Normalizing, annealing and combined treatments are not interchangeable

Heat Treatment of Steel Pipe & Tube: Normalizing, Annealing and Tempering

Process	General purpose	Cooling concept	Specification note
Normalizing	Refine and homogenize structure where the product specification calls for this delivery condition	Typically air cooling after austenitizing	+N
Annealing	Soften, restore ductility or develop a specified structure; the annealing type must be identified	Depends on the annealing process; there is no single universal cooling rule	Includes +I in EN 10216-2
Normalizing + Tempering	Combine normalized structure with a subsequent property-adjusting temper cycle	Air cooling, then the specified tempering cycle	+NT
Quenching + Tempering	Develop specified structure and properties for certain alloy steels	Specified quench medium, then tempering	+QT
Solution Annealing	Dissolve soluble phases/precipitates in austenitic stainless steel and retain the intended structure by rapid cooling	Rapid cooling as required by the product specification	Product-specification route; not equivalent to +I

Source / basis: https://niktrd.com/heat-treatment