

NDT method versus flaw type, material and access

Nondestructive Testing for Pipe and Tube

Method	Best at seeing	Pipe/tube example	Main limitation
VT	Visible discontinuities and surface/geometry condition	Surface, bevels, ends, markings and visible corrosion	Does not reveal hidden or very fine flaws
PT	Surface-breaking discontinuities	Fine surface cracks in nonporous materials	Surface-breaking only; preparation is critical
MT	Surface and near-surface flaws	Surface cracks in ferromagnetic carbon/low-alloy steel	Not for austenitic 304/316; field direction matters
UT	Internal section and wall thickness	Internal flaws, laminations, wall loss and weld inspection	Flaw orientation, geometry, grain structure and calibration affect response
ET	Surface/near-surface and wall changes in conductive materials	Fast internal inspection of heat-exchanger/condenser tubes	Signals depend on material, geometry, deposits and calibration
RT	Volumetric/density changes in an image	Welds and components with suitable access/thickness	Radiation safety, time, cost and flaw orientation

Source / basis: <https://niktrd.com/ndt>