



Correction: Machinability investigations through novel controlled flushing characteristics in wire electric discharge machining of M42 high-speed steel

Sana Ehsan¹ · Mudassar Rehman^{1,2} · Mohammad Pervez Mughal³ · Muhammad Umar Farooq⁴ · Muhammad Asad Ali¹

Published online: 8 September 2023
© Springer-Verlag London Ltd., part of Springer Nature 2023

Correction to: International Journal of Advanced Manufacturing Technology
<https://doi.org/10.1007/s00170-022-08786-0>

The publication of this article unfortunately contained typos.

The last column of Table 3: Kerf width was clipped during revisions. The column is corrected and is given below.

The Eq. 2 carried a mistake which is correct as below.

$$\text{MRR} = 100 \times (0.11851 + 0.001551 V_s + 0.001869 P_f - 0.005825 D_n + 0.0009461 d) \quad (2)$$

The Fig. 13(a) carried a typo in units of MRR as revised below.

The Table 8 carried a typo in MRR units (previously g/mm^3 ; correct mm^3/min) and decimal points. The corrected table is provided below.

The original article can be found online at <https://doi.org/10.1007/s00170-022-08786-0>.

✉ Mudassar Rehman
mudassar@mail.nwpu.edu.cn

✉ Muhammad Umar Farooq
umarmuf0@gmail.com

- ¹ Department of Industrial and Manufacturing Engineering, University of Engineering and Technology, Lahore 54890, Pakistan
- ² Industry Engineering Department, School of Mechanical Engineering, Northwestern Polytechnical University, Xian 710072, China
- ³ Industrial Engineering Department, University of Management and Technology, Lahore, Pakistan
- ⁴ School of Mechanical Engineering, University of Leeds, Leeds LS2 9JT, UK

Table 3 Design of experiments along with output results

| Control variables | | | | | Output responses | | |
|-------------------|---------------|--------------------|-----------------|-----------------------|-----------------------|-------------------|------------|
| Exp | Servo voltage | Flushing pressure | Nozzle diameter | Nozzle-work-piece gap | Material removal rate | Surface roughness | Kerf width |
| | Vs | Pf | Dn | S | MRR | Ra | KW |
| Unit | Volt | Kg/cm ² | mm | mm | mm ³ /min | μm | mm |
| 1 | 40 | 4 | 4 | 3 | 16.51 | 2.01 | 0.354 |
| 2 | 40 | 4 | 6 | 10 | 16.19 | 2.02 | 0.3565 |
| 3 | 40 | 4 | 8 | 24 | 16.26 | 2.06 | 0.3608 |
| 4 | 40 | 8 | 4 | 3 | 17.54 | 1.93 | 0.3547 |
| 5 | 40 | 8 | 6 | 10 | 17.26 | 1.96 | 0.3556 |
| 6 | 40 | 8 | 8 | 24 | 17.29 | 2.00 | 0.3626 |
| 7 | 40 | 12 | 4 | 10 | 18.74 | 1.90 | 0.3586 |
| 8 | 40 | 12 | 6 | 24 | 18.95 | 1.93 | 0.363 |
| 9 | 40 | 12 | 8 | 3 | 16.26 | 2.00 | 0.3571 |
| 10 | 50 | 4 | 4 | 24 | 20.66 | 1.99 | 0.3609 |
| 11 | 50 | 4 | 6 | 3 | 17.41 | 2.09 | 0.3549 |
| 12 | 50 | 4 | 8 | 10 | 16.32 | 2.12 | 0.3591 |
| 13 | 50 | 8 | 4 | 10 | 19.36 | 1.96 | 0.359 |
| 14 | 50 | 8 | 6 | 24 | 19.83 | 2.00 | 0.3656 |
| 15 | 50 | 8 | 8 | 3 | 17.01 | 2.08 | 0.3597 |
| 16 | 50 | 12 | 4 | 24 | 21.99 | 1.93 | 0.3662 |
| 17 | 50 | 12 | 6 | 3 | 18.70 | 2.00 | 0.361 |
| 18 | 50 | 12 | 8 | 10 | 17.68 | 2.02 | 0.3636 |

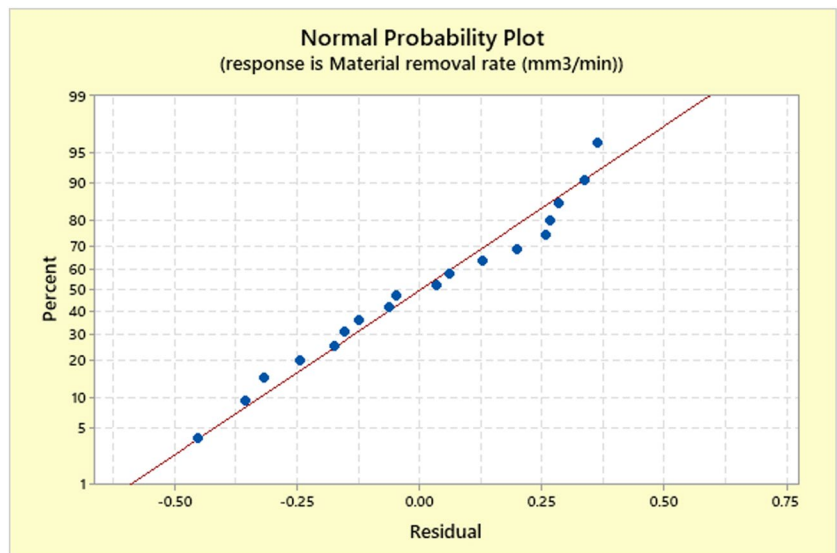
Fig. 13 Graphical illustration to show the Pareto and normal plots for (a) MRR

Table 8 Detailed data for confirmatory experimentation

| Response measures | DOE data | | SN ratio data | | | % Improve- ment from DOE results |
|----------------------------|-----------------------|-----------------|--------------------|-----------------------------------|--|--|
| | Un-optimized settings | Response values | Optimized settings | Predicted results based on DOE | Confirmatory experiments results | |
| MRR (mm ³ /min) | Vs2,Pf3, Dn1, d3 | 21.99 | Vs2,Pf3, Dn1, d3 | 21.79 | 24.4 | 9.870 |
| Ra (μm) | Vs1,Pf3, Dn1, d2 | 1.9 | Vs1,Pf3, Dn1,d3 | 1.8805 | 1.773 | 7.163 |
| Kw (mm) | Vs1,Pf1, Dn1, d1 | 0.354 | Vs1,Pf1, Dn1, d1 | 0.3527 | 0.339 | 4.425 |

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.