NORITZ®
TANKLESS WATER HEATERS

RESIDENTIAL LEVEL 1

Installation Basics

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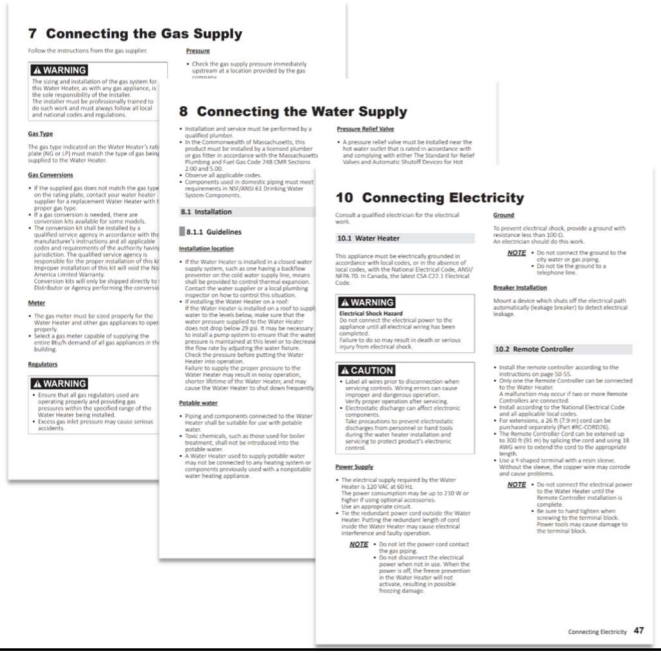
READ THE MANUAL

Tankless units are combustion appliances that contain gas, water and electricity in a unit the size of a suitcase.

The proper, safe and reliable operation of our units is 100% contingent on a correct installation and proper maintenance throughout its life.


7 Connecting the Gas Supply

8 Connecting the Water Supply

10 Connecting Electricity

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TANKLESS WATER HEATERS

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TRAINING SECTIONS

Product Line:

- Standard Efficiency
- High Efficiency
- Pre-mix Units

Installation:

- Unit Sizing
- Gas Line
- Choosing Location
- Venting
- Condensate Line
- Circuit Board Dipswitches
- Install Checklist

Maintenance:

- Water Quality
- Water Treatment
- Cleaning Unit

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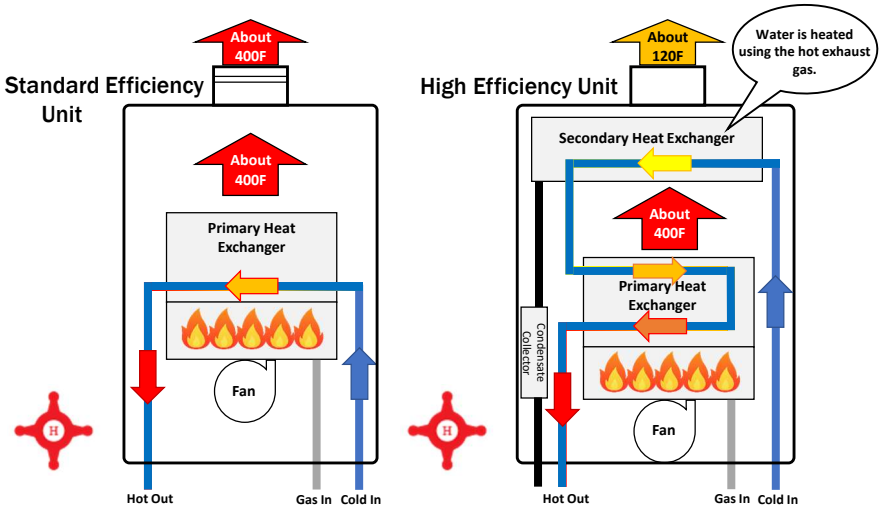
WHAT IS A TANKLESS WATER HEATER?

A tankless water heater uses a burner and heat exchanger to produce an endless supply of hot water on-demand.



Tankless Operation:

1) Hot water fixture is opened
2) Tankless detects flow
3) Burner ignites
4) Water is heated in the Heat Exchanger
5) Hot water exits the tankless to the fixture
6) Fixture is closed and tankless shuts off

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STANDARD EFFICIENCY UNITS

NR98SV

Max 199k btu

- 120k to 199k btu
- Indoor and Outdoor Units Available
- Indoor Units Require Cat III Stainless Steel Venting
- All Units Satisfy 20ppm Low NOx Requirements
- 12 Years Heat Exchanger
- 5 Years All Other Parts
- 1 Year Reasonable Labor

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STANDARD EFFICIENCY UNITS

NORITZ TANKLESS WATER HEATERS

NR98SV

Max 199k btu

All units include either an external remote control or built in display window for easy indication of set temperature along with monitoring and diagnostics capability.

NR660D

Max 120k btu

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HIGH EFFICIENCY UNITS

- 120k to 199k btu
- Indoor and Outdoor Units Available
- Indoor Units Use 3” or 4” PVC/CPVC/PP
- All Units Satisfy 20ppm Low NOx Requirements
- 12 Years Heat Exchanger
- 5 Years All Other Parts
- 1 Year Reasonable Labor

NRC98DV

Max 180k btu

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HIGH EFFICIENCY UNITS

NORITZ TANKLESS WATER HEATERS

NRC98DV

Max 180k btu

All units include either an external remote control or built in display window for easy indication of set temperature along with monitoring and diagnostics capability.

NRC661DV

Max 120k btu

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EZTR40 PACKAGE

- **EZ** Tank Replacement of a 40 Gallon Tank
- Top Mounted Water Connections
- 120k Max btu High Efficiency Unit
- 6.6 gpm Max
- 12 Years Heat Exchanger
- 5 Years All Other Parts
- 1 Year Reasonable Labor

The EZTR40 can *only* be used when replacing a tank and using the flexible venting, it *cannot* be adapted to vent with PVC or other rigid plastic venting.

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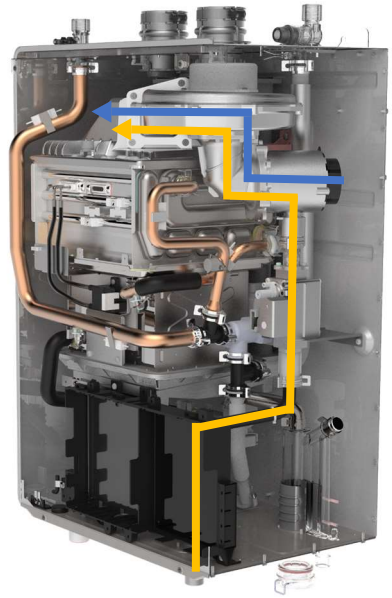
HIGH EFFICIENCY PRE-MIX UNITS



Introduced in 2017, Pre-Mix refers to how the air and gas is pre-mixed in the fan before entering the burner.

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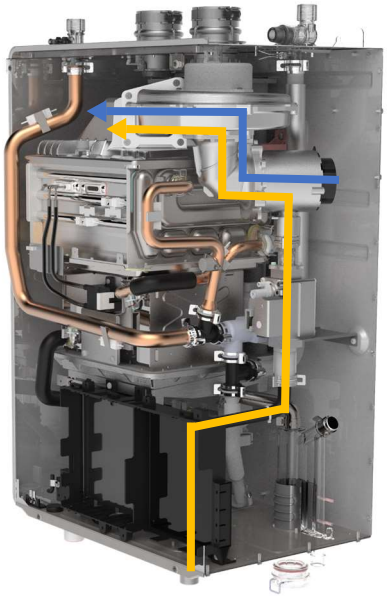
HIGH EFFICIENCY PRE-MIX UNITS



The Noritz Pre-mix Lineup:

- EZ Series
- NRCR Series
- NRCB Boiler
- NCC199CDV

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EZTR50 & EZTR75 PACKAGES

EZ Tank Replacement of a 50 or 75 Gallon Tank

- Top Mounted Water Connections
- 2” Flexible Vent
- 25’ Flex Included, 35’ Optional
- Isolation Kit Included
- Dual Stainless Steel Heat Exchangers

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EZTR50 & EZTR75 PACKAGES

NORITZ TANKLESS WATER HEATERS

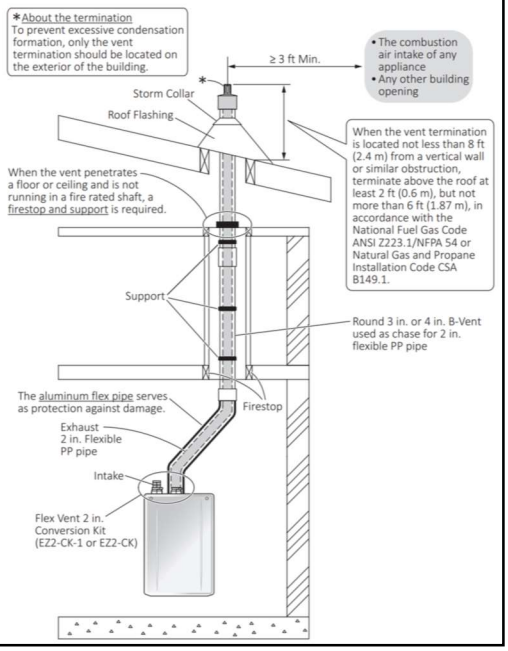
Use existing 3” or 4” round b-vent.

25’ included with EZTR package.

35’ vent kit optional, part # EZ2FVK-2

NOTE: Flexible vent can be shortened but you *cannot* join 2 pieces of flexible vent to extend the length.

Example: If you need 30’, you would buy the 35’ kit and cut off 5’. You would *not* attach an extra 5’ to the included 25’ kit.



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EZTR50 & EZTR75 PACKAGES

- EZ111DV Unit
- 199k btu Max
- 11.1 gpm Max

- EZ98DV Unit
- 180k btu Max
- 9.8 gpm Max

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EZ SERIES INDIVIDUAL UNITS

Not replacing a tank?

Installing in a different area?

- .96 UEF
- Top Mounted Water Connections
- 2” or 3” PVC/CPVC/PP
  - 2” Max length: 65’
  - 3” Max length: 150’
- Flexible 2” SV up to 35’
- EZ98DV: 180k btu / 9.8 gpm max
- EZ111DV: 199k btu / 11.1 gpm max

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EZ SERIES INDIVIDUAL UNITS

EZ Series Warranty:

- 25 Years Heat Exchanger
- 5 Years Other Parts
- 1 Year Reasonable Labor

EZ Series Individual Units can be vented as:

- DV (Default out of box)
- SV
- OD
- Flexible SV
- Common Vent Capable (2 Units Quick Connected)

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EZ SERIES INDIVIDUAL UNITS

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One SKU, All Venting Options.

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EZ SERIES INDIVIDUAL UNITS

DV – Direct Vent

Ideal For:

- Areas with dirty combustion air
- Tight locations without combustion air
- When unit is installed in a conditioned space (Why draw conditioned air through the unit?)

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EZ SERIES INDIVIDUAL UNITS

SV – Single Vent

Ideal For:

- Areas with clean combustion air
- Areas with plenty of combustion air

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EZ SERIES INDIVIDUAL UNITS

OD – Outdoor

Ideal For:

- Warm climates without snow
- Reclaiming space in the home

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EZ SERIES INDIVIDUAL UNITS

FSV – Flexible Single Vent

Ideal For:

- Tank Retrofits
- Saving time by not replacing venting

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NRCR SERIES

NRCR

Noritz Residential Condensing w/ Recirculation

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NRCR SERIES

Available Models:

- NRCR111DV (Max 199k btu, 0.96 UEF)
- NRCR92DV (Max 165k btu, 0.95 UEF)

Key Features:

- 15 Year Heat Exchanger Warranty
- Simple Auto Recirc Mode
- Crossover Valve Compatible
- Flex Vent Capable (Just like EZ Series)
- Steady BTU Control

Recirc Setting:

- Auto Learning (Default)
- Manual Timer (RC-9018M or Wifi Adapter needed)
- Title 24 (On Demand)

Recirc Modes:

- Dedicated Recirculation
- Crossover

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NRCR SERIES

The NRCR is a pre-mix style unit and thus has the same venting options as the EZ Series:

- DV Direct Vent
- SV Single Vent
- OD Outdoor
- FSV Flexible Single Vent
- Common Vent Capable (2 Units Quick Connected)

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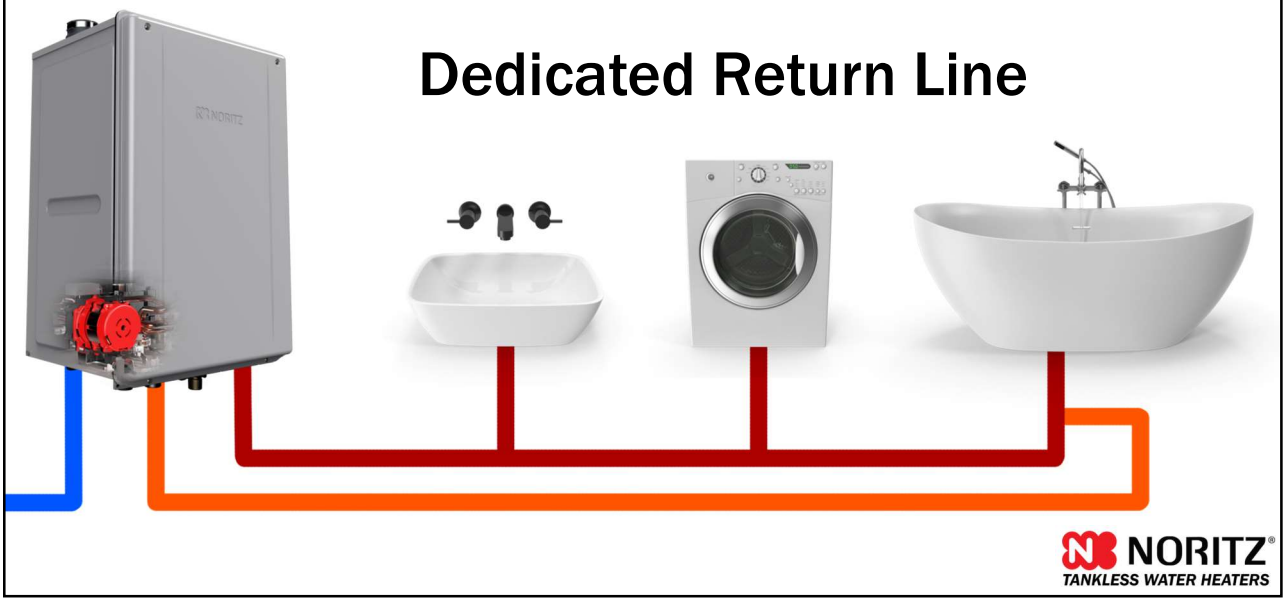
NRCR SERIES



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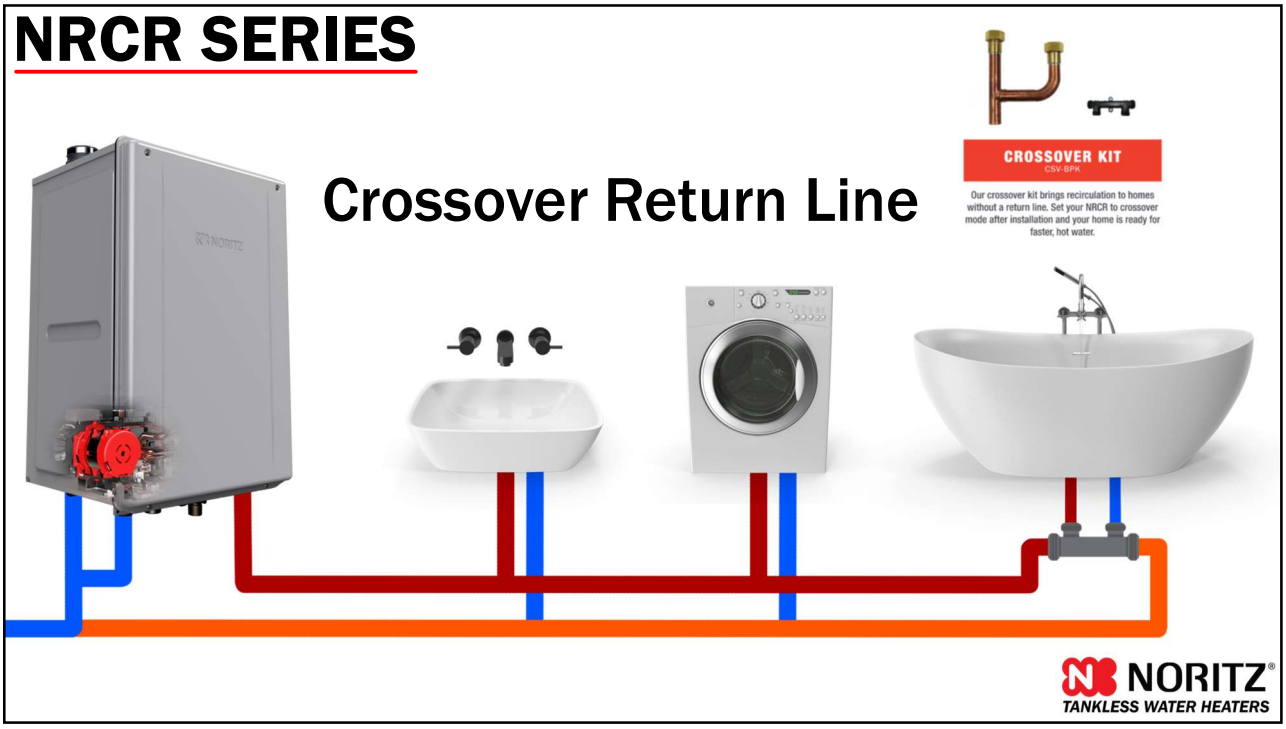
NRCR SERIES



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NRCR SERIES: AUTO LEARNING MODE

Auto Learning mode memorizes the customers usage patterns and automatically runs the pump during the hours hot water is needed. If the customers patterns change, the unit will adapt and remove times when it appears the customer no longer uses hot water.

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NRCR SERIES: MANUAL SCHEDULE MODE

Manual schedule mode requires the commercial remote or wifi adapter and allows the customer to set their own recirc schedule in 1 hour time blocks.

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NRCR SERIES: TITLE 24 (ON DEMAND)

On Demand mode only runs the pump when the customer presses a button or activates a motion sensor.

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OPTIONAL RECIRCULATION

RPK-EXT Pump Kit

Many Noritz units are compatible with external recirculation pumps such as the Noritz RPK-EXT pump kit.

(Display Window Units are not compatible with the RPK-EXT pump kit as they do not have a pump control connection. An externally controlled pump may still be used though)

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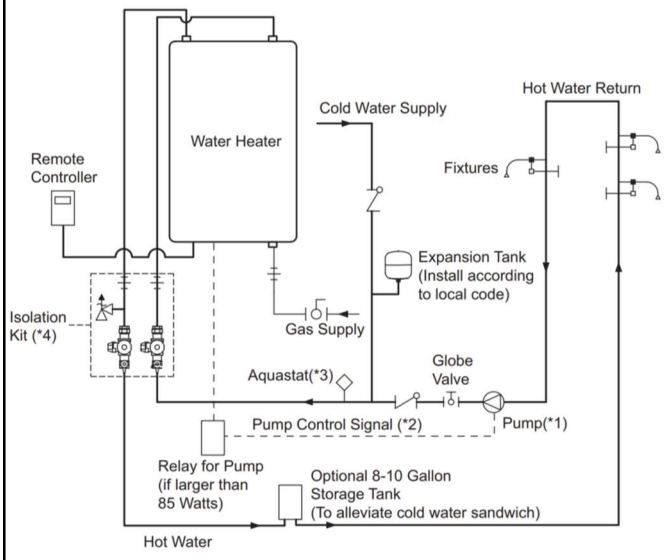
OPTIONAL RECIRCULATION



Typical Recirc Diagram

- Size pump for 2 gpm max flow
- Control pump with timer or aquastat or use pump connection wires inside unit
- Set aquastat 10 degrees below unit set temperature

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HOW TO SIZE A TANKLESS

Proper sizing is a key aspect of the customers experience and satisfaction with their tankless.

An undersized tankless *will* provide the proper temperature but the customer will not be able to run as many hot water fixtures at the same time as they want.

This problem will be more apparent in the winter time as the cold water temperatures are even colder.

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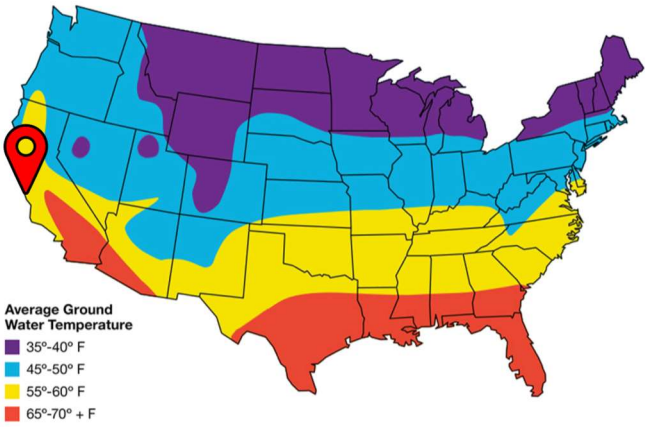
HOW TO SIZE A TANKLESS: STEP 1

Step 1: Determine your maximum temperature rise. This is the difference between the tankless set temp. and the winter time ground water temp.



For the purpose of this example let's say the home is on the central coast of California.

Based on the map, we'll say the winter ground water temp is 55 F.

Now you can determine the winter time temperature rise:

120 Set Temp – **55** Ground Water Temp = **65**

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HOW TO SIZE A TANKLESS: STEP 2

Step 2: Determine the peak hot water demand of the home. If possible, ask the homeowner.

Fixtures and appliances all have different flow rates depending on manufacturer however you can use an average amount to get a ballpark figure:

Shower: 2 gpm
Lav Sink: 1 gpm
Kitchen Sink: 1.5 gpm
Dishwasher: 2 gpm
Washing Machine: 2 gpm

Example 1:
Peak usage: 2 Showers & Washing Machine = 6 gpm

Example 2:
Peak usage: 4 Showers & Dish Washer = 10 gpm

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HOW TO SIZE A TANKLESS: STEP 3

NORITZ TANKLESS WATER HEATERS

Step 3: Select the proper unit or pair of units using the sizing chart found online or in the product catalog.

Simply find the Temperature Rise on the left then match up a unit or pair of units that provides the approximate flow rate needed.

Temp Rise: 65

Example 1:
Peak usage: 2 Showers & Washing Machine = 6 gpm
Ideal Models:
EZ111, NRCR111, NRC111

Example 2:
Peak usage: 4 Showers & Dish Washer = 10 gpm
Ideal Models:
Pair of EZ98, NRC98, NRCR92, NR98

	Residential											
	Condensing								Non-Condensing			
Temp Rise (F°)	EZ111	NRCR111	NRC111	EZ98	NRC98	NRCR92	NRC71	NRC66 NRC63-FSV	NR98	NR83	NR66	NR50
30	11.1	11.1	11.1	9.8	9.8	9.2	7.1	6.6	9.8	8.3	6.6	5.0
35	11.1	11.1	10.9	9.8	9.6	9.2	7.1	6.4	9.6	8.3	6.6	5.0
40	9.8	9.7	9.3	8.6	8.4	8	7.1	5.5	8.4	7.6	5.8	5.0
45	8.7	8.6	8.4	7.6	7.4	7.1	6.5	4.9	7.5	6.7	5.3	4.2
50	7.8	7.8	7.4	6.9	6.7	6.4	5.8	4.4	6.7	6.1	4.6	3.9
55	7.1	7.1	6.9	6.3	6.1	5.8	5.3	4.1	6.1	5.5	4.3	3.7
60	6.5	6.5	6.2	5.7	5.6	5.3	4.9	3.7	5.6	5.0	3.8	3.3
65	6.0	6	5.8	5.3	5.2	4.9	4.5	3.4	5.2	4.7	3.6	3.1
70	5.6	5.5	5.3	4.9	4.8	4.6	4.2	3.2	4.8	4.3	3.3	2.8
75	5.2	5.2	5.1	4.6	4.5	4.3	3.9	3.0	4.5	4.0	3.1	2.7
80	4.9	4.8	4.6	4.4	4.2	4	3.7	2.8	4.2	3.8	2.9	2.5
85	4.6	4.6	4.5	4.1	3.9	3.8	3.4	2.6	4.0	3.6	2.8	2.4
90	4.4	4.3	4.1	3.8	3.7	3.6	3.2	2.5	3.7	3.4	2.6	2.2
95	4.1	4.1	4.0	3.6	3.5	3.4	3.1	2.3	3.5	3.2	2.5	2.1
100	3.9	3.9	3.7	3.4	3.4	3.2	2.9	2.2	3.4	3.0	2.3	2.0

Example 1 Example 2

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HOW TO SIZE A TANKLESS: STEP 3

Final Sizing Tip:

SCAN HERE FOR SIZING VIDEO

It's always better to slightly oversize a tankless system than to undersize it.

There's virtually no downside to an oversized system for the home however and undersized system will not provide enough hot water for the home during all times of the year.

NORITZ TANKLESS WATER HEATERS

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QUICK CONNECT SYSTEMS

For large residential applications 2 compatible Noritz units may be quick connected to double the hot water output.

Part #: QC-2

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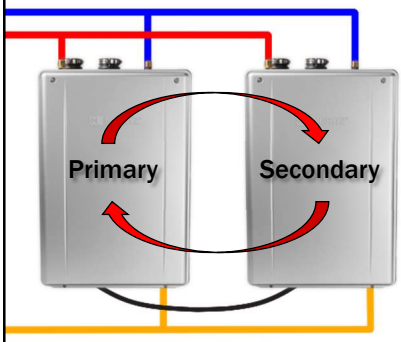
QUICK CONNECT SYSTEMS



The system will automatically rotate primary and secondary roles to ensure even use of both units.

Part #: QC-2

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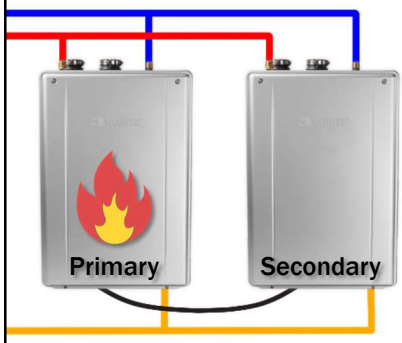
QUICK CONNECT SYSTEMS



When there's a small demand, only the primary heater will fire up to meet the demand.

Part #: QC-2

NORITZ TANKLESS WATER HEATERS

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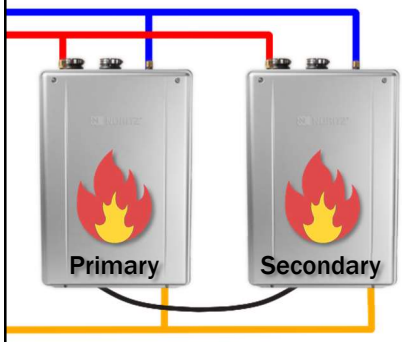
QUICK CONNECT SYSTEMS



If the demand increases the primary unit will activate the secondary unit to help meet the demand.

Part #: QC-2

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QUICK CONNECT SYSTEMS

Only the larger residential units with an external remote are compatible with the quick connect cable, smaller display window units are designed for single unit installations.

Quick Connect Compatible

Not Quick Connect Compatible

NORITZ TANKLESS WATER HEATERS

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GAS LINE CONSIDERATIONS

Of equal importance to proper sizing of the unit is the proper sizing and installation of the gas line.

Afterall, what good is selecting the perfect tankless if the gas system can't support it's needs?

NORITZ TANKLESS WATER HEATERS

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GAS LINE CONSIDERATIONS

Table 1. For Less than 8" WC initial supply pressure
Maximum Natural Gas Delivery Capacity (0.5" Pressure Drop) [Schedule 40 Metallic Pipe]

Pipe Size	Length (including fittings)										
	10' (3m)	20' (6m)	30' (9m)	40' (12m)	50' (15m)	60' (18m)	70' (21m)	80' (24m)	90' (27m)	100' (30m)	125' (38m)
3/4"	360	247	199	170	151	137	126	117	110	104	92
1"	678	466	374	320	284	257	237	220	207	195	173
1 1/4"	1,390	957	768	657	583	528	486	452	424	400	355
1 1/2"	2,090	1,430	1,150	985	873	791	728	677	635	600	532
2"	4,020	2,760	2,220	1,900	1,680	1,520	1,400	1,300	1,220	1,160	1,020
2 1/2"	6,400	4,400	3,530	3,020	2,680	2,430	2,230	2,080	1,950	1,840	1,630
3"	11,300	7,780	6,250	5,350	4,740	4,290	3,950	3,670	3,450	3,260	2,890
4"	23,100	15,900	12,700	10,900	9,660	8,760	8,050	7,490	7,030	6,640	5,890

Values in Table are in Cubic Feet of Gas per Hour (0.60 Specific Gravity, 0.5" Pressure Drop, inlet pressure less than 2psi). Contact your gas supplier for BTU/Cubic Foot ratings. For simplification of your calculations, 1 Cubic Foot of Gas is approximately equivalent to 1000 BTU.

Table 2. For 8" WC – 10.5" WC initial supply pressure
Maximum Natural Gas Delivery Capacity (3.0" Pressure Drop) [Schedule 40 Metallic Pipe]

Pipe Size	Length (including fittings)										
	10' (3m)	20' (6m)	30' (9m)	40' (12m)	50' (15m)	60' (18m)	70' (21m)	80' (24m)	90' (27m)	100' (30m)	125' (38m)
1/2"	454	312	250	214	190	172	158	147	138	131	116
3/4"	949	652	524	448	397	360	331	308	289	273	242
1"	1,787	1,228	986	844	748	678	624	580	544	514	456
1 1/4"	3,669	2,522	2,025	1,733	1,536	1,392	1,280	1,191	1,118	1,056	936
1 1/2"	5,497	3,778	3,034	2,597	2,302	2,085	1,919	1,785	1,675	1,582	1,402
2"	10,588	7,277	5,844	5,001	4,433	4,016	3,695	3,437	3,225	3,046	2,700
2 1/2"	16,875	11,598	9,314	7,971	7,065	6,401	5,889	5,479	5,140	4,856	4,303
3"	29,832	20,503	16,465	14,092	12,489	11,316	10,411	9,685	9,087	8,584	7,608
4"	43678	30,020	24,107	20,632	18,286	16,569	15,243	14,181	13,305	12,568	11,139

Values in Table are in Cubic Feet of Gas per Hour (0.60 Specific Gravity, 3.0" Pressure Drop, 8.0" WC or greater supply pressure, inlet pressure less than 2psi). Contact your gas supplier for BTU/Cubic Foot ratings. For simplification of your calculations, 1 Cubic Foot of Gas is approximately equivalent to 1000 BTU.

Table 3. Maximum Undiluted Propane (LP) Delivery Capacity in Thousands of BtuH (0.5" WC Pressure Drop) [Schedule 40 Metallic Pipe]

Pipe Size	Length (including fittings)											
	10' (3m)	20' (6m)	30' (9m)	40' (12m)	50' (15m)	60' (18m)	80' (24m)	100' (30m)	125' (38m)	150' (45m)	175' (53m)	200' (60m)
1/2"	291	200	160	137	122	110	101	94	89	84	74	67
3/4"	608	418	336	287	255	231	212	197	185	175	155	140
1"	1,150	787	632	541	480	434	400	372	349	330	292	265
1 1/4"	2,350	1,620	1,300	1,110	985	892	821	763	716	677	600	543
1 1/2"	3,520	2,420	1,940	1,660	1,480	1,340	1,230	1,140	1,070	1,010	899	814
2"	6,790	4,660	3,750	3,210	2,840	2,570	2,370	2,200	2,070	1,950	1,730	1,570

For reference only. Please consult gas pipe manufacturer for actual pipe capacities.

The installation manual contains 3 sizing tables for hard pipe gas lines, 1 for propane and 2 for natural gas.

NORITZ® TANKLESS WATER HEATERS

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½" GAS LINE CONSIDERATIONS

Table 2. For 8" WC – 10.5" WC initial supply pressure
Maximum Natural Gas Delivery Capacity (3.0" Pressure Drop) [Schedule 40 Metallic Pipe]

Pipe Size	Length (including fittings)										
	10' (3m)	20' (6m)	30' (9m)	40' (12m)	50' (15m)	60' (18m)	70' (21m)	80' (24m)	90' (27m)	100' (30m)	125' (38m)
1/2"	454	312	250	214	190	172	158	147	138	131	116
3/4"	949	652	524	448	397	360	331	308	289	273	242
1"	1,787	1,228	986	844	748	678	624	580	544	514	456
1 1/4"	3,669	2,522	2,025	1,733	1,536	1,392	1,280	1,191	1,118	1,056	936
1 1/2"	5,497	3,778	3,034	2,597	2,302	2,085	1,919	1,785	1,675	1,582	1,402
2"	10,588	7,277	5,844	5,001	4,433	4,016	3,695	3,437	3,225	3,046	2,700
2 1/2"	16,875	11,598	9,314	7,971	7,065	6,401	5,889	5,479	5,140	4,856	4,303
3"	29,832	20,503	16,465	14,092	12,489	11,316	10,411	9,685	9,087	8,584	7,608
4"	43678	30,020	24,107	20,632	18,286	16,569	15,243	14,181	13,305	12,568	11,139

Values in Table are in Cubic Feet of Gas per Hour (0.60 Specific Gravity, 3.0" Pressure Drop, 8.0" WC or greater supply pressure, inlet pressure less than 2psi). Contact your gas supplier for BTU/Cubic Foot ratings. For simplification of your calculations, 1 Cubic Foot of Gas is approximately equivalent to 1000 BTU.

The second natural gas table addresses gas line sizing when the initial supply pressure is above 8 inches water column. With a higher supply pressure, this opens up the option to use ½" gas lines where local code allows. This may be helpful in certain retrofit application that have existing ½" gas line.

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½” GAS LINE CONSIDERATIONS

Table 2. For 8” WC – 10.5” WC initial supply pressure

Maximum Natural Gas Delivery Capacity (3.0” Pressure Drop) [Schedule 40 Metallic Pipe]

Pipe Size	Length (including fittings)										
	10' (3m)	20' (6m)	30' (9m)	40' (12m)	50' (15m)	60' (18m)	70' (21m)	80' (24m)	90' (27m)	100' (30m)	125' (38m)
1/2"	454	312	250	214	190	172	158	147	138	131	116
3/4"	949	652	524	448	397	360	331	308	289	273	242
1"	1,787	1,228	986	844	748	678	624	580	544	514	456
1 1/4"	3,669	2,522	2,025	1,733	1,536	1,392	1,280	1,191	1,118	1,056	936
1 1/2"	5,497	3,778	3,034	2,597	2,302	2,085	1,919	1,785	1,675	1,582	1,402
2"	10,588	7,277	5,844	5,001	4,433	4,016	3,695	3,437	3,225	3,046	2,700
2 1/2"	16,875	11,598	9,314	7,971	7,065	6,401	5,889	5,479	5,140	4,856	4,303
3"	29,832	20,503	16,465	14,092	12,489	11,316	10,411	9,685	9,087	8,584	7,608
4"	43678	30,020	24,107	20,632	18,286	16,569	15,243	14,181	13,305	12,568	11,139

Values in Table are in Cubic Feet of Gas per Hour (0.60 Specific Gravity, 3.0” Pressure Drop, 8.0” WC or greater supply pressure, inlet pressure less than 2psi). Contact your gas supplier for BTU/Cubic Foot ratings. For simplification of your calculations, 1 Cubic Foot of Gas is approximately equivalent to 1000 BTU.

NOTE: The lengths listed are equivalent lengths for hard pipe and factor in any fittings as well.

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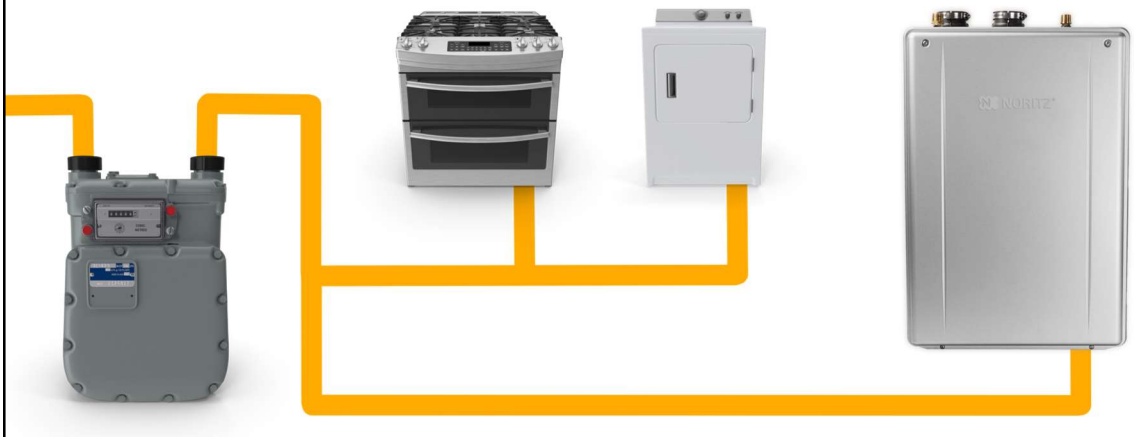
DEDICATED OR BRANCH GAS LINE?

Both Dedicated and Branching from an existing gas line are acceptable choices.



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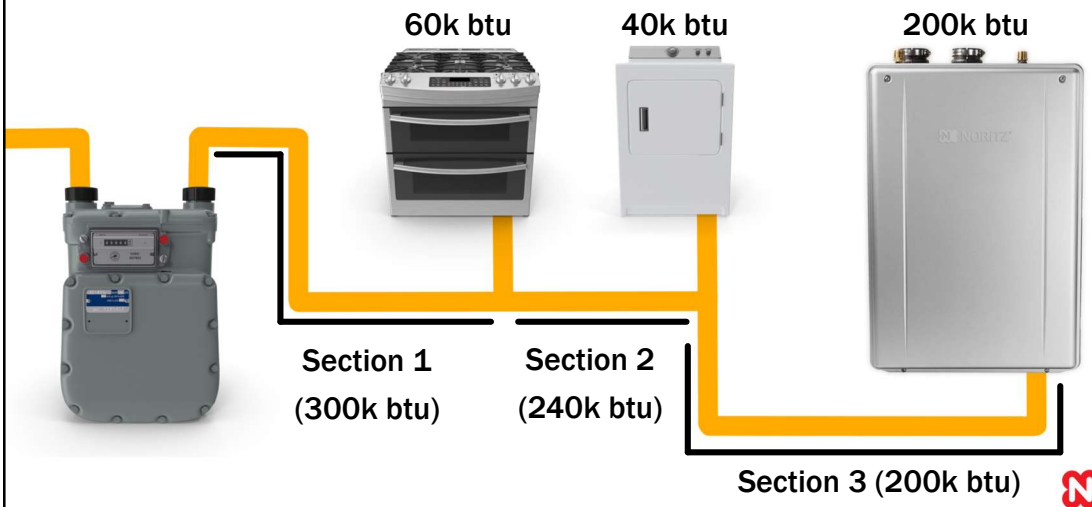
DEDICATED OR BRANCH GAS LINE?

However, if you branch off the existing gas line, you need to make sure all sections of the line can support the btu demand.



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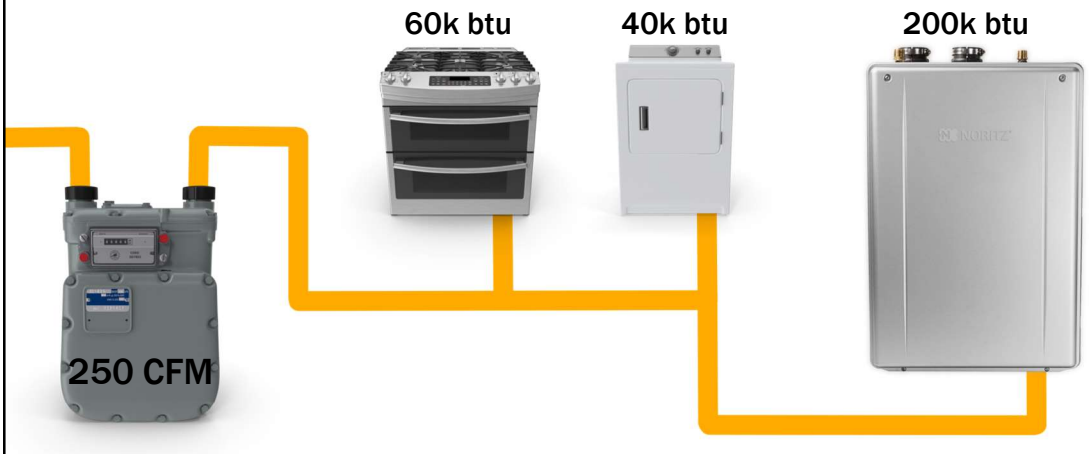
DEDICATED OR BRANCH GAS LINE?

Also make sure the gas meter is capable of supplying the total btu demand of the home.



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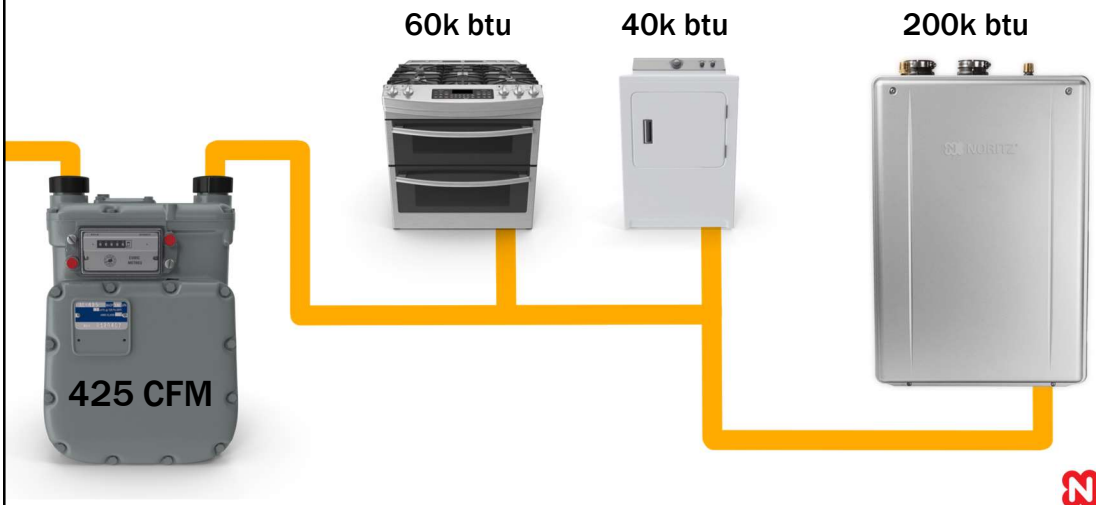
DEDICATED OR BRANCH GAS LINE?

In some cases it may need to be upsized to handle the added demand of the tankless unit.



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CHOOSING INSTALLATION LOCATION

Now that you've sized out the perfect unit for the job and made sure the gas system can support the new tankless, it's time to pick the perfect installation location.

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CHOOSING INSTALLATION LOCATION

For cold climates where snow is a regular or even occasional occurrence, you'll want to install the unit indoors.

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CHOOSING INSTALLATION LOCATION

For warm climates that never see freezing weather, installing the unit outdoors is a great way to free up space inside the home.

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CHOOSING INSTALLATION LOCATION

Keep in mind all tankless water heaters have motorized parts. When in operation they *are* fairly quiet but the noises may bother some customers so keep that in mind when scouting a location to install the unit.

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CHOOSING INSTALLATION LOCATION

If possible, avoid installing the unit on a bedroom wall or other areas where customers might expect a quiet space.

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INDOOR VENTING OPTIONS

When installing the unit indoors, you have a few different venting options available to you although they will generally fall into 1 of 2 categories:

DV Direct Vent

SV Single Vent

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INDOOR VENTING OPTIONS

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Direct Vent Examples:

Two Pipes To Outside

Concentric Terminations

DVC Style Unit

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INDOOR VENTING OPTIONS

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Single Vent Examples:

DV to SV Conversion

Flex Vent Kit

SV Style Unit

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HORIZONTAL OR VERTICAL VENTING

All Noritz indoor units may be vented either horizontally or vertically regardless of SV or DV vent type, with the only exception being the EZTR packages that use the 2" flexible vent.

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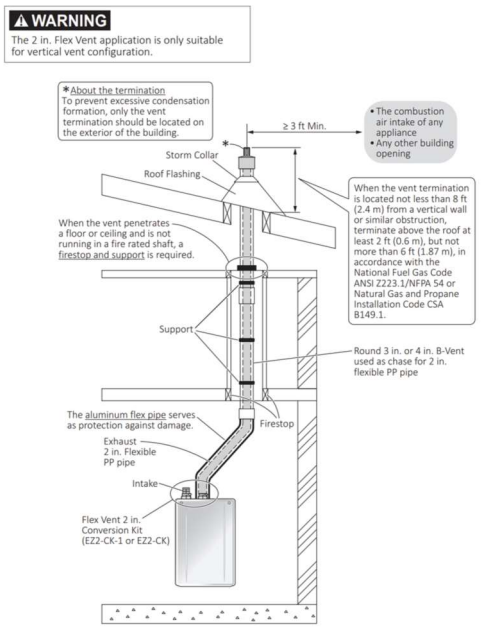
HORIZONTAL OR VERTICAL VENTING



EZTR installations *must* be run vertically through the existing round b-vent and *cannot* be run horizontally.

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HORIZONTAL OR VERTICAL VENTING

Standard efficiency non-condensing units must be vented with category III stainless steel venting and high efficiency condensing models may us plastic venting such as PVC, CPVC or PP depending on code requirements.

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WHEN TO DIRECT VENT

When combustion air is likely to be contaminated, such as in:

Attics

Laundry Rooms

Commercial Kitchens

It's best to install a Direct Vent unit.

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WHEN TO DIRECT VENT

Pulling in dirty combustion air with an SV unit will require quite a bit of preventative maintenance and likely shorten the overall lifespan of the unit.

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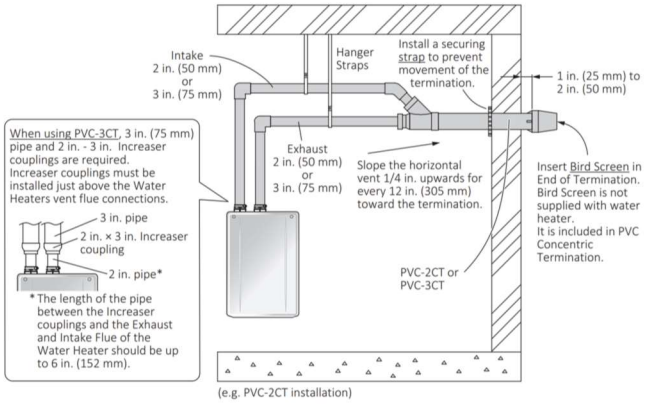
DV TERMINATION OPTIONS



- PVC-2CT: 2" Connections
- PVC-3CT: 3" Connections

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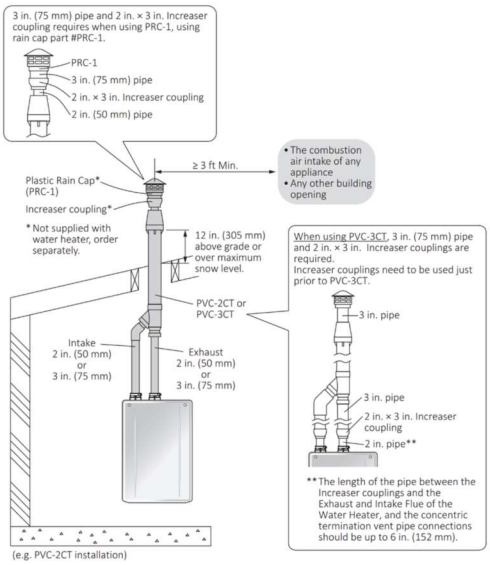
DV TERMINATION OPTIONS



- PVC-2CT: 2" Connections
- PVC-3CT: 3" Connections
- PRC-1: Plastic Rain Cap

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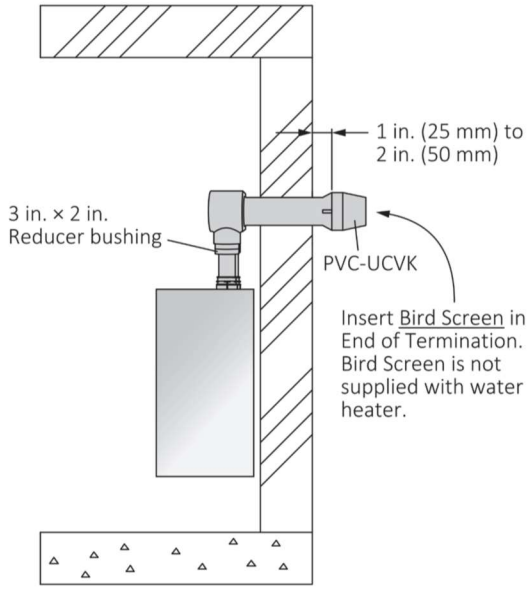
DV TERMINATION OPTIONS



PVC-UCVK: For easy up and out venting

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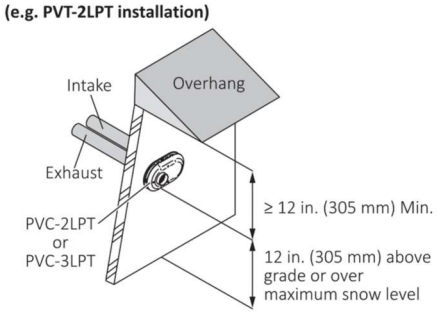
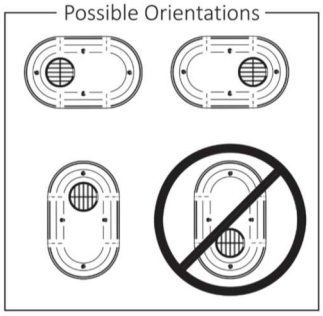
DV TERMINATION OPTIONS





- PVC-2LPT: 2" Connections
- PVC-3LPT: 3" Connections

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SV TERMINATION OPTIONS

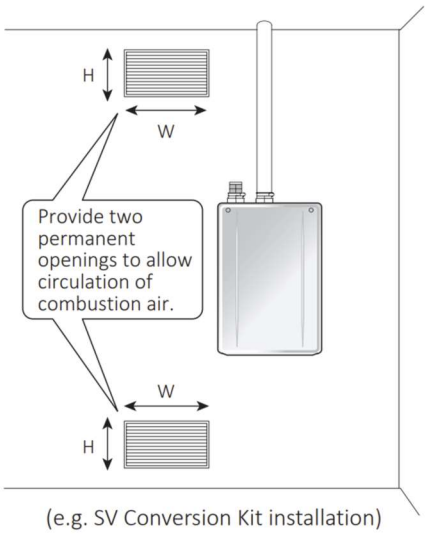
If the installation location meet the combustion air requirements in the manual, you have the option to install a Single Vent unit or use the SV conversion kit on a compatible DV unit and run a single exhaust vent to the outside.

[EZ111DV (GQ-C3260WX-FF US)]

Indoor make up air is provided			200 in.²
		example	20 in. (W) × 10 in. (H)
Outdoor make up air is provided	Direct or Vertical ducts		50 in.²
		example	10 in. (W) × 5 in. (H)
	Horizontal ducts		100 in.²
		example	20 in. (W) × 5 in. (H)

[EZ98DV (GQ-C2860WX-FF US)]

Indoor make up air is provided			180 in.²
		example	20 in. (W) × 9 in. (H)
Outdoor make up air is provided	Direct or Vertical ducts		45 in.²
		example	10 in. (W) × 4 1/2 in. (H)
	Horizontal ducts		90 in.²
		example	20 in. (W) × 4 1/2 in. (H)



(e.g. SV Conversion Kit installation)

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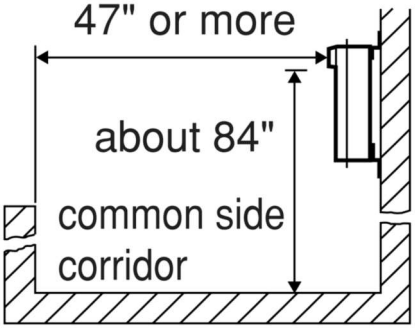
OUTDOOR INSTALL CONSIDERATIONS

Outdoor installations are probably one of the easiest options if the climate allows. However, there are still things to consider such as clearances to building openings and how close the unit is to a neighboring building. The last thing you want is for the exhaust or operational noises to affect the neighbors.



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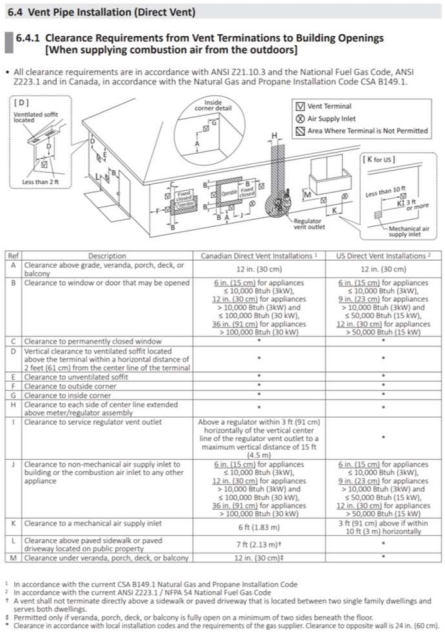
INSTALLATION CLEARANCE REQUIREMENTS



6.4 Vent Pipe Installation (Direct Vent)

6.4.1 Clearance Requirements from Vent Terminations to Building Openings [When supplying combustion air from the outdoors]

- All clearance requirements are in accordance with ANSI Z21.10.3 and the National Fuel Gas Code, ANSI Z223.1 and in Canada, in accordance with the Natural Gas and Propane Installation Code CSA B149.1.

Ref	Description	Canadian Direct Vent Installations [1]	US Direct Vent Installations [2]
A	Clearance above grade, veranda, porch, deck, or balcony	12 in. (30 cm)	12 in. (30 cm)
B	Clearance to window or door that may be opened	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in. (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in. (91 cm) for appliances > 100,000 Btuh (30 kW)	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 9 in. (23 cm) for appliances > 10,000 Btuh (3kW) and ≤ 50,000 Btuh (15 kW), 12 in. (30 cm) for appliances > 50,000 Btuh (15 kW)
C	Clearance to permanently closed window	*	*
D	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*	*
E	Clearance to unventilated soffit	*	*
F	Clearance to outside corner	*	*
G	Clearance to inside corner	*	*
H	Clearance to each side of center line extended above meter/regulator assembly	*	*
I	Clearance to service regulator vent outlet	Above a regulator within 3 ft (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 ft (4.5 m)	*
J	Clearance to non-mechanical air supply inlet to building or the combustion air inlet to any other appliance	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in. (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in. (91 cm) for appliances > 100,000 Btuh (30 kW)	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 9 in. (23 cm) for appliances > 10,000 Btuh (3kW) and ≤ 50,000 Btuh (15 kW), 12 in. (30 cm) for appliances > 50,000 Btuh (15 kW)
K	Clearance to a mechanical air supply inlet	6 ft (1.83 m)	3 ft (91 cm) above if within 10 ft (3 m) horizontally
L	Clearance above paved sidewalk or paved driveway located on public property	7 ft (2.13 m)†	*
M	Clearance under veranda, porch, deck, or balcony	12 in. (30 cm)‡	*

[1] In accordance with the current CSA B149.1 Natural Gas and Propane Installation Code
[2] In accordance with the current ANSI Z223.1 / NFPA 54 National Fuel Gas Code
† A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.
‡ Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.
* Clearance in accordance with local installation codes and the requirements of the gas supplier. Clearance to opposite wall is 24 in. (60 cm).

The terminations of all gas burning appliances are subject to National Fuel Gas Codes clearance requirements to building openings. The installation manual provides these diagrams and many clearance requirements directly from the national fuel gas code for both US and Canada.

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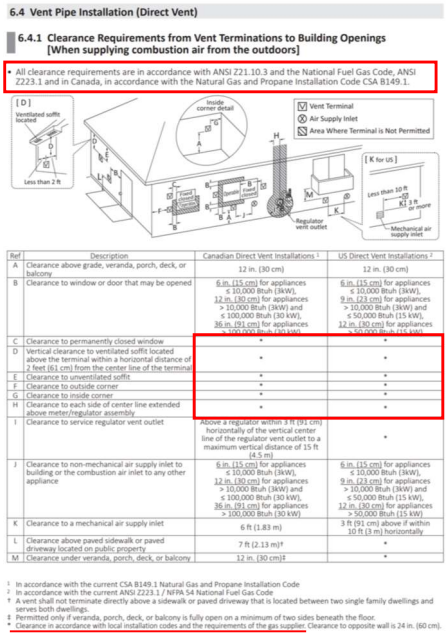
INSTALLATION CLEARANCE REQUIREMENTS



6.4 Vent Pipe Installation (Direct Vent)

6.4.1 Clearance Requirements from Vent Terminations to Building Openings [When supplying combustion air from the outdoors]

- All clearance requirements are in accordance with ANSI Z21.10.3 and the National Fuel Gas Code, ANSI Z223.1 and in Canada, in accordance with the Natural Gas and Propane Installation Code CSA B149.1.

Ref	Description	Canadian Direct Vent Installations [1]	US Direct Vent Installations [2]
A	Clearance above grade, veranda, porch, deck, or balcony	12 in. (30 cm)	12 in. (30 cm)
B	Clearance to window or door that may be opened	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in. (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in. (91 cm) for appliances > 100,000 Btuh (30 kW)	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 9 in. (23 cm) for appliances > 10,000 Btuh (3kW) and ≤ 50,000 Btuh (15 kW), 12 in. (30 cm) for appliances > 50,000 Btuh (15 kW)
C	Clearance to permanently closed window	*	*
D	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*	*
E	Clearance to unventilated soffit	*	*
F	Clearance to outside corner	*	*
G	Clearance to inside corner	*	*
H	Clearance to each side of center line extended above meter/regulator assembly	*	*
I	Clearance to service regulator vent outlet	Above a regulator within 3 ft (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 ft (4.5 m)	*
J	Clearance to non-mechanical air supply inlet to building or the combustion air inlet to any other appliance	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in. (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in. (91 cm) for appliances > 100,000 Btuh (30 kW)	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 9 in. (23 cm) for appliances > 10,000 Btuh (3kW) and ≤ 50,000 Btuh (15 kW), 12 in. (30 cm) for appliances > 50,000 Btuh (15 kW)
K	Clearance to a mechanical air supply inlet	6 ft (1.83 m)	3 ft (91 cm) above if within 10 ft (3 m) horizontally
L	Clearance above paved sidewalk or paved driveway located on public property	7 ft (2.13 m)†	*
M	Clearance under veranda, porch, deck, or balcony	12 in. (30 cm)‡	*

[1] In accordance with the current CSA B149.1 Natural Gas and Propane Installation Code
[2] In accordance with the current ANSI Z223.1 / NFPA 54 National Fuel Gas Code
† A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.
‡ Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.
* Clearance in accordance with local installation codes and the requirements of the gas supplier. Clearance to opposite wall is 24 in. (60 cm).

It's important to note that Noritz does not make these clearance requirements and thus cannot overrule any local, state, provincial or national code. When there is no national code clearance listed, local code or the requirements of the gas supplier must be followed.

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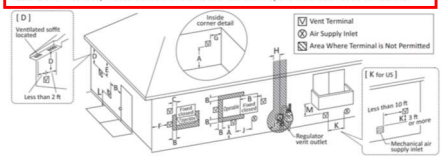
INSTALLATION CLEARANCE REQUIREMENTS

6.4 Vent Pipe Installation (Direct Vent)

6.4.1 Clearance Requirements from Vent Terminations to Building Openings [When supplying combustion air from the outdoors]

- All clearance requirements are in accordance with ANSI Z21.10.3 and the National Fuel Gas Code, ANSI Z223.1 and in Canada, in accordance with the Natural Gas and Propane Installation Code CSA B149.1.



Ref	Description	Canadian Direct Vent Installations [1]	US Direct Vent Installations [2]
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C	Clearance to permanently closed window	*	*
D	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*	*
E	Clearance to unventilated soffit	*	*
F	Clearance to outside corner	*	*
G	Clearance to inside corner	*	*
H	Clearance to each side of center line extended above meter/regulator assembly	*	*
I	Clearance to service regulator vent outlet	Above a regulator within 3 ft (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 ft (4.5 m)	*
J	Clearance to non-mechanical air supply inlet to building or the combustion air inlet to any other appliance	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in. (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in. (91 cm) for appliances > 100,000 Btuh (30 kW)	6 in. (15 cm) for appliances ≤ 10,000 Btuh (3kW), 9 in. (23 cm) for appliances > 10,000 Btuh (3kW) and ≤ 50,000 Btuh (15 kW), 12 in. (30 cm) for appliances > 50,000 Btuh (15 kW)
K	Clearance to a mechanical air supply inlet	6 ft (1.83 m)	3 ft (91 cm) above if within 10 ft (3 m) horizontally
L	Clearance above paved sidewalk or paved driveway located on public property	7 ft (2.13 m)†	*
M	Clearance under veranda, porch, deck, or balcony	12 in. (30 cm)‡	*

[1] In accordance with the current CSA B149.1 Natural Gas and Propane Installation Code
[2] In accordance with the current ANSI Z223.1 / NFPA 54 National Fuel Gas Code
† A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.
‡ Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.
* Clearance in accordance with local installation codes and the requirements of the gas supplier. Clearance to opposite wall is 24 in. (60 cm).

These codes are designed to prevent the exhaust from a gas burning appliance from entering the home and putting the occupants at risk.

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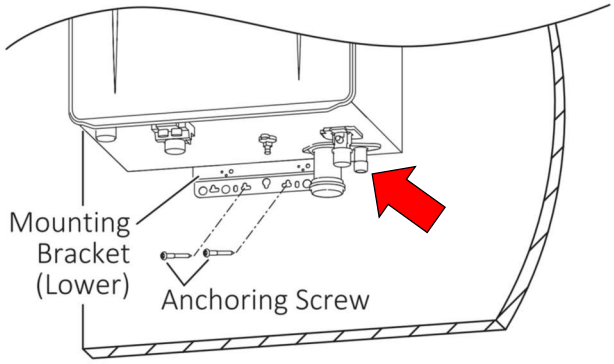
CONDENSATE DRAIN CONNECTION



Condensing heaters will have a ½” condensate drain connection on the bottom of the unit.

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CONDENSATE DRAIN CONNECTION

Condensate drain piping

Make the condensate drain piping run as short as possible.

NOTE Do not make a trap.

Condensate drain pipe

The condensate drain line should be as short and direct as possible and you do not need to create a trap as that's what the collector inside the unit does.

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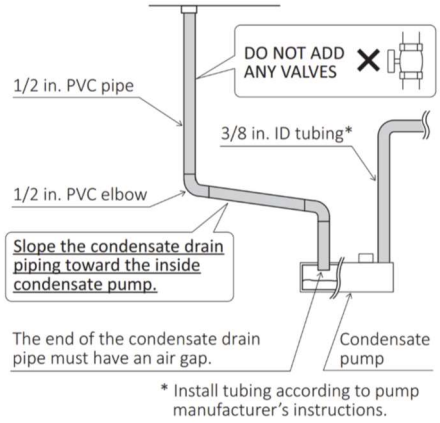
CONDENSATE DRAIN CONNECTION

[Condensate drain piping with pump]



Long runs or applications where the nearest drain is above the Water Heater

Require the use of a condensate pump.
Size the pump to allow for a maximum condensate discharge of 2 GPH from the Water Heater.

If the desired drain location is a long distance from or above the heater, a condensate pump should be used. The pump should be sized to handle 2 gallons per hour.

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CONDENSATE DRAIN CONNECTION

In cold climates with freezing weather, the condensate should not be drained to the outside as the condensate line could freeze and the heater will stop operating.

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CONDENSATE DRAIN CONNECTION

Material of the condensate drain piping

Use plastic pipe, such as PVC, for the drain line.

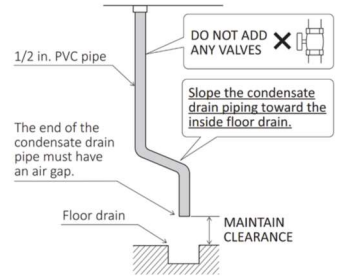
NOTE Do not use steel, black iron, or any other material which can corrode when placed into contact with acidic condensate.

Sizing of the condensate drain piping

In order to drain the condensate, a 1/2 in. threaded fitting is provided at the base of the Water Heater.

NOTE Do not reduce the size of the fitting or the condensate drain piping to less than 1/2 in.

[Condensate drain piping to floor drain]



The drain line should be plastic as the acidic condensate will corrode metal pipes and the line should be no smaller than ½".

Horizontal runs should be sloped downward a ¼" for every 1 foot of piping.

Make sure you leave an air gap at the end of the drain line.

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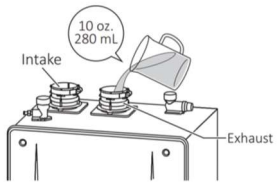
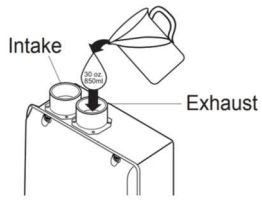
FILLING CONDENSATE TRAP

Fill the condensate container by pouring approx. 10 oz. (280 mL) of water into the exhaust flue on the top of the Water Heater as illustrated below.



1) Fill the condensate container by pouring approx. 30 oz.(850ml) of water into the exhaust accessory on the top of the appliance as illustrated below.



The condensate collector inside the unit that should be pre-charged with water to prevent carbon monoxide leakage during initial operation of the unit. Pre-mix models such as the EZ series need about 10 oz of water while traditional condensing units like the NRC111 need about 30 oz.

NORITZ TANKLESS WATER HEATERS

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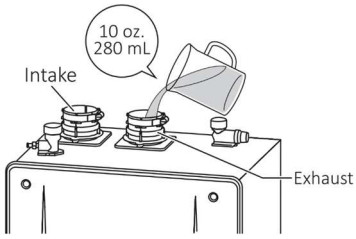
FILLING CONDENSATE TRAP



If the vent pipe has already been installed:
After installing the condensate drain pipe, make sure that the area around the Water Heater is well ventilated; open a window or a door if necessary. Then, operate the Water Heater and verify that condensate is coming out of the condensate drain pipe.
(During normal use of the Water Heater, condensate will begin to discharge from the condensate drain pipe within 15 minutes of use. However, depending on the season and/or installation site conditions, it may take longer.)

If you forget to pre-charge the condensate collector, make sure the installation area is well ventilated for the first 15-20 minutes of operation as the unit creates condensate and fills the collector.

NORITZ TANKLESS WATER HEATERS

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NEUTRALIZING THE CONDENSATE

Condensing Water Heater

- In order to ensure proper operation of this Water Heater, need to install the condensate drain pipe to drain acidic condensate which produces during operation.
- The pH level of the condensate is approximately 2-3.
  An external neutralizer must be installed on the condensate drain piping prior to disposal when required by local code or when the condensate could cause damage.

NOTE Damage caused by improperly handled condensate is not covered by the Noritz America Limited Warranty.

Treating the acidic condensate created by high efficiency units may be required by local code and is a good practice even if code doesn't require it.

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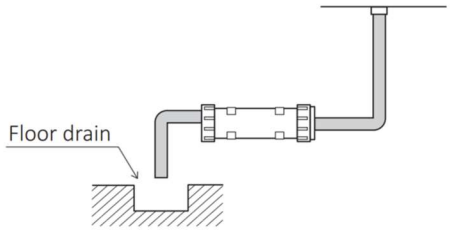
NEUTRALIZING THE CONDENSATE

[If an external neutralizer is installed]

Periodic replacement of the neutralizing agent will be required.
Refer to the instructions supplied with the neutralizer for suggested replacement intervals.



Noritz offers external neutralizers to raise the pH level of the acidic condensate to that of water so it can be drained safely. The residential neutralizer is recommended to be installed 1 per unit.

NORITZ TANKLESS WATER HEATERS

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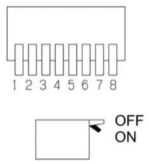
SETTING THE DIPSWITCHES

■ DIP Switch Settings

Disconnect the electrical power to the water heater before adjusting the DIP Switches.

[DIP Switches]



The following settings can be adjusted using the DIP Switches:
1. To set up with the common vent system, SW 1 needs to be turned on.*
2. By using SW 2 and 3, it can adapt to the setting of the exhaust type.**
3. By using SW 5 and 6, adjustments can be made for use at high elevation.
4. By using SW 7 and 8, adjustments can be made for extended vent lengths. Refer to the "Setting list for DIP Switches" table for details.

Setting list for DIP Switches (● :ON ○ :OFF)

SW1	SW2	SW3		SW5	SW6		SW7	SW8	
Common vent system*	Exhaust type**			Elevations above 2000ft			Vent Length Adjustment and Vent Size		
SW1	SW2	SW3		SW5	SW6	High Elevation Adjustment	SW7	SW8	
○	○	○	DV	○	○	0~2000ft (0~610m)	○	○	2" Short Length
●	●	○	OD	●	○	2001~4000ft (611~1219m)	●	○	2" Long Length
	○	●	SV	○	●	4001~7000ft (1220~2134m)	○	●	3" Short Length
	●	●	EZTR	●	●	7001~10000ft (2135~3048m)	●	●	3" Long Length

* Refer to the Installation Manual of common vent system for detail information.
** DV : Direct Vent, OD : Outdoor (using VC-6), SV : Single Vent (using SV Conversion Kit), EZTR : 2" PP Flexible Pipe (using EZ2-CK)

Each unit will have 8 dipswitches located on the circuit board for adjusting the unit based on vent type, elevation, vent length and size.

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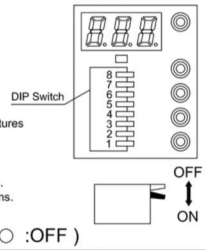
SETTING THE DIPSWITCHES

■ DIP Switch Settings

*Disconnect the electrical power to the unit before adjusting the DIP Switches.



The following settings can be adjusted using the DIP Switches.
1. By setting DIP Switches 1 and 2, the unit can be programmed to different default temperatures if the remote controller is removed.
2. (-DV Model only) By setting DIP Switch 3, the intake air supply type can be set to direct vent(DV) or non-direct vent(SV).
3. By setting DIP Switches 5 and 6, adjustments can be made for high elevation installations.
4. By setting DIP Switches 7, adjustments can be made for extended vent lengths installations. Refer to the "Setting list for DIP Switches" table for details.

Setting list for DIP Switches (● :ON ○ :OFF)

1	2		3		5	6		7	
Default temperature setting			Intake Air supply type -DV Model only		Elevations above 2,000ft			Vent Length Adjustment -DV(-SV) Model only	
1	2		3	Intake Air supply	5	6	High Elevation Adjustment	7	Vent Length
○	○	120°F (50°C)	○	Outdoor : DV	○	○	0~2,000ft (0~610m)	○	Short Length
●	●	130°F (54°C)	●	Indoor : SV	●	○	2,001~4,000ft (611~1,220m)	●	Long Length
●	○	135°F (57°C)			○	●	4,001~6,000ft (1,221~1,830m)		
○	●	140°F (60°C)			●	●	6,001~8,000ft (1,831~2,440m)		

note) The unit is fixed with minimum combustion, if you change No.4 to ON. It is possible to cause the trouble, please do not change it. No.8 does not have any function.

On smaller units that don't include a remote control, the dipswitches will also allow you to set the output temperature above the default 120 degrees F.

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SETTING THE DIPSWITCHES

Be sure to make dipswitch changes with the power off otherwise an error code 73 will occur.

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SETTING THE DIPSWITCHES

EC73 TECH TIP VIDEO

To Clear EC73:

- Disconnect Power
- Make Dipswitch Changes
- Reconnect Power

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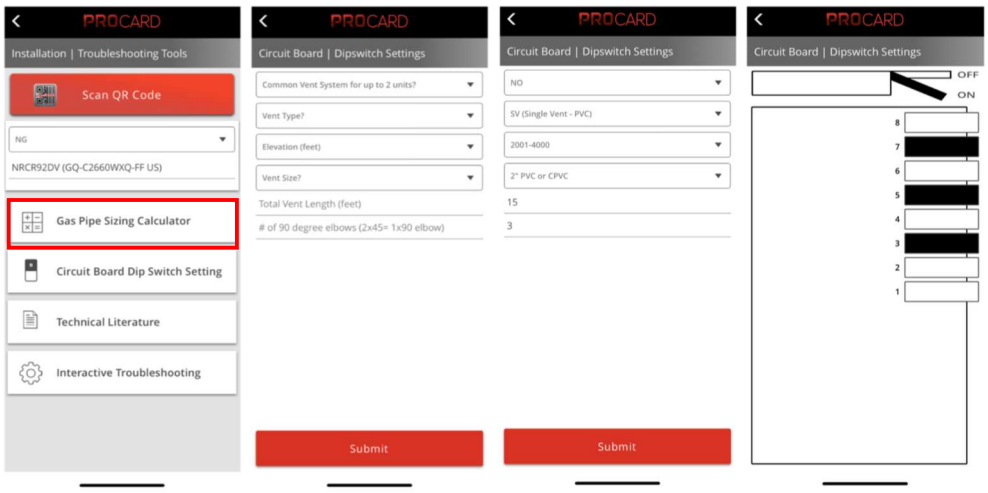
SETTING DIPSWITCHES WITH PROCARD APP

Use the PROCard App to make dipswitch settings simple!



ANDROID APP ON Google play

Download on the App Store

NORITZ TANKLESS WATER HEATERS

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WATER QUALITY CONSIDERATIONS

Water quality, and specifically hard water, is the #1 factor that affects the lifespan of any water heating appliance.

NORITZ TANKLESS WATER HEATERS

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WATER QUALITY CONSIDERATIONS

8.3 Water Treatment

If this Water Heater will be installed in a location where the hardness of the supply water is high, scale Build-up may cause damage to the Heat Exchanger.
Perform suggested treatment and maintenance measures to be taken based on the water hardness level according to the below table.

Treatment Guidelines

Type of Water	Hardness Level	Treatment Device*	Flush Frequency**
Soft	0-1 gpg (0-17 mg/L)	None	None
Slightly Hard	1-3 gpg (17-51 mg/L)		
Moderately Hard	3-7 gpg (51-120 mg/L)	Scale Shield or Water Softener	Once a Year***
Hard	7-10 gpg (120-171 mg/L)		
Very Hard	10-12 gpg (171-200 mg/L)		
Extremely Hard	> 12 gpg (> 200 mg/L)		

* When selecting a treatment device, you must consult with the device's spec sheet and installation manual for guidelines and limitations. Not all water supplies are compatible. A water test may be required.
** Install Noritz Isolation Valves to allow for flushing.
*** Flushing is required if a water treatment device is not installed.

NOTE Damage to the Water Heater as a result of the items below is not covered by the Noritz America Limited Warranty.
- Water in excess of 12 gpg (200 mg/L) of hardness
- Poor water quality (See the Water Quality List on page 12.)
- The Remote Controller has displayed a "C1# (Service Reminder)" indicating Scale Build-up, but the Heat Exchanger has not been flushed.

When installing a Noritz Tankless in an area with hard water, it's important to follow the water quality and treatment guidelines in the installation manual.

NORITZ TANKLESS WATER HEATERS

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WATER QUALITY CONSIDERATIONS

A Scale Shield is highly recommended for hard water areas. It's always better to prevent scale build up rather than cleaning it up afterwards.

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WATER QUALITY CONSIDERATIONS

As a last resort if there's no softener or scale shield, descales should be completed on a yearly basis. This involves circulating a calcium lime rust remover or food grade white vinegar through the unit for 1 hour.

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WATER QUALITY CONSIDERATIONS

Descale procedures can be found:

- In the Manual
- In the PROCard App
- SUPPORT.NORITZ.COM
- YOUTUBE.COM/NORITZAMERICA

NORITZ TANKLESS WATER HEATERS

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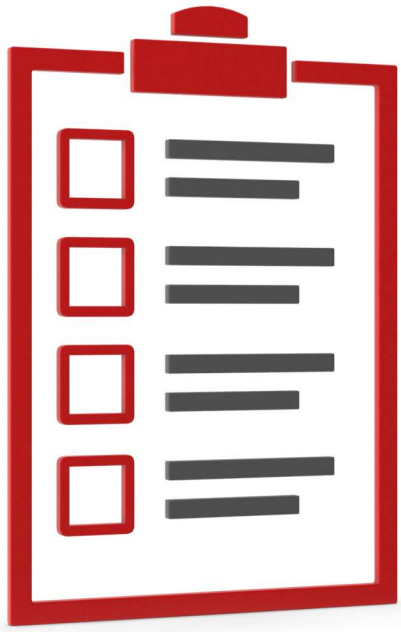
INSTALLATION CHECKLIST



Before leaving the jobsite and calling the installation complete, it's a good practice to verify everything is working properly.

NORITZ TANKLESS WATER HEATERS

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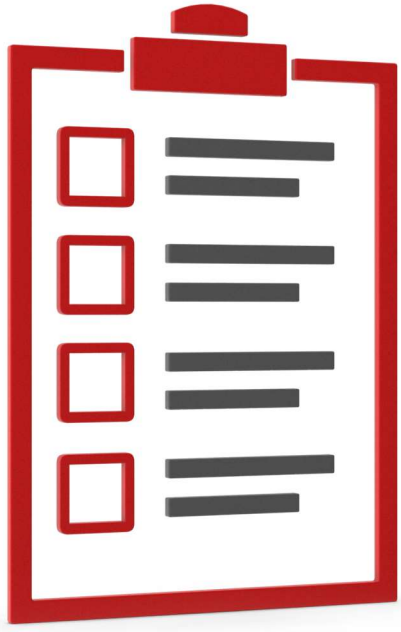
INSTALLATION CHECKLIST



This includes, but is not limited to:

- Double checking dipswitches
- Checking inlet water filter
- Testing the heater at low, moderate and high flow rates for a few minutes
- Registering the warranty

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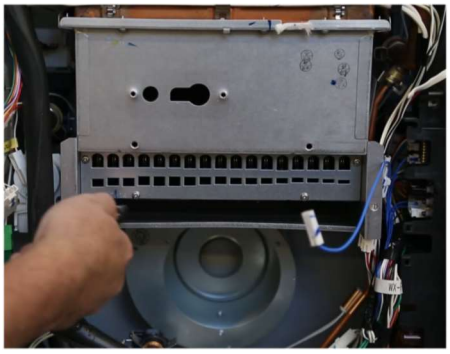
REGULAR MAINTENANCE ITEMS

NORITZ TANKLESS WATER HEATERS

To keep the tankless running at peak performance and efficiency throughout its life, here are a few other regular maintenance items to keep in mind.

- Cleaning the unit and combustion chamber if excessive build up is noticed.
- Cleaning the ignition and flame rods.
- Checking and cleaning the cold water inlet filter.



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REGULAR MAINTENANCE ITEMS

Encourage your customers to visually check the unit once in awhile.

Tankless heaters, like any other gas appliance, are not meant to be installed and forgotten about.

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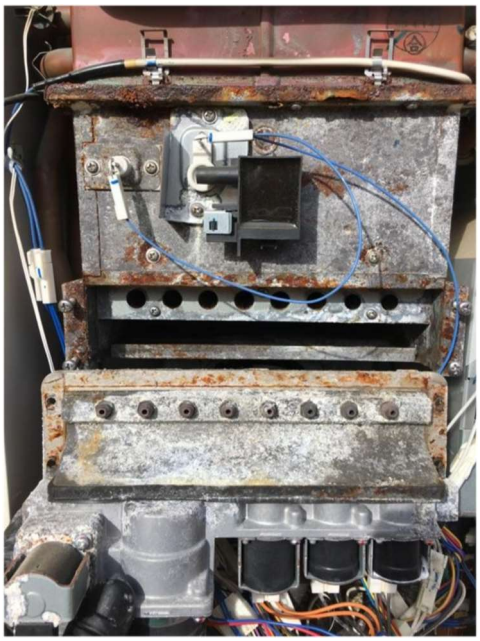
REGULAR MAINTENANCE ITEMS



Periodically inspecting the unit for any minor issues will help prevent it from becoming a bigger problem.

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HELPFUL CONTACT INFO

866-7NORITZ (866-766-7489)

- Monday – Friday: 5am to 6pm PST
- Saturday: 6am to 3pm PST

SUPPORT.NORITZ.COM NORITZ.COM/TECHTIPS HELP.NORITZ.COM TRAINING.NORITZ.COM YOUTUBE.COM/NORITZAMERICA

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THANK YOU

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NOTES

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