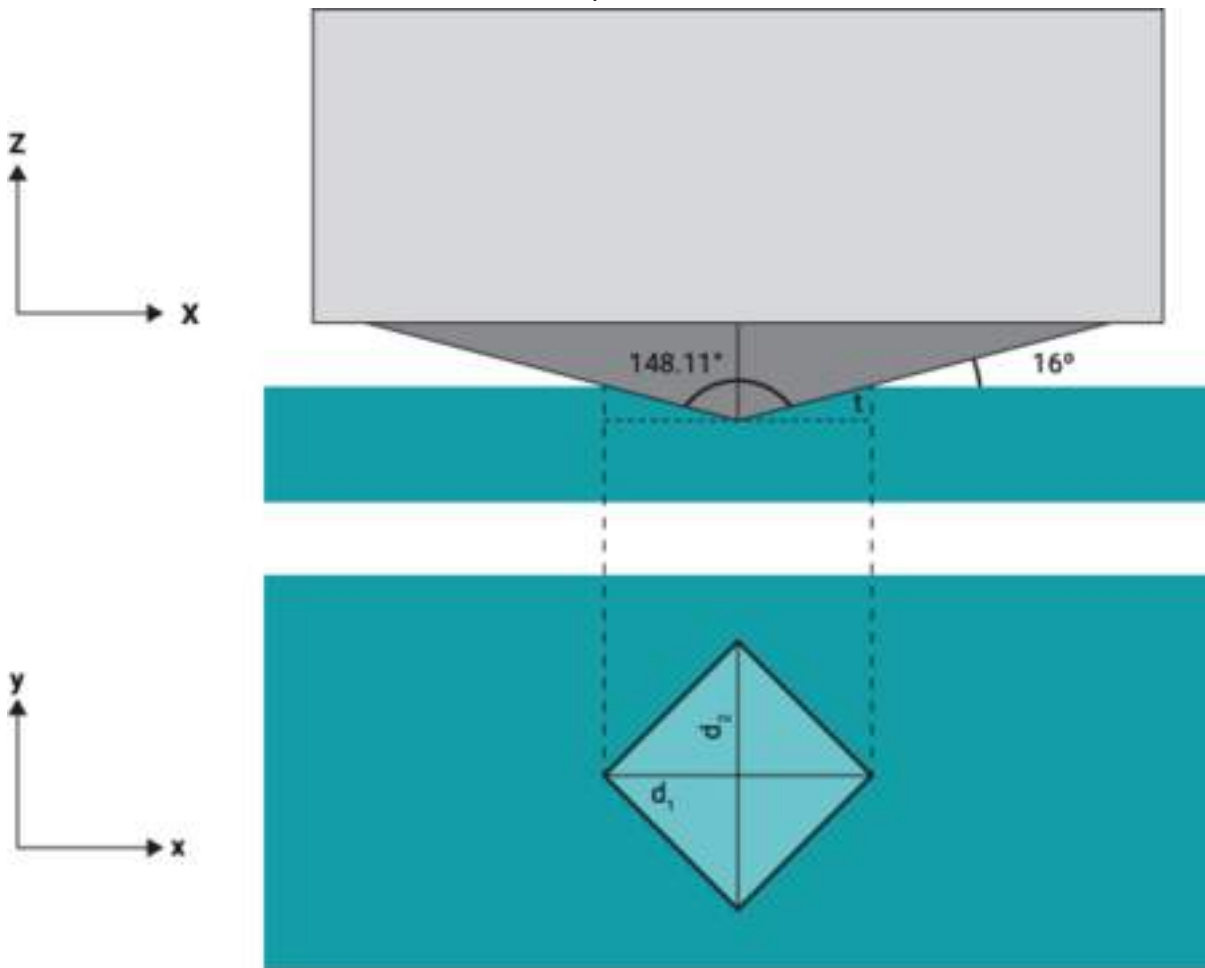


caption



- Substrate
- Diamond Tip
- Tip Holder

caption

Force denotation in "HV load"	Ranges of test force, F in N	Maximum permissible length of the line of conjunction "a" in $\mu\text{m}$
$\text{HV}0.1 \leq F < \text{HV}0.2$	$0.009 \leq F < 1.961$	0.5
$\text{HV}0.2 \leq F < \text{HV}5$	$1.961 \leq F < 49.03$	1
$\geq \text{HV}5$	$F \geq$	2

Table.1. Line of conjunction tolerances for a specific test load applied.

Scale / Range	Max. measurement deviation (E) in % DIN 50159, ASTM A1038, and GB/T 34205								Repeatability (R) / %			
	DIN & GB/T	ASTM	DIN & GB/T	ASTM	DIN & GB/T	ASTM	DIN & GB/T	ASTM	DIN & GB/T	ASTM	DIN & GB/T	ASTM
	<250 HV		250-500 HV		500-800 HV		>800 HV		$\leq 250$ HV		> 250 HV	
HV 0.1	5	6	6	7	7	8	8	9	Not required	Not required	6	Not required
HV 0.3	5	6	6	7	7	8	8	9			6	
HV 0.8	4	6	4	7	5	8	6	9			6	
HV 1	4	5	4	5	5	7	6	7			6	
HV 5	4	5	4	5	4	7	4	7			5	
HV 10	4	5	4	5	4	7	4	7			5	

Table 2. The summary of maximum tolerable errors for measurement deviation and repeatability from DIN 50157-2, ASTM A1038 and GB/T 34205, used but the calibration laboratories.



Figure.2. Schematic illustrations of potential probe applications that may lead to damage of the indenter. a) Lateral movements of the probe during the indentation. b) strong impact of the p