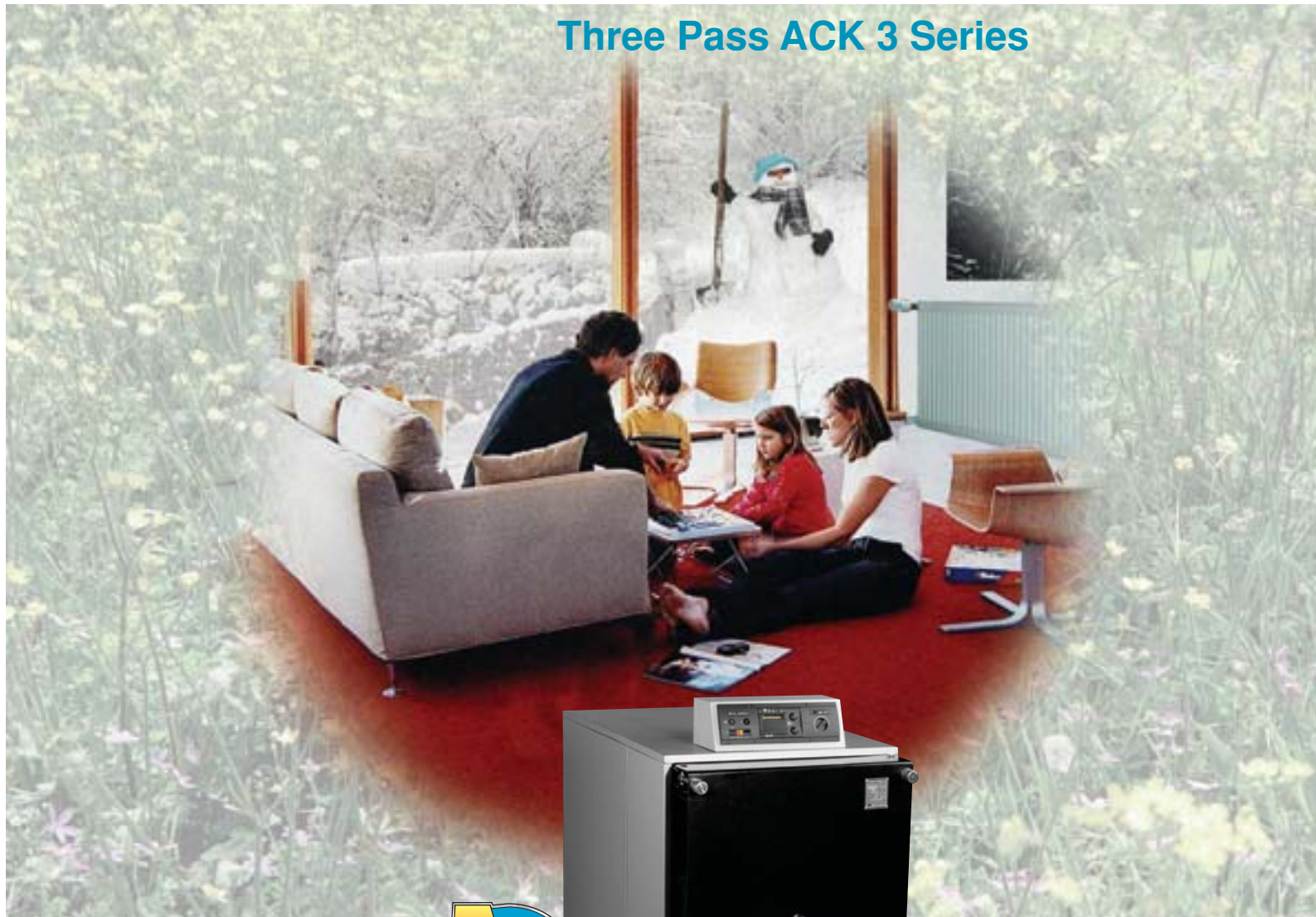




Oil and Gas Fired

# Steel Boiler

Three Pass ACK 3 Series



93-1.163 kW  
Low Temperature Boiler



### **Product of advanced technology:**

Entire production, design techniques and materials used comply with both European and national standards. Latest automation techniques such as CNC Punch Press, CNC Plasma Cutting, NC Welding Robots and NC bending are employed in the production processes.

### **High efficiency:**

Highest Boiler efficiency is attained by use of large volume combustion chamber, maximising heat transfer surfaces. Boiler gas & water side resistances stand by time losses are minimised and European NOx norms are achieved.

### **Environment friendly:**

No hazardous materials for environment such as, asbestos is not used in the boilers.

### **Long service life:**

Certified materials, balanced design on heat expansion areas, certified automated welding methods, design & calculations in European norms and approved management methods offers longer service times than ever.

### **Burner compatibility:**

Special high-pressure, long balast burners not required. High efficiency, stable smooth and silent combustion is attained with burners that comply with EN 676 and EN 267.

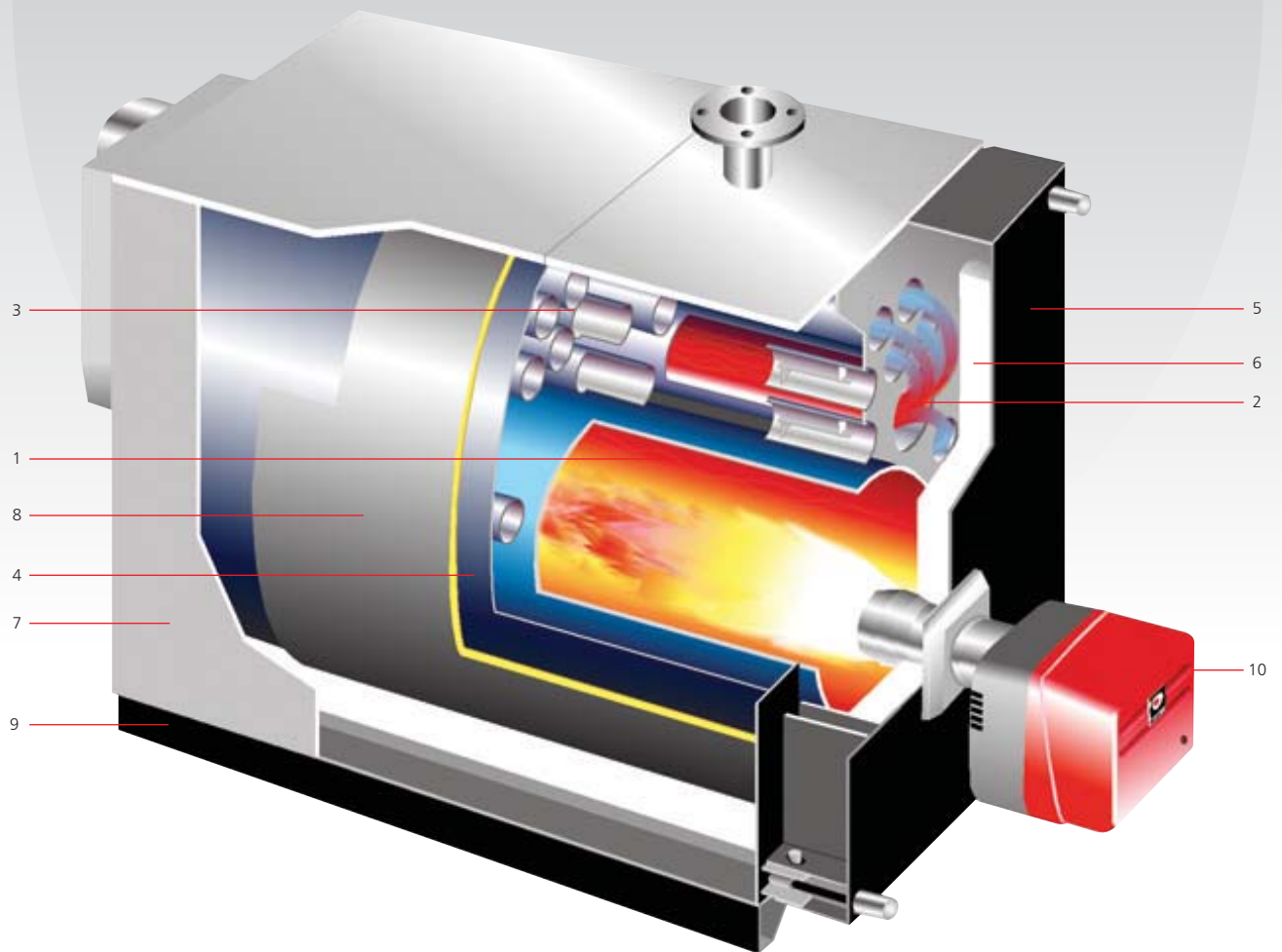
### **Aesthetic appearance:**

Boiler external jackets are protected against corrosion and environmental factors by following 3 features:

1. Hot dipped galvanised (GALVATITE ®) steel material.
2. Protective double layer special organic undercoat plating.
3. Special organic paint, with top layer protective and aesthetic plating (COLORCOAT ®).



## 3 PASS HOT WATER BOILER CATEGORY LEADER



### 1. 3 Pass Flue Gas System:

Most efficient burning is attained by forcing flames & combustion gases to flow through 3 independent parts of heat transfer volumes. Flow through low temperature combustion chamber allows low Nox values to be attained than regular boiler systems.

### 2. Secondary Gas Tubes:

Provides hot gasses formed in the combustion chamber to be transferred to the front accumulation room. This is the and an essential process in attaining low NOx emission values.

### 3. Third Pass Gas Tubes:

Stainless steel + corten turbulators placed inside the tubes create turbulence flow in gas flow lines. This increases heat transfer rates. Flue gas temperatures decreased to desired levels and optimum heating is obtained.

### 4. Boiler Body:

Cylindrical, high pressure endurant, entirely welded monoblock steel body. Homogeneous heat transfer areas balances possible heat expansions offering long service life.

### 5. Removable Front Door:

Both direction opened doors. Allows easy installation, maintenance, and cleaning of boiler. Special hinge system allows 4 independent corners to be adjusted separately, and complete sealing is obtained. This system prevents possible damages to insulation elements & door parts by moving front by itself, when loosening hinges before opening.

### 6. Front Door Insulation:

High temperature resistant refractory material is used in insulation. Flexible thick wicks provide long service life.

### 7. Boiler Jakets:

Aesthetic and modern appearances by metallic grey jackets, hot dipped galvanized and double layer protective painting.

### 8. Body Insulation:

Perfect isolation applied to the body minimizes stand by loses.

### 9. Bases:

Single piece durable steel welded stands along the boiler allow the boiler to be moved for easy transportation purposes.

### 10. Gas / Diesel Fuel Burner:

Long balast tube and high counter pressure burners not required. Compatible with every burner complies with the EN norms.

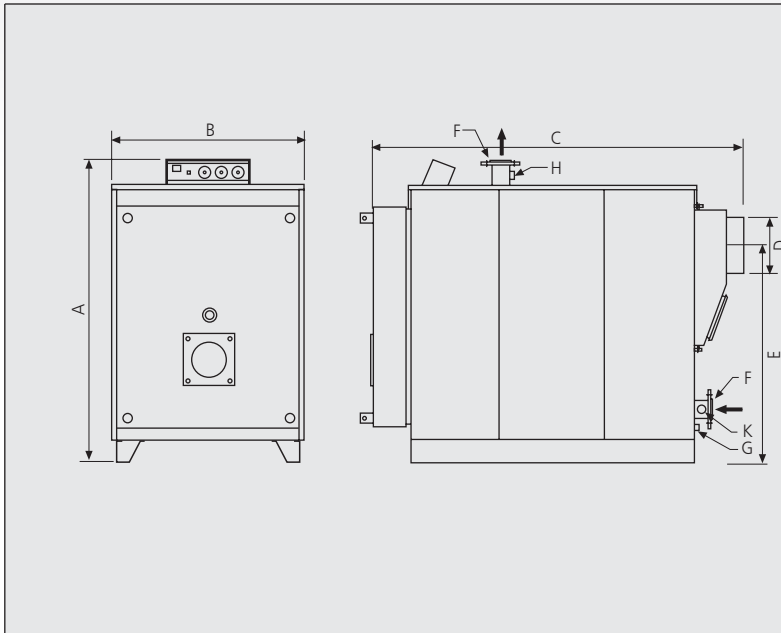


Special hinge system offers easy installation, maintenance and operation. Capability of opening in both directions. Independent 4 point adjustable sealing system. Any damages to insulation elements are prevented by use of special hinge system. As hinge loosened, front door moves forward by itself.

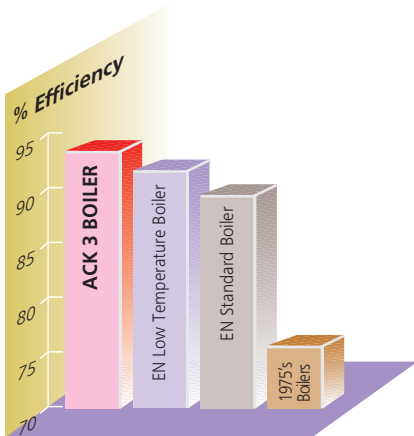


Perfect natural circulation and maximum heat transfer obtained the help of large water galleries inside the boiler (the return water inlet position at bottom).

## ACK3 Serisi Kazanlar



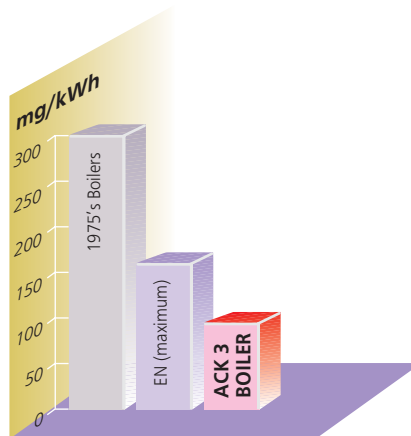
Type		ACK3-80	ACK3-100	ACK3-125
Capacity	kW	93	116	141
	kCal/h	80,000	100,000	125,000
Gas side resistance	mbar	0.6	0.6	0.6
Water Side resistance	mbar	2	3	3
Boiler Stand-by loss	%	0.41	0.41	0.41
Combustion Chamber Diameter	mm	410	410	410
Combustion Chamber Length	mm	980	1160	1160
"A" Height	mm	1134	1134	1134
"B" Width	mm	700	700	700
"C" Length	mm	1300	1480	1500
"D" Chimney diameter	mm	200	200	200
"E" Chimney height	mm	779	779	779
"F" Water I/O flange	ND10	2"	2"	2"
"G" Fill/discharge dimensions	inch	3/4	3/4	3/4
"H" Safety outlet	inch	1 1/4	1 1/4	1 1/4
"K" Safety inlet	inch	1	1	1
Weight, (empty)	kg	340	410	490
(Water) Filling Capacity	lt	164	191	200



### BOILER EFFICIENCY

#### High Efficiency:

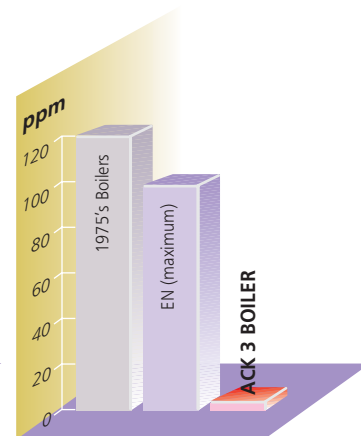
Flue gas temperatures has been lowered to 175 – 180 °C and %95-96 efficiency values attained based on DIN 4207-8 norms. Providing %3 more efficiency values achieved compared to EN minimum efficiency norms allowing boiler to be qualified to international "★★ energy & performance" mark.



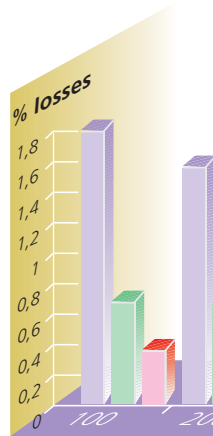
### NOx EMISSIONS

#### Low Pollution Environment Friendly:

Large combustion chamber allows complete burning along with low flame temperatures, by use of optimal heat transfer surfaces. Burner comparability in compliance with the norms, allows hazardous gasses such as carbon monoxide, nitrogen oxide to be kept below European norms. These values are all tested in EU confirmed labs and have obtained the right to be used in the all environment sensitive European countries.



### CO EMISSIONS



### STANDBY LOSSES

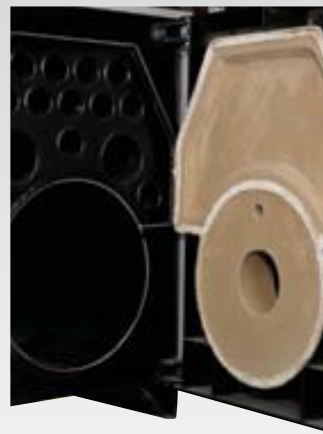
#### Minimum Losses:

Standby losses are excellent thermal insulation in "CE Notified" lab.

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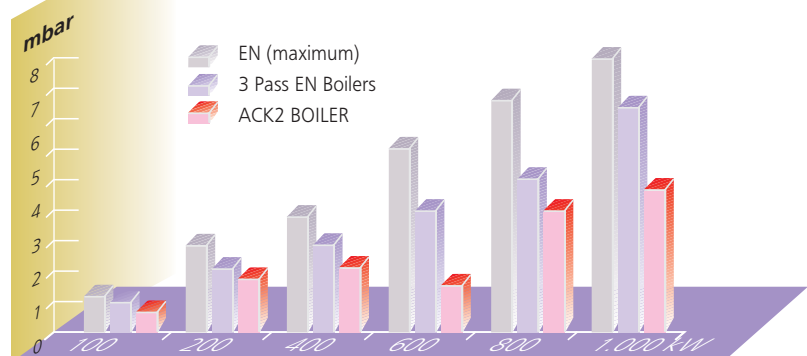
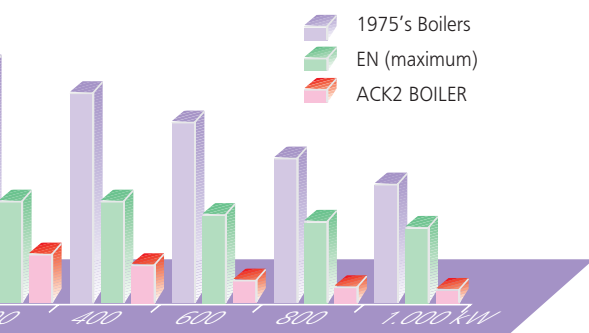
With high-density aluminium foil wrapped glass wool insulation, boiler stand by time losses are decreased to minimum values.



Safe values on front door heat insulation and sealing:  
High temperature endurance: 1371 °C  
Higher durability: 62 kg/cm<sup>2</sup>  
Lower density: 1.28 kg/dm<sup>3</sup>  
Lower thermal Conductivity: 0,33 kcal/h (C/M)

ACK3-125	ACK3-150	ACK3-200	ACK3-250	ACK3-300	ACK3-350	ACK3-400	ACK3-500	ACK3-600	ACK3-700	ACK3-800	ACK3-900	ACK3-1000
175	232	290	349	407	465	581	698	814	930	1046	1163	
150,000	200,000	250,000	300,000	350,000	400,000	500,000	600,000	700,000	800,000	900,000	1,000,000	
1	1.2	1.4	1.3	1.6	1.8	3,5	3,0	3,2	3,3	3,7	3,8	
4	6	10	12	12	14	13	14	15	17	18	20	
0.32	0.32	0.27	0.26	0.24	0.23	0.16	0.16	0.15	0.15	0.15	0.15	
480	550	550	550	600	600	700	700	750	750	800	800	
1120	1200	1200	1450	1450	1650	1800	2100	1950	1950	2200	2200	
1235	1338	1412	1412	1679	1679	1176	1176	1969	1969	2069	2069	
800	950	950	950	1050	1050	1130	1130	1350	1350	1400	1400	
1550	1658	1658	1908	1904	2104	2304	2604	2454	2454	2704	2704	
200	250	250	250	350	350	400	400	450	450	450	450	
874	956	1045	1045	1182	1182	1194	1194	1402	1402	1464	1464	
NW 65	NW 65	NW 65	NW 65	NW 80	NW 80	NW 100	NW 100	NW 100	NW 125	NW 125	NW 125	
3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	1	1	1	
1 1/4	1 1/4	1 1/2	1 1/2	2	2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	
1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2	2	2	
533	672	716	873	1170	1268	1539	1694	1905	1955	2292	2292	
261	344	404	481	695	785	898	1031	1490	1445	1812	1812	

Operation pressure 4 bar, operation temperature 90°C



### GAS SIDE RESISTANCES

#### Low Resistance:

Boiler gas side resistance is all related with manufacturing technology; where as the maximum limits are designated by standards EN 303-2 and EN 303-3. Gas side resistance values of ACK Boilers are designed to minimum possible values using advanced production techniques.

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all minimized by effective use of insulation and all values are all approved.

## Boiler Control Panels

Single stage thermostat panels for single stage burners, double stage thermostat panels for double stage burners must be used.

### Economic Panel (PE)



1. Main power switch (O/I)
2. Safety limit thermostat (100 °C)
3. Boiler thermostat (30-90 °C)
4. Temperature and pressure gauge (0-120°C / 4 bars)
5. Second stage thermostat (30-90 °C)

\*For two stage burners only.

### Standard Panel (PS)



1. Control Panel Fuse (6A)
2. Safety limit thermostat (100°C)
3. Boiler temperature gauge (0-120°C)
4. Main power switch (O/I)
5. Burner failure indicator (Red)
6. Limit thermostat failure indicator (Yellow)
7. Circulation pump switch (O/I)
8. Secondary circulation pump switch (O/I)
9. First and Second Stage Thermostat (30-90 °C /7K)

### Ecopanel (PF)



1. Control Panel Fuse (6A)
2. Safety limit thermostat (100°C)
3. Ecopanel (Micro processor)
4. Boiler temperature gauge (0-120°C)
5. Main power switch (O/I)
6. Burner failure indicator (Red)
7. Limit thermostat failure indicator (Yellow)
8. Circulation pump switch (O/I)
9. Secondary circulation pump switch (O/I)
10. First and Second Stage Thermostat (30-90 °C /7K)



### Excellent Comfort and Reliable Operation with ECO Panel

Fuel savings up to 20%, or up to 35% if used with three way motorized valve.

Ecopanel is a microprocessor which controls your system most efficiently, economically for protecting and extending life time of your product while offering maximum comfort.



CS<sub>02</sub>



The company reserves its right to alter its products due to technological developments.

**ALARKO**



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SANAYİ VE TİCARET A.Ş.**

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GOSB-Gebze Organize Sanayi Bölgesi  
Şahabettin Bilgisu Cad. 41480 Gebze/Kocaeli/TÜRKİYE  
Phone : (90)(262) 648 60 00 PBX  
Telefax : (90)(262) 648 61 01  
web : www.alarko-carrier.com.tr  
e-posta : info@alarko-carrier.com.tr