

## Dimensions



## Ratings & specifications

Item	NPN-Universal Model			NPN-Exterior Model		
	NPN-100U	NPN-150U	NPN-200U	NPN-150E	NPN-180E	NPN-199E
Heat capacity (ImpV) natural gas/propane gas	10,700- 160,000 (BTU/h)	10,700- 160,000 (BTU/h)	10,700- 160,000 (BTU/h)	10,700- 160,000 (BTU/h)	10,700- 160,000 (BTU/h)	10,700- 160,000 (BTU/h)
Efficiency Rating for NG & LP	0.81 UEF					
Flow rate (GPM)	35°F (10°C) temp rise	7.6 GPM (28.8 L/m)	9.5 GPM (35.2 L/m)	9.5 GPM (35.0 L/m)	7.6 GPM (28.6 L/m)	9.5 GPM (35.0 L/m)
	45°F (10°C) temp rise	5.8 GPM (22.3 L/m)	6.6 GPM (25.0 L/m)	7.4 GPM (28.0 L/m)	5.8 GPM (22.3 L/m)	7.4 GPM (28.0 L/m)
	57°F (17°C) temp rise	4.0 GPM (15.1 L/m)	4.5 GPM (17.0 L/m)	5.0 GPM (18.9 L/m)	4.0 GPM (15.1 L/m)	4.5 GPM (17.0 L/m)
Dimensions	14.0" W x 23.0" H x 9.3" D					
Weight	55.0 lbs. 25 kg	60.0 lbs. 27 kg	60.0 lbs. 27 kg	55.0 lbs. 25 kg	60.0 lbs. 27 kg	60.0 lbs. 27 kg
Installation type	Indoor or outdoor wall-hung (see kit option for outdoor)			Only outdoor wall-hung		
Venting type	Concentric			No-venting (outdoor installation only)		
Ignition type	Electronic ignition					
Water pressure	75-150 PSI					
Natural gas supply pressure (from source)	3.5" WC - 10.5" WC					
Propane gas supply pressure (from source)	8" WC - 12" WC					
Natural gas manifold pressure (min-max)	2.80" WC 0.70" WC	2.25" WC 0.57" WC	2.81" WC 0.57" WC	2.23" WC 0.69" WC	2.36" WC 0.57" WC	2.99" WC 0.57" WC
Propane gas manifold pressure (min-max)	9.50" WC 1.38" WC	9.28" WC 1.31" WC	9.52" WC 1.31" WC	8.34" WC 1.28" WC	8.28" WC 1.28" WC	8.87" WC 1.28" WC
Minimum flow rate	0.5 GPM (1.9 L/m)					
Connection size	Cold water inlet	3/4" NPT				
	Hot water outlet Gas inlet	3/4" NPT				
Power supply	Main supply	120V AC, 60 Hz				
	Normal	90 W	90 W	90 W	90 W	100 W
	Standby	4 W				
	Anti-frost	114 W				
	External pump	< 150 W, 1.5 A				
Materials	Flue	5.0 A				
	Casing	Cold rolled carbon steel				
Safety devices	Heat exchanger	Stainless steel				
		Flame rod, AFRS, overheat protection, ignition-operation detector, water temperature high limit switch, power surge fuse				

Navien reserves the right to change specifications at any time without prior notice. Please refer to [www.Navieninc.com](http://www.Navieninc.com) to verify you have the most current information.



## Warranty

	Application	Labor	Parts	Heat Exchanger
Residential	Standard	1 year	3 years	10 years
	Uncontrolled Recirculation*	1 year	3 years	5 years
Commercial or Combi†	Standard	1 year	3 years	5 years
	Uncontrolled Recirculation*	1 year	3 years	3 years

\*Combi refers to a combination potable water and space heating application. Water heaters cannot be used in space heating only applications.

†Uncontrolled Recirculation: External pumps configured to circulate continuously through the water heater are subject to the uncontrolled recirculation warranty terms. An aquastat is the minimum pump control requirement for DHW or storage tank recirculation in order to maintain the full controlled recirculation warranty.

For complete details please refer to the full warranty at [www.Navieninc.com](http://www.Navieninc.com).



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# Navien Service Manual

**JE Gale**



## **Navien Service Manual:**

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web write the oxidation and reduction reactions for each redox reaction the first one is done for you  $23 \text{ Fe} + \text{Co} \rightarrow \text{Co} + 2 \text{Fe}$   
oxidation  $\text{Co} \rightarrow \text{Co}^{2+} + 2\text{e}^{-}$  reduction  $\text{Fe}^{2+} + 2\text{e}^{-} \rightarrow \text{Fe}$   $24 \text{ 3 Ag} + \text{Ni} \rightarrow \text{Ni} + 3 \text{ Ag}$  oxidation reduction  $25 \text{ Cu} + \text{Pb} \rightarrow \text{Pb} + \text{Cu}$  oxidation reduction  $26 \text{ O}_2$

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5co i2 5co2 i 2 o 5 5 c o i 2 5 c o 2

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