

# Gözenekli Döküm Parçalarda Emprenye İşlemi İle Sızdırmazlık Sağlanması

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**8. Uluslararası Döküm Kongresi**  
1.Ekim.2016, İstanbul

# Sızdırmazlık Aranan Parçalar



- Dişli kutuları, yağ karterleri
- Vana ve pompa gövdeleri
- Silindir kapakları
- Armatürler
- Elektronik aksam muhafazaları



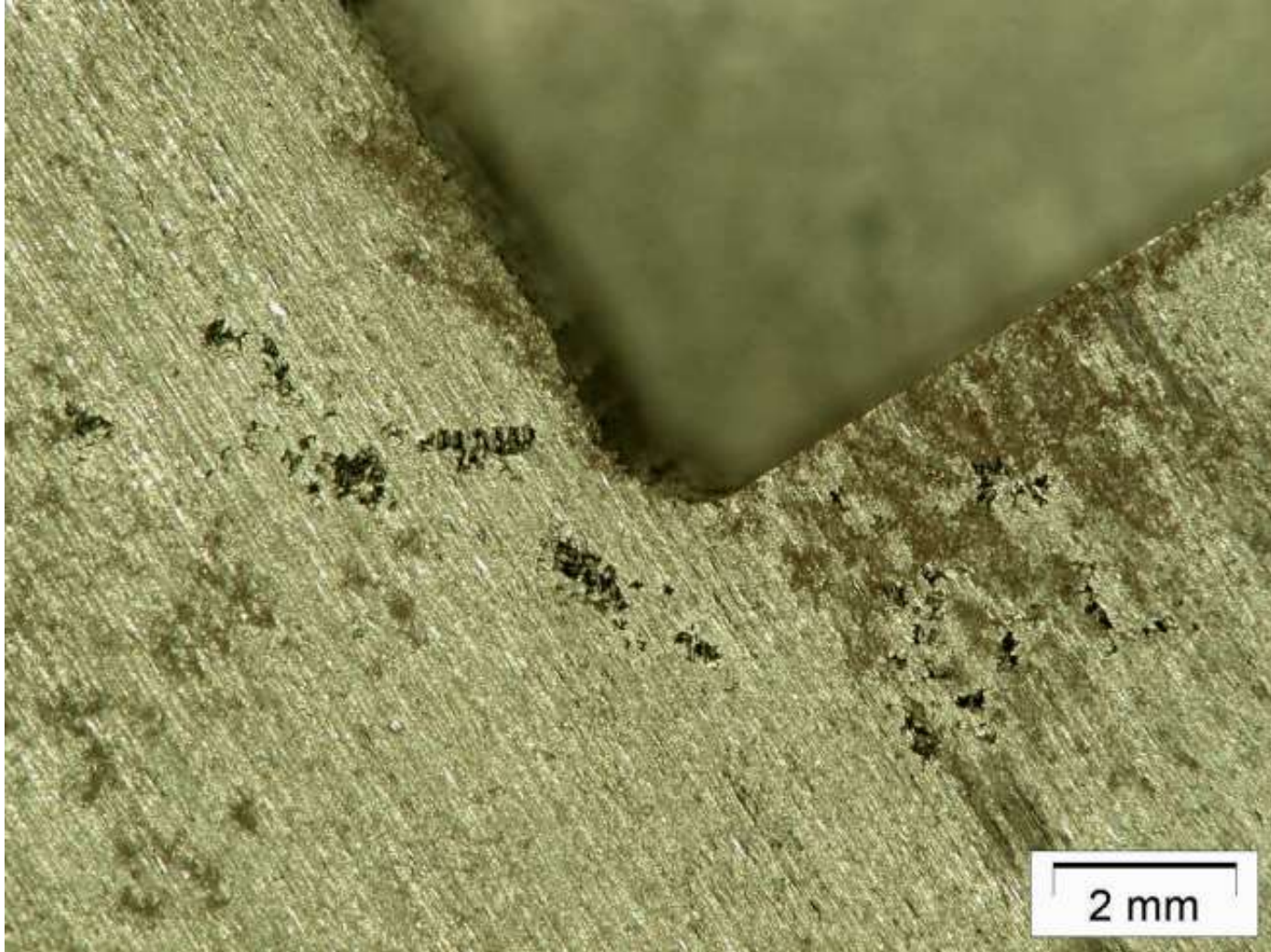
## Dökümde Katılma Hataları

**Gaz  
Boşlukları**

**Çekme  
Boşlukları**

**Sıcak  
Yırtılma ve  
Çatlamalar**

# Döküm Gözenekleri ve Sızdırma **maldaner**



- Sızdıran parçaların iskartaya ayrılması
  - Döküm tekniğinin iyileştirilmesi
  - Üretim prosesine metal emprenye adımını entegre etmek
- 

## **Metal Emprenye:**

**Döküm parçalardaki mikro gözeneklerin,  
bir malzeme ile doldurulması işlemidir.**

**Emprenye Malzemesi:**

**Cam suyu, amonyum klorit, reineler**

**Modern Malzeme: Metakrilik Sentetik Reineler**

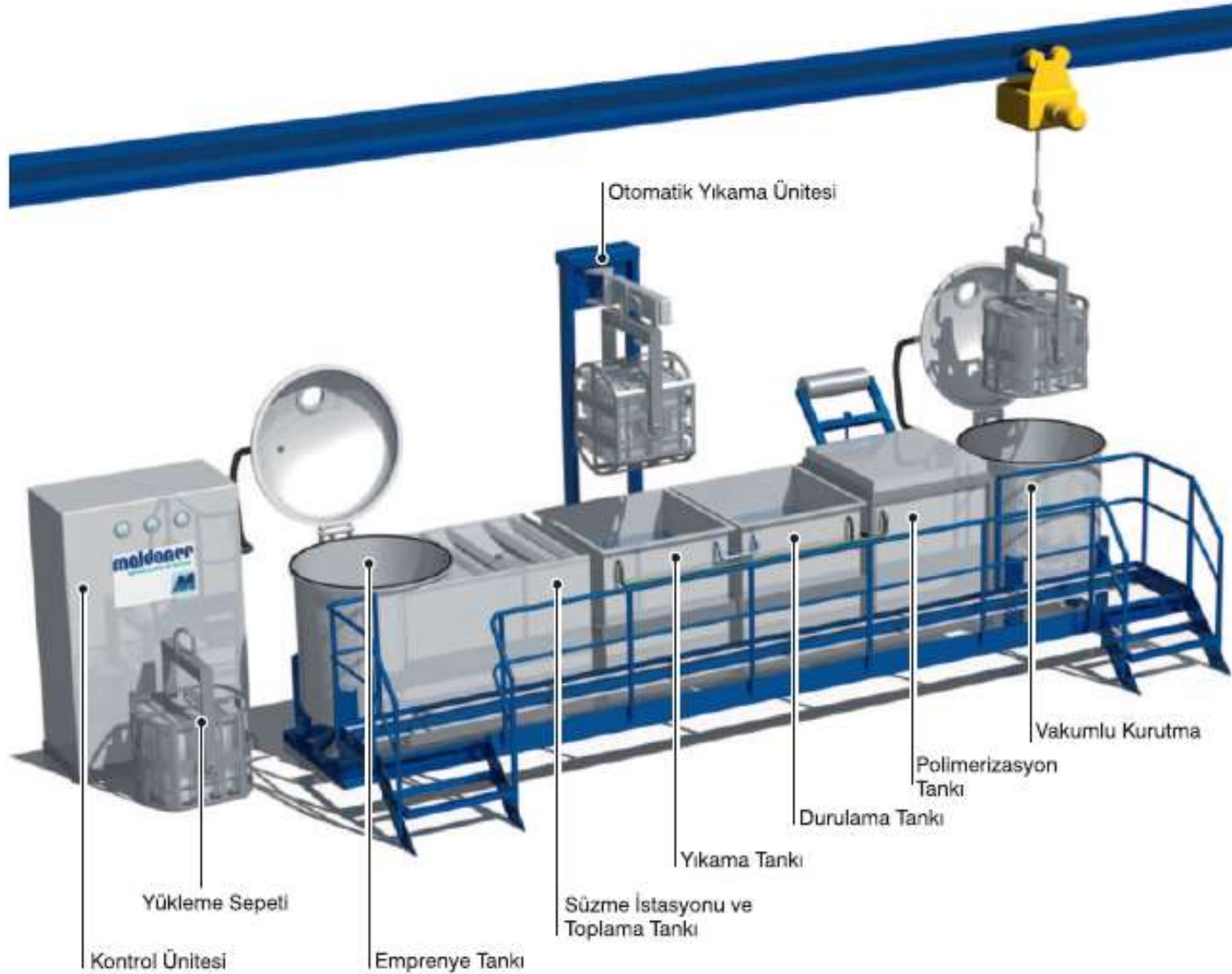
## Emprenye Yöntemleri

**Dahili Basın  
Yöntemi**

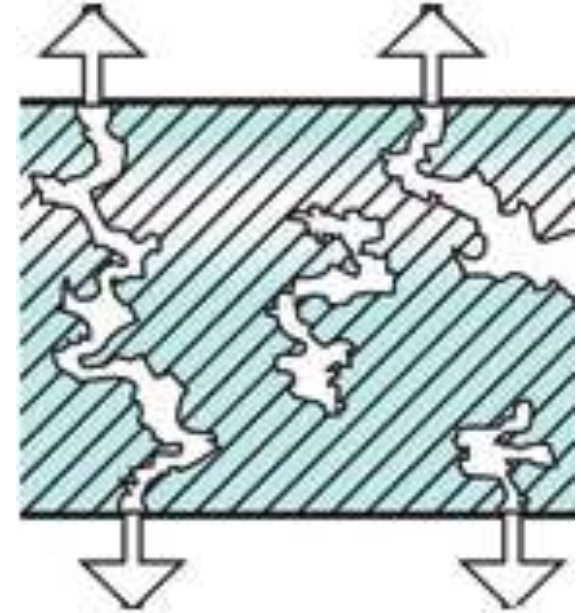
**Islak Vakum  
Basın  
Yöntemi**

**Kuru Vakum  
Basın  
Yöntemi**

# Kuru Vakum Basınç Yöntemi



# Kuru Vakum Basınç Yöntemi





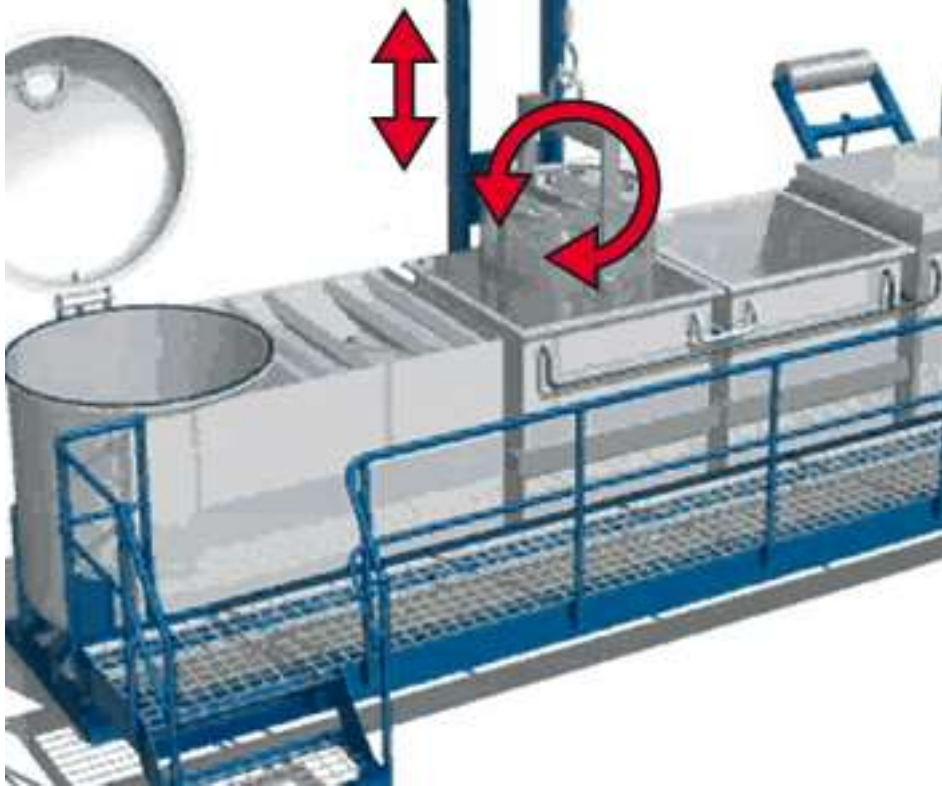
# Kuru Vakum Basınç Yöntemi



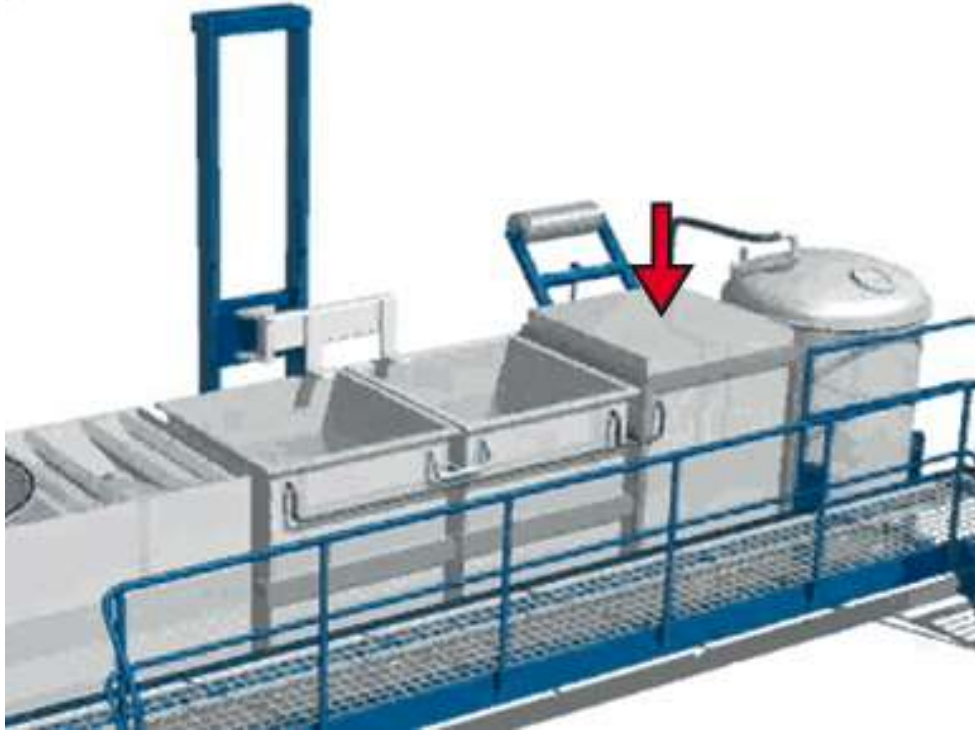
# Kuru Vakum Basınç Yöntemi



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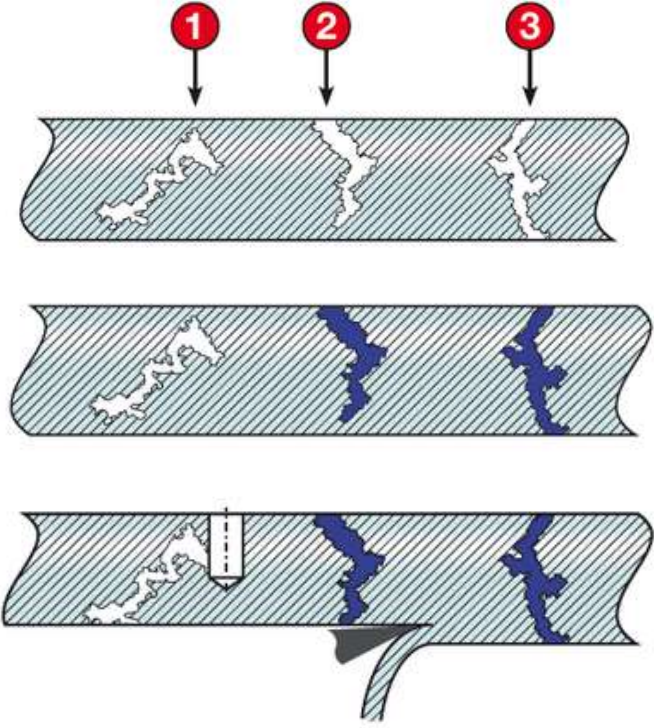
# Kuru Vakum Basınç Yöntemi





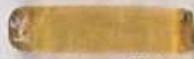











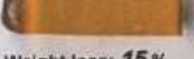
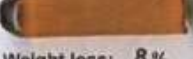
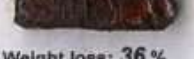
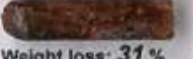
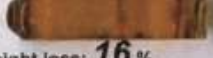
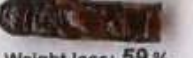
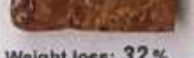
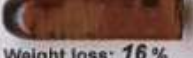

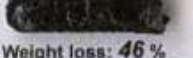
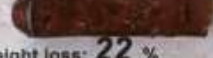
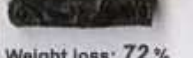
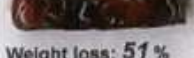

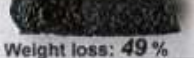
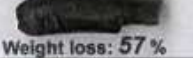

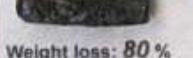
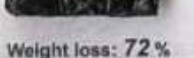
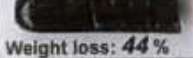
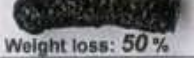
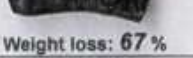
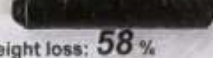
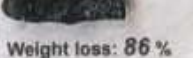
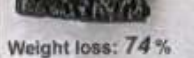
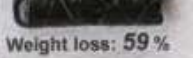
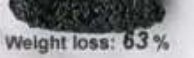
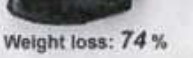
# Emprenyenin Sonuçları



# İmalat Adımı Olarak Emprenye

Emprenye Öncesi	Emprenye İşlemi	Emprenye Sonrası
<ul style="list-style-type: none"><li>• Talaşlı İmalat</li><li>• Yağdan arındırma</li><li>• Kurutma</li></ul>	 <p>The diagram illustrates the three steps of the impregnation process:</p> <ol style="list-style-type: none"><li><b>1</b>: Application of impregnation material to the surface of a workpiece.</li><li><b>2</b>: Penetration of the material into the pores of the workpiece.</li><li><b>3</b>: Final state after the process is complete.</li></ol>	<ul style="list-style-type: none"><li>• Sızdırmazlık Testi</li><li>• Boya / Kaplama</li></ul>

# Reçine Seçimi

180°C	 Weight loss: <b>3</b> %	 Weight loss: <b>7</b> %	 Weight loss: <b>7</b> %	 Weight loss: <b>5</b> %	 Weight loss: <b>7</b> %	 Weight loss: <b>7</b> %
200°C	 Weight loss: <b>4</b> %	 Weight loss: <b>28</b> %	 Weight loss: <b>10</b> %	 Weight loss: <b>6</b> %	 Weight loss: <b>19</b> %	 Weight loss: <b>18</b> %
210°C	 Weight loss: <b>7</b> %	 Weight loss: <b>43</b> %	 Weight loss: <b>15</b> %	 Weight loss: <b>8</b> %	 Weight loss: <b>36</b> %	 Weight loss: <b>31</b> %
220°C	 Weight loss: <b>16</b> %	 Weight loss: <b>59</b> %	 Weight loss: <b>32</b> %	 Weight loss: <b>16</b> %	 Weight loss: <b>41</b> %	 Weight loss: <b>46</b> %
230°C	 Weight loss: <b>22</b> %	 Weight loss: <b>72</b> %	 Weight loss: <b>51</b> %	 Weight loss: <b>25</b> %	 Weight loss: <b>49</b> %	 Weight loss: <b>57</b> %
240°C	 Weight loss: <b>43</b> %	 Weight loss: <b>80</b> %	 Weight loss: <b>72</b> %	 Weight loss: <b>44</b> %	 Weight loss: <b>50</b> %	 Weight loss: <b>67</b> %
250°C	 Weight loss: <b>58</b> %	 Weight loss: <b>86</b> %	 Weight loss: <b>74</b> %	 Weight loss: <b>59</b> %	 Weight loss: <b>63</b> %	 Weight loss: <b>74</b> %

- Metal emprenye, sızdırma probleminin en uygun çözümüdür
- Metal emprenye, çatlakları ve büyük döküm boşluklarını kapatmaz.
- Metal emprenye, sızdırmazlık garantisi vermez
  
- Metal emprenye, bir yüzey işlemi değildir. İşlem parçanın içinde gerçekleşir.
- Metal emprenye, bir kaplama işlemi değildir.
- Metal emprenye, parçanın ölçülerini değiştirmez.
  
- Metal emprenye, parçanın dayanma basıncını düşürmez veya arttırmaz.
- Metal emprenye, 200 C'nin üzerinde kullanılacak parçalar için uygun değildir.
- Metal emprenye, vakum altında ve sentetik reçinelerle yapılmalıdır.
  
- Metal emprenye, talaşlı imalat sonrası yapılmalıdır.
- Metal emprenye, gerekiyorsa boya veya başka kaplamadan önce yapılmalıdır.
- Metal emprenye, parçanın pas direncine olumlu etki eder.
- Metal emprenye, yapılacak boyanın kalitesi için daha düzgün bir yüzey yaratır.



# Hakkımızda



## Maldaner Metal Emprenye

1962 Maldaner Almanya kuruluş  
1987 Maldaner Türkiye kuruluş

Tüm Avrupa'da yaygın olan **MALDANER Emprenye Sistemini** ülkemize getirerek, döküm sanayimizin gözenekli dökümlerinde oluşan sızdırma problemini çözümledik!

## Hizmetlerimiz

- Fason Emprenye İşçiliği
- Emprenye Reçinesi Satışı
- Emprenye Tesisi tasarım, imalat ve devreye alma operasyonu



İlginiz İçin Teşekkürler

Maldaner Metal Emprenye  
Sanayi Mh. Kuzey Sk. No. 16  
İzmit Kocaeli

Tel: +90 262 335 47 47  
arda.ulgen@onder.com

Fuar Standımız: Hol 2, Stand A100