

# Swirling convective jets: asymptotic analysis

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Journal of Engineering Physics and Thermophysics volume 82, Article number: 866 (2009) Cite this article

Results of solution of the problem of a swirling convective jet propagating over a point heat source on the basis of the equations defining a laminar boundary layer in the Boussinesq approximation are presented. The cases of steady circulation of the azimuthal velocity component of the fluid flow at infinity and the angular momentum of the fluid relative to the axis of the jet were considered. The two variants of the problem were asymptotically analyzed, and corresponding boundary problems were formulated for the principal terms of the expansion of desired functions. The dependences of the velocity and temperature fields on the Prandtl number were determined. Analytical solutions and detailed tables of numerical-analysis data are given.

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Translated from *Inzhenerno-Fizicheskii Zhurnal*, Vol. 82, No. 5, pp. 863–866, September–October, 2009.

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### Cite this article

Martynenko, O.G., Korovkin, V.N. Swirling convective jets: asymptotic analysis. *J Eng Phys Thermophy* 82, 866 (2009). <https://doi.org/10.1007/s10891-009-0260-3>

### [Download citation](#)

- Received 23 September 2008
- Published 23 October 2009
- DOI <https://doi.org/10.1007/s10891-009-0260-3>

### Keywords

steady swirling jets  
free convective heat exchange  
laminar regime  
mathematical simulation