ACK 3 Series

Three Pass Hot Water Boilers

Maximum Heat Transfer
“Years of Proven Reliability”

ACK3 series increases the use of input energy by employing 3 way tubes to maximize heat transfer surfaces. Robust body and fully automated production processes ensures maximum reliability.

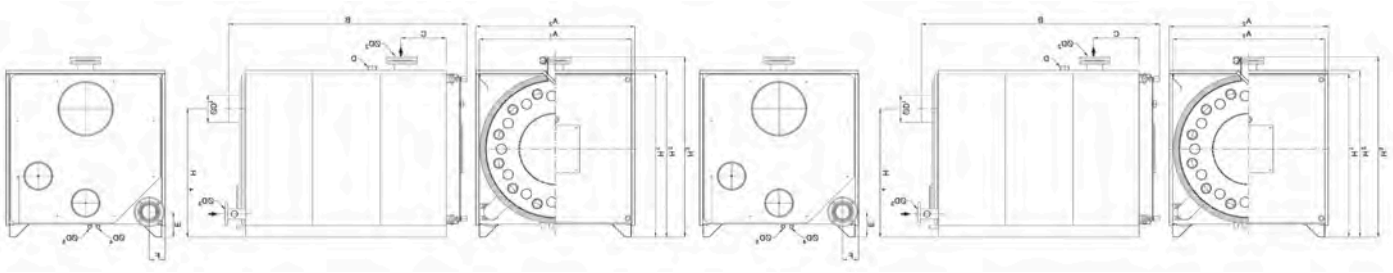
Features at a glance

Special hinge system offers easy installation, maintenance and operation. Capatibility 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.

with aluminium folio wrapped high density glass wool insulation, boiler radiation, boiler radiation losses and stand by losses are decreased to minimum levels.

Peak values on front door heat insulation and leak proof valves: Higher temperature endurance: 1371 oC Higher durability: 62 kg/cm2 Lower density: 1.28 kg/dm3 Lower thermal Conduction: 0,33 kcal/hr (C/M)

Perfect natural circulation and maximum heat transfer are obtained thanks to the circulation water inlet which is located bottom rear, allows balanced large water galleries inside the boiler.



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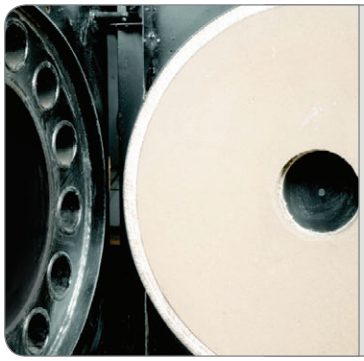

Peak values on front door heat insulation and leak proof valves:
Higher temperature endurance: 1371 oC
Higher durability: 62 kg/cm2
Lower density: 1.28 kg/dm3
Lower thermal Conduction: 0,33 kcal/hr (C/M)

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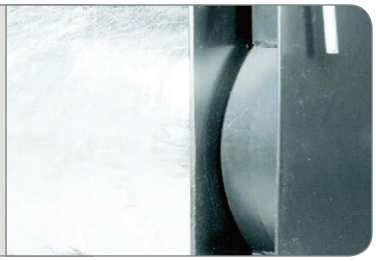

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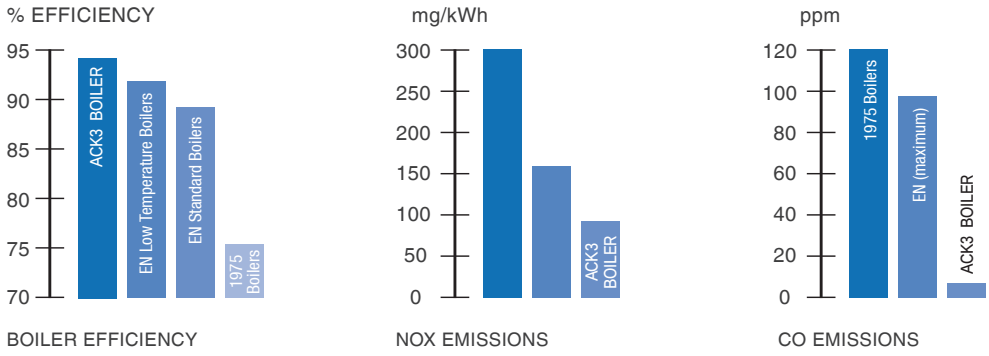


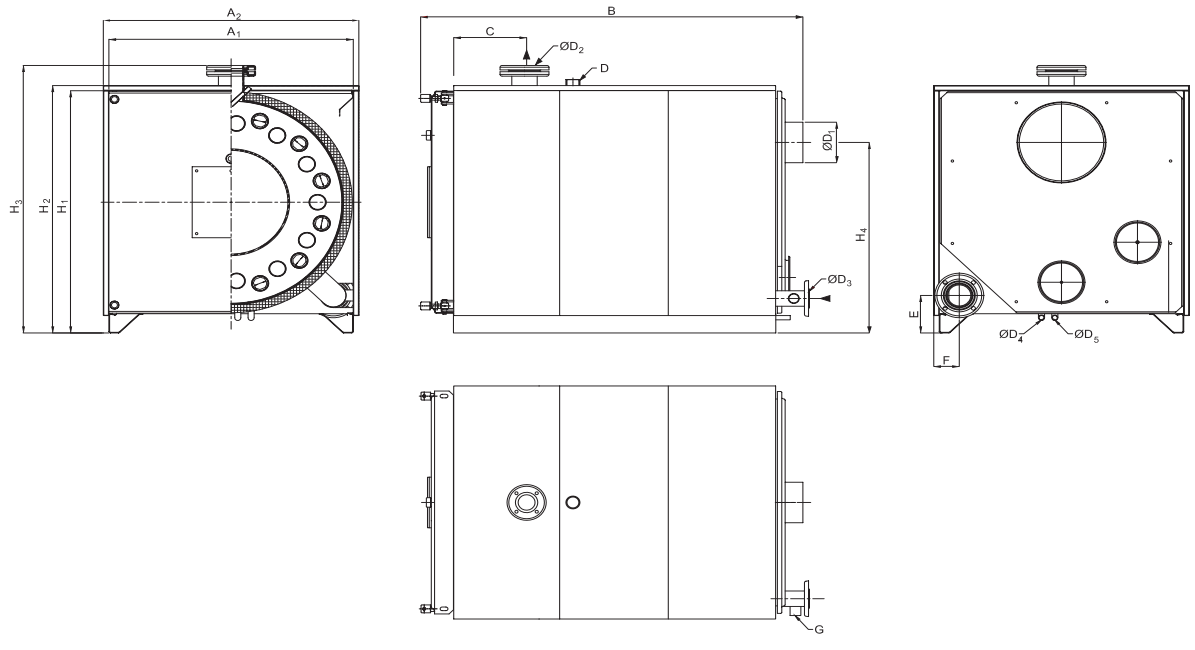
BOILER EFFICIENCY

Flue gas temperatures are lowered to175-185 °C and %95-96 efficiency values attained based on DIN 4207-8 norms, providing %3 more efficiency values are achieved compared to EN minimum efficiency norms allowing the boiler to be Qualified to bear international ★★"energy & performance" mark.

NOX & CO EMISSIONS

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 accredited labs and have obtained the right to be used in all of the environment sensitive European nations.

ACK3 series boilers



Top Rated in Steel Boilers Category

1. THREE PASS FLUE GAS SYSTEM
Most efficient burning is attained by Forcing Flames & Combustion gases to flow through 3 sets of heat transfer surfaces. Flow through low temperature pipes allows low NOX values to be attained than regular systems.

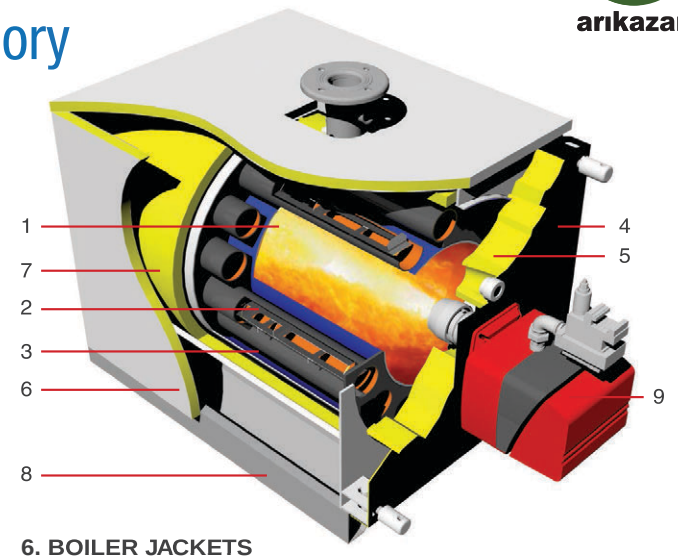
2.GAS TUBES & TURBULATORS
Stainless steel turbulators placed inside the tubes force turbulenced flow in gas flow lines. This increases heat transfer rates to the heating water through the tube walls. Flue gas temperatures decreased to desired levels and optimum heating is obtained.

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

4.REMOVABLE FRONT DOOR
Doors can be opened in both directions. Allows easy installation, maintenance and cleaning of boiler. Special hinge system allows 4 independent edges 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.

5. FRONT DOOR INSULATON
High temperatures resistant reflective material is used for insulation. Flexible thick gaskets provide long service life.



6. BOILER JACKETS
Aesthetic and modern appearances by metallic grey jackets with hot dipped galvanized and double layer protective painting.

7. BODY INSULATION
Perfect isolation applied to the body minimizes stand by losses.

8. BASES
Single piece durable steel welded stands along the boiler allow the boiler to be moved on pipes for transportation purposes.

9. GAS / DIESEL FUEL BURNER
Long balast tubed and high-pressure burners are not required. Compatible with every burner complies with the norms.

ACK 3 Three Pass Low Temperature Boilers

High Efficiency:
High norm efficiency up to% 96 (CE verified) is obtained by use of large volume combustion chamber design maximizing heat transfer surfaces. Boiler gas & water side resistances, stand by losses are minimized and European Nox norms are achieved by CAD design processes.

Environment Friendly:
No hazardous materials are used in our products nor in the production processes. We ensure our environment friendly policy not only controlling our processes but also for all our suppliers by demanding them to provide necessary certificates for their products.

Long Service Life:
All Certified materials, balanced and reliable design on heat expansion points, certified automated welding methods, Design & production in European norms and approved automatic resource management methods offer longer service times then ever.

Burner Compatibility:
Thanks to our versatile design, special high pressure and long ballast burners are not required. High efficiency is attained with stable, smooth and silent combustion by all burners that comply with EN676 and EN267.

Aesthetic Appearance:
Boiler cover jackets are protected against corrosion and external factors by 3 features:
1- Hot dipped Galvanized (GALVATITE®) steel material.
2- Protective double layer special organic undercoat plating.
3- Special organic paint in front, with top layer protective and aesthetic plating. (COLORCOAT®)

Technical Specifications

TECHNICAL SPECIFICATION OF ACK3 BOILERS			Unit	BOILER TYPE							
				ACK3-100	ACK3-150	ACK3-200	ACK3-250	ACK3-300	ACK3-350	ACK3-400	ACK3-500
CAPACITY	Nominal Heat Output		kW	116	174	233	291	349	407	465	581
			kcal/h	100.000	150.000	200.000	250.000	300.000	350.000	400.000	500.000
	Direct Efficiency Full load (In full load, 100%)		%	93,9	93,9	93,9	93,9	93,7	93,5	93,2	92,9
OPERATING CONDITIONS	Operating Pressure - Test Pressure		bar	4 - 6							
	Required Chimney Draught		mbar	-0,4 ~ 0							
	Stand-by Losses		%	0,10	0,09	0,32	0,28	0,27	0,25	0,24	0,17
	Boiler Counter Pressure		mbar	1,13	2,27	2,18	2,19	2,19	2,07	2,07	2,02
	Water Flow Resistances		mbar	0,32	0,50	0,92	1,25	2,09	2,35	2,49	2,51
MAIN DIMENSIONS	Total Width(With Cover Plates), A_2		mm	775	850	1.040		1.040			1.150
	Length, B		mm	1.215	1.425	1.475		1.475	1.645	1.745	1.740
	Total Height(With Cover Plates), H_2		mm	846	920	1.110		1.111			1.220
	Water Connections Height, H_3		mm	903	1.028	1.202		1.202			1.320
	Stack Size(Outer Diameter), $ØD_1$		mm	200		250		300			400
	Flue Gas Exit Connection Height, H_4		mm	663	700	800		800			940
	Boiler Empty Weight(without cover plates)		kg	344	445	617	657	752	815	857	1.011
INSTALLATION CONNECTIONS	Connection Type		-	FIGURE A							
	Water Outlet Connection	Diameter, $ØD_2$	inch	2"	NW 65N			W 80			NW 100
		Position, C	mm	340	340	355	345	355			355
	Expansion Tank Outlet, D		inch	1"	1 1/2"			2"			
	Water Inlet Connectio	Diameter, $ØD_3$	inch	2"	NW 65N			W 80			NW 100
		Position, E-F	mm	155-110	155-110	205-110		195-110			185-90
	Connection Tank Return, G		inch	1"		1 1/4"1					1/2"
	Filling®Drain pipe, $ØD_4$		inch	3/4"							
	Condensation Outlet, $ØD_5$		inch	3/4"							
	Water Content		lt	151	240	326		248	246	328	372

	TECHNICAL SPECIFICATION OF ACK3 BOILERS		Unit	ACK3-600	ACK3-700	ACK3-800	ACK3-1000	ACK3-1250	ACK3-1500	ACK3-1750	ACK3-2000	ACK3-2500	ACK3-3000	ACK3-4300	ACK3-5000
CAPACITY	Nominal Heat Output		kW	698	814	930	1.163	1.453	1.744	2.035	2.326	2.907	3.488	5.000	5.814
			kcal/h	600.000	700.000	800.000	1.000.000	1.250.000	1.500.000	1.750.000	2.000.000	2.500.000	3.000.000	4.300.000	5.000.000
	Direct Efficiency Full load	in full load, 100%	%	92,9	93,2	93,2	92,6	92,5				92,3	92,1	92,0	
OPERATING CONDITIONS	Operating Pressure - Test Pressure		bar	4 - 6											
	Required Chimney Draught		mbar	-0,4 ~ 0											
	Stand-by Losses		%	0,17	0,16	0,16	0,16	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
	Boiler Counter Pressure		mbar	2,96	2,69	3,37	3,53	4,38	6,12	5,33	6,53	6,43	8,42	9,97	10,01
	Water Flow Resistances		mbar	2,73	3,55	5,15	4,79	9,86	15,77	11,07	15,9	22,67	38,57	67,1	159,8
MAIN DIMENSIONS	Total Width(With Cover Plates), A2		mm	1.150	1.240		1.450	1.550		1.800		2.050		2210	2250
	Length, B		mm	1.990	2.110	2.310	2.415	2.795	3.045	3.025	3.275	3.275	3.775	4.445	
	Total Height(With Cover Plates), H2		mm	1.220	1.310		1.520	1.620		1.870		2.145		2315	2345
	Water Connections Height, H3		mm	1.320	1.495		1.700	1.797		2.037		2.352		2500	2530
	Stack Size(Outer Diameter), ØD1		mm	400	450			500		500		600			
	Flue Gas Exit Connection Height, H4		mm	940	985		1.090	1.140		1.300		1.300		1530	
	Boiler Empty Weight(without cover plates)		kg	1.140	1.346	1.481	1.983	2.693	2.895	3.461	3.785	4.785	5.390	7.858	8.473
INSTALLATION CONNECTIONS	Connection Type		-	FIGURE A				FIGURE B							
	Water Outlet Connection	Diameter, ØD2	inch	NW 100	NW 125			NW 150				NW 200			
		Position, C	mm	355	450	400	501	1.950	2.200	2.200	2.450	2.450	2.950	3.450	
	Expansion Tank Outlet, D		inch	2"	2½"			2½"	3"		4"				
	Water Inlet Connection	Diameter, ØD3	inch	NW 100	NW 125			NW 150				NW 200			
		Position, E-F	mm	185-90	195-100		220-125	1.360	1.620	1.620	1.870	1.870	2.372	2.780	
	Expansion Tank Return, G		inch	1½"	2"			2½"							
	Filling®Drain pipe, ØD4		inch	¾"				¾"							
	Condensation Outlet, ØD5		inch	¾"				¾"							
	Water Content		lt	459	610	706	1026	1.372	1.550	2.595	2.782	3.439	4.116	5.975	7.633