

## 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.



**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.

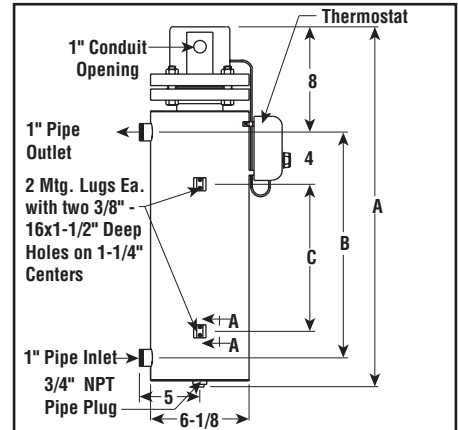
## NWHOR & NWHORB

### Medium, Heavy & Fuel Oil Applications

- 3 - 14" ANSI Blind Flange Design
- 3 - 14" 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 Low Watt Density Elements (12 - 15 W/In<sup>2</sup>)
- With & Without Side Mounted AR Thermostat (60 - 250°F)
- UL, CSA, ATEX and Other Third Party Approval, Listing or Certification Available



### Dimensions (Inches) NWHOR-03



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

### Applications

**Medium and Heavy Weight Oil** — Low watt density reduces the risk of damaging highly viscous fluids. Improve flow ability of fuel 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 - 14" 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 03 and 06 stock and assembly stock heaters come equipped with side mounted thermostat. Series 18, 27 and 45 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 03 — 3 inch 150 lb carbon steel vessel — 3 steel elements (15 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	NWHOR-03-003P-E1	NS	010760	70
3	240	1-3	32-15/16	22-1/2	16-1/2	NWHOR-03-003P-E1	NS	101995	70
3	480	1-1	32-15/16	22-1/2	16-1/2	NWHOR-03-003P-E1	NS	010815	70
3	480	1-3	32-15/16	22-1/2	16-1/2	NWHOR-03-003P-E1	NS	010840	70
4	240	1-1	42-15/16	32-1/2	26-1/2	NWHOR-03-004P-E1	NS	010874	80
4	240	1-3	42-15/16	32-1/2	26-1/2	NWHOR-03-004P-E1	NS	010903	80
4	480	1-1	42-15/16	32-1/2	26-1/2	NWHOR-03-004P-E1	NS	010938	80
4	480	1-3	42-15/16	32-1/2	26-1/2	NWHOR-03-004P-E1	NS	010962	80
6	240	1-1	55-7/16	45	39	NWHOR-03-006P-E1	NS	010997	94
6	240	1-3	55-7/16	45	39	NWHOR-03-006P-E1	NS	102234	94
6	480	1-1	55-7/16	45	39	NWHOR-03-006P-E1	NS	011041	94
6	480	1-3	55-7/16	45	39	<b>NWHOR-03-006P-E1</b>	<b>S</b>	<b>102250</b>	94

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



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## NWHOR & NWHORB

Medium, Heavy &  
Fuel Oil Applications *(cont'd.)*

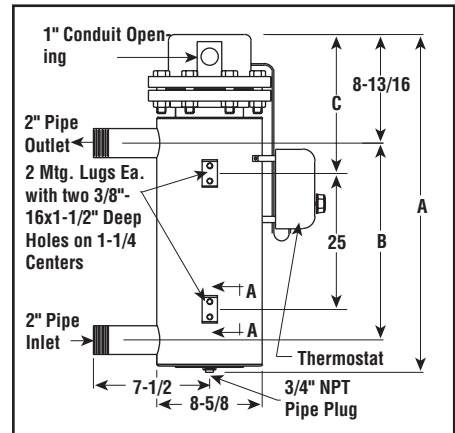
### Specifications and Ordering Information

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 (15 W/In<sup>2</sup>) with side mounted thermostat — 2" NPT pipe inlet and outlet</b>									
8	240	1-3	41-3/4	30	11-3/8	NWHOR-06-008P-E1	NS	102357	140
8	480	1-3	41-3/4	30	11-3/8	NWHOR-06-008P-E1	NS	011172	140
10	240	1-3	48-3/4	37	14-1/8	NWHOR-06-010P-E1	NS	011236	155
10	480	1-3	48-3/4	37	14-1/8	NWHOR-06-010P-E1	NS	102496	155
12	240	1-3	60-1/4	48-1/2	20-5/8	NWHOR-06-012P-E1	NS	014200	176
12	480	1-3	60-1/4	48-1/2	20-5/8	NWHOR-06-012P-E1	NS	011498	176
15	240	1-3	73-5/8	61-7/8	27-5/16	NWHOR-06-015P-E1	NS	090253	212
15	480	1-3	73-5/8	61-7/8	27-5/16	NWHOR-06-015P-E1	NS	107510	212
18	240	1-3	86-5/8	74-7/8	33-7/8	NWHOR-06-018P-E1	NS	011527	240
18	480	1-3	86-5/8	74-7/8	33-7/8	NWHOR-06-018P-E1	NS	107529	240
<b>Series 18 — 8 inch, 150 lb carbon steel vessel — 18 steel elements (12 W/In<sup>2</sup>) — 2-1/2" NPT pipe inlet and outlet</b>									
20	240	3-3	53-1/4	32-11/16	29-3/16	NWHOR-18-020P-E1	NS	080442	450
20	480	3-3	53-1/4	32-11/16	29-3/16	NWHOR-18-020P-E1	NS	080450	450
25	240	3-3	60-1/4	39-11/16	36-3/16	NWHOR-18-025P-E1	NS	080485	500
25	480	3-3	60-1/4	39-11/16	36-3/16	NWHOR-18-025P-E1	NS	080493	500
30	240	3-3	67-7/8	47-5/16	43-13/16	NWHOR-18-030P-E1	NS	080522	565
30	480	3-3	67-7/8	47-5/16	43-13/16	NWHOR-18-030P-E1	NS	080530	565
35	240	3-3	77-3/8	56-13/16	53-5/16	NWHOR-18-035P-E1	NS	080565	650
35	480	3-3	77-3/8	56-13/16	53-5/16	NWHOR-18-035P-E1	NS	080573	650
40	240	3-3	86-3/8	65-13/16	62-5/16	NWHOR-18-040P-E1	NS	080602	725
40	480	3-3	86-3/8	65-13/16	62-5/16	NWHOR-18-040P-E1	NS	080610	725
45	240	3-3	96-3/8	75-13/16	72-5/16	NWHOR-18-045P-E1	NS	080645	815
45	480	3-3	96-3/8	75-13/16	72-5/16	NWHOR-18-045P-E1	NS	080653	815
<b>Series 27 — 10 inch, 150 lb carbon steel vessel — 27 steel elements (12 W/In<sup>2</sup>) — 3" NPT pipe inlet and outlet</b>									
50	240	3-3	77-9/16	52	48-1/2	NWHOR-27-050P-E1	NS	023237	730
50	480	3-3	77-9/16	52	48-1/2	NWHOR-27-050P-E1	NS	023253	730
60	240	3-3	87-9/16	62	58-1/2	NWHOR-27-060P-E1	NS	023270	750
60	480	3-3	87-9/16	62	58-1/2	NWHOR-27-060P-E1	NS	023296	750
70	240	3-3	97-9/16	72	68-1/2	NWHOR-27-070P-E1	NS	023317	770
70	480	3-3	97-9/16	72	68-1/2	NWHOR-27-070P-E1	NS	023333	770
<b>Series 45 — 14 inch, 150 lb carbon steel vessel — 45 steel elements (15 W/In<sup>2</sup>) — 6" flanged pipe inlet and outlet</b>									
90	480	3-3	76	57-3/16	66-11/16	NWHOR-45-090P-E1	NS	011607	830
125	480	3-3	91	72-3/16	81-11/16	NWHOR-45-125P-E1	NS	086094	960
150	480	3-3	106	87-3/16	96-11/16	NWHOR-45-150P-E1	NS	086115	1,080
175	480	3-3	121	102-3/16	111-11/16	NWHOR-45-175P-E1	NS	086131	1,200
200	480	3-3	128-1/2	109-11/16	119-11/16	NWHOR-45-200P-E1	NS	086158	1,320

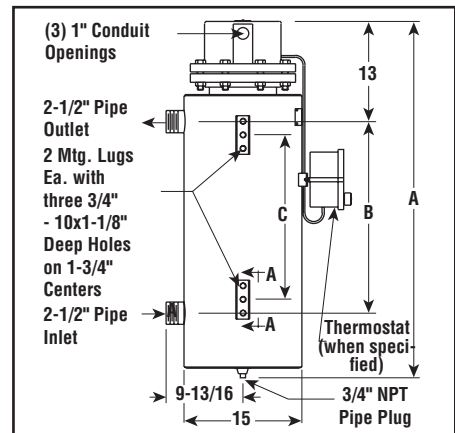
**Stock Status:** S = stock NS = non-stock  
**To Order**—Specify model, volts, phase, kW, PCN and quantity.  
**Note** — Refer to the Controls section control panels.

### Dimensions (Inches)

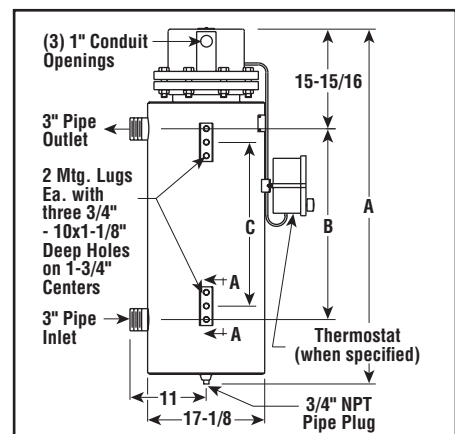
#### NWHO-06



#### NWHOR-18



#### NWHOR-27



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Safe Energy spa  
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## NWHOR & NWHORB

Heavy & Fuel Oil  
Applications (Baffled)

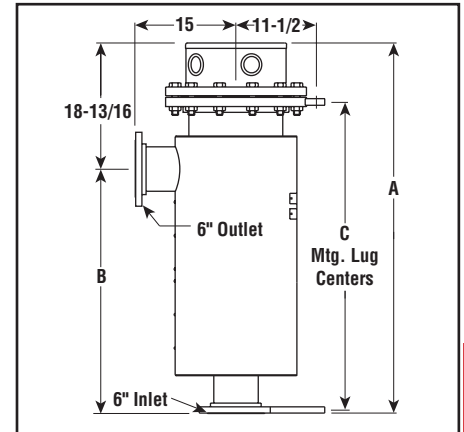
### Specifications and Ordering Information

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 (12 W/in<sup>2</sup>) — 2-1/2" NPT pipe inlet and outlet</b>									
20	240	3-3	53-1/4	32-11/16	29-3/16	NWHORB-18-020P-E1	NS	080469	456
20	480	3-3	53-1/4	32-11/16	29-3/16	NWHORB-18-020P-E1	NS	080477	456
25	240	3-3	60-1/4	39-11/16	36-3/16	NWHORB-18-025P-E1	NS	080506	506
25	480	3-3	60-1/4	39-11/16	36-3/16	<b>NWHORB-18-025P-E1</b>	<b>S</b>	<b>082000</b>	506
30	240	3-3	67-7/8	47-5/16	43-13/16	NWHORB-18-030P-E1	NS	080549	571
30	480	3-3	67-7/8	47-5/16	43-13/16	NWHORB-18-030P-E1	NS	080557	571
35	240	3-3	77-3/8	56-13/16	53-5/16	NWHORB-18-035P-E1	NS	080581	656
35	480	3-3	77-3/8	56-13/16	53-5/16	NWHORB-18-035P-E1	NS	080590	656
40	240	3-3	86-3/8	65-13/16	62-5/16	NWHORB-18-040P-E1	NS	080629	731
40	480	3-3	86-3/8	65-13/16	62-5/16	NWHORB-18-040P-E1	NS	080637	731
45	240	3-3	96-3/8	75-13/16	72-5/16	NWHORB-18-045P-E1	NS	080661	821
45	480	3-3	96-3/8	75-13/16	72-5/16	<b>NWHORB-18-045P-E1</b>	<b>S</b>	<b>084507</b>	821
<b>Series 27 — 10 inch, 150 lb carbon steel vessel — 27 baffled steel elements (12 W/in<sup>2</sup>) — 3" NPT pipe inlet and outlet</b>									
50	240	3-3	77-9/16	52	48-1/2	NWHORB-27-050P-E1	NS	023245	736
50	480	3-3	77-9/16	52	48-1/2	NWHORB-27-050P-E1	NS	023261	736
60	240	3-3	87-9/16	62	58-1/2	NWHORB-27-060P-E1	NS	023288	756
60	480	3-3	87-9/16	62	58-1/2	NWHORB-27-060P-E1	NS	023309	756
70	240	3-3	97-9/16	72	68-1/2	NWHORB-27-070P-E1	NS	023325	776
70	480	3-3	97-9/16	72	68-1/2	NWHORB-27-070P-E1	NS	023341	776

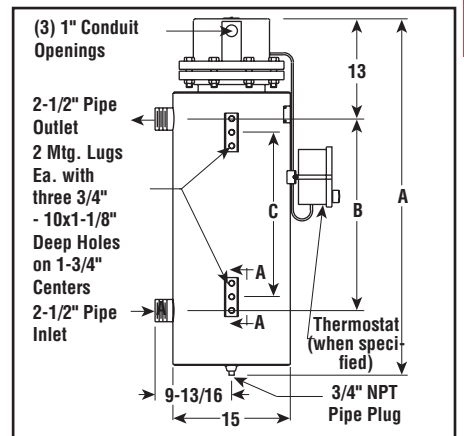
**Stock Status:** S = stock NS = non-stock  
To Order — Specify model, volts, phase, kW, PCN and quantity.

**Note** — Refer to the Controls section for control panels.

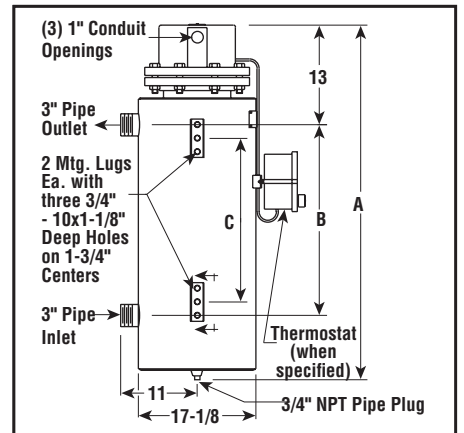
### Dimensions (Inches) NWHOR-45



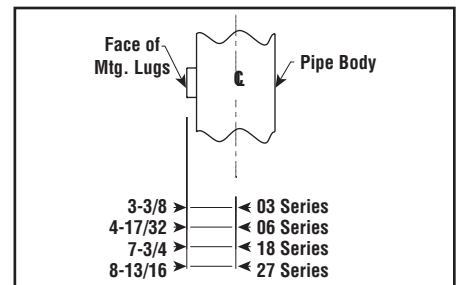
### NWHORB-18



### NWHORB-27



### NWHOR-AA



### Ordering Information

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

Model	Medium, Heavy and Fuel Oil				
NWHO	Oil Circulation Heater				
R	Low Watt Density Elements				
B	Internal Baffles				
Code	Number of Elements				
03	Three	27	Twenty Seven		
06	Six	45	Forty Five		
18	Eighteen				
Code	kW				
003P	3	020P	20	060P	60
004P	4	025P	25	070P	70
006P	6	030P	30	090P	90
008P	8	035P	35	125P	125
010P	10	040P	40	150P	150
012P	12	045P	45	175P	175
015P	15	050P	50	200P	200
018P	18				
Code	Terminal Enclosure				
E1	General Purpose				
E2	Moisture Resistant/Explosion Resistant				
E4	Moisture Resistant				
NWHORB 18	030P	E1	Typical Model Number		