

P R O D U C T   C A T A L O G U E

**Believe in Your Power!**



# Erciyes Anadolu Holding

Crossing over the borders of Turkey and reaching out to the world, today Erciyes Anadolu Holding is operating in a wide array of industries ranging from furniture to textiles, chemicals to marketing, iron and steel to energy, leading each industry of activity. With 30 companies under its roof, Erciyes Anadolu Holding operates in 8 different industries. Erciyes Anadolu Holding houses industry leader brands like İstikbal, Bellona, Mondihome, Boyçelik, HES Cable, Boyteks, Form Sünger and Gümüşsuyu.

As one of Turkey's largest industrial enterprises, Erciyes Anadolu Holding provides value to the sectors it operates in with its integrated production and investment oriented approach. The Holding continues to add momentum to the Turkish economy with its almost 13 thousand employees, a total of 2,000 dealers in country and abroad, and investments towards a sustainable growth. Through expansion into activities in new fields, making its brands available in every corner of Turkey, as well as reaching consumers in 140 countries through nearly 300 international dealers, Erciyes Anadolu continues to be an innovator in the international arena while striving to represent Turkey the way it deserves.

Through a management approach dedicated to efficiency and the implementation of powerful human resources, Erciyes Anadolu Holding continues its growth record of accomplishment by expanding in each field of activity and investments. The holding has 6 companies within Turkey's Top 500 Largest Industrial Enterprises, as ranked by the Istanbul Chamber of Industry, and another 2 in Turkey's Second Largest Industrial Enterprises list.

## THE GROUP STRUCTURE

SECTORS - **8**

STORES OF THE BRANDS (LOCAL) - **1,5K**

COMPANIES - **30**

STORES OF THE BRANDS (ABROAD) - **OVER 250**

COMPANIES IN ISO FIRST 500 - **6**

COUNTRIES EXPORTED BY THE GROUP - **OVER 140**

EMPLOYEES OF THE GROUPS - **13K**





Watch our introduction movie



## Believe In Your Power!

Boycelik...

One of the forthcoming investments of Erciyes Anadolu Holding, an industrial leader in Turkey and the world over...

Raw materials supplier to Europe's largest mattress and furniture manufacturer... Supporting the manufacturing industry with quality product and service...

Operating on 112 thousand m2 of total area of which 60 thousand m2 is covered and 52 thousand m2 is open area.

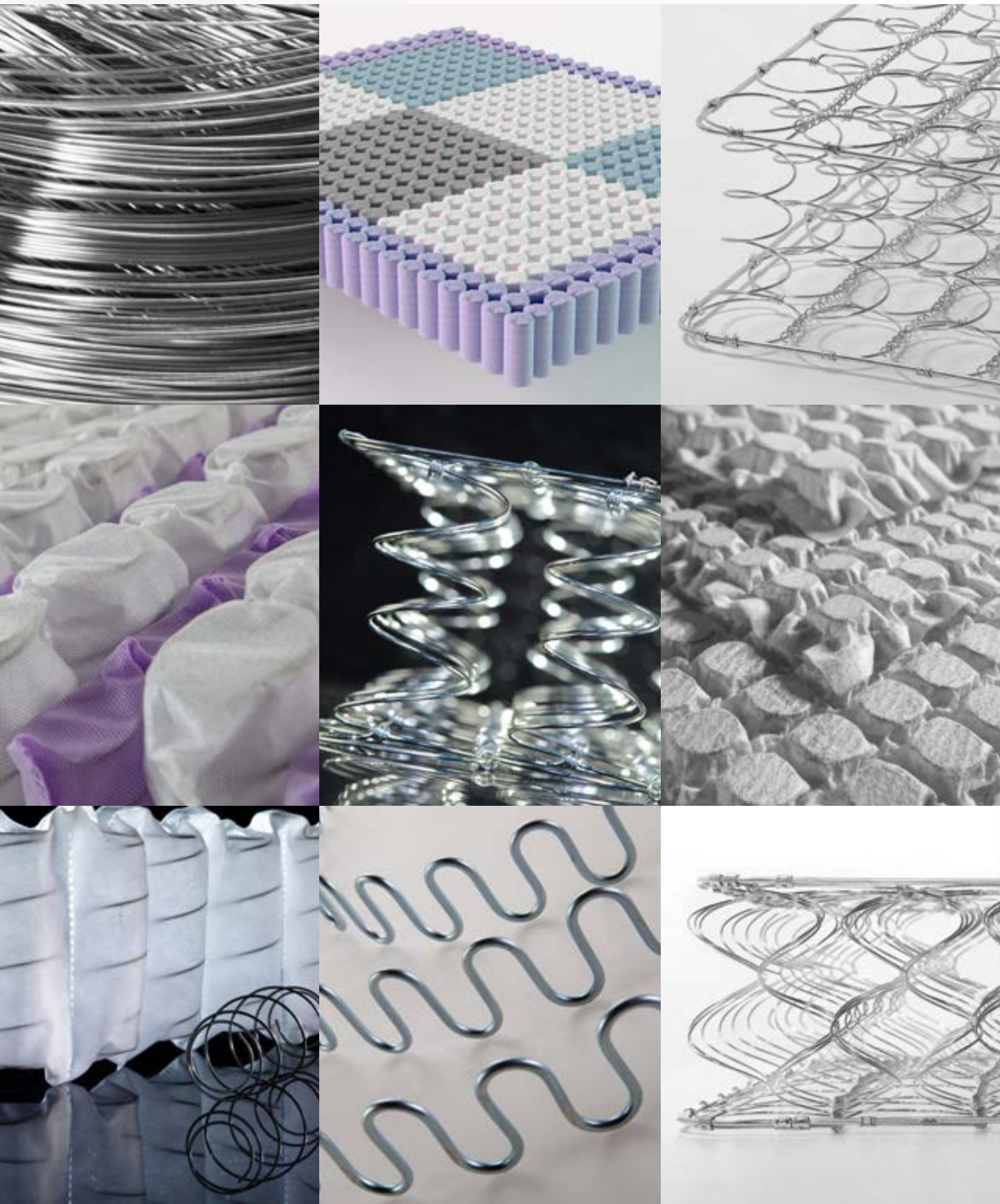
Manufacturing round and rectangular tubes and wire-spring production in 2 main facilities.

Boycelik serves the furniture, automotive, home appliance and construction industries by providing tube, pipe and steel sheet products manufactured at its Tube & Pipe facility; and serves the furniture and textile industries with steel wire, Bonnell Spring, S Spring, SL(Smartlink) Spring, Pocket Spring, Off-Set Spring, custom products and spring units manufactured at its Wire & Spring facility. With complete and strict control at every stage of each process, Boycelik complies with national and international quality control systems such as TSE-ISO-EN-9000 Quality Management System, TSE-ISO-EN-14000 Environment Management System, ISG-OHSAS TS 45001 Worker Health Safety Management System, TS-ISO/IEC 27001 Info Sec Management System, TS-ISO 50001 Energy Management System, CE, Oekotex Certificate always providing service and products in conformity to these certificates of quality.

Boycelik derives strength from customer satisfaction upon quality service and products, continuing to be a manufacturing power in the future, just as it has been in the past.







## Steel Wire and Springs

Flawless infrastructure for perfect comfort!

Boycelik manufactures medium and high carbon steel wire ranging from 1,20 to 5,00 mm range to meet the needs of many industries like furniture, appliances, automotive, construction and hardware.

All phases of production from raw material entry to non destructive testing processes and finishing applications at Boycelik are supported with physical and chemical testing. Boycelik manufactured steel wire and springs conform to the company's TSE certificates so that customers are always ensured quality services and products.



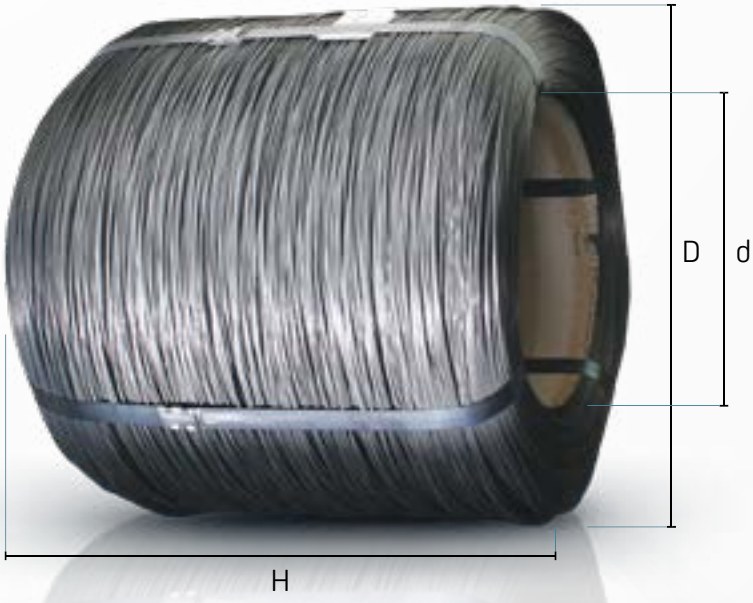


Steel Wire

Mattress, furniture, textile, automotive and industrial spring manufacturers can choose from a wide array of steel wire ranging from 1,20 mm to 5,00 mm diameter manufactured at Boycelik Wire-Spring Facility. Alongside providing quick service with increasing daily production capacity, the company is able to sustain growth thanks to customer focused processes.

Manufacturing rolls than can vary from 100 kg to 900 kg, and made to meet required quality specifications, make Boycelik a preferred partner.

Products are shipped with core cardboard, steel strapped and covered with special material to protect from unfavorable external conditions.



Steel Wire Technical Specifications												
Purpose of	Diameter Ø (mm)	Tolerance (±mm)	Tensile Strength (N/mm² min.max)		Torsion (min)	Carbon Percentage (min-max. %)	Coil Weight (Kg)		Coil Internal Diameter			
			min.	max.			100	350-850	d (mm)	H (mm)	D (mm)	
Helezon	1,30	0.020	1720	2000	25	0,43-0,48	+	+	400	450	300-900	700-900
	1,40		1650	1800	25	0,43-0,48	+	+	400	450	300-900	700-900
Bonnell & Pocket Spring	1,20	0.020	2200	2450	25	0,63-0,67	+	+	400	450	300-900	700-900
	1,30		2100	2450	25	0,63-0,75	+	+	400	450	300-900	700-900
	1,40		2010	2450	25	0,63-0,75	+	+	400	450	300-900	700-900
	1,50		1920	2350	22	0,63-0,75	+	+	400	450	300-900	700-900
	1,60		1820	2350	22	0,63-0,75	+	+	400	450	300-900	700-900
	1,70		1775	2250	22	0,63-0,75	+	+	400	450	300-900	700-900
	1,80	0.025	1750	2100	22	0,63-0,75		+	400	450	300-900	700-900
	1,90		1720	2010	22	0,63-0,75		+	400	450	300-900	700-900
	2,00		1680	1950	22	0,63-0,75		+	400	450	300-900	700-900
	2,10		1680	1940	22	0,63-0,75		+	400	450	300-900	700-900
	2,20		1550	1850	22	0,63-0,75		+	400	450	300-900	700-900
	2,30		1570	1810	22	0,63-0,75		+	400	450	300-900	700-900
	2,38		1520	1720	22	0,63-0,75		+	400	450	300-900	700-900
	2,50		1470	1690	22	0,63-0,75		+	500		300-900	700-900
S Spring & Frame Wire	2,80	0.030	1570	1770	22	0,63-0,82		+	500		300-900	700-900
	3,50		1380	1570	16	0,63-0,82		+	500		300-900	700-900
	3,66		1420	1520	16	0,63-0,82		+	500		300-900	700-900
	3,90		1320	1520	16	0,63-0,82		+	500		300-900	700-900
	4,00	0.035	1300	1500	16	0,63-0,82		+	500		300-900	700-900
	4,20		1270	1400	16	0,63-0,82		+	500		300-900	700-900
	4,50		1220	1360	12	0,63-0,82		+	500		300-900	700-900
	4,88		1200	1320	12	0,63-0,82		+	500		300-900	700-900

\* Steel wire manufactured according to TS 2500-1 EN 10270-1.  
\* Table contains standarts values. Please contact sales representative for a varied request.  
\* Cardboard tubes are shipped with covered high density polyethylene material to protect from external conditions and formers are shipped with six arm formers.



### Straightened Wire and Frame Wire

Steel wires manufactured at Boycelik steel wire facilities for the mattress, furniture, automotive and industrial spring manufactured conform to TSE-2500-1 and EN 10270-1 standards. Technical features may be manipulated with chemical compounds to meet various customized customer specifications and fortified against corrosion with chemical treatments.



### Raw Material's Chemical Specifications

C % (min-max)	Si % (min-max)	Mn % (min-max)	P % max.	S % max.	Cr % max.	Ni % max.	Cu % max.	Al % max.	Mo % max.
0,43 - 0,48	0,10 - 0,30	0,50 - 0,80	0,035	0,035	0,20	0,25	0,30	0,01	0,05
0,63 - 0,68	0,10 - 0,30	0,50 - 0,80	0,035	0,035	0,20	0,25	0,30	0,01	0,05
0,70 - 0,75	0,10 - 0,30	0,50 - 0,80	0,035	0,035	0,20	0,25	0,30	0,01	0,05
0,73 - 0,78	0,10 - 0,30	0,50 - 0,80	0,035	0,035	0,20	0,25	0,30	0,01	0,05
0,78 - 0,83	0,10 - 0,30	0,50 - 0,80	0,035	0,035	0,20	0,25	0,30	0,01	0,05

Raw materials are supplied in accordance with TS EN ISO 16120-2 and TS EN ISO 16120-4 standards.

### Straightened Wire and Frame Wire

Straightened steel wires used for mattress and sitting group frames are manufactured to specified size, wire diameter and orders. Boycelik presents TS 2500-1 EN 10270-1 quality standard conformant straightened steel wire ranging from Ø2,70 mm – Ø5,00 mm for use by mattress and spring manufacturers. As a result of customer focused processes, the company is able to customize production to meet specified chemical features and tensile strengths. Frame wire can be manufactured as straightened or as a frame and supplied by piece or kg units in packages ready for shipment.



### Sample Table of Straightened Wire Weight

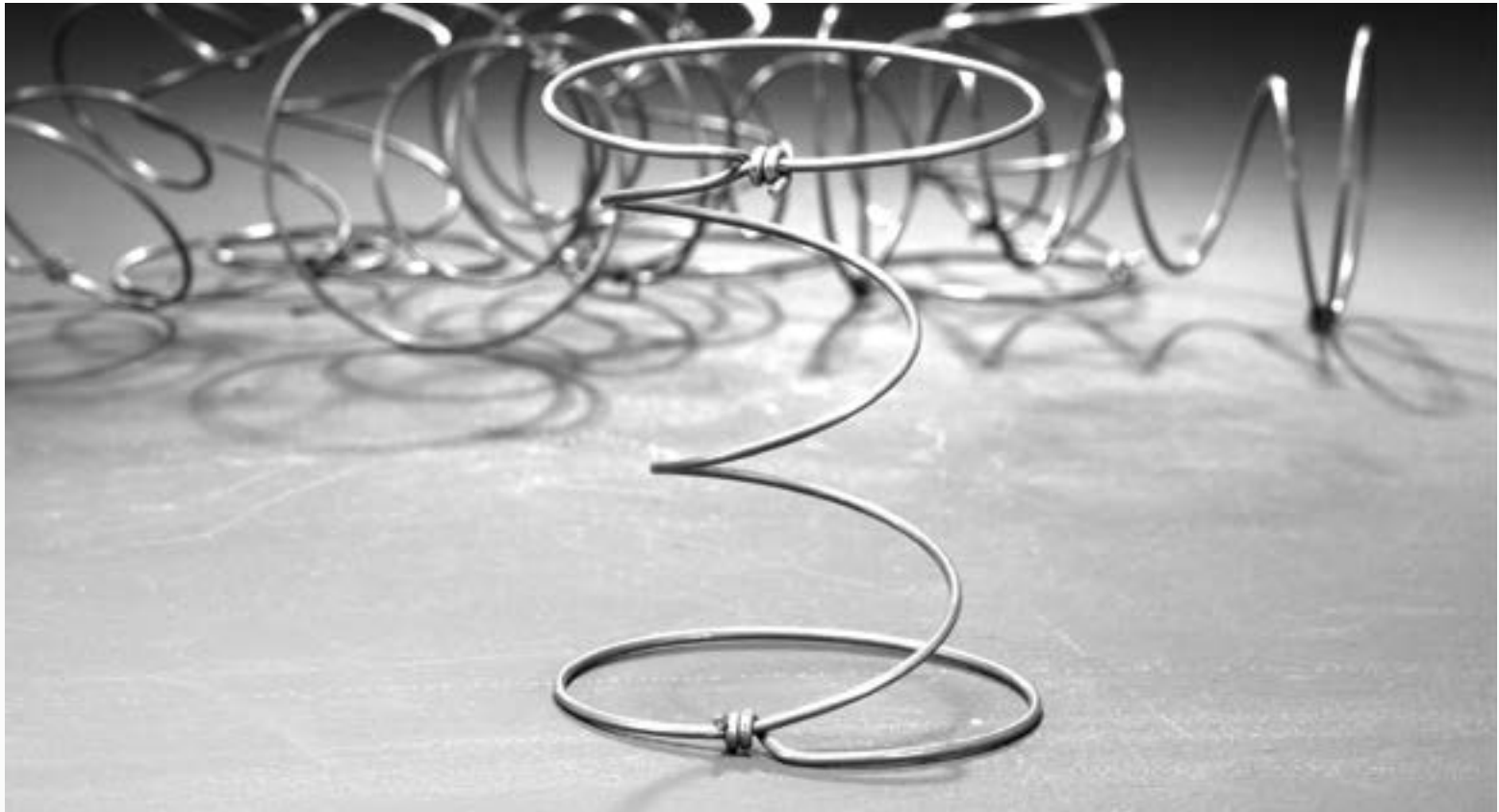
C Carbon	Wire Diameter	Length (cm)	Weight (kg)
% 0.65	2,70	100	0,045
% 0.65	2,80	100	0,048
% 0.65	2,90	100	0,052
% 0.65	2,95	100	0,054
% 0.65	3,50	100	0,076
% 0.65	3,66	100	0,083
% 0.65	3,80	100	0,089
% 0.65	3,90	100	0,094
% 0.65	4,00	100	0,099
% 0.65	4,20	100	0,109
% 0.65	4,50	100	0,125
% 0.65	4,88	100	0,147



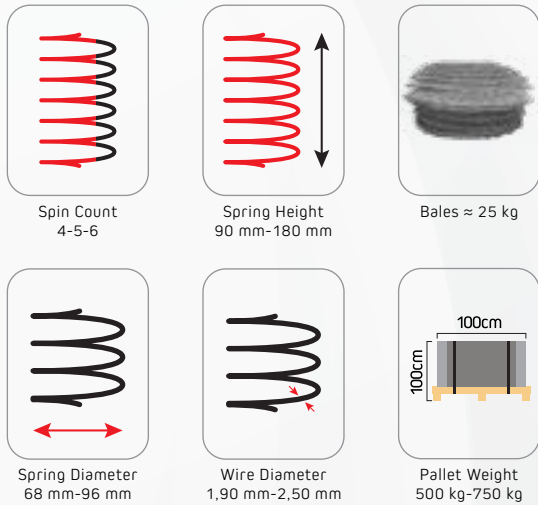


### Bonnell Spring

Bonnell spring used in the manufacture of mattresses, sofas and seating group generally 68-96 spring diameter, 90 mm-180 mm height. Springs, are rolled into packages of approximately 25 kg each, palletized and covered to protect from unfavorable external conditions and finally stretch nylon wrapped ready for shipment. Bonnell springs demanded as such are lined up as a frame with 1.30 mm and 1.40 mm helical wires. The bonnell spring sizes made by Boycelik can vary to meet customer demands.



Bonnell Spring Production	
Bonnell spring specifications	Production Range
Quality standard	TS-7167
Bonnell spring diameter Ø	68-96 mm
Bonnell spring height mm	90-180 mm
Bonnell spring wire diameter Ø	1,90-2,50 mm
Bonnell spring spin count	4,5 ve 6 spin
Packaging information	Bales ≈ 25 kg
Pallet information	Pallet weight 500 kg-750 kg
Pallet sizes	Standard 100x100 pallet (up and down) Pallet size can be arranged according to requirement







## Bonnell Spring Unit

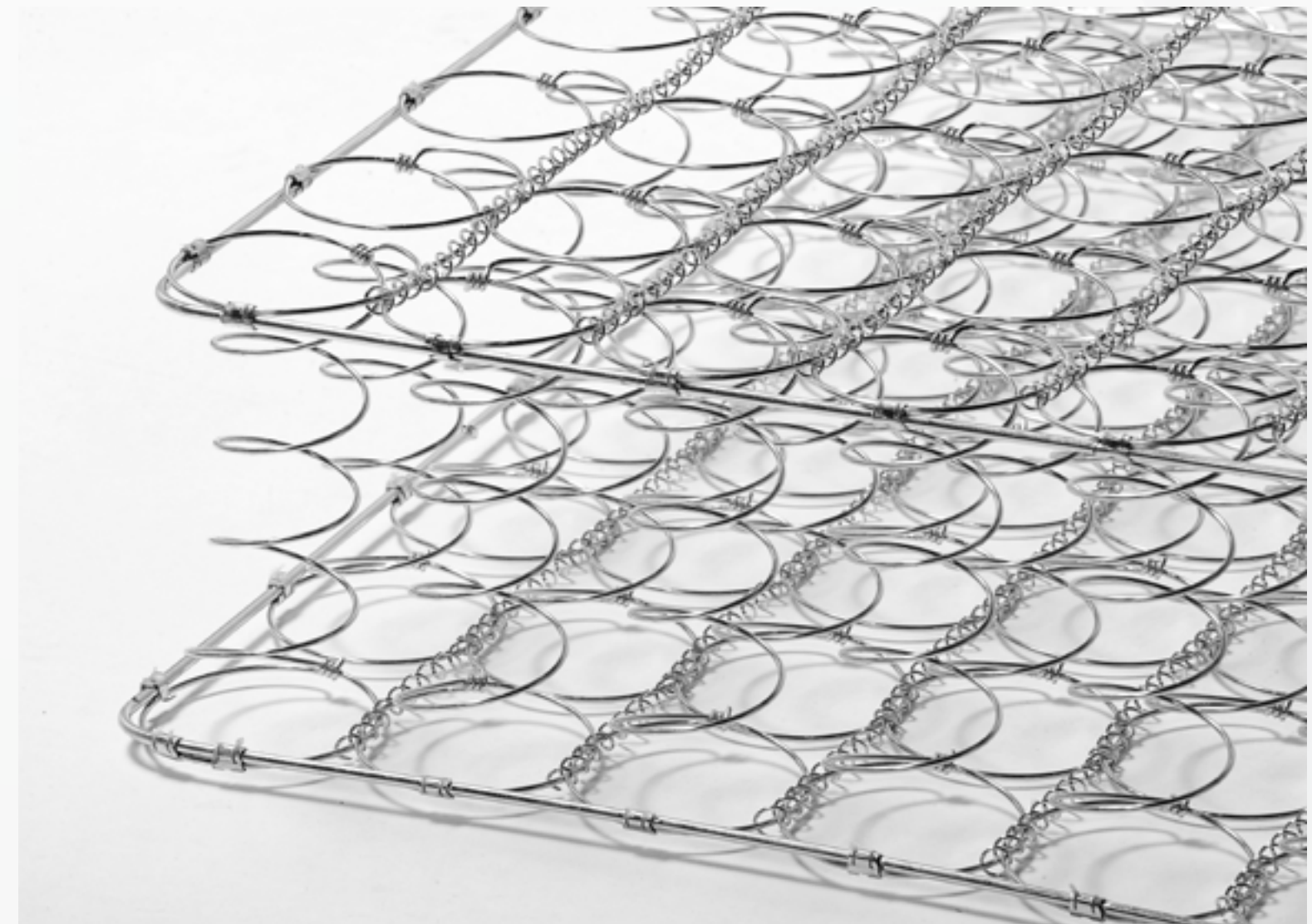
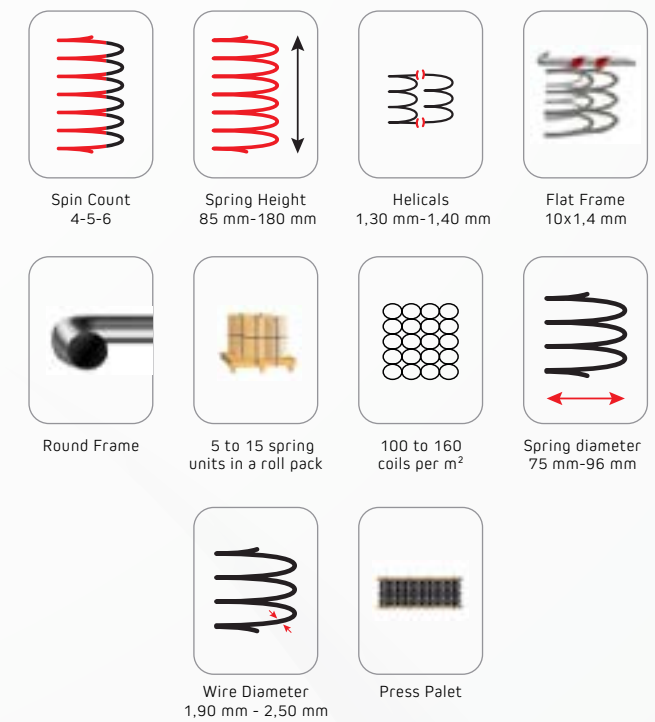
Bonnell spring units are the most widely used spring interior for mattresses and sitting groups in the world. Complete with the latest technology production machinery and equipment, as well as qualified technical support, Boycelik is able to offer a wide range of products to its customers. Bonnell spring frames made at 85-180 mm range are put through heat treatment processes to prevent sagging. Manufacturing wire with width ranging from 1,90 mm to 2,50 mm and spring with 4-5-6 spin springs to various height specifications is possible.

Boycelik made bonnell frames are;

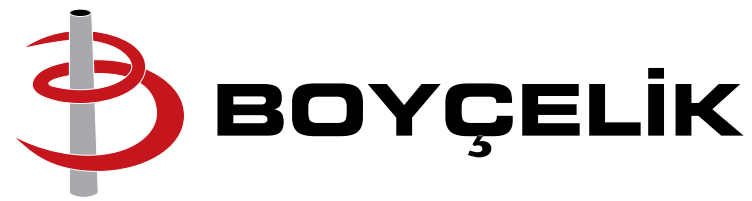
- Classic and best known spring system.
- Comfortable, durable and economic.
- Manufactured in varying wire and spring diameters.
- Provide long term use and comfort advantage thanks to spring fatigue and annealing processes during production.



Bonnell Spring Unit Production	
Bonnell spring unit specifications	Bonnell spring unit specifications
Quality standard	TS-7167
Bonnell spring diameter Ø	75-96 mm
Bonnell spring height	85-180 mm
Bonnell spring unit wire diameter Ø	1,90 mm-2,50 mm
Helical wire diameter Ø	Helicals 1,30 mm or 1,40 mm
Coil count per m <sup>2</sup>	100 - 160 coils per m <sup>2</sup>
Spin count in the spring unit	Spin count 4-5-6 turns
Bonnell spring unit frame information	<ul style="list-style-type: none"> <li>• 10 x 1,4 mm clips assembled flat frame.</li> <li>• Round frame assembled by clips or helicals, to specified diameter.</li> <li>• Produced with helicals on the ends.</li> <li>• Produced without frame.</li> </ul>
Bonnell spring packaging information	Roll packed (5 to 15 pcs in a roll pack) Press packed (15 to 25 pcs in a pressed pallet pack)
Spring unit width	Up to 200 cm available in a single piece.
Spring unit length	Any required length is available







## INNER POWER FOR OUTER COMFORT



Rhino is the most durable creature in both dry and humid environments. It lives on average 40-50 years and has a weight reaching 2700-4500 kg



« Less is more »

### Put an end to the cost of extra spins...

While you get a good night of sleep, your muscles relax with natural sleep movement thanks to the comfort and support provided by FIT Bonnell System technology.

Specially developed FIT Bonnell System technology makes your 6 spin springs more advantageous even with only 5 spins. The products waiting to be designed with support resilience improved springs will be economic, as well as lighter...



« Empowering Your Comfort »

### Mattresses with Power Bonnell are now even stronger

Power Bonnell springs promise to be the new preferred spring for everyone who wants to surpass the ordinary in meeting their expectations.

We put an end to the deformation that is expected from ordinary springs after regular use. The specially developed technology allows mattresses to be even stronger and longer lasting.

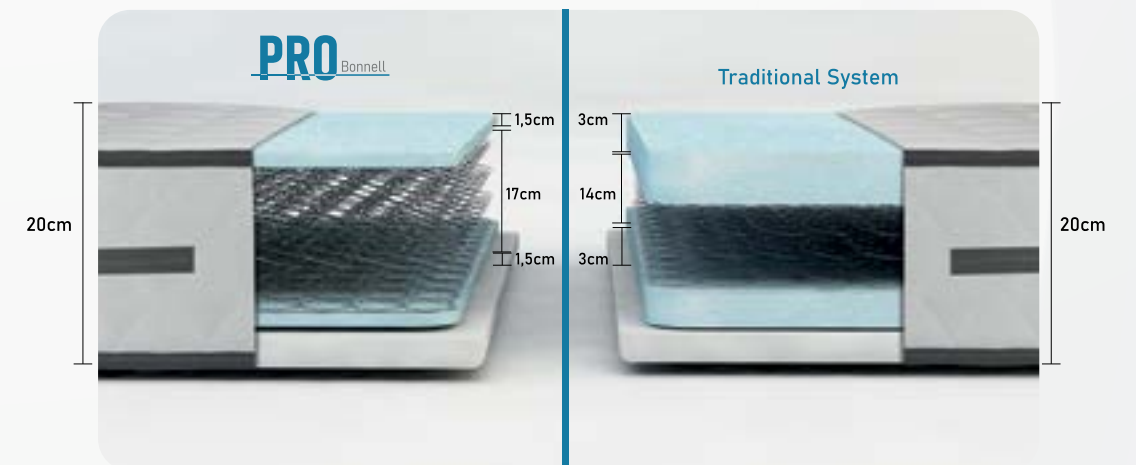


« Innovation Carries Power »

### The same mattress is now more economical

The extra cost of filling materials are a thing of the past with PRO Bonnell. From now on, your products designed with the specially developed PRO Bonnell will provide greater comfort and more support.

Meet the PRO Bonnell system that uses less filling materials to cut out the cost of extra layers.



### Advantages



Excellent Comfort



Varying Firmness



Durability



Support



Body Shape



No Disturbance to Partner

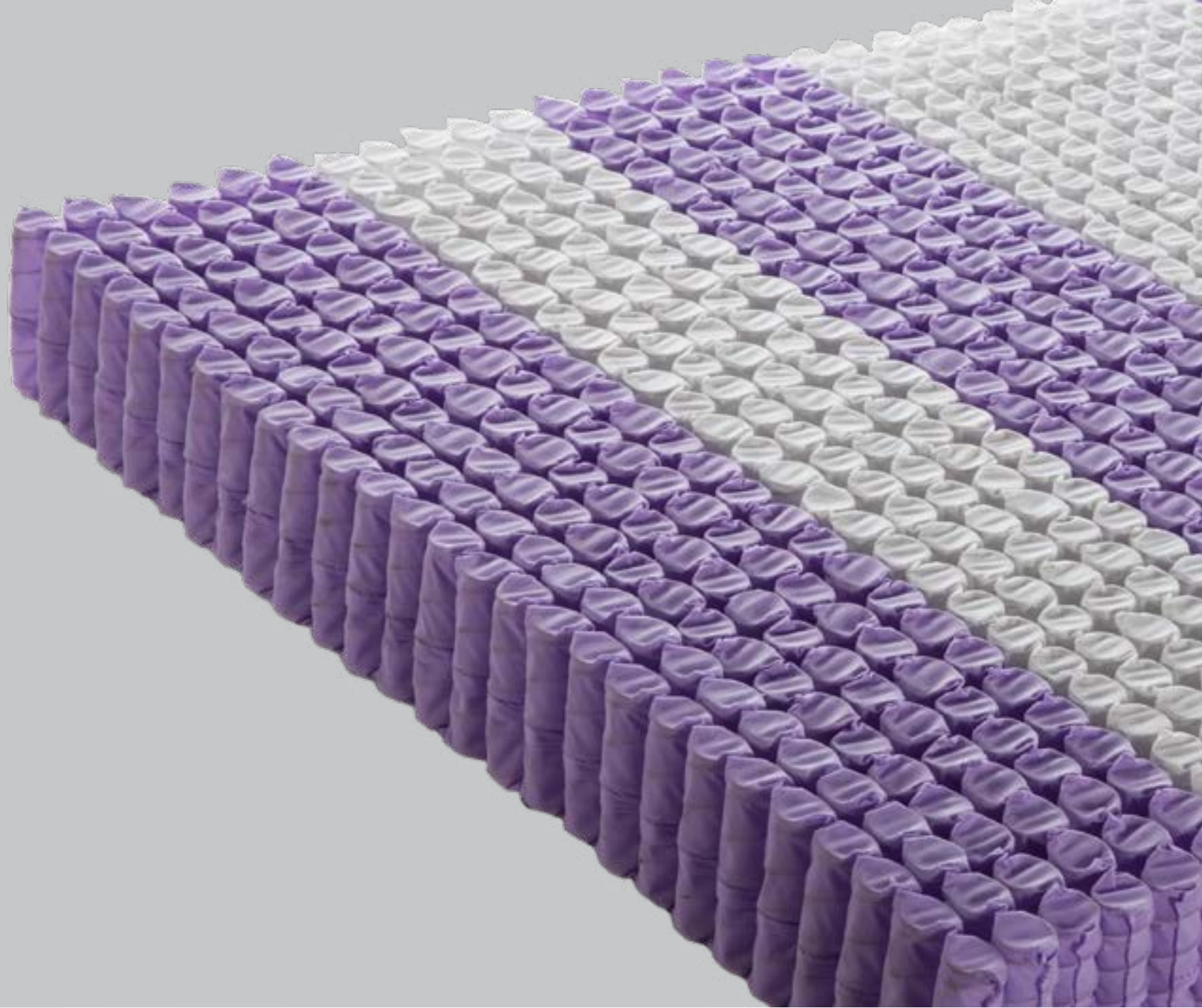


Branded Technology



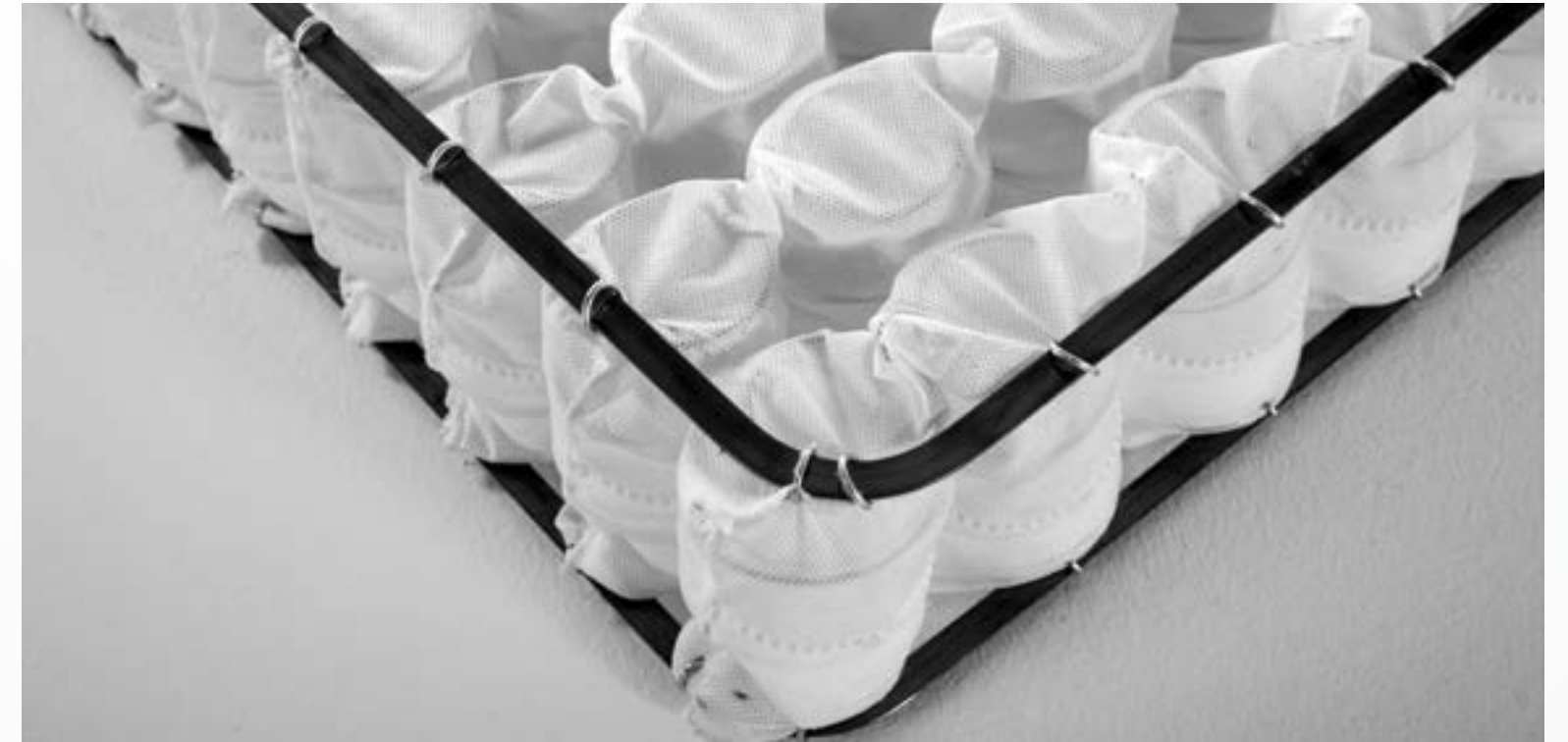
Relaxes Muscles





## Pocket Spring

Thanks to their superior sleep and enhanced sitting comfort, the use of pocket springs has lately been on the rise. Pocket springs are individually wrapped in non-woven pockets and have independent movement feature. Pocket springs are available in barrel, cylinder or other shapes to accommodate the requested comfort. By using wires with varying dimensions Boycelik is able to produce zoned pocket spring units for enhanced regional support.

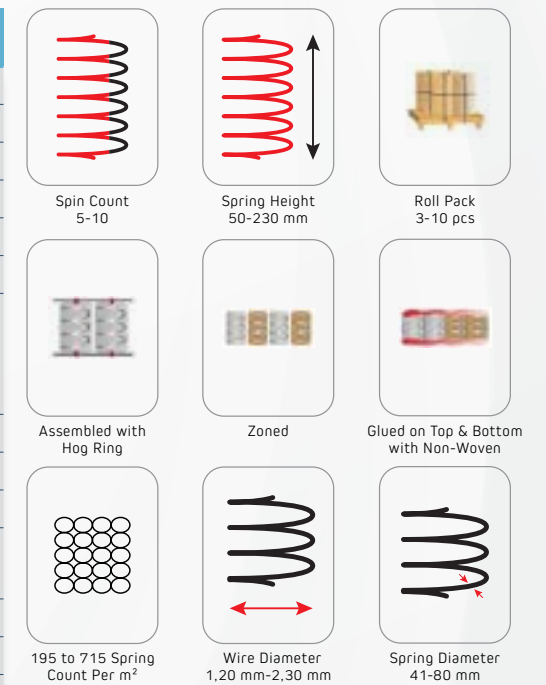


## Boycelik Manufactured Pocket Springs

- Provide optimum body support during sleep thanks to flawless flexibility on contact.
- Independent movement of pocket springs means one partner's movement will not affect the other.
- Maintains the spines natural position by balancing body weight evenly.
- Are a modern spring system manufactured so that individual springs are placed in connected fabric pockets.
- Wires of varying diameters and firmness can be arranged to meet any frequency requirement to conform to the human anatomy.

### Pocket Spring Unit Production

Quality standard	TS-7167
Pocket spring diameter Ø	41-80 mm
Pocket spring height mm	50-230 mm
Pocket spring wire diameter Ø	1,20 mm-2,30 mm
coil count per m <sup>2</sup>	195-715 adet
Pocket spring spin count	5-10 spin
Pocket spring unit frame specification	<ul style="list-style-type: none"> <li>• Standard 10 x 1,4 mm lamet frame</li> <li>• Round frame available in any diameter</li> <li>• Zone frame available</li> <li>• Available without frame</li> </ul>
Pocket spring unit packaging	Roll packed (3 to 10 pcs/roll pack)
Pocket spring unit width	Up to 200 cm is available
Pocket spring unit length	Any length is available
Assembling	Parallel assembled-zigzag (nested) assembled-concurrent parallel and nested assembled
Production type	Width-length or width-width frame assembling available
Zone type	Any number or row of zones is available
Gluing type	Glued in the middle and glued on top and bottom with a non-woven or both of them







Micro Pocket Springs

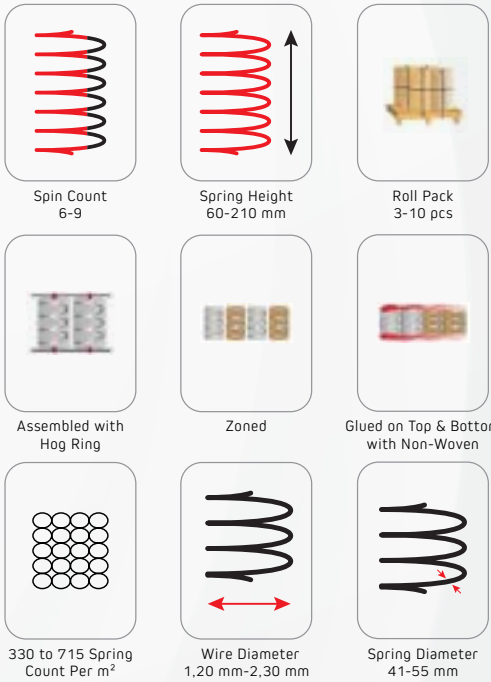
Boycelik manufactured micro pocket springs

- Perfect on the spot flexibility and optimum support during sleep.
  - Provide more than many springs per square meter and much more endurance against sagging compared with other spring systems.
  - The independent movement capacity keeps partners from being affected by the other partner’s tossing and turning in bed.
  - Maintains and conforms to the natural spinal curve by balancing the body’s weight.
  - A modern spring system by placing independent springs in adjoining cloth pockets.
  - Wires of various diameter and springs of various firmness are arranged in zones that conform to the body’s anatomy.
- The result is a mattress surface that provides customized ergonomic support to the shoulders, back and hips.

The micro pocket spring that can be manufactured in spring wire 1.20 to 1.60 mm and heights ranging from 6,5 to 21 cm can be supported with non-woven on the top and bottom per customer demand. The micro pocket springs can be manufactured to any size, supported with straightened frame wire support per customer demand and delivered in roll packs.



Pocket Spring Unit Production	
Quality standard	TS-7167
Pocket spring diameter Ø	41-55 mm
Pocket spring height mm	60-210 mm
Pocket spring wire diameter Ø	1,20 mm-1,60 mm
coil count per m²	330-715 spring
Pocket spring spin count	6-9 spin
Pocket spring unit frame specification	<ul style="list-style-type: none"><li>• Standard 10 x 1,4 mm lamet frame</li><li>• Round frame available in any diameter</li><li>• Zone frame available</li><li>• Available without frame</li></ul>
Pocket spring unit packaging	Roll packed (3 to 10 pcs/roll pack)
Pocket spring unit width	Up to 200 cm is available
Pocket spring unit length	Any length is available
Assembling	Parallel assembled-zigzag (nested) assembled-concurrent parallel and nested assembled
Production type	Width-length or width-width frame assembling available
Zone type	Any number or row of zones is available
Gluing type	Glued in the middle and glued on top and bottom with a non-woven or both of them





# SPIN COUNT DOESN'T CHANGE THE TASTE



In line with our goal to minimize the amount of carbon released into nature, Boyçelik successfully developed FIT POCKET SPRING with greater support resilience than traditional spring systems.

The engineered design built with optimum raw materials technology transformed FIT POCKET SPRING SYSTEM into an advantageous product option to choose from the pocket spring selection.

Although FIT POCKET SPRING is firmer than other pocket spring systems, its production method is the same. While it is manufactured with less carbon release, the spring diameter, height and wire diameters are the same as other pocket springs with improvements made in support.

The spring system provides support and comfort for your body during sleep, allowing for natural movement that lets your muscles relax.

Each spring is individually wrapped in non-woven pockets so there is minimum disturbance for each partner as a result of the tossing or movement of the other. Each spring is an elastic object designed to store mechanical energy.

Range of Manufacturing	Min (mm)	Max (mm)
Spring Diameter	40	70
Wire Diameter	1,30	2,00
Height	80	230

	m² Spring Count	Count England (5'')	Count USA (54"x73'')
min	215	600	535
max	800	2300	2025



## Advantages

- Pocket Spring
- Vantilation+
- Flexible
- Support
- Independent Spring Technology
- Body Shape
- Varying Firmness
- Branded Technology
- Relaxes Muscles
- Optional Dimensions Available
- Partner Disturbance Free
- Durability





# A Flexible Approach to Improved Comfort



CPS is the ideal supportive spring system that moves independently of each other. Allowing for an additional spring layer, CPS springs have been developed for use on products promising greater comfort and support.

Designed primarily with mattresses in mind, CPS springs redefine ideal comfort in a variety of fields including but not limited to use in sitting groups, office furniture, medical products, automotive seats, baby products, home textiles, sports accessories. The smaller than average spring diameter along with the shorter height of the CPS springs provide more fullness and elastic support per square meter without greatly effecting mattress height.

Nonwoven Type	Pocketed Height	Spring Diameter	Wire Diameter						
			1,10 mm	1,20 mm	1,30 mm	1,40 mm	1,50 mm	1,60 mm	1,70 mm
Needle punch 75 gr/m <sup>2</sup>	20	30	•						
Needle punch 75 gr/m <sup>2</sup>	25	35		•	•	•	•	•	•
Needle punch 75 gr/m <sup>2</sup>	30	45			•	•	•	•	•

Spring Diameter (mm)	Count America (54"x73")	Count America (58.5"x78")	Count UK (5")	Spring Count Per m <sup>2</sup>
30	1700	2000	2000	680
35	1200	1500	1500	460
45	650	750	750	260



## Advantages



More Springs / m<sup>2</sup>



Vantilation+



Flexible



Support



Independent Spring Technology



Comfort



Varying Firmness



Branded Technology



Optional Dimensions Available



No Glue



Pocket Spring



Reduce Pressure



Low Height



# Dive into Comfort with

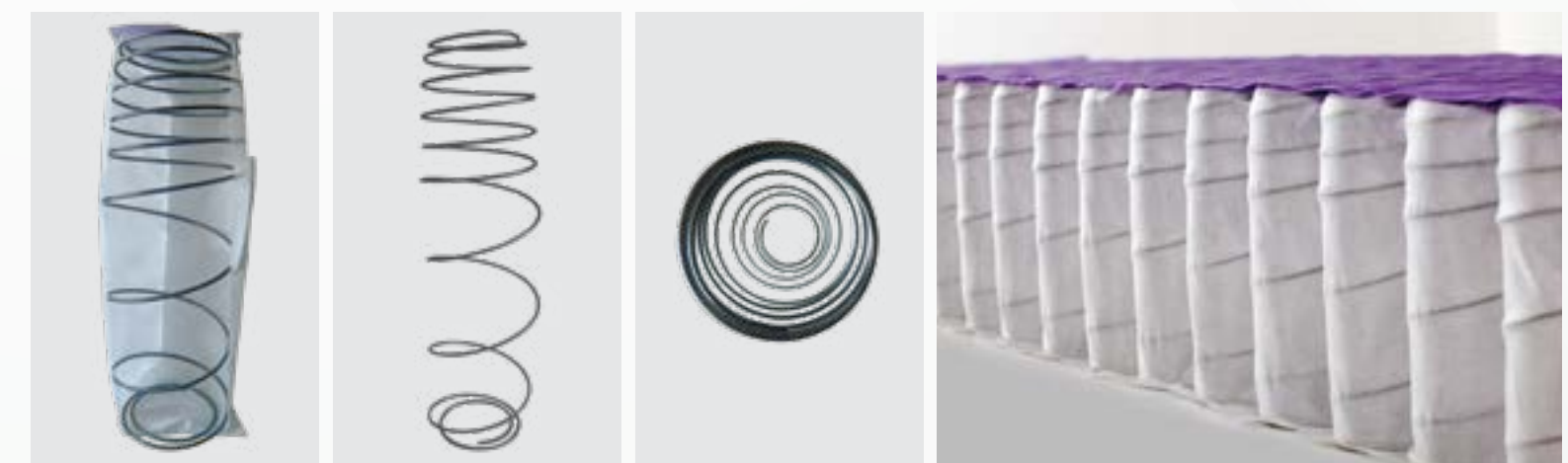
# flexi firm

Flexi-firm provides superior comfort and support thanks to its special geometric structure. Enjoy flawless sleep joy by sleeping on a sleep surface that conforms to your body shape and responds to your weight.

Flexi-firm is the union of specially designed springs whose geometric shape provide a soft sleep surface in the initial stages of sleep and a firmer surface as time elapses. Flexi-firm allows you to adjust the firmness to desired level.

During a good night's sleep, the spring system supports your body so that natural movement all through sleep helps relax your muscles.

m² Spring Count	Count UK (5'')	Count America (54"x73'')	Count America (58.5"x78'')	Height (cm)	Spring Diameter (mm)	Spring Wire					
						1,50 mm	1,60 mm	1,70 mm	1,80 mm	1,90 mm	2,00 mm
255	760	620	760	14-20	62	•	•	•	•	•	•
330	1015	830	1015	14-20	55	•	•	•	•	•	•
360	1080	890	1080	14-20	53	•	•	•	•	•	•



## Advantages



Pocket Spring



Vantilation+



Flexible



Comfort



Independent Spring Technology



Body Shape



Reduce Pressure



Varying Firmness



Branded Technology



Relaxes Muscles



Optional Dimensions Available



Partner Disturbance Free



Durability





Luxury comfort  
with unusual design

Octo pocket spring system is the reflection of ideal comfort for supporting different body types and sleep positions and providing custom comfort.

Graduated spring technology helps respond with greater support as weight and pressure increase.

The wider top and bottom parts of the spring respond to your body with softness for superior comfort.

The narrower middle part of the spring respond with firm support as necessary.

During a good night's sleep, the spring system supports your body so that natural movement all through sleep helps relax your muscles.

m² Spring Count	Count UK (5")	Count America (54"x73")	Count America (58.5"x78")	Height (cm)	Spring Diameter (mm)	Spring Wire					
						1,50 mm	1,60 mm	1,70 mm	1,80 mm	1,90 mm	2,00 mm
255	760	620	760	14-20	62	•	•	•	•	•	•



#### Advantages



Pocket Spring



Vantilation+



Flexible



Comfort



Independent Spring Technology



Body Shape



Reduce Pressure



Varying Firmness



Branded Technology



Relaxes Muscles



Optional Dimensions Available



Partner Disturbance Free



Durability



# Sleep Tide, Smile Wide

**SleepTide**



Conforms to maintain body in ideal position, preventing any physical problems during sleep.

Body conforming contour design provides superior resilience with minimum pressure.

Height difference amongst springs improves air circulation inside the mattress extending the mattress' use life.

During a good night's sleep, the spring system supports your body so that natural movement all through sleep helps relax your muscles.

- Maximum height difference between two spring rows can be 3 cm (1 ¼ inches)
- Available in different wire diameter between 1,30 mm and 2,00 mm. (14 g and 17 ½ g)
- Available in different spring diameter between 41 mm - 77 mm.



## Advantages



Pocket Spring



Support



Flexible



Vantilation+



Varying Firmness



Comfort



Reduce Pressure



Independent Spring Technology



Relaxes Muscles



Branded Technology



Partner Disturbance Free



Body Shape



Durability



Optional Dimensions Available





## Maximum Spring Quantity, Variant Layers **Multiple Comfort**

We superpose them  
to create super  
**TEAM of  
Comfort**



High count spring system; A symphony of comfort developed by combining the flawless point flexibility of pocket springs to provide optimum support for the whole body during sleep, and cell pocket spring system known for maintaining the spine in its natural curve by carefully balancing weight throughout the surface.



m <sup>2</sup> Spring Count	Count UK (5'')	Count America (54"x73'')
1900	5500	4500



m <sup>2</sup> Spring Count	Count UK (5'')	Count America (54"x73'')
2500	7500	6000

The independent spring system provides everything you look for in a quality mattress like firmness, flexibility and resilience all in one. The spring layers work in unison to build layers of comfort for many years based on a strong foundation. Supports your lower back and conforms to the body's natural curves by minimizing the exerted pressure. Double sided use caters to your comfort preference with softer or firmer surface.



m <sup>2</sup> Spring Count	Count UK (5'')	Count America (54"x73'')
2100	6000	5000

- Adjustable product height per Customer demand.
- Production of 1,20mm-2,00mm wire diameter.
- Optional designs available

	m <sup>2</sup> Spring Count	Count UK (5'')	Count America (54"x73'')
min	1230	3600	3000
max	7500	22000	18000

### Advantages



Pocket Spring



Custom  
Design



Flexible



Vantilation+



Support



Durability



Reduce  
Pressure



Body Shape



More  
Springs / m<sup>2</sup>



Comfort



Independent  
Spring  
Technology



Varying  
Firmness



Branded  
Technology



Relaxes  
Muscles



Optional  
Dimensions  
Available



Partner  
Disturbance  
Free

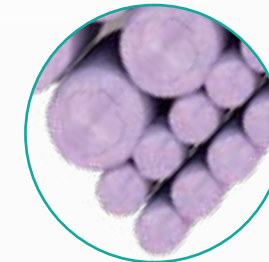




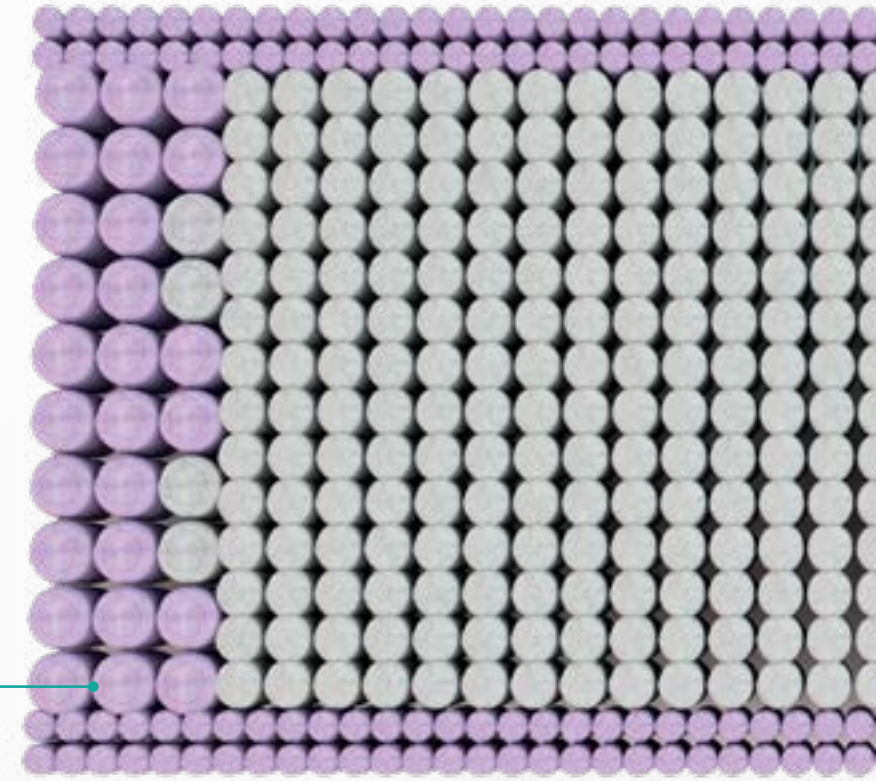
Specially  
developed for  
**stronger**  
edges and  
**longer**  
lifetime

**D** | Dura  
Coil EXTENDED

Dura Coil is specially designed to provide more support and offers a firm edge with different product types. Boyçelik successfully developed Dura Coil with greater support resilience than traditional foam cover on the edges. Enjoy flawless sleep joy by sleeping on a sleep surface that conforms to your body shape and responds to your weight even on the edges of the spring unit. Every type of Dura Coil springs have flexible edges and allowing for natural movement that lets your muscles relax. Double side use caters to your comfort preference with firmer edges. Dura Coils can be optimized with our special technologies such as



Firm Coils



#### Half Series

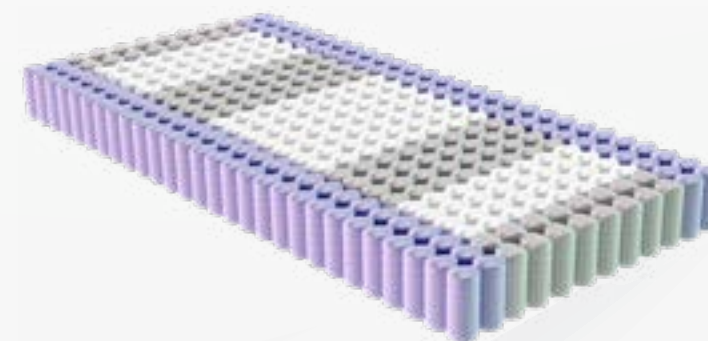
Half Dura Coil



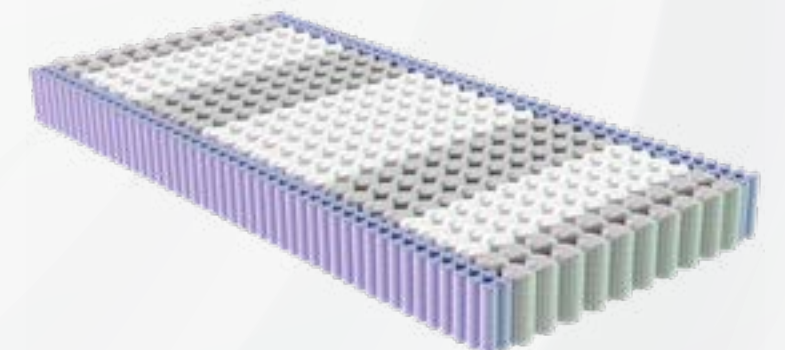
Half Dura Coil Micro Edge



Half Dura Coil Zoned



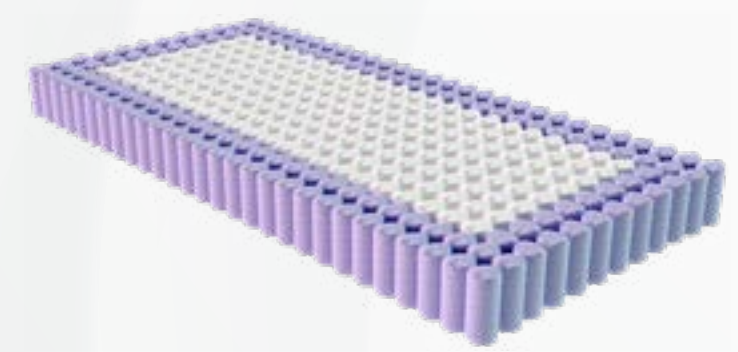
Half Dura Coil Micro Edge Zoned





Basic Series

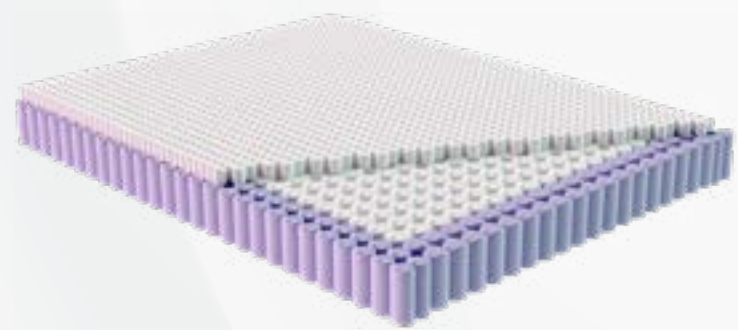
Basic Dura Coil



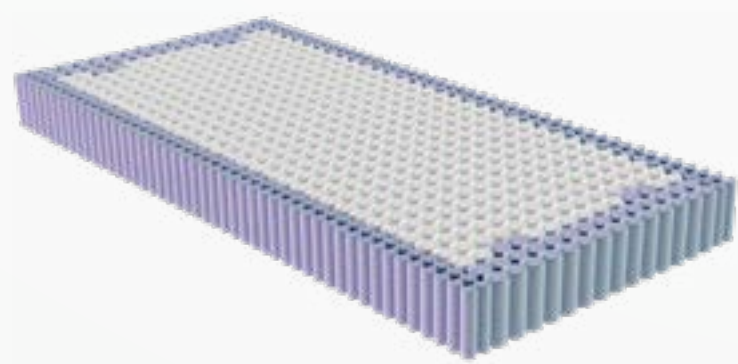
Basic Dura Coil Zoned



Basic Dura Coil Topper

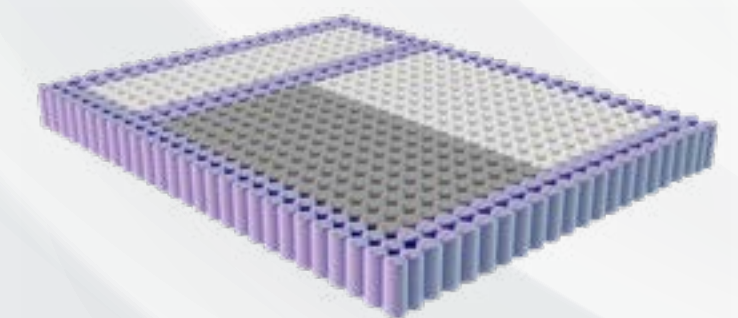


Dura Coil Plus

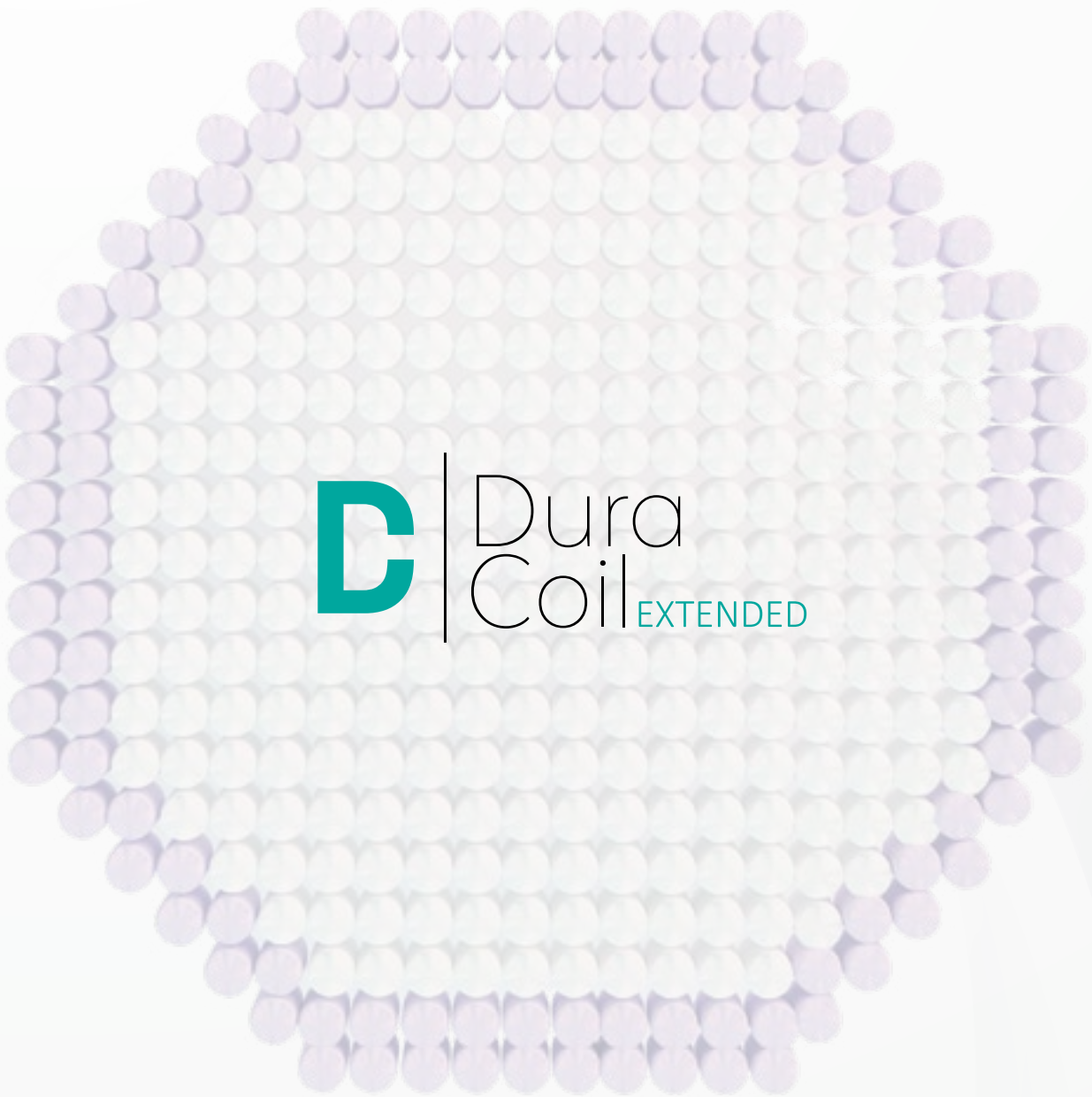
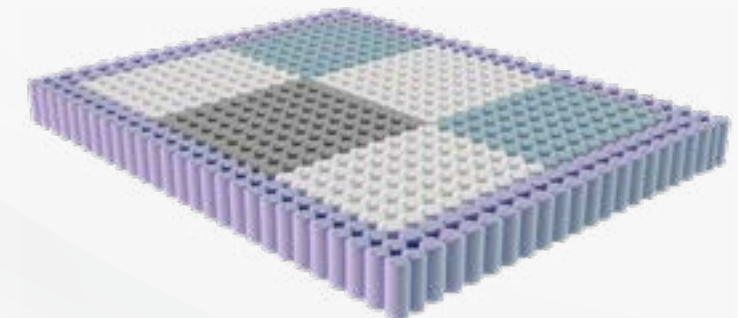


Partner Series

Basic Dura Coil Partner Zone



Basic Dura Coil Partner 3 Zone



Advantages

-  Pocket Spring
-  Durability
-  Flexible
-  Comfort
-  Independent Spring Technology
-  Body Shape
-  Varying Firmness
-  Partner Disturbance Free
-  Support





**KEEP YOUR DISTANCE**

**FROM EXTRA COST**

DOUBLE WELDED  
DUO POCKET SYSTEMS.  
USE LESS POCKET SPRINGS,  
LIGHTER IN WEIGHT  
TO SAVE MONEY.



**LIGHT WEIGHT**

Designed to be lighter and easier to use than standard pocket springs.



**GREEN**

Less carbon emission during the production process.



**DURABILITY**

22% more durable than similar products in the same price range.



**AFFORDABLE**

With less springs in a single strip, DPS provides low cost solutions.



**COMFORT**

The spring system provides support and comfort for your body during sleep, allowing for natural movement that lets your muscles relax



**STRONG**

With the specially developed FIT technology, more durable springs.



Production Range	Min (mm)	Max (mm)
Spring Diameter	55	67
Height	140	200
Wire Diameter	1,70	2,00

• DPS is manufactured with top and bottom nonwoven.





## PROTECT NATURE MAKE GREEN CHOICES



boycelik.com.tr

### Protect Nature Make Green Choices...

Recycling positively impacts the world we live in. During our lifetime, our wastes are increasing day by day due to many reasons such as increasing of consumption, population increase, non-environmentally packaging etc. Let's all give importance to recycling and reduce the pollution caused by waste and use resources efficiently.

As Boyçelik, we have been working on recycling since our establishment. As a matter of fact, our most materials are completely suitable for recycling. We do our best to prove this with the products and we always try to improve ourselves.

With all our knowledge and quality in pocket spring production; we added suitability for recycling. We can able to produce recyclable pocket spring unit which has wire, nonwoven and adhesive. In this way, we present our enviromental sensitivity to our valued customer.

Boyçelik, which continuously designs and develops new products suitable for the needs by analyzing the changing customer resquests every day, leads the sector with the following brands.







Preferred by everyone who loves a firm mattress, the lightweight feature and comfort of SL spring system provides extraordinary use. Each spring is interconnected and move in unison providing uniform resistance and averting deformation.

The lightweight feature makes you feel like you're on top of the clouds. There are twice as many SL springs per square meter compared with regular springs that are not interconnected, providing greater conformation to the body's shape and weight. The continuous spring technology allows for thinner spring wire diameter to provide greater firmness.

The different shape of the spring allows for greater surface area and improved efficiency.

The springs act in unison and provide greater strength.


During a good night's sleep, the spring system supports your body so that natural movement all through sleep helps relax your muscles.

m² Spring Count	Count UK (5'')	Count America (54"x73'')	Count America (58.5"x78'')	Height (cm)	Spring Diameter (mm)	Spring Wire		
						1,70 mm	1,80 mm	1,90 mm
252	720	680	720	13-18	50	•	•	•


- Different comfort zones can be obtained within a unit.
- Edge strength can be increased.




### Advantages




Support




Flexible




Vantilation+




Comfort




Relaxes Muscles




Branded Technology




More Springs / m²




Partner Disturbance Free



Durability

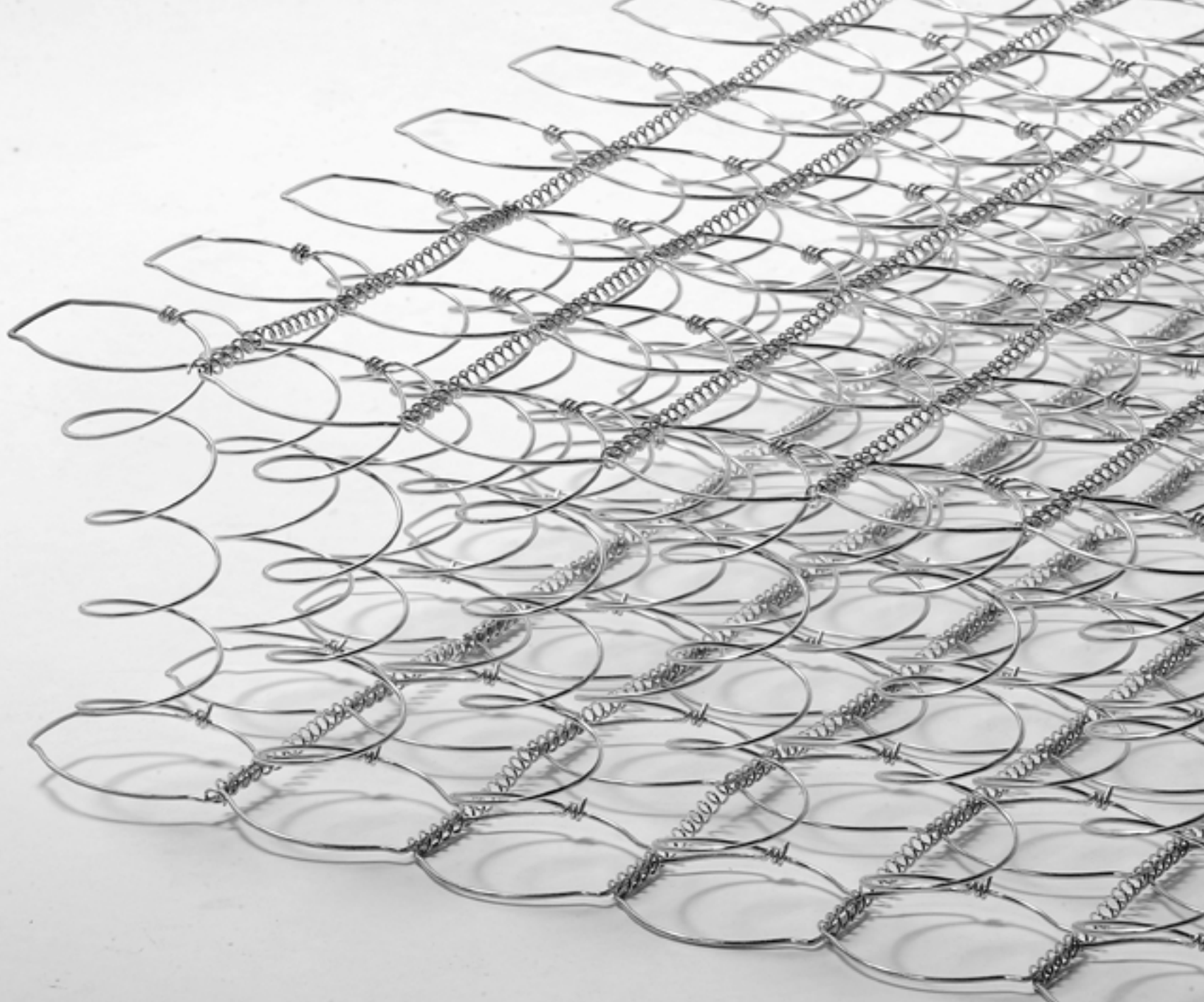


Fine Wire Technology



Continuos Innerspring System

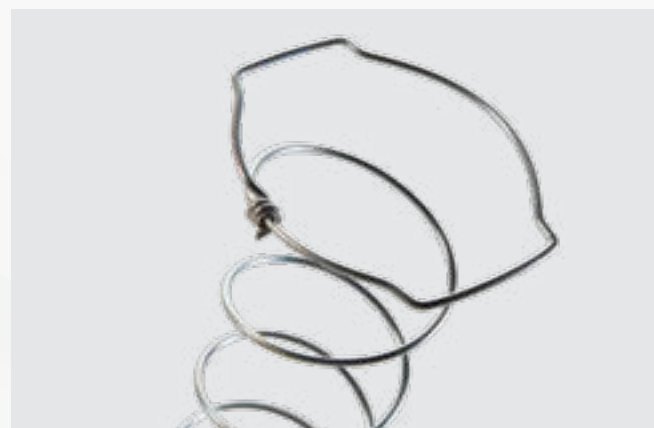




## Offset Spring System

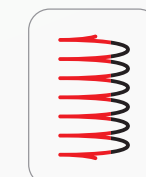
Offset spring system provides the quickest response to body movement and thereby provides an ultra orthopedic comfort and healthy sleep atmosphere. Offset spring system is shipped without frames in paper rolls, with or without pallets. The strong offset spring system supports the body at every point and prevents mattress sagging over time.

- Offset springs provide an ideal sleep environment by supporting by body.
- High suspension and resilient to deformation structure prevents mattress sagging.
- In Turkey, offset spring are manufactured only by Boycelik.

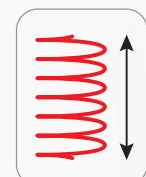


### Offset Spring Unit Production

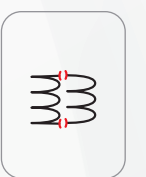
Offset Spring Unit Specifications	Offset Spring Unit Specifications
Quality standard	TS-7167
Offset spring diameter Ø	85 mm
Offset spring height	150-160 mm
Offset spring unit wire diameter Ø	2,20 mm
Helical wire diameter Ø	Helicals 1,30 mm
Coil count per m <sup>2</sup>	130 - 150 coils per m <sup>2</sup>
Spin count in the spring unit	Spin count 6 turns
Offset spring unit frame information	<ul style="list-style-type: none"> <li>• 10 x1,4 mm clips assembled flat frame.</li> <li>• Round frame assembled by clipses or helicals, to specified diameter.</li> <li>• Produced with helicals on the ends.</li> <li>• Produced without frame.</li> </ul>
Offset spring packaging information	Roll packed (5 to 10 pcs in a roll pack) Press packed ( 18 pcs in a pressed pallet pack)
Spring unit width	Up to 200 cm available in a single piece.
Spring unit length	Any required length is available



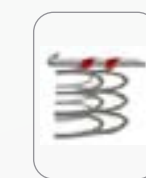
Spin Count  
6



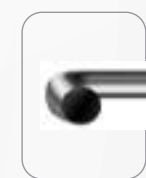
Spring Height  
150-160 mm



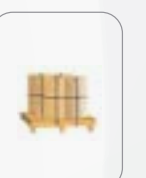
Helicals  
1,30 mm



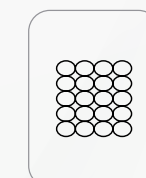
Flat Frame  
10x1,4 mm



Round Frame



5 to 15 spring  
units in a roll pack



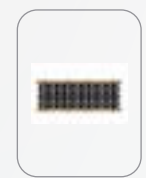
130 to 150  
coils per m<sup>2</sup>



Spring diameter  
85 mm

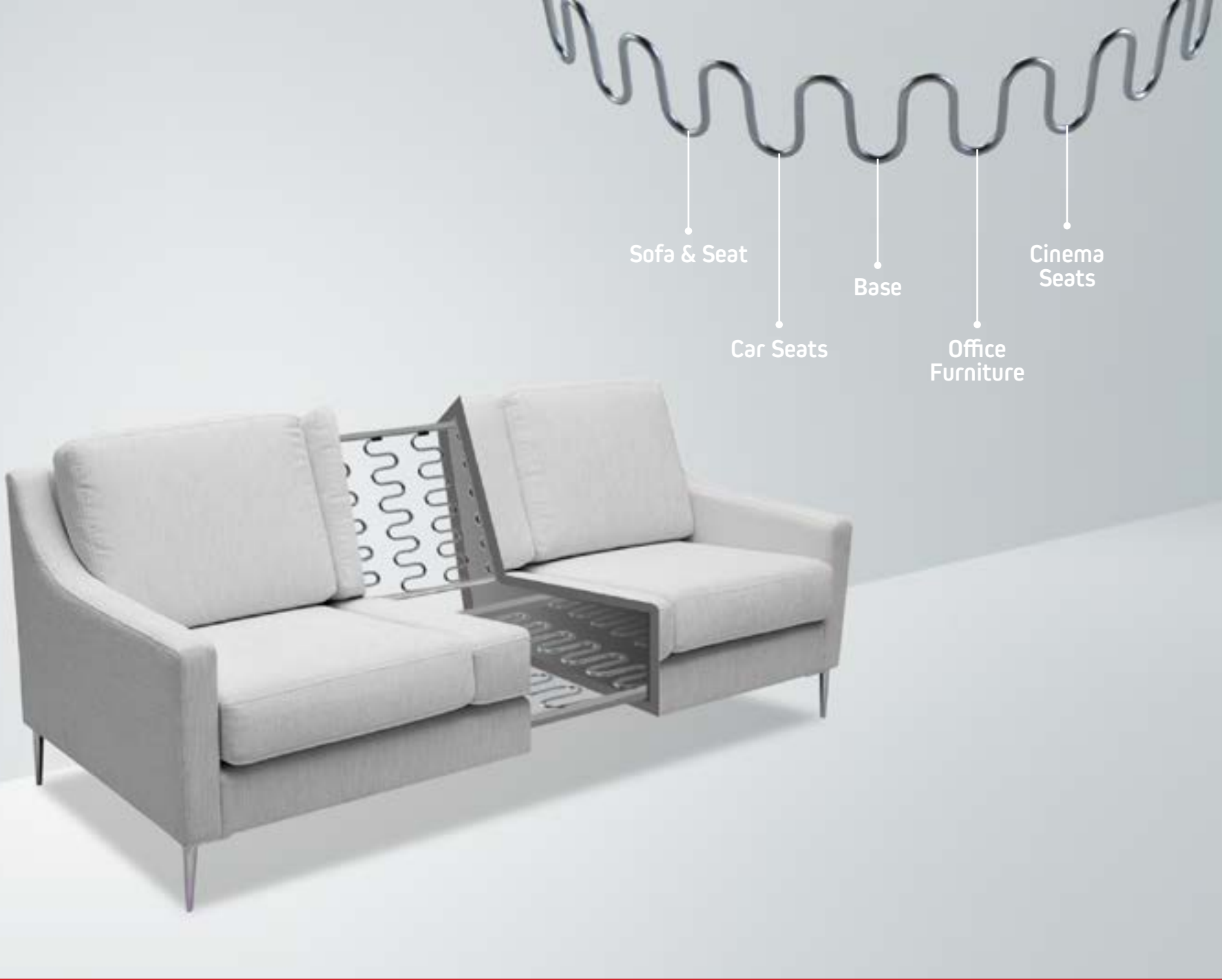


Wire Diameter  
2,20 mm



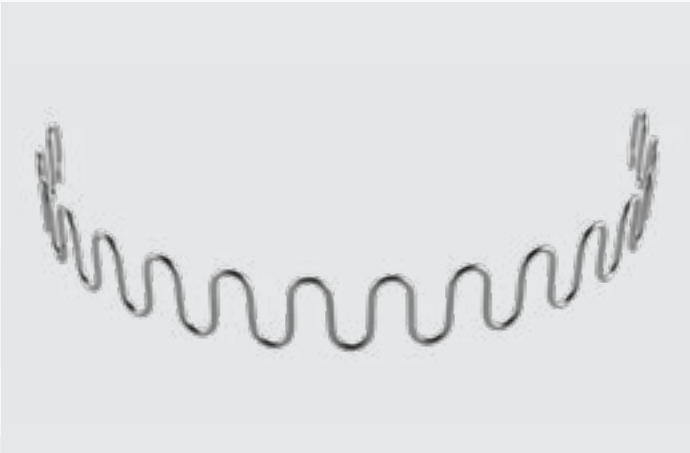
18 Spring Units in a  
Press Pallet





Zig Zag Spring Systems (S Spring)

Zig zag springs made with heat treated high carbon steel wires provide the required firmness and superior flexibility. Zig zag springs are often used for sitting groups, sofas, bases, and automobile seats. Zig zag springs are made to customer specified gauge and length, packaged without paint. This spring system provides maximum level of support at each point of contact.



Wire Diameter								Spring Length	
2.80 mm		3.80 mm		4.00 mm		4.20 mm		min (cm)	max (cm)
LOOP Count	Weigth per pcs	LOOP Count	Weigth per pcs	LOOP Count	Weigth per pcs	LOOP Count	Weigth per pcs		
13	0,0327 kg	13	0,0624 kg	13	0,0689 kg	13	0,0759 kg	26	28,6
15	0,0377 kg	15	0,0720 kg	15	0,0795 kg	15	0,0875 kg	30	33
17	0,0427 kg	17	0,0816 kg	17	0,0901 kg	17	0,0992 kg	34	37,4
19	0,0478 kg	19	0,0912 kg	19	0,1007 kg	19	0,1109 kg	38	41,8
21	0,0528 kg	21	0,1008 kg	21	0,1113 kg	21	0,1225 kg	42	46,2
23	0,0578 kg	23	0,1104 kg	23	0,1219 kg	23	0,1342 kg	46	50,6
25	0,0628 kg	25	0,1200 kg	25	0,1325 kg	25	0,1459 kg	50	55
27	0,0679 kg	27	0,1296 kg	27	0,1431 kg	27	0,1576 kg	54	59,4
29	0,0729 kg	29	0,1392 kg	29	0,1537 kg	29	0,1692 kg	58	63,8
31	0,0779 kg	31	0,1488 kg	31	0,1643 kg	31	0,1809 kg	62	68,2
33	0,0829 kg	33	0,1584 kg	33	0,1749 kg	33	0,1926 kg	66	72,6
35	0,0880 kg	35	0,1680 kg	35	0,1855 kg	35	0,2042 kg	70	77
37	0,0930 kg	37	0,1776 kg	37	0,1961 kg	37	0,2159 kg	74	81,4
39	0,0980 kg	39	0,1872 kg	39	0,2067 kg	39	0,2276 kg	78	85,8
41	0,1031 kg	41	0,1968 kg	41	0,2173 kg	41	0,2392 kg	82	90,2
43	0,1081 kg	43	0,2064 kg	43	0,2279 kg	43	0,2509 kg	86	94,6
ROLL	7,4800 kg	ROLL	10,0780 kg	ROLL	11,1500 kg	ROLL	12,9067 kg		





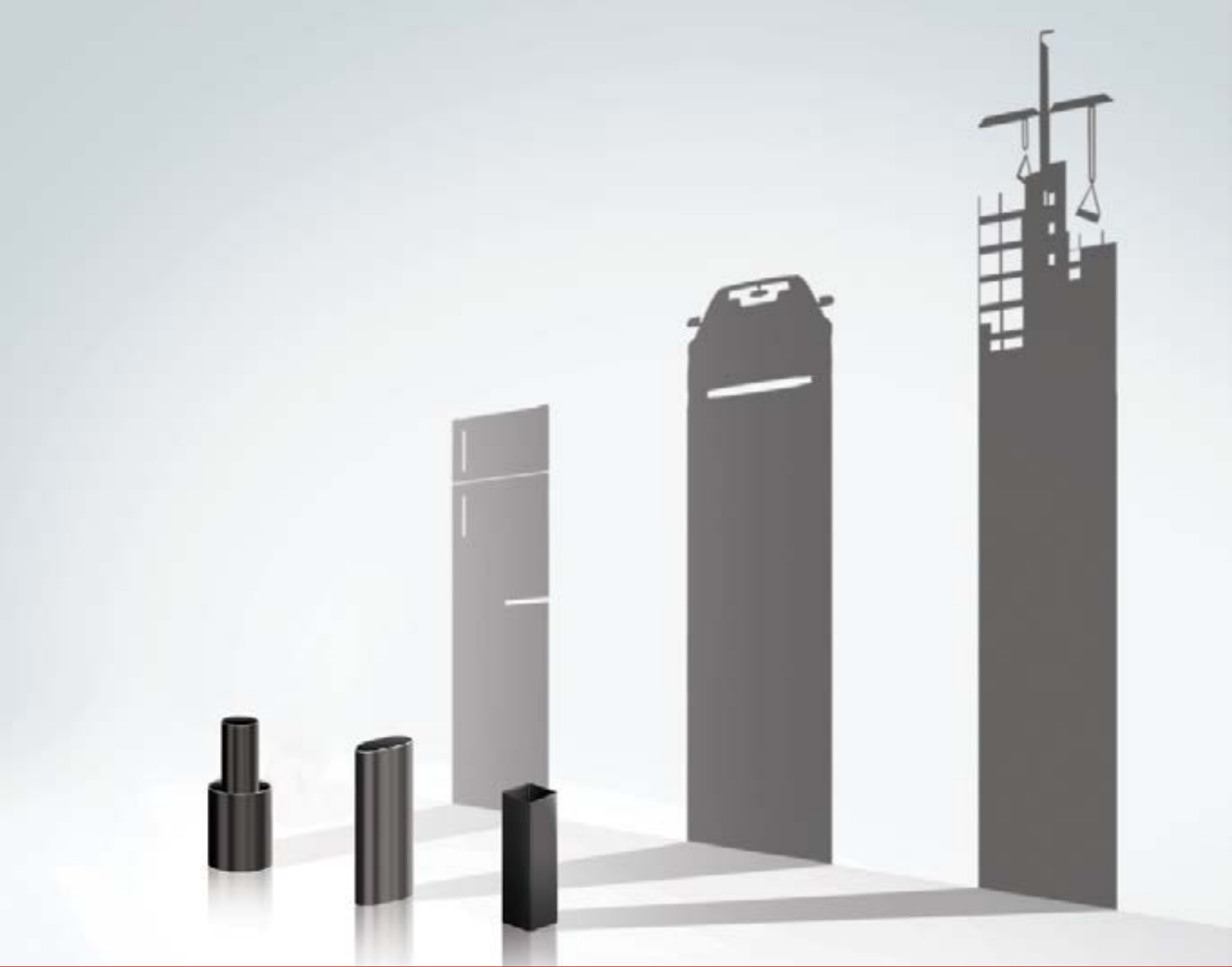
## Round & Rectangular Tubes

Adding value to production...

Boycelik manufactures tubes and profiles for an array vastly different industries ranging furniture, white goods, automotive, construction, towel warmer tubes, installation systems, playground, decoration and metal household supplies. Boycelik has an annual production capacity of 150 thousand tons in tube, and steel plate production. All production processes from raw material entry, to non destructive testing methods during production and final finish treatments are supported with physical and chemical tests. NDT (Eddy Current) methods and inside diameter scarfing processes can be utilized during production.

The tube and profile production at Boycelik is in conformity to the company's TSE-ISO-EN-9000 Quality Management System, TSE-ISOEN-14000 Enviroment Management System, ISG-OHSAS TS 45001 Worker Health Safety Management System, TS-ISO/IEC 27001 Info Sec Management System, TS-ISO 50001 Energy Management System, CE and TSE certificates so that customers receive quality products and services.





### Production Range and Options

Boycelik manufactures tubes with a thickness ranging from 0,5 mm – 3,00 mm and diameter range between Ø10 mm – Ø76 mm, as well as square, rectangular and special section tubes that fall within this range.

Boycelik is also able to carry out multiple cutting process with a +0,5 mm tolerance on Ø13 mm to Ø50,8 mm diameter and 320 mm-7850 mm cutting length.



Production Standards	EN 10305-3, EN 10305-5, EN 10219	
Production Range (mm)	Outside diameter range of tubes	Ø13 mm-Ø76 mm
	Square tube range	10x10 mm-60x60 mm
	Rectangular tube range	10x20 mm-40x80 mm
	Material thickness range	0,5 mm-3,0 mm
	Length range	3000 mm-10000 mm
	Multiple cutting length range	320 mm-7850 mm
Optional Processes	Production with narrowed tolerances	
	Tube production with galvanized coated steel sheet	
	Products suitable for galvanizing process	
	Products suitable for polishing and chrome coating processes	
	Cut to length products with multiple cutting process	
	IDS internal diameter scarfing	
	Non destructive testing with Eddy Current Method	
IDS (Internal diameter scarfed) tubes & profiles production range	Corrosion resistant oil application	
	Outside diameter range of tubes	Ø21 mm-Ø76 mm
	Square tube range	20x20 mm-60x60 mm
	Rectangular tube range	15x20 mm-40x80 mm
	Material thickness range	0,90 mm-2,0mm





Square Tubes

Boycelik’s square tubes are manufactured to international standards on the latest technology machinery to various customer specifications on quality, from cold and hot rolled strips as suitable to further coating applications. The square tubes are used mainly in the construction and furniture industries in structural, automotive, shelving, truss system, awning, panel, metal household supplies, decoration and playground production. The square tubes presented to Boycelik customers are manufactured in conformity to TS EN 10305-3 and TS EN 10219 production standards.

The square tubes manufactured to TS EN 10219 standards have CE mark and square tubes have high resistance against corrosion. The advantage of having a wide stock option allows Boycelik to meet customer demands on standard products instantly, while being able to engage custom orders and deliver on time.

Production Standards	Optional Processes	Cut to Length Ranges
TS EN : 10305-5, 10219-1	• Tube production with galvanized coated steel sheet	Size Range : 10x10 mm-40x40 mm
DIN : 2395, 59411	• Products suitable for galvanizing process	Thickness Range : 0,5 mm-2,0 mm
TS : 6475, 5317	• Products suitable for polishing and chrome coating processes	Cutting Length : 320 mm-7850 mm
	• Cut to length products with multiple cutting processes	Length Tolerance : (+) 0,5 mm
	• Corrosion resistant oil application	
	• IDS (internal diameter scarfing)	
	• Eddy Current Testing	
	• Jute or wooden chest (some special length) packing optionally	
Production Range		
External Sizes : 10x10mm, 60x60mm		
Thickness : 0.5 mm, 3,00 mm		
Length : 3.000mm, 10.000mm		



Production range for square tubes according to EN 10305-5/ EN 10219 standards and theoretical unit weights (kg/m)											
Size (mm)	Thickness (mm)										
	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
10x10	0.15	0.18	0.20	0.23	0.26	0.28	0.33				
15x15	0.23	0.27	0.31	0.36	0.40	0.44	0.52	0.63			
19x19	0.29	0.35	0.41	0.46	0.52	0.57	0.68	0.84			
20x20	0.31	0.36	0.42	0.48	0.54	0.59	0.71	0.87	1.12		
25x25		0.46	0.53	0.61	0.68	0.75	0.89	1.10	1.44	1.76	1.92
30x30			0.64	0.73	0.82	0.91	1.08	1.34	1.75	2.15	2.39
31,75x31,75				0.77	0.87	0.96	1.15	1.42	1.87	2.31	2.74
38,1x38,1				0.93	1.05	1.16	1.38	1.72	2.27	2.81	3.33
40x40				0.98	1.10	1.22	1.46	1.81	2.38	2.93	3.33
45x45					1.24	1.38	1.84	2.28	2.69	3.33	3.80
50x50						1.54	1.84	2.28	3.01	3.72	4.28
60x60							2.21	2.75	3.64	4.50	5.22





## Rectangular Tubes

The rectangular tubes manufactured by Boycelik to meet different needs are presented to industrialists service. Rectangular tubes are manufactured to international standards on the latest technology machinery to various customer specifications on quality, from cold and hot rolled strips as suitable to further coating applications. Internal diameter scarfed products manufactured in special sections for use in various industries are put through the Eddy Current test method before being presented to customers.

The rectangular tubes presented to Boycelik customers are manufactured in conformity to TS EN 10305-3 and TS EN 10219 production standards. The rectangular tubes manufactured to TS EN 10219 standards have CE mark and rectangular tubes have high resistance against corrosion. The advantage of having a wide stock option allows Boycelik to meet customer demands on standard products instantly, while being able to engage custom orders and deliver on time.

Production Standards	
TS EN	: 10305-5, 10219-1
DIN	: 2395, 59411
TS	: 6475, 5317

Production Range	
Dış ölçüler	: 10x20 mm - 40x80 mm
Et kalınlığı	: 0.5 mm - 3,00 mm
Boy	: 3.000 mm - 10.000 mm

Cut to Length Ranges	
Ebat aralığı	: 10x20 mm - 30x50 mm
Kalınlık aralığı	: 0,5 mm - 2,0 mm
Kesim uzunluğu	: 320 mm - 7850 mm
Uzunluk toleransı	: (+) 0,5 mm

Optional Processes	
• Tube production with galvanized coated steel sheet	
• Products suitable for galvanizing process	
• Products suitable for polishing and chrome coating processes	
• Cut to length products with multiple cutting processes	
• Corrosion resistant oil application	
• IDS (internal diameter scarfing)	
• Eddy Current Testing	
• Jute or wooden chest (some special length) packing optionally	



Production range for rectangular tubes according to EN 10305-5/ EN 10219 standards and theoretical unit weights (kg/m)

Size (mm)	Thickness (mm)										
	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
10x20	0.23	0.27	0.31	0.36	0.40	0.44	0.52	0.75			
10x25	0.27	0.32	0.37	0.42	0.47	0.52	0.61	0.87	0.97		
10x30	0.31	0.36	0.42	0.48	0.54	0.59	0.71	0.75	1.12		
15x20	0.27	0.32	0.37	0.42	0.47	0.52	0.61	0.87	0.97		
15x25	0.31	0.36	0.42	0.48	0.54	0.59	0.71	0.99	1.12		
15x30	0.34	0.41	0.48	0.54	0.61	0.67	0.80	0.99	1.28		
16x60					1.05	1.16	1.38	1.72	2.27	2.81	3.33
20x25	0.34	0.41	0.48	0.54	0.61	0.67	0.80	1.10	1.28		
20x30		0.46	0.53	0.61	0.68	0.75	0.89	1.34	1.44	1.76	1.92
20x40			0.64	0.73	0.82	0.91	1.08	1.57	1.75	2.15	2.39
20x50					0.96	1.07	1.27	1.81	2.07	2.54	2.86
20x60					1.10	1.22	1.46	1.34	2.38	2.93	3.33
20x70					1.24	1.38	1.84	2.28	2.69	3.33	3.80
25x40					0.89	0.99	1.37	1.69	1.91	2.34	2.63
25x50					1.03	1.14	1.18	1.46	2.22	2.74	3.10
30x40					0.96	1.07	1.46	1.81	2.07	2.54	2.86
30x50					1.10	1.22	1.65	2.05	2.38	2.93	3.33
30x60					1.24	1.38	1.84	2.28	2.69	3.33	3.80
30x70						1.54	2.21	2.75	3.01	3.72	4.28
30x80						1.70	2.03	2.53	3.35	4.16	4.96
40x50					1.24	1.38	1.84	2.28	2.69	3.33	3.80
40x60						1.54	2.21	2.75	3.01	3.72	4.28
40x80								3.22	3.64	4.50	5.22





Industrial Tubes

The industrial tubes manufactured by Boycelik provide the best solutions to meet customer expectations for all types of industrial use. Industrial tubes are manufactured to international standards on the latest technology machinery to various customer specifications on quality, with selection of proper steel grades from cold and hot rolled strips as suitable to further coating applications. Internal diameter scarfed products manufactured in special sections for use in various industries are put through the Eddy Current test method before being presented to customers.

The industrial tubes presented to Boycelik customers to meet decorative and practical needs in the decoration and furniture industries are manufactured in conformity to TS EN 10305-3 and 10219 production standards. The industrial tubes with EN 10219 standard have CE mark and industrial tubes have high resistance against corrosion. The advantage of having a wide stock option allows Boycelik to meet customer demands on standard products instantly, while being able to engage custom orders and deliver on time.

Production Standards	
TS EN	: 10305-3, 10219
DIN	: 2394
TS	: 6476
Production Range	
External Sizes	: ø10 mm - ø76 mm
Thickness	: 0.5 mm - 3,00 mm
Length	: 3.000 mm - 10.000 mm
Cut to Length Ranges	
Size Range	: ø10 mm - ø50,8 mm
Thickness Range	: 0,5 mm - 2,0 mm
Cutting Length	: 320 mm - 7850 mm
Length Tolerance	: (+) 0,5 mm
Optional Processes	
• Tube production with galvanized coated steel sheet	
• Products suitable for galvanizing process	
• Products suitable for polishing and chrome coating processes	
• Cut to length products with multiple cutting processes	
• Corrosion resistant oil application	
• IDS (internal diameter scarfing)	
• Eddy Current Testing	
• Jute or wooden chest (some special length) packing optionally	



Production range for Industrial tubes according to EN 10305-5/ EN 10219 standards and theoretical unit weights (kg/m)

Size (mm)	Thickness (mm)										
	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
ø10	0.12	0.14	0.16	0.18	0.20	0.22	0.26				
ø12	0.14	0.17	0.20	0.22	0.25	0.27	0.32	0.39			
ø13	0.15	0.18	0.21	0.24	0.27	0.30	0.35	0.43	0.54		
ø15	0.18	0.21	0.25	0.28	0.31	0.35	0.41				
ø15,6	0.19	0.22	0.26	0.29	0.33	0.36	0.43				
ø16	0.19	0.23	0.26	0.30	0.34	0.37	0.44	0.54	0.69		
ø17	0.20	0.24	0.28	0.32	0.36	0.39	0.47	0.57	0.74		
ø18	0.22	0.26	0.30	0.34	0.38	0.42	0.50	0.61	0.79		
ø19	0.23	0.27	0.32	0.36	0.40	0.44	0.53	0.65	0.84		
ø20	0.24	0.29	0.33	0.38	0.42	0.47	0.56	0.68	0.89		
ø21	0.25	0.30	0.35	0.40	0.45	0.49	0.59	0.72	0.94		
ø22	0.27	0.32	0.37	0.42	0.47	0.52	0.62	0.76	0.99		
ø25	0.30	0.36	0.42	0.48	0.53	0.59	0.70	0.87	1.13		
ø25,4	0.31	0.37	0.43	0.49	0.54	0.60	0.72	0.88	1.15		
ø28	0.34	0.41	0.47	0.54	0.60	0.67	0.79	0.98	1.28		
ø28,6	0.35	0.41	0.48	0.55	0.61	0.68	0.81	1.00	1.31		
ø30		0.44	0.51	0.58	0.65	0.72	0.85	1.05	1.38		
ø32		0.46	0.54	0.62	0.69	0.76	0.91	1.13	1.48	1.82	2.15
ø34		0.49	0.57	0.66	0.73	0.81	0.97	1.20	1.58	1.94	2.29
ø35		0.51	0.59	0.67	0.76	0.84	1.00	1.24	1.63		
ø38		0.55	0.64	0.73	0.82	0.91	1.09	1.35	1.78	2.19	2.59
ø40				0.77	0.87	0.96	1.15	1.42	1.87	2.31	2.74
ø42				0.81	0.91	1.01	1.21	1.50	1.97	2.44	2.89
ø45				0.87	0.98	1.09	1.30	1.61	2.12	2.62	3.11
ø48				0.93	1.05	1.16	1.38	1.72	2.27	2.81	3.33
ø48,3				0.94	1.05	1.17	1.39	1.73	2.28	2.82	3.35
ø50,8				0.99	1.11	1.23	1.47	1.82	2.41	2.98	3.54
ø54				1.05	1.18	1.31	1.56	1.94	2.56	3.18	3.77
ø57				1.11	1.25	1.38	1.65	2.05	2.71	3.36	4.00
ø60				1.17	1.31	1.46	1.74	2.16	2.86	3.55	4.22
ø63,5						1.54	2.04	2.29	3.03	3.76	4.48
ø70							2.21	2.53	3.35	4.16	4.96
ø76							2.22	2.76	3.65	4.53	5.40





### Oval and Elliptical Tubes

Boycelik manufactured oval tubes are preferred by Turkish and global industrialists in the furniture and decoration trades for their decorative designs. Oval tubes are manufactured to international standards on the latest technology machinery to various customer specifications on quality, made with special materials that can be formed easily on cold and hot rolled strips as suitable to further coating applications.

The oval and elliptical tubes presented to Boycelik customers are manufactured in conformity to TS EN 10305-5 production standards. The oval and elliptical tubes have high resistance against corrosion. The advantage of having a wide stock option allows Boycelik to meet customer demands on standard products instantly, while being able to engage custom orders and deliver on time.

Production Standards	
TS EN	: 10305-5
Production Range	
External Sizes	: 0.5 mm - 3,00 mm
Length	: 3.000 mm - 10.000 mm
Cut to Length Ranges	
Thickness Range	: 0,5 mm - 2,0 mm
Cutting Length	: 320 mm - 7850 mm
Length Tolerance	: (+) 0,5 mm
Optional Processes	
• Products suitable for galvanizing process	
• Products suitable for polishing and chrome coating processes	
• Cut to length products with multiple cutting processes	
• Corrosion resistant oil application	
• IDS (internal diameter scarfing)	
• Eddy Current Testing	
• Jute or wooden chest (some special length) packing optionally	



Production range for special section tubes according to EN 10305-5/ EN 10219 standards and theoretical unit weights (kg/m)											
Size (mm)	Thickness (mm)										
	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5	3.0
Flat Oval 10x20	0.19	0.23	0.26	0.30	0.34	0.37	0.44	0.54	0.69		
Flat Oval 14x24	0.25	0.30	0.35	0.40	0.45	0.49	0.59	0.72	0.94		
Flat Oval 15x30	0.30	0.36	0.42	0.48	0.53	0.59	0.70	0.87	1.13		
Flat Oval 16x40		0.46	0.54	0.62	0.69	0.76	0.91	1.13	1.48		
Flat Oval 18x36		0.44	0.51	0.58	0.65	0.72	0.85	1.05	1.38		
Flat Oval 20x35		0.41	0.48	0.55	0.61	0.68	0.81	1.00	1.31		
Elliptical 20x40		0.46	0.54	0.62	0.69	0.76	0.91	1.13	1.48		
Flat Oval 20x40			0.57	0.66	0.73	0.81	0.97	1.20	1.58		
Flat Oval 25x40		0.51	0.59	0.67	0.76	0.84	1.00	1.24	1.63		
Flat Oval 25x50				0.81	0.91	1.01	1.21	1.50	1.97	2.44	2.89
Flat Oval 30x50					0.98	1.09	1.30	1.61	2.12	2.62	3.11
Flat Oval 30x60					1.11	1.23	1.47	1.82	2.41	2.98	3.54
Flat Oval 32x50					0.98	1.09	1.30	1.61	2.12	2.62	3.11

Please contact our sales department for sizes not listed here.







Special Products

In order to meet narrowed tolerance requirements on size, physical specification and surface quality demands from customers, Boycelik applies additional processes apart from its standard manufacture for the production of precision tubes. Internal diameter scarfed products manufactured in special sections for

use in various industries are put through the Eddy Current test method before being presented to customers. This method spots possible welding zone and body cracks during production.



Eddy Current Tested Tubes Production Range	
Tube Outside Diameter	Ø13 mm - Ø76 mm
Square Tube Size	10x10 mm - 60x60 mm
Rectangular Tube Size	10x20 mm - 40x80 mm
Material Thickness	0,5 mm-3,0 mm

Internal Diameter Scarfed Tube Production Range	
Tube Outside Diameter	Ø21 mm - Ø76 mm
Square Tube Size	20x20 mm - 60x60 mm
Rectangular Tube Size	15x20 mm - 40x80 mm
Material Thickness	0,9 mm-2,0 mm





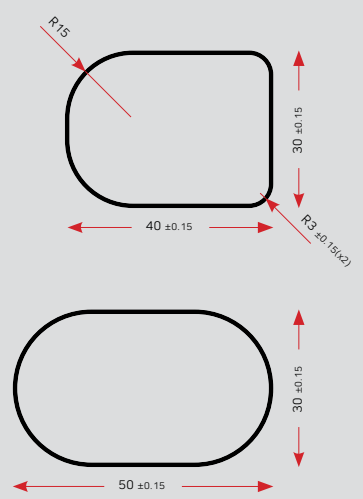


### Towel Warmer Tubes

The towel warmer tubes and profiles manufactured by Boycelik are preferred for their aesthetic and decorative properties by the decoration and furniture industries, and can be manufactured to meet various qualities, using cold and hot rolled strips, as suitable to further coating applications on

the latest technology machinery. Boycelik manufactured towel warmer tubes are shipped out to customers after being put through non destructive Eddy Current test processes.



Tube Sizes	Special Section Profile Sizes
19x0,80 mm 19x0,90 mm 20x0,80 mm 20x0,90 mm 21x0,80 mm 21x0,90 mm 22x0,80 mm 22x0,90 mm 25x0,80 mm 25x0,90 mm 25,4x0,80 mm 25,4x0,90 mm	D Profile 30x40 mm D Profile 32x32 mm Flat Oval Profile 30x50 mm 

### Product Technical Specifications

Boycelik manufactures according to TS EN 10305-3, TS EN 10305-5 DIN 2394, DIN 2395 standards. Boycelik can manufacture suitable for galvanizing, polishing, chrome coating or painting processes. Weld beads can manufacture in different side. Internal Diameter Scarfed can be applied for Towel Warmer Tubes.





## Fittings Tubes

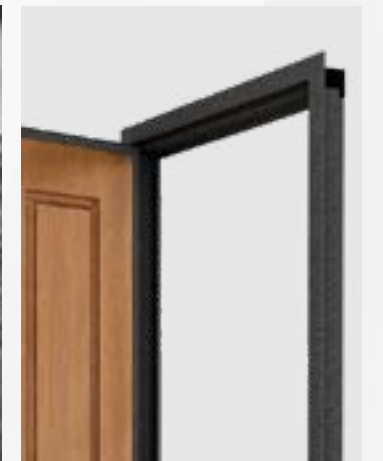
Boycelik, gained a prominent position for itself in the heating systems industry for the supply of fitting pipes used for panel radiator connection equipment. Boycelik's capacity for on time technical support and service solutions for fittings pipes has been applauded by its industrial customers.



## Stell Sheet (Cut to Length Line)

Boycelik production facilities include a steel sheet line as well contributing to facilitate consumers' lives. Steel sheets are used by an array of industries including the steel door manufacturing industry, home appliance industries for products such as ironing boards, wheelbarrows and ladders; electrical household appliance industry for products like stove, oven and cooker, steel goods industries for products like lockers, electric panel, and fire cabinets as well as metal furniture and accessories.

Steel Sheet (Cut to Length Line)	
Thickness (mm)	0,50 - 2,00
Wideness (mm)	175-1550
Length (mm)	300-4000







### Strip Steel (Slitting Line)

Boycelik facilities include a slitting line allowing us to meet consumer requests for cold and hot rolled strip steel in various dimensions. Strip steel is used in the home appliances, steel goods and in metal furniture and components industries. Strip steel is made ready for shipment in vertical or horizontal placement with or without pallets.



Strip Steel (Slitting Line)	
Thickness (mm)	0,50 - 3,00
Wideness (mm)	30-1600



### Product Technical Specifications

Quality control processes at Boycelik facilities minimize error rates so that all production meets standards and customer specifications. Boycelik assures high quality from raw material supply to final product delivery to customer. All phases of production from raw material entry to non destructive tests and finish applications at Boycelik are supported with physical and chemical testing.



MECHANICAL TESTS APPLIED TO TUBES & PROFILES

**Mechanical Test:** Tensile test is applied to a sample from the raw material or the final product to examine conformity with accepted standards and customer requests.

**Chemical Test:** Not only before accepting the raw material, but also during production process, chemical tests are applied to samples to examine conformity with accepted standards.

**Hardness Test:** With this test, surface hardness of the raw material or the final product is measured.

**Expanding Test:** Several samples are collected during production process and are expanded using special techniques to control whether there are cracks or openings through the seam.

**Flattening Test:** Several samples are collected during production process and are flattened using special techniques to control whether there are cracks or openings through the seam.

**Bending Test:** Several samples are collected during production process and are bended by 900 to observe the durability of the seam in shaping the final product.

NON-DESTRUCTIVE TESTS APPLIED TO TUBES & PROFILES (NDT)

**Eddy Current Test:** Boycelik tests EC code products with automatic separation electromagnetic device which is intagrated tube line in accordance with TS EN 10305-3&5 standards to avoid welding defects..

**Surface Roughness Test:** Regarding to customer specifications, Boycelik test surface roughness of sheet accord with products to be coated.



Mechanical and Chemical specifications for tubes

Steel Grade		Mechanical Specifications		Chemical Analysis				
Steel Name	Steel Number	Minimum value for +CR1 delivery at room temperature'		Maximum Composition Rate (%)				
		Tensile Strength, Rm (Mpa)	"Elongation, A (%)"	C	Si	Mn	P	S
E 155	1.0033	290	15	0.11	0.35	0.70	0.025	0.025
E 195	1.0034	330	8	0.15	0.35	0.70	0.025	0.025
E 235	1.0308	390	7	0.17	0.35	1.20	0.025	0.025
E 275	1.0225	440	6	0.21	0.35	1.40	0.025	0.025
E 355	1.0580	540	5	0.22	0.55	1.60	0.025	0.025

Mechanical specifications and chemical analysis for TS EN 10305-3 and EN 10305-5 standards

Steel Grade		Mechanical Specifications				Chemical Analysis						
Steel Name	Steel Number	Isıl İşleme Tabi Tutulmamış				Maximum composition rate (%)						
		Minimum yield strength, ReH (Mpa)	Tensile Strength, Rm (Mpa)		Elongation, A (%)	C	Si	Mn	P	S	N	
												Material Thickness (mm)
S235JRH	1.0039	235	360 - 510		360 - 510	24	0.17	-	1.40	0.040	0.040	0.009
S275J0H	1.0149	275	430 - 580		410 - 560	20	0.20	-	1.50	0.035	0.035	0.009
S275J2H	1.0138	275	430 - 580		410 - 560	20	0.20	-	1.50	0.030	0.030	-
S355J0H	1.0547	355	510 - 680		470 - 630	20	0.22	0.55	1.60	0.035	0.035	0.009
S355J2H	1.0576	355	510 - 680		470 - 630	20	0.22	0.55	1.60	0.030	0.030	-
S355K2H	1.0512	355	510 - 680		470 - 630	20	0.22	0.55	1.60	0.030	0.030	-

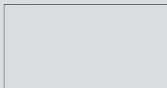
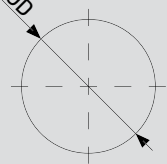
Mechanical specifications and chemical analysis for TS EN 10219 standards







DIMENSIONAL TOLERANCE TABLE FOR EN 10305-3 AND EN 10305-5 STANDARDS

PARAMETERS		Rectangular (B,H)				Square (B,B)		Circular section, ØD	
Rectangular Section, H, B		10 x 20	±0,20	40 x 50	±0,30	15 x 15	±0,20	6 ≤ ØD ≤ 19	±0,12
		10 x 30	±0,25	40 x 60	±0,35	20 x 20	±0,20	20 ≤ ØD ≤ 30	±0,15
		15 x 20	±0,20	40 x 80	±0,50	25 x 25	±0,25	32 ≤ ØD ≤ 42,4	±0,20
		15 x 25	±0,25			30 x 30	±0,25	44 ≤ ØD ≤ 51	±0,25
		15 x 30	±0,25			35 x 35	±0,25	55 ≤ ØD ≤ 63,5	±0,30
Circular Section, ØD		20 x 30	±0,25			40 x 40	±0,30	70 ≤ ØD ≤ 76	±0,35
		20 x 40	±0,30			50 x 50	±0,30		
		20 x 50	±0,30			60 x 60	±0,35		
		20 x 60	±0,35						
		30 x 40	±0,30						
		30 x 50	±0,30						
		30 x 60	±0,35						
		Squaring of sides		90º ±1º					
Corner Radius, R		T≤2,5 for R≤1,5xT 2,5<T≤4 for R≤2,2xT						-	-
Straigthness, e		For B,H≤30 mm; Length x 0,0025 (mm) and 1 m maximum 3 mm per meter length For B,H>30 mm; Length x 0,0015 (mm) and 1 m maximum 3 mm per meter length						ØD>15 mm for; Length x 0,002 (mm) ØD≤15 mm for; Depends on agreement	
Concavity/Convexity		Should not exceed the size tolerance of the related side						-	-
Twist, V		For B or H ≤30 mm V≤3 mm For B or H >30 mm ; V≤ B/10 or V≤H/10						-	-
Deviation in the weld seam position		% ±10'u or ±3 mm (Whichever is greater)						-	-
Thickness, T		If T≤1,5 mm; ±0,15 mm T>1,5 mm ise; ±0,1xT or T±0,35 (whichever is smaller)							
Length Tolerance, L	Standard Tolerance	L=6000 mm						+100 mm	
	Tolerance for option 11 and 12	For L≤500 mm length;						Depends on agreement	
		For 500<L≤2.000 mm length;						+3 mm	
		For 2.000<L≤5.000 mm length;						+5 mm	
		For 5.000<L≤8.000 mm length;						+10 mm	
		For L>8.000 mm length;						Depends on agreement	

MECHANICAL TEST TABLE FOR EN 10305-3 AND EN 10305-5 STANDARDS

	Material	E155	E195	E235	E275	E355
Expansion	% increase on diameter (for T≤4 mm)	22	20	18	15	15
	% increase on diameter (for T≤4 mm)	17	15	12	10	10
Flattening	Welding should bear no tears or cracks					

The above table provides values of tolerance limits per standards. Manufacturing may be carried out at narrower tolerance limits per specifications.



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