



# WIRE DRAWING MACHINE TECHNOLOGIES

---

AND ADVANCED MACHINERY CENTER



# Company Profile



Mekosan was established in 1997 in the industrial city of Kayseri, Turkey. A group of experienced engineers with a long history in the steel wire & cable industry started the design and manufacture of automated process equipment for wire drawing systems.

At the beginning wire drawing machine and the automation systems are the basic production and business for Mekosan. In the time being Mekosan has experiences in different branches.

The main businesses can be classified as :

Wire Drawing Machine Production : Continuous research and development in wire drawing technology has enabled Mekosan to establish itself as a leading supplier in this industry, both within Turkey and also overseas markets.

The introduction of the first 'torque motor system' for wire drawing has given producers significant manufacturing advantages such as energy savings, increased reliability, smaller footprints and reduced maintenance.

Since R&D is very important for Mekosan, Mekosan developed the first machine based on torque motor system. With this system customers have many advantages;

1. More than %10 energy saving
2. Since there are no gear box, V-belt, bearings, so low maintenance, no failures and low cost production
3. Very few oil waste and no noise for the environment
4. The place of the machine is %40 narrower than the others and the area of the factory can be used very effective
5. Since there is no moving components like V-Belt, motor etc. so the worker safety is very high and safety cost is very few. [The blocks are under the safety lock covers]

Automatic Packaging Machine for Tubes and Profiles : Through market demand, innovation and development new products were introduced and Mekosan's business today can be classified in specific technology areas: Automatic Packaging Machines for Tubes & profiles: The first automatic tube packaging machine was manufactured in 2005, today Mekosan has produced more than 50 units. As well as the Turkish tube market, Mekosan packaging systems are installed on tube mills in Europe and Middle East. Several units have also been supplied directly to tube mill manufacturing companies.

In addition to automatic packing systems have added offline painting lines and also jute packing systems to the tube & pipe machinery range. These new options give our customers the ability to protect their products in different ways for prolonged storage or long distance transport.

Automation System Engineering : Integrated electronic and mechanical engineering has also been utilised for many years at Mekosan. This considerable experience has enable us to also supply automation for systems and processes outside the standard Mekosan range of machinery. This has included waste water treatment, energy saving and crane systems.

In addition to being a design and manufacturing organisation, Mekosan is a distributor of ABB drives and motors in Turkey. We

are also one of only three drive alliance partners for ABB drives in the Turkish market.

Mekosan operates out of two production plants in Kayseri with more than 8000m<sup>2</sup> of floor space. There are 130 employees including 30 engineers.

Mekosan Production range includes:

#### Tube & Pipe Industry

- Automatic tube & profile packaging machines
- Jute bundle packing lines
- Tube and profile automatic painting lines

#### Steel Wire Industry

- Steel wire drawing machines
- Vertical axis multiple block dancer arm with speed synchronisation
- Inclined axis multiple block dancer arm with speed synchronisation
- Multi block overhead dry drawing machines
- Vertical pay-off
- Spoolers
- Coilers
- Coiler lift unit
- Mechanical descaling unit
- Mechanical rust scathing brushes

#### Copper Wire and Cable Industry

- Copper wire drawing from 8 mm to 1,20 mm double wire drawing
- Copper wire drawing from 1 mm to 0,10 mm for 16 wires.
- Electrolytic copper wire drawing machines – Inlet diameter 0,8-1.0mm, outlet diameter 0.01mm-0.25mm
- Motorised pay-off for 630mm spools
- Motorised pay-off for 1000mm spools
- Corrugator
- Tape pay-off for data cables



# INDEX

**6 / 13**

**MKS 1200**

**14 / 25**

**MKS 300 to 900**

**26 / 29**

**WET WIRE**

**30 / 33**

**MESH WIRE**

**34 / 51**

**EQUIPMENTS**

**52 / 55**

**GALVANIZED LINE TAKE-UPS**

**55 / 59**

**ANNEALING FURNACE**

# MKS 1200

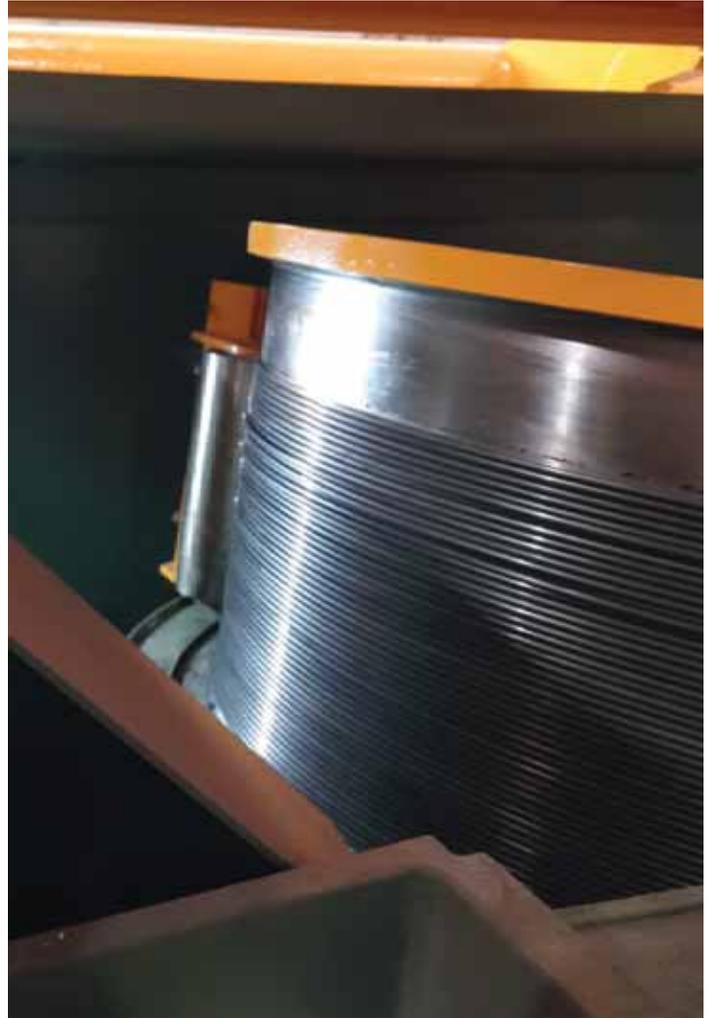


**For PC Wire and PC Strand or High Tensile Strength Spring Wire**

# Wire Drawing Machine



# MKS 1200





# Wire Drawing Machine



# MKS 1200



# Wire Drawing Machine



# MKS 1200



## TYPE MKS 1200

Max. Inlet Diameter (mm)	: 15/8
Inlet Tensile (N/mm <sup>2</sup> )	: 1250
Finishing Range (mm)	: 8/3
Max. Speed (m/s)	: 14
Number of Block	: 9
Motor (kW)	: 132 AC

# Wire Drawing Machine



# MKS 300 to 900



**For Low and High Carbon Wire**

# Wire Drawing Machine



# MKS 300 to 900

EĐİK KAFALI ÇOK BLOKLU DANZER KONTROL SİSTEMLİ TEL ÇEKME MAKİNASI  
INCLINED AXIS MULTIPLE BLOCK DANCER ARM SPEED SYNCHRONISED STEEL WIRE DRAWING MACHINE





# Wire Drawing Machine



# MKS 300 to 900



# Wire Drawing Machine



# MKS 1200

SABUN KARIŐTIRICI  
LUBRICANT MIXER



DÖNER HADDE  
ROTATION DIE BOX



SU GÖZETLEME PENCERESİ  
WATER DISCHARGE WINDOW



DANSER  
DANCER



HADDE KABİNİ  
DIE CABINED



FREN SİSTEMİ  
BRAKE SYSTEM



# Wire Drawing Machine



# MKS 300 to 900





# MKS 300 to 900

## MKS EĐİK Kafa Kuru TelÇekme Makinaları

MKS çok bloklu telçekme makineleri, eğik kafa blokları ve danser kollu hız senkronizasyonu ile yüksek hızda ve istenen çapta kaliteli tel üretimi sağlar.

### GÖVDE YAPISI

Elektrik kaynaklı çelik platinden çatılmış güçlü gövde yapısı, üzerine çok blok yerleştirilmeye uygundur. Üzerindeki birleştirme ve taşıma aparatları sayesinde çabuk kurulum ve kolay taşınmaya olanak sağlar.

### ELEKTRİK EKİPMANLARI

Bütün elektrik, elektro-mekanik ve elektronik komponentler dünyaca tanınmış markalardan seçilmiştir.

PLC programı sayesinde, makinenin çalışma anı bilgileri ve olası arızalar otomatikmen kontrol ekranına aktarılır.

### TELÇEKME BLOKLARI

Telçekme blokları çelik dökümdür. Çekim yüzeyi , thungsten-carbide sıcak kaplama sayesinde uzun kullanma ömrü sağlar.

### SOĞUTMA

Her telçekme bloğu su soğutma sistemi ile soğutulmaktadır. Hadde kutuları su soğutmalıdır. Bütün motorlar ve elektrik kabinleri harici elektrikli soğutma fanına sahiptir.

### EMNİYET SİSTEMİ

Her blok motorunda acil duruşlar ve normal duruşlarda devreye giren pnömatik fren mevcuttur. Kapaklara yerleştirilmiş olan özel mekanizma, makine çalışırken emniyet kapaklarının açılmasına izin vermez. Ayrıca kapaklar açık iken makine start almaz.

### MOTORİZASYON

Her telçekme bloğu , frekans inverter kontrollü ve IP 55 korumalı A.C. motor ile çalıştırılır. Motorlar, harici elektrikli fan sayesinde iyi soğutma performansına sahiptir.

## MKS INCLIED BLOCK DRY DRAWING MACHINES

MKS multiple – block drawing machines have inclined axis drawing blocks and dancer arm speed synchronization recommend the MKS for the high-speed drawing of medium and fine-diameter wire.

### CONSTRUCTION

The bench framework, built in sturdy, electro welded plate steel, comes in one or more multiple-block s"ection fitted with eyebolts to facilitate lifting, transport and installation. The capstan and relative die box, motors,brakes, safety guards, water feed drainage tubes etc. Are all pre-assembled on the bench.

### ELECTRICAL EQUIPMENT

All electrical, electro-mechanical and electronic components come from leading suppliers and are available world wide.

The operating logic is achived through a PLC , with an automatic diagnostic system.

### DRAWING BLOCKS

The drawing blocks are made steel cast. Capstan pulling bands plasma hot –coated with a tick layer of thungsten carbide are available.

### COOLING

Cooling water is fed to the drawing blocks and dies through two seperate circuits.

### SAFETY

A pneumatic brake installed on each block to serve both as a parking brake and emergency brake.

Electrical safety switches make sure the machine can not be run if safety guards are open.

### MOTORIZATION

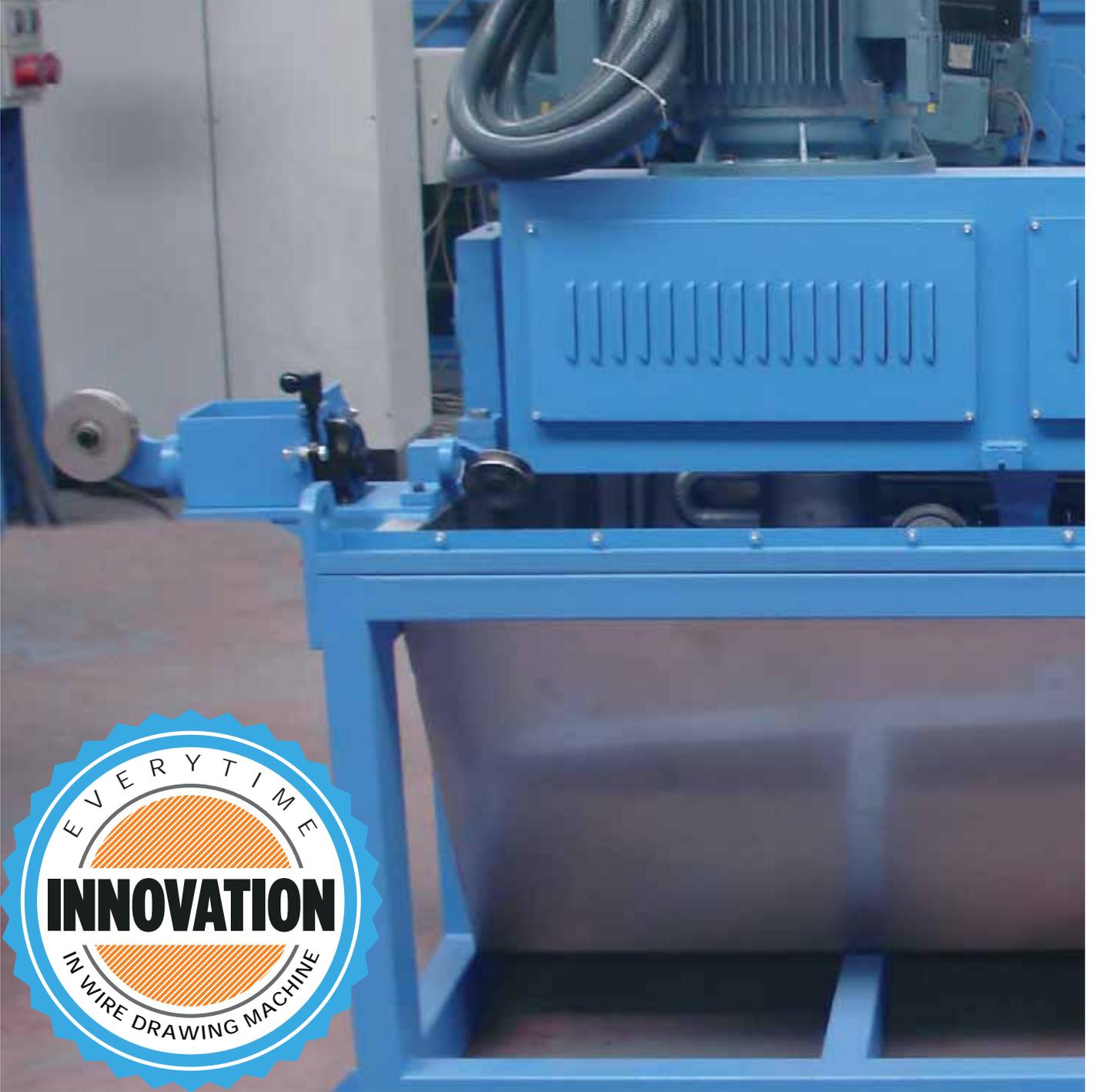
Each drawing block is driven by an IP55 A.C. motor, controlled by a driver . The motors have force cooling , thus available to good cool performance.

The reduction gears theoretical lifespan of 85.000 working hours.





# WET WIRE DRAWING



EVERY TIME  
**INNOVATION**  
IN WIRE DRAWING MACHINE

İHTİYACA GÖRE MAKİELERİMİZ DİK VE YATIK OLARAK TASARLANILABİLİR. YÜKSEK VE DÜŞÜK KARBONLU, SİYAH, GALVANİZLİ, BAKIR KAPLI TELLERİN ÇEKİM İŞLEMİ BU MAKİNELERDE YAPILABİLİR. THE MACHINE CAN BE DESIGNED AS VERTICAL OR HORIZONTAL TYPE ACCORDING TO THE NEED. LOW AND HIGH CARBON WIRES, BLACK, GALVANIZED OR COPPER COATED WIRES CAN BE DRAWN.

# Wire Drawing Machine



# WET WIRE



# Wire Drawing Machine



# MESH WIRE



# Wire Drawing Machine



# MESH WIRE

## ÜSTTEN ALMALI FİLMAŞIN AÇICI

OVER-HEAD TYPE HYDRAULIC WIRE ROD PAY-OFF



12 mm'e kadar filmaşın açabilen toplam yükseklik 6-9 m arası olan ve 10 m/s 'ye kadar hızla çalışabilen, açıcı sepetler 3 ton ağırlığa dayanıklıdır. Açıcı üst yönlendirme makarası vinç sistemi ile aşağı yukarı hareketlidir.

The hydraulically tilttable pay-off cones capable to load 3 tons wire rod which available to use up to 12mm wire rod thickness, run able at 10m/s speed and the total height is 6-9 m. The upper guide roller of pay-off actuated by crane system for up and down.

## MEKANİK PAS KIRICI

BENDING DESCALING



12 mm çapa kadar telin pasını mekanik olarak kırabilen, filmaşını ön bükme yapmadan telin kırıcı makaralardan geçmesini sağlayacak pratik sisteme sahiptir. Kırıcı makaralar tungsten carbide ile kaplanmıştır.

The bending descaling unit available to use up to 12 mm wire rod and has got practically design which permit to pass smoothly without any prepare. Rolls coated with tungsten carbide.

## KURU SABUN KAPLAMA ÜNİTESİ

DRY LUBRICANT COATING UNIT



Sabun kaplama hızı max. 12 m/s'dir. Sabun tüketimi minimum seviyede tutacak şekilde dizayn edilmiştir. Ayrıca çapı 5,5 - 12 mm aralığında tellerin sonsuz vidalı sabun karıştırıcı sistemi ile kaplanır.

The lubricant coating unit has been designed according to low compound consumption to thanks mixer unit with screw conveyor system ,maximum drawing speed 12m/s and input wire diameter range from 5.50 to 12 mm.

Consumption of lubrication powder :approx. 300 g / t  
Electric capacity: 2 x 0,25 kW gear motors

## TEL GERİLİMİNİ ALMA ÜNİTESİ

WIRE STRESS RELIEVING DEVICE



8 mm çapa kadar 5 baskı makaralı şase gurubuyla stres alma baskı makaralarının ayarları pnömomatik olarak yapılmaktadır.

Baskı makaraları sertleştirilmiş çelikten veya tungsten karbid kaplamalıdır.

Stress relieving in unit has been designed with 5 bending rolls setting of the rolls pneumatically .Rolls made of hardened steel or tungsten carbide and input wire diameter up to 8,0 mm.



# Wire Drawing Machine

## DİKEY TEL ÇEKME ÜNİTESİ

### VERTICAL WIRE DRAWING UNIT



Kapstan bloklarının yüzeyi tungsten karbid kaplıdır. Kapstan blokları su soğutmalıdır. Makine güvenliği tel kopma switchi, ve acil stop butonu ile sağlanır. A.c. motor hız kontrol cihazı ile kontrol edilmektedir.

The Capstan Blocks are covered with tungsten carbide. Cooling by water. The safety is provided by wire break switch and emergency button.

Max. Speed :12 m/s , Main Motor Power: 160 kW ,  
Spooler Motor Power: 45 kW

## DİKEY SARICI

### VERTICAL SPOOLER



Sarıcı üzerindeki bütün parçalar mekanik ve elektrik, motor dahil gövde üzerine monte edilmiştir. Bütün elektrik bağlantıları bir bağlantı kutusunda toplanmıştır.

Tel çapı aralığı : 4,00-10,60 mm

Tel mukavemeti :max. yaklaşık. 700 N/mm<sup>2</sup>

Sarıcı hızı : max. 12 m/s tel çekme makinesiyle senkronizeli.

Makara Ölçüleri :max. flanş çapı: 1250 mm

Makara kapasitesi :maksimum 3.000 kg

It is designed to contain all the elements of the spooler ,including the drive motor and electrical auxiliaries wired to a common junction box.

Wire Range : 4,00-10,60 mm

Tensile Strength :max. approx. 700 N/mm<sup>2</sup>

Spooling speed : up to 12 m/s adapted to the drawing machine

Spool dimensions :max. flange dia.: 1250 mm

Filling weight :approx. 3.000 kg. max



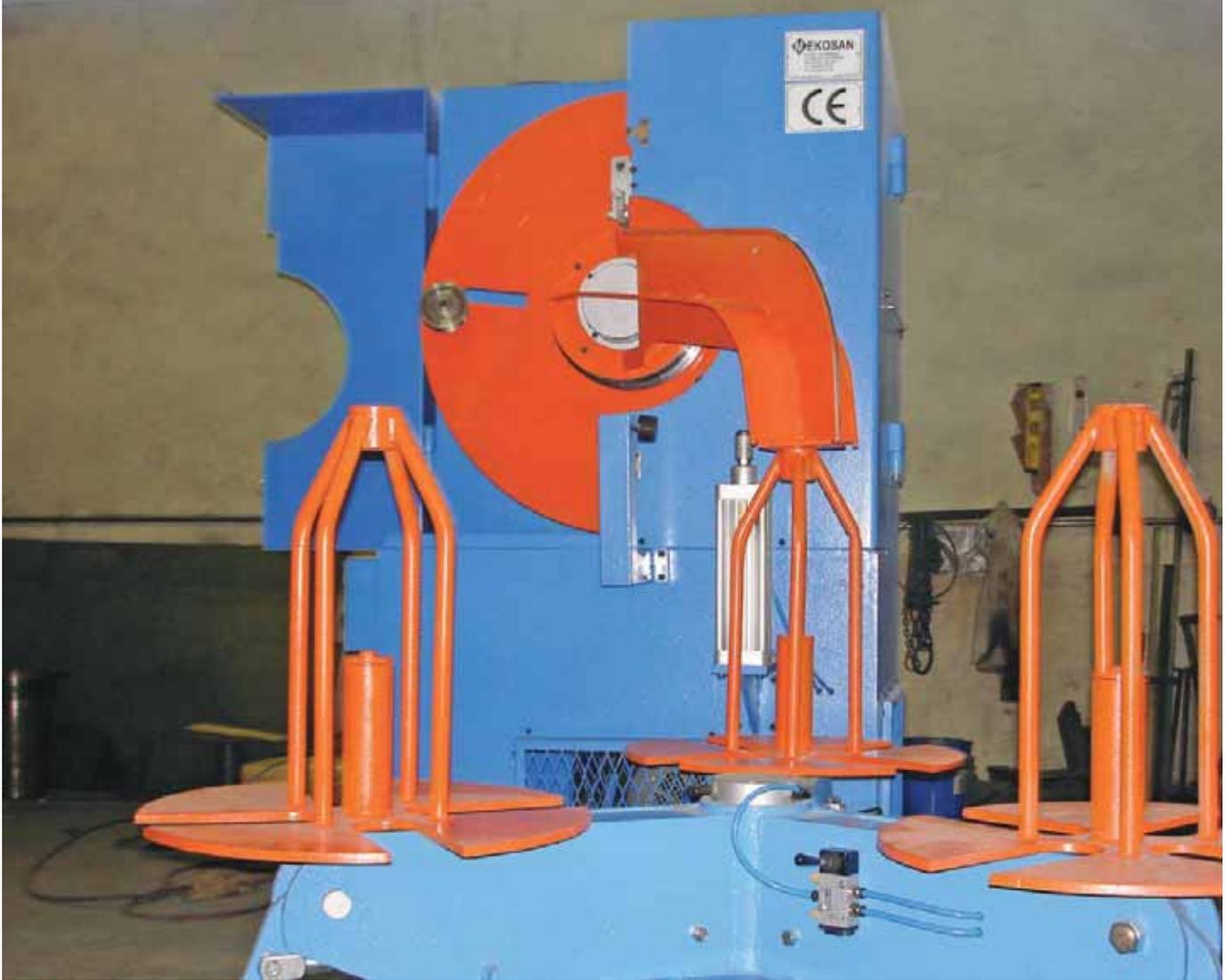
# EQUIPMENTS



**Coiler, Rozed Coiler, Cooling Tank, Wire Packaging, Spooler  
Vertical Pay Off, Mechanical Descaling Unit,  
Precoating System, Continous Spooler**



# EQUIPMENTS



## SEPET SARICILAR

Sepet sarıcılar yatay eksenli, her türlü teli sepetlere aktarmaya uygun ve durmadan üretim yapmaya uygundur. Gövde, çelik platinlerin kaynatılmasıyla oluşturulmuş vibrasyonsuz çalışmayı garantileyen güçlü yapıya sahiptir. Kapstan çelik döküm olup ilaveten çekim yüzeyi tungsten carbide kaplamaya sahiptir. Hadde tutucu ve kapstanda su soğutma sistemi mevcuttur. 25m/s hat hızına kadar telçekme ünitesine mükemmel senkronizedir. Acil durumlar ve tel kopmaları için kullanılan pnömatik fren sistemi mevcuttur.

## COILERS

Coilers have horizontal axis, suitable to collect in the best way every type of wires in coils on tubular carries with non stop processing. The framework structure made of welded steel sheets which guarantees operation exempt from vibrations. The coiling capstan is made by forged and induction hardened steel and the drawing surface additional coated with tungsten carbide . The coiling capstan and die holder has water cooling system. Winding speed up to 25 m/s in perfect synchronisation with connected wire drawing machine. The braking system integrated by a pneumatic brake for emergency purposes, and allows a full automatic braking control without wire break in any situation.

# Coiler



# EQUIPMENTS



# Rozed Coiler and Cooling Tank



**COİLER HARİCİ SOĞUTMA TANKI**  
**COOLING TANK FOR COILER**

## SEPET SARICILARIN TEKNİK ÖZELLİKLERİ

### TECNICAL DATA FOR COILERS

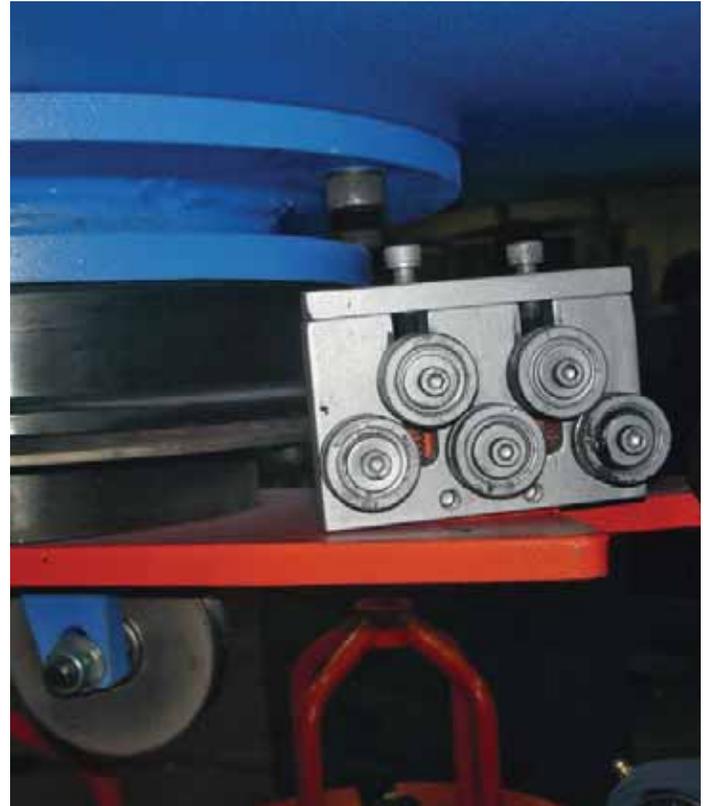
Blok Çapı Capstan Diameter mm	300	450	500	550	600	650
Maksimum Motor Gücü Max. Installed Power kW	0.60-1.40	0.80-1.80	1.30-2.20	1.30-300	1.70-4.00	2.00-5.00
Maksimum Hız Max. Speed m/sec	20	20	20	20	20	18
Maksimum Motor Gücü Max. Innstalled Power kW	15	18.5	37	45	45	55

# EQUIPMENTS





# Wire Packaging Machine



# EQUIPMENTS



## MAKARA SARICILAR

Makara sarıcılar yatay eksenli, tek makaralı ve manuel yüklemeli sisteme sahiptir.

Gövde, çelik platinlerin kaynatılmasıyla oluşturulmuş vibrasyonsuz çalışmayı garantileyen güçlü yapıya sahiptir. Makara, pnömatik çalışan kolay kullanımlı puntalarla yüklenir. Çalışma sırasında makaranın çıkmasını önleyen pnömatik kilit sistemi mevcuttur.

Makara ölçüleri modele göre değişmekte ve 400mm ile 1200 mm arasındadır. Sarma hızı 25m/s hat hızına kadar telçekme ünitesine mükemmel senkronizedir.

Acil durumlar ve tel kopmaları için kullanılan pnömatik fren sistemi mevcuttur.

## SPOOLERS

Spoolers have horizontal axis, single spool supporting device, manually handling system.

The framework structure made of welded steel sheets which guarantees operation exempt from vibrations.

The spools are supported by retractable pintles, pneumatic operated. An pneumatic safety locking system prevents the accidental release of pintles during run.

Spool sizes range according the model of the spooler between 400mm and 1200 mm.

Winding speed up to 25 m/s in perfect synchronisation with connected wire drawing machine.

The braking system integrated by a pneumatic brake for emergency purposes, and allows a full automatic braking control without wire break in any situation.

# Spooler



# EQUIPMENTS



**MAKS. YÜK KAPASİTESİ: 3 TON**

**KONTROL SİSTEMİ: HİDROLİK, PNÖMATİK VE DANZER**

**MAX. LOAD CAPACITY: 3 TON**

**CONTROL SYSTEM: HYDROLIC, PNEUMATIC AND DANCER**



# Vertical Pay-Off



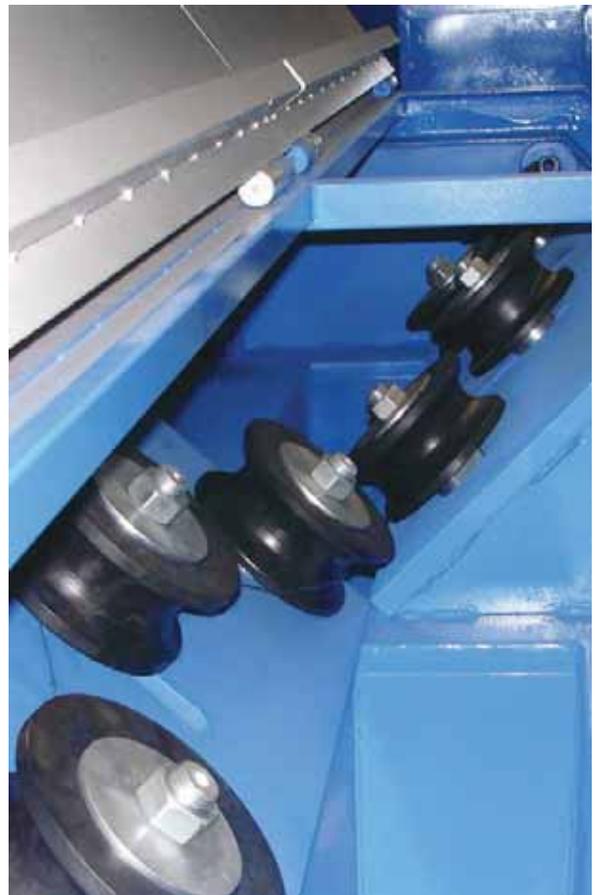
# EQUIPMENTS



**MEKANİK PAS KIRICI**  
MECHANICAL DESCALING UNIT



# Mechanical Descaling Unit



# EQUIPMENTS



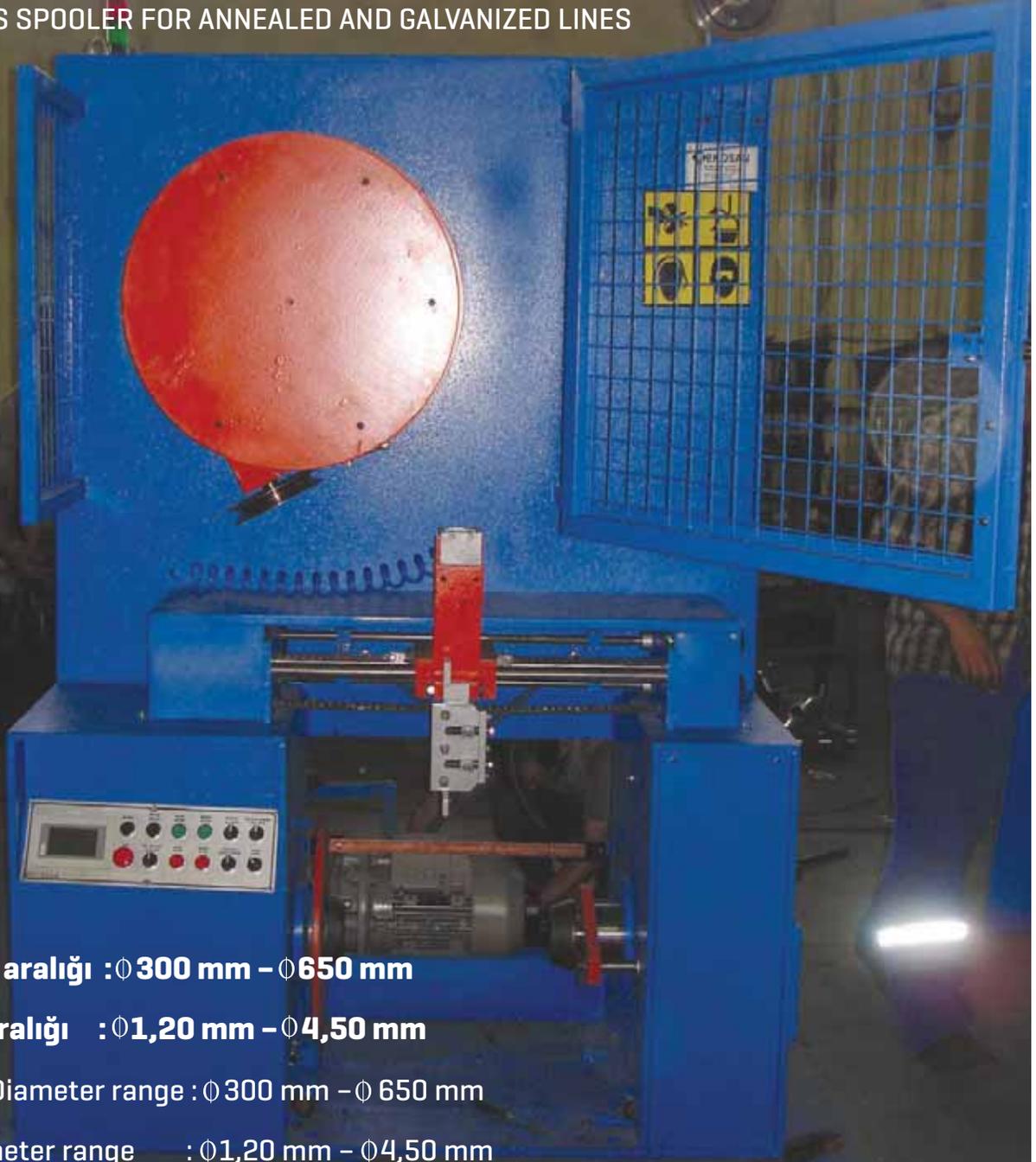


# Precoating System



# EQUIPMENTS

**TAVLAMA VE GALVANİZ KAPLAMA HATTI MAKARA SARICISI** Capstan Diameter  
**CONTINUOUS SPOOLER FOR ANNEALED AND GALVANIZED LINES**



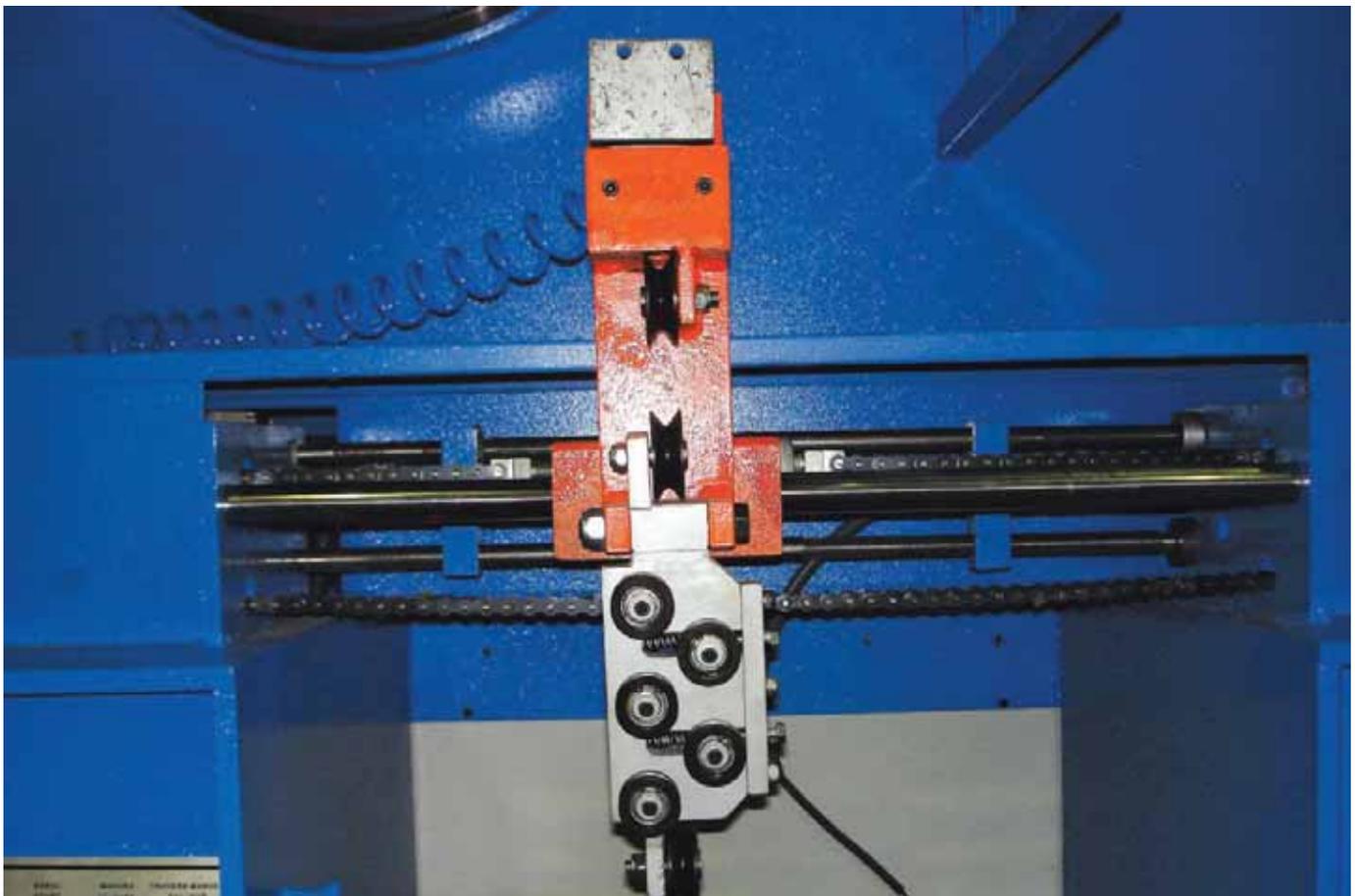
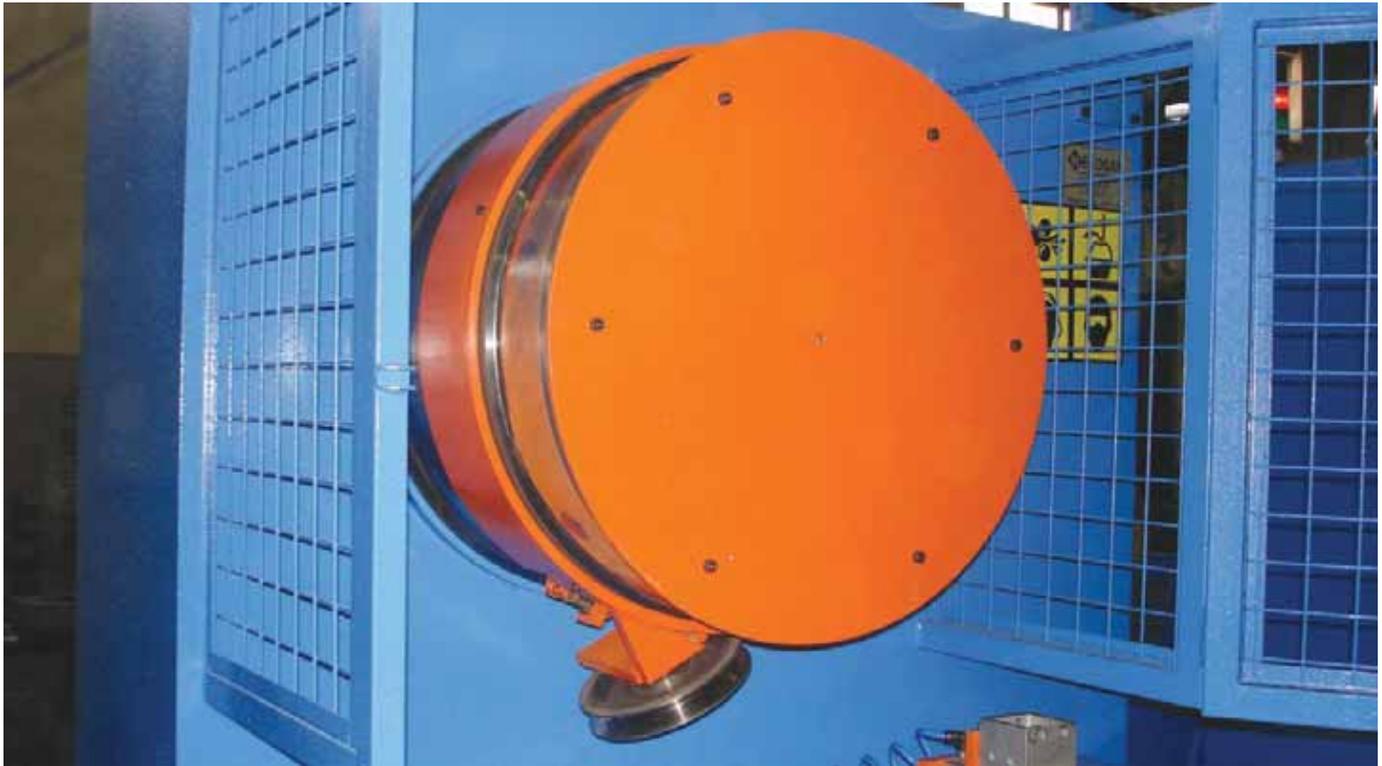
**Blok Çap aralığı :  $\varnothing$  300 mm –  $\varnothing$  650 mm**

**Tel Çap aralığı :  $\varnothing$  1,20 mm –  $\varnothing$  4,50 mm**

**Capstan Diameter range :  $\varnothing$  300 mm –  $\varnothing$  650 mm**

**Wire diameter range :  $\varnothing$  1,20 mm –  $\varnothing$  4,50 mm**

# Continuous Spooler



# GALVANIZED LINE TAKE-UPS



TAVLAMA VE GALVANİZ KAPLAMA HATTI SEPET SARICISI  
ANNEALING FURNACE AND GALVANIZED LINE LINE TAKE-UPS  
ROTATING CAPSTAN TAKE-UPS



# TAKE-UPS



# Rotating Capstan, Annealing Furnace and Galvanized



Yüksek ve düşük karbonlu çoklu tellerin kesintisiz çalışmak sureti ile kangal hale getirilmesini sağlar.

Düşük ve yüksek karbonlu tavllanmış tellerin, galvanizlenmiş tellerin, PVC kaplı tellerin imal edildiği hatlarda üretim akışını durdurmadan sürekli kangal yapılmasını sağlar.

Çelik konstrüksiyonu aynı anda 34 adet teli sarmaya uygun olarak tasarlanmıştır.

Blok Çapları [Ømm] : 400-500-600-700-800-900

Mukavemet Aralığı MPa : 600 – 2200

Tel Çapı aralığı : Ø 0,80 mm – Ø 14,00 mm

Makes the coiling of the multi-wire process operations involving low and high carbon steel wires.

Application covers take-up of low and high carbon steel wires following annealing and plastic coating, or annealing and galvanizing and hard drawing and galvanized wires.

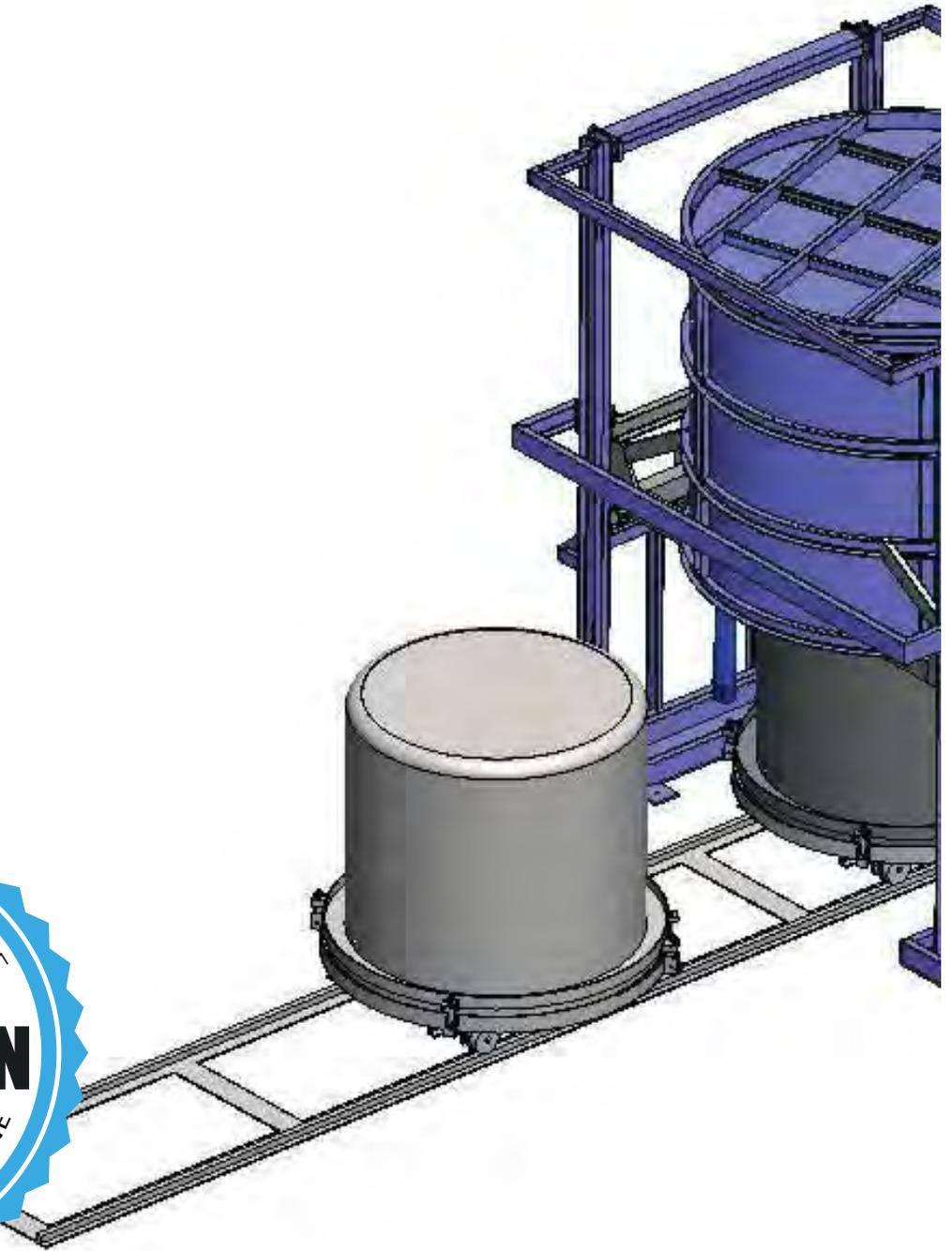
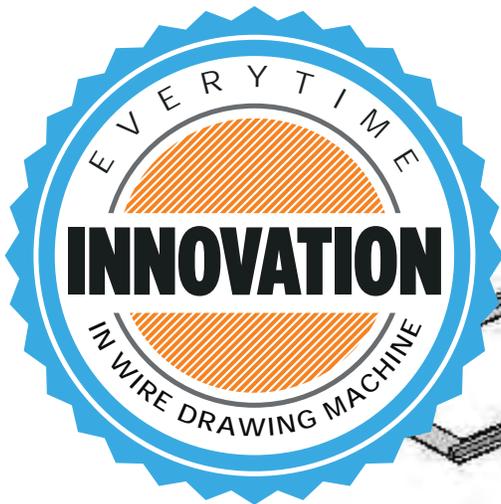
The steel construction is designed according to 34 peaces of the wires at the same time.

Capstan Diameter [Ømm] : 400-500-600-700-800-900

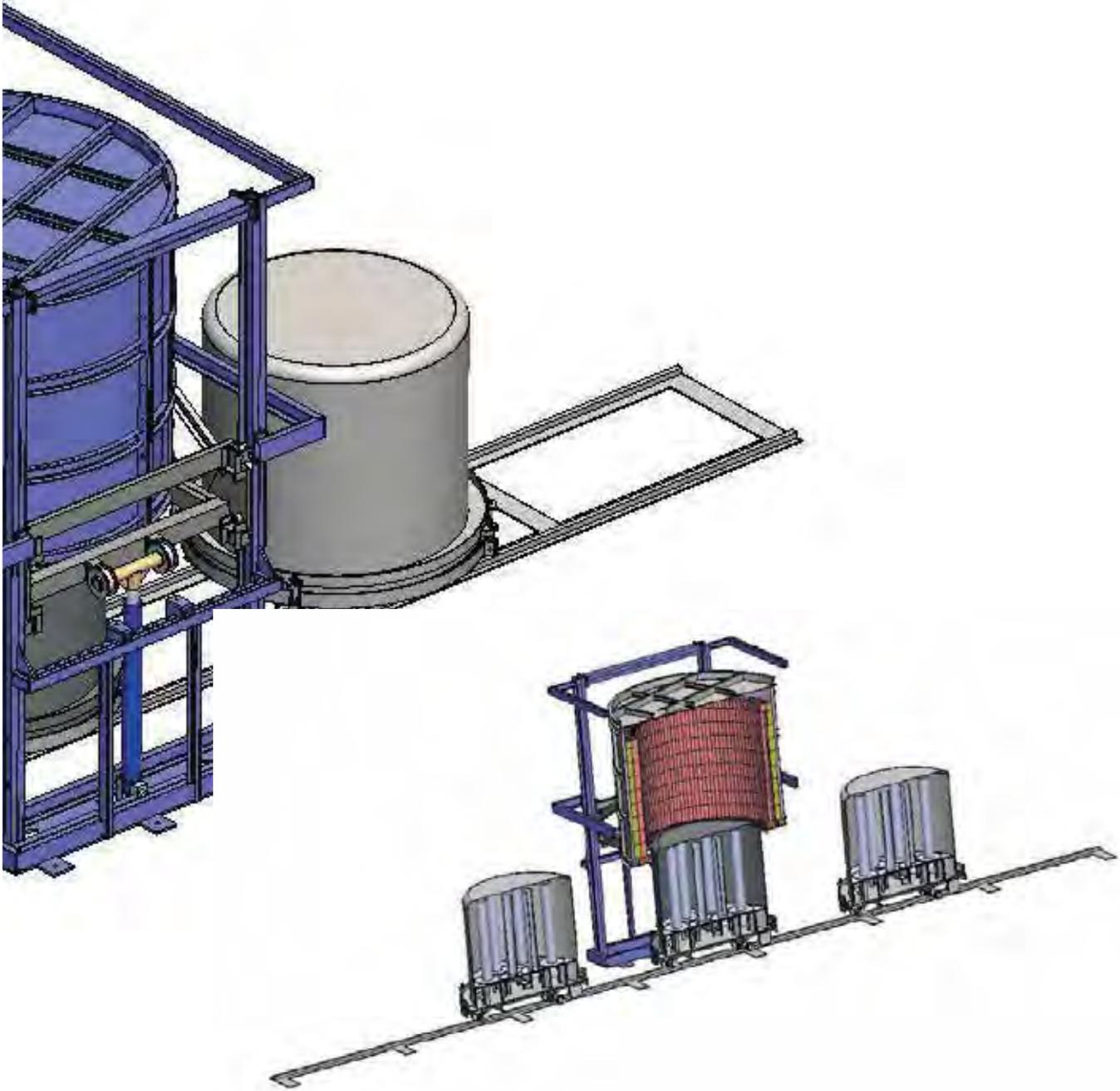
Tensile strength range MPa : 600 – 2200

Wire diameter range : Ø 0,80 mm – Ø 14,00 mm

# ANNEALING FURNACE







**TÜV**  
**CERT**  
DIN EN ISO  
9001 : 2008



# ANNEALING FURNACE







WIRE DRAWING  
MACHINE TECHNOLOGIES  
AND ADVANCED MACHINERY CENTER



T: +90 352 322 14 50 F: +90 352 322 14 53

info@mekosan.com.tr

www.mekosan.com.tr

1. Organize Sanayi Bölgesi  
Karpuzsekisi Mah. 32. Cad. No:2/F  
Hacılar / Kayseri / TÜRKİYE

