Manufacturing Technologies and Applications 3(3), 8-19, 2023 – Research/Review Article

|  |  |
| --- | --- |
| **Manufacturing Technologies and Applications**  **MATECA** |  |
| **Article Title** | |
| First Author1,\*, Second Author2, Third Author1 | |
| *1Department of Mechanical Engineering, Engineering Faculty, Karabük University, Karabük, Türkiye*  *2Gazi University, Vocational School of Technical Sciences, Ankara, Türkiye*  *1TUSAŞ-Turkish Aerospace Industries, Inc., Ankara, Türkiye* | |
| **ABSTRACT** | |
| This study aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. This study aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa (**abstract must be 200- 250 words**). | |
| ***Keywords:*** *Drilling, Taguchi method, Coated tool, ANN, Powder metallurgy, Additive manufacturing* | |
| **Makale Başlığı** | |
| **ÖZET** | |
| Bu çalışma aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. Bu çalışma aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa **(özet 200-250 kelime arasında olmalıdır.)** | |
| ***Anahtar Kelimeler****: Delme, Taguchi yöntemi, Kaplamalı takım, YSA, Toz metalurjisi, Eklemeli imalat* | |

**1. GİRİŞ (Birinci derece başlıklardan önce tek satır ve başlıktan sonra da 6 nk boşluk bırakılmalıdır.)**

(**Paragraf metinleri tek satır olarak yazılmalı, öncesinde ve sonrasında boşluk bırakılmamalıdır.)**Metal malzemelerden makine parçası imalatında [1] , aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa [2].

Soğuk iş takım çeliklerinde, aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

Korkmaz vd., aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

**2. MATERYAL VE YÖNTEM**

**2.1. Deney Düzeneği**

Bu çalışmada, AISI D3 (DIN 1.2080) soğuk iş takım çeliği aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa [3].



Şekil 1. CNC torna ve deneysel ekipmanlar (**Şekil başlığı ortalı, 10 pt ve öncesi 6 nk boşluk bırakılmalıdır**. **Şekilden önce ve şekil başlığından sonra tek satır boşluk bırakılmalıdır.)**

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaaaaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaaaaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa [4].

Tablo 1. SJ-210 marka yüzey pürüzlülük cihazı teknik özellikleri (**Tablolarda dikey çizgiler kullanmayınız. Tablo başlığı ortalı, 10 pt ve sonrasında 6 nk boşluk bırakılmalıdır. Tablo başlığından önce ve tablodan sonra tek satır boşluk bırakılmalıdır. Tablo içeriğinde 10 pt kullanılmalıdır.)**

|  |  |
| --- | --- |
| **Tarama ucu** | 2 μm |
| **Sürücü ünite hızı** | 0.25-0.5-0.75 mm/s |
| **Ölçüm kuvveti** | 0.75 mN |
| **Ölçüm mesafesi (*Z*)** | 360 μm (-200 μm ila +160 μm) |
| **Ölçüm uzunluğu (*L*)** | 0.08-0.25-0.8- 2.5-8 mm |

**2.2.** **İkinci Derece Alt Başlık (İkinci ve üçüncü derece başlıklardan önce tek satır ve başlıktan sonra da 6 nk boşluk bırakılmalıdır.)**

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa [5].

**2.2.1.** **Üçüncü derece alt başlık I**

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

**2.2.2. Üçüncü derece alt başlık II**

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa [6].

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

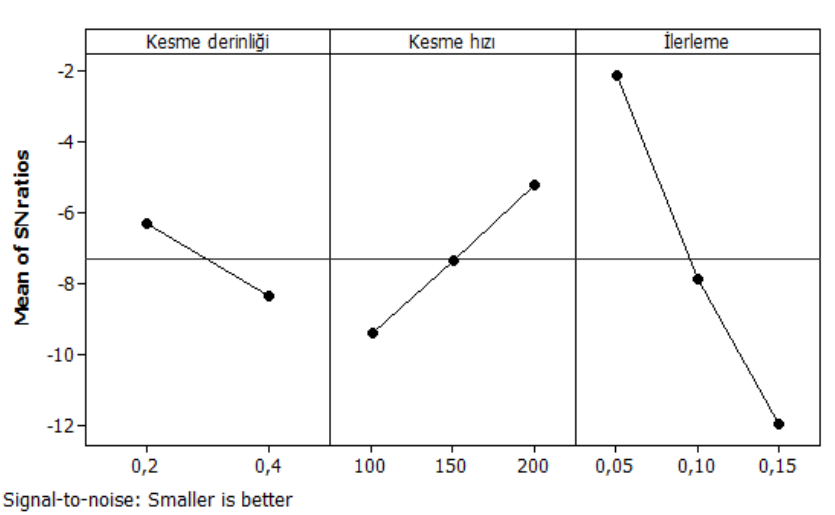
Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. Aaaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

**3.** **DENEY VE OPTİMİZASYON SONUÇLARI**

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa [7].

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa.



Şekil 2. Ortalama yüzey pürüzlülüğü için S/N oranları grafiği [6].

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

Tablo 2. Yüzey pürüzlülüğü için ANOVA sonuçları.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parametre** | **SD** | **KT** | **KO** | **F** | **P** | **PCR**  *(%)* |
| **A** | 1 | 19.301 | 19.301 | 24.95 | 0.000 | 4.94 |
| **B** | 2 | 52.367 | 26.183 | 33.84 | 0.000 | 13.54 |
| **C** | 2 | 294.369 | 147.184 | 190.25 | 0.002 | 78.02 |
| **Hata** | 12 | 9.284 | 0.774 |  |  | 3.5 |
| **Toplam** | 17 | 375.32 |  |  |  | 100 |

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

Şekil 1a) ve 1b)’den görülebileceği gibi, aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. Aaaaa aaaaa Eş.1’de verilmiştir: (Formüller, Mathtype veya Microsoft denklem editörü kullanılarak yazılmalıdır. Formülden önce ve sonra tek satır boşluk bırakılmalıdır.)

x (1)

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa (Eş.2).

(2)

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

Tablo 2’de, aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa. Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa.

**4. SONUÇLAR**

Aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa aaaaa [5].

**TEŞEKKÜR**

(Çalışma araştırma kurumu veya fonu tarafından desteklenmiş ise destek sağlayan kurum/kuruluş adı ve proje numarası Kaynaklar bölümünden önce yazılmalıdır.) Bu çalışma Karabük Üniversitesi Bilimsel Araştırma Projeleri tarafından desteklenmiştir (Proje no: 2020.KBU.99.001).

**KAYNAKLAR**

Metin içerisinde yer alan referanslar köşeli parantez içerisinde verilmelidir. Referanslar kaynaklar bölümünde aşağıda verilen formatlarda ve 10 punto olarak yazılmalıdır.

**ÖNEMLİ NOT:**

**Yazarların kaynakları düzenlerken Mendeley, Zotero, Endnote gibi referans düzenleme yazılımlarından birini kullanmaları gerekmektedir**. Mendeley referans yönetim yazılımı ile makalenizin referanslarını düzenlemek isterseniz dergimizin kaynakça ve atıf yazım kurallarına tamamen uygun olan “Elsevier (numeric, with titles)” stili kullanılmalıdır. Bu stil dosyasını yüklemek için;

1. Mendeley'i açın ve "View" menüsüne gidin.

2. "Citation Style" gidin ve açılır listeden " More Styles…" seçeneğini seçin.

3. Yeni açılan pencerede, üst taraftaki " Get More Style" sekmesine tıklayın.

4. Arama çubuğuna " Elsevier (numeric, with titles)" yazın ve görüntülenen alıntı stilinin yanındaki " Use this style" butonuna tıklayın.

5. Sağ alt köşedeki " Done" butonuna tıklayarak işlemi tamamlayın.

Mendeley referans yönetim sistemine yeni referans eklemek için “Add” sekmesinin altındaki “Add Entry Manually” seçeneğini kullanabilirsiniz. Açılan pencereden DOI Numarası olan yayınlar için DOI sekmesi kullanılarak, olmayan yayınlar için ise gerekli bilgiler manuel olarak girilerek otomatik referans gösterimi sağlanabilir.

**MATECA yazım kurallarına uygun olmadan hazırlanan makaleler değerlendirmeye alınmayacaktır.**

**KAYNAK YAZIMI**

*Dergi makalesi:* Yazarın adının baş harfi(.) Soyadı, Makalenin tam başlığı, Derginin Adı veya Uluslararası Kısaltması, cilt (sayı) yıl sayfa numaraları.

M. Günay, I. Korkut, E. Aslan, U. Şeker, Experimental investigation of the effect of cutting tool rake angle on main cutting force, J Mater Process Technol 166 (2005) 44–49. https://doi.org/10.1016/j.jmatprotec.2004.07.092

*Kitap:* Yazarın adının baş harfi(.) Soyadı, Kitabın Adı, Yayınevinin Adı, Yayınlandığı yer, yıl.

E.M. Trent, Metal Cutting, Butterworth-Heinemann, Valencia, 2016.

*Kitaptan bir bölüm:* Bölüm yazarın adının baş harfi(.) Soyadı, Bölümün adı, varsa editörü, Kitabın Adı, yayınevinin adı, yayınlandığı yer, yıl.

D. Ulutan, T. Özel, Hard machining, in: M. Koç, T. Özel (Eds.), Modern Manufacturing Processes, 6th ed., John Wiley & Sons, Inc, New York, 2019.

*Konferans yayını:* Yazarın adının baş harfi(.) soyadı, tebliğin adı, konferans adı, yapıldığı yer, yıl: sayfa numaraları.

A. Parlak, R. Kaçar, H.Ertek Emre, Adjoining of AA6033 Aluminum-AH36 Grade steel coupling with robotic GMAK method using transition plate, in: 4th International Conference on Engineering Technology and Applied Sciences, Kiev, 2019: pp. 122–142.

*Standart-Patent:* Standard no, standardın adı, yayın yeri, yıl.

ASTM E8, Standard test methods for tension testing of metallic materials, 2004.

*Tez:* Yazarın adının baş harfi(.) Soyadı, Tezin adı, cinsi (Yüksek lisans, Doktora), sunulduğu üniversite ve enstitüsü, yıl.

T. Meral, Paslanmaz çeliğin delinebilirliğinin deneysel ve nümerik olarak incelenmesi, Yüksek Lisans Tezi, Karabük Üniversitesi Fen Bilimleri Enstitüsü, 2018.

*Online kaynaklar:*Yazar(lar) veya sorumlu kurum, yayın başlığı, URL, erişim tarihi.

Texas Instruments, RS-422 and RS-485 Standards Overview and System Configurations, Http://www.Ti.Com/Lit/an/Slla070d/Slla070d.Pdf (2012).

**KAYNAKLAR**

[1] M. Günay, I. Korkut, E. Aslan, U. Şeker, Experimental investigation of the effect of cutting tool rake angle on main cutting force, J Mater Process Technol 166 (2005) 44–49. https://doi.org/10.1016/j.jmatprotec.2004.07.092.

[2] E.M. Trent, Metal Cutting, Butterworth-Heinemann, Valencia, 2016.

[3] D. Ulutan, T. Özel, Hard machining, in: M. Koç, T. Özel (Eds.), Modern Manufacturing Processes, 6th ed., John Wiley & Sons, Inc, New York, 2019.

[4] A. Parlak, R. Kaçar, H.Ertek Emre, Adjoining of AA6033 Aluminum-AH36 Grade steel coupling with robotic GMAK method using transition plate, in: 4th International Conference on Engineering Technology and Applied Sciences, Kiev, 2019: pp. 122–142.

[5] ASTM E8, Standard test methods for tension testing of metallic materials, 2004.

[6] T. Meral, Paslanmaz çeliğin delinebilirliğinin deneysel ve nümerik olarak incelenmesi, Yüksek Lisans Tezi, Karabük Üniversitesi Fen Bilimleri Enstitüsü, 2018.

[7] Texas Instruments, RS-422 and RS-485 Standards Overview and System Configurations, Http://Www.Ti.Com/Lit/an/Slla070d/Slla070d.Pdf (2012).