

Multi objective optimization of WEDM parameters for low-carbon mold steel

Manisha Priyadarshini

*Department of Mechanical Engineering
National Institute of Technology,
Rourkela, India
any.manisha@yahoo.com.au*

Chandan Kumar Biswas

*Department of Mechanical Engineering
National Institute of Technology,
Rourkela, India
ckbiswas@nitrkl.ac.in*

Balbir Singh Chwla

*Department of Mechanical Engineering
Government Engineering college
Bilaspur, India
bschawla2002@yahoo.com*

Abstract—AISI P20 tool steel is widely used for making molds, punches and dies, where Wire Electro Discharge Machine (WEDM) plays an important role by producing intricate shapes and profiles. In this paper, attempts are made to optimize the WEDM responses i.e., kerf width (KW) and material removal rate (MRR) using Grey relational analysis while machining with parameters, i.e., Pulse-on-time (Ton), Pulse-off-time (Toff) and Servo voltage (Sv). The confirmatory test reveals that optimum parametric setting thus found using this multi-objective optimization technique gives better MRR with lesser KW.