BUFFER TANKS
For Chilled & Hot Water Applications

Models CBT & HBT
**Quick Sizing**

To properly size a chilled water buffer tank, three critical pieces of information are required:

- **Total Chiller Capacity (Tons)**
- **Chiller Manufacturer’s Recommended System Volume**
- **Actual System Volume (in gallons)**

\[
\text{Total Chiller Capacity} \times \text{Manufacturer’s recommended system volume per ton} = \text{Critical System Volume}
\]

\[
\text{Critical System Volume} - \text{Actual System Volume} = \text{Total Buffer Tank Size}
\]

\[
\text{Gallons} \times \text{Gal./Ton} = \text{Gallons}
\]

*Chiller manufacturers recommend between 3 to 6 gallons per ton for typical HVAC and 6 to 10 gallons per ton for nominal cooling when temperature accuracy is critical.*

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**Wessels ASME Chilled Water Buffer Tanks (CBT)** are designed for use in chilled water systems with insufficient water volume capacity, in relation to the chiller capacity. CBT-Series buffer tanks effectively increase system volume and reduce the rate of temperature change ($\Delta T$) in the return water, resulting in improved temperature control, consistent system operation, and controlled compressor cycling.

**Standard Features**
- ASME Rated (125 PSI @ 450°F)
- Integral Ring Stand for Vertical Installation
- Top Air Vent Connection
- Internal Baffle

**Optional Features**
- ½” Elastomeric Insulation
- Weather Resistant Coating

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**How It Fits In The System**

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**Model** | **Part No.** | **Gal.** | **Dia.** | **Ht.** | **Max. Ship Wt.**
--- | --- | --- | --- | --- | ---
CBT-120 | 5520120 | 120 | 24 | 60 | 425
CBT-200 | 5530200 | 200 | 30 | 72 | 597
CBT-300 | 55350300 | 300 | 36 | 72 | 793
CBT-500 | 55420500 | 500 | 42 | 90 | 1391
CBT-850 | 55540850 | 850 | 54 | 96 | 2718
CBT-1040 | 55601040 | 1040 | 60 | 96 | 3873

Available with 1” to 2-1/2” NPT Connections.
1” to 29” flange connections also available.
Materials: Carbon Steel
Maximum Pressure: 125 FSIG; Maximum Temperature: 450°F
Finish: Red Oxide Primer
Auxiliary Connections: ¾” NPT Top Vent; 1” NPT Bottom Drain
Consult factory for higher working pressures and larger system connections.
HOT WATER BUFFER TANK

Wessels ASME Hot Water Buffer Tanks (HBT) are designed for use with today’s high efficiency systems that incorporate small, modular low-mass boilers. A properly sized Wessels Hot Water Buffer Tank adds necessary thermal mass to the system to dampen fast transitions and minimize boiler cycling that occurs during zero or low domestic load conditions.

STANDARD FEATURES
- ASME Rated (125 PSI @ 450°F)
- Integral Ring Stand for Vertical Installation
- Top Air Vent Connection

OPTIONAL FEATURES
- ½” Elastomeric Insulation
- Weather Resistant Coating

HOW IT FITS IN THE SYSTEM*

*4-port System Pictured

HOT WATER BUFFER TANKS – 2 PORTS

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Available with 1” to 2-1/2” NPT Connections.
1” to 20” flange connections also available.
Materials: Carbon Steel
Maximum Pressure: 125 PSIG; Maximum Temperature: 450°F
Finish: Red Oxide Primer
Auxiliary Connections: ¾” NPT Top Vent; 1” NPT Bottom Drain
Consult factory for higher working pressures and larger system connections.

QUICK SIZING

To properly size a hot water buffer tank, four critical pieces of information are required:
- Minimum Boiler Output (in BTU/hr)
- Minimum Rate of Heat Extraction from tank (LOAD in BTU/hr)
- Temperature Differential
- Boiler Cycle Time

Manufacturer’s recommended minimum boiler cycle time*

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<th>Minimum Boiler Output</th>
<th>Minimum System Load**</th>
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<td>BTU/hr.</td>
<td>BTU/hr.</td>
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Total Buffer Tank Size

Temperature differential within tank***

x 500

Gallons

°F

*Typically 1-5 Minute range
**Assume to be 0 if no system load or if rate is unknown
***Temperature differential can range between 5 to 25°F, 10°F is typical

See back page for information about Wessels 4-Port Hot Water Buffer Tanks
# HOT WATER BUFFER TANKS – 4 PORTS

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**Available With 1” to 2-1/2” NPT System Connections.**
1” to 20” flange connections also available.

**Materials:** Steel

**Maximum Pressure:** 125 PSIG; **Maximum Temperature:** 450°F

**Finish:** Red Oxide Primer

**Auxiliary Connections:** 3/4” NPT Top Vent Connection; 1” NPT Bottom Drain

Consult factory for higher working pressures and larger system connections.

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**OTHER PRODUCTS BY Wessels company**

- **Typhoon Solid from Liquid Cartridge Filter System**
  - Remove solids from liquids
  - Revolutionary filter performance
  - Stainless Steel

- **Centrifugal Solids Separator**
  - In-line or slip-stream low flow filtration
  - Achieves the removal of 50 micron
  - Carbon Steel

- **Hydronic Expansion Vessels**
  - Fixed Diaphragm Tanks
  - Replaceable Bladder Tanks
  - Compression Tanks
  - ASME and Non-ASME in stock

- **Wess-Vent Air & Dirt Separators**
  - Condensing Media Separators
  - Up to 36” available
  - ASME standard in stock

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**WEESSELLS Company • 101 Tank Street, Greenwood, IN 46143 • phone 317 | 888.9800 fax 317 | 888.9988 • www.westank.com**