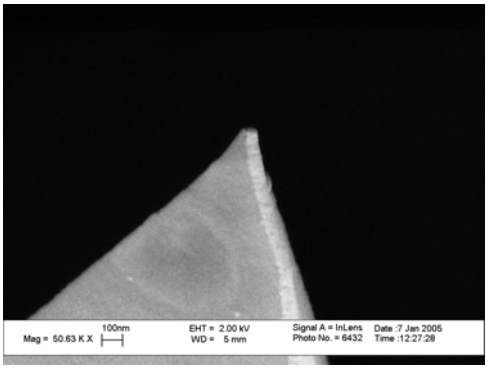
SC-35-M

Side Coated Magnetic Force Probe

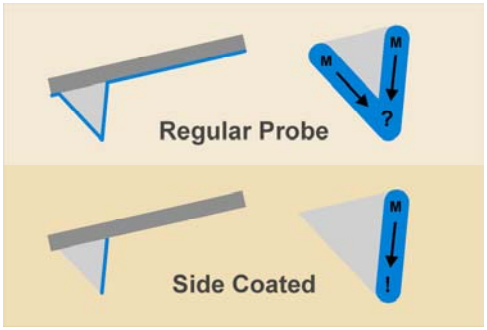
The SC-35-M is SmartTip's standard MFM probe, suitable for most MFM applications. Due to the use of Side Coating technology it outperforms other 'standard' MFM probes in both resolution and magnetic stability. Magnetic coating and layer thickness are balanced to obtain a versatile probe with good signal strength on most surface topographies, while maintaining good magnetic resolution.

Cantilever Properties

Lever type	Si
Shape	Rectangular
Thickness	3
k (N/m)	2,8
f_0 (kHz)	75
Lever width (µm)	28
Lever length (µm)	225
Tip shape	Pyramid
Tip height (µm)	10-15
Tip radius (nm)	<40
Tip coating	Co-alloy side coat
Backside reflex	Al coating



Side coating principle, schematic (below) and SEM image (above, 100 nm coating)



Magnetic Properties

Magnetic Coating	CoNi alloy
Magnetization* (kA/m)	1100
Coercivity index (Oe)	> 1000
Coating thickness (nm)	35
Typical magn.resolution (nm)	<30

Magnetization

The magnetization indicated is the bulk property of the magnetic coating. The magnetic field exerted on the sample is determined by the shape and volume of the magnetic coating. By SmartTip's definition 'magnetic moment' or 'low magnetic moment' refers to the magnetization of the magnetic coating. Tip field strengths can be tailored by the choice of magnetic coating and the thickness of the coating. Note that other vendors indications of 'high' and 'low moment' usually only refers to the layer thickness.

****Coercivity index***

The coercivity index is defined as the local field strength at the tip apex at which the tip magnetization will switch to opposite direction. Note that the 'coercivity' parameter usually supplied by MFM probe vendors usually refers to the thin film parameter of the coating measured on a continuous film in a homogeneous field. However, the sample stray field of the sample is not homogeneous and the coercivity (at the tip apex) is predominantly determined by the shape anisotropy of the magnetic structure. It is because of the preferential shape anisotropy of SmartTip's Side Coated probes that they show high magnetic stability (as indicated by the coercivity index).

For more details on Side Coating technology, Coercivity, Magnetisation, Magnetic resolution and support to improve your MFM capabilities please see www.smarttip.nl.