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Hydrodynamic forces on partly buried tandem, twin pipelines in current

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Abstract

This study extends the investigations of the forces on a cylinder, laid on, or partly buried in the bed with a parallel twin dummy cylinder nearby and without it, and were determined by measuring the pressure distribution on the cylinder in the case of a steady current. The pressure distribution around the cylinder was measured by using pressure transducers. The forces on the cylinder were calculated by the integration of the measured pressures on the surface of the cylinder. Force coefficients were obtained for the ranges of $Re=0.8 \times 10^4 - 1.5 \times 10^4$ for the burial depth to diameter ratio=0:0.7. The distance between axis of the measurement and dummy cylinders to diameter ratio (x/D) was 2, 1.5 and 1. The dummy cylinder was replaced downstream and upstream of the measurement cylinder. © 2001 Elsevier Science Ltd. All rights reserved.

Keywords: Hydrodynamic forces; Pressure distribution; Tandem twin cylinders; Steady current

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