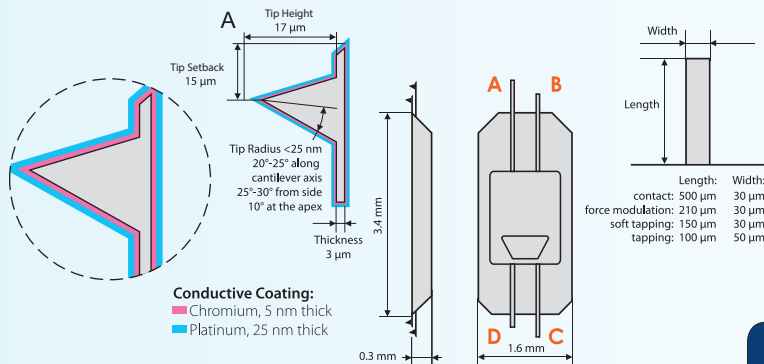
This probe uses an "on scan angle" symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

10 probes **AIOE-10**

50 probes **AIOE-50**



Conductive Coating:

- Chromium, 5 nm thick
- Platinum, 25 nm thick

Versatile monolithic silicon AFM probe with 4 different platinum coated cantilevers on a single AFM holder chip for various applications: contact mode, force modulation mode, soft tapping mode and high frequency tapping / non-contact mode and electric modes such as: **Scanning Capacitance Microscopy (SCM)**, **Electrostatic Force Microscopy (EFM)** and **Kelvin Probe Force Microscopy (KPFM)**.

The resonance frequencies and force constants are similar to the ones of the well-established models **Contact-G**, **Multi75-G**, **Tap150-G** and **Tap300-G**.

The long cantilevers A for contact mode and B for force modulation mode are located at one end of the chip while the short cantilevers C for soft tapping mode and D for tapping mode are located at the

opposite end. The short cantilever end is marked by a trapezoidal pattern visible with bare eyes.

This probe uses an **"on scan angle"** symmetric tip to provide a more symmetric representation of features over 200 nm. The consistent **tip radius of less than 25 nm** gives good resolution and reproducibility.

The **AFM Probe Holder Chip** fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

Application: Various electric modes

Coating: Electrically conductive coating of 5 nm Chromium and 25 nm Platinum on both sides of the cantilever. This coating also enhances the laser reflectivity of the cantilever.

Technical Data:	TYPICAL VALUE	RANGE	TYPICAL VALUE	RANGE
Cantilever/Similar to:	A / Contact-G		B / Multi75-G	
Resonance Frequency	15 kHz	± 5 kHz	80 kHz	± 30 kHz
Force Constant	0.2 N/m	0.04 - 0.7 N/m	2.7 N/m	0.04 - 10 N/m
Length	500 µm	± 10 µm	210 µm	± 10 µm
Mean Width	30 µm	± 5 µm	30 µm	± 5 µm
Thickness	2.7 µm	± 1 µm	2.7 µm	± 1 µm
Cantilever/Similar to:	C / Tap150-G		D / Tap300-G	
Resonance Frequency	150 kHz	80 ± kHz	350 kHz	150 ± kHz
Force Constant	7.4 N/m	1 - 29 N/m	40 N/m	7 - 160 N/m
Length	150 µm	± 10 µm	100 µm	± 10 µm
Mean Width	30 µm	± 5 µm	50 µm	± 5 µm
Thickness	2.7 µm	± 1 µm	2.7 µm	± 1 µm
Tip Specs:	height: 17 µm (±2);		radius: < 25nm;	tip setback: 15 µm (±5);

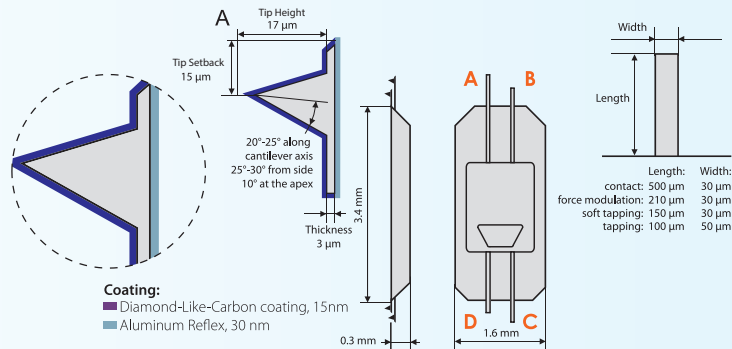
All-In-One-DLC

10 probes AIODLC-10

50 probes AIODLC-50

Application: Several measurement modes

Coating: Diamond-Like-Carbon coating on the tip side of the cantilever, 15 nm thick; Aluminum reflex coating on detector side of the cantilever, 30 nm thick



Technical Data: TYPICAL VALUE RANGE TYPICAL VALUE RANGE

Cantilever/Similar to:	A / Contact-G		B / Multi75-G	
Resonance Frequency	15 kHz	± 5 kHz	80 kHz	± 30 kHz
Force Constant	0.2 N/m	0.04 - 0.7 N/m	2.7 N/m	0.04 - 10 N/m
Length	500 µm	± 10 µm	200 µm	± 10 µm
Mean Width	30 µm	± 5 µm	30 µm	± 5 µm
Thickness	2.7 µm	± 1 µm	2.7 µm	± 1 µm
Cantilever/Similar to:	C / Tap150-G		D / Tap300-G	
Resonance Frequency	150 kHz	80 ± kHz	350 kHz	150 ± kHz
Force Constant	7.4 N/m	1 - 29 N/m	40 N/m	7 - 160 N/m
Length	150 µm	± 10 µm	100 µm	± 10 µm
Mean Width	30 µm	± 5 µm	50 µm	± 5 µm
Thickness	2.7 µm	± 1 µm	2.7 µm	± 1 µm
Tip Specs:	height: 17 µm (±2 µm);	radius: < 15nm;	tip setback: 15 µm (±5 µm);	

The **All-in-One** probes offer four cantilevers with different geometry for all topography measurement modes: **Contact**, **Force Modulation**, **Soft Tapping** and **Tapping Mode**.

The resonance frequencies and force constants are similar to the ones of the well-established models **Contact-G**, **Multi75-G**, **Tap150-G** and **Tap300-G**.

The long cantilevers **A** for contact mode and **B** for force modulation mode are located at one end of the chip while the short cantilevers **C** for soft tapping mode and **D** for tapping mode are located at the opposite end.

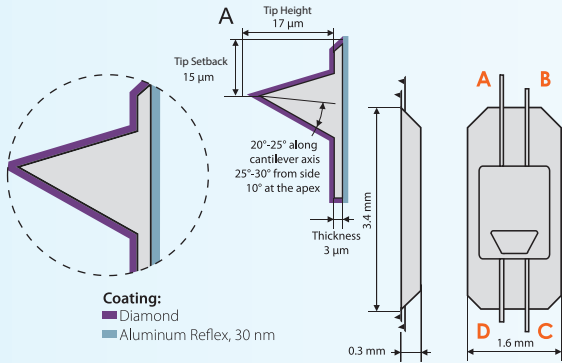
The short cantilever end is marked by a trapezoidal pattern visible with bare eyes.

The **AFM Probe** is micromachined, made of monolithic Silicon, exhibiting excellent uniformity and a sharp tip radius. The consistent tip radius of less than 25 nm gives good resolution and reproducibility.

This probe uses an “on scan angle” symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm



Coating:
■ Diamond
■ Aluminum Reflex, 30 nm

Versatile monolithic silicon AFM probe with 4 different cantilevers on a single AFM holder chip for various applications: **Nanolithography, Nanoindentation and electric modes such as: Scanning Capacitance Microscopy (SCM), Electrostatic Force Microscopy (EFM), Kelvin Probe Force Microscopy (KPFM) and Conductive Atomic Force Microscopy (C-AFM).**

The long cantilevers A for contact mode and B for force modulation mode are located at one end of the chip while the short cantilevers C for soft tapping mode and D for tapping mode are located at the opposite end. The short cantilever end is marked by a trapezoidal pattern visible with bare eyes.

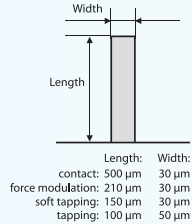
The doped polycrystalline diamond tip coating provides unprecedented hardness and durability,

as well as electrical conductivity for demanding electrical applications. The resulting tip radius is in the range 100 - 250 nm.

This probe uses an "on scan angle" symmetric tip to provide a more symmetric representation of features over 200 nm.

The **AFM Probe Holder Chip** fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm



Application: Various electric modes

Coating: Diamond coating on the tip side of the cantilever; Aluminum reflex coating on detector side of the cantilever, 30 nm thick

All-In-One-DD

5 probes AIO-DD-5

10 probes AIO-DD-10

20 probes AIO-DD-20

50 probes AIO-DD-50

Technical Data:	TYPICAL VALUE	RANGE	TYPICAL VALUE	RANGE
Cantilever/Similar to:	A / Contact-G		B / Multi75-G	
Resonance Frequency	19 kHz	± 5 kHz	110 kHz	± 30 kHz
Force Constant	0.5 N/m	0.02 - 0.9 N/m	6.5 N/m	3 - 12 N/m
Length	500 µm	± 10 µm	210 µm	± 10 µm
Mean Width	30 µm	± 5 µm	30 µm	± 5 µm
Thickness	2.7 µm	± 1 µm	2.7 µm	± 1 µm
Cantilever/Similar to:	C / Tap150-G		D / Tap300-G	
Resonance Frequency	200 kHz	60 ± kHz	450 kHz	150 ± kHz
Force Constant	18 N/m	8 - 35 N/m	100 N/m	48- 190 N/m
Length	150 µm	± 10 µm	100 µm	± 10 µm
Mean Width	30 µm	± 5 µm	50 µm	± 5 µm
Thickness	2.7 µm	± 1 µm	2.7 µm	± 1 µm
Tip Specs:	height: 17 µm (±2 µm);		radius: < 250 nm;	tip setback: 15 µm (±5 µm);

BudgetComboBox

Mixed box of 50 BudgetSensors AFM
Probes of your choice



BudgetComboBox

-37-

Whatever You Want!

Mixed box of 50 BudgetSensors AFM Probes of your choice

BudgetComboBox gives you the freedom to choose freely your personalized box with AFM probes out of any available BudgetSensors AFM Probe models you need.

Ordering:

Order your **BudgetComboBox** online at www.budgetsensors.com or from our distributors.

Prices:

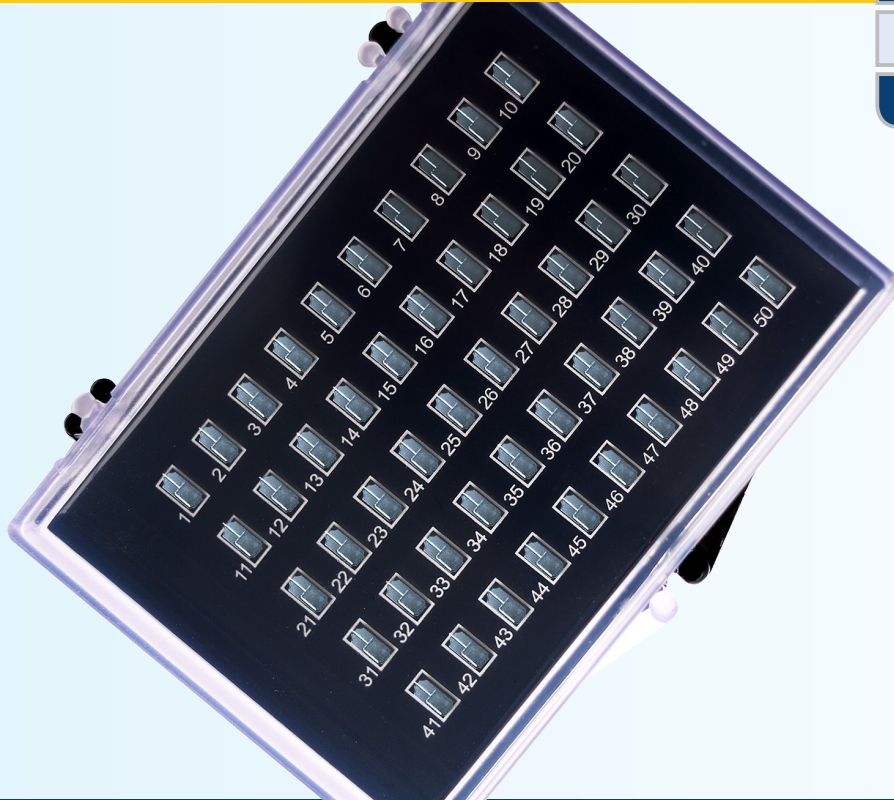
Following our motto "Quality meets Price", we are offering you a very transparent and fair price structure of your personalized BudgetComboBox.

The price of each **BudgetComboBox** is calculated as the value of all AFM Probes in the relevant box, where the price of a single AFM Probe is the price of the same AFM Probe if you ordered it in a regular pack of 50 pieces.

Shipment Conditions:

BudgetComboBox is a personalized product made to customer's request. Nevertheless, we are able to ship it from Europe within 48 hrs after receiving a Purchase Order.

If Ordered via one of our distributors, please allow the additional transit time needed to ship it to you in the fastest possible way.



Single Hi-Res AFM Probes

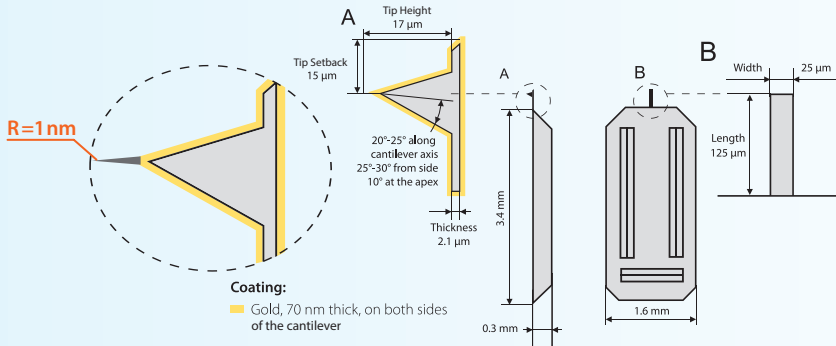


SINGLE HI-RES AFM PROBES

SHR300

5 probes

SHR300-5



The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

SINGLE CARBON SPIKE ON SILICON APEX!

Based on BudgetSensors' well established **Tap300GB-G probe**

The SHR-300 probe has a single hydrophobic diamond-like carbon extratip at the apex of a Gold coated silicon etched probe. There are no additional smaller extratips near the main one, just one well defined extratip. The SHR-150 can be used even for imaging of relatively rough surfaces – there will not be repeated features in the scan due to tip artefacts from extratips with different length and angle.

Application: High Resolution Tapping Mode, Intermittent Contact Mode

Coating: 70 nm Gold on both sides of the cantilever. Carbon spike not coated!

Technical Data:	VALUE	RANGE
Resonance Frequency	300 kHz	± 100 kHz
Force Constant	40 N/m	20 to 75 N/m
Length	125 µm	± 10 µm
Mean Width	30 µm	± 5 µm
Thickness	4 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Typical Spike Height	100 nm - 200 nm	
Typical Spike Radius	1 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

SINGLE HI-RES AFM PROBES

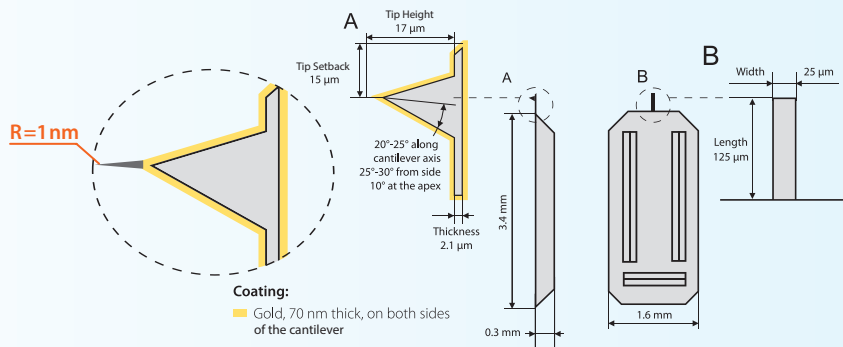
SHR150



SHR150-5

Application: High Resolution Soft Tapping Mode,
Intermittent Contact Mode

Coating: 70 nm Gold on both sides of the cantilever.
Carbon spike not coated!



Technical Data:	VALUE	RANGE
Resonance Frequency	150 kHz	± 75 kHz
Force Constant	5 N/m	1.5 to 15 N/m
Length	125 µm	± 10 µm
Mean Width	25 µm	± 5 µm
Thickness	2.1 µm	± 1 µm
Tip Height	17 µm	± 2 µm
Tip Setback	15 µm	± 5 µm
Typical Spike Height	100 nm - 200 nm	
Typical Spike Radius	1 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

SINGLE CARBON SPIKE ON SILICON APEX!

Based on BudgetSensors' well established **Tap150-G probe**

The SHR-150 probe has a single hydrophobic diamond-like carbon extratip at the apex of a Gold coated silicon etched probe. There are no additional smaller extratips near the main one, just one well defined extratip. The SHR-150 can be used even for imaging of relatively rough surfaces – there will not be repeated features in the scan due to tip artefacts from extratips with different length and angle.

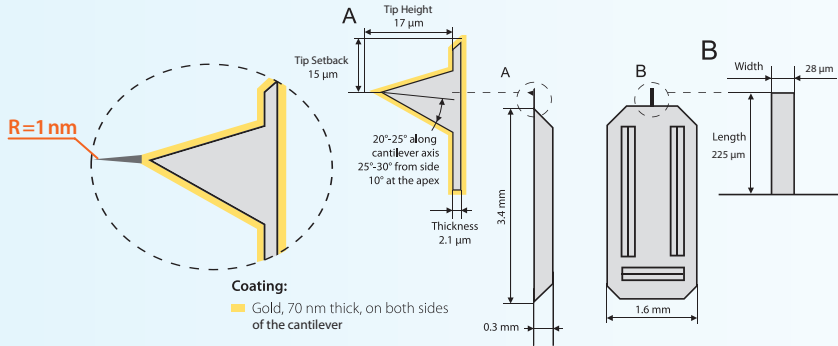
SINGLE HI-RES AFM PROBES

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SHR75

5 probes

SHR75-5



The **AFM Probe Holder Chip** has **alignment grooves** on the backside and fits most commercial AFMs as it is industry standard size.

Chip size: 3.4 x 1.6 x 0.3 mm

SINGLE CARBON SPIKE ON SILICON APEX!

Based on BudgetSensors' well established **Multi75GB-G probe**

The SHR-75 probe has a single hydrophobic diamond-like carbon extratip at the apex of a Gold coated silicon etched probe. There are no additional smaller extratips near the main one, just one well defined extratip. The SHR-150 can be used even for imaging of relatively rough surfaces – there will not be repeated features in the scan due to tip artefacts from extratips with different length and angle.

Application: High Resolution Soft Tapping Mode, Intermittent Contact Mode

Coating: 70 nm Gold on both sides of the cantilever. Carbon spike not coated!

Technical Data:	VALUE	RANGE
Resonance Frequency	75 kHz	± 15 kHz
Force Constant	3 N/m	1 to 7 N/m
Length	225 μm	± 10 μm
Mean Width	28 μm	± 5 μm
Thickness	3 μm	± 1 μm
Tip Height	17 μm	± 2 μm
Tip Setback	15 μm	± 5 μm
Typical Spike Height	100 nm - 200 nm	
Typical Spike Radius	1 nm	
Half Cone Angles	20°-25° along cantilever axis 25°-30° from side 10° at the apex	

Calibration Standards



Tip Check

Calibration Standard

ONE piece

TipCheck

The Problem

When imaging a sample by AFM, it may be difficult to know whether the surface is mapped accurately or is affected by a blunt or broken tip.

Blunt or broken tips will falsify measurement results like surface roughness or structures dimensions dramatically!

To be sure you are using a proper tip, used tips must be thrown away or checked by SEM regularly, both methods being extremely uneconomic or time consuming.

The Solution

BudgetSensors introduces the **TipCheck** - an SPM sample for fast and convenient determination of the AFM tip condition.

The clear differences between the tips become apparent even within a single scan line. Therefore the **TipCheck** offers a fast and easy way to compare and categorize different AFM probes with respect to tip apex, shape and sharpness.

You can easily check whether your tip is still good, starts showing wear or is already blunted or broken without the need of scanning an entire image or doing SEM inspection.

Additionally, this sample works perfectly with Auto Tip Qualification and Tip Characterization software that is available on the market.

The **BudgetSensors TipCheck** sample consists of an extremely wear-resistant thin film coating that is deposited on a silicon chip.

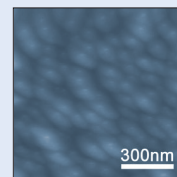
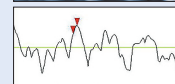
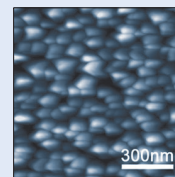
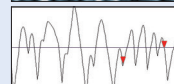
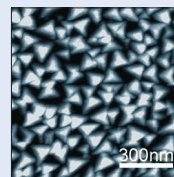
This thin film coating shows a granular, sharply peaked nanostructure which makes it ideal for reversely imaging an AFM probe's tip apex. The die size of the **TipCheck** is 5x5 mm.



The following figures show a comparison between different probe tips used to image the **TipCheck** sample.

The scan size is $1 \times 1 \mu\text{m}$ for all images.
The height scale is 100 nm.

Below the topography images you can find a representative cross-section of the respective image.



Height Standards

Height Standard

ONE piece

HS-20MG

ONE piece

HS-100MG

ONE piece

HS-500MG

HS-20MG / HS-100MG / HS-500MG are height standards introduced by **BudgetSensors** as a response to the increased demand for affordable high-quality AFM calibration standards.

The **HS-20MG / HS-100MG / HS-500MG** feature Silicon Dioxide structure arrays on a 5x5 mm Silicon chip.

The fabrication process guarantees excellent uniformity of the structures across the chip. This in turn ensures easy and reliable Z-axis calibration of your AFM system.

Why do you need Height Calibration Standards?

Atomic Force Microscopy has become a valuable tool not only for visualization but also for performing accurate measurements on the nanometer and micrometer scale.

In order to make the most of their measurement capabilities, AFM systems need to be properly calibrated

The calibration area is situated in the center of the chip. It is easy to find with the AFM optical system.

The structure step height is in the range of **20 nm for HS-20MG, 100 nm for HS-100MG and 500 nm for HS-500MG**. The exact value for each chip is indicated on the box label.

Arrays of structures with different shape and pitch are integrated on the chip. The larger square (1x1 mm) contains square pillars and holes with a 10 µm pitch.

The smaller square (500x500 µm) contains circular pillars and holes as well as lines in the X- and Y-direction with a 5 µm pitch.

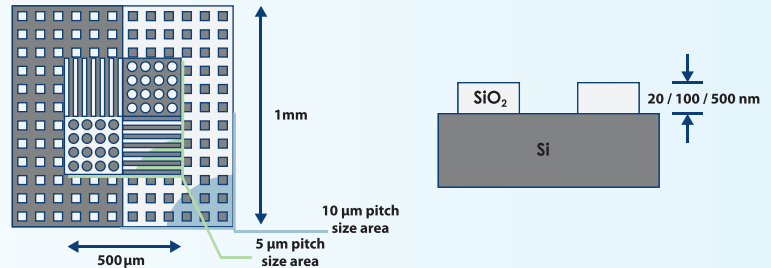
Aside from Z-axis calibration, this design also allows X- and Y-axis calibration for bigger scanners (40-100 µm range). What is more, the structure symmetry makes it possible to calibrate your AFM system without the need to rotate and realign the sample in-between X- and Y-axis calibration.

The **HS-20MG / HS-100MG / HS-500MG** chips are glued onto a 12 mm metal disc using a high-quality electrically-conductive epoxy resin and it is ready for use as shipped.

TECHNICAL DATA AT A GLANCE

Die size:		Structure geometry:
5x5mm		- square holes and pillars with a 10µm pitch arranged in a 1x1mm square
Step height: *		- circular pillars and holes, and lines in the x- and y-direction with a 5µm pitch arranged in a 500x500µm square
HS-20MG	~20 nm	
HS-100MG	~ 100 nm	
HS-500MG	~ 500 nm	

*The precise value is stated on the label of each box



XYZ Calibration Nanogrid

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XYZ Calibration Nanogrid

ONE piece

CS-20NG

Why XYZ Calibration Nanogrid?

In order to make the most of their measurement capabilities, AFM systems need to be properly calibrated. Therefore, the more precise your calibration standard, the

better AFM measurement results can be achieved. In this aspect, nanogrid calibration standards allow the most precise AFM system calibration.

Our Solution

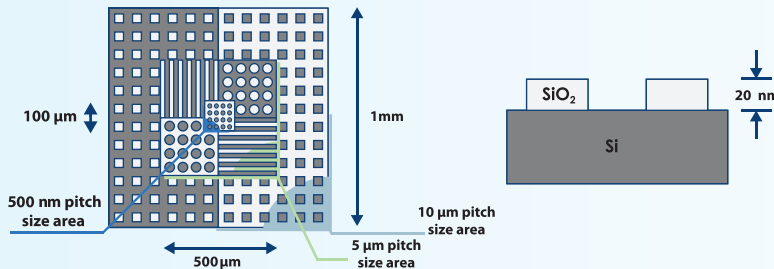
CS-20NG is an advanced XYZ calibration nanogrid that enables calibration down to the nanometer level. It features silicon dioxide structure arrays on a 5x5 mm silicon chip. The fabrication process guarantees excellent uniformity of the structures across the chip. This in turn ensures easy and reliable X, Y and Z axis calibration of your AFM system.

The calibration area is situated in the center of the chip. It is easy to find with the AFM optical system.

The structure step height is in the range of 20 nm. The exact value for each chip is indicated on the box label.

Arrays of structures with different shape and pitch are integrated on the chip. The large square (1x1 mm) contains square pillars and holes with a 10 μm pitch. The middle square contains circular pillars and holes as well as lines in the X- and Y-direction with a 5 μm pitch. The small square contains circular holes with a 500 nm pitch.

The **CS-20NG** is suitable for both lateral and vertical AFM scanner calibration. The structure symmetry makes it possible to calibrate your AFM system in one step without rotating the sample in-between X- and Y-axis calibration. The **CS-20NG** chip is glued onto a 12 mm metal disc using a high-quality electrically conductive epoxy resin and it is ready for use as shipped.



TECHNICAL DATA AT A GLANCE

Die size:	Structure geometry:
5x5mm	- Square holes and pillars with 10 μm pitch arranged in a 1x1mm square
Step height: *	- Circular pillars and holes, and lines in the x- and y-direction with a 5 μm pitch arranged in a 500x500 μm square
~20 nm	- Circular holes with a 500nm pitch arranged in a 100x100 μm square

* The precise value is stated on the label of each box

Image Gallery

Application Images





Water etched gypsum crystal

Scanned with Tap300AI-G AFM Probe

*Application images by courtesy of Scott MacLaren,
University of Illinois at Urbana-Champaign, USA*

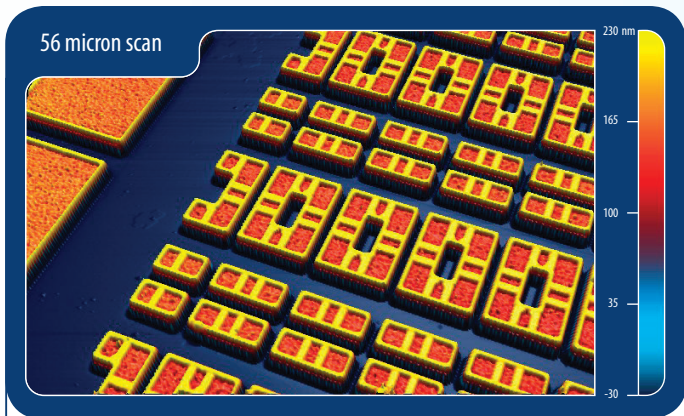
Polymer blend of polystyrene and polycaprolactone

Scanned with Tap300AI-G AFM Probe

*Application images by courtesy of Scott MacLaren,
University of Illinois at Urbana-Champaign, USA*



Image Gallery



SRAM memory device

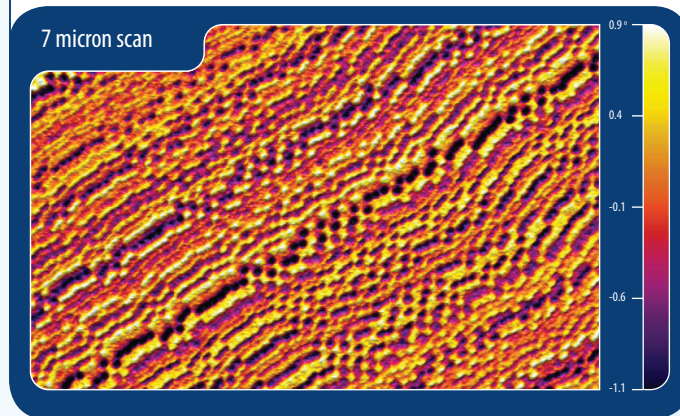
Scanned with Tap300AI-G AFM Probe

*Application images by courtesy of Scott MacLaren,
University of Illinois at Urbana-Champaign, USA*

MFM image of high density hard disk (500 GB capacity)

Scanned with *MagneticMulti75-G* AFM Probe

*Application images by courtesy of Scott MacLaren,
University of Illinois at Urbana-Champaign, USA*





Rosemary leaf

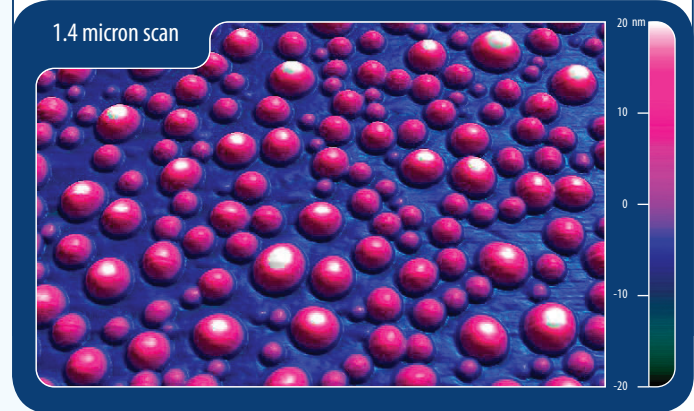
Scanned with Tap300AI-G AFM Probe

*Application images by courtesy of Scott MacLaren,
University of Illinois at Urbana-Champaign, USA*

Polystyrene thin film

Scanned with Tap300AI-G AFM Probe

*Application images by courtesy of Scott MacLaren,
University of Illinois at Urbana-Champaign, USA*





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