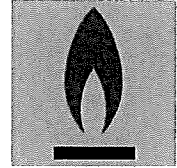


Technical Data Manual

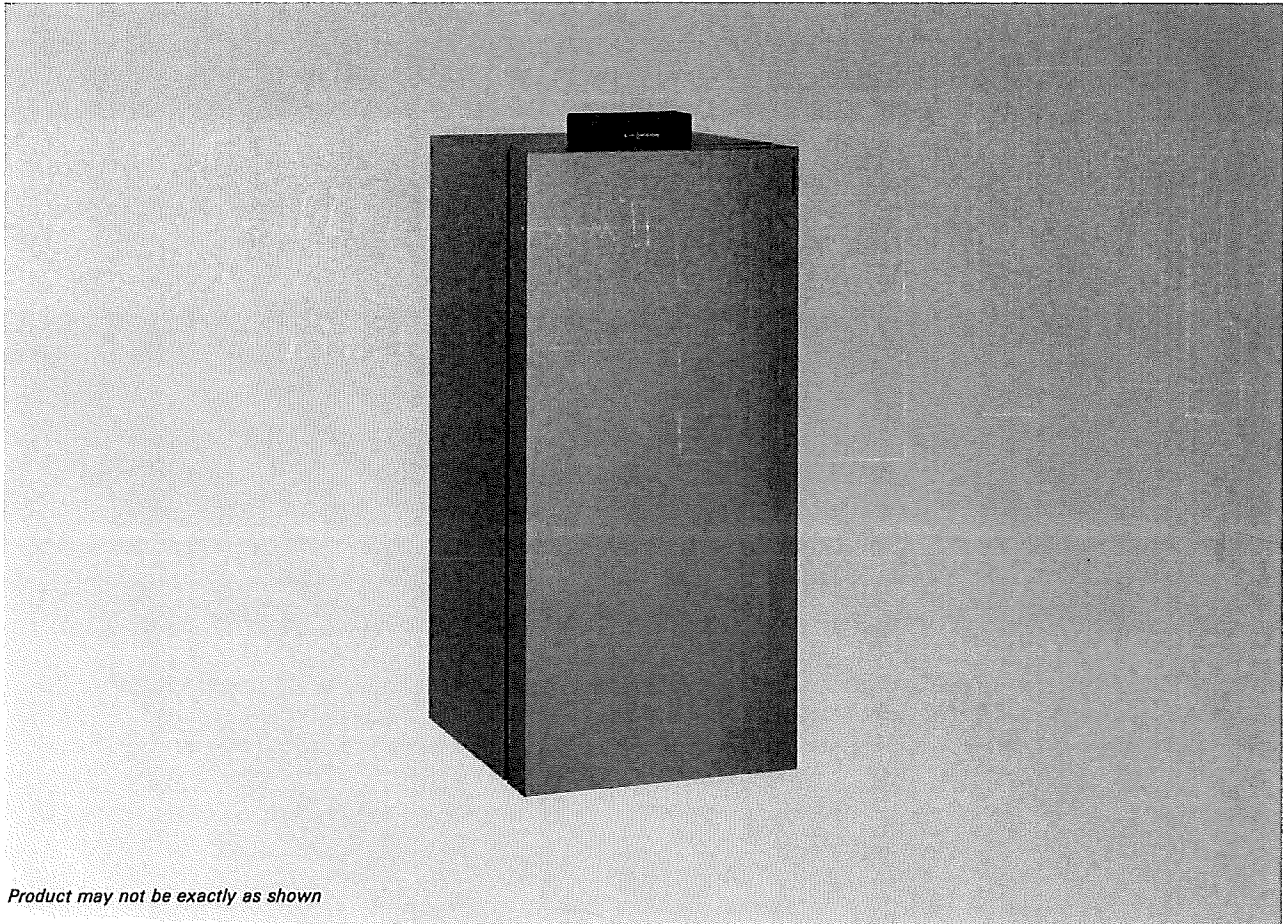
Model Nos. and pricing: see Price List

VIESSMANN®

For operation with natural gas and liquid propane gas
Floor mounted, gas-fired condensing boiler
Heating input 19 to 199 MBH
5.6 to 58 kW



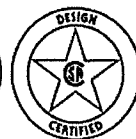
VITOCROSSAL 300



Product may not be exactly as shown

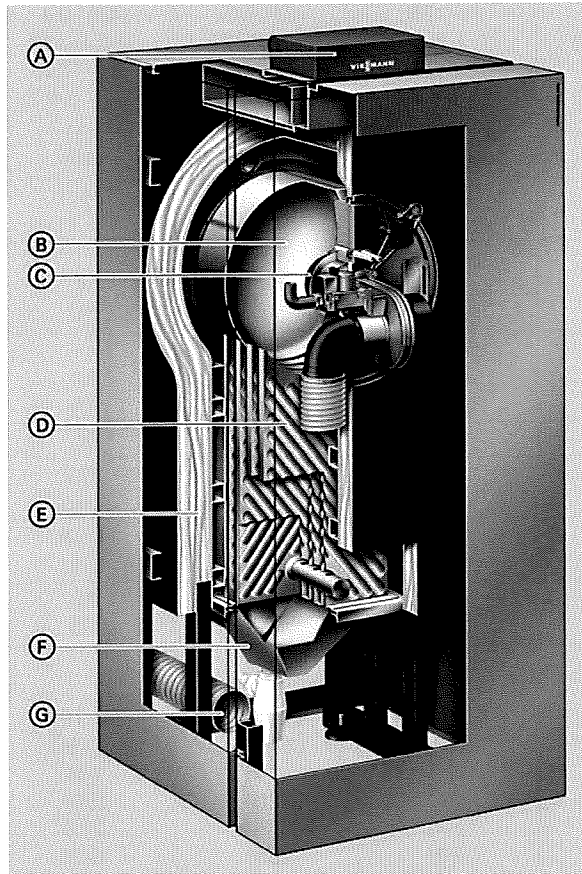
Vitocrossal 300
CU3A Series 26 to 57

Floor mounted, gas-fired condensing boiler with modulating Matrix gas burner.
For room air dependent or independent operation.



Cross-Section

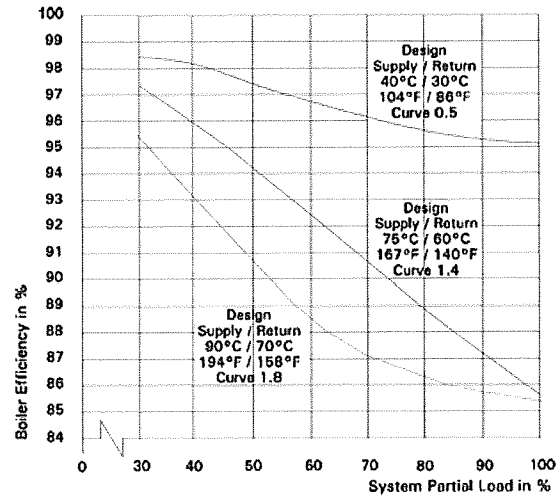
Vitocrossal 300 CU3A 26 to 57



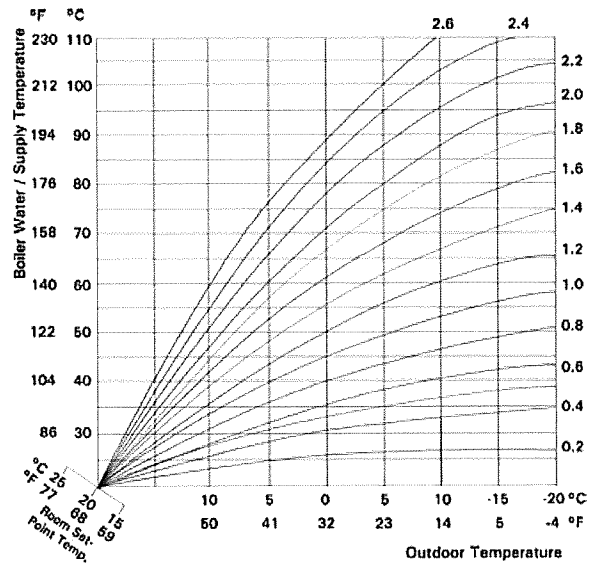
Product may not be exactly as shown

Legend

- (A) Digital Vitotronic boiler control unit
- (B) Water-cooled stainless steel combustion chamber
- (C) Modulating Matrix gas burner – for extremely clean combustion
- (D) Stainless steel Inox-Crossal heat exchanger
- (E) Highly effective thermal insulation
- (F) Flue gas collector with condensate drain pipe
- (G) Combustion air intake for direct vent (two-pipe) systems



Vitocrossal 300 CU3A boiler efficiency dependent on system heating water return temperatures and load conditions



Technical Data

Boiler Model No. CU3A		26	35	45	57
Natural Gas / Liquid Propane Gas CSA input	MBH	19-94	25-125	43-160	43-199
	(kW)	(5.6-27.5)	(7.3-36.6)	(12.6-47)	(12.6-58)
CSA output / DOE heating capacity*1	MBH	17.7-87	23.3-116	40-149	40-185
	(kW)	(5.2-25.5)	(6.8-34)	(11.7-43.7)	(11.7-54.2)
Net AHRI Rating	MBH	76	101	129	161
	(kW)	(22)	(30)	(38)	(47)
Heat exchanger surface area	ft. ²	16.7	20.7	34.1	34.1
	(m ²)	(1.5)	(1.9)	(3.2)	(3.2)
Min. gas supply pressure					
Natural gas	"w.c.	4	4	4	4
Liquid propane gas	"w.c.	10	10	10	10
Max. gas supply pressure *3					
Natural gas	"w.c.	14	14	14	14
Liquid propane gas	"w.c.	14	14	14	14
A.F.U.E.	%	95	95	95	95
Weight	lbs	269	275	352	352
	(kg)	(122)	(125)	(160)	(160)
Boiler water content	USG	13.5	13.0	18.8	18.8
	(L)	(51)	(49)	(71)	(71)
Max. operating pressure at 210°F (99°C)	psig	30	30	30	30
	(bar)	(2)	(2)	(2)	(2)
Boiler water temperature					
- Adjustable high limit (AHL) range space heating (steady state)	°F	68-194	68-194	68-194	68-194
	(°C)	(20-90)	(20-90)	(20-90)	(20-90)
DHW production	°F	194	194	194	194
	(°C)	(90)	(90)	(90)	(90)
- Fixed high limit (FHL)	°F	210	210	210	210
	(°C)	(99)	(99)	(99)	(99)
Boiler connections					
Boiler heating supply and return	NPTM	1¼"	1¼"	1¼"	1¼"
Pressure relief valve	NPTF	¾"	¾"	¾"	¾"
Boiler drain	NPTM	1"	1"	1"	1"
	NPTF	¾"	¾"	¾"	¾"
Gas valve connection					

*1 Output based on 140°F (60°C), 120°F (49°C) system supply/return temperature.

*2 Net AHRI rating based on piping and pick-up allowance of 1.15.

*3 If the gas supply pressure exceeds the maximum gas supply pressure value, a separate gas pressure regulator must be installed upstream of the heating system.

Note: For high altitude installation at 10,000 ft. the input for model Vitocrossal 300 CU3A will have an altitude de-rating of 18%.

Technical Data

Boiler Model No. CU3A		26	35	45	57
Dimensions					
Overall depth	inches	27	27	31½	31½
	(mm)	684	684	801	801
Overall width	inches	26	26	26	26
	(mm)	660	660	660	660
Overall height	inches	67	67	67	67
(with control interface open)	(mm)	1707	1707	1707	1707
Overall height	inches	61.5	61.5	61.5	61.5
	(mm)	1562	1562	1562	1562
Flue gas *4					
Temperature (at boiler return temperature of 86°F (30°C))					
- at rated full load	°F (°C)	113 (45)	113 (45)	113 (45)	113 (45)
- at rated partial load	°F (°C)	90 (32)	90 (32)	90 (32)	90 (32)
Temperature (at boiler return temperature of 140°F (60°C))	°F (°C)	167 (75)	167 (75)	167 (75)	167 (75)
Max. condensate flow rate *5 for NG and LPG					
TS/TR = 104/86°F (40/30°C)	USG/h	0.9	1.2	1.6	2.1
	(L/h)	3.43	4.62	5.95	7.92
Condensate connection					
	hose nozzle				
	Ø in.	¾	¾	¾	¾
Boiler flue gas connection *6					
	Ø in. (mm)	3 (80)	3 (80)	4 (110)	4 (110)
Combustion air supply connection					
	outer Ø in. (mm)	3 (80)	3 (80)	3 (80)	3 (80)
Sound Rating (A scale)					
- at maximum input	dB	48	55	53	58
- at minimum input	dB	32	33	33	33
Standby losses *7					
	BTU/hr	1128	1000	1120	995
	W/hr	330	292	328	291

*4 Measured flue gas temperature with a combustion air temperature of 68°F (20°C).

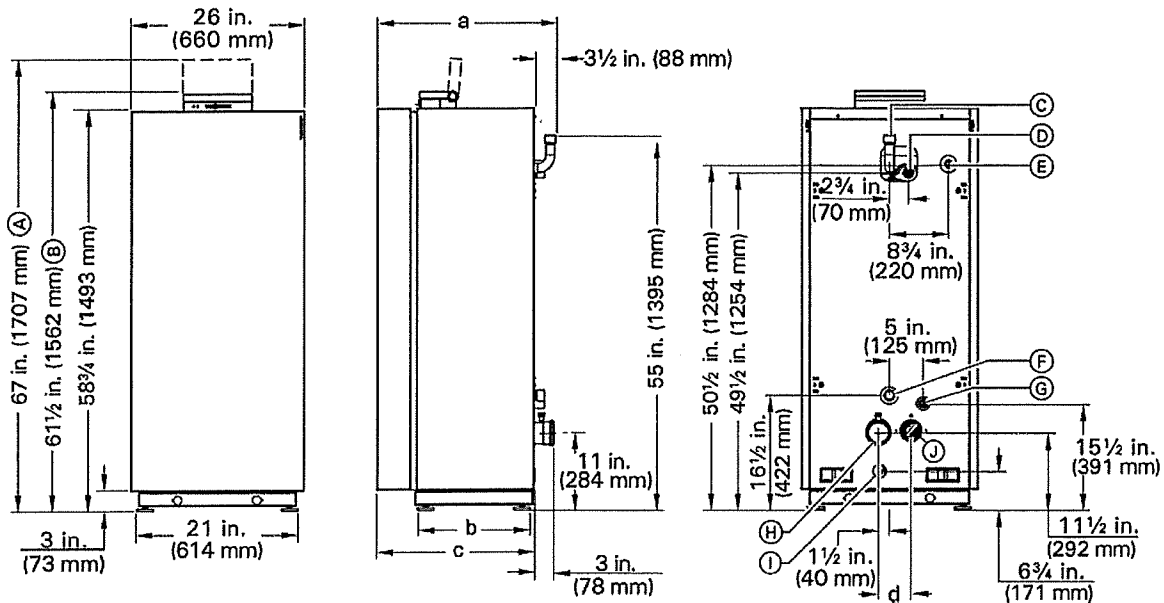
*5 Based on maximum input rate.

*6 For side wall vent installations (coaxial system):
Do not exceed max. equivalent length specified in the Installation Instructions of the Vitocrossal 300 CU3A Venting System.
Do not attempt to common-vent Vitocrossal 300 CU3A with any other appliance.
Side wall co-axial vent installation must include Viessmann protective screen!
For details refer to the Installation Instructions for the Vitocrossal 300 CU3A Venting System.

*7 Standby losses measured from the boiler temperature sensor well based on a boiler water temperature of 158°F (70°C) and a room temperature of 68°F (20°C).

For information regarding other Viessmann System Technology componentry, please reference documentation of respective product.

Models 300 CU3A 26 to 57



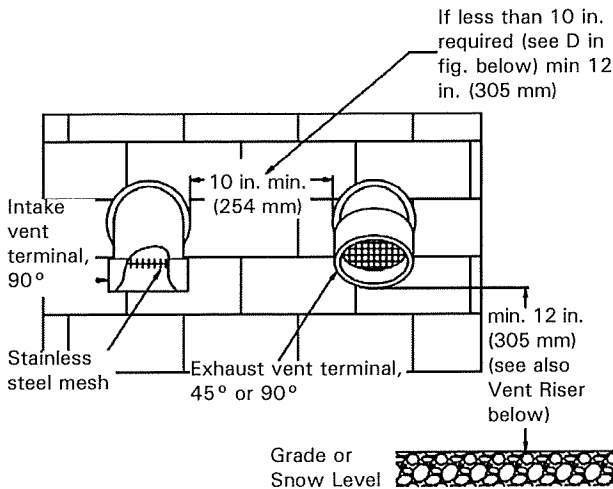
Legend

- Ⓐ Overall boiler height (boiler control open)
- Ⓑ Overall boiler height (boiler control closed)
- Ⓒ Safety header connection
- Ⓓ Boiler supply
- Ⓔ Gas connection
- Ⓕ Boiler return
- Ⓖ Boiler drain
- Ⓗ Vent connection
- Ⓙ Condensate drain connection
- ⓰ Combustion air connection

Model 26 to 35			Model 45 and 57		
a	in. (mm)	27 (684)	a	in. (mm)	31 1/2 (801)
b	in. (mm)	17 (430)	b	in. (mm)	21 1/2 (545)
c	in. (mm)	23 1/2 (595)	c	in. (mm)	28 (712)
d	in. (mm)	4 3/4 (120)	d	in. (mm)	5 1/2 (140)

Note: All height dimensions of the boiler have a tolerance of +.6 in. (+ 15 mm) due to the factory installed adjustable feet.

Side Wall Vent Termination - Stainless Steel, CPVC or PP(s)



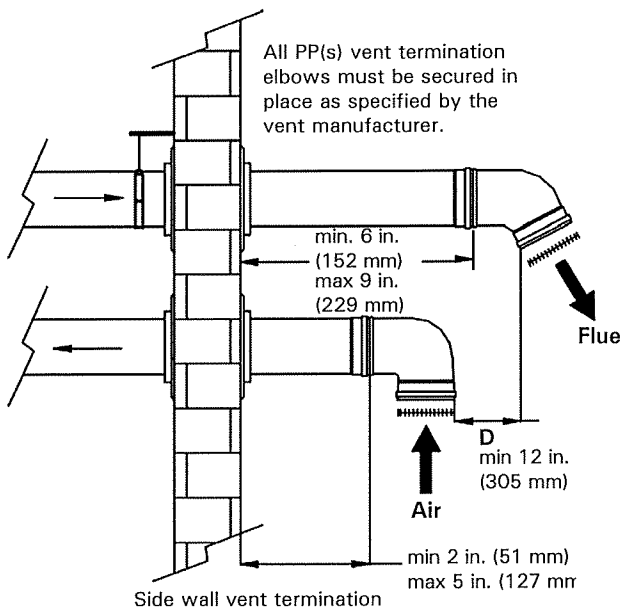
Side wall vent termination (front view)

IMPORTANT

The exhaust vent/air intake system must terminate so that proper clearances are maintained as cited in local codes or the latest edition of the "Natural Gas and Propane Installation Code" CAN/CSA-B149.1 (Canada), or the "National Fuel Gas Code" ANSI Z223.1 (NFPA 54) (U.S.A.). See page 7.

WARNING

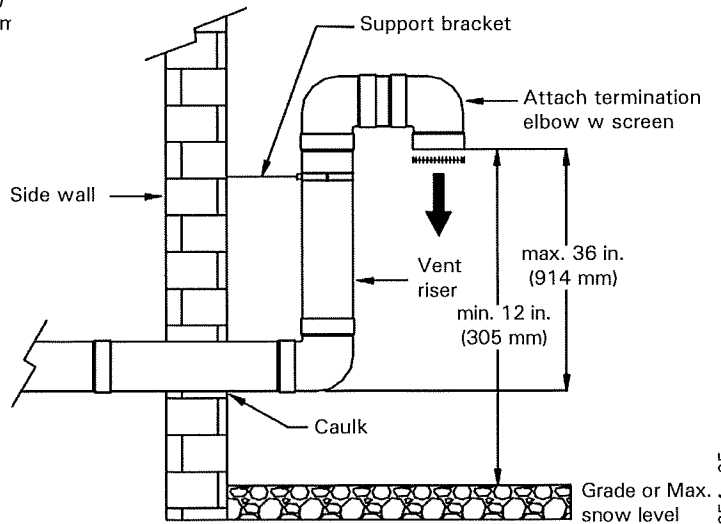
Vent termination must be at least 12 in. (300 mm) above the anticipated snow level (consult your local building authorities or local weather office). Locate vent termination in such a way that it cannot be blocked by snow.



Side wall vent termination (side view)

IMPORTANT

For PP(s) systems, all exhaust vent and air intake piping and elbows exposed outside, must be UV resistant polypropylene (supplied by the vent manufacturer).



Installation of field fabricated vent riser

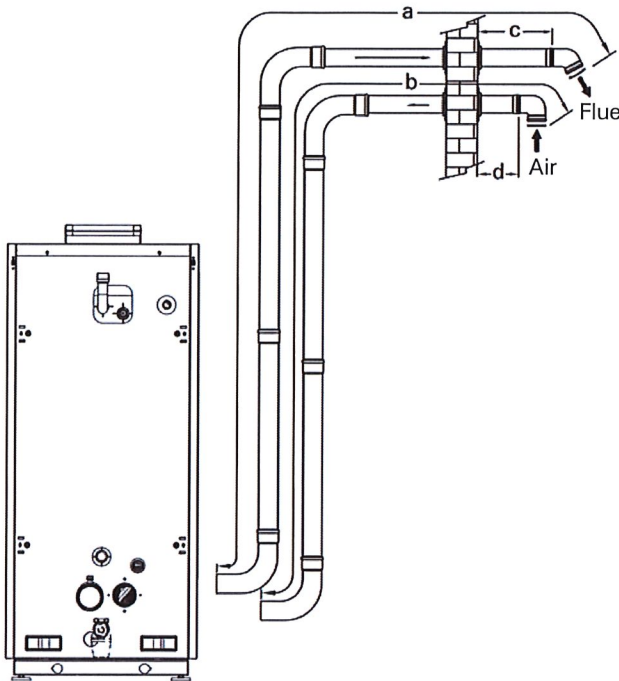
5673 654 - 05

Vent Length Requirements

IMPORTANT

Always include vent termination length in calculations.

Note: For combination of different vent/air intake pipe diameters, such as Ø 4 in. stainless steel vent with Ø 3 in. (CVPC, PVC, ABS) air intake pipe, the total equivalent length must be used for the smaller pipe diameter.
Minimum vent length is 3.3 ft. (1 m).



Legend

- a Equivalent vent length (exhaust)
- b Equivalent vent length (air intake)
- c Min. 6 in. (152 mm)
- d Min. 2 in. (50 mm)

Maximum vent/air intake pipe length - horizontal

The total equivalent length specified for a two pipe system consisting of stainless steel, CPVC or PP(s) is the total combined length of the exhaust vent and air intake pipe system.

Do not exceed these maximum lengths.

All PP(s) vent material and air intake (if PP(s) used) must be ULC S636 or UL1738 listed.

IMPORTANT

For PP(s) systems, all exhaust vent and air intake piping and elbows exposed outside, must be UV resistant polypropylene (supplied by the vent manufacturer).

Maximum equivalent length - horizontal

Boiler model	Intake Ø	Exhaust Ø	Equivalent length
CU3A 26, 35	3 in. (80 mm)	3 in. (80 mm)	198 ft. (60 m)
CU3A 45, 57	3 in. (80 mm)	4 in. (110 mm)	198 ft. (60 m)

A 7% boiler input reduction @ 60 m for all sizes and all configurations.

Flashing and storm collar installation

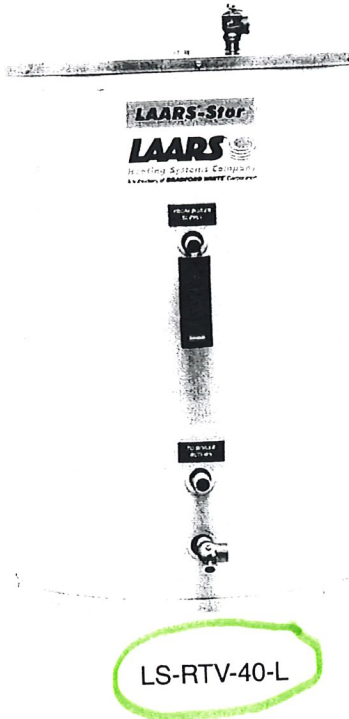
Flashings and storm collars are field supplied. Flashings and storm collars suitable for Type B vent materials (or better) may be used.

To obtain flashings and storm collars, please contact your local vent material supplier. Follow the installation instructions supplied by the special venting manufacturer.

Follow local codes to properly isolate the exhaust vent pipe when passing through floors, ceiling and roof.

Always check the marking on the pipe to make sure you are using the correct material.

LAARS-STOR™ SS Stainless Steel Single-Wall Indirect Water Heater



The LAARS-STOR™ SS Models Feature:

- **Stainless Steel Heat Exchanger**—Single-wall 1" O.D. stainless steel coil. Maximum supply temperature from the boiler must not exceed 240°F.
- **Stainless Steel Tank and Heat Exchanger**—Made from chromium molybdenum - titanium ferritic 444 stainless steel alloy.
- **Immersed Adjustable Honeywell Aquastat**—Fast acting immersion aquastat for automatic temperature control (adjustable from 80°F to 160°F).
- **Supply and Return Connections**—3/4" NPT female connections are located on the front for both the boiler supply and boiler return (1" NPT on RTV-120).
- **2" Non-CFC Foam Insulation**—Covers the side and top of tank, reducing the amount of heat loss. This results in less energy consumption, improved operation efficiencies and jacket rigidity.
- **Potable Water Connections**—3/4" NPT (1/4" NPT on RTV-120).
- **T&P Relief Valve**—Included.
- **Steel Jacket.**
- **Low Restriction Brass Drain/Cold Inlet Valve.**
- **AHRI Certified**—These water heaters are rated by the Air-Conditioning, Heating, and Refrigeration Institute to provide accurate performance data within the standards of the certification. This certification provides a recognized standard for proper comparison of hydronic appliances.

**Limited Lifetime Tank and Heat Exchanger Warranties / 6-Year Limited Warranty on Component Parts.
 5-Year Limited Tank Warranties on Commercial Models/1-Year Limited Warranty of Component parts**
 For products installed in USA, Canada and Puerto Rico. Some states do not allow limitations on warranties.
 See complete copy of the warranty included with the heater.



MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,682,666; 7,634,976; 5,660,165; 5,954,492; 6,056,542; 6,935,280; 5,372,185; 5,485,879; 5,574,822; 7,971,560; 7,992,526; 6,684,821; 6,442,178; 7,334,419; 7,866,168; 7,270,087; 7,007,748; 5,596,952; 6,142,216; 7,699,026; 5,341,770; 7,337,517; 7,665,211; 7,665,210; 7,063,132; 7,063,133; 7,559,293; 7,900,589; 5,943,984; 8,082,888; 5,988,117; 7,621,238; 7,650,859; 5,761,379; 7,409,925; 5,277,171; 8,146,772; 7,458,341; 2,262,174. OTHER U.S. AND FOREIGN PATENT APPLICATIONS PENDING. CURRENT CANADIAN PATENTS: 2,314,845; 2,504,824; 2,108,186; 2,143,031; 2,409,271; 2,548,958; 2,112,515; 2,476,685; 2,239,007; 2,092,105; 2,107,012.

Slant/Fin Hydronic Explorer

Salesman: _____

Phone: _____

Engineer: _____

Zip: _____

State: ME

Altitude (Elevation): 0

Customer: Mainely P&H

City: _____

Outdoor Design Temperature: 3.4 F

Job Name: 96 Federal st

Address: _____

Indoor Design Temperature: 70.0 F

HEAT LOSS CALCULATIONS 1st Floor

Reusing Existing Cast Iron Radiators

	KIT/LIV/L/1ST	BATH/1ST/L	BD/1	BD/2	KIT/LIV/1ST/R	BATH/1ST/R	BD/1/1ST/R	BD/2/1ST/R
Room Height (ft)	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60
Room Length (ft)	20.00	8.60	13.00	10.00	22.00	11.00	10.60	15.00
Room Width (ft)	14.00	6.60	11.00	10.00	13.00	6.60	10.60	11.00
Doors & Glass (sq ft)	72.00		44.00	26.00	64.00	26.00	26.00	45.00
Door & Glass Factor	0.6500	0.6500	0.6500	0.6500	0.6500	0.6500	0.6500	0.6500
Exposed Wall Length (ft)	34.00	8.60	24.00	10.00	44.00	6.60	10.60	26.00
Exposed Wall Factor	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Cold Partition Length (ft)								
Cold Partition Factor								
Ceiling Factor	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300	0.0300
Floor Factor	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120
Infiltration Factor	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
Indoor Temperature (F)	6,672	906	3,908	2,326	6,730	2,147	2,464	4,225
Heat Loss (BTU/HR)								

BASEBOARD SELECTIONS

1st Floor

	16.0	2.5	9.5	5.5	16.0	5.5	6.0	10.5
FineLine 15 (lin.ft.)	selected	16.0	2.5	9.5	5.5	16.0	5.5	10.5
FineLine 30 (lin.ft.)	selected	15.0	2.0	9.0	5.5	15.0	5.0	9.5
MultiPak 80 (lin.ft.)	selected	12.0	2.0	7.0	4.5	12.0	4.0	7.5

Slant/Fin. Hydronic Explorer

Job Name: 96 Federal st Customer: Mainely P&H Engineer: _____ Salesman: _____
 Address: _____ City: _____ State: ME Zip: _____ Phone: _____
 Indoor Design Temperature: 70.0 F Outdoor Design Temperature: 3.4 F Altitude (Elevation): 0

HEAT LOSS CALCULATIONS

~~2ND~~ **2ND FLOOR**

	KIT/LIV/2ND/L	BATH/2ND/L	BD/1/2ND/L	BD/2/2ND/L	LIV/KIT/2ND/R	BATH/2ND/R	BD/1/2ND/R	BD/2/2ND/R
Room Height (ft)	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60
Room Length (ft)	20.00	8.60	11.60	11.60	22.00	7.00	10.60	13.00
Room Width (ft)	15.60	7.00	13.00	10.00	13.00	11.00	10.60	10.60
Doors & Glass (sq ft)	30.00	45.00	26.00	26.00	40.00	26.00	26.00	44.00
Door & Glass Factor	0.6500	0.6500	0.6500	0.6500	0.6500	0.6500	0.6500	0.6500
Exposed Wall Length (ft)	35.60	7.00	24.60	10.00	35.00	7.00	10.60	23.60
Exposed Wall Factor	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Cold Partition Length (ft)								
Cold Partition Factor								
Ceiling Factor								
Floor Factor	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120
Infiltration Factor	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
Indoor Temperature (F)	4,731	754	3,742	2,249	4,912	2,039	2,240	3,570
Heat Loss (BTU/HR)								

BASEBOARD SELECTIONS

1st Floor

Finer/Line 16 (lin.ft.)	11.5	2.0	9.0	5.5	12.0	5.0	5.5	8.5
selected								
Finer/Line 30 (lin.ft.)	10.5	2.0	8.5	5.0	11.0	4.5	5.0	8.0
selected	11	9						
MultiPak 80 (lin.ft.)	8.5	1.5	7.0	4.0	9.0	4.0	4.0	6.5
selected								

Slant/Fin Hydronic Explorer

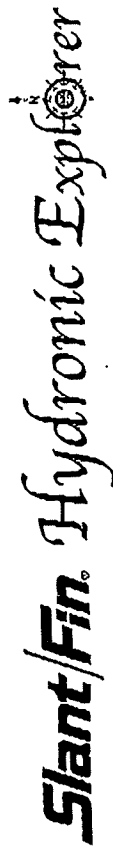
Job Name: 96 Federal st Customer: Mainely P&H Engineer: _____ Salesman: _____
 Address: _____ City: _____ State: ME Zip: _____ Phone: _____
 Indoor Design Temperature: 70.0 F Outdoor Design Temperature: 3.4 F Altitude (Elevation): 0

HEAT LOSS CALCULATIONS

	LIV/KIT/3RD/L	BATH/3RD/L	BD/1/3RD/L	BD/2/3RD/L	LIV/KIT/3RD/R	BATH/3RD/R	BD/1/3RD/R	BD/2/3RD/R
Room Height (ft)	9.60	9.60	9.60	9.60	9.60	9.60	9.60	9.60
Room Length (ft)	20.00	11.60	10.60	10.00	22.00	1.60	10.60	15.00
Room Width (ft)	15.00	6.60	10.60	10.00	13.00	6.60	10.60	11.00
Doors & Glass (sq ft)	30.00	21.00	21.00	21.00	30.00	21.00	21.00	39.00
Door & Glass Factor	0.6500	0.6500	0.6500	0.6500	0.6500	0.6500	0.6500	0.6500
Exposed Wall Length (ft)	35.00	6.60	10.60	10.00	35.00	6.60	10.60	26.00
Exposed Wall Factor	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500
Cold Partition Length (ft)								
Cold Partition Factor								
Ceiling Factor	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200
Floor Factor								
Infiltration Factor	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120	0.0120
Indoor Temperature (F)	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
Heat Loss (BTU/HR)	5,019	1,913	2,190	2,059	4,893	1,260	2,190	3,875

BASEBOARD SELECTIONS

	1st Floor						
Fine/Line 15 (lin. ft.)	12.0	5.0	5.5	5.0	12.0	3.0	5.5
selected							
Fine/Line 30 (lin. ft.)	11.5	4.5	5.0	5.0	11.0	3.0	5.0
selected	12	5					
Multi/Pak 80 (lin. ft.)	9.0	3.5	4.0	4.0	9.0	2.5	4.0
selected							



Job Name: 96 Federal st Customer: Mainely P&H Engineer: _____ Salesman: _____
 Address: _____ City: _____ State: ME Zip: _____ Phone: _____
 Indoor Design Temperature: 70.0 F Outdoor Design Temperature: 3.4 F Altitude (Elevation): 0

HEAT LOSS CALCULATIONS

1st Floor

	Floor Totals	Job Totals
Room Height (ft)		
Room Length (ft)		
Room Width (ft)		
Doors & Glass (sq ft)		
Door & Glass Factor		
Exposed Wall Length (ft)		
Exposed Wall Factor		
Cold Partition Length (ft)		
Cold Partition Factor		
Ceiling Factor		
Floor Factor		
Infiltration Factor		
Indoor Temperature (F)		
Heat Loss (BTU/HR)	77,014	77,014

BASEBOARD SELECTIONS

1st Floor

Fine/Line 15 (lin.ft.)	188.0	188.0
selected		
Fine/Line 30 (lin.ft.)	175.0	175.0
selected		
Multi/Pak 80 (lin.ft.)	141.0	141.0
selected		