

# CUSTOM-LINE DOUBLE-WALL COPPER TUBE TANK HEATERS

Double wall copper tube tank heaters are designed for TABLE A - WATER HEATING COIL SELECTION heating potable water with either potable, non-potable liquids, or gases or vapors.

#### DESIGN AND CONSTRUCTION FEATURES

Tank heating units are used for heating water and are specifically engineered for installation in A. O. Smith Model "HD" series custom lined storage tanks or in large volume commercial electric water heaters. Models DVE and DHE for dual energy applications.

Heating units are manufactured with a smooth copper tube within a grooved copper tube. Tubing is seamless copper. Outer tube is 3/4" OD. Coil assembly includes ASME approved collar, cast iron head, stainless steel spacer(s), (2) stainless steel tube sheets with atmospheric vent between, (specify non-ferous tube sheet(s) if desired), (2) gaskets, bolts, nuts, and tube supports as required.

Heating units are designed and constructed in accordance with the ASME code for 125 to 150 PSI working pressure for use in potable water heaters and tanks.

Heating units have a positive visible fail-safe means of leak detection in the event of either tube failure to prevent mixture of heating medium and potable water.

# **EXPLANATION OF MODEL NUMBERS**

Example: DW 6-24

DW = double wall liquid water

6 = diameter of tube bundle in inches 24 = length of tube bundle in inches

#### SELECTION

For the best performance, tank heating units should extend into the tank as far as possible.

In Table A, minimum flow rates are given for both a 100% water solution and a 50%-50% water glycol solution. These flow rates will assure a liquid turbulent flow in the tubes.

## ASME CODE CONSTRUCTION & REGISTRATION

Heat exchangers are constructed in accordance to ASME Section VIII.Div.1 requirements. A Manufacturer's Partial Data Report for Pressure Vessels, Form U-2, is furnished with each Type "DW" unit upon request. These forms are signed by an authorized inspector, holding a National Board Commission, who is employed by an authorized inspection agency, certifying that construction conforms to the latest ASME Code for pressure vessels. In addition, each "DW" unit is registered with the National Board of Boiler and Pressure Vessel Inspectors.

Note				Minin	num Flow	Rate (	Maxi	num		
File   Number   Ship.   Flow   Press.   Flow   Press.   Flow   Press.   Coverall   Tube   Number   Ship.   Ship.   Flow   Press.   Flow   Press.   Coverall   Tube   Number   Ship.   Ship.					Require	ments	GP	M		
Number   Suff.   Ship.   Flow   Press.   Flow   Press.   Flow   Drop.   Rate		Sq.	Approx.	Wa	iter	50/50	Glycol	Do Not		
Model   Ht   Wt.   Rate   Drop   Rate   Drop   Tube   Number   Surf.   (Lbs.)   GPM   Ft.   GPM   Ft.   GPM   Ft.   CHeght		25000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	_	Press.			Flow Press.		Overall
DW4-24	Model	Ht.		Rate	Drop	Rate		Rate	Drop	Tube
DW4-30	Number	Surf.	(Lbs.)	GPM	Ft.	GPM	Ft.	GPM	Ft.	Length
DW4-36	DW4-24	2.5	41						1.8	$\overline{}$
DW4-36	DW4-30	3.3	44						2.2	29 1/4
DW4-48         5.2         52         3         1         6         1         23         4.0         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         58 1/4         4.9         65 1/4         58 1/4         4.9         65 1/4         52 71 1/4         4.9         65 1/4         52 71 1/4         4.9         65 1/4         52 71 1/4 </td <td>DW4-36</td> <td>0.0000000000000000000000000000000000000</td> <td>47</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2.7</td> <td>35 1/4</td>	DW4-36	0.0000000000000000000000000000000000000	47						2.7	35 1/4
DW4-54         6.5         55         3         1         6         1         23         4.0         58 1/4           DW4-60         7.2         58         0         0         4.9         65 1/4           DW4-66         8.0         60         0         4.9         65 1/4           DW4-72         8.8         63         5.2         71 1/4           DW6-24         8.0         84         7.2         95 1/4           DW6-30         10.3         93         2.2         27 1/8           DW6-42         15.0         110         3.6         45 1/8           DW6-48         17.4         110         3.6         45 1/8           DW6-42         15.0         110         3.6         45 1/8           DW6-64         19.7         128         10         1         20         1         71         4.0         51 1/8           DW6-60         22.1         136         1         20         1         71         4.0         51 1/8           DW6-96         36.2         188         8         7.2         93 1/8         7.2         93 1/8           DW8-48         32.0         147         4.	DW4-42	4.9	49						3.1	41 1/4
DW4-60         7.2         58         4.5         59 1/4           DW4-66         8.0         60         4.9         65 1/4           DW4-72         8.8         63         5.2         71 1/4           DW4-84         10.4         69         6.3         83 1/4           DW6-36         12.0         74         7.2         95 1/4           DW6-36         10.3         93         2.2         27 1/8           DW6-36         12.7         101         2.7         33 1/8           DW6-42         15.0         110         3.1         36 45 1/8           DW6-43         17.4         110         3.6         45 1/8           DW6-42         15.0         110         3.1         36 45 1/8           DW6-54         19.7         128         10         1         20         1         71         4.0         51 1/8           DW6-60         22.1         136         52         69 1/8         4.9         63 1/8           DW6-96         36.2         188         52         69 1/8         4.9         63 1/8           DW8-36         23.0         180         2.7         34 1/4         4.0         52 1	DW4-48	5.2	52						3.6	47 1/4
DW4-66	DW4-54	6.5	55	3	1	6	1	23	4.0	58 1/4
DW4-72	DW4-60	7.2	58						4.5	59 1/4
DW4-84	DW4-66	8.0	60						4.9	65 1/4
DW4-96         12.0         74         No.         No.         7.2         95 1/4           DW6-24         8.0         84         No.         84         18         21 1/8           DW6-30         10.3         93         2.2         27 1/8           DW6-42         15.0         110         2.7         33 1/8           DW6-648         17.4         110         3.6         45 1/8           DW6-66         22.1         136         4.5         57 1/8           DW6-66         24.2         144         4.9         63 1/8           DW6-84         31.5         171         4.9         63 1/8           DW6-86         24.2         144         4.9         63 1/8           DW6-84         31.5         171         6.3         81 1/8           DW6-96         36.2         188         7.2         93 1/8           DW8-24         15.0         147         2.2         26 1/4           DW8-30         190         164         2.2         26 1/4           DW8-48         32.0         180         1.8         1.3         3.6         46 1/4           DW8-96         36.5         231         4.	DW4-72	8.8	63						5.2	71 1/4
DW6-24	DW4-84	10.4	69						6.3	83 1/4
DW6-24	DW4-96	12.0	74						7.2	95 1/4
DW6-36         12.7         101         2.7         33 1/8           DW6-42         15.0         110         3.1         39 1/8           DW6-54         17.4         110         3.6         45 1/8           DW6-64         19.7         128         10         1         20         1         71         4.0         51 1/8           DW6-66         22.1         136         4.5         57 1/8         4.9         63 1/8           DW6-86         24.2         144         4.9         63 1/8         6.3         81 1/8           DW6-96         36.2         188         7.2         93 1/8           DW8-24         15.0         147         6.3         81 1/8           DW8-30         19.0         164         2.2         26 1/4           DW8-36         23.0         180         2.7         34 1/4           DW8-42         27.0         197         3.1         4.0         52 1/4           DW8-36         36.5         231         18         1         36         1         131         3.6         46 1/4           DW8-54         36.5         231         18         1         31         4.0	DW6-24		84						1.8	21 1/8
DW6-42         15.0         110         3.1         39 1/8           DW6-48         17.4         110         1         20         1         71         4.0         51 1/8           DW6-66         22.1         136         10         1         20         1         71         4.0         51 1/8           DW6-66         24.2         144         4         4.9         63 1/8           DW6-72         26.8         154         5.2         69 1/8           DW8-84         31.5         171         6.3         81 1/8           DW8-30         19.0         164         2.2         26 1/8           DW8-36         23.0         180         2.7         34 1/4           DW8-36         23.0         180         2.7         34 1/4           DW8-42         27.0         197         3.1         40 1/4           DW8-36         23.0         180         2.7         34 1/4           DW8-48         32.0         214         18         1         36         1         131         3.6         46 1/4           DW8-66         45.0         265         49.0         44.5         58 1/4         4.9         4	DW6-30	10.3	93						2.2	27 1/8
DW6-48         17.4         110         1         20         1         71         4.0         51 1/8           DW6-64         19.7         128         10         1         20         1         71         4.0         51 1/8           DW6-60         22.1         136         1         20         1         71         4.0         51 1/8           DW6-72         26.8         154         5.2         69 1/8         5.2         69 1/8           DW6-96         36.2         188         7.2         93 1/8           DW8-30         19.0         164         2.2         26 1/4           DW8-42         27.0         197         3.1         40 1/4           DW8-48         32.0         214         18         1         36         1         131         3.6         46 1/4           DW8-66         45.0         265         49         4.5         58 1/4         4.5         58 1/4	DW6-36	12.7	101						2.7	33 1/8
DW6-54         19.7         128         10         1         20         1         71         4.0         51 1/8           DW6-60         22.1         136         4.5         57 1/8         4.9         63 1/8           DW6-84         31.5         171         63 181 1/8         5.2         69 1/8           DW6-96         36.2         188         7.2         93 1/8           DW8-24         15.0         147         2.2         26 1/4           DW8-36         23.0         180         2.7         34 1/4           DW8-36         23.0         180         2.7         34 1/4           DW8-42         27.0         197         3.1         40 1/4           DW8-36         23.0         180         2.7         34 1/4           DW8-36         36.5         231         3.6         46 1/4           DW8-54         36.5         231         4.0         52 1/4           DW8-60         41.0         248         4.9         4.9         4.14           DW8-72         49.0         281         5.2         70 1/4         5.2         70 1/4           DW8-86         67.0         349         6.3         <	DW6-42	15.0	110						3.1	39 1/8
DW6-60         22.1         136         4.5         57 1/8           DW6-66         24.2         144         5.2         63 1/8           DW6-84         31.5         171         63 81 1/8           DW8-96         36.2         188         7.2         93 1/8           DW8-24         15.0         147         1.8         22 1/4           DW8-36         23.0         180         2.7         34 1/4           DW8-42         27.0         197         3.1         40 1/4           DW8-84         32.0         214         18         1         36         1         131         3.6         46 1/4           DW8-60         41.0         248         4.5         58 1/4         4.0         52 1/4           DW8-72         49.0         281         4.9         64 1/4         4.9         64 1/4           DW8-84         58.0         315         6.3         82 1/4         7.2         94 1/4           DW8-96         67.0         349         7.2         94 1/4         7.2         94 1/4           DW8-98         75.0         366         82 1/4         7.2         94 1/4         9.3         3.8         106 1/4	DW6-48	17.4	110						3.6	45 1/8
DW6-66	DW6-54	19.7	128	10	1	20	1	71	4.0	51 1/8
DW6-72         26.8         154         8         6.3         81 1/8           DW6-84         31.5         171         6.3         81 1/8           DW8-96         36.2         188         7.2         93 1/8           DW8-24         15.0         147         2.2         26 1/4           DW8-30         19.0         164         2.2         26 1/4           DW8-42         27.0         197         3.1         40 1/4           DW8-48         32.0         214         18         1         36         1         131         3.6         46 1/4           DW8-54         36.5         231         36         1         131         3.6         46 1/4           DW8-60         41.0         248         4.5         58 1/4         552 70 1/4           DW8-72         49.0         281         4.5         4.5         58 1/4           DW8-96         67.0         349         7.2         94 1/4         94 1/4           DW8-96         67.0         349         7.2         94 1/4           DW10-30         34.5         291         2.2         29 3/8           DW10-36         42.0         314	DW6-60	22.1	136						4.5	57 1/8
DW6-84   31.5   171	DW6-66	24.2	144						4.9	63 1/8
DW6-96   36.2   188	DW6-72	26.8	154						5.2	69 1/8
DW8-24         15.0         147           DW8-30         19.0         164           DW8-36         23.0         180           DW8-42         27.0         197           DW8-48         32.0         214         18         1         36         1         131         3.6         46 1/4           DW8-64         43.5         231         4.0         52 1/4         52 1/4         4.0         52 1/4           DW8-66         45.0         265         4.9         64 1/4         6.3         82 1/4           DW8-72         49.0         281         5.2         70 1/4         7.2         94 1/4           DW8-96         67.0         349         5.2         70 1/4         7.2         94 1/4           DW10-24         27.0         268         7.2         94 1/4         8.1         106 1/4           DW10-36         42.0         314         7.2         94 1/4         8.1         106 1/4           DW10-42         49.5         337         7.2         3/8         3.1         41 3/8           DW10-48         56.0         358         3.1         40 3/8         4.5         59 3/8           DW10-72	DW6-84	31.5	171						6.3	81 1/8
DW8-30         19.0         164         2.2         26 1/4           DW8-36         23.0         180         2.7         34 1/4           DW8-42         27.0         197         3.1         40 1/4           DW8-48         32.0         214         18         1         36         1         131         3.6         46 1/4           DW8-54         36.5         231         4.0         52 1/4         4.0         52 1/4           DW8-60         41.0         248         4.9         64 1/4         64.9         64 1/4           DW8-72         49.0         281         4.9         64 1/4         63 82 1/4         63 82 1/4         63 82 1/4         64 1/4         64 1/4         66 3 82 1/4         67 2 94 1/4         67 2 1/4         67 2 1/4         67 2 1/4         67	DW6-96	36.2	188						7.2	93 1/8
DW8-36         23.0         180         27.0         197           DW8-42         27.0         197         3.1         40 1/4           DW8-48         32.0         214         18         1         36         1         131         3.6         46 1/4           DW8-54         36.5         231         4.9         4.9         4.9         64 1/4           DW8-60         41.0         248         4.9         64 1/4         4.9         64 1/4           DW8-72         49.0         281         5.2         70 1/4         7.2         94 1/4           DW8-84         58.0         315         6.3         82 1/4         8.1         106 1/4           DW8-96         67.0         349         7.2         94 1/4 <td< td=""><td>DW8-24</td><td>15.0</td><td>147</td><td></td><td></td><td></td><td></td><td></td><td>1.8</td><td>22 1/4</td></td<>	DW8-24	15.0	147						1.8	22 1/4
DW8-42         27.0         197           DW8-48         32.0         214         18         1         36         1         131         3.6         46 1/4           DW8-54         36.5         231         40         4.0         52 1/4           DW8-60         41.0         248         4.9         64 1/4           DW8-66         45.0         265         4.9         64 1/4           DW8-72         49.0         281         5.2         70 1/4           DW8-84         58.0         315         6.3         82 1/4           DW8-96         67.0         349         7.2         94 1/4           DW8-108         75.0         366         8.1         106 1/4           DW10-24         27.0         268         8.1         106 1/4           DW10-30         34.5         291         8.1         106 1/4           DW10-36         42.0         314         2.7         35 3/8           DW10-48         56.0         358         3.1         41 3/8           DW10-60         71.0         404         4.5         59 3/8           DW10-72         86.0         449         4.5         59 3/8     <	DW8-30	19.0	164						2.2	26 1/4
DW8-48         32.0         214         18         1         36         1         131         3.6         46 1/4           DW8-54         36.5         231         4.0         52 1/4           DW8-60         41.0         248         4.5         58 1/4           DW8-66         45.0         265         4.9         64 1/4           DW8-72         49.0         281         5.2         70 1/4           DW8-96         67.0         349         7.2         94 1/4           DW8-96         67.0         349         8.1         106 1/4           DW10-24         27.0         268         8.1         106 1/4           DW10-30         34.5         291         2.2         29 3/8           DW10-36         42.0         314         2.7         35 3/8           DW10-42         49.5         337         3.1         41 3/8           DW10-54         63.5         381         30         1         60         1         226         4.0         53 3/8           DW10-60         71.0         404         4.5         59 3/8         4.9         65 3/8           DW10-72         86.0         449         4	DW8-36	23.0	180						2.7	34 1/4
DW8-54       36.5       231         DW8-60       41.0       248         DW8-66       45.0       265         DW8-72       49.0       281         DW8-84       58.0       315         DW8-96       67.0       349         DW10-24       27.0       268         DW10-30       34.5       291         DW10-36       42.0       314         DW10-42       49.5       337         DW10-48       56.0       358         DW10-54       63.5       381         DW10-60       71.0       404         DW10-72       86.0       449         DW10-72       86.0       449         DW10-84       101.0       495         DW10-96       116.0       591         DW12-36       61.0       436         DW12-36       61.0       436         DW12-42       72.0       477         DW12-48       83.0       518         DW12-49       15.2       74.2         DW12-36       61.0       436         DW12-48       83.0       518         DW12-49       94.0       559	DW8-42	27.0	197						3.1	40 1/4
DW8-60         41.0         248         4.5         58 1/4           DW8-66         45.0         265         4.9         64 1/4           DW8-72         49.0         281         5.2         70 1/4           DW8-84         58.0         315         6.3         82 1/4           DW8-96         67.0         349         7.2         94 1/4           DW10-24         27.0         268         8.1         106 1/4           DW10-30         34.5         291         2.2         29 3/8           DW10-36         42.0         314         2.7         35 3/8           DW10-42         49.5         337         3.1         41 3/8           DW10-48         56.0         358         3.6         47 3/8           DW10-60         71.0         404         4.9         5.2         71 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         5.2         71 3/8           DW10-96         116.0         591         7.2         95 3/8           DW10-108         131.0         586         8.1         107 3/8           DW12-48	DW8-48	32.0	214	18	1	36	1	131	3.6	46 1/4
DW8-66         45.0         265         4.9         64 1/4           DW8-72         49.0         281         5.2         70 1/4           DW8-84         58.0         315         6.3         82 1/4           DW8-96         67.0         349         7.2         94 1/4           DW10-24         27.0         268         8.1         106 1/4           DW10-30         34.5         291         2.2         29 3/8           DW10-36         42.0         314         2.7         35 3/8           DW10-42         49.5         337         3.1         41 3/8           DW10-48         56.0         358         3.6         47 3/8           DW10-60         71.0         404         4.5         59 3/8           DW10-66         78.5         427         4.9         65 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         6.3         83 3/8           DW10-96         116.0         591         7.2         95 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-48         83.0         <	DW8-54	36.5	231						4.0	52 1/4
DW8-72         49.0         281         5.2         70 1/4           DW8-84         58.0         315         6.3         82 1/4           DW8-96         67.0         349         7.2         94 1/4           DW10-24         27.0         268         8.1         106 1/4           DW10-30         34.5         291         2.2         29 3/8           DW10-36         42.0         314         2.7         35 3/8           DW10-42         49.5         337         3.1         41 3/8           DW10-48         56.0         358         3.6         47 3/8           DW10-60         71.0         404         4.5         59 3/8           DW10-66         78.5         427         4.9         65 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         6.3         83 3/8           DW10-96         116.0         591         7.2         95 3/8           DW10-108         131.0         586         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-48         83.0	DW8-60	41.0	248						4.5	58 1/4
DW8-84         58.0         315         6.3         82 1/4           DW8-96         67.0         349         7.2         94 1/4           DW8-108         75.0         366         8.1         106 1/4           DW10-24         27.0         268         1.8         23 3/8           DW10-30         34.5         291         2.2         29 3/8           DW10-36         42.0         314         2.7         35 3/8           DW10-42         49.5         337         3.1         41 3/8           DW10-48         56.0         358         3.6         47 3/8           DW10-60         71.0         404         4.5         59 3/8           DW10-66         78.5         427         4.9         65 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         6.3         83 3/8           DW10-96         116.0         591         7.2         95 3/8           DW10-108         131.0         586         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-48         83.0	DW8-66	45.0	265						4.9	64 1/4
DW8-96         67.0         349         7.2         94 1/4           DW8-108         75.0         366         8.1         106 1/4           DW10-24         27.0         268         1.8         23 3/8           DW10-30         34.5         291         2.2         29 3/8           DW10-36         42.0         314         2.7         35 3/8           DW10-42         49.5         337         3.1         41 3/8           DW10-48         56.0         358         3.6         47 3/8           DW10-60         71.0         404         4.5         59 3/8           DW10-60         71.0         404         4.5         59 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         6.3         83 3/8           DW10-96         116.0         591         7.2         95 3/8           DW10-108         131.0         586         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-48         83.0         518         3.0         48 1/4           DW12-54         94.0	DW8-72	49.0	281						5.2	70 1/4
DW8-108         75.0         366         8.1         106 1/4           DW10-24         27.0         268         1.8         23 3/8           DW10-30         34.5         291         2.2         29 3/8           DW10-36         42.0         314         2.7         35 3/8           DW10-42         49.5         337         3.1         41 3/8           DW10-48         56.0         358         3.6         47 3/8           DW10-60         71.0         404         4.5         59 3/8           DW10-66         78.5         427         4.9         65 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         6.3         83 3/8           DW10-96         116.0         591         7.2         95 3/8           DW10-108         131.0         586         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-48         83.0         518         3.0         48 1/4           DW12-54         94.0         559         3.4         54 1/4           DW12-66         115.0	DW8-84	58.0	315						6.3	82 1/4
DW10-24         27.0         268         1.8         23 3/8           DW10-30         34.5         291         222         29 3/8           DW10-36         42.0         314         2.7         35 3/8           DW10-42         49.5         337         3.1         41 3/8           DW10-48         56.0         358         3.6         47 3/8           DW10-54         63.5         381         30         1         60         1         226         4.0         53 3/8           DW10-60         71.0         404         4.5         59 3/8         4.9         65 3/8           DW10-72         86.0         449         4.9         5.2         71 3/8         6.3         83 3/8           DW10-84         101.0         495         6.3         83 3/8         7.2         95 3/8           DW10-96         116.0         591         7.2         95 3/8         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4         3.0         48 1/4           DW12-48         83.0         518         3.0         48 1/4         3.0         48 1/4           DW12-54         94.0 <td< td=""><td>DW8-96</td><td>67.0</td><td>349</td><td></td><td></td><td></td><td></td><td></td><td>7.2</td><td>94 1/4</td></td<>	DW8-96	67.0	349						7.2	94 1/4
DW10-30	DW8-108	75.0	366						8.1	106 1/4
DW10-36	DW10-24	27.0	268						1.8	23 3/8
DW10-42         49.5         337         337         338         4.5         59         38         4.9         65         38         38         38         38         38         38         38         38         38         38         38         38         38         38         38         38         4.9         65         38 <td< td=""><td>DW10-30</td><td>34.5</td><td>291</td><td></td><td></td><td></td><td></td><td></td><td>2.2</td><td>29 3/8</td></td<>	DW10-30	34.5	291						2.2	29 3/8
DW10-48         56.0         358         36         47 3/8           DW10-54         63.5         381         30         1         60         1         226         4.0         53 3/8           DW10-60         71.0         404         4.5         59 3/8         4.5         59 3/8           DW10-66         78.5         427         4.9         65 3/8         6.3         83 3/8           DW10-72         86.0         449         5.2         71 3/8         6.3         83 3/8           DW10-84         101.0         495         6.3         83 3/8         7.2         95 3/8           DW10-96         116.0         591         7.2         95 3/8         8.1         107 3/8           DW12-36         61.0         436         8.1         107 3/8         8.1         107 3/8           DW12-42         72.0         477         2.3         36 1/4         3.0         48 1/4           DW12-54         94.0         559         3.4         54 1/4         3.8         60 1/4           DW12-66         115.0         641         44         1         88         1         300         4.2         66 1/2           DW12-84<	DW10-36	42.0	314						2.7	35 3/8
DW10-54         63.5         381         30         1         60         1         226         4.0         53 3/8           DW10-60         71.0         404         404         4.5         59 3/8           DW10-66         78.5         427         4.9         65 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         6.3         83 3/8           DW10-96         116.0         591         7.2         95 3/8           DW10-108         131.0         586         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-42         72.0         477         2.7         42 1/4           DW12-48         83.0         518         3.0         48 1/4           DW12-54         94.0         559         3.4         54 1/4           DW12-60         104.0         600         3.8         60 1/4           DW12-72         126.0         682         4.6         72 1/4           DW12-84         147.0         764         5.1         84 1/4           DW12-96         169.0 <td< td=""><td>DW10-42</td><td>49.5</td><td>337</td><td></td><td></td><td> </td><td></td><td></td><td>3.1</td><td>41 3/8</td></td<>	DW10-42	49.5	337						3.1	41 3/8
DW10-60         71.0         404         4.5         59 3/8           DW10-66         78.5         427         4.9         65 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         6.3         83 3/8           DW10-96         116.0         591         7.2         95 3/8           DW10-108         131.0         586         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-42         72.0         477         2.7         42 1/4           DW12-48         83.0         518         3.0         48 1/4           DW12-54         94.0         559         3.4         54 1/4           DW12-60         104.0         600         3.8         60 1/4           DW12-72         126.0         682         4.6         72 1/4           DW12-84         147.0         764         5.1         84 1/4           DW12-96         169.0         846         6.1         96 1/4	DW10-48	56.0	358						3.6	47 3/8
DW10-66         78.5         427         4.9         65 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         6.3         83 3/8           DW10-96         116.0         591         7.2         95 3/8           DW10-108         131.0         586         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-42         72.0         477         2.7         42 1/4           DW12-48         83.0         518         3.0         48 1/4           DW12-54         94.0         559         3.4         54 1/4           DW12-60         104.0         600         3.8         60 1/4           DW12-72         126.0         682         4.6         72 1/4           DW12-84         147.0         764         5.1         84 1/4           DW12-96         169.0         846         6.1         96 1/4	DW10-54	63.5	381	30	1	60	1	226	4.0	53 3/8
DW10-66         78.5         427         4.9         65 3/8           DW10-72         86.0         449         5.2         71 3/8           DW10-84         101.0         495         6.3         83 3/8           DW10-96         116.0         591         7.2         95 3/8           DW10-108         131.0         586         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-42         72.0         477         2.7         42 1/4           DW12-48         83.0         518         3.0         48 1/4           DW12-54         94.0         559         3.4         54 1/4           DW12-60         104.0         600         3.8         60 1/4           DW12-72         126.0         682         4.6         72 1/4           DW12-84         147.0         764         5.1         84 1/4           DW12-96         169.0         846         6.1         96 1/4	DW10-60								4.5	
DW10-84     101.0     495     6.3     83 3/8       DW10-96     116.0     591     7.2     95 3/8       DW10-108     131.0     586     8.1     107 3/8       DW12-36     61.0     436     2.3     36 1/4       DW12-42     72.0     477     2.7     42 1/4       DW12-48     83.0     518     3.0     48 1/4       DW12-54     94.0     559     3.4     54 1/4       DW12-60     104.0     600     3.8     60 1/4       DW12-72     126.0     682     4.6     72 1/4       DW12-84     147.0     764     5.1     84 1/4       DW12-96     169.0     846     6.1     96 1/4	DW10-66	142 A 40 C 1945	427						4.9	65 3/8
DW10-84       101.0       495       6.3       83 3/8         DW10-96       116.0       591       7.2       95 3/8         DW10-108       131.0       586       8.1       107 3/8         DW12-36       61.0       436       2.3       36 1/4         DW12-42       72.0       477       2.7       42 1/4         DW12-48       83.0       518       3.0       48 1/4         DW12-54       94.0       559       3.4       54 1/4         DW12-60       104.0       600       3.8       60 1/4         DW12-66       115.0       641       44       1       88       1       300       4.2       66 1/2         DW12-72       126.0       682       4.6       72 1/4       5.1       84 1/4         DW12-84       147.0       764       5.1       84 1/4         DW12-96       169.0       846       6.1       96 1/4	DW10-72	A Company	449						5.2	71 3/8
DW10-108         131.0         586         8.1         107 3/8           DW12-36         61.0         436         2.3         36 1/4           DW12-42         72.0         477         2.7         42 1/4           DW12-48         83.0         518         3.0         48 1/4           DW12-54         94.0         559         3.4         54 1/4           DW12-60         104.0         600         3.8         60 1/4           DW12-66         115.0         641         44         1         88         1         300         4.2         66 1/2           DW12-72         126.0         682         4.6         72 1/4         5.1         84 1/4           DW12-84         147.0         764         5.1         84 1/4         6.1         96 1/4		101.0	495						6.3	5.555 (C. 19.50 year)
DW12-36         61.0         436           DW12-42         72.0         477           DW12-48         83.0         518           DW12-54         94.0         559           DW12-60         104.0         600           DW12-66         115.0         641         44         1         88         1         300         4.2         66 1/2           DW12-72         126.0         682         4.6         72 1/4         5.1         84 1/4           DW12-84         147.0         764         5.1         84 1/4           DW12-96         169.0         846         6.1         96 1/4	DW10-96	116.0	591						7.2	95 3/8
DW12-42 72.0 477 DW12-48 83.0 518 DW12-54 94.0 559 DW12-60 104.0 600 DW12-66 115.0 641 44 1 88 1 300 4.2 66 1/2 DW12-72 126.0 682 DW12-84 147.0 764 DW12-96 169.0 846  DW12-96 169.0 846	DW10-108	131.0	586						8.1	107 3/8
DW12-48 83.0 518 3.0 48 1/4 DW12-54 94.0 559 DW12-60 104.0 600 DW12-66 115.0 641 44 1 88 1 300 4.2 66 1/2 DW12-72 126.0 682 DW12-84 147.0 764 DW12-96 169.0 846 5 61.4	DW12-36	61.0	436			1:			2.3	36 1/4
DW12-54 94.0 559 3.4 54 1/4 DW12-60 104.0 600 3.8 60 1/4 DW12-66 115.0 641 44 1 88 1 300 4.2 66 1/2 DW12-72 126.0 682 DW12-84 147.0 764 DW12-96 169.0 846 5 66.1 96 1/4	DW12-42	72.0	477						2.7	42 1/4
DW12-60 104.0 600 3.8 60 1/4 DW12-66 115.0 641 44 1 88 1 300 4.2 66 1/2 DW12-72 126.0 682 DW12-84 147.0 764 DW12-96 169.0 846 386 587 661 72 1/4 6.1 96 1/4	DW12-48	83.0	518						3.0	48 1/4
DW12-60 104.0 600 3.8 60 1/4 DW12-66 115.0 641 44 1 88 1 300 4.2 66 1/2 DW12-72 126.0 682 DW12-84 147.0 764 5.1 84 1/4 DW12-96 169.0 846 5.1 84 1/4	DW12-54	94.0	100000000000000000000000000000000000000						3.4	54 1/4
DW12-72     126.0     682     4.6     72 1/4       DW12-84     147.0     764     5.1     84 1/4       DW12-96     169.0     846     6.1     96 1/4	DW12-60	104.0							3.8	60 1/4
DW12-72     126.0     682     4.6     72 1/4       DW12-84     147.0     764     5.1     84 1/4       DW12-96     169.0     846     6.1     96 1/4		C. C. C. C. C. C.	1000	44	1	88	1	300	100	100000000000000000000000000000000000000
DW12-84 147.0 764 5.1 84 1/4 DW12-96 169.0 846 5.1 96 1/4							548		4.6	
DW12-96 169.0 846 6.1 96 1/4										
		1.0000000000000000000000000000000000000	12 10 Aug 1						307727	15A-15B-2800 A-150-11
	DW12-108	191.0	929						6.9	108 1/4
				_				-		

## TABLE B TANK COIL RECOVERY DATA (Various Temperature Rises)

#### HOW TO SIZE TABLE B

- 1. Locate temperature rise desired in left-hand col-
- 2. Move to the right, to the column labeled with the appropriate boiler water inlet temperature (at 10° to 20° drop). This figure represents the recovery capacity of 1 sq. ft. of heating surface.
- 3. Divide the total GPH requirement of the in stallation by the recovery of 1 sq. ft. to determine the number of sq. ft. required.
- 4. Select the coil with adequate sq. ft. of heating surface from table A. In most cases, more than one coil will meet the system requirements. Maximum efficiency for hot water coils will normally be obtained when the coil extends into the tank as far as possible (minimum of halfway required).
- 5. Boiler water flow rate must be greater than the minimum required for the coil, however must not exceed the maximum shown in table A.

To determine the boiler water flow rate, multiply the total GPH requirement by the temperature rise. Divide this quantity by 60 times the appropriate boiler water temperature drop of 10° or 20° (600 or 1200).

Example: 150 GPH required @ 140° outlet with inlet of 40°F (temperature rise equal to 100). Boiler water temperature of 200°F with a 20° drop (180°F outlet). Table B indicates 14 GPH/sq. ft., therefore, divide 150 GPH by 14 GPH/sq. ft. which gives you 10.7 sq. ft. of heating surface required. To determine the flow rate of the boiler water, multiply 150 GPH x 100° rise and divide by 60 x 20° drop = 12.5 GPM. This will allow you to select a DW 4-96 w/12.0 sq. ft. or DW 6-36 w/12.7 sq. ft.

Vertical tank: Maximum coil length determined by tank diameter.

Horizontal tank: Maximum coil length determined by tank length.

NOTE: The heat transfer rate can be drastically reduced with age and build-up of scale. Thus, consideration should be given to fouling factors and the square footage increased accordingly, in hard water areas. The recovery capacity (GPH/sq. ft.) already includes a .001 fouling factor for average water conditions.

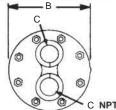
#### TABLE C DIMENSIONS

0.0050											
	Design Press. Tubes	Test Press	Stand		Tubes		Nuts	Max.			
	PSI	Tubes	Head	Tube	<u>Inner</u>	Tube	&	Oper.			
Dia.	2 Pass	in PSI		Shts.	Outer	Supports	Bolts	Temp ºF	Α	В	С
4"	150	300		1	2			300	4 1/2	9	1 1/4
6"	150	300						300	6 5/8	11	2
8"	150	300	Cast					300	8 5/8	13 1/2	3
10"	125*	250 (2P)	Iron		Copper	Stainless	Carbon	300	10 3/4	16	3
		300 (4P)	Bonnet		Copper	Steel	Steel				
12"	125*	250 (2&4P)	Welded					300	12 3/4	19	4" Flange
		300 (6P)									

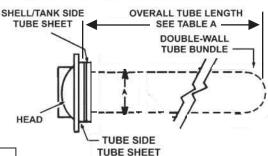
<sup>\* 150</sup> lb. cast iron heads available on special order.

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	MP.		G	ALLON FORC			RS/SQ.I					E		
NIOL		BASED ON 10°F DROP								BASED ON 20°F DROP				
Inlet	Outlet	150°F	160°F	170°F	180°F	190°F	200°F	210°F	170°F	180°F	190°F	200°F	210°F	
	80	31	36	39	42	47	50	54	38	41	45	49	53	
	100	18	21	23	26	28	30	33	22	25	27	30	32	
40	120	11	13	15	17	19	21	23	20	16	18	20	22	
	140	6	8	10	11	13	14	16	9	11	13	14	16	
	160	255		6	7	9	11	12		7	8	10	11	
	180	122	725	77 <u>275</u> 0	1227	5	7	8	120	- 220	227	7	8	
	80	40	45	50	55	60	65	70	47	53	57	63	68	
	100	20	23	27	30	33	36	39	25	29	32	35	37	
50	120	12	14	16	19	21	23	25	15	19	20	22	24	
	140	6	8	10	12	14	16	17	10	11	13	15	17	
	160	-	-	6	8	9	11	12		7	9	10	12	
	180	144		10-4	-	5	7	9		-	***	7	8	
	80	56	64	71	79	86	93	101	68	75	83	90	98	
	100	24	28	32	36	39	43	47	30	34	38	41	45	
60	120	13	15	18	21	23	26	28	17	19	22	25	27	
	140	6	9	11	13	15	17	19	10	12	14	16	18	
	160	122	23	6	8	10	11	13		8	10	11	13	
	180			00	100	6	7	9		E## 7	***	7	9	
	100	30	35	40	45	50	55	60	38	42	47	53	57	
	120	14	17	20	23	27	29	33	19	22	25	29	31	
70	140	7	9	12	14	16	19	21	11	13	15	18	20	
	160	P <u>222</u>	100	6	9	10	12	14		8-	10	11	13	
	180		100			6	8	9				7	9	
	100	41	49	56	64	71	79	86	53	60	68	75	83	
80	120	16	20	24	28	32	36	39	22	26	30	34	38	
	140	7	10	13	15	18	21	23	12	14	17	20	22	
	160		72	6	9	11	13	15		-	10	12	14	
	180		**			6	8	10	144	344		7	9	
90	120	20	25	30	34	39	45	50	27	32	38	42	47	
	140	8	11	14	17	20	23	27	12	16	19	22	26	
	160	<del>(44</del>	**	7	9	12	14	16		9	11	13	15	
	180	277	77.5		1000	6	8	10	177	1775		8	10	
	120	26	34	41	49	56	64	71	38	45	53	60	68	
100	140	8	12	16	20	24	28	32	15	18	22	26	30	
	160		-	7	10	13	15	18		9	12	14	17	
	180					6	9	11				8	10	
040+1 est	B -	1947												







- 1. Tankside tube sheet is Stainless Steel, Tube Side tube sheet is Carbon Steel.
- 2. Both inner and outer tubes are copper.

A O Smith Water Products Company Ashland City, TN A Division of A. O. Smith Corporation

A. O. Smith Corporation reserves the right to make product changes or improvements at any time without notice.