Stress Concentration

Mechanical Engineering

How much a hole or a fillet multiplies the stress around it.

Kt multiplies the nominal stress at the feature. Values are approximate.

Feature	Typical Kt
Circular hole in a wide plate	3.0
Shoulder fillet, radius ÷ d = 0.05	about 2.5
Shoulder fillet, radius ÷ d = 0.25	about 1.4
Sharp square internal corner	Very high, avoid it
Keyway in a shaft	2 to 3

Kt is a static elastic factor. A ductile metal yields locally and shrugs it off; a fatigue crack does not.