

## DAFTAR SIMBOL

Simbol	Keterangan	Satuan
$A$	Luas penampang	$\text{mm}^2$
$ID$	Diameter dalam	mm
$OD$	Diameter luar	mm
$E_j$	Efisiensi sambungan	
$E$	Elastisitas	GPa
$K$	Konsentrasi tegangan	
$L$	Panjang pipa silindris	mm
$p, P$	<i>Internal pressure</i>	MPa
$r$	Radius pipa	mm
$Z$	<i>Elastic Section Modulus</i>	$\text{mm}^3$
$t$	Tebal dinding pipa	mm
$u$	Energi regangan	MPa
$u_v$	Energi perubahan volume	MPa
$u_d$	Energi distorsi	MPa
$\nu$	Rasio Poisson	
$\sigma$	Tegangan normal	MPa
$\sigma_{max}, \sigma_{min}$	Tegangan maksimum dan minimum	MPa
$\sigma_{nom}$	Tegangan nominal	MPa

$\sigma_1, \sigma_2, \sigma_3$	Tegangan utama koordinat Cartesian	MPa
$\sigma_r, \sigma_h, \sigma_a$	Tegangan radial, <i>hoop</i> , dan aksial	MPa
$\sigma_Y$	Tegangan luluh	MPa
$\sigma_{eqv}$	Tegangan ekuivalen	MPa
$\sigma_{int}$	Tegangan intensitas	MPa
$\tau$	Tegangan geser	MPa
$\tau_{max}$	Tegangan geser maksimum	MPa
$\tau_Y$	Tegangan geser luluh	MPa
$\varepsilon$	Regangan normal	
$\varepsilon_{eqv}$	Regangan ekuivalen	
$S_E$	<i>Stress</i> karena <i>expansion loads</i>	kPa
$S_A$	<i>Allowable displacement stress range</i>	kPa
$S_b$	Resultan <i>bending stress</i>	kPa
$M_i$	<i>In-plane bending moment</i>	Nmm
$M_o$	<i>Out-of-plane bending moment</i>	Nmm
$S_t$	<i>Torsional stress</i>	kPa
$M_t$	<i>Torsional moment</i>	Nmm
$NPS$	<i>Nominal Pipe Size</i>	mm
$M/M_Y$	<i>Bending and yield moment ratio</i>	
$\sigma_{eqv}/\sigma_y$	<i>Equivalent and yield stress ratio</i>	