

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/In²)
- 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/In²) 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/In²) — 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

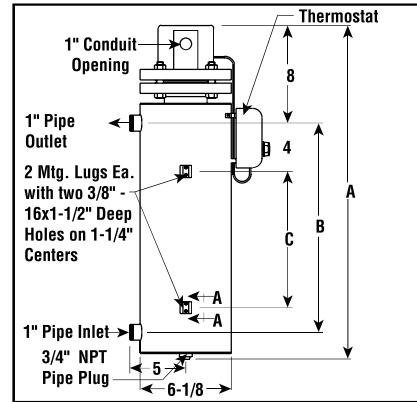
NWHOR & NWHORB

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/in²)
- 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.

OIL

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				
Series 03 — 3 inch 150 lb carbon steel vessel — 3 steel elements (15 W/in²) with side mounted thermostat — 1" NPT pipe inlet and outlet									
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	NWHOR-03-006P-E1	S	102250	94

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

Circulation

NWHOR & NWHORB

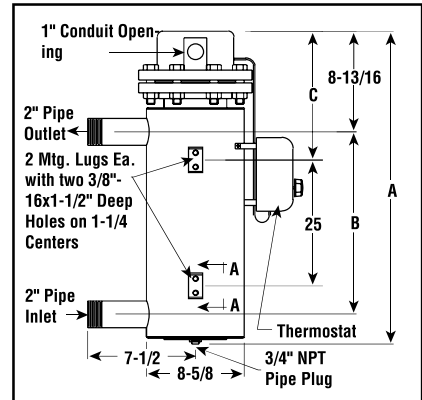
Medium, Heavy & Fuel Oil Applications *(cont'd.)*

Specifications and Ordering Information

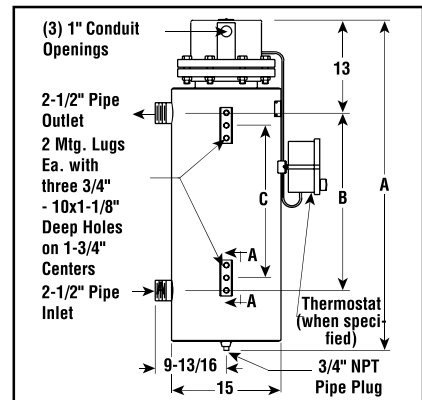
kW	Volts	Ckt & Phase	Dimensions (In.)			Model	Stock	PCN	Wt. (Lbs.)
			A	B	C				
Series 06 — 5 inch, 150 lb carbon steel vessel — 6 steel elements (15 W/in²) with side mounted thermostat — 2" NPT pipe inlet and outlet									
8	240	1-3	41-3/4	30	11-3/8	NWHOR-06-008P-E1	NS	102357	140
8	480	1-3	41-3/4	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
Series 18 — 8 inch, 150 lb carbon steel vessel — 18 steel elements (12 W/in²) — 2-1/2" NPT pipe inlet and outlet									
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
Series 27 — 10 inch, 150 lb carbon steel vessel — 27 steel elements (12 W/in²) — 3" NPT pipe inlet and outlet									
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
Series 45 — 14 inch, 150 lb carbon steel vessel — 45 steel elements (15 W/in²) — 6" flanged pipe inlet and outlet									
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
<p>Stock Status: S = stock NS = non-stock To Order—Specify model, volts, phase, kW, PCN and quantity.</p> <p>Note — Refer to the Controls section control panels.</p>									

Dimensions (Inches)

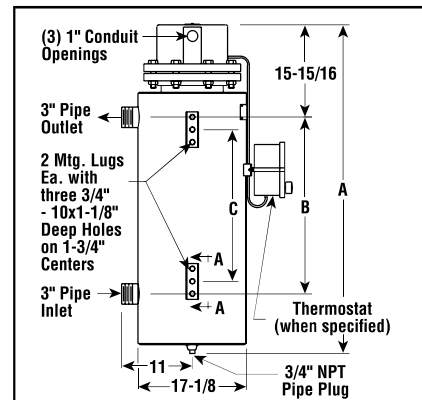
NWHO-06



NWHOR-18



NWHOR-27



Circulation

NWHOR & NWHORB

Heavy & Fuel Oil
Applications (*Baffled*)

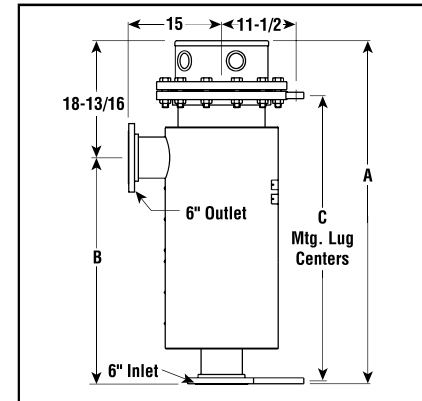
Specifications and Ordering Information

kW	Volts	Ckt & Phase	Dimensions (In.)			Model	Stock	PCN	Wt. (Lbs.)
			A	B	C				
Series 18 — 8 inch 150 lb carbon steel vessel — 18 baffled steel elements (12 W/in²) — 2-1/2" NPT pipe inlet and outlet									
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	NWHORB-18-025P-E1	S	082000	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	NWHORB-18-045P-E1	S	084507	821
Series 27 — 10 inch, 150 lb carbon steel vessel — 27 baffled steel elements (12 W/in²) — 3" NPT pipe inlet and outlet									
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

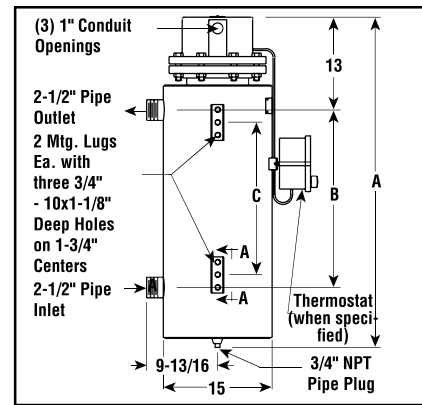
Stock Status: S = stock NS = non-stock
To Order — Specify model, volts, phase, kW, PCN and quantity.

Note — Refer to the Controls section for control panels.

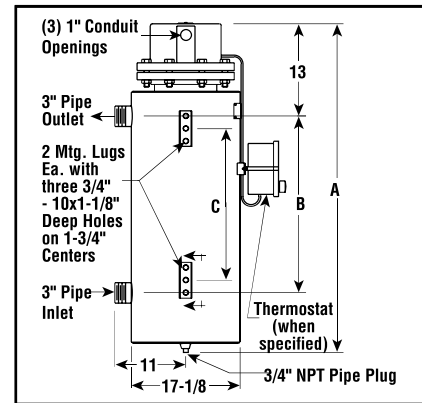
Dimensions (Inches)
NWHOR-45



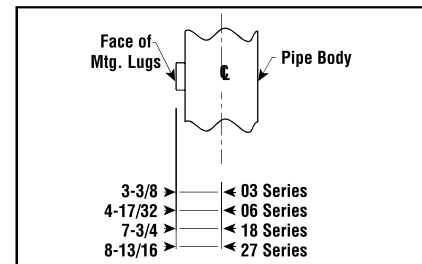
NWHORB-18



NWHORB-27



NWHOR-AA



OIL

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
06	Six
18	Eighteen
Code	kW
003P	3
004P	4
006P	6
008P	8
010P	10
012P	12
015P	15
018P	18
Code	Terminal Enclosure
E1	General Purpose
E2	Moisture Resistant/Explosion Resistant
E4	Moisture Resistant
NWHORB 18	030P E1
Typical Model Number	