



PRODUCT CATALOG





ZERTIFIKAT Certificate

EG-Baumusterprüfung (Modul B) nach Richtlinie 97/23/EG
EC Type-examination (Module B) according to Directive 97/23/EC

Zertifikat-Nr.: Z-IS-TGK-IST-05-03-34000614-001-03-3432
Certificate No.:

Name und Anschrift
des Herstellers: **Üniversal Makine ve Isı Sanayi Tic.A.Ş.**
Name and postal address of manufacturer: **Kozyatagi Sok. Güneş Ap. No:20/1
Üstbostancı-İSTANBUL/TURKEY**

Hiermit wird bescheinigt, daß das unten genannte EG-Baumuster die Anforderun-
gen der Richtlinie 97/23/EG erfüllt.
We hereby certify that the type mentioned below meets the requirements of the Directive 97/23/EC.

Prüfbericht Nr.: P-IS-TGK-IST-05-03-34000614-001-03-3432
Test report No.:

Geltungsbereich:
Scope of examination: **Compact Steam Generator
according to EN 12953
Drawing No : KBJ-500-05-01**

Fertigungsstätte:
Manufacturing place: **Üniversal Makine ve Isı Sanayi Tic.A.Ş.
Org.San.Bölgesi, Ptk Dökümcüler Sitesi
A-1 Blok No:E-8, İhtilal-İSTANBUL/TURKEY**

Istanbul, 03 March 2005
(Ort, Datum)
(Place, date)

TÜV Industrie Service GmbH
TÜV SÜD Gruppe
TÜV-CERT-Zertifizierungsstelle



Siehe beachten Sie die Hinweise auf der zweiten Seite.
Please note the remarks on the second page.

Beauftragter TÜV-CERT-Zertifizierer 0036
Authorized Body No. 0036

TÜV Industrie Service GmbH
TÜV SÜD Gruppe
TÜV SÜD TGK
Yıldız Posta Cad. No. 17 K.5
TR-34394 E-entepe-Istanbul/TURKEY

Tel: 0090 212 3479010
Fax: 0090 212 3479011
E-Mail: info@tgv-igk.com

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Oil and Natural Gas Fired Scotch Type



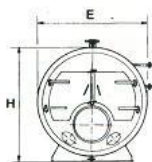
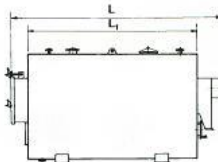
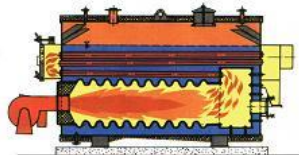
OIL AND NATURAL GAS FIRED SCOTCH TYPE 3 PASS, FIRE-SMOKE TUBE STEAM BOILER. TYPE: SB

DESIGN: High pressure, 3 Pass, fire-smoke tube Scotch type steam boilers are manufactured according to TS 377 (Turkish standart), Lloyd rules, TRD, DIN and EN norms.

MATERIALS: Cylinder shell, flue plates and combustion chamber are manufactured from HI - HII (boiler sheet). Smoke tubes are seamless boiler tubes (according to DIN 17155)

HIGH EFFICIENCY: Flue gases, formed as a result of good combustion, pass through convection surfaces and leave the boiler without causing low temperature corrosion. maximum heat transfer and high efficiency (88-90%) is obtained.

- Responds sudden demands of great amount of steam
- Has a large evaporation surface and large steam storage volume
- Has a large and corrugated combustion chamber
- Hydrolic test applied at 1,5 times higher than the operating pressure
- The combustion chamber is easily reachable from the explosion gate, the smoke tubes are easily reachable from the front door, and the water-side is easily reachable from the manhole and the handholes



TYPE SB-Capacity and Main Dimension

TYPE	SB 5	SB 10	SB 15	SB 20	SB 25	SB 30	SB 35	SB 40	SB 50	SB 60	SB 70	SB 80	SB 90	SB 100	SB 125	SB 150	SB 200	SB 250	SB 300	SB 350	SB 400
Steam capacity	150	300	500	750	900	1100	1350	1550	1900	2400	2800	3200	3600	4200	5200	6250	8350	10500	12500	14600	16700
Length	1950	2100	2330	2490	2625	2745	2860	3010	3200	3375	3530	3680	3820	4150	4585	4820	5340	5800	6315	6700	7055
Width	1350	1690	1820	1850	1900	2000	2000	2000	2250	2350	2410	2500	2550	2660	2660	2630	3000	3200	3350	3500	3550
Height	1920	1840	1970	2000	2050	2150	2150	2400	2500	2560	2750	2800	2900	2900	3080	3250	3450	3600	3750	3800	
Steam volume	0,21	0,44	0,65	0,71	0,92	1,17	1,23	1,32	1,55	1,70	1,83	1,97	2,09	2,36	2,99	4,25	4,97	5,69	7,16	7,85	8,39
Water volume	430	1030	1360	1420	1520	1700	1580	1560	2755	3850	4450	5070	5740	6660	6180	7495	9390	11570	13740	16665	18600
Stack diameter	200	250	300	300	350	350	350	400	450	500	550	600	600	600	660	700	700	800	1000	1000	1000
Flue gas Pressure Drop	15	15	30	30	30	30	30	30	30	30	40	50	50	60	70	70	80	90	100	100	100
Approximate weight	1100	1750	2250	2600	2900	3300	3700	4000	5000	5450	6100	7100	7800	8400	10700	13200	16700	20900	23500	27250	31000
Combustion chamber	850	1000	1200	1350	1500	1600	1700	1800	2000	2175	2350	2500	2625	2860	3275	3575	4100	4550	5000	5350	5700
	500	500	600	600	600	700	700	700	800	800	800	900	900	950	950	1050	1200	1400	1400	1500	1500

• Capacities refer to the operating pressure of 6 barg and the feed water temperature of 70°C
 • Dimensions may be changed without notice



Universal Pressurized Combustion Steam Boilers

PRESSURIZED COMBUSTION STEAM BOILERS TYPE: RB

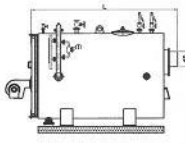
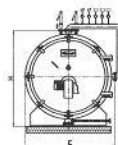
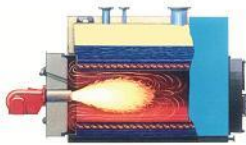
Light oil / heavy oil / natural gas / Lpg Burned

Pressurized combustion (Radiation) type cylindrical, flame smoke tube steam boilers have 3 passes where first and second passes occur as reverse flame in the large combustion chamber. This constitutes turbulence occurring more efficient air-fuel mixture and good combustion.

On the third pass, hot gas passes through the smoke tubes. Temperature of the gas is lowered as much as possible during the flow in the tubes until the flue gas leaves the boiler. Thus high boiler efficiency of 85-90% is obtained.

ADVANTAGES:

- Has large and corrugated combustion chamber
- Has relatively small dimensions and requires small installation area
- Produces steam rapidly
- Has optimum heat transfer surface (It does not have excessive heat load per unit heat transfer surface.)
- Has minimum heat loss on exterior surface
- Has long life time and high efficiency
- The combustion chamber and the smoke tubes are easily reachable from the front door, and the water-side is easily reachable from the manhole and the handholes



TYPE RB - Capacity and Main Dimensions

TYPE	RB 250	RB 300	RB 350	RB 400	RB 450	RB 500	RB 600	RB 750	RB 1000	RB 1250	RB 1500	RB 1750	RB 2000	RB 2500	RB 3000	RB 3500	RB 4000	RB 5000	RB 6000	
Steam capacity	kg/h	250	300	350	400	450	500	600	750	1000	1250	1500	1750	2000	2500	3000	3500	4000	5000	6000
Length	mm	1980	1680	1780	1880	1880	2100	2200	2300	2500	2700	2950	3100	3200	3400	3700	3850	4100	4400	4700
Width	mm	1100	1200	1250	1250	1250	1400	1450	1600	1800	1700	1750	1750	1750	1800	2000	2150	2250	2350	2550
Height	mm	1250	1350	1400	1400	1400	1550	1600	1750	1750	1850	1900	1900	1950	2150	2150	2300	2400	2500	2700
Steam volume	m ³	0,21	0,25	0,28	0,30	0,37	0,46	0,51	0,68	0,76	0,89	1,18	1,29	1,61	1,73	1,96	2,91	3,18	3,95	4,50
Water volume	l	410	540	680	715	830	990	1180	1280	1390	2200	2240	2590	2860	2830	3620	4730	7360	7500	11050
Stack diameter	mm	200	200	250	250	250	300	350	400	400	400	400	450	500	500	550	600	600	650	700
Flue gas Pressure Drop	mm Wc	10	10	10	15	15	15	18	20	25	30	40	50	50	55	60	70	80	90	100
Approximate weight	6 barg kg	600	740	840	900	920	1230	1415	1765	1930	2400	2700	2970	3365	4050	4990	5880	7050	8540	10850
	10 barg kg	700	850	950	1050	1100	1400	1600	2000	2200	2750	3100	3400	4100	4650	5600	6700	8000	9750	12000
Combustion chamber	L mm	900	1000	1100	1200	1300	1400	1500	1600	1800	2000	2250	2400	2500	2700	3000	3150	3400	3700	4000
	D mm	550	600	650	700	750	800	850	900	900	1000	1000	1100	1150	1150	1250	1250	1250	1380	1450

* Capacities refer to the operating pressure of 6 barg and the feed water temperature of 70°C

• Dimensions may be changed without notice

Compact Steam Generators

COMPACT STEAM GENERATORS Type: KBJ Light oil / Heavy oil / Natural gas / Lpg Burned

- Universal Compact Steam Generators are used in hotels, laundries, garment workshops, textile factories, food and drink industry, concrete curing, dry cleaning workshops, bottling factories, ironing shops, washing and cleaning processes, hosieries, and all other processes of industries that need steam
- Requires small installation area, and produces steam rapidly
- Produced for hard conditions of operation and not easily affected by hard and untreated water
- Operates full automatically and safely
- Has several features for security
- Developed in long term experiences and proved its quality with hundreds of examples working for many years in Turkey and all over the world.
- It is a very compact device with the burner, the feed-water pump, the condensate tank, the water filter, the automatic water treatment unit, the electric panel and its installation.



TYPE KBJ - Capacity and Main Dimensions

TYPE	KBJ 500	KBJ 600	KBJ 750	KBJ 1000	KBJ 1250	KBJ 1500	KBJ 1750	KBJ 2000
Steam capacity (kg/h)	500	600	750	1000	1250	1500	1750	2000
Length without burner (mm)	2600	2600	2600	2950	2950	3200	3500	3500
Total width (mm)	1550	1650	1750	1750	1880	1880	1880	2140
Height without fittings (mm)	2270	2370	2470	2470	2650	2650	2650	2910
Total Length (mm)	3400	3400	3510	3860	3860	4200	4500	4500
Total Height (mm)	2520	2620	2720	2720	2900	2900	2900	3160
Water volume (lt)	772	841	963	1101	1344	1482	1628	2400
Stack diameter(mm)	300	350	400	400	400	400	450	500
Approximate weight (kg)	2825	2900	3215	3640	4200	4500	4900	6400

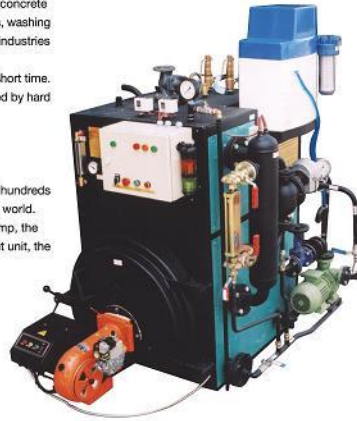
• Dimensions may be changed without notice

Universal Mini Steam Generators

PACKAGE MINI STEAM GENERATORS TYPE: MBÜ

Light oil / Heavy oil / Natural gas / LPG Burned

- Universal Compact Steam Generators are used in hotels, laundries, garment workshops, textile factories, food and drink industry, concrete curing, dry cleaning workshops, bottling factories, ironing shops, washing and cleaning processes, hosieries, and all other processes of industries that need small amount of steam.
- Requires small installation area, and produces steam in a very short time.
- Produced for hard conditions of operation and not easily affected by hard and untreated water
- Operates full automatically and safely
- Has several features for security
- Easy to operate without supervision
- Developed in long term experiences and proved its quality with hundreds of examples working for many years in Turkey and all over the world.
- It is a very compact device with the burner, the feed-water pump, the condensate tank, the water filter, the automatic water treatment unit, the electric panel and its installation.



MBU type steam generators contain:

- Steam generator
- Boiler fittings
- Boiler automatics
- Safety systems
- Feed-water pump and its fittings
- Burner
- Electric switchbox

TYPE MBÜ - Capacity and Main Dimensions

TIP / MBÜ	MBÜ 100	MBÜ 150	MBÜ 200	MBÜ 250	MBÜ 300	MBÜ 350	MBÜ 400	MBÜ 500
Steam capacity (kg/h)	100	150	200	250	300	350	400	500
Length without burner (mm)	1600	1600	1600	1600	1600	1900	1900	2040
Width without fittings (mm)	1040	1040	1040	1200	1200	1200	1200	1250
Height without fittings (mm)	1635	1635	1635	1920	1920	1920	1920	1970
Total Length (mm)	2400	2400	2400	2600	2600	2700	2700	2840
Total width (mm)	1380	1380	1380	1530	1530	1530	1530	1580
Total Height (mm)	1885	1885	1885	2170	2170	2170	2170	2220
Water volume (l)	240	240	240	430	430	470	470	620
Stack diameter(mm)	200	200	200	250	250	250	300	300
Approximate weight (kg)	1050	1050	1100	1450	1500	1600	1650	1800

* Dimensions may be changed without notice

Water Tube High Pressure Package Steam Generators



WATER TUBE HIGH PRESSURE PACKAGE STEAM GENERATORS TYPE: SBJ *Light Oil / Heavy Oil / Natural Gas / LPG Burned*

- SBJ type generators are the most suitable steam generators for the processes that high pressure steam (up to 25 bar) is needed and when the installation of steam boilers with large water volume are not allowed by the local government.
- Water tubes are not spiral (helical) shaped but horizontal. Thus generator is not easily affected by hard and untreated water.
- Needs very small installation area
- Produces steam in a short time and very economically.
- Has several features for security
- It's a packaged unit with the feed-water pump, the burner, the electric panel and the steam dome that avoids water dragging



TYPE SBJ - Capacity and Main Dimensions

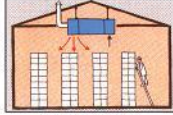
Steam capacity (kg/h)	500	1000	1500	2000	3000	4000	5000
Total Length (mm)	2890	3355	3910	4290	4460	5250	5745
Width (mm)	1600	2100	2750	2850	3000	4100	4750
Height (mm)	2530	3130	3492	3867	4622	5132	5862
Water volume (l)	382	700	1006	1222	1850	2622	3603
Stack diameter(mm)	300	400	400	500	550	600	650

• Dimensions may be changed without notice

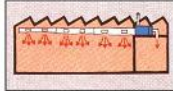


HOT AIR BOILERS FOR HEATING PURPOSES TYPE: SHK-I

Hot air boilers are good solution for heating and ventilating puposes in plants, sport halls, swimming pools, passenger halls, big restaurants, mosques, churches, greenhouses, poultry houses, etc.



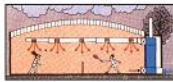
STORES AND SHOPS



FACTORIES AND WOKSHOPS



GARAGES AND PASSENGER HALLS



SPORT HALLS, SWIMMING POOLS, MOSQUES, CHURCHS, etc.

SUPERIORITIES TO OTHER HEATING SYSTEMS

- Has minimum installation cost
- Has minimum operation costs (fuel consumption is even 25% lower comparing to heating systems with hot water or steam)
- Installed very quickly and easily
- Starts heating immediately as the system is started up(thus saves fuel as much as possible)
- When the system is operated without starting the burner, cooling is possible via air exchange
- Humidifier can be fitted to eliminate the effects of dry air
- System operates safely and automatically. Air outlet temperature, stack temperature and the temperature of the heated location are controlled automatically.
- Steel boiler sheet and steel tubes are used for construction.



TYPE SHK-I - Capacity and Main Dimensions

Type	Heating capacity	Air flow rate m ³ /h, 15°C	Air outlet temperature (°C)	Width A (mm)	Length B (mm)	Height C (mm)	Stack diameter (mm)
SHK-I/100	100.000	8.000	55	1000	1300	2500	250
SHK-I/150	150.000	11.500	55	1000	1300	2500	250
SHK-I/200	200.000	15.000	55	1300	1700	3000	350
SHK-I/250	250.000	19.000	55	1300	1700	3000	350
SHK-I/300	300.000	23.000	55	1300	1700	3000	350
SHK-I/350	350.000	27.000	55	1770	2300	4100	450
SHK-I/400	400.000	30.000	55	1770	2300	4100	450
SHK-I/450	450.000	33.500	55	1770	2300	4100	450
SHK-I/500	500.000	37.000	55	1770	2300	4100	450
SHK-I/600	600.000	44.000	55	2400	3000	5150	550
SHK-I/700	700.000	49.000	55	2400	3000	5150	550
SHK-I/800	800.000	58.000	55	2400	3000	5150	550
SHK-I/900	900.000	69.000	55	2400	3000	5150	550
SHK-I/1000	1.000.000	72.500	55	2400	3000	5150	550

* For higher capacities, please contact us.
* Dimensions may be changed without notice



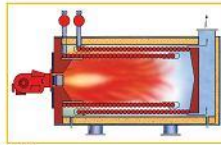
Universal Thermal Oil Boilers

THERMAL OIL BOILERS TYPE: KYK

Temperature in the system is up to 300°C at atmospheric pressure.

ADVANTAGES

- Temperature in the system is up to 300°C at atmospheric pressure. Heat carrying oil does not cause sedimentation, corrosion and crust.
- Thermal oil does not need conditioning.
- There is no risk of freezing in cold weather.
- The outlet temperature can be adjustable up to 300°C.
- Thermal oil can be used either to reach high temperatures or to produce steam, hot water or superheated water.



TYPE KYK - Capacity and Main Dimensions

TYPE	KYK 100	KYK 125	KYK 150	KYK 200	KYK 250	KYK 300	KYK 400	KYK 500	KYK 600	KYK 800	KYK 1000	KYK 1250	KYK 1500	KYK 2000	KYK 2500	KYK 3000	KYK 3500	KYK 4000	KYK 5000	KYK 6000	KYK 8000	KYK 10000	
Heating capacity	100	125	150	200	250	300	400	500	600	800	1000	1250	1500	2000	2500	3000	3500	4000	5000	6000	8000	10000	
kw/h.10 ³	116	156	174	233	291	349	465	581	698	930	1163	1403	1744	2326	2907	3488	4070	4651	5814	6977	9302	11628	
Oil outlet temperature	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280
Oil inlet temperature	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
Length (without burner)	1250	1350	1450	1550	1650	1880	2630	2800	2900	2500	2700	2825	3325	3625	4025	4425	4650	5050	5450	5850	5850	5850	5850
Width (without fittings)	1150	1280	1280	1330	1330	1430	1525	1750	1900	2000	2000	2250	2600	2700	2850	3000	4075	3425	3715	4180	5350		
Height (without fittings)	1080	1050	1060	1150	1150	1250	1400	1500	1600	1760	1860	2000	2250	2450	2500	2750	2800	3150	3400	3800	4800		
Oil inlet diameter	DN 32	DN 32	DN 32	DN 40	DN 40	DN 50	DN 65	DN 65	DN 65	DN 80	DN 100	DN 100	DN 125	DN 125	DN 150	DN 150	DN 150	DN 200	DN 200	DN 200	DN 250	DN 250	DN 250
Oil outlet diameter	DN 32	DN 32	DN 32	DN 40	DN 40	DN 50	DN 65	DN 65	DN 65	DN 80	DN 100	DN 100	DN 125	DN 125	DN 150	DN 150	DN 150	DN 200	DN 200	DN 200	DN 250	DN 250	DN 250
Oil contents	20	31	36	50	56	68	91	133	100	252	674	1043	1292	2175	2561	3636	4158	4719	7122	8924	13977	17498	
Stack diameter	150	100	150	200	200	200	250	250	300	300	350	400	450	500	500	600	650	700	800	800	900	1000	1150
Resistance of oil side	450	460	500	525	550	600	800	850	850	870	950	1000	1100	1200	1400	2200	2500	2750	3000	3000	3000	3500	
Resistance of flue gas side	1.0	1.0	1.2	1.5	1.5	1.6	1.8	2.0	2.5	3.0	4.0	5.0	5.0	5.5	6.0	7.0	8.0	8.0	10.0	11.5	12.0	15.0	
Weight (App.)	920	1025	1100	1360	1440	1875	2655	2645	3100	3250	4500	6150	7200	10450	11630	14950	17150	18100	24685	31525	42275	54230	

* Dimensions may be changed without notice

Indirect Steam Generator Type: EBÜ



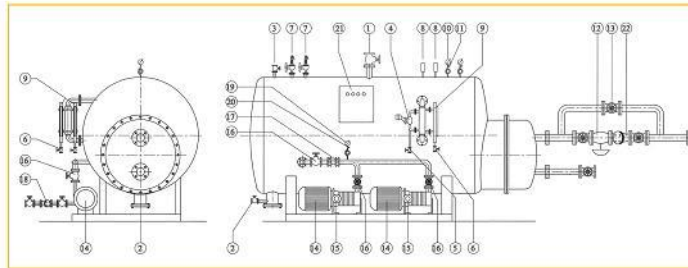
INDIRECT STEAM GENERATOR TYPE: EBÜ

Utilises Thermal Oil to Generate Steam

Indirect Steam Generators utilising thermal oil, supply saturated steam (up to 20 bars), superheated water, or hot air. Especially useful in the plants in which installation of steam boilers with large water volumes is not suitable.

Indirect Steam Generator is the best solution when both thermal oil and steam is necessary in the process.

Indirect Steam Generators can also utilise superheated water to supply steam or hot water. Dimensions and capacities are determined according to the demands.



- | | | |
|------------------------------------|--------------------------------|----------------------|
| 1- Main steam valve | 9- Level indicator | 17- Non return valve |
| 2- Discharge valve | 10- Pressure gauge | 18- Strainer |
| 3- Air vent valve | 11- Syphon and discharge valve | 19- Pressure gauge |
| 4- Level regulator | 12- Electric actuator valve | 20- Discharge valve |
| 5- Level regulator discharge valve | 13- Steam valve | 21- Electrical pane |
| 6- Level indicator discharge valve | 14- Feeding pump | 22- Strainer |
| 7- Safety valve | 15- Suction line | |
| 8- Pressure automatic | 16- Pumping line | |

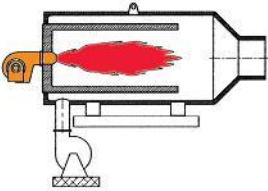
High Temperature Gas Generator

HIGH TEMPERATURE GAS GENERATOR TYPE: Ü-SG *Solid / Liquid / Gas Fuel Burned*

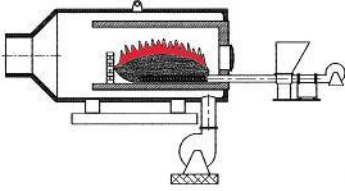
Generates hot gas upto 800°C by burning any fuel or industrial waste.
Capacities available between 500.000 kcal/h – 3.000.000 kcal/h

USAGE ENVIRONMENTS

- Drying bricks, briquettes and similar building equipments.
- Drying ceramic products.
- Drying mine ore, fire soil, powder detergent and simular granular materials.
- Pruduction of refractory materials.
- Drying wood, paper and simular industrial materials.
- Drying soft products like wool and cotton.
- Drying dyed pieces.
- Drying cereals, wood dust and coal dust.
- Drying salt, milk powder and simular food products.



Natural gas / LPG / Fuel - oil / Diesel fuel



Coal / Industrial waste

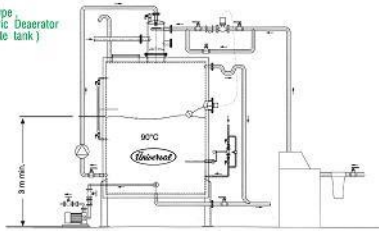
Dimensions vary according to the fuel used.



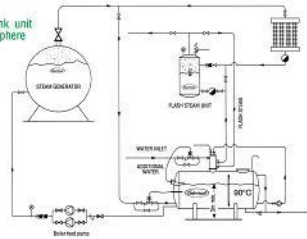
MODERN ATMOSPHERIC TYPE DEAERATORS (COMPACT) TYPE: ÜAD

In steam plants having steam lines and condensate tank operating under atmospheric conditions , boiler feed water is pulverised into the deaerator head and its temperature is increased with flash steam in order to remove corrosive CO₂ completely and O₂ at maximum level. These corrosive gases dissolved in feed water is released from the deaerator head automatically. Deaerated feed water is collected in condensate tank and kept at a temperature of 90 °C. (Deaerator unit can be mounted to the existing condensate tank if conditions are suitable).

Vertical Type Atmospheric Deaerator (Condensate tank)



Horizontal Type with flash steam tank unit open to the atmosphere



TYPE ÜAD - Capacity and Main Dimensions

Type	Deaerating capacity m ³ /h	Condensate tank volume - lt	Condensate tank installation	Width mm	Length mm	Height mm*
ÜAD 1	1000	1000	DİK	1100	1100	2700
ÜAD 3	3000	1500	DİK	1200	1200	3200
ÜAD 5	5000	2500	DİK	1450	1450	3300
ÜAD 10	10000	5000	YATIK	1800	2900	2600
ÜAD 20	20000	10000	YATIK	2000	4200	2800
ÜAD 30	30000	10000	YATIK	2000	4200	2800
ÜAD 50	50000	15000	YATIK	2000	5000	3000

Modern Atmospheric Deaerator

In a small installation area and certain montage height , it is designed for providing deaerated and softened feed water at temperature of 102 °C with flow capacities between 1 t/h and 50 t/h. Also , it makes possible to utilize steam flash and leakage from steam trap.

* For higher capacities, please contact us.
* Dimensions may be changed without notice.



PRESSURED THERMIC DEAERATORS TYPE: ÜBD (COMPACT)

For the installation of a conventional deaerator unit, height of the boiler room should be 10 meters approximately. Additionally, a supporting platform for the conventional deaerator is needed. Thus, construction cost of the boiler room increases.

Therefore, deaerators are not widely used in most of the boiler rooms. For avoiding both above mentioned disadvantages of conventional deaerators and separately using of deaerator tank and condensate tank, it is wisely to install a single tank. In this way, it is possible to reduce the cost of deaerator and locate it on ground floor level. At temperature of 102 °C, deaerating process is achieved by pressurizing the concerned tank with steam and providing enough positive pressure at suction point of feed water pump.

One of the main advantages of this system is avoiding the flash steam leakage since the system is closed to the atmosphere. In condensate lines, a counter pressure exists at levels of 0,5 atu. Feed water is injected in to the deaerator tank under pressure and converted to the foggy form. Its temperature is increased up to the 102 °C by heating with low pressured steam. At this stage, corrosive O₂ and CO₂ are dissolved and separated from feed water.



Type: ÜBD
PRESSURED THERMIC DEAERATOR
 It is designed for providing feed water deaerated at 102 °C with flow capacities between 1 t/h and 50

TYPE ÜBD - Capacity and Main Dimensions

Type	Deaerating capacity (m ³ /h)	Deaerator Tank Volume (m ³)	VERTICAL TYPE			HORIZONTAL TYPE		
			Width mm	Lenght mm	Height mm	Width mm	Lenght mm	Height mm
ÜBD 1	1	1	900	2300	4100	900	2300	2800
ÜBD 4	4	2	1200	2600	4250	1200	2450	3100
ÜBD 8	8	4	1500	2900	4780	1500	2980	3400
ÜBD 12	12	6	1600	3000	5650	1600	3850	3500
ÜBD 20	20	10	1700	3100	7250	1700	5450	3600

* For higher capacities, please contact us.
 * Dimensions may be changed without notice



CONVENTIONAL THERMAL DEAERATOR TYPE: Ü-KD (Thermic gas separators)

Free oxygen (O₂) and carbon dioxide (CO₂) dissolved in feed water for steam boiler cause destruction on metal surfaces of both steam boiler and steam lines (Figure 1 and Figure 2). For the removal of these corrosive gases, feed water is atomized and heated with steam, CO₂ and O₂ dissolve at 60 °C and 100 °C, respectively (Figure 3 and Figure 4). Atomizing process is applied with sprinkling system at conventional deaerators.

Disadvantages of this system :

Water level inside the deaerator should be at least 6 meters above the suction side of feed water pump for avoiding evaporation and cavitation (Figure 5). For this reason, height of the boiler room should be at least 10 meters. Additionally, supporting platform for the deaerator is needed. Thus construction cost of the boiler room increases.

OXYGEN CORROSION

Small hollows at water side of boiler tubes are typical sign of O₂ corrosion.



Figure 1

CARBON DIOXIDE CORROSION

Longitudinal slits inside condensate pipes are typical sign of CO₂ corrosion.



Figure 2

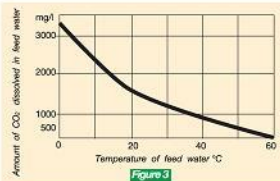


Figure 3

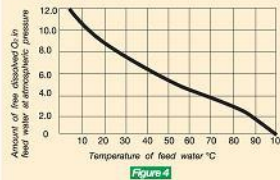


Figure 4

TYPE ÜKD - Capacity and Main Dimensions

Type	Deaerating capacity (m ³ /h)	Deaerator Tank Volume (m ³)	Width mm	Length mm	Height mm
ÜKD-200	2	2	1750	2300	4700
ÜKD-500	5	3	2100	3320	5100
ÜKD-700	7	4	2100	4240	5100
ÜKD-1000	10	5	2100	5850	5800
ÜKD-1500	15	7	2100	8370	6500
ÜKD-2000	20	10	2500	7460	6500
ÜKD-2500	25	12.5	2500	9040	6500
ÜKD-3000	30	15	2500	10620	6500
ÜKD-4000	40	20	3000	9300	7000
ÜKD-5000	50	25	3000	11300	7000

* For higher capacities, please contact us.
* Dimensions may be changed without notice.

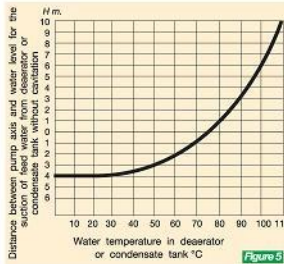


Figure 5



DIRECT SANITARY HOT WATER GENERATING UNITS TYPE: ÜDS
Liquid / Gas fuel burned

It provides hot water for domestic purposes at 60 °C as well as for industrial applications at 90°C. It is widely used in hotels, factories, construction sites, laundries, restaurants, sport halls, swimming pools, Turkish baths, dormitories, hospitals, boarding schools, garment, tricort, textile industries and other similar places where hot water demand is high.

GENERATES HOT WATER DIRECTLY. THERE IS NO NEED FOR ADDITIONAL BOILER AND HEAT EXCHANGER.
 Therefore, initial installation cost is low and requires small place.

GENERATES HOT WATER AT DESIRED TEMPERATURE IMMEDIATELY AND ECONOMICALLY.
 It reaches nominal operating conditions rapidly. For obtaining high efficiency, heat transfer surface and combustion chamber has been formed specially.

IT IS HYGIENIC AND RESISTANT TO CORROSION.
 Optionally, it is made of stainless steel or fully galvanized sheet. Thus, there is no corrosion risk. Forming of any bacteria is avoided, since the temperature is above 60 °C.

HEAT LOSSES ARE KEPT AT MINIMUM LEVEL.
 Outside surface of the unit is covered with thin glass wool and galvanized sheet.

IT MEETS SUDDEN WATER REQUESTS.
 There is hot water reserve tank inside. For extra water demand, an additional reserve tank is mounted.



TYPE ÜDS - Capacity and Main Dimensions

TYPE (Water volume)	Heating capacity (kcal/h)	Hot water capacity (10-90)°C	Hot water capacity (10-60)°C	Width E mm	Length L mm	Height H mm	Stack diameter mm	Cold water inlet Hot water inlet inch	Water circulation inch	Discharge inch
ÜDS 250	25.000	313	500	1000	1150	1520	200	1/2"	1"	1"
ÜDS 300	37.500	469	750	1000	1150	1670	200	1/2"	1"	1"
ÜDS 400	50.000	625	1000	1050	1200	1800	200	3/4"	1"	1"
ÜDS 500	75.000	938	1500	1150	1300	1800	200	1"	1"	1"
ÜDS 1.000	100.000	1.250	2000	1300	1450	2150	200	1 1/4"	1"	1 1/4"
ÜDS 1.250	125.000	1.563	2500	1350	1500	2300	200	1 1/4"	1"	1 1/4"
ÜDS 1.500	150.000	1.875	3000	1450	1600	2300	200	1 1/2"	1"	1 1/4"
ÜDS 1.750	175.000	2.188	3500	1500	1650	2380	200	1 1/2"	1"	1 1/4"
ÜDS 2.000	200.000	2.500	4000	1550	1700	2450	200	1 1/2"	1"	1 1/2"
ÜDS 2.500	225.000	2.813	4500	1650	1800	2615	250	2"	1"	1 1/2"
ÜDS 3.000	250.000	3.125	5000	1700	1850	2800	250	2"	1"	1 1/2"
ÜDS 3.500	300.000	3.750	6000	1750	1900	3100	300	2"	1 1/4"	1 1/2"
ÜDS 4.000	350.000	4.375	7000	1850	2000	3100	300	2 1/2"	1 1/4"	1 1/2"
ÜDS 4.500	400.000	5.000	8000	1950	2100	3100	350	2 1/2"	1 1/4"	1 1/2"
ÜDS 5.000	450.000	5.625	9000	2000	2150	3200	350	3"	1 1/2"	1 1/2"
ÜDS 6.000	500.000	6.250	10000	2050	2200	3500	350	3"	1 1/2"	1 1/2"

* Dimensions may be changed without notice



SUPER FAST SANITARY HOT WATER HEATER TYPE:ÜSB

Utilises steam, hot water, superheated water and thermal oil for producing sanitary hot water.



It is the right unit for apartment buildings, hotels, laundries, industrial plants and similar places.

IT RAPIDLY GENERATES HOT WATER IN A SMALL HEAT TRANSFER VOLUME.

Smaller than conventional units and produces hot water rapidly because of large heat transfer surface.

IT INCLUDES REPLACEABLE STRAIGHT TUBES HEATING COIL.

In general, the water to be heated is not treated or softened before entering to the unit. After a time period, tubes are covered with limestones and thus heat transfer efficiency decreases. In this case, the concerned tubes need to be cleaned or replaced. Our unit makes possible this opportunity and provides long term service efficiently and economically.

IT IS HYGIENIC AND RESISTANT TO CORROSION.

Optionally, it is made of stainless steel or fully galvanized sheet. Thus, there is no corrosion risk. Forming of any bacteria is avoided, since the temperature is above 60 C throughout the unit. Some kind of microbes exist and increase rapidly at temperatures 30-55 C and cause legioner disease with death effect. World Health Organisation recommends to keep water temperature at least 60 C or more. It is possible to adjust the temperature by mixing with cold water.

IT IS ECONOMIC AND EFFICIENT IN TERMS OF ENERGY CONSUMPTION.

Since it has smaller volumes comparing conventional units and covered with isolation material, heat losses are very low.

IT IS RESISTANT TO HIGH PRESSURE.

Hot water side and heating fluid side are resistant to pressure levels at 10 bars and 12 bars respectively.

DIFFERENT TYPE OF HEATING FLUIDS CAN BE USED.

Central heating hot water, superheated water, steam and superheated thermal oil can be used as the heating fluid.



TIP ÜSB - Capacity and Main Dimensions

Heater fluid	Hot Water (90/70 °C)		Steam at 4 barg		DIMENSIONS			CONNECTION DIAMETERS					
	Water capacity at 60 °C	Heat Demand	Water capacity at 60 °C	Heat Demand	WIDTH A	LENGTH B	HEIGHT H	Hot Water (90/70) inlet/outlet	Cold Water (10/60) inlet/outlet	Steam at 4 barg inlet/outlet	Cold Water (10/60) inlet/outlet	Water Circulation	Thermostatic valve sensor
TYPE	l/h	kcal/h	l/h	kcal/h	mm	mm	mm	inch	inch	inch	inch	inch	inch
ÜSB 150	1.190	59.510	7.333	366.670	800	800	1400	2"	1/2"	2 1/2"	1 1/4"	1"	1 1/4"
ÜSB 300	2.332	116.615	14.370	718.519	700	900	1750	2 1/2"	3/4"	3"	1 1/2"	1 1/2"	1 1/4"
ÜSB 400	3.781	189.041	23.295	1.164.769	800	1000	2000	3"	1"	4"	2"	2"	1 1/4"
ÜSB 750	4.831	241.527	29.763	1.488.157	950	1150	2000	4"	1 1/4"	5"	2 1/2"	2 1/2"	1 1/4"
ÜSB 1.000	8.859	442.950	54.584	2.729.221	950	1150	2500	5"	1 1/2"	6"	3"	3"	1 1/4"
ÜSB 1.500	9.700	484.987	59.765	2.988.227	1150	1350	2400	6"	1 1/2"	6"	4"	3"	1 1/4"
ÜSB 2.000	12.378	618.898	76.266	3.813.315	1250	1450	2650	6"	2"	8"	4"	4"	1 1/4"
ÜSB 3.000	21.507	1.075.359	132.516	6.625.780	1300	1500	3400	8"	2 1/2"	8"	5"	4"	1 1/4"
ÜSB 4.000	22.299	1.114.947	137.394	6.869.704	1550	1750	3180	8"	2 1/2"	8"	6"	4"	1 1/4"
ÜSB 5.000	25.689	1.284.456	158.282	7.914.122	1650	1850	3500	10"	2 1/2"	10"	6"	5"	1 1/4"
ÜSB 6.000	33.336	1.666.620	205.401	10.270.043	1650	1850	4050	10"	3"	12"	8"	6"	1 1/4"
ÜSB 7.000	37.015	1.850.736	228.065	11.403.234	1750	1950	4150	10"	3"	12"	8"	6"	1 1/4"
ÜSB 8.000	46.646	2.332.323	287.410	14.370.514	1750	1950	4650	12"	4"	14"	10"	6"	1 1/4"
ÜSB 10.000	64.413	3.220.648	398.878	19.843.893	1750	1950	5650	14"	4"	16"	10"	8"	1 1/4"

* Dimensions may be changed without notice

