

# Uyarlar

DEMİR ÇELİK SAN. ve TİCARET A.Ş.

# Hakkımızda
## About Us

**UYARLAR Demir Çelik San. ve Tic. A.Ş.**

UYARLAR DEMİR ÇELİK A.Ş 1964 yılında iş insanı NESİM UYAR tarafından kurulmuştur. Bünyesinde bulunan NESİM UYAR DEMİR ÇELİK A.Ş firması ile birlikte 50.000 metrekarelik bir alanda faaliyet göstermektedir. 100.000 tonluk üretim kapasitesi ve zengin stok çeşitliliği ile yurt içi ve yurt dışı müşterilerine; otomotiv, makine imalatı, inşaat, ziraat, gaz ve petrol sanayisi gibi başlıca sektörlerde hizmet vermektedir.

Bünyemizde bulunan sıcak haddehane tesislerimizde yuvarlak, kare, lama ve altıköşe üretimi yapılmaktadır. Ayrıca tesisimizde bulunan çubuktan çubuğa ve kangaldan çubuğa soğuk çekme, kabuk soyma ve taşlama makineleri ile istenilen hassas tolerans değerlerini sağlanabilmektedir. Sunduğumuz geniş ölçü çeşitliliğinin yanında kalite çeşitliliğine de önem veren firmamızda, yapı çelikleri, karbon çelikleri, ıslah çelikleri, sementasyon çelikleri, takım çelikleri, otomat ve paslanmaz çelikleri mevcuttur.

**UYARLAR Demir Çelik San. ve Tic. A.Ş.**

UYARLAR DEMİR ÇELİK A.Ş. was established in 1964 by businessman NESİM UYAR. It operates in an area of 50.000 square meters together with NESİM UYAR DEMİR ÇELİK A.Ş. company. With its 100.000 tons production capacity and rich stock diversity, it serves its domestic and foreign customers in major sectors such as automotive, machinery manufacturing, construction, agriculture, gas and oil industry.

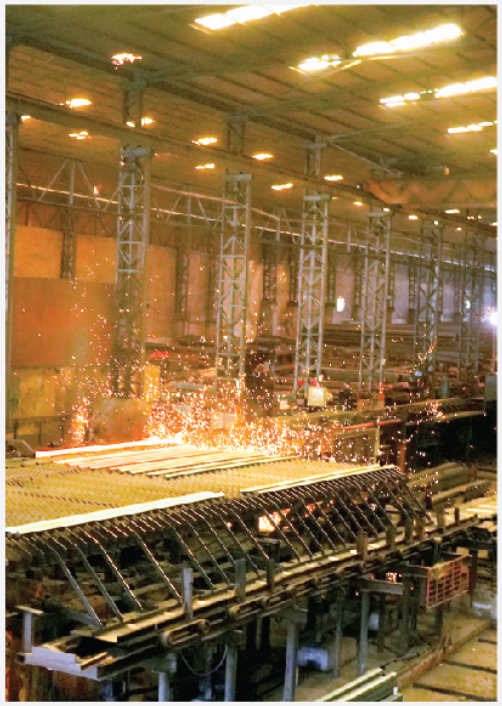
In our hot rolling mill facilities, we can produce round, square, flat and hexagonal materials. And also, we can meet the desired tolerance values with cold drawn, peeling and grinding machines. In addition to the wide range of the sizes that we provide, our company cares quality diversity and has structural steels, carbol steels, treated steels, case hardening steels, tool steels, free-cutting steels, stainless steels and seamless steel pipes.



# Sıcak Üretim
## Hot Rolling

Yıllık **70.000** ton üretim kapasitesiyle çalışan sıcak haddeleme tesisimizde; alaşımlı çelikler, karbon çelikleri ve yay çelikleri üretilmektedir. Mevcut tav fırınlarımızda yumuşatma tavı ve normalizasyon işlemleri yapılmaktadır.

Our company continues its hot rolling production in Esenyurt located on the european side of Istanbul. Alloy Steels, carbon steels and spring steels are produced in this facility, which has an annual capacity of **70,000** tons







# Üretilebilir Ölçü Aralıkları
## Dimensions

### KARE MALZEMELER
**Square Bars**

Ölçü Aralığı: 10x10mm - 150x150mm
Boyut ve Şekil Toleransları: EN 10059

Size Range: 10x10mm - 150x150mm
Dimensional and Shape
Tolerances: EN 10059

### DİKDÖRTGEN MALZEMELER
**Flat Bars**

Ölçü Aralığı: 20x5mm - 250x20mm
Boyut ve Şekil Toleransları: EN 10058

Size Range: 20x5mm - 250x20mm
Dimensional and Shape
Tolerances: EN 10058

### ALTIKÖŞE MALZEMELER
**Hexagonal Bars**

Ölçü Aralığı: 19mm - 85mm
Boyut ve Şekil Toleransları: EN 10061

Size Range: 19mm - 85mm
Dimensional and Shape
Tolerances: EN 10061

### YUVARLAK MALZEMELER
**Round Bars**

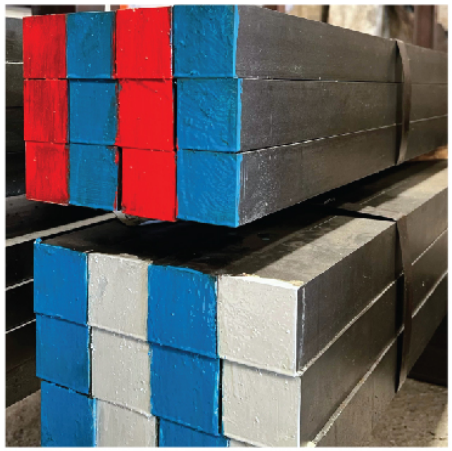
Ölçü Aralığı: 16mm - 150mm
Boyut ve Şekil Toleransları: EN 10060

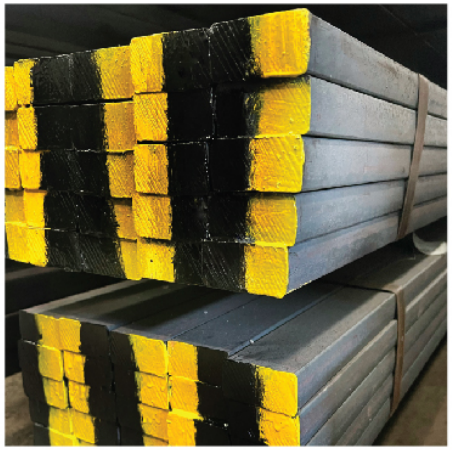
Size Range: 16mm - 150mm
Dimensional and Shape
Tolerances: EN 10060

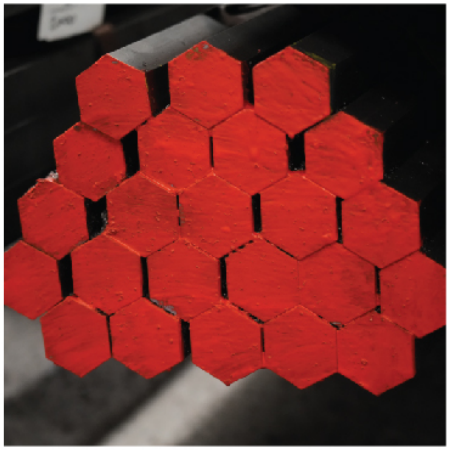
### KÖŞEBENT MALZEMELER
**Bracket Bars**

Ölçü Aralığı: 75 x 75 x 16
Boyut ve Şekil Toleransları: EN 10056-1

Size Range: 75 X 75 X 16
Dimensional and Shape
Tolerances: EN 10056-1









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# Sıcak Üretim
## Hot Rolling

### ÜRETİLEBİLİR KALİTELER
### Range of Products and Grades

**EN 10083-2 Standardında Mevcut Karbon Çelikleri**
C22E/C22R/C35E/C35R/C40E/C40R/C50E/C50R/C55E/C55R/C60E/C60R
**Carbon Steels According to EN 10083-2 Standard**
C22E/C22R/C35E/C35R/C40E/C40R/C50E/C50R/C55E/C55R/C60E/C60R

**EN 10025-2 Standardında Mevcut Karbon Yapı Çelikleri**
S235FR / S275JR / S355JR / S355J2
**Structural Steels According to EN 10025-2 Standard**
S235FR / S275JR / S355JR / S355J2

**EN 10083-3 Standardında Mevcut Alaşımlı Çelikler**
41Cr4/41CrS4/25CrMo4/34CrMo4/34CrMoS4/42CrMo4/42CrMoS4/
50CrMo4/34CrNiMo6
**Alloyed Steels According to EN 10083-3 Standard**
41Cr4/41CrS4/25CrMo4/34CrMo4/34CrMoS4/42CrMo4/42CrMoS4/
50CrMo4/34CrNiMo6

**EN 10084 Standardında Mevcut Semantasyon Çelikleri**
C10E/C10R/C15E/C15R/16MnCr5/16MnCrS5/20MnCr5/20MnCrS5/
20NiCrMo2-2/20NiCrMoS2-2
**Case Hardening Steels According to EN 10084 Standard**
C10E/C10R/C15E/C15R/16MnCr5/16MnCrS5/20MnCr5/20MnCrS5/
20NiCrMo2-2/20NiCrMoS2-2

**EN 10087 Standardında Mevcut Otomat Çelikleri**
11SMn30/11SMnPb30/11SMn37/11SMnPb37
**Free Cutting Steels According to EN 10087 Standard**
11SMn30/11SMnPb30/11SMn37/11SMnPb37

**EN 10089 Standardında Mevcut Yay Çelikleri**
55Cr3/51CrV4/60SiCrV7/60SiMn5/56Si7
**Spring Steels According to EN 10089 Standard**
55Cr3/51CrV4/60SiCrV7/60SiMn5/56Si7

## 100.000+ TONLUK ÜRETİM
TONS OF PRODUCTION







# Soğuk Üretim
## Cold Drawing

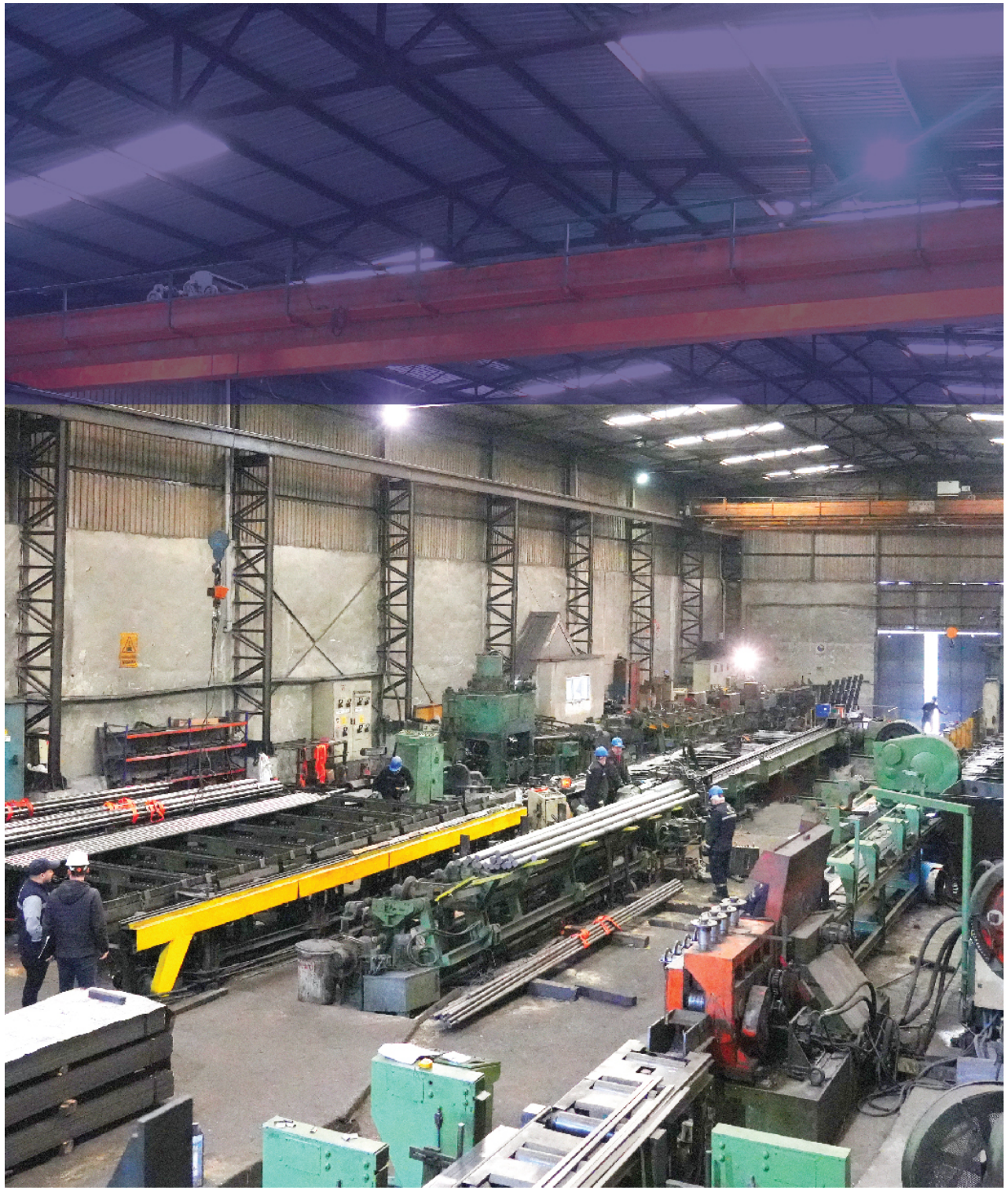
Yıllık **30.000** ton üretim kapasitesine sahip soğuk haddeleme tesisimizde çubuktan çubuğa ve kangaldan çubuğa soğuk çekme yapılmaktadır. Ayrıca kabuk soyma , taşlama ve yağlı doğrultma işlemleri de mevcuttur. Bu tesisimizde karbon ve otomat çelikleri farklı ölçülerde ve toleranslarda şekillendirilmektedir.

With a production capacity of **30.000** tonnes per annum, our cold drawn facilities include hot rolled bars to cold drawn bars, wire rod to cold drawn bars, peeling, grinding and oil straightening. In this facility, alloyed, carbon and free-cutting steels are drawn in different sizes and tolerances.





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# Üretilebilir Kaliteler

## Range Of Products

**EN 10277-4 Standardında Mevcut Sementasyon Çelikleri**
C10R / C15R / 16MnCrS5 / 20MnCrS5 / 20NiCrMoS2-2
**Case Hardening Steels According to EN 10277-4 Standard**
C10R / C15R / 16MnCrS5 / 20MnCrS5 / 20NiCrMoS2-2

**EN 10277-5 Standardında Mevcut Islah Çelikleri**
C35E / C35R / C40E / C40R / C45E / C45R / C50E / C50R / 41CrS4 / 42CrMoS4 / 34CrNiMo6
**Heat Treated Steels According to EN 10277-5 Standard**
C35E / C35R / C40E / C40R / C45E / C45R / C50E / C50R / 41CrS4 / 42CrMoS4 / 34CrNiMo6

**EN 10277-2 Standardında Mevcut Genel Mühendislik Amaçlı Çelikler**
S235JRG2 / S355J2G3C / C10 / C15 / C35 / C40 / C45 / C50 / C60
**Steels For General Engineering Purposes According to EN 10277-2 Standard**
S235JRG2 / S355J2G3C / C10 / C15 / C35 / C40 / C45 / C50 / C60

**EN 10277-3 Standardında Mevcut Otomat Çelikleri**
11SMn30 / 11SMnPb30 / 115Mn37 / 11SMnPb37 / 10S20 / 10SPb20 / 35S20 / 35SPb20
**Free Cutting Steels According to EN 10277-3 Standard**
11SMn30 / 11SMnPb30 / 115Mn37 / 11SMnPb37 / 10S20 / 10SPb20 / 35S20 / 35SPb20








**Soğuk Altıköşe Malzemeler**
**Ölçü Aralığı : 10mm - 70mm**
**Ölçü Toleransı : h11**
Cold Drawn Hexagonal Bars
Size Range: 10mm - 70mm
Dimensional Tolerances: h11

**Kabuk Soyma Malzemeler**
**Ölçü Aralığı : 20mm - 75mm**
**Ölçü Toleransı : h9 / h11**
Peeling
Size Range: 20mm - 75mm
Dimensional Tolerances: h9 / h11

**Taşlama İşlemi**
**Ölçü Aralığı : 16mm - 140mm**
**Ölçü Toleransı : h8 / h9 / h11**
Grinding
Size Range: 16mm - 140mm
Dimensional Tolerances: h7 / h8 / h9 / h11

# Üretilebilir Kaliteler

## Range Of Products

Parlak çelik mamüller EN 10278 normun boyut ve toleranslara göre üretilir.

Size range and dimensional tolerances for bright steel bars are produced according to EN 10278 standards.

**Soğuk Yuvarlak Malzemeler**
**Ölçü Aralığı : 5mm - 85mm**
**Ölçü Toleransı : h9 / h11**
Cold Drawn Round Bars
Size Range: 5mm - 85mm
Dimensional Tolerances: h9 / h11

**Soğuk Kare Malzemeler**
**Ölçü Aralığı : 6x6mm - 80x80mm**
**Ölçü Toleransı : h11**
Cold Drawn Square Bars
Size Range: 6x6mm - 80x80mm
Dimensional Tolerances: h11

**Soğuk Dikdörtgen Malzemeler**
**Ölçü Aralığı : 20x5mm - 200x20mm**
**Ölçü Toleransı : h9 / h11**
Cold Darwn Flat Bars
Size Range: 20x5mm - 200x20mm
Dimensional Tolerances: h9 / h11






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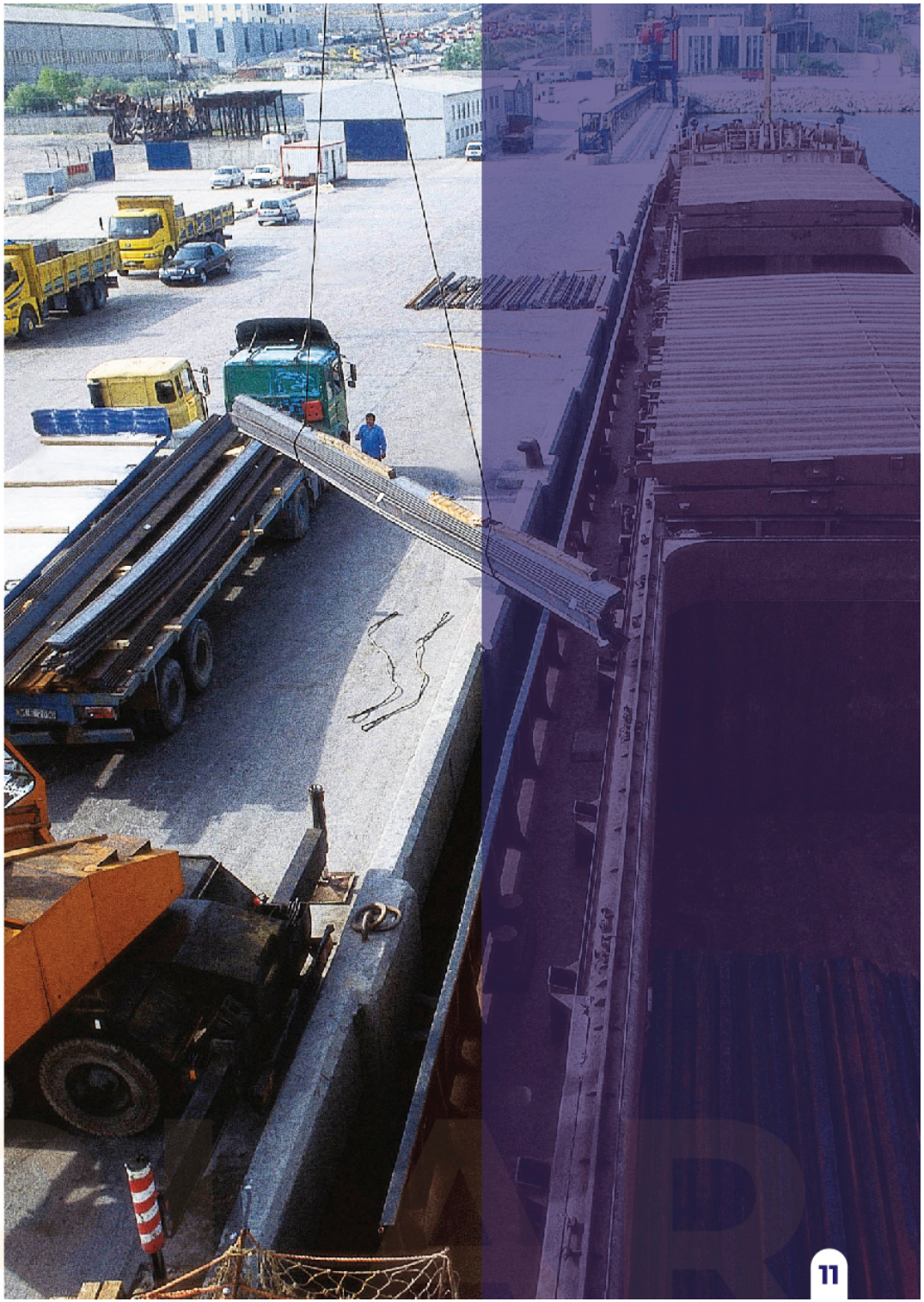




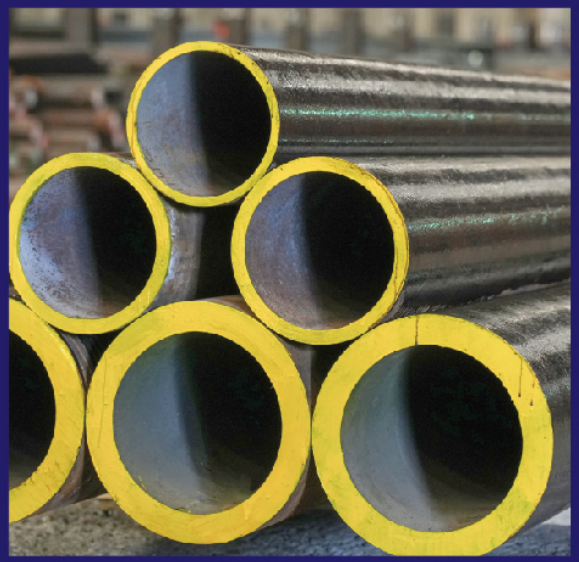
# İthalat
## Import

Şirketimiz üretimin yanısıra farklı ölçü ve kalite taleplerine bağlı olarak dünyanın farklı ülkelerinden ithalat yapmaktadır. Çeşitli ithal ürün gruplarını kapsayan **50.000** ton stoğumuz bulunmaktadır.

Besides being a producer, our company imports various grades and sizes of steel products worldwide in order to expand and diversify our stock of **50.000** tons.



# www.uyarlar.com.tr



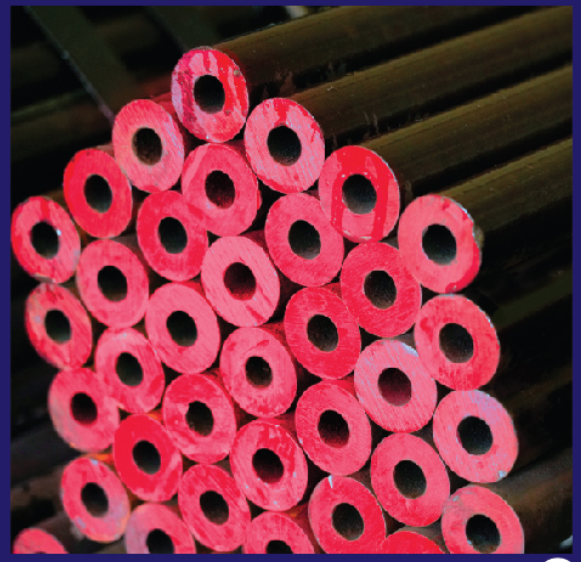












# İthal Ürün Grupları
Import Products

## Ürün Ölçü Aralıkları
Size Ranges

**Yuvarlak Ölçü Aralığı**
Round Bars Size Range

10mm - 1500mm

## Ürün Ölçü Aralıkları
Size Ranges

**Dikişsiz Çelik Çekme Boru**
Seamless Steel Pipes Size Range

Dış Çap Aralığı : 14mm - 800mm
Outside Diameter : 14mm - 800mm

Et Kalınlığı Aralığı : 1mm - 120mm
Wall Thickness : 1mm - 120mm

## Ürün Ölçü Aralıkları
Size Ranges

**Sıcak Haddelenmiş Levha**
Plates Size Range

Genişlik : 1000mm - 2000mm
Width : 1000mm - 2000mm

Kalınlık : 8mm - 300mm
Thickness : 8mm - 300mm

Boy : 6mm - 12mm
Length : 6mm - 12mm

## Ürün Ölçü Aralıkları
Size Ranges

**Dikdörtgen Ölçü Aralığı**
Flat Bars Size Range

200 x 50mm - 1000 x 400mm

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## Ürün Ölçü Aralıkları
Size Ranges

**Kare Ölçü Aralığı**
Square Bars Size Range

200 x 200 - 1000 x 1000

**Alaşımlı Çelikler**
42CrMo4/42CrMo4 QT/34CrNiMo6/20MnCrS/100Cr6/34CrNiMo6 QT
41Cr4/34CrMo4/8620/16MnCr5

**Alloyed Steels**
42CrMo4/42CrMo4 QT/34CrNiMo6/20MnCrS/100Cr6/34CrNiMo6 QT
41Cr4/34CrMo4/8620/16MnCr5

**Karbon Çelikler**
C45/C35/C22/C10/C50/C60/S355J2/S355JR/S235JR/S275JR

**Carbon Steels**
C45/C35/C22/C10/C50/C60/S355J2/S355JR/S235JR/S275JR

**Paslanmaz Çelikler**
AISI 430(X6Cr17) / AISI 420(X20Cr13) / AISI 304(X5CrNi18-10) /
AISI 316(X5CrNiMo17-12)

**Stainless Steels**
AISI 430(X6Cr17) / AISI 420(X20Cr13) / AISI 304(X5CrNi18-10) /
AISI 316(X5CrNiMo17-12)

**Sıcak İş Takım Çelikleri**
1.2344 (X40CrMoV5-1) / 1.2343 (X38CrMoV5-1)

**Hot Rolled Tool Steels**
1.2344 (X40CrMoV5-1) / 1.2343 (X38CrMoV5-1)

**Soğuk İş Takım Çelikleri**
1.2080(X210Cr12) / 1.2379(X155CrVMo12-1) / 1.2842(90MnCrV8)

**Cold Rolled Tool Steels**
1.2080(X210Cr12) / 1.2379(X155CrVMo12-1) / 1.2842(90MnCrV8)

**Plastik Takım Çelikleri**
1.2312 (X40CrMnMoS8-6) / 1.2311 (40CrMnMo7)

**Plastic Mould Tool Steels**
1.2312 (X40CrMnMoS8-6) / 1.2311 (40CrMnMo7)

**Sıcak Haddelenmiş Levhalar**
S235JR/S275JR/S355JR/S355J2/C45

**Hot Rolled Plates**
S235JR/S275JR/S355JR/S355J2/C45

Dikişsiz Çelik Çekme Borular

Hat Boruları

Beton Pompa Boruları

Su ve Doğalgaz Boruları

Kazan Boruları

Soğuk Çekme Borular

Genel Amaçlı Borular

Seamless Steel Pipes

Line Pipes

Concrete Pump Pipes

Water and Gas Pipes

Steam Boiler Pipes

Cold Drawn Pipes

Seamless Steel Pipes For General Purposes

UYARLA

# İhracat
## Export

Firmamız Güney Amerika, Avrupa, Ortadoğu ve Kuzey Afrika olmak üzere toplam 45 ülkeye ihracat yapmaktadır. Geniş ürün yelpazemiz, uygun fiyat politikamız ve hızlı servis yeteneğimizle yurtdışındaki müşterilerimize büyük avantajlar sağlamaktayız.

Our company exports steel products to around 45 countries in South America, Europe, Middle East and North Africa. We offer wide range of products, reasonable prices, dependable service and speedy delivery providing our customers a competitive advantage.








# Kalite Kontrol

## Quality Control

## CHEMICAL COMPOSITIONS AND INTERNATIONAL EQUIVALENTS OF HEAT TREATED STEELS ACCORDING TO EN 10083 STANDARDS

| EN 10083-3 | | ISO 683-1 1987 | GERMANY | | UNITED KINGDOM | FRANCE | ITALY | SPAIN | C | Si Max. | Mn | P Max. | S | Cr | Mo | Ni | V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STEEL NAME | STEEL NO | | STEEL NAME | STEEL NO | | | | | | | | | | | | | |
| 38Cr2 | 1, 7003 | - | 38Cr2 | 1, 7003 | - | (38C2) | - | - | 0.35-0.42 | 0.40 | 0.50-0.80 | 0,025 | Max. 0,035 | 0.40-0.60 | - | - | - |
| 46Cr2 | 1,7006 | - | 46Cr2 | 1,7006 | - | - | - | - | 0.42-0.50 | 0.40 | 0.50-0.80 | 0,025 | Max. 0,035 | 0.40-0.60 | - | - | - |
| 34Cr4<br>34CrS4 | 1, 7033<br>1, 7037 | 34Cr4<br>34CrS4 | 34Cr4<br>34CrS4 | 1, 7033<br>1, 7037 | (530M32)<br>- | (32C4)<br>(32C4u) | -<br>- | -<br>- | 0.30-0.37<br>0.30-0.37 | 0.40<br>0.40 | 0.60-0.90<br>0.60-0.90 | 0,025 | Max. 0,035<br>0,020-0,040 | 0.90-1.20<br>0.90-1.20 | -<br>- | -<br>- | -<br>- |
| 37Cr4<br>37CrS4 | 1, 7034<br>1, 7038 | 37Cr4<br>37CrS4 | 37Cr4<br>37CrS4 | 1, 7034<br>1, 7038 | (530M36)<br>- | (38C4)<br>(38C4u) | -<br>- | 38Cr4<br>38Cr41 | 0.34-0.41<br>0.34-0.41 | 0.40<br>0.40 | 0.60-0.90<br>0.60-0.90 | 0,025 | Max. 0,035<br>0,020-0,040 | 0.90-1.20<br>0.90-1.20 | -<br>- | -<br>- | -<br>- |
| 41Cr4<br>41CrS4 | 1,7035<br>1,7039 | 41Cr4<br>41CrS4 | 41Cr4<br>41CrS4 | 1,7035<br>1,7039 | (530M40)<br>- | 42C4<br>42C4u | (41Cr4)<br>(41Cr4) | 42Cr4<br>42Cr41 | 0.38-0.45<br>0.38-0.45 | 0.40<br>0.40 | 0.60-0.90<br>0.60-0.90 | 0,025 | Max. 0,035<br>0,020-0,040 | 0.90-1.20<br>0.90-1.20 | -<br>- | -<br>- | -<br>- |
| 25CrMo4<br>25CrMoS4 | 1,7218<br>1,7213 | 25CrMo4<br>25CrMoS4 | 25CrMo4<br>25CrMoS4 | 1,7218<br>1,7213 | (708M25)<br>- | 25C4<br>25C4u | (25CrMo4)<br>(25CrMo4) | -<br>- | 0.22-0.29<br>0.22-0.29 | 0.40<br>0.40 | 0.60-0.90<br>0.60-0.90 | 0,025 | Max. 0,035<br>0,020-0,040 | 0.90-1.20<br>0.90-1.20 | 0.15-0,30<br>- | -<br>- | -<br>- |
| 34CrMo4<br>34CrMoS4 | 1, 7220<br>1, 7226 | 34CrMo4<br>34CrMoS4 | 34CrMo4<br>34CrMoS4 | 1, 7220<br>1, 7226 | (708M32)<br>- | (34C4)<br>(34C4u) | (35CrMo4)<br>(35CrMo4) | -<br>- | 0.30-0.37<br>0.30-0.37 | 0.40<br>0.40 | 0.60-0.90<br>0.60-0.90 | 0,025 | Max. 0,035<br>0,020-0,040 | 0.90-1.20<br>0.90-1.20 | 0.15-0.30<br>- | -<br>- | -<br>- |
| 42CrMo4<br>42CrMoS4 | 1, 7225<br>1, 7227 | 42CrMo4<br>42CrMoS4 | 42CrMo4<br>42CrMoS4 | 1, 7225<br>1, 7227 | (708M40)<br>- | 42C4<br>42C4u | (42CrMo4)<br>(42CrMo4) | 40CrMo4<br>40CrMo41 | 0.38-0.45<br>0.38-0.45 | 0.40<br>0.40 | 0.60-0.90<br>0.60-0.90 | 0,025 | Max. 0,035<br>0,020-0,040 | 0.90-1.20<br>0.90-1.20 | 0.15-0.30<br>- | -<br>- | -<br>- |
| 50CrMo4 | 1,7228 | 50CrMo4 | 50CrMo4 | 1,7228 | (708M50) | - | - | - | 0.46-0.54 | 0.40 | 0.50-0.80 | 0,025 | Max. 0,035 | 0.90-1.20 | 0,15-0,30 | - | - |
| 34CrNiMo6 | 1, 6582 | (36CrNiMo6) | (36CrNiMo6) | 1, 6582 | (817M40) | - | - | - | 0.30-0.38 | 0.40 | 0.50-0.80 | 0,025 | Max. 0,035 | 1.30-1.70 | 0,15-0,30 | 1.30-1.70 | - |
| 30CrNiMo8 | 1, 6580 | (31CrNiMo8) | (31CrNiMo8) | 1, 6580 | (823M30) | 30CND8 | - | - | 0.26-0.34 | 0.40 | 0.50-0.80 | 0,025 | Max. 0,035 | 1.80-2.20 | 0,30-0,50 | 1.80-2.20 | - |
| 35NiCr6 | 1, 5815 | - | 35NiCr6 | - | - | - | - | - | 0.30-0.37 | 0.40 | 0.60-0.90 | 0,025 | Max. 0,025 | 0.80-1.10 | - | 1.20-1.60 | - |
| 36NiCrMo16 | 1, 6773 | - | - | - | - | 35NCD 16 | - | - | 0.32-0.39 | - | 0.50-0.80 | 0,025 | Max. 0,025 | 1.60-2.00 | 0,25-045 | 3.6-4.3 | - |
| 39NiCrMo3 | 1, 6510 | - | - | - | - | - | (39NiCrMo3) | - | 0.35-0.43 | 0.40 | 0.50-0.80 | 0,025 | Max. 0,035 | 0.60-1.00 | 0,15-0,25 | 0.70-1.00 | - |
| 30NiCrMo16-6 | 1, 6747 | - | 30NiCrMo16-6 | 1, 6747 | (835M30) | - | - | - | 0.26-0.33 | 0.40 | 0.50-0.80 | 0,025 | Max. 0,025 | 1.20-1.50 | 0,30-0,60 | 3.3-4.3 | - |
| 51CrV4 | 1, 8159 | (51CrV4) | (50CrV4) | 1, 8159 | (735A50) | (50CV4) | (50CrV4) | (51CrV4) | 0.47-0.55 | 0.40 | 0.70-1.10 | 0,025 | Max. 0,025 | 0.90-1.20 | - | - | 0.10-0.25 |

## CHEMICAL COMPOSITIONS AND INTERNATIONAL EQUIVALENTS OF HOT ROLLED PRODUCTS OF NON ALLOY STRUCTURAL STEELS ACCORDING TO EN 10025-2 STANDARDS

| Acc to TS EN 10025-2:2004 | | Acc to EN 10025:1990:1990 | Acc to DIN 7100 E GERMANY | Acc to NF A 35 501 FRANCE | Acc to BS4360 UNITED KINGDOM | Acc to UNE-36-080 SPAIN | Acc to UNI-7070 ITALY | Acc to NBN A21-101 BELGIUM | THICKNESS (mm) C (% maximum) ≤16 > 16 ≤ 40 > 40 | | | Si % max. | Mn % max. | P % max. | S % max. | N % max. | Cu % max. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S 235JR | 1. 0038 | Fe 360 BFN | St 37-2 | E 24-2 | 40 B | AE 235 B-FN | Fe 360 B | AE 235-B | 0. 17 | 0. 17 | 0. 20 | - | 1. 40 | 0. 035 | 0. 035 | 0. 012 | 0. 55 |
| S 235J0 | 1. 0114 | Fe 360 C | St 37-3 U | E 24-3 | 40 C | AE 235 C | Fe 360 C | AE 235 -C | 0. 17 | 0. 17 | 0. 17 | - | 1. 40 | 0. 030 | 0. 030 | 0. 012 | 0. 55 |
| S 235 J2 | 1. 0117 | Fe 360 D1 | St 37-3 N | E 24-4 | 40 D | AE 235 D | Fe 360 D | AE 235 -D | 0. 17 | 0. 17 | 0. 17 | - | 1. 40 | 0. 025 | 0. 025 | - | 0. 55 |
| S 275JR | 1. 0044 | Fe 430 B | St 44-2 | E 28-2 | 43 B | AE 275 B | Fe 430 B | AE 255-B | 0. 21 | 0. 21 | 0. 22 | - | 1. 50 | 0. 035 | 0. 035 | 0. 012 | 0. 55 |
| S 275J0 | 1. 0143 | Fe 430 C | St 44-3 U | E 28-3 | 43 C | AE 275 C | Fe 430 C | AE 255-C | 0. 18 | 0. 18 | 0. 18 | - | 1. 50 | 0. 030 | 0. 030 | 0. 012 | 0. 55 |
| S 275 J2 | 1. 0145 | Fe 430 D1 | St 44-3 N | E 28-4 | 43 D | AE 275 D | Fe 430 D | AE 255-D | 0. 18 | 0. 18 | 0. 18 | - | 1. 50 | 0. 025 | 0. 025 | - | 0. 55 |
| S 355JR | 1. 0045 | Fe 510 B | - | E 36-2 | 50 B | AE 355 B | Fe 510 B | AE 355-B | 0. 24 | 0. 24 | 0. 24 | 0.55 | 1. 60 | 0. 035 | 0. 035 | 0. 012 | 0. 55 |
| S 355J0 | 1. 0553 | Fe 510 C | St 52-3 U | E 36-3 | 50 C | AE 355 C | Fe 510 C | AE 355 -C | 0. 20 | 0. 20 | 0. 22 | 0.55 | 1. 60 | 0. 030 | 0. 030 | 0. 012 | 0. 55 |
| S 355 J2 | 1. 0577 | Fe 510 D1 | St 52-3 N | - | 50 D | AE 355 D | Fe 510 D | AE 355 -D | 0. 20 | 0. 20 | 0. 22 | 0.55 | 1. 60 | 0. 025 | 0. 030 | - | 0. 55 |
| S 450J0 | 1. 0590 | - | - | - | 55 C | - | - | - | 0. 20 | 0. 20 | 0. 22 | 0.55 | 1. 70 | 0. 030 | 0. 030 | 0. 025 | 0. 055 |

## CHEMICAL COMPOSITIONS AND INTERNATIONAL EQUIVALENTS OF HOT ROLLED PRODUCTS OF NON ALLOY STEELS ACCORDING TO EN 10083-2 STANDARDS

| EN 10083-2 | | ISO 683-1 1987 | GERMANY | | UNITED KINGDOM | FRANCE | ITALY | C | Si Max. | Mn | P Max. | S | Cr Max. | Mo Max. | Ni Max. | Cr+Mo+Ni Max. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STEEL NAME | STEEL NO | | STEEL NAME | STEEL NO | | | | | | | | | | | | |
| C35 | 1, 0501 | (C35) | C35 | 1, 0501 | - | (AF55C35) | (C35) | 0.32-0.39 | 0.40 | 0.50-0.80 | 0.045 | Max. 0.045 | 0.40 | 0.10 | 0.40 | 0.63 |
| C40 | 1, 0511 | (C40) | C40 | 1, 0511 | - | (AF60C40) | (C40) | 0.37-0.44 | 0.40 | 0.50-0.80 | 0.045 | Max. 0.045 | 0.40 | 0.10 | 0.40 | 0.63 |
| C45 | 1,0503 | (C45) | C45 | 1,0503 | (080M46) | (AF65C45) | (C45) | 0.42-0.50 | 0.40 | 0.50-0.80 | 0.045 | Max. 0.045 | 0.40 | 0.10 | 0.40 | 0.63 |
| C55 | 1, 0535 | (C55) | C55 | 1, 0535 | - | (AF70C55) | (C55) | 0.52-0.60 | 0.40 | 0.60-0.90 | 0.045 | Max. 0.045 | 0.40 | 0.10 | 0.40 | 0.63 |
| C60 | 1,0601 | (C60) | C60 | 1,0601 | - | - | (C60) | 0.57-0.65 | 0.40 | 0.60-0.90 | 0.045 | Max. 0.045 | 0.40 | 0.10 | 0.40 | 0.63 |
| C22E<br>C22R | 1, 1151<br>1, 1149 | -<br>- | (Ck 22)<br>Cm 22 | (1, 1151)<br>(1, 1149) | (070M20)<br>- | (XC 18)<br>(XC 18 u) | (C25)<br>(C25) | 0.17-0.24<br>0.17-0.24 | 0.40<br>0.40 | 0.40-0.70<br>0.40-0.70 | 0.030<br>0.030 | Max. 0.035<br>0.020 - 0.040 | 0.40<br>0.40 | 0.10<br>0.10 | 0.40<br>0.40 | 0.63<br>0.63 |
| C35E<br>C35R | 1, 1181<br>1, 1180 | (C35 E4)<br>(C35 M2) | (CK 35)<br>Cm 35 | (1, 1181)<br>(1, 1180) | (080M36)<br>- | (XC 38 H1)<br>(XC 38 H1 u | (C35)<br>(C35) | 0.32-0.39<br>0.32-0.39 | 0.40<br>0.40 | 0.50-0.80<br>0.50-0.80 | 0.030<br>0.030 | Max. 0.035<br>0.020 - 0.040 | 0.40<br>0.40 | 0.10<br>0.10 | 0.40<br>0.40 | 0.63<br>0.63 |
| C40E<br>C40R | 1, 1186<br>1, 1189 | (C40 E4)<br>(C40 M2) | (CK 40)<br>Cm 40 | (1, 1186)<br>(1, 1189) | (080M40)<br>- | (XC 42H1)<br>(XC 42 H1u | (C40)<br>(C40) | 0.37-0.44<br>0.37-0.44 | 0.40<br>0.40 | 0.50-0.80<br>0.50-0.80 | 0.030<br>0.030 | Max. 0.035<br>0.020 - 0.040 | 0.40<br>0.40 | 0.10<br>0.10 | 0.40<br>0.40 | 0.63<br>0.63 |
| C45E<br>C45R | 1,1191<br>1, 1201 | (C45 E4)<br>(C45 M2) | (CK 45)<br>Cm 45 | (1,1191)<br>(1, 1201) | (080M46)<br>- | (XC 48)<br>(XC 42 H10 | (C45)<br>(C45) | 0.42-0.50<br>0.42-0.50 | 0.40<br>0.40 | 0.50-0.80<br>0.50-0.80 | 0.030<br>0.030 | Max. 0.035<br>0.020 - 0.040 | 0.40<br>0.40 | 0.10<br>0.10 | 0.40<br>0.40 | 0.63<br>0.63 |
| C50E<br>C50R | 1,1206<br>1, 1241 | (C50 E4)<br>(C50 M2) | (CK 50)<br>Cm 50 | (1,1206)<br>(1, 1241) | (080M50)<br>- | -<br>- | (C50)<br>(C50) | 0.47-0.55<br>0.47-0.55 | 0.40<br>0.40 | 0.60-0.90<br>0.60-0.90 | 0.030<br>0.030 | Max. 0.035<br>0.020 - 0.040 | 0.40<br>0.40 | 0.10<br>0.10 | 0.40<br>0.40 | 0.63<br>0.63 |
| C55E<br>C55R | 1, 1203<br>1, 1209 | (C55 E4)<br>(C55 M2) | (CK 55)<br>Cm 55 | (1, 1203)<br>(1, 1209) | (070M55)<br>- | (XC 55H1)<br>(XC 55H1) | (C55)<br>(C55) | 0.52-0.60<br>0.52-0.60 | 0.40<br>0.40 | 0.60-0.90<br>0.60-0.90 | 0.030<br>0.030 | Max. 0.035<br>0.020 - 0.040 | 0.40<br>0.40 | 0.10<br>0.10 | 0.40<br>0.40 | 0.63<br>0.63 |
| C60E<br>C60R | 1,1221<br>1, 1223 | (C60 E4)<br>(C60 M2) | (CK 60)<br>Cm 60 | (1,1221)<br>(1, 1223) | (070M60)<br>- | -<br>- | (C60)<br>(C60) | 0.57-0.65<br>0.57-0.65 | 0.40<br>0.40 | 0.60-0.90<br>0.60-0.90 | 0.030<br>0.030 | Max. 0.035<br>0.020 - 0.040 | 0.40<br>0.40 | 0.10<br>0.10 | 0.40<br>0.40 | 0.63<br>0.63 |
| 28Mn6 | 1, 1170 | (28Mn6) | (28Mn6) | (1, 1170) | (150M28) | - | - | 0.25-0.32 | 0.40 | 1.30-1.65 | 0.030 | Max. 0.035 | 0.40 | 0.10 | 0.40 | 0.63 |




## CHEMICAL COMPOSITIONS AND INTERNATIONAL EQUIVALENTS OF CASE HARDENING STEELS ACCORDING TO EN 10084 STANDARDS

| EN 10084 | | ISO 683-1 1987 | GERMANY | | FRANCE | ITALY | SPAIN | UNITED KINGDOM | C | Si Max. | Mn | P Max. | S | Cr | Mo | Ni | B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STEEL NAME | STEEL NO | | STEEL NAME | STEEL NO | | | | | | | | | | | | | |
| C10E | 1. 1121 | C10 | Ck10 | 1 1121 | XC10 | C10 | C10k | 045M10 | 0.07-0.13 | 0.40 | 0.30-0.60 | 0.035 | ≤ 0.35 | - | - | - | - |
| C10R | 1. 1207 | - | - | - | - | - | - | - | 0.07-0.13 | 0.40 | 0.30-0.60 | 0.035 | 0.020-0.040 | - | - | - | - |
| C15E | 1. 1141 | C15E4 | Ck15 | 1.1141 | - | C15 | C16k | - | 0.12-0.18 | 0.40 | 0.30-0.60 | 0.035 | ≤ 0.35 | - | - | - | - |
| C15R | 1. 1140 | C15M2 | Cm15 | 1.1140 | - | - | C16k-1 | - | 0.12-0.18 | 0.40 | 0.30-0.60 | 0.035 | 0.020-0.040 | - | - | - | - |
| C16E | 1. 1148 | C16E4 | - | - | XC18 | - | - | 080M15 | 0.12-0.18 | 0.40 | 0.60-0.90 | 0.035 | ≤ 0.35 | - | - | - | - |
| C16R | 1. 1208 | - | - | - | - | - | - | - | 0.12-0.18 | 0.40 | 0.60-0.90 | 0.035 | 0.020-0.040 | - | - | - | - |
| 17Cr3 | 1. 7016 | - | 17Cr3 | 1.7016 | - | - | - | 527M17 | 0.14-0.20 | 0.40 | 0.60-0.90 | 0.025 | ≤ 0.35 | 0.70-1.00 | - | - | - |
| 17CrS3 | 1. 7014 | - | - | - | - | - | - | - | 0.14-0.20 | 0.40 | 0.60-0.90 | 0.025 | 0.020-0.040 | 0.70-1.00 | - | - | - |
| 28Cr4 | 1. 7030 | - | 28Cr4 | 1.7030 | - | - | - | - | 0.24-0.31 | 0.40 | 0.60-0.90 | 0.025 | ≤ 0.35 | 0.90-1.20 | - | - | - |
| 28CrS4 | 1. 7036 | - | 28CrS4 | 1.7036 | - | - | - | - | 0.24-0.31 | 0.40 | 0.60-0.90 | 0.025 | 0.020-0.040 | 0.90-1.20 | - | - | - |
| 16MnCr5 | 1. 7131 | 16MnCr5 | 16MnCr5 | 1.7131 | 16MC5 | 16MnCr5 | 16MnCr5 | 590M17 | 0.14-0.19 | 0.40 | 1.00-1.30 | 0.025 | ≤ 0.35 | 0.80-1.10 | - | - | - |
| 16MnCrS5 | 1. 7139 | 16MnCrS5 | 16MnCrS5 | 1.7139 | - | - | 16MnCr5-1 | - | 0.14-0.19 | 0.40 | 1.00-1.30 | 0.025 | 0.020-0.040 | 0.80-1.10 | - | - | - |
| 16MnCrB5 | 1. 7160 | - | - | - | - | - | - | - | 0.14-0.19 | 0.40 | 1.00-1.30 | 0.025 | ≤ 0.35 | 0.80-1.10 | - | - | 0.0008 |
| 20MnCr5 | 1. 7147 | 20MnCr5 | 20MnCr5 | 1.7147 | 20MC5 | 20MnCr5 | - | - | 0.17-0.22 | 0.40 | 1.10-1.40 | 0.025 | ≤ 0.35 | 1.00-1.30 | - | - | 0.0050 |
| 20MnCrS5 | 1. 7149 | 20MnCrS5 | 20MnCrS5 | 1.7149 | - | - | - | - | 0.17-0.22 | 0.40 | 1.10-1.40 | 0.025 | 0.020-0.040 | 1.00-1.30 | - | - | - |
| 18CrMo4 | 1. 7243 | 18CrMo4 | - | - | 18CD4 | 18CrMo4 | 18CrMo4 | 708M20 | 0.15-0.21 | 0.40 | 0.60-0.90 | 0.025 | ≤ 0.35 | 0.90-1.20 | 0.15-0.25 | - | - |
| 18CrMoS4 | 1. 7244 | 18CrMoS4 | - | - | - | - | 18CrMo4-1 | - | 0.15-0.21 | 0.40 | 0.60-0.90 | 0.025 | 0.020-0.040 | 0.90-1.20 | 0.15-0.25 | - | - |
| 22CrMoS3-5 | 1. 7333 | - | 22CrMoS3-5 | 1. 7333 | - | - | - | - | 0.19-0.24 | 0.40 | 0.70-1.00 | 0.025 | 0.020-0.040 | 0.70-1.00 | 0.40-0.50 | - | - |
| 20MoCr3 | 1. 7320 | - | - | - | - | - | - | - | 0.17-0.23 | 0.40 | 0.60-0.90 | 0.025 | ≤ 0.35 | 0.40-0.70 | 0.30-0.40 | - | - |
| 20MoCrS3 | 1. 7319 | - | - | - | - | - | - | - | 0.17-0.23 | 0.40 | 0.60-0.90 | 0.025 | 0.020-0.040 | 0.40-0.70 | 0.30-0.40 | - | - |
| 20MoCr4 | 1. 7321 | - | 20MoCr4 | 1. 7321 | - | - | 20MoCr5 | - | 0.17-0.23 | 0.40 | 0.70-1.00 | 0.025 | ≤ 0.35 | 0.30-0.60 | 0.40-0.50 | - | - |
| 20MoCrS4 | 1. 7323 | - | 20MoCrS4 | 1. 7323 | - | - | 20MoCr5-1 | - | 0.17-0.23 | 0.40 | 0.70-1.00 | 0.025 | 0.020-0.040 | 0.30-0.60 | 0.40-0.50 | - | - |
| 16NiCr4 | 1. 5714 | - | - | - | - | 16CrNi4 | - | 637M17 | 0.13-0.19 | 0.40 | 0.70-1.00 | 0.025 | ≤ 0.35 | 0.60-1.00 | - | 0.80-1.10 | - |
| 16NiCrS4 | 1. 5715 | - | - | - | - | 16CrNiS4 | - | - | 0.13-0.19 | 0.40 | 0.70-1.00 | 0.025 | 0.020-0.040 | 0.60-1.00 | - | 0.80-1.10 | - |
| 10NiCr5-4 | 1. 5805 | - | - | - | 10NC6 | - | - | - | 0.07-0.12 | 0.40 | 0.60-0.90 | 0.025 | ≤ 0.35 | 0.90-1.20 | - | 1.20-1.50 | - |
| 18NiCr5-4 | 1. 5810 | - | - | - | 20NC6 | - | - | - | 0.16-0.21 | 0.40 | 0.60-0.90 | 0.025 | ≤ 0.35 | 0.90-1.20 | - | 1.20-1.50 | - |
| 17CrNi6-6 | 1. 5918 | - | - | - | - | - | - | - | 0.14-0.20 | 0.40 | 0.50-0.90 | 0.025 | ≤ 0.35 | 1.40-1.70 | - | 1.40-1.70 | - |
| 15NiCr13 | 1. 5752 | 15NiCr13 | - | - | - | - | - | 655M13 | 0.14-0.20 | 0.40 | 0.40-0.70 | 0.025 | ≤ 0.35 | 0.60-0.90 | - | 3.00-3.50 | - |
| 20NiCrMo2-2 | 1. 6523 | 20NiCrMo2-2 | 20NiCrMo2-2 | 1.6523 | 20NCD2 | 20NiCrMo2 | 20NiCrMo2 | 805M20 | 0.17-0.23 | 0.40 | 0.65-0.95 | 0.025 | ≤ 0.35 | 0.35-0.70 | 0.15-0.25 | 0.40-0.70 | - |
| 20NiCrMoS2-2 | 1. 6526 | 20NiCrMoS2-2 | 20NiCrMoS2-2 | 1.6526 | - | 20NiCrMoS2 | 20NiCrMoS2 | - | 0.17-0.23 | 0.40 | 0.65-0.95 | 0.025 | 0.020-0.040 | 0.35-0.70 | 0.15-0.25 | 0.40-0.70 | - |
| 17NiCrMo6-4 | 1. 6566 | 17NiCrMo6 | - | - | - | 18NiCrMo5 | - | - | 0.14-0.20 | 0.40 | 0.60-0.90 | 0.025 | ≤ 0.35 | 0.80-1.10 | 0.15-0.25 | 1.20-1.50 | - |
| 17NiCrMoS6-4 | 1. 6569 | - | - | - | - | 18NiCrMoS5 | - | - | 0.14-0.20 | 0.40 | 0.60-0.90 | 0.025 | 0.020-0.040 | 0.80-1.10 | 0.15-0.25 | 1.20-1.50 | - |
| 20NiCrMoS6-4 | 1. 6571 | - | - | - | - | - | - | - | 0.16-0.23 | 0.40 | 0.50-0.90 | 0.025 | 0.020-0.040 | 0.60-0.90 | 0.25-0.35 | 1.40-1.70 | - |
| 18CrNiMo7-6 | 1. 6587 | 18NiCrMo7 | 17CrNiMo7 | 1.6587 | - | - | - | - | 0.15-0.21 | 0.40 | 0.50-0.90 | 0.025 | ≤ 0.35 | 1.50-1.80 | 0.25-0.35 | 1.40-1.70 | - |
| 14NiCrMo13-4 | 1. 6657 | - | - | - | - | 16NiCrMo12 | - | - | 0.11-0.17 | 0.40 | 0.30-0.60 | 0.025 | ≤ 0.35 | 0.80-1.10 | 0.20-0.30 | 3.00-3.50 | - |
| 20NiCrMo13-4 | 1. 6660 | - | - | - | - | - | - | - | 0.17-0.22 | 0.40 | 0.30-0.60 | 0.025 | ≤ 0.35 | 0.80-1.20 | 0.30-0.50 | 3.00-3.50 | - |

Uyarlar
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