

Dunkirk offers a complete line of Stainless Steel Single/Dual Coil Indirect Water Heaters, Storage Tanks, Buffer Tanks and Solar Tanks.







THE H₂O SERIES

A complete line of Stainless Steel, Single and Dual Coil Indirect Water Heaters, Storage Tanks, and Hydronic Buffer Tanks.

Need An Easy Domestic Hot Water Solution With A Low Operating Cost and the Longevity Of Stainless Steel?

Dunkirk H₂O Stainless Steel Single Coil Indirect Water Heaters

Need A Hot Water Solution To Balance Input and Storage While Reducing Short Cycling?

Dunkirk H₂O Stainless Steel Storage Tanks

Need A Hot Water Solution For Use With Chillers, Heat Pumps, and Low Mass Boilers?

Dunkirk H₂O Stainless Steel Hydronic Buffer Tanks

Need A Hot Water Solution For Solar Applications Or Small Zones?

Dunkirk H₂O Stainless Steel Single & Dual Coil Solar Water Heaters

(Optional Electric Back-Up can heat the tank if solar heat is unavailable)

| Standard Features | Single Coil Indirect Water Heaters |
|---|---|
| Capacities (Gallons) | 30, 40, 40L, 50, 60, 60L, 80, 85* & 115 |
| 316L Stainless Steel Construction | |
| Top Connections (For Easy, Neat, Clean Installation) | |
| Welded Stainless Steel Dip Tube (Factory installed) | |
| Thermoplastic Jacket (Won't dent, scratch or corrode) | |
| Low Pressure Drop (Ideal For Low Mass Boilers) | |
| Magnesium Anode Rod | |
| T & P Valve (Factory installed except on 85 & 115XHOC) | |
| Thermal Well & Drain Valve Provided | |
| 2.25" EPS Insulation (Provides Less Than .5°F Per Hour Standby Loss) | |
| Large Diameter, Smooth Coil Heat Exchangers - Prevent Buildup (Stainless Steel Coils Are 25' to 30' Long and 1-1/8" in Diameter) | |
| Thermal Control (Shipped Loose for Field Installation) | |
| Made in the USA | |
| Warranty | |
| Limited Lifetime Warranty (Residential), 5 Yr. (Commercial) | |
| Limited Lifetime Warranty | N/A |
| Options | |
| Low Profile | 40L & 60L Capacities |
| High Output | 80 & 115 Capacities |
| Extra High Output | 85 & 115 Capacities |
| Electric Back-Up | 60, 80 & 115 Capacities |
| Commercial Connections (For increased DHW flow) | 80 & 115 Capacities (1-1/2" Dom., 1-1/4" Blr.) |
| Coil | Standard |

^{*}Only offered in Extra High Output models.

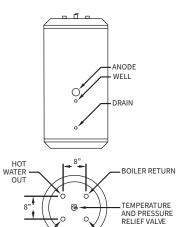




| Storage Tanks | Buffer Tanks | Dual Coil Solar Water Heaters |
|---------------------------------|---|-------------------------------|
| 30, 40, 60, 60L, 80 & 115 | 22, 40, 60, 80 & 115 | 60,80 & 115 |
| | | |
| • | | |
| • | N/A | |
| | | |
| | | |
| N/A | N/A | N/A |
| • | | |
| • | | |
| • | 0 | |
| N/A | N/A* | |
| • | N/A | |
| | | |
| | | |
| | N/A | N/A |
| N/A | | |
| | | |
| 60L Capacities | N/A | N/A |
| N/A | N/A | N/A |
| N/A | N/A | N/A |
| N/A | N/A | 60, 80 & 115 Capacities |
| 80 & 115 Capacities (1-1/2") | 40, 60, 80 & 115 Capacities (1-1/4", 1-1/2", 2") 22 Capacity (1-1/4" only) | N/A |
| N/A | 22, 40, 60, 80 & 115 Capacities | Standard |

H₂O Stainless Steel Single Coil Indirect Water Heaters

STANDARD & HOUNITS

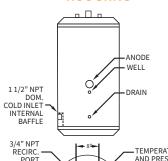


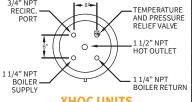


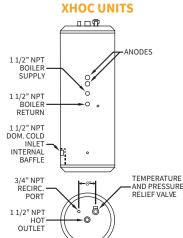
BOILER SUPPLY

COLD

WATER







| | Storage | Coil | | Dimensions | , | Piping NPT | |
|--|-----------------------|----------------------------------|-------------------|----------------------|----------------|------------------------|---------------------------------|
| Model | Capacity (Gallons) | Heating Surface (Square Feet) | Height (Inches | Diameter (Inches) | Weight (lb) | DHW In/Out (Inches) | Boiler Water In/Out (Inches) |
| H2OI30DK | 30 | 7.3 | 34.0 | 23.5 | 85 | 3/4 | 1 |
| H2OI40DK | 40 | 7.7 | 44.0 | 23.5 | 100 | 3/4 | 1 |
| H2OI40LDK | 42 | 7.4 | 36.0 | 28.0 | 100 | 3/4 | 1 |
| H2OI50DK | 50 | 8.2 | 54.0 | 23.5 | 110 | 3/4 | 1 |
| H2OI60DK | 60 | 8.6 | 62.0 | 23.5 | 125 | 3/4 | 1 |
| H2OI60LDK | 60 | 7.7 | 46.0 | 28.0 | 120 | 3/4 | 1 |
| H2OI80DK | 80 | 8.2 | 56.0 | 28.0 | 140 | 1 | 1 |
| H2OI115DK | 115 | 9.1 | 74.0 | 28.0 | 175 | 1 | 1 |
| | | HIGH | HOUTPU | T UNITS | | | |
| H2OI60HODK | 60 | 15.1 | 62.0 | 23.5 | 145 | 1 | 1 |
| H2OI80HODK | 80 | 14.8 | 56.0 | 28.0 | 155 | 1 | 1 |
| H2OI80HOCDK | 80 | 14.8 | 56.0 | 28.0 | 155 | 1-1/2 | 1-1/4 |
| H2OI115HODK | 115 | 15.6 | 74.0 | 28.0 | 190 | 1 | 1 |
| H2OI115HOCDK | 115 | 15.6 | 74.0 | 28.0 | 190 | 1-1/2 | 1-1/4 |
| | E | KTRA HIGH OUTPI | JT UNITS | 85-XHO AN | ID 115-XI | Ю | |
| H2OI85XHOCDK | 87 | 28.7 | 64.0 | 28.0 | 215 | 1-1/2 | 1-1/2 |
| H2OI115XHOCDK | 115 | 28.7 | 74.0 | 28.0 | 240 | 1-1/2 | 1-1/2 |
| NOTE: Max. Tank Working Pressure 150 psi all models. Max. Coil Working Pressure 90 psi all models. | | | | | | | |
| | (L) Low pr | ofile models for a | pplicatio | ns with low | clearance | ces. | |
| Options | (HO) High | Output models a | vailable t | o meet grea | ater dem | and. | |
| Ομιίστις | (HOC) Hig | h Output Comme | rcial moc | lels with lar | ger tapp | ings for highe | r flow rates. |
| | (XHO) Extr | a High Output mo | odels. | | | | |

| Model | Max First Hour Rating GPH @ | | Continuous Rating GPH @ | | Output Needed | Water Flow Through Coil | Pressure Drop Through Coil | |
|---|--------------------------------|-------|----------------------------|----------|------------------|----------------------------|-------------------------------|--|
| | 140°F | 115°F | 140°F | 115°F | Btu/h | GPM | FT Water | |
| H2OI30DK | 202 | 269 | 175 | 242 | 131,000 | 14 | 5.6 | |
| H2OI40DK | 221 | 292 | 185 | 256 | 139,000 | 14 | 5.9 | |
| H2OI40LDK | 212 | 251 | 176 | 215 | 132,000 | 14 | 5.6 | |
| H2OI50DK | 223 | 291 | 178 | 246 | 133,000 | 14 | 6.2 | |
| H2OI60DK | 262 | 342 | 208 | 288 | 156,000 | 14 | 6.4 | |
| H2OI60LDK | 239 | 310 | 185 | 256 | 139,000 | 14 | 5.9 | |
| H2OI80DK | 271 | 348 | 199 | 276 | 149,000 | 14 | 6.2 | |
| H2OI115DK | 324 | 409 | 221 | 306 | 166,000 | 14 | 6.7 | |
| | | | HIGH OUT | PUT UNIT | S | | | |
| H2OI60HODK | 406 | 541 | 352 | 478 | 264,000 | 14 | 10.5 | |
| H2OI80HODK | 418 | 551 | 346 | 479 | 259,000 | 14 | 10.3 | |
| H2OI80HOCDK | 442 | 584 | 370 | 512 | 277,000 | 21 | 15.8 | |
| H2OI115HODK | 467 | 607 | 364 | 504 | 273,000 | 14 | 10.8 | |
| H2OI115HOCDK | 479 | 623 | 376 | 520 | 282,000 | 21 | 16.7 | |
| EXTRA HIGH OUTPUT UNITS 85-XHO AND 115-XHO | | | | | | | | |
| H2OI85XHOCDK | 738 | 992 | 660 | 914 | 495,000 | 28 | 13 | |
| H2OI115XHOCDK | 763 | 1017 | 660 | 914 | 495,000 | 28 | 13 | |
| NOTE: All ratings are based on 200°F boiler water supply and 50°F cold water inlet. | | | | | | | | |

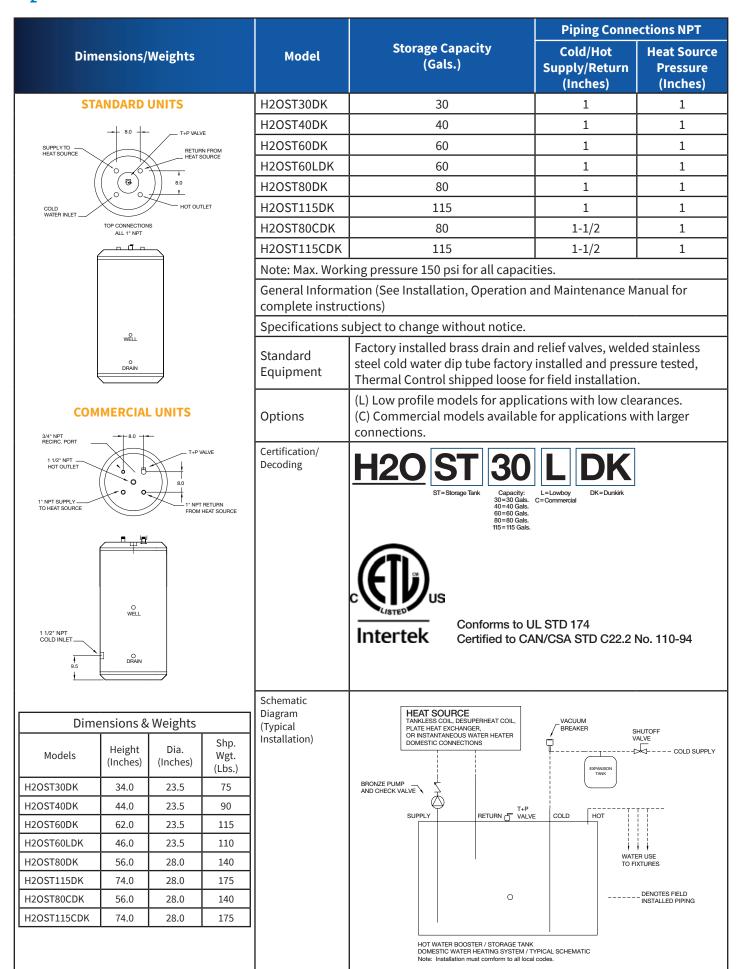
Standard Equipment: Smooth stainless steel coil, magnesium anode rod, factory installed stainless steel thermal well, T & P and drain valve, welded stainless steel cold water dip tube factory installed and pressure tested, Thermal Control shipped loose for field installation.

Capacity: 30=30 Gals. 40=40 Gals. 40=40 Gals. 60=60 Gals. 60=60 Gals. 80=80 Gals. 85=87 Gals. 115=115 Gals.



Conforms to UL STD 174 Certified to CAN/CSA STD C22.2 No. 110-94

H₂O Stainless Steel Storage Tanks



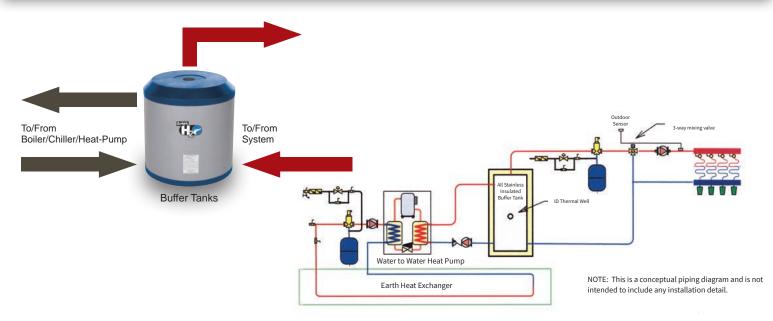
H₂O Stainless Steel Buffer Tanks

| Din | nension | s/Weig | hts | | Model | Storage Capacity (Gals.) | Piping Connections NPT (Inches) | | |
|----------------------------|-------------------------|---------------|----------------------|---------------------|--|--|--|--|--|
| | | | | | H2OBT22114DK | 22 | 1-1/4 | | |
| | | | | | H2OBT40114DK | | 1-1/4 | | |
| | | | | | H2OBT40112DK | 40 | 1-1/2 | | |
| | | | | | H2OBT402DK | | 2 | | |
| | | | | | H2OBT60114DK | | 1-1/4 | | |
| | | | | | H2OBT60112DK | 60 | 1-1/2 | | |
| | | | | | H2OBT602DK | | 2 | | |
| | | | | | H2OBT80112DK | | 1-1/4 | | |
| | _ D | - | | | H2OBT80114DK | 80 | 1-1/2 | | |
| | LJ. | | | | H2OBT802DK | | 2 | | |
| | • | | | | H2OBT115114DK | | 1-1/4 | | |
| | | | | | H2OBT115112DK | 115 | 1-1/2 | | |
| | | | | | H2OBT1152DK | | 2 | | |
| A | • | | | | H2OBT40114WCDK | | 1-1/4 | | |
| B THE | 3/8" ID RMAL WELL | _ | - 4 CONNE | CTIONS | H2OBT40112WCDK | 40 | 1-1/2 | | |
| <u>+</u> ; | 0 | | 2 ON LEF 1 ON TOP | T SIDE | H2OBT402WCDK | | 2 | | |
| с | DRAIN VALVE | | | | H2OBT60114WCDK | | 1-1/4 | | |
| | | 7 | | | H2OBT60112WCDK | 60 | 1-1/2 | | |
| | | | | | H2OBT602WCDK | | 2 | | |
| | | | | | H2OBT80114WCDK | | 1-1/4 | | |
| | | | | | H2OBT80112WCDK | 80 | 1-1/2 | | |
| | | | | | H2OBT802WCDK | | 2 | | |
| | | | | | H2OBT115114WCDK | | 1-1/4 | | |
| | | | | | H2OBT115112WCDK | 115 | 1-1/2 | | |
| | | | | | H2OBT1152WCDK | | 2 | | |
| | | | | | Note: Max. Working pressure 60 psi for all capacities. | | | | |
| Dim | nensions | s & Weig | ghts | | General Information (See Installation, Operation and Maintenance Manual for complete instructions) | | | | |
| Model | Height A (Inches) | B (Inches) | C (Inches) | Shp. Wgt. (Lbs.) | · · · · · · · · · · · · · · · · · · · | o change without notice. | | | |
| H2O22BT114DK | (Inches) 24.5 | 15.0 | 8.0 | 35 | , | Factory installed brass drain a | and relief valves, welded | | |
| H2O40BT114DK | 27.3 | 13.0 | 0.0 | (45 WC) | Standard | stainless steel cold water dip | , | | |
| H2O40BT114DK | 42.0 | 29.0 | 9.0 | 87 | Equipment | pressure tested, Thermal Con installation. | trol shipped loose for field | | |
| H2O40BT2DK | | | | (97 WC) | Ontions | | | | |
| H2O60BT114DK | | | | | Options Certification/ | (WC) With Coil | | | |
| H2O60BT112DK | 42.0 | 29.5 | 9.5 | 115 (125 WC) | Decoding | (T) | | | |
| H2O60BT2DK | | | | | | | | | |
| H2O80BT114DK | 50.0 | 20.5 | 0.5 | 125 | | Conforms to UL | | | |
| H2O80BT112DK H2O80BT2DK | 52.0 | 39.5 | 9.5 | (135 WC) | | Intertek Certified to CAN | I/CSA STD C22.2 No. 110-94 | | |
| H2O115BT114DK | | | | | | H20 BT 40 | 114 WC DK | | |
| H2O115BT112DK | 72.0 | 59.5 | 9.5 | 160 (170 WC) | | BT = Buffer Tank Capacity: 22=22 Gals. | 114=1-1/4" NPT WC=With Coil DK=Dunkirk | | |
| H2O115BT2DK | | | | (110 000) | | 22-22 Gals. 40-40 Gals. 60=60 Gals. 80=80 Gals. | 112=1-1/2 NPT 2=2"NPT | | |
| | | | | | 1 | <u> </u> | | | |

H, O Stainless Steel Buffer Tanks

- Reduces chiller or boiler short cycling
 (Short cycling results in reduced operating efficiency and shorter equipment life)
- Used in systems having several low BTU cooling or heating loads calling at different times
- Full size tappings on buffer tank for peak performance (1-1/4", 1-1/2", and 2")
- Used in systems operating below the design load condition, which is most of the time

H₂O HYDRAULICALLY DECOUPLED



Hydronic Buffer Tank applied to Water source heat pump application

Buffer Tank Sizing - Calculating Capacity

The recommended capacity or volume of a buffer tank is based on four variables.

- 1) The duration of the heating or cooling source "on time" (minutes). The desired length of "on time" for each run cycle depends on the type of equipment used. Heat pump and chiller manufacturers typically recommend a minimum of 5 to 10 minutes on time, and boiler manufacturers may recommend a minimum of 10 minutes "on time". Check with your equipment manufacturer. Generally, the longer the "on time", the higher the overall operating efficiency.
- 2) The minimum rate of heat input (BTU/HR). This is based on the heat pump or chiller output, or the boiler output at the minimum firing rate if the boiler has a variable input system that ramps input down as the demand decreases.
- 3) The minimum system load (BTU/HR). This is the demand placed on the system with the smallest zone calling for heat.
- 4) The allowable tank temperature rise (deg. F). This varies depending on the type of heating or cooling system used, and on the design of the distribution system. Chillers may require a tight, (6 deg. F), differential to assure good dehumidification and prevent freezing, heat pumps may require a (10 deg. F) differential to maintain a high COP, and boilers with hydronic heating distribution systems may require a differential anywhere between 10 to 40 deg. F depending on the application.

The following formula determines the tank volume:

$$V = \frac{T \times (Q \text{ heat input - } Q \text{ min. heat load})}{\text{Tank temp. rise} \times 500}$$

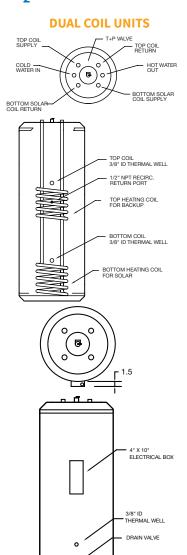
V = Buffer tank volume (gallons) Q heat source = heat source output (BTU/HR) Tank temp rise (deg. F) T = desired heat source "on cycle" (min.) Q min. heat load = heat output to minimum load

Water to Water Heat Pump Example:

Town and Country Mechanical wants a minimum heat pump on time of 10 minutes. The heat pump output is 46,500 BTU/HR. The smallest zone is a 7,000 BTU/HR bathroom. The allowable temperature differential is 90 to 100 deg. F for the radiant heat zones.

$$V = \frac{10 \times (46,500 - 7,000)}{(100-90) \times 500} = 79.0 \text{ Gallons minimum volume. Choose the H2O80BT buffer tank.}$$

H₂O Stainless Steel Dual and Single Coil Solar Water Heaters



ELECTRIC BACKUP UNITS

| Dimensions | | | | | | | |
|-------------|--------------------|------------------|------------------------|--|--|--|--|
| Models | Height (Inches) | Dia. (Inches) | Shp. Wgt. (Lbs.) | | | | |
| | SINGLE CC | IL | | | | | |
| H2OI60EDK | 62.0 | 23.5 | 135 | | | | |
| H2OI80EDK | 56.0 | 28.0 | 145 | | | | |
| H2OI115EDK | 74.0 28.0 | | 180 | | | | |
| | DUAL COI | L | | | | | |
| H2OI60DDK | 62.0 | 23.5 | 165 | | | | |
| H2OI80DDK | 56.0 | 28.0 | 175 | | | | |
| H2OI115DDK | 74.0 | 28.0 | 205 | | | | |
| H2OI60DEDK | 62.0 | 23.5 | 175 | | | | |
| H2OI80DEDK | 56.0 | 28.0 | 185 | | | | |
| H2OI115DEDK | 74.0 | 28.0 | 215 | | | | |

| Model | Storage Capacity (Gals.) | Top Coil Heating Surface Sq. Ft. | Bottom Coil Heating Surface Sq. Ft. | Piping Connections NPT (Inches) | |
|-------------|--------------------------------|--|---|---------------------------------------|--|
| | | SING | LE COIL | | |
| H2OI60EDK | 60 | N/A | 8.3 | 1 | |
| H2OI80EDK | 80 | N/A | 8.0 | 1 | |
| H2OI115EDK | 115 | N/A | 8.9 | 1 | |
| | | DUA | L COIL | | |
| H2OI60DDK | 60 | 7.4 | 8.3 | 1 | |
| H2OI80DDK | 80 | 7.4 | 8.0 | 1 | |
| H2OI115DDK | 115 | 7.4 | 8.9 | 1 | |
| H2OI60DEDK | 60 | 7.4 | 8.3 | 1 | |
| H2OI80DEDK | 80 | 7.4 | 8.0 | 1 | |
| H2OI115DEDK | 115 | 7.4 | 8.9 | 1 | |

NOTE: Max Working Pressure 150 psi for all capacities.

General Information (See Installation Operation and Maintenance Manual for complete instructions)

| | • | | | | | ' | | |
|-------------|--|--------|------------------------|--------|-----------------------|-----------------------------|---|----------------------------------|
| Model | el Max. First Hour Rating Gal./Hr. @ | | Hour Rating Rating Top | | Max. Rec. Top Coil | Max. Rec. Bottom Coil | Min. Boiler Water Flow Through Coil | Pressure Drop Through Coil |
| | 140° F | 115° F | 140° F | 115° F | (Gal./Hr.) | (Gal./Hr.) | (Gal./Min.) | (Ft. Water) |
| | | | | SING | LE COIL | | | |
| H2OI60EDK | 45.9 | 52.0 | 15.9 | 22.0 | N/A | 214 | 10.0 | 3.5 |
| H2OI80EDK | 55.9 | 62.0 | 15.9 | 22.0 | N/A | 214 | 10.0 | 3.6 |
| H2OI115EDK | 73.9 | 80.0 | 15.9 | 22.0 | N/A | 214 | 10.0 | 3.9 |
| | | | | DUA | L COIL | | | |
| H2OI60DDK | 45.9 | 52.0 | 15.9 | 22.0 | 185 | 214 | 10.0 | 3.5 |
| H2OI80DDK | 55.9 | 62.0 | 15.9 | 22.0 | 180 | 214 | 10.0 | 3.6 |
| H2OI115DDK | 73.9 | 80.0 | 15.9 | 22.0 | 190 | 214 | 10.0 | 3.9 |
| H2OI60DEDK | 45.9 | 52.0 | 15.9 | 22.0 | 185 | 214 | 10.0 | 3.5 |
| H2OI80DEDK | 55.9 | 62.0 | 15.9 | 22.0 | 180 | 214 | 10.0 | 3.6 |
| H2OI115DEDK | 73.9 | 80.0 | 15.9 | 22.0 | 190 | 214 | 10.0 | 3.9 |

Note: All ratings are based on 180° F boiler water supply and 50° F cold water inlet. For Dual Coil units, continuous ratings shown are for the lower coil only. Specifications subject to change without notice.

Standard Equipment: Factory installed brass drain and relief valves, welded stainless steel cold water dip tube factory installed and pressure tested, Thermal Control shipped loose for field installation. Removable thermal well to accept a solar control thermostat or thermistor. Dual coil units equipped with two thermal wells which control each coil independently and built-in recirculation tapping. Units with Electric Back-Up are provided with 4" x 10" electrical box with pre-wired heating element, thermostat, and hi-limit. All electric back-up units provided with 240 volt AC, 3500 watt element.

Options: (E) Electric Back-Up models for supplemental heating.



Conforms to UL STD 174 Certified to CAN/CSA STD C22.2 No. 110-94







