

Table S1. Order of the experimental run for full factorial design. Std: standard.

Std	Run	Forward speed (m s⁻¹)	Cutting speed (rpm)	Cutting position (cm)
11	1	0.27	400	1
22	2	0.22	500	2
26	3	0.27	600	2
25	4	0.22	600	2
15	5	0.32	500	1
9	6	0.32	600	0
27	7	0.32	600	2
17	8	0.27	600	1
21	9	0.32	400	2
19	10	0.22	400	2
7	11	0.22	600	0
2	12	0.27	400	0
23	13	0.27	500	2
12	14	0.32	400	1
14	15	0.27	500	1
5	16	0.27	500	0
18	17	0.32	600	1
20	18	0.27	400	2
10	19	0.22	400	1
1	20	0.22	400	0
16	21	0.22	600	1
3	22	0.32	400	0
8	23	0.27	600	0
24	24	0.32	500	2
6	25	0.32	500	0
13	26	0.22	500	1
4	27	0.22	500	0

Table S2. Measured and estimated values of the model

Serial. No.	Combination of operating parameters			Predicted total torque (Nm)	Experimental total torque (Nm)	P _{bias} (%)
	Cutting speed (rpm)	Forward speed (m s ⁻¹)	Cutting position (cm)			
1	500	0.27	1.0	17.21	17.59	2.16
2	600	0.22	0.0	15.19	15.18	0.08
3	400	0.27	2.0	19.11	18.90	1.12
4	450	0.30	1.5	18.22	17.98	1.35
5	550	0.30	0.75	16.57	15.86	4.49
6	525	0.25	1.25	17.22	17.01	1.26
7	600	0.30	1.75	17.25	16.56	4.16
8	425	0.20	1.0	17.74	18.15	2.26
9	515	0.35	2.0	18.35	18.90	2.92
10	575	0.30	1.5	17.18	17.83	3.63