

Thermal Fatigue Resistance Studies of Multilayer CrN and AlTiN Coatings Deposited on Plasma Nitrided H-13 Hot Work Steel

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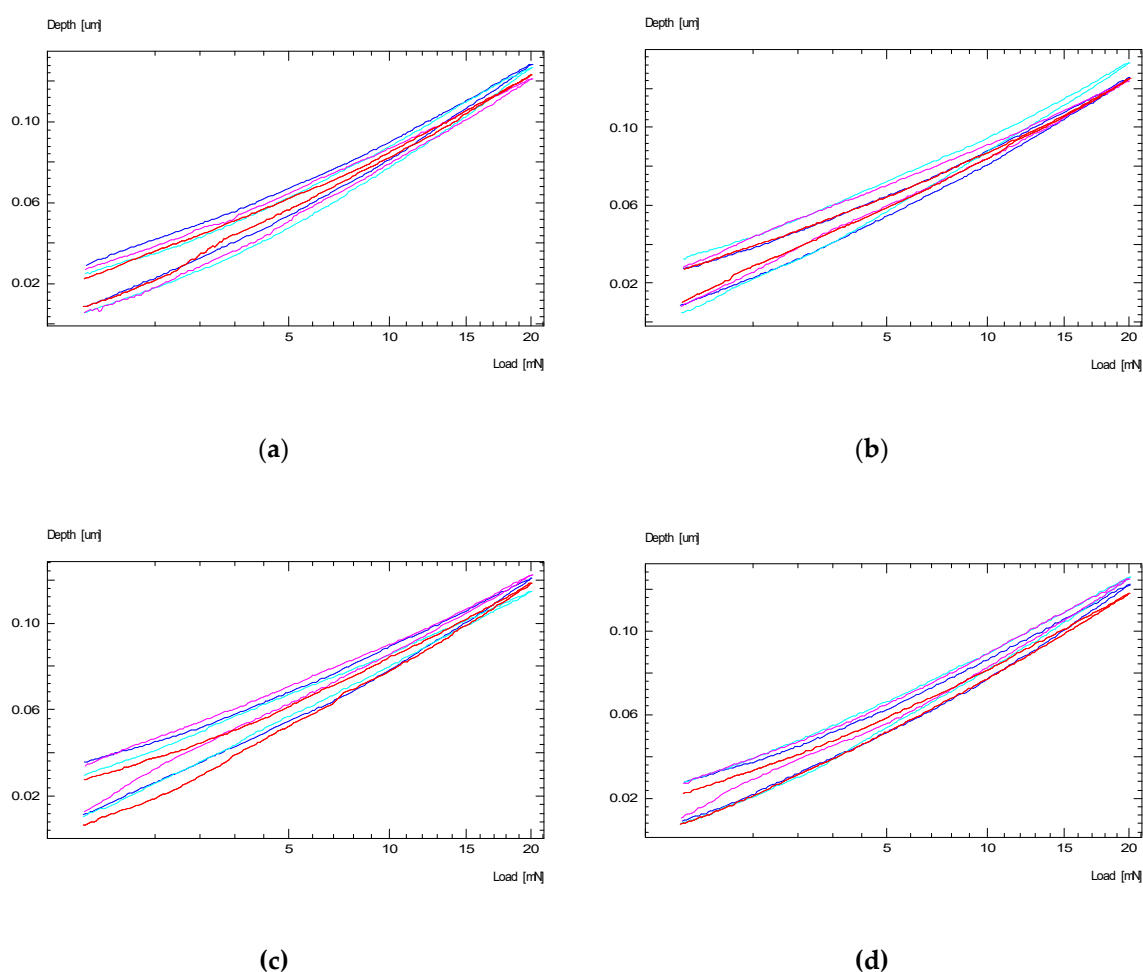


Figure S1. Loading-unloading curves of micro-hardness test carried out on: (a) m-CrN_PN50; (b) m-CrN_PN200; (c) m-AlTiN_PN50; (d) m-AlTiN_PN200.

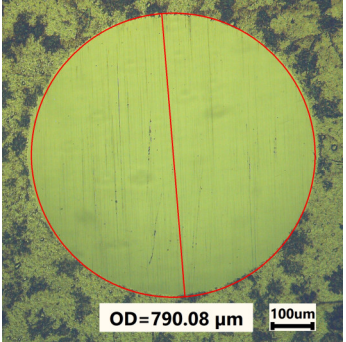
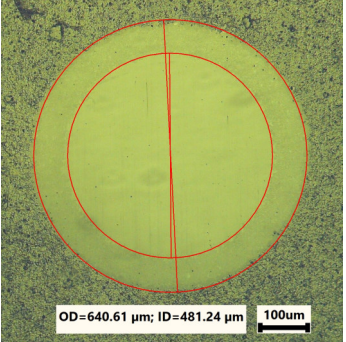
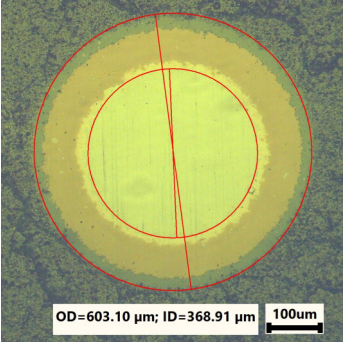
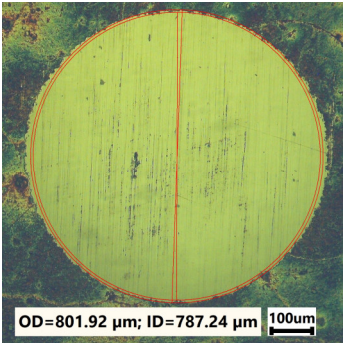
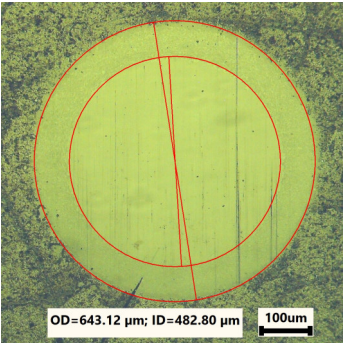
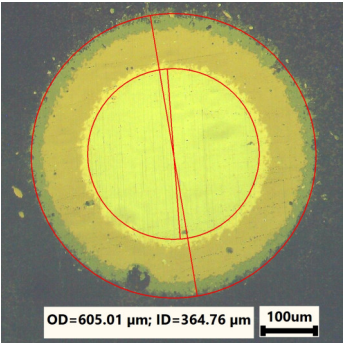
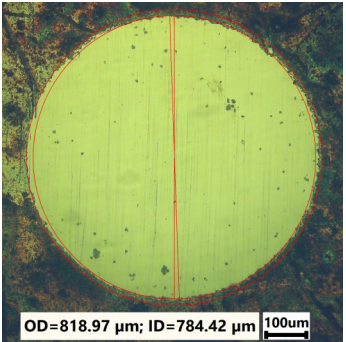
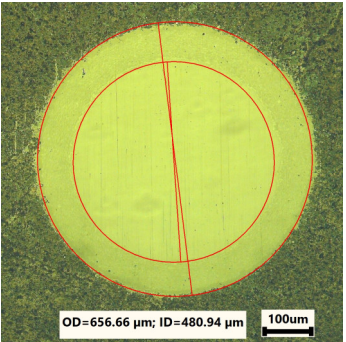
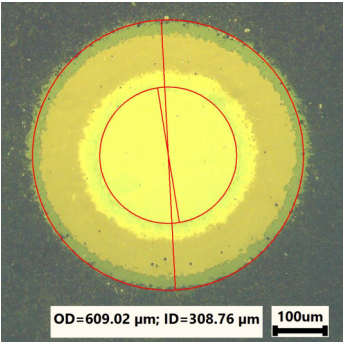
	H-13_PN50	m-CrN_PN50	m-AlTiN_PN50
TF100	 OD=790.08 μm 100um	 OD=640.61 μm ; ID=481.24 μm 100um	 OD=603.10 μm ; ID=368.91 μm 100um
TF300	 OD=801.92 μm ; ID=787.24 μm 100um	 OD=643.12 μm ; ID=482.80 μm 100um	 OD=605.01 μm ; ID=364.76 μm 100um
TF500	 OD=818.97 μm ; ID=784.42 μm 100um	 OD=656.66 μm ; ID=480.94 μm 100um	 OD=609.02 μm ; ID=308.76 μm 100um

Figure S2 Optical images (taken at 50x mag.) of wear craters (240 sec) for PN50 samples after thermal fatigue TF100, TF300 and TF500.

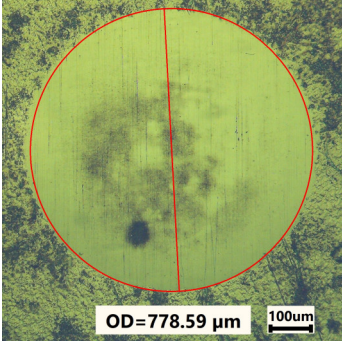
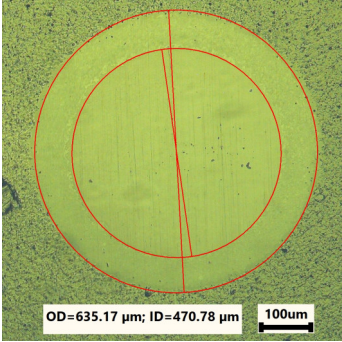
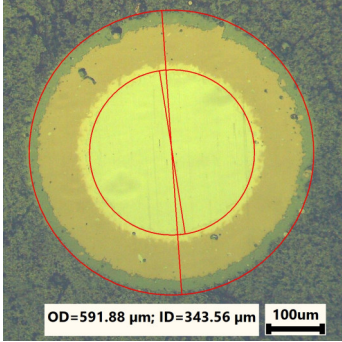
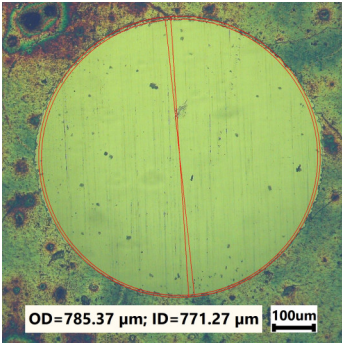
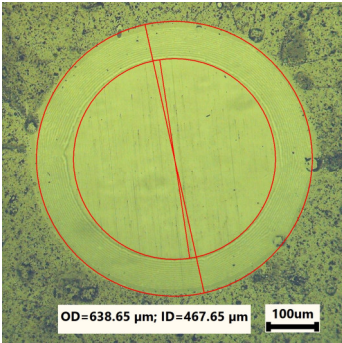
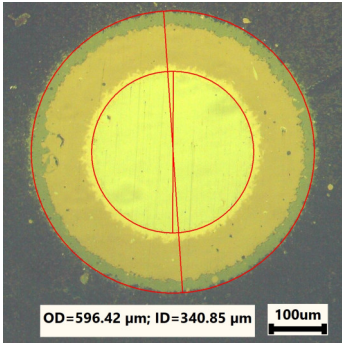
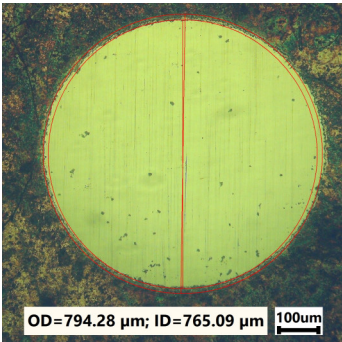
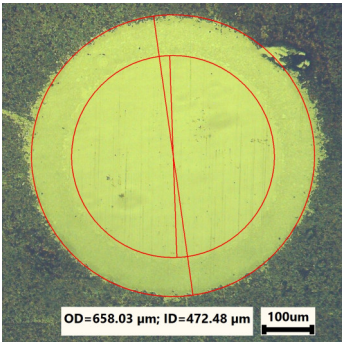
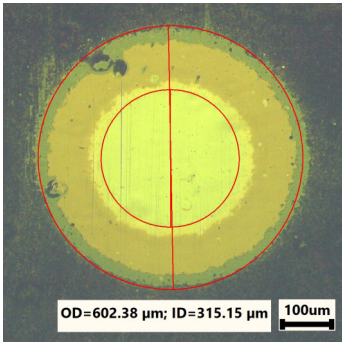
	H-13_PN200	m-CrN_PN200	m-ALTiN_PN200
TF100	 OD=778.59 μm 100um	 OD=635.17 μm ; ID=470.78 μm 100um	 OD=591.88 μm ; ID=343.56 μm 100um
TF300	 OD=785.37 μm ; ID=771.27 μm 100um	 OD=638.65 μm ; ID=467.65 μm 100um	 OD=596.42 μm ; ID=340.85 μm 100um
TF500	 OD=794.28 μm ; ID=765.09 μm 100um	 OD=658.03 μm ; ID=472.48 μm 100um	 OD=602.38 μm ; ID=315.15 μm 100um

Figure S3 Optical images (taken at 50x mag.) of wear craters (240 sec) for PN200 samples after thermal fatigue TF100, TF300 and TF500.