```
opt = QuasiNewton(atoms)
opt.run()

vib = Vibrations(atoms)
vib.run()

energy = atoms.get_potential_energy()

thermo = IdealGasThermo(
    vib.get_energies(),
    geometry='nonlinear',
    potentialenergy=energy,
    symmetrynumber=2,
    spin=0.,
    atoms=atoms)
G = thermo.get_gibbs_energy(
    temperature=298.0,
    pressure=101325.0)
```