

ISO/TS 19096:2023-11 (E)

Metallic materials - Instrumented indentation test for hardness and materials parameters - Evaluation of stress change using indentation force differences

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Symbols and designations	1
5	Principle	2
5.1	Shift of force/indentation depth curve by stress change	2
5.2	Derivation of stress change from force difference	3
6	Testing machine	3
7	Test piece	3
8	Procedure	4
9	Calculation of stress change	5
9.1	Force and projected area calculation at each state	5
9.2	Force difference	6
9.3	Projected area	6
9.4	Calculation of average stress change	6
10	Uncertainty of the results	6
11	Test report	7
Annex A (normative) Procedure for hardness uniformity verification		8
Annex B (normative) Combining with stress relief method		9
Annex C (informative) Determination of stress change ratio using Knoop indenter		11
Annex D (informative) Verification of instrumented indentation test residual stress measurement method by bending specimen		13
Annex E (informative) Comparison with hole-drilling and saw-cutting methods		15
Bibliography		19