

## Accepted Manuscript

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Rafik Ouchene, Mohammed Khalij, Boris Arcen, Anne Tanière

PII: S0032-5910(16)30459-4  
DOI: doi: [10.1016/j.powtec.2016.07.067](https://doi.org/10.1016/j.powtec.2016.07.067)  
Reference: PTEC 11829

To appear in: *Powder Technology*

Received date: 5 February 2016  
Revised date: 23 June 2016  
Accepted date: 29 July 2016



Please cite this article as: Rafik Ouchene, Mohammed Khalij, Boris Arcen, Anne Tanière, A new set of correlations of drag, lift and torque coefficients for non-spherical particles and large Reynolds numbers, *Powder Technology* (2016), doi: [10.1016/j.powtec.2016.07.067](https://doi.org/10.1016/j.powtec.2016.07.067)

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# A new set of correlations of drag, lift and torque coefficients for non-spherical particles and large Reynolds numbers

Rafik Ouchene<sup>a</sup>, Mohammed Khalij<sup>a</sup>, Boris Arcen<sup>b</sup>, Anne Tanière<sup>a\*</sup>

<sup>a</sup> CNRS, LEMTA, UMR 7563, Université de Lorraine – ESSTIN, 2 rue Jean Lamour, 54500 Vandoeuvre-les-Nancy, France.

<sup>b</sup> CNRS, LRGP, UMR 7274, Université de Lorraine, Nancy, F-54000, France.

\*Corresponding author: [anne.taniere@univ-lorraine.fr](mailto:anne.taniere@univ-lorraine.fr)

## Abstract

In this paper, we derive and validate new correlations for the drag, lift and pitching torque coefficients for non-spherical particles and a large range of Reynolds numbers  $Re_p$  and aspect ratios  $w \in [1 - 32]$ . The functional forms of these correlations, depending on  $Re_p$ ,  $w$  and incidence angle,  $\alpha$  are determined by fitting the results extracted from DNS computations of the flow around prolate ellipsoidal particles. This work follows that of Ouchene *et al.* [1] in which the numerical method was implemented and validated. A complete set of correlations for prolate ellipsoidal particles outside Stokes regime is provided.

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