

AC, HWDC and FWDC do not behave alike

Magnetic Particle Testing (MT)

Current	Sensitivity focus	Particle mobility	Typical use	Control point
AC	Surface	Good mobility from alternating action	Surface cracks with yokes	More limited subsurface response
HWDC	Surface and near-surface	Unidirectional pulses	Portable units and prods	Peak current and measurement method must be defined.
FWDC	Greater penetration	Smoother field	Bench units and deeper response	Demagnetization and heating require control.
DC	Surface and limited subsurface	No AC agitation	Yokes or specialized equipment	Residual magnetism is more likely.

Source / basis: <https://niktrd.com/magnetic-particle-testing>