Minimum Quantity Lubrication (MQL) using Ranque – Hilsch Vortex Tube (RHVT) for Sustainable Machining

HA Salaam[1, a], Zahari Taha[1,b] and TMYS Tuan Ya[1,c]

[1]Faculty of Mechanical Engineering, Universiti Malaysia Pahang, 26600, Pekan, Pahang, Malaysia

[a]hadisalaam@ump.edu.my, [b]zaharitaha@ump.edu.my, [c]tmyusoff@ump.edu.my

ABSTRACT

Ranque-Hilsch Vortex Tube (RHVT) is a device with no moving parts and do not require electricity or chemicals to function. It has been used widely in cooling and heating of various operations, thermal test, dehumidification, gas liquefaction, ice production and mixture separation. Sustainable machining refers to the efforts to reduce the environmental impact of machining. The use of minimum quantity lubrication (MQL) is an effective solution for a more sustainable machining process. In this paper we propose the use of RHVT in MQL. The structure, working principles and types of RHVT are presented in this paper. Parameters associated with RHVT and the various possible working fluids are discussed in brief.

KEYWORDS:

Minimum Quantity Lubrication (MQL); Ranque - Hilsch Vortex Tube (RHVT); Sustainable Machining

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