



Research Paper

Principles of Hydraulic and Pneumatic Conveying in Pipes

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The principles for the calculation and the design of pneumatic and hydraulic conveying plants cannot be fully treated within the space available here. Only some essential points will be discussed which are related directly to the pipe flow of solid-fluid mixtures and which relate to the actual conveying principle. Besides this, the reader is referred to some basic texts of the special literature [110]. There, all those important problems are dealt with which concern the conveying systems as a whole, for example, economy of plants, plant components, treatment of the solids before and after transport, wear and plant operation.

In modern transport technology, the transportation in pipes seems to gain increasing interest despite some disadvantages which are inherent to the fluid mechanical principle. This fact is proven on the one hand by the fast increasing number of small and medium pneumatic and hydraulic conveying plants (in-plant or interdepartmental) and on the other hand also by the increasing number of long cross-country pipe lines. Apparently, the advantages which are inherent to conveying plants using fluid mechanics are quite often outbalancing as a whole which results in economical conveying or production systems of which they are part of.