



EN-AC 48000

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hs_shahali@ssme.ir

EN-AC 48000 (P_m)

L₂₇

EN-AC 48000

(CD10)PCD

(H10)
ANOVA

(CD1810)CVD

S/N

EN-AC 48000

EN-AC 48000

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(CVD)

(PCD)



جامعه فناوری های نوین
سازمان مهندسی ساختمان



انجمن مهندسی
ساخت و تولید ایران



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کمیته علمی مهندسی ساخت و تولید
ماده معدنی
مؤسسه تحقیقاتی و آموزشی

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[] TIC, TiN

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EN-AC 48000

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ومقادیر بهینه توسط

EN-AC48000

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S/N

EN-AC 48000

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EN-AC 48000

EN-AC48000

Element	Wt%
Cu	0.7-1.5
Mg	0.8-1.5
Si	10-13
Fe	<1
Mn	<0.5
Ni	<1.5
Zn	<0.5
Pb	<0.1
Sn	<0.1
Ti	<0.2
Al	Reminder



دانشگاه صنعتی اصفهان
ساینس و تکنولوژی



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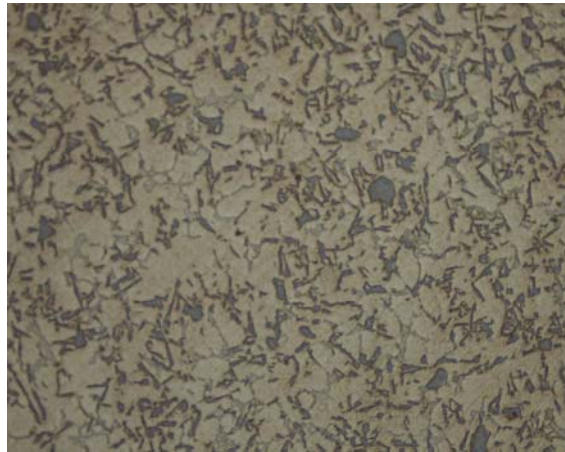


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انجمن مهندسی ساخت و تولید

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TN50D

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DOF=18

L₂₇

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V(m/min)	136.66	194.06	273.32
a _r (mm/rev)	0.07	0.11	0.2
T(tool)	1(CD1810)	2(H10)	3(CD10)

(P-value) P

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/ P-value

P-value

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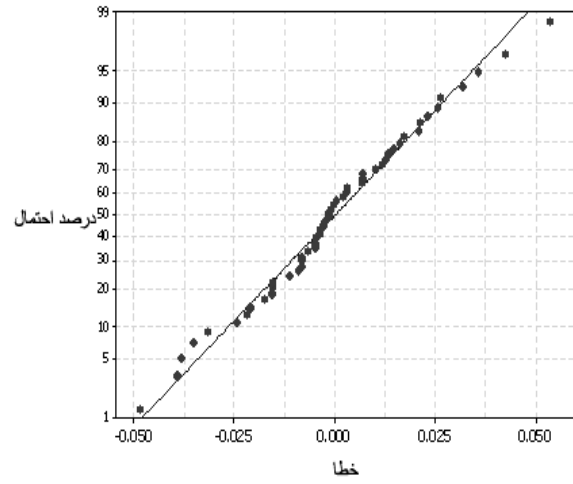
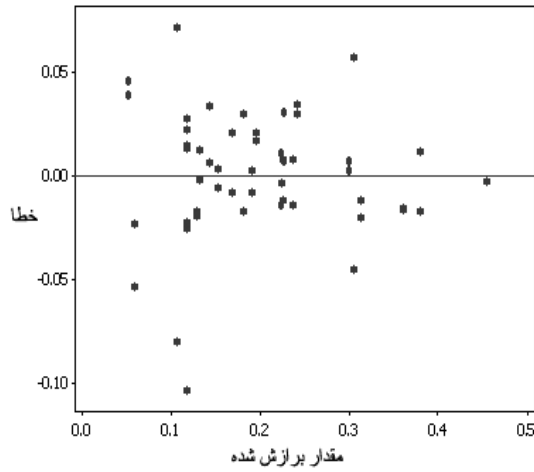
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%

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Seq SS

DF

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adj MS

/ P

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$$S_T = \sum_{i=1}^{\infty} (Y_i^2 - \frac{T^2}{N}) \quad ()$$

$$V_e = \frac{S_e}{f_e} \quad ()$$

$$S'_A = S_A - (V_e \times f_A) \quad ()$$

$$P_A = \frac{S'_A}{S_T} \quad ()$$

	T	$\frac{T^2}{N}$	Y_i^2	S_T ()
	f_e	S_e	V_e ()	N ()
A	S_A	S'_A ()	S'_A ()	()
	()	A	P_A	A f_A
()	[]			

()

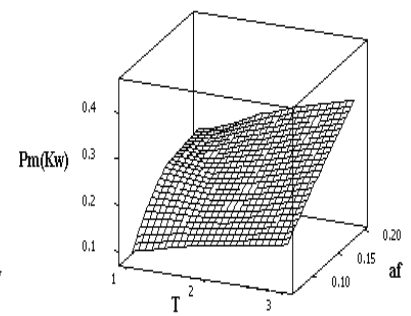
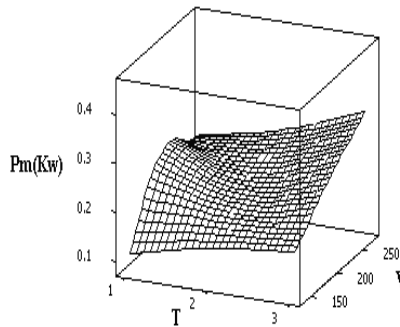
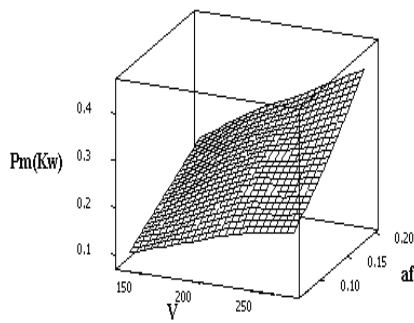
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(P_m)

Source	DF	Seq ss	Adj ss	Adj Ms	F	P	Weight(presentage of contribution)
V	2	0.136654	0.105109	0.052555	78.92	0.000	25.78%
a _f	2	0.268745	0.269931	0.134965	202.66	0.000	50.9%
T	2	0.056649	0.063799	0.031900	47.90	0.000	10.5%
V× a _f	4	0.022404	0.023460	0.005865	8.81	0.000	3.76%
V×T	4	0.009401	0.010109	0.002527	3.79	0.012	1.28%
a _f ×T	4	0.009008	0.009008	0.002252	3.38	0.020	1.21%
Error	33	0.021977	0.021977	0.000666			6.56%
Total	51	0.524838					100%

S = 0.0258061 R-Sq = 95.81% R-Sq(adj) = 93.53%



(P_m)

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$$P_m = 0.0389 + 0.000281V + 0.130 a_f - 0.0745 T + 0.00637 V \times a_f + 0.000244 V \times T + 0.183 a_f \times T - 0.000001V^2 - 1.18 a_f^2 + 0.00994 T^2 - 0.000406 V \times a_f \times T$$

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a_f, V, T (kw)

P_m ()

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P_m ()

source	DF	SS	MS	F	P
Regression	10	0.37	0.037	506	0.00
Res Error	32	0.002339	0.000073		
Total	42	0.372310			

S = 0.00855 R-Sq = 99.4% R-Sq(adj) = 99.2%



R-Sq R-Sq(adj)

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$$P_m = 7.67 \times 10^{-3} \times V^{0.898} \times a_f^{0.746} \times T^{0.22}$$

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() ()

(P_m) ()

source	DF	SS	MS	F	P
Regression	3	7.7444	2.5815	644.76	0.000
Res Error	39	0.1561	0.0040		
Total	42	7.9006			

S = 0.0632 R-Sq = 98.0% R-Sq(adj) = 97.9%

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P_{m2} P_{m1} $R_a(\text{Exp})$ ()

(P_{m2} P_{m1} $P_m(\text{Exp})$)

Test	V	a_f	T	$P_m(\text{Exp})$	P_{m1}	P_{m2}	Error(P_{m1})	Error(P_{m2})
1	97.03	0.07	1	0.0750	0.0725	0.0642	0.0025	0.0108
2	97.03	0.16	1	0.1271	0.1283	0.1189	0.0012	0.0082
3	136.66	0.22	3	0.2680	0.2717	0.2612	0.0037	0.0068
4	194.06	0.18	2	0.2674	0.2864	0.2818	0.0190	0.0144
5	273.32	0.09	3	0.2736	0.2853	0.2598	0.0117	0.0138

() S/N (Signal to Noise Ratio) S/N

[۸ و ۹]

$$\frac{S}{N} = -10 \log \left(\frac{1}{n} \sum_{i=1}^n y_i^2 \right) \quad ()$$

S/N S/N n y_i ()

S/N []

(V) SN ()

136.66m/min

17.54

(CD1810) CVD (0.07mm/rev)

()



P_m N S

Level	V	a_f	T
1	17.54	19.05	17.54
2	15.37	14.50	14.42
3	11.94	11.30	12.89
Delta	5.60	7.75	4.65

136.66	(m/min)
0.07	(mm/rev)
CVD(CD1810)	

EN-AC 48000

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N S

0.07mm/rev

136.66m/min

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CVD(CD1810)

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