

Laminar Inertial Turbulent IPR @ model

Synonym: [Laminar Inertial Turbulent IPR @ model](#) = [LIT IPR @model](#)

One of the most general form of [IPR](#) model below [bubble-point pressure](#):

(1) $a q + b q^2 = \Psi^n(p_r) - \Psi^n(p_{wf}) \quad , \quad p_b > p_r > p_{wf}$

where

p_{wf}	bottom-hole pressure (BHP)
p_r	drainarea formation pressure
p_b	bubble-point pressure
n	pseudo-pressure curvature
a	laminar flow coefficient
b	turbulent flow coefficient
$\Psi(p)$	pseudo-pressure function specific to fluid type

It needs well tests at least three different rates to assess $\{a, b, p_r\}$ but obviously more tests will make assessment more accurate.

See also

[Petroleum Industry / Upstream / Production / Subsurface Production / Subsurface E&P Disciplines / Field Study & Modelling / Production Analysis / Productivity Diagnostics / Inflow Performance Relation](#)

[[Vogel IPR @model](#)] [[Richardson and Shaw IPR @ model](#)] [[Wiggins IPR @ model](#)][[LIT IPR @ model](#)][[PADE IPR @ model](#)]

References

- [Vogel, J. V. \(1968, January 1\). Inflow Performance Relationships for Solution-Gas Drive Wells. Society of Petroleum Engineers. doi:10.2118/1476-PA](#)
- [Archer, R. A., Del Castillo, Y., & Blasingame, T. A. \(2003, January 1\). New Perspectives on Vogel Type IPR Models for Gas Condensate and Solution-Gas Drive Systems. Society of Petroleum Engineers. doi:10.2118/80907-MS](#)
- [Seidle, J. P., & Erickson, D. J. \(1993, January 1\). Use of Vogel’s Inflow Performance Relation for Coal Wells. Society of Petroleum Engineers. doi:10.2118/26201-MS](#)