

## Circulation

### NWHO Series Light, Medium & Heavy Weight Oil Applications

- Flange Heater Design
- 2 - 14" Carbon Steel Pipe Body, 150 Lb Construction
- 1 - 200 kW
- 120, 240 and 480V, 1 & 3 Phase
- General Purpose, Moisture Resistant Terminal, Moisture Resistant/Explosion Proof Enclosure
- 0.475" Dia. Steel Sheath Elements (12 - 23 W/In<sup>2</sup>)
- With & Without Thermostat
- UL, CSA, ATEX and Other Third Party Approval, Listing or Certification Available on Many Models

#### Applications

**Light and Medium Weight Oil (20 - 23 W/In<sup>2</sup>)** Ideal for temperature maintenance and for improving flow characteristics of oils. They are also used to heat Heat Transfer Oils under proper conditions.

**Heavy or Fuel Oil (5 - 15 W/In<sup>2</sup>)** — Heating heavy oils reduces the viscosity, thereby improving flow and process efficiency. Preheating fuel oils provides better atomization at the burners and allows the use of lower grade fuel oils.

#### Features

**Terminal Enclosures** — Standard stock heater terminal enclosures are E1 General Purpose. Moisture Resistant/Explosion Proof E2 and Moisture Resistant E4 Enclosures are available as assembly stock.

**Elements** — Sturdy 0.475" diameter steel sheath elements provide superior strength and rigidity. Chromalox elements utilize high quality resistance wire for coil construction. The coil is surrounded with high purity magnesium oxide which is compacted to a dense solid to ensure high thermal conductivity and dielectric strength.

**Flanges** — Carbon Steel Flanges are standard on 3" and larger light and heavy weight oil circulation heaters. Flange dimensions conform to ANSI B16.5 standards.

**Vessels** — Chromalox vessels consist of a pipe body, nozzles and end cap. The pipe body and nozzles are ASTM A53B carbon steel pipe. The end cap or disk is ASTM A516 Grade 70 carbon steel plate. Mounting lugs are welded to the pipe wall. The vessel is wrapped with thermal insulation and covered with a painted sheet metal jacket.

**Baffle Assemblies** — Internal baffle assemblies are provided for Chromalox circulation heaters for use in heating highly viscous or heavy fuel oils. Baffles reduce the internal cross sectional area thereby increasing the velocity of the fluid in contact with the heating element sheaths. Increasing the velocity of the fluid reduces the tendency of heavy oils to overheat and break down or carbonize.



OIL

**Wiring** — Wiring terminals are spaced to provide proper arcing and creepage clearances. Termination insulators provide electrical isolation between the terminals and the grounded metal sheath to enhance personnel safety and equipment service life. Heavy duty jumper straps and other terminal parts assure tight connections and an extra margin of current carrying capacity.

**Controls** — All stock and assembly stock heaters come equipped with mechanical AR thermostats. These thermostats are suitable for most applications. Explosion-resistant and liquid-tight thermostats are provided on E2 and E4 units, respectively.

**WARNING — Hazard of Fire.** These devices function as temperature controls only. Because they do not fail-safe, an approved temperature and/or pressure safety control must be used for safe operation. Consult Controls section of this catalog.

**Control Panels** — Integral or remote mounted control panels with electronic controls and solid state (SCR) or contactor power controllers can be provided using virtually any combination of control devices. Consult the Controls section for details.

# Circulation

## NWHO & NWHOB

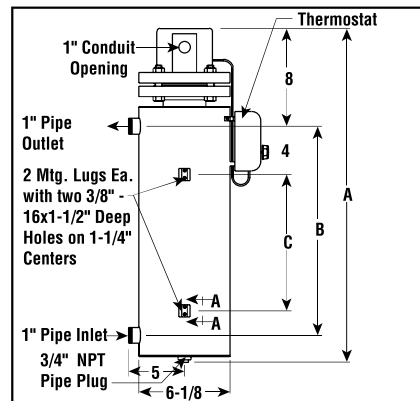
### Light & Medium Weight Oil Applications

- 3 - 10" ANSI Blind Flange Design
- 3 - 10" Carbon Steel Pipe Body, 150 Lb Construction
- 3 - 120kW
- 240 and 480V, 1 & 3 Phase
- General Purpose, Moisture Resistant Terminal, Moisture Resistant/Explosion Proof Enclosure
- 0.475" Dia. Steel Sheath Elements (20 - 23 W/In<sup>2</sup>)
- With & Without Side Mounted AR Thermostat (200 - 550°F)
- UL, CSA, ATEX and Other Third Party Approval, Listing or Certification Available



#### Dimensions (Inches)

##### NWHO-03



**Note** — Add 2" to A dimension for E2 enclosure.

#### Applications

**Light and Medium Weight Oil** — Temperature maintenance and heating of heat transfer oils. Improve flow ability of medium weight oils.

#### Features

**Terminal Enclosure** — E1 General Purpose is standard. E2 Moisture Resistant/Explosion Proof or E4 Moisture Resistant Enclosures available.

**Elements** — 0.475" diameter steel sheath elements.

**Flange** — 3 - 10" ANSI B-16.5 Blind flange with 1/2" thermowell for thermostat bulb and a 1/8" NPT threaded opening for a thermocouple or RTD.

**Vessel** — Pipe body and nozzles are ASTM A53B carbon steel pipe. The end disk is ASTM A516 Grade 70 carbon steel plate. Provided with thermal insulation and painted sheet metal jacket.

**Wiring** — Convenient field wiring terminals are provided for easy installation.

**Controls** — Series 3 and 6 stock and assembly stock heaters come equipped with side mounted thermostat. Series 18 and 27 are furnished without thermostat.

**WARNING — Hazard of Fire.** These devices function as temperature controls only. Because they do not fail-safe, an approved temperature and/or pressure safety control must be used for safe operation. Consult Controls section of this catalog.

#### Specifications and Ordering Information

kW	Volts	Ckt & Phase	Dimensions (In.)			Model	Stock	PCN	Wt. (Lbs.)
			A	B	C				
<b>Series 3 — 3 inch, 150 lb carbon steel vessel — 3 steel elements (23 W/In<sup>2</sup>) with side mounted thermostat — 1" NPT pipe inlet and outlet</b>									
3	240	1-1	32-15/16	22-1/2	16-1/2	NWHO-03-003P-E1	NS	011615	70
3	240	1-3	32-15/16	22-1/2	16-1/2	NWHO-03-003P-E1	NS	011640	70
3	480	1-1	32-15/16	22-1/2	16-1/2	NWHO-03-003P-E1	NS	011674	70
3	480	1-3	32-15/16	22-1/2	16-1/2	NWHO-03-003P-E1	NS	011703	70
4.5	240	1-1	32-15/16	22-1/2	16-1/2	NWHO-03-04P5-E1	NS	011738	70
4.5	240	1-3	32-15/16	22-1/2	16-1/2	NWHO-03-04P5-E1	NS	101151	70
4.5	480	1-1	32-15/16	22-1/2	16-1/2	NWHO-03-04P5-E1	NS	011789	70
4.5	480	1-3	32-15/16	22-1/2	16-1/2	<b>NWHO-03-04P5-E1</b>	<b>S</b>	<b>101178</b>	70
6	240	1-1	42-15/16	32-1/2	26-1/2	NWHO-03-006P-E1	NS	011834	80
6	240	1-3	42-15/16	32-1/2	26-1/2	<b>NWHO-03-006P-E1</b>	<b>S</b>	<b>101274</b>	80
6	480	1-1	42-15/16	32-1/2	26-1/2	NWHO-03-006P-E1	NS	011885	80
6	480	1-3	42-15/16	32-1/2	26-1/2	<b>NWHO-03-006P-E1</b>	<b>S</b>	<b>101280</b>	80
7.5	480	1-1	55-7/16	45	39	NWHO-03-07P5-E1	NS	011930	94
7.5	480	1-3	55-7/16	45	39	NWHO-03-07P5-E1	NS	011965	94
9	240	1-1	55-7/16	45	39	NWHO-03-009P-E1	NS	011990	94
9	240	1-3	55-7/16	45	39	<b>NWHO-03-009P-E1</b>	<b>S</b>	<b>101514</b>	94
9	480	1-1	55-7/16	45	39	NWHO-03-009P-E1	NS	011279	94
9	480	1-3	55-7/16	45	39	<b>NWHO-03-009P-E1</b>	<b>S</b>	<b>101530</b>	94

**Stock Status:** S = stock NS = non-stock  
**To Order**—Specify model, volts, phase, kW, PCN and quantity.

# Circulation

## NWHO & NWHOB

### Light & Medium Weight Oil Applications *(cont'd.)*

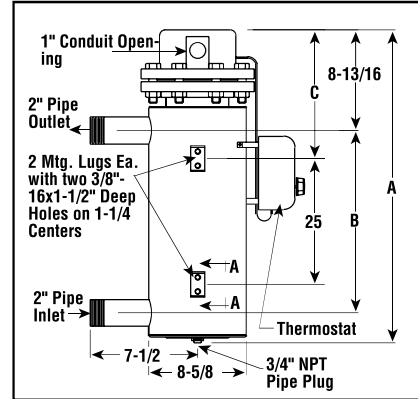
*Specifications and Ordering Information*

kW	Volts	Ckt & Phase	Dimensions (In.)			Model	Stock	PCN	Wt. (Lbs.)
			A	B	C				
<b>Series 06 — 5 inch, 150 lb carbon steel vessel — 6 steel elements (23 W/in<sup>2</sup>) with side mounted thermostat — 2" NPT pipe inlet and outlet</b>									
12	240	1-3	41-3/4	30	11-3/8	NWHO-06-012P-E1	NS	101637	140
12	480	1-3	41-3/4	30	11-3/8	NWHO-06-012P-E1	NS	011560	140
15	240	1-3	48-3/4	37	14-1/8	NWHO-06-015P-E1	S	101750	155
15	480	1-3	48-3/4	37	14-1/8	NWHO-06-015P-E1	S	101776	155
20	240	2-3	60-1/4	48-1/2	20-5/8	NWHO-06-020P-E1	S	101872	176
20	480	1-3	60-1/4	48-1/2	20-5/8	NWHO-06-020P-E1	S	101899	176
25	240	2-3	73-5/8	61-7/8	27-5/16	NWHO-06-025P-E1	NS	011316	212
25	480	1-3	73-5/8	61-7/8	27-5/16	NWHO-06-025P-E1	NS	011367	212
30	240	2-3	86-5/8	74-7/8	33-7/8	NWHO-06-030P-E1	NS	011324	240
30	480	1-3	86-5/8	74-7/8	33-7/8	NWHO-06-030P-E1	S	107537	240
<b>Series 18 — 8 inch, 150 lb carbon steel vessel — 18 steel elements (20 W/in<sup>2</sup>) — 2-1/2" NPT - pipe inlet and outlet</b>									
30	240	3-3	53-1/4	32-11/16	29-3/16	NWHO-18-030P-E1	NS	080194	360
30	480	3-3	53-1/4	32-11/16	29-3/16	NWHO-18-030P-E1	NS	080207	360
40	240	3-3	60-1/4	39-11/16	36-3/16	NWHO-18-040P-E1	NS	080231	436
40	480	3-3	60-1/4	39-11/16	36-3/16	NWHO-18-040P-E1	NS	084005	436
50	240	3-3	67-7/8	47-5/16	43-13/16	NWHO-18-050P-E1	NS	080274	500
50	480	3-3	67-7/8	47-5/16	43-13/16	NWHO-18-050P-E1	NS	080282	500
60	240	3-3	77-3/8	56-13/16	53-5/16	NWHO-18-060P-E1	NS	080311	600
60	480	3-3	77-3/8	56-13/16	53-5/16	NWHO-18-060P-E1	NS	080320	600
70	240	3-3	86-3/8	65-13/16	62-5/16	NWHO-18-070P-E1	NS	080354	660
70	480	3-3	86-3/8	65-13/16	62-5/16	NWHO-18-070P-E1	NS	080362	660
80	240	3-3	96-3/8	75-13/16	72-5/16	NWHO-18-080P-E1	NS	080397	750
80	480	3-3	96-3/8	75-13/16	72-5/16	NWHO-18-080P-E1	NS	080400	750
<b>Series 27 — 10 inch, 150 lb carbon steel vessel — 27 steel elements (20 W/in<sup>2</sup>) — 3" NPT pipe inlet and outlet</b>									
80	240	3-3	77-9/16	52	48-1/2	NWHO-27-080P-E1	NS	095871	720
80	480	3-3	77-9/16	52	48-1/2	NWHO-27-080P-E1	NS	095898	720
90	240	3-3	81-9/16	56	52-1/2	NWHO-27-090P-E1	NS	095919	735
90	480	3-3	81-9/16	56	52-1/2	NWHO-27-090P-E1	NS	095935	735
100	480	3-3	87-9/16	62	58-1/2	NWHO-27-100P-E1	NS	095951	750
120	480	3-3	97-9/16	72	68-1/2	NWHO-27-120P-E1	NS	095994	765

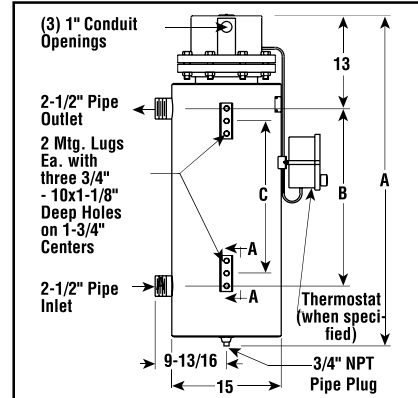
**Stock Status:** S = stock NS = non-stock  
**To Order**—Specify model, volts, phase, kW, PCN and quantity.  
 Note — Refer to the Controls section for control panels.

*Dimensions (Inches)*

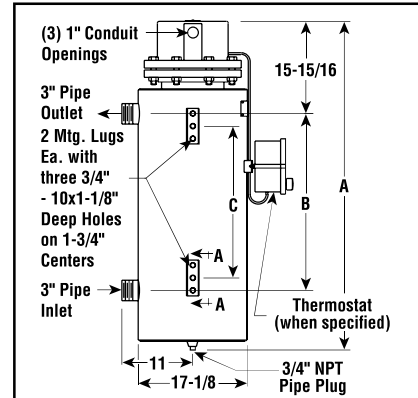
*NWHO-06*



*NWHO-18*



*NWHO-27*



OIL

# Circulation

## NWHO & NWHOB

Light & Medium Weight  
Oil Applications *(cont'd.)*

*Specifications and Ordering Information*

kW	Volts	Ckt & Phase	Dimensions (In.)			Model	Stock	PCN	Wt. (Lbs.)
			A	B	C				
<b>Series 18 - 8 inch, 150 lb carbon steel vessel — 18 baffled steel elements (20 W/In<sup>2</sup>) — 2-1/2" NPT pipe inlet and outlet</b>									
30	240	3-3	53-1/4	32-11/16	29-3/16	NWHOB-18-030P-E1	NS	080215	366
30	480	3-3	53-1/4	32-11/16	29-3/16	NWHOB-18-030P-E1	NS	080223	368
40	240	3-3	60-1/4	39-11/16	36-3/16	NWHOB-18-040P-E1	NS	080256	442
40	480	3-3	60-1/4	39-11/16	36-3/16	NWHOB-18-040P-E1	NS	080266	442
50	240	3-3	67-7/8	47-5/16	43-13/16	NWHOB-18-050P-E1	NS	080290	506
50	480	3-3	67-7/8	47-5/16	43-13/16	NWHOB-18-050P-E1	NS	080303	506
60	240	3-3	77-3/8	56-13/16	53-5/16	NWHOB-18-060P-E1	NS	080338	606
60	480	3-3	77-3/8	56-13/16	53-5/16	NWHOB-18-060P-E1	NS	080346	606
70	240	3-3	86-3/8	65-13/16	62-5/16	NWHOB-18-070P-E1	NS	080370	666
70	480	3-3	86-3/8	65-13/16	62-5/16	NWHOB-18-070P-E1	NS	080389	666
80	240	3-3	96-3/8	75-13/16	72-5/16	NWHOB-18-080P-E1	NS	080418	756
80	480	3-3	96-3/8	75-13/16	72-5/16	NWHOB-18-080P-E1	NS	080426	756
<b>Series 27 - 10 inch, 150 lb carbon steel vessel — 27 baffled steel elements (20 W/In<sup>2</sup>) — 3" NPT pipe inlet and outlet</b>									
80	240	3-3	77-9/16	52	48-1/2	NWHOB-27-080P-E1	NS	095880	726
80	480	3-3	77-9/16	52	48-1/2	NWHOB-27-080P-E1	NS	095900	726
90	240	3-3	81-9/16	56	52-1/2	NWHOB-27-090P-E1	NS	095927	741
90	480	3-3	81-9/16	56	52-1/2	NWHOB-27-090P-E1	NS	095943	741
100	480	3-3	87-9/16	62	58-1/2	NWHOB-27-100P-E1	NS	095960	756
120	480	3-3	97-9/16	72	68-1/2	NWHOB-27-120P-E1	NS	096006	771

**Stock Status:** S = stock NS = non-stock  
**To Order**—Specify model, volts, phase, kW, PCN and quantity.  
**Note** — Refer to the Controls section for control panels.

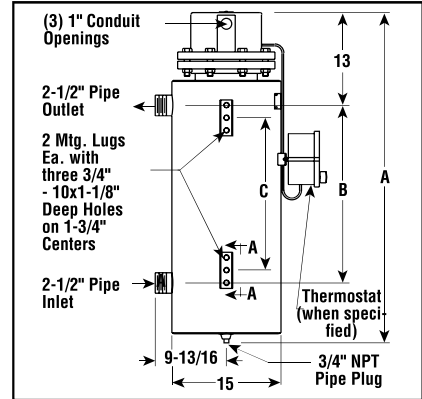
*Ordering Information*

To Order — Complete the Model Number using the Matrix provided.

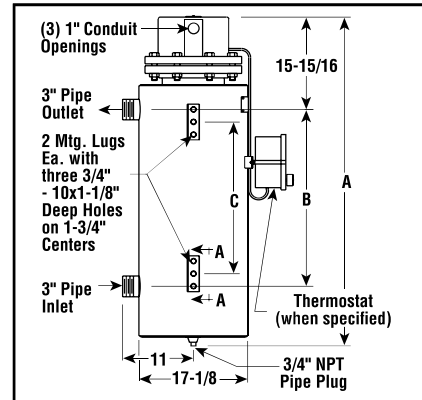
Model	Light and Medium Weight Oil		
<b>NWHO</b> <b>B</b>	Oil Circulation Heater		
	Internal Baffles		
	Code	Number of Elements	
	<b>03</b>	Three	
	<b>06</b>	Six	
	<b>18</b>	Eighteen	
	<b>27</b>	Twenty Seven	
	Code	kW	
	<b>003P</b>	3	<b>015P</b> 15
	<b>04P5</b>	4.5	<b>020P</b> 20
	<b>006P</b>	6	<b>025P</b> 25
	<b>07P5</b>	7.5	<b>030P</b> 30
	<b>009P</b>	9	<b>040P</b> 40
	<b>012P</b>	12	<b>050P</b> 50
			<b>060P</b> 60
			<b>070P</b> 70
			<b>080P</b> 80
			<b>090P</b> 90
			<b>100P</b> 100
			<b>120P</b> 120
	Code	Terminal Enclosure	
	<b>E1</b>	General Purpose	
	<b>E2</b>	Moisture Resistant/Explosion Resistant	
	<b>E4</b>	Moisture Resistant	
<b>NWHOB</b>	<b>18</b>	<b>030P</b>	<b>E1</b>
<b>Typical Model Number</b>			

*Dimensions (Inches)*

*NWHOB-18*



*NWHOB-27*



*NWHOB-AA*

