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EVALUATION OF PACKING DRAG ON KNIFE VALVES FOR ACTUATOR SIZING

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ABSTRACT

Knife Gate valves (KGV) are one of many types of valves available in the fluid control industry. Initially used for handling slurry, they gradually became popular in many other applications. Most of these valves are characterized by a particular stuffing box shape that require a rectangular packing installation, not so conventional in valve sealing designs where packings are installed around a cylindrical stem. The actuation methods used with KGV's are many, going from purely mechanical to pneumatic and electrically actuated. The design of said actuators is most dependent of the friction generated by the packing and therefore knowing more accurately how packing stress influences gate drag would be of much interest. The intent of this paper is to introduce a testing device and protocol to evaluate how packing friction behaves among distinct packing materials and to establish relations between packing gland load and actuator resistive force. Moreover, values of drag force for the different packing styles are determined with corresponding gland load.

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