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[摘要]

一般管路系統防止水錘危害的方法有很多，而工程上常見用來解決水錘災害的方式，多半採用的是在管路易發生水
須考慮初設裝置成本外，因爲該裝置有壽命問題，有鑑於此，擬於管路系統最容易發生水錘處即控制閥上游處並聯
壞壓力，可經由孔口板釋壓，並研究管路系統流速與水錘波造成之相關影響，找出孔孔板最佳孔徑尺寸。
由於孔口板對水錘突波峰值降低確實有幫助，本研究最後建議在複雜的管路系統，爲防止水錘效應發生，可搭配孔
於水錘發生處裝設孔口板及幹管上設置釋壓閥，除可降低水錘破壞力外，也可以節省設置費用及降低操作維護成本

[英文摘要]

There are many methods to avoid the damage of piping systems from water hammer. Often water hammer arres
replaced periodically and the cost is significant. This study proposes to use the concept orifice bypass to lessen t
of a typical TFT-LCD process cooling piping system was setup and an orifice plate was installed at upstream sid
most likely to occur. The water pressure waves due to the abrupt closure of the control valve were studied. The r
waves was studied and the most suitable diameter of orifice plate was discussed.
It was found that the orifice has helped to reduce water hammer wave peak value and the duration of wave excit
mm can reduce the water hammer effects significantly. This study also experimented with the combination of orif
hammer effects. The results of study can help to reduce the operating cost besides reducing the risk of damage

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