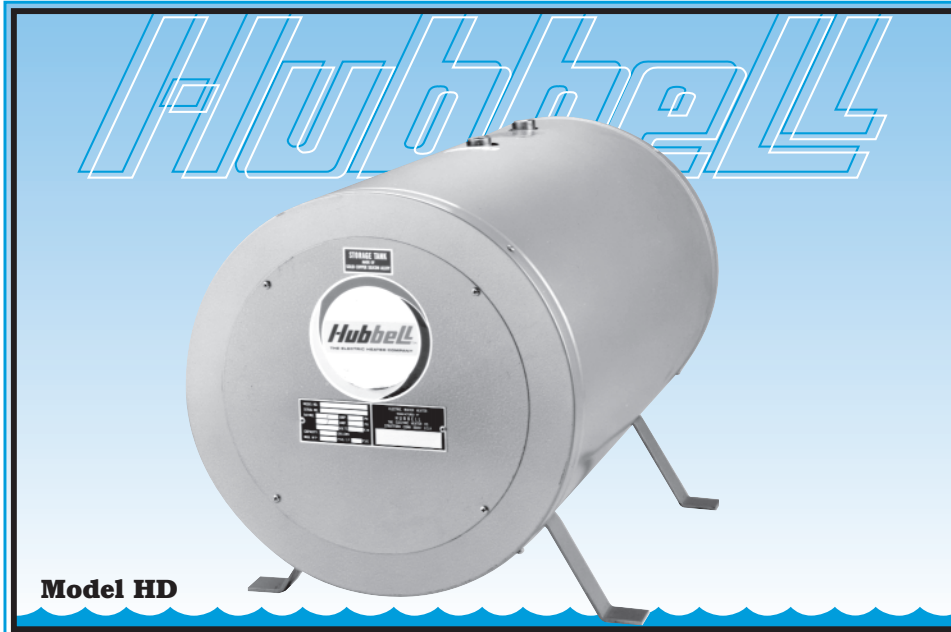


DEIONIZED (DI) WATER HEATER FOR HEATING ULTRAPURE AND MILDLY CORROSIVE WATER

**POINT-OF-USE HEATER UP TO 58KW
IN SINGLE OR THREE PHASE VOLTAGES**

Model HD



A DI water heater for industrial users

FEATURES

- **Industrial Grade Construction**
 - High grade construction materials provide maximum longevity
 - Packaged with all electrical operating controls for trouble-free installation and operation
- **Corrosion Resistant**
 - All Type 316L stainless steel construction resists corrosion
 - Heating elements are all 316L SS to ensure long operating life
- **Proven Design**
 - Small reserve capacity lowers peak power demand and reduces operating costs
 - Most models are easily upgradable to handle future expansion
 - Full range of sizes available to meet your exact heating needs

APPLICATIONS

- Industrial Finishing & Cleaning Systems for electronic & fabricated metal parts such as PC Boards, Microchips, Capacitors, Metal Parts, Jewelry, Aerospace Quality Bearings; Cosmetic and Drug Packaging Systems, Glass Products.
- Ultrasonic Cleaning Systems
- Food Processing Systems
- Water Purification and RO Systems

A HEATER BUILT FOR YOUR DI WATER SYSTEM

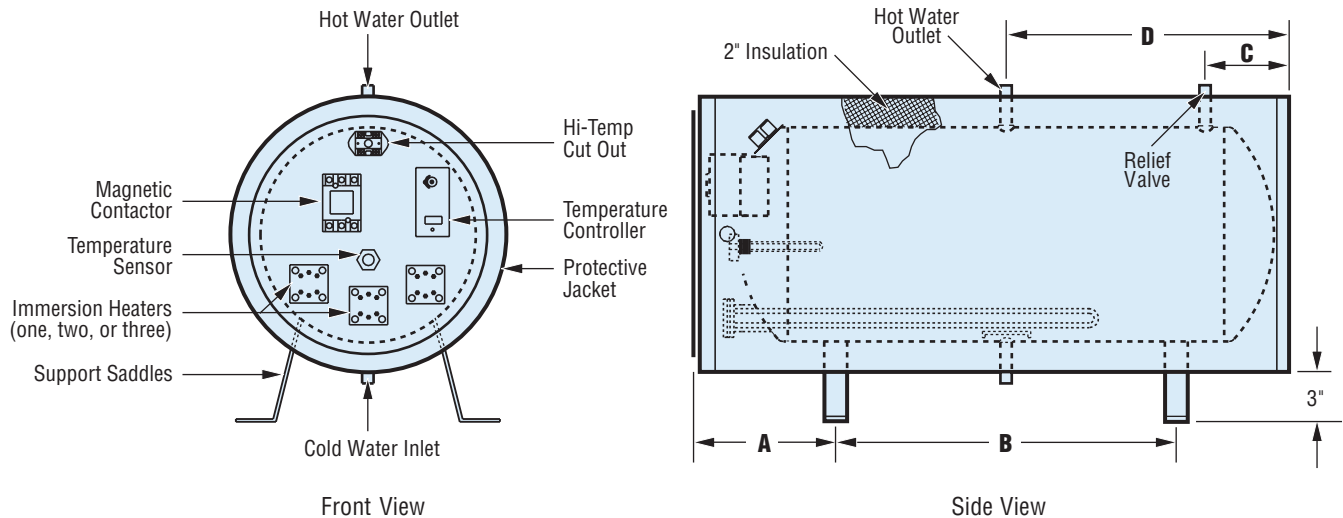
The Hubbell HD model deionized water heater is engineered and constructed for reliable operation in a wide range of high purity water systems. Hubbell has applied over 75 years of water heater manufacturing experience to the fabrication of a heater capable of withstanding the rigors of a

demanding industrial application and which can help to reduce operating costs while increasing productivity. It makes sense to specify and install a Hubbell DI water heater because it will provide the owner with a reliable, long lasting, and trouble-free source for hot DI water.

A HOT DI WATER HEATER YOU CAN RELY ON

HubbellTM

OUTLINE DIMENSIONS



MODEL HD DIMENSIONAL DATA

Base Model Number	Dimensional Data (Inches)							Shipping Weight (lbs.)
	Height	Width	Length	A	B	C	D	
HD10	20	16	29 1/2	6 3/4	17	6 1/2	13	85
HD20	22	18	38	10 3/4	22 1/4	5 1/2	17	150

VERSATILE AND COST REDUCING DESIGN

In a continuous flow application...

with a constant flow of water the HD model operates similar to an instantaneous, on-demand heater with the KW sized to meet the full GPM flow rate and temperature rise of the system.

In an intermittent flow application...

with an ON/OFF cyclical demand (as in wash and rinse systems) the HD model will heat to the desired GPM flow rate and temperature while reducing your peak power load. This is achieved due to the HD Models small reserve capacity which continues to be heated during the cycle OFF period in order to meet the full demand during the cycle ON period. This feature results in a significant reduction in your peak power consumption rate, increased temperature accuracy, and lower installation and operating costs when compared to an instantaneous heater.

STANDARD EQUIPMENT

- All Type 316L Stainless Steel construction
- All 316L Stainless Steel immersion electric heating elements
- Adjustable temperature controller (100-195°F)
- Safety hi-limit cut out with manual reset button for over-temperature protection (205°F)
- Full protective outer jacket factory painted.
- Heavy duty 2" fiberglass blanket type insulation.
- ASME rated combination temperature and pressure brass safety relief valve set at 150 psi and 210°F.

OPTIONAL EQUIPMENT

- 1. Passivated / Electropolished finished
- 2. 316 Stainless Steel Pressure only relief valve
- 3. Low water cut out (316SS Float type)
- 4. Immersion adjustable safety hi-limit (100-240°F)
- 5. Digital display temperature controller
- 6. SCR "zero fired" 0-100% KW proportional control package for precise temperature control
- 7. 1 1/2" male NPT threaded inlet/outlet connections.
- 8. Flanged inlet/outlet connections (sanitary or standard)
- 9. 304 Stainless Steel protective outer jacket
- 10. NEMA 4X electrical control panel package

Hubbell™

MODEL HD SIZING INFORMATION

IF the application is a continuous demand at a constant GPM then go directly to the selection chart on page 4 and choose the appropriate model which equals the flow rate at the desired temperature rise.

IF the application is an intermittent on / off cyclical system, the following steps will help determine the appropriate size HD model.

STEP 1

Determine the variables listed below.

Variables

1. Hot Water Flow Rate:
_____ GPM
2. Time hot water at above rate is required:
_____ Minutes
3. Time between usages:
_____ Minutes
4. Total Cycle Time (Add #2 and #3)
_____ Minutes
5. Total Gallons used per cycle (#1 x #2)
_____ Gallons
6. Water Temperature:
_____ °F Incoming Cold
_____ °F Outgoing Hot

STEP 2

If Variable #5 is between:

- 1-15 gallons then select HD10 model and Y=7.5
- 16-40 gallons then select HD20 model and Y=15
- Over 40 gallons see model D brochure for storage type or model CR brochure for large instantaneous type DI water heaters

STEP 3

$$\frac{\text{Gallons Per Cycle} - Y}{(\text{Variable 5})} \times 1.15 = \text{RGPM}$$

$$\left(\frac{\text{Time On} \times 0.80}{(\text{Variable 2})} \right)$$

STEP 4

$$\left(\frac{\text{RGPM} \times \text{Total Cycle Time}}{\text{Variable 4}} \right) - \frac{\text{Gallons Per Cycle}}{\text{Variable 5}} \geq 0$$

*If true, then go to step 6
If false, then continue to step 5*

STEP 5

If ≤ 0 then use the following formula:

$$\frac{\text{Gallons Per Cycle} (\text{Variable 5})}{\text{Total Cycle Time} (\text{Variable 4})} \times 1.15 = \text{RGPM}$$

STEP 6

Take the RGPM value solved for either in step 3 or step 5 above and go to the model selection chart. Choose the appropriate temperature rise column and GPM rating for the base model selected in Step 2. Select the appropriate model for the voltage and phase available.

EXAMPLE:

A parts wash station requires 4 GPM of 160°F DI water. The entering cold water is 60°F. The rinse cycle is on for 5 minutes at full flow and then off for 10 minutes. The power available is 480 volt 3 phase.

STEP 1

Solve for the variables:

- | | |
|----------------------|------------|
| 1. Flow Rate | 4 GPM |
| 2. Cycle Time On | 5 Minutes |
| 3. Cycle Time Off | 10 Minutes |
| 4. Total Cycle Time | 15 Minutes |
| 5. Gallons Per Cycle | 20 Gallons |
| 6. Cold Water | 60 °F |
| 7. Hot Water | 160 °F |

STEP 2

Gallons per cycle is 20, therefore the HD20 Base Model is used and the variable Y=15

STEP 3

$$20 - 15 = 5 \div (5 \times 0.80) = 1.25 \times 1.15 = 1.4 \text{ GPM}$$

STEP 4

$$1.4 \times 15 = 21 - 20 = 1.5 > 0$$

STEP 5

Not required because step 4 is true

STEP 6

From the HD model selection chart go to the 100°F ΔT column and select the HD20 model rated for at least 1.4 GPM. In this case, select the model HD2020T4 which is 20 KW at 480V 3 PH.

Specify model HD2020T4

Note: In comparison an instantaneous design would require a 58 KW heater.

MODEL HD STANDARD SPECIFICATIONS

Vessel:	316L Stainless Steel	Pressure Rating:	150 psi WP, 300 psi TP
Orientation:	Horizontal	Elements:	316L Stainless Steel
Voltages:	120 thru 480 V	Insulation:	2" Fiberglass
Phase:	Single or Three Phase	Warranty	
Inlet Size:	3/4" Female NPT	Vessel:	3 Years
Outlet Size:	3/4" Female NPT	Electrical:	1 Year
Relief Valve Opening:	3/4" Female NPT	Jacket:	20 GA Galvanized Steel
Thermostat		Finish:	Grey Hammertone
Type:	Immersion		
Range:	100 - 195°F		
Hi - Limit:	205°F		

MODEL HD SELECTION CHART

Model Number Listed By Voltage & Phase					Buffer Capacity (Gallons)	KW Rating	GPM Recovery Rating At °F Temp. Rise					Amp Draw By Voltage & Phase				
208 V		240 V		480 V			At °F Temp. Rise					208 V		240 V		480 V
1Φ	3Φ	1Φ	3Φ	3Φ			60°	80°	100°	120°	140°	1Φ	3Φ	1Φ	3Φ	3Φ
HD106RS	HD106R	HD106S	HD106T	HD106T4	10	6	0.7	0.5	0.4	0.3	0.2	29	17	25	15	7
HD108RS	HD108R	HD108S	HD108T	HD108T4		8	0.9	0.7	0.6	0.5	0.4	38	22	33	19	10
HD1010RS	HD1010R	HD1010S	HD1010T	HD1010T4		10	1.1	0.8	0.7	0.6	0.5	48	28	42	24	12
HD1012RS	HD1012R	HD1012S	HD1012T	HD1012T4		12	1.4	1.0	0.8	0.7	0.6	58	33	50	29	15
HD1015RS	HD1015R	HD1015S	HD1015T	HD1015T4		15	1.7	1.3	1.0	0.8	0.7	72	42	62	36	18
HD1020RS	HD1020R	HD1020S	HD1020T	HD1020T4		20	2.3	1.7	1.4	1.1	1.0	96	56	83	48	24
HD2012RS	HD2012R	HD2012S	HD2012T	HD2012T4	20	12	1.4	1.0	0.8	0.7	0.6	58	33	50	29	15
HD2015RS	HD2015R	HD2015S	HD2015T	HD2015T4		15	1.7	1.3	1.0	0.8	0.7	72	42	62	36	18
HD2020RS	HD2020R	HD2020S	HD2020T	HD2020T4		20	2.3	1.7	1.4	1.1	1.0	96	56	83	48	24
HD2024RS	HD2024R	HD2024S	HD2024T	HD2024T4		24	2.7	2.0	1.6	1.4	1.2	115	66	100	58	29
—	HD2030R	HD2030S	HD2030T	HD2030T4		30	3.4	2.6	2.1	1.7	2.5	—	83	125	72	36
—	HD2035R	—	HD2035T	HD2035T4		35	4.0	3.0	2.4	2.0	2.7	—	97	—	84	42
—	HD2040R	—	HD2040T	HD2040T4		40	4.5	3.4	2.7	2.3	2.0	—	111	—	96	48
—	HD2045R	—	HD2045T	HD2045T4		45	5.1	3.8	3.1	2.6	2.2	—	125	—	108	54
—	HD2054R	—	HD2054T	HD2054T4		54	6.1	4.6	3.7	3.1	2.6	—	150	—	130	65
—	HD2058R	—	HD2058T	HD2058T4		58	6.6	4.9	4.0	3.3	2.8	—	162	—	139	70

Note:

For 120 volt electrical power specify Model HD103A which is 3 KW at 120 V 1Φ.

OPTION NOTE

Any and all optional equipment for the HD Model heater must be called out in the written specifications. A model number in and of itself does not reflect any optional equipment selected.

