

PIUMA & CHIARO Probe selection guide

Selecting the right probe

To select the appropriate probe for your experiment, consider the right cantilever stiffness and tip size. See the Probe selection chart at the back of this guide for the relation between Young's Modulus and probe stiffness. Choosing an appropriate tip size depends largely on the sample size (choose small tips for small features or single-cells) and surface morphology (choose tips either much smaller or larger than the average pore diameter).

Select the desired stiffness and tip size below. Please note that different prices apply to probes with a lower stiffness than the standard range, and for tips smaller than the standard range, as indicated by the coloring scheme.

The stiffness and tip size of each probe is calibrated after production. Although the stiffness and tip size values resulting from the production process may deviate from the nominal values, the calibration ensures accurate and reliable measurement results.

Stiffness (N/m)		Tip radius (µm)		Holder options	
Value	Order code	Value	Order code	Value	Order code
0.005	M1	3	C1	Standard	ST
0.05	M2	15	T1	Long holder	LH
0.5	S1	50	T2	96 well comp.	DF
5	S2	Custom	##		
50	S3				

Probes can be ordered by constructing your order code with the instructions below. Use this code when placing a probe order with Optics11 or your local representative. If you require other values than listed in the table, a custom probe can be manufactured.

Order Code

P - Piuma - M1 - C1 - ST (example)

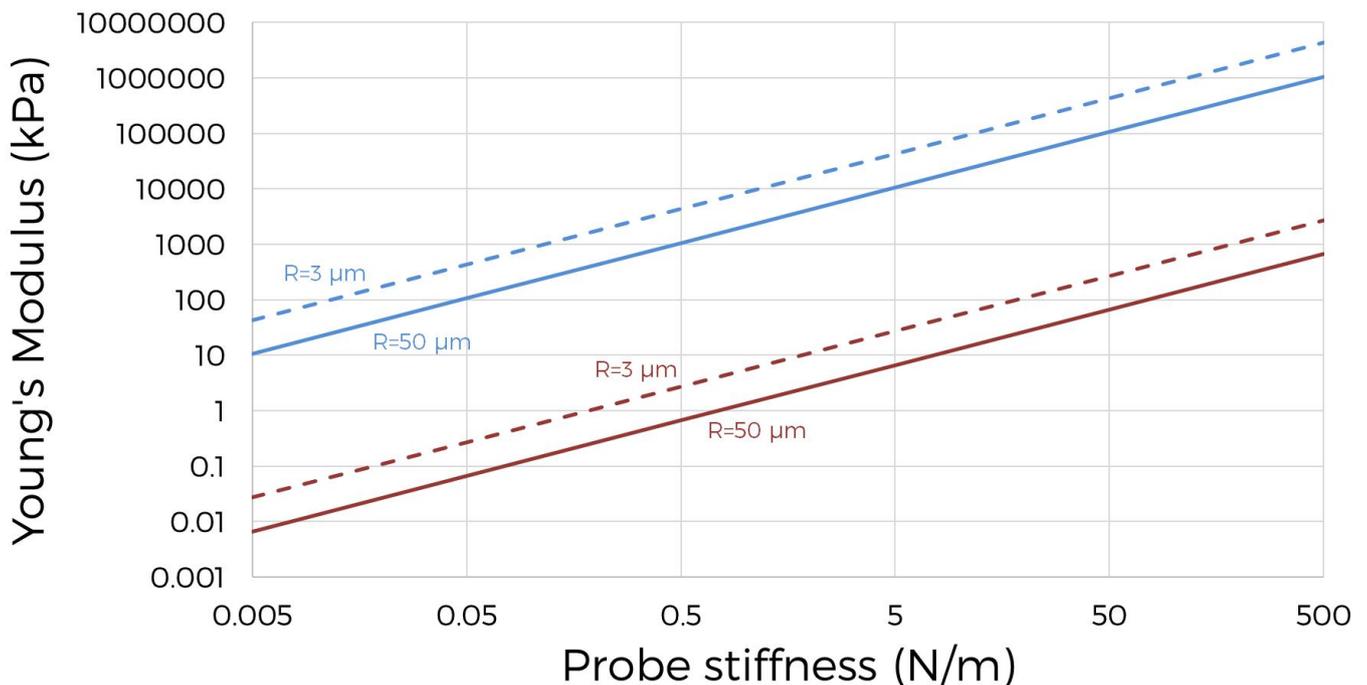


Pricing

Standard probe	Price level 1
Low stiffness	Price level 2
Small tip	Price level 3
Custom	Price level 2

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Probe selection chart



The probe selection chart above shows the range of Young's Moduli that can be addressed by a probe with a certain stiffness. The blue line shows the upper limit, while the red line shows the lower limit. The tip radius should be selected on the basis of sample feature size and surface morphology. Please note that the actual contact area of the spherical probe tip is in fact smaller than the tip radius. The limits shown above are indicative; they can be exceeded if conditions such as calibration accuracy and noise are optimized.

Probe materials

Optics11 Nanoindentation probes consist of an acrylic probe holder with a borosilicate base and cantilever. The indentation tip can be directly glued on the cantilever, or have an offset using a fiber. The tip is made of borosilicate glass or silica. Each probe is preassembled with optical fiber and connector.

