

Korea's No.1 Industrial Boiler Manufacturer

Kiturami dong kwang PRODUCTS GUIDE



SINCE 1955 Kiturami DONG KWANG BOILER CO., LTD.



Kiturami Dong Kwang

HISTORY



Clean energy becomes a great foundation for **Our life and industrial development!**

Since our establishment in 1955, Kiturami Dongkwang has been leading energy saving by manufacturing high-performance, highefficiency boilers based on our experience and robust technology accumulated with craftsmanship while serving our customers through safe and highly reliable products with sincere follow-up management and fulfilling our role as a developer and pioneer in the industry.

In addition, we will continue to strive for the development of our industry and to meet the needs of customers through the introduction of advanced technologies and alliances in order to develop new highefficiency and high-performance products. We will continue our efforts to advance the industry. Thank you.

> All executives and employees of Dongkwang Boiler Co., Ltd.

March,1955	Established Dongkwang Boiler Factory
February, 1959	Obtained the first mechanical engineer certificate in Korea
May.1965	DW type water piping boiler (Acquired Utility Model Patent No. 2845)
June.1967	Awarded the Seoul Mayor's Excellence Prize at the 1st Excellent Construction Materials Exhibition
October.1968	Awarded the Excellence Award from the Minister of Science and Technology at the 8th National Product Exhibition
March.1969	Awarded the Grand Prize of the Chief Justice of the Supreme Court at the 9th Invention Exhibition
June.1971	Water piping boiler (Acquired Utility Model Patent No. 7497)
October 1975	Construction and relocation to the new factory in Doksan-dong, Guro-gu, Seoul
August, 1976	Designated as a specialized machinery factory in the small and medium-sized boiler sector by the Ministry of Commerce and Industry
February.1978	Designated as a high-pressure gas vessel and specialized machinery factory
March.1978	Acquired a construction industry equipment license
March.1984	Moved the factory to Uiwang-si, Gyeonggi-do
May.1984	Developed and produced hot water boilers
March.1986	Developed and produced once-through steam boilers
July.1987	Developed and produced flue and smoke tube type of two-circuit double boilers
July.1987	Hot water circulation system for flue and smoke tube type of two-circuit double boilers (Acquired Utility Model Patent No. 11583)
February.1988	Produced pressure vessels and heat exchangers
March,1992	Technical alliance with Manta in Italy for the boiler water purification system
April,1992	Unit assembly type of flue and smoke tube boilers (Acquired Utility Model Patent No. 6949)
August, 1992	Technical alliance with Naval in Italy for the boiler sector
May.1993	Technical alliance with Imyf in Italy for the incinerator sector
July.1993	Technical alliance with Nova in Italy for the magnetic water ware
October.1993	New construction and relocation to Sihwa Industrial Complex in Gyeonggi-do
February.1994	Acquired a heat-use equipment manufacturing business license

March,1994	Produced hot water boilers with technology provided
May.1994	Produced steam boilers with technology provided by
lub/ 1007	Naval in Italy Established Oingdae Easteny in China
July 1997	Established Danalawang Bailar Co., Ltd.
October, 1997	Established Dongkwang Boller Co., Ltd.
February, 1998	Developed and produced vacuum hot water boilers
May.1998	Q Mark designated company for quality assurance (industrial boiler sector)
July.1998	Acquired a professional construction business registration certificate
	Designated as a late-night equipment partner by KEPCO
	Developed and produced the regenerative type of electric boilers
September, 1998	Trade business registration
	Hot water heaters with steam boilers (Acquired Utility Model Patent No. 131887)
January.1999	Acquired Q Mark designated as a quality assurance company(Electric boilers, electric water heaters)
May.2000	Acquired ISO 9001 certification
October.2000	Acquired CSQL in China
April.2004	Registered as a venture company
June.2004	Developed and produced the plate type heat
August 2005	Acquired ISO14001 certification
December 2006	Developed heat conduction boilers
June 2007	Developed heat conduction bollers
Echrupy 2009	Cas human manufacturing husingss
March 2008	Cas bet water boiler mapufacturing business
April 2008	Incorporated into Kiturami Poilor Co. 1td
March 2010	Registered a machine facility construction business
March 2011	Registered a refrigerator, specific equipment
Walch,2011	manufacturing business
August.2011	Acquired Innobiz certification
April.2016	Acquired green certification for all products and
Contombox 2017	green technology product certification
september,2017	Service
September.2019	Selected as excellent products with new technology in the construction field of the Defense Facilities Headquarters

CONTENTS



TECHNOLOGY

Experience and technology accumulated over 60 years, environmentally friendly and reliable products.

We will take the lead in energy conservation through the supply of safe and technologically highquality products, and do our best to satisfy customers through sincere follow-up management to lead the industrial boiler industry as a developer and pioneer.

00 D-Brain Control	Artificial intelligence type of touch screen
01 Vacuum hot water boiler	High efficiency low NOx vacuum hot water boiler ······
	Vacuum hot water boiler
02 Pressureless hot water boiler	Pressureless water tube type hot water boiler
03 Once-through steam boiler	Once-through steam boiler
	Condensing high efficiency once-through steam boiler
04 Flue and smoke tube boiler	High efficiency low NOx Condensing boiler
	Low NOx 3-pass flue and smoke tube steam boiler
	Small capacity flue and smoke tube steam boiler
	Z-MINI flue and smoke tube steam boiler
	Two circuit flue and smoke tube hot water boiler
	Flue and smoke tube hot water boiler
	NAVAL flue and smoke tube hot water boiler
05 Electric steam boiler	Electric steam boiler



Dongkwang Boiler's revolutionary artificial intelligence boiler control system

D-Brain Control

D-Brain is a high-performance control device equipped with a microprocessor. It is equipped with a 240x64 large-screen LCD display to express all operating conditions and error conditions in Korean/English and graphic, so that anyone can use it easily as a state-ofthe-art device capable of setting the driving status and operation using serial communication between the computer and D-Brain.



240 x 64 large-screen LCD display Room controller 2P line Computer Ethernet RS485 Router npute Smartphone Remote monitoring room Outside Boiler room

Integrated boiler control system (Optional)



Cascade unit control system can minimize installation space and enhance response to load fluctuation

IoT system (Optional)



You can check the boiler status from your smartphone anytime, anywhere through the Dongkwang Boiler's exclusive APP.

	ater boiler
 Heating medium water temperature display Heating temperature displa Hot water temperature disp 	 Exhaust temperature displ Low combustion and high combustion time Number of ignitions
Abnormal gas pressure	Hot water boiler Gas leakage • Abnormal vac
 Abnormally low water level Abnormal heating medium w Abnormal heating and hot wa Abnormal exhaust temperate 	 Abnormal mer (Pressureless ater temperature Abnormal bur Overcurrent e
	rvation
Rese	iction
Rese fun	
The scheduled operation b possible, and the recent er checked for easy for	by hour and day of the week is ror occurrence history can be bllow-up management.

hot

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04

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Steam boiler

- er supply quantity display am pressure display
- v notification
- aust temperature display
- Scale temperature display
- Low combustion and high combustion time
- Number of ignitions
- er body temperature display Water supply pump operation time



KDNV-GVHEX series

Electric steam boile

05

High efficiency boiler for more saving and convenient use

High efficiency vacuum hot water boiler



Semi-permanent life

✓ Operating principle and features

The KDNV vacuum hot water boiler encloses a fixed amount of heating As the boiler water (heating medium water) of the vacuum hot water medium water and keeps it in a vacuum (negative pressure) state in boiler is always kept in a fixed amount under vacuum condition without the boiler body. When the medium water is heated, it immediately moving, there are no risks of corrosion or scale accumulation caused evaporates into decompressed steam and indirectly heats the heat by dissolved oxygen. In addition with hygienic high corrosion resistant exchanger to provide hygienic water.

✓ Multi-purpose heat exchangers

Heat exchangers can be used for heating, hot water supply and Condensing economizer can be attached to the flue to drastically reduce circulation heating in 1~3 circuits depending on the user's demand. Each fuel cost (Option) heat exchanger is independently installed and provides hygienic water without water mixing.

✓ Low NOx burner attached as default

Fuel saving low NOx burner is attached as default and guarantees 40ppm or less when operating under 4% of O_2

✓ Absolutely safe design

Unlike pressure boilers, the KDNV vacuum hot water boiler operates under negative pressure (pressure below atmospheric pressure) and has no risk of explosion. 4-level safety devices (Vacuum pressure, over heat prevention, boiler body thermistor and low water level switches) further ensures the reliability of the product.

✓ High efficiency economizer

Solution Fuel cost reduction with high efficiency furnace design

stainless steel heat exchangers, the boiler body is semi-permanent.

The high efficiency body design, which adopts once-through characteristics of the water tube boiler, forms the water cooling wall structure and heat absorbing 3-pass structure, greatly reduces fuel costs





Helium gas leak detector

To produce vacuum boilers with perfect vacuum condition, a helium gas leak detector is used in 3 steps during production. By using helium detector at near perfect vacuum condition of 10-3 Torr ~ 10-7 Torr, the system automatically detects even the smallest gap or air leak from the welded part, where no fluid can normally leak through.

 Check any leakage after processing the boiler body. 2 Check any leakage after assembling the heat exchanger. Check any leakage after assembling the finished product.

Standard specifications for low NOx high-efficiency vacuum hot water boiler KDNV- GVHEX series

Model					KDI	NV-GVHEX se	ries			
	Unit					Vertical Type				
tem		KDNV- 10G2VHEX	KDNV- 15G2VHEX	KDNV- 20GVHEX	KDNV- 25GVHEX	KDNV- 30GVHEX	KDNV- 35GVHEX	KDNV- 40GVHEX	KDNV- 45GVHEX	KDNV- 50GVHEX
Pated heat output	MW	0.12	0.17	0.23	0.29	0.35	0.41	0.47	0.52	0.58
	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000
Efficiency	%					98.3%				
Heating area	m	5.43	5.85	8.30	8.60	10.10	10.10	11.20	11.50	12.00
Burner		KLN-2	200(U)	MAXI 25(LX)	MAXI 32(LX)	P4N	1(LX)		P5M(LX)	
Burner capacity (MAX)	kcal/h	215	,000	295,000	411,000	550	,000		650,000	
Control method	-		ON - OFF				HI - LO	N - OFF		
Blower motor Capacity		0.	25	0.	37	0.	75		1.50	
Total power consumption		0.	35	0	47	0.	85		1.60	
Power	V		220V x 1	ø x 60Hz		80V x 3ø x 60Hz				
LNG	N㎡/h	10.2	15.3	20.30	25.40	30.50	35.60	40.70	45.80	50.90
Propane(LPG)	N㎡/h	-	-	9.1	11.4	13.6	15.9	18.2	20.4	22.7
Gas inlet		25	25	25	40	40	40	50	50	50
Flue	ømm	200	200	200	200	250	250	250	250	300
Width(W)		1,160	1,160	1,300	1,300	1,400	1,400	1,550	1,550	1,550
Length(L)		1,790	1,790	2,030	2,030	2,170	2,170	2,690	2,690	2,740
Height(H)		1,780	1,780	2,000	2,000	2,030	2,030	2,120	2,120	2,120
Product weight	kg	620	640	820	850	960	1,100	1,190	1,210	1,250

For heating and hot water circulation (333K → 343K) {60°C → 70°C}

Model	Unit	KDNV- 10G2VHEX	KDNV- 15G2VHEX	KDNV- 20GVHEX	KDNV- 25GVHEX	KDNV- 30GVHEX	KDNV- 35GVHEX	KDNV- 40GVHEX	KDNV- 45GVHEX	KDNV- 50GVHEX
	MW	0.12	0.17	0.23	0.29	0.35	0.41	0.47	0.52	0.58
Rateu neat output	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000
Circulation volume	e	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000
Maximum operating pressure	MPa{kgf/cmi}					1{10}				
Head pressure loss	MPa{mH2O}	0.012{0.12}	0.017	{0.17}	0.02	[0.2]	0.018	{0.18}	0.022{0.22}	0.02{0.2}
Material	-		Stainless steel pipe							
Connection diameter	A	40	40	50	50	50	50	65	65	65

• For hot water supply (298K \rightarrow 338K) {25°C \rightarrow 65°C}

lte	Model	Unit	KDNV- 10G2VHEX	KDNV- 15G2VHEX	KDNV- 20GVHEX	KDNV- 25GVHEX	KDNV- 30GVHEX	KDNV- 35GVHEX	KDNV- 40GVHEX	KDNV- 45GVHEX	KDNV- 50GVHEX
	Dated boat output	MW	0.12	0.17	0.23	0.29	0.35	0.41	0.47	0.52	0.58
	Rateu near ourpur	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000
	Circulation volume		2500	3750	5,000	6,250	7,500	8,750	10,000	11,250	12,500
	Maximum operating pressure	MPa {kgf/cni}					1{10}				
	Head pressure loss	MPa {mH2O}	0.012{0.12}	0.017	{0.17}	0.02	{0.2}	0.018	{0.18}	0.022{0.22}	0.02{0.2}
	Material					S	tainless steel pip	e			
	Connection diameter	А	40	40	50	50	50	50	65	65	65

• For hot water supply $(278K \rightarrow 338K)$ {5°C $\rightarrow 65°C$ }

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lte	em Model	Unit	KDNV- 10G2VHEX	KDNV- 15G2VHEX	KDNV- 20GVHEX	KDNV- 25GVHEX	KDNV- 30GVHEX	KDNV- 35GVHEX	KDNV- 40GVHEX	KDNV- 45GVHEX	KDNV- 50GVHEX
	Dated boat output	MW	0.12	0.17	0.23	0.29	0.35	0.41	0.47	0.52	0.58
	Rateu Heat Output	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000
For h	Circulation volume		1667	2500	3,333	4,167	5,000	5,833	6,667	7,500	8,333
ot wat	Maximum operating pressure	MPa {kgf/cm}					1{10}				
er sup	Head pressure loss	MPa {mH2O}	0.006{0.06}	0.015	{0.15}	0.018	{0.18}	0.015	{0.15}	0.02{0.2}	0.018{0.18}
₽	Material	-				S	tainless steel pip	e			
	Connection diameter	А	40	40	50	50	50	50	65	65	65

1. The above specification table is indicated as follows.

- The fuel calorific value of fuel consumption is based on the following.
- Fuel : Higher calorific value_Lower calorific value.
- LNG : 11,000_10,000 kcal/Nm Propane : 24,350_22,400 kcal/Nm
- Boiler efficiency and fuel consumption are based on lower calorific value.
- 2. Design flow temperature condition for heating and hot water circulation 333~343K {60~70°C}
- 3. Design flow temperature condition for hot water supply 298~338K {25~65°C}, 278~338K {5~65°C} 7. The above specification table is subject to change without notice.



4. The rated heat output for heating and hot water supply is given for each individual use, and in the case of simultaneous use, the total is the boiler heat output.

5. The following tolerances are included due to the measurement errors of the measuring instrument or measuring personnel.

- Boiler efficiency measurement error ±1%, fuel amount (heat input) measurement error ±1.5%.

6. The above boiler efficiency is based on net calorific value (lower calorific value).

• Standard specifications for low NOx high-efficiency vacuum hot water boiler KDNV-G2X series

Model						KDNV-G2	2X series					
	Unit					Horizon	tal type					
em		KDNV- 20G2X	KDNV- 25G2X	KDNV- 30G2X	KDNV- 35G2X	KDNV- 40G2X	KDNV- 45G2X	KDNV- 50G2X	KDNV- 60G2X	KDNV- 80G2X	KDNV- 100G2X	
Rated heat	MW	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.70	0.93	1.16	
output	kcal/h	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	
Efficiency	%					98.	3%					
Heating area	m	12.12	13.29	15.57	15.69	16.78	17.07	18.85	19.71	22.02	27.96	
Burner		MAXI 25(LX)	MAXI 32(LX)	P4M	(LX)	P5M(LX) P60M(LX)			P72M(LX)			
Burner capacity (MAX)	kcal/h	295,000	411,000	550,	000	650,	650,000 800,000				0,000	
Control method		ON - OFF					HI - LOW - OFF					
Blower motor Capacity		0.3	37	0.7	75		1.!	50		3.	00	
Total power consumption	kW	0.4	47	0.8	35		1.6	50		3.10		
Power	V	220V x 1	ø x 60Hz				380V x 3	ø x 60Hz				
LNG	N㎡/h	20.30	25.40	30.50	35.60	40.70	45.80	50.90	61.00	81.40	101.70	
Propane(LPG)		9.1	11.4	13.6	15.9	18.2	20.4	22.7	27.2	36.3	45.4	
Gas inlet	А	25	40	40	40	50	50	50	50	50	50	
Flue	ømm	200	250	250	250	250	250	300	300	350	350	
Width(W)		1,240	1,240	1,240	1,240	1,240	1,240	1,240	1,610	1,610	1,630	
Length(L)		2,500	2,560	2,710	2,760	2,810	2,810	3,500	3,240	3,640	3,920	
Height(H)		1,570	1,570	1,570	1,570	1,570	1,570	1,570	2,340	2,340	2,530	
roduct weight	kg	1,380	1,450	1,570	1,600	1,650	1,800	2,030	2,580	3,100	3,750	

• For heating and hot water circulation $(333K \rightarrow 343K) \{60^{\circ}C \rightarrow 70^{\circ}C\}$

Model	Unit	KDNV- 20G2X	KDNV- 25G2X	KDNV- 30G2X	KDNV- 35G2X	KDNV- 40G2X	KDNV- 45G2X	KDNV- 50G2X	KDNV- 60G2X	KDNV- 80G2X	KDNV- 100G2X	
Rated heat	MW	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.70	0.93	1.16	
output	kcal/h	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	
Circulation volume	ę	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	80,000	100,000	
Maximum operating pressure	MPa {kgf/cmੈ}					1{1	10}					
Head pressure loss	MPa {mH2O}	0.017{0.17}	0.02	{0.2}	0.018	{0.18}	0.022{0.22}	0.02{0.2}	0.022{0.22}	0.03{0.3}	0.033{0.33}	
Material	-		Stainless steel pipe									
Connection diameter	А	50	65	65	80	80	80	80	100	100	100	

• For hot water supply (298K \rightarrow 338K) {25°C \rightarrow 65°C}

Model	Unit	KDNV- 20G2X	KDNV- 25G2X	KDNV- 30G2X	KDNV- 35G2X	KDNV- 40G2X	KDNV- 45G2X	KDNV- 50G2X	KDNV- 60G2X	KDNV- 80G2X	KDNV- 100G2X	
Rated heat	MW	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.70	0.93	1.16	
output	kcal/h	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	
Hot water supply		5,000	6,250	7,500	8,750	10,000	11,250	12,500	15,000	20,000	25,000	
laximum operating pressure	MPa {kgf/cmi}					1{1	10}					
Head pressure loss	MPa {mH2O}	0.017{0.17}	0.02	{0.2}	0.018	{0.18}	0.022{0.22}	0.02{0.2}	0.022{0.22}	0.03{0.3}	0.033{0.33}	
Material	-		Stainless steel pipe									
Connection diameter		40	40	40	40	40	50	50	50	65	65	

• For hot water supply $(278K \rightarrow 338K)$ {5°C \rightarrow 65°C}

				-									
Model m	Unit	KDNV- 20G2X	KDNV- 25G2X	KDNV- 30G2X	KDNV- 35G2X	KDNV- 40G2X	KDNV- 45G2X	KDNV- 50G2X	KDNV- 60G2X	KDNV- 80G2X	KDNV- 100G2X		
Rated heat	MW	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.70	0.93	1.16		
output	kcal/h	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000		
Hot water supply	ę	3,333	4,167	5,000	5,833	6,667	7,500	8,333	10,000	13,333	16,667		
Maximum operating pressure	MPa {kgf/cmi}					1{	10}						
Head pressure loss	MPa {mH2O}	0.015{0.15}	0.018	{0.18}	0.015	{0.15}	0.02{0.2}	0.018{0.18}	0.02{0.2}	0.024{0.24}	0.033{0.33}		
Material	-					Stainless	steel pipe						
Connection diameter	А	A 40 40 40 40 40 50 50 50 65 65											
e above specifica	above specification table is indicated as follows.												

case of simultaneous use, the total is the boiler heat output.

instrument or measuring personnel.

5. The following tolerances are included due to the measurement errors of the measuring

- Boiler efficiency measurement error ±1%, fuel amount (heat input) measurement error ±1.5%.

1. The above specification table is indicated as follows.

- The fuel calorific value of fuel consumption is based on the following. - Fuel : Higher calorific value_Lower calorific value.

- LNG : 11,000_10,000 kcal/Nm - Propane: 24,350_22,400 kcal/Nm

- Boiler efficiency and fuel consumption are based on lower calorific value.

2. Design flow temperature condition for heating and hot water circulation 333~343K {60~70°C} 6. The above boiler efficiency is based on net calorific value (lower calorific value).

3. Design flow temperature condition for hot water supply 298~338K {25~65°C}, 278~338K {5~65°C} 7. The above specification table is subject to change without notice.

• Standard specifications for low NOx high-efficiency vacuum hot water boiler G2HEX series

									K	DNV-G2	HEX serie	es						
	Model	Unit							Ecor	nomizer r	mounted	type						
	em		KDNV- 20G2HEX	KDNV- 25G2HEX	KDNV- 30G2HEX	KDNV- 35G2HEX	KDNV- 40G2HEX	KDNV- 45G2HEX	KDNV- 50G2HEX	KDNV- 60G2HEX	KDNV- 80G2HEX	KDNV- 100G2HEX	KDNV- 120G2HEX	KDNV- 130G2HEX	KDNV- 150G2HEX	KDNV- 160G2HEX	KDNV- 180G2HEX	KDNV- 200G2HEX
	Rated heat	MW	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.70	0.93	1.16	1.40	1.51	1.74	1.86	2.09	2.33
	output	kcal/h	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	1,800,000	2,000,000
	Efficiency	%								98.	.3%							
p	Heating area	m	10.1	10.1	10.1	11.0	11.0	12.2	12.2	14.5	18.2	19.9	22.0	22.0	25.0	25.0	28.0	31.0
	Burner		MAXI 25(LX)	MAXI 32(LX)	P4M	I(LX)	P5M	(LX)	P60N	4(LX)	P72M(LX)	P9M(LX)			S-4T0	G(LX)		
	Burner capacity (MAX)	kcal/h	295,000	411,000	550,	,000	650,	,000	800,	.000	1,500,000	2,000,000			3,200	,000		
finatio	Control method	-	ON - OFF				н	- LOW - OI	FF					Н	I - MIDDLE ·	- LOW - OF	F	
	Blower capacity		- 0N-0FF kW 0.37 0.37 0.75 0.75				1.50	1.50	1.50	1.50	3.00	4.00	5.50	5.50	7.50	7.50	11.00	11.00
	Total power consumption		0.47	0.47	0.85	0.85	1.60	1.60	1.60	1.60	3.10	4.10	5.60	5.60	7.60	7.60	11.10	11.10
	Power	V	220V x 1	ø x 60Hz							380V x 3	ø x 60Hz						
Einslown	LNG	N㎡/h	20.3	25.4	30.5	35.6	40.7	45.8	50.9	61.0	81.4	101.7	122.1	132.2	152.6	162.8	183.1	203.5
sumption	Propane (LPG)	N㎡/h	Nm/h 9.1 11.4 13.6 15.9			15.9	18.2	20.4	22.7	27.2	36.3	45.4	54.5	59.0	68.1	72.7	81.7	90.8
	Gas inlet	s inlet A 25 40 40 40				40	50	50	50	50	50	50	65	65	65	65	65	65
o to r	Flue	ie ømm 200 250 250 250				250	250	250	300	300	350	350	400	400	450	450	450	500
∏ \$‡0	Width(W)	tth(W) 1,060 1,060 1,060 1,310 1			1,310	1,310	1,310	1,310	1,530	1,530	1,660	1,660	1,700	1,700	1,700	1,700		
200	Length(L)		2,750	2,880	2,980	3,130	3,230	3,360	3,360	3,490	4,120	4,320	3,580	3,580	3,830	3,830	3,960	4,210
8	Height(H)		1,810	1,810	1,810	1,900	1,900	1,900	1,900	1,910	2,070	2,190	2,670	2,670	2,740	2,740	2,790	2,790
ro	duct weight	kg	1,600	1,700	1,750	2,070	2,120	2,200	2,250	2,400	3,100	3,300	3,600	3,750	4,200	4,500	4,850	5,100

• For heating and hot water circulation (333K \rightarrow 343K) {60°C \rightarrow 70°C}

Model	Unit	KDNV- 20G2HEX	KDNV- 25G2HEX	KDNV- 30G2HEX	KDNV- 35G2HEX	KDNV- 40G2HEX	KDNV- 45G2HEX	KDNV- 50G2HEX	KDNV- 60G2HEX	KDNV- 80G2HEX	KDNV- 100G2HEX	KDNV- 120G2HEX	KDNV- 130G2HEX	KDNV- 150G2HEX	KDNV- 160G2HEX	KDNV- 180G2HEX	KDNV- 200G2HEX
Rated heat	MW	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.70	0.93	1.16	1.40	1.51	1.74	1.86	2.09	2.33
output	kcal/h	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	1,800,000	2,000,000
Circulation volume		20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	80,000	100,000	120,000	130,000	150,000	160,000	180,000	200,000
Maximum operating pressure	MPa {kgf/cm²}		1{10}														
Head pressure loss	MPa {mH2O}	0.017{0.17}	0.02	{0.2}	0.018	[0.18]	0.022{0.22}	0.02{0.2}	0.022{0.22}	0.03{0.3}	0.033{0.33}	0.02{0.2}	0.022{0.22}	0.033{0.33}	0.03{0.3}	0.02{0.2}	0.022{0.22}
Material	-								Stainless	steel pipe							
Connection diameter	A	50	50	65	65	65	80	80	100	100	100	125	125	125	125	150	150

For hot water (298K → 338K) {25°C → 65°C}

Model	Unit	KDNV- 20G2HEX	KDNV- 25G2HEX	KDNV- 30G2HEX	KDNV- 35G2HEX	KDNV- 40G2HEX	KDNV- 45G2HEX	KDNV- 50G2HEX	KDNV- 60G2HEX	KDNV- 80G2HEX	KDNV- 100G2HEX	KDNV- 120G2HEX	KDNV- 130G2HEX	KDNV- 150G2HEX	KDNV- 160G2HEX	KDNV- 180G2HEX	KDNV- 200G2HEX
Rated heat	MW	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.70	0.93	1.16	1.40	1.51	1.74	1.86	2.09	2.33
output	kcal/h	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	1,800,000	2,000,000
Circulation volume	ę	5,000	6,250	7,500	8,750	10,000	11,250	12,500	15,000	20,000	25,000	30,000	32,500	37,500	40,000	45,000	50,000
Maximum operating pressure	MPa {kgf/cri}		1{10}														
Head pressure loss	MPa {mH2O}	0.017{0.17}	0.02	{0.2}	0.018	{0.18}	0.022{0.22}	0.02{0.2}	0.022{0.22}	0.03{0.3}	0.033{0.33}	0.02{0.2}	0.022{0.22}	0.033{0.33}	0.03{0.3}	0.02{0.2}	0.022{0.22}
Material	-		Stainless steel pipe														
Connection diameter	А	40	40	50	50	50	50	50	50	65	65	100	100	100	100	100	100

• For hot water (278K \rightarrow 338K) {5°C \rightarrow 65°C}

) Ite	Model	Unit	KDNV- 20G2HEX	KDNV- 25G2HEX	KDNV- 30G2HEX	KDNV- 35G2HEX	KDNV- 40G2HEX	KDNV- 45G2HEX	KDNV- 50G2HEX	KDNV- 60G2HEX	KDNV- 80G2HEX	KDNV- 100G2HEX	KDNV- 120G2HEX	KDNV- 130G2HEX	KDNV- 150G2HEX	KDNV- 160G2HEX	KDNV- 180G2HEX	KDNV- 200G2HEX
	Rated heat	MW	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.70	0.93	1.16	1.40	1.51	1.74	1.86	2.09	2.33
	output	kcal/h	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	1,800,000	2,000,000
	Circulation volume	ę	3,333	4,167	5,000	5,833	6,667	7,500	8,333	10,000	13,333	16,667	20,000	21,667	25,000	26,667	30,000	33,333
water	Maximum operating pressure	MPa {kgf/cri}		1{10}														
vluuris	Head pressure loss	MPa {mH2O}	0.015{0.15}	0.018	{0.18}	0.015	[0.15]	0.02{0.2}	0.018{0.18}	0.02{0.2}	0.024{0.24}	0.033{0.33}	0.02{0.2}	0.022{0.22}	0.033{0.33}	0.03{0.3}	0.02{0.2}	0.022{0.22}
	Material	-								Stainless	steel pipe							
	Connection diameter	А	40	40	40	40	40	50	50	50	65	65	100	100	100	100	100	100

1. The above specification table is indicated as follows.

- The fuel calorific value of fuel consumption is based on the following.
- Fuel : Higher calorific value_Lower calorific value.
- LNG : 11,000_10,000 kcal/Nm Propane: 24,350_22,400 kcal/Nm

- Boiler efficiency and fuel consumption are based on lower calorific value.

3. Design flow temperature condition for hot water supply 298~338K {25~65°C}, 278~338K {5~65°C} 7. The above specification table is subject to change without notice.

03. Once-through steam boiler

4. The rated heat output for heating and hot water supply is given for each individual use, and in the case of simultaneous use, the total is the boiler heat output.

5. The following tolerances are included due to the measurement errors of the measuring instrument or measuring personnel.

- Boiler efficiency measurement error ±1%, fuel amount (heat input) measurement error ±1.5%.

2. Design flow temperature condition for heating and hot water circulation 333~343K {60~70°C} 6. The above boiler efficiency is based on net calorific value (lower calorific value).

02. Pressureless hot water boi



New, easy-to-use vacuum hot water boiler

Vacuum hot water boiler

KDNV series in the small capacity type

✓ Operating principle and features

The KDNV vacuum hot water boiler encloses a fixed amount of heating Unlike pressure boilers, the KDNV vacuum hot water boiler operates medium water and keeps it in a vacuum (negative pressure) state in under negative pressure (pressure below atmospheric pressure) and has the boiler body. When the medium water is heated, it immediately no risk of explosion. 4-level safety devices (Vacuum pressure, over heat evaporates into decompressed steam and indirectly heats the heat prevention, boiler body thermistor and low water level switches) further exchanger to provide hygienic water.

The high efficiency body design, which adopts once-through As the boiler water (heating medium water) of the vacuum hot water costs

Seasy handling, no license and inspection required

Anyone can operate The KDNV vacuum hot water boiler as it is exempt Heat exchangers can be used for heating, hot water supply and license or inspection are required for operation.

✓ Easy maintenance

and management. (Option)





✓ Absolutely safe design

ensures the reliability of the product.

characteristics of the water tube boiler, forms the water cooling wall boiler is always kept in a fixed amount under vacuum condition without structure and heat absorbing 3-pass structure, greatly reduces fuel moving, there are no risks of corrosion or scale accumulation caused by dissolved oxygen. In addition with hygienic high corrosion resistant stainless steel heat exchangers, the boiler body is semi-permanent.

✓ Multi-purpose heat exchangers

from all laws and regulations in Korea (By law, the boiler is viewed as circulation heating in 1~3 circuits depending on the user's demand. Each explosion-free boiler as it operates below atmospheric pressure). No heat exchanger is independently installed and provides hygienic water without water mixing.

✓ Low NOx burner

Attaching the artificial intelligence D-Brain enables the easier operation Fuel cost can be saved by attaching a low NOx burner and 40ppm or less of NOx is guaranteed when operating under 4% of O_2



Helium gas leak detector

To produce vacuum boilers with perfect vacuum condition, a helium gas leak detector is used in 3 steps during production. By using helium detector at near perfect vacuum condition of 10-3 Torr ~ 10-7 Torr, the system automatically detects even the smallest gap or air leak from the welded part, where no fluid can normally leak through.

1 Check any leakage after processing the boiler body. 2 Check any leakage after assembling the heat exchanger. Check any leakage after assembling the finished product.

Standard specifications for vacuum hot water boiler KDNV series

tem	Model	Unit	KDNV- 10	KDNV- 15	KDNV- 20	KDNV- 25	KDNV -30	KDNV- 35	KDNV- 40	KDNV- 45	KDNV- 50	KDNV- 60	KDNV- 80	KDNV- 100	KDNV- 120	KDNV- 130	KDNV- 150	KDNV- 160	KDNV- 200	KDNV- 250	KDNV- 300
	Rated heat	MW	0.12	0.17	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.70	0.93	1.16	1.40	1.51	1.74	1.86	2.33	2.91	3.49
	output	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	2,000,000	2,500,000	3,000,000
_	Efficiency	%									ç	91% or m	ore								
8.	Heating area	m	5.43	5.85	8.28	8.28	10.09	10.09	12.04	12.04	18	18	20	22	22	24	28	28	36	38	42
er spe	Control method	-			ON - OFF									HI - LO	W - OFF						
cificati	Total power consumption	kW	0.3(0.25)	0.3(0.35)	0.47(0.47)	0.47(0.47)	().84(0.84))	1.2(1.2)	1.6(1.2)	2.3(1.9)		2.3(3.1)		4.1(3.1)	4.1(7.6)	11(7.6)	15(7.6)	18.5(11.1)
ons	Power	V		220V x 1	ø x 60Hz								380)V x 3ø x	60Hz						
	Retained heating medium water volume	L	200	220	300	330	390	400	470	480	500	550	650	700	750	790	830	900	1,300	1,600	1,900
3	LNG		11.0	16.5	22.0	27.5	33.0	38.5	44.0	49.5	54.9	65.9	87.9	109.9	131.9	142.9	164.8	175.8	219.8	274.7	329.7
고	Propane(LPG)	Nm/h	4.9	7.4	9.8	12.3	14.7	17.2	19.6	22.1	24.5	29.4	39.2	49.1	58.9	63.8	73.6	78.5	98.1	122.6	147.2
e e	Butane		3.7	5.6	7.5	9.3	11.2	13.0	14.9	16.8	18.6	22.4	29.8	37.3	44.7	48.4	55.9	59.6	74.5	93.1	111.8
5	Diesel	kg/h	10.7	16.0	21.3	26.7	32.0	37.3	42.7	48.0	53.3	64.0	85.4	106.7	128.0	138.7	160.0	170.7	213.4	266.7	320.1
Conn	Oil inlet	А	15	15	15	15	15	15	15	15	15	15	25	25	25	25	25	25	25	25	25
ecti	Gas inlet		25	25	25	40	40	40	40	40	40	40	40	40	40	40	50	50	50	65	65
; 3	Flue	ømm	200	200	200	200	250	250	250	250	300	300	350	350	350	400	400	400	500	550	600
8	Width(W)		1,060	1,060	1,200	1,200	1,300	1,300	1,450	1,450	1,140	1,140	1,440	1,510	1,510	1,510	1,530	1,530	1,790	2,100	3,100
se s	Length(L)	mm	1,060	1,060	1,200	1,200	1,300	1,300	1,450	1,450	2,500	2,730	2,260	2,260	2,260	2,260	2,560	2,560	2,870	3,400	3,800
ize	Height(H)		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
₽Ţ	Width(W)		860	860	1,000	1,000	1,100	1,100	1,250	1,250	1,140	1,140	1,440	1,510	1,510	1,510	1,530	1,530	1,890	2,000	2,180
teri	Length(L)	mm	1,370	1,370	1,640	1,640	1,740	1810	2,000	2,000	3,560	3,560	3,610	3,640	3,640	3,690	3,960	3,960	4,730	5,120	5,280
<u>a</u>	Height(H)		1,640	1,640	1,870	1,870	1,900	1,900	1,920	1,920	1,570	1,570	2,170	2,340	2,340	2,340	2,530	2,530	2,580	2,720	2,860
ΞΨ	Width(W)		860	860	1,000	1,000	1,100	1,100	1,250	1,250	1,140	1,140	1,440	1,510	1,510	1,510	1,530	1,530	1,890	-	-
terr	Length(L)	mm	1,350	1,350	1,530	1,530	1,630	1,730	1,940	1,940	3,150	3,390	3,230	3,370	3,370	3,420	3,710	3,710	4,510	-	-
a a	Height(H)		1,640	1,640	1,870	1,870	1,900	1,900	1,920	1,920	1,570	1,570	2,170	2,340	2,340	2,340	2,530	2,530	2,580	-	-
rodu	ict weight	kg	500	520	700	720	870	900	1,100	1,150	1,250	1,900	2,750	3,320	3,500	3,820	4,250	4,500	5,200	5,650	6,800
The e	xternal size	may v	ary depe	nding on	the cont	rol panel	and burn	er specif	ications.							Spec	ifications	in () are	diesel bo	oiler spec	ifications.

rnal size may vary depending on the control panel and burner specifications

• For heating and hot water circulation $(333K \rightarrow 343K)$ {60°C \rightarrow 70°C}

Model em	Unit	KDNV- 10	KDNV- 15	KDNV- 20	KDNV- 25	KDNV -30	KDNV- 35	KDNV- 40	KDNV- 45	KDNV- 50	KDNV- 60	KDNV- 80	KDNV- 100	KDNV- 120	KDNV- 130	KDNV- 150	KDNV- 160	KDNV- 200	KDNV- 250	KDNV- 300
Rated heat	MW	0.12	0.17	0.23	0.28	0.35	0.41	0.47	0.52	0.58	0.7	0.93	1.16	1.40	1.51	1.74	1.86	2.33	2.01	3.49
output	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	2,000,000	2,500,000	3,000,000
Circulation volume		10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	80,000	100,000	120,000	130,000	150,000	160,000	200,000	250,000	300,000
Maximum operating pressure	MPa {kgf/cri}																			
Pressure	MPa	0.012 0.017 0.02 0.018								0.022		0.03	0.0	33	0.022	0.	03	0.033	0.035	0.04
loss	{mH20}	0] {0.12} {0.17} {0.2} {0.18}					18}		{0.22}		{0.3}	{0.3	33}	{0.22}	{0	.3}	{0.33}	{0.35}	{0.4}	
Material	-	Stainless steel pipe																		
Connection diameter	А	40	40	50	50	50	50	65	65	80	80	80	100	100	100	100	100	150	150	150

diameter																				
or hot	wate	er supp	oly (29	8K → 3	338K)	{25℃ ·	→ 65°C	;}												
Model m	Unit	KDNV- 10	KDNV- 15	KDNV- 20	KDNV- 25	KDNV -30	KDNV- 35	KDNV- 40	KDNV- 45	KDNV- 50	KDNV- 60	KDNV- 80	KDNV- 100	KDNV- 120	KDNV- 130	KDNV- 150	KDNV- 160	KDNV- 200	KDNV- 250	KDNV- 300
Rated heat	MW	0.12	0.17	0.23	0.28	0.35	0.41	0.47	0.52	0.58	0.7	0.93	1.16	1.40	1.51	1.74	1.86	2.33	2.01	3.49
output	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	2,000,000	2,500,000	3,000,000
Circulation volume	6	2,500	3,750	5,000	6,250	7,500	8,750	10,000	11,250	12,500	15,000	20,000	25,000	30,000	32,500	40,000	40,000	40,000	62,500	75,000
Maximum operating pressure	MPa {kgf/mi}																			
Pressure loss	MPa {mH20}	0.06{0.06}	0.015	{0.15}	0.018	{0.18}	0.015	{0.15}		0.02{0.2]	ł	0.024{0.24}	0.033·	{0.33}	0.022{0.22}	0.03	{0.3}	0.022{0.22}	0.035{0.35}	0.04{0.4}
Material	-									Stain	less stee	l pipe								
Connection A 40 40 40 40 40 40 50 50 50 50 50 65 65 65 80 80 80 10														100	100					

• For hot water supply $(278K \rightarrow 338K)$ {5°C \rightarrow 65°C}

Model	Unit	KDNV- 10	KDNV- 15	KDNV- 20	KDNV- 25	KDNV -30	KDNV- 35	KDNV- 40	KDNV- 45	KDNV- 50	KDNV- 60	KDNV- 80	KDNV- 100	KDNV- 120	KDNV- 130	KDNV- 150	KDNV- 160	KDNV- 200	KDNV- 250	KDNV- 300
Rated heat	MW	0.12	0.17	0.23	0.28	0.35	0.41	0.47	0.52	0.58	0.7	0.93	1.16	1.40	1.51	1.74	1.86	2.33	2.01	3.49
output	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	2,000,000	2,500,000	3,000,000
Circulation volume		1,667	2,500	3,333	4,167	5,000	5,833	6,667	7,500	8,333	10,000	13,333	16,667	20,000	21,667	25,000	26,667	33,333	41,667	50,000
Maximum operating pressure	MPa {kgf/ɑl}		1{10}																	
Pressure loss	MPa {mH20}	0.06{0.06}	0.015	{0.15}	0.018	[0.18}	0.015	[0.15}		0.02{0.2]	ł	0.024{0.24}	0.033	[0.33]	0.022{0.22}	0.03	{0.3}	0.022{0.22}	0.035{0.35}	0.04{0.4}
Material	-									Stain	less stee	l pipe								
Connection diameter	A	40	40	40	40	40	40	50	50	50	50	65	65	65	65	80	80	80	100	100

1. The above specification table is indicated as follows.

- Boiler efficiency and fuel consumption are based on lower calorific value. - LNG : 10,000 kcal/Nm

- LPG (propane) : 22,400 kcal/Nm

- LPG (butane) : 29,500 kcal/Nm² - Diesel: 10,300 kcal/kg (specific gravity : 0.836) 6. The above boiler efficiency is based on net calorific value (lower calorific value).

2. Design flow temperature condition for heating and hot water circulation 33-343K [60-70°C]
3. Design flow temperature condition for heating and hot water circulation 33-343K [60-70°C]
4. This above specification table is subject to change without notice.
5. Design flow temperature condition for heating and hot water circulation 33-343K [60-70°C]
5. This specification is based on a gas boiler. For detailed specifications, refer to the specification table.
5. Design flow temperature condition for hot water supply 298-338K [25-65°C], 278-338K [50-65°C]
5. Design flow temperature condition for hot water supply 298-338K [25-65°C], 278-338K [50-65°C], 278-338K

4. The rated heat output for heating and hot water supply is given for each individual use, and in the case of simultaneous use, the total is the boiler heat output.

5. The following tolerances are included due to the measurement errors of the measuring instrument or measuring personnel. - Boiler efficiency measurement error ±1%.

Electric steam boile 05.

A safe, explosion-free and energy saving boiler suitable for the needs of low pollution era

Pressureless hot water boiler

KDNH series in the small capacity type





KDNH series in the large capacity type

✓ Operating principle and features

The boiler body structure is designed with a 3-pass inverted combustion method that adopts a special spiral flue and operates at 95°C or less in a pressure-free condition where the expansion tank is directly attached. It is a boiler where no license and/or inspection are required as the boiler body pressure never exceeds atmospheric pressure and is absolutely safe from explosion. 4-level safety devices of temperature control switch, water level controller, overheat prevention switch and overflow line further ensures the safety of the boiler.

- 🧭 Indirectly heated stainless heat exchanger provides hygienic hot water without any scale and rust accumulation.
- 𝒞 Up to 3 circuits of heat exchangers for heating, hot water supply and heating can be installed in one boiler body.
- S As the heat exchanger, hot water heater, water pump, and condensate tank required for steam boiler installation can be omitted, installation space, initial investment, electricity and labor costs can be greatly saved.
- 🐼 As the boiler water is dissolved oxygen free soft water and is heated at a low temperature of 95°C or less, the heat exchanger do not experience scale adherence and exhibit high efficiency.
- 🧭 It is a high-performance, high-efficiency boiler that combines the latest European technology and Dongkwang's know-how with the technology provided by Naval, Italy.
- The artificial intelligence D-Brain control enables easier operation and management. (Option)
- ♦ Attaching a low-NOx burner ensures fuel cost saving, and NOx of 40 ppm or less is guaranteed for operation under 4% of O2. (Option)
- You can drastically reduce fuel costs by attaching a condensing economizer to the flue. (Option)

• Standard specifications for pressure-free pipe water type of hot water boiler KDNH series

Item	Model	Unit	KDNH- 10	KDNH- 15	KDNH- 20	KDNH- 25	KDNH- -30	KDNH-	KDNH- 40	KDNH	KDNH-	KDNH-	KDNH-	KDNH-	KDNH- 120	KDNH- 130	KDNH-	KDNH- 160	KDNH- 200	KDNH- 250	KDNH-
itein		M\W	0.12	0.17	0.23	0.20	0.35	0.61	0.47	0.52	0.58	0.70	0.03	116	1.40	1.51	1 74	1.86	233	2.00	3 / 0
	output	kcal/h	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	600.000	800.000	1 000 000	1 200 000	1 300 000	1.74	1 600 000	2.00	2.51	3 000 000
	Efficiency	%	100,000	130,000	200,000	230,000	500,000	550,000	400,000	430,000	91	% or mo	000,000	1,000,000	1,200,000	1,500,000	1,300,000	1,000,000	2,000,000	2,300,000	5,000,000
φ	Heating area	/o mi	5.43	5.85	8 2 8	8 2 8	10.09	10.09	12	12	13	15.1	16.9	18	21.7	217	25.3	25.3	29.6	38	42
oile	Control		01.10	0.00		0.20											20.0	20.0	2010		
rsp	method	-		(ON - OFF								-	HI - LOV	V - OFF						
ecific	Total power consumption	kW	(0.29)	(0.34)	0.51(0.51)	0.51(0.69)	0.88(0.69)	0.88(0.88)	1.5(1.5)		2.7(3.5)		4.5(3.5)	4.5(8.0)	6.0(8.0)	6.0(11.5)
ations	Blower power consumption	kW	(0.15)	(0.20)	0.37(0.51)	0.37(0.55)	0.74(0.55)	0.74(0.74)	1.1(1.1)		2.2(3.0)		4.0(3.0)	4.0(7.5)	5.5(7.5)	5.5(11.0)
	Circulation pump power consumption	kW			0.0	04									0.4						
	Power V 220V x 10 x 60Hz													380V x 3	ø x 60Hz						
6	LNG		-	-	22.0	27.5	33.0	38.5	44.0	49.5	54.9	65.9	87.9	109.9	131.9	142.9	164.8	175.8	219.8	274.7	329.7
nsu 'F	Propane(LPG)	N㎡/h		-	9.8	12.3	14.7	17.2	19.6	22.1	24.5	27.6	36.9	46.1	57.0	61.8	71.3	76.1	95.1	118.8	142.6
	Butane		-	-	7.5	9.3	11.2	13.0	14.9	16.8	18.6	21.0	28.0	34.9	41.9	45.4	52.4	55.9	69.9	87.4	104.8
9	Diesel	kg/h	10.6	16	21.3	26.7	32.0	37.3	42.7	48.0	53.3	64.0	85.4	106.7	128.0	138.7	160.0	170.7	213.4	266.7	320.1
Conn	Oil inlet	А	15	15	15	15	15	15	15	15	15	15	25	25	25	25	25	25	25	25	25
nete	Gas inlet		-	-	25	40	40	40	40	40	40	40	40	40	40	40	50	50	50	65	65
- S	Flue	ømm	200	200	200	200	250	250	250	250	300	300	350	350	400	400	400	400	450	550	600
	Width(W)		1,060	1,060	1,200	1,200	1,300	1,300	1,450	1,450	1,410	1,410	1,570	1,570	1,610	1,610	1,610	1,610	1,650	1,700	1,900
3ase size	Length(L)	mm	1,060	1,060	1,200	1,200	1,300	1,300	1,450	1,450	2,530	2,670	2,810	2,970	3,110	3,110	3,270	3,270	3,560	3,560	4,200
	Height(H)		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
<u>ہ ۳</u>	Width(W)		1,060	1,060	1,000	1,000	1,100	1,100	1,250	1,250	1,510	1,510	1,670	1,670	1,710	1,710	1,710	1,710	1,750	2,000	2,200
ize	Length(L)	mm	1,450	1,450	1,740	1,740	1,870	1,870	2,110	2,110	3,530	3,670	4,140	4,300	4,490	4,490	4,650	4,650	4,980	4,980	5,200
	Height(H)		2,340	2,340	2,500	2,500	2,550	2,550	2,560	2,560	2,130	2,130	2,340	2,340	2,440	2,440	2,440	2,440	2,540	2,750	3,250
Pro	roduct weight kg 550 570 750 770 92								1,150	1,200	13,500	2,000	2,850	3,420	3,600	3,900	4,350	4,600	5,300	5,750	6,950
																c .c.		()	iii iii iii		e

The external size may vary depending on the control panel and burner specifications.

• For heating and hot water circulation $\{60^\circ C \rightarrow 70^\circ C\}$

~ em	Model	Unit	KDNH- 10	KDNH- 15	KDNH- 20	KDNH- 25	KDNH- -30	KDNH- 35	KDNH- 40	KDNH 45	KDNH- 50	KDNH- 60	KDNH- 80	KDNH- 100	KDNH- 120	KDNH- 130	KDNH- 150	KDNH- 160	KDNH- 200	KDNH- 250	KDNH- 300
	Rated heat	MW	0.12	0.17	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.7	0.93	1.16	1.40	1.51	1.74	1.86	2.33	2.01	3.49
"l	output	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	2,000,000	2,500,000	3,000,000
or heat	Circulation volume		10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	60,000	80,000	100,000	120,000	130,000	150,000	160,000	200,000	250,000	300,000
ing and	Maximum operating pressure	MPa {kgf/ori}		1{10}																	
d hot w	Pressure loss	MPa {mH20}	0.012{0.12}	0.017	{0.17}	0.02	{0.2}	0.018	{0.18}	0.	022{0.2	2}	0.03{0.3}	0.033{0.33}	0.022	{0.22}	0.03{0.3}	0.03{0.3}	0.033{0.33}	0.035{0.35}	0.04{0.4}
ater [Material			Stainless steel pipe																	
	Connection diameter		40	40	50	50	50	50	65	65	65	80	80	100	100	100	100	100	150	150	150

• For hot water supply (298K \rightarrow 338K) {25°C \rightarrow 65°C}

 tem	Model	Unit	KDNH- 10	KDNH- 15	KDNH- 20	KDNH- 25	KDNH- -30	KDNH- 35	KDNH- 40	KDNH 45	KDNH- 50	KDNH- 60	KDNH- 80	KDNH- 100	KDNH- 120	KDNH- 130	KDNH- 150	KDNH- 160	KDNH- 200	KDNH- 250	KDNH- 300
	Rated heat	MW	0.12	0.17	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.7	0.93	1.16	1.40	1.51	1.74	1.86	2.33	2.01	3.49
лl	output	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	2,000,000	2,500,000	3,000,000
or heat	Circulation volume		2,500	3,750	5,000	6,250	7,500	8,750	10,000	11,250	12,500	15,000	20,000	25,000	30,000	32,500	37,500	40,000	40,000	62,500	75,000
ing and	Maximum operating pressure	MPa {kgf/ori}		1{10}																	
l hot w	Pressure loss	MPa {mH20}	0.006{0.06}	0.015	{0.15}	0.018	{0.18}	0.015	{0.15}	(0.02{0.2	}	0.024{0.24}	0.033{0.33}	0.022	{0.22}	(0.03{0.3]	ł	0.035{0.35}	0.04{0.4}
ater [Material	-									Stain	less stee	l pipe								
	Connection diameter	A	40	40	40	40	40	40	50	50	50	50	65	65	65	65	80	80	80	100	100

• For hot water supply (278K \rightarrow 338K) {5°C \rightarrow 65°C}

em	Model	Unit	KDNH- 10	KDNH- 15	KDNH- 20	KDNH- 25	KDNH- -30	KDNH- 35	KDNH- 40	KDNH 45	KDNH- 50	KDNH- 60	KDNH- 80	KDNH- 100	KDNH- 120	KDNH- 130	KDNH- 150	KDNH- 160	KDNH- 200	KDNH- 250	KDNH- 300
	Rated heat	MW	0.12	0.17	0.23	0.29	0.35	0.41	0.47	0.52	0.58	0.7	0.93	1.16	1.40	1.51	1.74	1.86	2.33	2.01	3.49
_l	output	kcal/h	100,000	150,000	200,000	250,000	300,000	350,000	400,000	450,000	500,000	600,000	800,000	1,000,000	1,200,000	1,300,000	1,500,000	1,600,000	2,000,000	2,500,000	3,000,000
or hea	Circulation volume		1,667	2,500	3,333	4,167	5,000	5,833	6,667	7,500	8,333	10,000	13,333	16,667	20,000	21,667	25,000	26,667	33,333	41,667	50,000
ting an	Maximum operating pressure	MPa {kgf/ơi}		1{10}																	
d hot w	Pressure loss	MPa {mH20}	0.006{0.06}	0.015	{0.15}	0.018	{0.18}	0.015	{0.15}	(0.02{0.2	}	0.024{0.24}	0.033{0.33}	0.022	{0.22}	(0.03{0.3	}	0.035{0.35}	0.04{0.4}
/ater	Material			Stainless steel pipe																	
	Connection diameter		40	40	40	40	40	40	50	50	50	50	65	65	65	65	80	80	80	100	100

1. The above specification table is indicated as follows.

- Boiler efficiency and fuel consumption are based on lower calorific value.

- LNG : 10,000 kcal/Nm - LPG (propane) : 22,400 kcal/Nm - LPG (butane) : 29,500 kcal/Nm - Diesel : 10,300 kcal/kg (specific gravity : 0.836)

2. Design flow temperature condition for heating and hot water circulation 333~343K {60~70°C}

3. Design flow temperature condition for hot water supply 298~338K {25~65°C}, 278~338K {5~65°C}

Specifications in () are diesel boiler specifications.

4. The rated heat output for heating and hot water supply is given for each individual use, and in the case of simultaneous use, the total is the boiler heat output.

5. The following tolerances are included due to the measurement errors of the measuring instrument or measuring personnel, - Boiler efficiency measurement error ±1%.

6. The above boiler efficiency is based on net calorific value (lower calorific value).

7. The above specification table is subject to change without notice.

8. This specification is based on a gas boiler. For detailed specifications, refer to the specification table.

smoke tube Flue 04

High quality once-through steam boiler manufactured with optimal design and strict quality control

Once-through steam boiler that maximizes the efficiency of equipment as a highly efficient certified product

Condensing high efficiency once-through steam boiler

Once-through steam boiler



- 𝒞 Dry steam is generated 4∼5 minutes after ignition without the loss of preheating load, reducing fuel cost.
- 𝜍 A high performing boiler that achieves high efficiency with exclusive heat transfer fins.
- Easy to handle as operation, water supply and burner combustion control can be automatically controlled and set with one-touch operation
- Sequipped with a high-performance steam separator to supply highquality dry steam even with sudden load fluctuations.
- Strong esistance to corrosion caused by scale deposition by equipping patented square shaped lower pipe joint header.
- Attaching a low-NOx burner ensures fuel cost saving, and NOx of 40 ppm or less is guaranteed for operation under 4% of O2. (Option)
- The artificial intelligence D-Brain control enables easier operation and management. (Option)
- Cascade unit control system can minimize installation space and enhance response to load fluctuation.

SI	andard sp.	ecitic	ations for	once-thr	ougn stea	am boller	KDKE ser	les						
tem	Model	Unit	KDKE- 100	KDKE- 200	KDKE- 300	KDKE- 400	KDKE- 500	KDKE- 600	KDKE- 800	KDKE- 1000	KDKE- 1500	KDKE- 2000	KDKE- 2500	KDKE- 3000
	Rated evaporation	kg/h	100	200	300	400	500	600	800	1,000	1,500	2,000	2,500	3,000
Öle	11	MW	0.07	0.15	0.22	0.30	0.37	0.45	0.60	0.75	1.12	1.50	1.87	2.25
st St	Heat output	kcal/h	64,370	128,740	193,110	257,480	321,850	386,220	514,960	643,700	965,550	1,287,400	1,609,250	1,931,100
eci	Efficiency	%						91	%					
fica	Heating area	m	3.1	4.2	4.9	4.9	4.9	4.9	9.54	9.60	9.74	20	22	23
tions	Control method	-		ON -	OFF					HI - LOV	N - OFF			
	Power	V	220V x 1ø x	60Hz / 220V	x 3ø x 60Hz				220V x 3ø x	60Hz / 380V	x 3ø x 60Hz			
3	LNG	Nm/h	7.1	14.1	21.2	28.3	35.4	42.4	56.6	70.7	106.1	141.5	176.8	212.2
Ŧ	Propane	Nm/h	3.2	6.3	9.5	12.6	15.8	18.9	25.3	31.6	47.4	63.2	78.9	94.7
Ē	Butane	Nm/h	2.4	4.8	7.2	9.6	12.0	14.4	19.2	24.0	36.0	48.0	59.9	71.9
) J	Diesel	kg/h	6.9	13.7	20.6	27.5	34.3	41.2	54.9	68.7	103.0	137.4	171.7	206.0
PC	Total electric capacity		0.45	0.75	1.22	2.15	2.15	2.34	6.0	6.0	9.8	14.8	14.8	18.8
Ver	Blower motor	kW	0.15	0.25	0.37	0.55	0.55	0.74	3.7	3.7	7.5	11.0	11.0	15.0
2	Water pump		0.2	0.4	0.75	1.5	1.5	1.5	2.2	2.2	2.2	3.7	3.7	3.7
_	Steam outlet		25	25	32	40	40	40	50	50	65	80	80	80
Connec	Water inlet		20	20	20	20	20	20	25	25	25	40	40	40
tion d	Drainage outlet	A	25	25	25	25	25	25	25	25	25	25	25	25
iam	Oil inlet		15	15	15	20	20	20	25	25	25	32	32	32
eter	Gas inlet		25	25	25	40	40	40	40	40	50	50	50	50
	Flue	ømm	150	200	200	250	250	300	300	300	350	400	500	500
Ţ	Width(W)		990	800	1,120	1,130	1,000	1,100	1,550	1,600	1,650	2,450	2,460	2,510
terr	Length(L)	mm	1,500	1,300	1,630	1,310	1,570	1,790	1,850	1,900	2,250	2,650	2,650	2,630
ล	Height(H)		1,860	1,920	2,080	2,160	2,160	2,350	2,400	2,600	2,620	3,130	3,230	3,290
	Weight	kg	490	520	710	850	880	1,400	1,500	1,620	1,670	4,100	4,300	4,900

1. The rated evaporation amount is based on the water supply temperature of 20°C and steam pressure of 1MPa. (KDKE-100~200 is 0.7MPa.) 2. Boiler efficiency and fuel consumption are based on lower calorific value

- Low-level calorific value 🗿 LNG : 10,000 kcal/Nm 🔞 Propane : 22,400 kcal/Nm 🔞 Butane : 10,000 kcal/Nm 🎱 Diesel : 10,000 kcal/Nm (low-level calorific value, specific gravity 0.836) 3. These specifications are subject to change without prior notice to improve product performance.

4. This specification is based on a gas boiler. For detailed specifications, refer to the specification table.

• Standard specifications for condensing high efficiency once-through type of steam boiler KDKE-HE series

Item	Model	Unit	KDKE- 400HE	KDKE- 500HE	KDKE- 800HE	KDKE- 1000HE	KDKE- 1500HE	KDKE- 2000HE	KDKE- 2500HE	KDKE- 3000HE	KDKE- 4000HE
σ	Rated evaporation		400	500	800	1,000	1,500	2,000	2,500	3,000	4,000
oile		MW	0.30	0.37	0.60	0.75	1.12	1.50	1.87	2.25	2.99
rsp	пеасоцрис	kcal/h	257.480	321,850	514,960	643,700	965,550	1,287,400	1,609,250	1,931,100	2,574,800
ecif	Efficiency	%					99%				
icat	Heating area	m	4.9	4.99	9.5	9.7	9.99	20.00	22	23	29
ions	Control method	-					HI - LOW - OFF				
	Power	V				220V x 3e	x 60Hz / 380V x	3ø x 60Hz			
ğ	LNG	Nm/h	26.01	32.51	52.02	65.02	97.53	130.04	162.55	195.06	260.08
nsur Fu	Propane	Nm/h	11.61	14.51	23.22	29.03	43.54	58.05	72.57	87.08	116.11
npti	Butane	Nm/h	8.88	11.02	17.63	22.04	33.06	44.08	55.10	66.12	88.16
9	Diesel	kg/h	-	-	-	-	-	-	-	-	-
Po	Total electric capacity		2.35	2.35	6.0	6.0	9.8	14.8	14.8	18.8	22.3
mpt	Blower motor	ĸw	0.75	0.75	3.70	3.70	7.5	11.0	11.0	15.0	18.5
ġ	Water pump		1.5	1.5	2.2	2.2	2.2	3.4	3.4	3.7	3.7
Co	Steam outlet		40	40	50	50	65	80	80	80	100
nnecti	Water inlet		25	25	25	25	25	40	40	40	50
on dia	Drainage outlet		25	25	25	25	25	25	25	25	25
meter	Gas inlet		40	40	40	40	50	50	50	50	50
	Flue	ømm	250	250	300	300	350	400	500	500	500
m	Width(W)		1,000	1,000	1,550	1,600	1,650	2,450	2,460	2,510	2,560
siz	Length(L)		1,900	1,900	2,100	2,150	2,550	3,050	3,050	2,750	2,750
rnal	Height(H)		2,160	2,160	2,450	2,650	2,700	3,130	3,230	3,290	3,730
	Weight	kg	1,100	1,240	1,710	2,000	2,300	4,400	5,200	6,300	7,200

1. The qualified evaporation amount is based on the water supply temperature of 20°C and steam pressure of 1MPa. 2. Boiler efficiency and fuel consumption are based on lower calorific value.

- Low-level calorific value 🕦 LNG : 10,000 kcal/Nm 🕲 Propane : 22,400 kcal/Nm 🕲 Butane : 10,000 kcal/Nm 🕲 Diesel : 10,000 kcal/Nm (low-level calorific value, specific gravity 0.836)

3. These specifications are subject to change without prior notice to improve product performance.

4. This specification is based on a gas boiler. For detailed specifications, refer to the specification table



- Sequipped with a high-performance water supply pre-heater (STS-304/316), it absorbs the high-temperature exhaust gas's heat generated after combustion as much as possible, and increases the water inlet temperature to achieve more than 99% efficiency.
- As the conductivity of boiler water is maintained within the allowable value by automatically measuring the concentration of boiler water, there is no carry-over and the lifespan is extended.
- Compact body design reduces the volume of retained water and allows steam to be generated quickly within 3~5 minutes after burner ianition
- Seasy to handle as operation, water supply and burner combustion control can be automatically controlled and set with one-touch operation.
- Sequipped with a high-performance steam separator to supply highquality dry steam even with sudden load fluctuations.
- Attaching a low-NOx burner ensures fuel cost saving, and NOx of 40 ppm or less is guaranteed for operation under 4% of O2. (Option)
- The artificial intelligence D-Brain control enables easier operation and management. (Option)



High efficiency low NOx condensing boiler



The condensing boiler maximizes the boiler efficiency by recovering the sensible heat of the exhaust gas generated during boiler operation and the condensed latent heat of water vapor by attaching air pre-heater and economizer to the main body.

- \checkmark The boiler maximizes energy efficiency by recovering the sensible heat contained in the exhaust gas and the latent heat of water vapor.
- The boiler is integrated with auxiliary facilities such as the blower, water pump, panel water meter and automatic blow device.
- The boiler does not require a separate installation space by attaching the original air pre-heater and economizer directly to the boiler.



Safe boiler with long life

Low NOx 3-pass flue and smoke tube boiler

KDF series

KDFC series



𝐼 3-pass structure.

- Seasy to replace and repair the flue with handy open-close 2-door smoke room design.
- The boiler has excellent sudden load fluctuation response ability as the body contains large amount of retained water.
- \bigodot High heat absorption rate by designing the rear combustion chamber wet type.
- The flue tube can be used safely as it is designed to cope with thermal expansion by making it in a waveform.

Standard specifications for condensing flue and smoke tube type of steam boiler KDFC series

					· J · · · · · ·			P								
Nodel Rated evaporation		Unit	KDFC -1000HEX	KDFC -15HEX	KDFC -20HEX	KDFC -25HEX	KDFC -30HEX	KDFC -35HEXB	KDFC -40HEXB	KDFC -45HEX	KDFC -50HEXB	KDFC -60HEX	KDFC -70HEX	KDFC -80HEX	KDFC -100HEX	
	Rated evaporation	kg/h	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	6,000	7,000	8,000	10,000	
Boile	Medium hot water	Gcal/h		1G		1.5G	2G		2.5G	3G	3.5G	4G	4.5G	5G	6G	
er spec	Maximum operating pressure	Mpa [kg/cm²]							1{10}							
ific		MW	0.75	1.12	1.50	1.87	2.25	2.62	2.99	3.37	3.74	4.49	5.24	5.99	7.48	
ati	Heat output	kcal/h	643,700	965,550	1,287,400	1,609,250	1,931,100	2,252,950	2,574,800	2,896,650	3,218,500	3,862,200	4,505,900	5,149,600	6,437,000	
ons	Efficiency	%							99%							
	Heating area	m	16	26	34	40	47	54	61	68	74	91	104	119	150	
	Power	V						380V	/ 440V x 3ø	x 60Hz						
B	Combustion control						HI - LOW -	OFF / HI - MI	D - LOW - O	FF / proport	ional contro					
rne	Burner type			Forced mixing type												
7	Ignition method							Pilot	t ignition me	thod						
₽ъ	Model	-						ŀ	leat pipe typ	be						
י≓ק	Product weight	kg	194	219	255	278	320	362	371	388	403	529	613	678	749	
א פ	Model	-							Spiral type							
e ter	Product weight	kg	164	279	330	376	388	473	512	544	631	674	687	726	894	
cons	LNG	N㎡/h	65.0	97.5	130.0	162.6	195.1	227.6	260.1	292.6	325.1	390.1	455.1	520.2	650.2	
Fuel	Dropopo	Nm/h	29.0	43.5	58.1	72.6	87.1	101.6	116.1	130.6	145.1	174.2	203.2	232.2	290.3	
ti S	Proparie	kg/h	57.0	85.5	114.0	142.6	171.1	199.6	228.1	256.6	285.1	342.2	399.2	456.2	570.3	
cons	Water pump	Model						Ve	rtical multi-s	step						
ump:		kW x quantity		2.2 X 2		3.0	X2		3.7	'X2		5.5X2		7.5X2		
<u>5</u>	Blower	kW	3.	7	7.	.5		11		1	5	19	22	30	37	
0	Steam outlet		50	65	80	80	80	80	100	100	125	125	150	150	200	
nn l	Water inlet		25	25	25	25	40	40	40	40	40	40	40	40	50	
čti	Drainage outlet		40	40	40	40	40	40	40	40	40	40	40	50	50	
Э	Gas inlet		25	40	40	40	40	40	50	50	50	50	50	65	65	
lian	Safety valve		25 X 1		40	X 1		40 X 1 /	/ 25 X 1		40x2		50 X 1	/ 40 X 1	65X1/50X1	
net	Exhaust outlet	mm	300x430	380x475	400x600	400x600	380x700	480x700	480x720	480x720	480x770	546x750	546x860	546x930	600x950	
e,	Flue	ømm	300	350	400	400	450	450	500	550	550	600	650	700	800	
_	Width(W)		1,826	2,111	2,136	2,241	2,351	2,416	2,461	2,461	2,531	2,596	2,828	2,871	3,140	
site	Length(L)		3,566	3,599	3,828	3,938	4,142	4,865	4,657	5,057	4,953	5,455	5,645	5,992	6,873	
eze	Height(H)		2,781	3,061	3,236	3,326	3,376	3,324	3,394	3,394	3,660	3,862	3,945	4,157	4,328	
	Weight	Ton	4.0	5.3	6.1	6.9	7.7	8.8	9.5	10.0	11.2	13.0	14.5	17.0	20.5	

1. The above specification table is indicated as follows. - Boiler efficiency and fuel consumption are based on lower calorific value.

2. The rated evaporation amount is based on the water supply temperature of 20°C and steam pressure of 1MPa. 3. These specifications are subject to change without prior notice to improve product performance.

- LNG : 10.000 kcal/Nm - Propane (LPG) : 22,400 kcal/Nm

	Standard s	pecifications for 3	-pass flue and	smoke tube	type of l
_					-,

				•			<i>'</i> ''								
ltem	Model	Unit	KDF -1000	KDF -1500	KDF -2000	KDF -2500	KDF -3000	KDF -3500	KDF -4000	KDF -4500	KDF -5000	KDF -6000	KDF -7000	KDF -8000	KDF -10000
	Rated evaporation	kg/h	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	6,000	7,000	8,000	10,000
Boj.	Medium hot water	Gcal/h		1G		1.5G	2G		2.5G	3G	3.5G	4G	4.5G	5G	6G
ler spe	Maximum operating pressure	Mpa [kg/cmi]							1{10}						
ifi		MW	0.75	1.12	1.50	1.87	2.25	2.62	2.99	3.37	3.74	4.49	5.24	5.99	7.48
cati	nearoutput	kcal/h	643,700	965,550	1,287,400	1,609,250	1,931,100	2,252,950	2,574,800	2,896,650	3,218,500	3,862,200	4,505,900	5,149,600	6,437,000
0ng	Efficiency	%							88%						
	Heating area	m	26	33	41	51	62	70	81	91	101	110	121	138	175
	Power	V						380V	/ 440V x 3ø	x 60Hz					
Bu	Combustion control						HI - LOW -	OFF / HI - MI	D - LOW - 0	FF / proport	ional contro	I			
rne	Burner type							Fo	rced mixing	type					
	Ignition method							Pilo	t ignition me	ethod					
6	LNG		73.1	109.7	146.3	182.9	219.4	256.0	292.6	329.2	365.7	438.9	512.0	585.2	731.5
nsu F	LPG +AIR	N Jacob / Jac	52.2	78.4	104.5	130.6	156.7	182.9	209.0	235.1	261.2	313.5	365.7	418.0	522.5
ng ⊡_	Propane		32.7	49.0	65.3	81.6	98.0	114.3	130.6	146.9	163.3	195.9	228.6	261.2	326.6
ion D	Butane		24.8	37.2	49.6	62.0	74.4	86.8	99.2	111.6	124.0	148.8	173.6	198.4	248.0
con	Water pump	Model						Ve	rtical multi-	step					
sum:	water pump	kW x quantity		2.2 X 2		3.0	IX2		3.7	/X2		5.5X2		7.5X2	
otion "	Blower	kW	3.	.7	7	.5		11			1	5		19	22
0	Steam outlet		50	65	80	80	100	100	100	100	125	125	150	150	200
Pr	Water inlet		25	25	25	25	40	40	40	40	40	40	40	40	50
lect	Drainage outlet		40	40	40	40	40	40	40	40	40	50	50	50	50
ön	Gas inlet		25	40	40	40	40	40	50	50	50	65	65	80	80
dia	Safety valve		25 X 1	32X1	40X1	32X1/25X1	40X1	/ 25X1	40X2	40x1/32X1	40X2	5	0 X 1 / 40 X	1	65X1/50X1
me	Exhaust outlet	mm	250X400	250X550	300X600	300X750	400X750	400X800	400X950	500X950	500X950	600X950	600X900	700X950	700X950
.er	Flue	ømm	300	350	400	450	500	550	600	600	650	650	650	700	800
	Width(W)		2,178	2,278	2,408	2,408	2,498	2,605	2,705	2,852	2,852	2,660	2,810	3,010	3,120
s Et	Length(L)		3,553	3,715	3,968	4,448	5,069	5,075	5,275	5,375	5,575	5,600	6,200	6,500	6,960
erna	Height(H)		2,796	2,896	3,031	3,031	3,131	3,251	3,351	3,501	3,501	2,860	3,060	3,250	3,320
	Weight	Ton	4.6	6.8	8.4	9,1	11.0	12.6	13.5	15.4	15,9	16.4	17.6	19,2	22.5

1. The above specification table is indicated as follows. - Boiler efficiency and fuel consumption are based on lower calorific value. - LNG : 10,000 kcal/Nm - LPG + AIR : 14,000 kcal/Nm - Propane : 22,400 kcal/Nm - Butane : 29,500 kcal/Nm

00. D-Brain control

01. Vacuum hot water

low NOx boiler KDF series

2. The rated evaporation amount is based on the water supply temperature of 20°C and steam pressure of 1MPa.

3. These specifications are subject to change without prior notice to improve product performance.

Small capacity flue and smoke Z-MINI flue and smoke tube tube steam boiler

steam boiler

Z-MINI series

room door desian.

boiler is small.

boiler

the same capacity.

Seasy to clean, inspect and maintain.





- The first Korean boiler to adopt 3-pass structured horizontal flue in 🔗 3-pass structure industrial boiler. \checkmark High efficiency by using the special spiral flue.
- \checkmark Easy to replace and repair the flue with handy open-close smoke room door design.
- Cylindrical design provides high safety, easy clean and maintenance.
- Good for use in poor water quality conditions such as groundwater, etc.
- Combustion of bunker C oil is also possible.
- Continuous supply of highly dried and high-quality steam.
- 𝒞 Narrow width design allow easy installation even in small spaces. 𝔅

Two-circuit flue and smoke tube hot water boiler

SUPER series



✓ Principle and structure

facilitates hot water circulation inside the boiler body and greatly increases tube and the smoke tube using the steel pipe for boilers. the heat exchanger heat absorption.

- \checkmark Both hot water and heating can be solved at the same time with one boiler.
- Scale generation and dissolved oxygen corrosion are reduced by Scale generation and dissolved oxygen corrosion are reduced by attaching the heat exchanger to the inside of the boiler.
- Smoking chamber has no risk of collapse as it is made with fire-resistant is made with bricks and is made as water-room type to maximize heating surface.
- The heating surface of the heat exchanger, which is the life of a hot water boiler, is expanded as much as possibly by designing the copper pipe installation of the heat exchanger with the largest capacity in Korea (Containing 8-10% more than the actual required amount).



 \bigotimes Easy to replace and reppair the flue with handy open-close smoke

Steam generation is fast (dry steam is generated 6-10 minutes after ignition) and thermal efficiency is high as the retained water of the

Requires only 1/2 installation space compare to existing boilers of

Attaching the artificial intelligence controller D-Brain enables the

Flue and smoke tube hot water

easier operation and management. (Optional)

✓ Principle and structure

It is a high-performance, high efficiency boiler that has unique 3-pass The boiler is made in the high performance of the package type in very high combustion structure and eccentric corrugated combustion chamber that thermal efficiency using the combustion chamber made of a corrugated flue

> It shows the best performance with the pressurized combustion method in the optimum desian.

- method, and the facility cost is drastically reduced due to the pack cage type.
- front and rear combustion chambers as water rooms in order to minimize the heat dissipation loss.
- Seasy to replace and repair the flue with handy open-close smoke room door design

Standard specifications for flue and smoke tube type of steam boiler

	Model		S-MINI seri	es in the sm	in the small capacity Z-MINI series in the ultra-small capacity											
te	m	Unit	S-MINI - 10	S-MINI - 20	S-MINI - 30	Z-MINI - 50	Z-MINI - 80	Z-MINI - 100	Z-MINI - 150	Z-MINI - 200	Z-MINI - 250	Z-MINI - 300	Z-MINI - 500	Z-MINI - 800	Z-MINI - 1000	
	Rated evaporation		100	200	300	500	800	1,000	1,500	2,000	2,500	3,000	5,000	8,000	10,000	
	Maximum operating pressure	Mpa [kg/cៅ]		0.35 [3.5]						1 [10]					
D	Heat output	MW	0.07	0.15	0.22	0.38	0.6	0.75	1.12	1.5	1.87	2.25	3.74	5.99	7.49	
2		kcal/h	63,490	126,980	190,470	321,850	514,960	643,700	965,550	1,287,400	1,609,250	1,931,100	3,218,500	5,149,600	6,437,000	
3	Efficiency	%		86%						88	3%					
1	Weight	kg		-		2,250	2,410	2,500	2,650	2,900	3,410	3,550	4,310	5,620	7,020	
, 	Operating power		220)V x 1ø x 6	OHz				220V x 3	3ø x 60Hz / 3	80V x 3ø x 60)Hz x 4W				
5	Combustion method	-	Fc Ve	orced pressentilation ty	-in pe					Forced m	iixing type					
	Control method			ON-OFF			High - Low - Off / Fully Automatic									
	Retaining quantity			-		800	850	920	980	1,050	1,410	1,520	1,850	2,310	2,650	
п 5	Boiler kerosene	ka/h	8.7	17.3	26.0	41.7	66.7	83.5	125.3	167.1	208.9	250.6	417.6	668.6	835.7	
3	Heavy oil		8.0	16.0	24.0	38.5	61.7	77.1	115.7	154.2	192.7	231.4	385.6	617.1	771.3	
2	LNG		7.4	14.8	22.1	36.6	58.5	73.1	109.7	146.3	182.9	219.4	365.7	585.2	731.5	
	Propane		3.3	6.6	9.9	16.3	26.1	32.7	49.0	65.3	81.6	98.0	163.3	261.2	326.6	
	LPG + AIR		5.3	10.7	16.1	25.8	41.4	51.7	77.6	103.5	129.4	155.3	258.8	414.1	517.7	
2	Water pump		0.4	0.4	0.75	1.5X2	1.5X2	2.2X2	2.2X2	2.2X2	2.2X2	3.7X2	3.7X2	5X2	5X2	
	Oil heater		2.0	2.0	2.0	5	5	6	6	9	9	10	16	20	20	
	Oil pump		-	-	-	0.4	0.4	0.4	0.4	0.75	0.75	0.75	2.2	3.7	3.7	
	Burner motor		0.4	0.4	0.4	1.5	2.2	2.2	3.7	5.5	7.5	7.5	15.0	19.0	22.0	
	Main steam valve		25	32	40	40	50	50	65	80	80	80	125	150	200	
	Safety valve		25	40	50	25	25	25	32	40	40	40	40,40	40,50	50,50	
	Water supply valve		25	25	25	25	25	25	25	40	40	40	40	50	50	
1	Drainage valve		40	40	40											
2	Water supply inlet		-	-	-	15	15	15	20	20	25	25	32	40	40	
3	Gas inlet		-	-	-	40	50	50	50	50	50	50	50	80	100	
	Exhaust outlet	ømm	-	-	-	250X350	300X380	300X400	300X440	350X500	400X550	400X580	450X600	500X700	550X800	
	Flue		150	200	200											
1	Width(W)		960	1,160	1,160	1,550	1,850	1,850	1,900	1,970	2,070	2,150	2,300	2,550	2,800	
í	Length(L)		1,760	1,940	2,100	2,850	3,600	3,800	4,000	4,450	4,900	5,050	5,350	5,600	5,950	
1	Height(H)		1,150	1,520	1,520	2,050	2,400	2,400	2,450	2,580	2,680	2,800	3,050	3,250	3,450	

1. Boiler efficiency and fuel consumption are based on lower calorific value. Low-level calorific value

① Boiler kerosene : 43,116kJ/kg {10,300kcal/kg}

2. The rated evaporation amount is based on the water supply temperature of 20°C, steam pressure of 0.35Mpa {3.5kg/cm} and 1Mpa {10kg/cm}. 3. The efficiency measurement of the boiler is based on the low-level calorific value of the fuel and the value at the

② Heavy oi I: 40,813kJ/kg {9,750kcal/kg}
③ LNG: 41.9KJ/Nm² {10,000kcal/Nm²} @ Propane : 93.8KJ/Nm² {22,400ckal/Nm²} ⑤ LPG+AIR : 57.8KJ/Nm² {13,800kcal/Nm²}

Standard specifications for the flue and smoke tube type of hot water boiler

	Model		Standard sp	ecifications fo	or flue and sm	oke tube 2-ci	rcuit type of S	UPER series	Standard spe	cifications for	flue and smok	e tube type of	hot water boil	er MEC series
tem	Model	Unit	SUPER - 30	SUPER - 40	SUPER - 50	SUPER - 60	SUPER - 80	SUPER - 100	MEC - 30	MEC - 40	MEC - 50	MEC - 60	MEC - 80	MEC - 100
	Rated	MW	0.35	0.47	0.58	0.7	0.93	1.16	0.35	0.47	0.58	0.7	0.93	1.16
	evaporation	kcal/h	300,000	400,000	500,000	600,000	800,000	1,000,000	300,000	400,000	500,000	600,000	800,000	1,000,000
- 1	Maximum operating pressure	Mpa [kg/cm²]		0.35 [3.5]		0.35 [3	8.5], 0.7 [7], 1 (optional)	.0 [10]		0.35 [3.5]		0.35 [3	.5], 0.7 [7], 1 (optional)	.0 [10]
solier Douy	Efficiency							88	%					
	Operating power						220V x 3	ø x 60Hz / 38	30V x 3ø x 60	Hz x 4W				
	Burner output	kW	0.3(0.25)	0.3(0.35)	0.47(0.47)	2.2	2.2	0.7	1.5	1.5	1.5	2.2	2.2	3.7
	Boiler kerosene	ka/b	39.8	53	66.3	79.5	106	132.5	39.8	53	66.3	79.5	106	132.5
Fuel	Heavy oil	ку/п	36.7	49.1	61.3	73.6	98.1	122.6	36.7	49.1	61.3	73.6	98.1	122.6
nsumption	LNG		34.1	45.4	56.8	68.2	90.9	113.6	34.1	45.4	56.8	68.2	90.9	113.6
	Propane	Nm/h	15.2	20.3	25.4	30.4	40.6	50.7	15.2	20.3	25.4	30.4	40.6	50.7
	LPG + AIR		24.7	32.9	41.1	49.4	65.8	82.3	24.7	32.9	41.1	49.4	65.8	82.3
	Hot water inlet and outlet		80	100	100	125	125	150	80	100	100	125	125	150
Connection diameter	Heating Inlet and Outlet		50	50	50	50	65	65	80	100	100	125	125	150
	Drainage valve		32	32	32	40	50	50	32	32	32	40	50	50
	Flue	ømm	250	300	300	300	350	400	250	300	300	300	350	400
	Width(W)		1,440	1,500	1,500	1,500	1,680	1,720	2,200	2,350	2,510	2,700	2,850	3,050
xternal size	Length(L)		2,100	2,300	2,460	2,620	2,830	3,060		1,400		1,520	1,6	30
	Height(H)		1,690	1,780	1,780	1,920	2,150	2,270	1,690	1,7	80	1,920	2,150	2,270

1. Boiler efficiency and fuel consumption are based on lower calorific value.

- Low-level calorific value (1) Boiler kerosene : 44.116kJ/ka{10.300kcal/ka} (2) Heavy oil : 40.813kJ/ka{9.750kcal/ka} ③ LNG: 41.9KJ/Nmi{10,000kcal/Nmi} ④ Propane: 93.8KJ/Nmi{22,400kcal/Nmi} ⑤ LPG+AIR: 57.8KJ/Nmi{13,800kcal/Nmi} 2. These specifications are subject to change without prior notice to improve product performance.

hot

02. Pres

through steam boiler

o

03.

Flue and smoke tube boile

04.

D-Brain control

8

time of rating

4. These specifications are subject to change without prior notice to improve product performance.

NAVAL flue and smoke tube hot water boiler



- \bigcirc High performance and high efficiency are maintained as it is manufactured with a combustion structure of the inverted combustion of the 3-pass method adopting a special spiral pipe.
- S Inside can be aluminum metalized when used for hygienic hot water supply
- Seasy to replace and repair the flue with handy open-close smoke room door design.
- \bigcirc It is a high-end product with high performance and high efficiency that minimizes heat loss in the front flue chamber made with the latest technology in Europe and Dongkwang's know-how by technology provided from Naval, Italy.

Economical! Strong durability! Safety! All-in-one convenience **Electric steam boiler**

KDE series



Solvers that save as you use.

Boilers that can be used economically with much lower fuel cost than oil and gas boilers.

𝔇 Unique structure only by Kiturami.

Unique structure that generates superior quality steam by installing a special steam separator inside the boiler.

Convenient and safe steam boiler to use.

It is equipped with easy-to-use control that can be used easily by anyone, and safety devices such as overheating prevention, low water level prevention, overpressure prevention, and leakage blocking are installed as default.

Seco-friendly steam boiler with simple installation and construction.

It is an eco-friendly steam boiler that can be easily installed in a small space due to its compact design and can be used after simply connecting electricity and water lines.

✓ Products necessary for durable and hygienic places [high-end type]

It has a long life and is suitable for food companies that require hygiene as it is made of stainless steel with strong corrosion resistance even if the water quality is poor.

✓ Place of use

Laundry shop, laundry factory, sauna, steam bath room, sewing factory, dyeing factory, food company, brick factory, concrete curing work in winter, agricultural and fishing facilities, high temperature cleaning, etc.



Standard specifications for Naval flue and smoke tube type of hot water boiler DN series

/ Ite	Model m	Unit	DN - 10	DN - 20	DN - 30	DN - 40	DN - 50	DN - 60	DN - 80	DN - 100	DN - 120	DN - 150	DN - 180	DN - 200
	Rated heat	MW	0.12	0.23	0.35	0.47	0.58	0.7	0.93	1.16	1.39	1.75	2.09	2.33
	output	kcal/h	100,000	200,000	300,000	400,000	500,000	600,000	800,000	1,000,000	1,200,000	1,500,000	1,800,000	2,000,000
Boile	Maximum operating pressure	Mpa [kg/cm²]					0.35	[3.5], 0.7 [7],	1.0 [10] (opt	ional)				
r boc	Efficiency							88	3%					
<	Operating power		220V x 1	ø x 60Hz				220V x 3	3ø x 60Hz / 3	80V x 3ø x 60	Hz x 4W			
	Burner output		0.4	0.4	0.75	0.75	1.1	1.5	2.2	2.2	3.7	5.5	7	11
Fue	Boiler kerosene	ka/h	13.3	26.5	39.8	53.1	66.9	79.6	106.3	132.9	159.4	174.1	239.1	265.8
CO	Heavy oil		12.2	24.5	36.7	49	61.3	73.6	98.1	122.6	147.1	184	220.7	245.4
nsur	LNG		11.4	22.7	34.1	45.4	56.8	68.2	90.9	113.6	136.4	170.4	204.5	227.3
npti	Propane		5.1	10.1	15.2	20.3	25.4	30.4	40.6	50.7	60.9	76.1	91.3	101.5
S	LPG + AIR		8.2	16.4	24.7	32.9	41.1	49.4	65.8	82.3	98.8	123.5	148.2	164.5
Dia	Hot water inlet and outlet		50	65	80	100	100	100	100	125	150	150	150	200
mete	Drainage valve		25	25	32	32	32	32	40	40	50	50	50	50
Ÿ	Flue	ømm	150	200	250	300	300	300	350	400	400	450	450	450
Ext∈	Width(W)		850	920	1,010	1,010	1,130	1,130	1,250	1,250	1,400	1,400	1,600	1,600
rnal	Length(L)		2,190	2,170	3,050	3,260	3,450	3,500	3,600	3,650	3,720	3,800	4,050	4,200
size	Height(H)		1,260	1,360	1,430	1,430	1,550	1,550	1,700	1,750	1,830	1,900	2,050	2,150

1. Boiler efficiency and fuel consumption are based on lower calorific value.

Low-level calorific value ① Boiler kerosene : 43,116kJ/kg{10,300kcal/kg} ② Heavy oil : 40,813kJ/kg{9,750kcal/kg} ③ LNG: 41.9KJ/Nmi{10,000kcal/Nmi} ④ Propane: 93.8KJ/Nmi{22,400kcal/Nmi} ⑤ LPG+AIR: 57.8KJ/Nmi{13,800kcal/Nmi} 2. These specifications are subject to change without prior notice to improve product performance.

• Standard specifications for electric steam boiler KDE series

	Item	Unit	KDE- 10	KDE- 20	KDE- 30	KDE- 40	KDE- 50	KDE- 60	KDE- 70	KDE- 80	KDE- 90	KDE- 100	KDE- 120	KDE- 150	KDE- 200	KDE- 250	KDE- 300	KDE- 350	KDE- 400	KDE- 450
cor	Power nsumption	kW	10	20	30	40	50	60	70	80	90	100	120	50	200	250	300	350	400	450
C	Dutput	kcal/h	8,600	17,200	25,800	34,400	43,000	51,600	60,200	68,800	77,400	86,000	103,200	129,200	172,000	215,000	258,000	301,000	344,000	387,000
Ef	ficiency	%									9	8%								
l eva	Rated poration	kg/h	15	30	45	60	75	90	105	120	135	150	180	225	300	375	450	525	600	675
N C F	Aaximum operating pressure	kg/cm²										5								
0p F	oerating bower	v									380V x	3ø x 60Hz	7							
Ma	in steam valve		15	15	15	15	15	15	20	20	20	20	20	20	25	32	32	40	40	40
۱ sup	Water ply valve		15	15	15	15	15	15	15	15	15	15	20	20	20	20	20	20	20	20
Dı	rainage valve		15	15	15	15	15	15	15	20	20	20	20	20	20	25	25	40	40	40
Saf	ety valve		15	15	15	15	15	15	15	15	15	15	15	15	20	25	25	25	25	25
Exte	Width(W)		400	400	610	610	610	610	685	685	685	685	685	685	835	1,160	1,160	1,160	1,160	1,160
ernal	Length(L)	mm	760	760	760	760	760	760	985	985	985	985	985	985	1,210	1,190	1,1 90	1,190	1,190	1,190
size	Height(H)		1,030	1,030	1,030	1,030	1,030	1,030	1,180	1,180	1,180	1,180	1,180	1,180	1,440	1,740	1,740	2,040	2,040	2,040

- These specifications are subject to change without prior notice to improve product performance.

5

00. D-Brain control

Kiturami Dong Kwang

Clean energy becomes a great foundation for Our life and industrial development!

Kiturami Dongkwang Boiler Product Line-up



Vacuum hot water boiler



Vacuum hot water boiler



High-efficiency vacuum hot water boiler



High-efficiency vacuum hot water boiler



Pressureless hot water boiler



Once-through steam boiler



Flue and smoke tube boiler



Electric steam boiler



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