T.C. MİLLÎ EĞİTİM BAKANLIĞI

METAL TEKNOLOJISI

TEKNİK YABANCI DİL 3 (İNGİLİZCE)

- Bu modül, mesleki ve teknik eğitim okul/kurumlarında uygulanan Çerçeve Öğretim Programlarında yer alan yeterlikleri kazandırmaya yönelik olarak öğrencilere rehberlik etmek amacıyla hazırlanmış bireysel öğrenme materyalidir.
- Millî Eğitim Bakanlığınca ücretsiz olarak verilmiştir.
- PARA İLE SATILMAZ.

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INTRODUCTION

ALAN	MetalTeknolojisi	
DAL/MESLEK	Alan Ortak	
MODÜLÜN ADI	Teknik Yabancı Dil 3 (İngilizce)	
MODÜLÜN TANIMI	Ait olduğu meslekle ilgili İngilizce kelime ve kavramların tanınmasını, okunmasını ve yazılmasını hedefleyen öğrenme materyalidir.	
SÜRE	40/32	
ÖN KOŞUL	Teknik Yabancı Dil 2 Modülünü başarmış olmak.	
YETERLİK	Metal Teknolojisi ile ilgili temel kavram ve araç- gereçlerin İngilizcelerini okumak.	
MODÜLÜN AMACI	Genel Amaç Öğrenci gerekli ortam sağlandığında kaynak ile ilgili genel kavramları yabancı dille ifade edebileceksiniz. Amaçlar 1. Kaynak ile ilgili terim ve kavramları teknik yabancı dille ifade edebileceksiniz. 2. Elektrik ark kaynağında kullanılan makine ve parçalarını teknik yabancı dille ifade edebileceksiniz 3. Oksi gaz kaynağında kullanılan araç ve ekipmanları teknik yabancı dille ifade edebileceksiniz	
EĞİTİM ÖĞRETİM ORTAMLARI VE DONANIMLARI	Ortam: Dil Laboratuarı, Metal teknolojisi alanı atölye ve laboratuarları, kütüphane, internet, vb	
ÖLÇME VE DEĞERLENDİRME	Öğrencilere modül ile kazandırılan yeterlikler ve derste yapılan etkinlikler, aşağıda belirtilen kriterler dikkate alınarak ölçülür. 1. Kaynak ile ilgili terim ve kavramları teknik yabancı dille ifade eder. 2. Elektrik ark kaynağında kullanılan makine ve parçalarını teknik yabancı dille ifade eder. Oksi gaz kaynağında kullanılan araç ve ekipmanları teknik yabancı dille ifade eder.	

PREFACE

Dear Student,

Some of the most considerable reasons why the humanity advances are so much research, development and production. The countries which are paying more money from their incomes to RESEARCH&IMPROVEMENT is getting an easier and more comfortable life style. Because The countries which don't renew their technology become underdeveloped day by day.

New technology developes thanks to foreign language and the one who knows foreign language. People can read the magazines; books and internet documents in English so can follow the recent technology on their own branches or jobs by learning foreign languages and technical foreign languages. They broad their mind. So they can be more effective and useful people for their country.

We have aimed to improve your occupational English into a higher level with the module "Technical English 3". In this case, you can learn the technical words and terms in English and follow the recent technology in the world more closely.

LEARNING ACTIVITY-1

AIM

You will be able to read the main concepts used in welding in English.

SEARCH

You will prepare an English booklet of the terms and concepts which have been used in welding Branche from technical books, technical English dictionary and Internet

1. THE TERMS AND CONCEPTS ABOUT WELDING

1.1. Welding

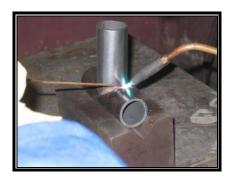
Joining the metals by heating, pressing or using both of them with or without a supplement. The supplement can be used if it is needed.



Picture 1.1: TIG welding machine and welding process

1.2. Oxy-Acetylene Welding

It's a way of welding by melting metal parts by the help of oxy-gas flame.

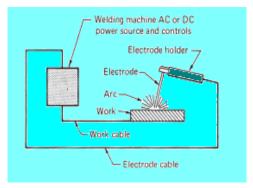


Picture 1.2: Welding of pipes by oxy-acetylene

1.3. Electrical Arc Welding

Joining process by the help of the heat arising from electric arc between parts to be welded and electrodes.. The metal parts melt partly.





Picture 1.3: The process of electrical arc welding

Figure 1.4: Electrical arc welding

1.4. Resistance welding

Joining process by the heat and pressure. Heat occurs by the electrical resistance of metals to be welded.

- ➤ Its ways
 - Spot resistance welding
 - Resistance welding with blister
 - Seam resistance welding
 - Resistance butt welding

1.5. Melting

Making the workpiece and electrode fuse under the influence of welding current.

1.6. Direct Current (DC)

The current that its direction and intensity don't change according to time.

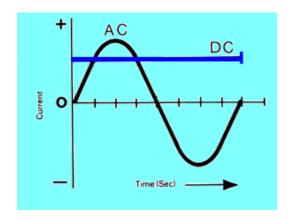


Figure 1.5: AC current and DC current diagramı

1.7. Alternative Current (AC)

The current whose direction and intensity change according to time. (See figure 1.5)

1.8. Ampere

The unit of current of intensity.

1.9. Seam Welding

The physical shape which is narrow and high, arising after the electrode melts during the joining.

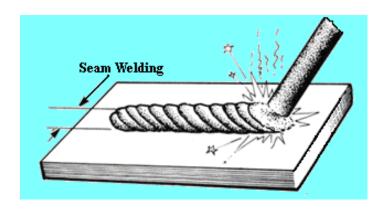


Figure 1.6: Seam welding

1.10. Slag

The cover on the seam welding. Slag is the waste of electrode cover.

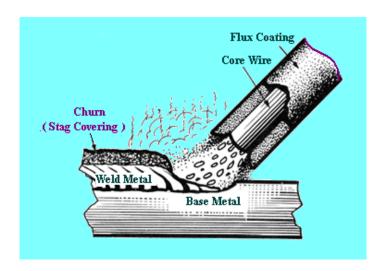


Figure 1.7: Welding and churn

1.11. Welding Preparing

Cutting the edges of thick materials because the seam welding can penetrate perfectly. This process is applied for the materials that are thicker than five millimeters.

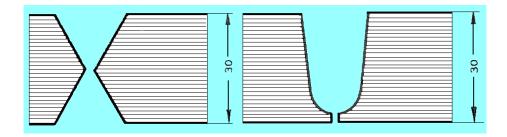


Figure 1.8: X and U welding preparing

1.12. Gaz Metal Arc Welding

It is a welding type that is done by electrode under the flowing gas such as argon, helium, and carbondioxide.

➤ It's divided into two:

- The way of welding with wolfram electrode (TIG).
- The way of welding with (MIG and MAG).



Picture 1.9: MIG and (MAG) Welding machine and (TIG) welding machine

1.12.1. Welding Zone

It is the place where the heat affects while welding. A metamorphosis happens in its inside.

1.12.2. Arc Light

The light that shines while the electrode is making arc on the workpiece and that goes on during the welding.



Picure 1.10: Welding arc light

1.12.3. Gasses Used in Oxy-gas Welding

Oxygen and some other flammable gasses such as acetylene, hydrogen, methane, propane, butane, the mixture of propane and butane town gas, gasoline and benzol vapour are used.

1.12.3.1. Burning Gas

Oxygen is produced industrially by fractional distillation of liquefied air, use of zeolites with pressure-cycling to concentrate oxygen from air, electrolysis of water and other means. Uses of oxygen include the production of steel, plastics and textiles; rocket propellant; oxygen therapy; and life support in aircraft, submarines, spaceflight and diving.

1.12.3.2. Combustion Gas

Acetylene (systematic name: ethyne) is the chemical compound with the formula C2H2. It is a hydrocarbon and the simplest alkyne. This colorless gas is widely used as a fuel and a chemical building block. It is unstable in pure form and thus is usually handled as a solution.

Combustion or burning is the sequence of exothermic chemical reactions between a fuel and an oxidant accompanied by the production of heat and conversion of chemical species. The release of heat can result in the production of light in the form of either glowing or a flame. Fuels of interest often include organic compounds (especially hydrocarbons) in the gas, liquid or solid phase.

In a complete combustion reaction, a compound reacts with an oxidizing element, such as oxygen or fluorine, and the products are compounds of each element in the fuel with the oxidizing element. For example:

$$CH_4 + 2 O_2 \rightarrow CO_2 + 2 H_2O + energy$$

 $CH_2S + 6 F_2 \rightarrow CF_4 + 2 HF + SF_6^{[discuss]}$

A simple example can be seen in the combustion of hydrogen and oxygen, which is a commonly used reaction in rocket engines:

$$2 H_2 + O_2 \rightarrow 2 H_2O(g) + heat$$

The result is water vapor.

Complete combustion is almost impossible to achieve. In reality, as actual combustion reactions come to equilibrium, a wide variety of major and minor species will be present such as carbon monoxide and pure carbon (soot or ash). Additionally, any combustion in atmospheric air, which is 78% nitrogen, will also create several forms of nitrogen oxides.

1.12.4. Welding Flame

It is the flame coming out while the burning and caustic gases are burning in the process of oxy-gas welding.

- > Types of welding flame
 - Carburizing flame
 - Oxidizing flame
 - Normal flame

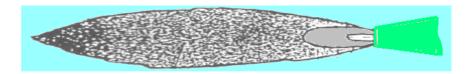


Figure 1.11: Welding flame.

1.12.5. Horizontal Welding

It is about the position of seam welding. It's the safest and easiest welding position.



Figure 1.12: Horizontal welding

1.12.6. Ways of Welding Positions

They are the welding positions except for horizontal welding.



Figure 1.13: Wertical welding

1.12.7. Electrode Movements

Electrode goes forward drawing a bow, zigzagging or in a circular way. We move the electrode while welding the thick parts.



Figure 1.14: Electrode movements

PRACTICE ACTIVITY

Use technical English about the main concepts about metal branch.

STEPS OF PROCESS **SUGGESTIONS** Explain this process in English. Please read all of the text. > If you do not know words in text, research the meaning during translation > Use English dictionary for the meaning of words from English to Turkish > You can find detailed information about the technical words in the text. Make research about main concepts Explain this process in English. about metal branch Explain this process in English. Force Shaping Plastic Shaping Elasticity Elongation

CHECKLIST

If you have behaviors listed below, evaluate yourself putting (X) in "Yes" box for your earned skills within the scope of this activity otherwise put (X) in "No" box.

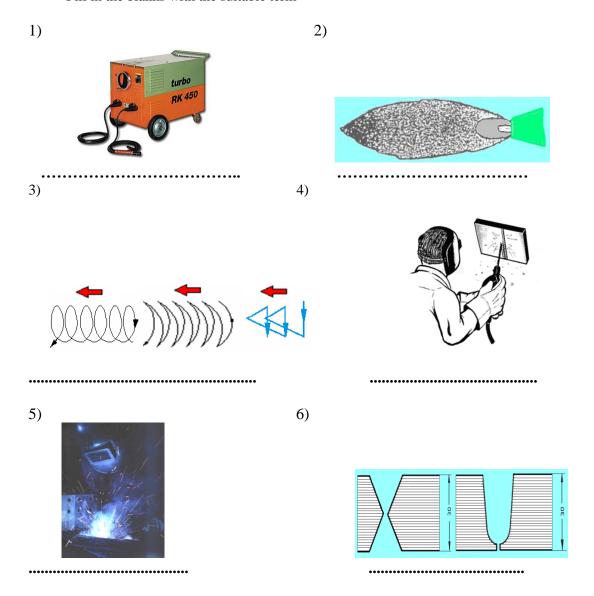
Evaluation Criteria	Yes	No
1. Have you determined the technical terms about the text?		
2. Have you acquired the main idea of the text?		
3. Can you answer the questions about the text?		
4. Can you explain the summary of the text verbally?		

EVALUATION

Please review your "No" answers in the form at the end of evaluation. If you do not find yourself enough, repeat the learning activity. If you give all your answers "Yes" to all questions, pass to the "Measuring and Evaluation".

MEASURING AND EVALUATION

Fill in the blanks with the suitable term



EVALUATION

Please compare the answers with the answer key. If you have wrong answers, you need to review the Learning Activity. If you give right answers to all questions, pass to the next learning activity

LEARNING ACTIVITY-2

AIM

You will be able to read the main concepts used in electric arc welding machine and part in English

SEARCH

You will prepare an English booklet of the parts and machines which have been used in electric arc welding Branche from technical books, technical English dictionary and Internet

2. ELECTRIC ARC WELDING MACHINE AND PARTS

2.1. Welding Masks

We need a mask to hold the welding glasses and to make them easy to use. Masks prevent the harm of the ray coming to the welder's face skin. Masks can be used like a cap or held in the hand.





Picture 2.1: Types of welding masks

2.2. Mask glass

While the welder is working, the eyes cannot distinguish the ultraviolet and some other harmful rays. The welder looks at the arc of welding through a colorful and protective glass against these kinds of rays. The most ideal glass is the one that can be colored during welding but become transparent in the normal light after welding.



Picture 2.2: Mask glass types

2.3. Welding Hammer

It's a special hammer to clean the slag on the seam of welding.



Picture 2.3: Welding hammers

2.4. Wire Brush

After cleaning the seam by the help of the hammer, we clean the ruins on the seam and metal pieces nearby.



Picture 2.4: A wire brush

2.5. Welding Workbench

It's called welding workbench that a welder puts on the materials to be welded and it enables the welder to work more comfortably.

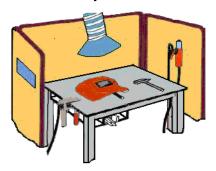


Figure 2.5: Welding bench and rigging

2.6. Electrodes

They are used to join the materials by welding. It is a main element that both starts arc and melts while welding and adds its inner metal into welding scene.

- ➤ The covered electrode types:
 - Rutil electrodes
 - Acidic electrodes
 - Oxide electrodes
 - Basic electrodes
 - Cellulosic electrodes
 - Electrodes with iron dust
 - Electrodes in deep impact



Picture 2.6: Types of Electrode

2.7. Chassis

It's the part that is attached to work component to conduct electric current.



Picture 2.7: Types of chassis

2.8. Wire

There are two types of wire in electric arc welding. The first one connects the electricity between welding machine and electric circuit. The second one connects the inner parts of the welding machines.



Picture 2.8: Welding wire

2.9. Electric Arc Welding Machine

The machines those make electric current coming from the circuit suitable by reducing the electric voltage but amplifying the electric current intensity.

Welding machines are separated into two groups:

- The welding machines producing direct current
 - Generator arc welding machines
 - Redressor arc welding machines
- The welding machines producing alternative current
 - Transformer arc welding machines



Picture 2.9: Electric arc welding machine

PRACTICE ACTIVITY

Use technical English about the main concepts about metal branch.

Steps of process	Suggestions
> Find a text about this process and translate.	 Please read all of the text. If you do not know words in text, research the meaning during translation Use English dictionary for the meaning of words from English to Turkish You can find detailed information about the technical words in the text. Make research about main concepts about metal branch

CHECKLIST

If you have behaviors listed below, evaluate yourself putting (X) in "Yes" box for your earned skills within the scope of this activity otherwise put (X) in "No" box.

	Evaluation Criteria	Yes	No
1.	Have determined the technical terms about the text?		
2.	Have you acquired the main idea of the text?		
3.	Can you answer the questions about the text?		
4.	Can you explain the summary of the text verbally?		

EVALUATION

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MEASURING AND EVALUATION

.Fill in the blanks with the suitable term



EVALUATION

Please compare the answers with the answer key. If you have wrong answers, you need to review the Learning Activity. If you give right answers to all questions, pass to the next learning activity

LEARNING ACTIVITY-3

AIM

You will be able to read the main concepts used in oxy-gas welding tools and equipments

SEARCH

You will prepare an English booklet of the tools and machines which have been used in oxy-gas welding branche from technical books, technical English dictionary and Internet

3. OXY-GAS WELDING TOOLS AND EQUIPMENTS

3.1. Oxygen Tubes

These are the tubes that are made of high strength steels and produced without seaming. It stores oxygen in the pressure of 150-200 atm. The color of the tubes is blue.



Picture 3.1: An Oxygen tube

3.2. Acetylene Tube

These tubes are produced with or without seaming. Their capacities are generally 40 litres. While acetylene tupes are being filled, acetone is used. Its color is yellow.



Picture 3.2: An Acetylene tube

3.3. Torch

The apparatus that is mixing the gases coming from the oxygen and acetylene hoses in a homogeneous way. It enables the welding flame to arise.



Picture 3.3: A torch

3.4. Blow Pipe

It's the part of a torch. It's defined and mounted according to the thickness of the workpiece that is going to be welded. Burners are numbered according to their callibres.



Picture 3.4: Types of torches

3.5. Cutting Blow Pipe

They're different from welding torches. It differs because it has a mechanism sending compressed oxygen. Cutting torches divided into two; with injector and nipple.



Picture 3.5: A cutting torch

3.6. Welding Glasses

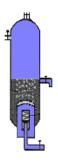
They protect the eyes while welding. They are put on heads and they cover only eyes.



Picture 3.6: Welding glasses

3.7. Safety Devices

They are used to prevent of going back of the welding flame into the tupe through nipple, torch or hose. They are separated to different types; dry and with water.



Picture 3.7: Securty with water

3.8. Acetylene Hose

It's specially produced without pores. Its color is red. It transmits acetylene from tube to torch.



Picture 3.8: Acetylene hose

3.9. Oxygen Hose

It's specially produced without pores. Its color is blue. It transmits oxygen from tube to torch.



Picture 3.9: Oxygen hose

PRACTICE ACTIVITY

STEPS OF PROCESS

➤ Write The Names İn English Of Oxy-Gas Welding Tools And Equipments



➤ Write the properties of acetylene hose in English



SUGGESTIONS

- > Please read all of the text.
- ➤ If you do not know words in text, research the meaning during translation
- _
- ➤ Use English dictionary for the meaning of words from English to Turkish
- You can find detailed information about the technical words in the text.
- Make research about main concepts about metal branch

CHECKLIST

If you have behaviors listed below, evaluate yourself putting (X) in "Yes" box for your earned skills within the scope of this activity otherwise put (X) in "No" box.

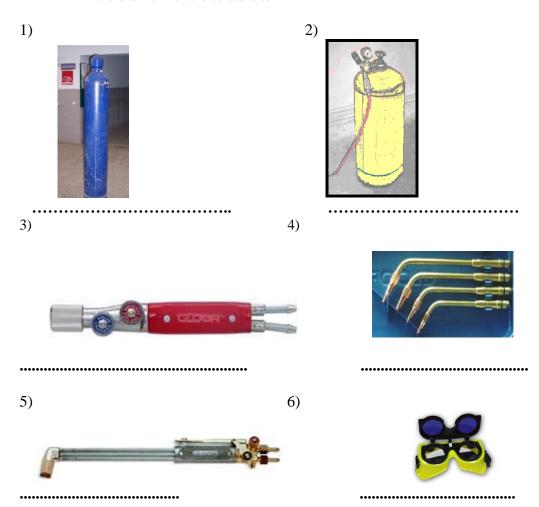
	Evaluation Criteria	Yes	No
1.	Have you determined the technical terms about the text?		
2.	Have you acquired the main idea of the text?		
3.	Can you answer the questions about the text?		
4.	Can you explain the summary of the text verbally?		

EVALUATION

Please review your "No" answers in the form at the end of evaluation. If you do not find yourself enough, repeat the learning activity. If you give all your answers "Yes" to all questions, pass to the "Measuring and Evaluation".

MEASURING AND EVALUATION

Fill in the blanks with the suitable term



EVALUATION

Please compare the answers with the answer key. If you have wrong answers, you need to review the Learning Activity. If you give right answers to all questions, pass to the module evaluation.

MODULE EVALUATION

Fill in the blanks with the suitable term

1.	is the alloy of iron and carbon. It has up to 1.7 % carbon. If we wish, we can add some other metals or elements. It's the most used metal in industry.
2.	is the equipment that enables to mount the drill bit or drill chuck with the conical handle to the drill shaft.
3.	are tools for grasping, pulling, squeezing, bending and shaping the materials.
4.	are used to join the materials by welding. It is a main element that both starts arc and melts while welding and adds its inner metal into welding scene.
5.	that make electric current coming from the circuit suitable by reducing the electric voltage but amplifying the electric current intensity.
6.	are made of high strength steels and produced without seaming. It stores oxygen in the pressure of 150-200 atm. The color of the tubes is blue.
7.	is the part of a torch. It's defined and mounted according to the thickness of the workpiece that is going to be welded. Burners are numbered according to their callibres.

EVALUATION

Please compare the answers with the answer key. If you have wrong answers, you need to review the Learning Activity. If you give right answers to all questions, please contact your teacher and pass to the next module

Evaluation Criteria		No
1. Have you had your own dictionary?		
2. Have you expressed the terms of welding?		
3. Have you expressed the names in English of Electrical Arc Welding machines and tools?		
4. Have you expressed the names in English of oxy-gas welding machines and tools?		
5. Have you pronounced the words and expressions used in Learning Activity correctly?		
6. Have you ever made a friend of you listen the concept tools and machines during expressing in English?		

EVALUATION

Please review your "No" answers in the form at the end of evaluation. If you do not find yourself enough, repeat the learning activity. If you give all your answers "Yes" to all questions, pass to the "Measuring and Evaluation".

ANSWER KEYS

	APPLICATION ACTIVITY 1
1	Electric arc welding machine
2	Welding flame.
3	Electrode movements
4	Wertical welding
5	Arc Light
6	Welding Preparing

APPLICATION ACTIVITY 2	
1	Electric arc welding machine
2	Welding mask
3	Welding hammers
4	A wire brush
5	Types of chassis
6	Welding wire

APPLICATION ACTIVITY 3		
1	An Oxygen tube	
2	An Acetylene tube	
3	A torch	
4	Types of torches	
5	A cutting torch	
6	Welding glasses	

MODULE EVALUATION	
1	Steel
2	Morse sleeve
3	Pliers
4	Electrodes
5	Electric arc welding machine
6	Tubes
7	Blow pipe

TECHNICAL DICTIONARY

abrasive disk zımpara taşı

abrasive machining aşındırma ile talaş kaldırma acceptance sampling kabul için örnek alma accessory aksesuar, yardımcı teçhizat accuracy hassasiyet, doğruluk

acetylene gas asetilen gazı

acorn nut tırtıllı somun, taçlı somun

actuator uyarıcı

adapter adaptör (ara rakor; birbirinden ayrı cins

iki dişli ucu birleştiren ara parça)

addendum diş ucu (dişlide) adhesion tutma, adezyon

adhesive joining yapıştırma yolu ile birleştirme

adjustment ayarlama

age hardening yaşlandırarak sertleştirme

air furnace hava fırını

allen screw alyen vida; altı köşeli gömme başlı vida allen wrench alyen anahtar, gömme anahtar, altı-köşe

"L" şeklinde anahtar

allotropic changes allotropik değişme, eşözdek değişimi

allowance pay, tolerans alloy alaşım

anchor bolt tesbit civatası, ankraj bulonu

angle köşebent demiri, köşebent, korniye; açı

angle milling cutter açı frezesi, konik freze bıçağı annealing normalleştirme tavı, menevişleme

annular gear içten dişli

anodizing anotlama, anotsal işlem, anotlama usulü ile oksitleme

anvil örs

apparatus cihaz, aygıt, alet
apron araba önlüğü
arbor malafa
arch press kemerli pres
arc spot welding arklı nokta kaynağı

artificial aging suni yaşlanma assemble monte etmek

assembly takım; birkaç parçadan meydana gelen

parça grubu; komple, montaj

attachment yardımcı teçhizat, ataşman

austempering ösmenevişleme austenite östenit automatic screw machine index tezgahı axial eksenel

 \mathcal{B}

bainite bainit, alçak derecede sulanmış çelik

bakalite bakalit
band sawing machine şerit testere
barrel finishing dolaplama

base taban, kaide, temel base circle diş dibi dairesi (dişlide)

batch production küme üretimi
batch size küme büyüklüğü
batch furnace yığım fırını
beam kiriş

I-beam I profilli demir, I-kirişi U-beam U profilli demir, U-kirişi

bearing yatak, rulman
ball-bearing bilyalı rulman
needle bearing iğneli rulman
roller bearing makaralı yatak
tapered roller bearing konik makaralı yatak
bearing cone yatak göbeği, iç yatak

bearing cup rulmanların dış çemberi, yatak kabı

bellows körük, körük biçiminde

belt kayış

belt polishing kayışlı parlatma

bench lathe masa tornası, saatçi tornası

bench molding tezgah kalıplaması
bending bükme, eğme
bentonite yumuşak balçık
bessemer converter bessemer potası
bevel gear konik dişli
bevel protractor dereceli gönye
bilateral çift yönlü

billet bilet, ham demir çubuk bit uç, matkap ucu, kalem ucu

blast furnace yüksek fırın

blind riser kör oluk blister copper saf bakır bloom demir kütüğü

blow molding hava basınçlı kalıplama

bluing menevişleme board hammer tahtalı şahmerdan

bolt civata

bonding yapıştırma, bağlama

boring machine oyma tezgahı, delik işleme tezgahı

boring mill delik tezgahı bottom board faraş tahtası brace el matkabı

bracket konsol, çıkma, destekli raf, dirsek

brass pirinç

brazing sert lehim, pirinç kaynağı

break corner kırma ağız brittle gevrek, kırılgan

broaching broşlama, tığ çekme, boşaltma

broaching machine boşaltma tezgahı

broaching tools boşaltma kalemleri, boşaltma tığları

bronze bronz, tunç
buffing perdahlama
built-up edge yığma ağız
burnishing çapak temizleme

burr çizik, kazıntı, torna taleminin bıraktığı iz, çapak

bushing burç

butterfly nut kelebek somun

button kontrol düğmesi, düğme butt welding düz ek kaynağı, alın kaynağı

C

calibration kalibrasyon, ayar

calliper kumpas

calorizing sementasyon ile aluminyum kaplama

cam kam, eksantrik, armutçuk, mil dirseği, boynuz cap screw civata başlı vida; altı köşe başlı somunsuz vida,

kapak vidası, başlık vidası

carbide karbür

carbide tools sert maden takımlar

course kaba, kalın
coating örtme, kaplama
coining press darp presi

cold heading soğuk baş yapma cold sawing soğuk kesme cold welding soğuk kaynak cold working soğuk işlem

collar bir parçanın etrafını saran blok bilezik, yaka, halka collet bilezik, esnek kovan, freze çakısı tutacağı (pens)

collet holder esnek kovan (pens) tutacağı

column sütun

combination die keser basar kalıp combination chuck üniversal ayna

combined cut birleşik kesim, kombine kesim

compass pergel, pusula
compensation denkleştirme
compound rest takım kızağı
compression molding basınçlı döküm
compressive strength sıkıştırma dayanımı

computer bilgisayar

Computer Numerical Control (CNC) bilgisayarlı sayısal denetim

concentric eş merkezli
continuous casting sürekli döküm
continuous chip akma talaş
contour çevre yolu

converter konverter, değiştirici

coolant soğutucu

cope örtme, üst döküm derecesi

copper (or cupper) bakır

core maça (dökümcülükte)

core diameter (drills) öz çapı

core print maça yatağı, maça yuvası

corrosion yenim, paslanma

cost maliyet

cotter pin maşalı pim, kopilya

cotton waste üstüpü

counter boring düz havşa açma counter sinking konik havşa açma coupling kavrama, kaplin

crest vida dişinin tepesi
cross-slide çapraz kızak
cross-wise enlemesine
crown gear akış dişlisi
crusible pota

cupola kupola, döküm ocağı
curling saç kıvırma, kenar kıvırma
cutting edge kesme yüzü, kesme ağzı

cutting fluid kesme sıvısı
cutting force kesme kuvveti
cutting speed kesme hızı

cyaniding siyanürle sertleştirme

\mathcal{D}

dedendum diş dibi (dişlide) deep drawing derin çekme

deep-hole drilling machine derin delik delme tezgahı deformation processes bozundurma süreçleri

depreciation amortisman, aşınma, kıymetten düşme

depth gage derinlik mastarı depth of cut kesme derinliği

dial kadran, kontrol saatlerinin yüzü

dial indicatorkomparatördiametral pitchkutur diş arasıdiamond toolselmas takımlar

die kalıp; pafta kalıbı (erkek diş açma aleti)

die casting pres döküm diffusion yayınım, difüzyon

direct arc furnace ark fırını

disc disk, yuvarlak plaka, kurs

discontinuous chip kesme talaş disposable pattern harcanır model

distortion allowance çarpılma payı, bozulma payı dividing head bölüm aynası, divizör

dog fırdöndü, kanca, tornalamada kullanılan ara mesnet

double housing planerçift sütunlu planyadouble margin drillçift zırhlı matkapdown millingeş yönlü frezeleme

draft allowance çekme payı

drag alt döküm derecesi draw bar çekme çubuğu, çektirme draw-cut shaper çeker keser vargel

drawing çekme drawing die çekme kalıbı

drill chuck matkap aynası, mandren

drill performance matkap verimi drill point matkap ucu

drilling machine delme tezgahı, matkap tezgahı

drive tahrik

drop forging şahmerdanda dövme

drop hammer serbest düşüşlü tokmak, şahmerdan

drug alt derece drum tambur

drum lathe kampana tornası ductility yumuşaklık, süreklilik duplicating machine kopye makinası dye boya, boyamak

dinamometre dynamometer

\mathcal{E}

eccentric eksantrik, dış merkezli; kam

elastic esnek, elastik elastic limit esneklik sınırı elasticity esneklik

electric discharge machining kıvılcımla malzeme işleme

electrode elektrot, elektrik kaynak çubuğu, elektrik kutup çubuğu

electromechanical grinding elektro mekanik taşlama electroforming elektrikle şekillendirme electrohydraulic forming elektrohidrolik şekillendirme

elektroliz yoluyla kaplama (galvanoplasti) electroplating

electroslag welding cürufaltı kaynağı electrotinning elektrikle kalaylama

element öğe, eleman elongation uzama embedding gömülme embossing kabartma emery zımpara zımpara kağıdı emery paper

emulsion sütsü, sübye, emülsiyon

enamel emaye

end clearance angle uç boşluk açısı
end cutting edge angle yan ağız açısı
end-mill cutter parmak freze
endurance dayanım, sürme
engine lathe torna tezgahı

equipment aygıt, aparat, ekipman etching asitle aşındırma, dağlama

expansion genişleme

expansion reamer genişletme raybası

explosive forming patlama yoluyla şekillendirme, patlama kalıplaması

extract özüt extraction özütleme

extrusion ekstrüzyon, kalıptan basma, darçıkım

F

face alın, yüz face milling alın frezeleme

face milling cutter alın frezesi, alın işleme çıkısı

face plate firdöndü aynası facing alın tornalama işlemi fastening sıkıştırma, bağlama

fatique yorulma, hareket halindeki aksamın yorulması

feed ilerleme, besleme feedback geriye besleme

feedrate talaş kaldırma hızı, ilerleme hızı

feed rod talaş mili feeler gage hassas mastar

ferrous metal demirli, demirden oluşan metal

file eğe, törpü coarse file kaba eğe

bastard file orta kalın dişli eğe

needle file saatçi eğesi
slitting file oluk eğesi
square file dörtköşe eğe
superfine file ince perdah eğesi
triangular file üçköşe eğe
round file yuvarlak eğe

taper file konik eğe, fare kuyruğu eğe

parallel file düz eğe flat file yassı eğe

drill file delik tesviye eğesi filing törpüleme, eğeleme

fillet pervaz

fillet weld pervaz kaynağı fillister head screw yıldız başlı vida fillister head screw driver yıldız uçlu tornavida

fine ince

finish allowance işleme payı
finishing son işleme
finishing cut ince işleme
finishing teeth kalibre ağızları
fit alıştırma, geçme

transition fit ara geçme

interference fit sıkı geçme, temaslı alıştırma

clearance fit bol geçme

medium fit orta sıkı alıştırma, tatlı alıştırma, tatlı geçme

running fit döner alıştırma, oynar alıştırma sliding fit kayar alıştırma, kayar geçme shrink fit sıkı geçme, sıkma alıştırma fixture bağlama aygıtı, bağlama düzeni

flame cutting oksijenle kesme flama hardening alevle sertleştirme

flange flanş; bağlantı, birleşme yüzü

flank (gear) diş yanı

flank wear serbest yüzey aşınması flash welding yakma alın kaynağı

flexibility esneklik floor molding yer dökümü

flute yiv, oluk (matkapta)

fly-cutter yaprak çakı
fly nut kelebek somun
follower rest gezer yatak
forging dövme

form milling cutter modül freze bıçağı, profil frezesi

forming şekillendirme foundary process dökümcülük foundation temel

fracture kırılma, kopma fracture point kopma dayanımı

frame iskelet, çerçeve, şasi, gövde

friction disc sürtünme aynası

friction drive sürtünmeli tahrik, sürtünme mekanizması

front pilot (broaches) ön kılavuz furnace tav fırını, ocak

fuse sigorta; madenin sıcaklık dolayısıyla sıvı

haline gelmesi; kaynayıp birleşme

 \mathcal{G}

gage (or gauge) mastar, ölçü, birim, gösterge, ölçü aleti

gage block johnson mastarı galvanizing galvanizleme

gang drilling machine çok milli delme tezgahı

gasket conta

gasket ring conta bileziği, salmastra bileziği

gate aralık, kapı gear dişli

gear-cutting machine çarklara diş açma makinası

gear train dişli düzeni; birbirine geçmiş müteaddit dişli tertibatı

girder kiriş, payanda, putrel, kuşak

goggles kaynakçı gözlüğü

grain tane

grain size tane büyüklüğü

graphite grafit; saf ve yumuşak karbon

gravity sintering ağdırmalı külçeleme gray cast iron kır dökme demir

grease gres yağı grease gun gres pompası grinding taşlama

grinding machine taşlama tezgahı

grinding wheel zımpara taşı, taşlama taşı grinding wheel dresser zımpara taşı düzelticisi

grindstone bilevi taşı

grit maden talaşı, maden kırıntısı; iri taneli kum grub screw yarık başlı makina vidası, saplama vidası

gun drill namlu matkabı

\mathcal{H}

hacksaw blade el testere biçağı hacksaw machine kollu testere makinası

hammer çekiç

hand milling machine el freze tezgahı hardenability sertleşebilme hardness sertlik

headstock tornada başlık tarafı, torna aynası,

torna feneri, tahrik tertibatı

heat treatment ısıl işlem
helical gear helis dişli
helical spring helezoni yay
helix angle helis açısı
herringbone gear çavuş dişli

high speed steel hava çeliği, yüksek hız çeliği

hobbing azdırma

honing honlama, ince taşlama, parlatma, bileme

horn press mahmuzlu pres
hot spinning sıcak sıvama
hot working sıcak işleme
hose hortum

hub göbek (kasnak, dişli vb. göbeği)

hydraulic press hidrolik pres hydraulic shaper hidrolik vargel hypoid gear hipoid dişli

I

idler gear avara dişli

impact çarpma, darbe, şok

impurity pislik, kir, yabancı madde

inclined press eğik pres indentation çukuriz

independent chuck çeneleri ayrı sıkılır ayna, mengeneli ayna

index head bölümlü başlık indicator gösterge, sayaç

induction hardening endüksiyonla sertleştirme

ingot, külçe

injection molding enjeksiyonlu kalıplama

lead kurşun

lead screw vida açma mili (tornada)

leather deri

lever levye, kol, manivela, kumanda kolu

linkage bağlantı, mekanizma, düzen

lip angle kenar açısı lock nut kontra somunu

longitudional boyuna, uzunlamasına lubricant yağlama maddesi lubricating gun yağ tabancası lubrication yağlama

lubricator yağdanlık, gresörlük

M

machinability işlenebilirlik
machine bed tezgah gövdesi
machine frame tezgah gövdesi
machine molding makinalı kalıplama

machine screw makina vidası, civata başlı vida, somunlu vida

machine shop atelye, işlik
machine tool takım tezgahı
machining time işleme zamanı
magnet mıknatıs
magnetic chuck mıknatıslı ayna

maintenance bakım
malleable dövülgen
malleable iron dövülgen demir

mandrel mandrel, malafa, torna punta veya matkap başlığı

manual elle işleyen, elle çalıştırılan; el kitabı

manufacturing processes imalat yöntemleri

margin (drills) faz, zırh martensite martensit

mash seam weld ezme dikiş kaynağı

masking maskeleme
mass production seri imalat
material gereç, malzeme
measurement ölçme, ölçü

measuring instruments ölçme aletleri, ölçme cihazları

mechanism mekanizma, tertibat

mesh tel örgü, örgü süzgeç; birbirine geçme,

dişlilerin temas halinde olması

metal metal

metal removing talaş kaldırma metal spinning sıvama

metal spraying metal püskürtme metrology ölçme bilimi mika mica micrometer mikrometre mild steel yumuşak çelik milling cutter freze çakısı milling machine freze tezgahı monel metal monel pirinçi morse taper mors konikliği

mould (or mold) döküm kalıbı, kalıp dökme

multiple cut çoklu kesme multipoint çok ağızlı takım

\mathcal{N}

nail çivi
nail puller kerpeten
natural doğal, tabii
neck (drills) boyun
needle iğne, ibre

nipple nipel, boru rakoru, meme, meme ucu

nitriding nitritleme
nodular iron yumrulu demir
nominal size nominal ölçü

nonferrous metal demir içermeyen metal normalizing normalleştirme tavı

notching kertikleme numerical control sayısal denetim

nut somun

0

offset kaçıklık, sapma, yerinden kaçma

oil yağ

oil bath yağ banyosu oil screw gun vidalı yağ pompası oil tempered yağda tavlanmış
open-end wrench açık ağız anahtar
open-hearth furnace siemens-martin firini

operation işlem ore cevher

oxidation oksitlenme, paslanma oxy-acetylene welding oksijen kaynağı

 ${\it P}$

panel pano, tablo, şalter veya kontrol

saatleri panosu; plaka

parkerizing parkerleme

pattern model (dökümcülükte)

pattern allowance kalıp payı pellet topak

penetration girinim, penetrasyon

percussion press vurgu presi perforating delikleme permeability geçirgenlik

piercing delme (Mannesman metodu)

pig iron pik demir

pin pim, perno, muylu, şiş, iğne pincers kerpeten, kıskaç, pense

pinion küçük dişli pipe boru pipe wrench boru anahtarı

pit molding kuyu dökümü

pitch hatve, vidanın her dişte ilerleme miktarı,

iki diş arasındaki uzaklık, adım

pitch circle diş açıklığı dairesi, bölme dairesi (dişlide)

plain milling cutter silindirik freze bıçağı plain milling machine düz freze tezgahı

planer planya

planetary gear gezegen dişli, gezer dişli, planet dişli

planetary milling machine gezegen başlı freze tezgahı

plant fabrika, tesis, atölye

plastic plastik
plate levha, plaka
plating kaplama

pliers pense

ploughing force sürtme kuvveti, kazma kuvveti plug tapa, tıkaç, elektrik fişi

plug gage delik mastarı
plumber tesisatçı
pneumatic gage havalı mastar
pneumatic hammer havalı tokmak

pneumatic rammer havalı (pnömatik) şahmerdan; basınçlı hava tokmağı

point angle (drills)

pointer

polishing

porosity

powder metallurgy

precipitation hardening

uç açısı

gösterge, ibre

parlatma, polisaj

gözeneklilik

toz metal bilimi

çökelterek sertleştirme

precision hassasiyet

press pres, cendere, presle basma

pressing presle şekillendirme, presle basma işlemi

process süreç product ürün production üretim

profiling machine kopye tezgahı
protractor açı ölçer
puller çektirme
pulley kasnak, makara

punch zimba

punching zımba ile delme, presle delme

Q

quality control kalite kontrolu quantity miktar, nicelik

quench hardening su verme sertleştirmesi

quenching su verme

quick return mechanism vargel mekanizması

 ${\cal R}$

rack kremayer dişli

ram şahmerdan tokmağı, pres kütüğü

rammer şahmerdan

raw ham, işlenmemiş, tabii

reamer rayba
reaming raybalama
recess oluk, oyuk, girinti
red hardness kızıl sertlik
refractory tuğlamsı

reinforce takviye etme, kuvvetlendirme, sağlamlaştırma

relief angle freze bıçağının arka yüzü ile kesilen parça arasındaki açı

remote control uzaktan kontrol
removable pattern sökülebilir model
residual stress artık gerilme
resin reçine, akındırık
resistance welding direnç kaynağı

retaining ring tesbit segmanı, tesbit bileziği revolver head döner kafa, döner başlık

rigid esnemez

ring bilezik, halka, piston segmanı

ring gage yüzük mastar

riser oluk

riveting perçinleme rod çubuk, kol

roller merdane, rulo, silindir

roll forging dövmeli hadde roll forming haddeleme rolling haddeleme rolling mill hadde makinası

rotation dönme, bir eksen etrafında dönme, rotasyon

roughing cut kaba işleme

roughing teeth (for broach) kaba kesme ağızları

roughness pürüzlülük rubber lastik, kauçuk

run-out salgı

rupture strength kopma dayanımı rust pas, paslanma

S

saddle oturak, eyer, boyun safety pin emniyet pimi sampling örnek alma sand kum

saw milling cutter testere ağızlı freze çakısı

saw type cutter testere tipi çakı sawing machine testere tezgahı

scale ölçek scissors makas hurda scrap screw cutting vida acma screw driver tornavida screw machine civata makinası seal keçe, yağ keçesi seaming ekleme, dikiş seam welding dikiş kaynağı sensitivity duyarlık, hassasiyet set screw tesbit vidası, kontra vida

set-up time hazırlık zamanı shaft döner mil, şaft shake allowance tıklama payı

shank kesici kalem sapı, şaft

shank cutter parmak freze shaper vargel shaving traşlama shear angle yarma açısı

shearing (preste, makasta) kesme

shear strength kesme dayanımı, kayma dayanımı

sheathing kaplama

sheave oluklu kasnak, makara

sheet levha
sheet metal screw saç vidası
sheet metal shears teneke makası

shell reamer takma rayba, kovan rayba

shearadizing toz çinko ile galvanizleme, çinko emdirme

shift vardiya; yerinden oynatma, yer değiştirme, vitese geçirme

shim şim; dişliler veya hareketli yüzeyle arasındaki

açıklığı ayarlamak için kullanılan madeni levhalar

shock resistance sarsım direnci shot peening bilyalı yüzey dövme

shrinkage allowance çekilme payı

side milling cutter silindirik alın freze bıçağı

side rake angle yan talaş açısı

sieve elek
silicon silisyum
silver gümüş
sine bar sinüs çubuğu

sintering külçeleme, sinterleme

skilled kalifiye

slab slab, yassı kütük slab milling vals frezeleme slag cüruf, dışık sleeve gömlek, kovan,

mil üzerine bilezik gibi geçen parça; manşon (boruda)

slide kızak slideway kızak

slip plane kayma düzlemi slitting dilme, yarma slotter yarma frezesi snap gage çeneli mastar

snap ring tesbit segmanı, yaylı tutturma bileziği

soaking pit çelik demlendirme fırını

socket yuva, soket, priz
socket adapter cırcır anahtarı
socket wrench lokma anahtarı
soldering lehimleme
spanner civata anahtarı
spare yedek, fazla
specific özgül

specification specifikasyon; makina veya cihazın özellikleri,

kendine has ölçüleri

specimen numune, örnek spindle fener mili spindle support mil desteği spinning sıvama

spirit level düzeç, kabarcıklı düzeç, su terazisi, tesviye ruhu spline freze oluklu kayar geçme yapma; iç ve dış

dişlileri birbirine geçirmek suretiyle birleştirme

spot face pul yatağı spot welding punta kaynağı spraying püskürtme spring yay

spring lock washer yaylı rondela spring washer yaylı rondela spring winding yay sarma

sprocket zincir dişlisi, cer dişlisi

sprue döküm deliği spur gear düz dişli square nut dörtköşe somun stainless steel paslanmaz çelik

stainless steel paslanmaz ç stability dengelilik

standard standart, tek biçim, ölçünlü standard deviation standart sapma, tek biçim sapması

stem sap, gövde step drill kademeli matkap

stiff bükülmez storage depolama strain gerinim

strain hardening uzama sertleşmesi, gerinim sertleşmesi

strength direnç, mukavemet, dayanım

stress gerilim

stretch forming uzatarak, gererek şekillendirme

strip şerit, lime, kuşak, band

stripping machine sıyırma makinası, soyma makinası

stroke kurs structure yapı

stud saplama, başlıksız civata

submerged are welding toz atı kaynağı super finishing hassas perdahlama surface finishing yüzey perdahlama

surface hardening yüzey sertleştirme, semente etmek

swaging tokaçlama sweep pattern silmeli model

synchronization senkronize etme; aynı anda ve beraber çalışır duruma getirme, eşleme, eş zamanlı

\mathcal{T}

T-slot cutter yarık freze bıçağı, T-kanalı açma bıçağı

tailstock torna punta başlığı tang (drill) sökme ucu (konik şaftlı) tap klavuz taper konik

taper turning konik tornalama tap hole klavuz deliği

taper attachment konik tornalama aygıtı taper gage koniklik mastarı taper reamer konik rayba

tapping kılavuz çekme, kılavuzla diş açma tapping machine dişi vida dişi çekmek için kılavuz tezgahı

tempering tavlama template şablon

tensile strength çekme dayanımı tension gerginlik thread diş

thread cutting diş açma, vida açma

thumb nut dış yüzü tırtıllı dairesel (silindirik) somun

thumb screw elle gevşetilip sıkıştırılan vida, silindirik başlı ayar

civatası

tin kalay, teneke tip uç (kalemde)

titanium titan

tolerance pay, tolerans
tommy bar lokma anahtar kolu
tool alet, takım, torna bıçağı

tool cutter kalem tool cutter edge angle ayar açısı

tool cutting edge inclination meyil açısı, eğim açısı tool holder kalem tutucu, kalemlik, kater

tool included angle uç açısı

tool life takım dayanma zamanı
tool minor cutting edge angle yan bileme açısı
tool normal clearance angle serbest açı
tool normal rake angle talaş açısı
tool normal wedge angle kama açısı

tool post kalem tutacağı, kater

toolroom takımhane tool slide takım kızağı

torch üfleç, hamlaş, asetilen alevi, şaloma torch cutting üfleçle kesme, kaynakla kesme

torque burulma momenti, tork

torque wrench civata sıkma torkunu ölçen anahtar

torsion burulma, torsiyon torsional strength burulma dayanımı

toughness tokluk tracing konye etme saydam, şeffaf transparent transverse enlemesine kordon makinası trimming machine T-kanalı, T-oluğu T-slot tumbling mill döner değirmen tungsten volfram

turret lathe revolver torna, yarı-otomatik torna

torna tezgahı

twist drill helisel matkap

\mathcal{U}

turning machine

ultimate strength maksimum mukavemet

ultrasonic machining ses üstü dalgalarıyla talaş alma

uniform düzgün, tek biçimli

unilateral tek yönlü

upcut milling aksi yönlü frezeleme upright drill sütunlu matkap

upset forging şişirme

V

valve valf, vana, süpap, ventil

V-block (Vee-block)
vernier caliper
vise
void
volatile

V-yatağı
sürgülü kumpas
mengene
boşluk
uçucu

W

washer pul, rondela
waviness dalgalılık
wear aşınma
welded steel kaynaklı çelik
welding kaynak

electric arc welding elektrik ark kaynağı fusion welding erime kaynağı

oxy-acetylene welding oksijen kaynağı, asetilen kaynağı

spot welding nokta kaynağı thermit welding termit kaynağı

welding rod kaynak çubuğu, kaynak elektrodu

welding powder kaynak tozu
welding machine kaynak makinası
welding helmet kaynak başlığı
white cast iron beyaz pik

wind nut kelebekli somun

wire drawing tel çekme

wiring elektrik şebekesi tel düzeni

wood screw ağaç vidası

work hardening işleme sertleşmesi

work piece iş parçası work table iş tablası

worm gear sonsuz dişli, salyangoz dişli

wrench anahtar

wrought iron dövme demir, dörük demir

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yield point akma dayanımı yoke çatal, mafsal çatalı

z

zinc çinko zone bölge